

MAPS OF MONTHLY MEAN SURFACE TEMPERATURE
ANOMALIES OVER THE NORTHERN HEMISPHERE

FOR 1891—1981

BY

FORECAST RESEARCH DIVISION, MRI

気象研究所技術報告

第17号

北半球地上月平均気温偏差図

予 報 研 究 部

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序

この報告は、気象研究所の経常研究「火山爆発の気候に及ぼす影響に関する研究」（昭和 57～60 年度）において、担当研究者が研究遂行上必要な資料として整備し使用した約 90 年間に亘る月平均地上気温資料をまとめたものである。担当研究者による最近のメキシコ、エルチチヨン火山爆発を例とした気温への影響の研究成果は、気象研究所研究報告に論文（藤田，36 巻 2 号，1985）として掲載されており、気象学会においてもその他の火山爆発について発表（1985 秋季大会，他）が行われている。

近年、気候問題はその影響の大きさから社会の各方面の関心を集め、また、学問的にも研究推進の必要性が認識されている。世界気象機関（WMO）でもこの問題を重要視し、国際学術連合会議（ICSU）との協同において、現在、気候変動国際協同研究計画（WCRP）の推進が図られている。気象庁では早くから、この問題の重要性を認めて気象庁気候研究基本計画の策定、気候変動対策室の設置などで、これらの事態に対応してきている。気候問題においては幾つかの重要な課題がある。大気の長期変動の機構を解明し、1ヶ月程度の力学的長期予報の実用化を目標とする予測の問題は、業務面からみた社会への寄与の大きさと学問的意義の深さから、今後強力に推進されねばならない。また、世界各地で発生する異常天候は大気大循環の変動と密接に関係しており、その実態把握は気候研究を進める基礎となるものである。大気の長期変動を起す大気内部の物理的要因の究明については今後共研究を進める必要がある。大気外に原因があり、その予測の困難なもの1つに火山爆発がある。大気中に噴出した火山性エアロゾルが、大気大循環に従って全球に拡がり、世界各地の気候に及ぼす影響については、まだ十分に解明されていない。本研究担当者は精力的に過去の事例について資料を収集し解析を行ない、火山噴出物による気候への影響、特に異常気温分布について示唆に富む知見を得ている。気象観測網が全球規模に亘り展開され、気候問題にその資料が有効に利用できるようになってから日が浅い。そのため過去の歴史的火山爆発を含め、噴火に起因する気温偏差の空間分布を正しく評価し一般的な結論を下すことは容易ではない。このことが逆に気候変動、異常天候などの問題を扱う場合、その基になる気象要素の永年に亘るデータ蓄積の必要性和不満足な現状とを痛感させる結果となっている。

過去に、気象庁技術報告として気圧分布に関する資料は幾つか刊行されている。気温偏差についての刊行物は比較的少ない。本報告は、1891 年 1 月から 1981 年 12 月までの 91 年に及ぶ期間について統一的立場から解析処理された格子点上の北半球地上月平均気温偏差資料を、等偏差線でステレオ投影図上に表現したものである。長期予報等への利用を考慮して、現行の資料と同様に 30 年平均値を平年値とする偏差に直してある。本資料が今後の気象業務の中で、特に長期予報、気候変動関

連の分野において、参考資料として広く活用されることを期待するものである。

本報告は、担当研究者が前記研究を行う上で多大の努力を払って整備したもので、資料整備に協力し、また、研究推進において有益な討論、助言を与えて激励した当研究部の諸氏の賜物である。

昭和 61 年 1 月

気象研究所 予報研究部長

相 原 正 彦

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概 要

わが国には、北半球月平均地上気温偏差図またはそれに類する図は三種類あるが、いずれもデータ期間が短かく、そのうちの一つは 500 mb-1000 mb 層厚図である。われわれは 1984 年にアメリカ合衆国の国立大気研究センター (NCAR) から 91 年 (1891-1980) におよぶ月平均地上気温偏差のデータを購入した。このデータはもともとソ連で作られたもので、経験を積んだ気候学者が、観測所の位置、記録の中断、データの誤りなどを考慮して作製したものである。データは北半球を緯度 5 度毎、経度 10 度毎の格子点で与えられている。このデータは色々な期間についての平年値を用いて偏差を求めたものであったので、Allen Robock 博士が 1982 年に平年値の統計期間を 1881 年～1975 年に統一して新たに偏差を計算しなおした。われわれはこの新しい偏差値を使って偏差図を作った。その際、長年の平年偏差では長周期の気候変動の影響をうけて偏差図が見にくくなるので、WMO の勧告にもあり、日本でも使用している 30 年平均値からの偏差に直して新たに偏差を求めた。偏差図の陰影部分は負偏差領域を示している。等偏差線は冬季 (10 月～3 月) は 2℃ 毎に、夏季 (4 月～9 月) は 1℃ 毎に描かれている。

緯度 30° 毎 (ただし低緯度は 15°N～30°N) の各緯度帯および 15°N 以北の北半球で平均された季節平均気温偏差の時系列が最後の図に示されている。読者はこれらの図から気候変動の様子を読みとることができるであろう。

月平均地上気温のデータはこの外にも色々あるが、いずれも一長一短あり、長期間の北半球の格子点データとしてはソ連のものが優れている。これらの偏差図は日本における長期予報や気候変動対策業務に有効な資料となるものと思われる。

オリジナル・テープは気象研究所の企画室で保存している。最後にこの偏差図を発刊するに当り心よく許可を与えて呉れた Allen Robock 博士に感謝の意を表する。

Abstract

Maps of Monthly Mean Surface Temperature Anomalies over the Northern Hemisphere for 1891-1981*

In Japan, we have three kinds of map for the monthly mean surface temperature anomalies over the Northern Hemisphere.

However, they were made from different data periods which are relatively short and one of which is a 500mb-1000mb thickness height anomaly.

We obtained from NCAR (U. S. A.) in 1984 a data set of a monthly mean surface temperature extending over 91 years (1891-1981).

This data set was first produced by experienced Soviet climatologists with great care in the analysis of the maps. In this they took into considerations of station locations, breaks in the record, and errors in the data. The data set covers the Northern Hemisphere on a $5^{\circ} \times 10^{\circ}$ latitude-longitude grid.

The following numbers of stations were used when the maps were constructed.

At 1881, 246 stations

At 1913, 753 stations

At 1940, 976 stations

At 1981, 2000 stations.

The original data set by the Soviet group was calculated with the use of different Normal values which were constructed from various data periods.

Allen Robock (1982) transformed them into the anomalies from the Normal for the period from 1881 to 1975. We made the anomaly maps using this data set.

The isotherm lines were drawn by making use of the calculation program by O. Chiba in this maps. We aim at taking quick look of the temperature anomaly maps. Since the anomalies from the long-term Normal are hard to see on account of long-term climatic change, we newly calculated anomalies from the 30-years Normals which are recommended by WMO

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and are used in the Japan Meteorological Agency.

Shadow parts in the maps show negative anomalies. Isotherms are drawn at intervals of 2°C in the cold season (Oct.-March) and by 1°C in warm season (April-September).

Seasonal mean surface temperature anomalies in every 30° latitude belt and in the Northern hemisphere north of 15°N were shown in the last figures for the four seasons.

Beside this, monthly surface temperature anomaly data sets are prepared by some research groups in the world, but they have both merits and demerits. And there are a few hemispheric grid data set for a long terms. In this respect, the Russian data set is superior.

These maps will be useful in the routine works of the long range weather forecasting and of taking against climatic change in the Japan Meteorological Agency.

Further an original magnetic tape of the data set are kept in the Office of Planning of the MRI.

Lastly, the authors wish to express their thanks to Dr. Allen Robock for his permission to publish these maps.

北半球地上月平均気温偏差図*

1. はじめに

今日までに日本で刊行された北半球地上月平均気温偏差図またはそれに類するものは三種類しかない。一つは1963年に日本気象協会（1963）から発行されたもので、1921年1月から1950年12月の30年間の毎月の偏差図が含まれている。この偏差図はWorld Weather Records（1944, 1947, 1959）、中国気温資料（1954）および累年気候表（1954）から北半球の170地点を選んで作られたもので、大規模な地上気温の大勢を把握するために作られたものである。

第二は北半球月平均500 mb～1000 mb 層厚図で、気象庁長期予報課から1976年4月から現在まで毎月の季節予報資料に掲載されている。第三番目は1985年1月以降、南北両半球を含むメルカトル図上に月平均地上気温偏差図が掲載されるようになった。

これらの資料は全国気象官署の長期予報や気候変動対策業務などに活用されている。しかし、資料の期間や種類がまちまちで必ずしも使い易いものではない。また、わが国には1920年以前の偏差図は全くない状態である。

気象研究所では1984年にアメリカ合衆国の国立大気研究センター（NCAR）から、北半球（0°～90°）の地上月平均気温のデータ・セットを購入した。この資料は1891年1月から1981年12月の91年間にわたっており、緯度5度毎、経度10度毎のグリッド・データである。

2. データ・ソースと性質

このデータ・セットはもともとは、ソ連のVinnikov（1980）らの経験の豊かな気候学者が、観測所の位置、記録の中断やデータの誤りなどを注意深く考慮して、手描きで作った北半球気温偏差図から読みとったものである。データ数は次のとおりである。

1881年当時	246	観測所
1913	753	〃
1940	976	〃
1981	2000	〃

ただし、1960年以後のデータはWorld Wide Synoptic Network から real time で作ったもので、

* 藤田敏夫・本多庸浩：予報研究部

充分に解析されていないので、それ以前のデータと同質とは言えない面があるという。それにも拘らず、最近の陸上のデータはとくにすぐれているが、海上のデータは疑問視されている。今後、海上の一般船舶による観測値の集成によって、盲点になっている海上の気温がある程度推算されるようになることが期待される。

ソ連のグループのデータは、もとはいろいろな期間の異なる平年値について計算されていた。(表 1) それを A. Robock (1982) が 1881~1975 年の平年値に対する偏差に修正した。ここではこの修正された偏差値を用いた。

表 1

偏差期間	平年値の期間
1881-1940 および 1961-1969	1881-1935 1881-1940
1941-1960	1881-1960
1970-1980	1931-1960

3. 偏差図と季節平均気温の緯度帯平均系列

ここに示した偏差図は、各月毎に緯度・経度 5 度毎のグリッド偏差値を作った上、千葉長氏らが作ったプログラムによって等偏差線を描いたものである。

平年値について

偏差値は 1881 年~1975 年という長い期間の平年値を用いているため、偏差図にすると、長周期の気候変動のために、1891~1920 年頃の大半の期間が負偏差となって、極めて見にくいので、改めて WMO などで勧告され、気象庁で採用している 30 年平均値を求めて平年値とした。方法は該当する 10 年間の偏差値が 30 年の期間の中央になるように 30 年平均値を計算し直した。ただし 1891~1900 年と 1971~1981 年の期間は、それぞれ前後の 10 年間と同じ平年値を用いてある。

等偏差線について

図中陰影部分は負偏差領域を示している。等偏差線は、10 月から翌年 3 月までは 2°C 毎、4 月から 9 月の間は 1°C 毎に描かれている。したがって 4 月と 11 月に若干不連続がみられるのはこのためである。

季節平均気温の緯度帯平均系列について

前述のように偏差図には長周期の気候変動は含まれていないので、1891 年から 1981 年まで北半球季節平均気温偏差を求めた。春季は 3 月~5 月、夏季は 6 月~8 月、秋季は 9 月~11 月、冬季は 12 月~2 月とした。これらの平均気温偏差から、データの密度を考慮して、15°N~30°N、30°N~60°N、60°N~90°N の各緯度帯について帯状平均した気温偏差の時系列を作った。これらの帯状平均には緯度による面積の補正は行わなかった。また、これらの緯度帯平均値にそれぞれの面積比率の重みをつけて 15°N~90°N の北半球の平均気温系列も作り、示した。これらの図は、長周期変動をみるためにいずれも 5 年移動平均を施してある。平年値は 1881~1975 年の平均値を用いた。

4. おわりに

北半球における月平均地上気温のデータ・セットは、ここで用いたソ連のグループのものをはじめ、イギリスの East Angria 大学の気候研究組織の Jones ら (1982) のものもあるが、これは観測点のウェイトが大陸上に大きくなっているといわれている。また、京都大学の気候変動実験施設の山元ら (1979) で作られたものも、矢張り、海上の偏差を 0 とおいてあって帯状平均を過少評価しているといわれる。この他にも沢山あるが、多くは季節平均値、年平均値、5 年平均値などが多く月平均値のグリッド・データとしてはここに示したソ連のグループのデータがすぐれているといわれている。

これらの図が、日本における長期予報および気候変動対策など各方面の業務に少しでも役立てば幸いである。なお、オリジナルのテープは気象研究所企画室で保管している。

謝 辞

この資料を刊行するに当り、原稿を閲読していただいた相原正彦予報研究部長はじめ有益な助言を与えてくれた同僚諸氏に感謝します。また、コンピューターによる作図にプログラムを提供していただいた、千葉長氏と出力作業を手伝っていただいた仲野谷浩子さんに謝意を表します。最後に、本偏差図の発行に対し心よく許可して下さった Allen Robock 博士の好意に感謝します。

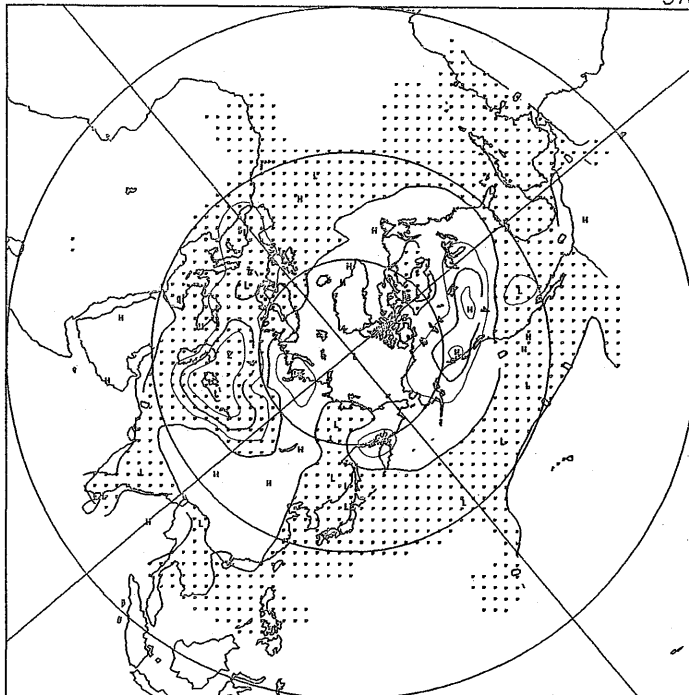
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北半球地上月平均気温 偏差図

1891

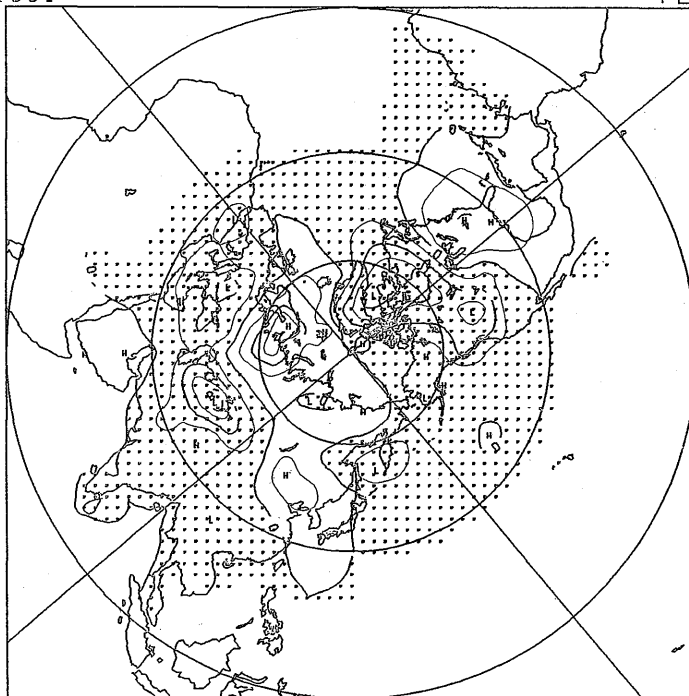
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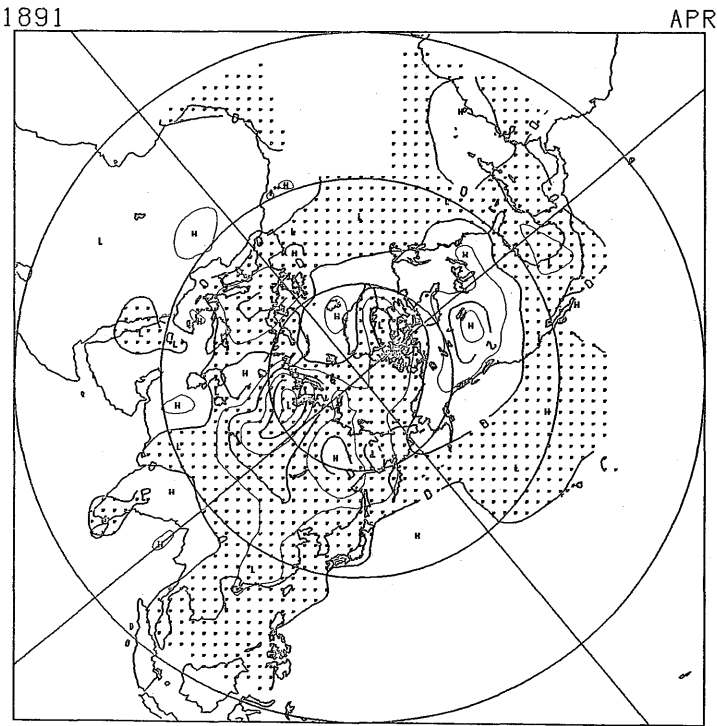
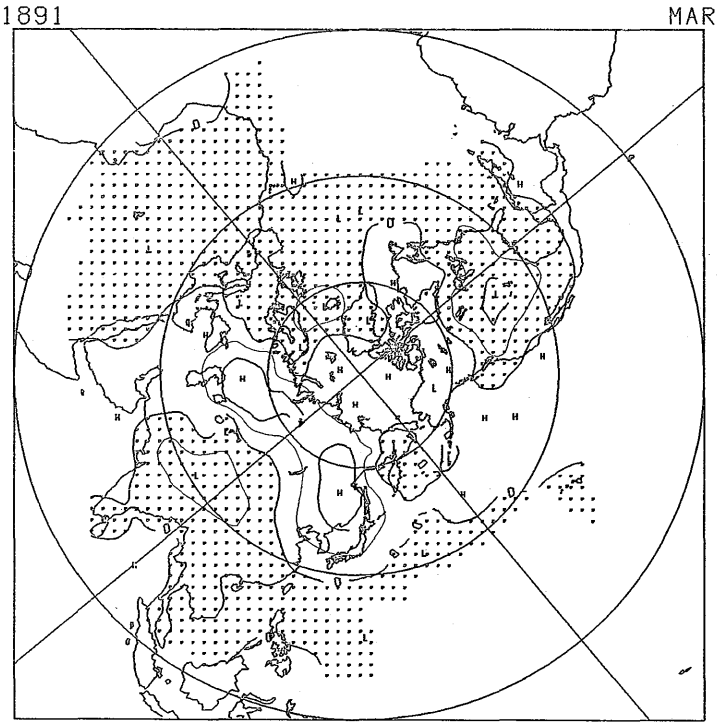


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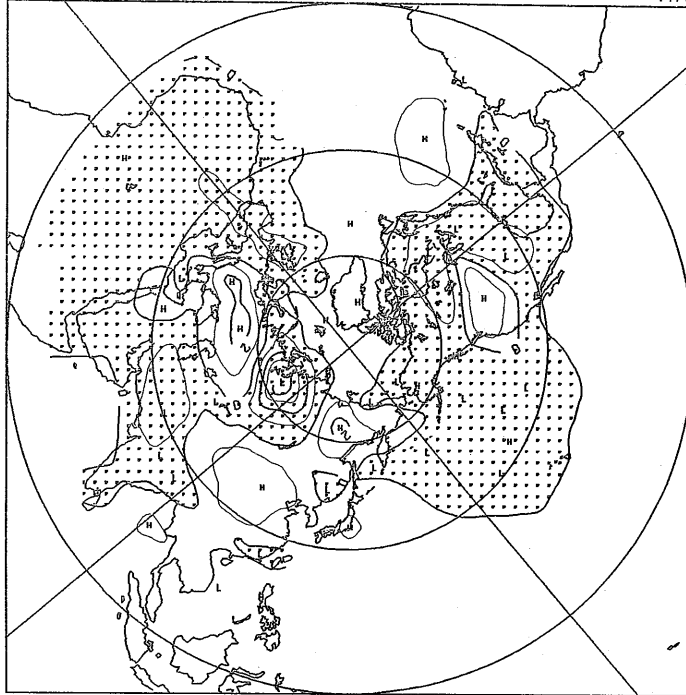
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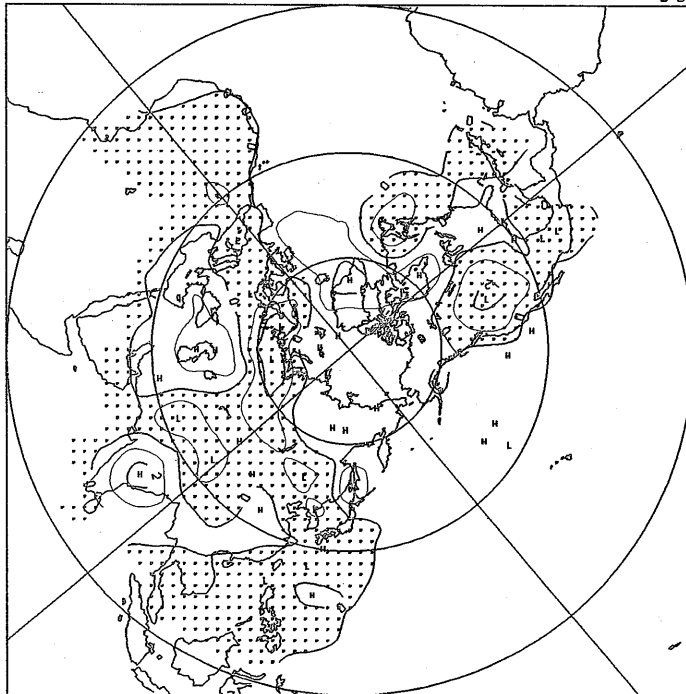
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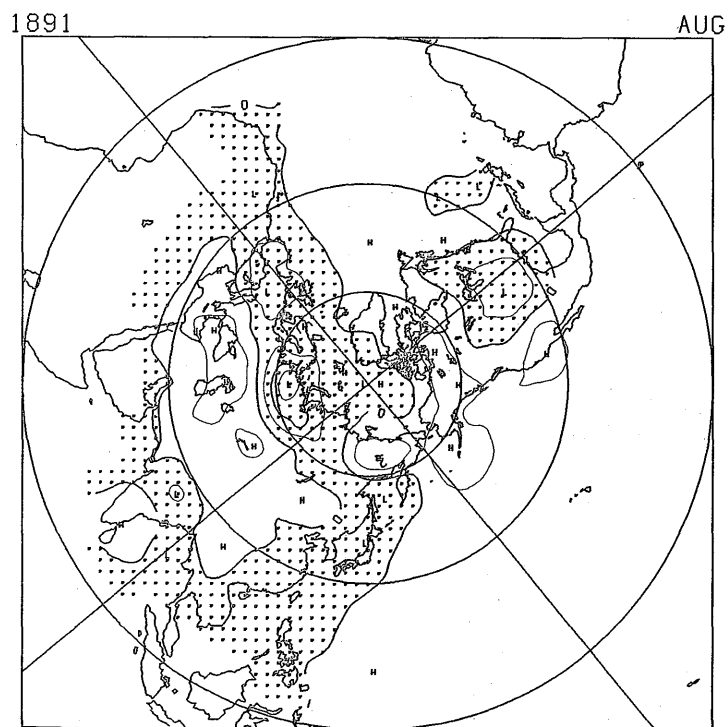
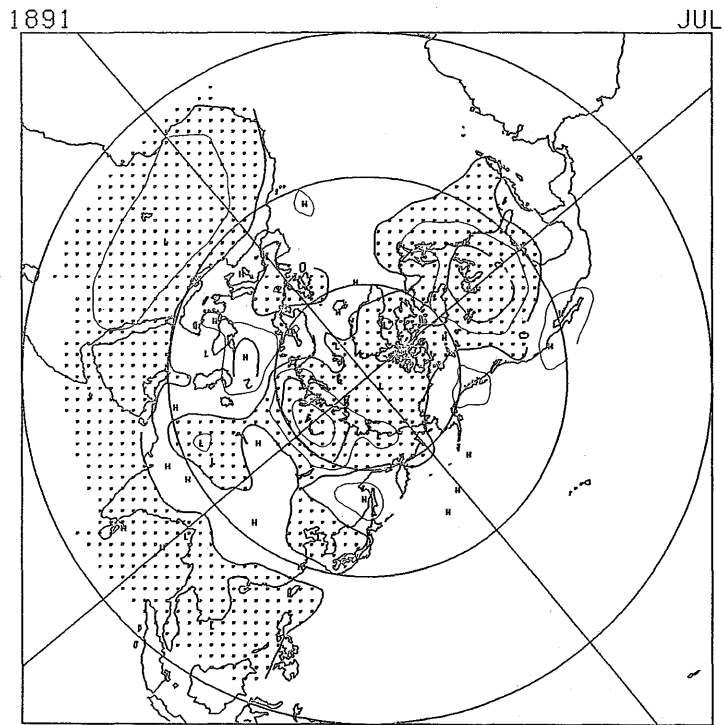
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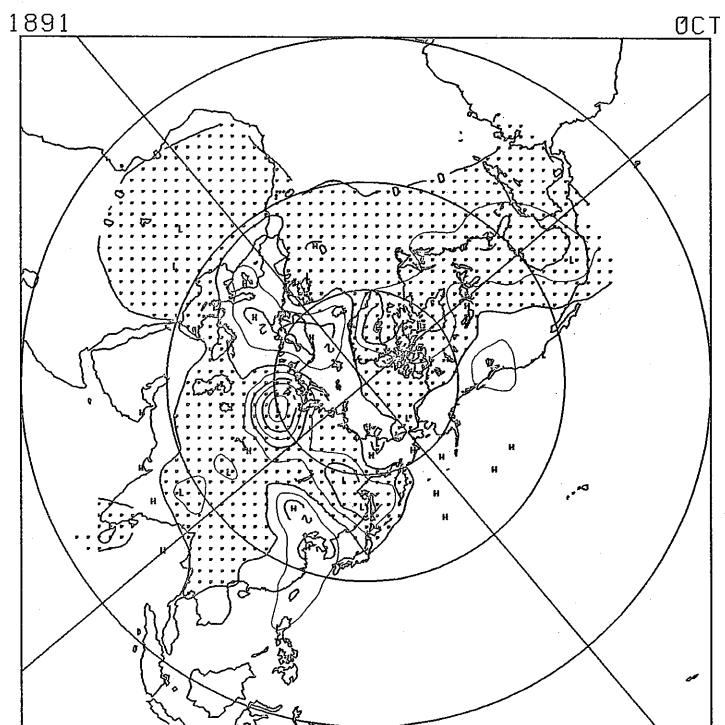
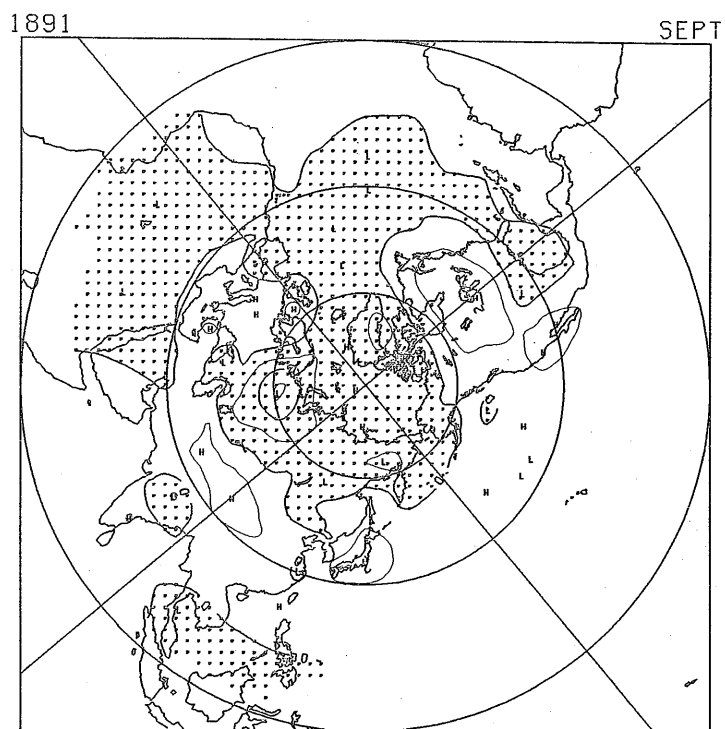


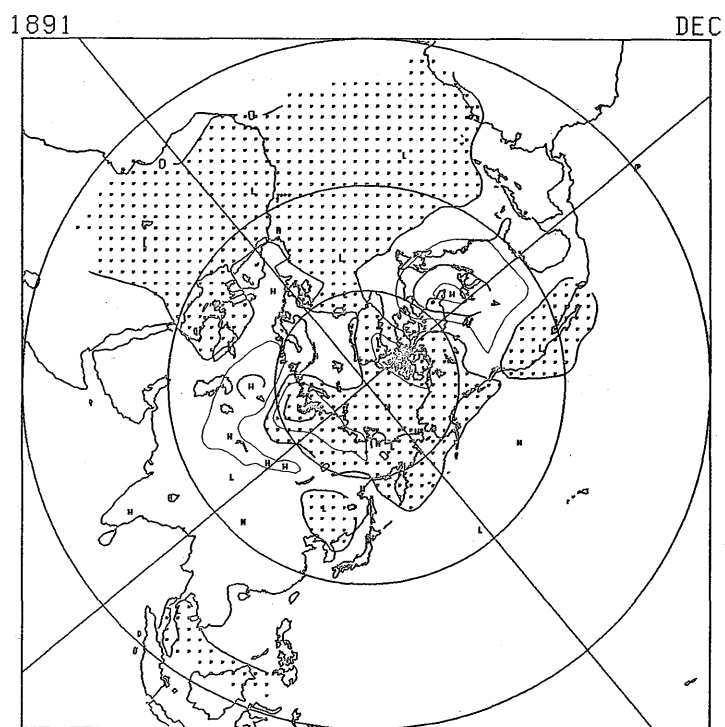
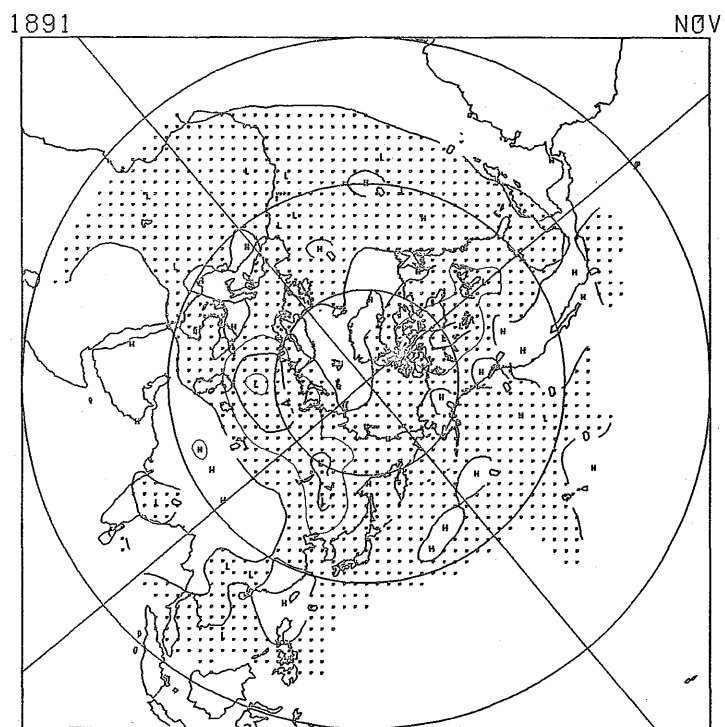
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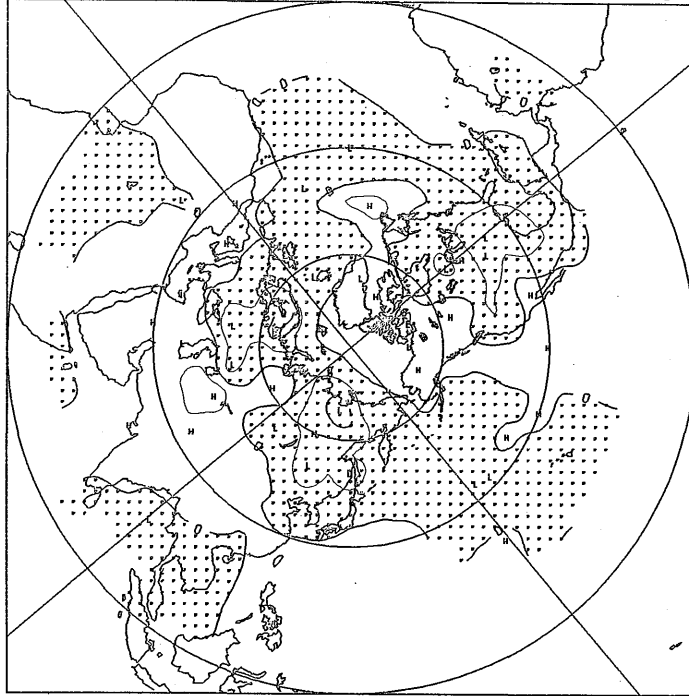






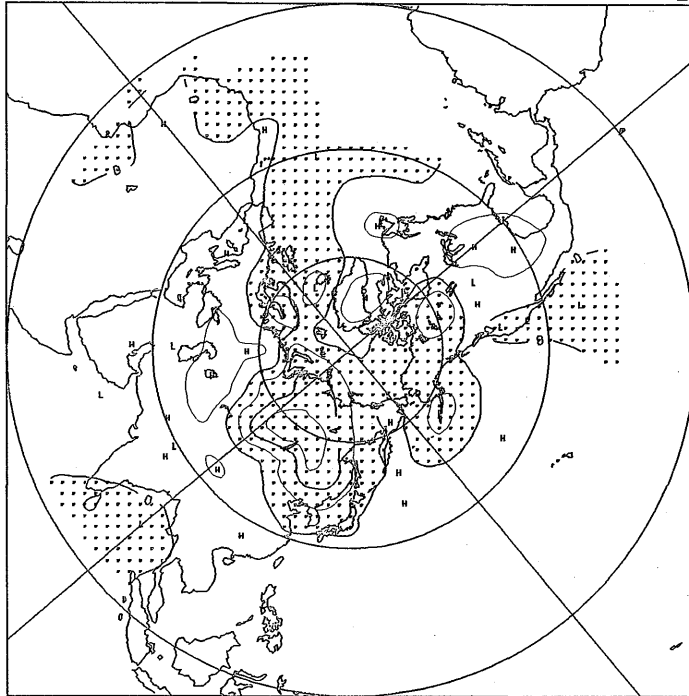
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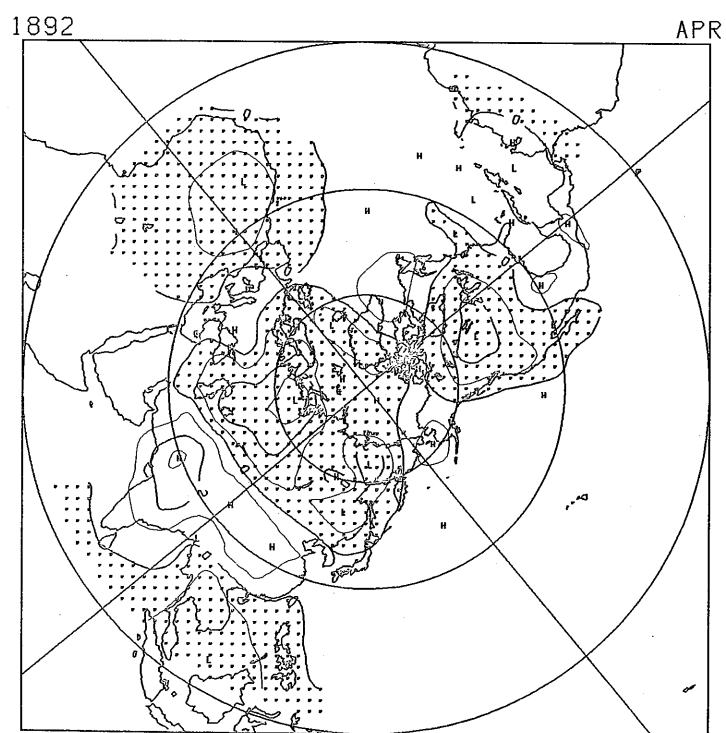
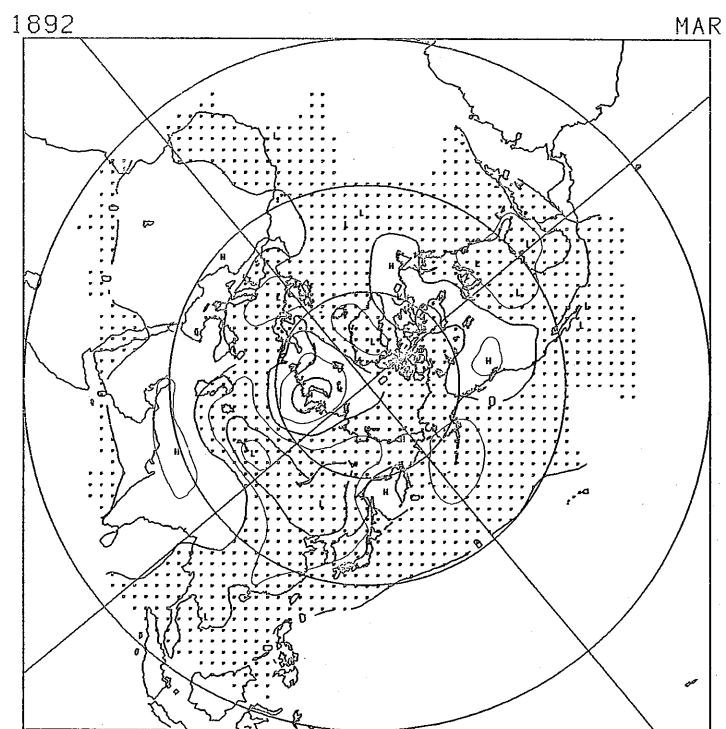
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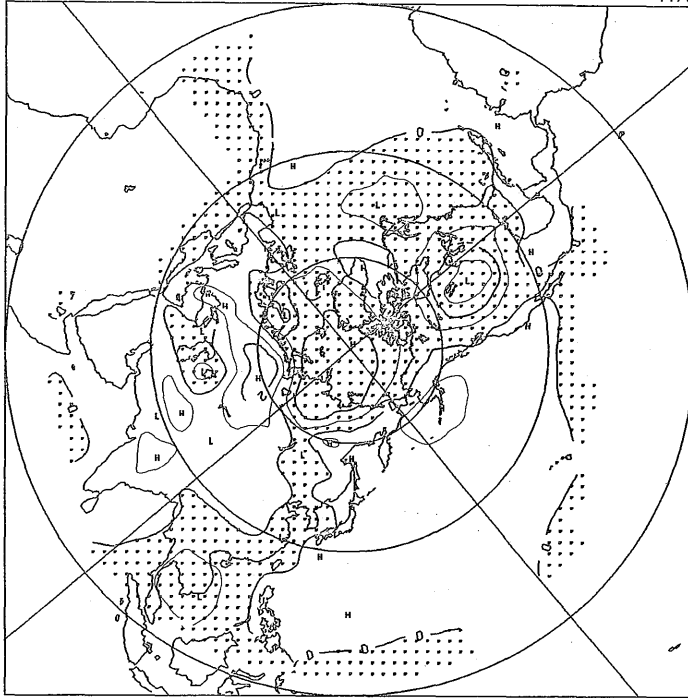
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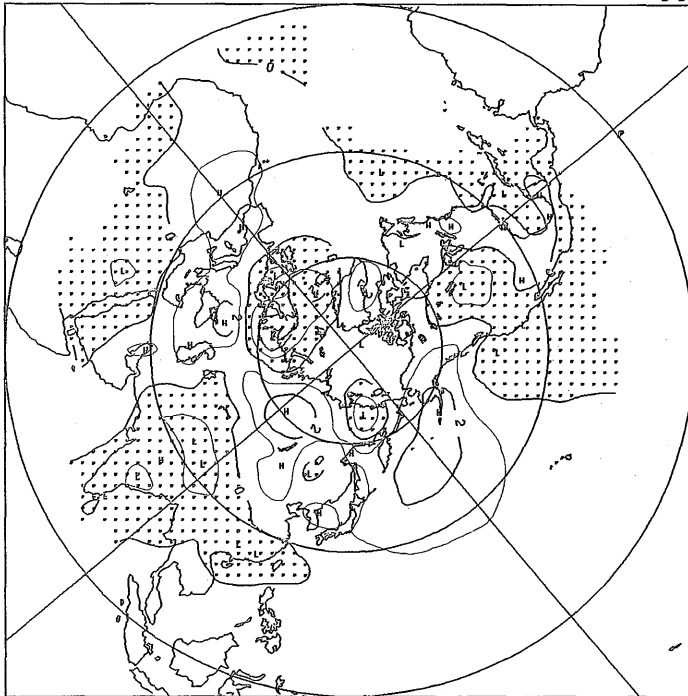
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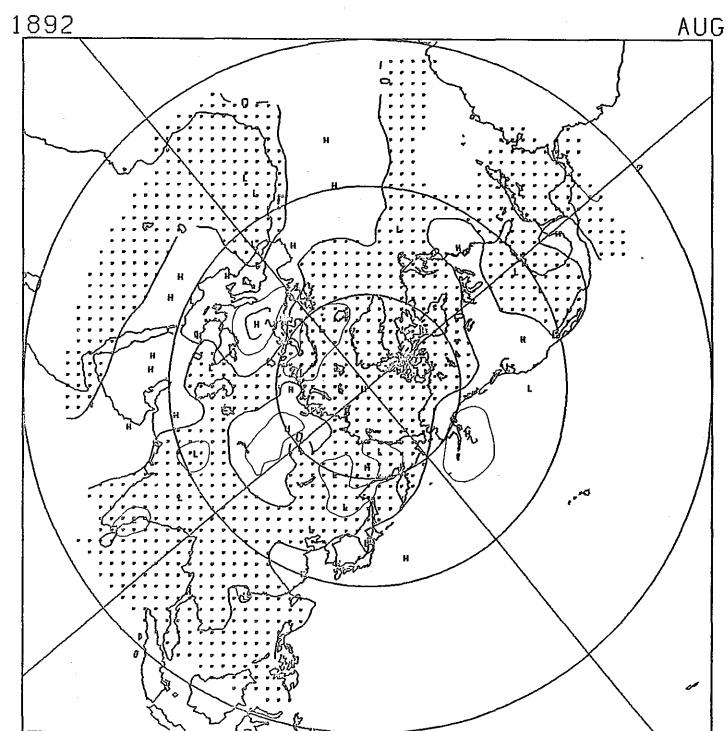
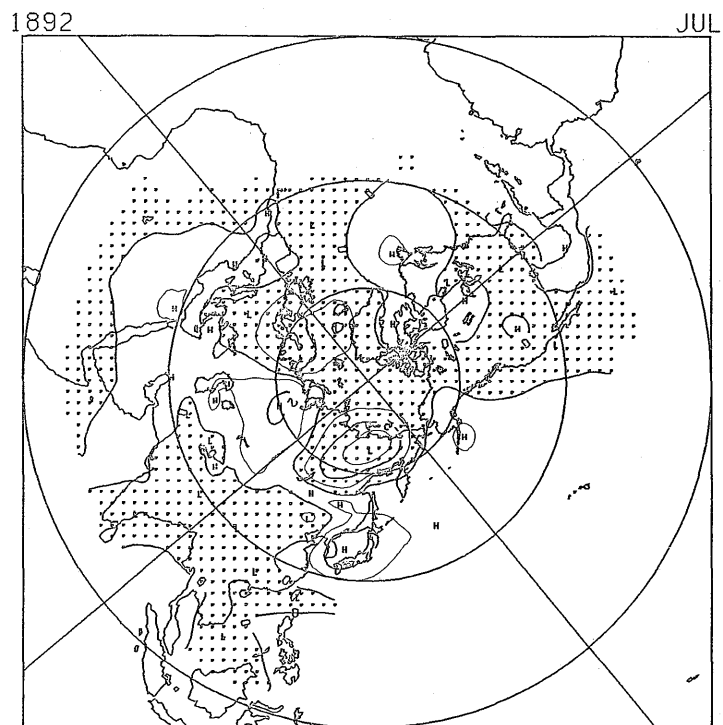
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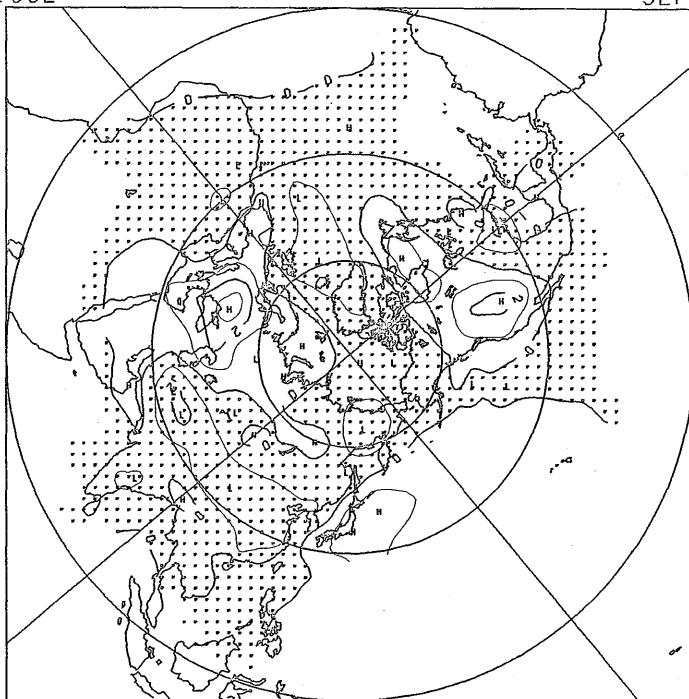
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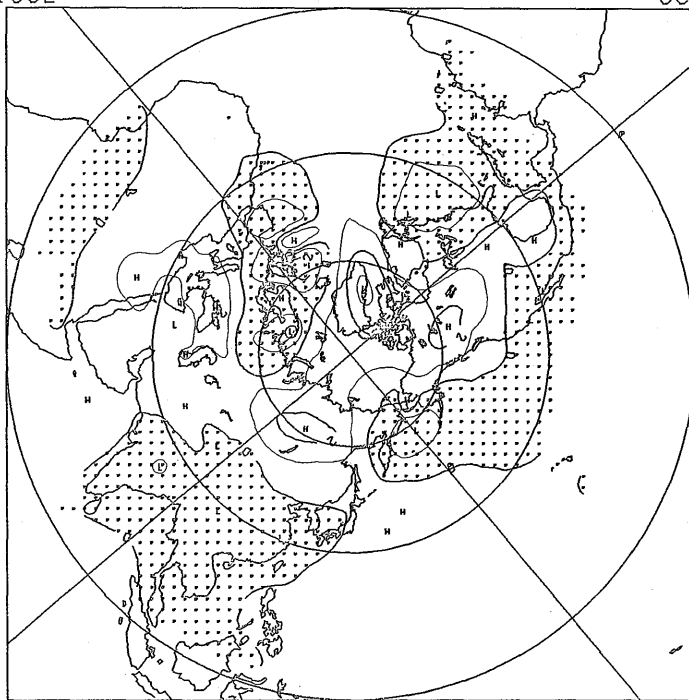
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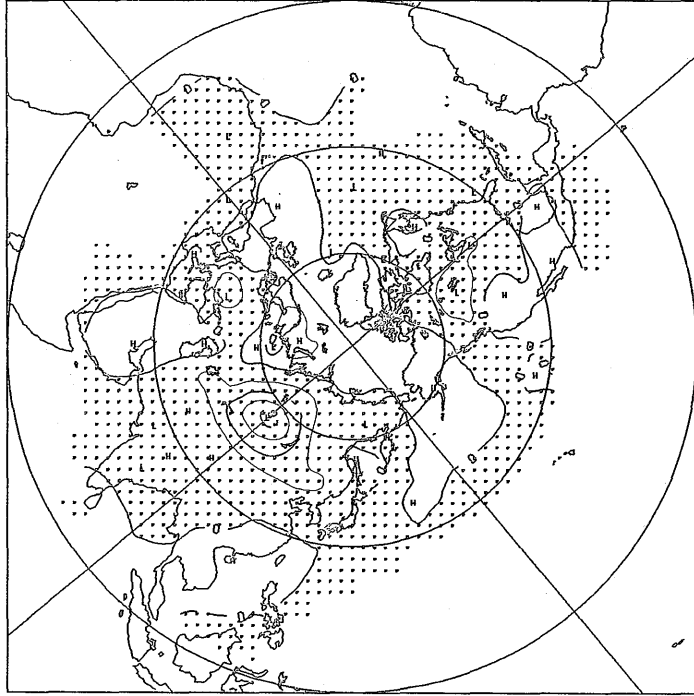
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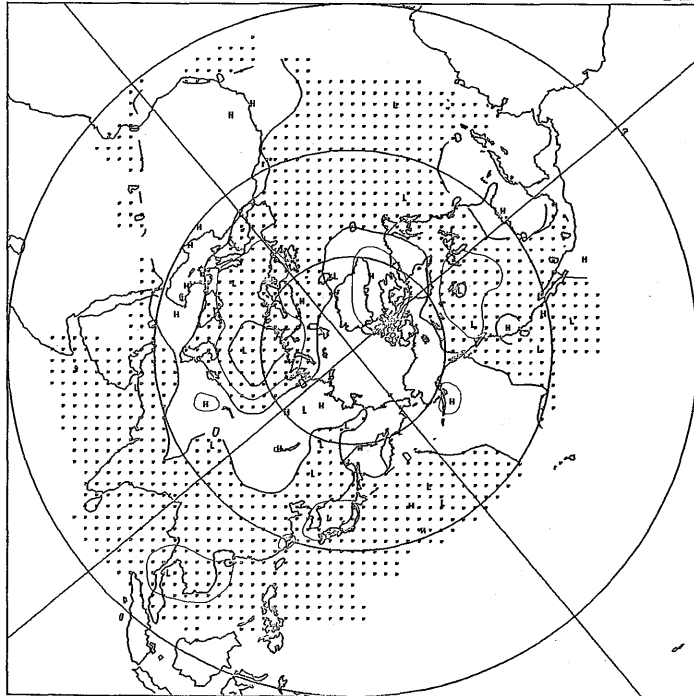
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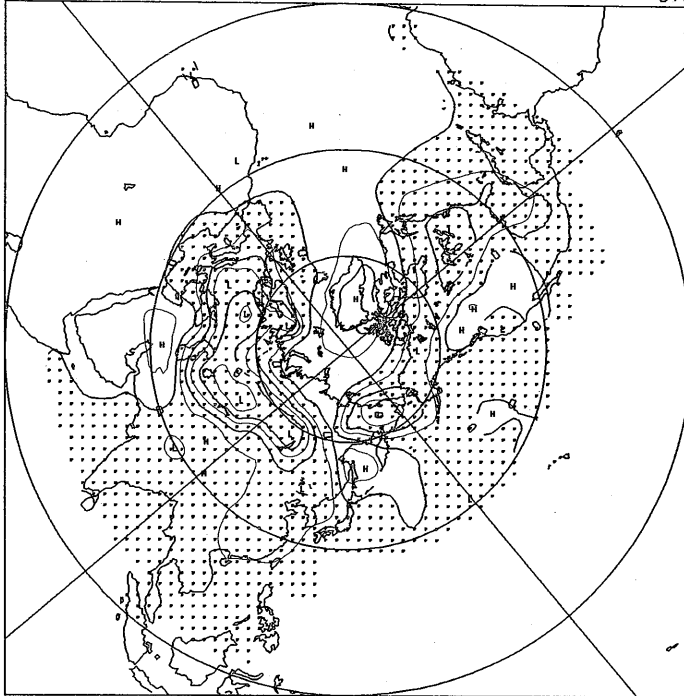
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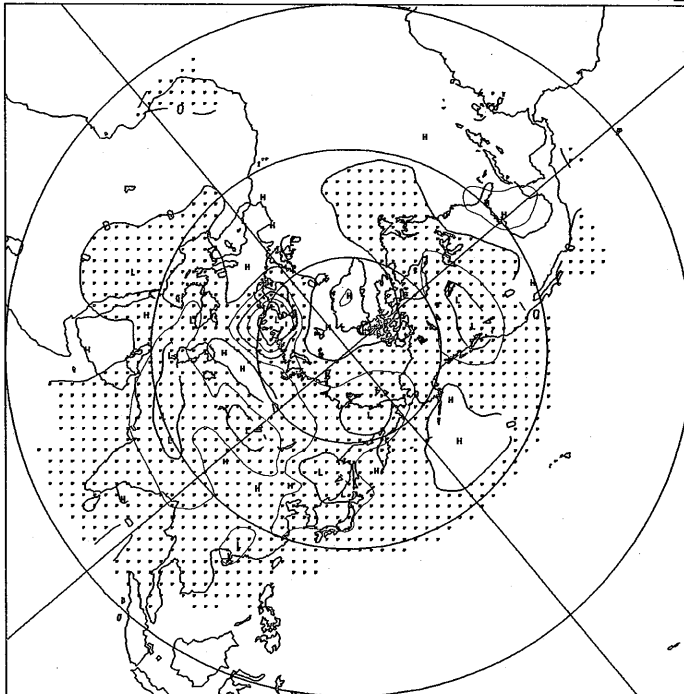
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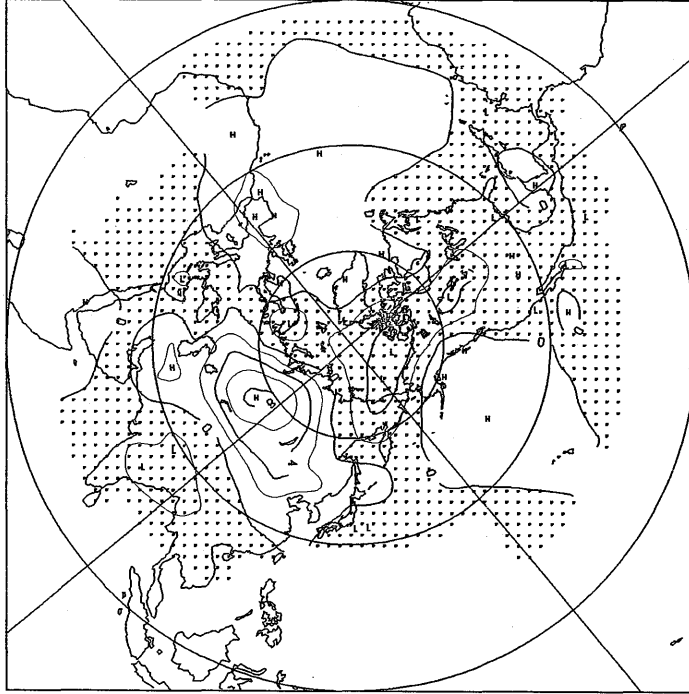
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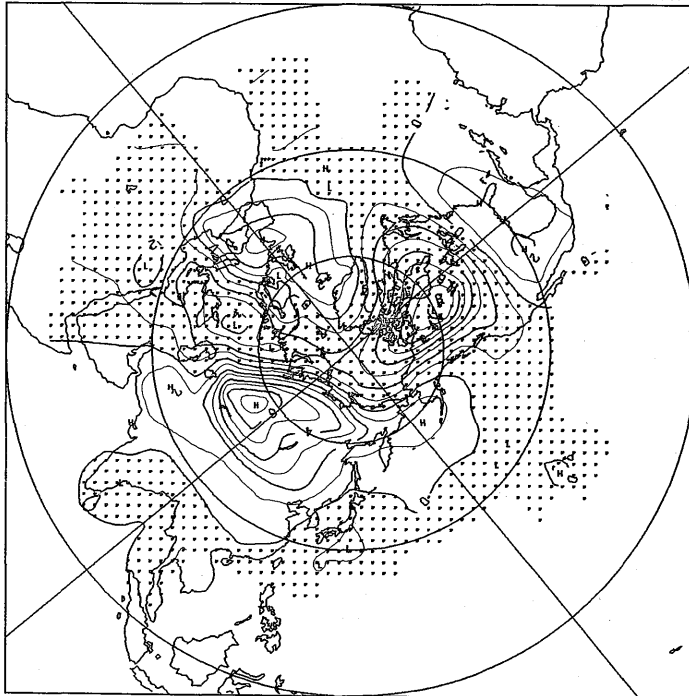
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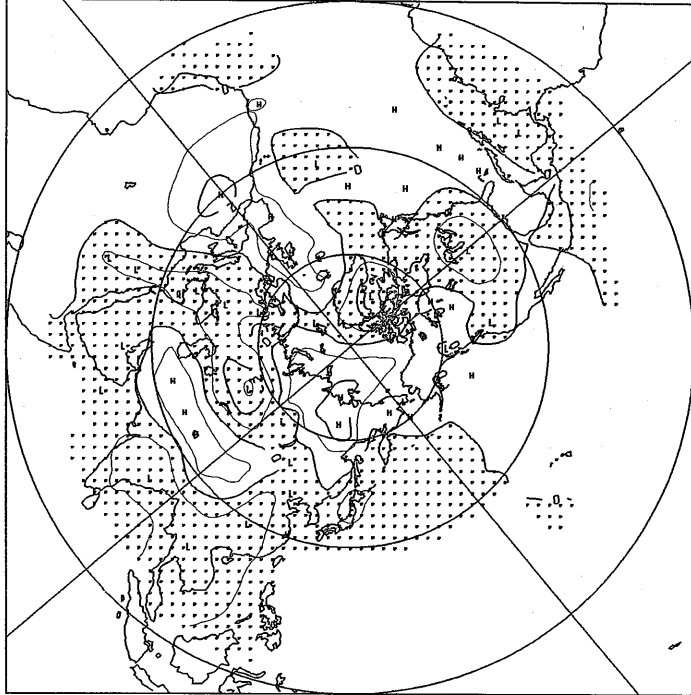
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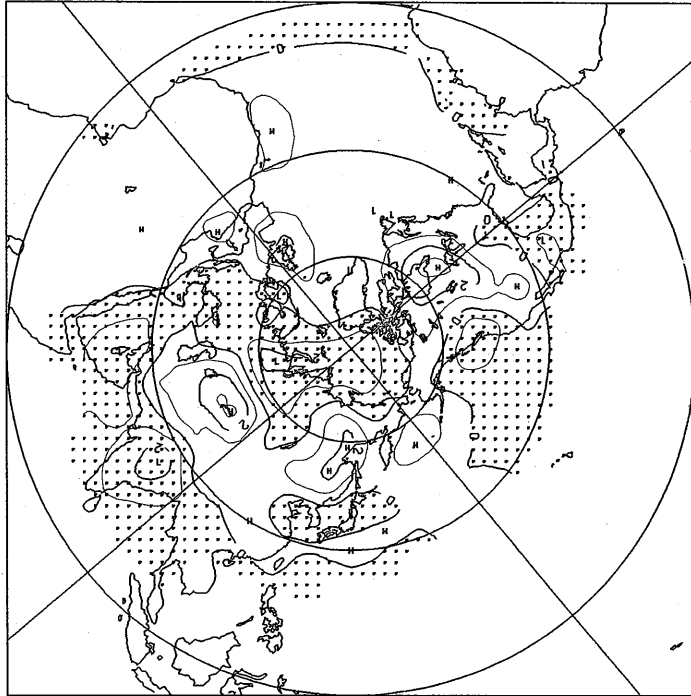
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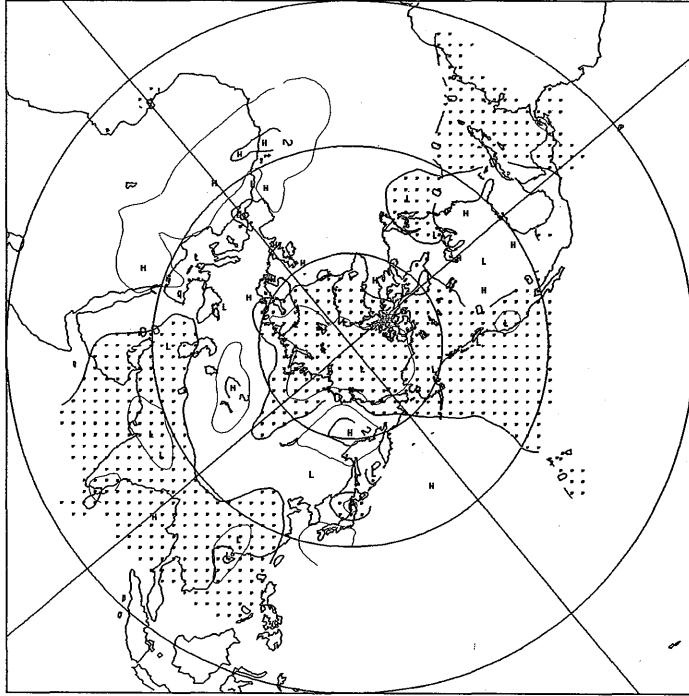
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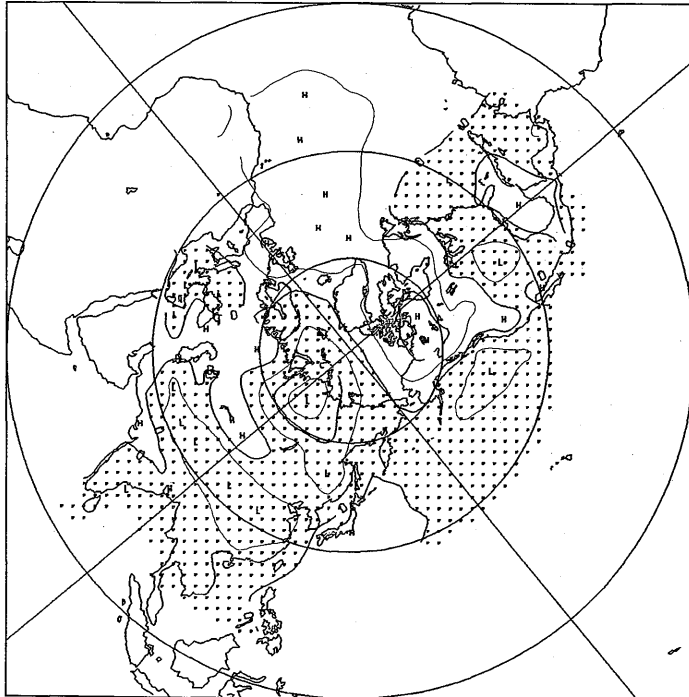
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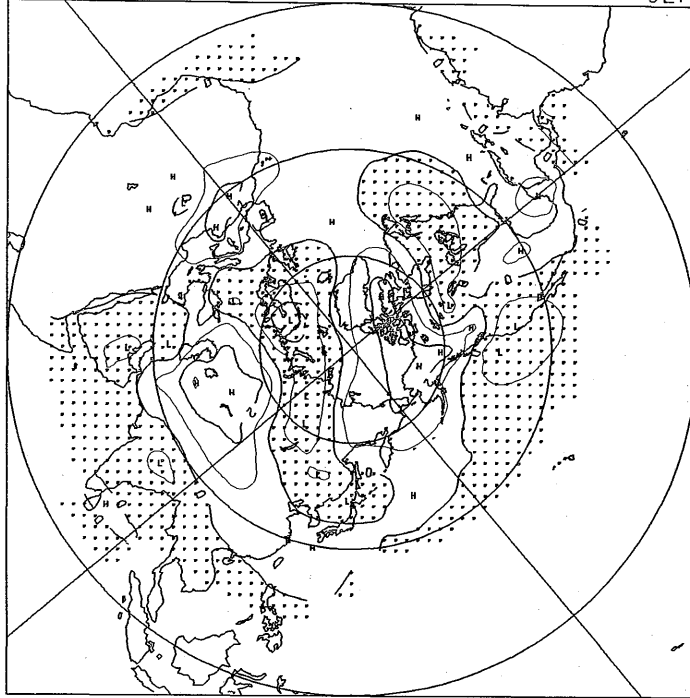
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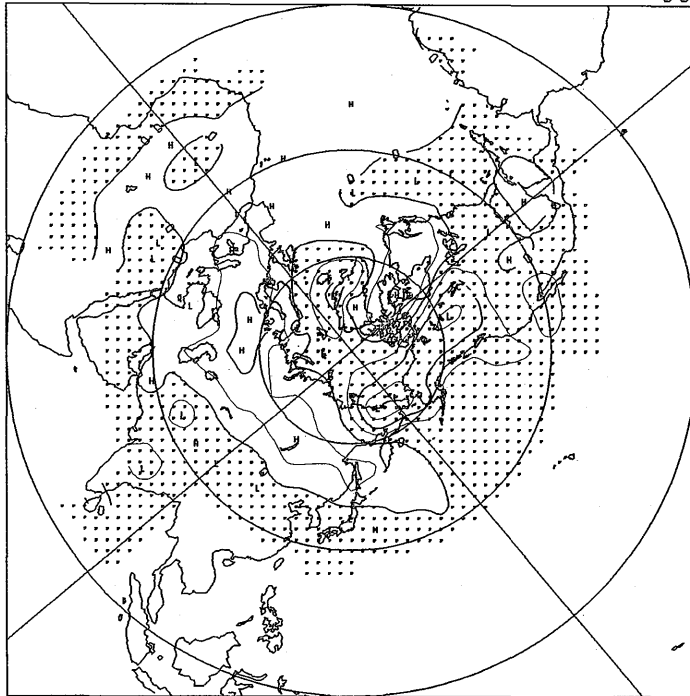
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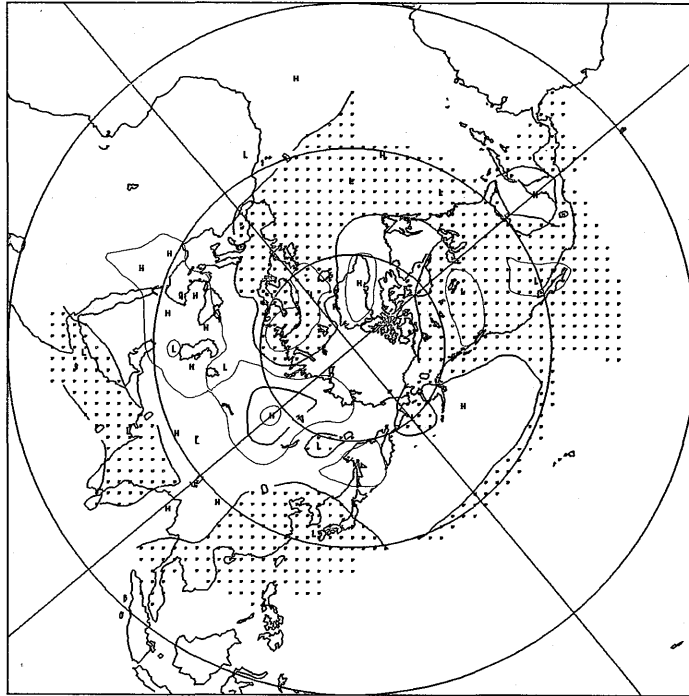
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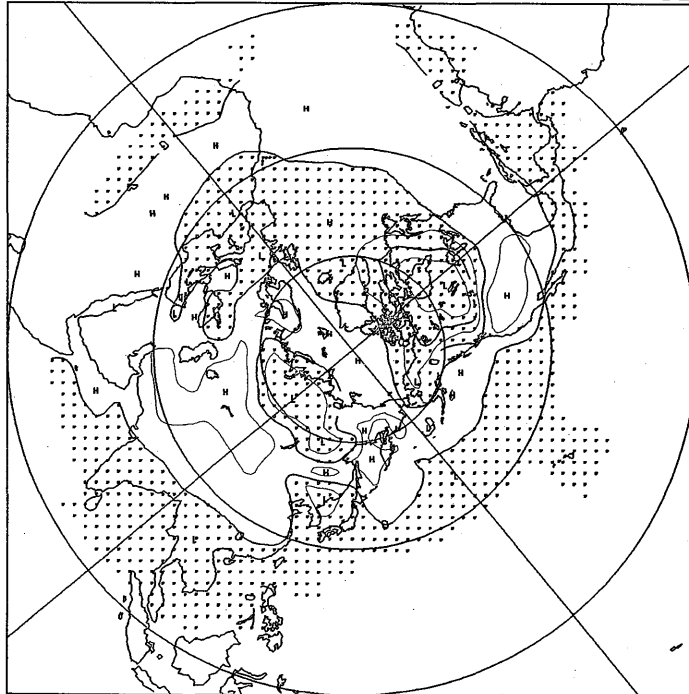
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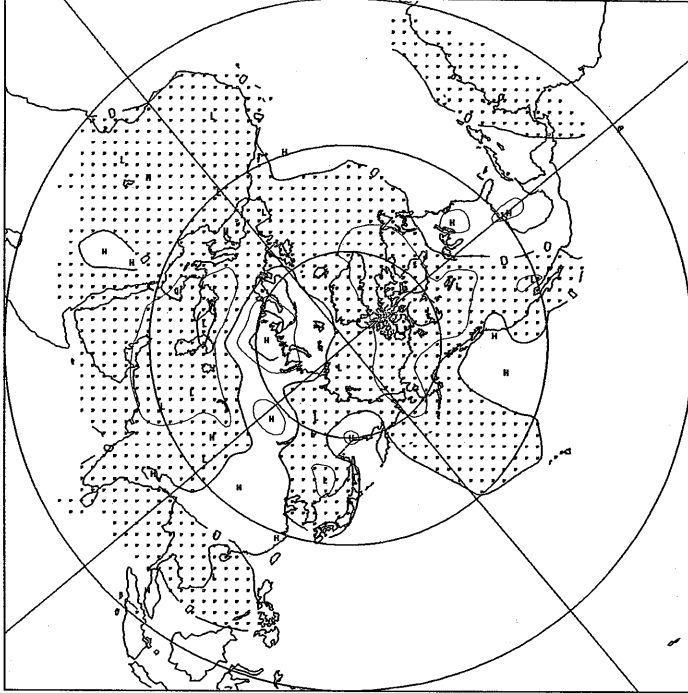
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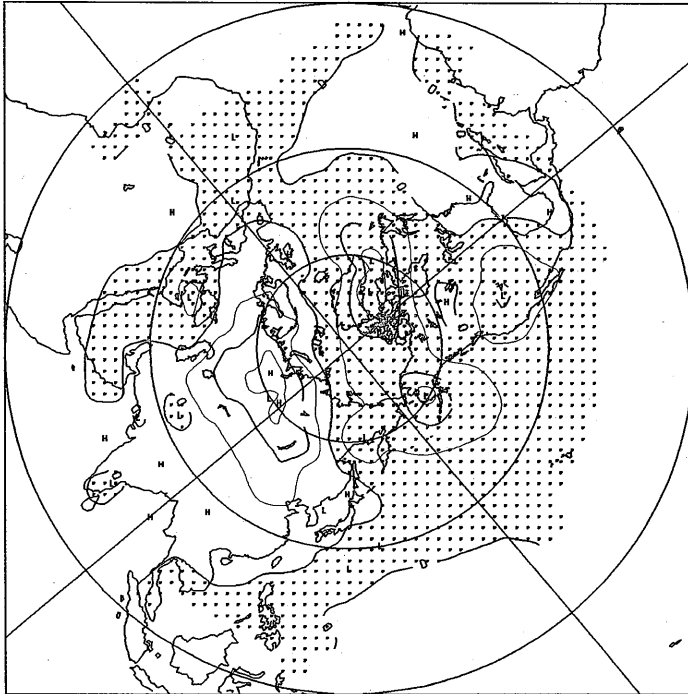
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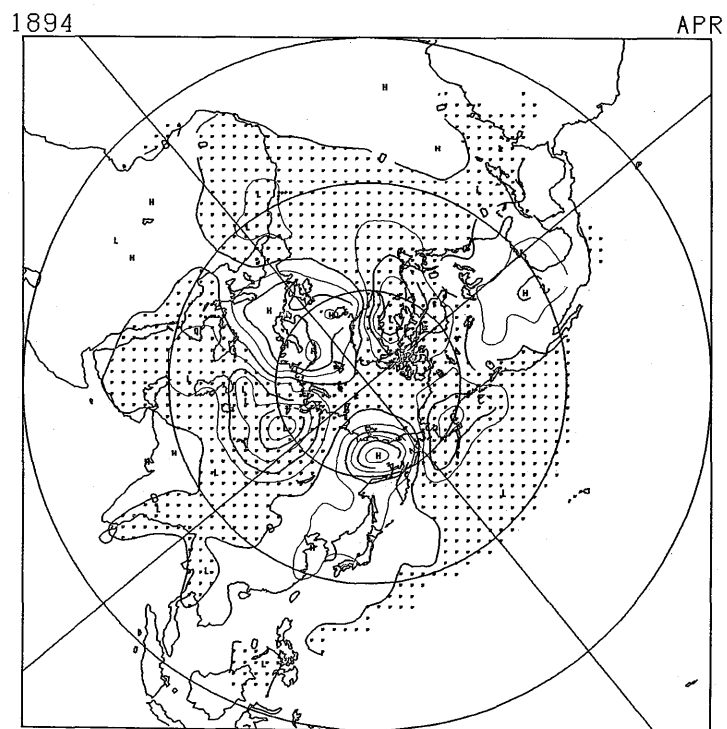
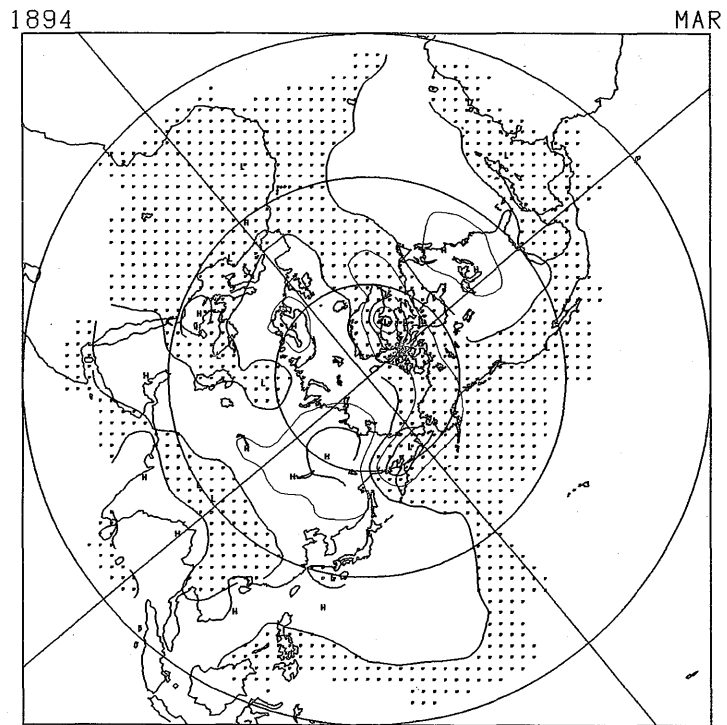
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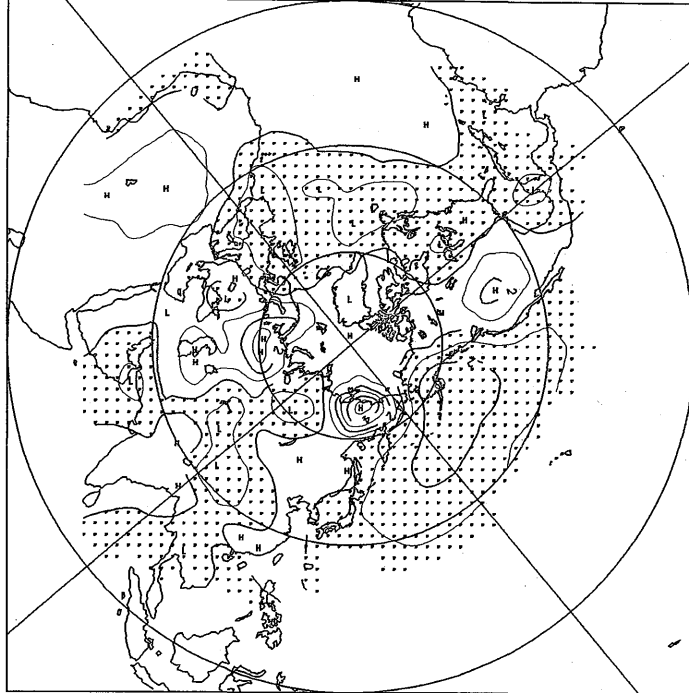
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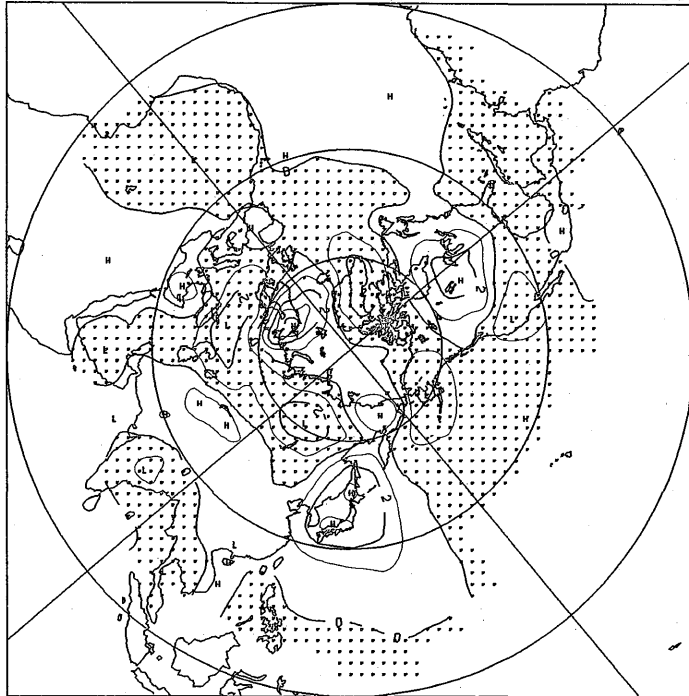
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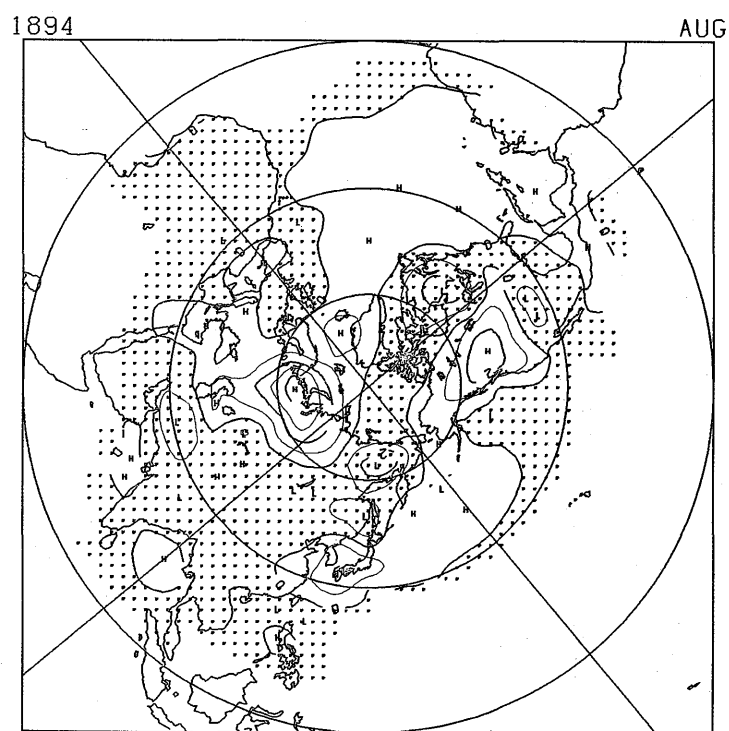
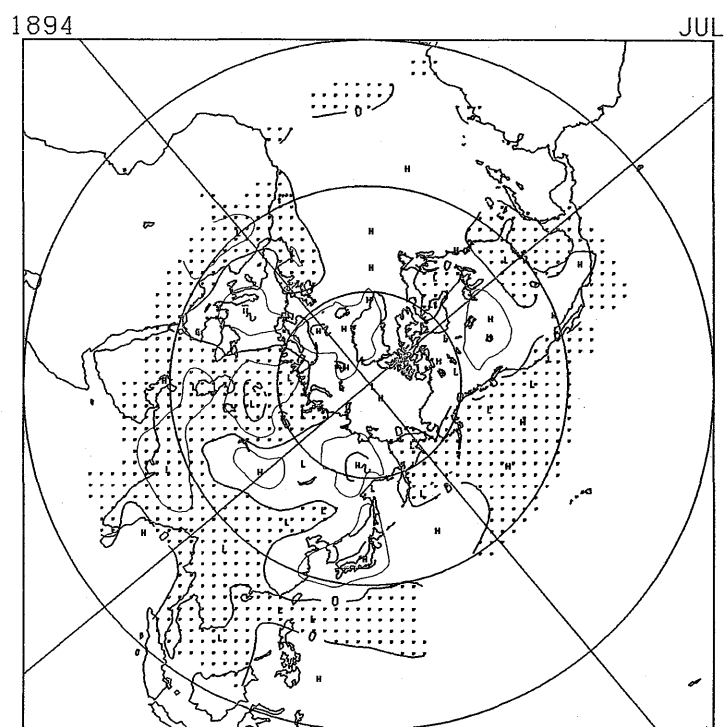
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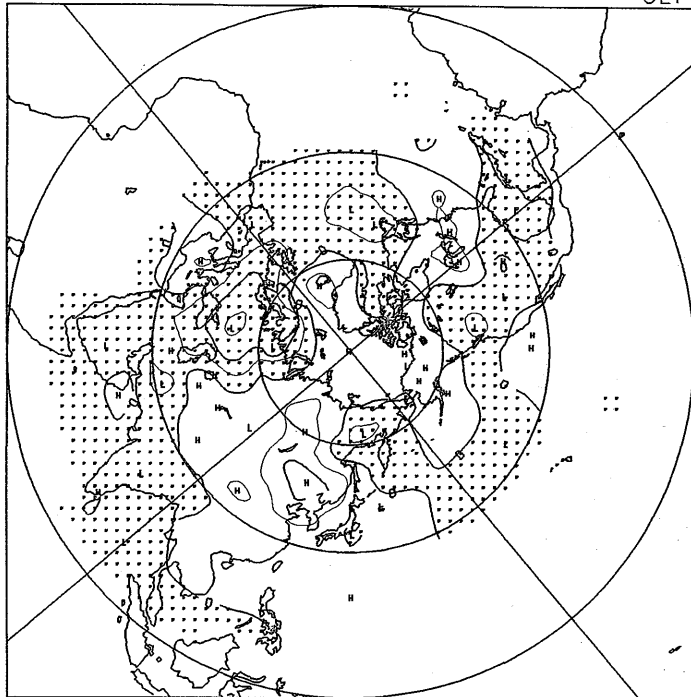
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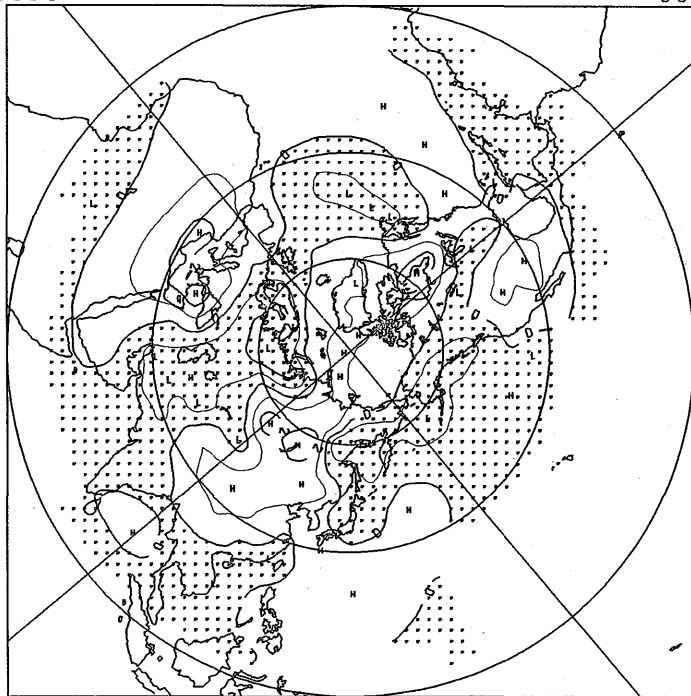
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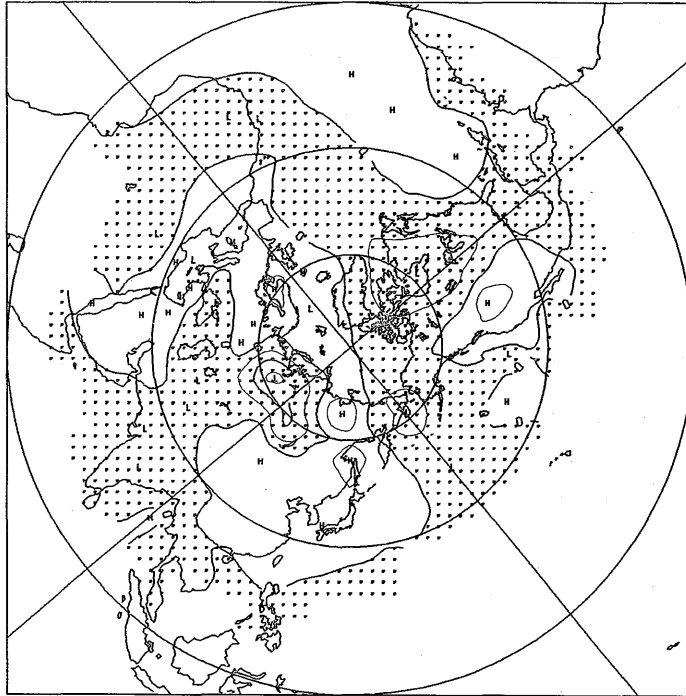
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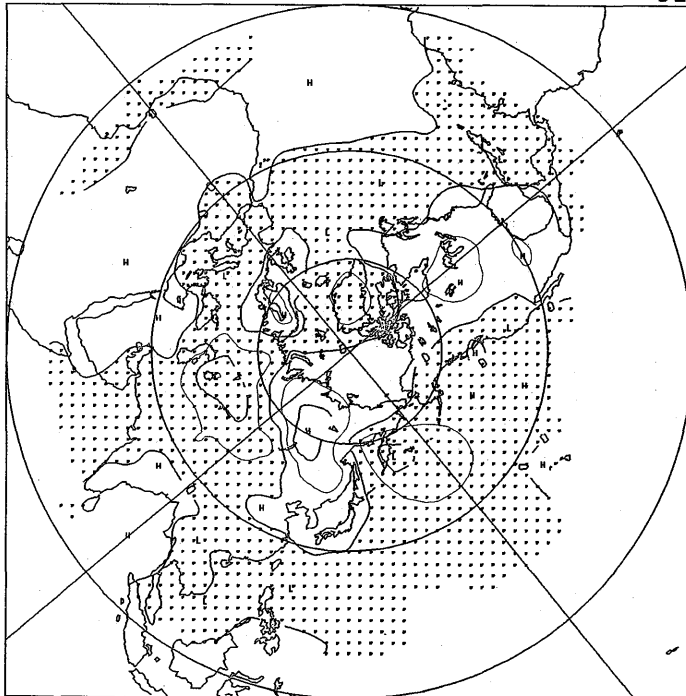
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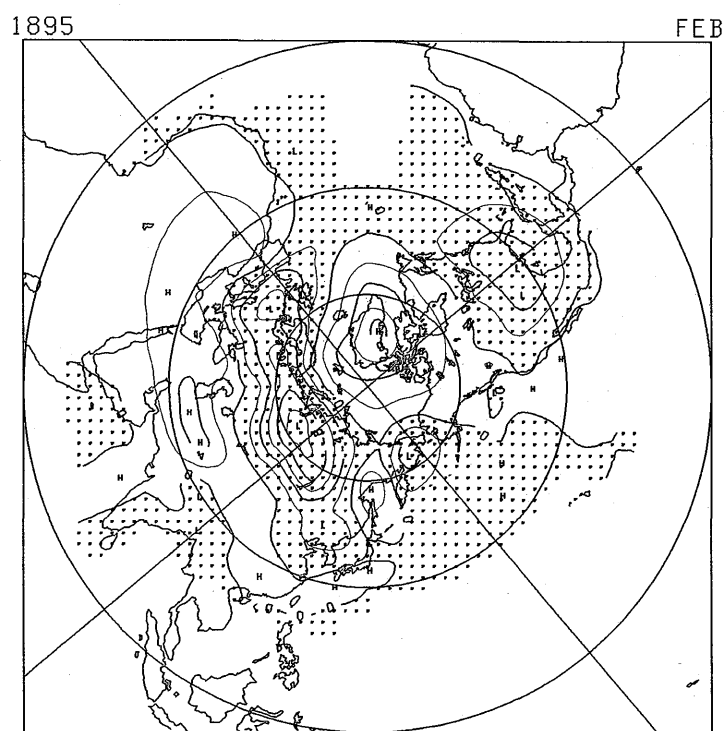
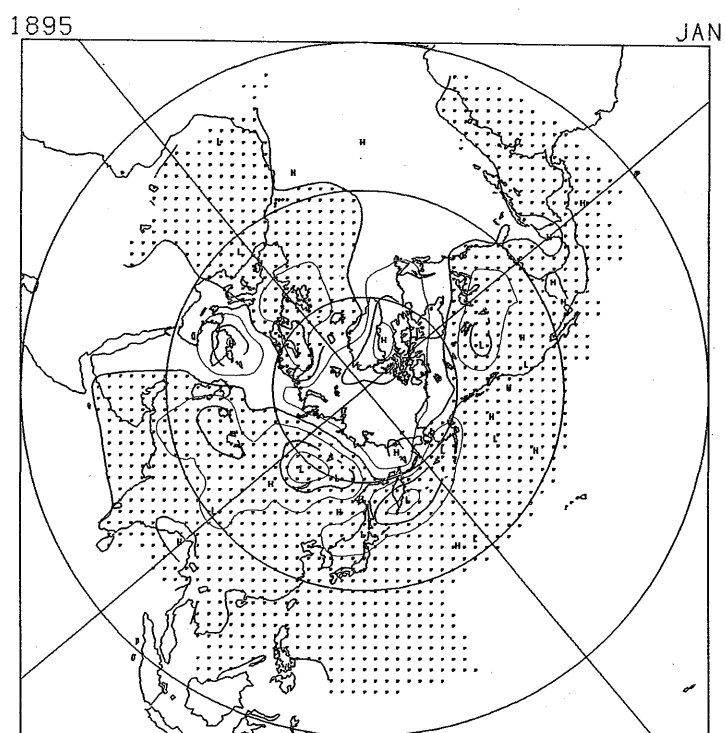
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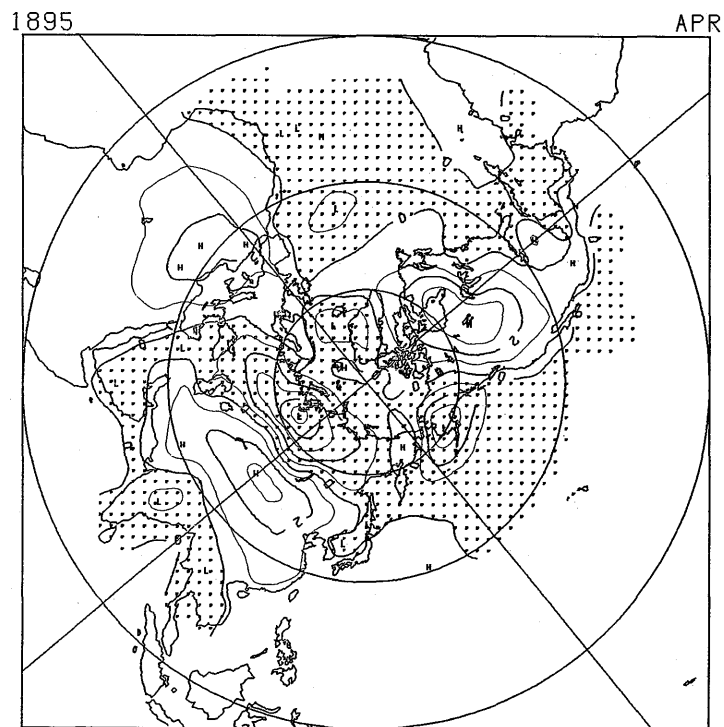
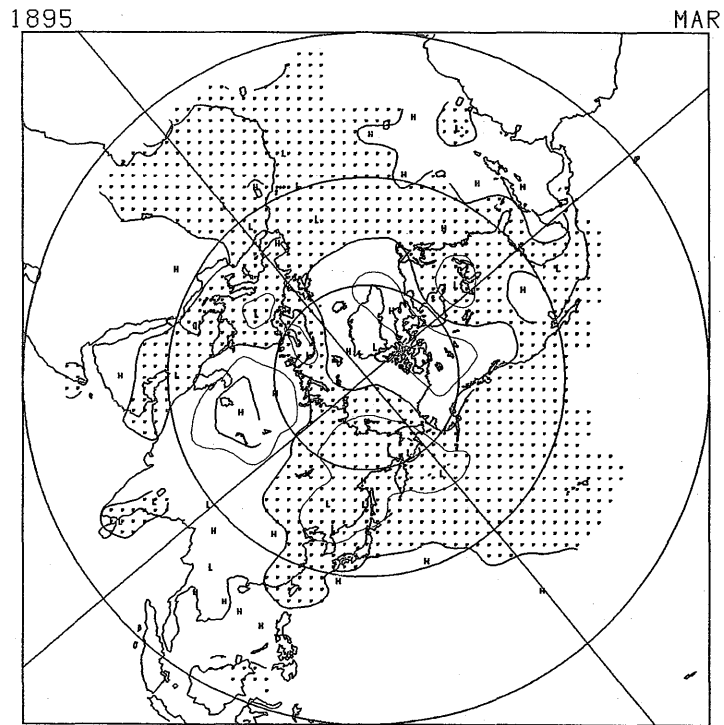


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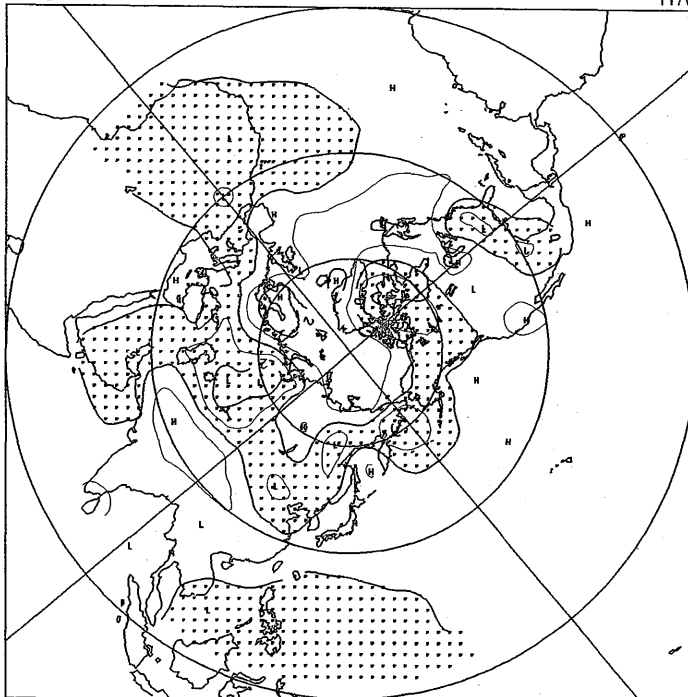






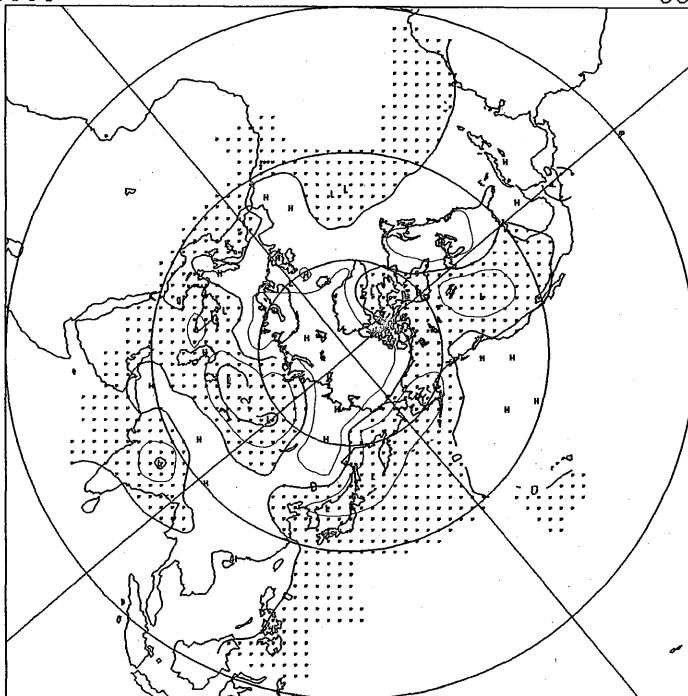
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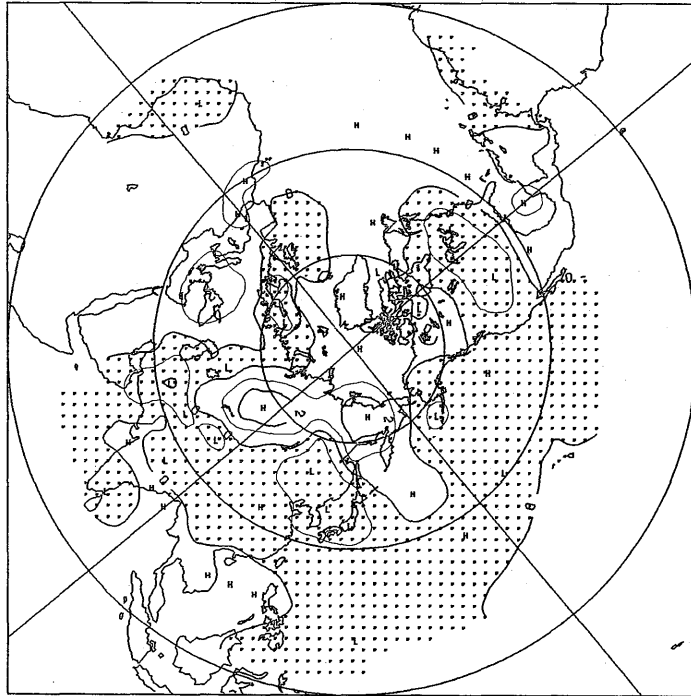
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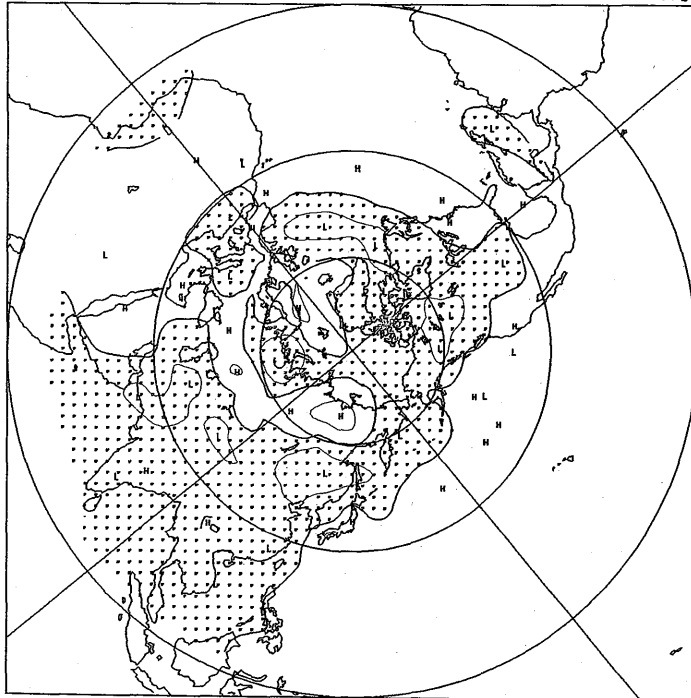
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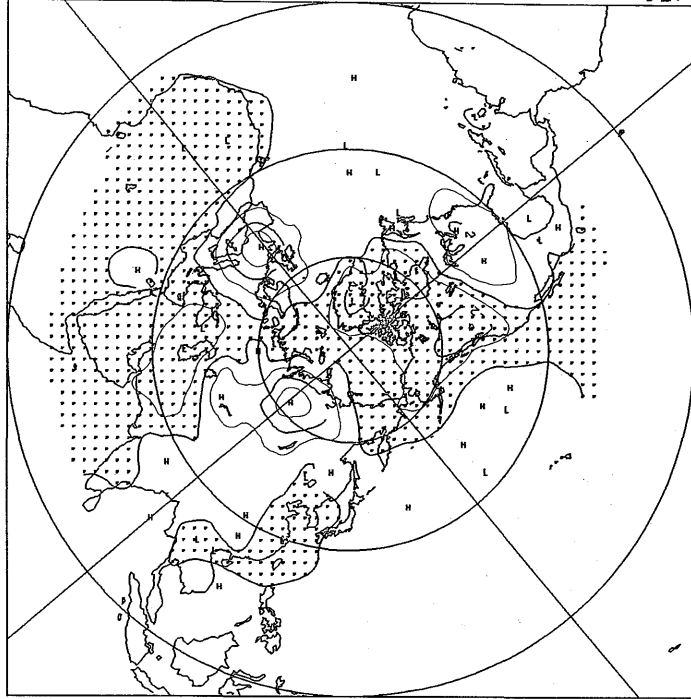
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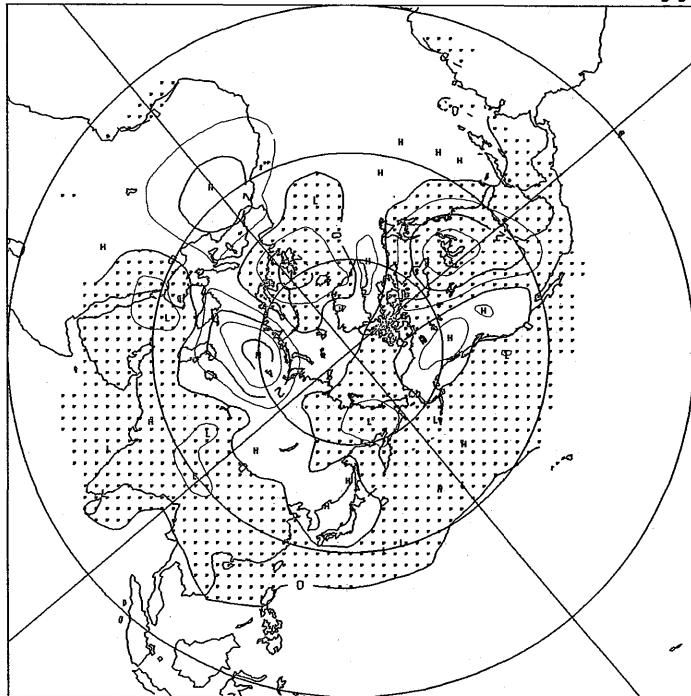
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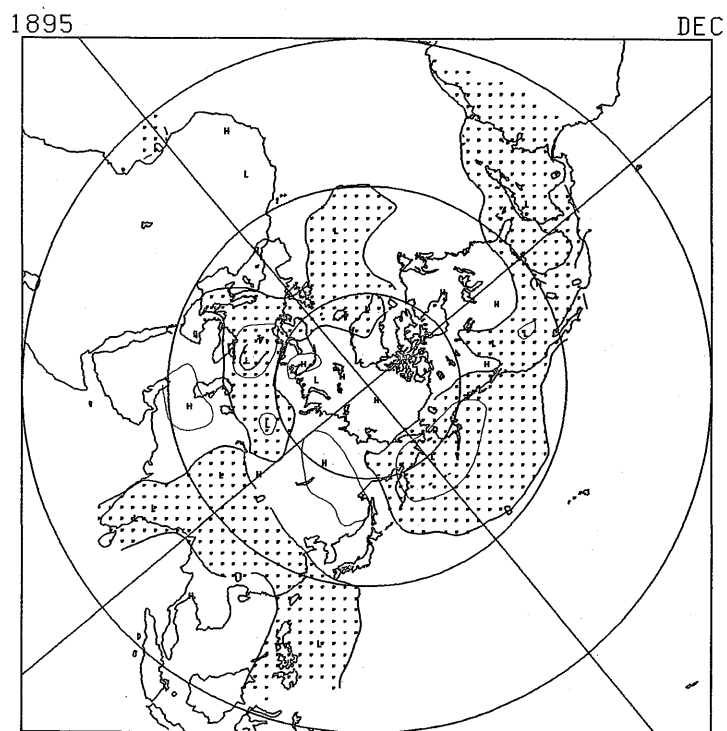
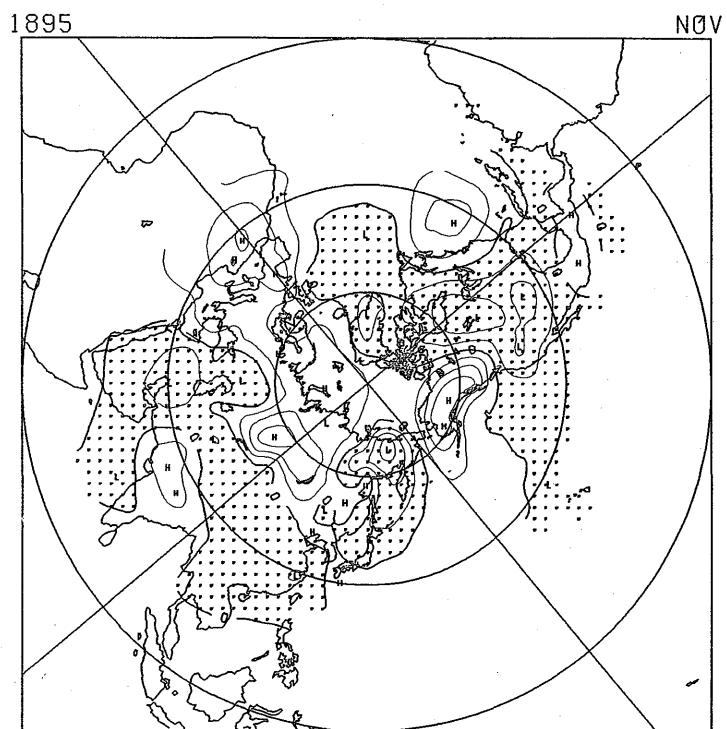
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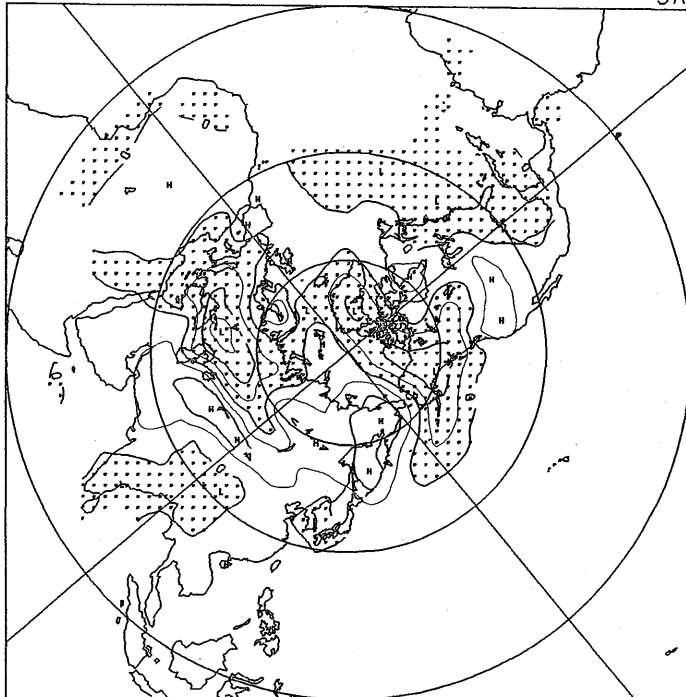
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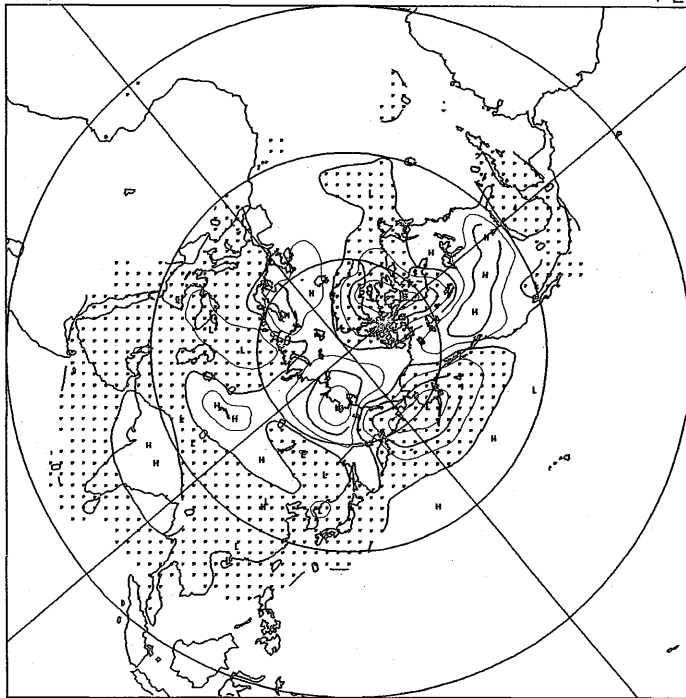
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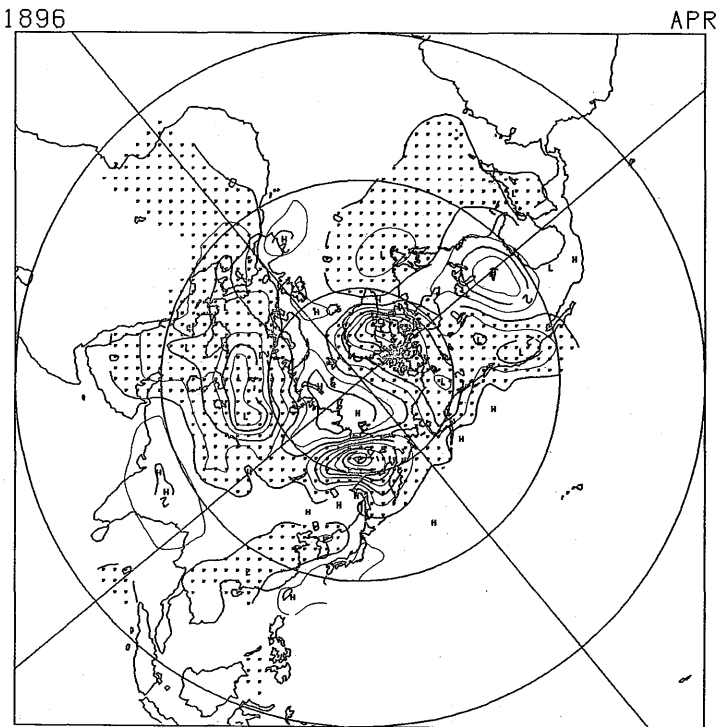
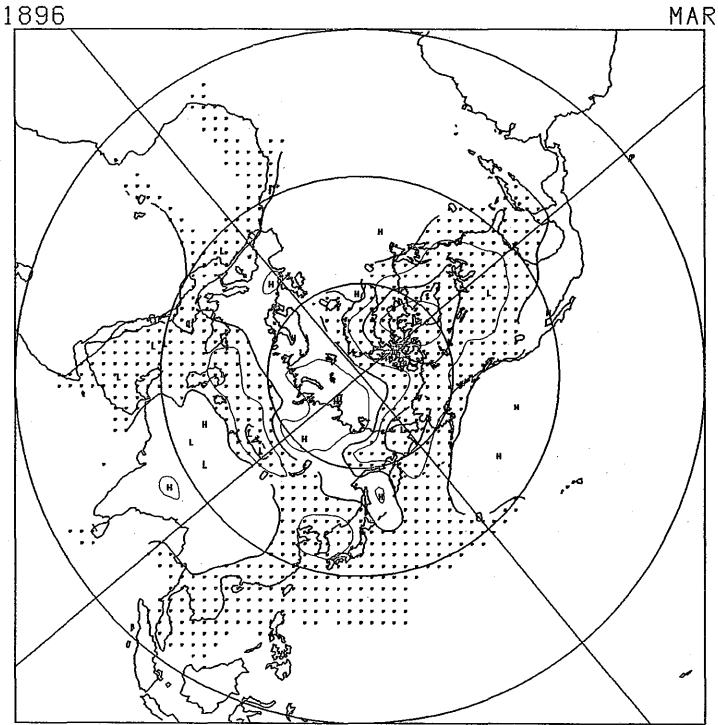


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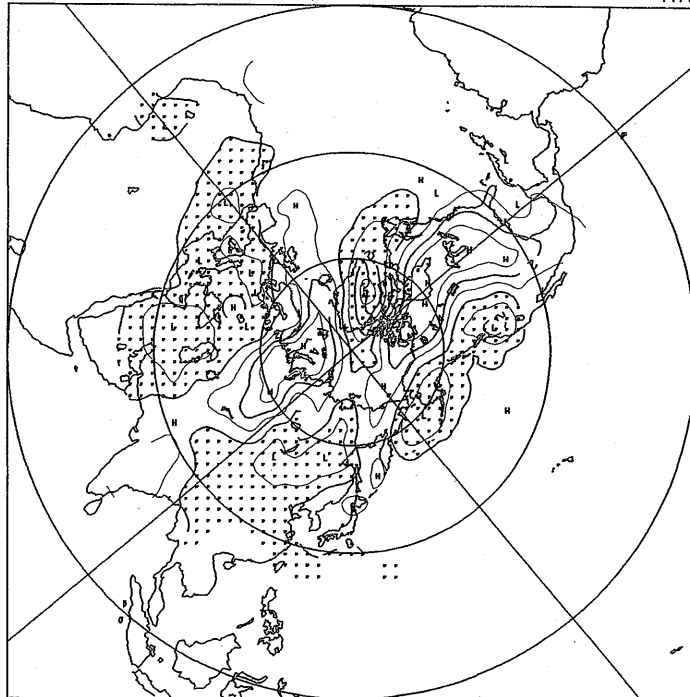
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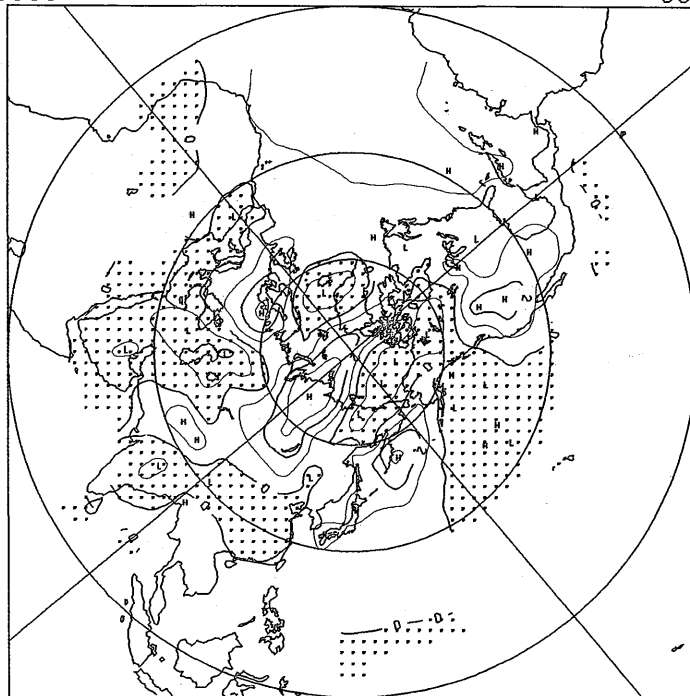
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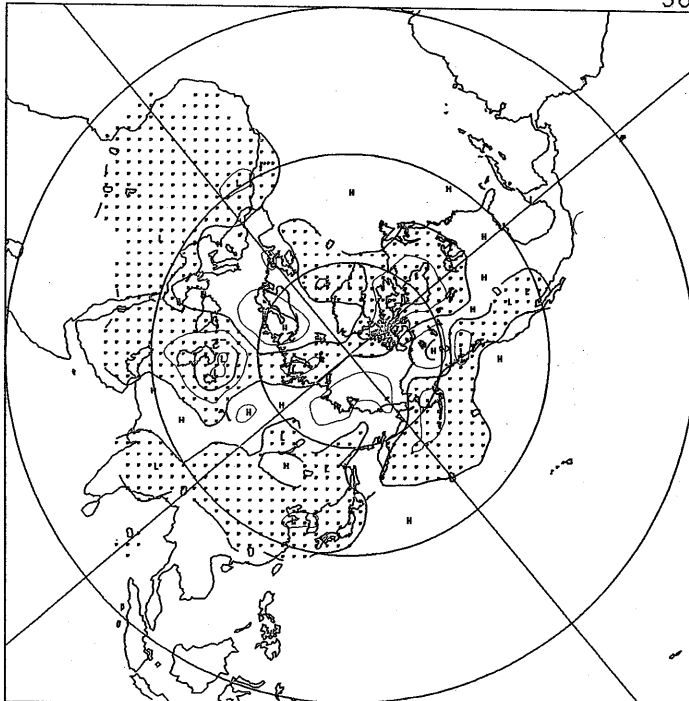
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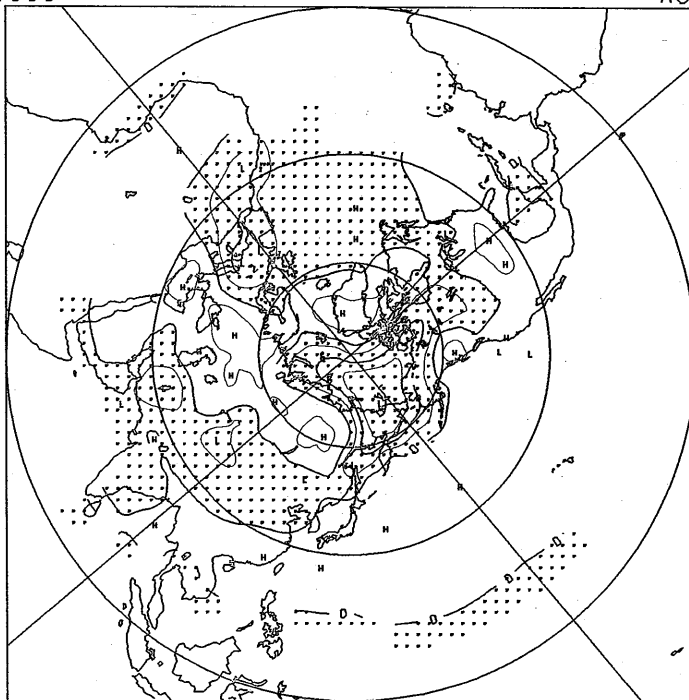
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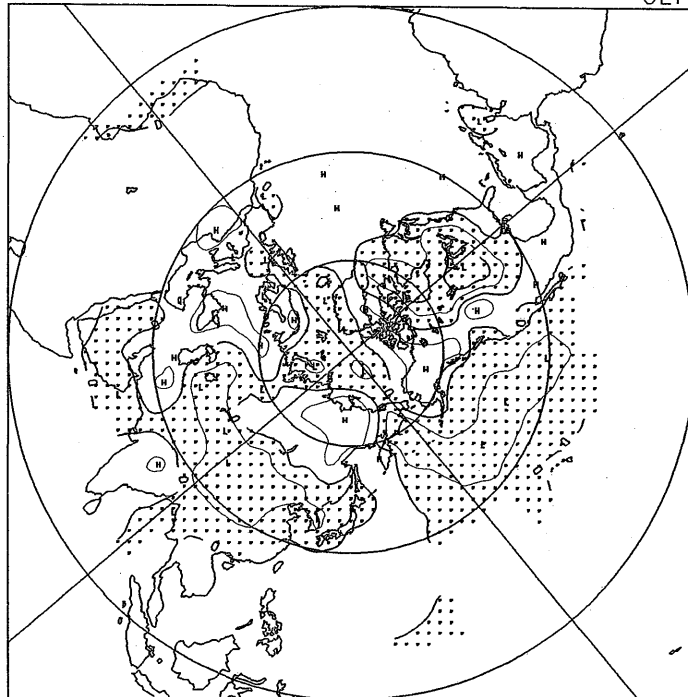
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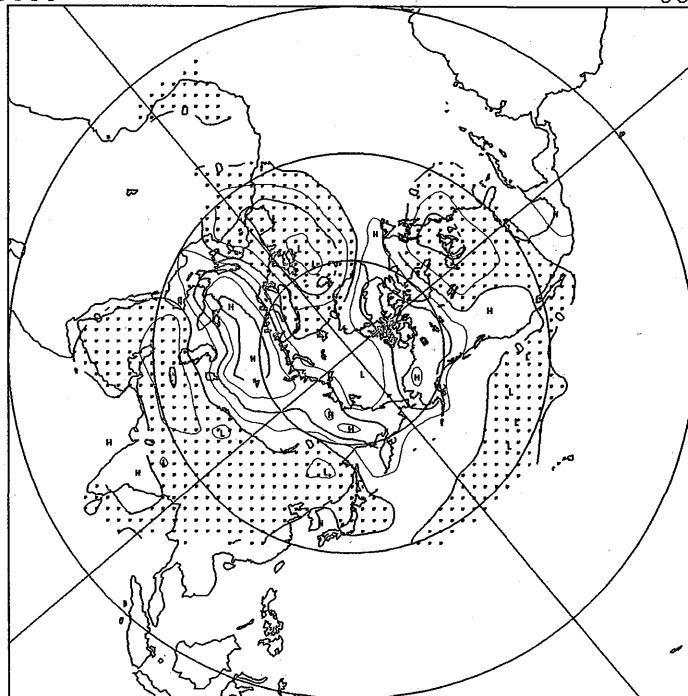
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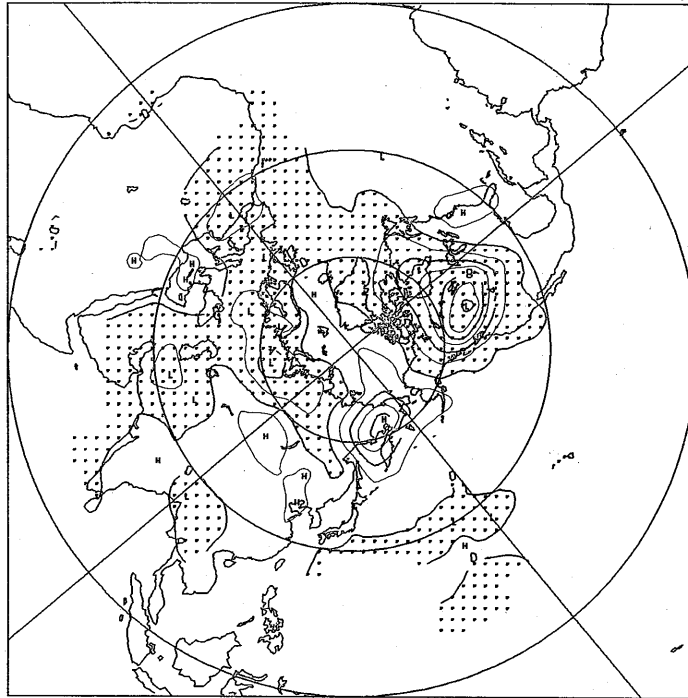
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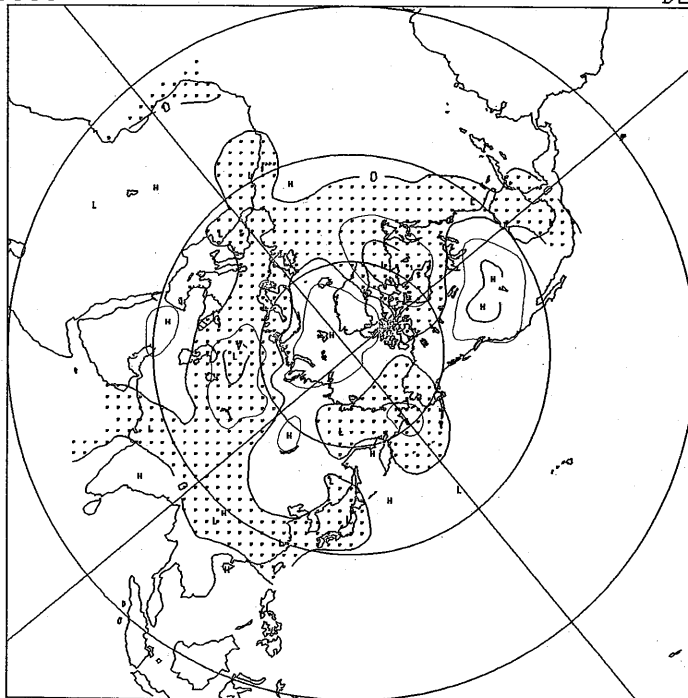
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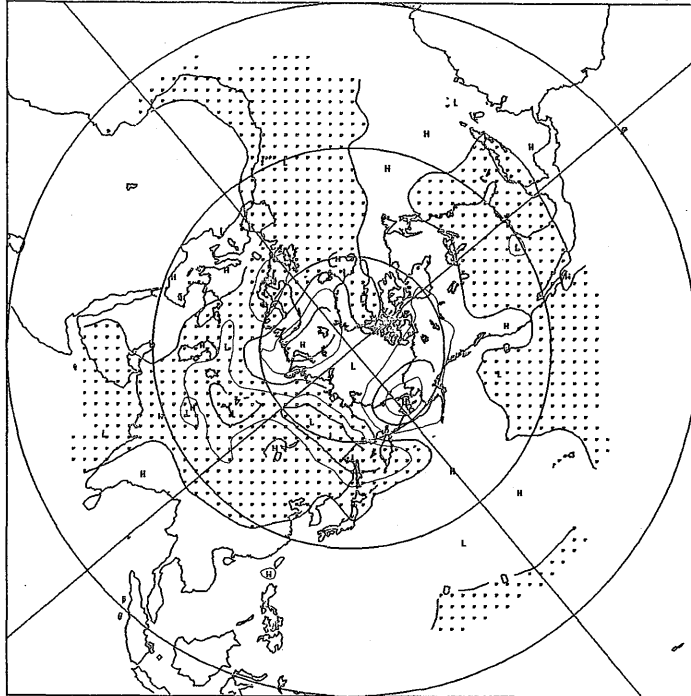
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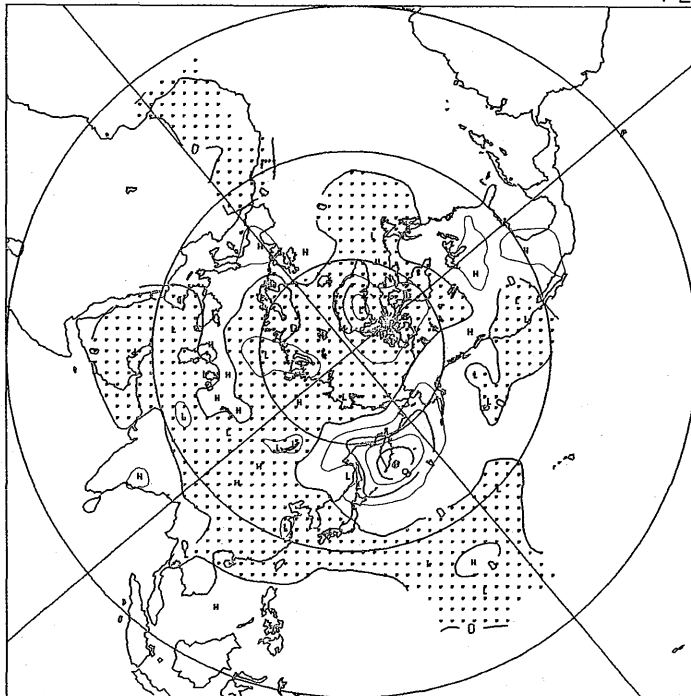
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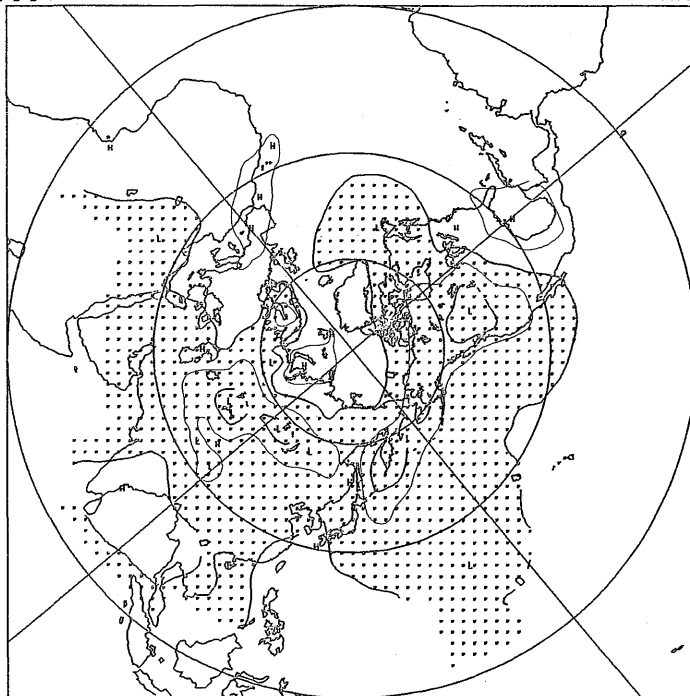
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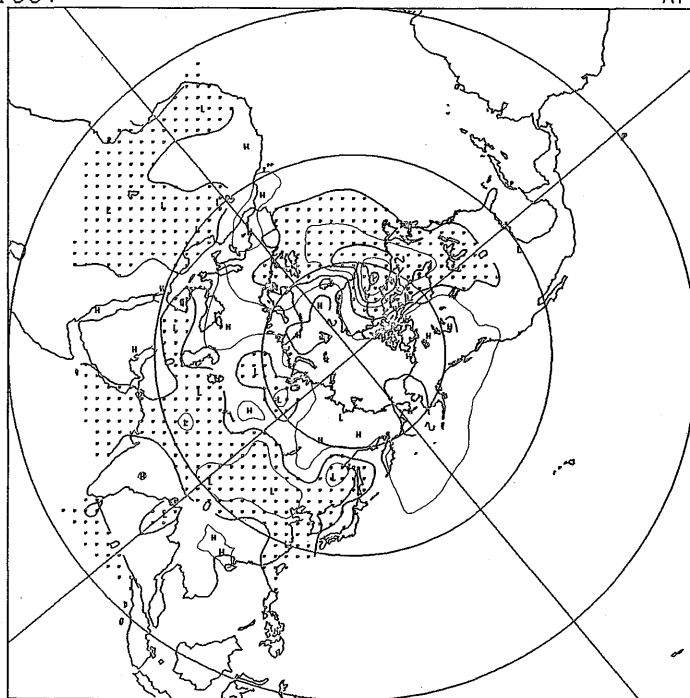
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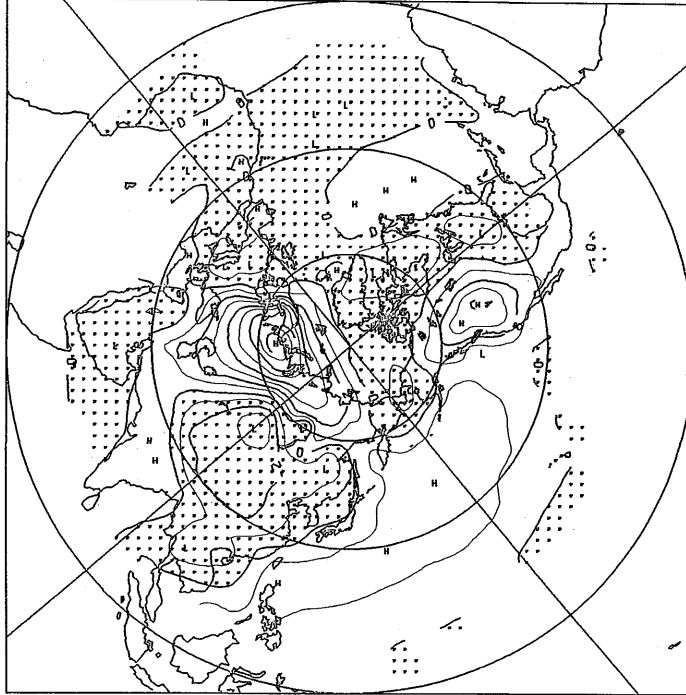
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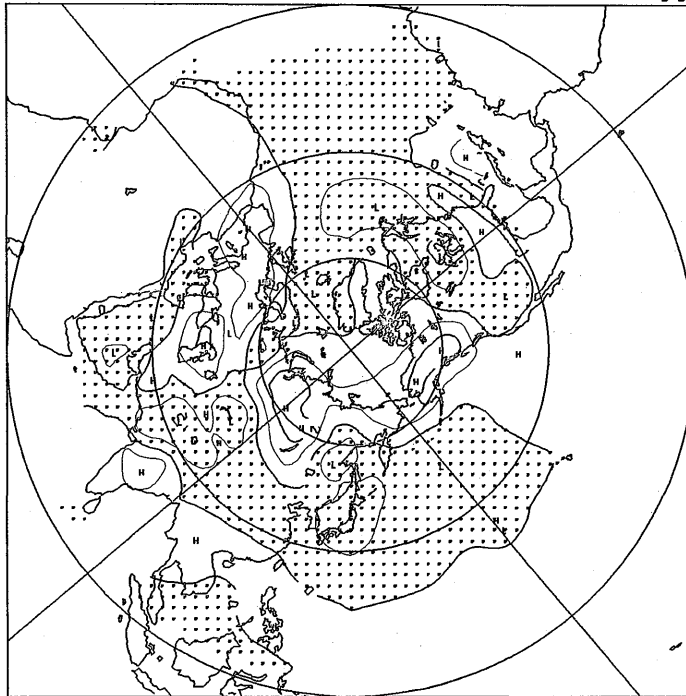
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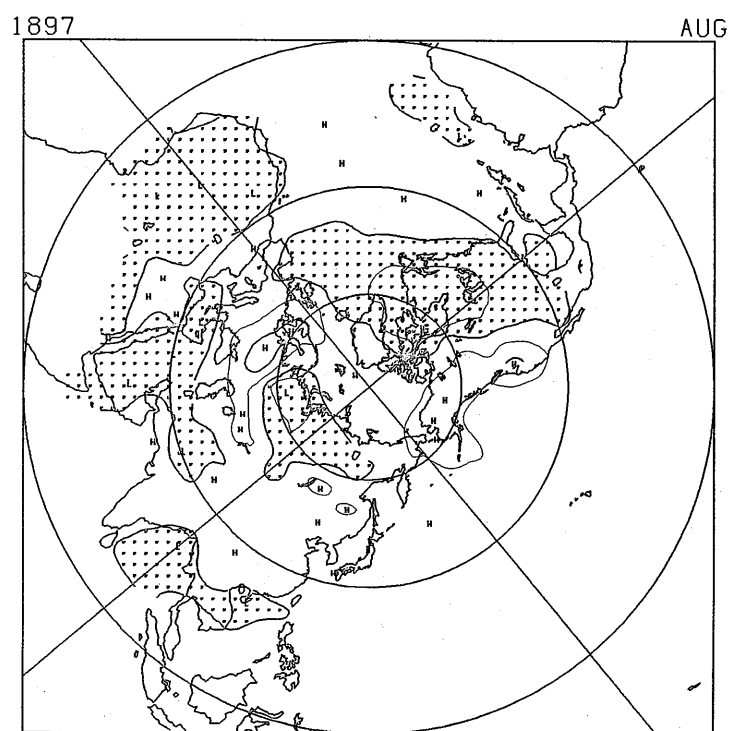
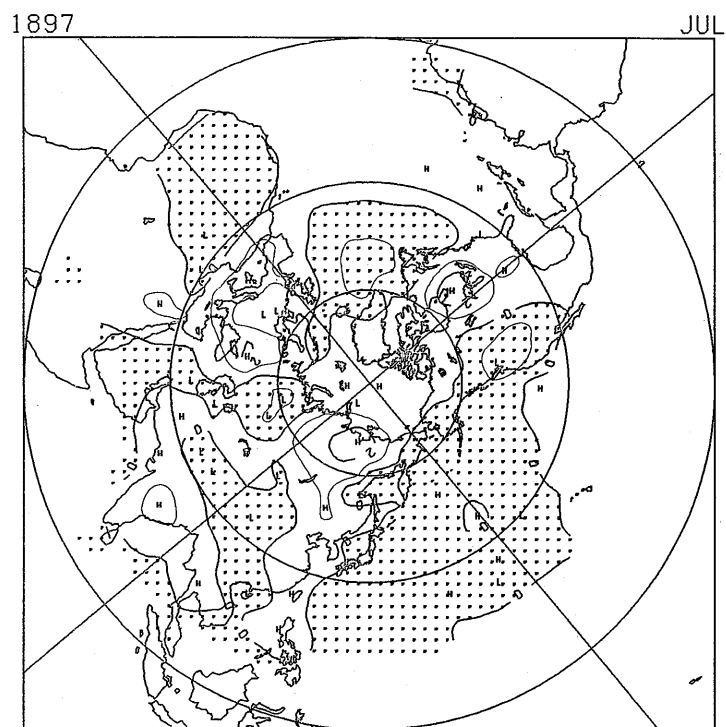
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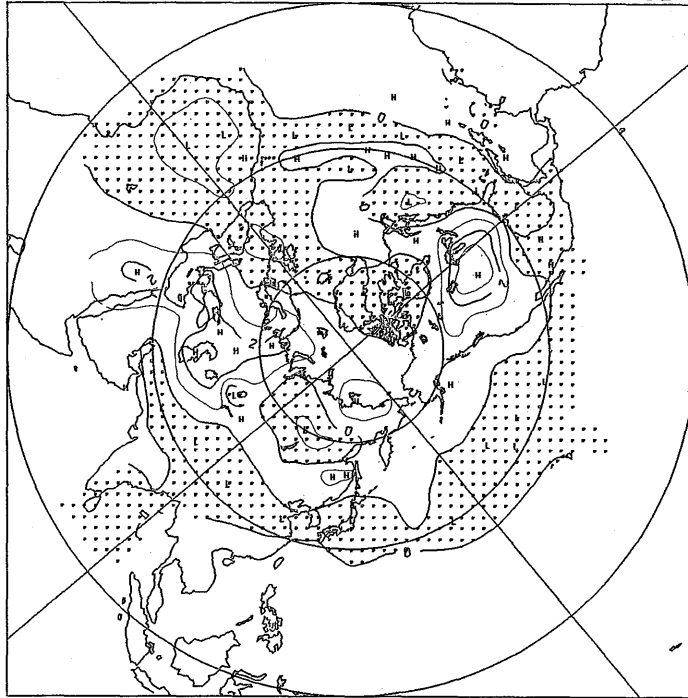
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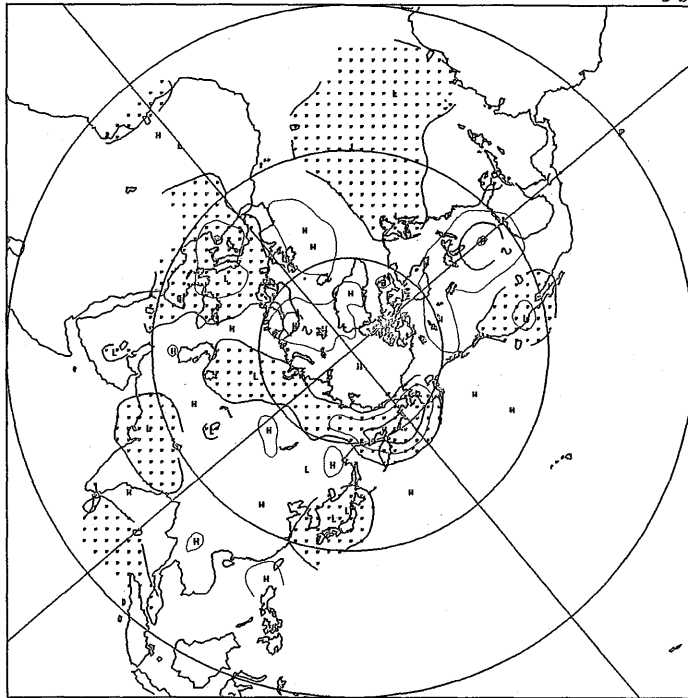
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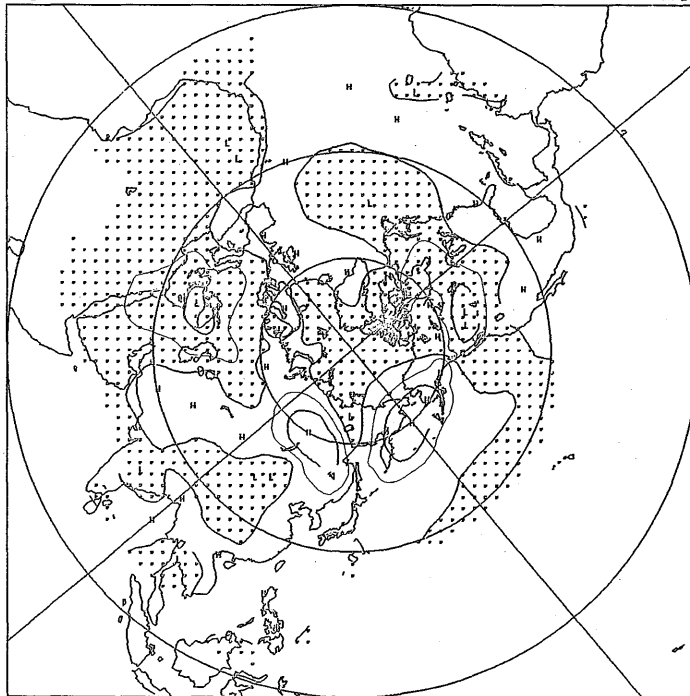
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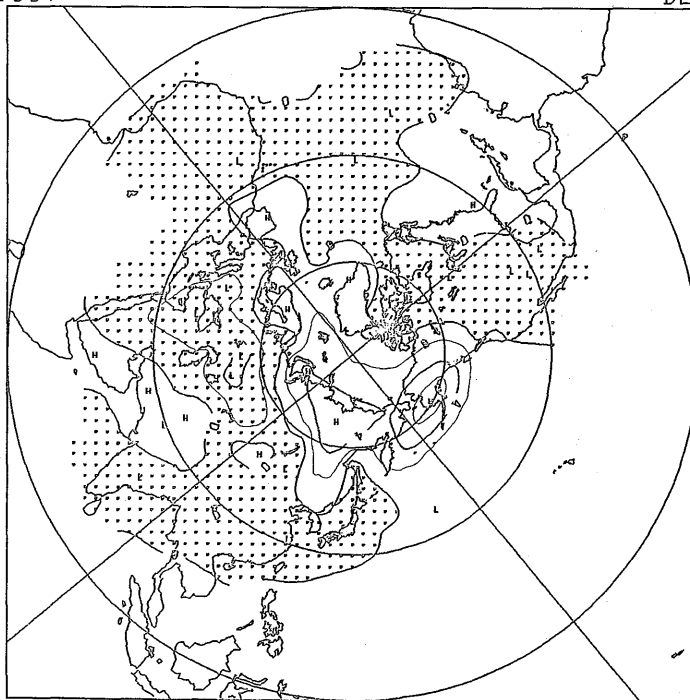
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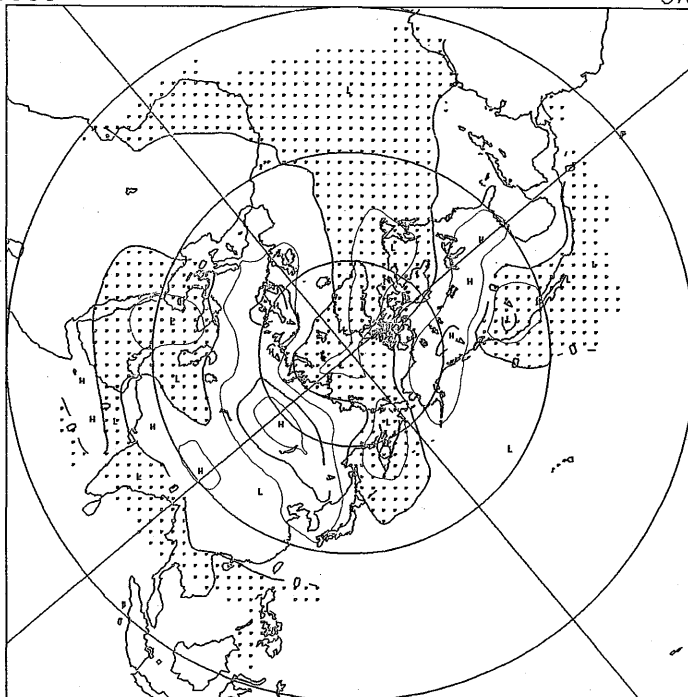
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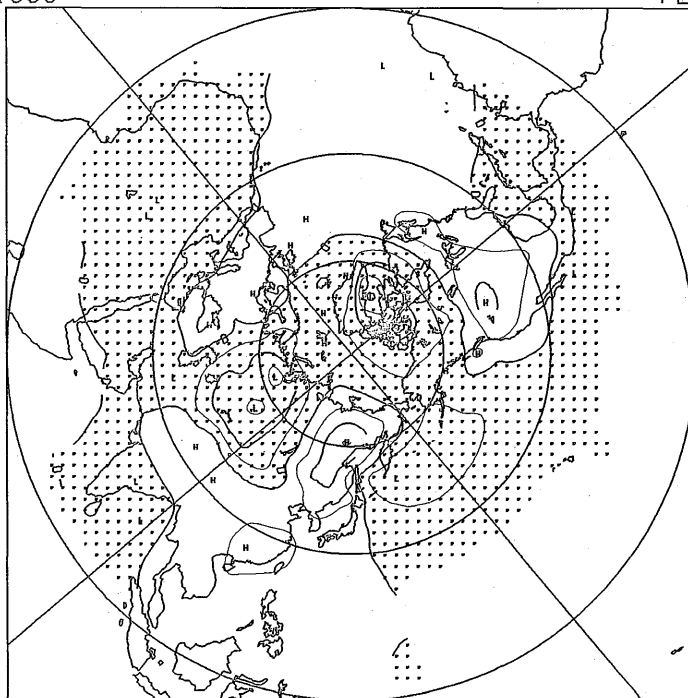
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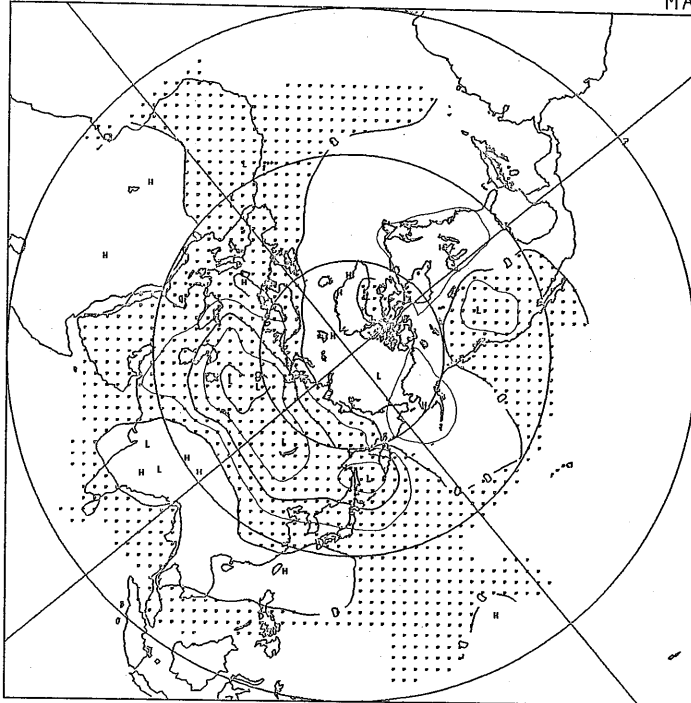
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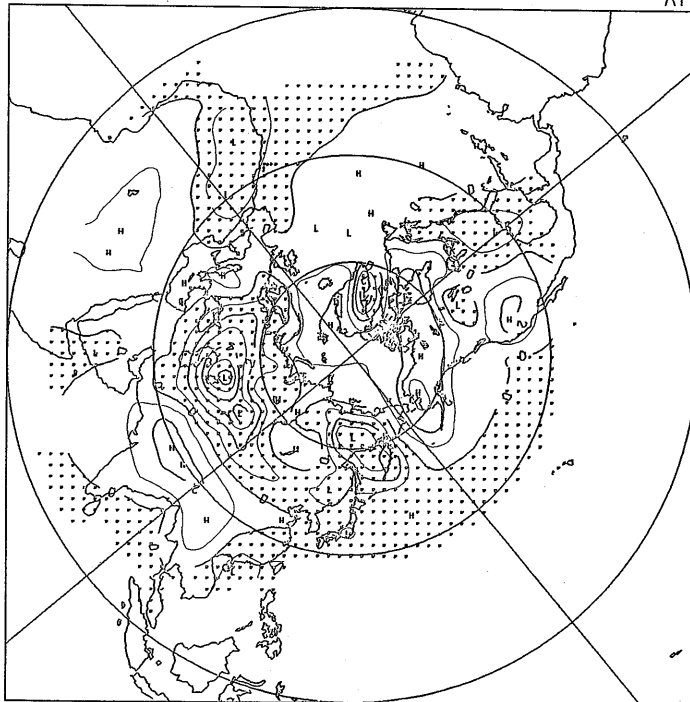
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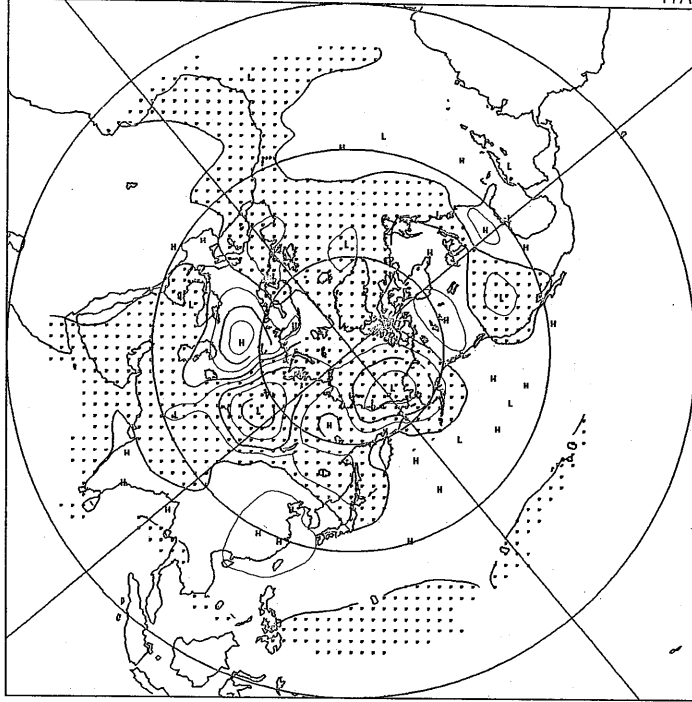
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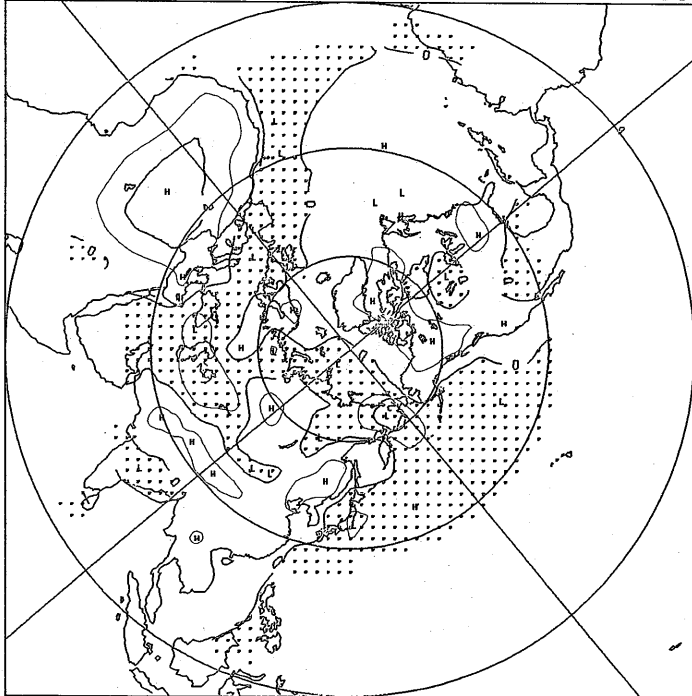
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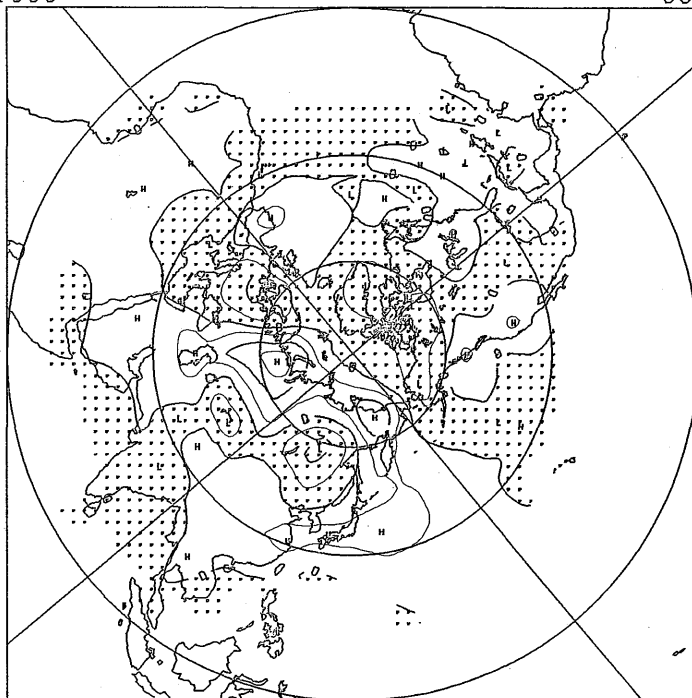
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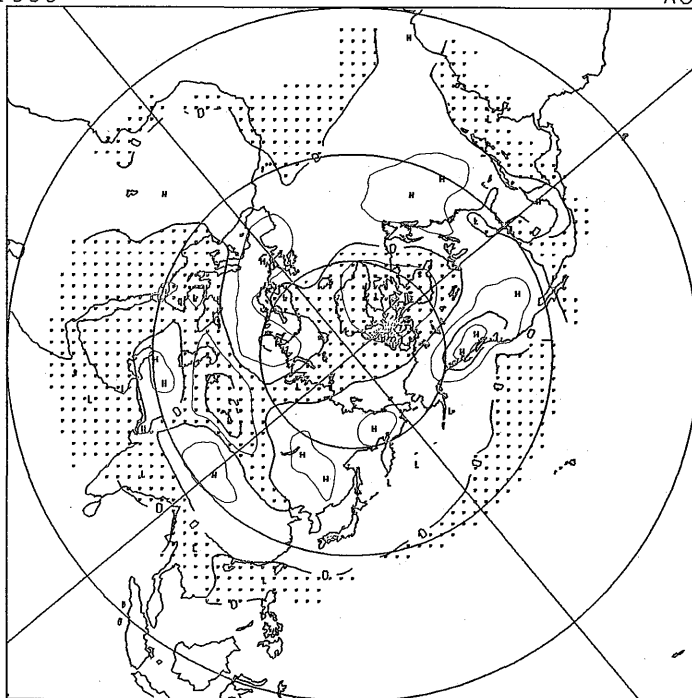
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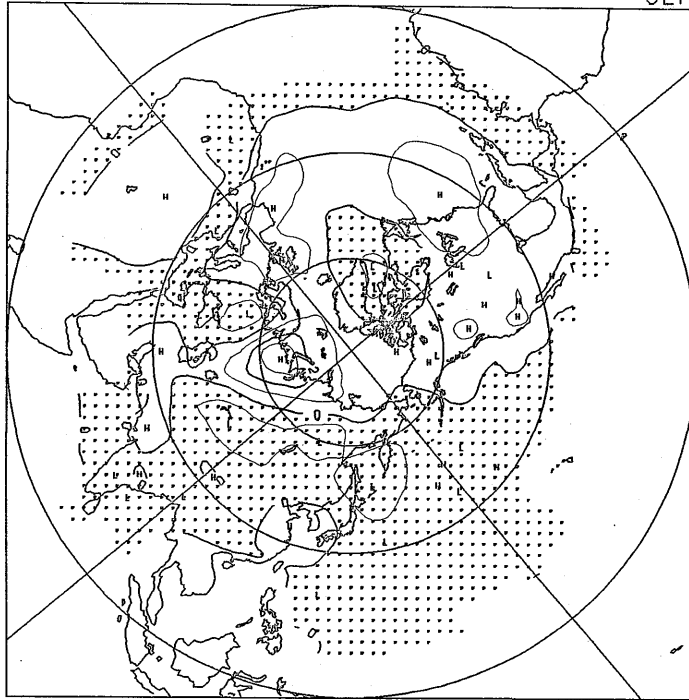
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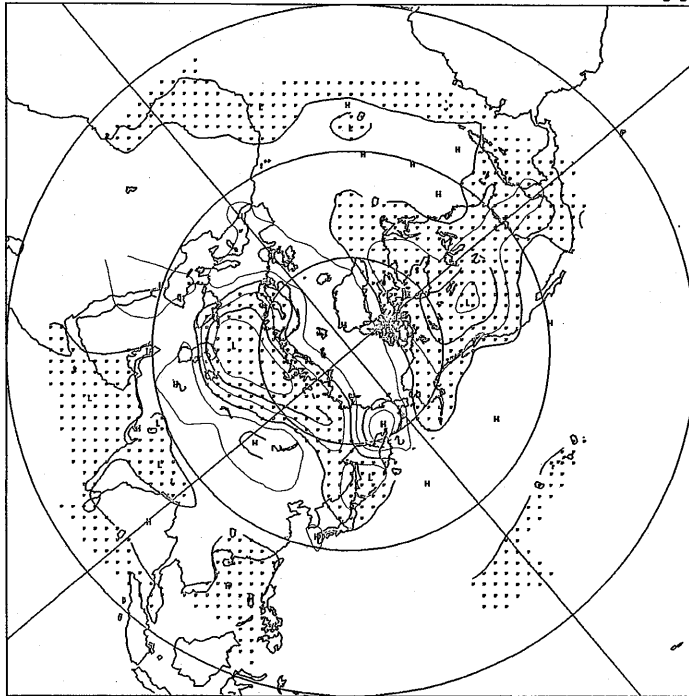
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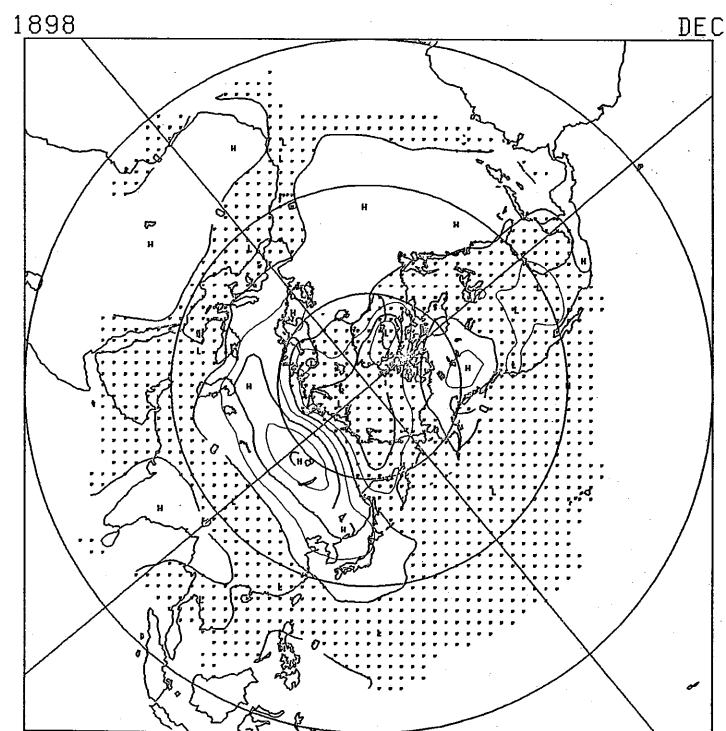
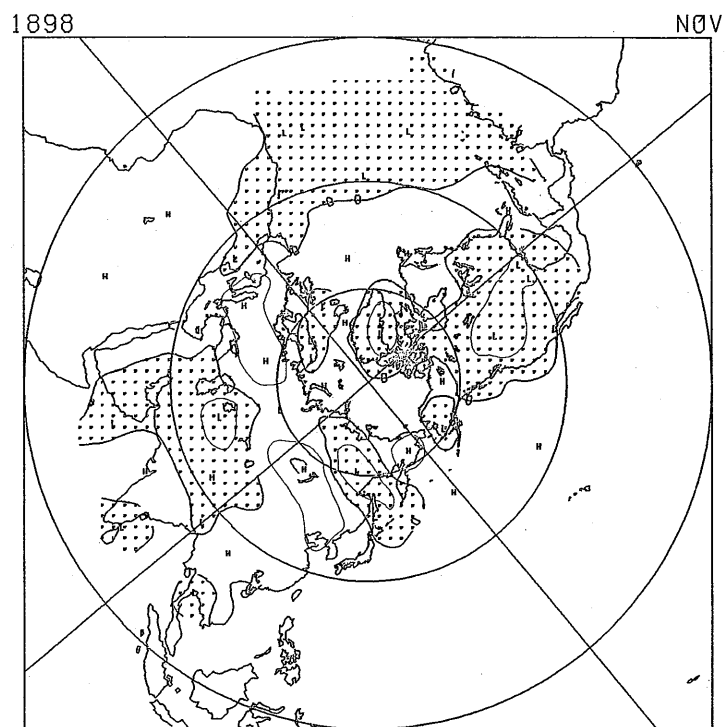
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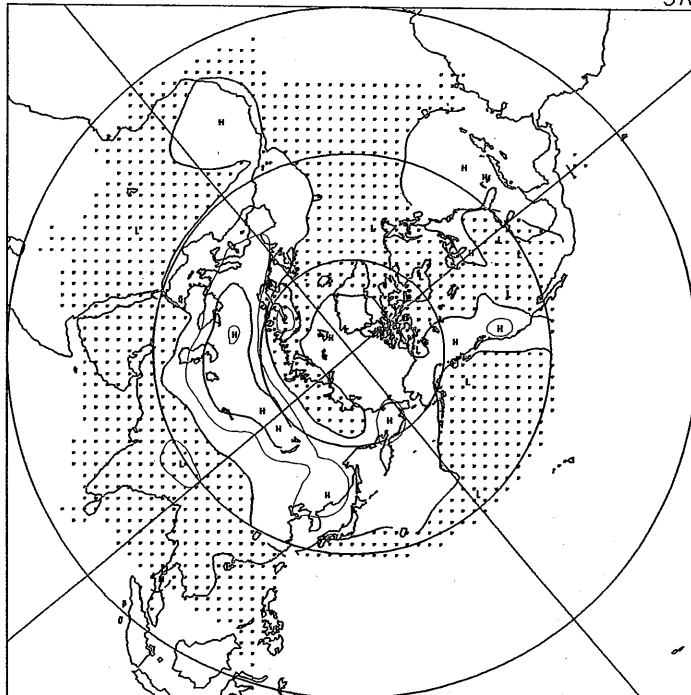
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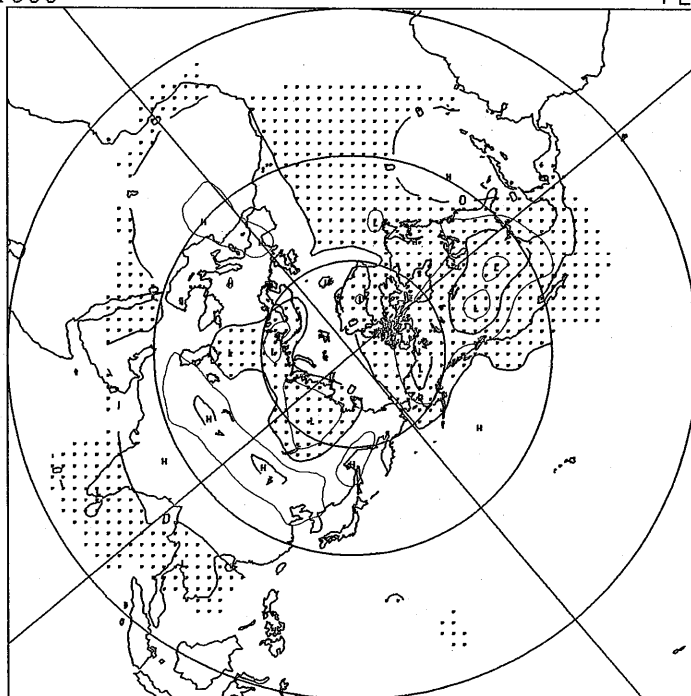
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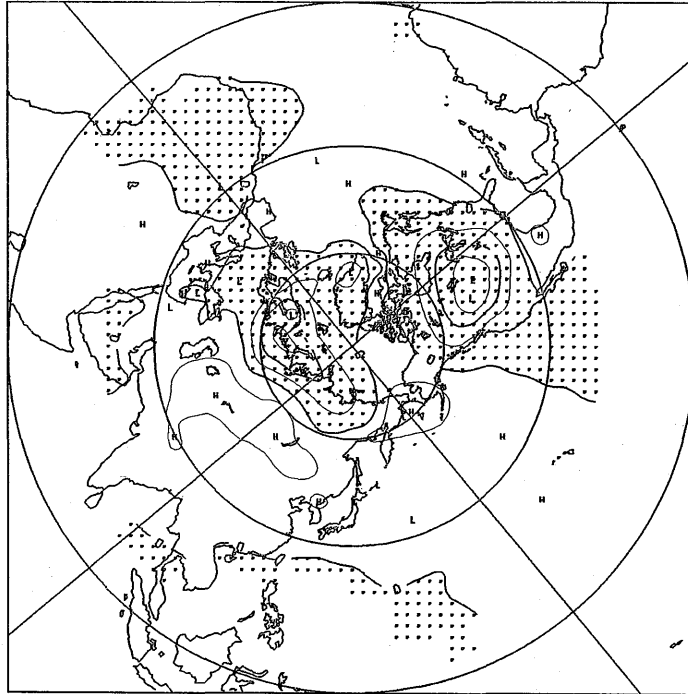
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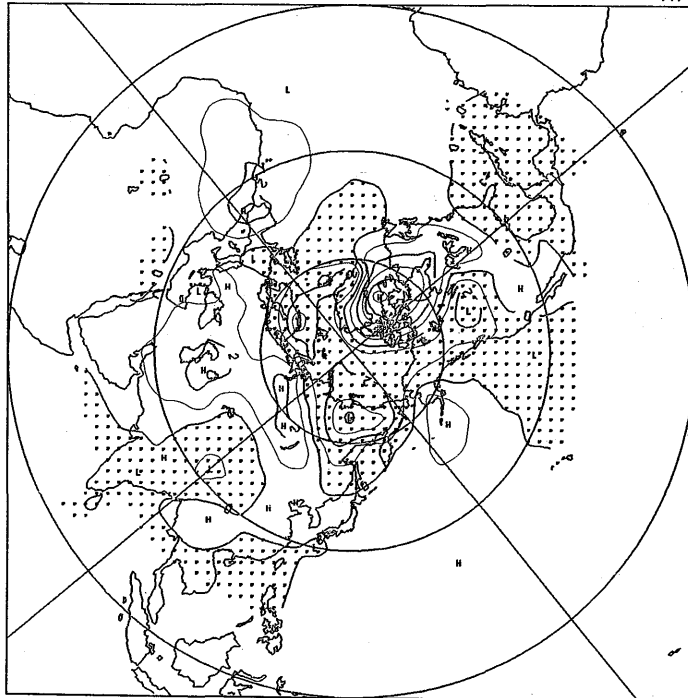
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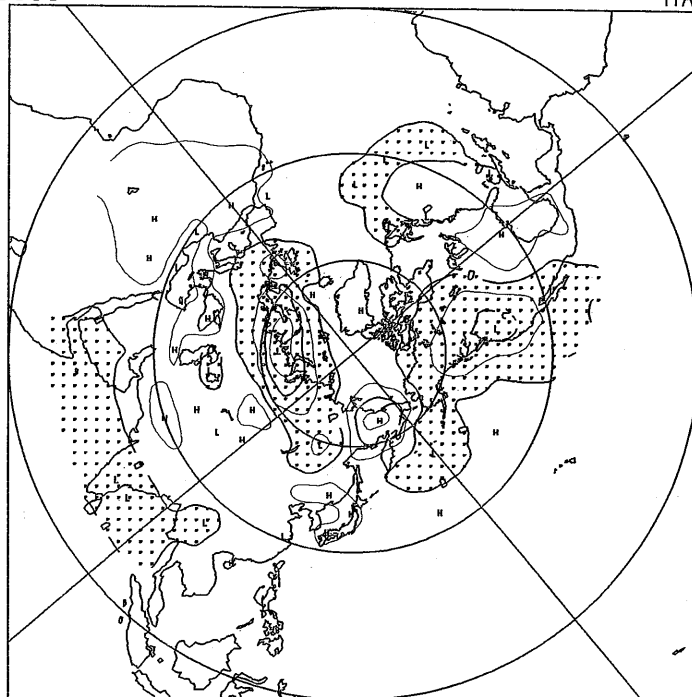
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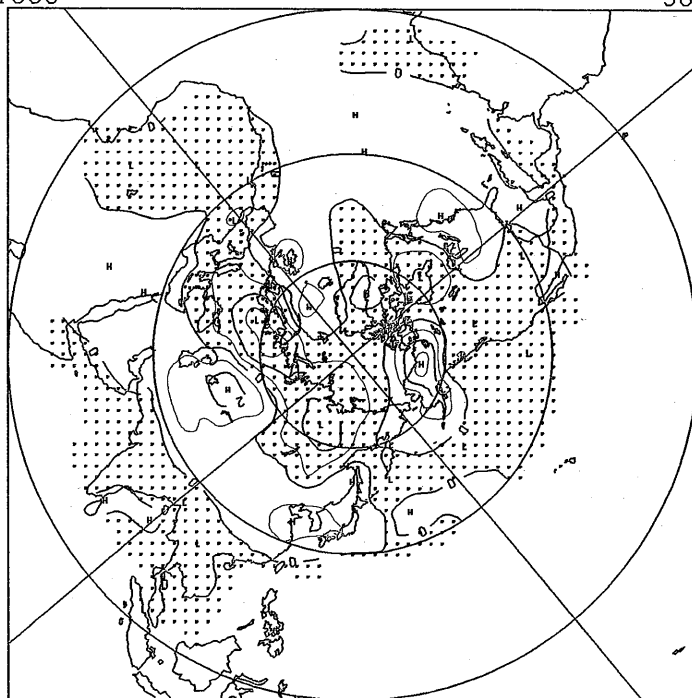
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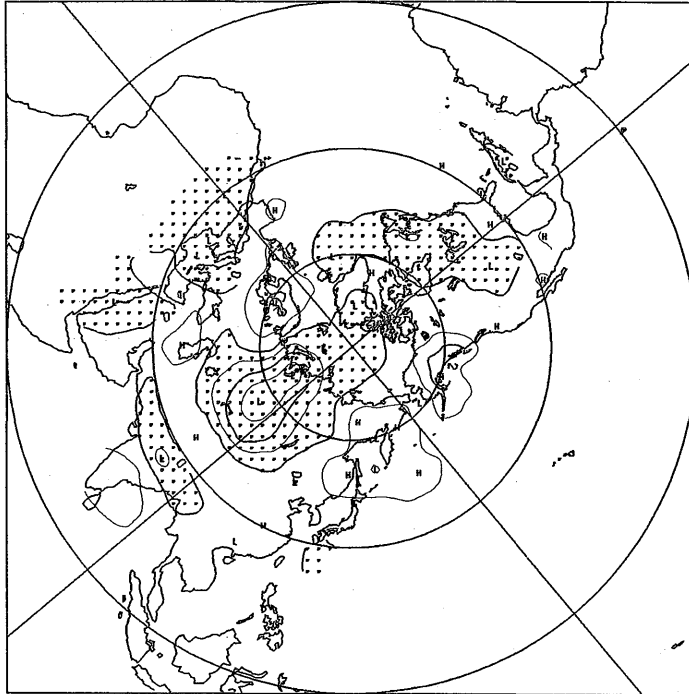
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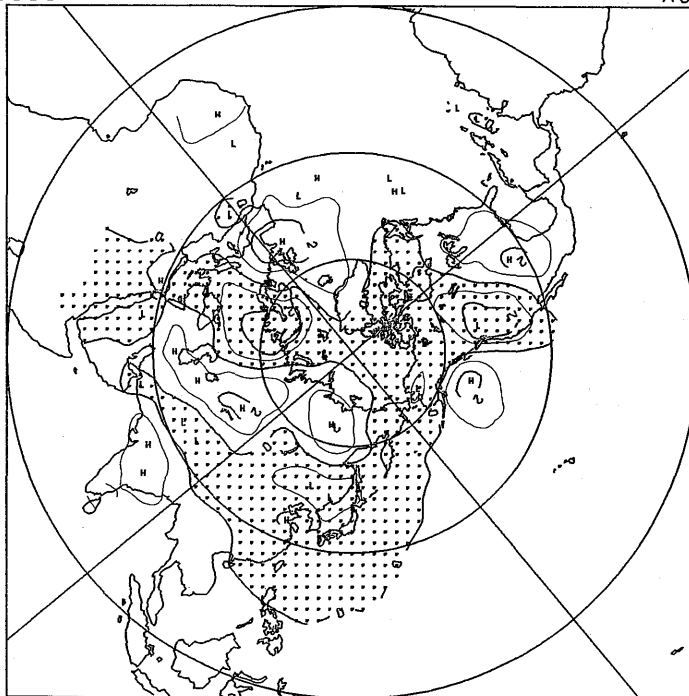
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JUL



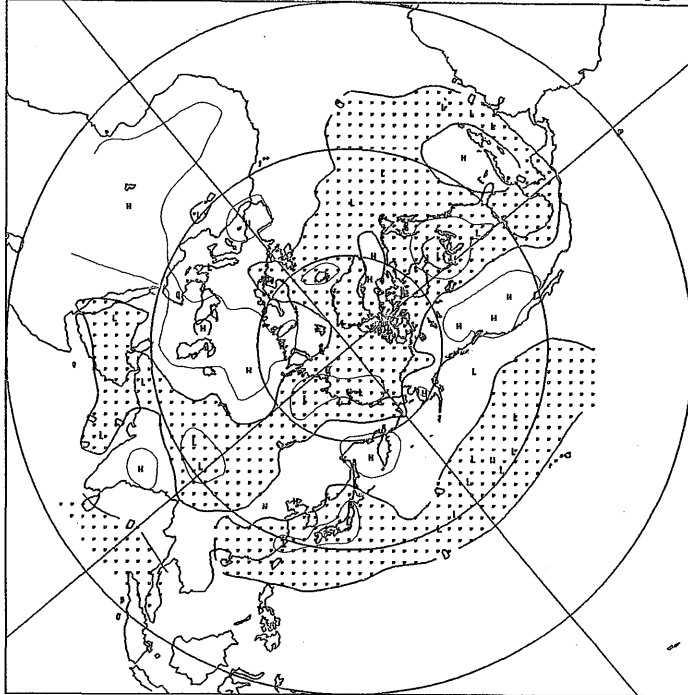
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AUG



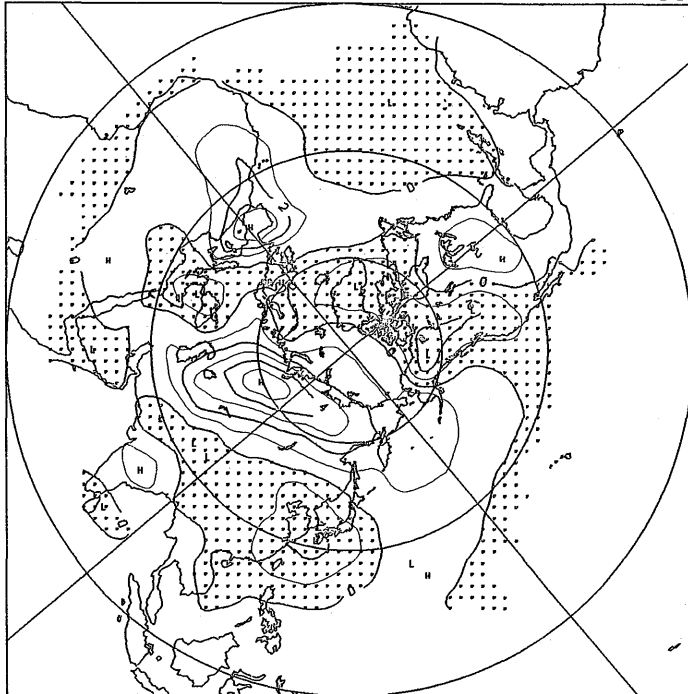
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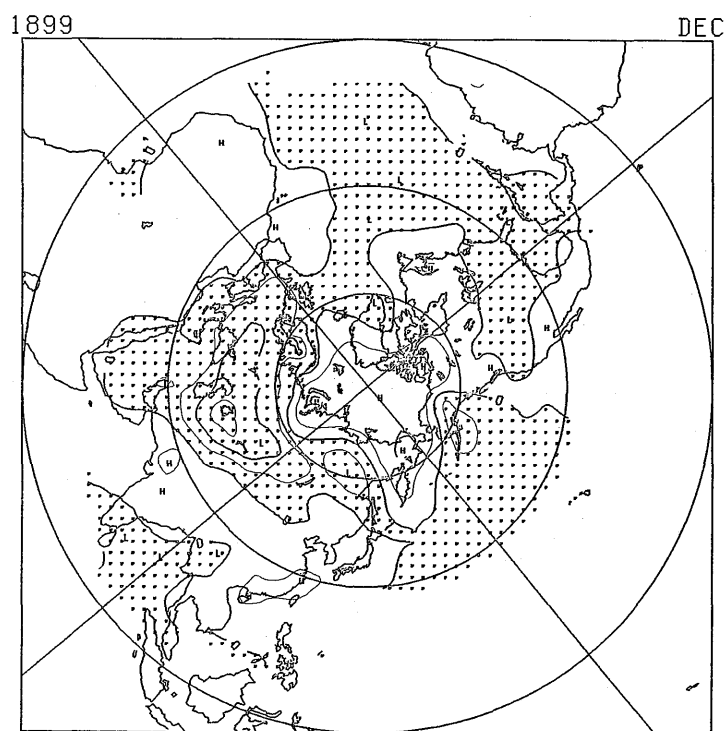
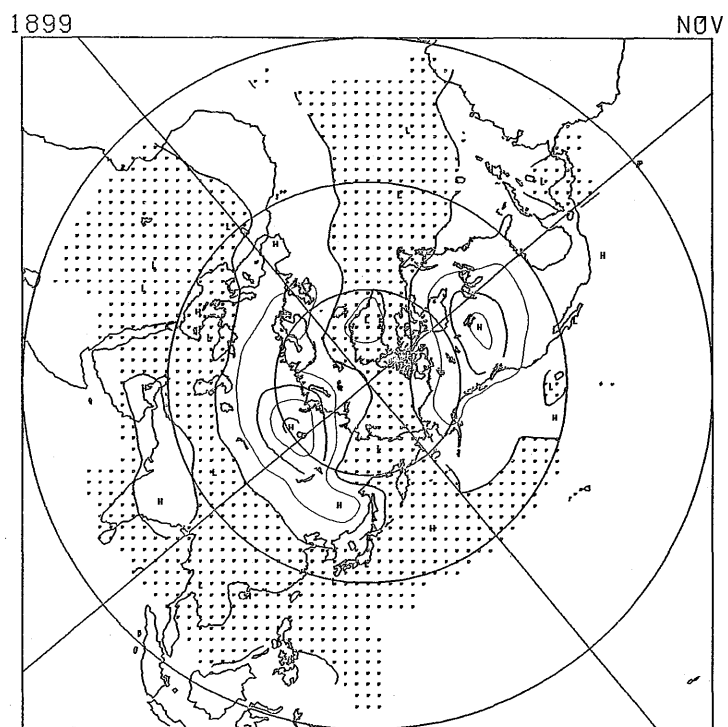
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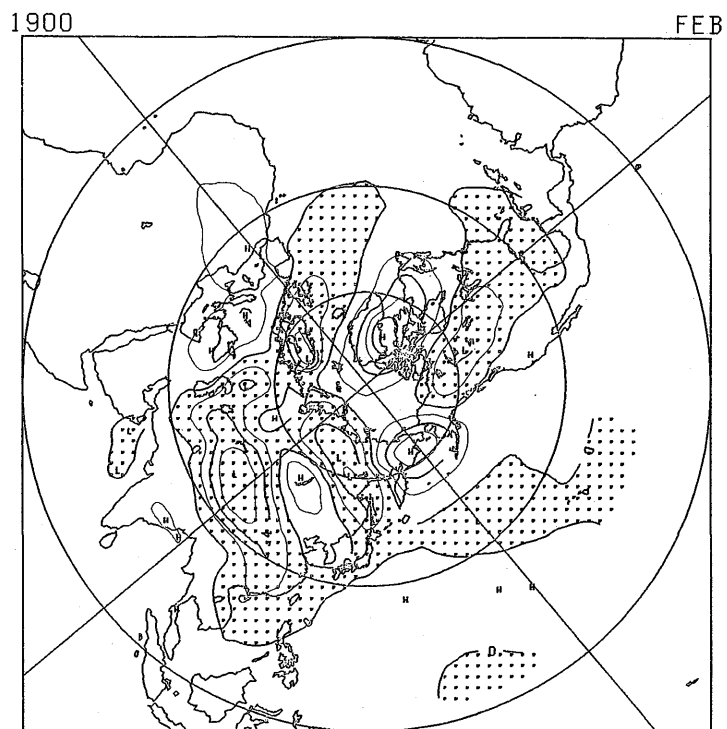
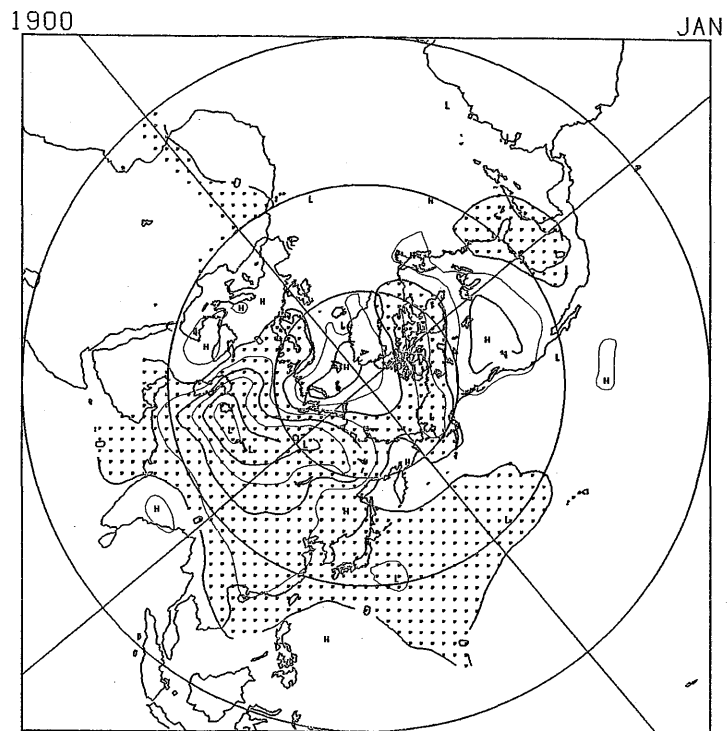


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OCT

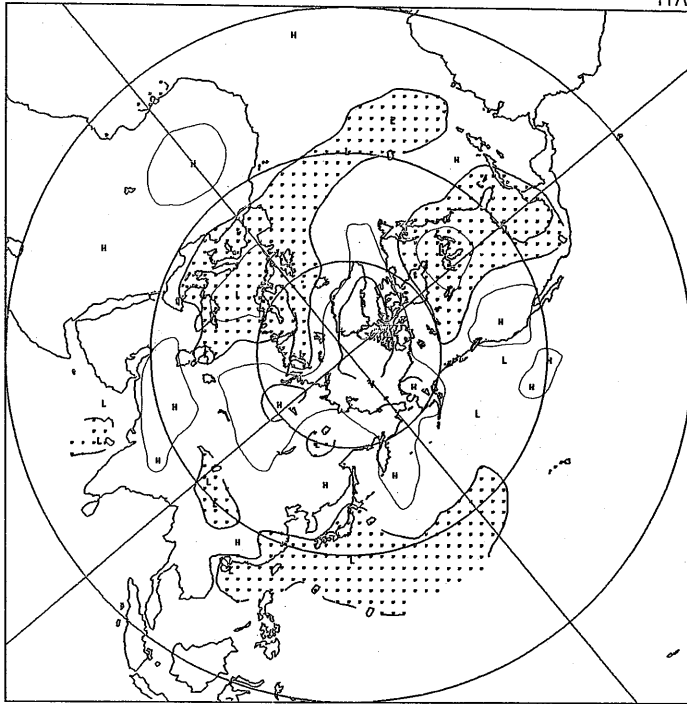






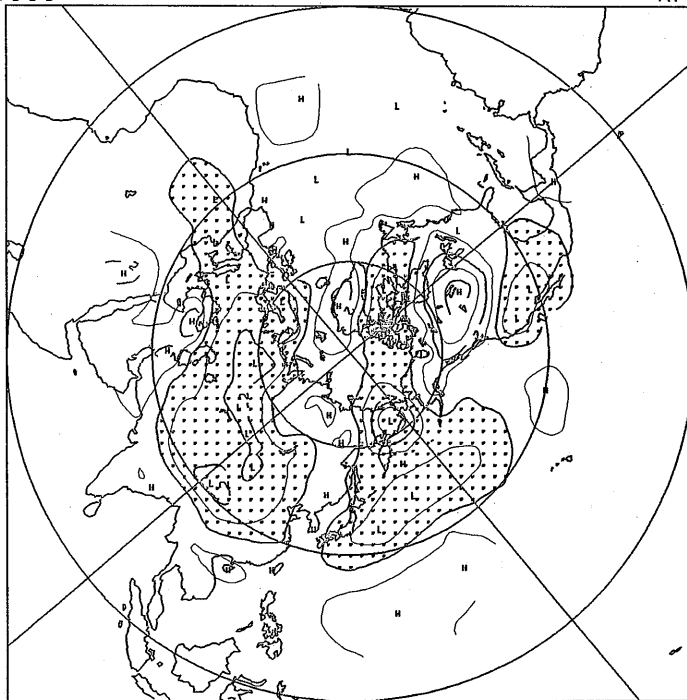
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MAR



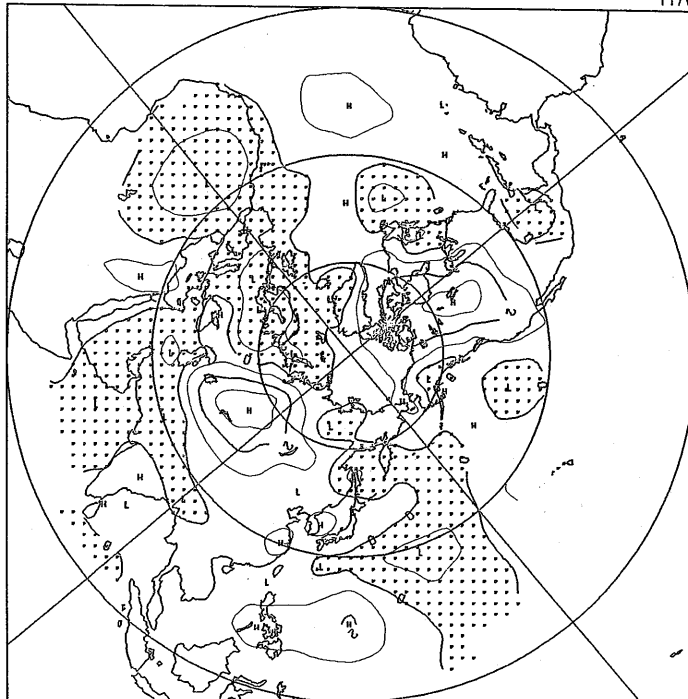
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APR



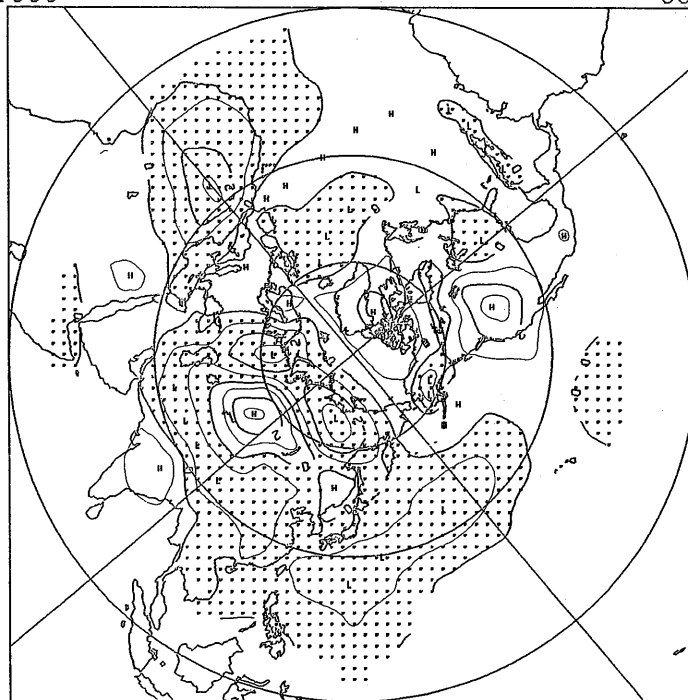
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MAY



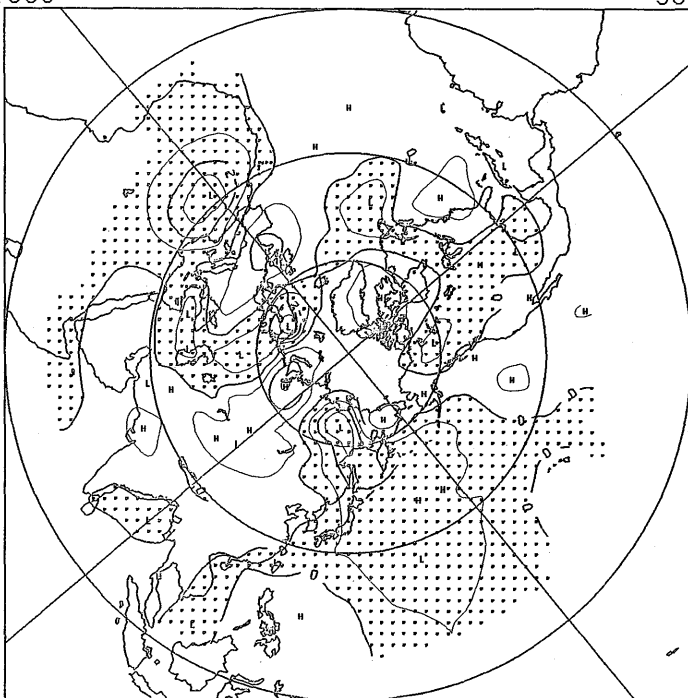
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JUN



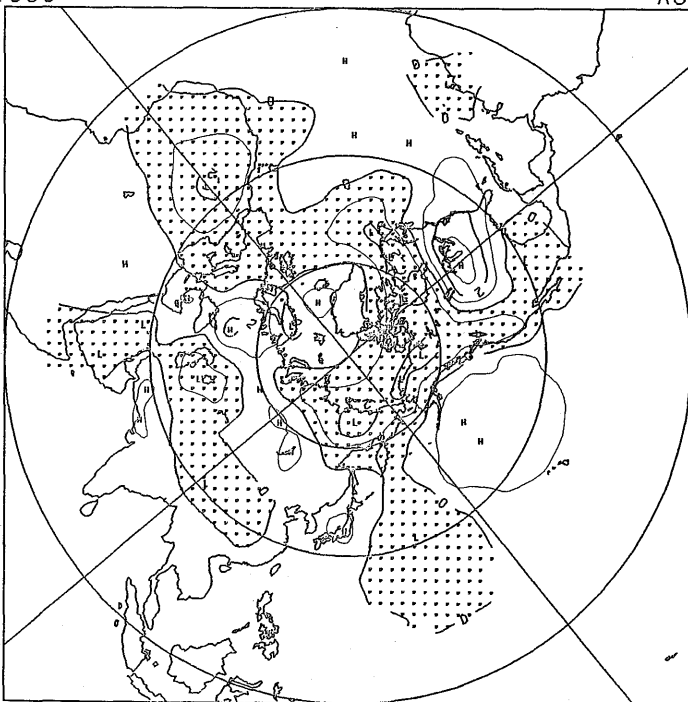
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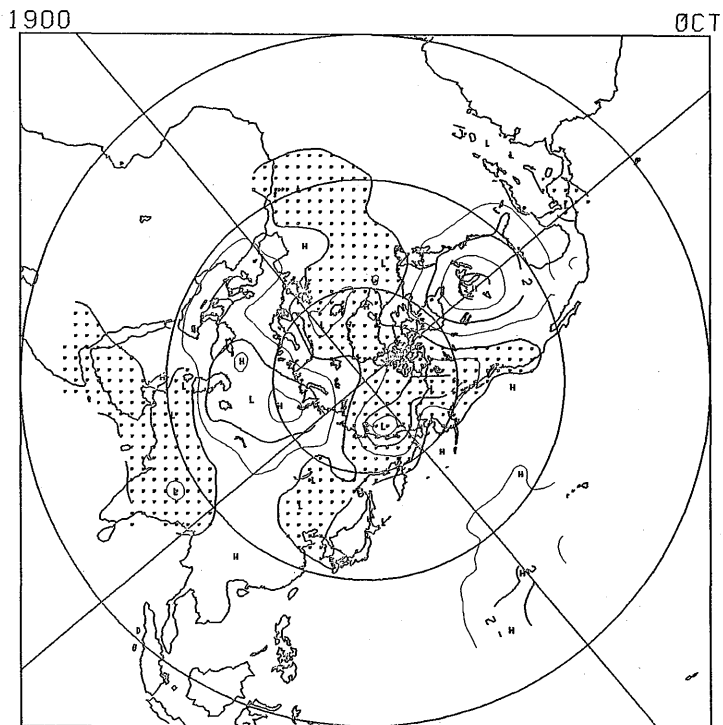
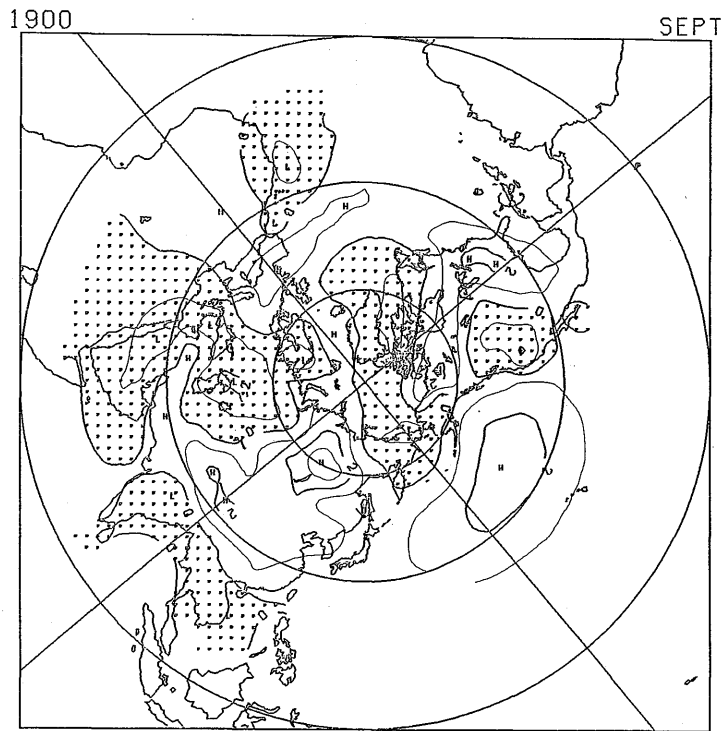
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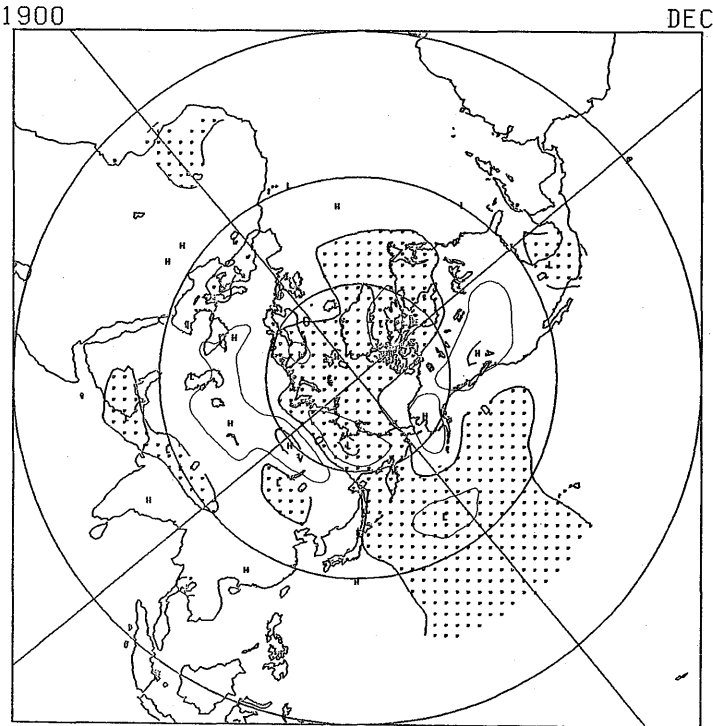
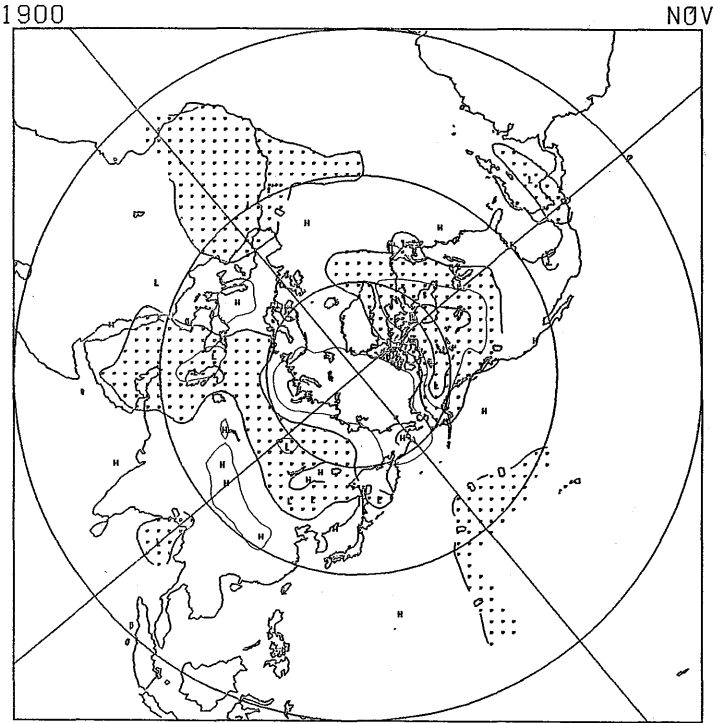


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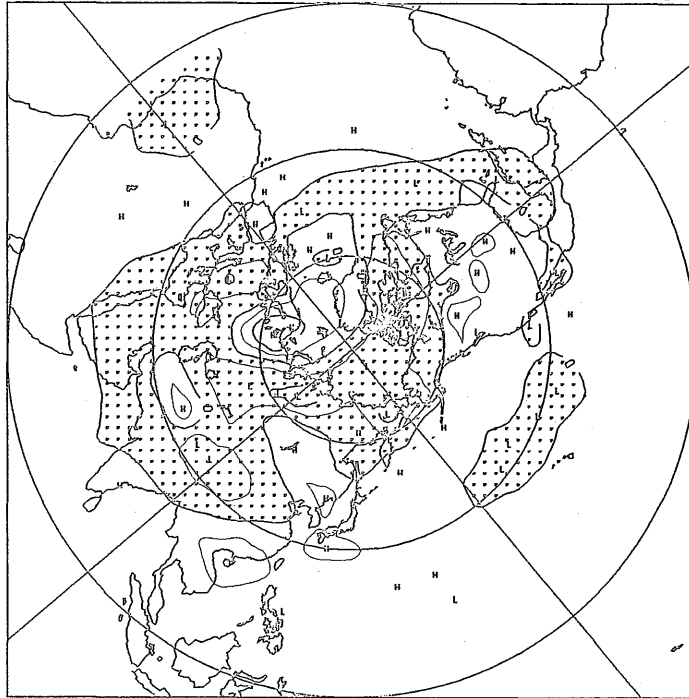






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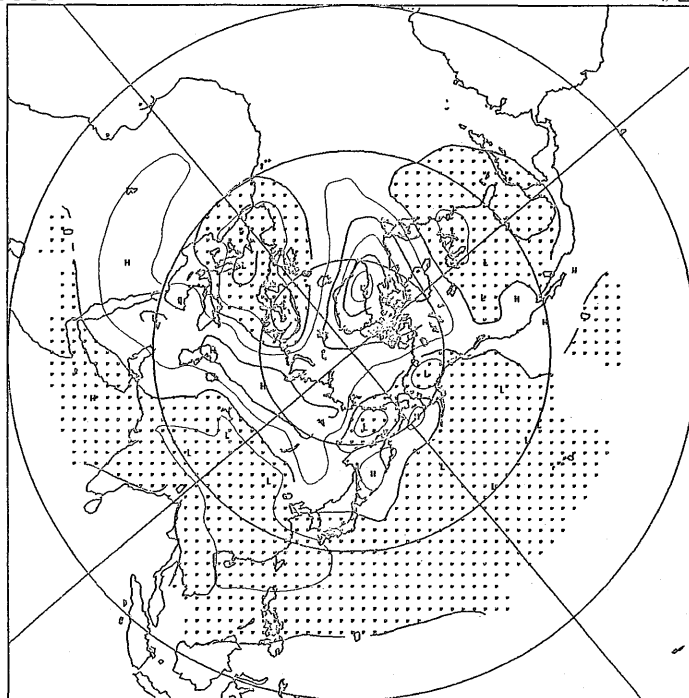
JAN



1901年
1月

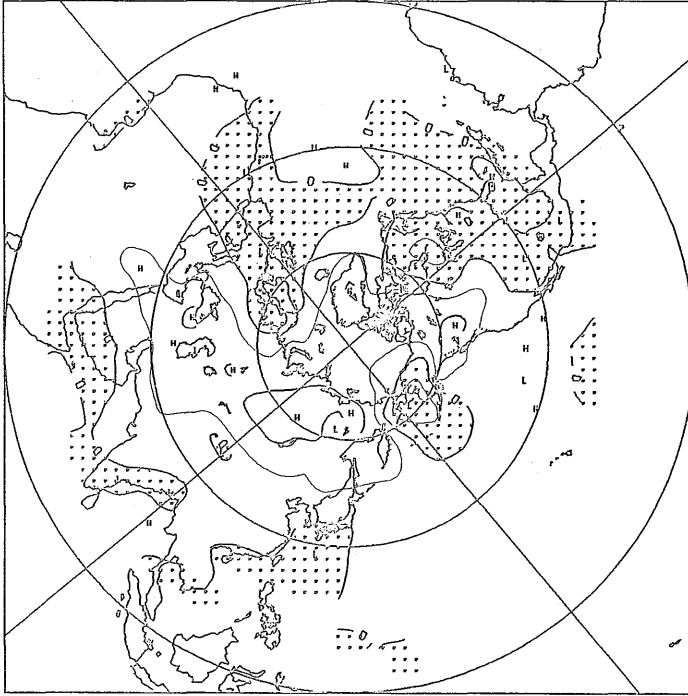
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FEB



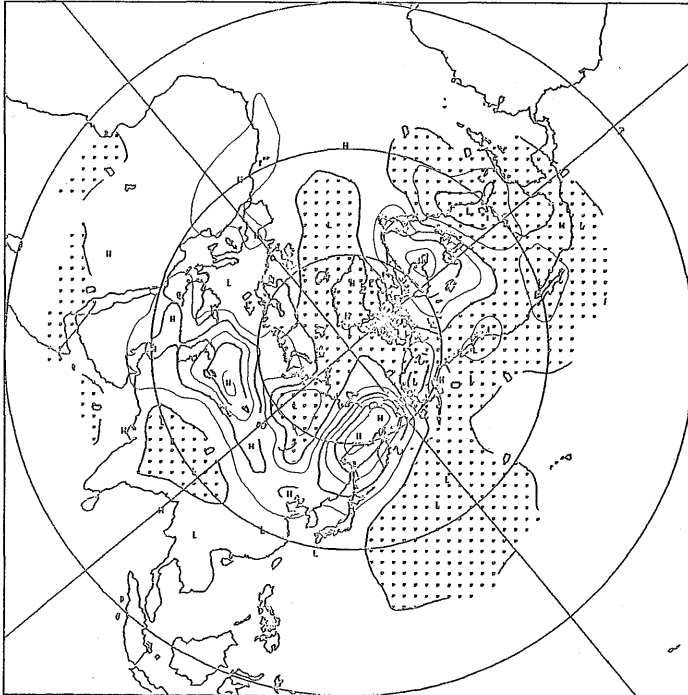
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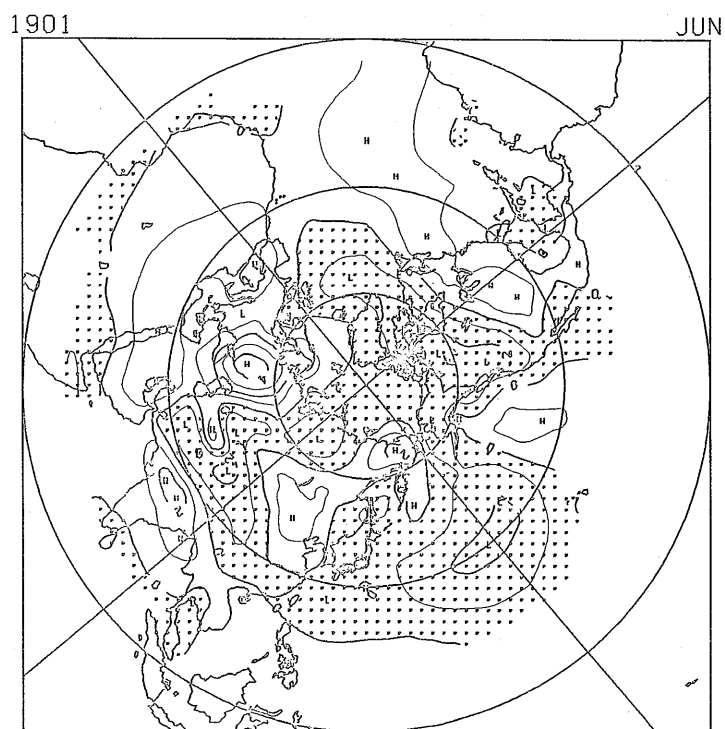
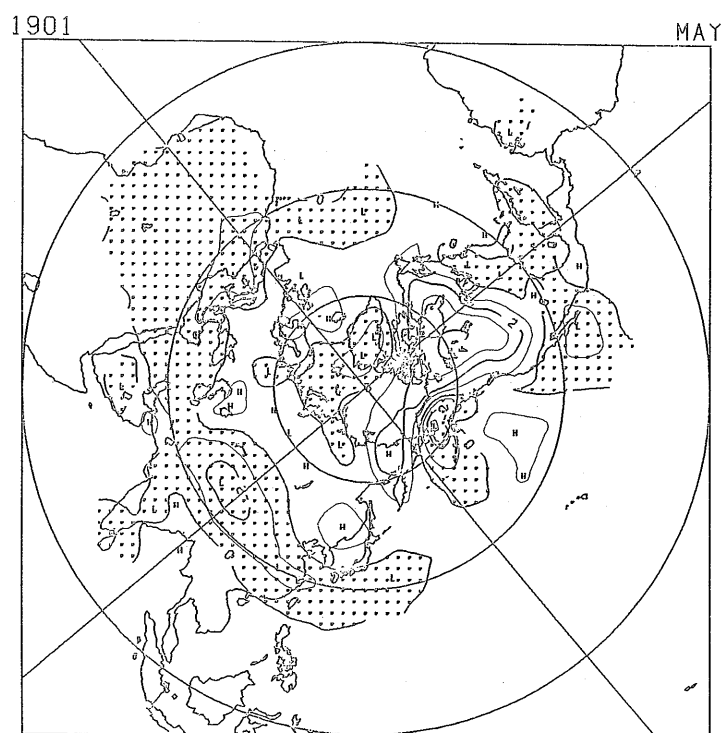
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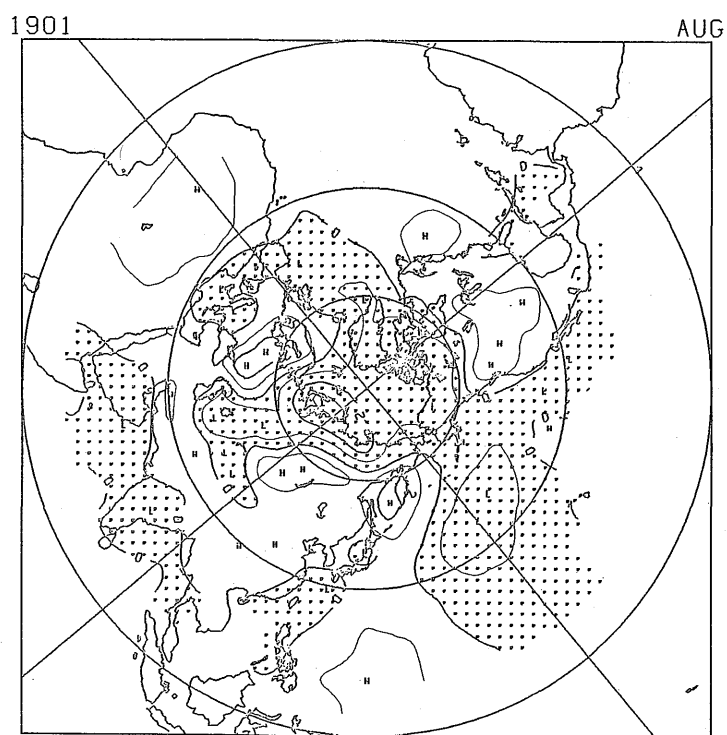
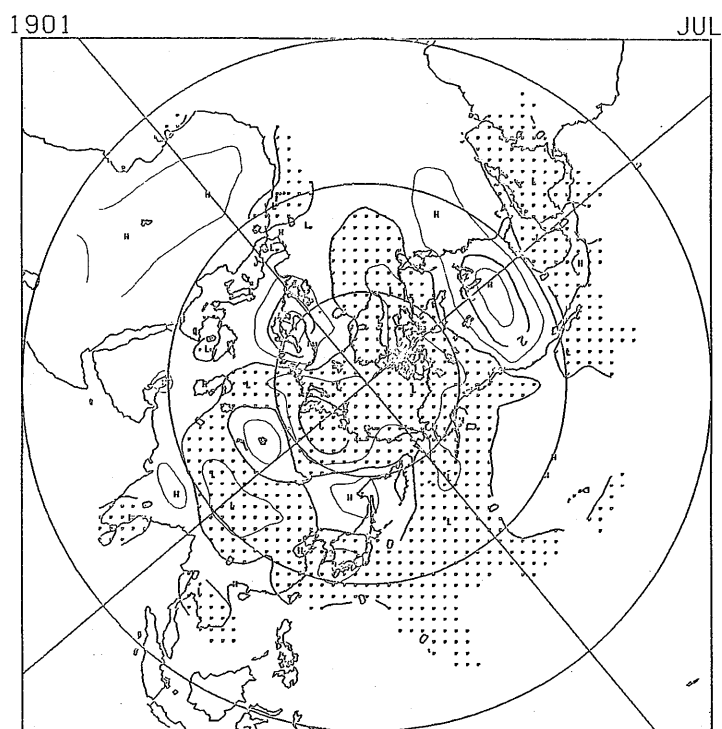


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APR

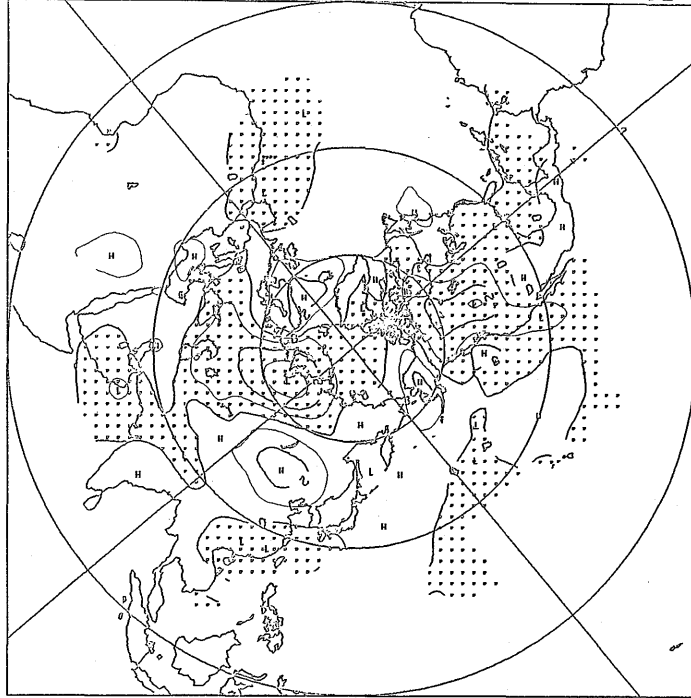






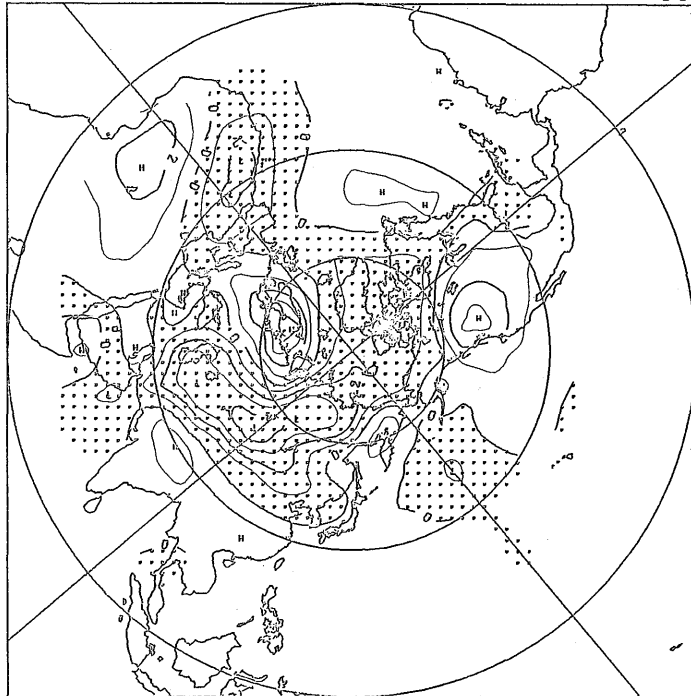
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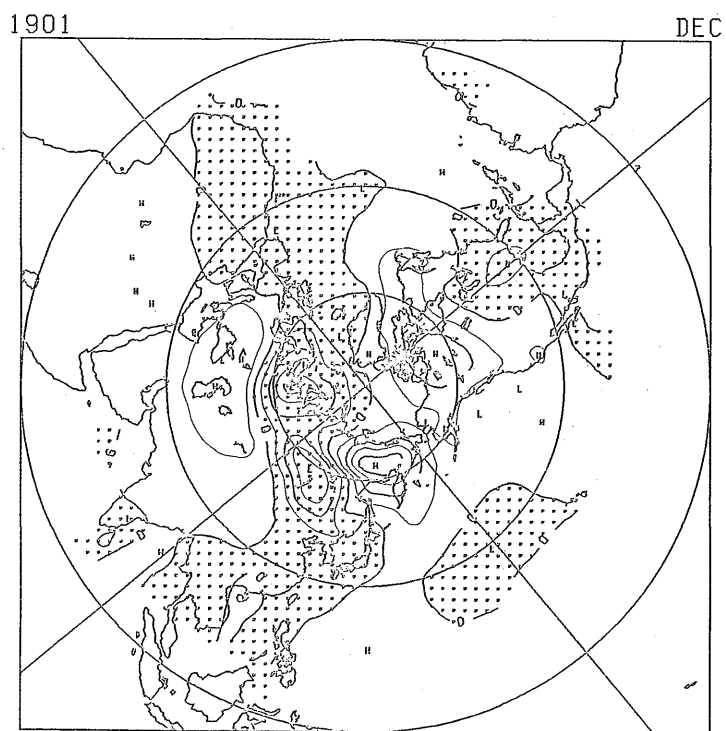
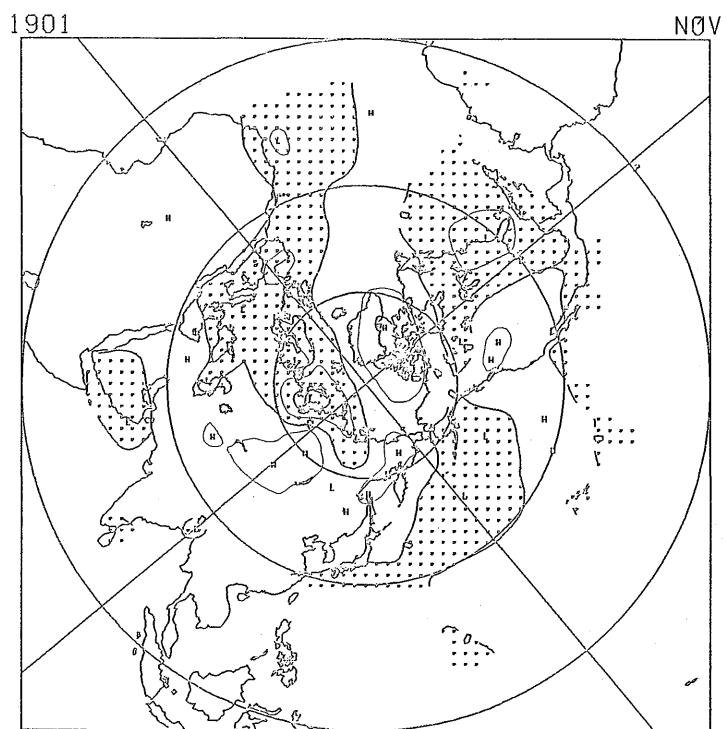
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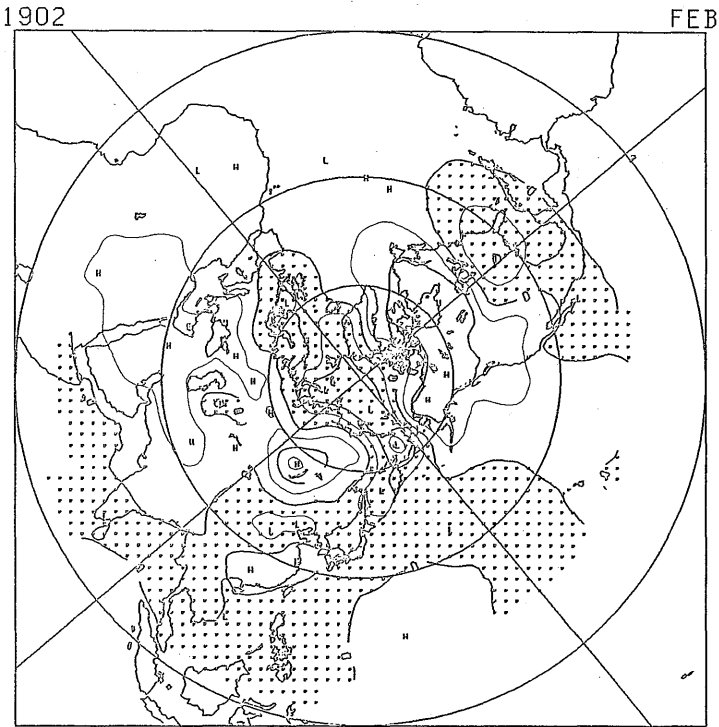
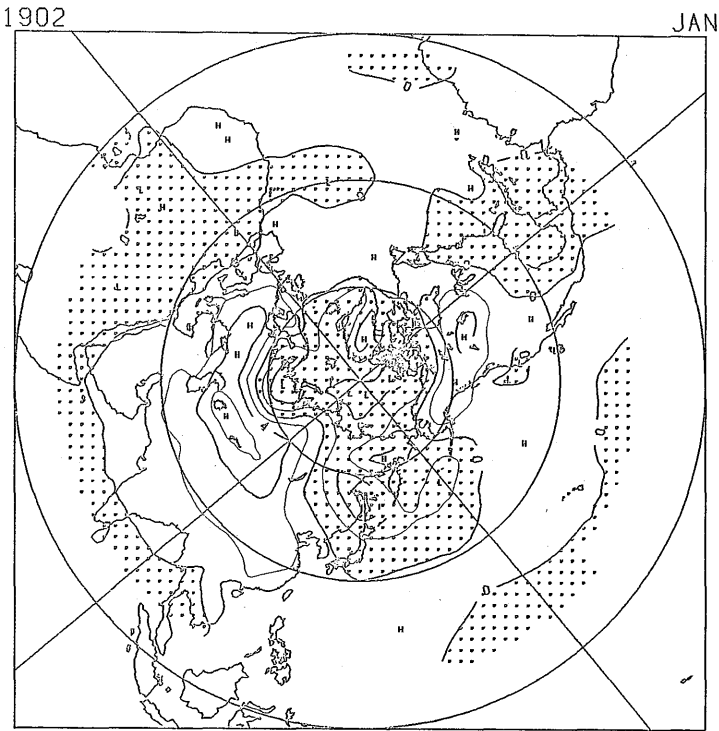


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OCT

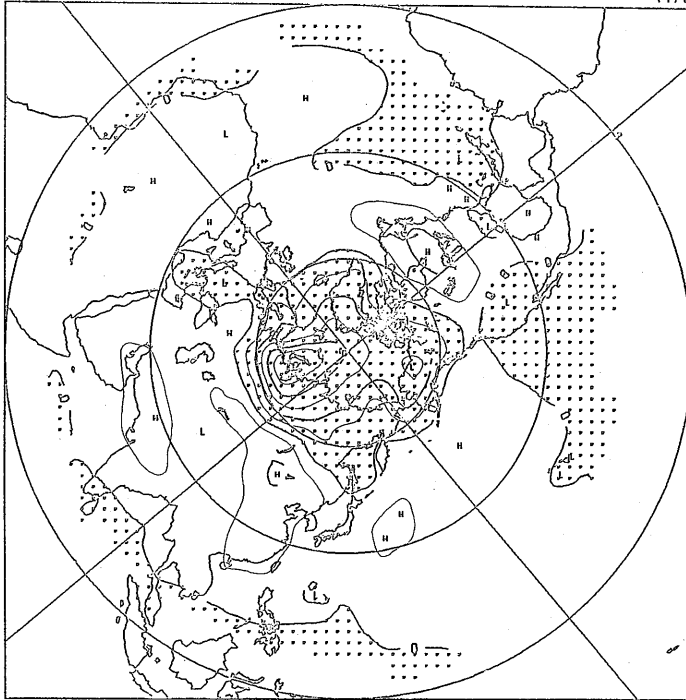






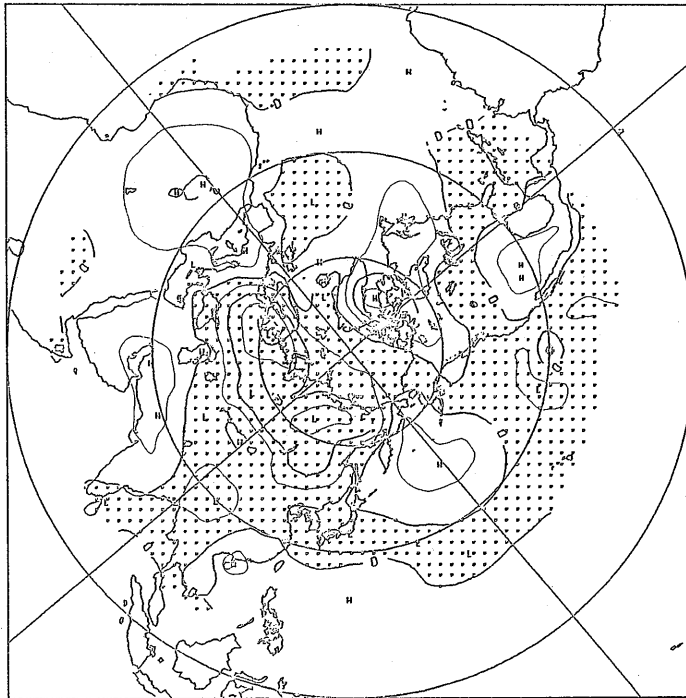
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MAR



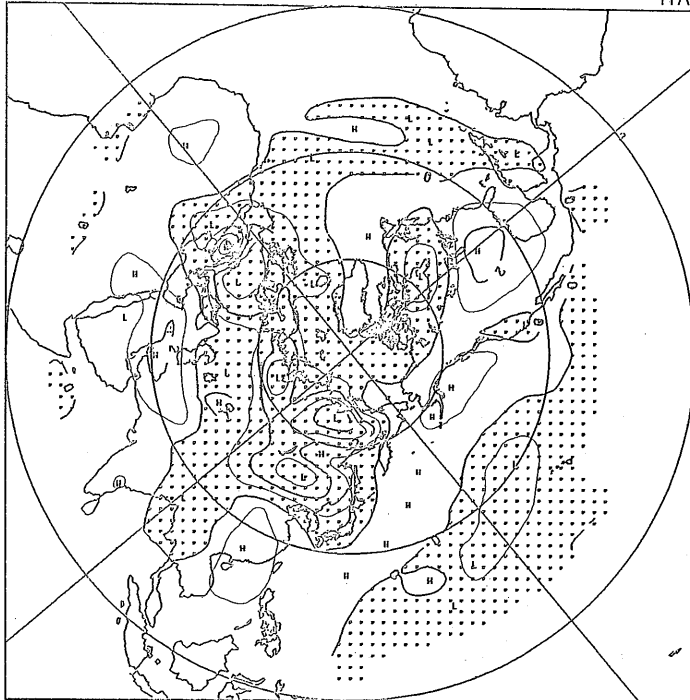
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APR



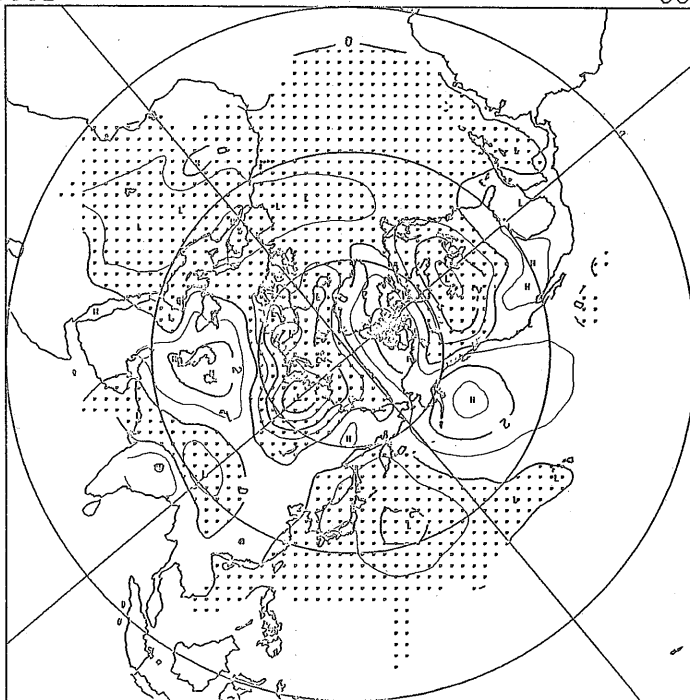
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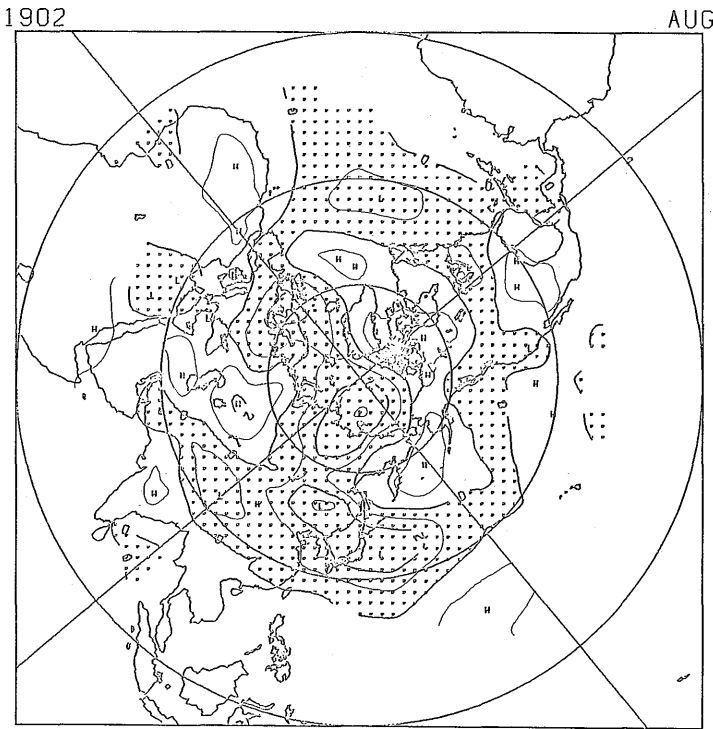
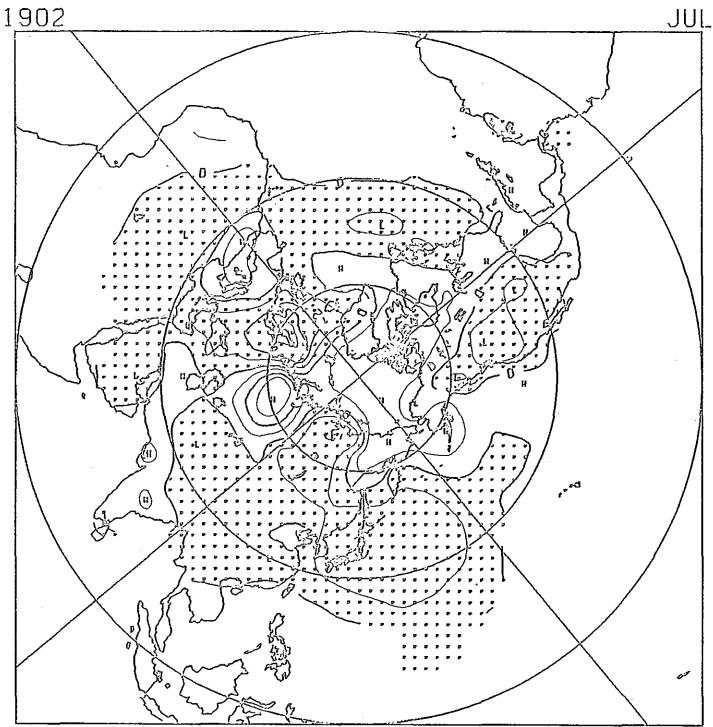
MAY



1902

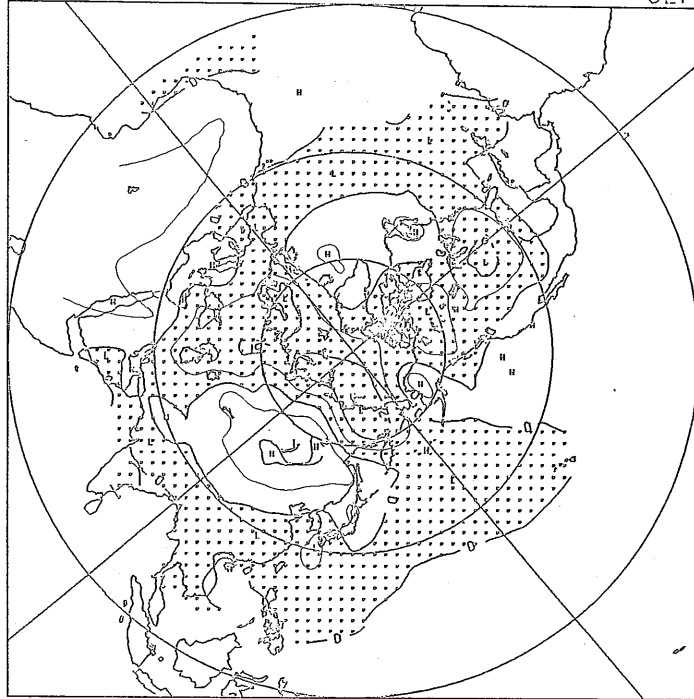
JUN





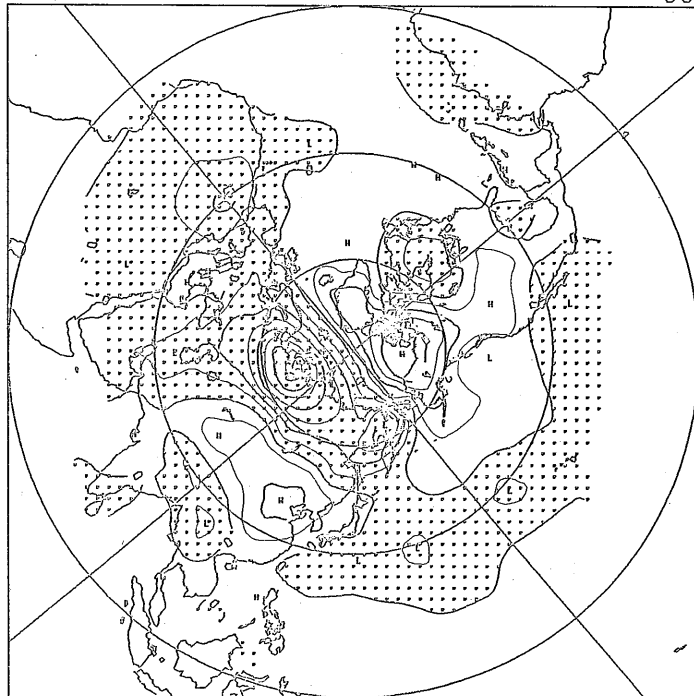
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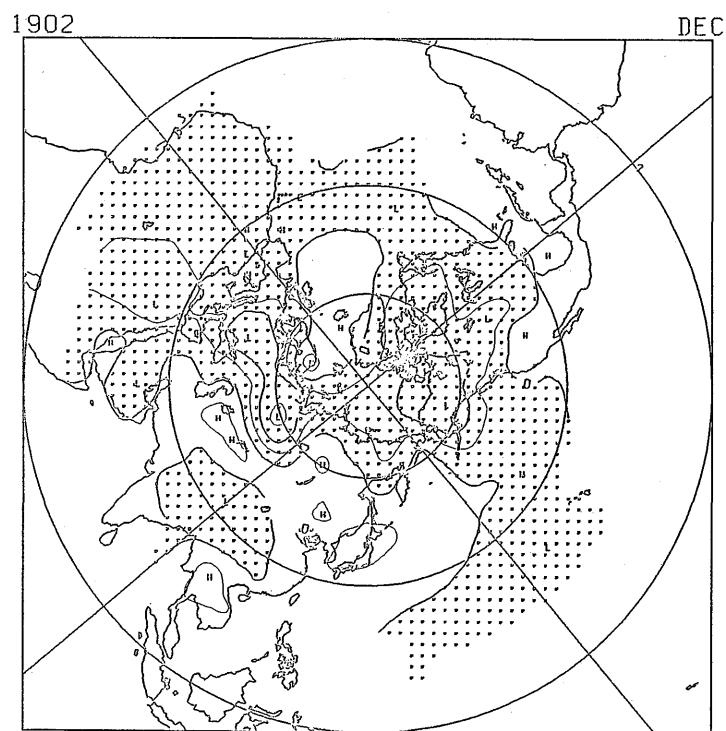
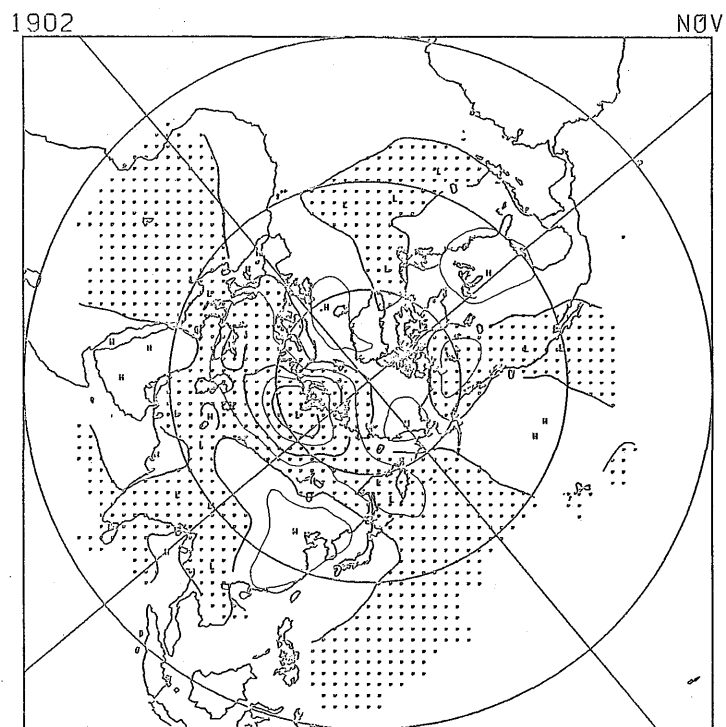
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1902

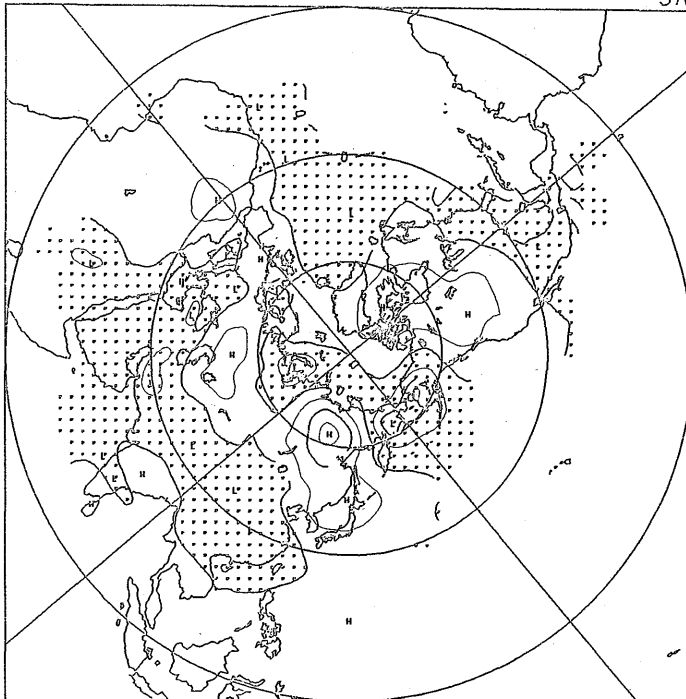
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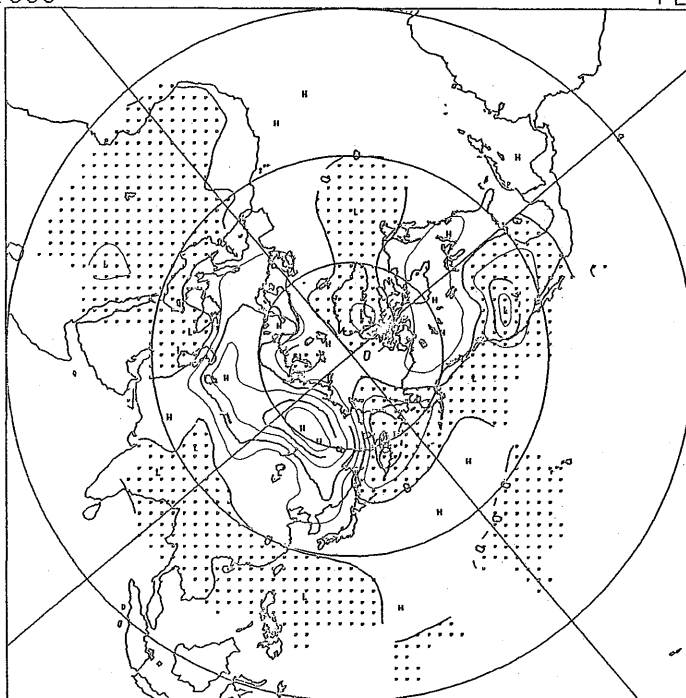
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JAN



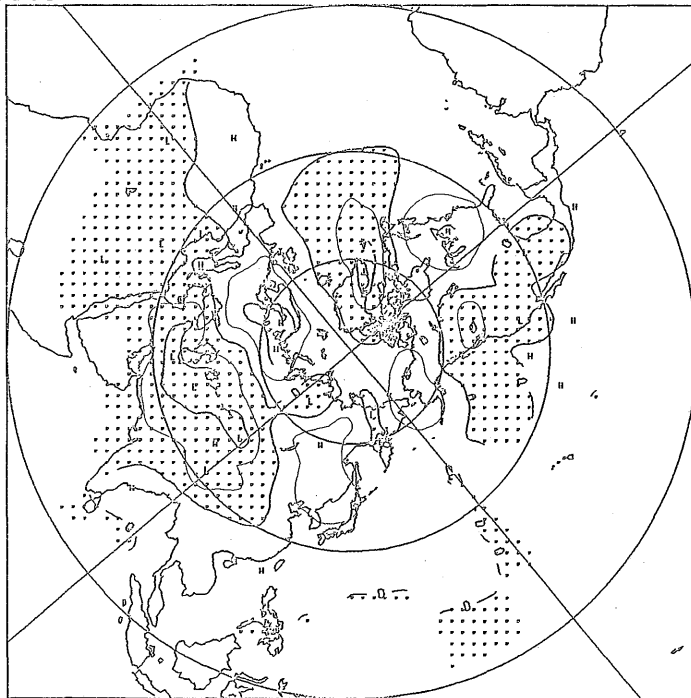
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FEB



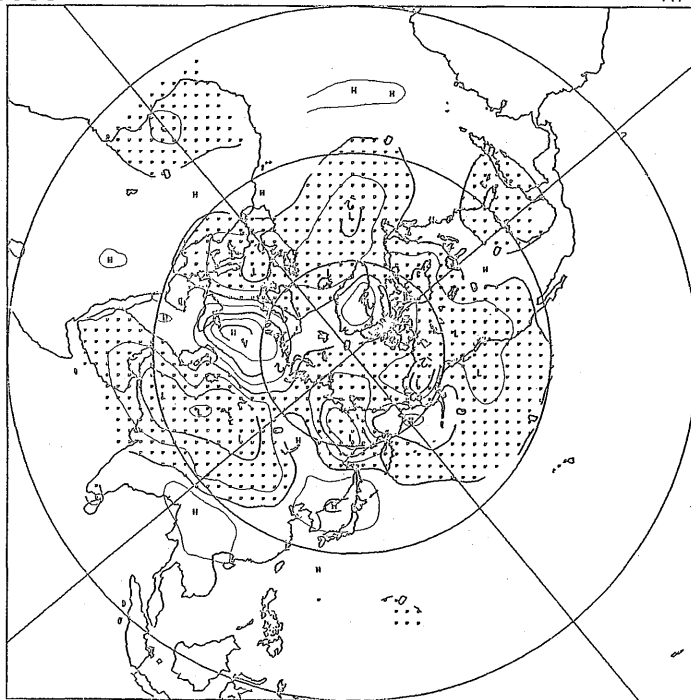
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MAR



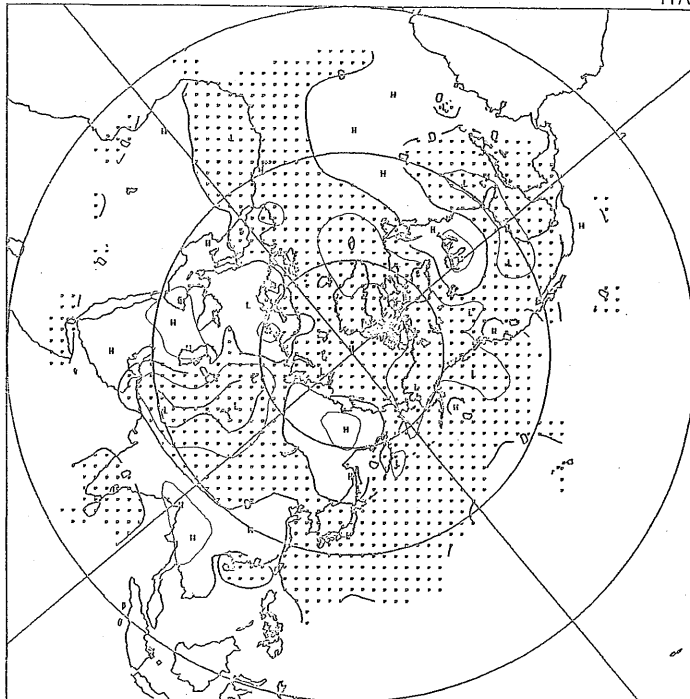
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APR



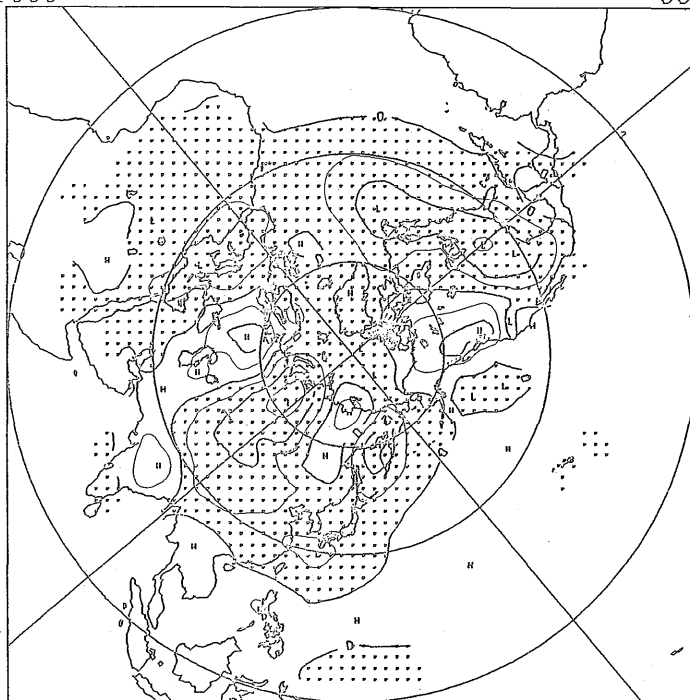
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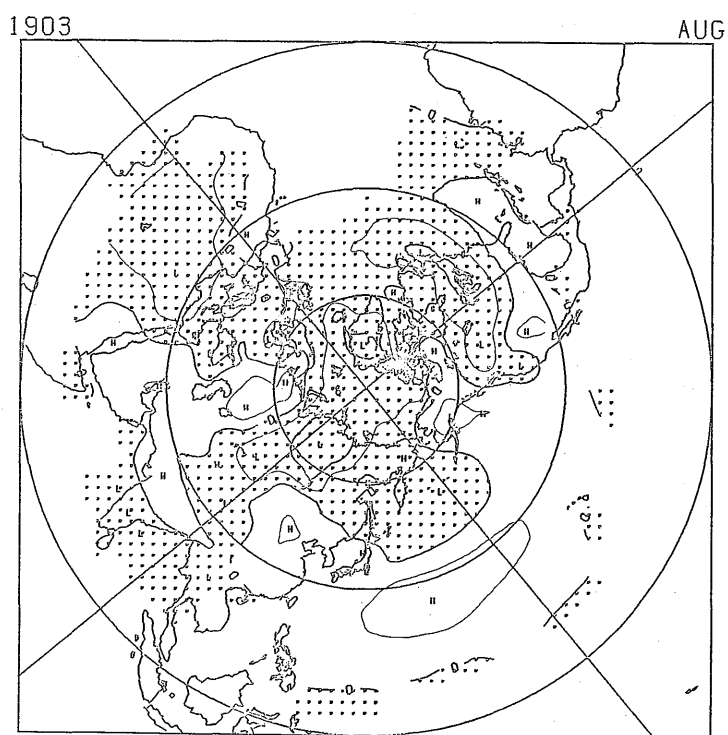
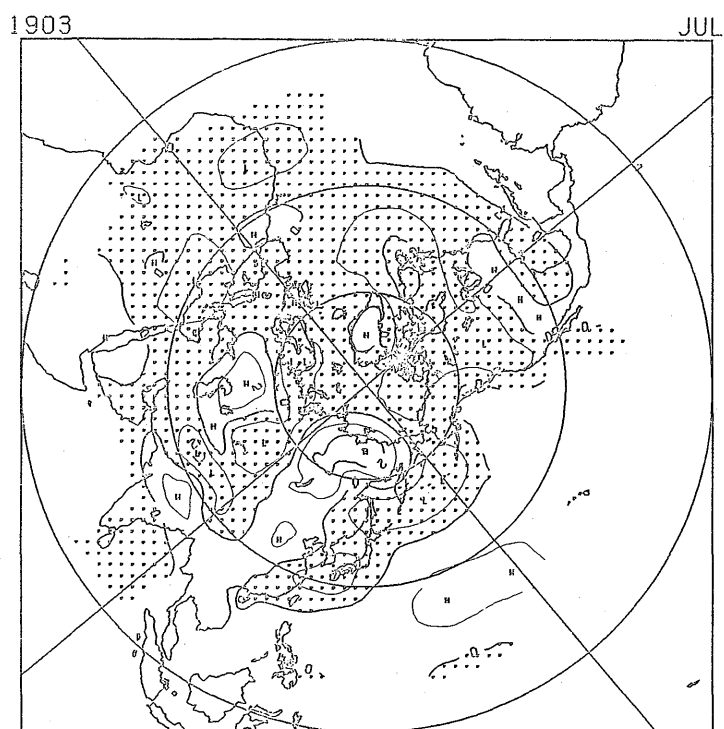
MAY



1903

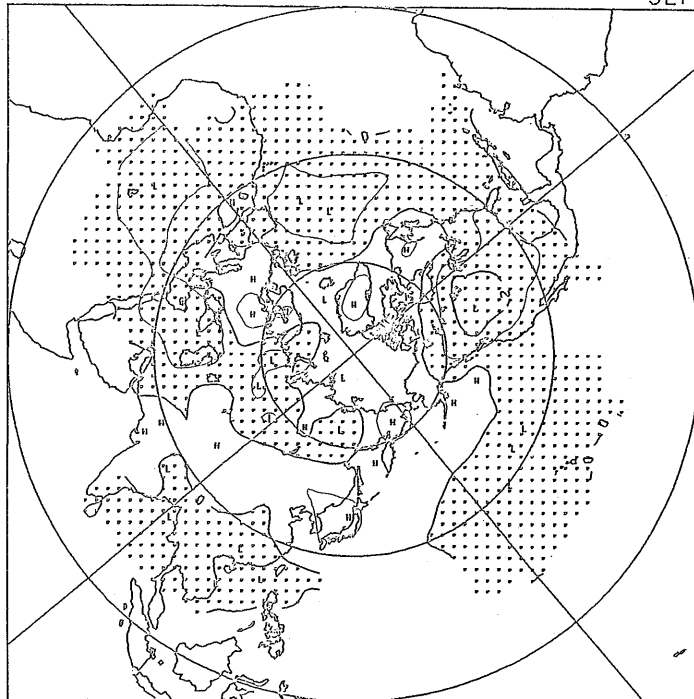
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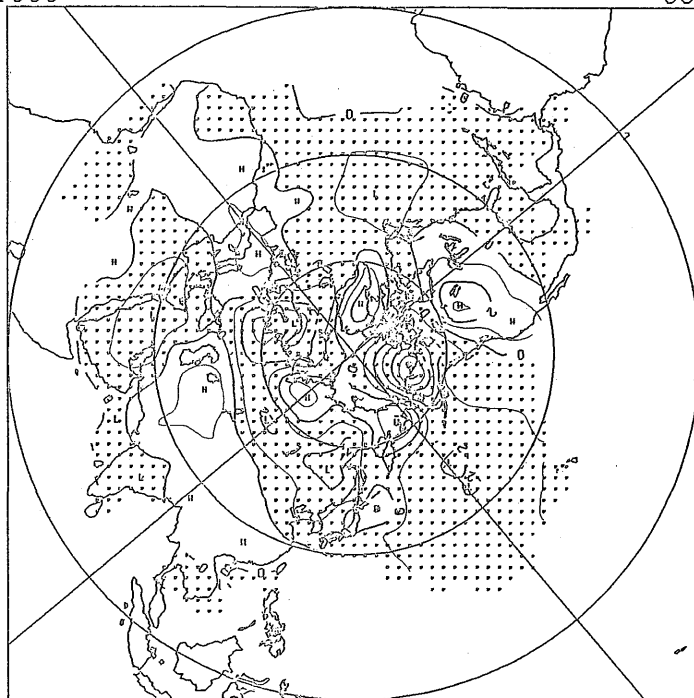
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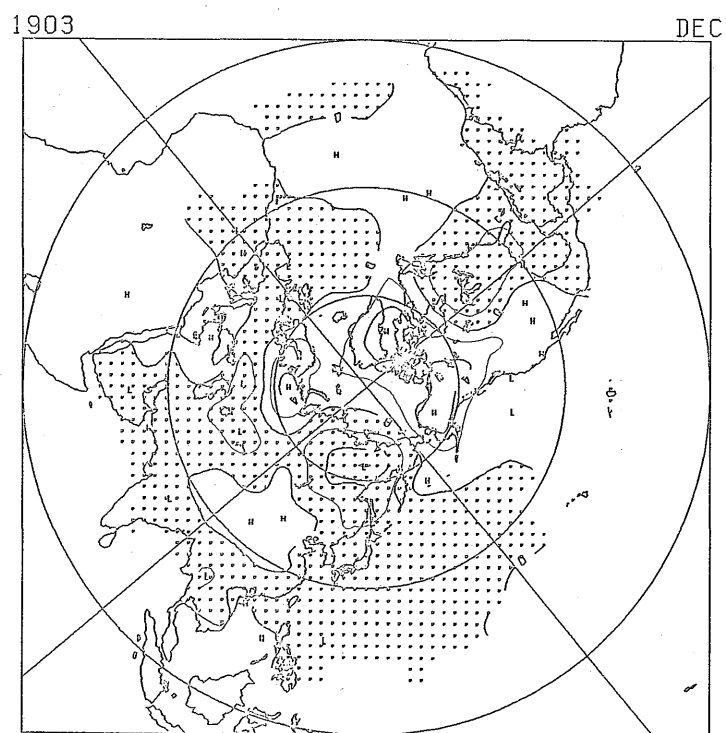
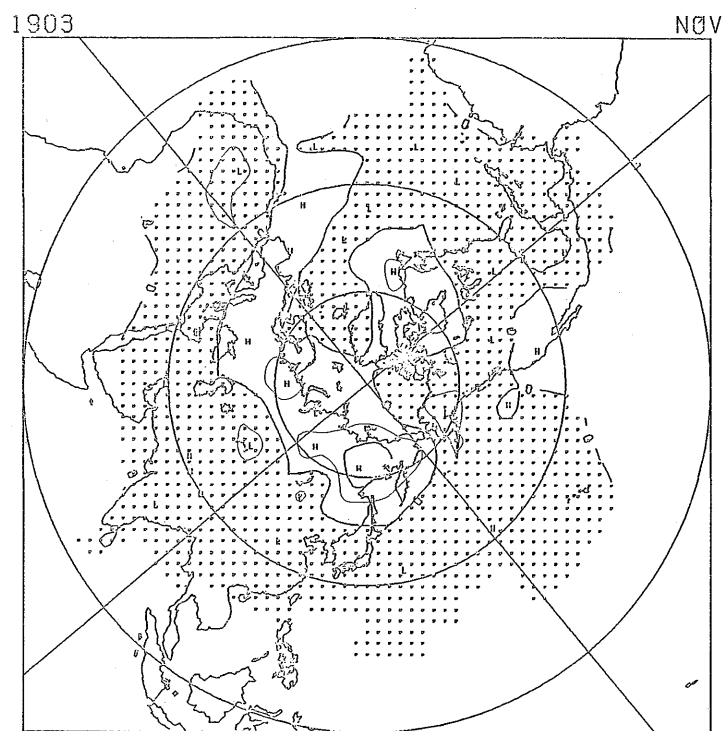
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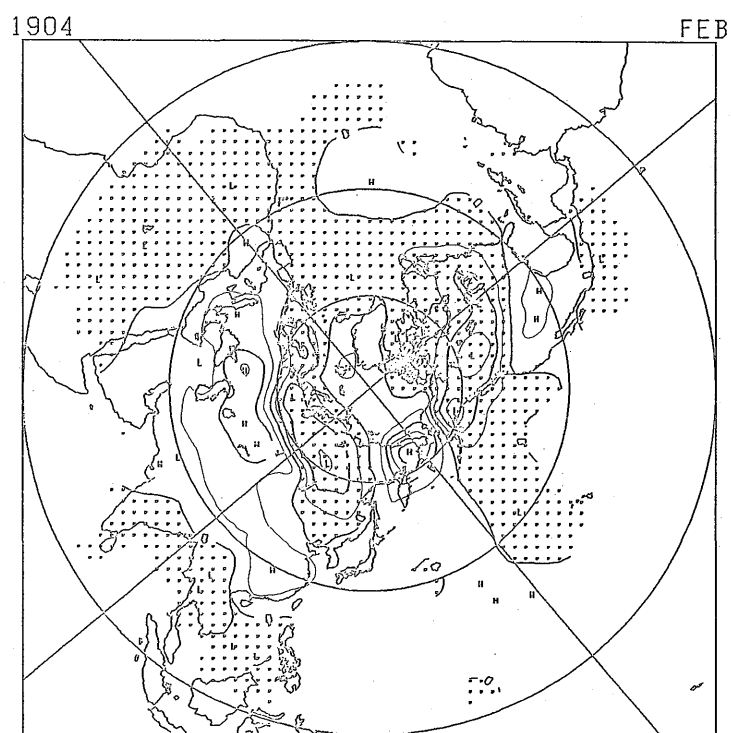
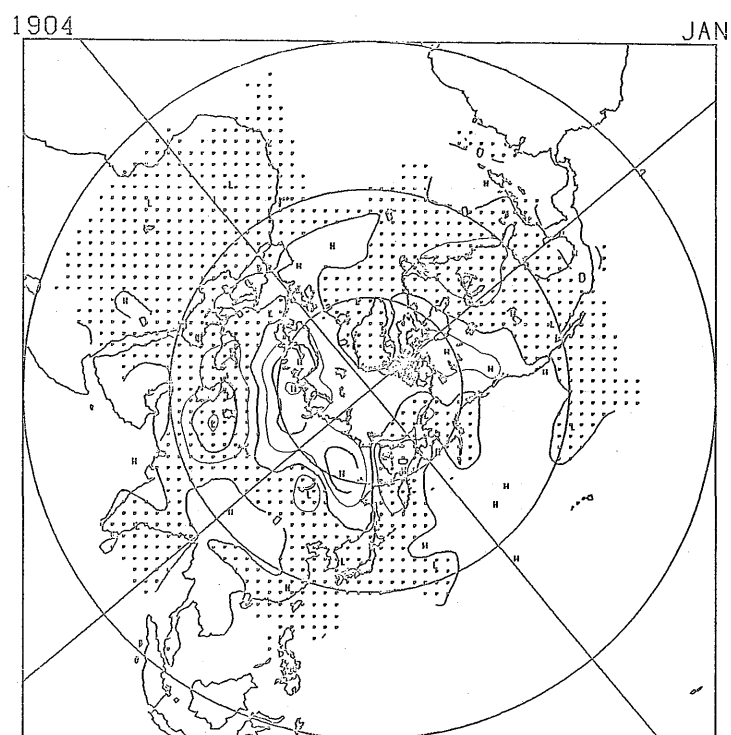


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OCT

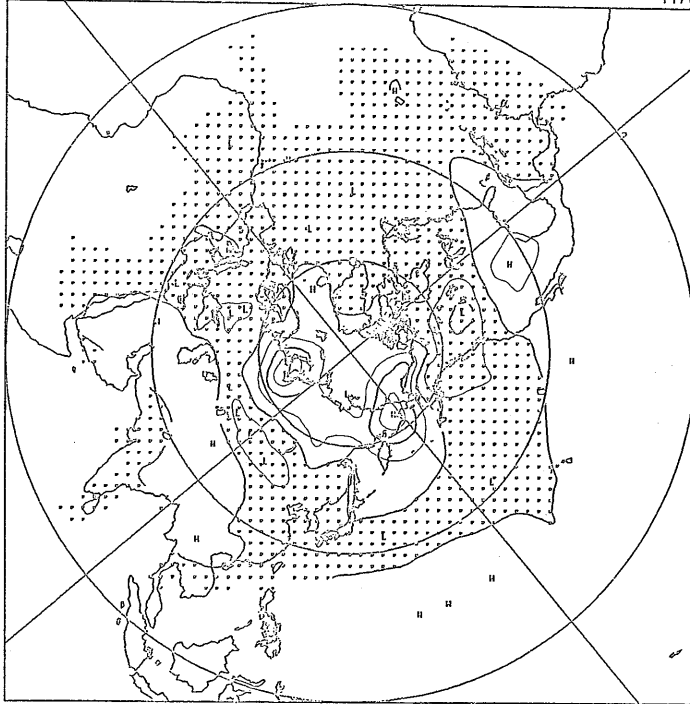






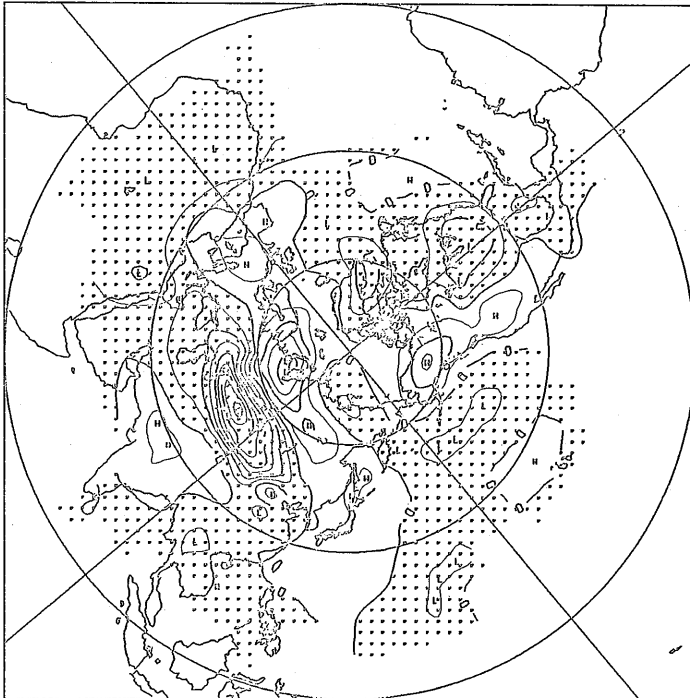
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MAR



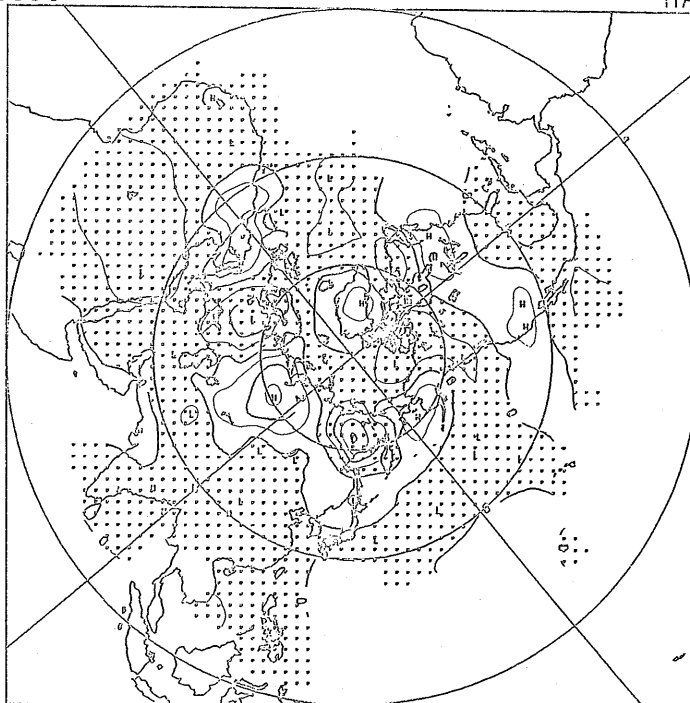
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APR



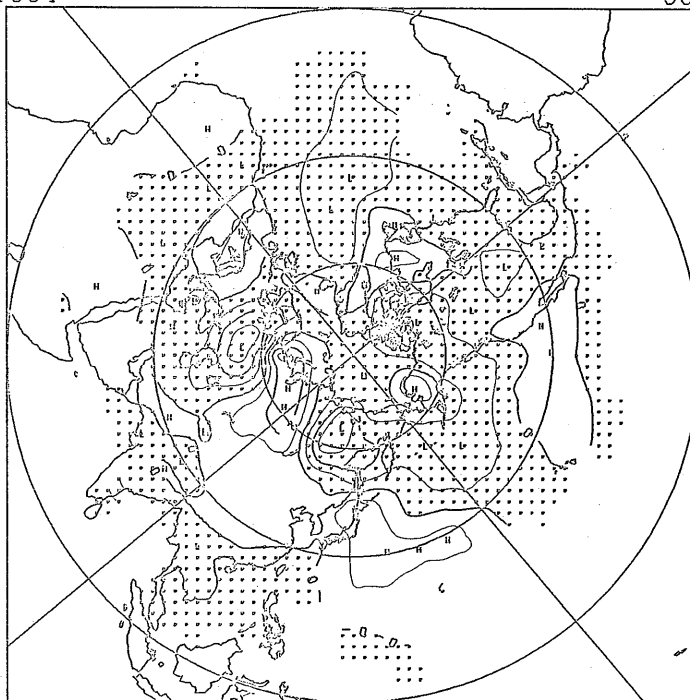
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MAY



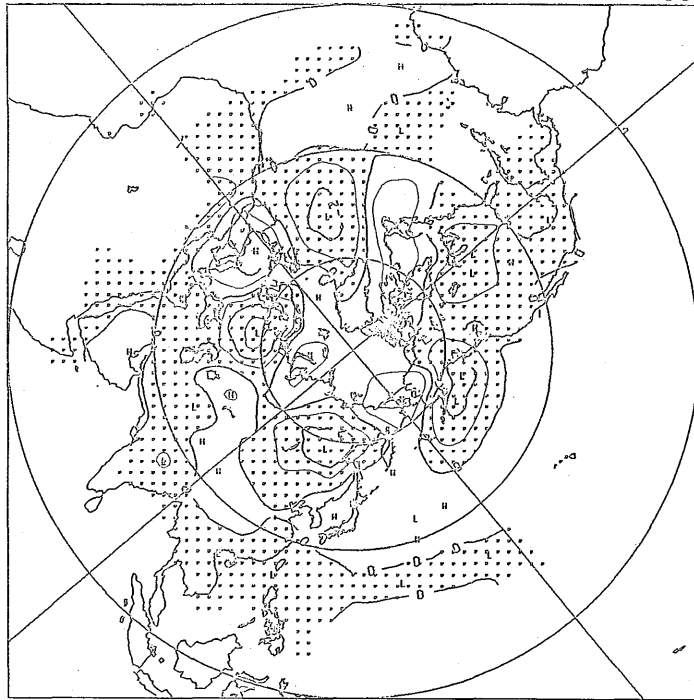
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JUN



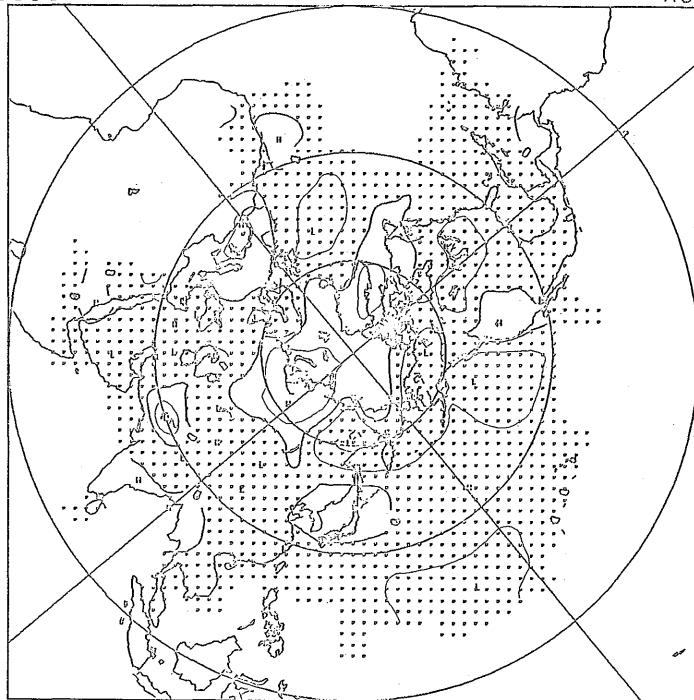
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JUL



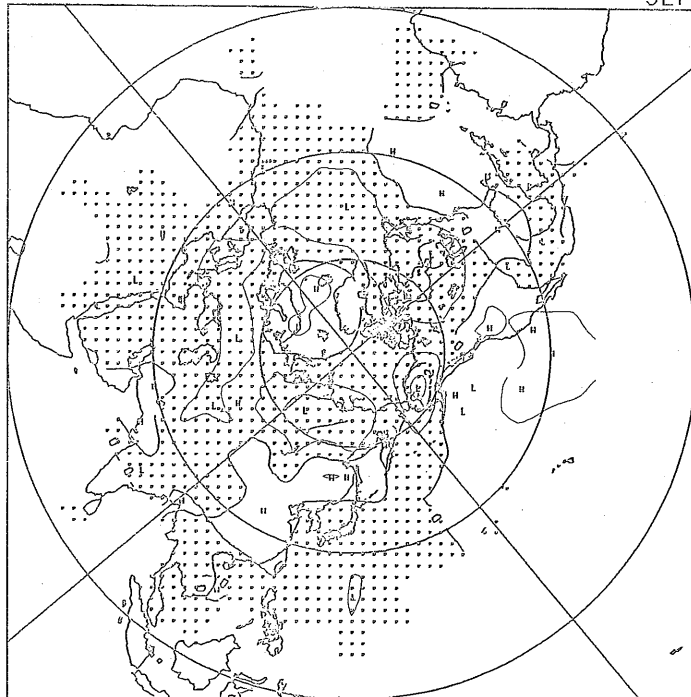
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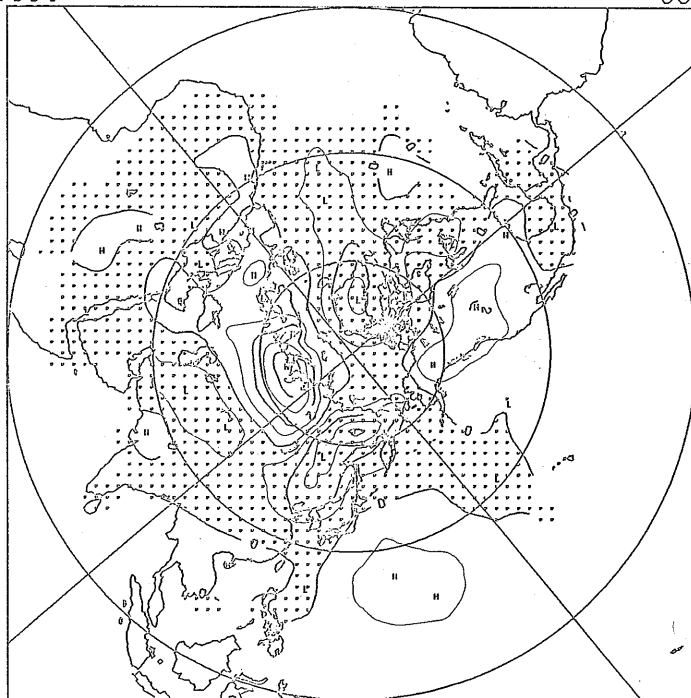
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SEPT



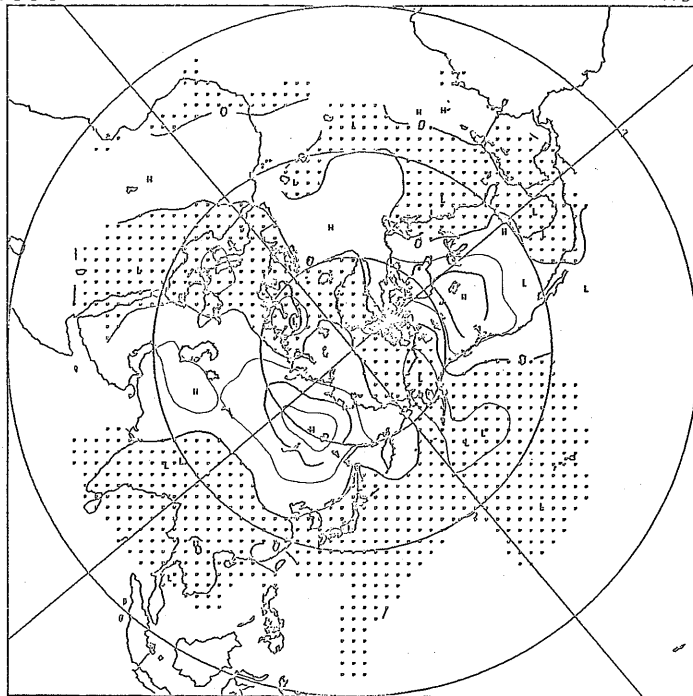
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OCT



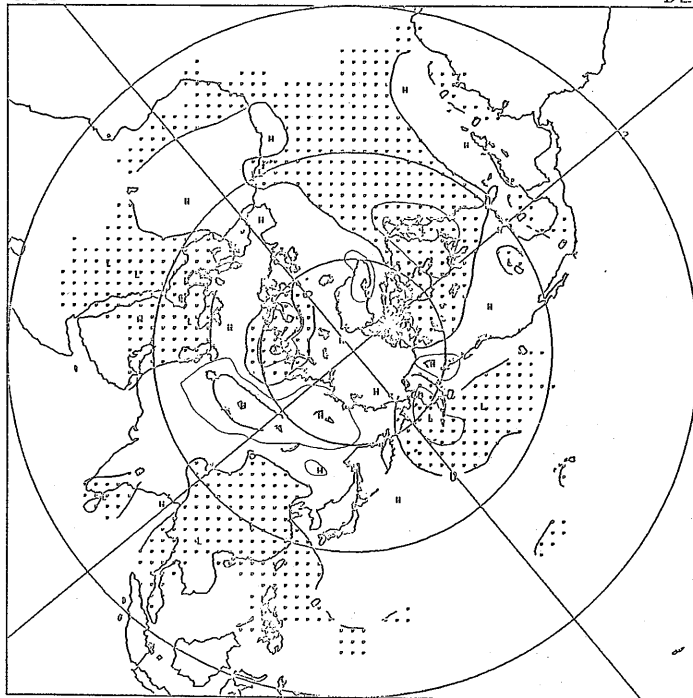
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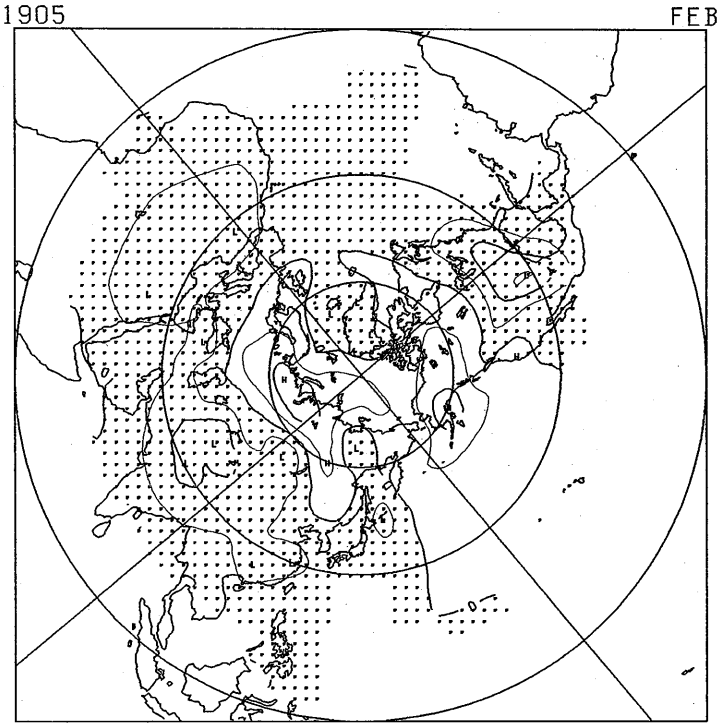
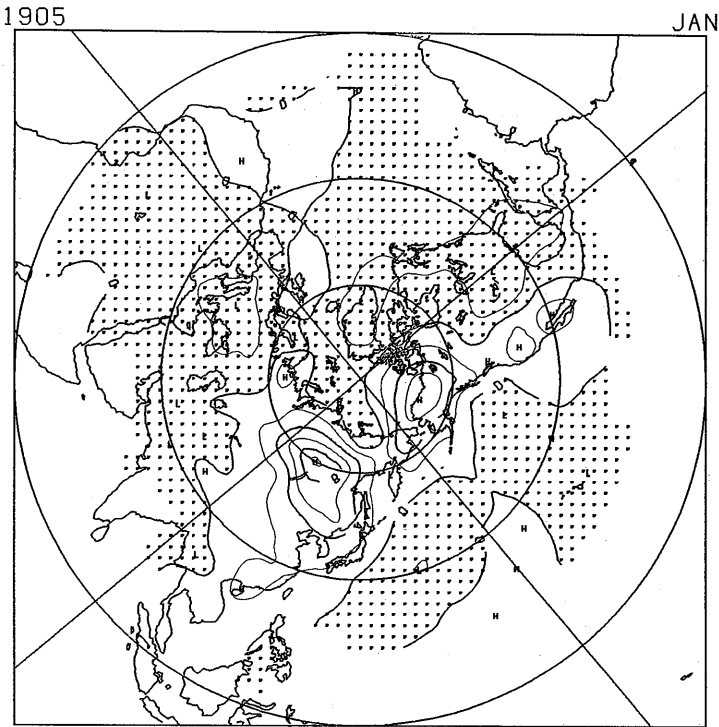
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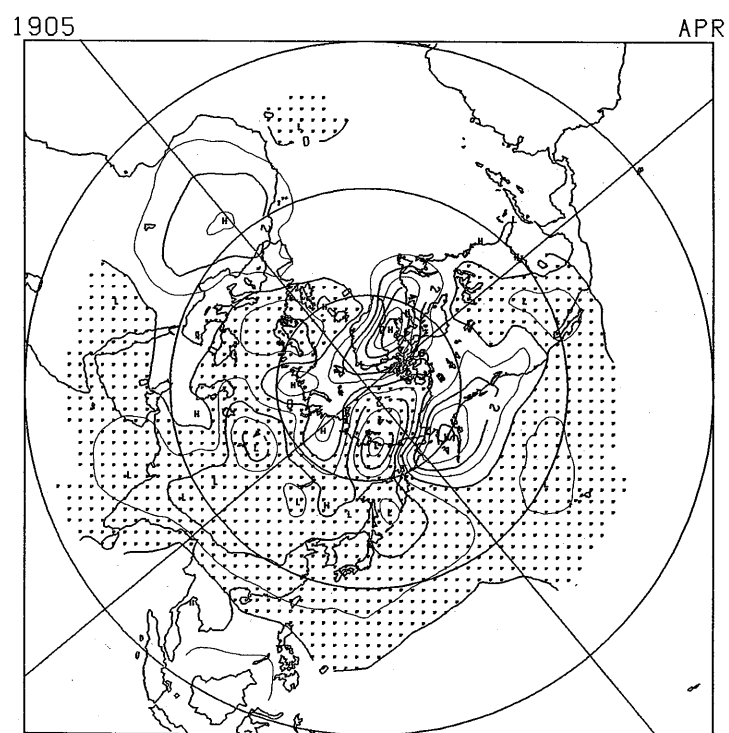
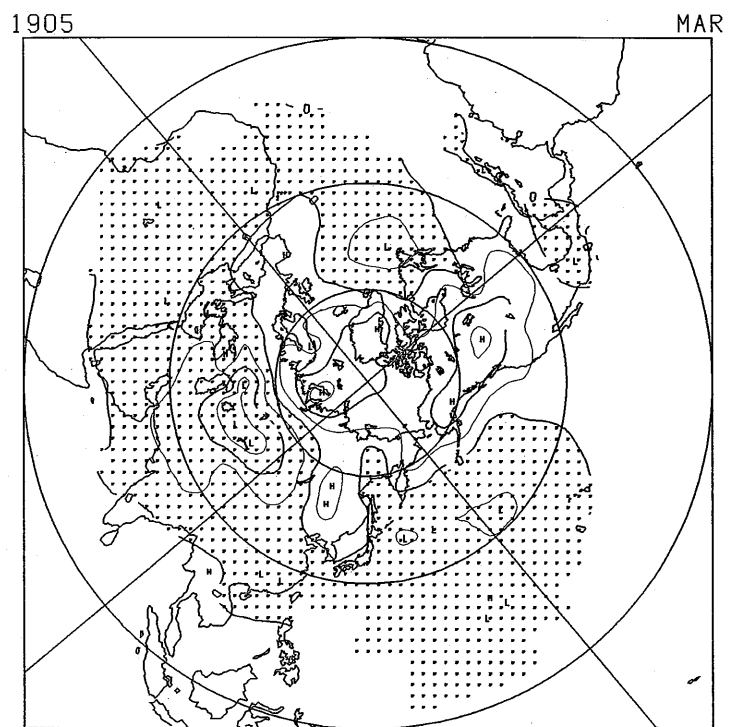


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DEC

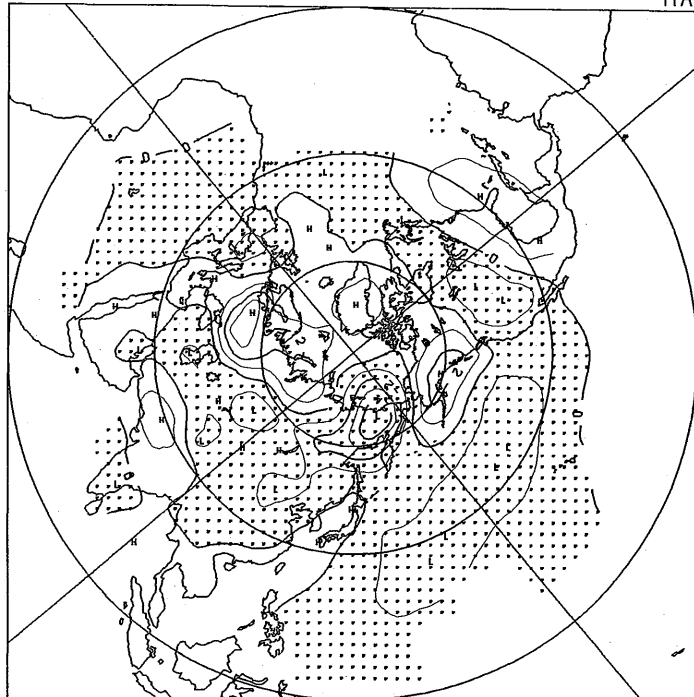






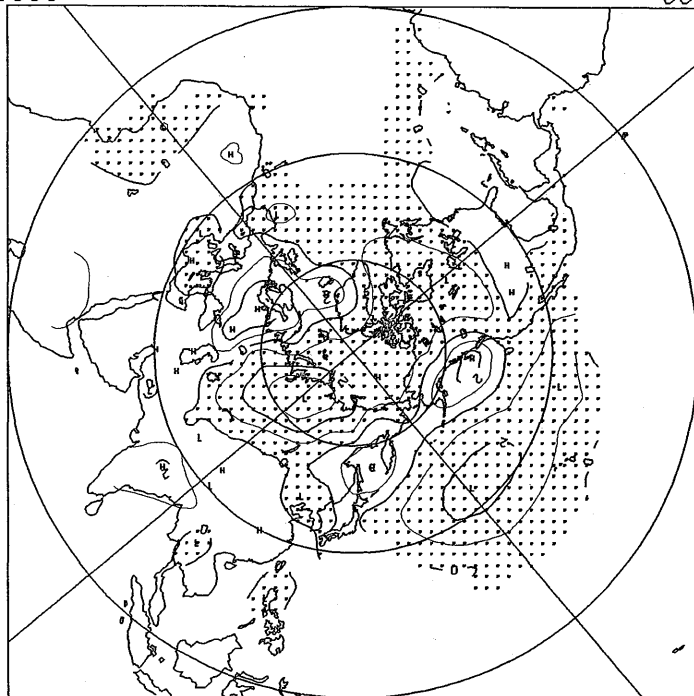
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MAY



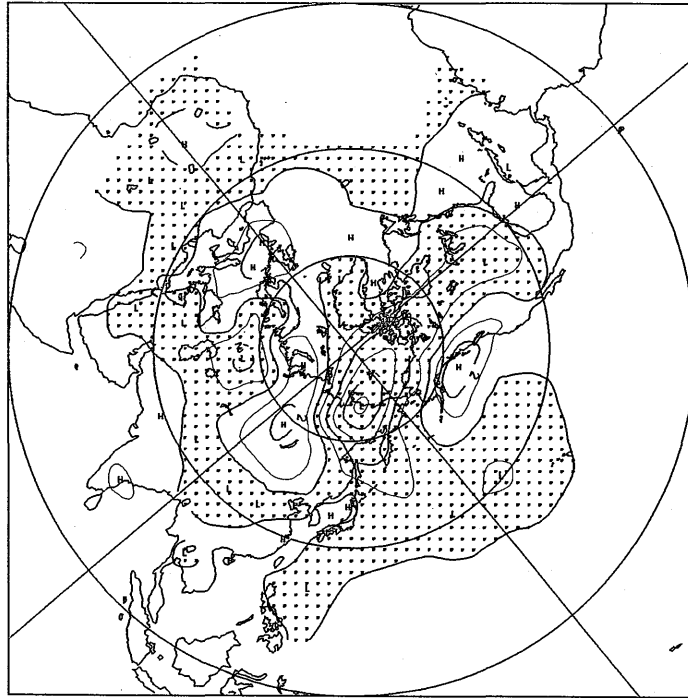
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JUN



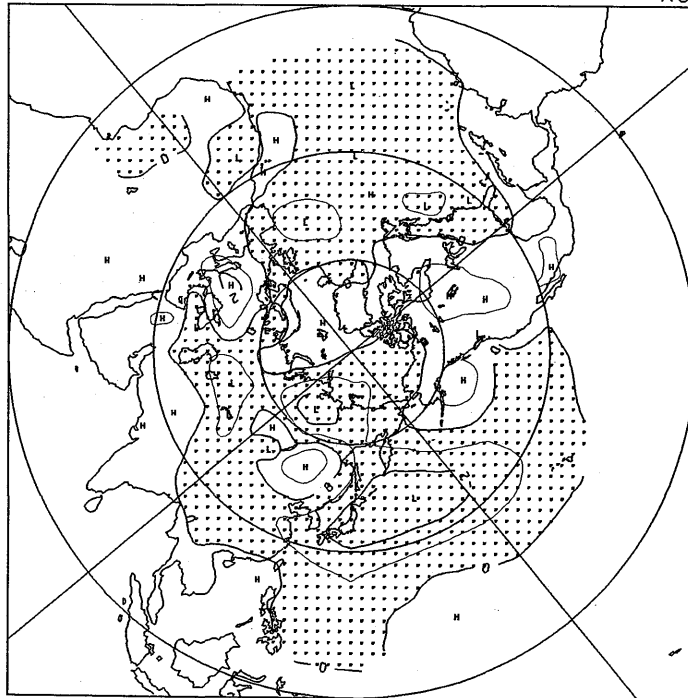
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JUL



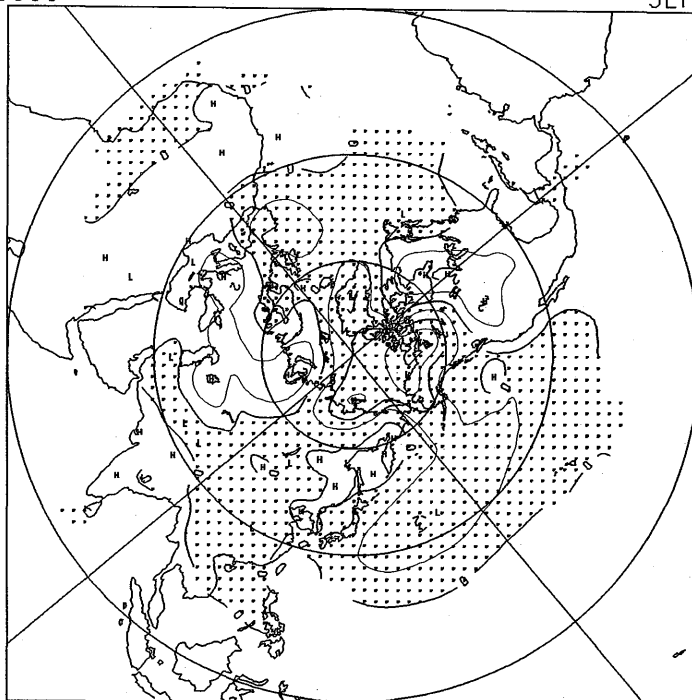
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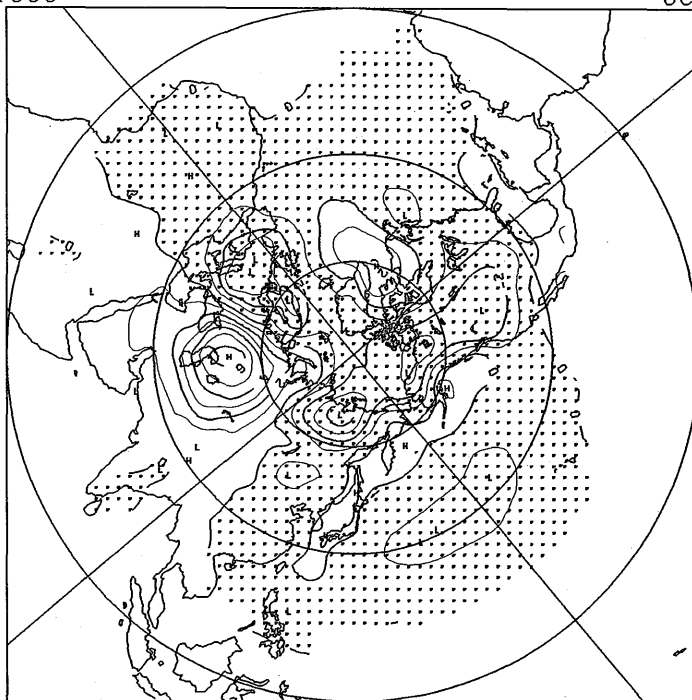
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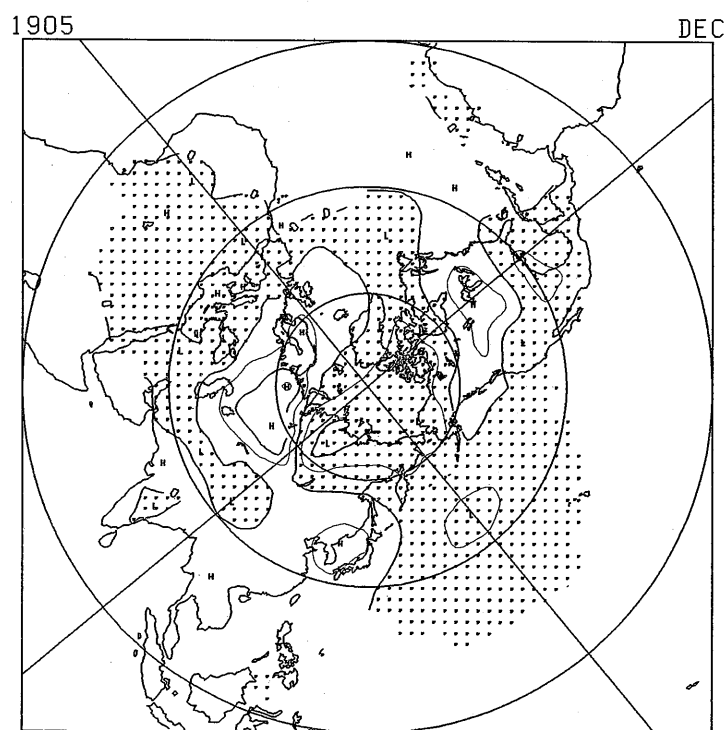
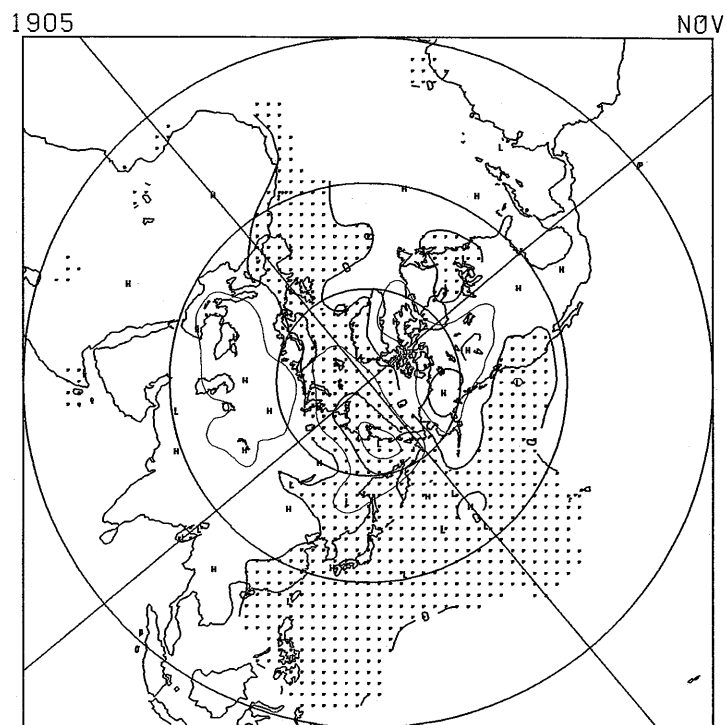
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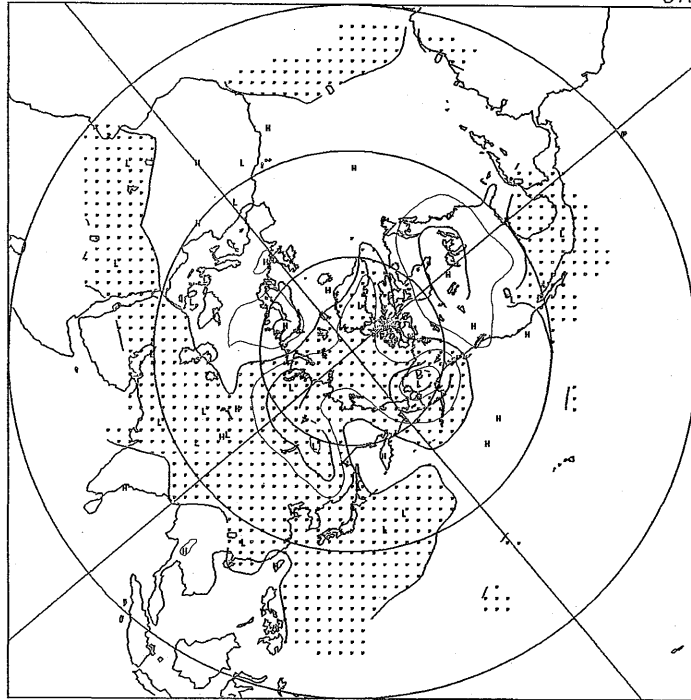
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1906

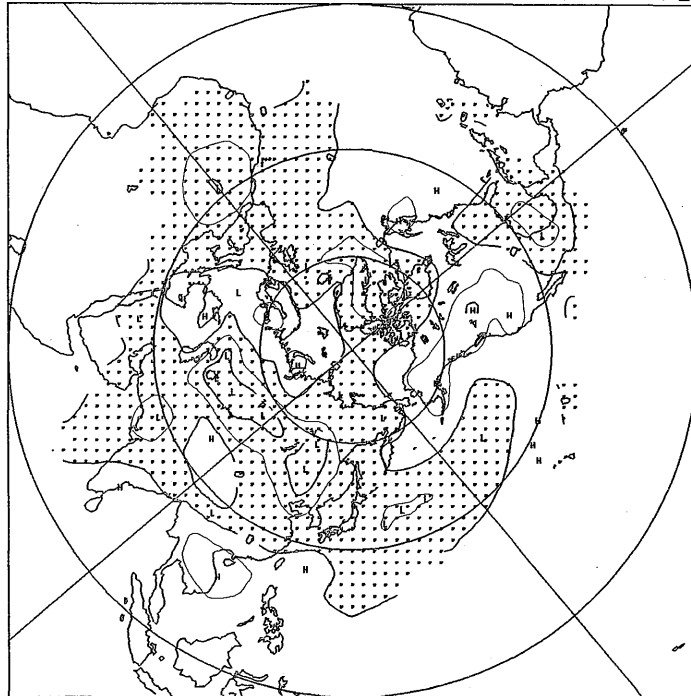
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1906年
1月

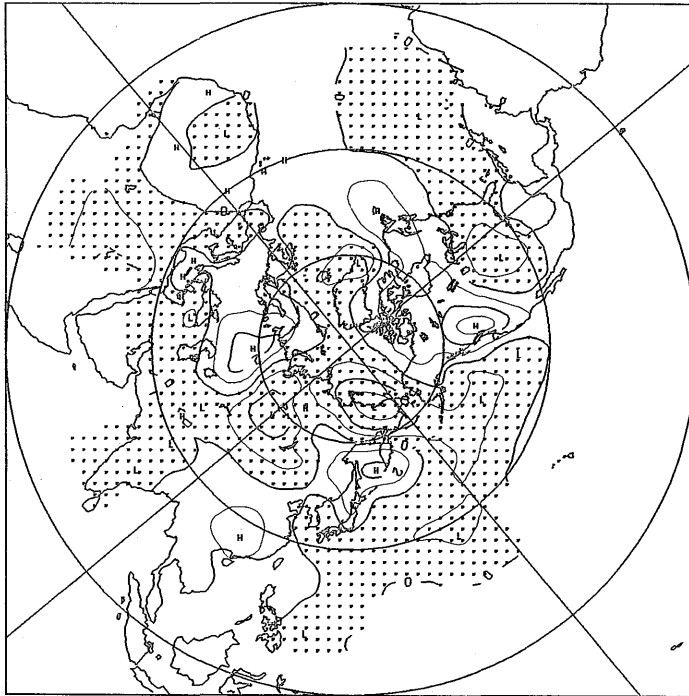
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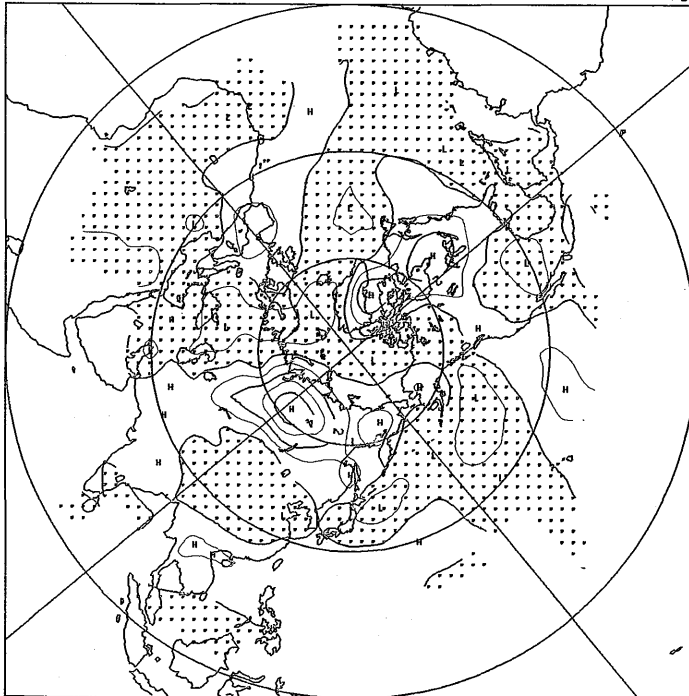
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JUL



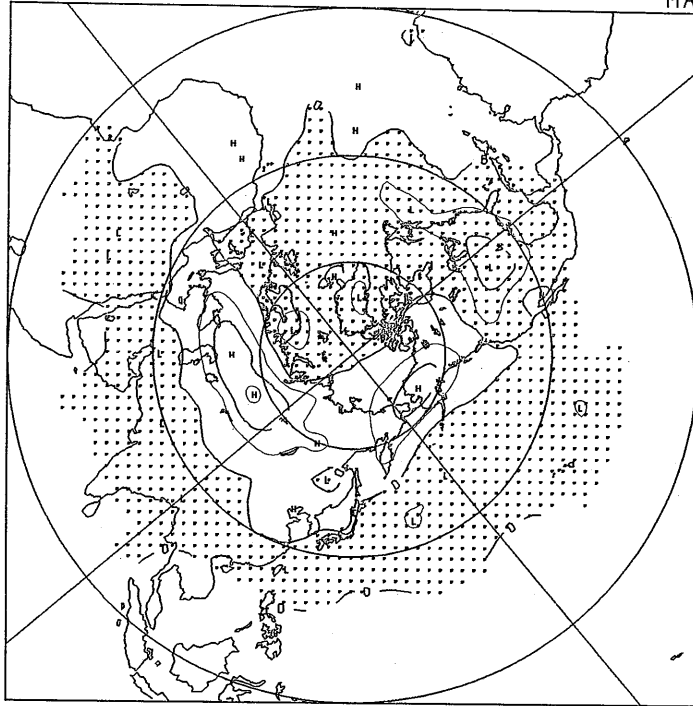
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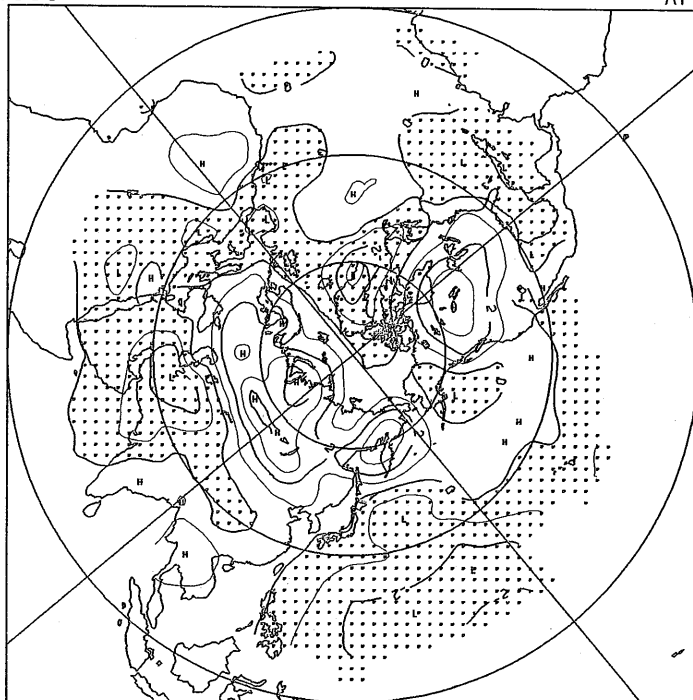
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MAR



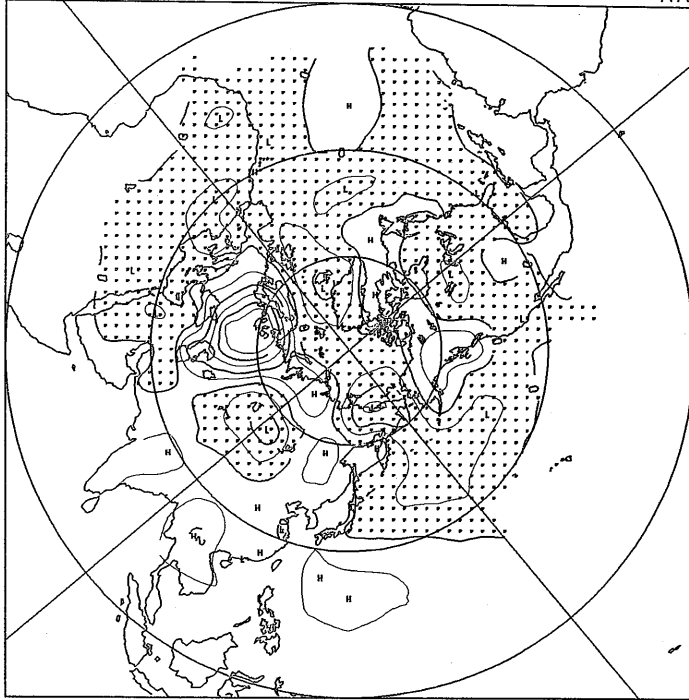
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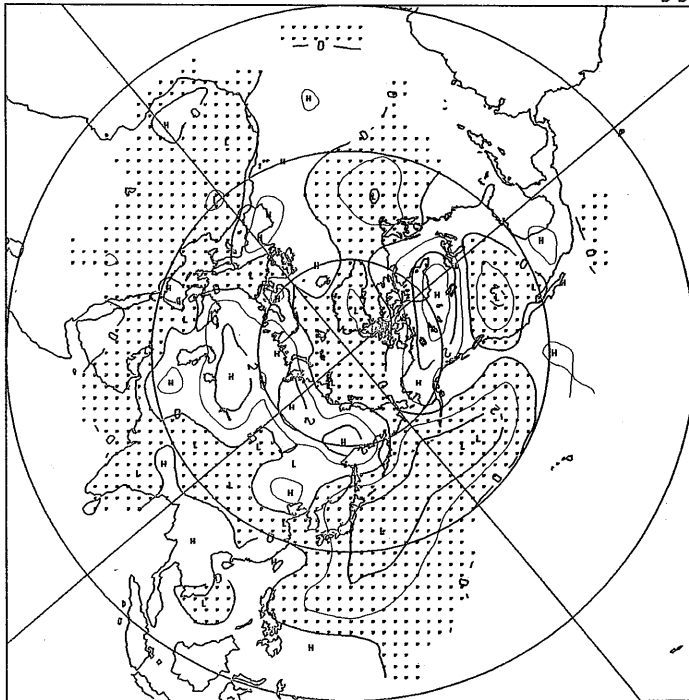
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MAY



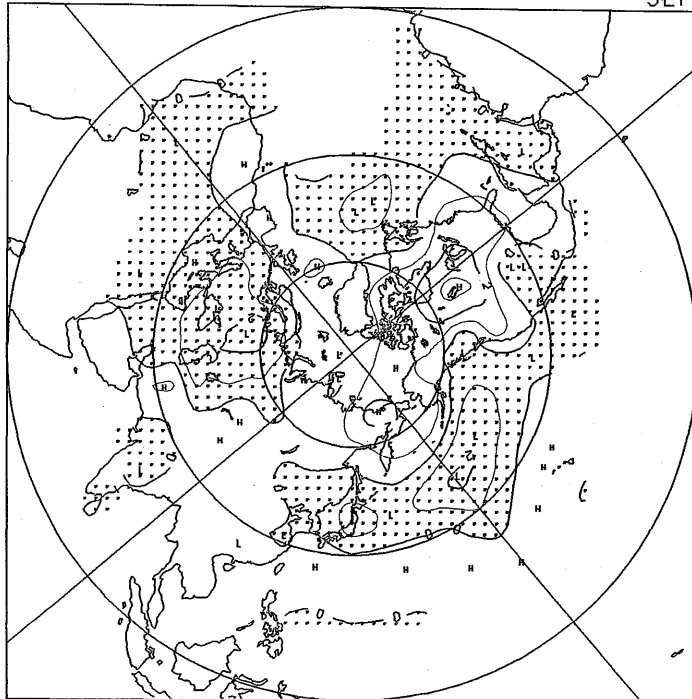
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JUN



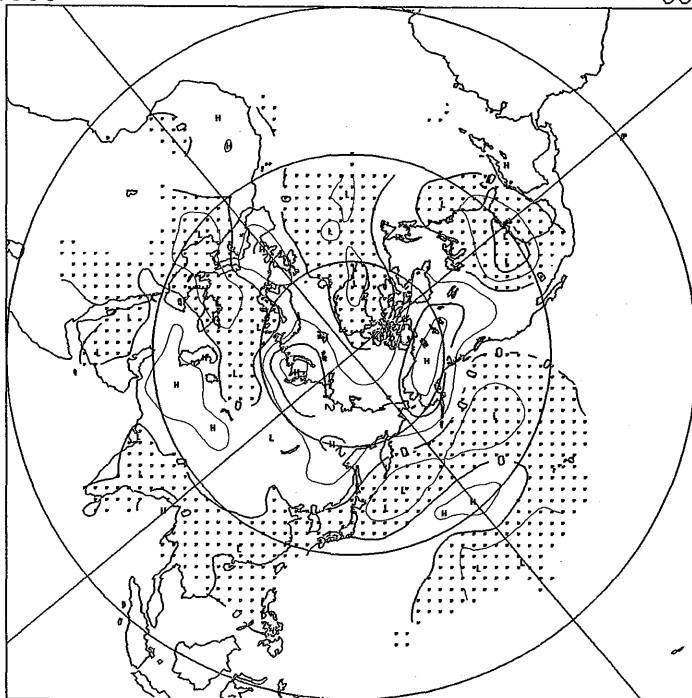
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SEPT



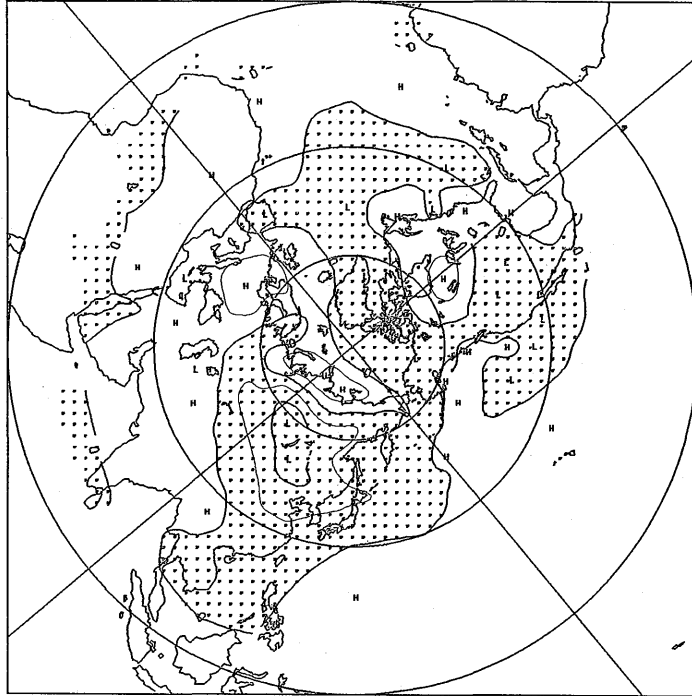
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OCT



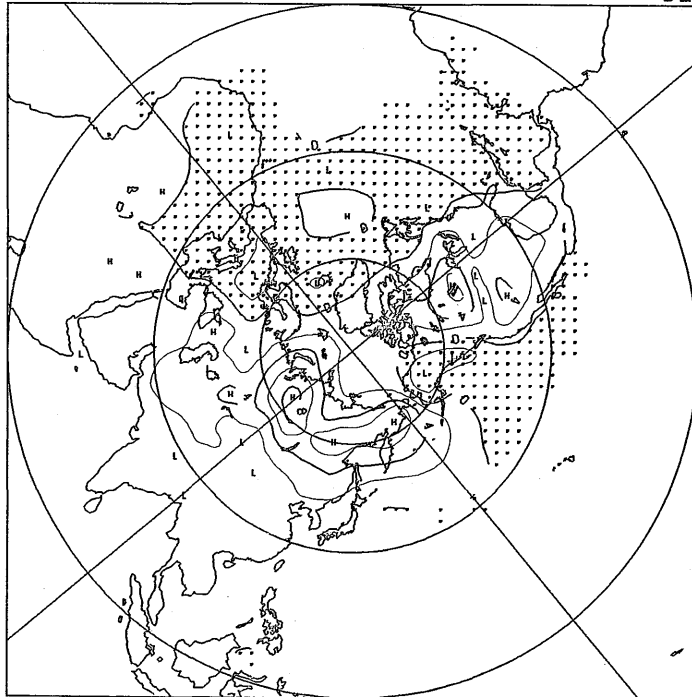
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NOV



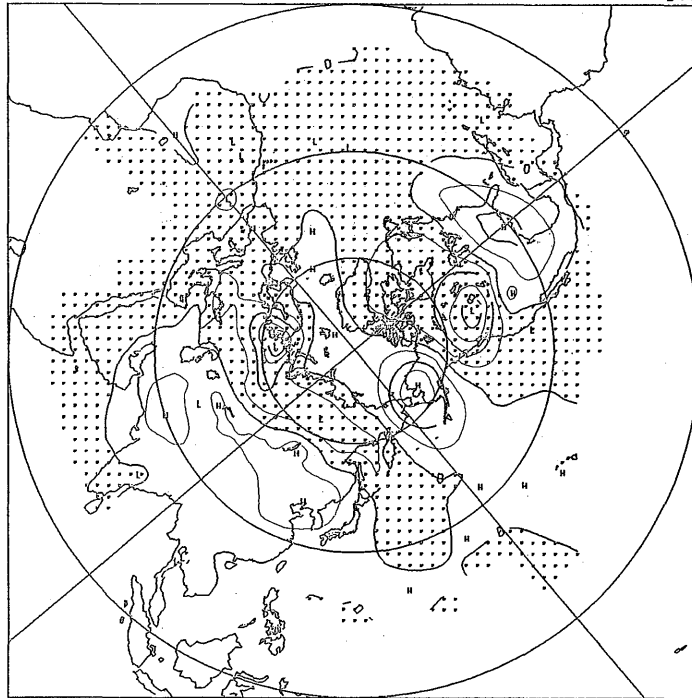
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DEC



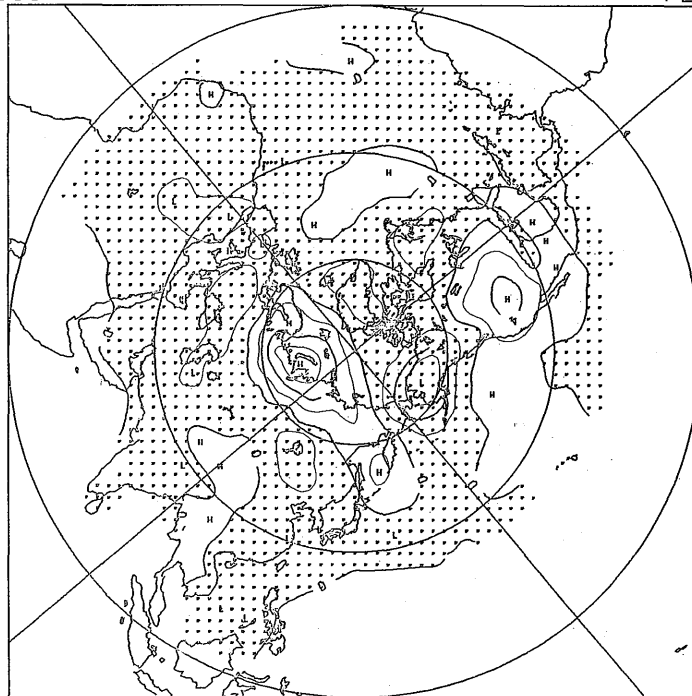
1907

JAN



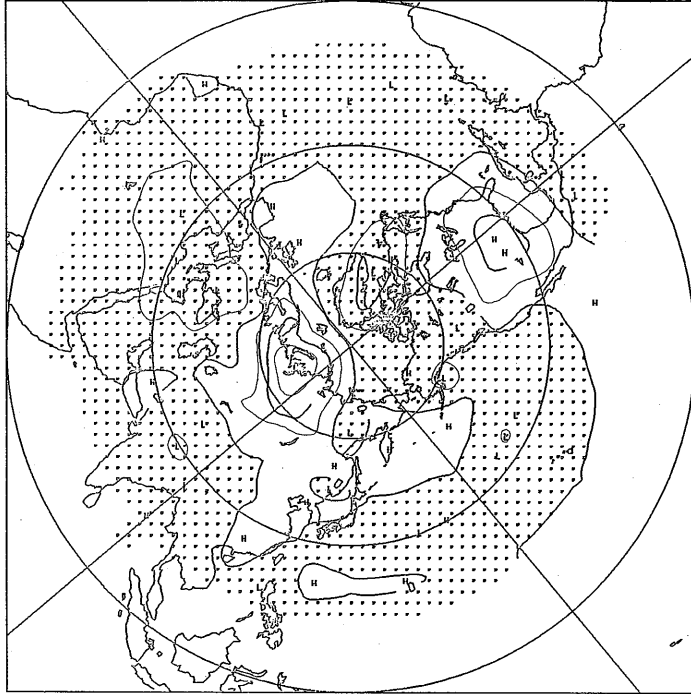
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FEB



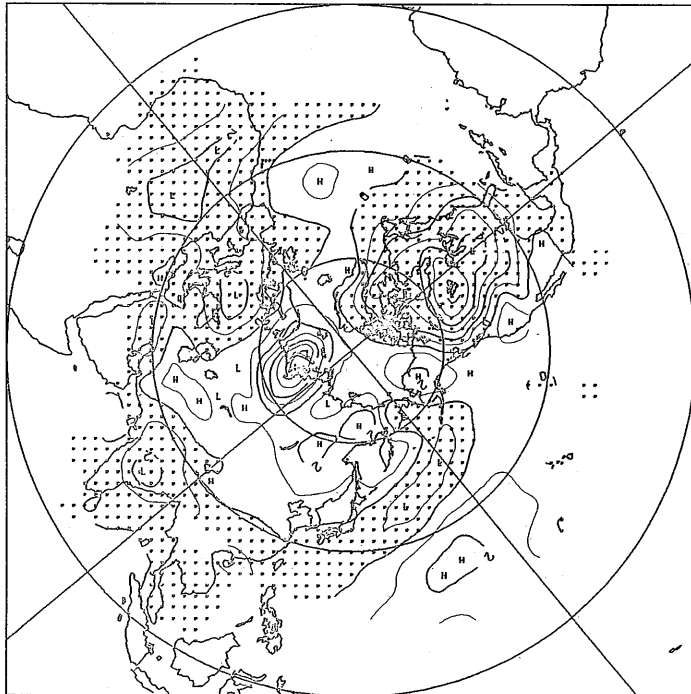
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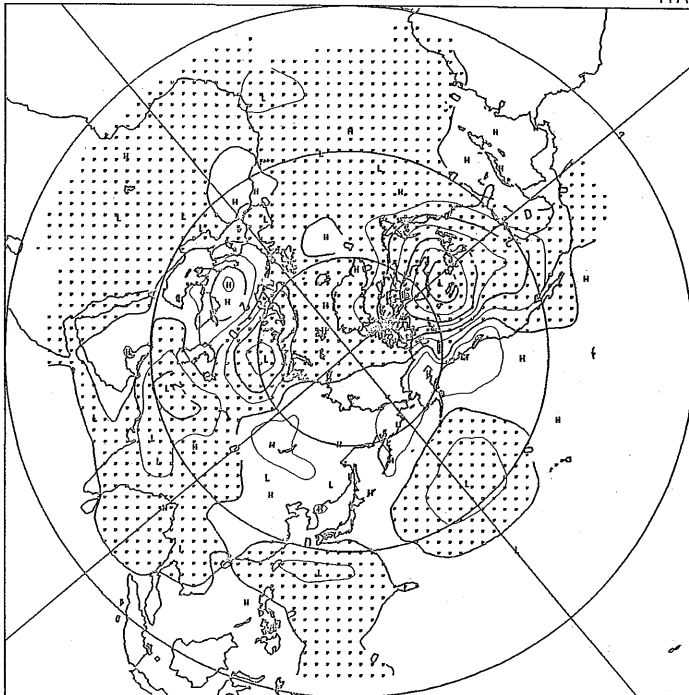
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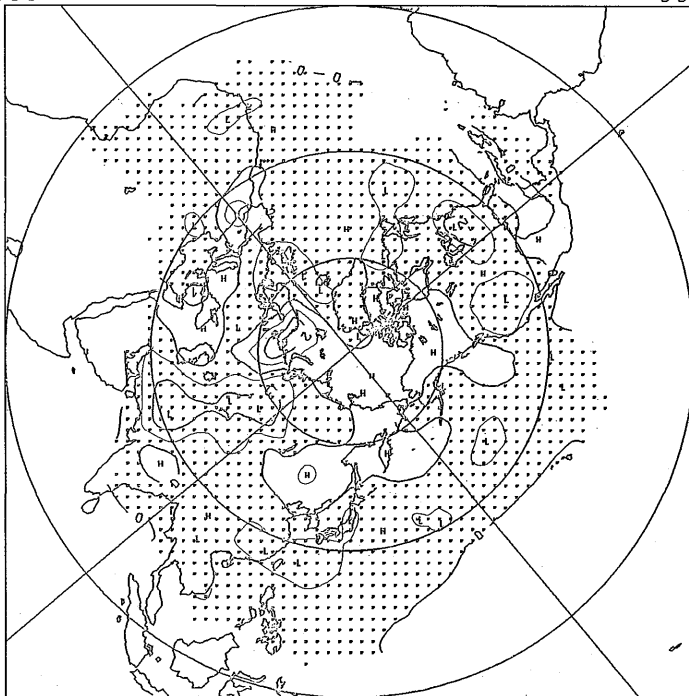
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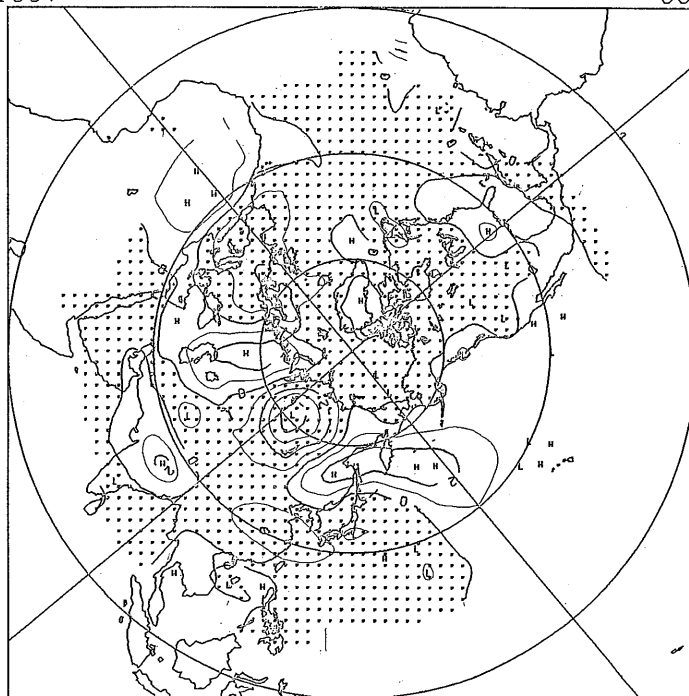
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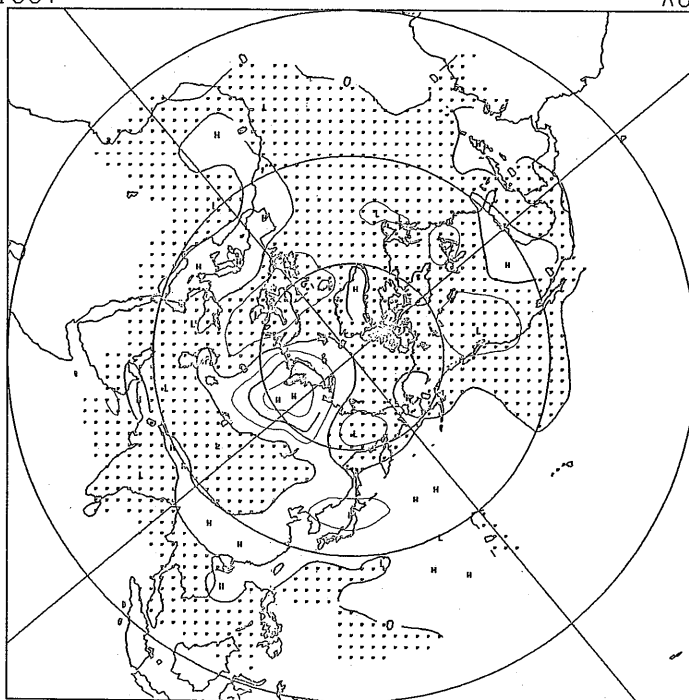
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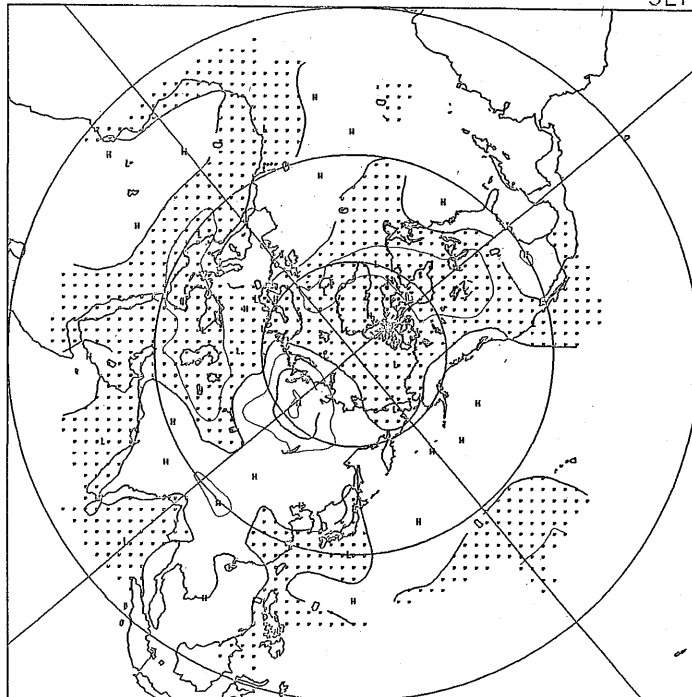
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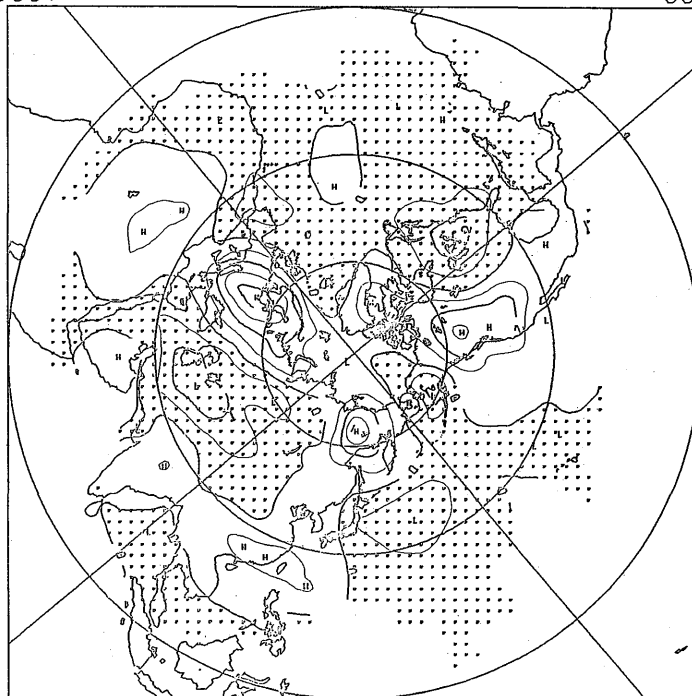
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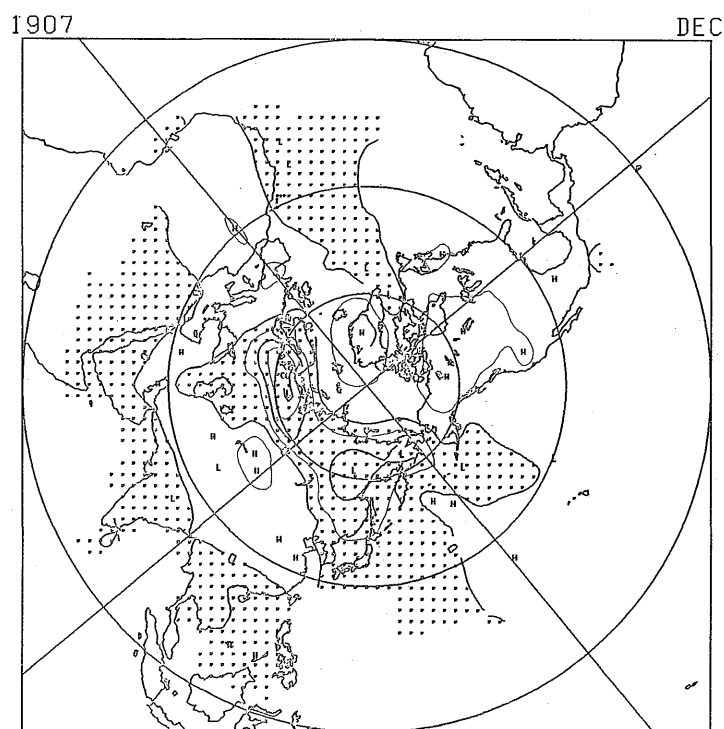
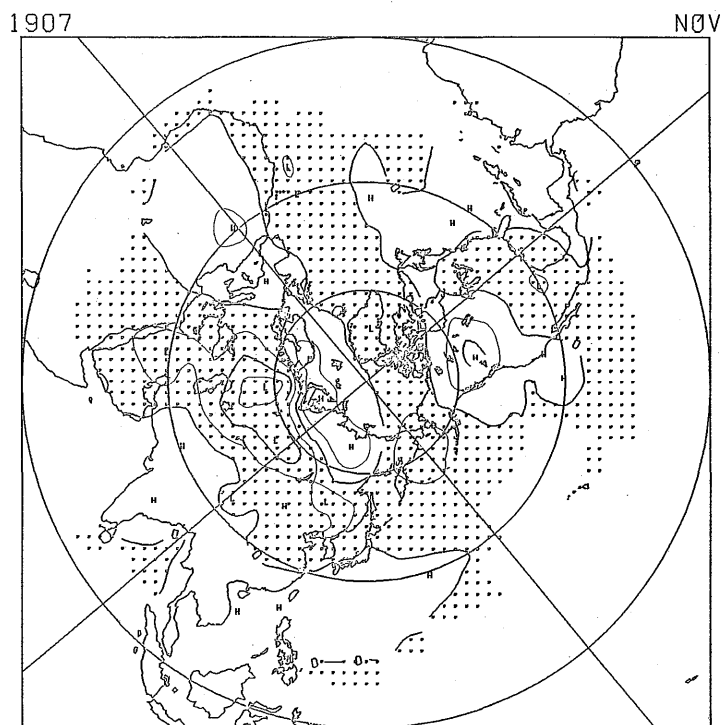
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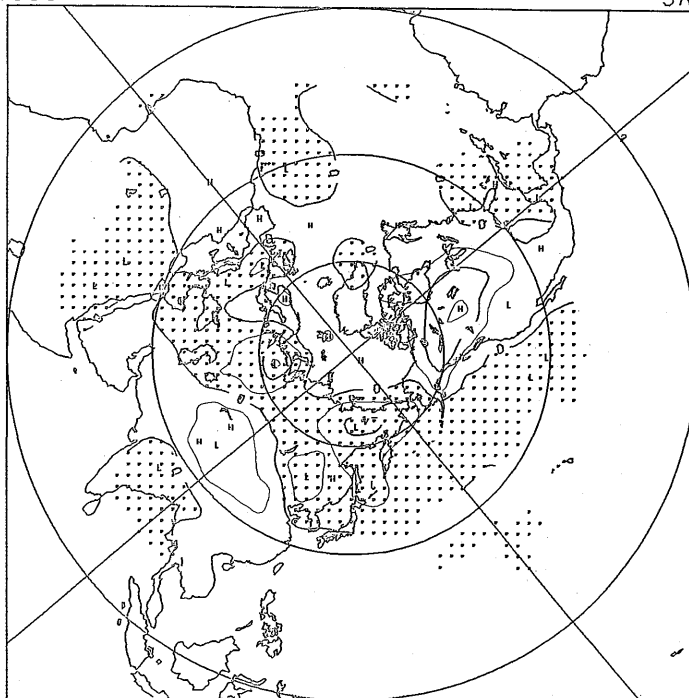
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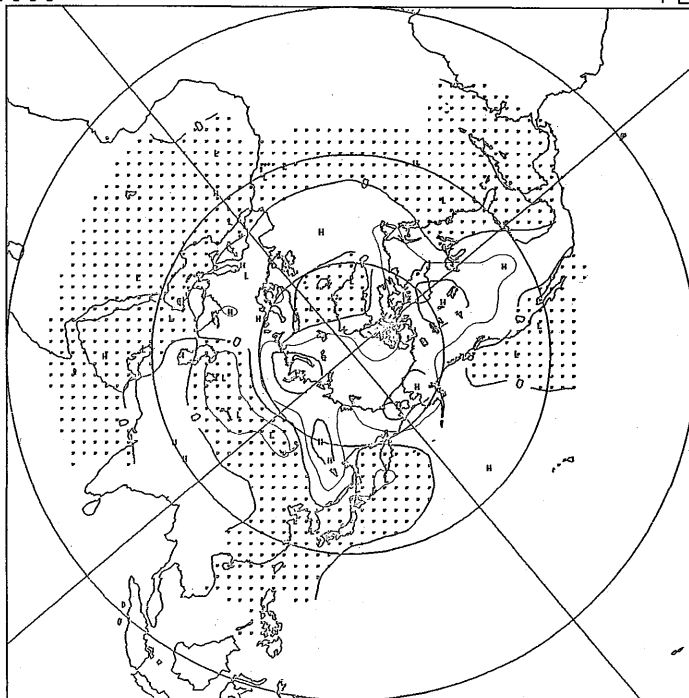
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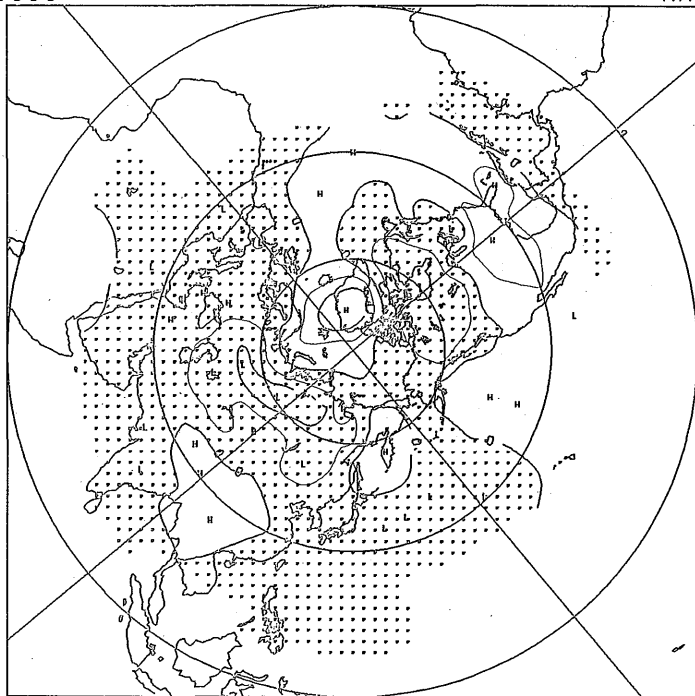
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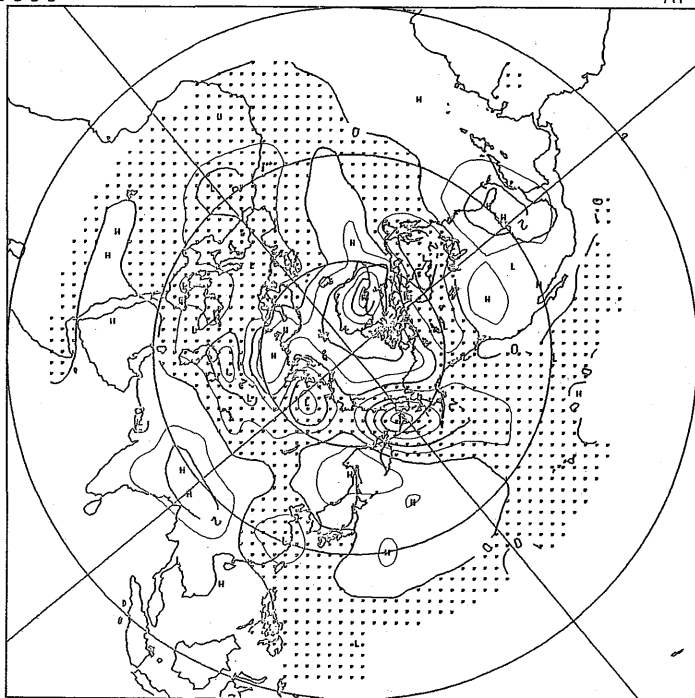
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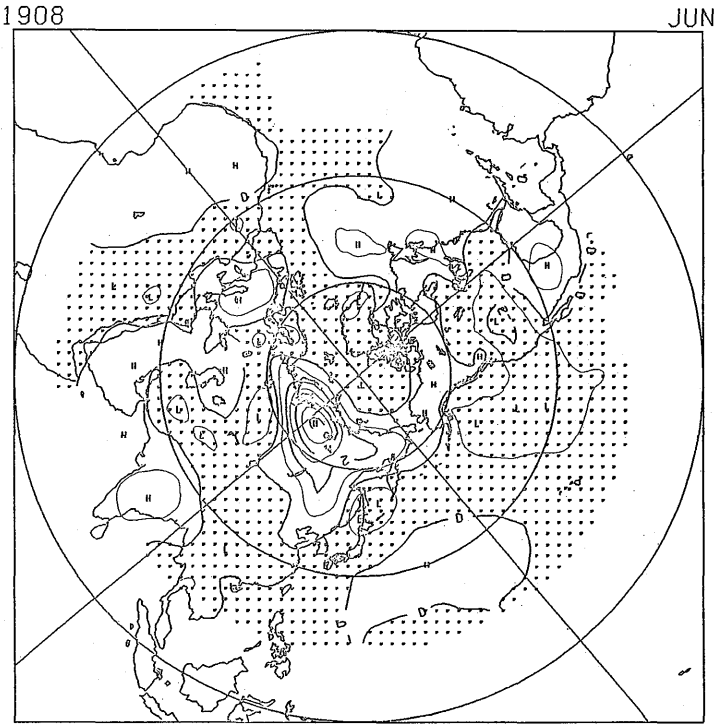
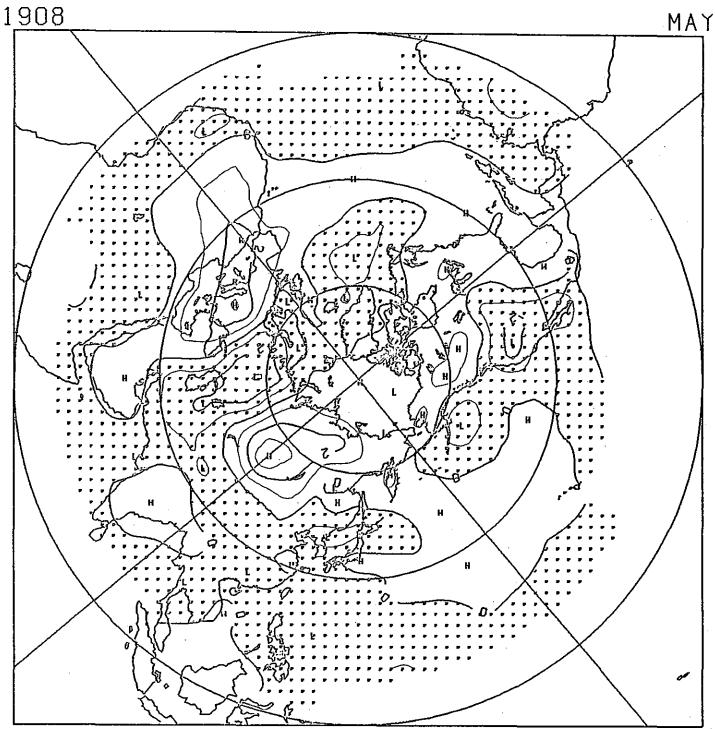
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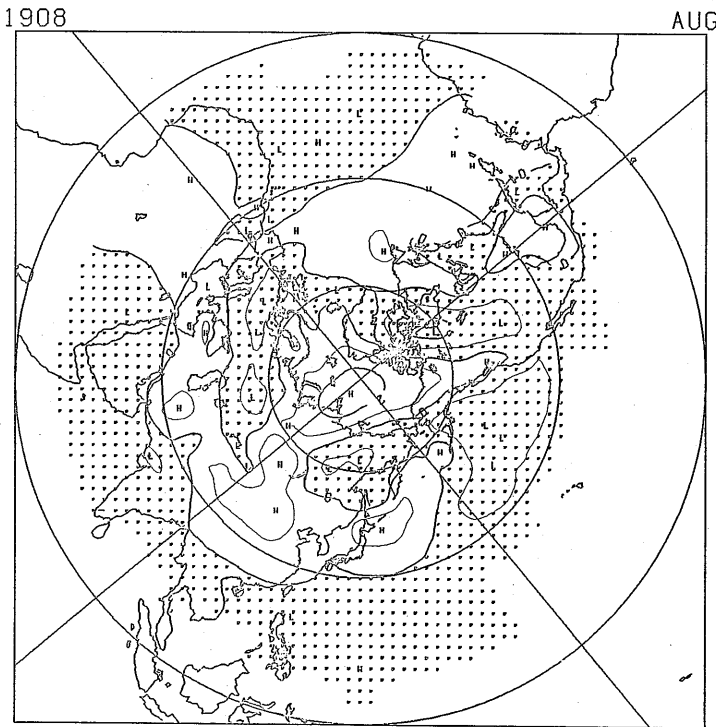
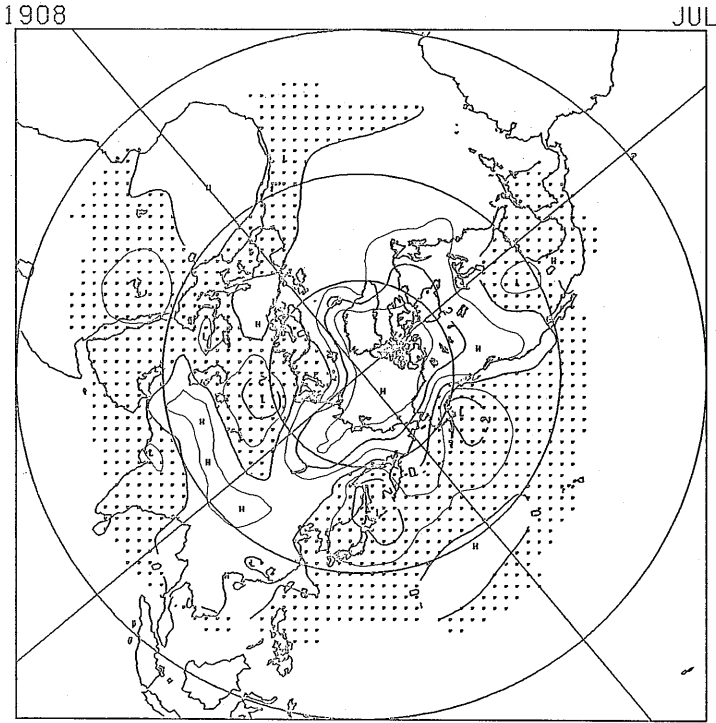


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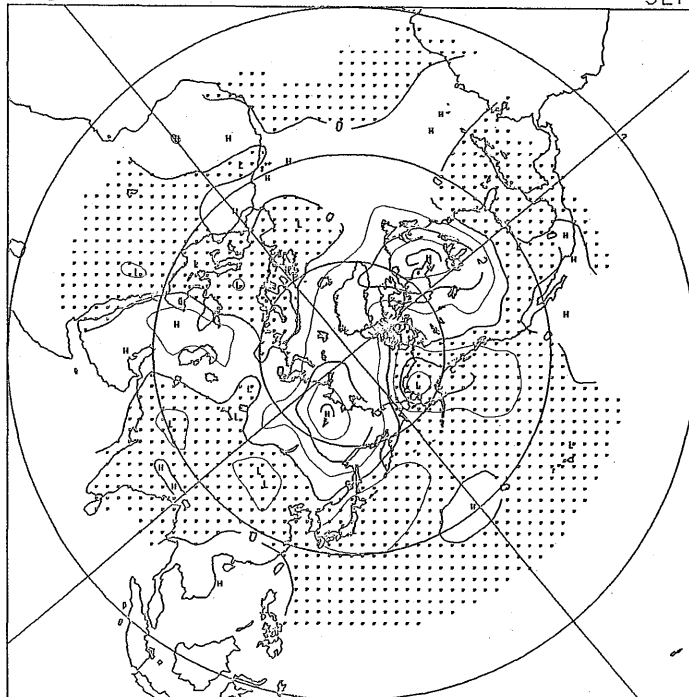






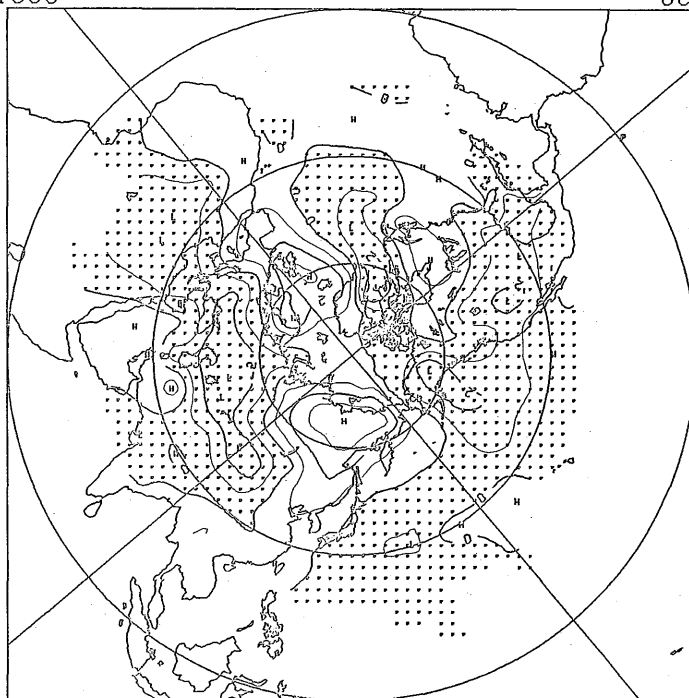
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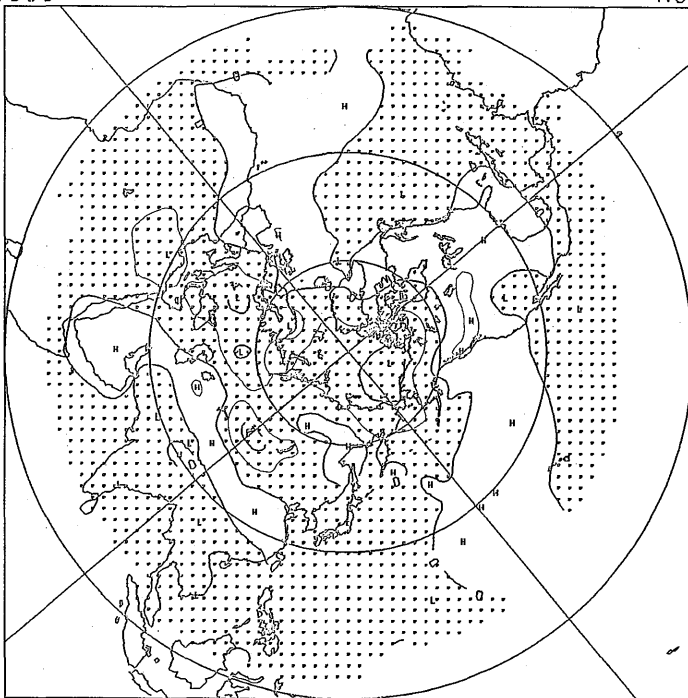
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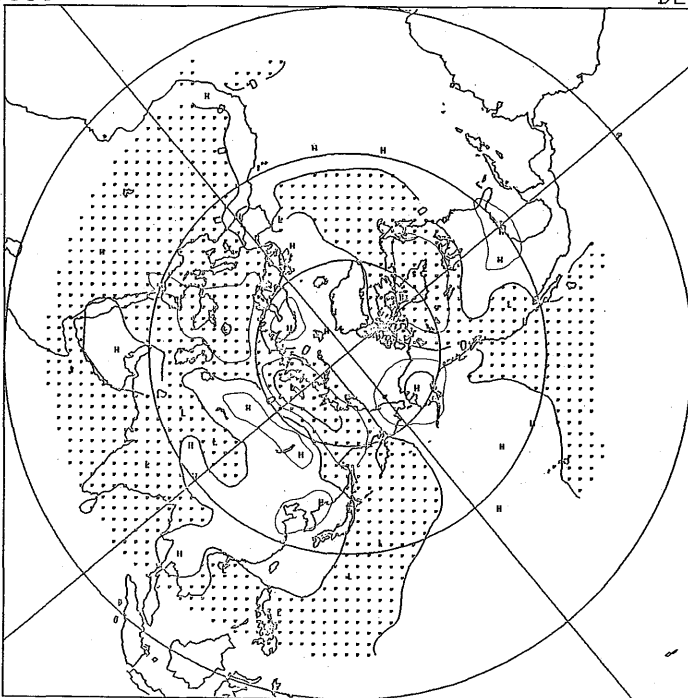
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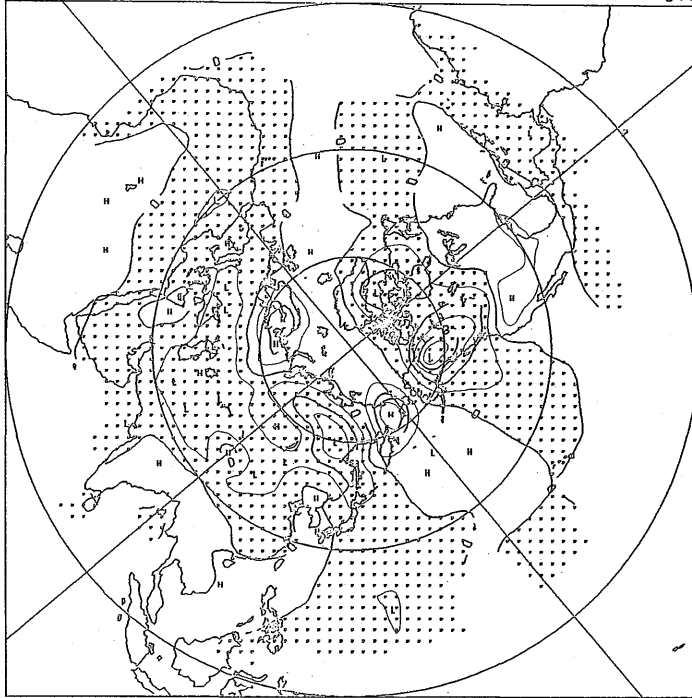
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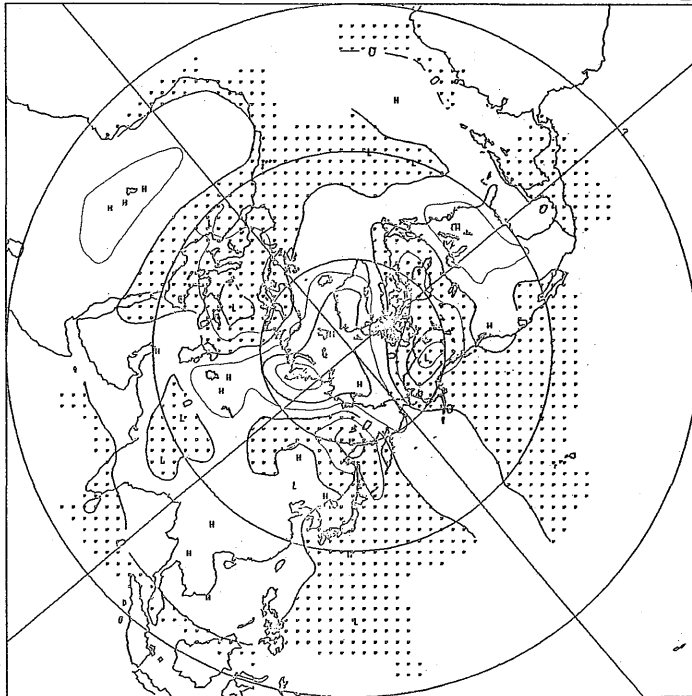
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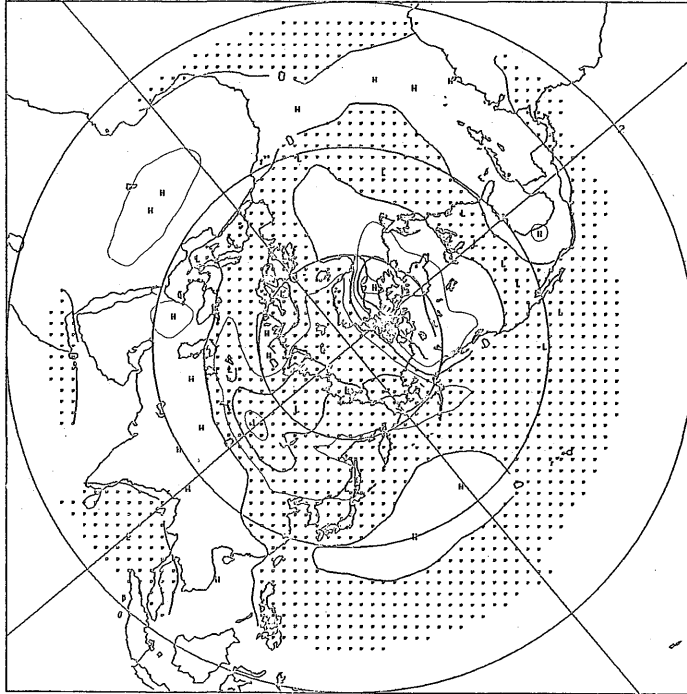
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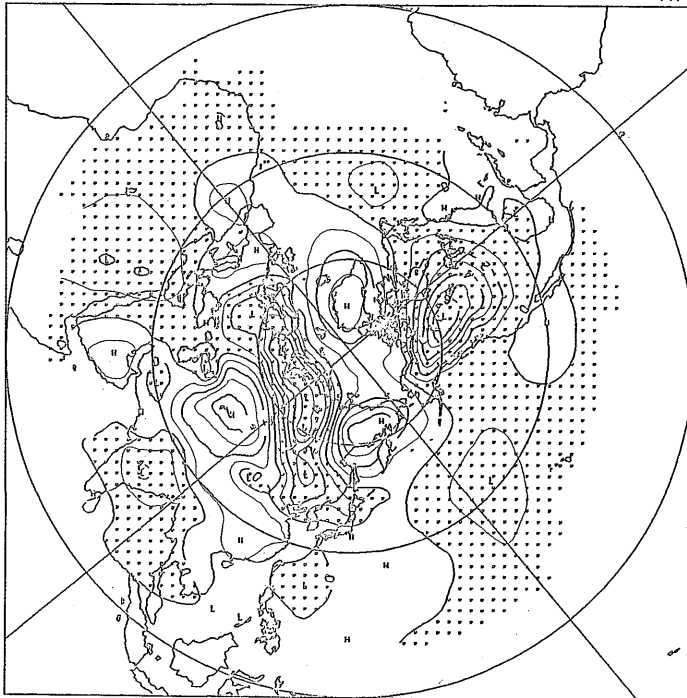
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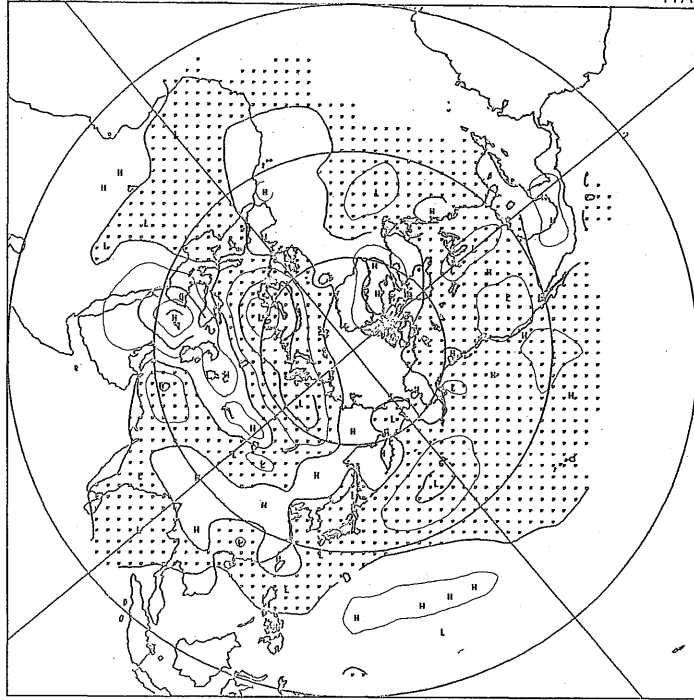
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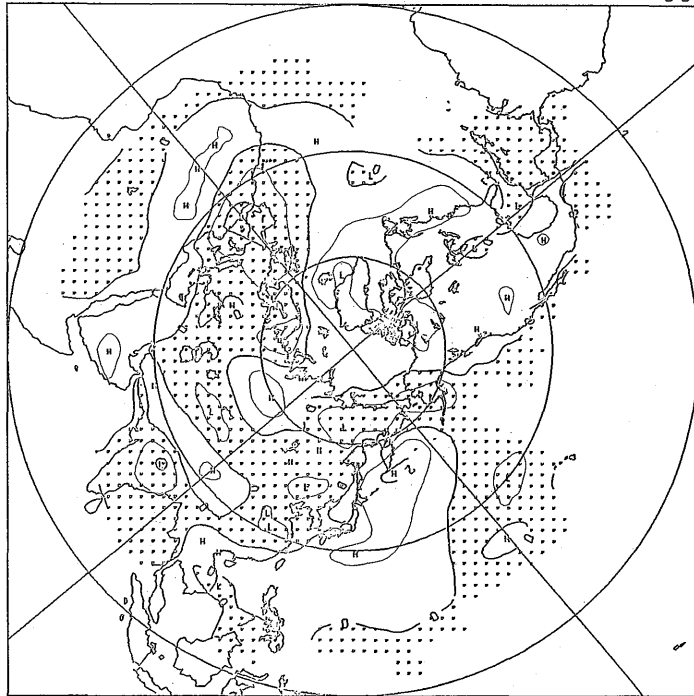
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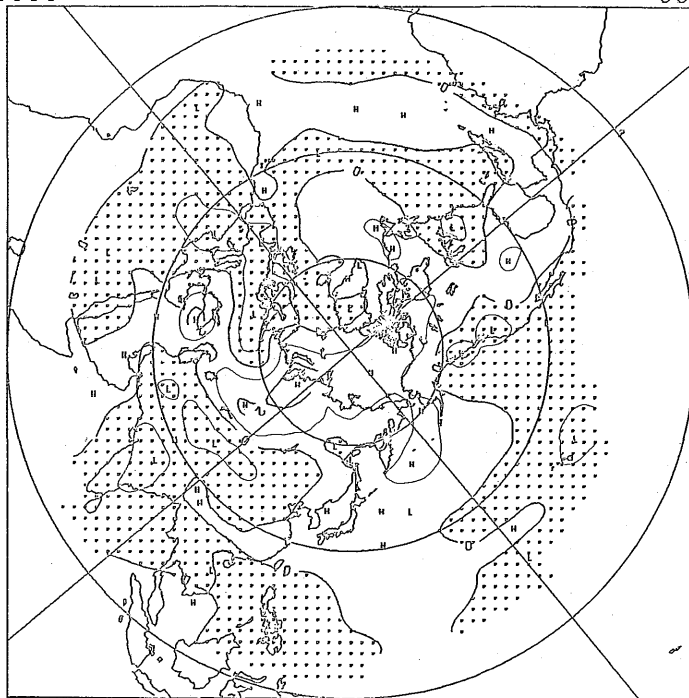
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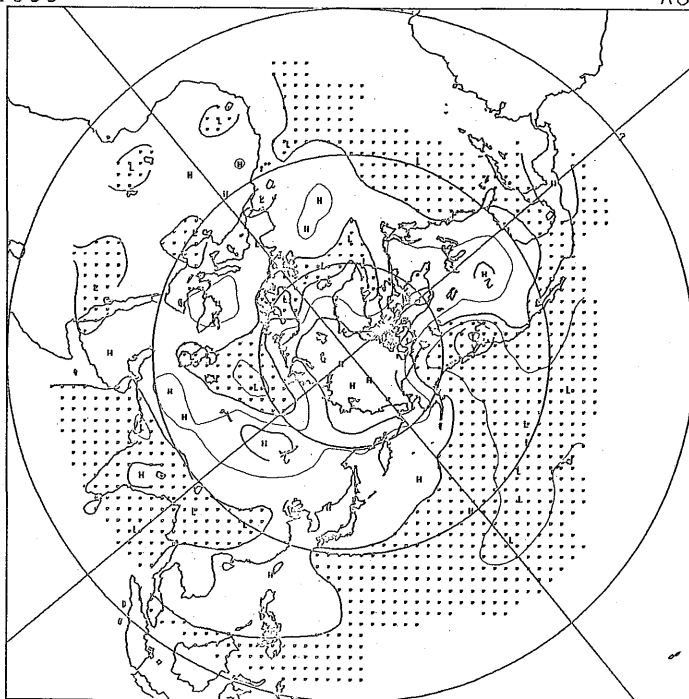
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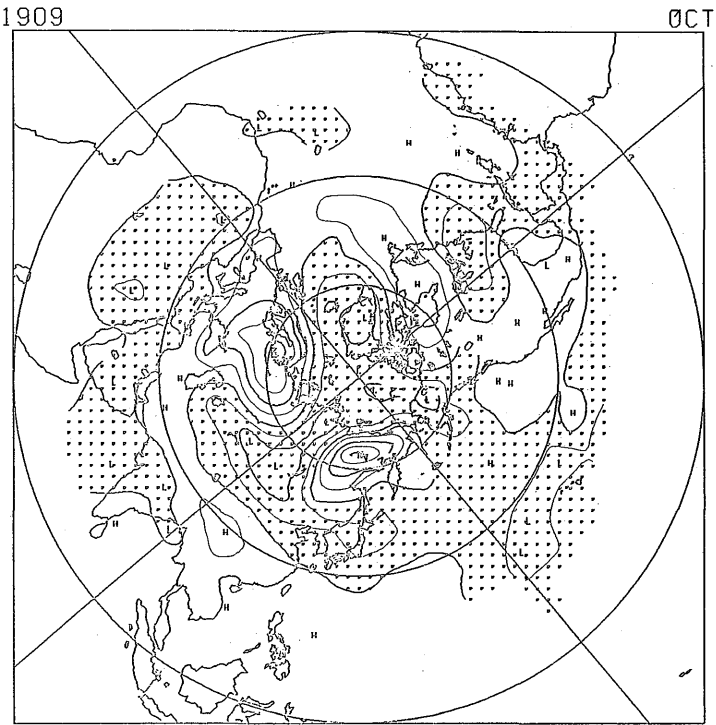
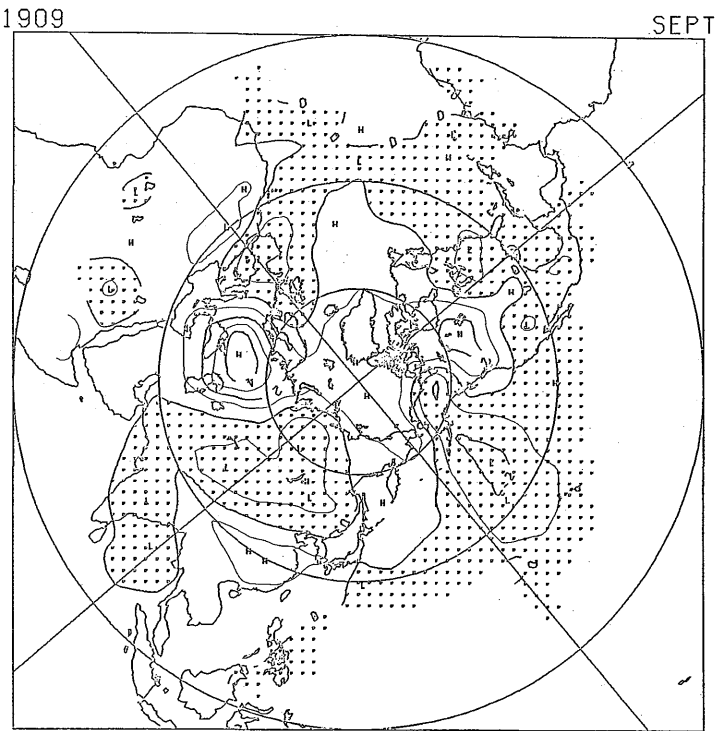
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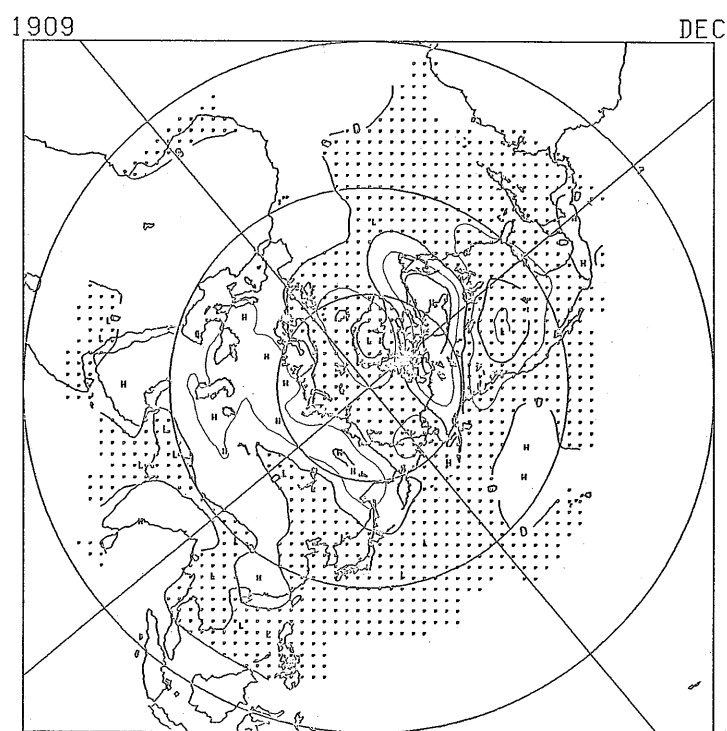
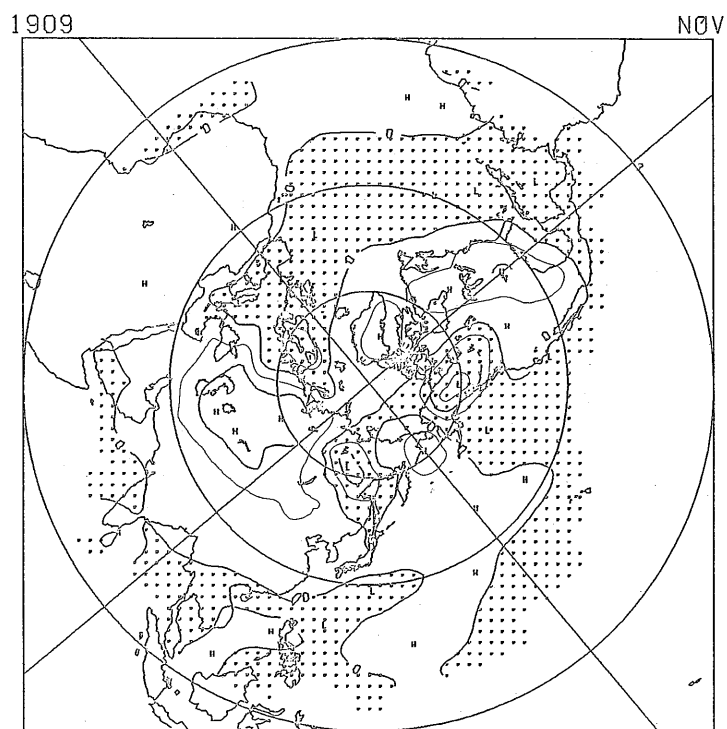


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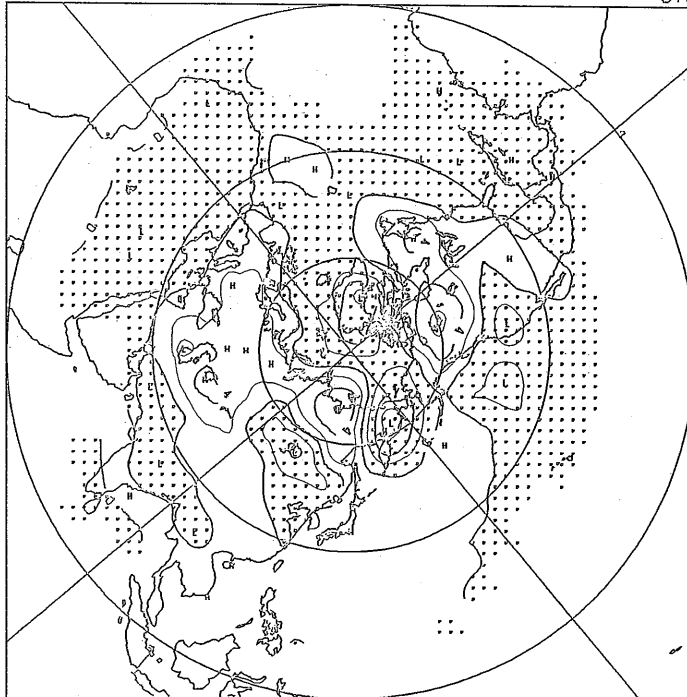






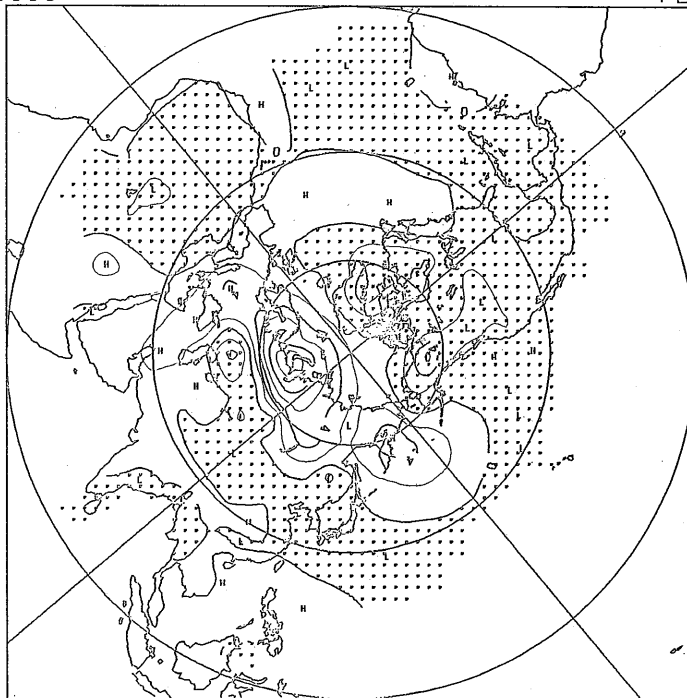
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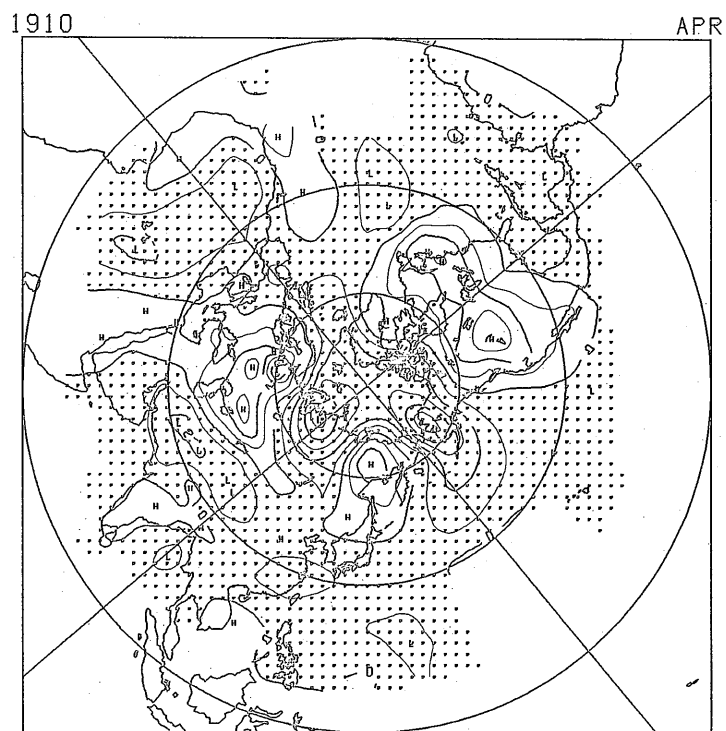
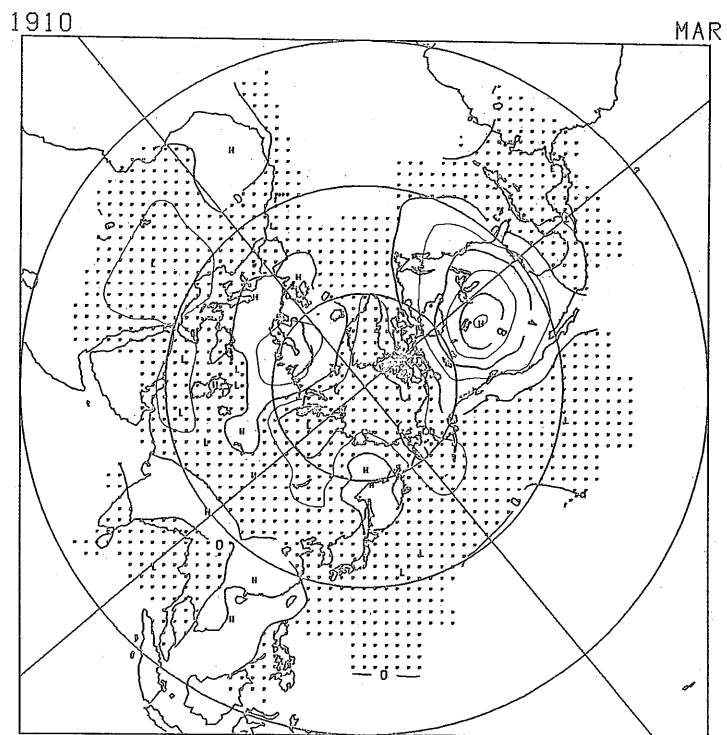
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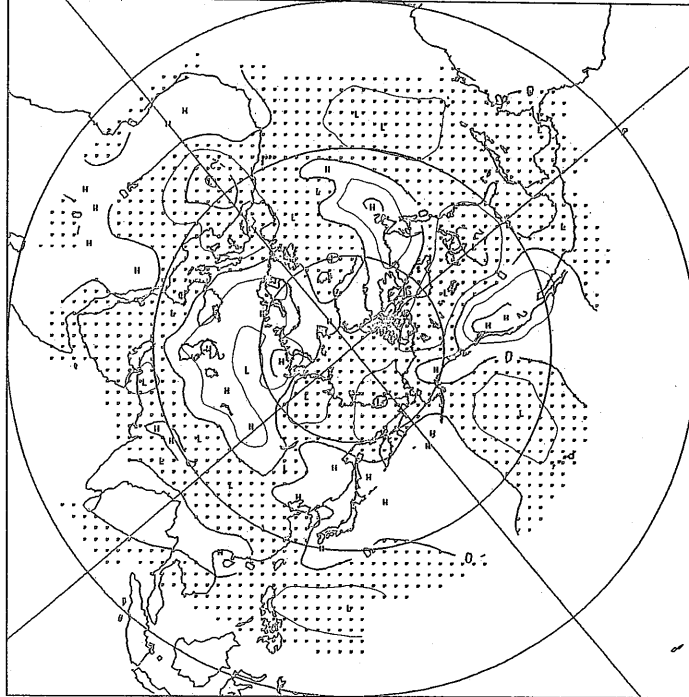
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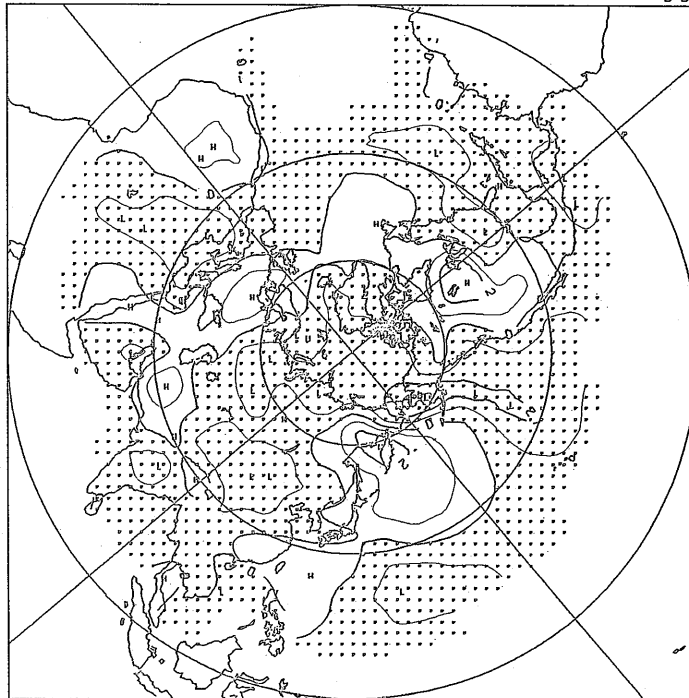
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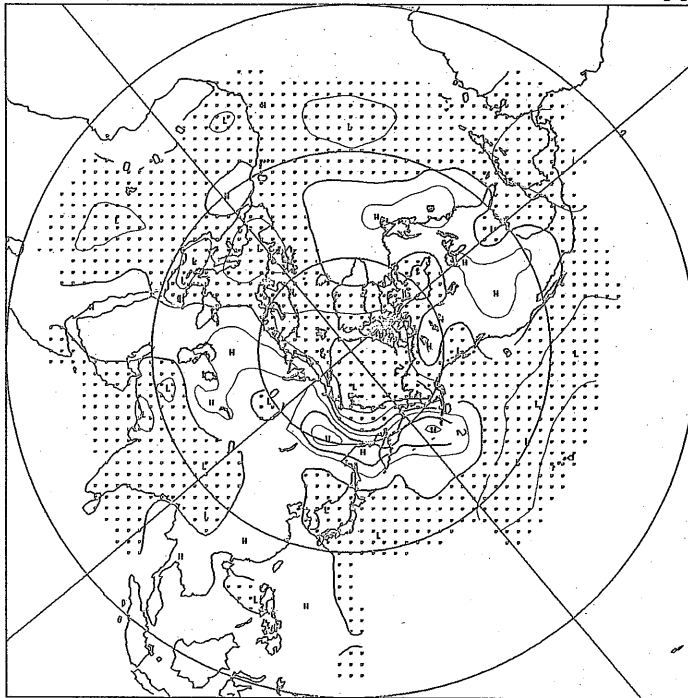
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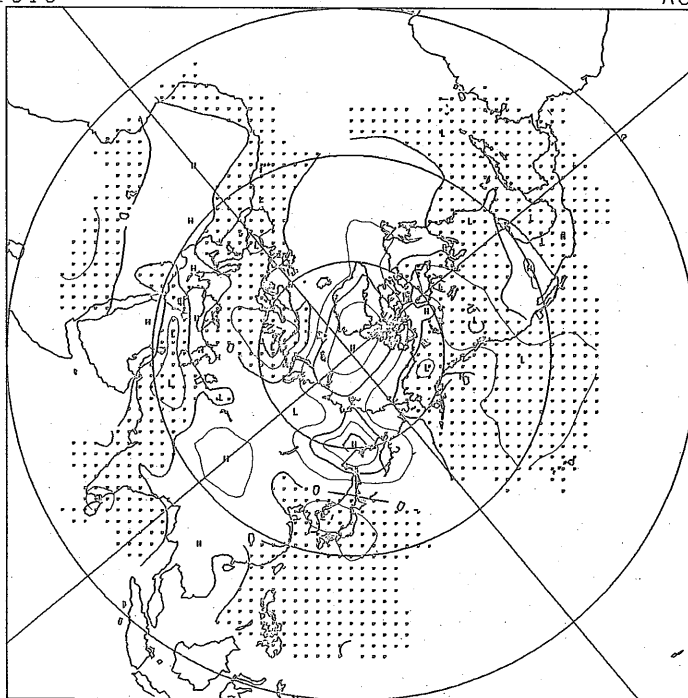
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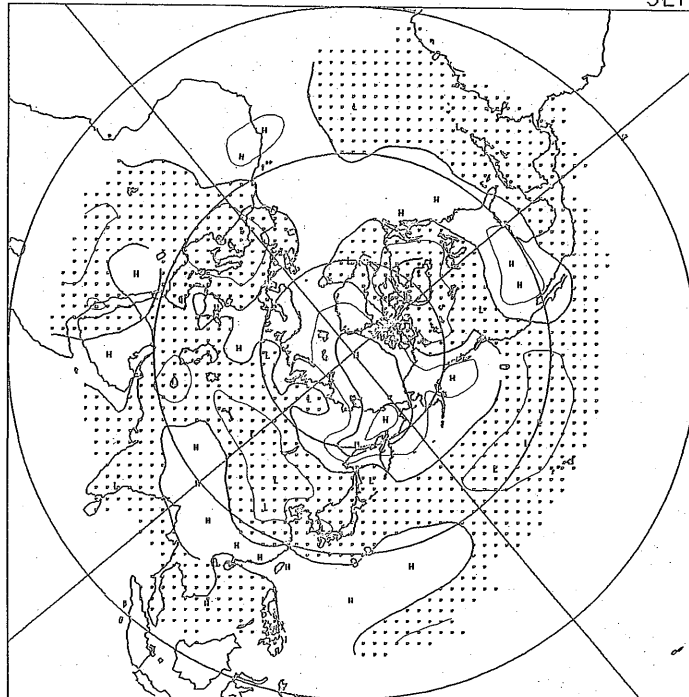
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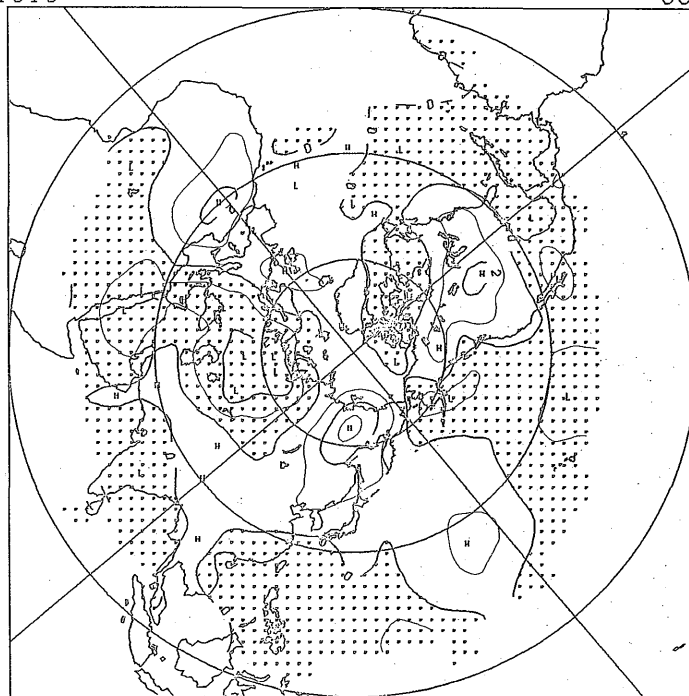
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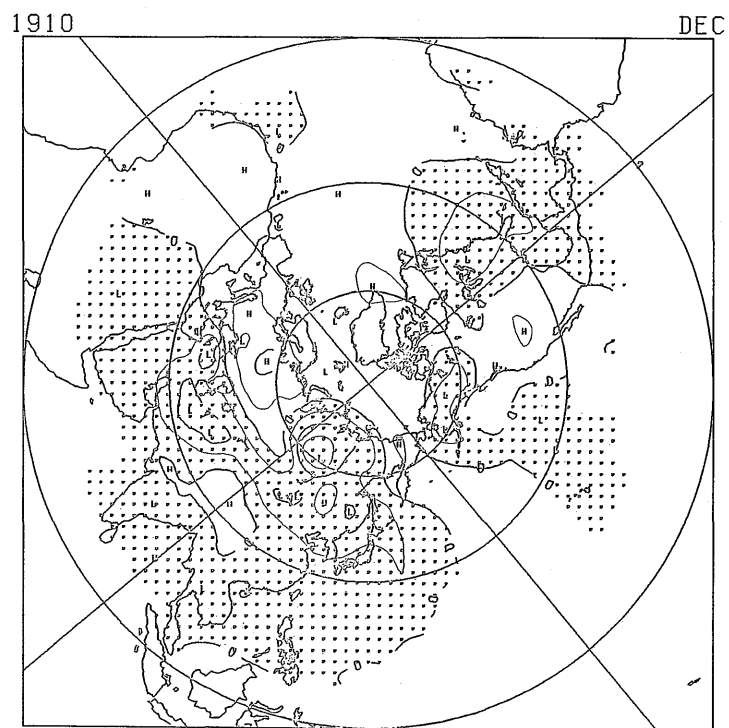
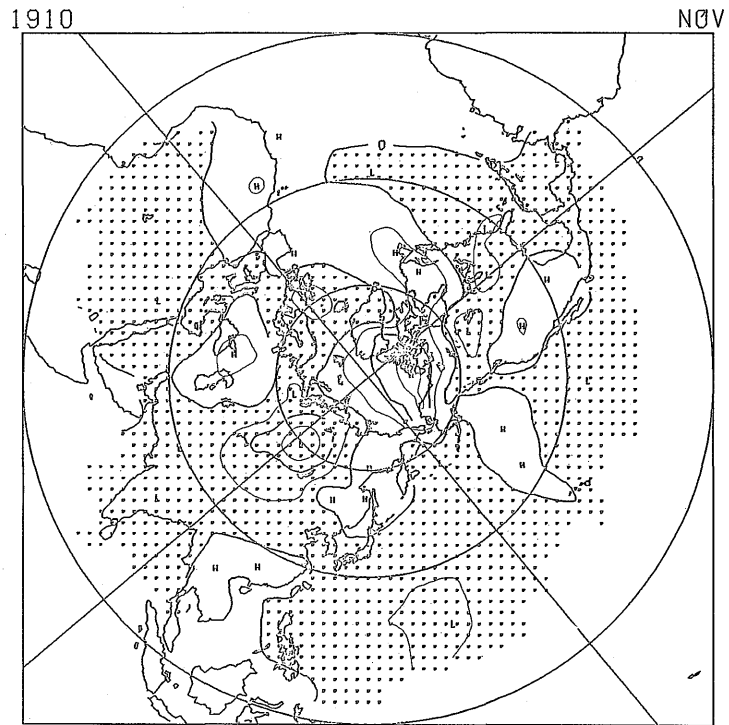
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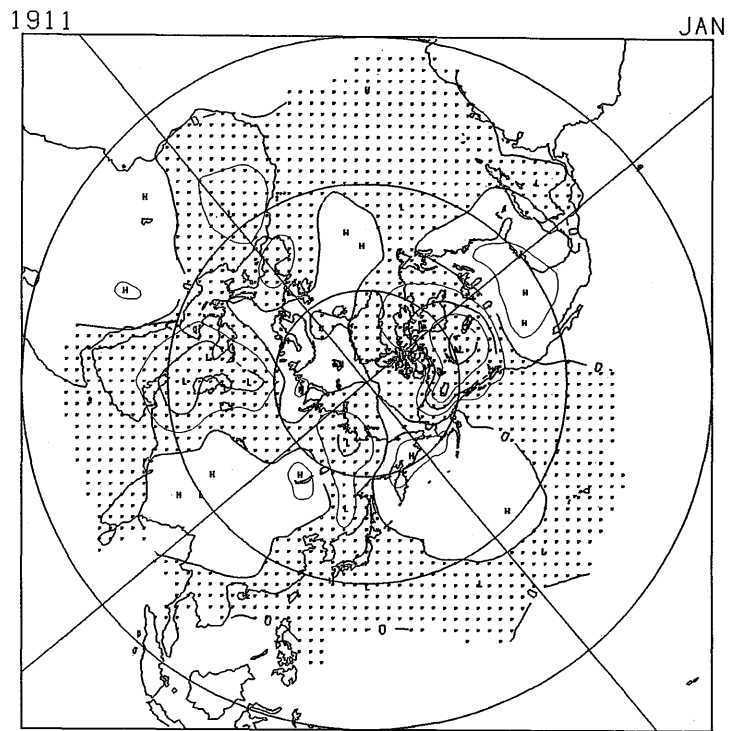


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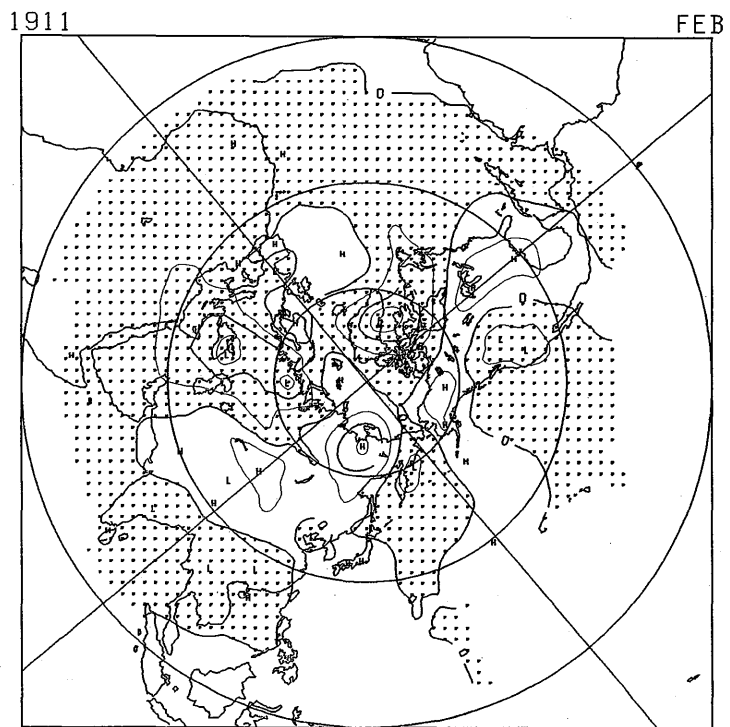
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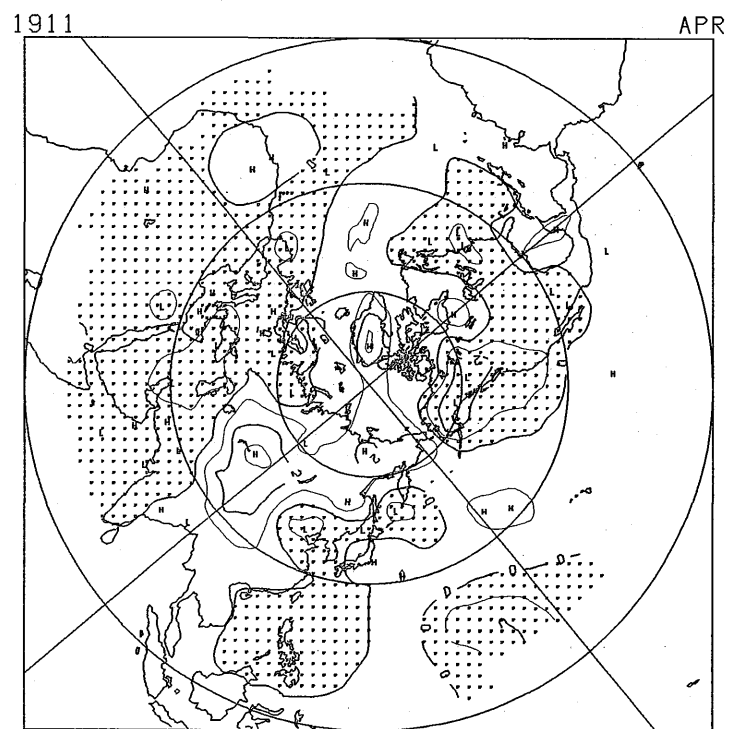
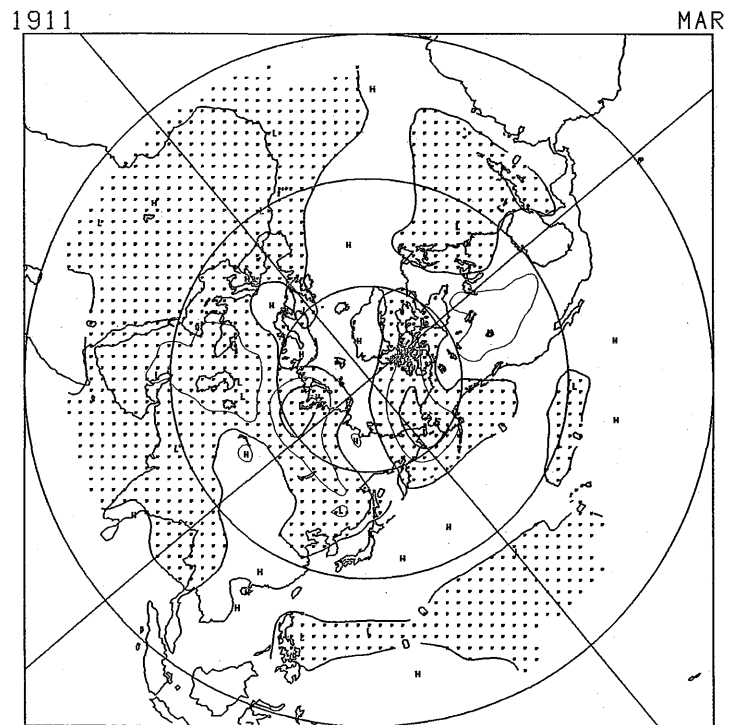






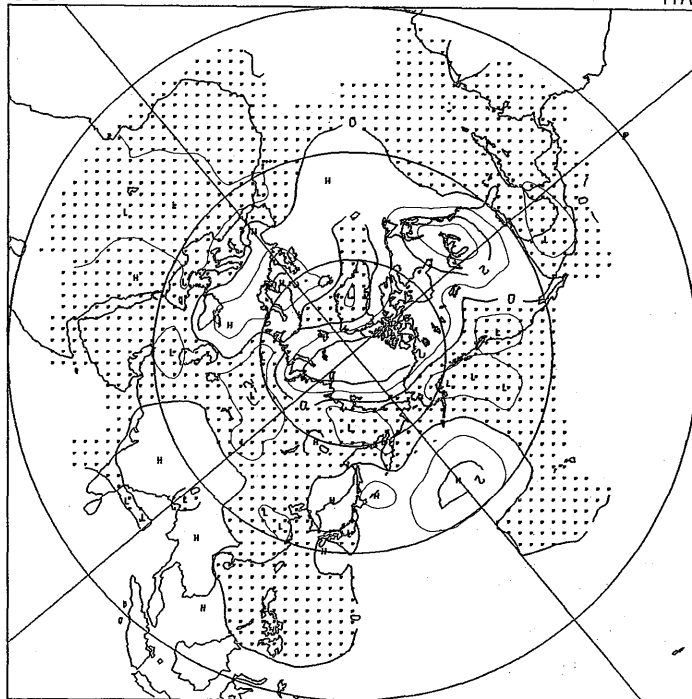
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1月





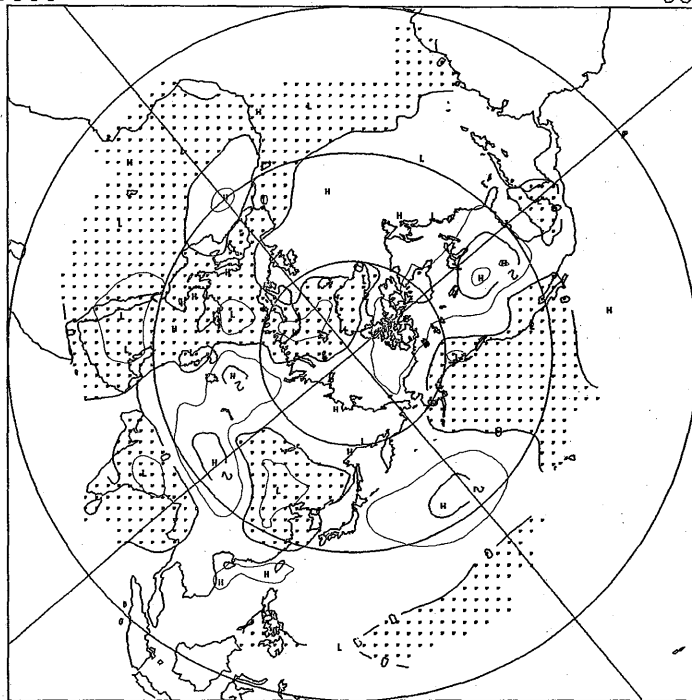
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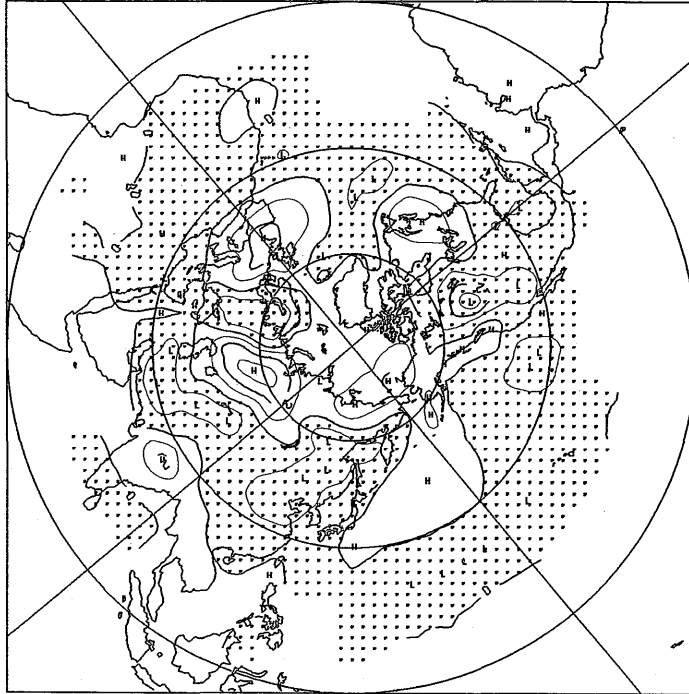
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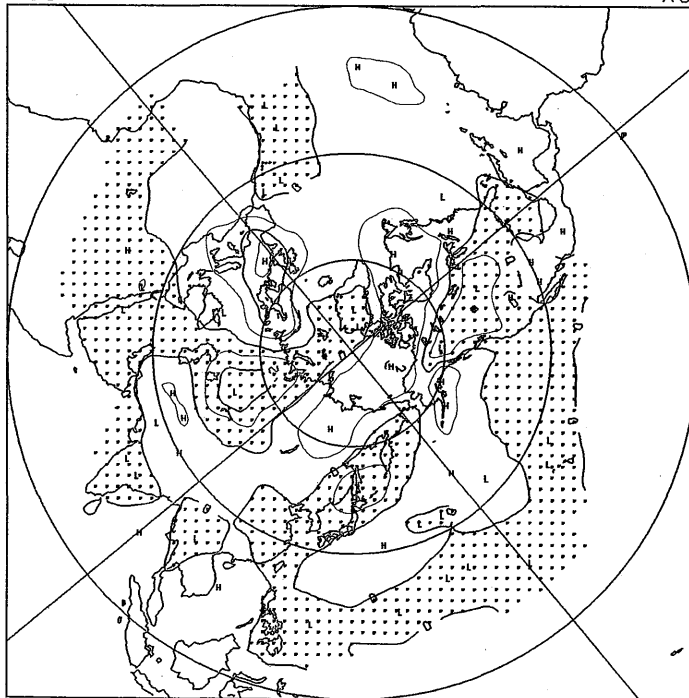
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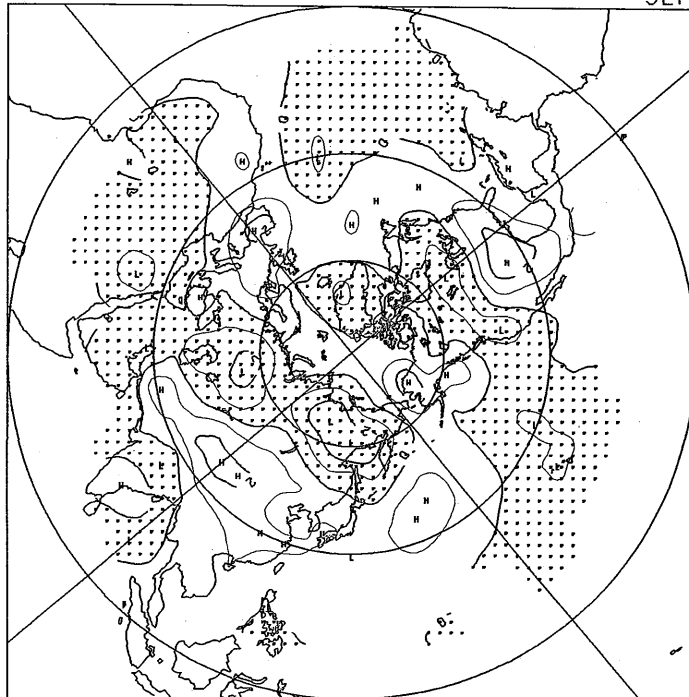
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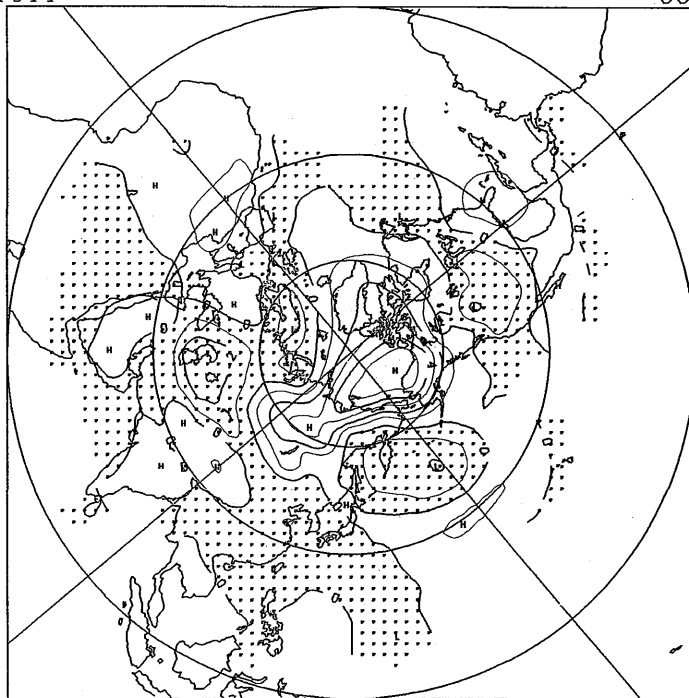
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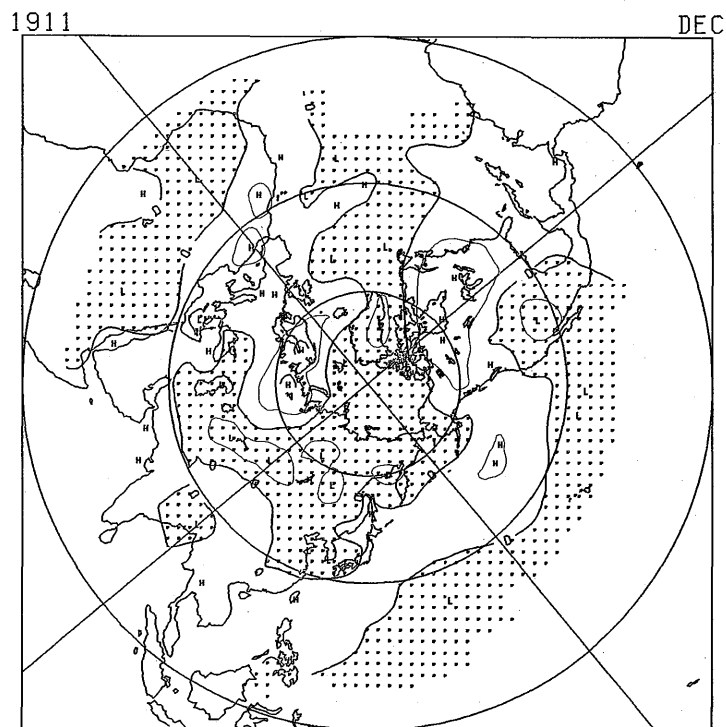
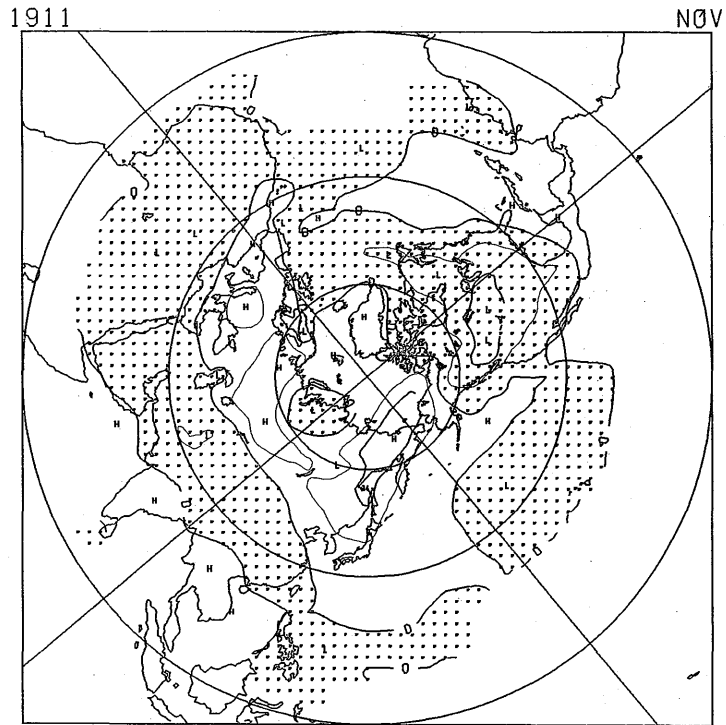
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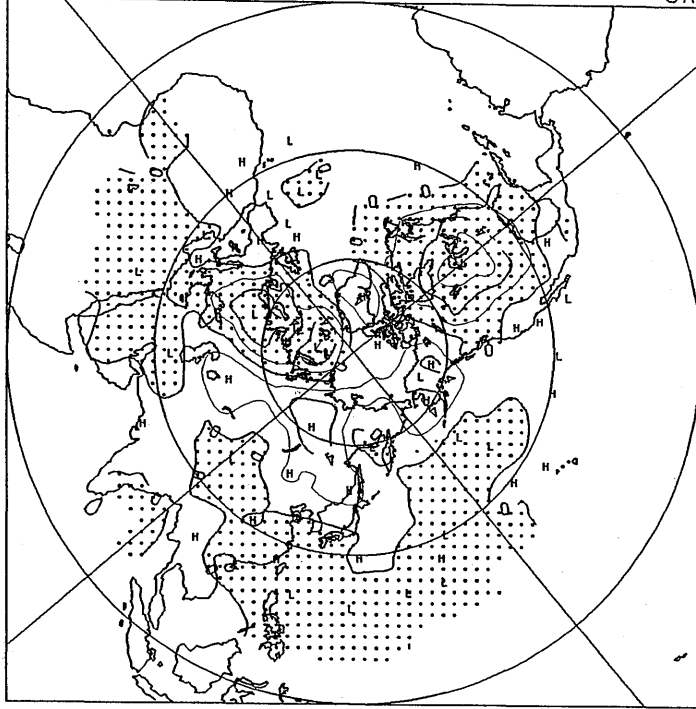
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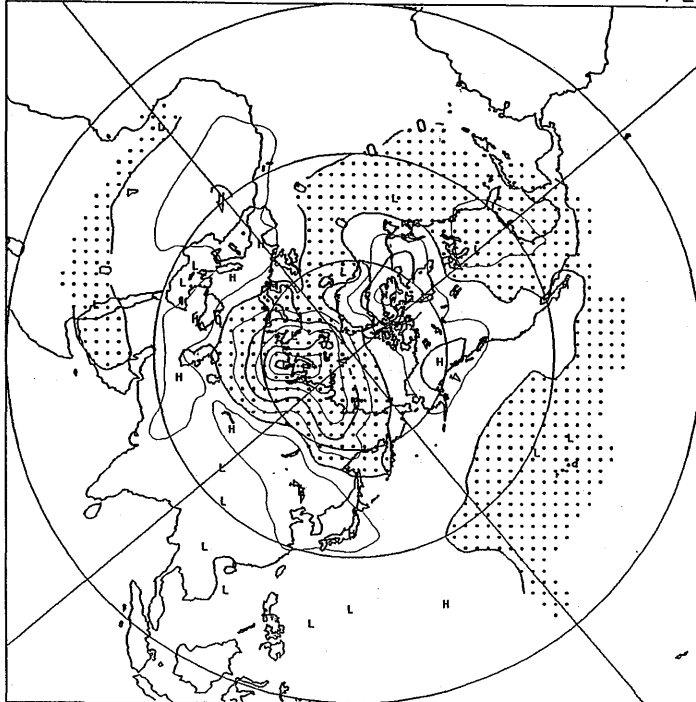
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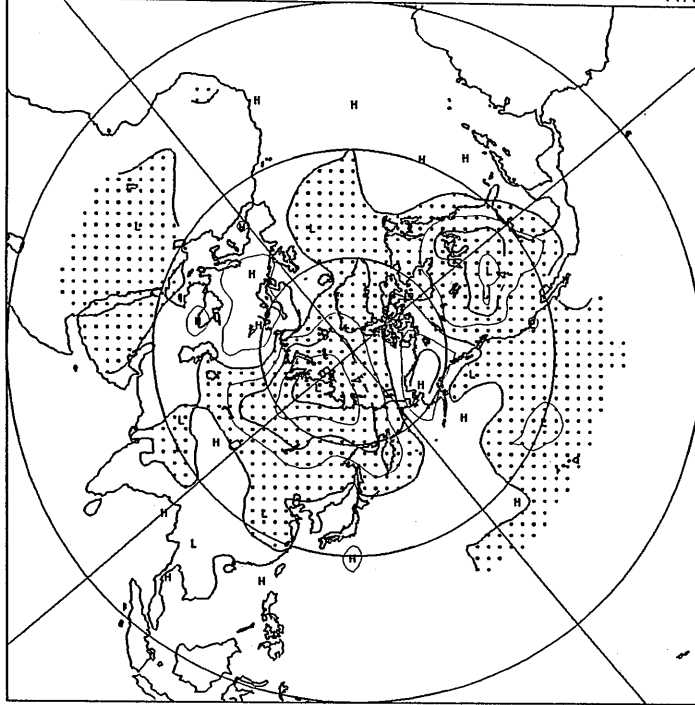
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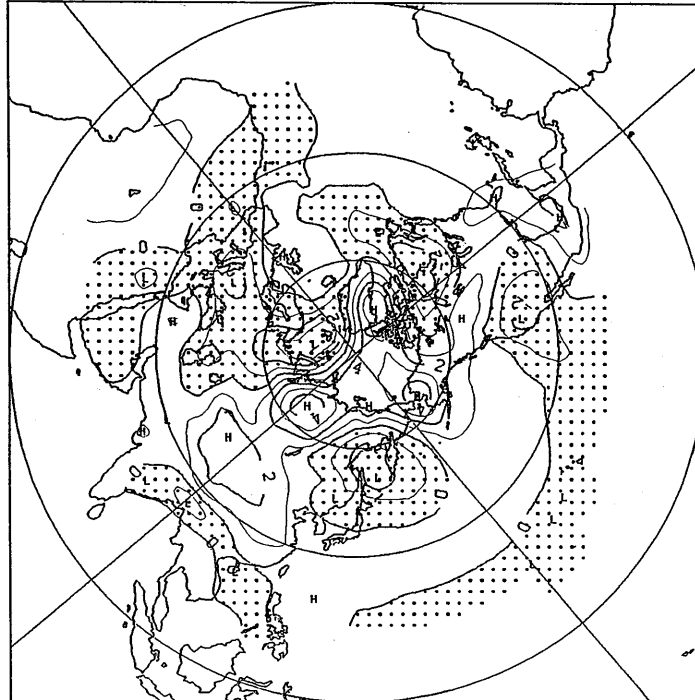
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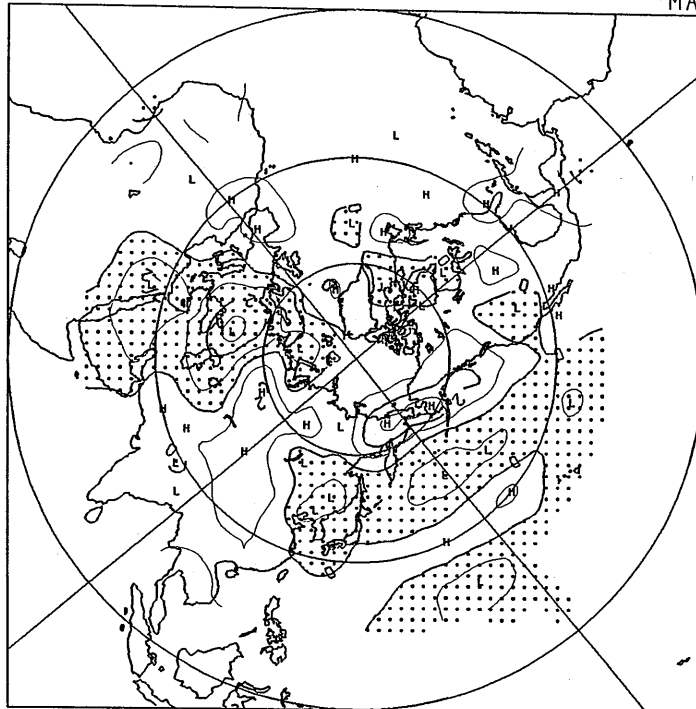
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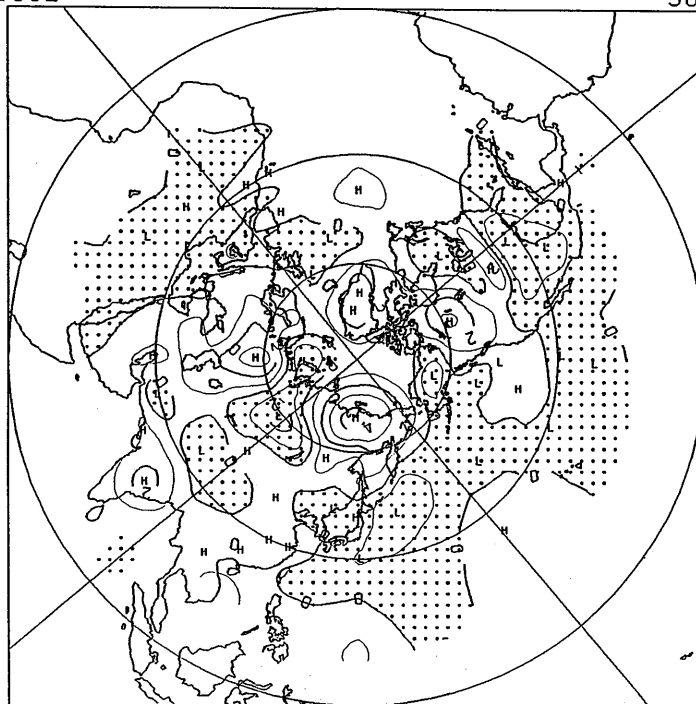
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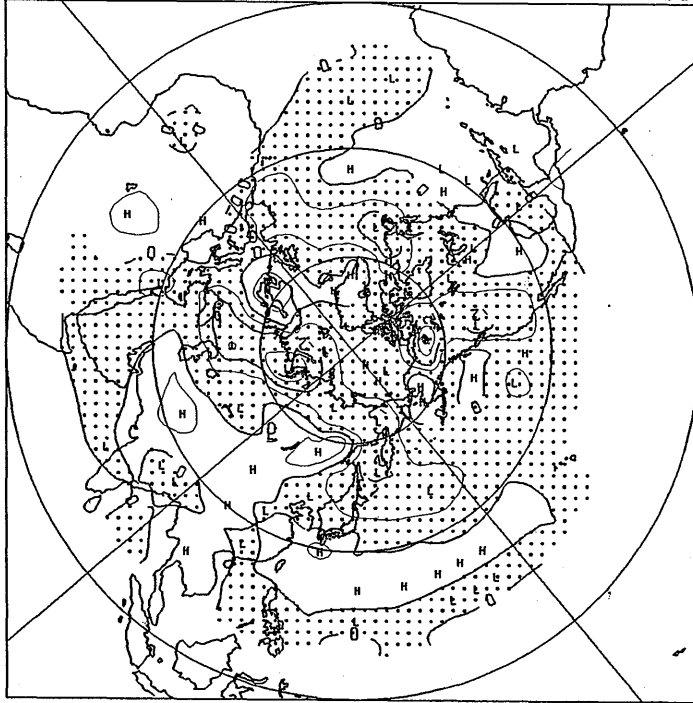
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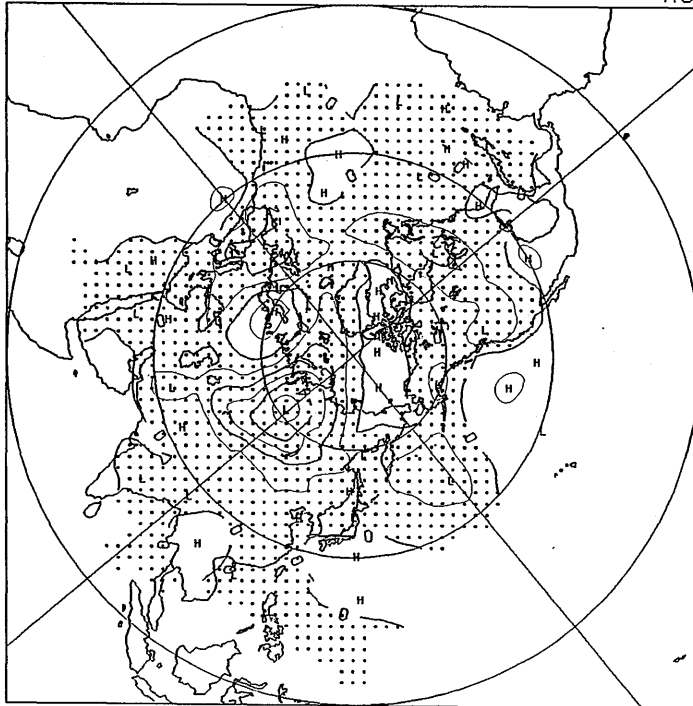
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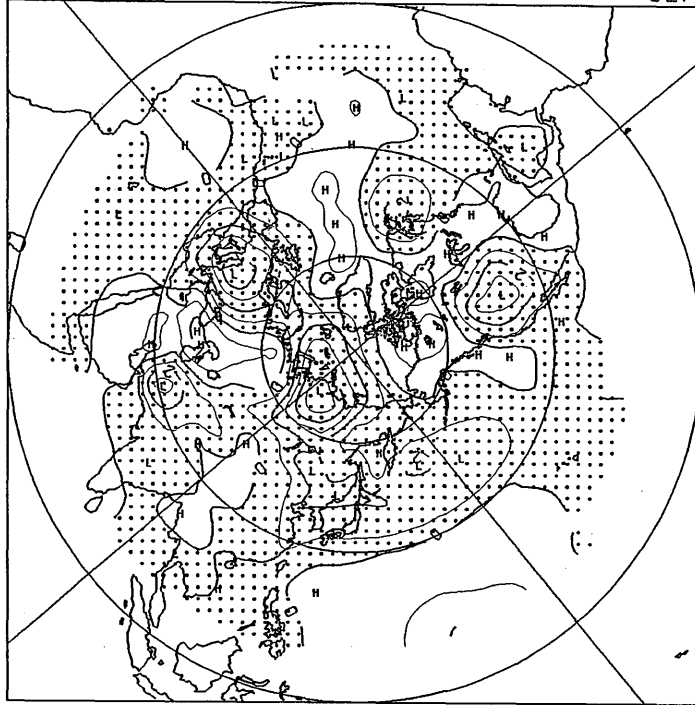
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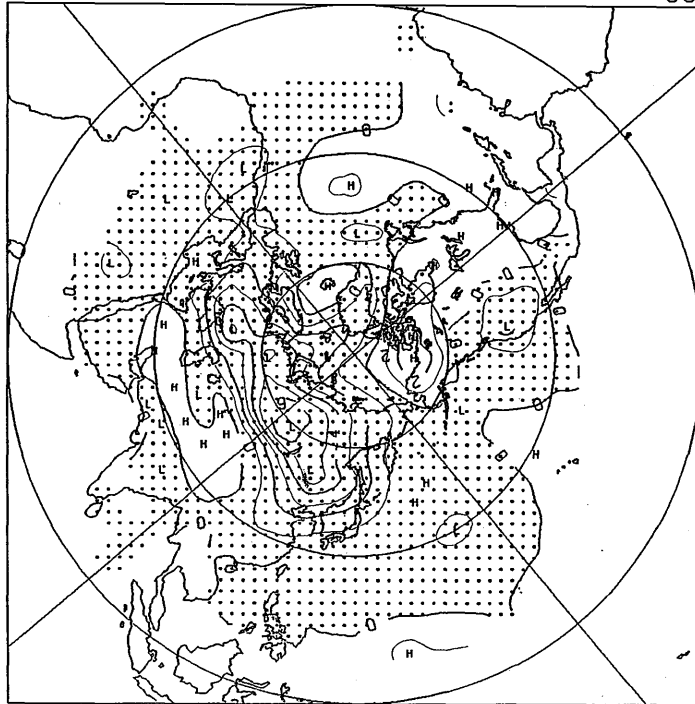
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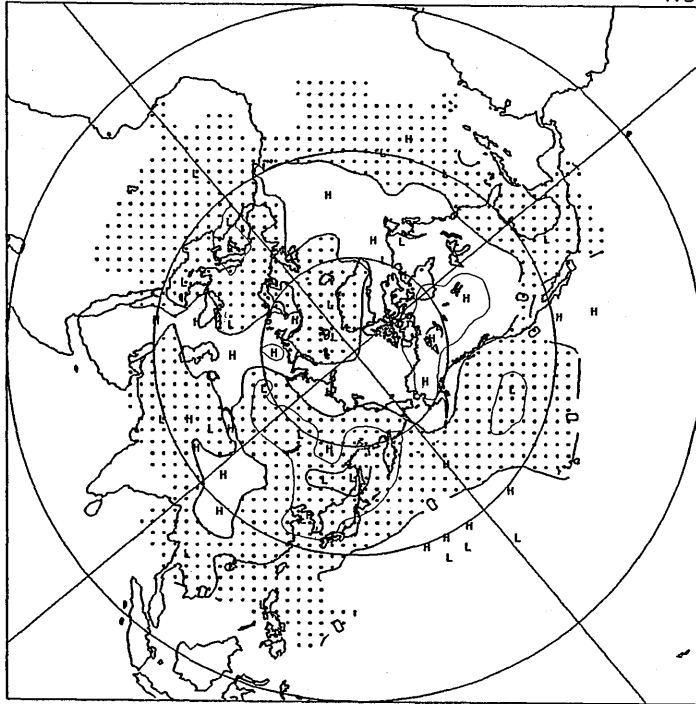
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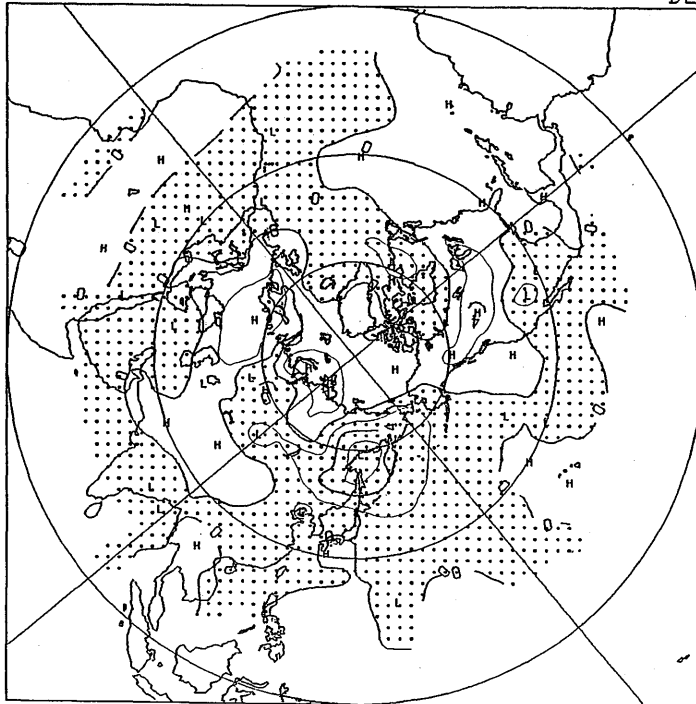
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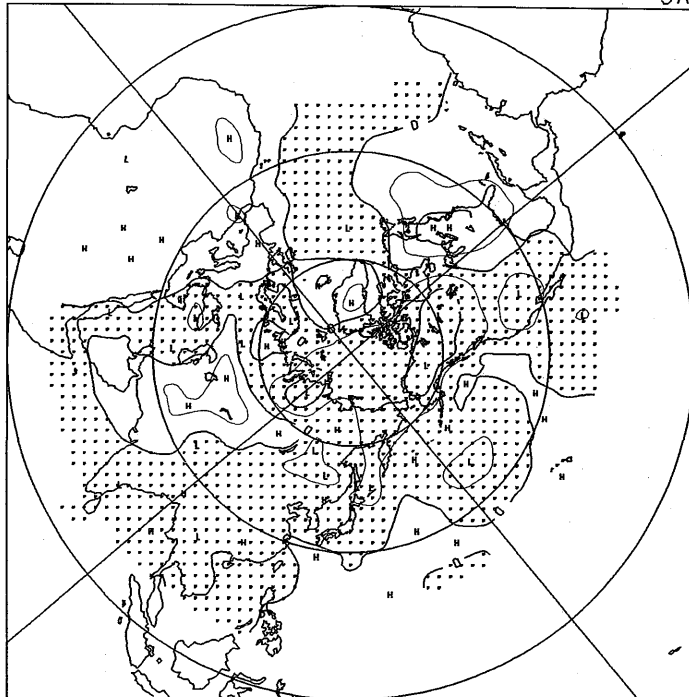
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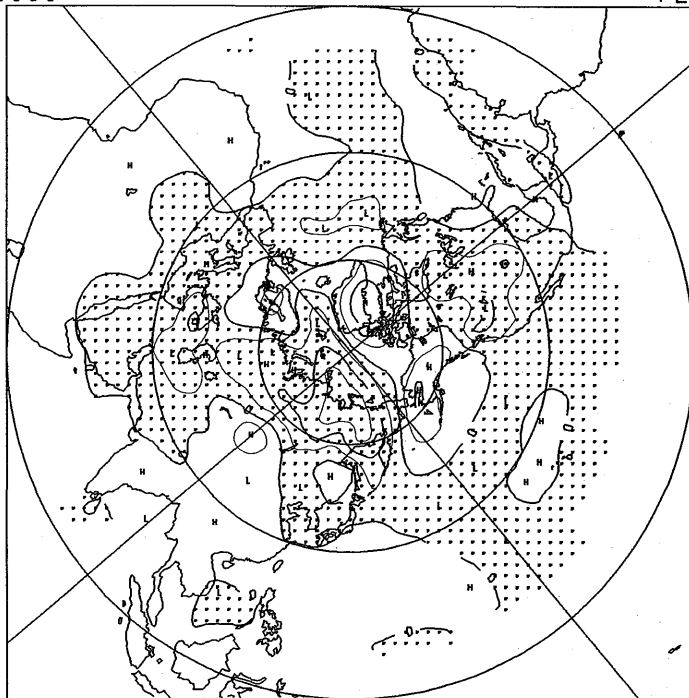
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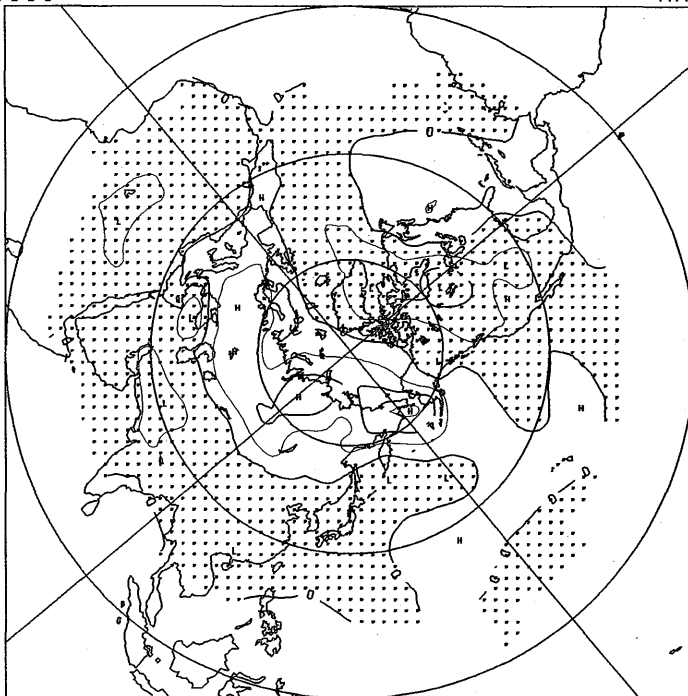
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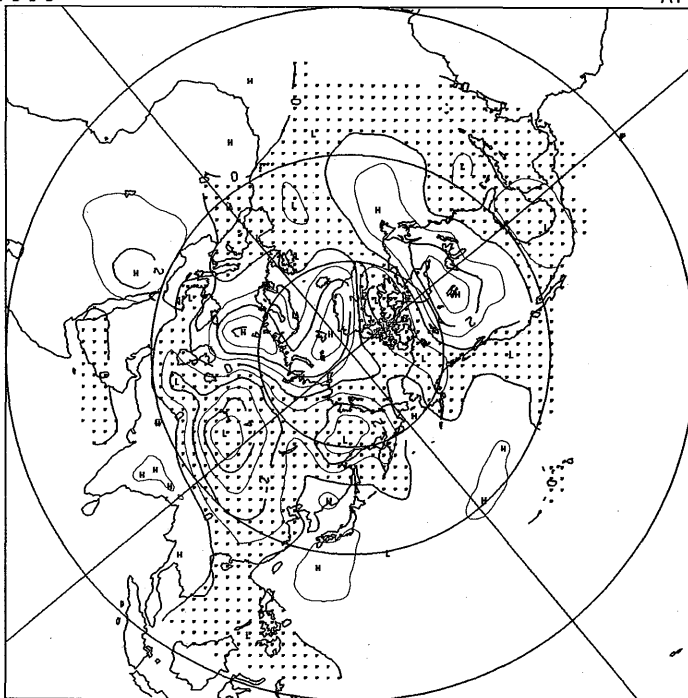
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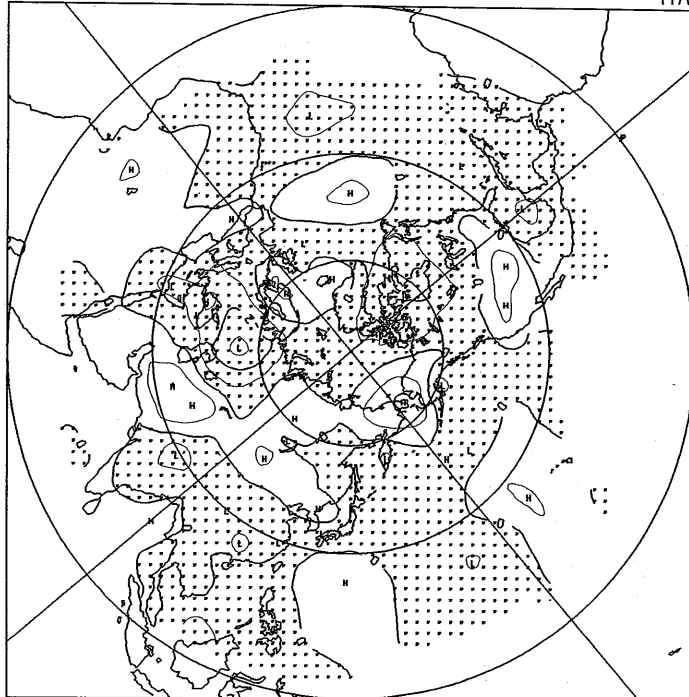
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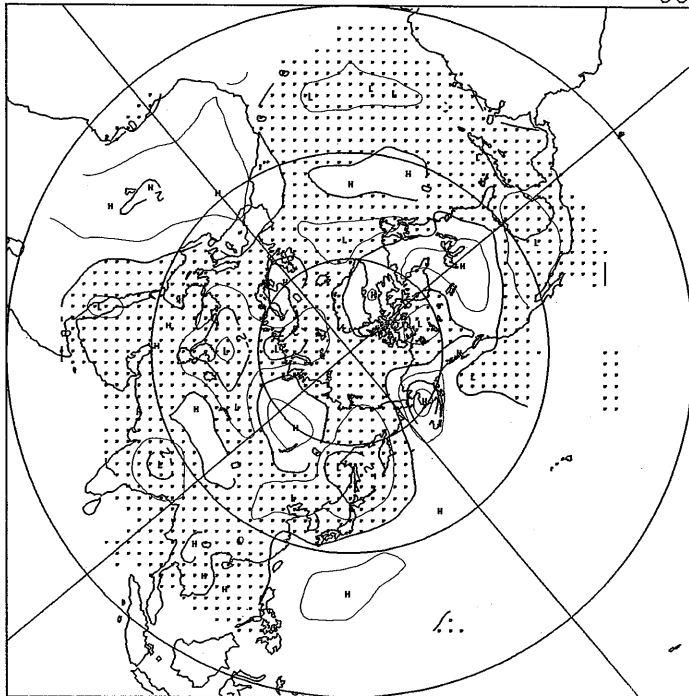
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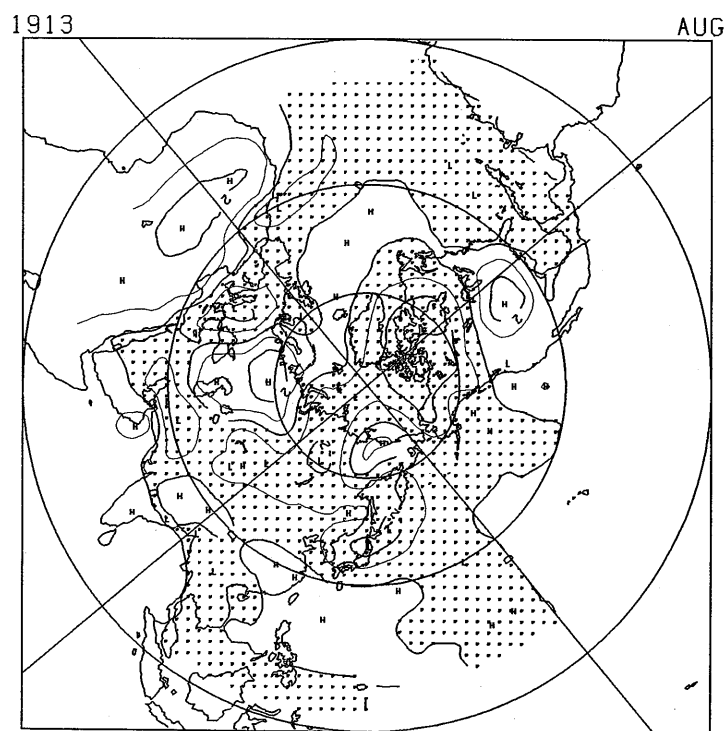
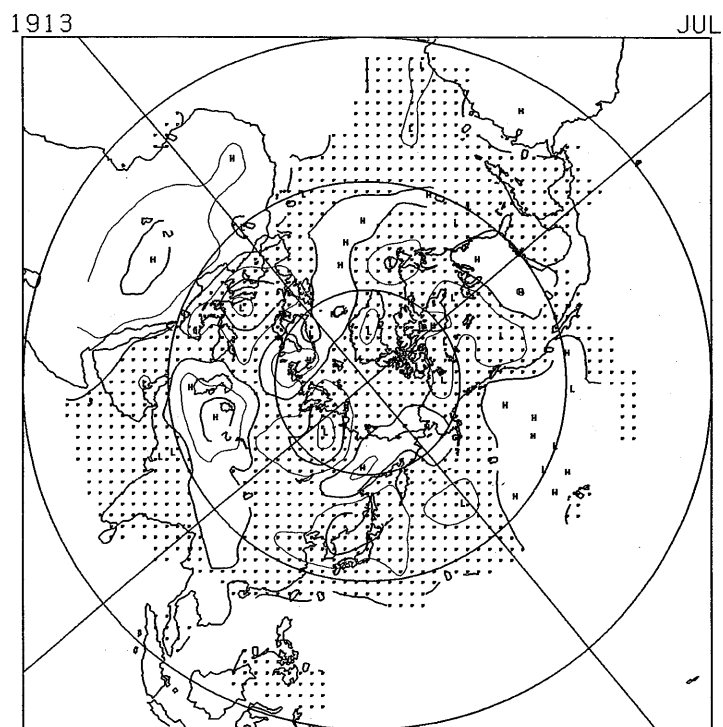
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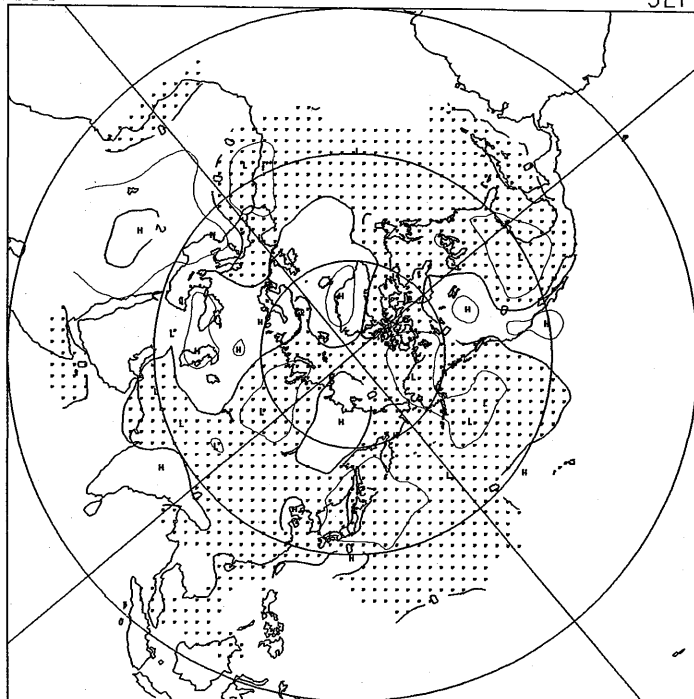
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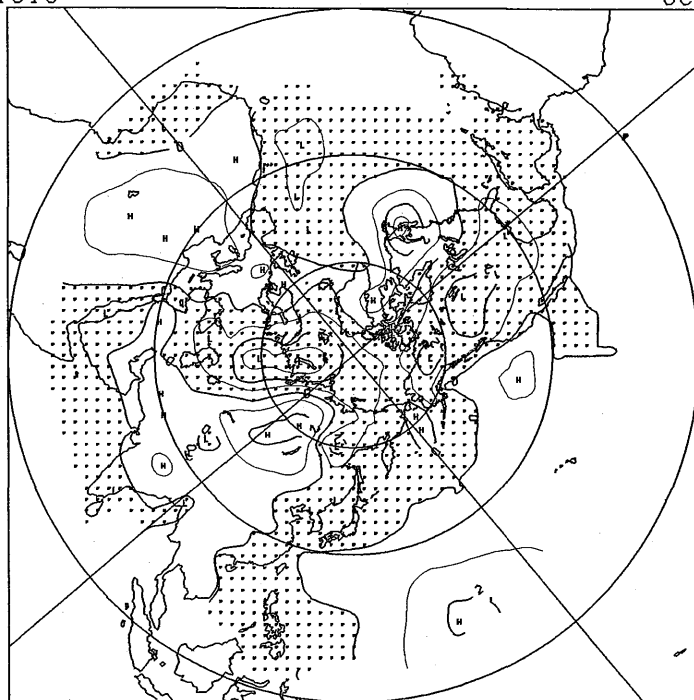
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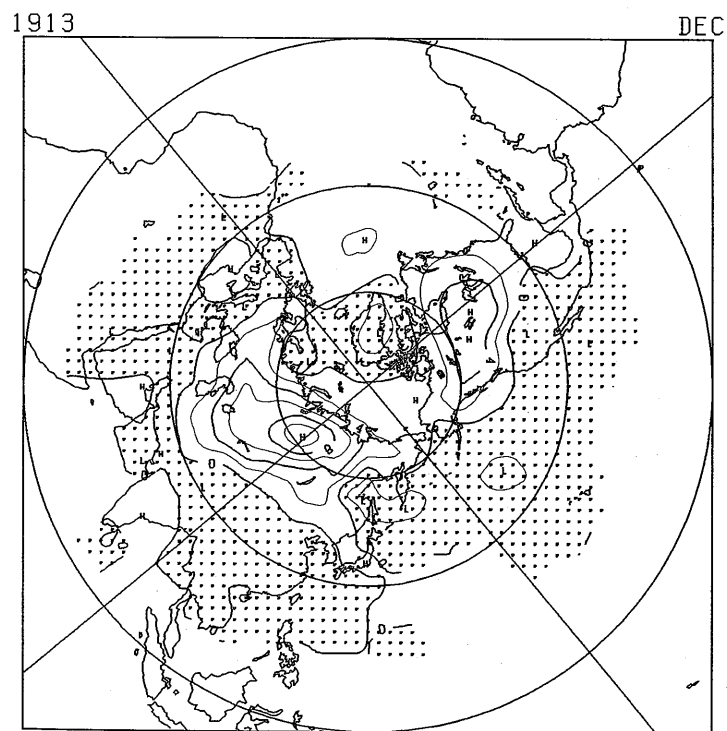
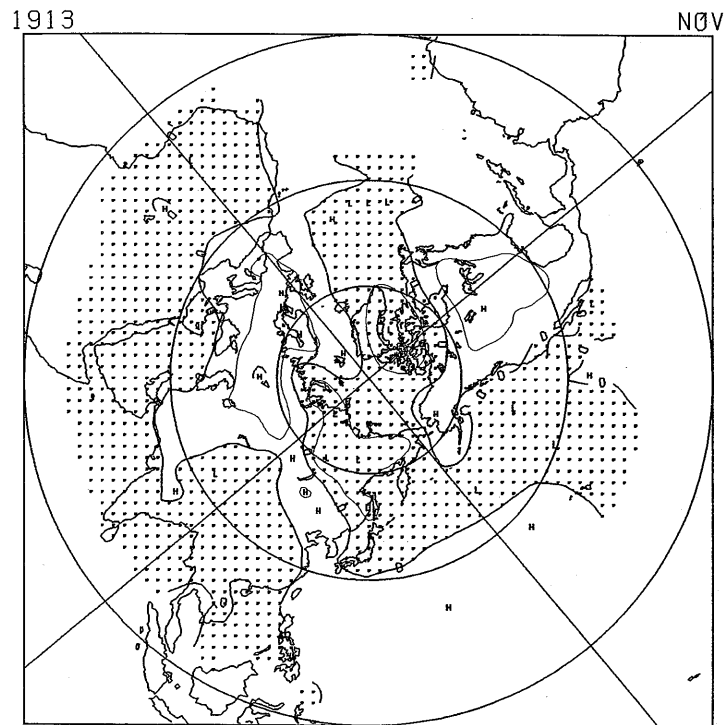
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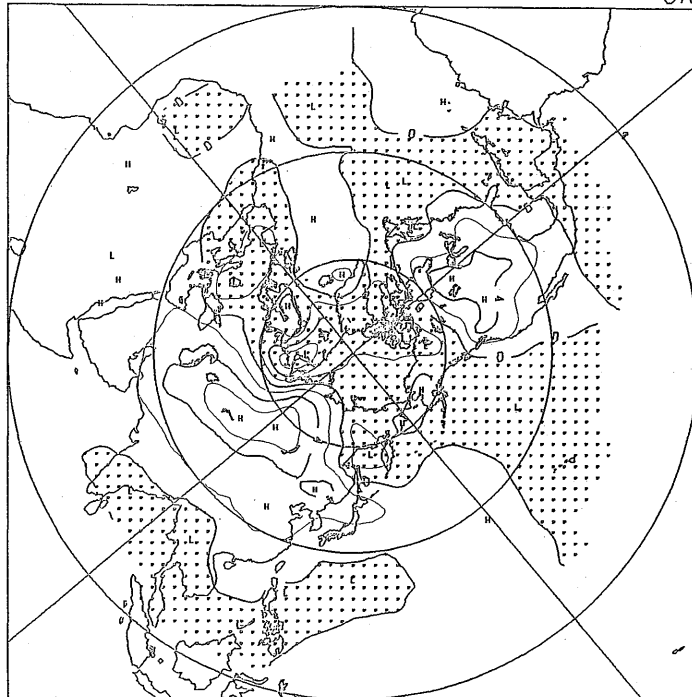
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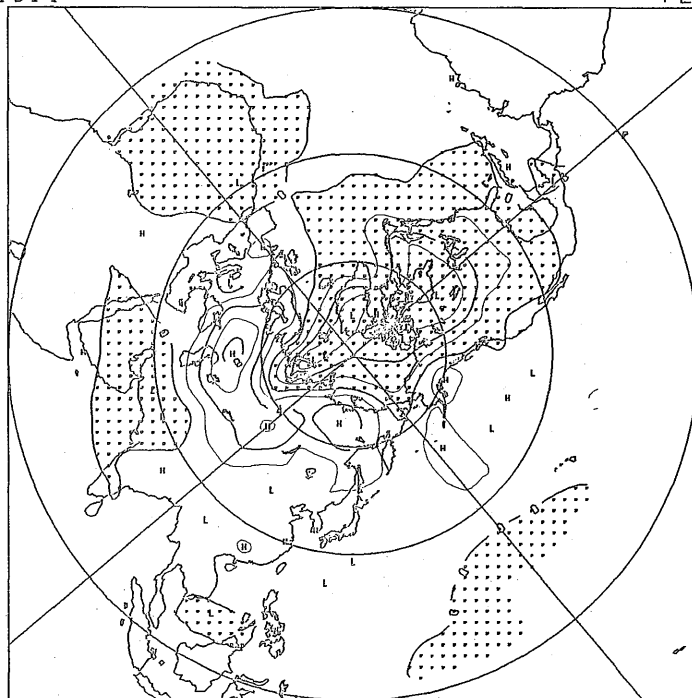
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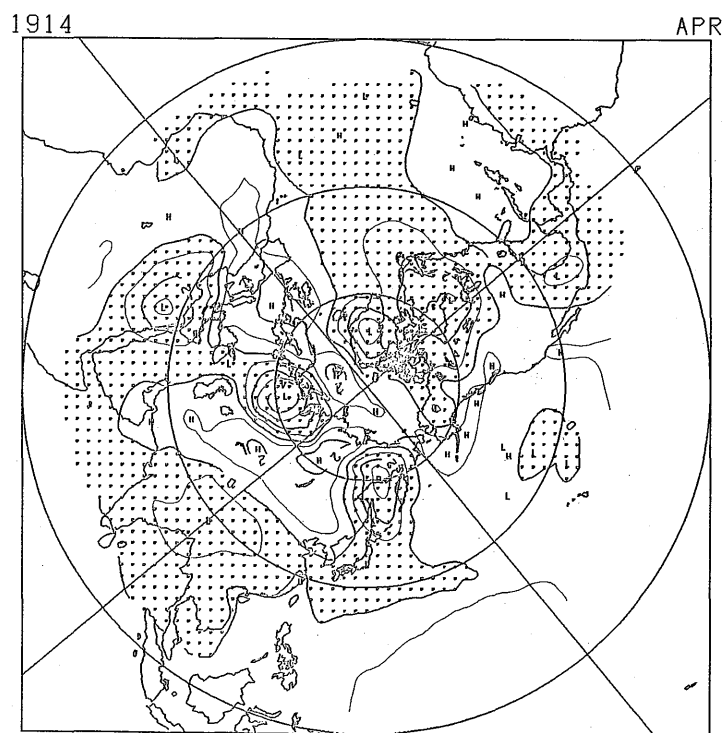
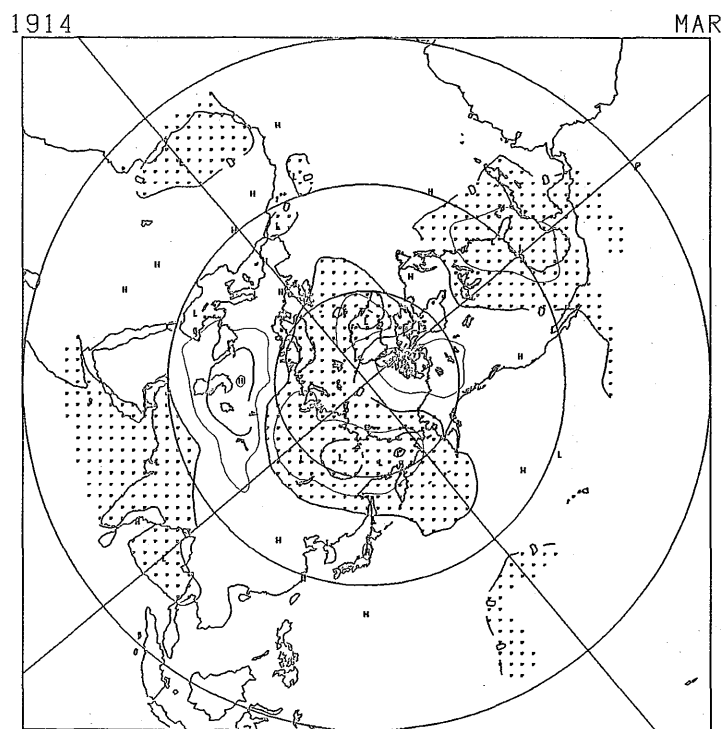
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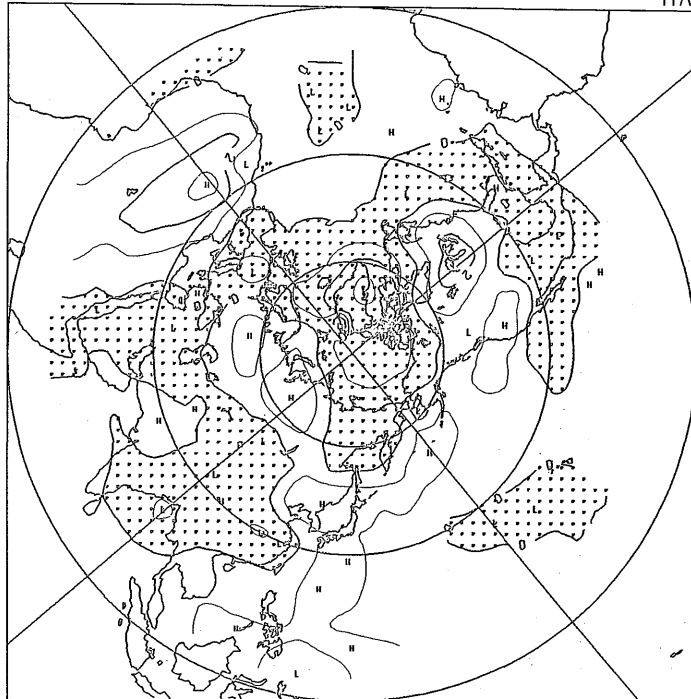
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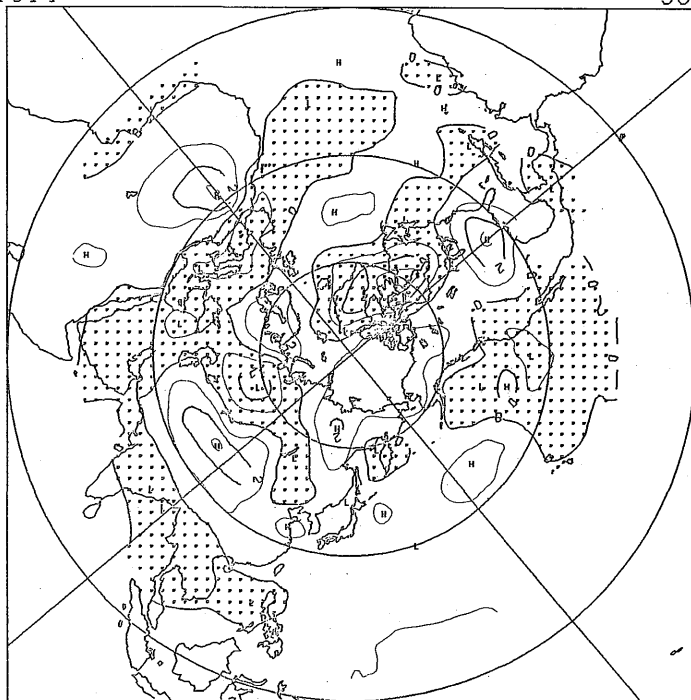
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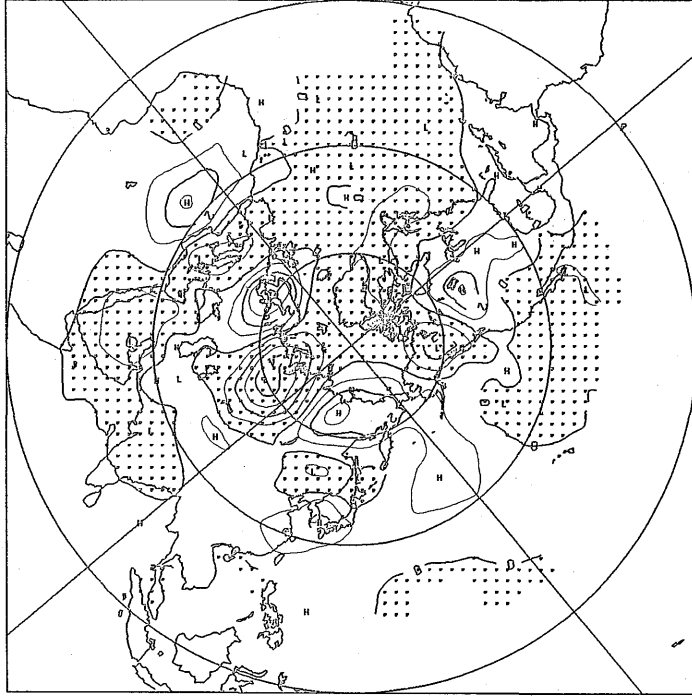
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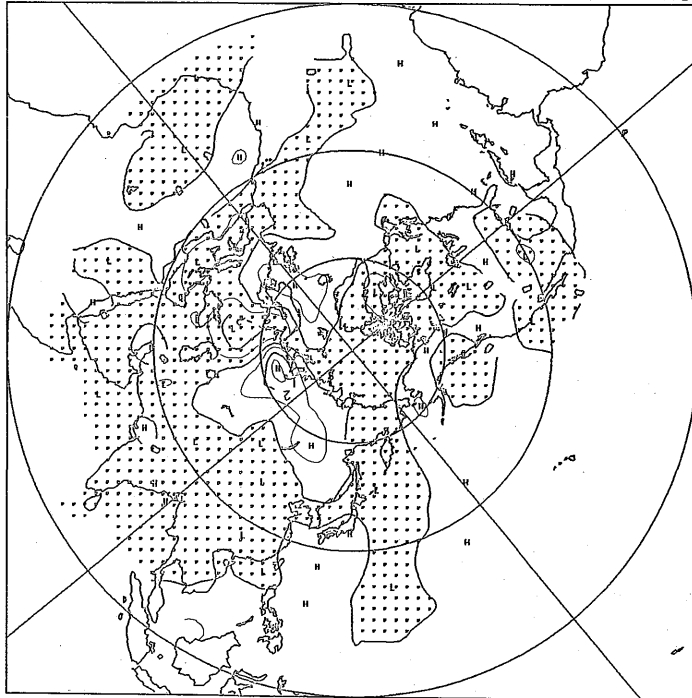
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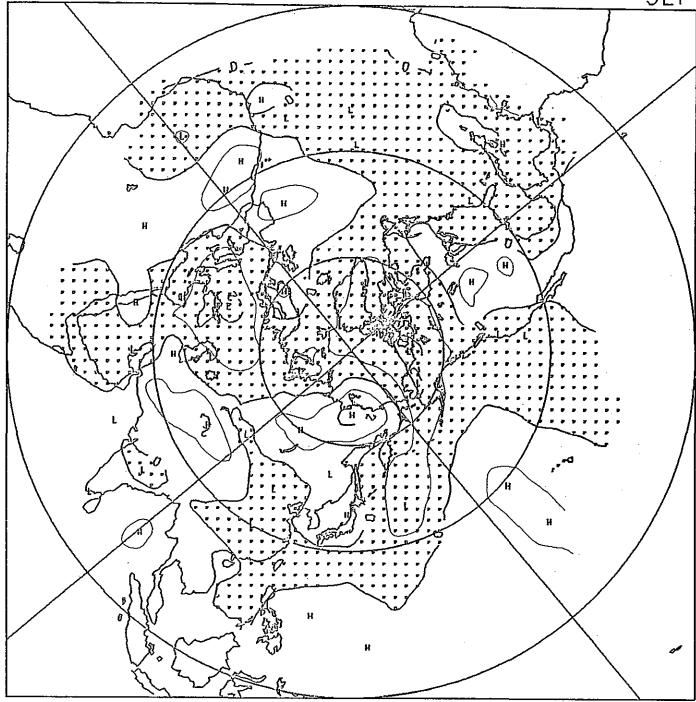
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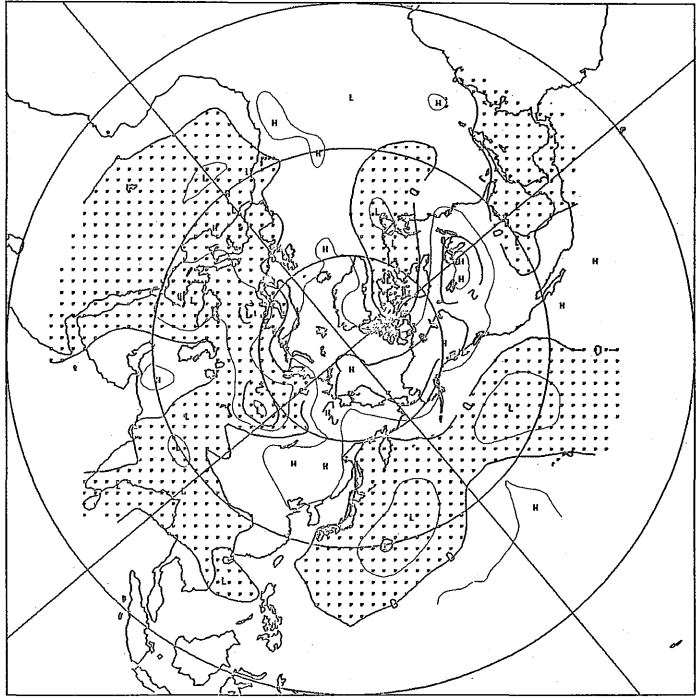
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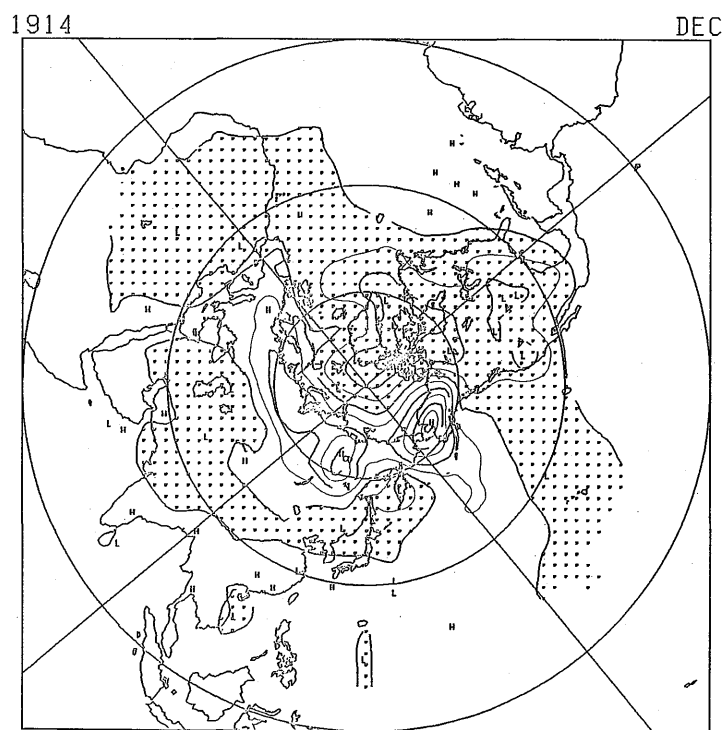
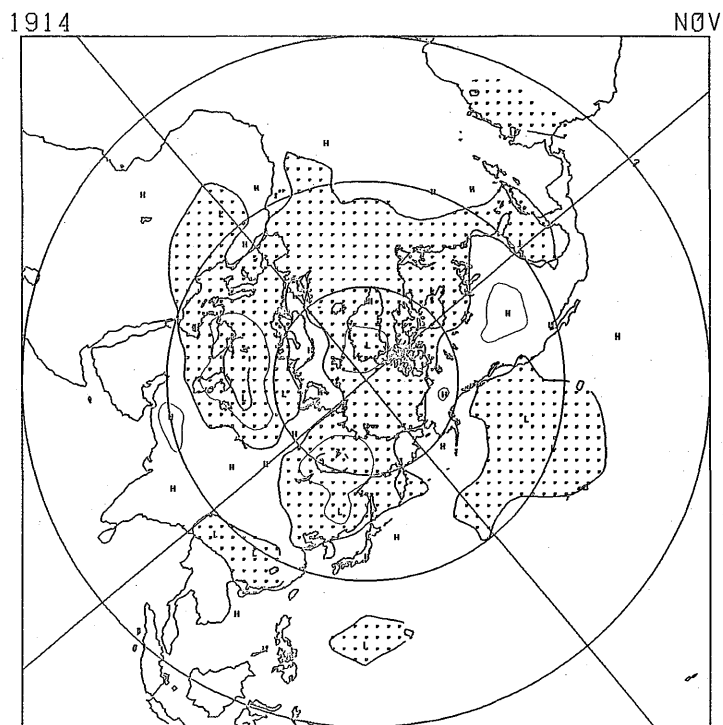
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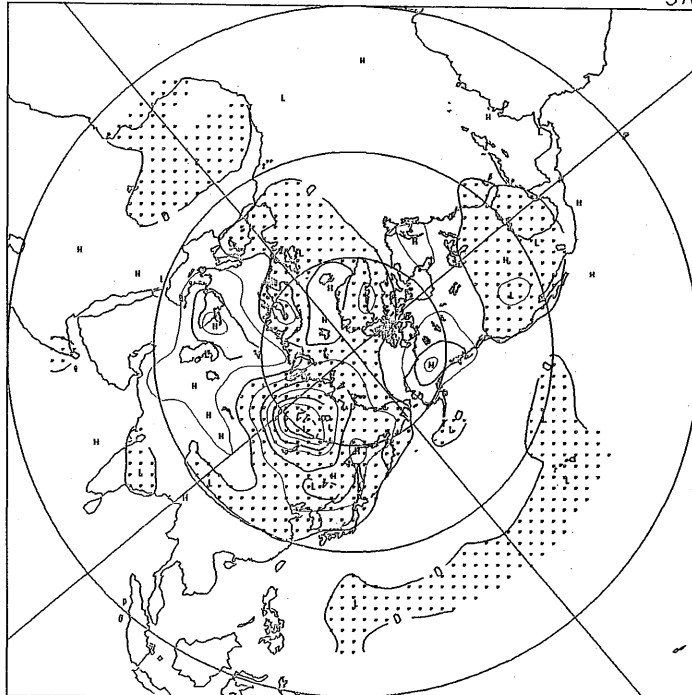
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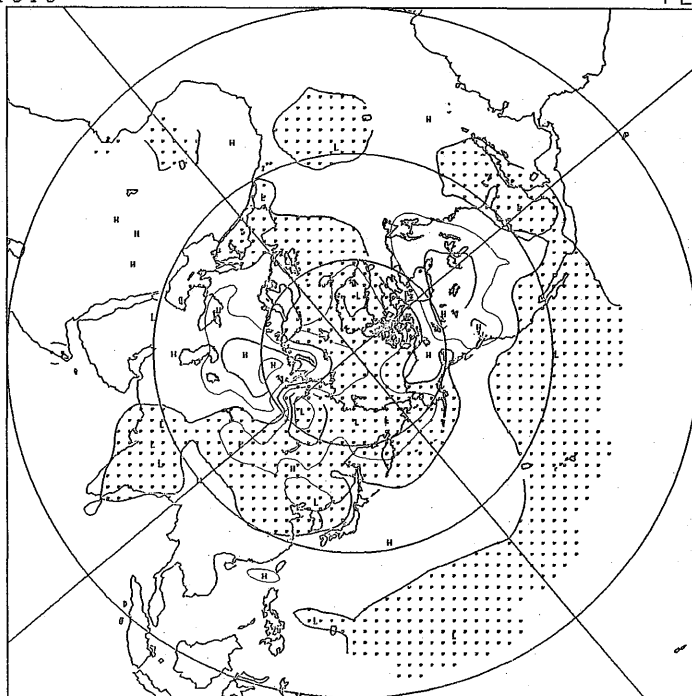
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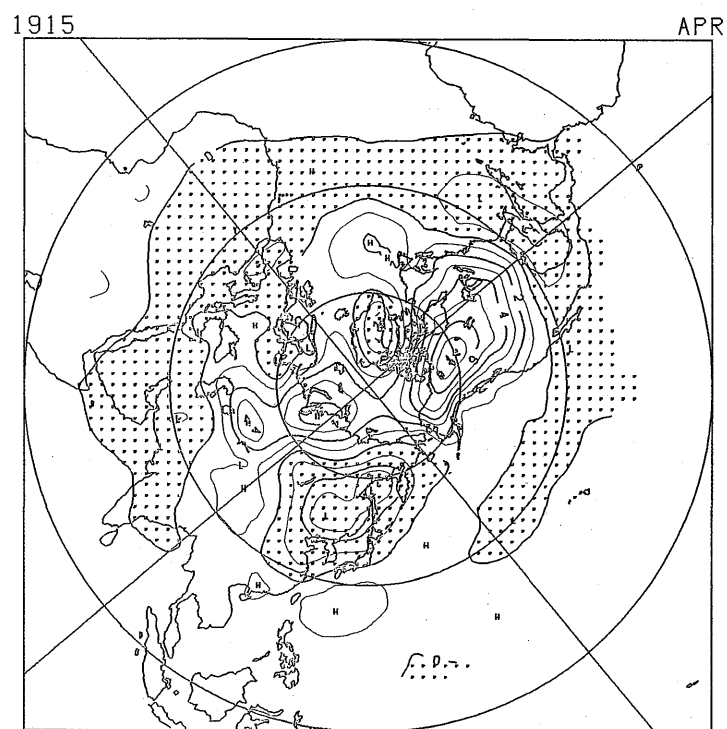
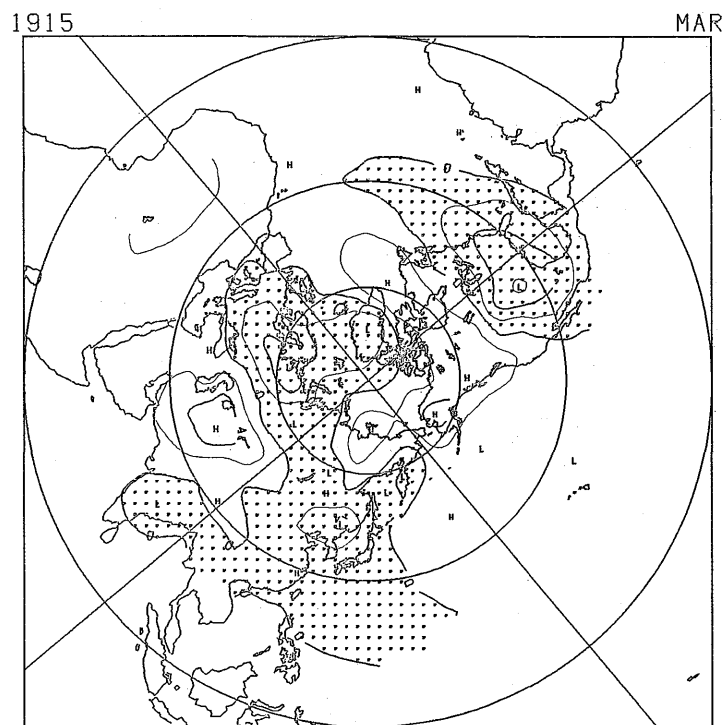
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1915

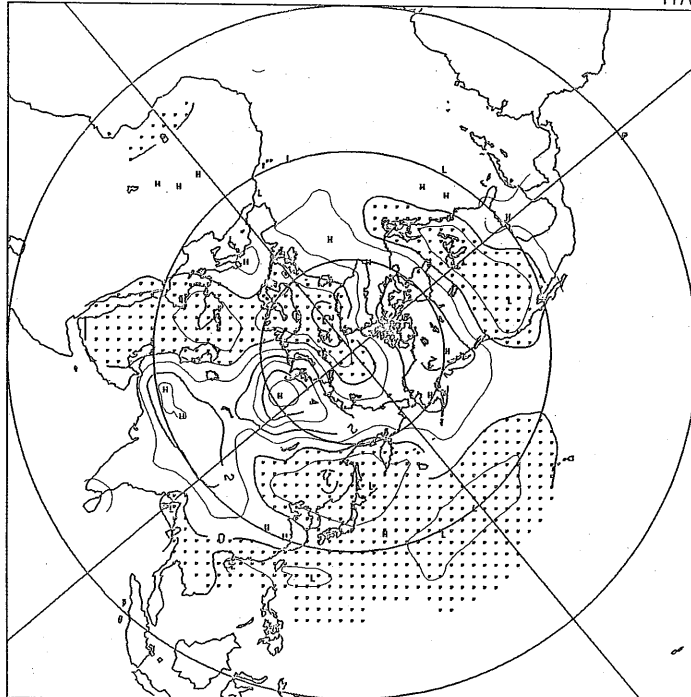
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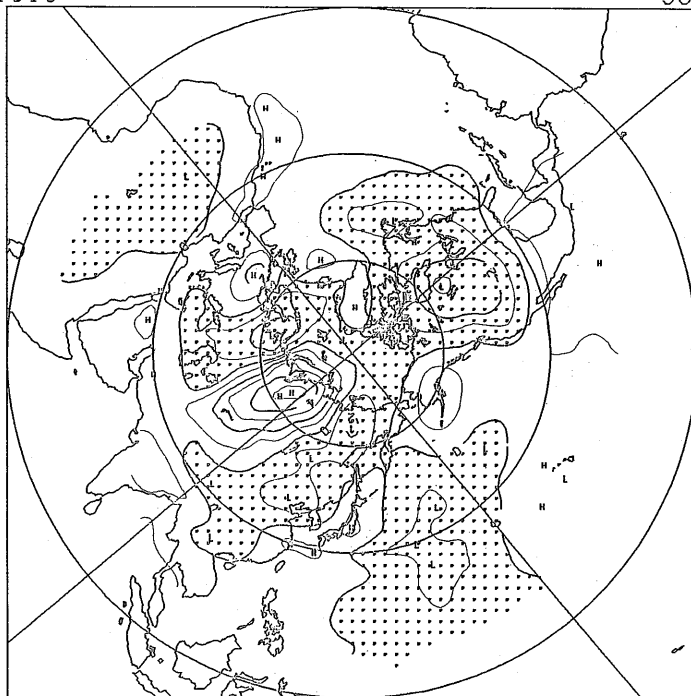
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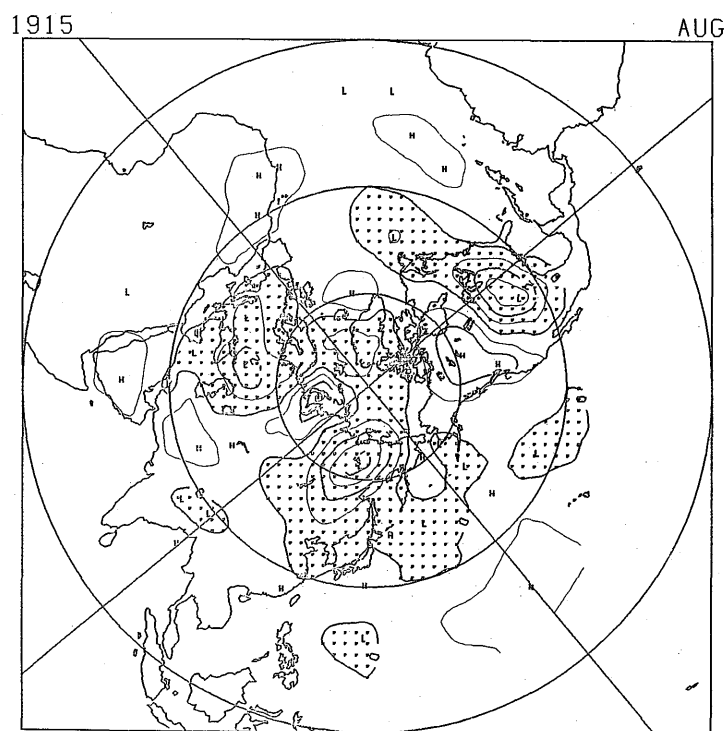
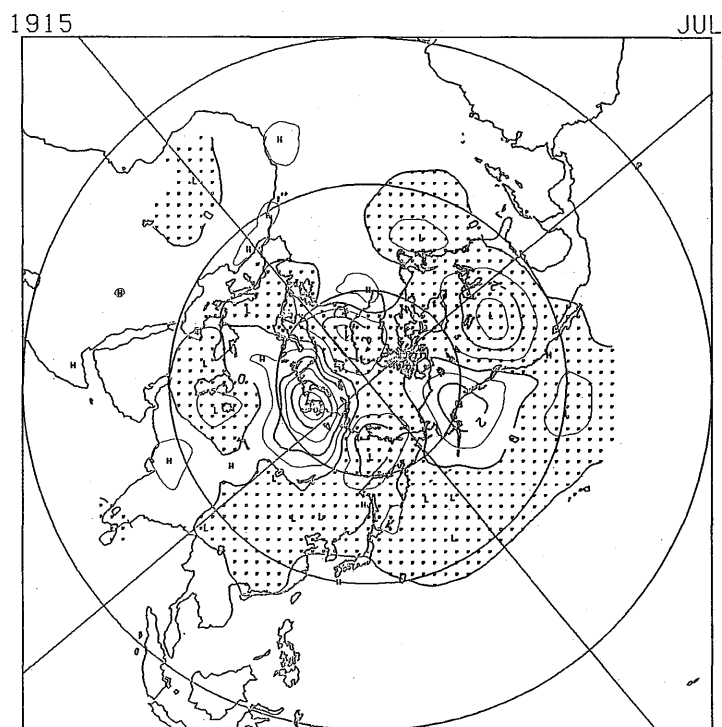
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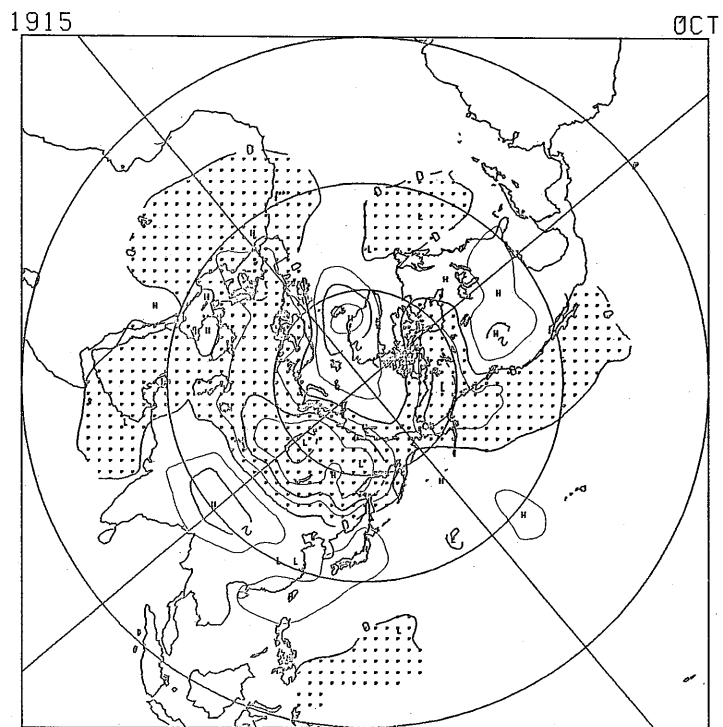
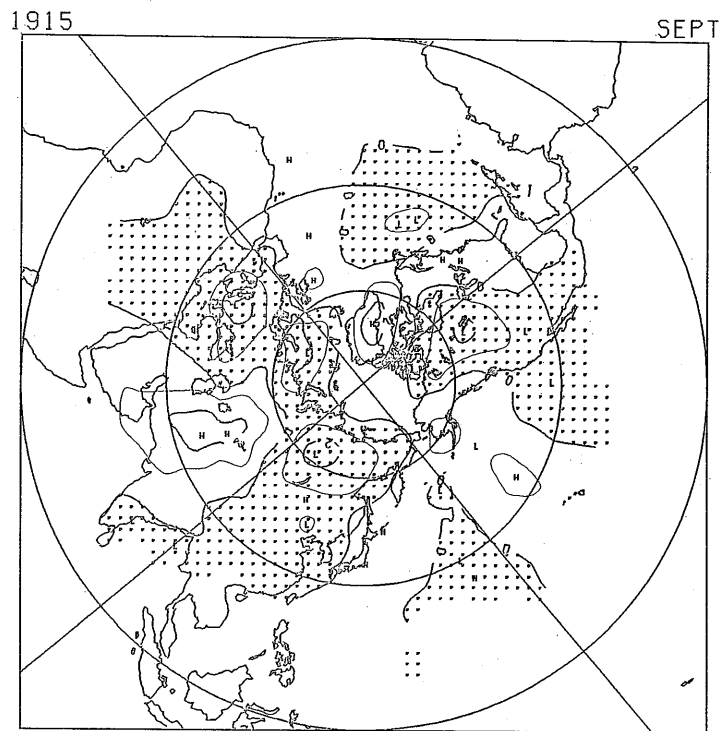


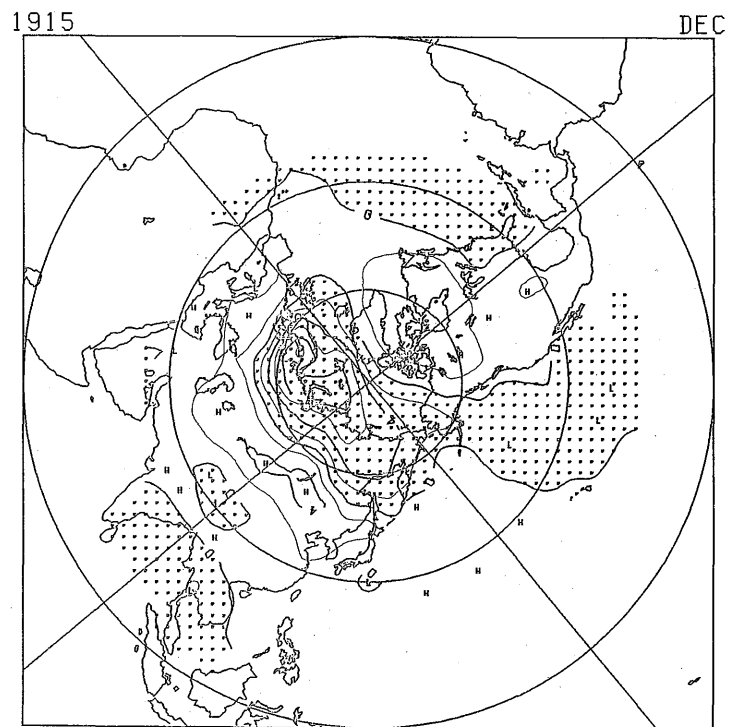
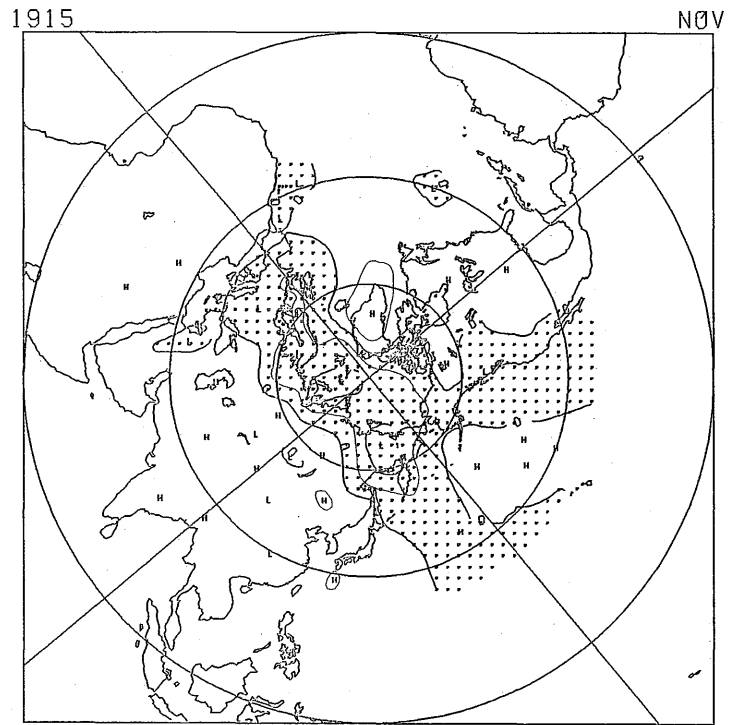
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JUN



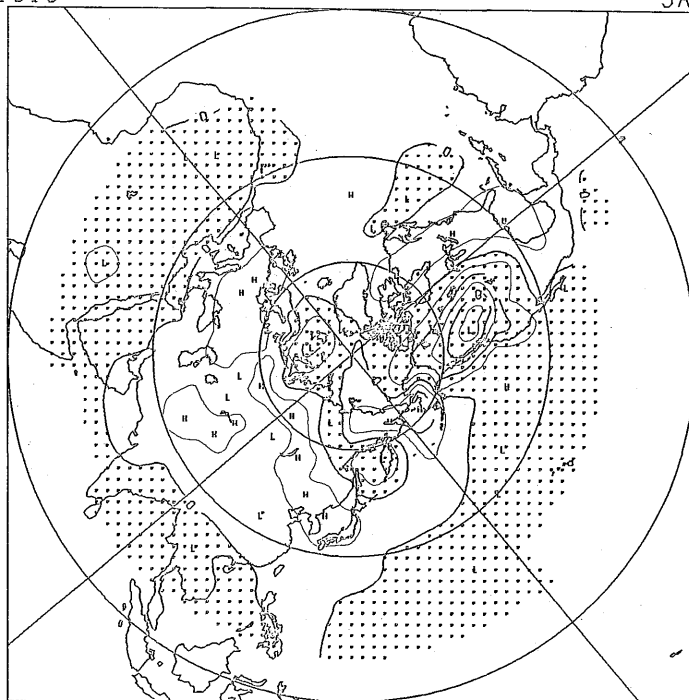






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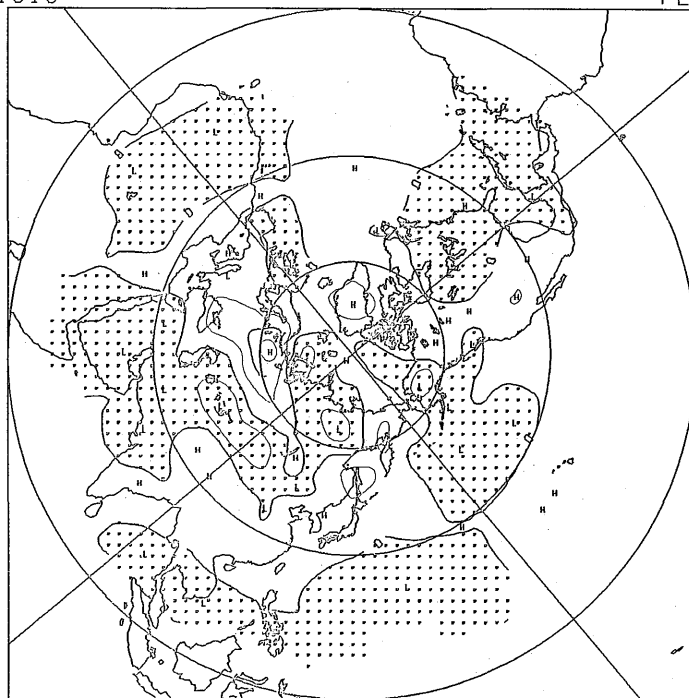
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1916年
1月

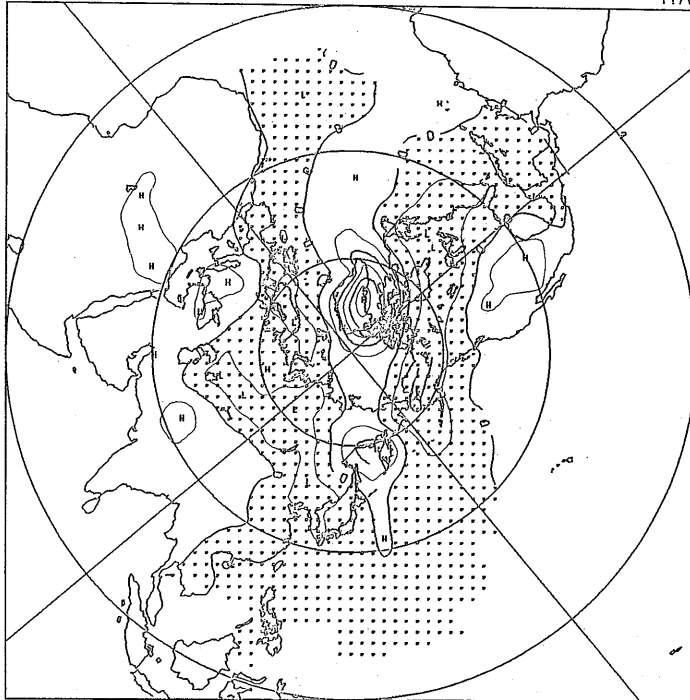
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FEB



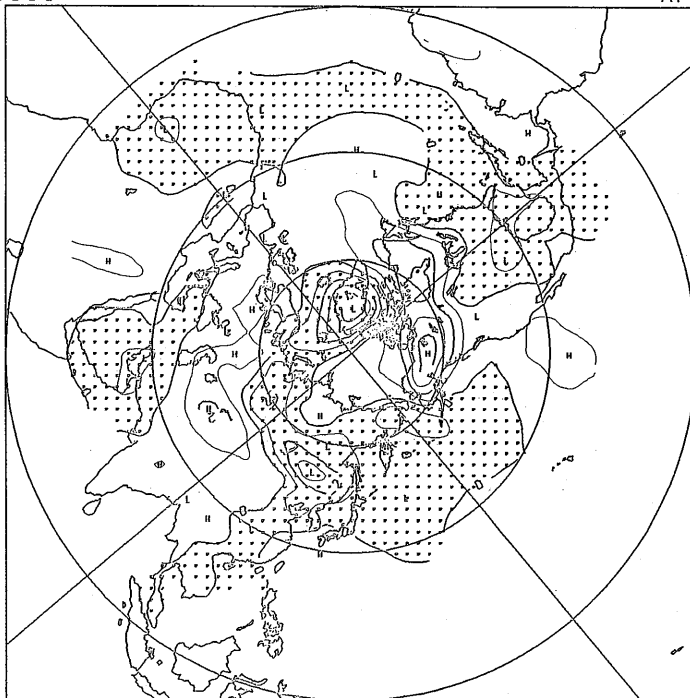
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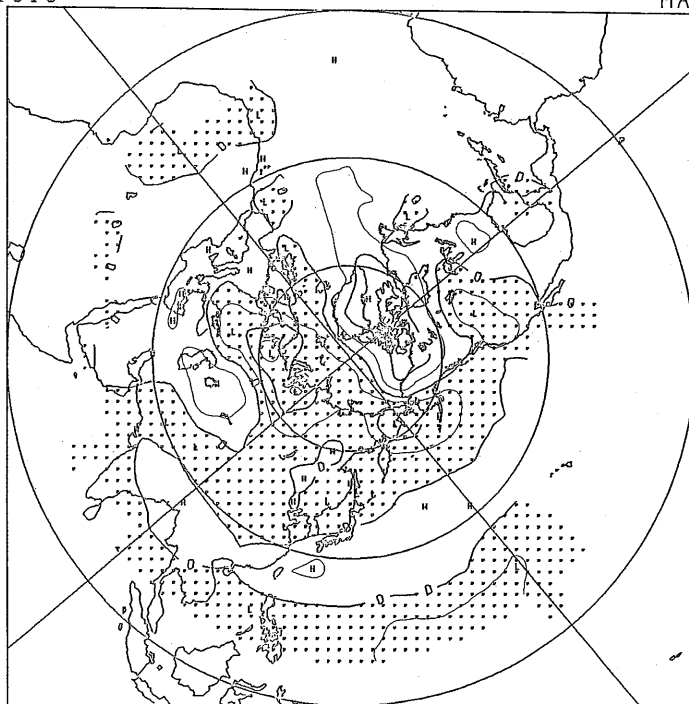
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APR



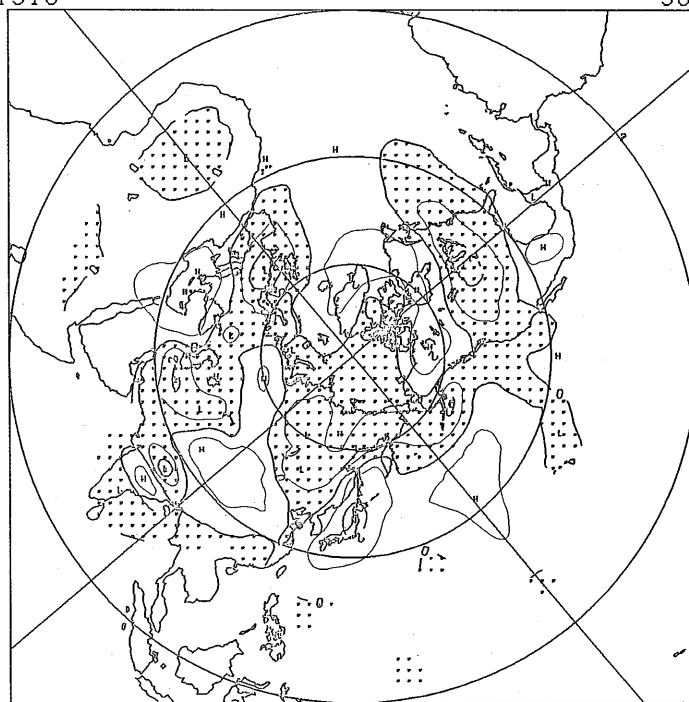
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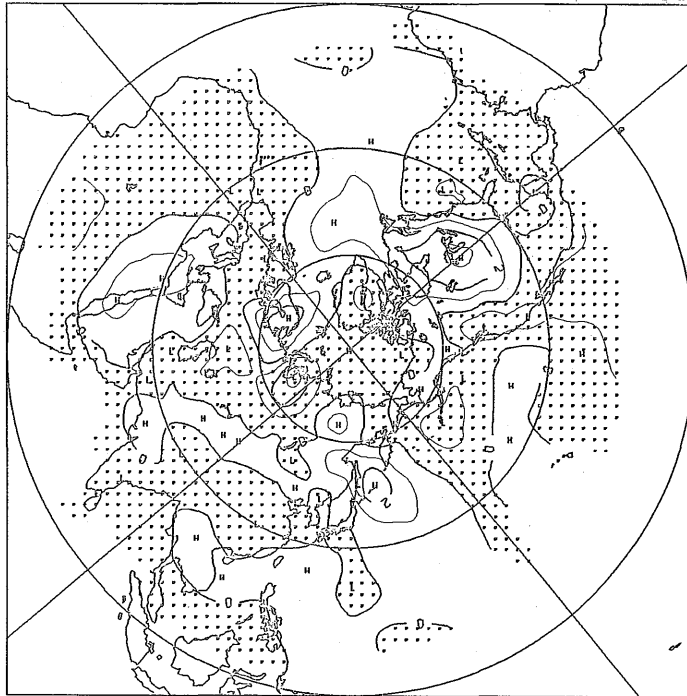
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JUN



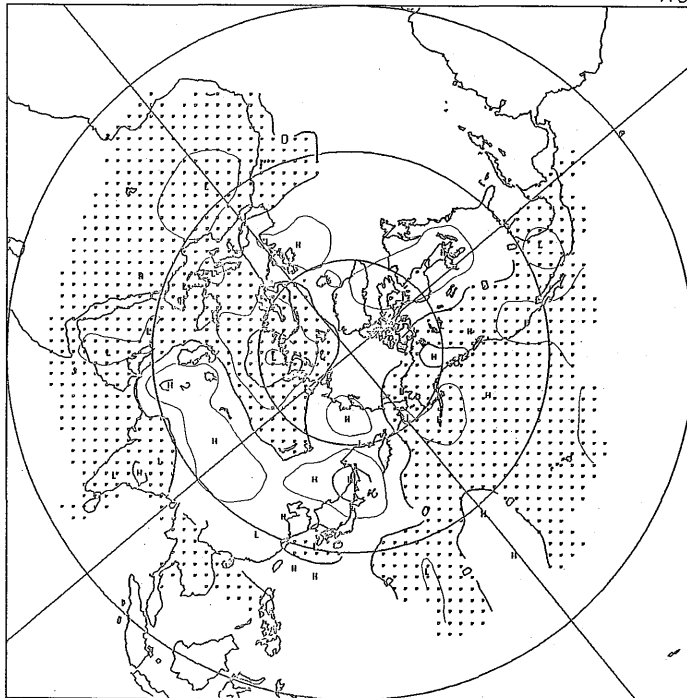
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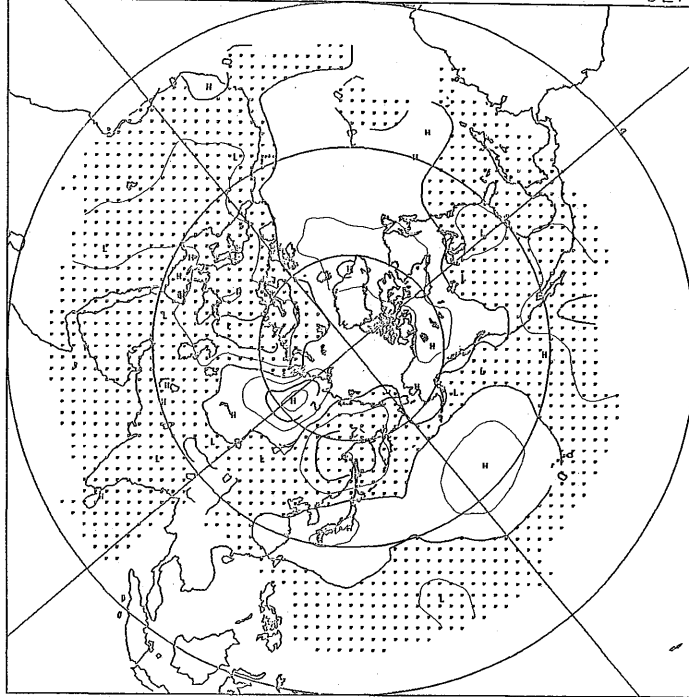
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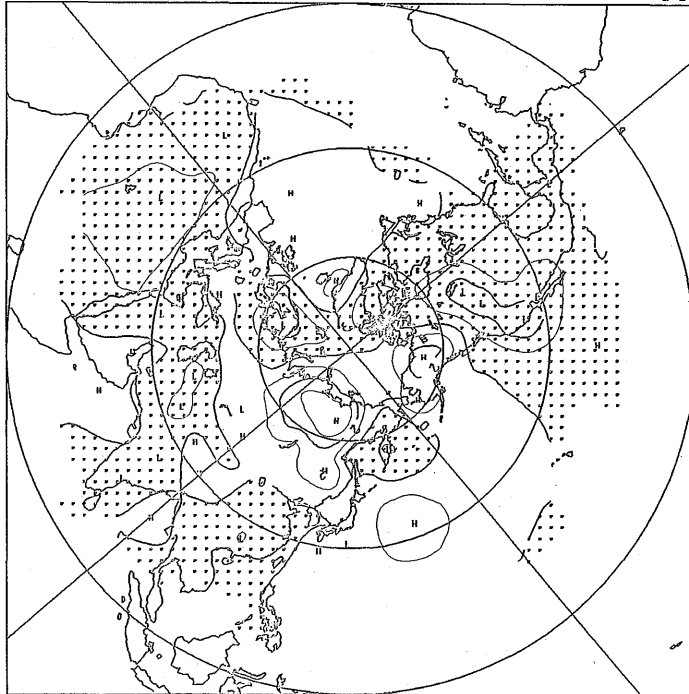
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SEPT



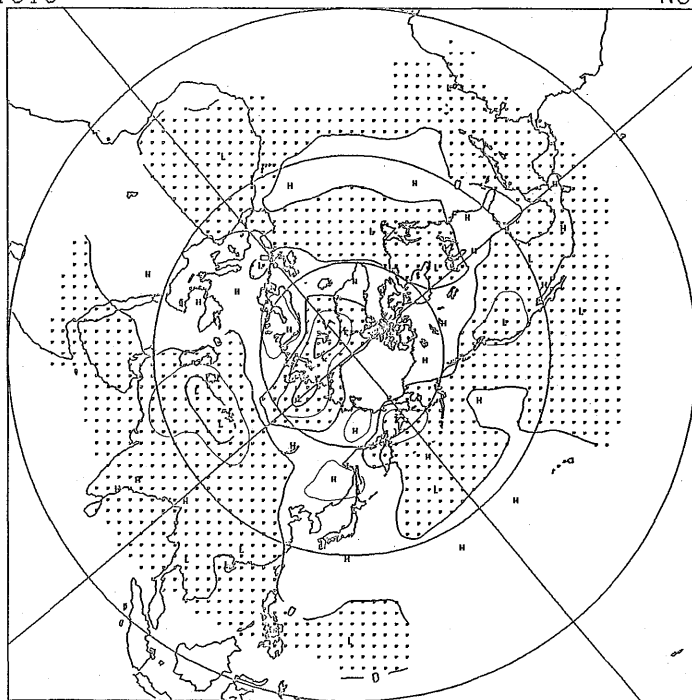
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OCT



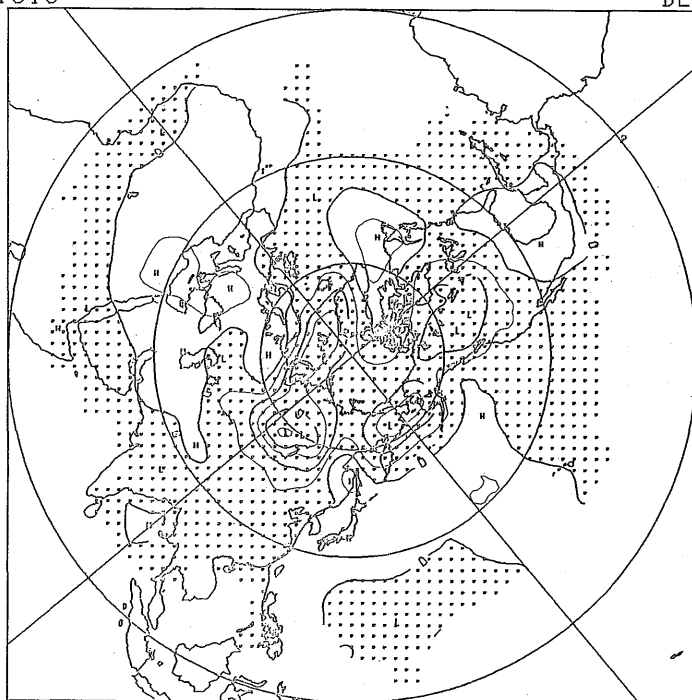
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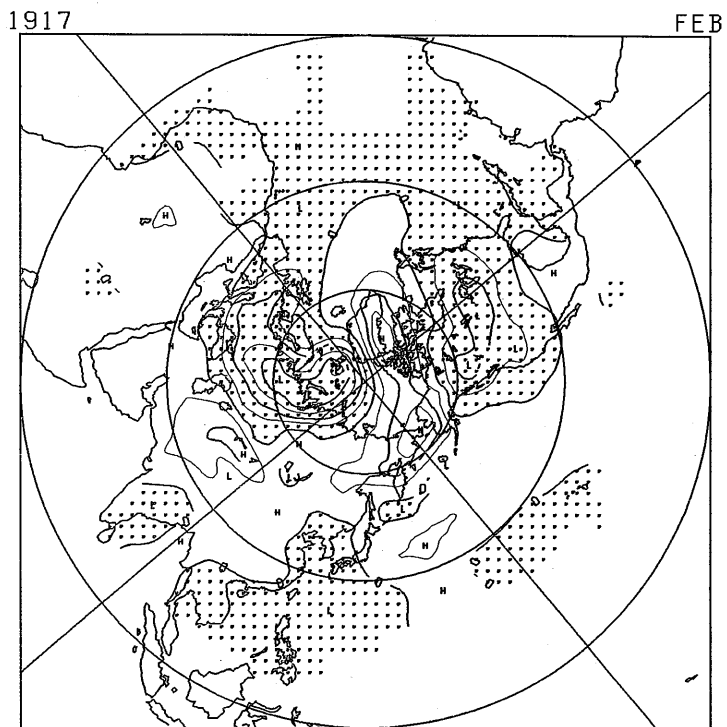
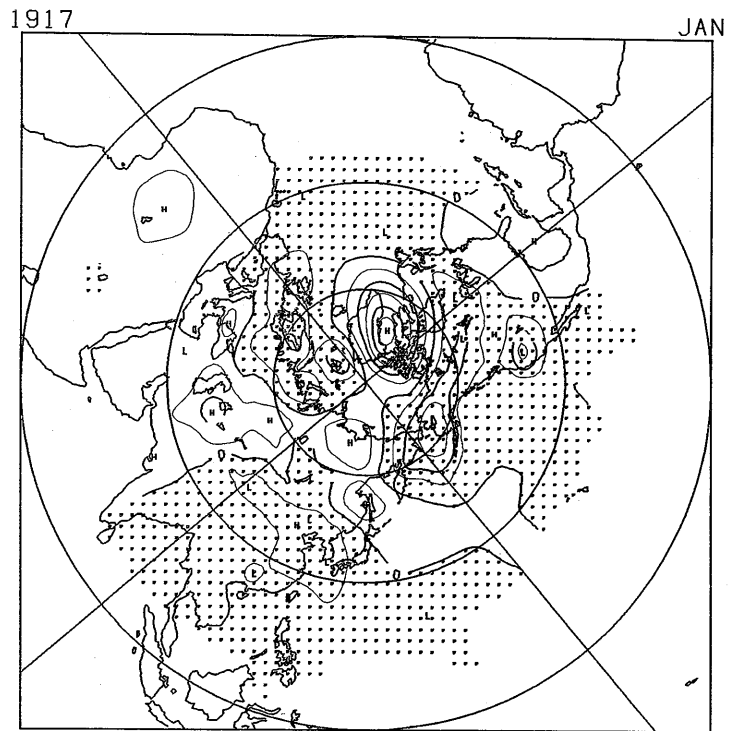
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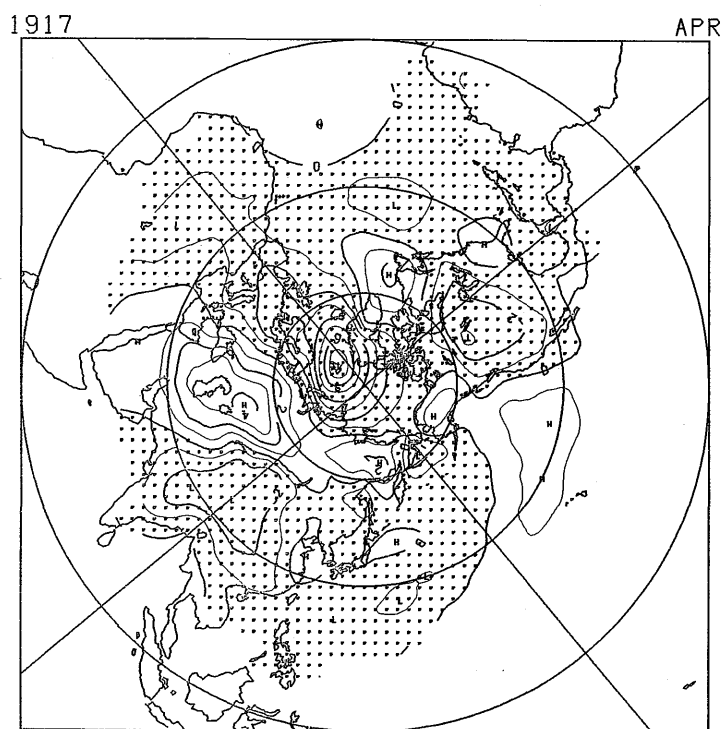
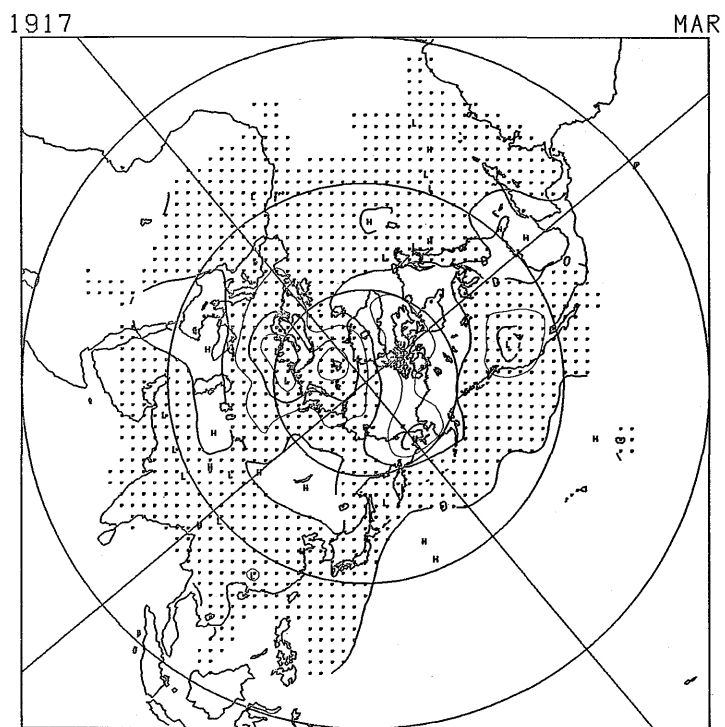


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DEC

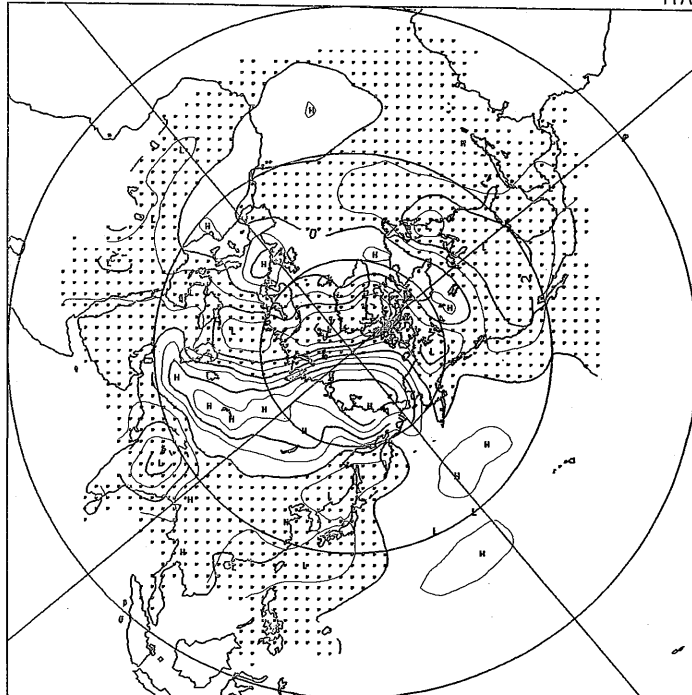






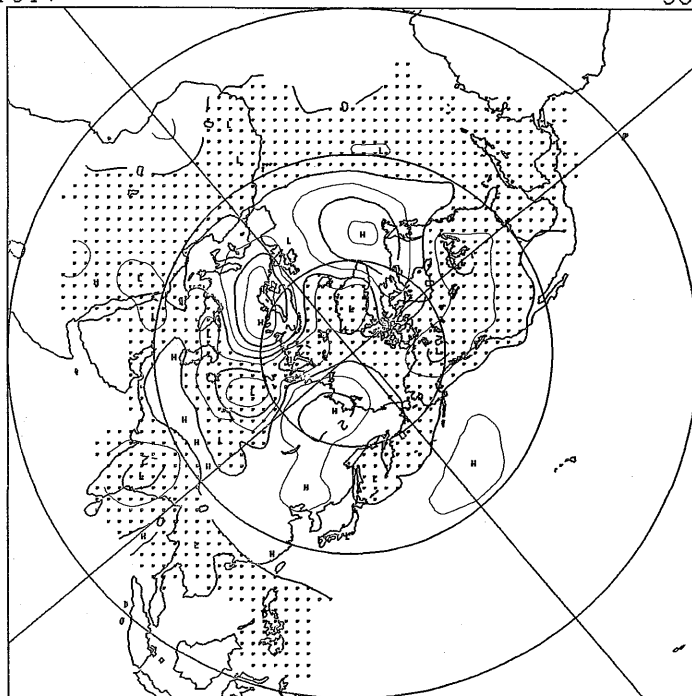
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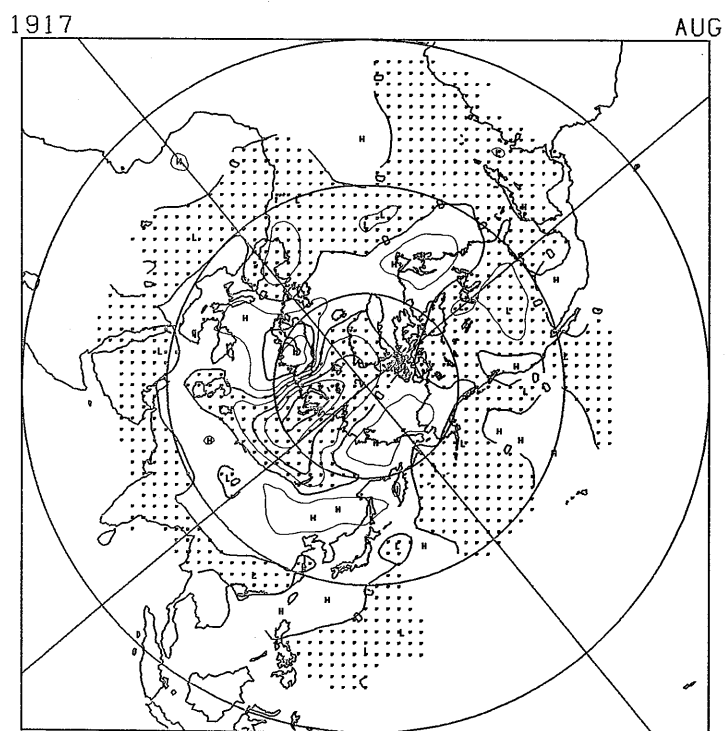
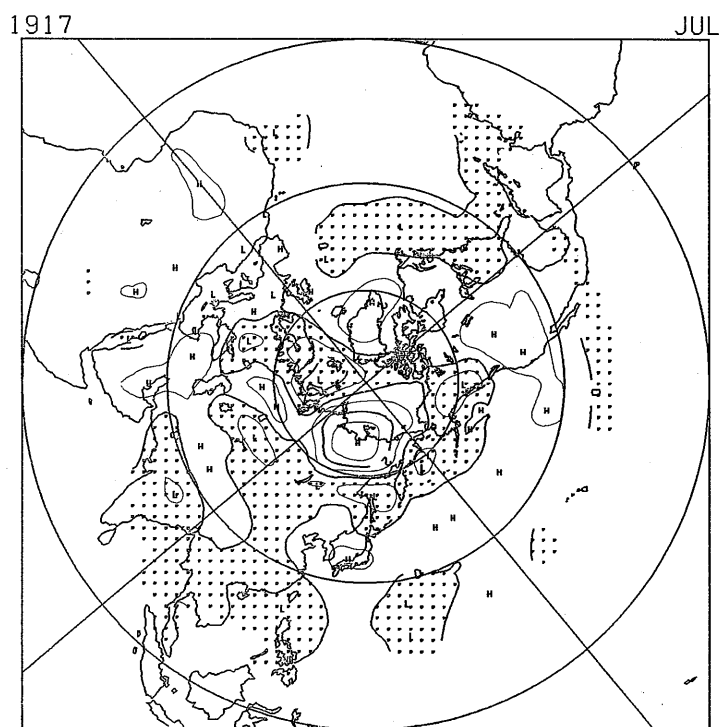
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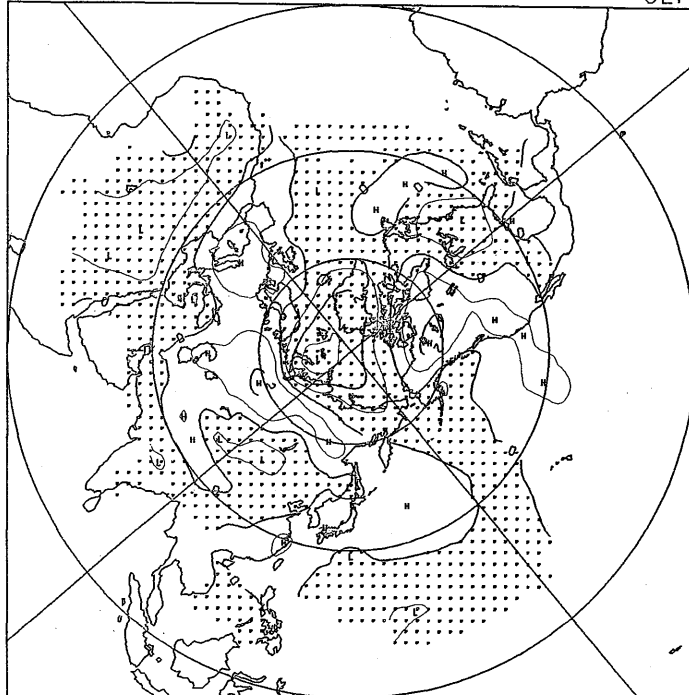
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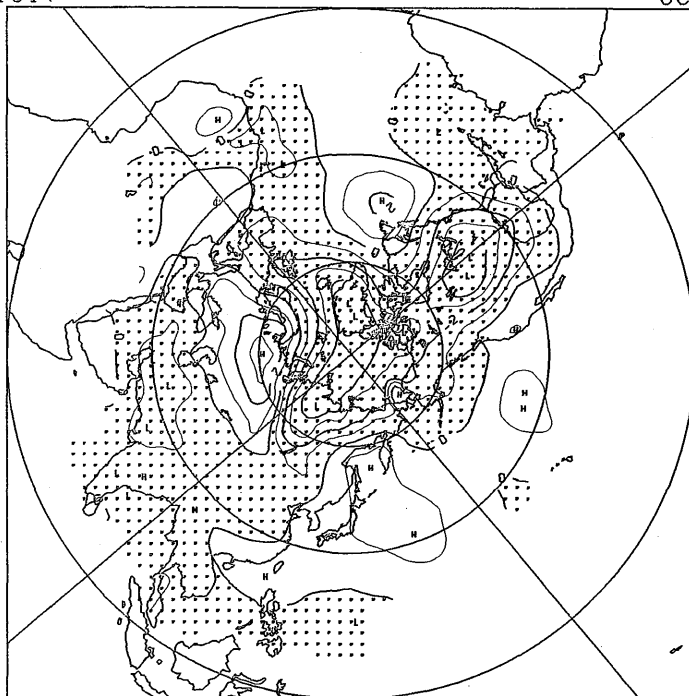
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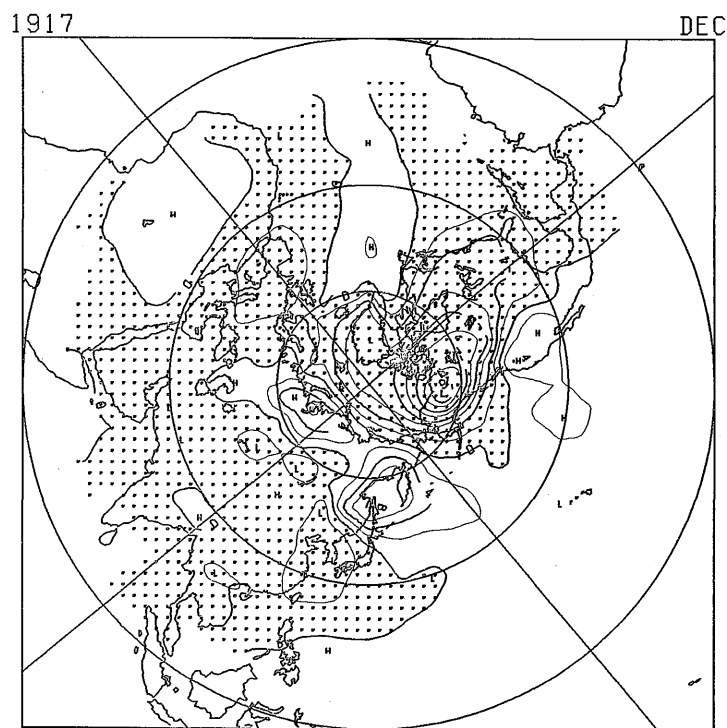
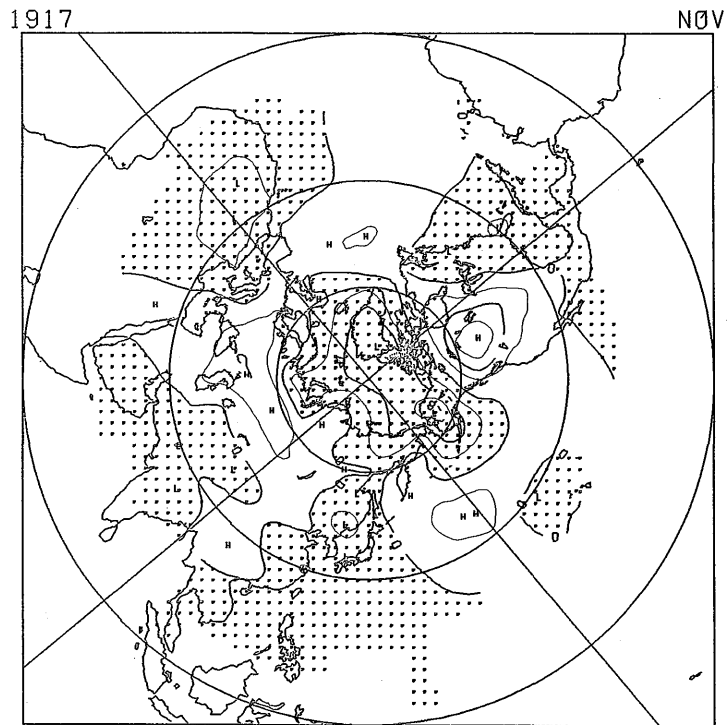
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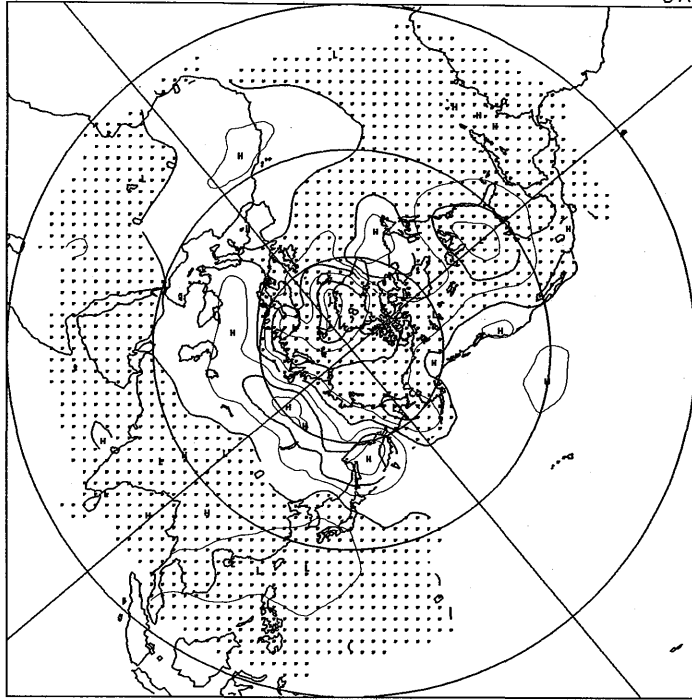
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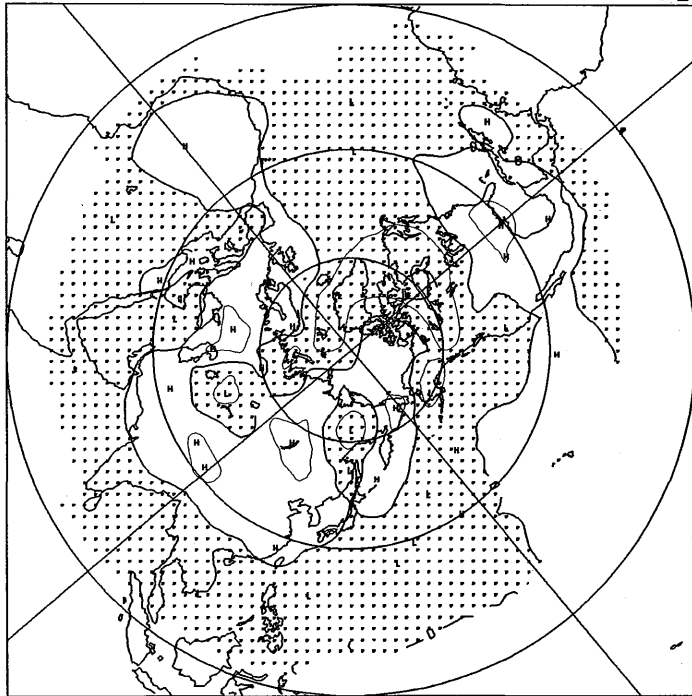
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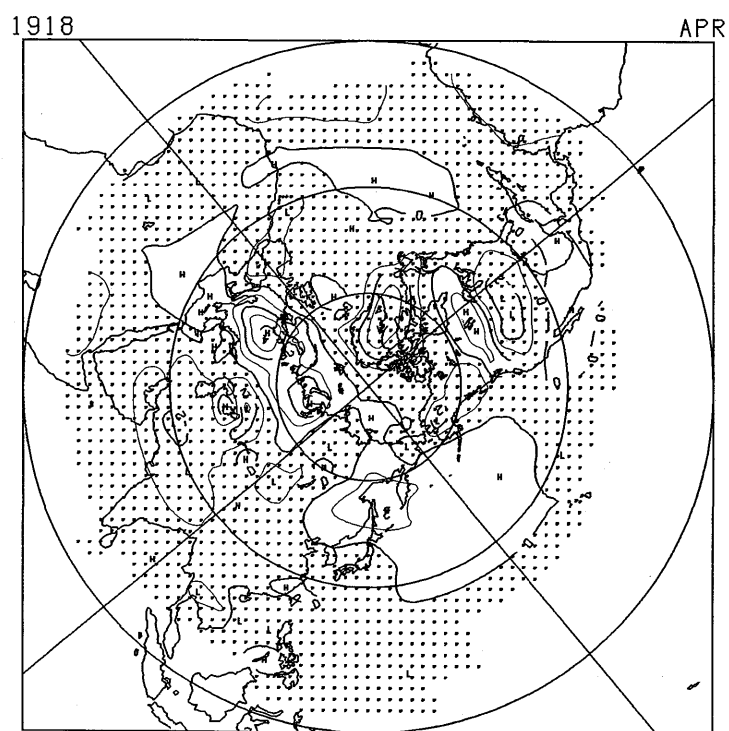
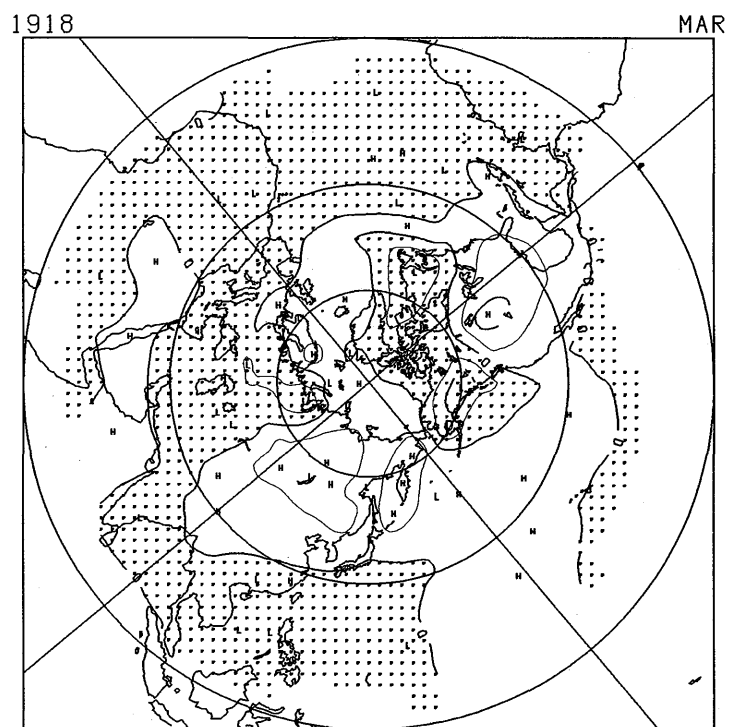
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1918

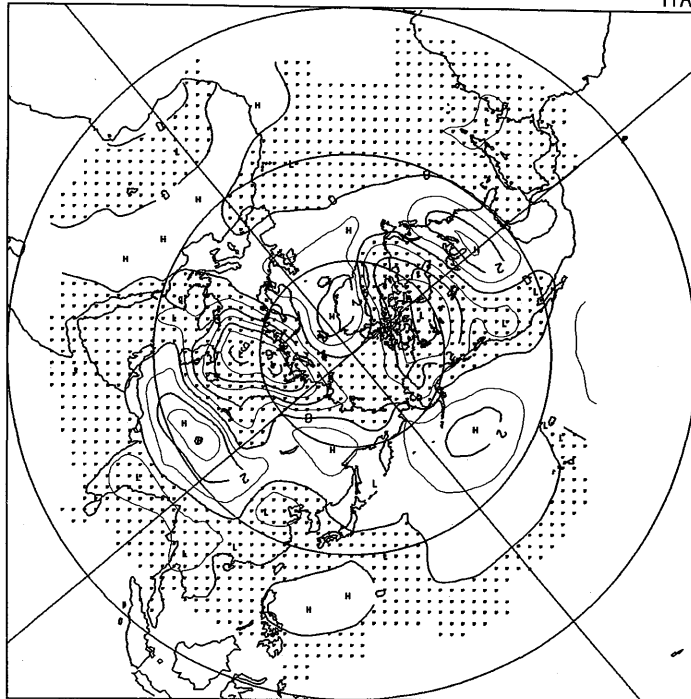
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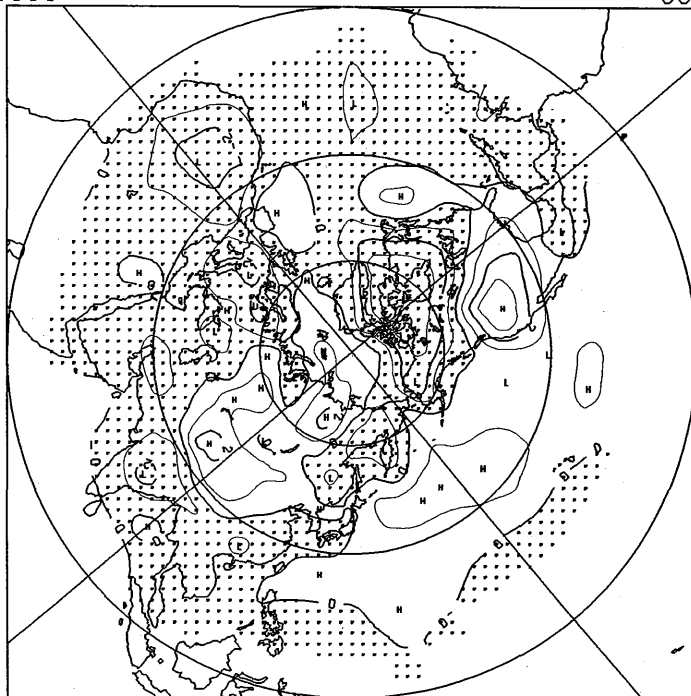
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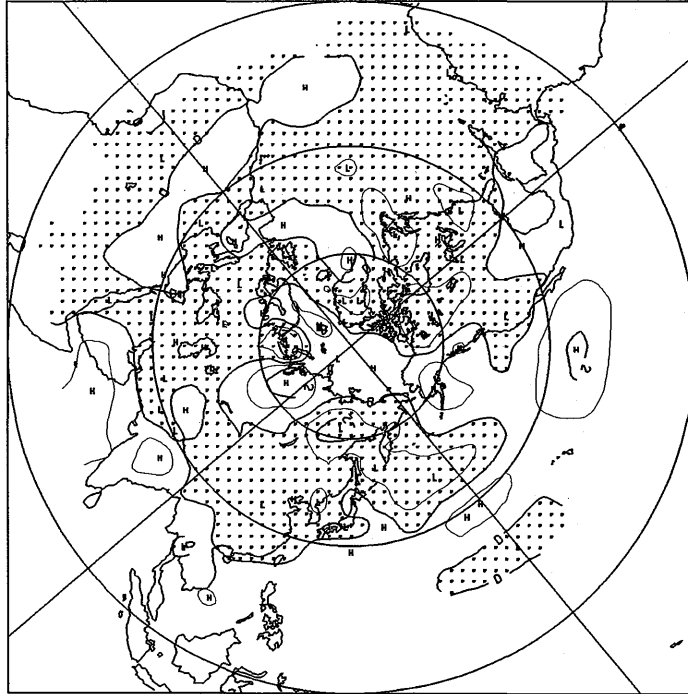
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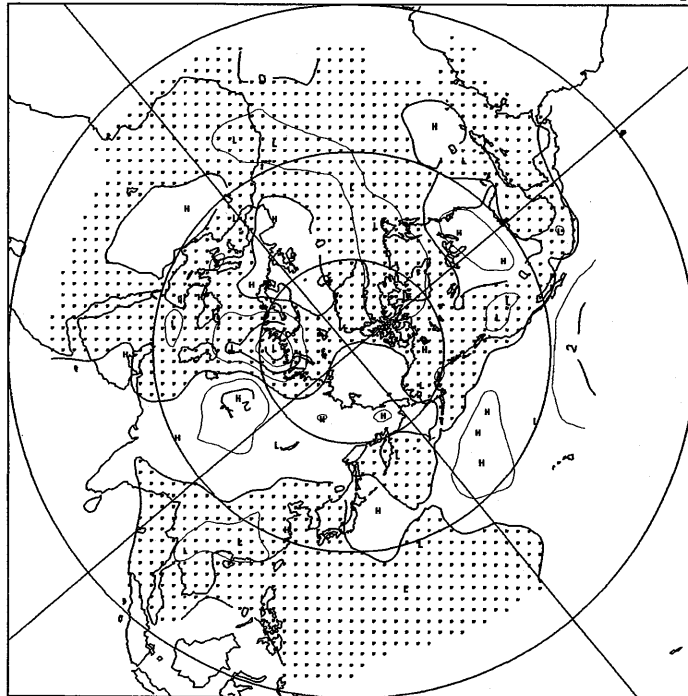
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JUL



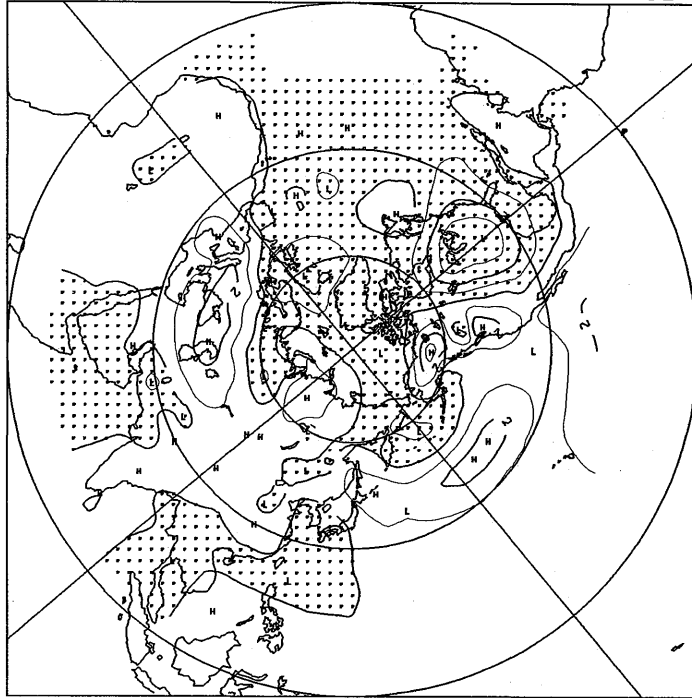
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AUG



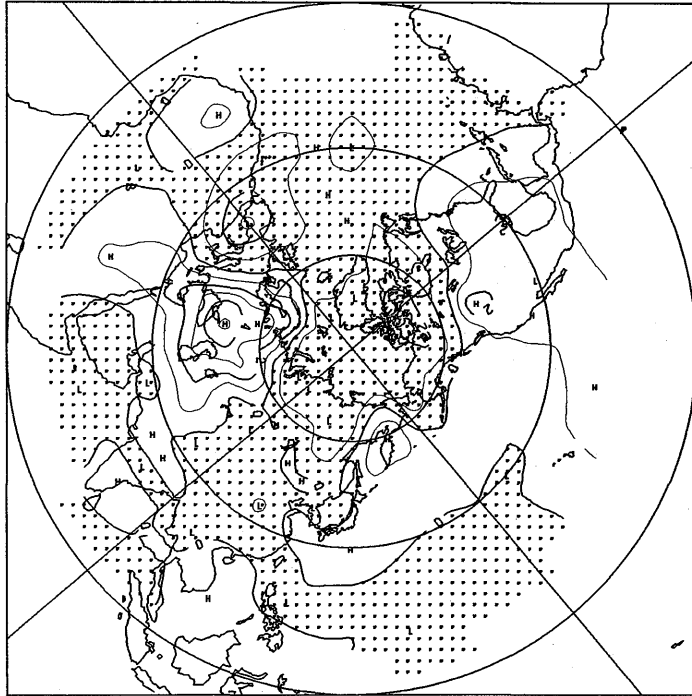
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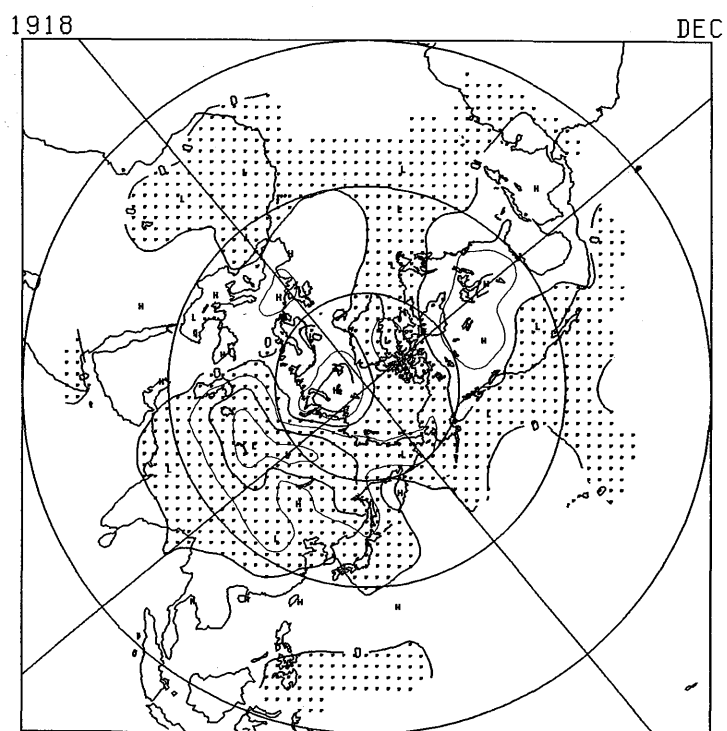
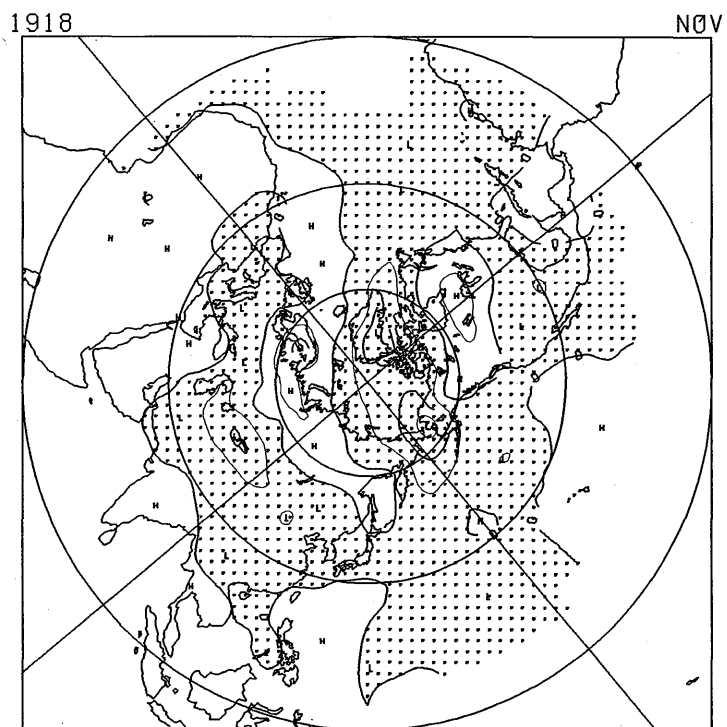
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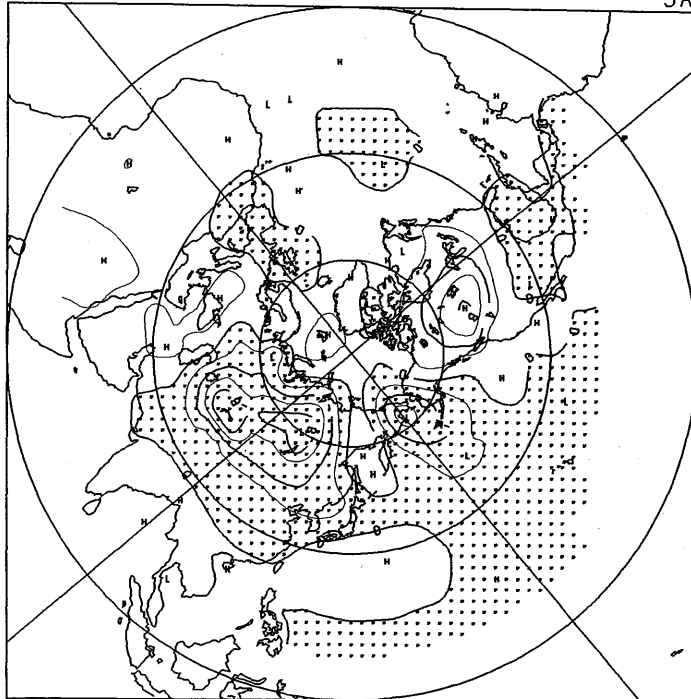
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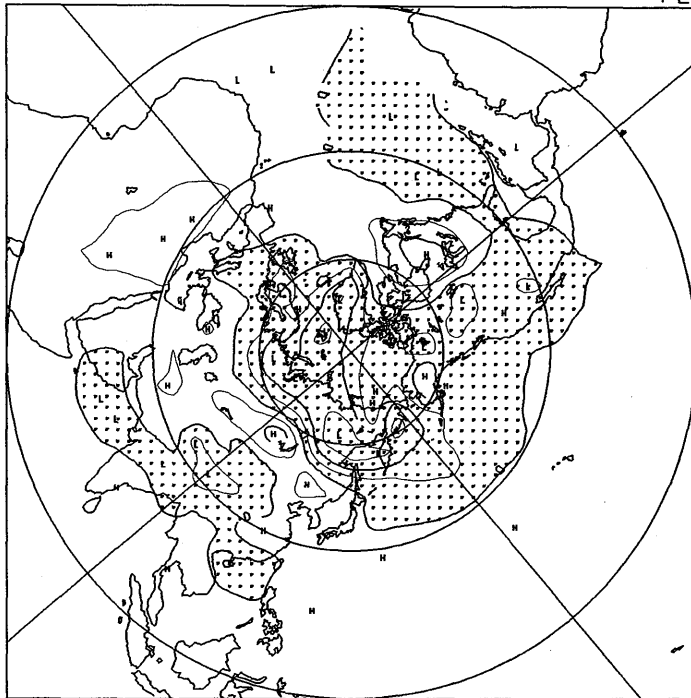
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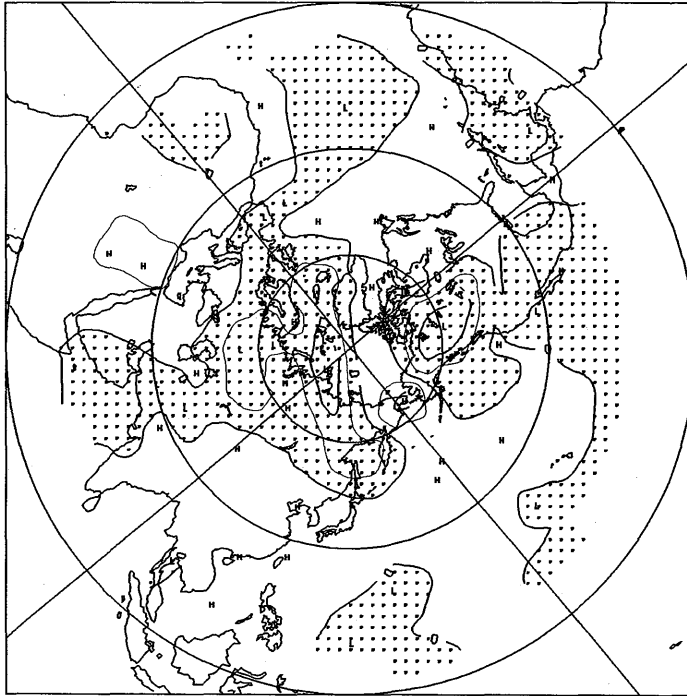
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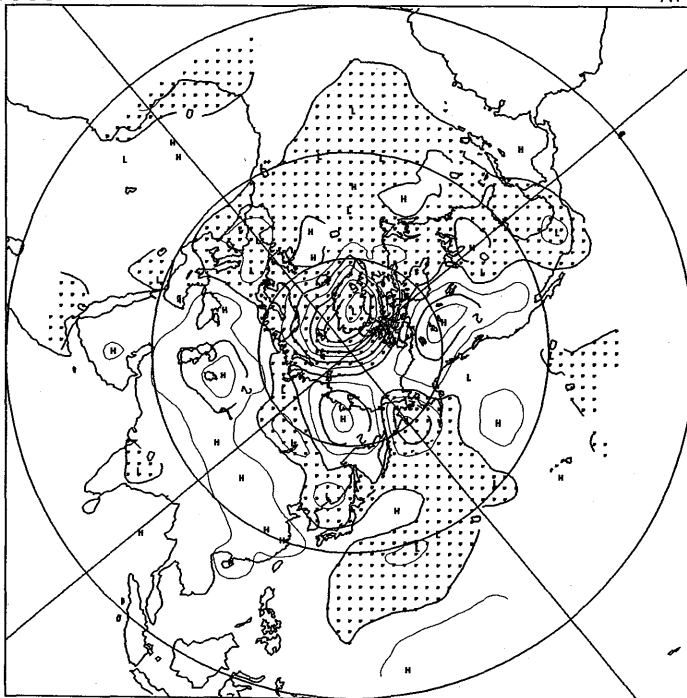
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MAR



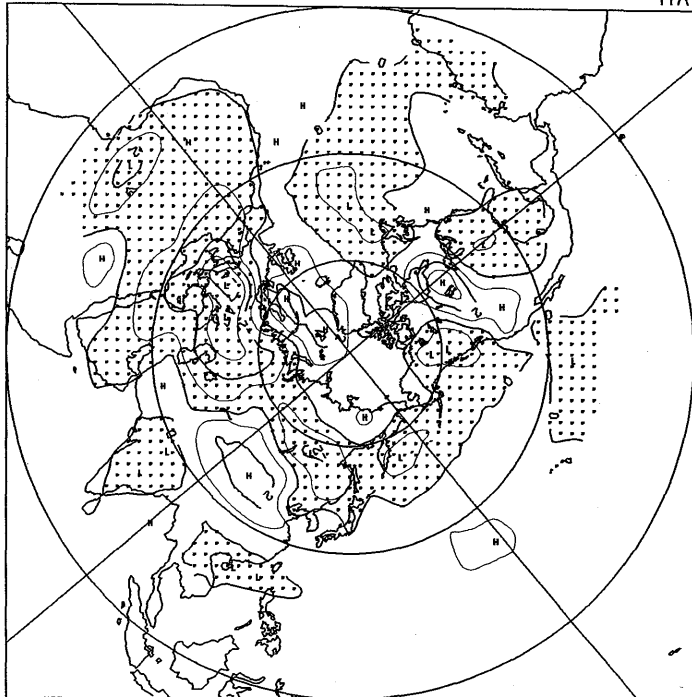
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APR



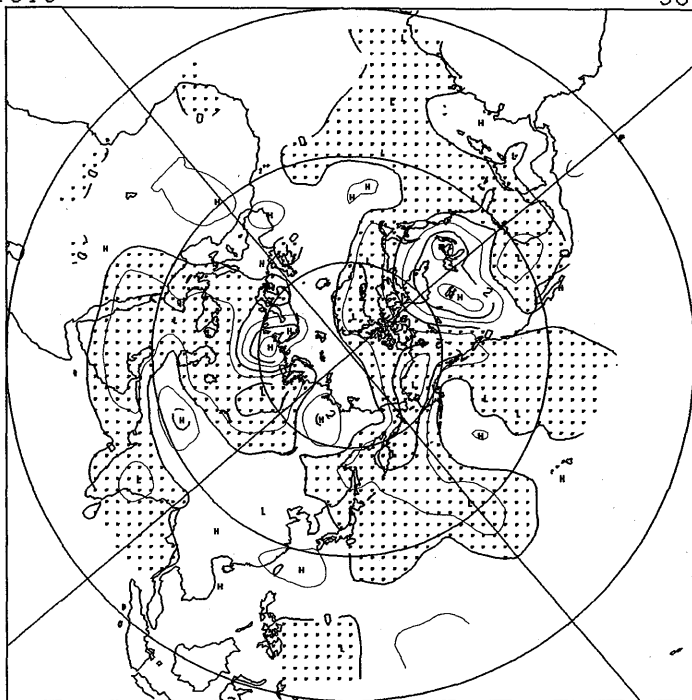
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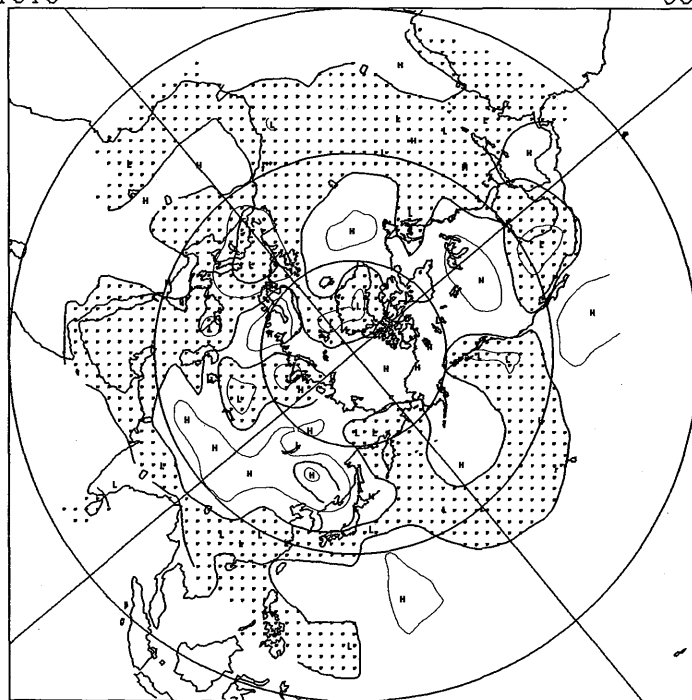
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JUN



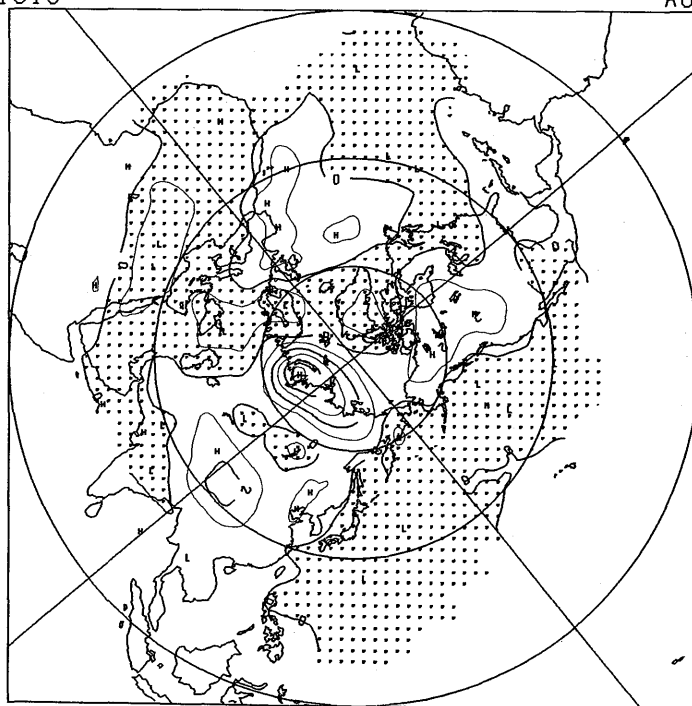
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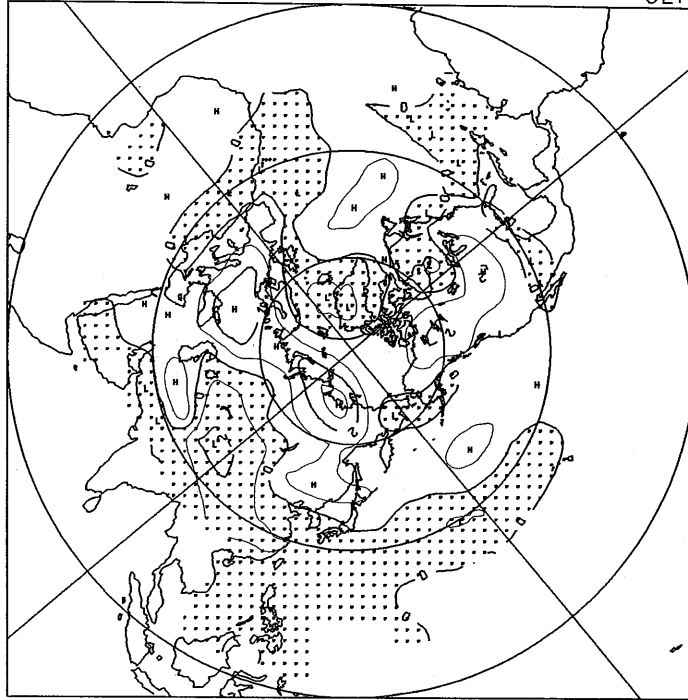
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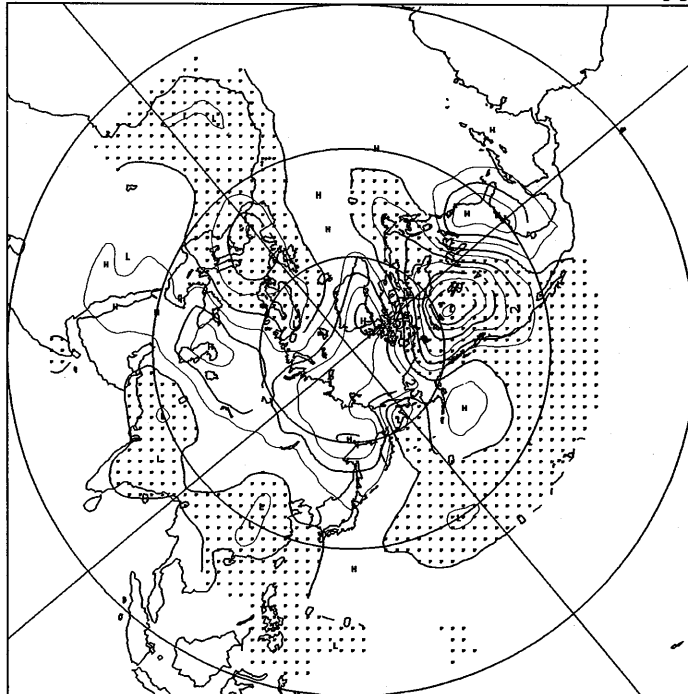
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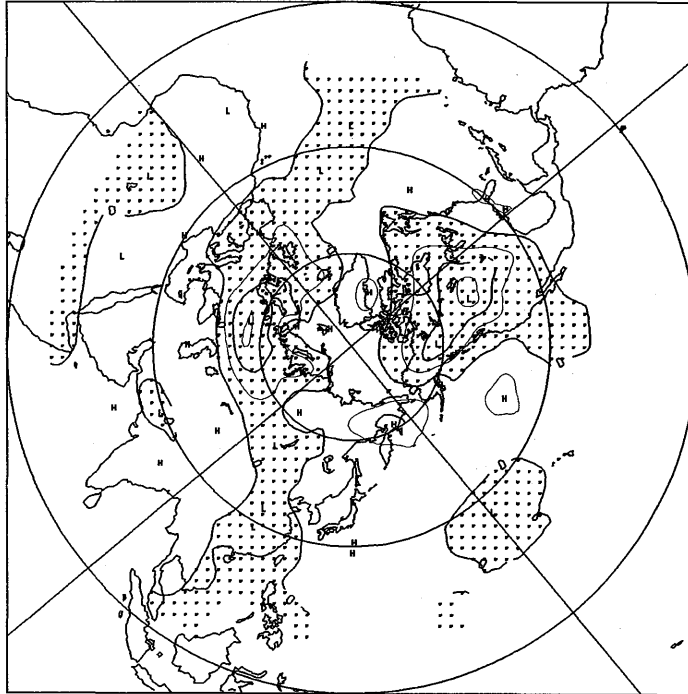
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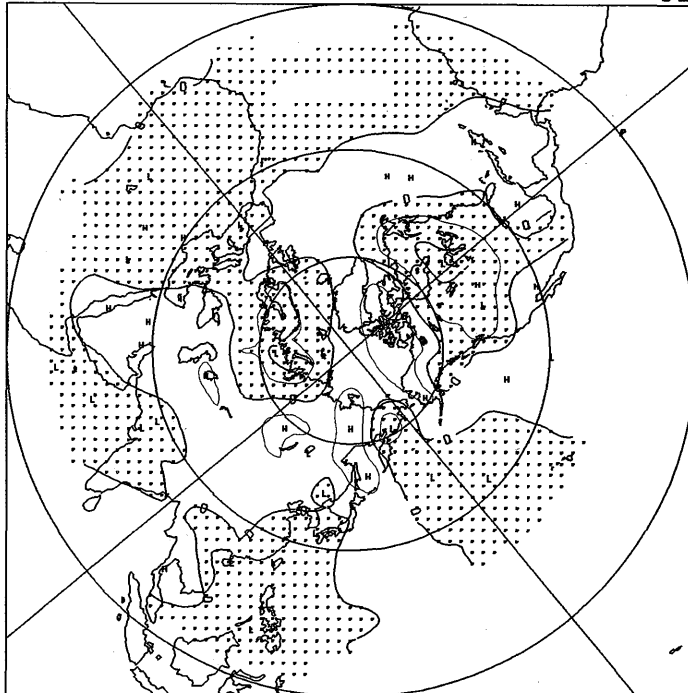
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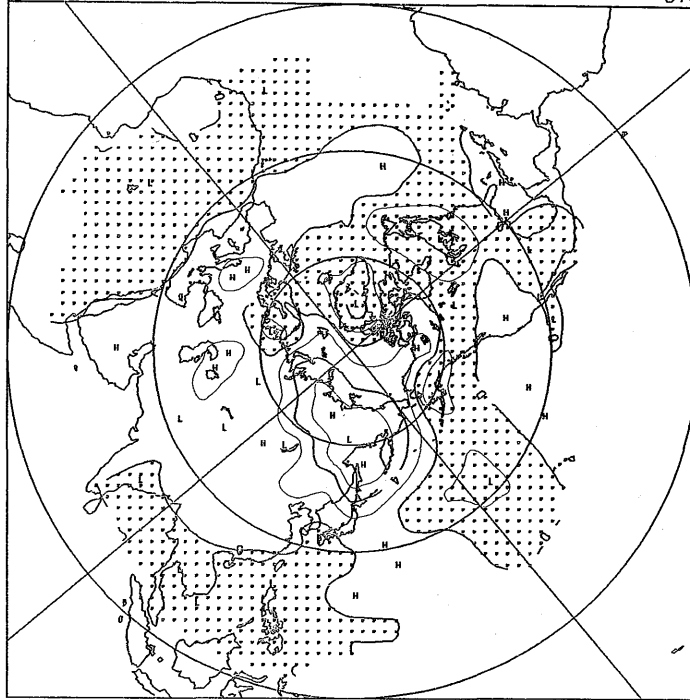
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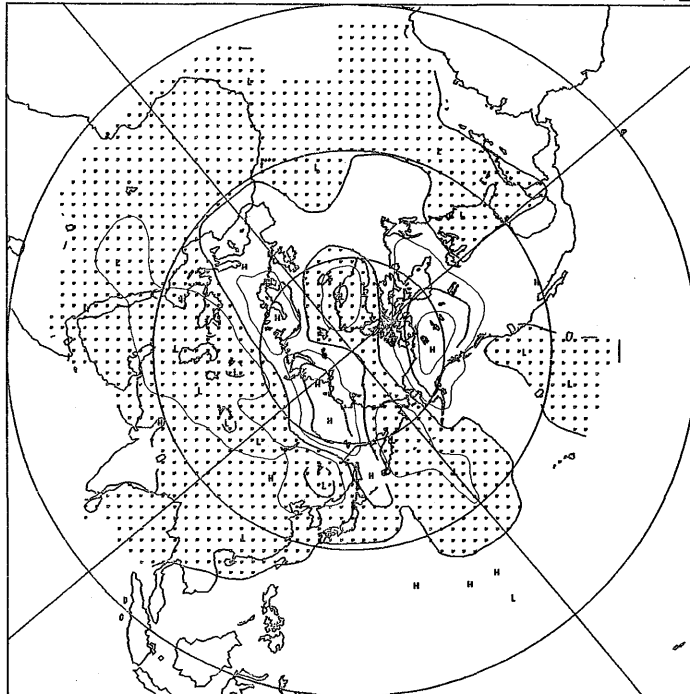
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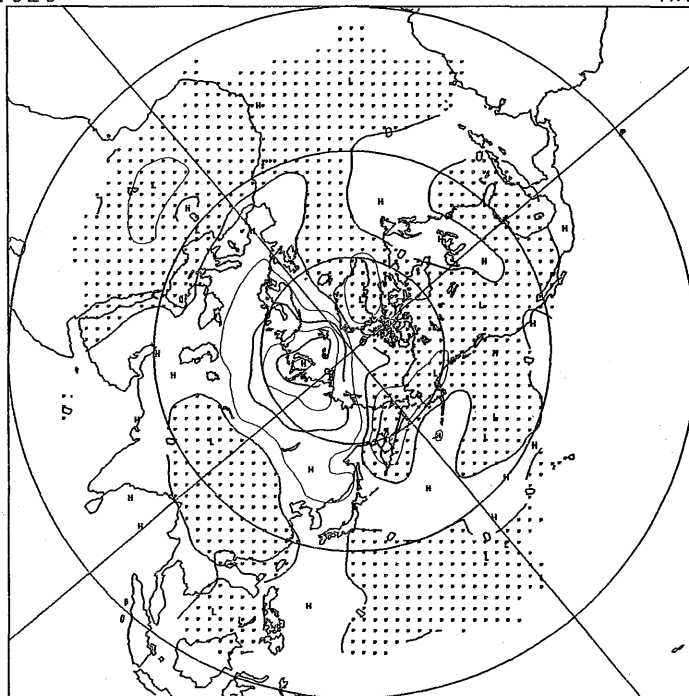


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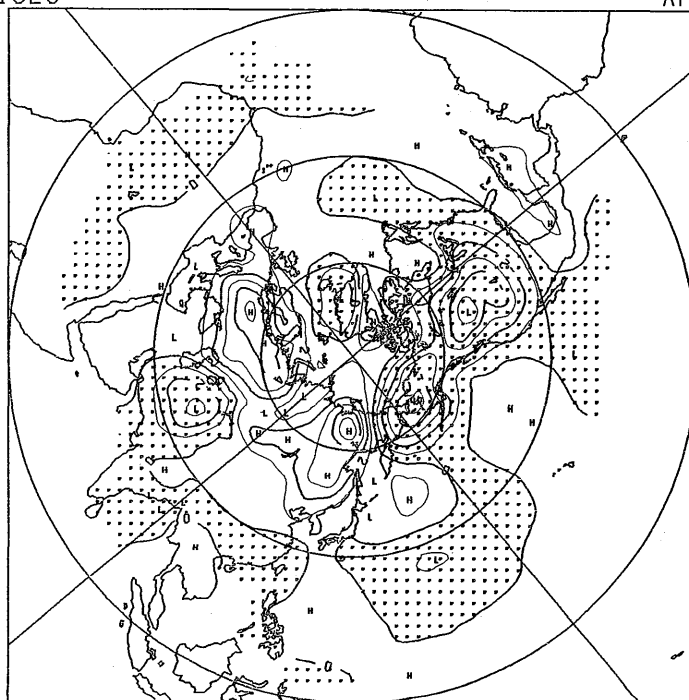
FEB



1920 MAR

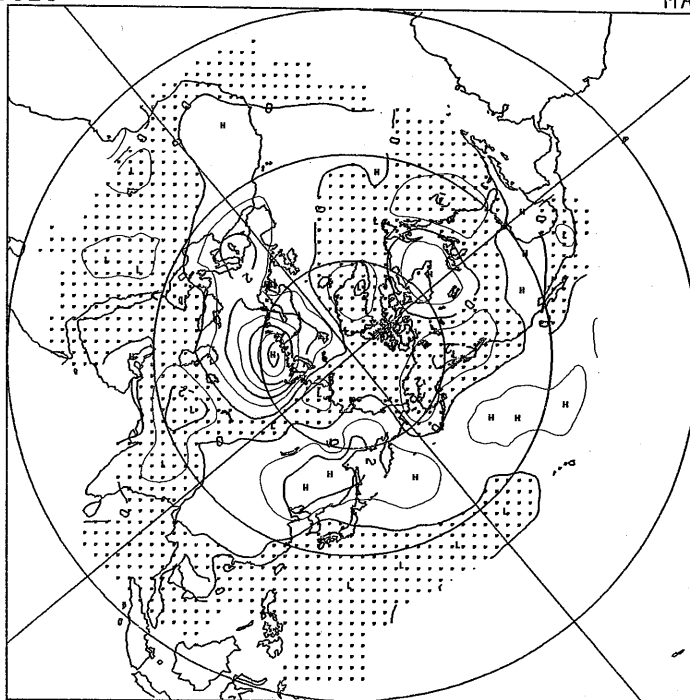


1920 APR



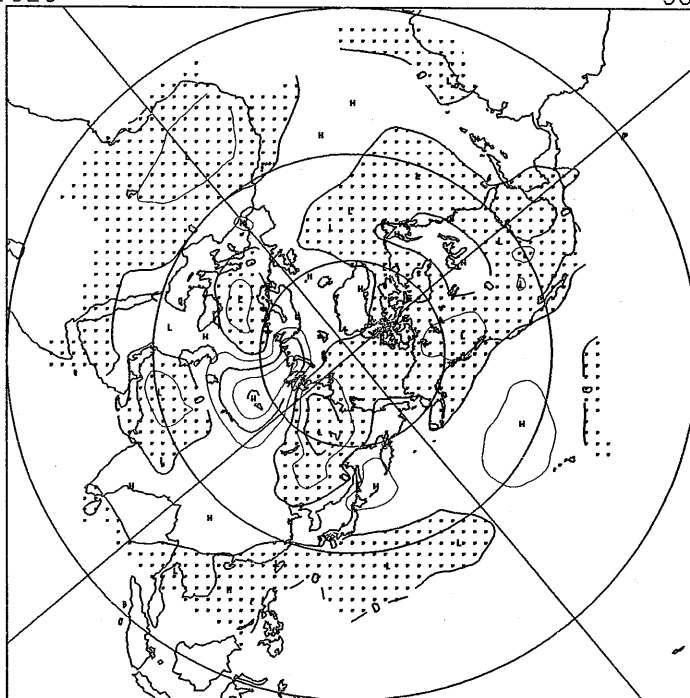
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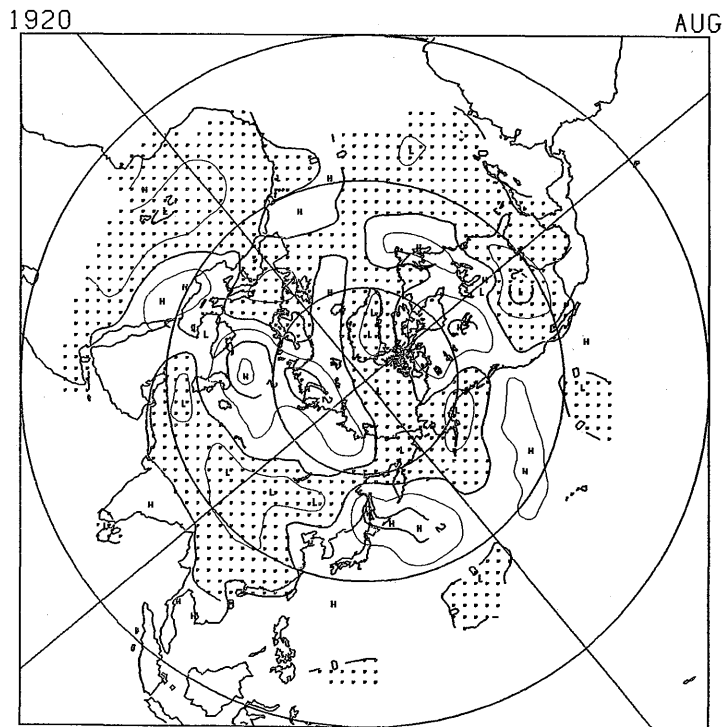
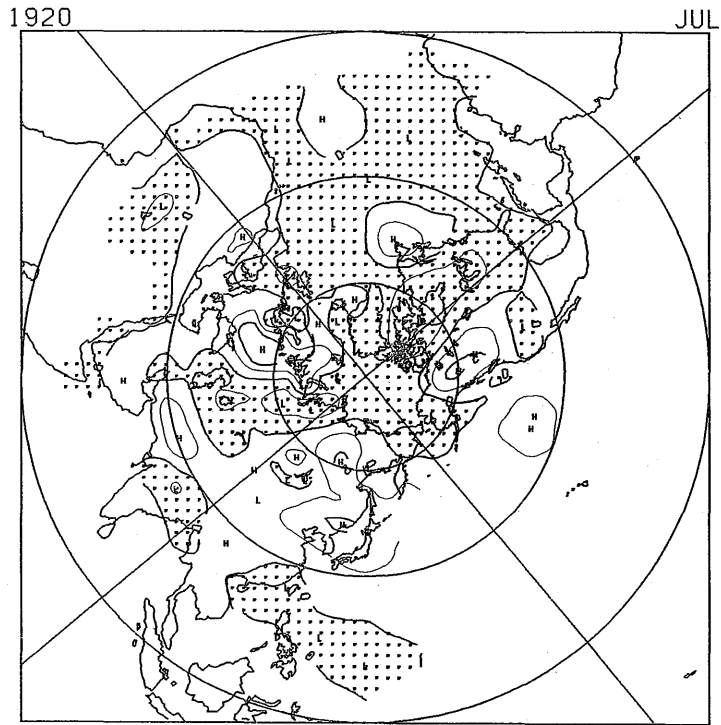
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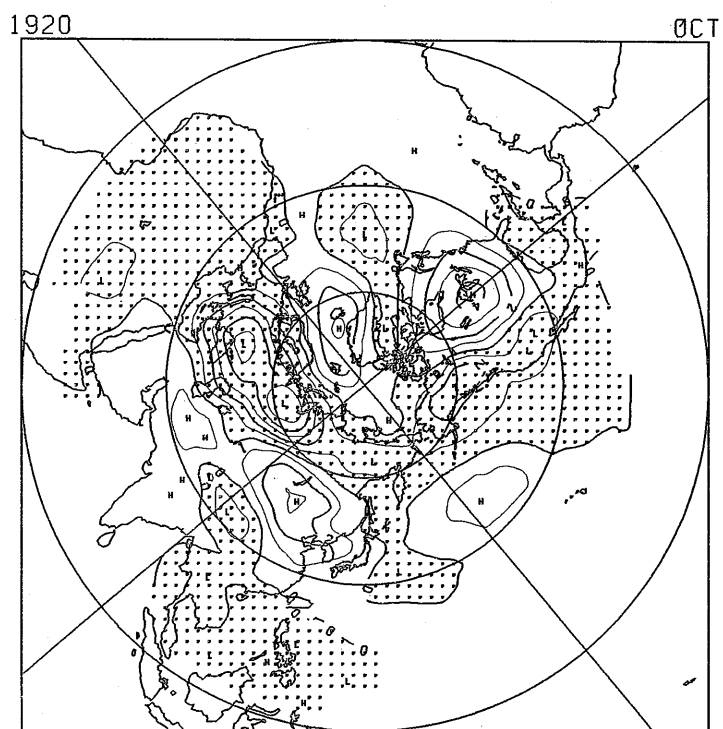
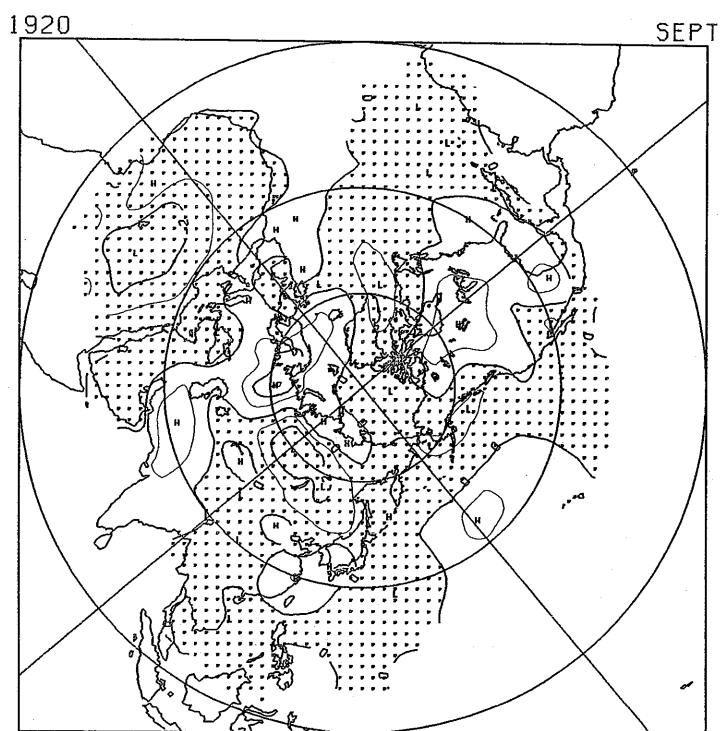


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JUN

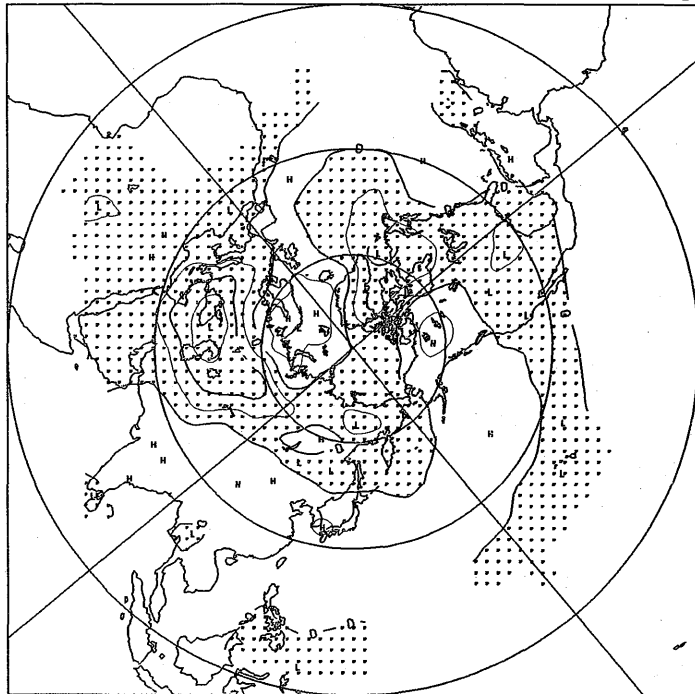






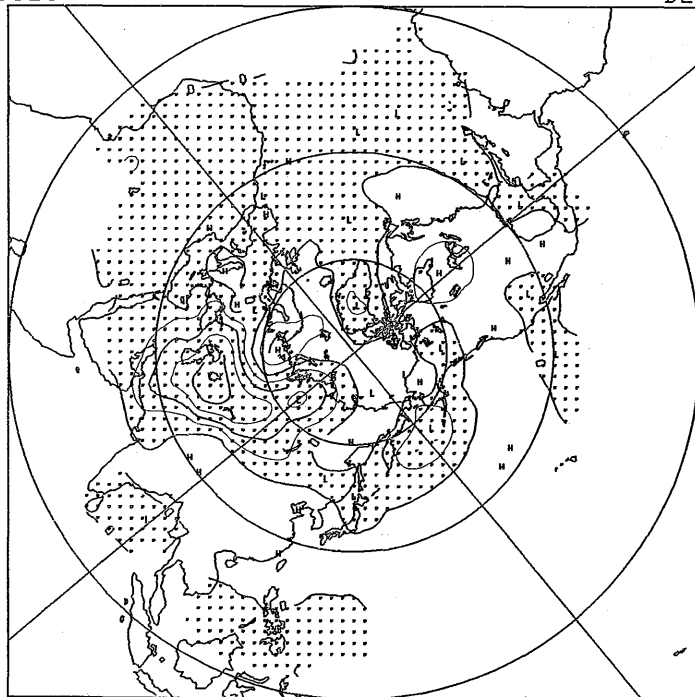
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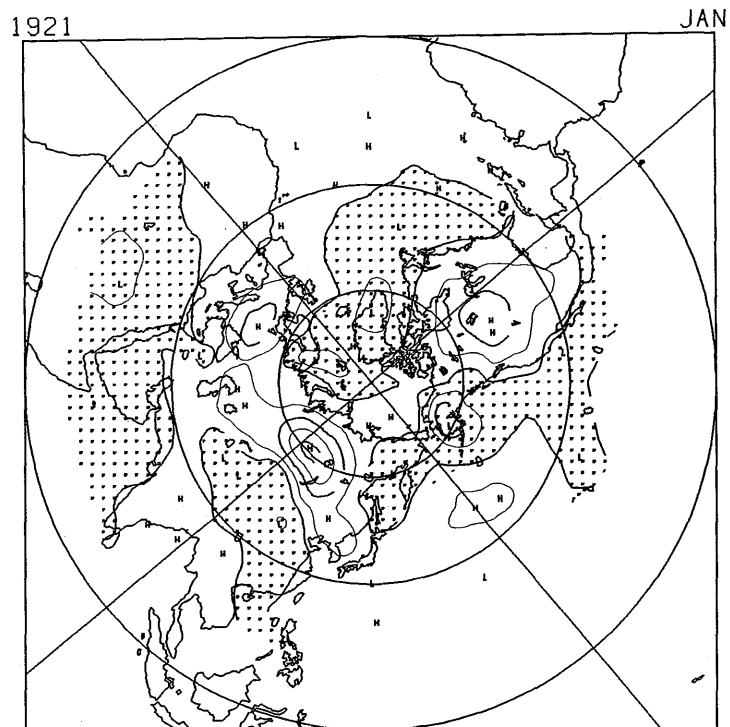
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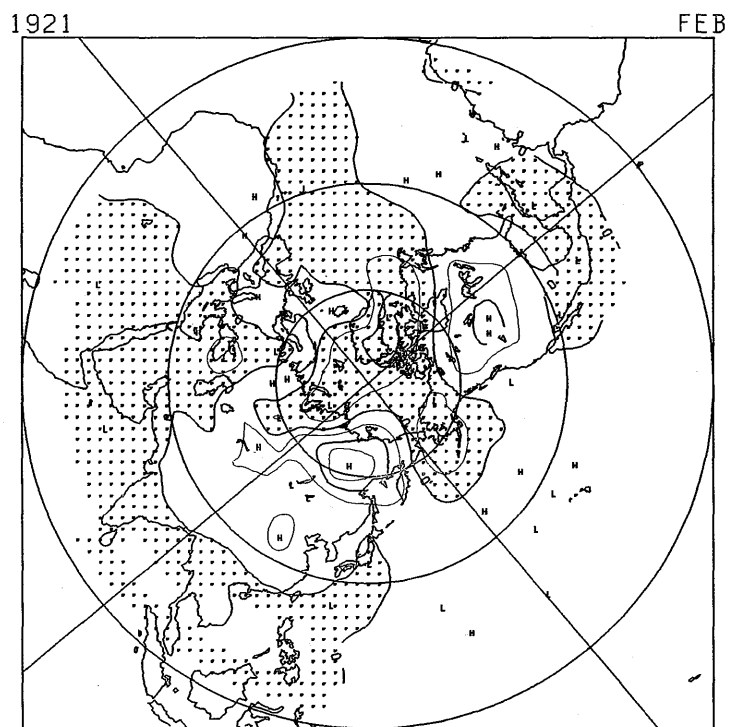
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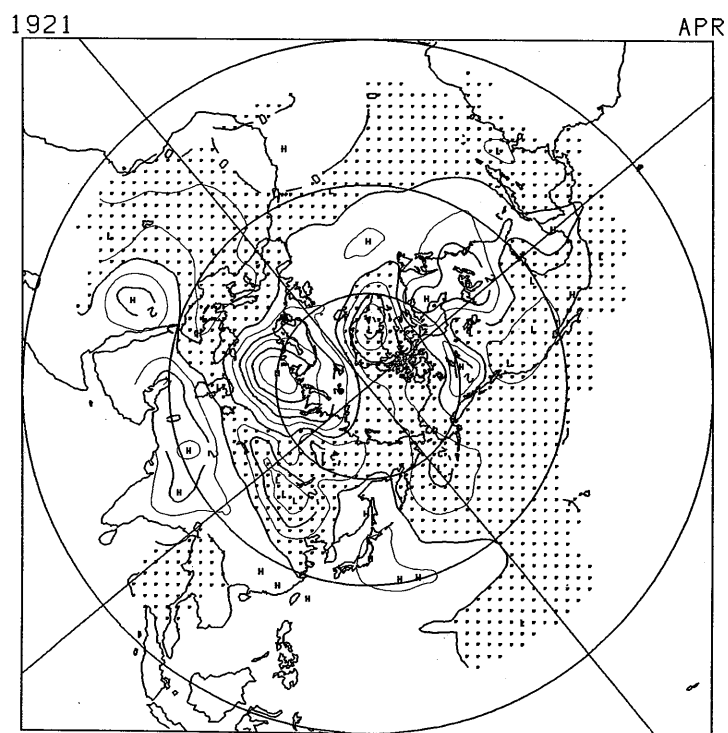
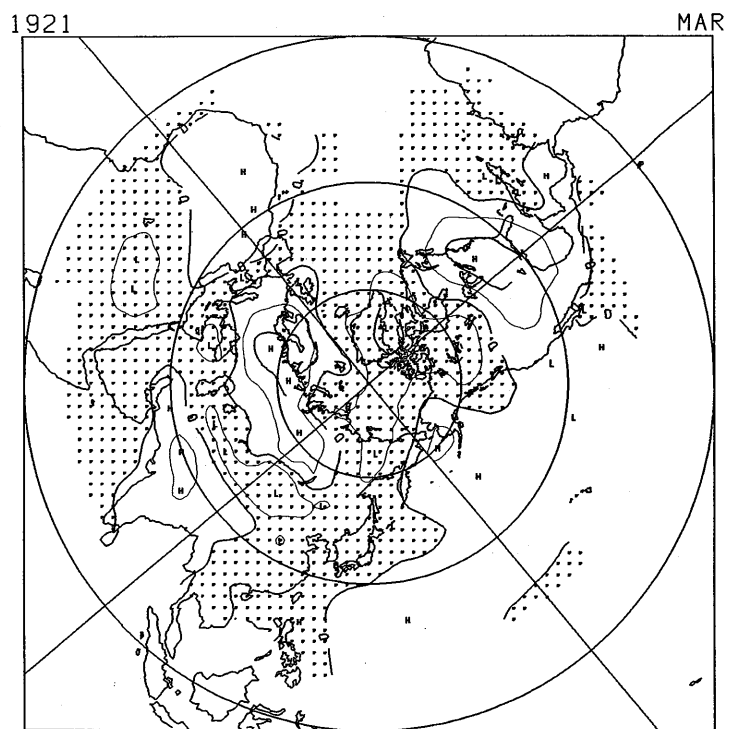
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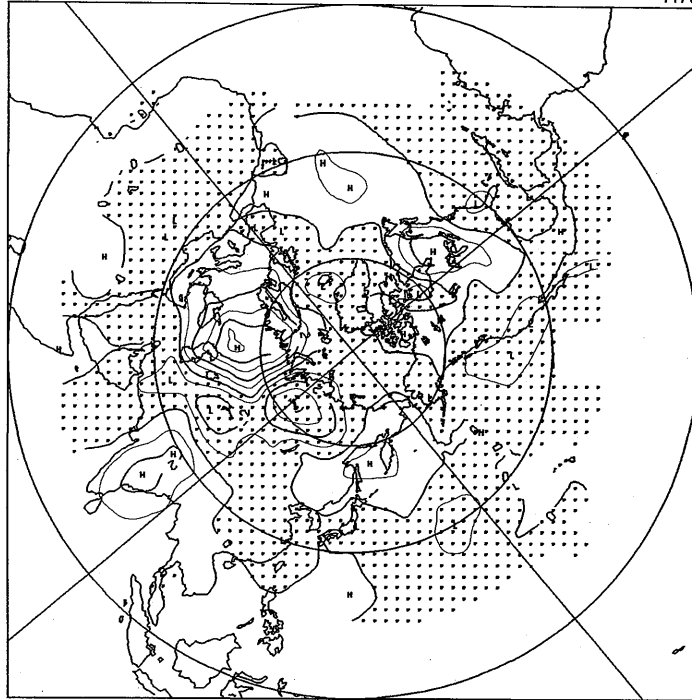
1921年
1月





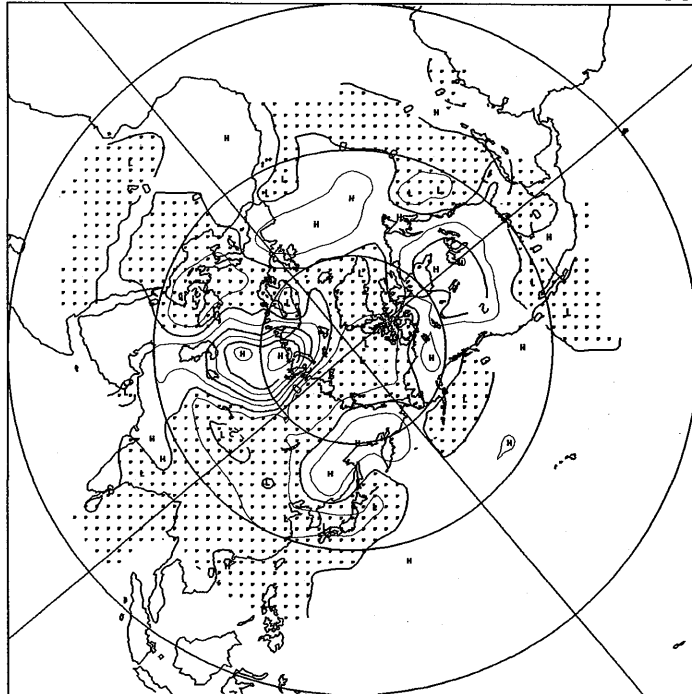
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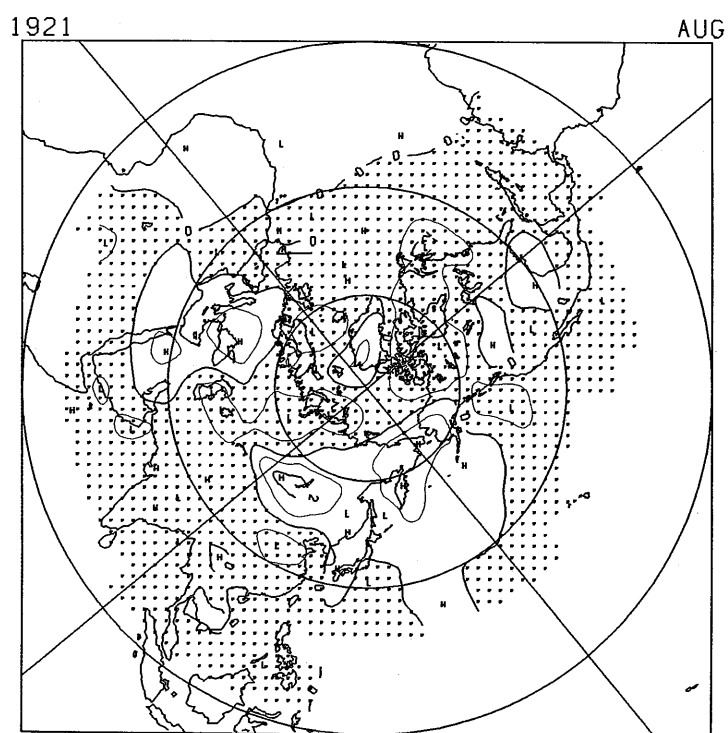
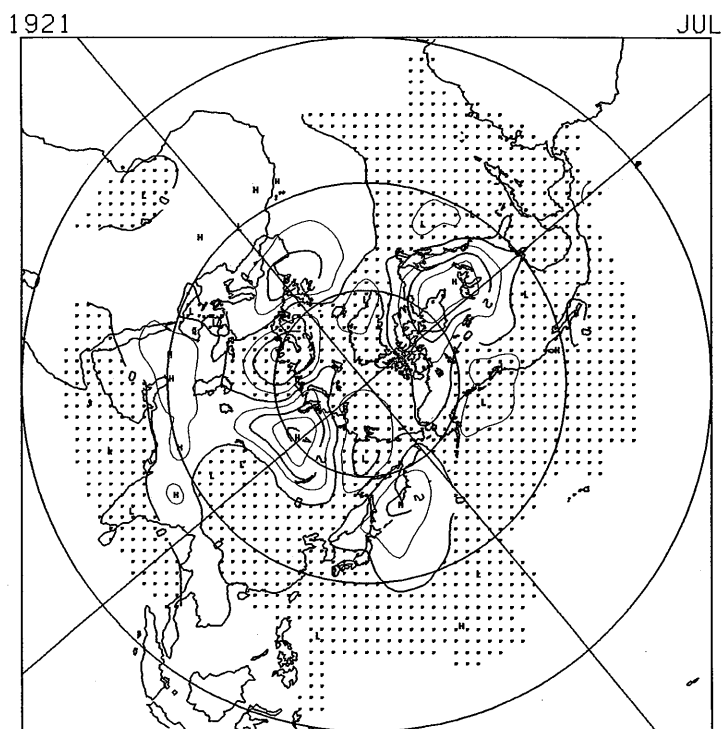
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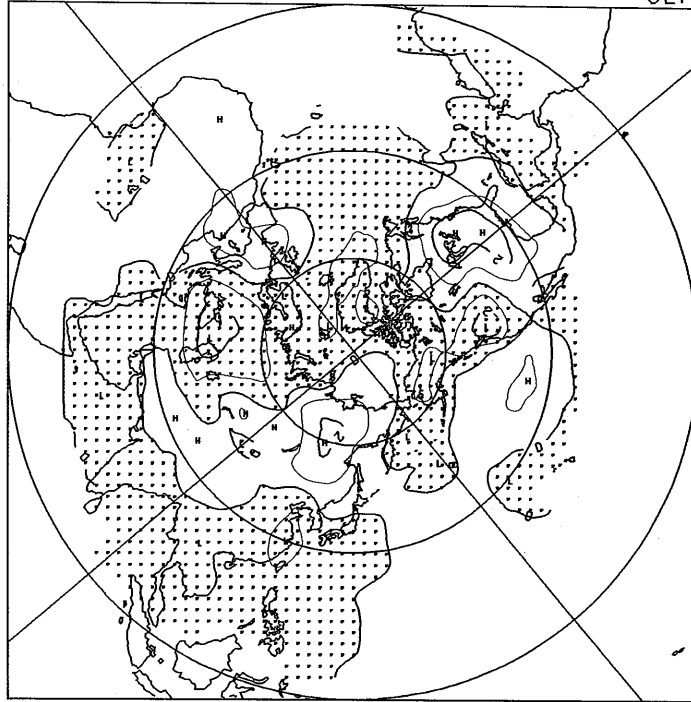
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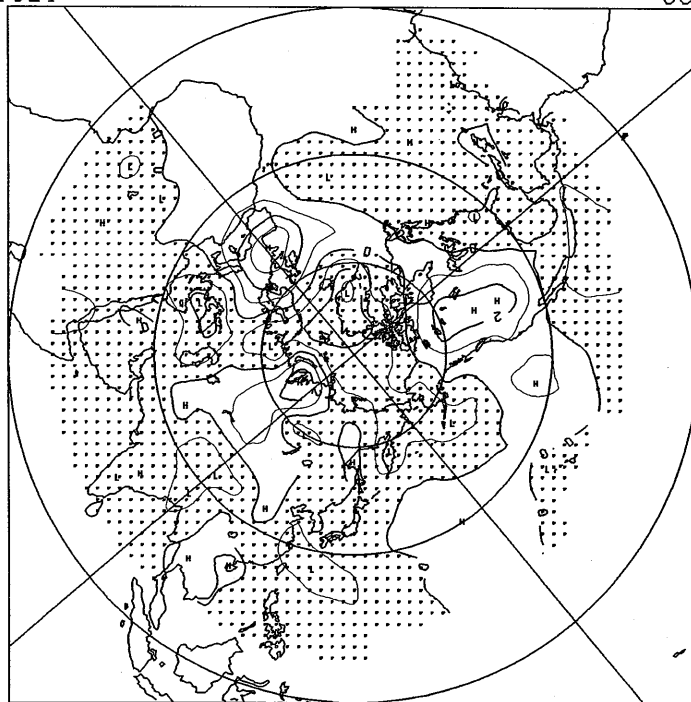
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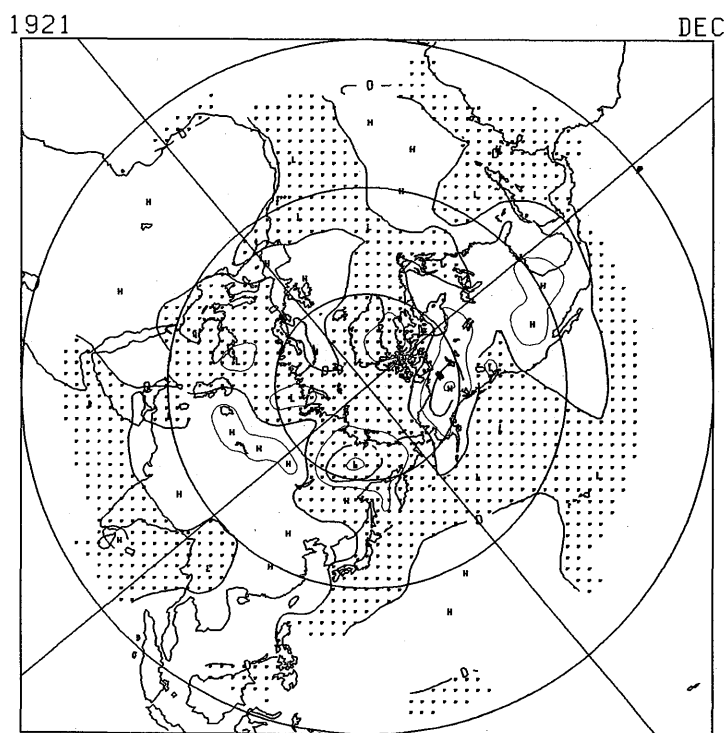
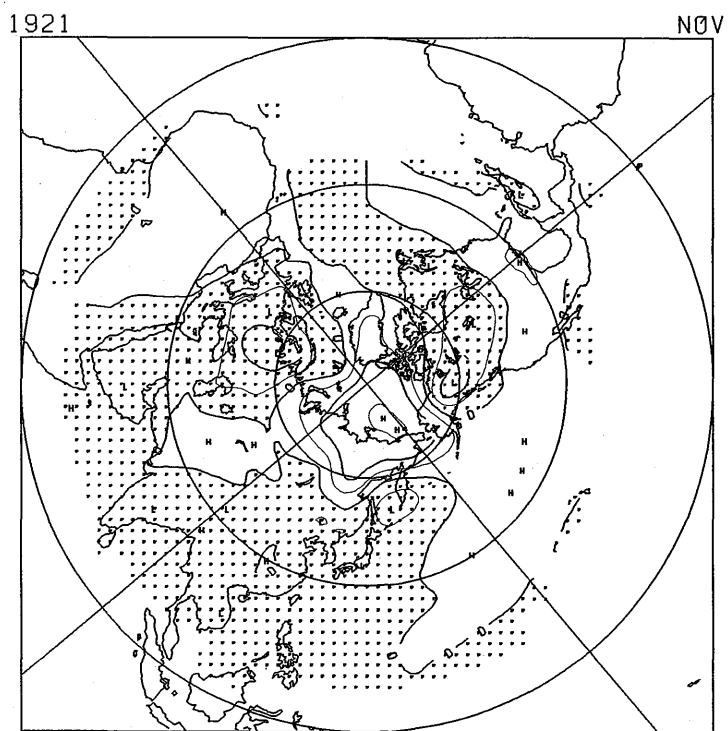
SEPT



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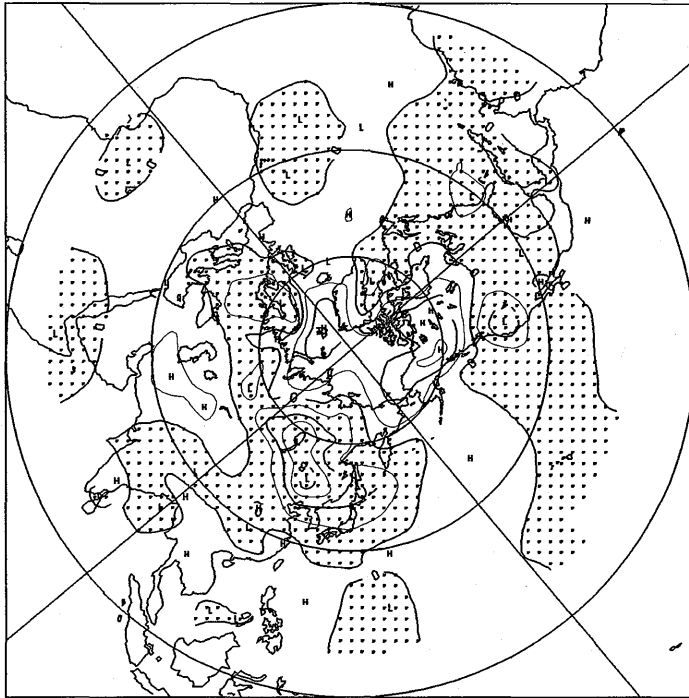
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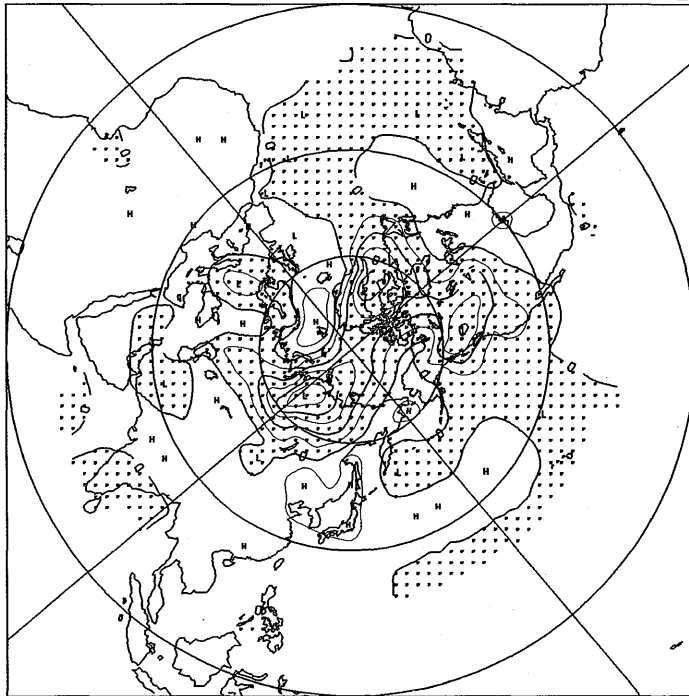
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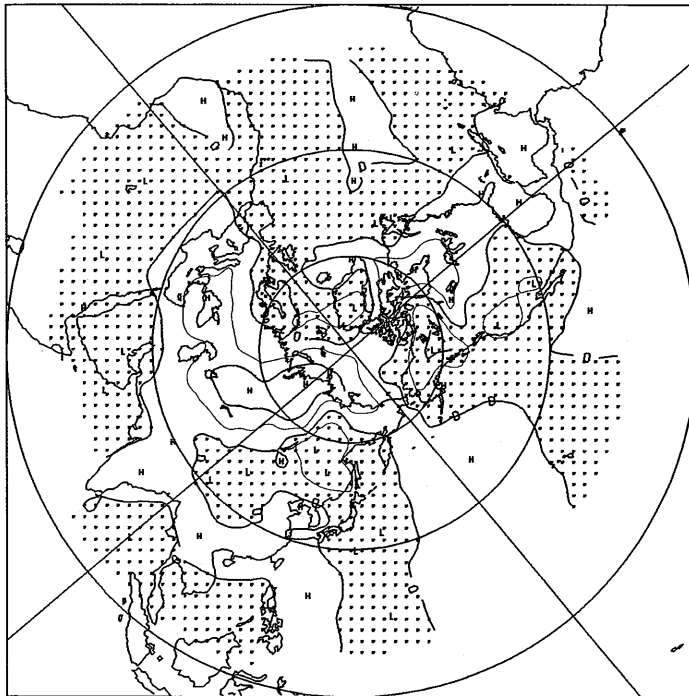
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FEB



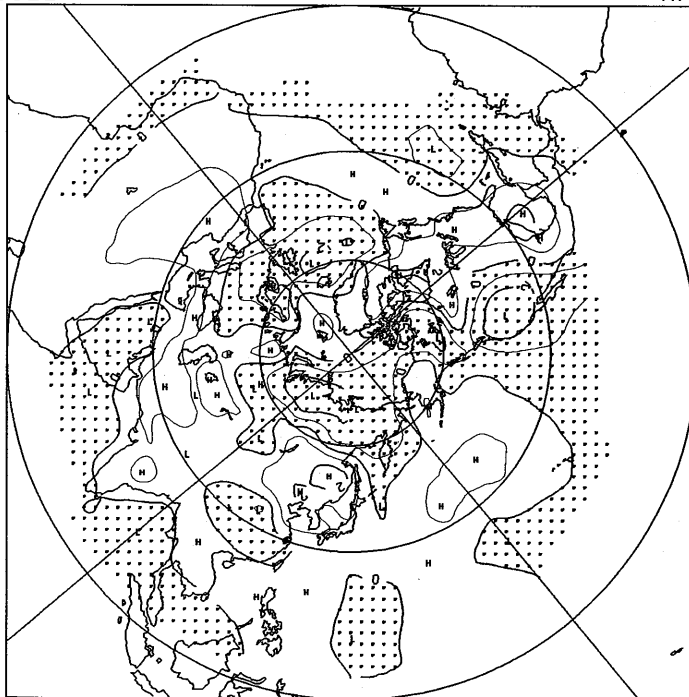
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MAR



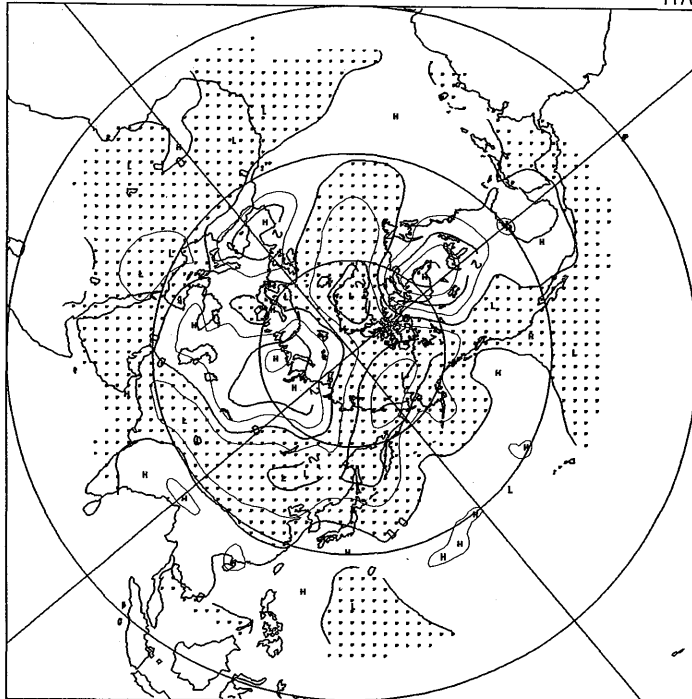
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APR



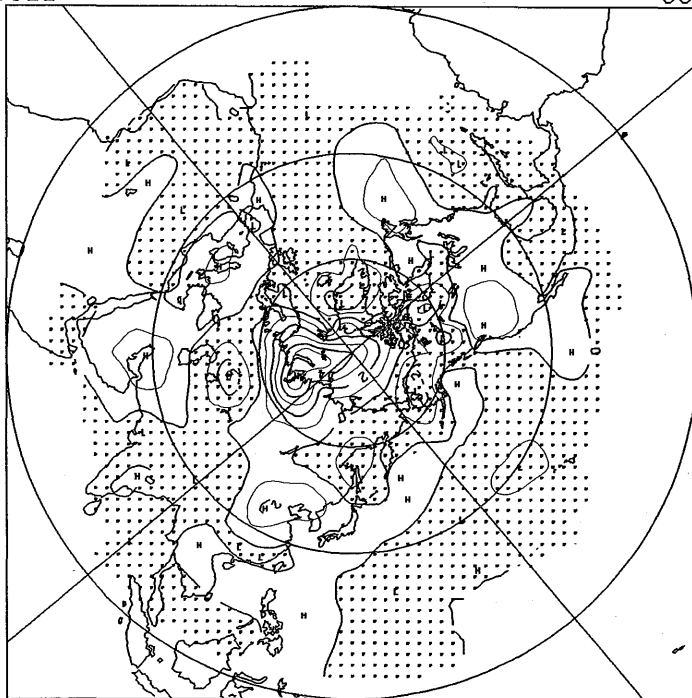
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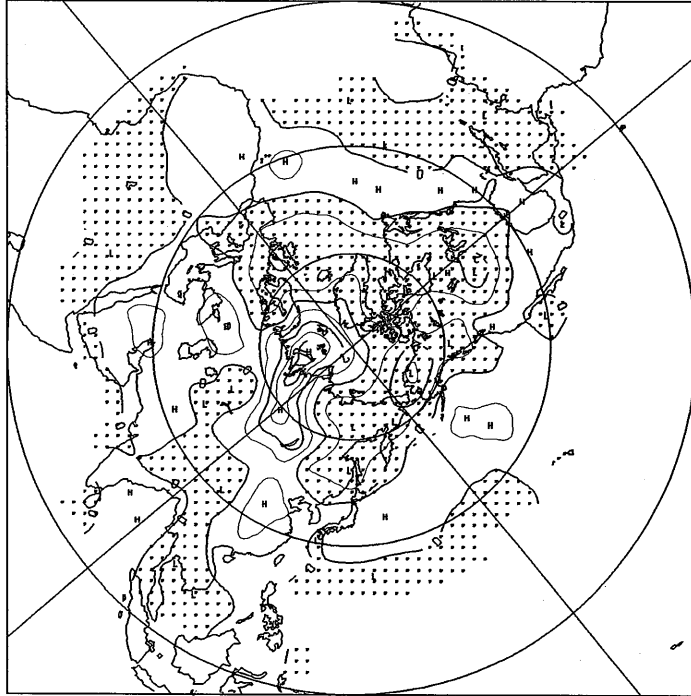
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JUN



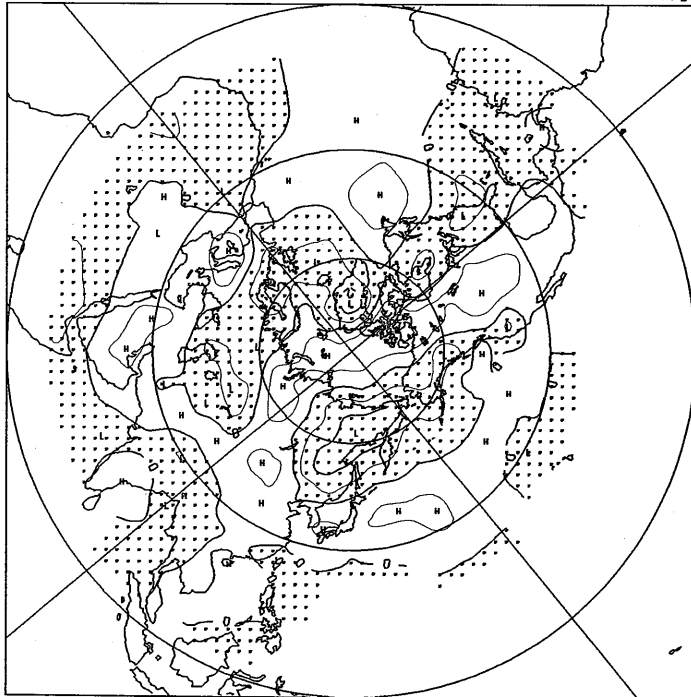
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JUL



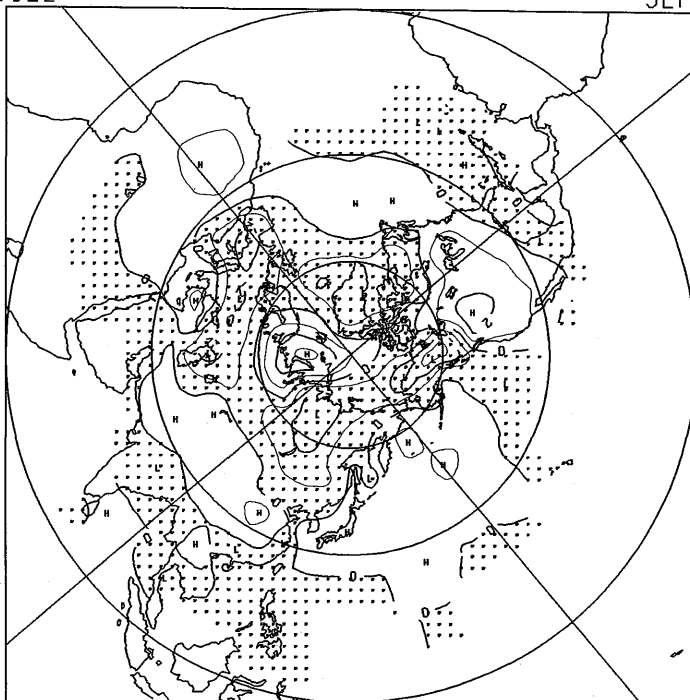
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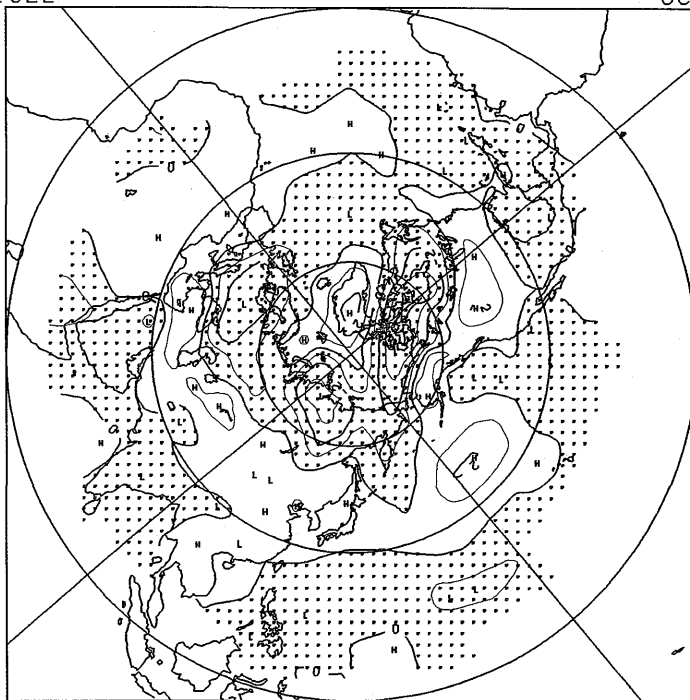
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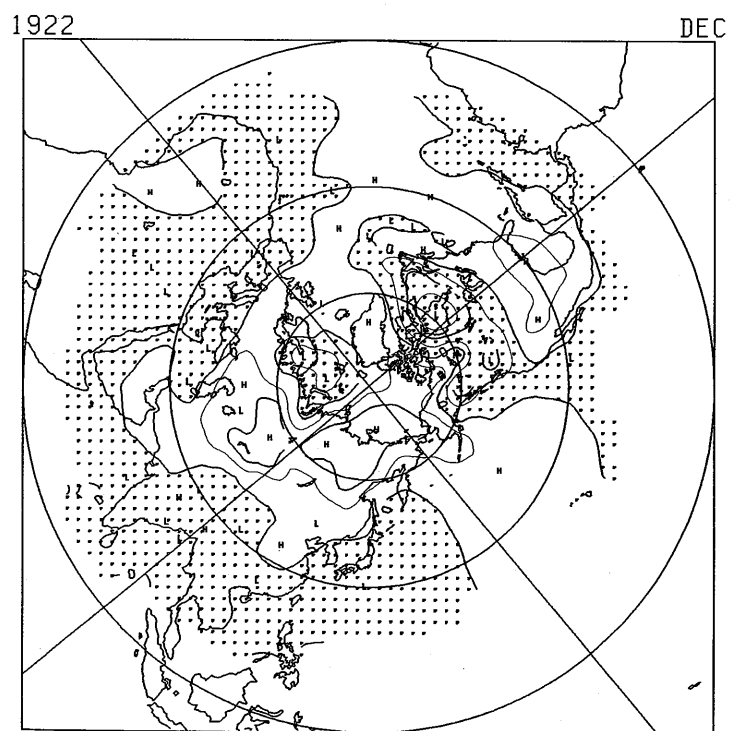
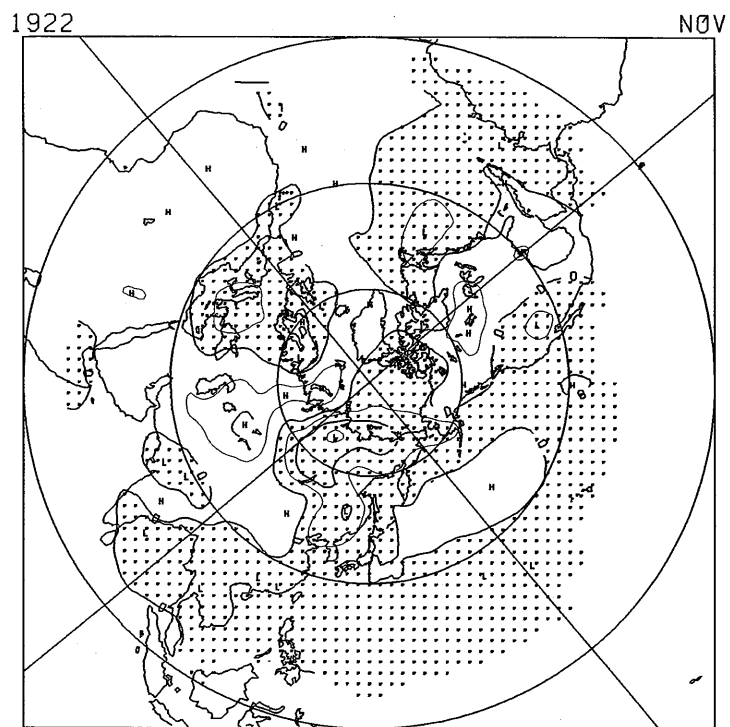
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1922

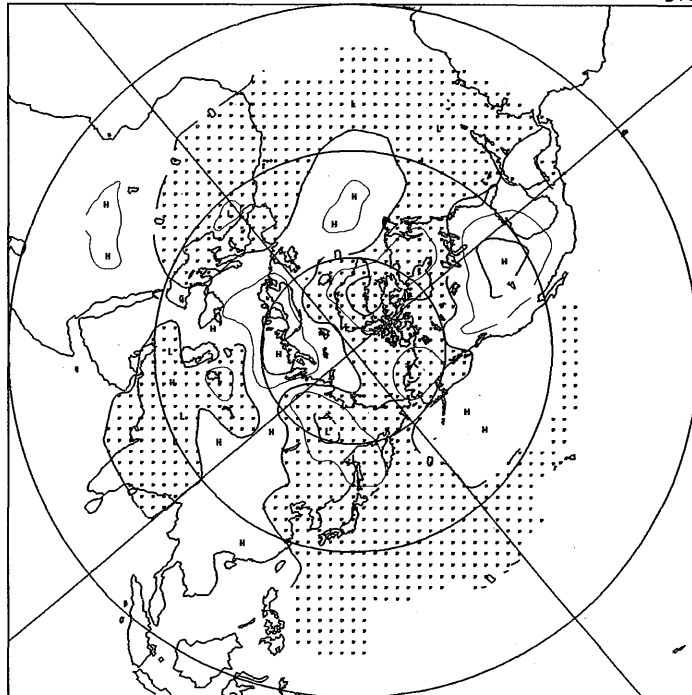
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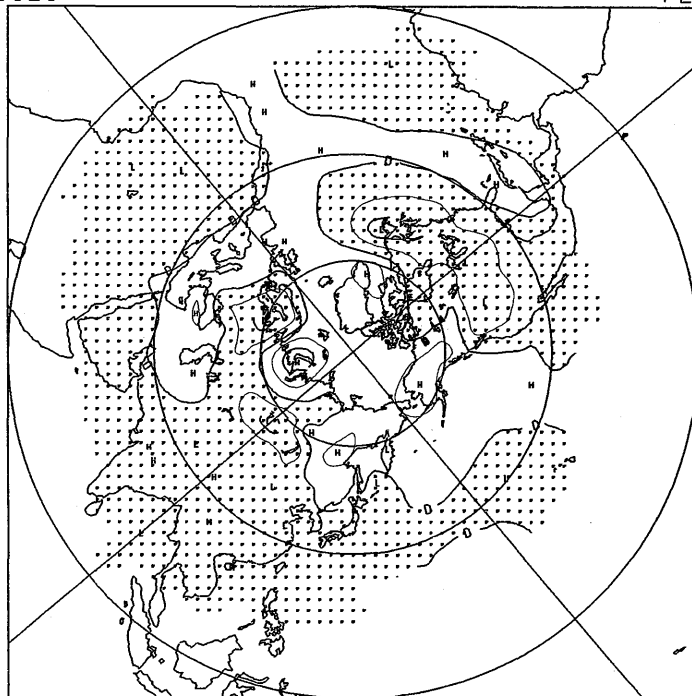
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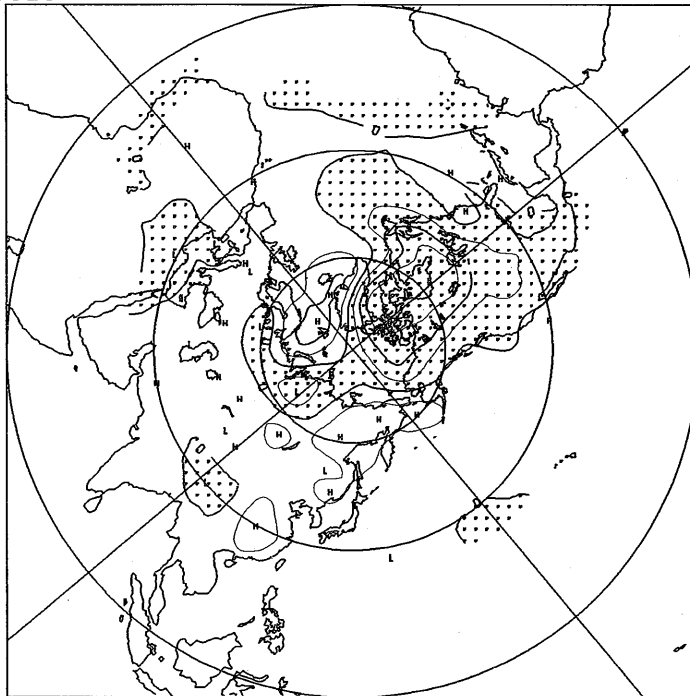
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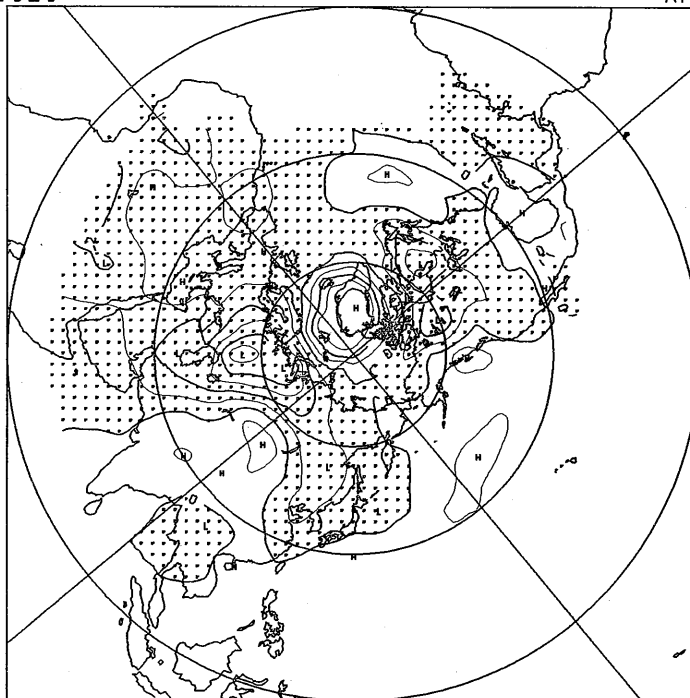
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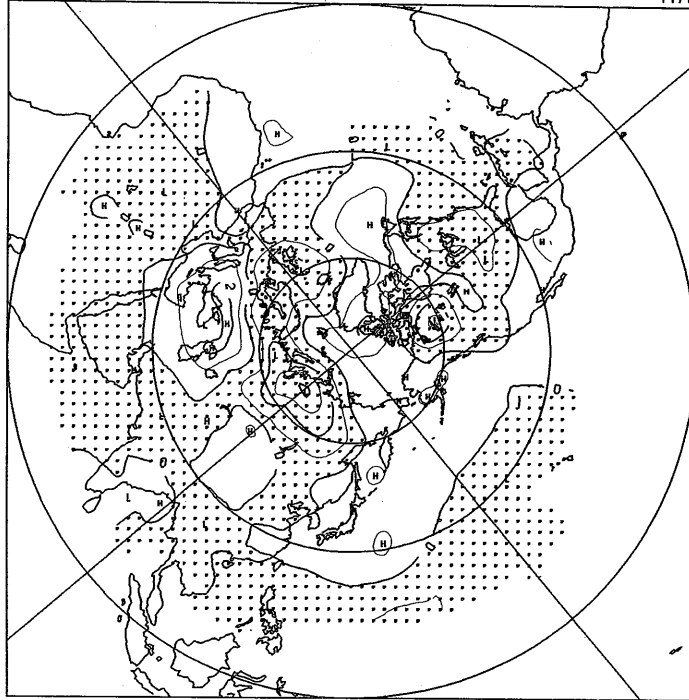
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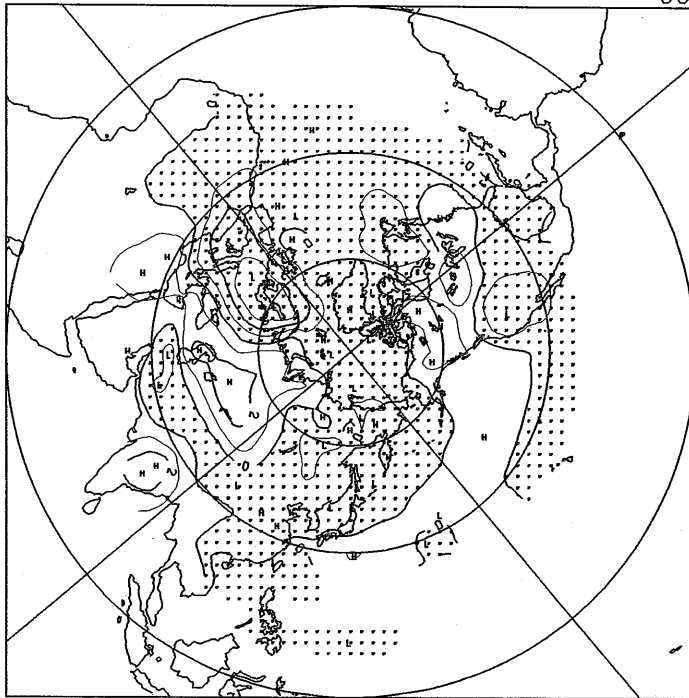
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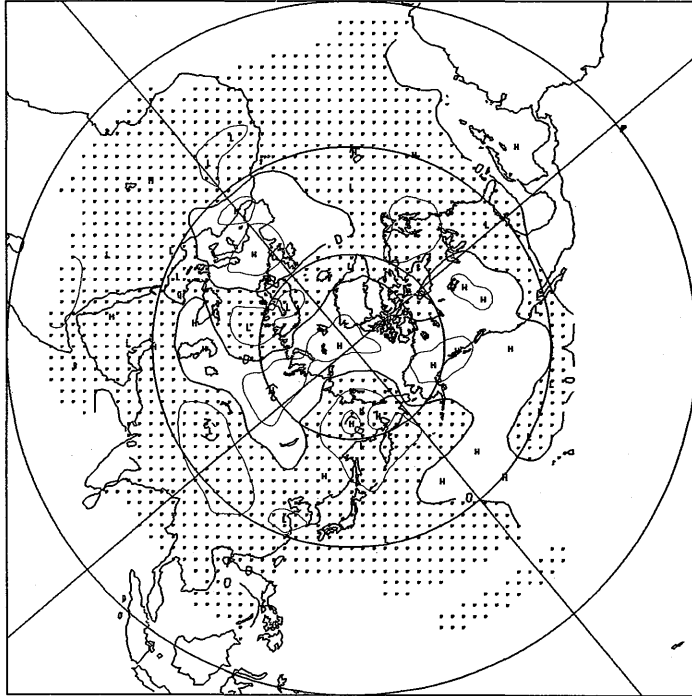
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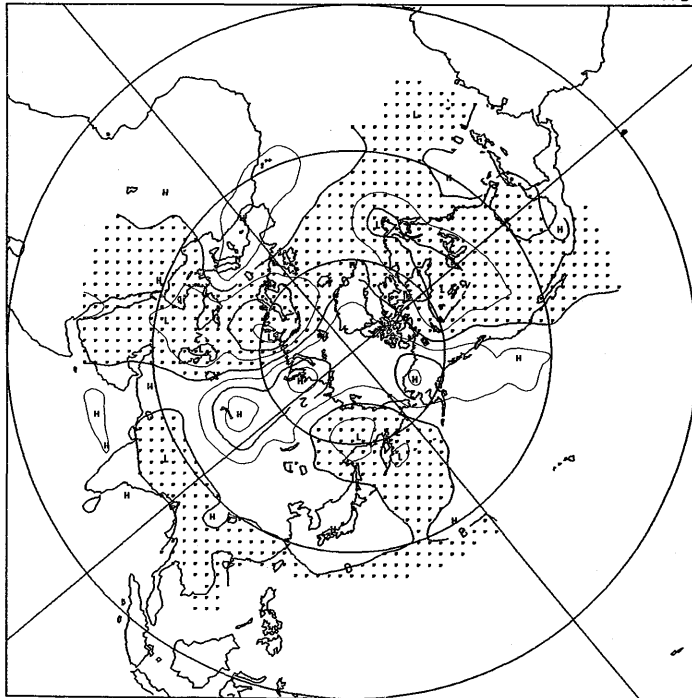
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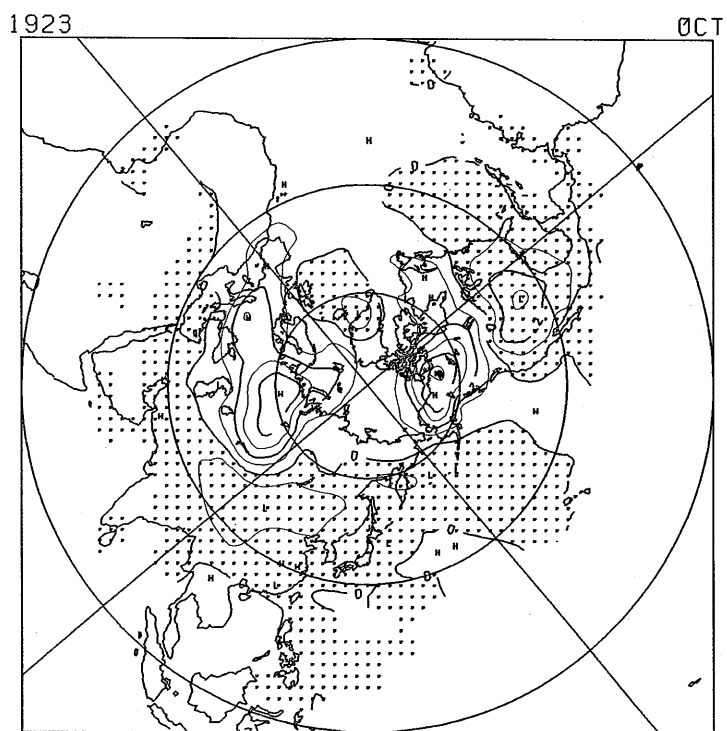
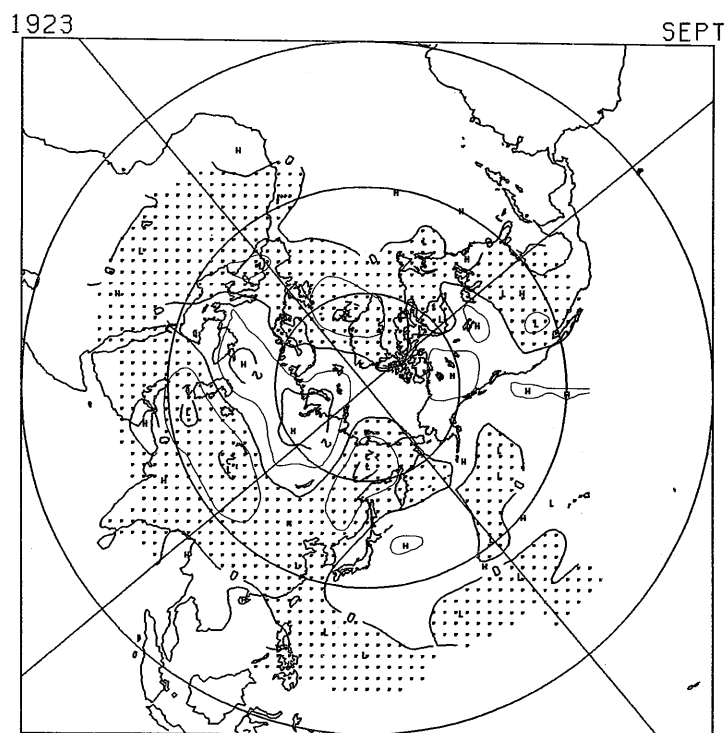
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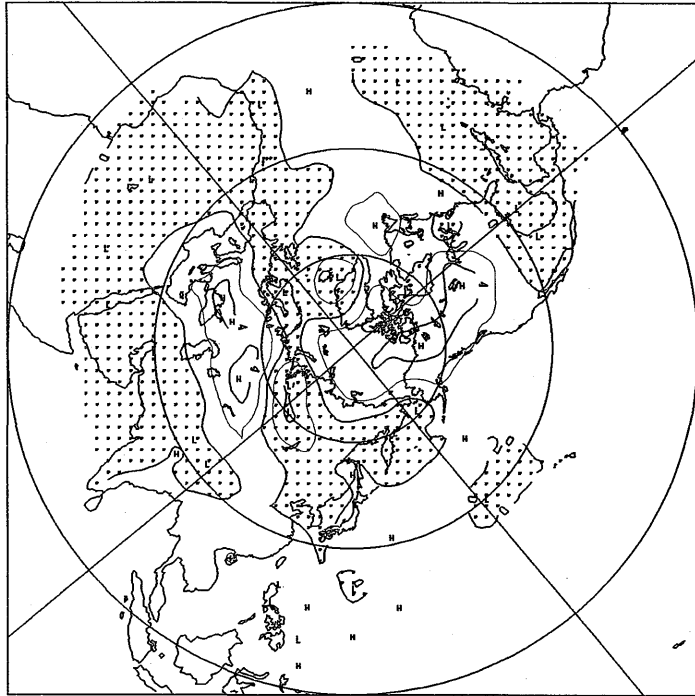
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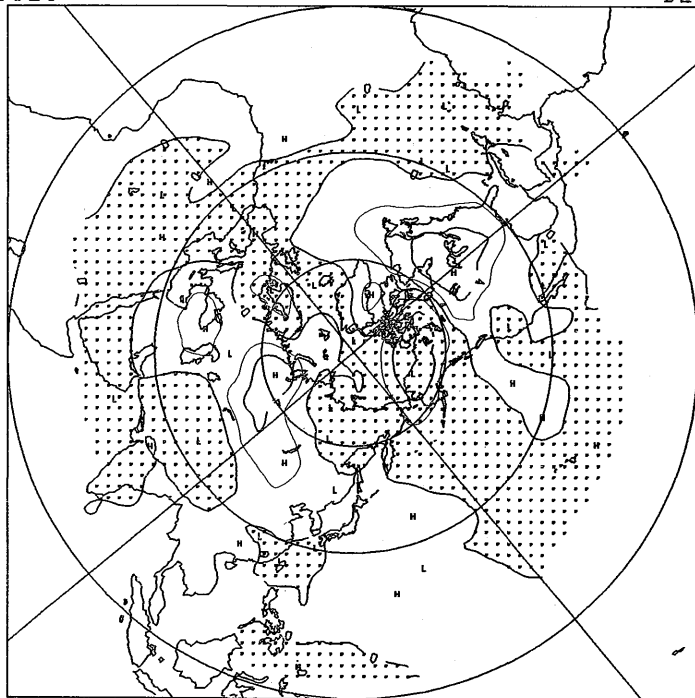
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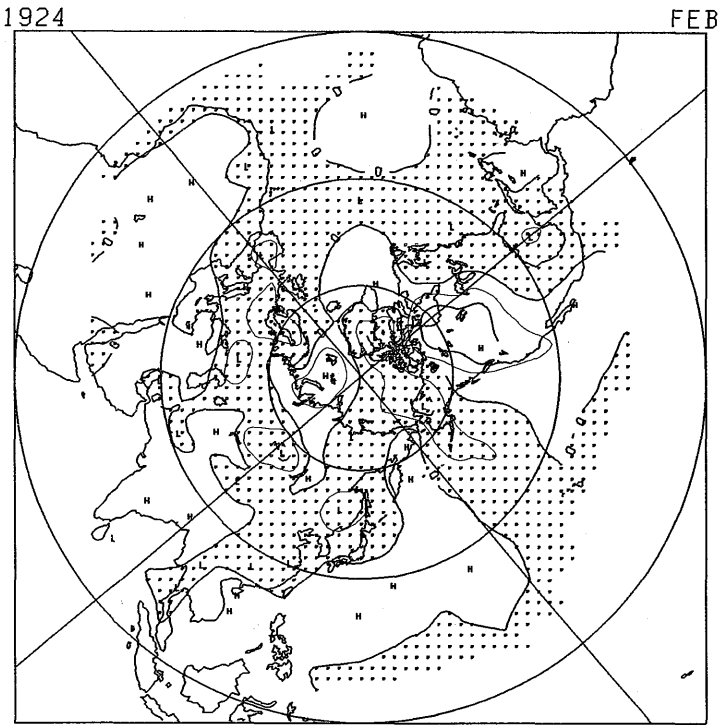
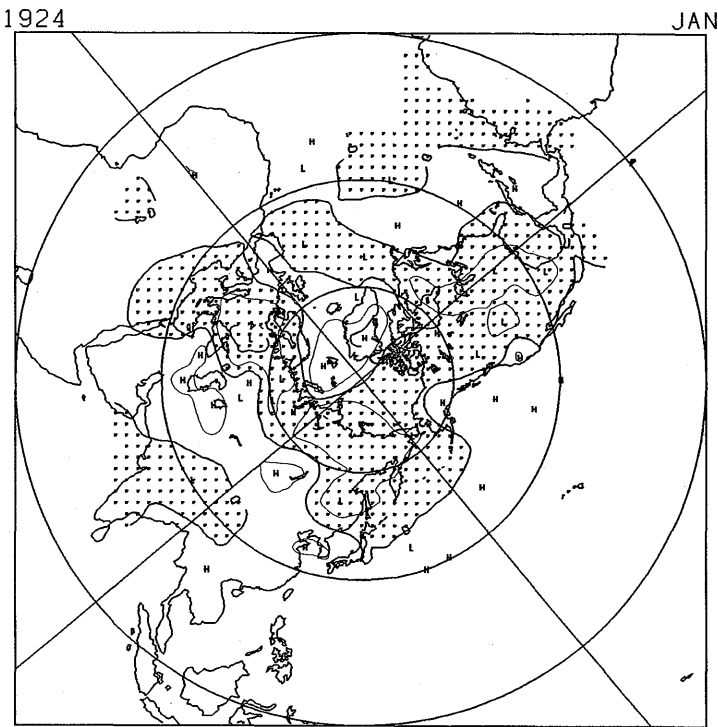
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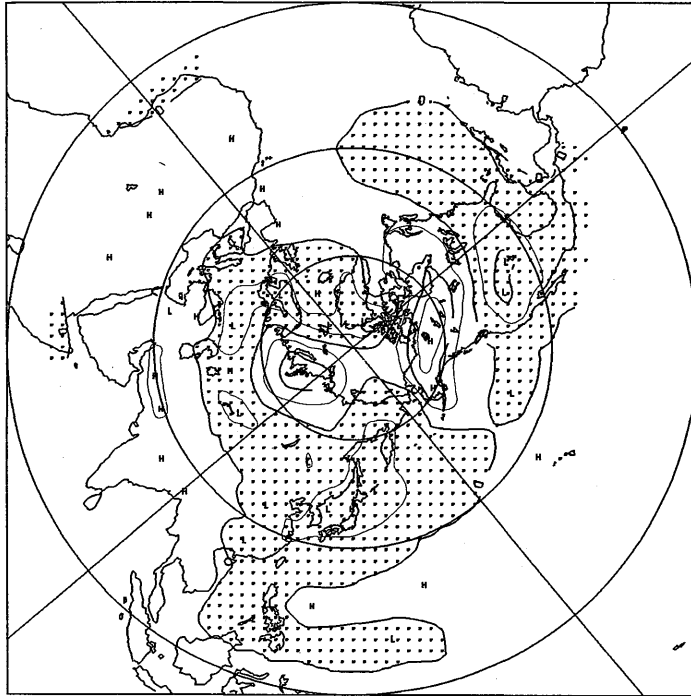
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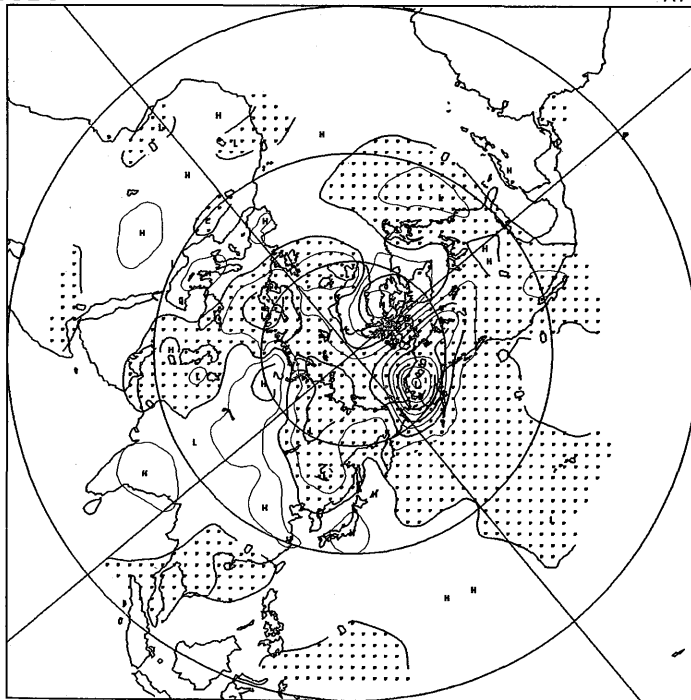
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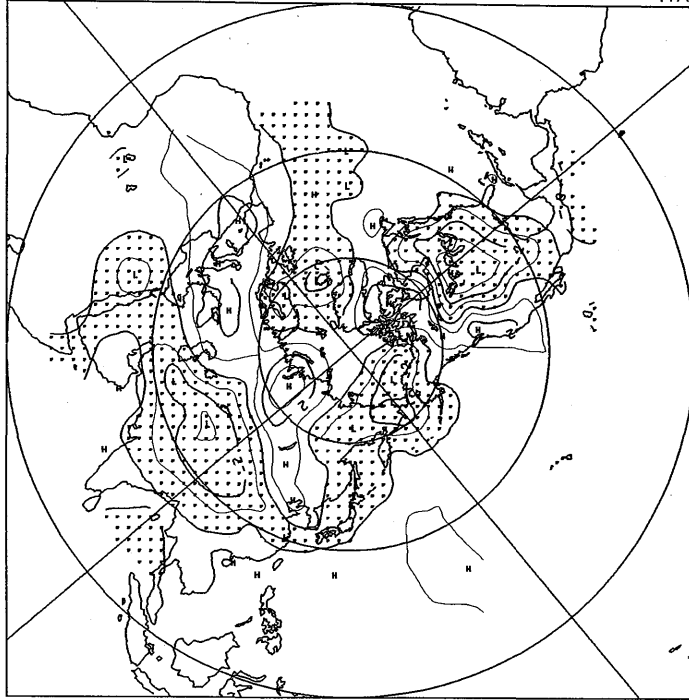
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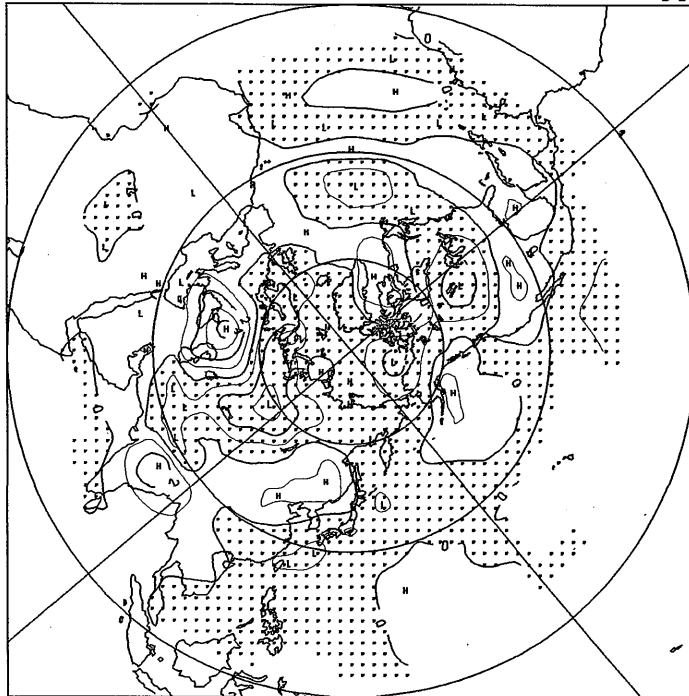
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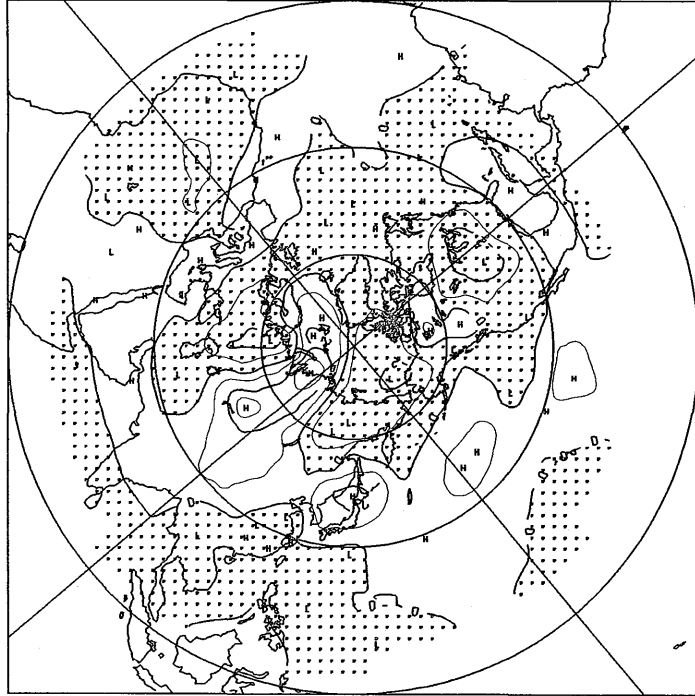
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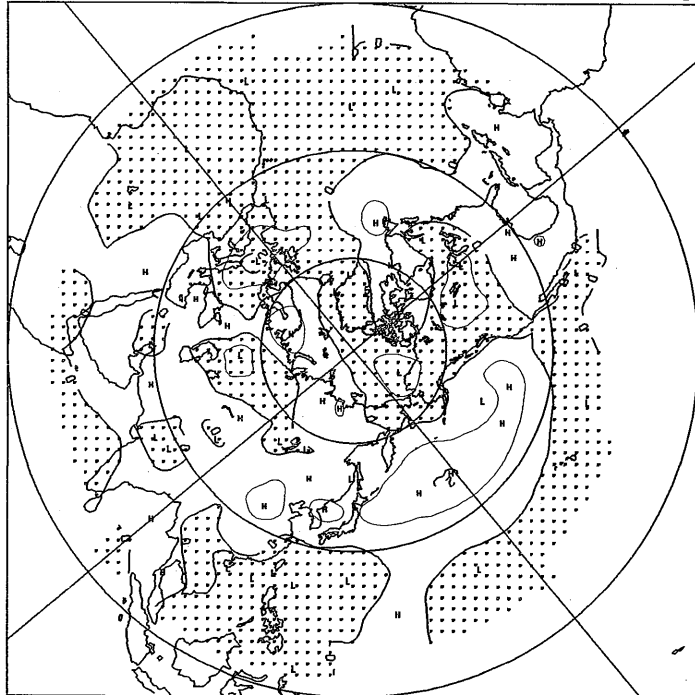
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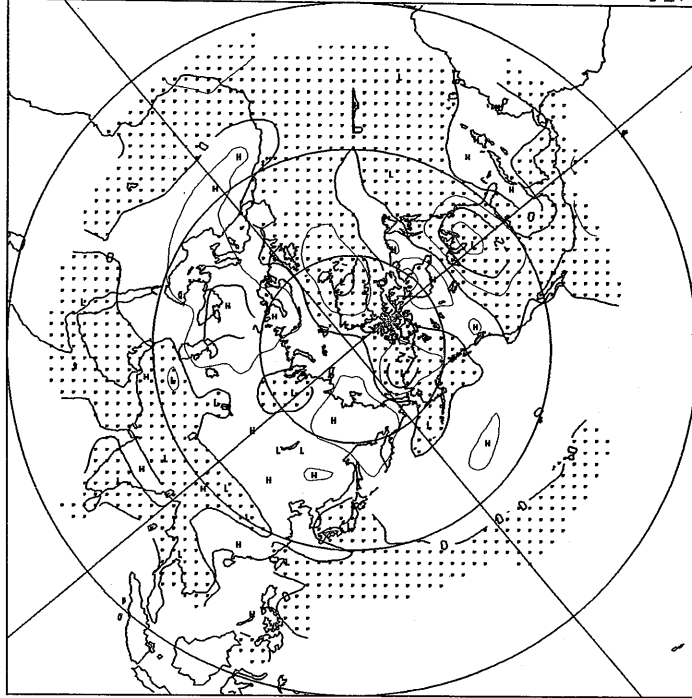
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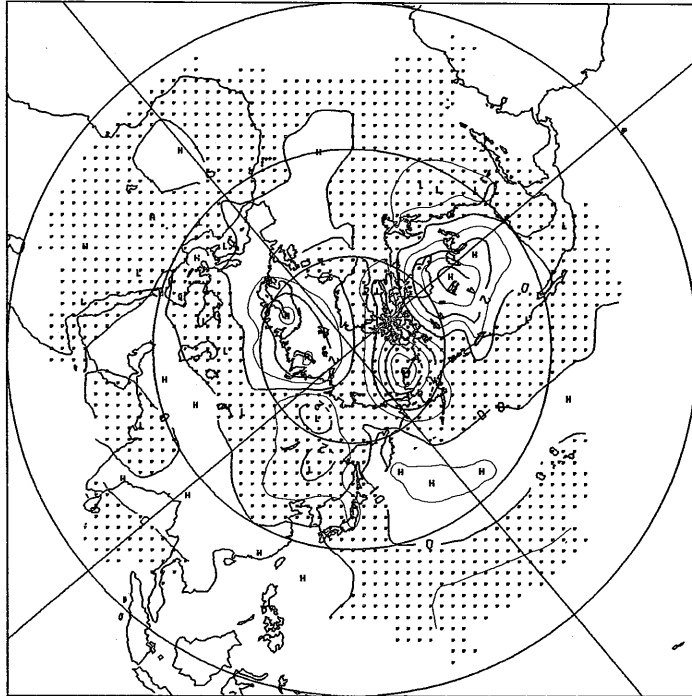
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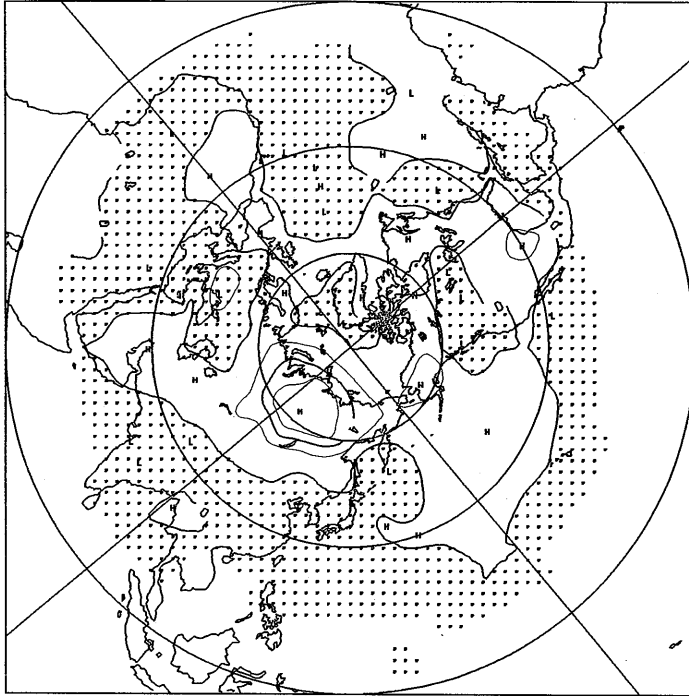
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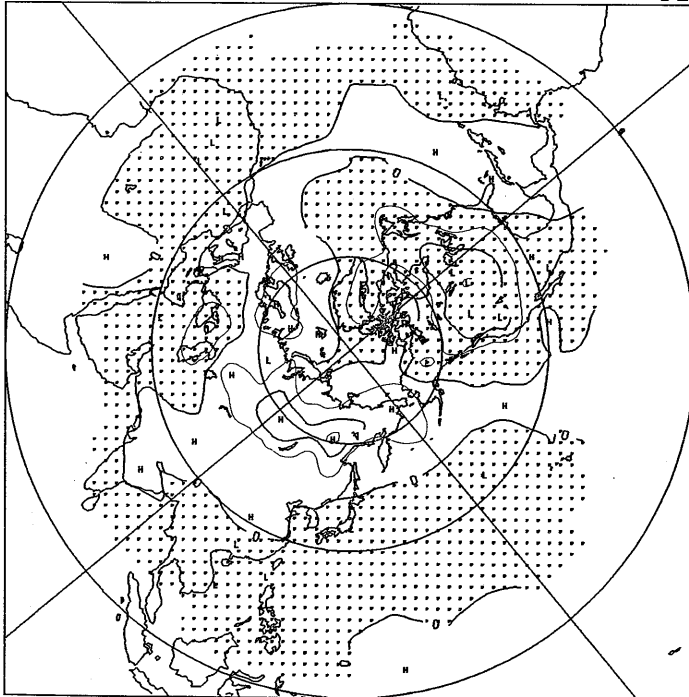
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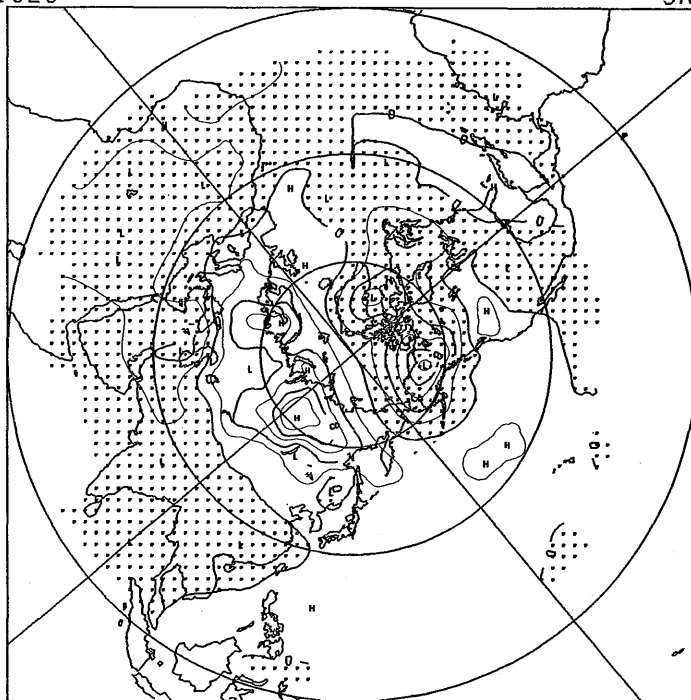
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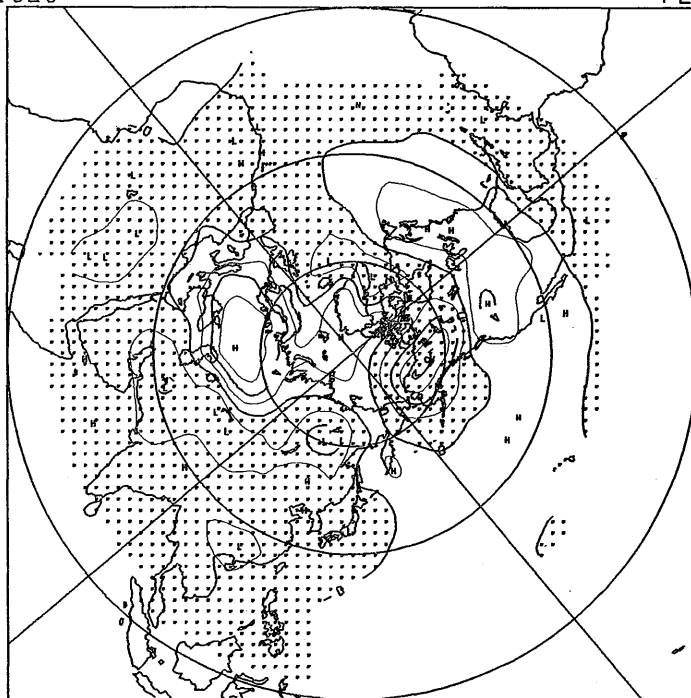
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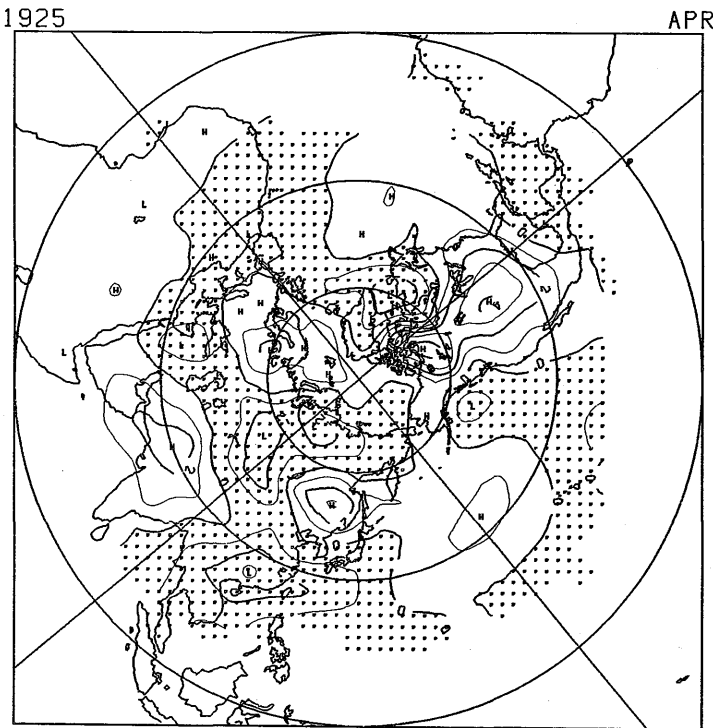
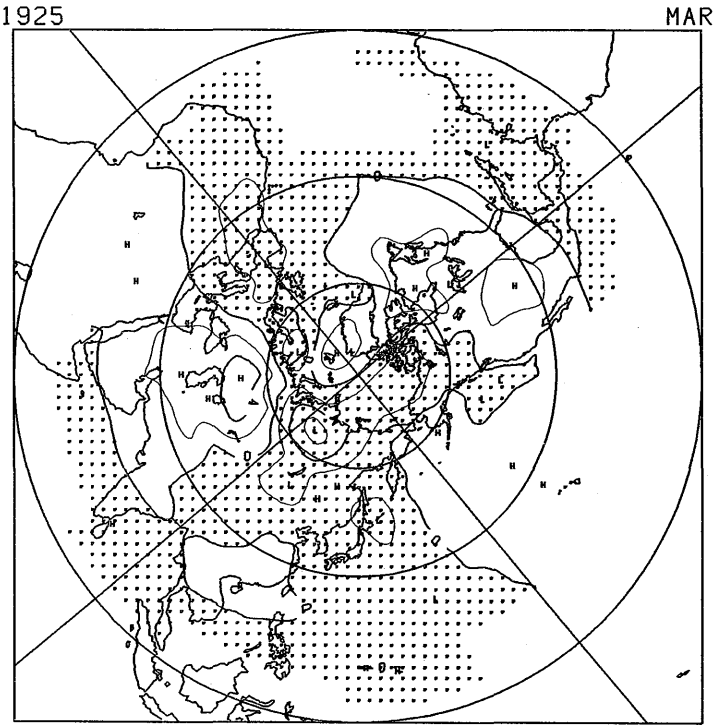
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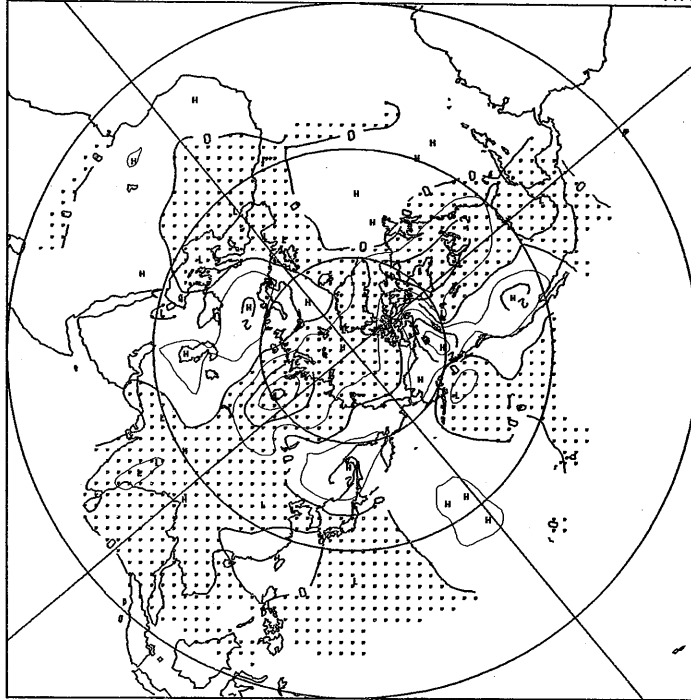
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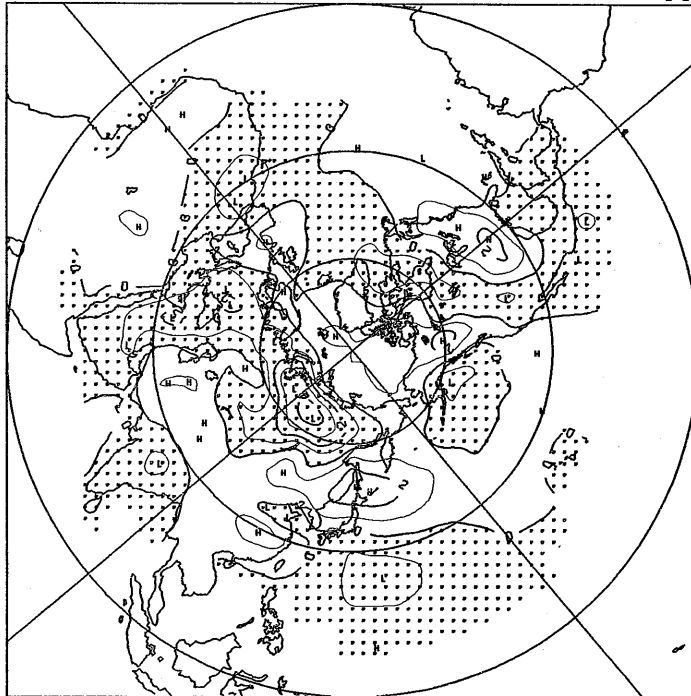
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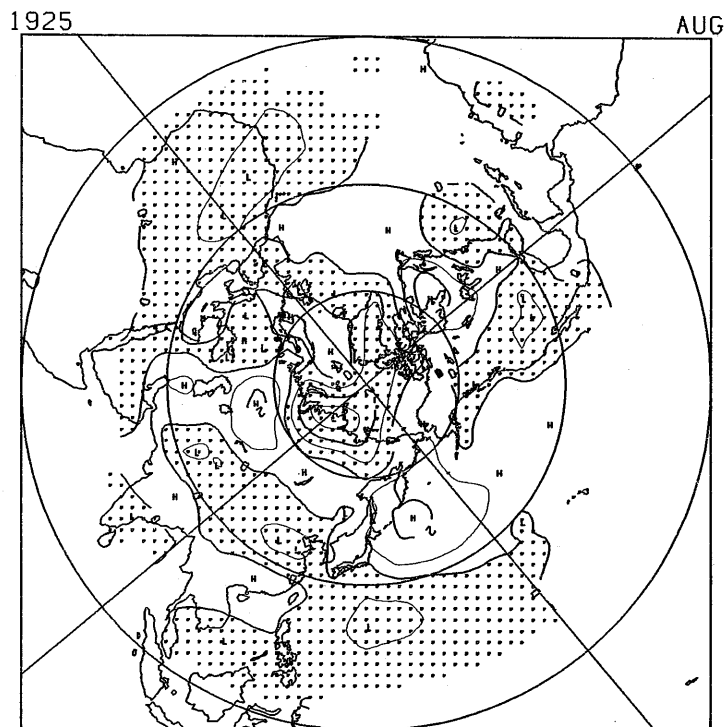
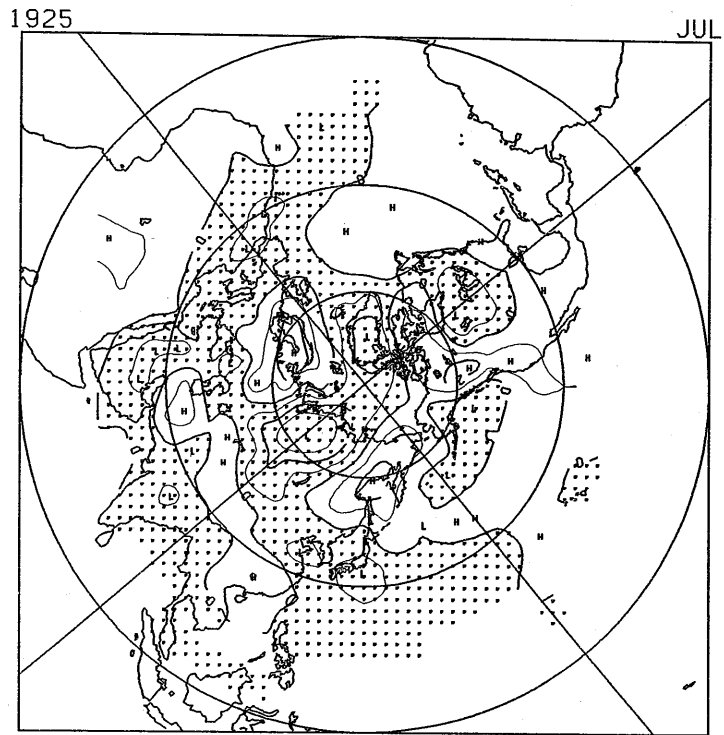
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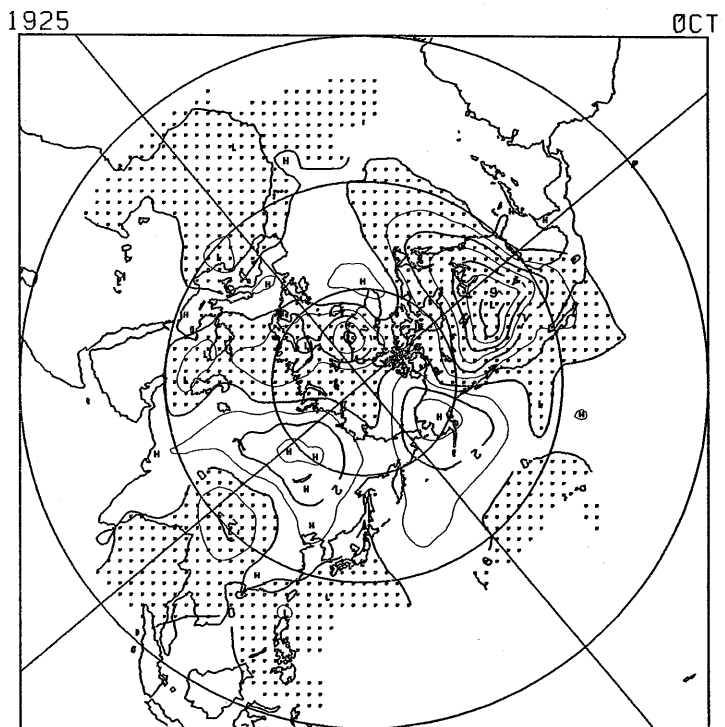
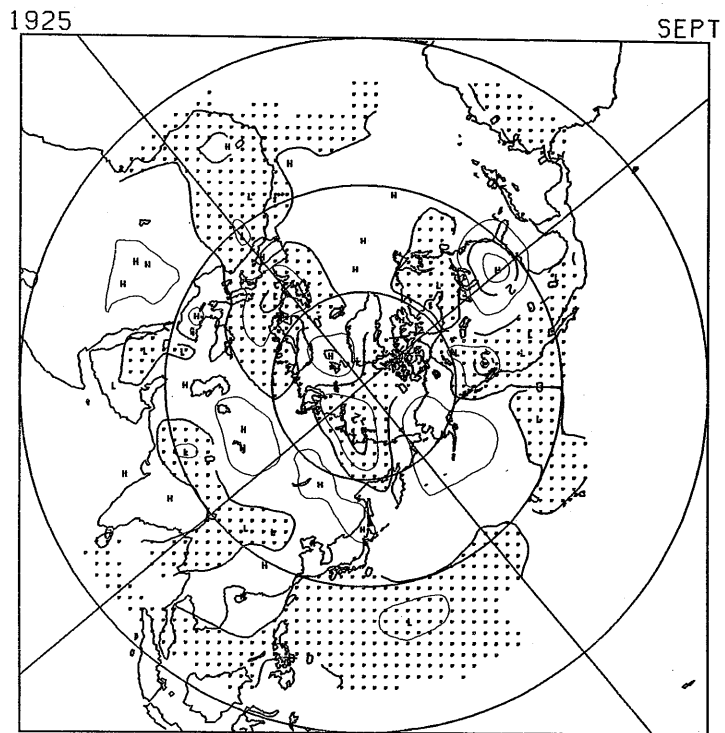


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JUN

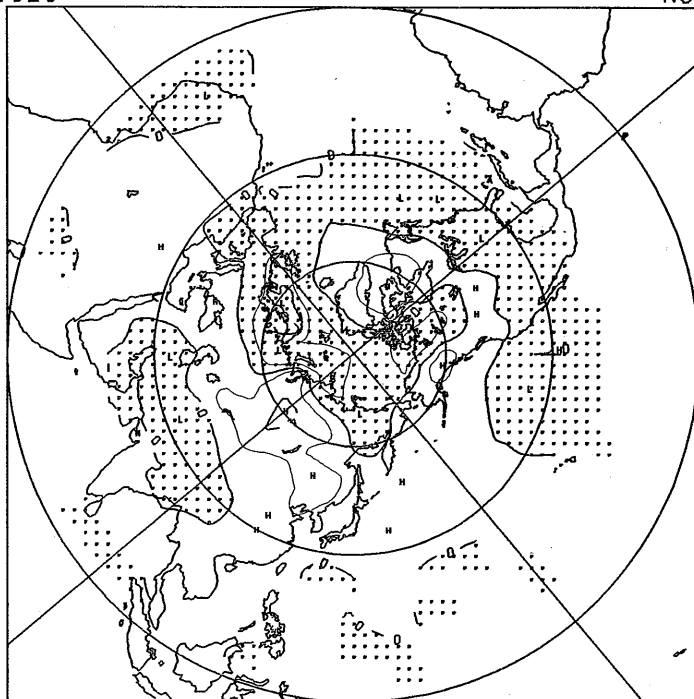






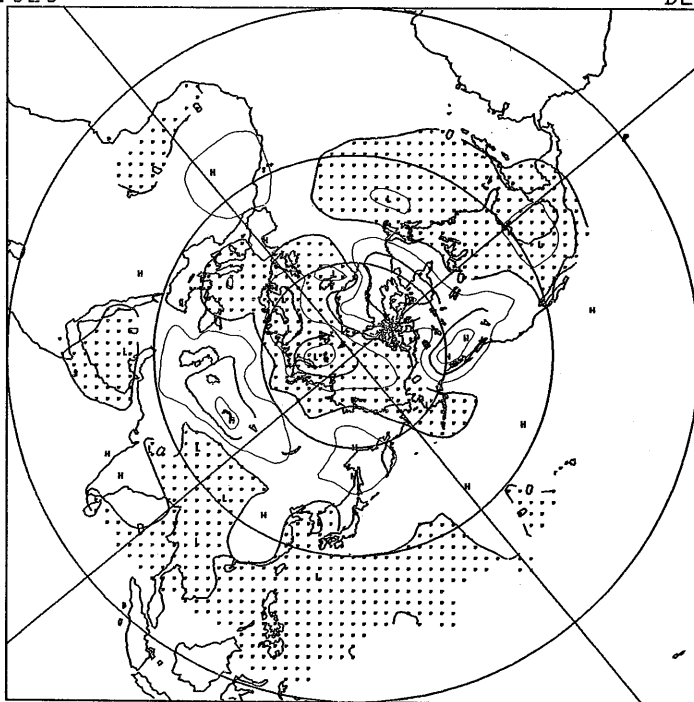
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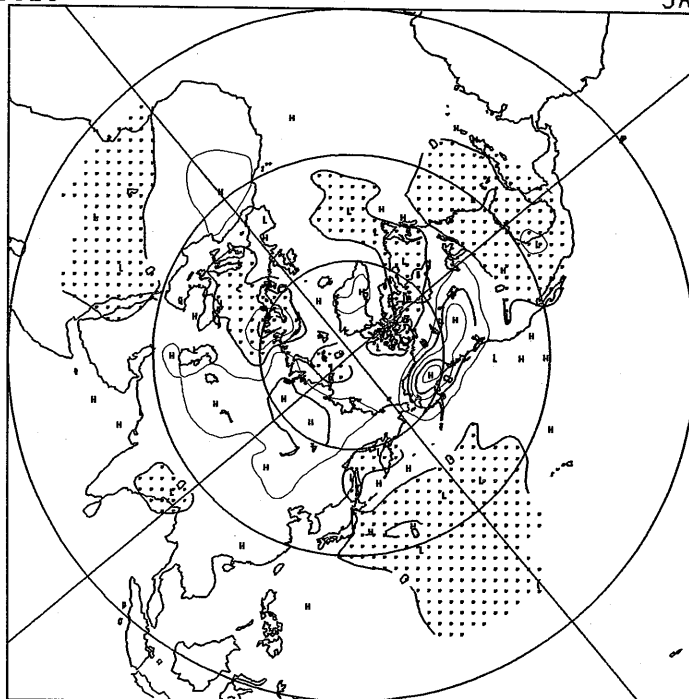
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1926

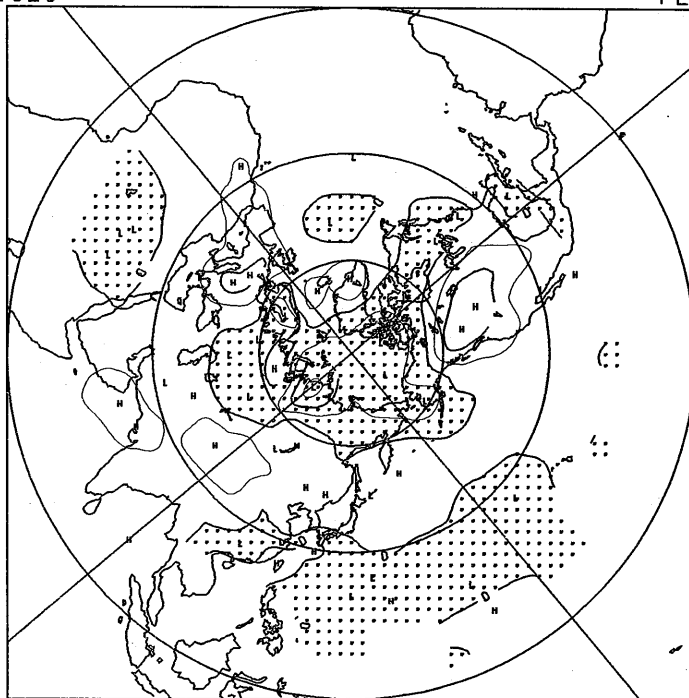
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1926年
1月

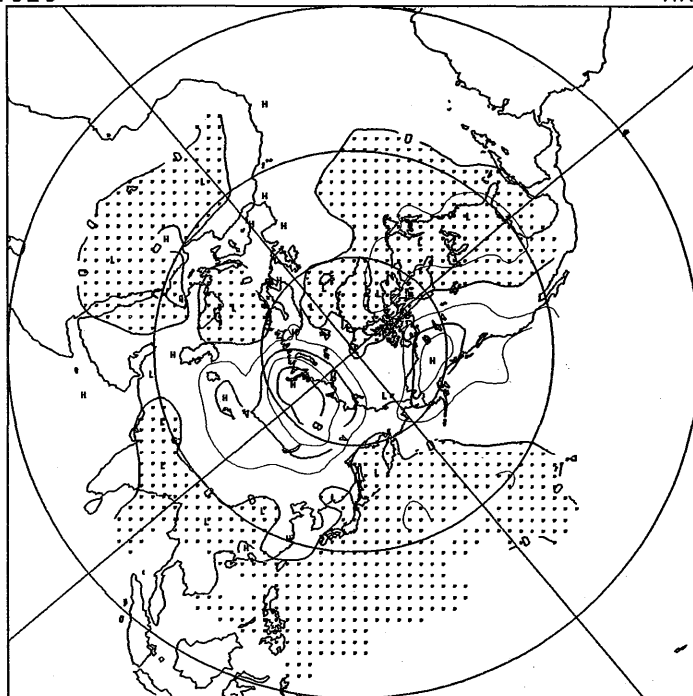
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FEB



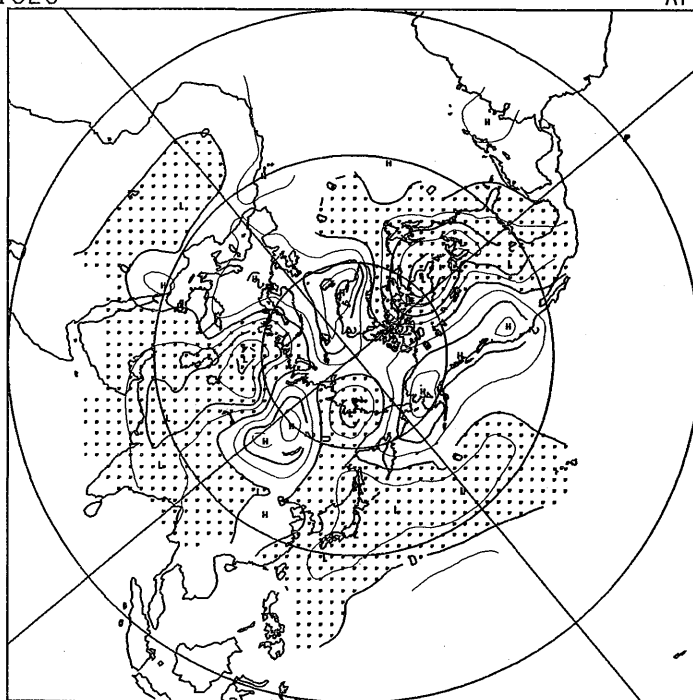
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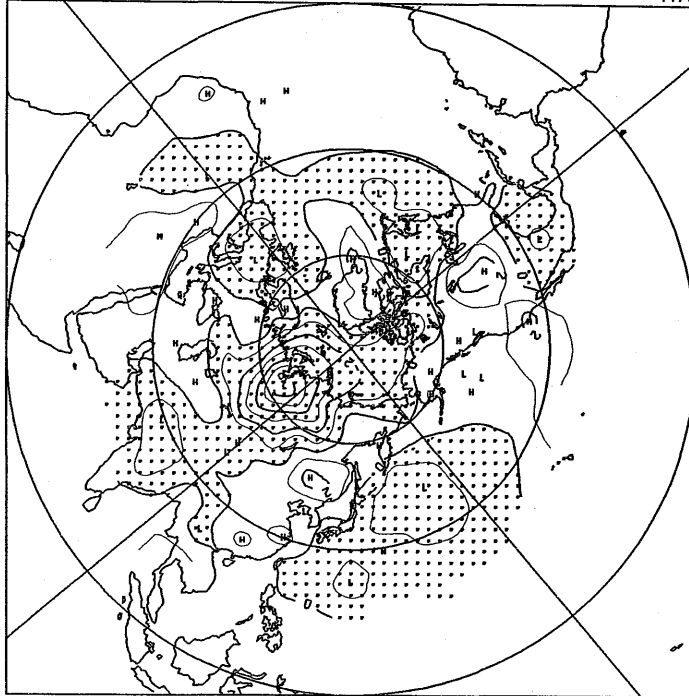
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APR



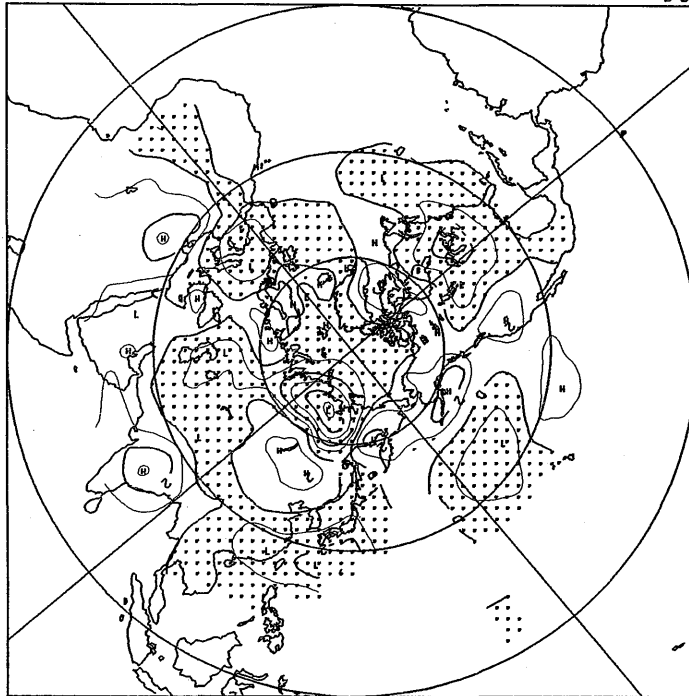
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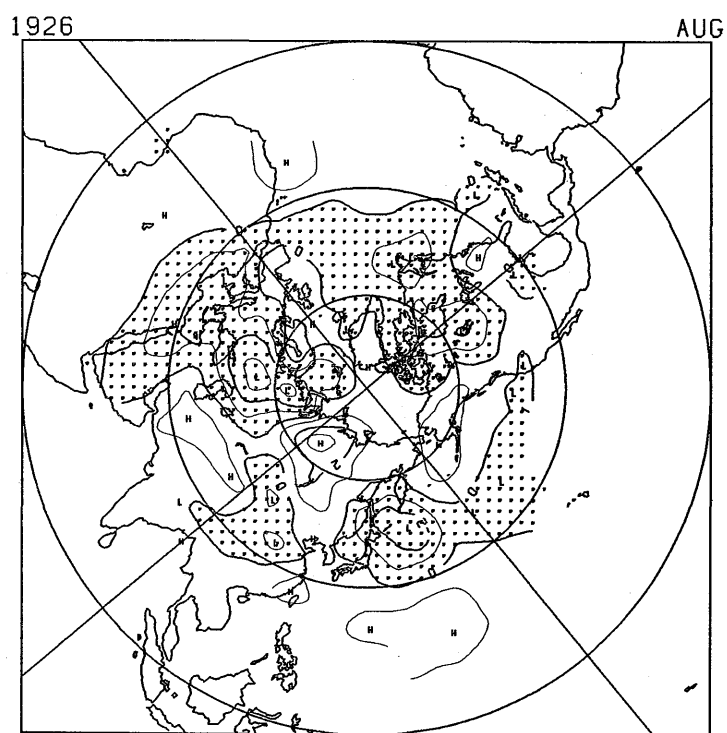
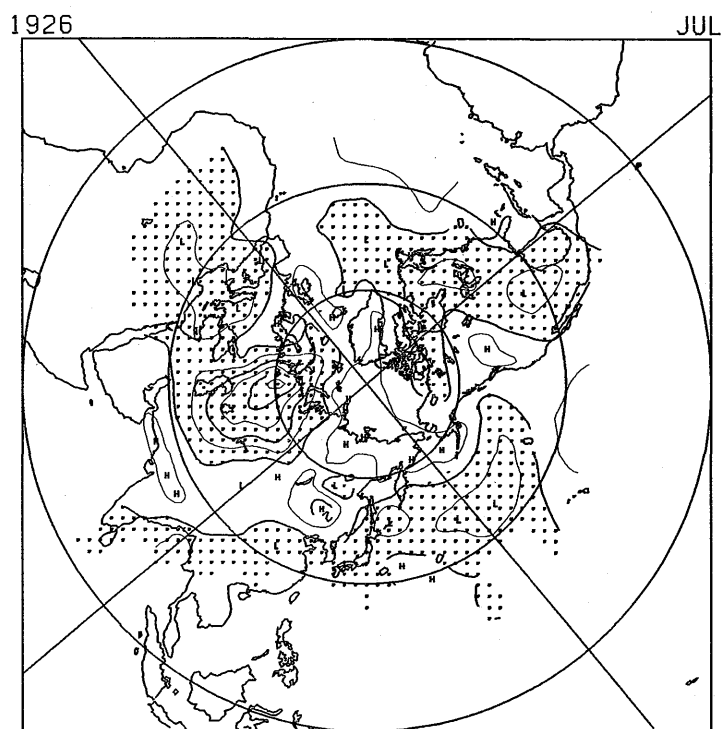
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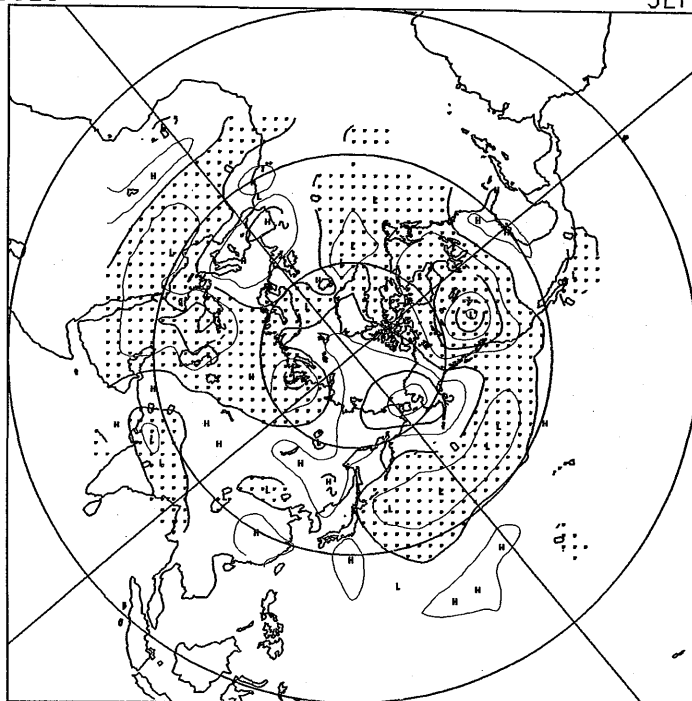
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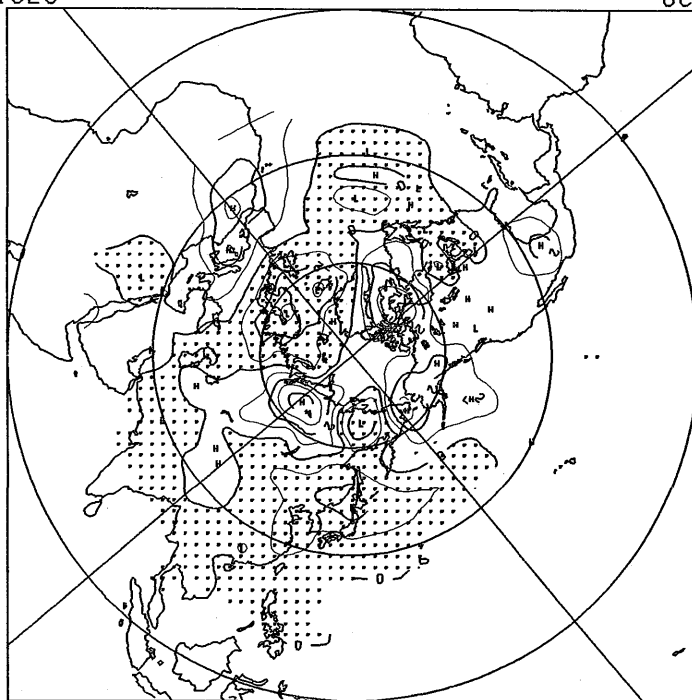
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SEPT



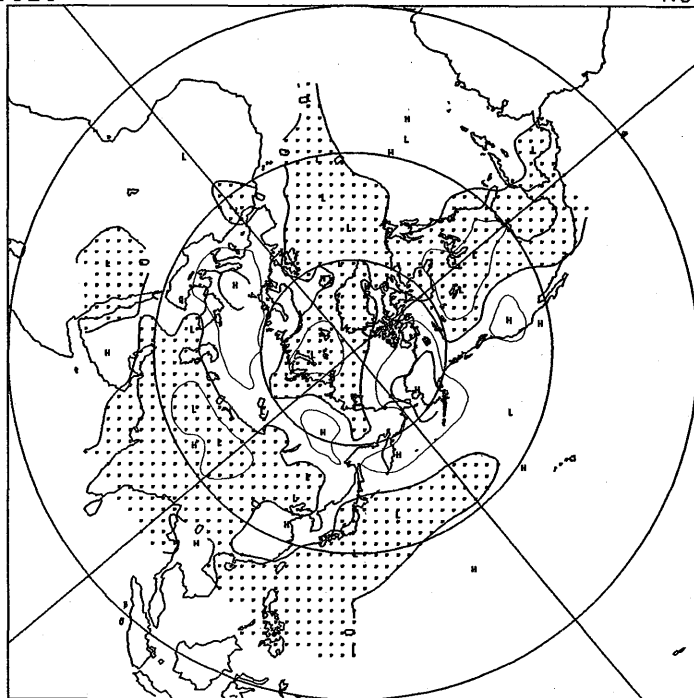
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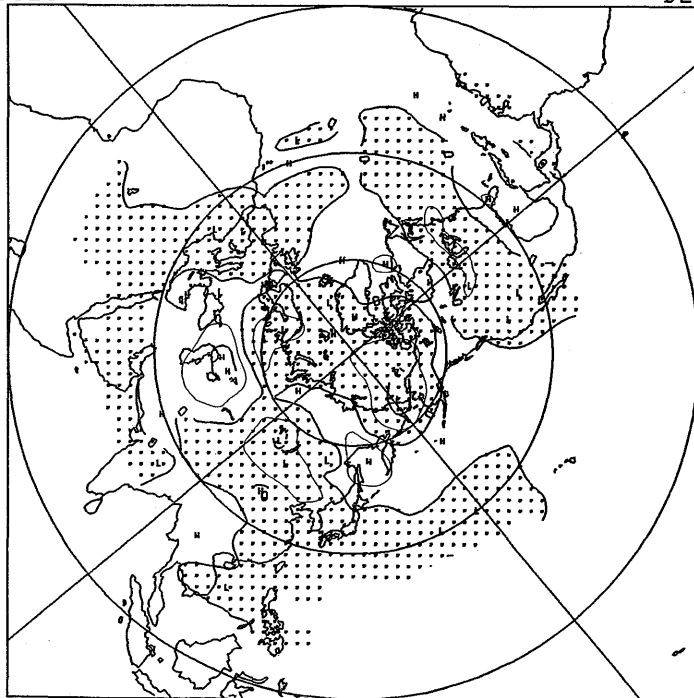
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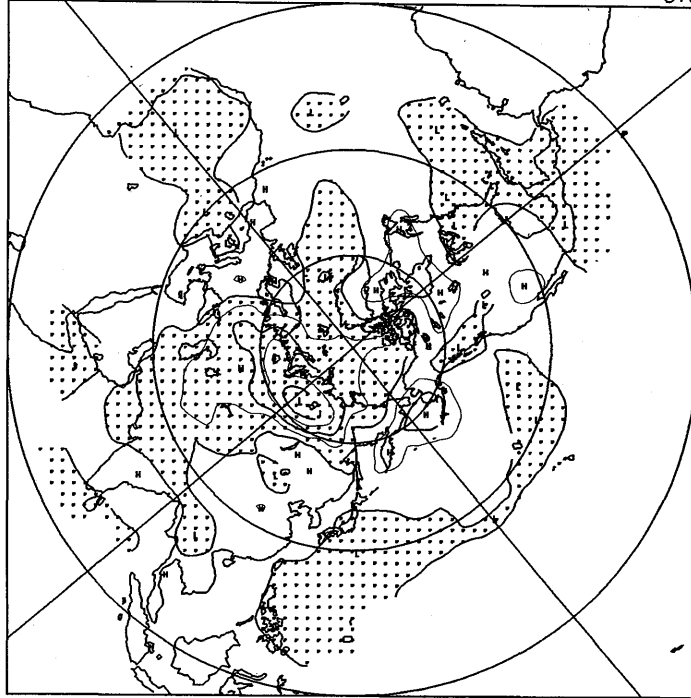
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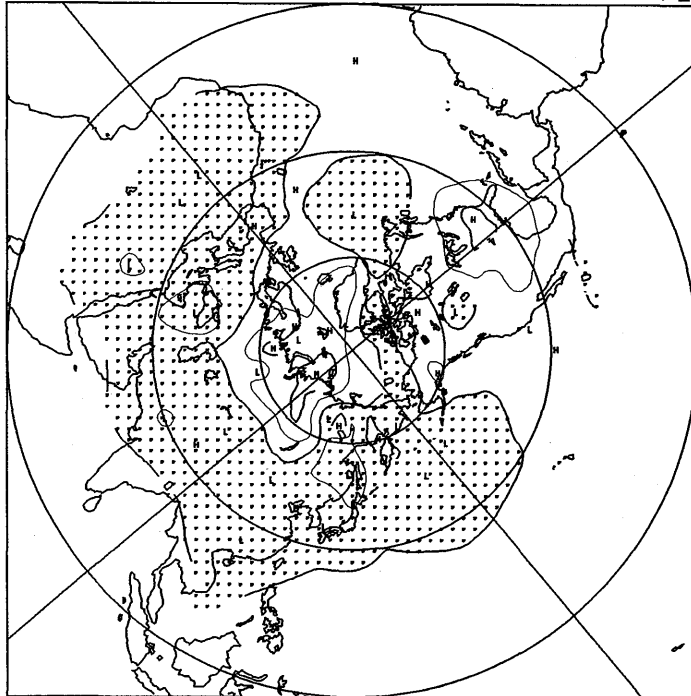
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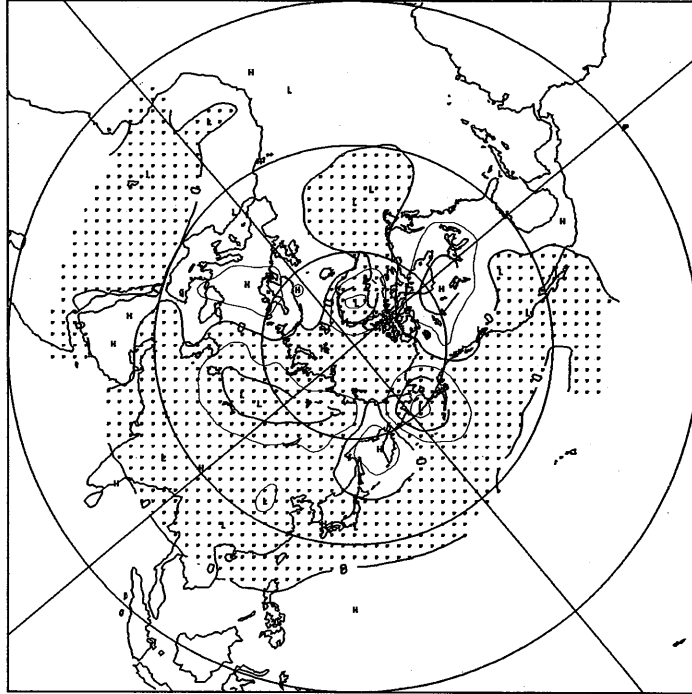
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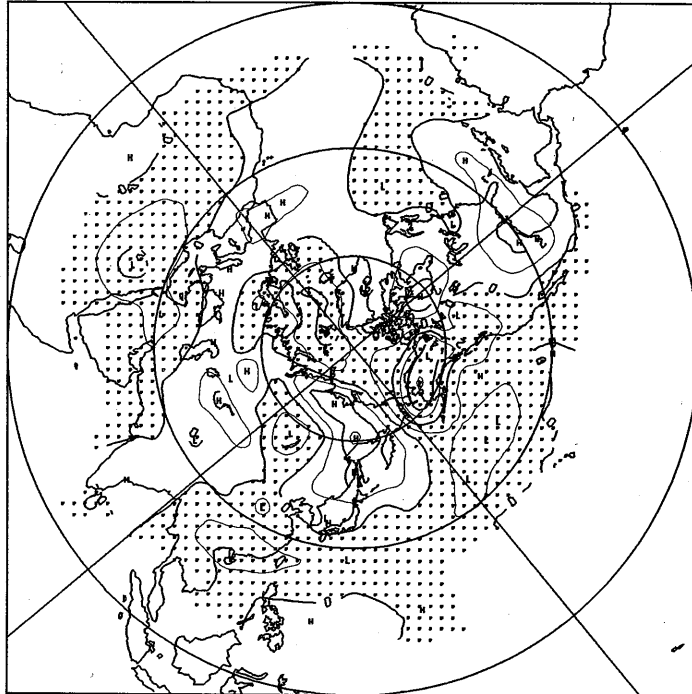
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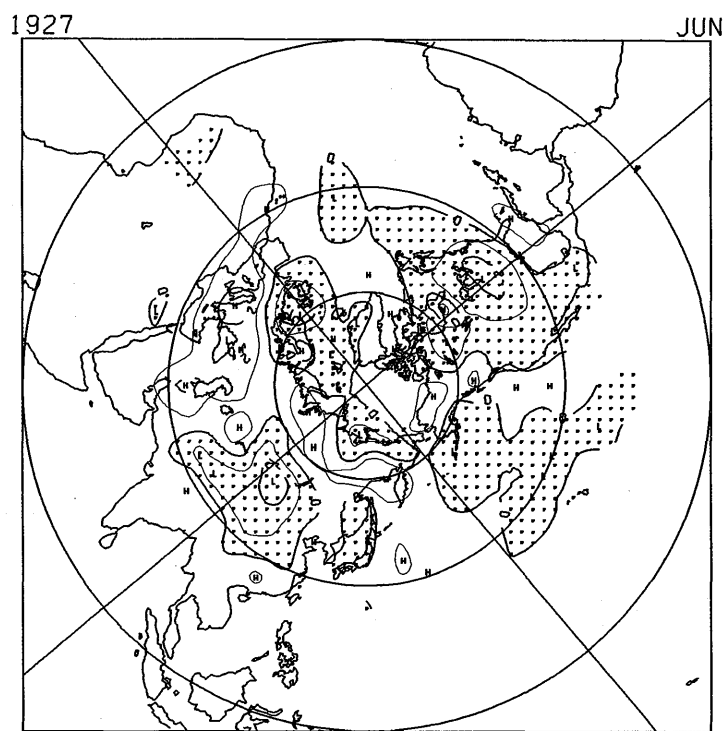
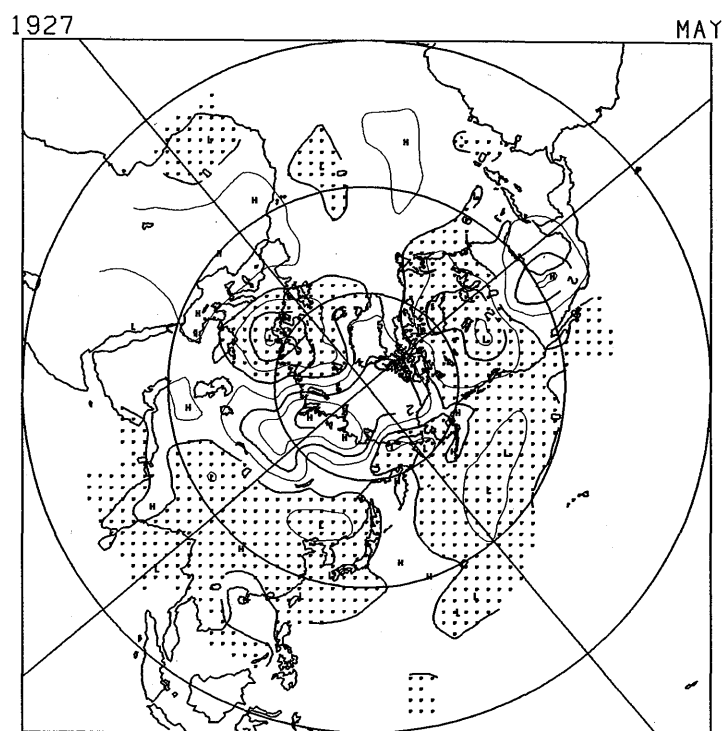
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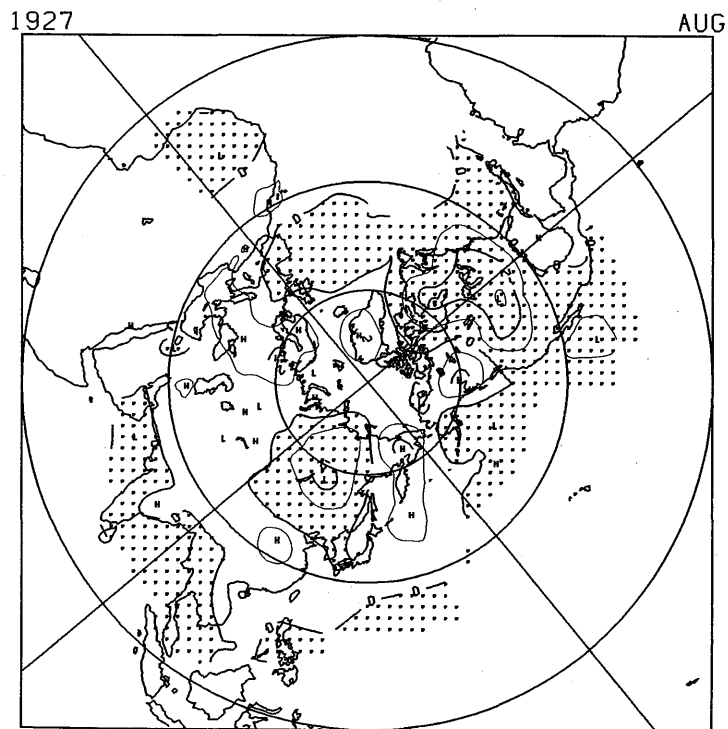
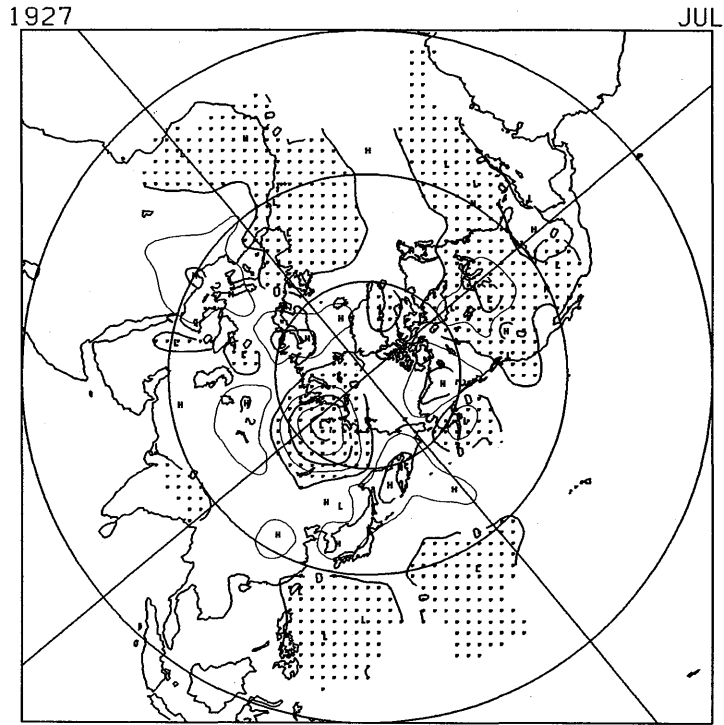


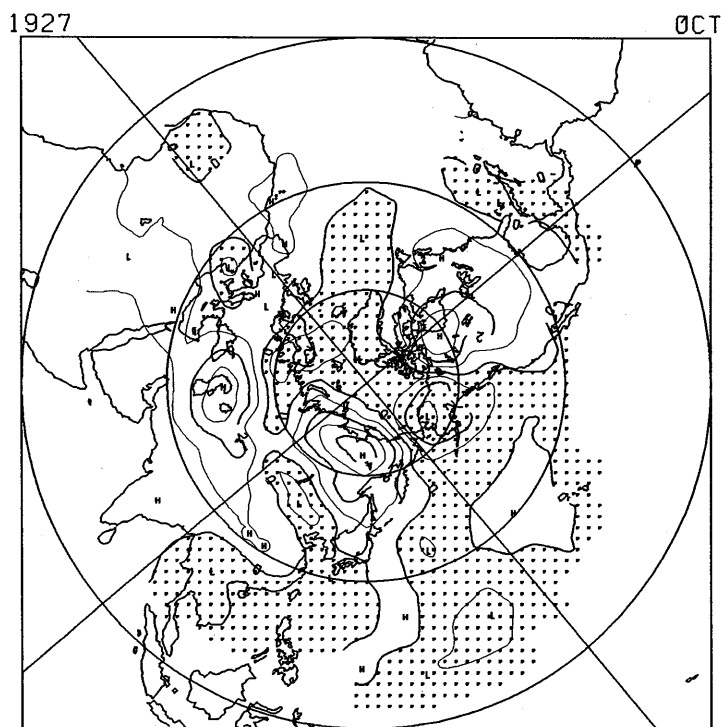
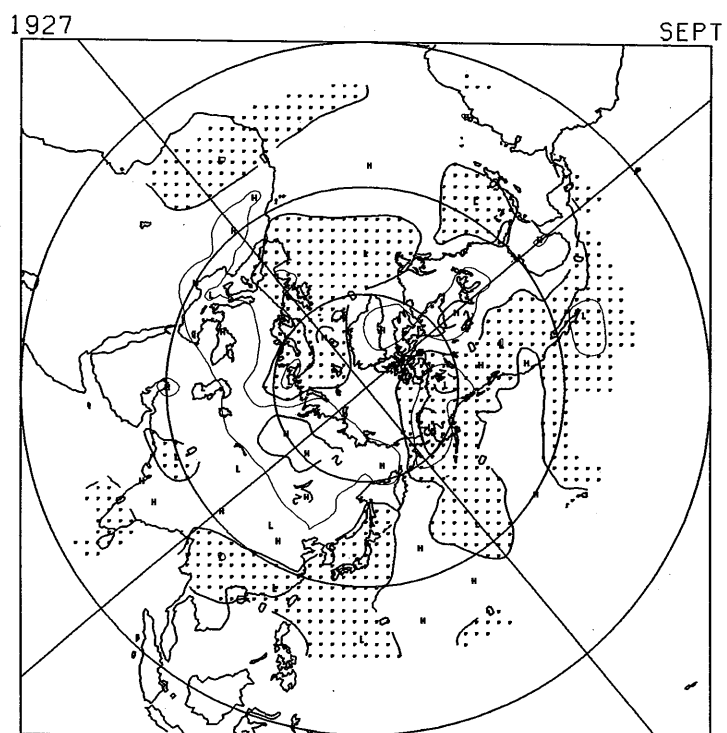
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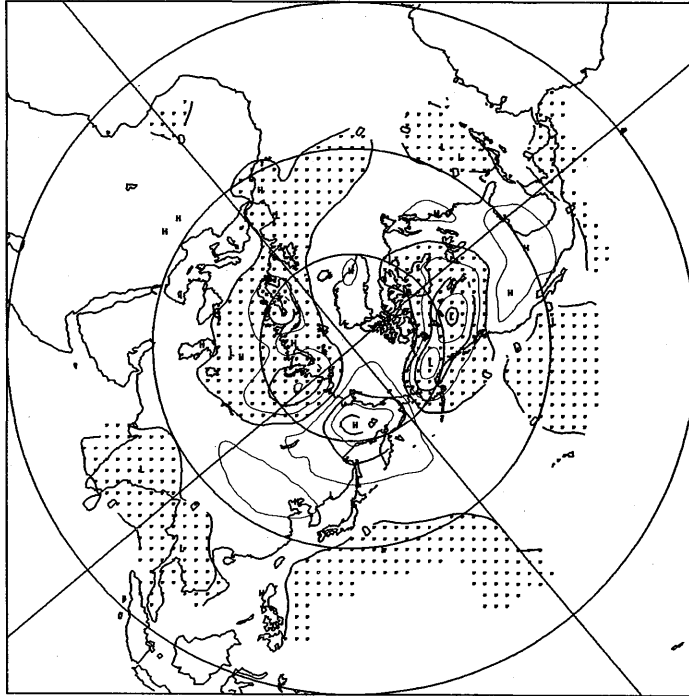






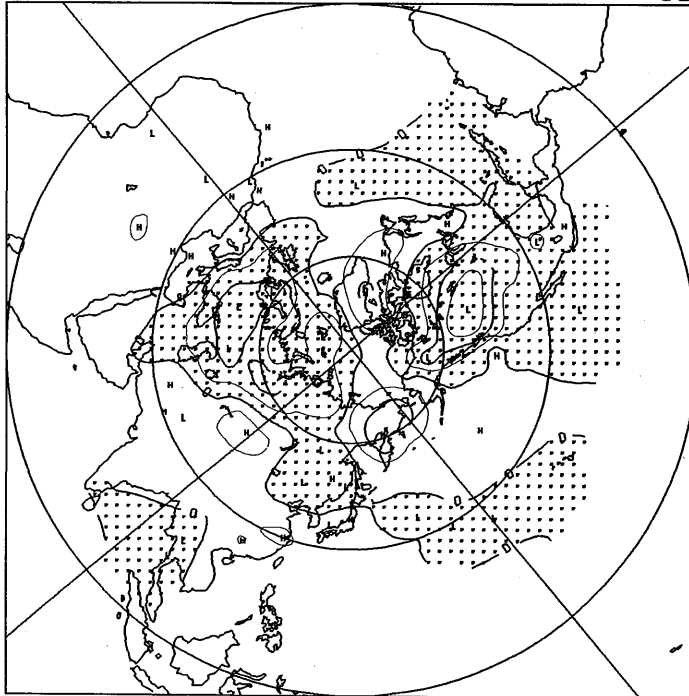
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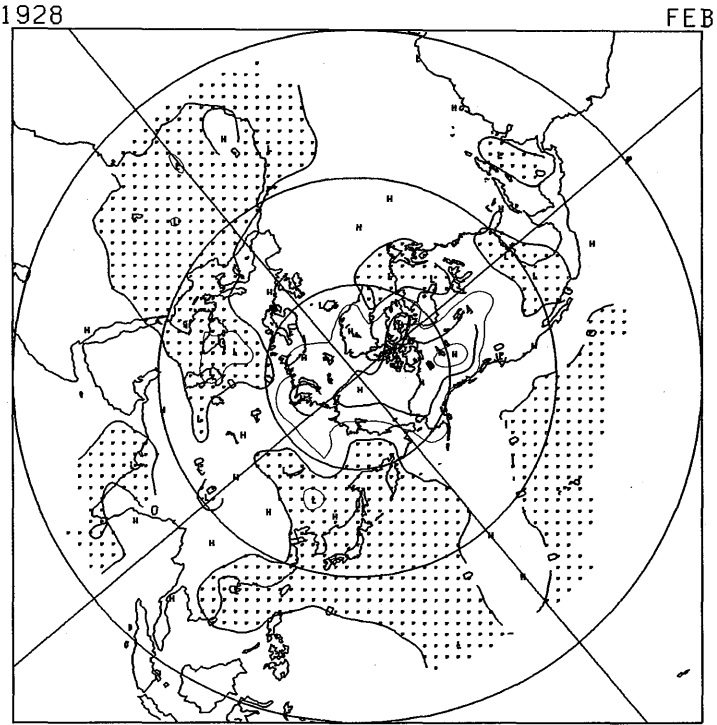
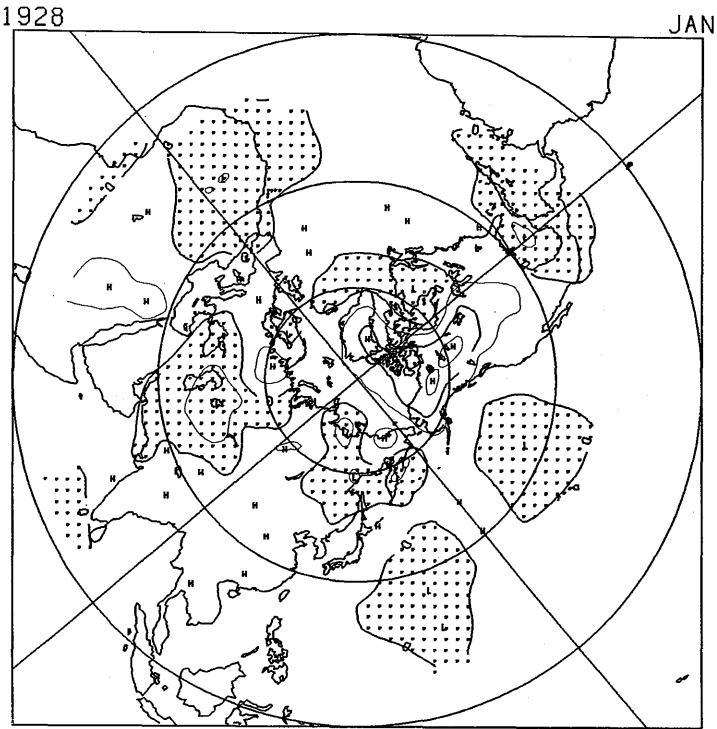
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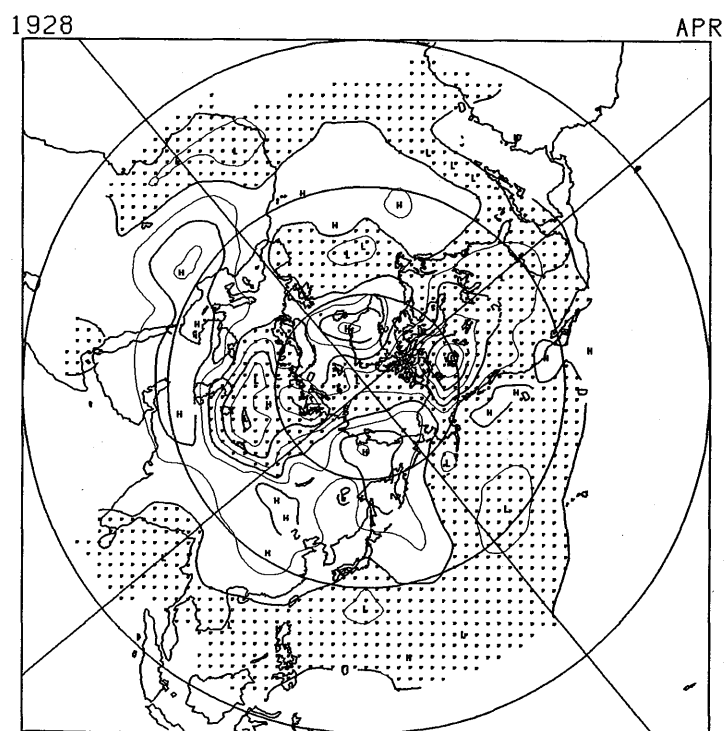
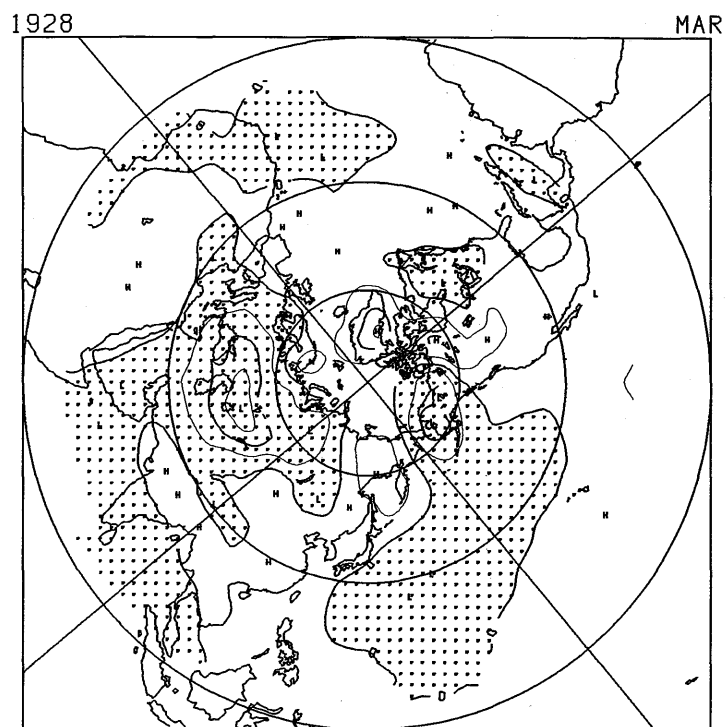


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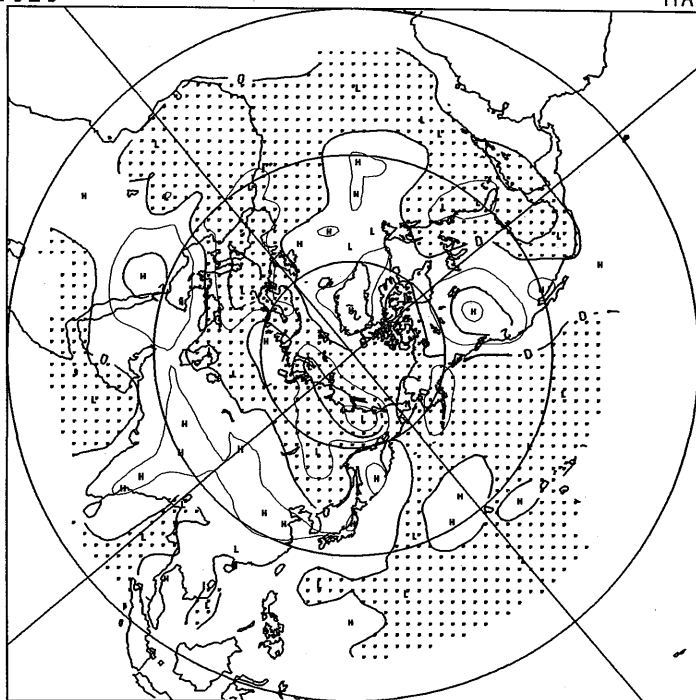






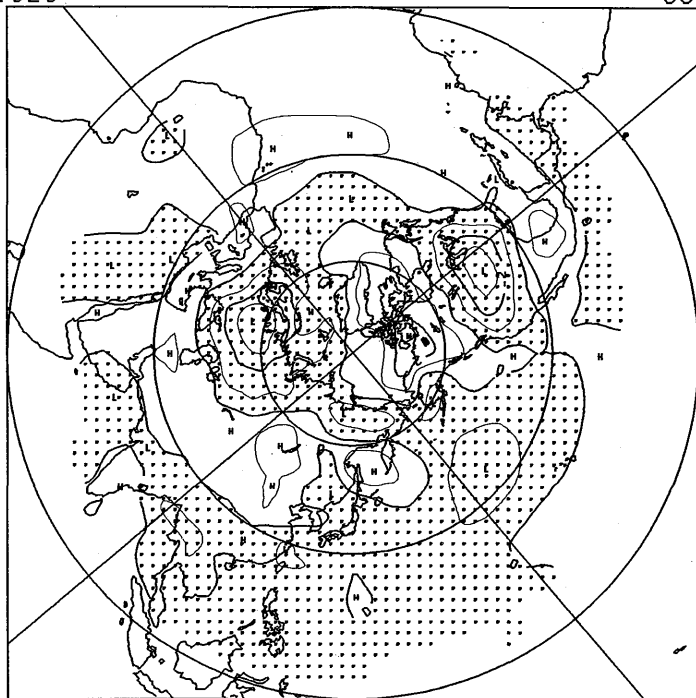
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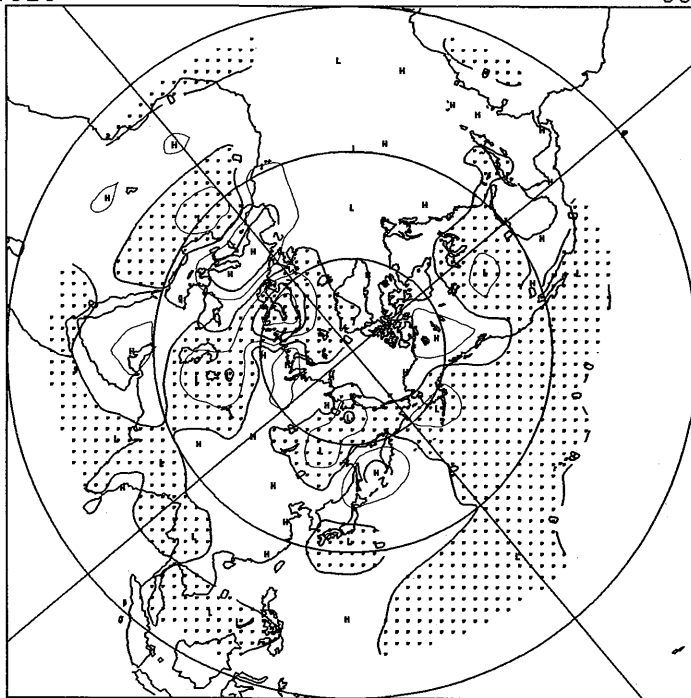
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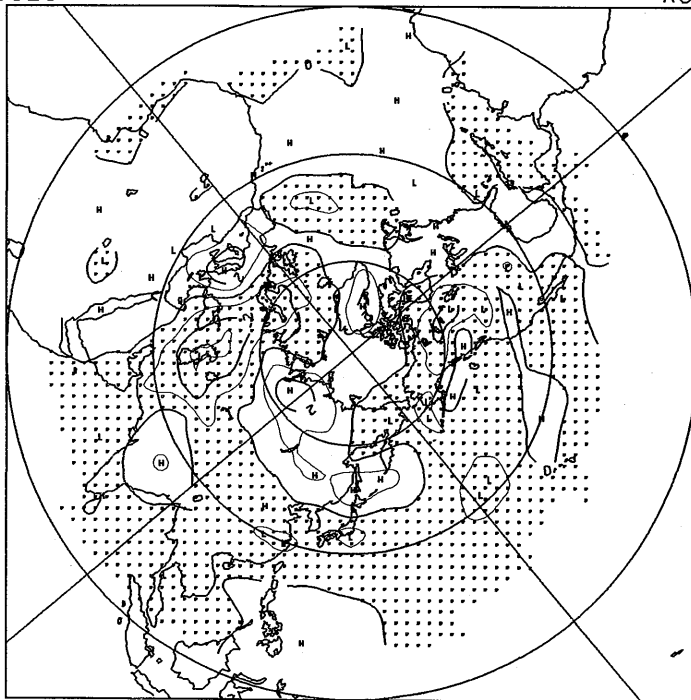
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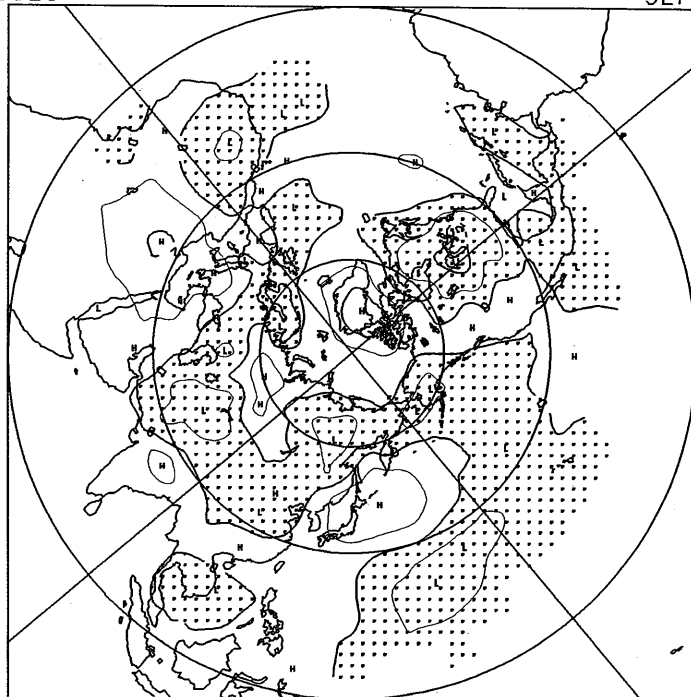
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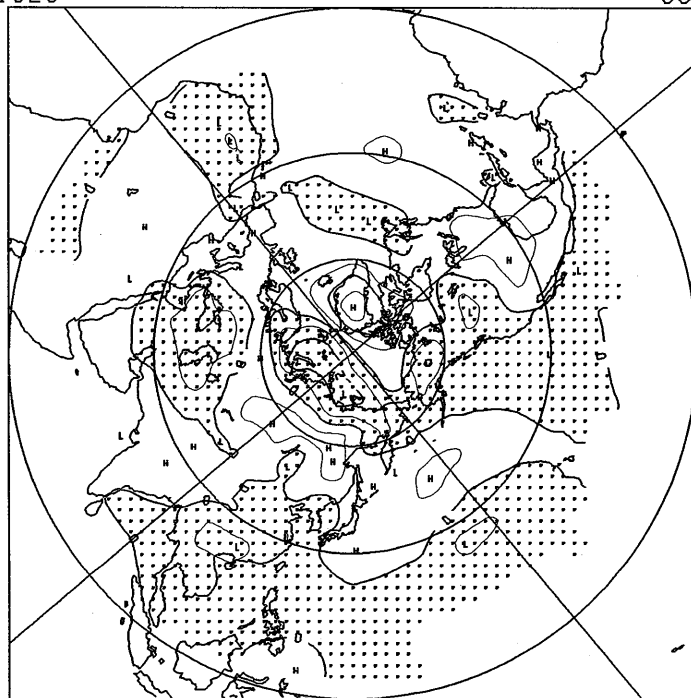
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SEPT



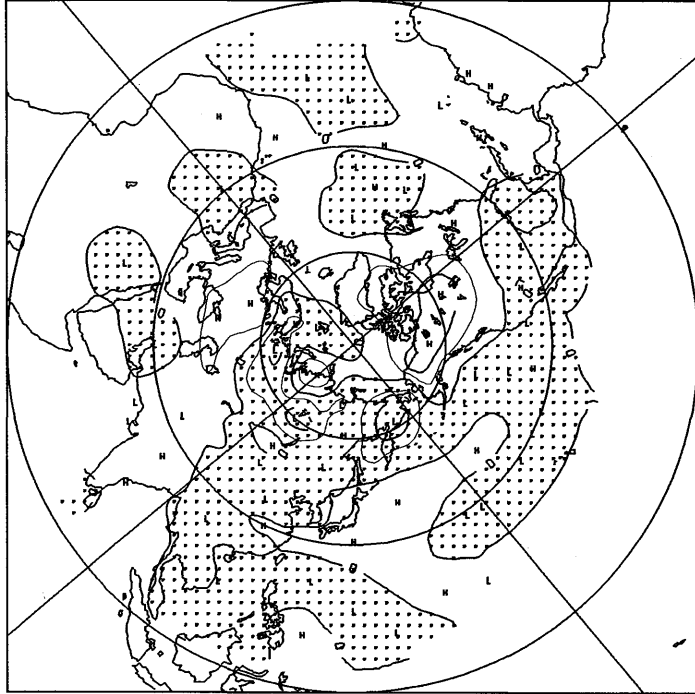
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OCT



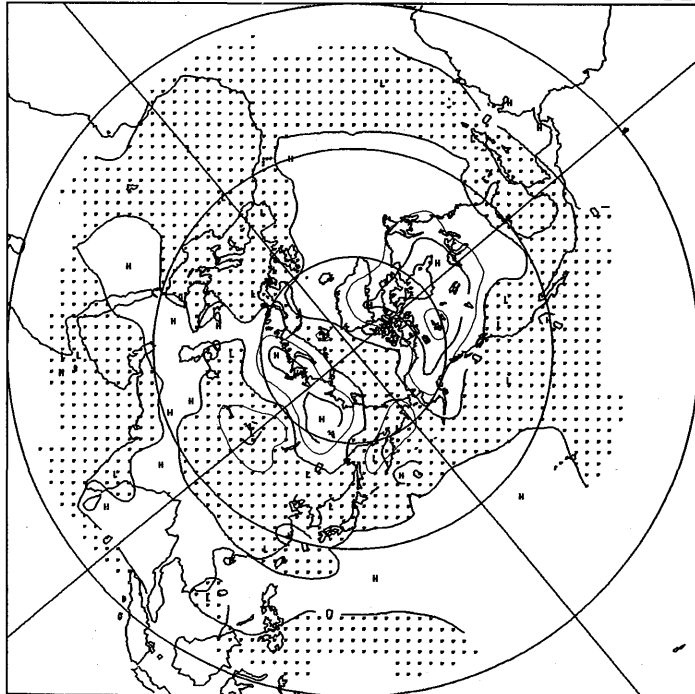
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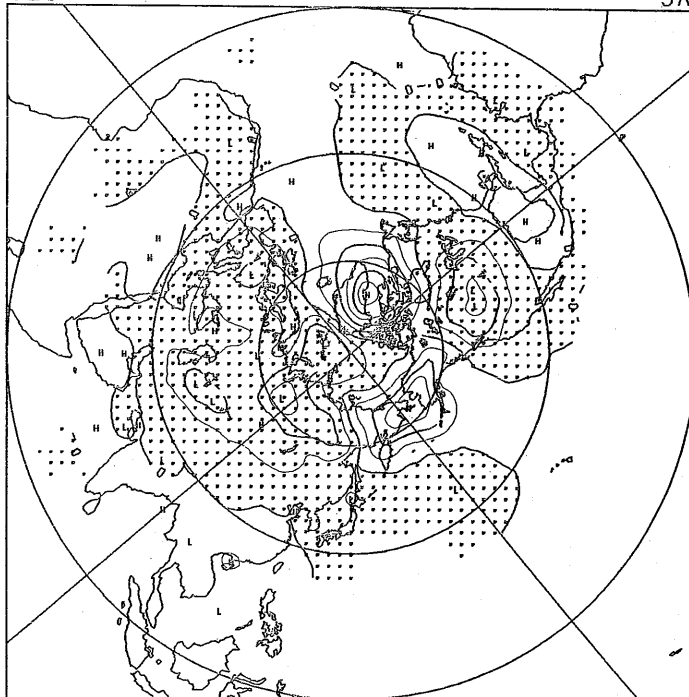
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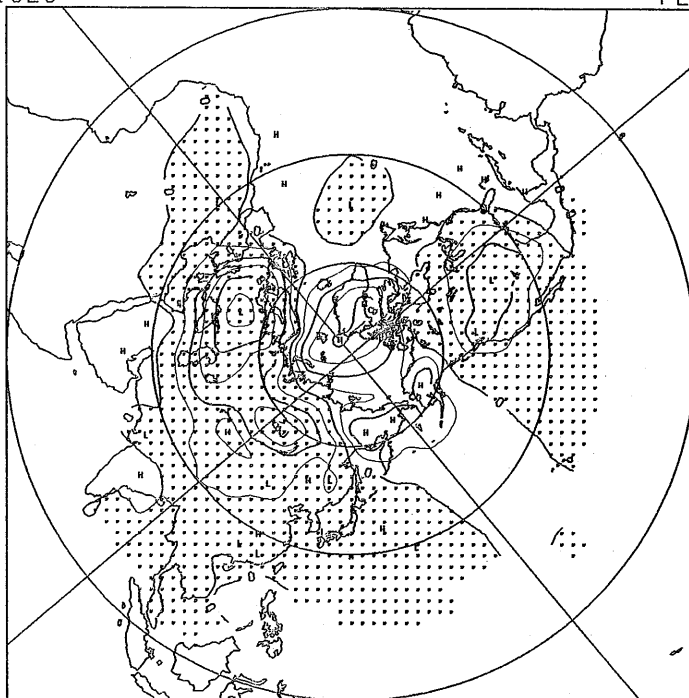
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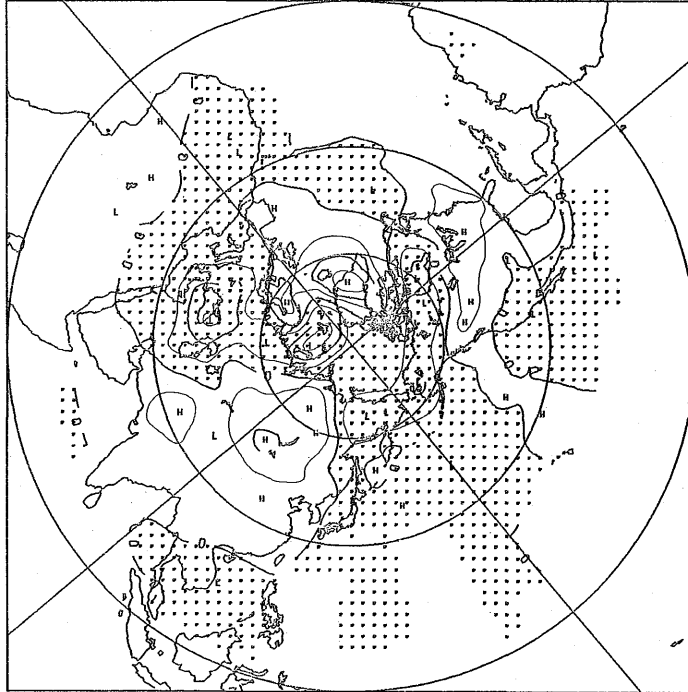
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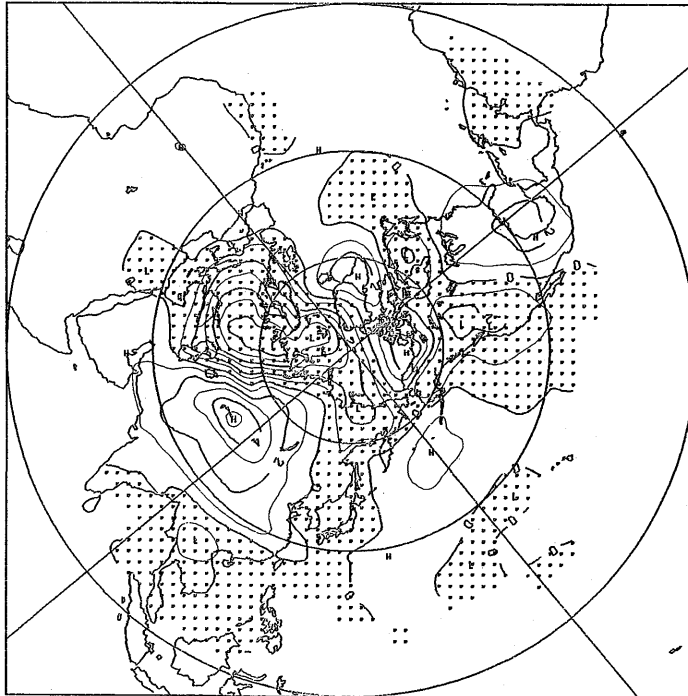
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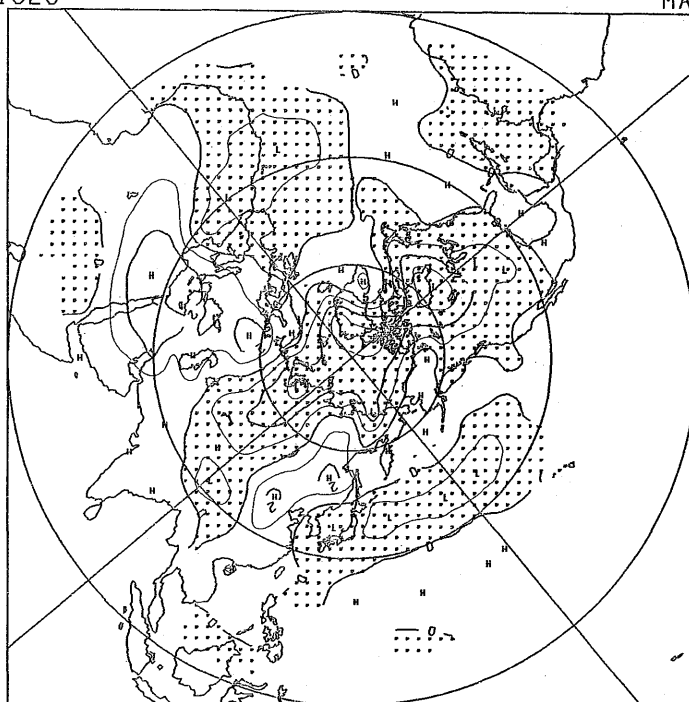
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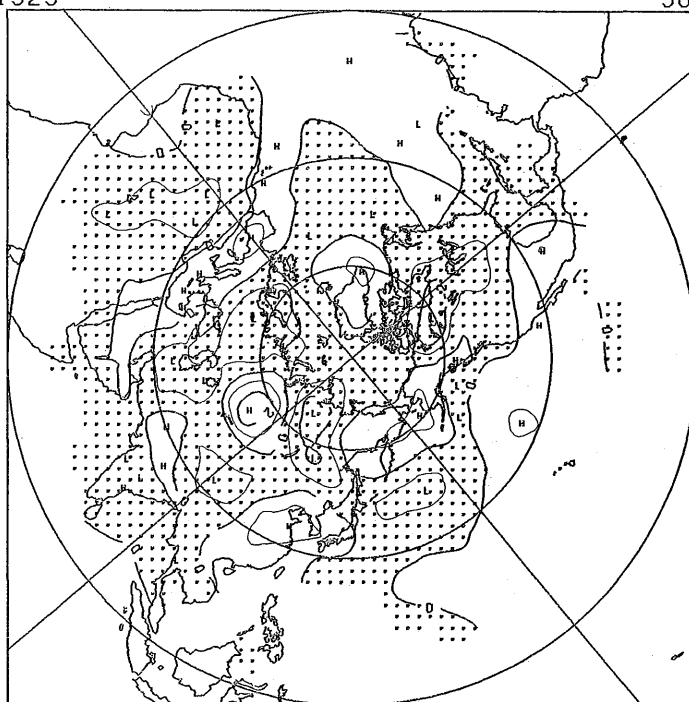
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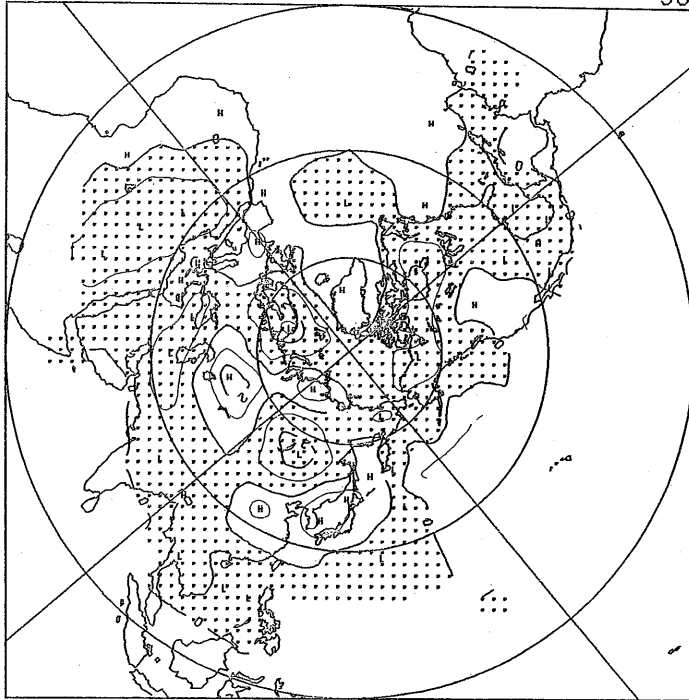
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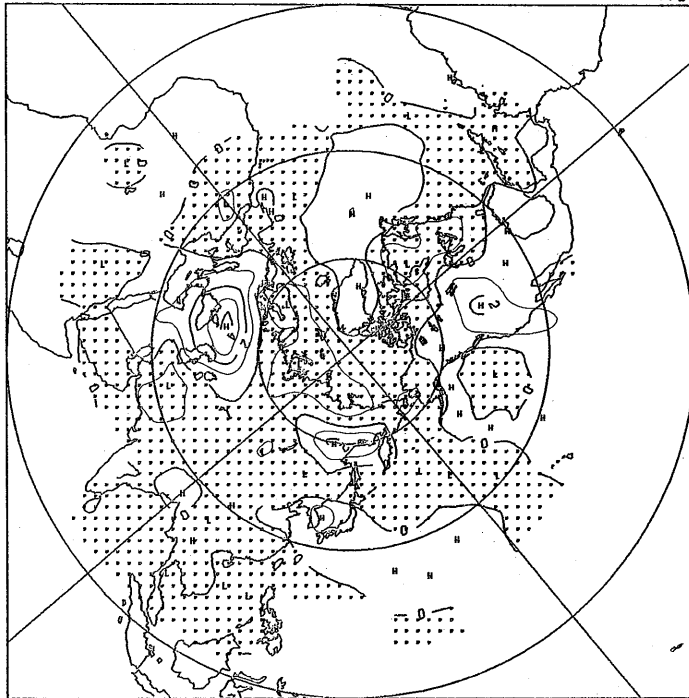
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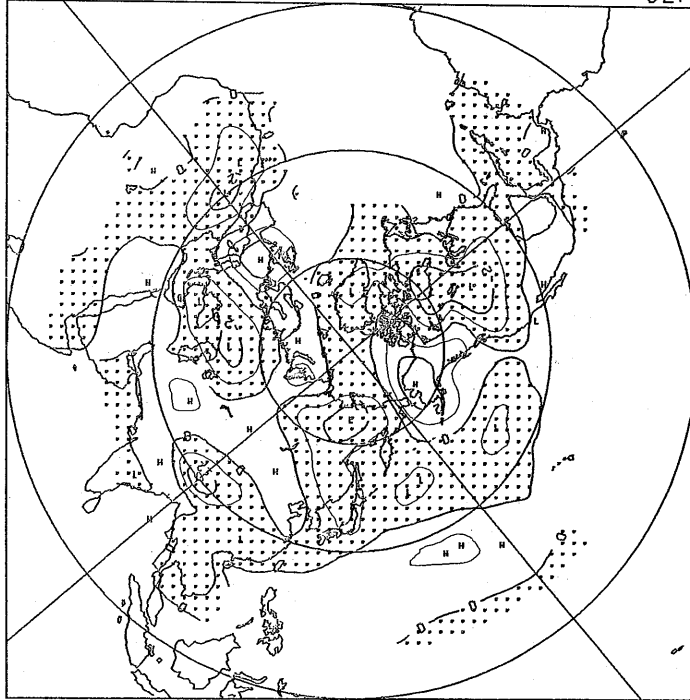
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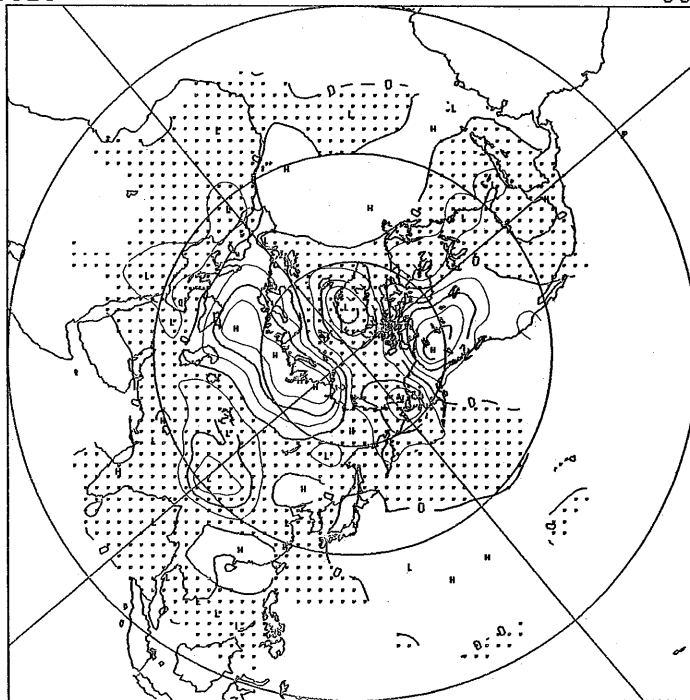
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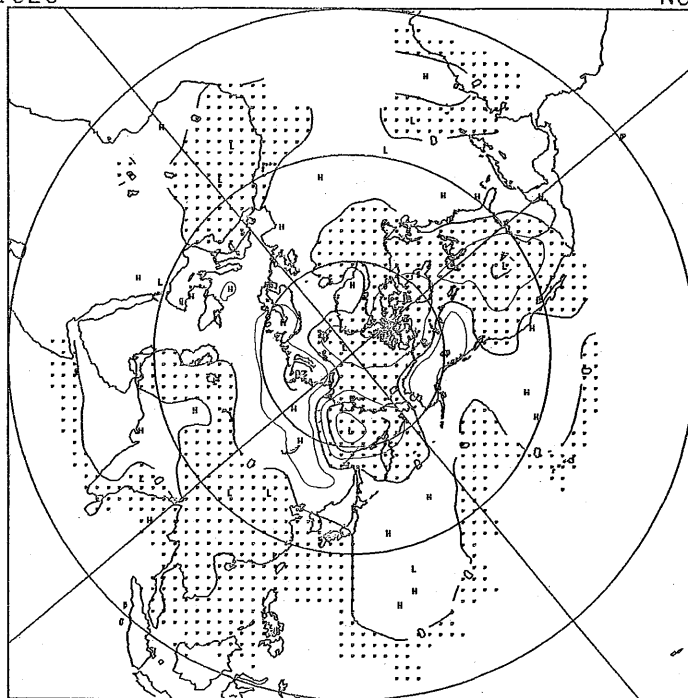
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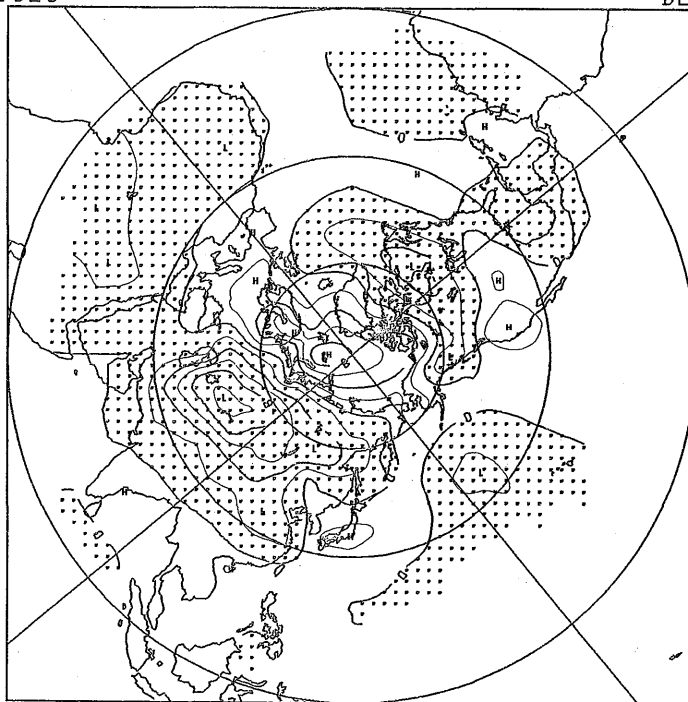
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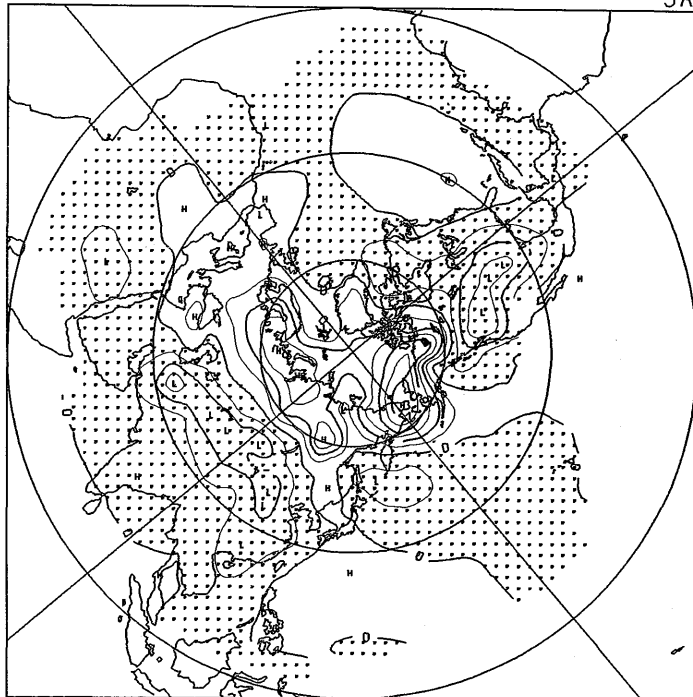
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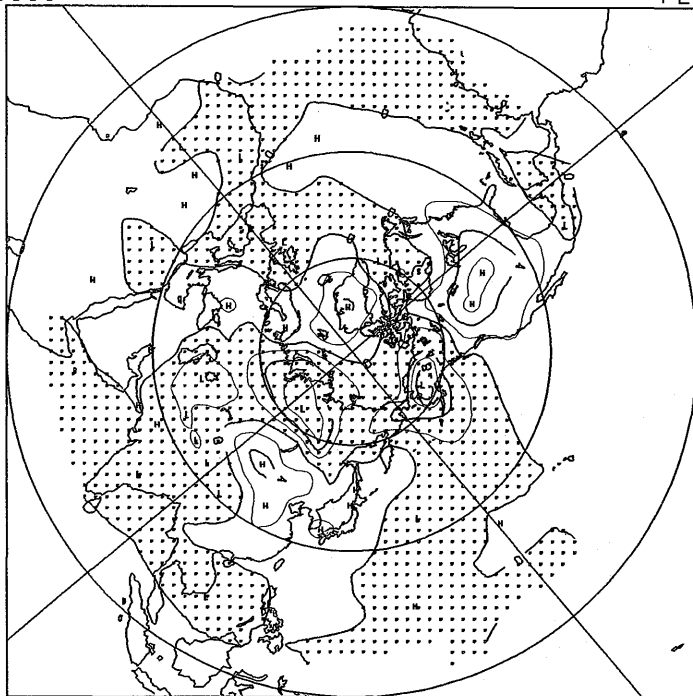
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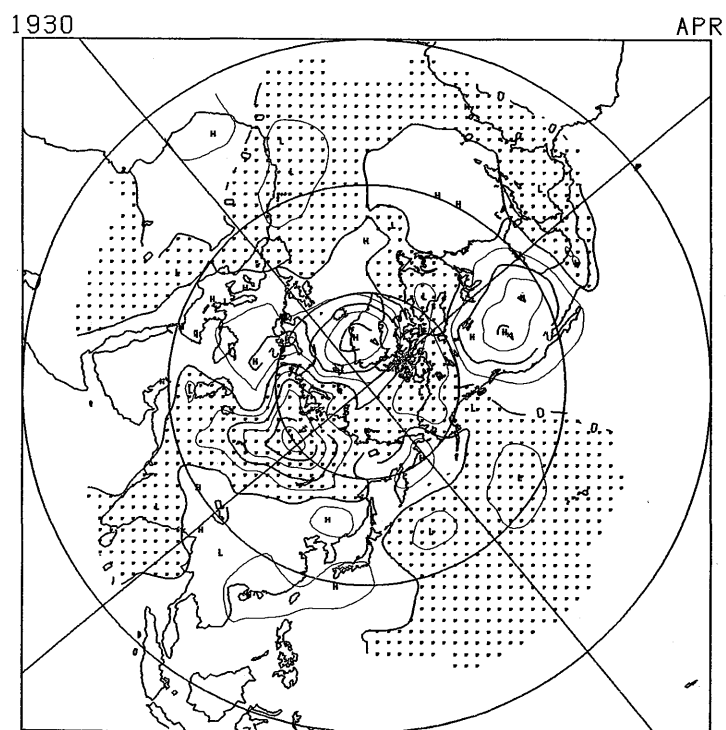
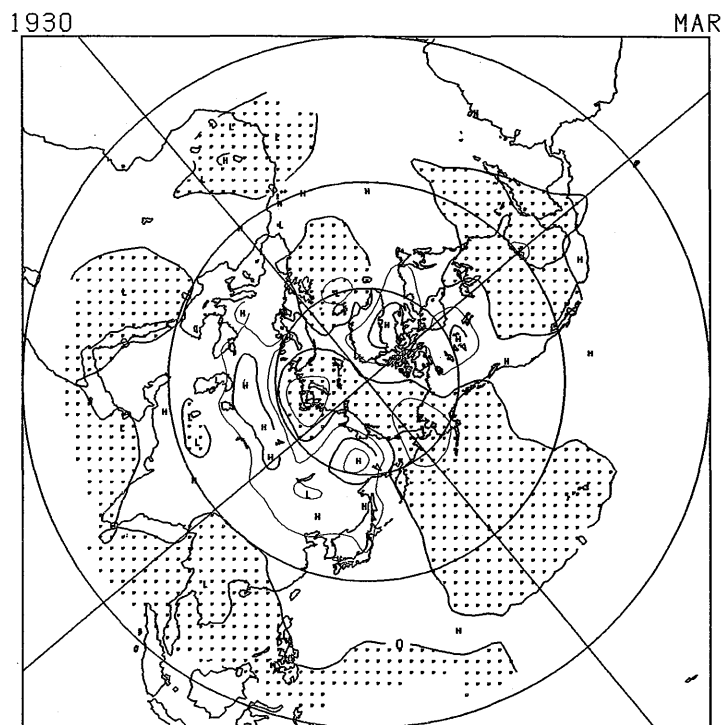
JAN



1930

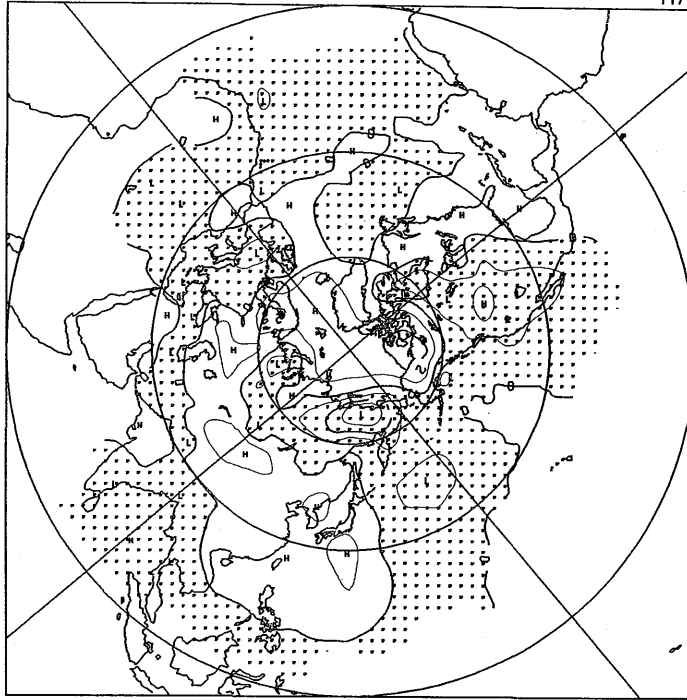
FEB





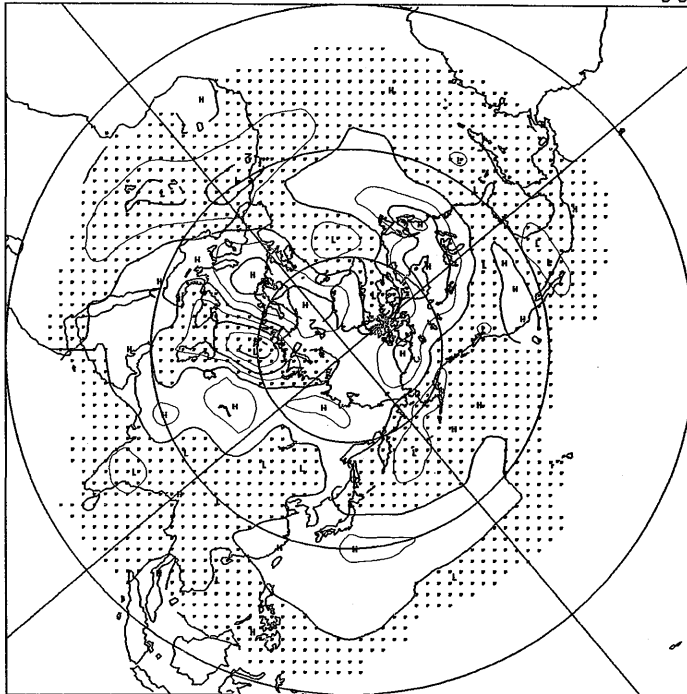
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MAY



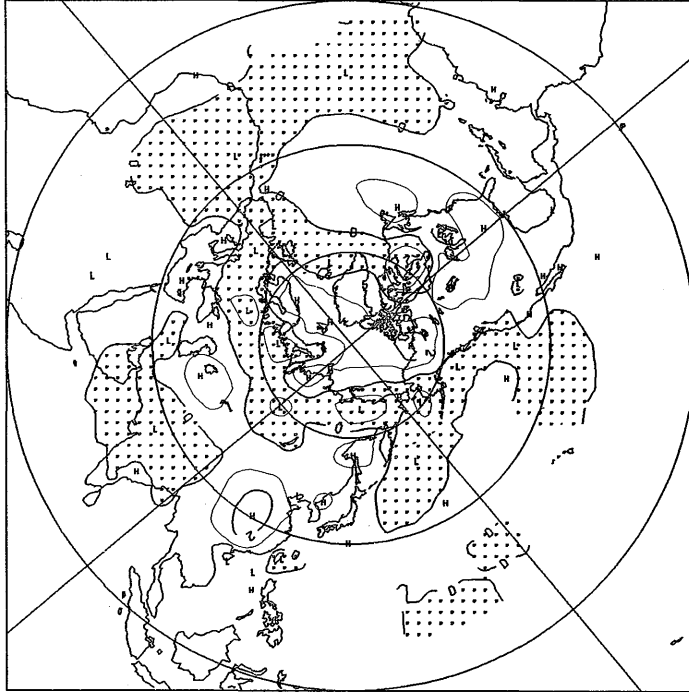
1930

JUN



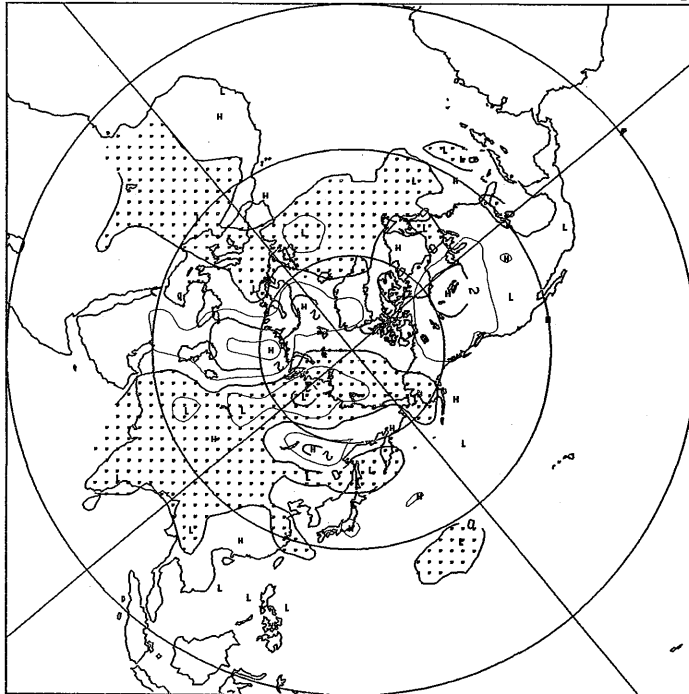
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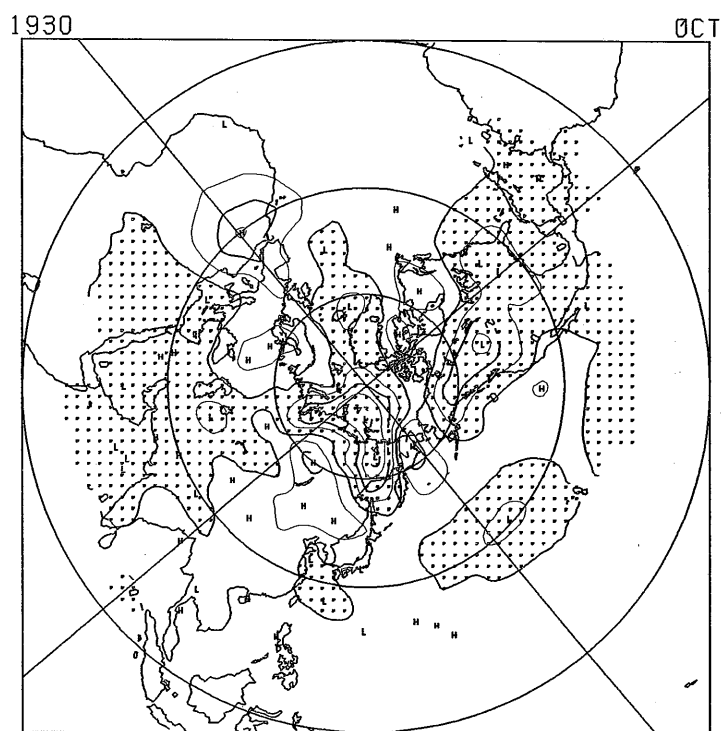
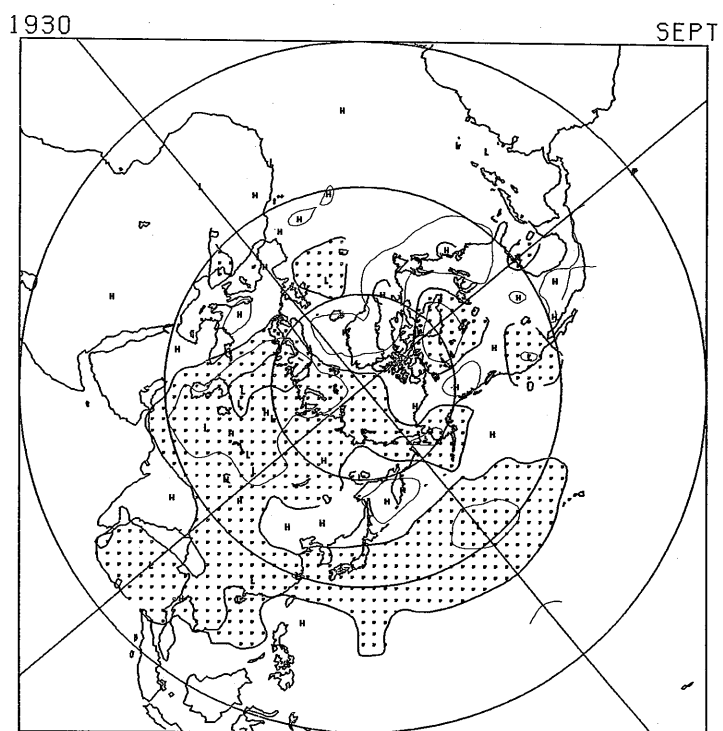
JUL



1930

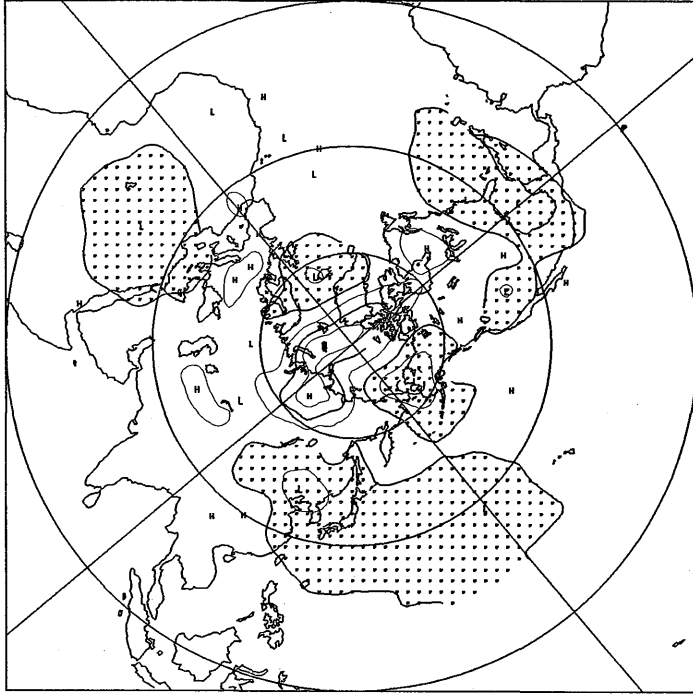
AUG





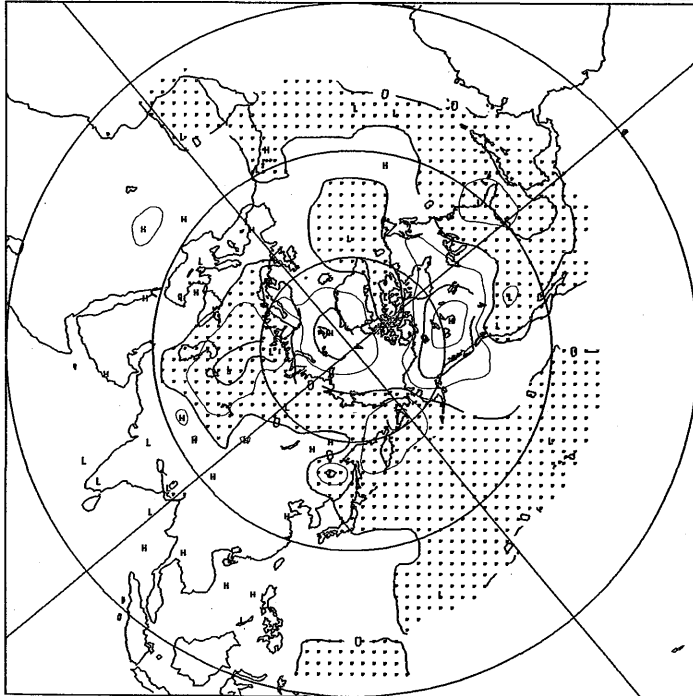
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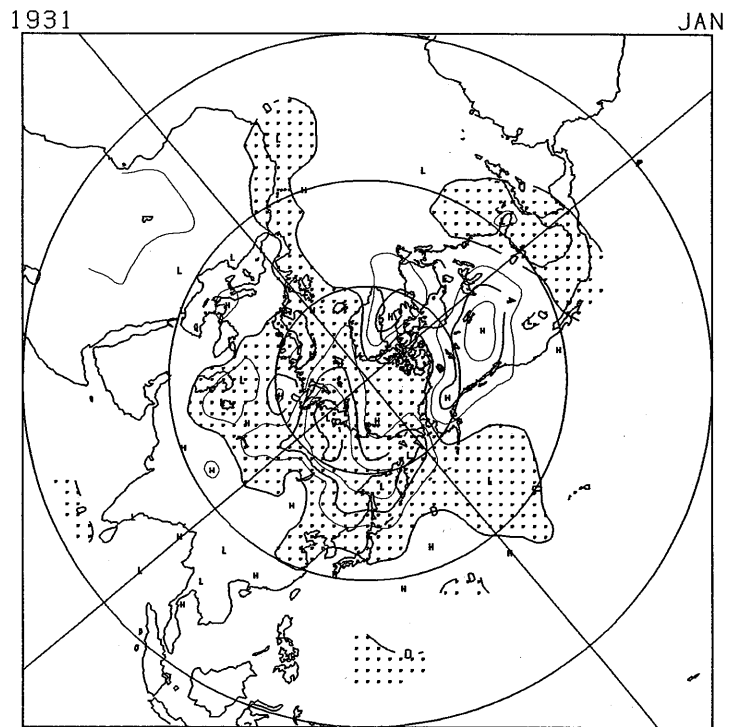
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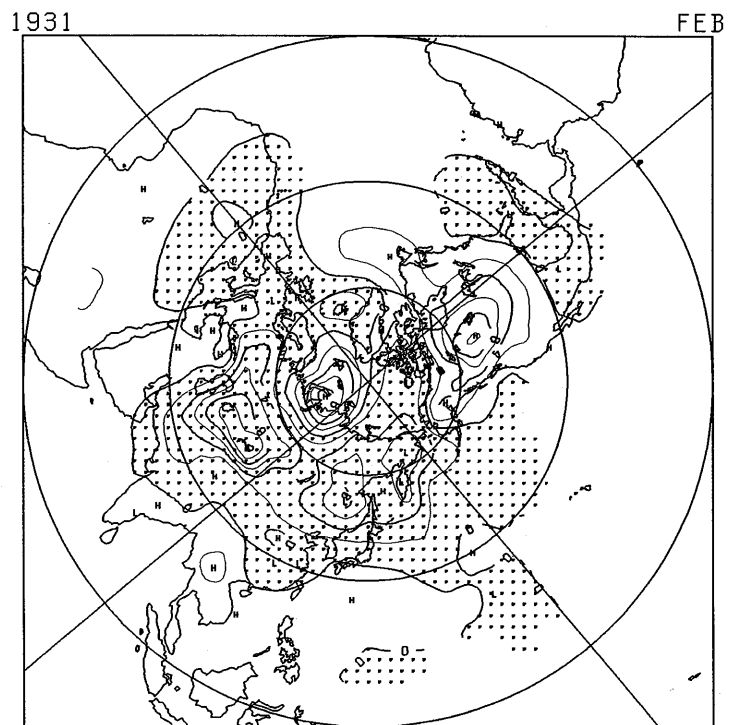
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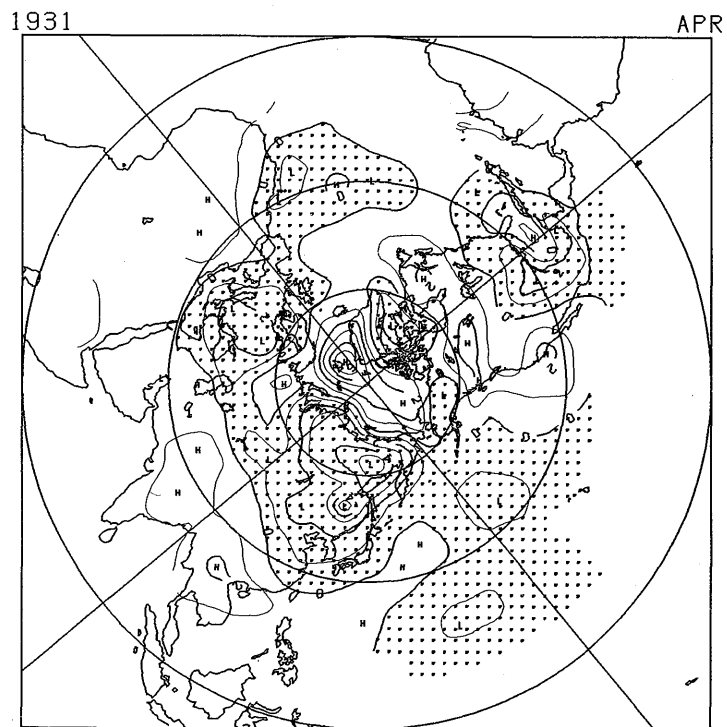
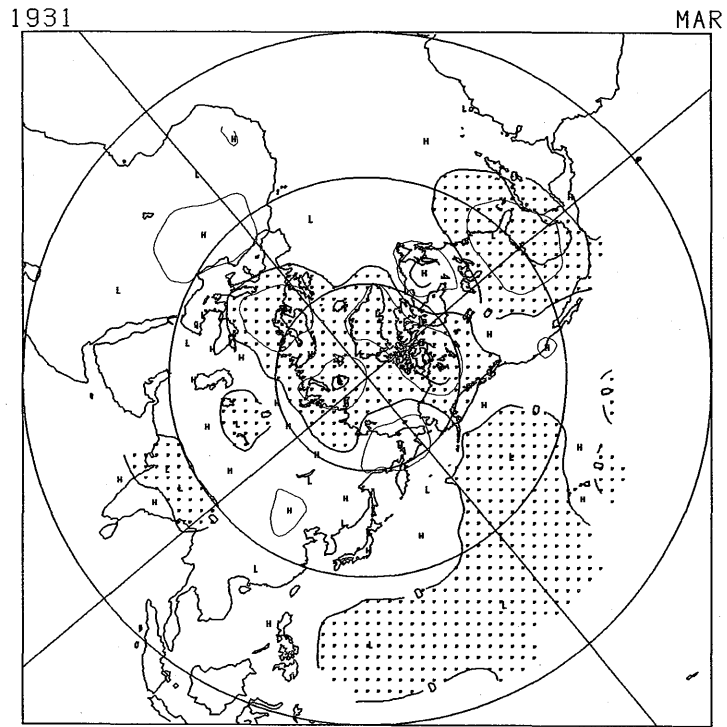
DEC





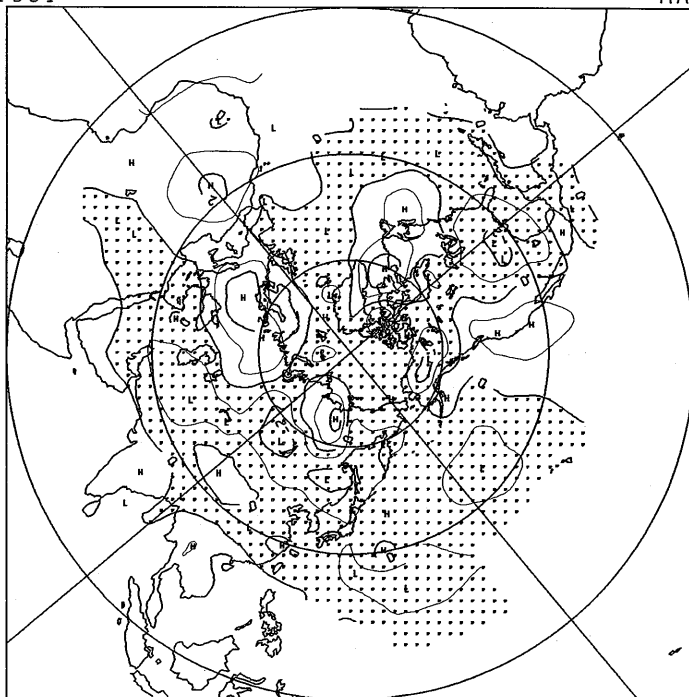
1931年
1月





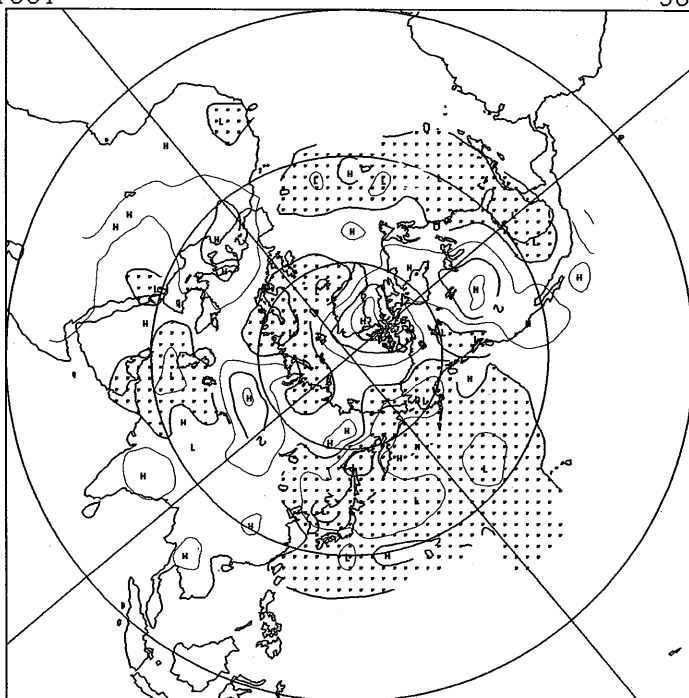
1931

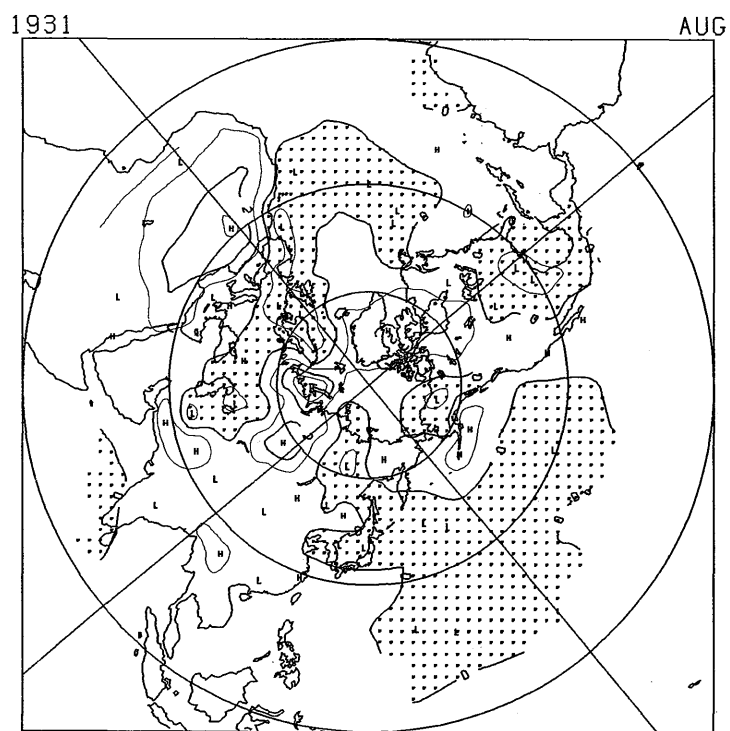
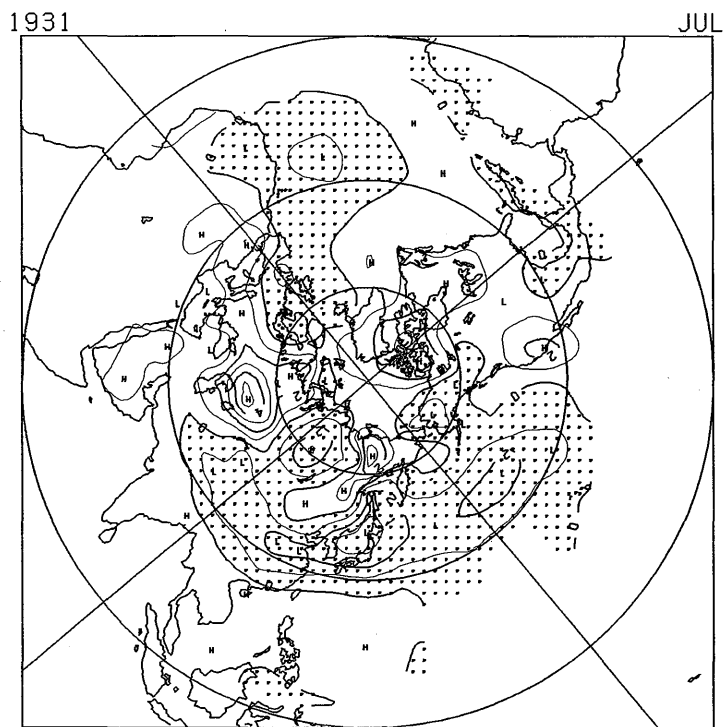
MAY



1931

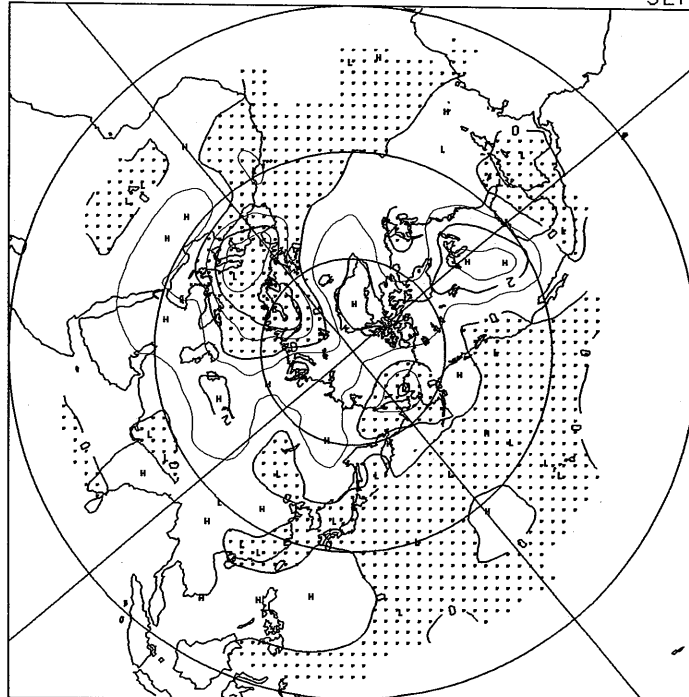
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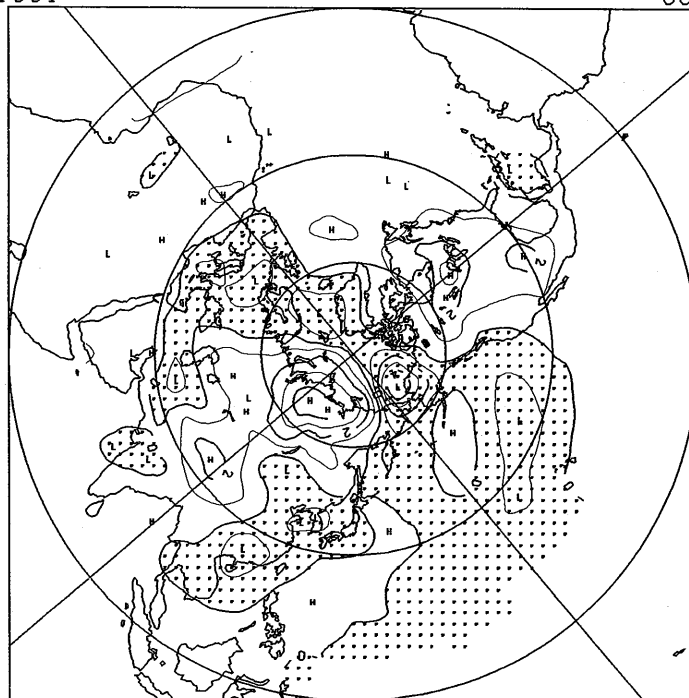
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SEPT



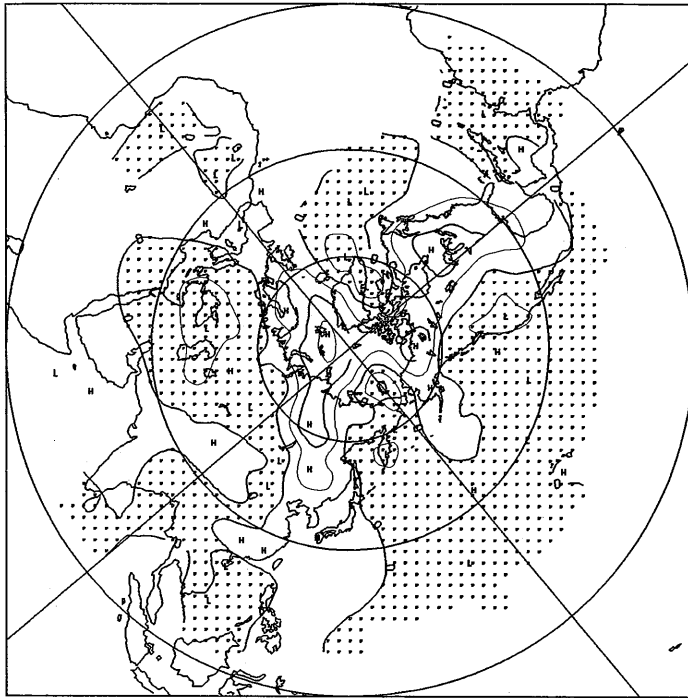
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OCT



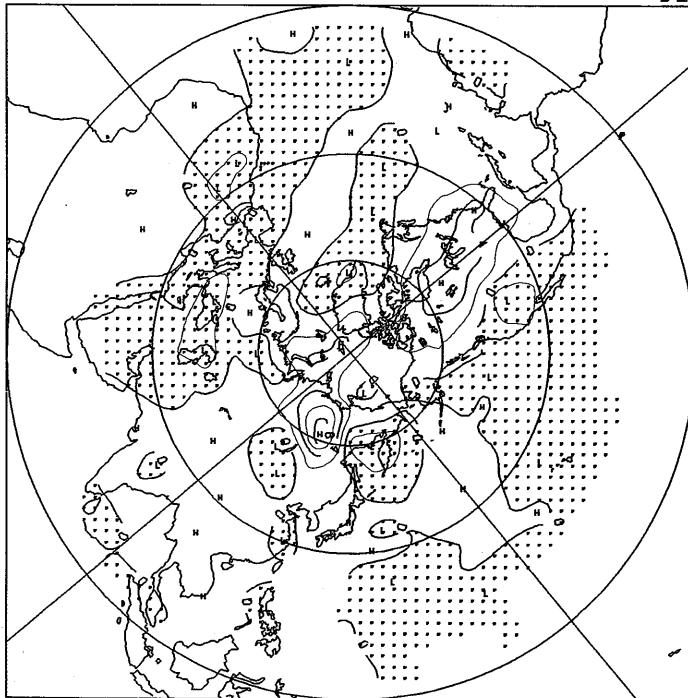
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NOV



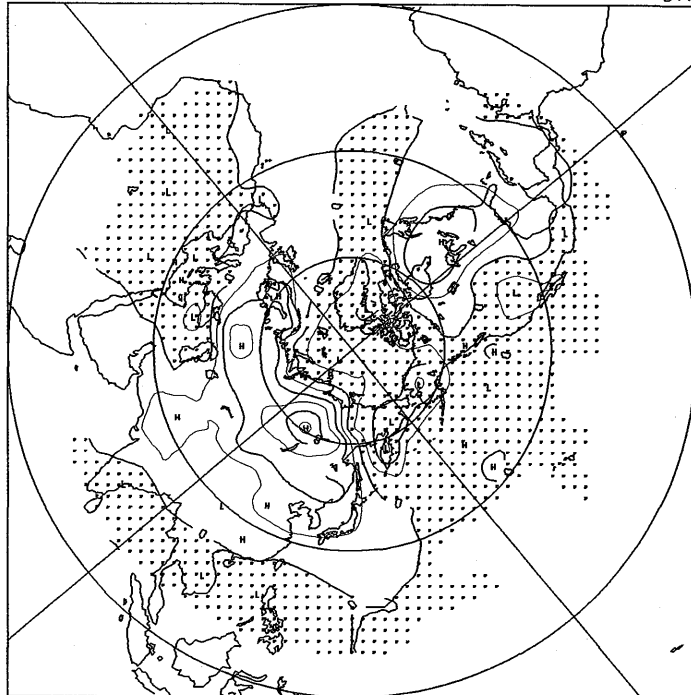
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DEC



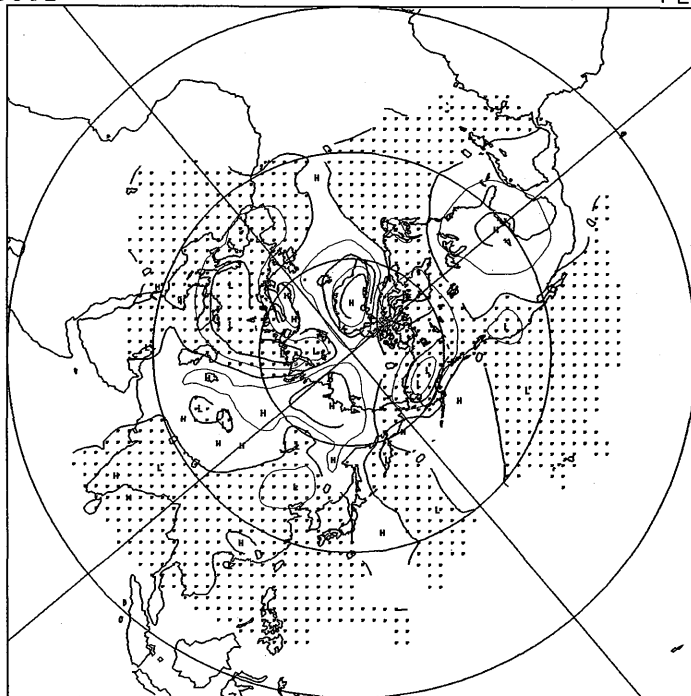
1932

JAN



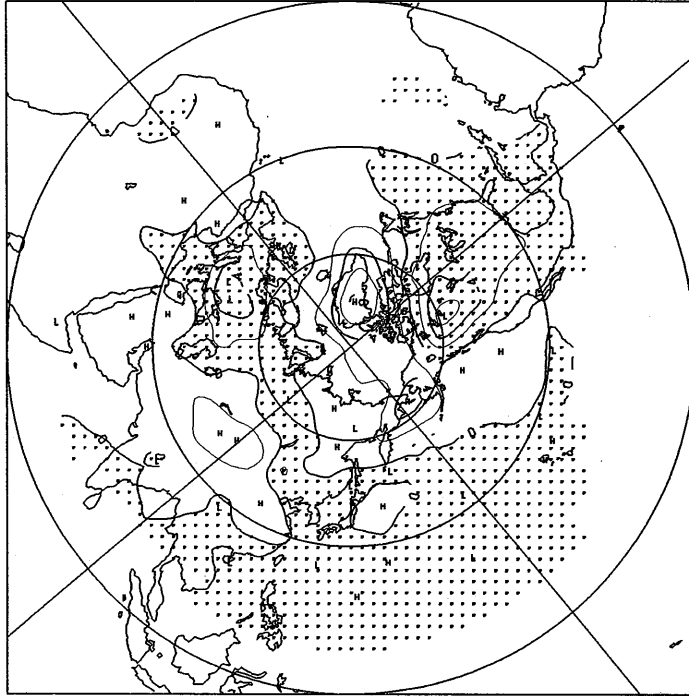
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FEB



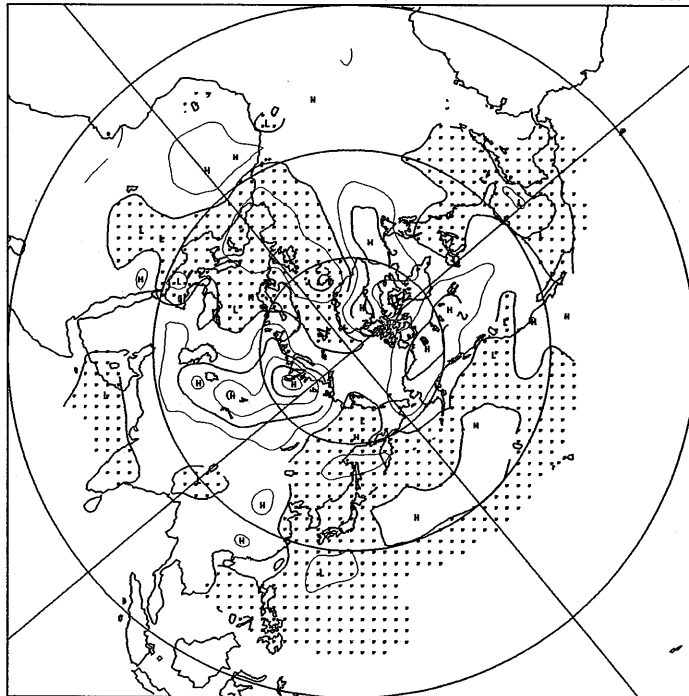
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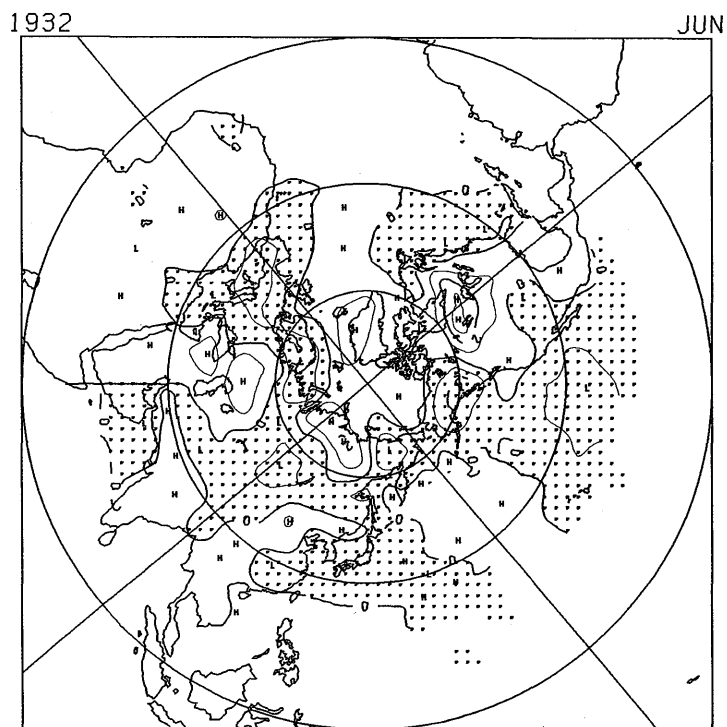
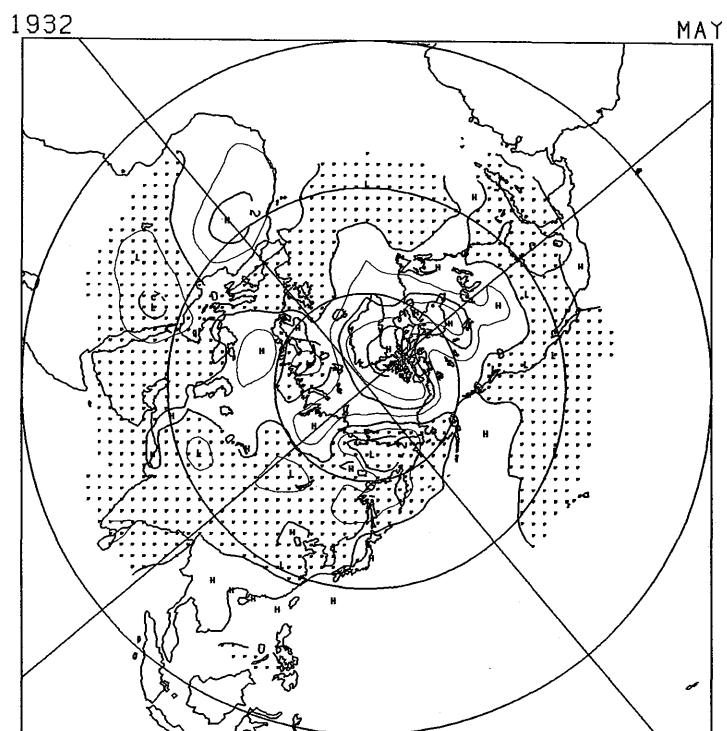
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1932

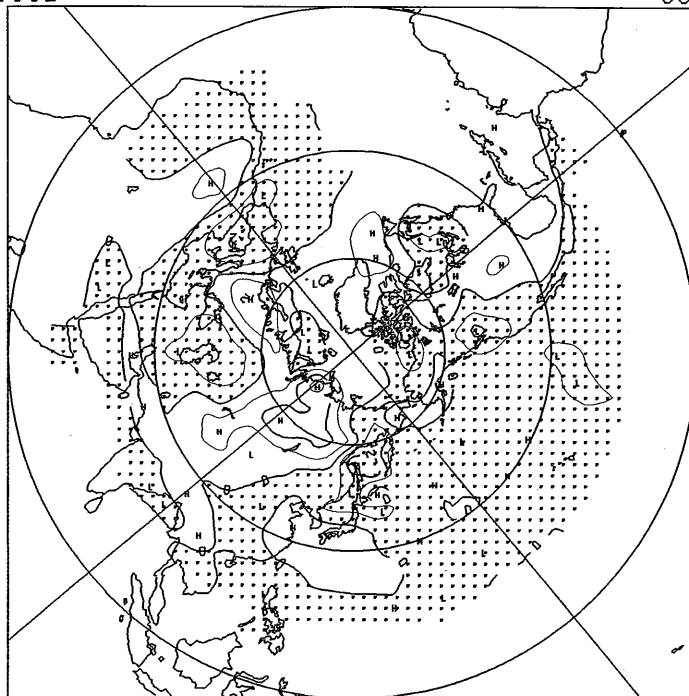
APR





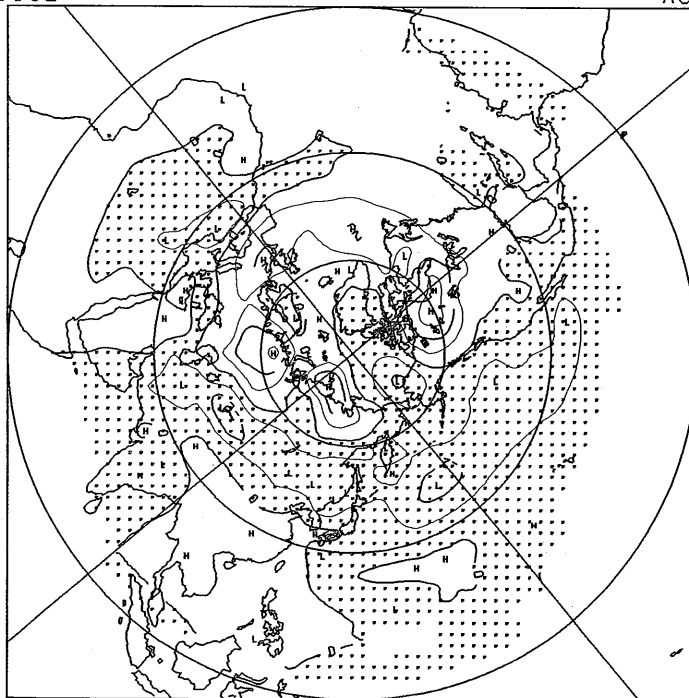
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JUL



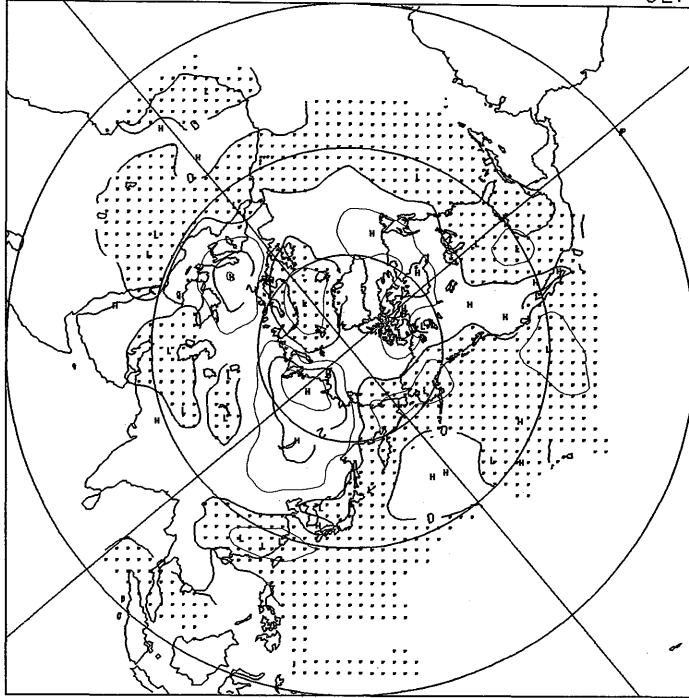
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AUG



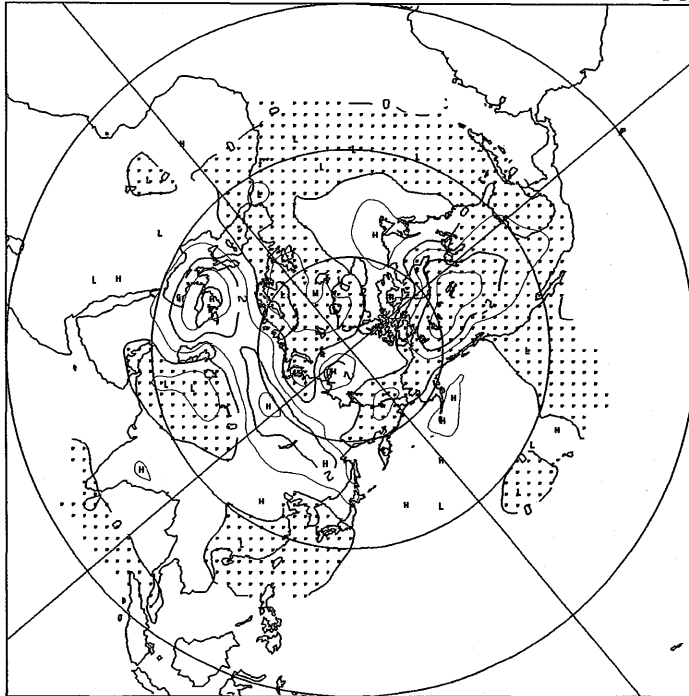
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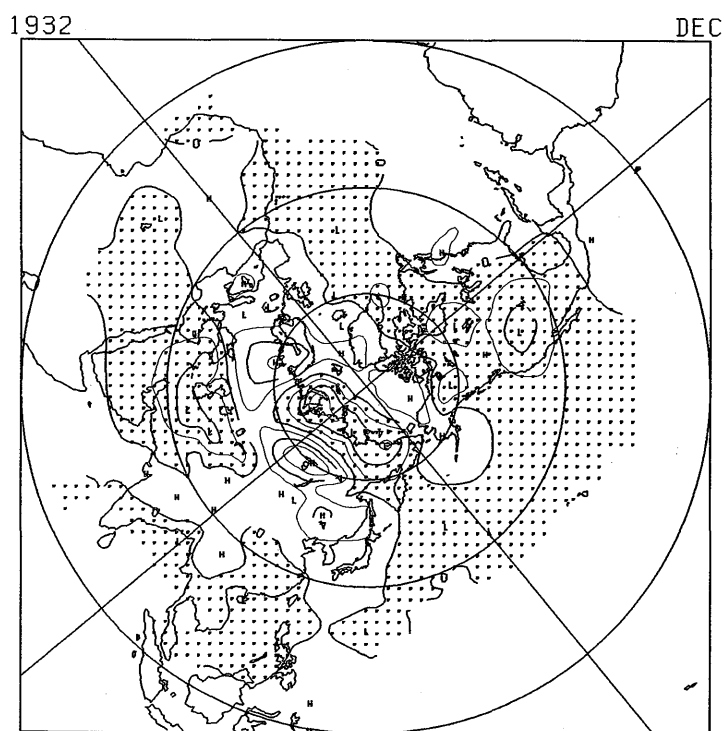
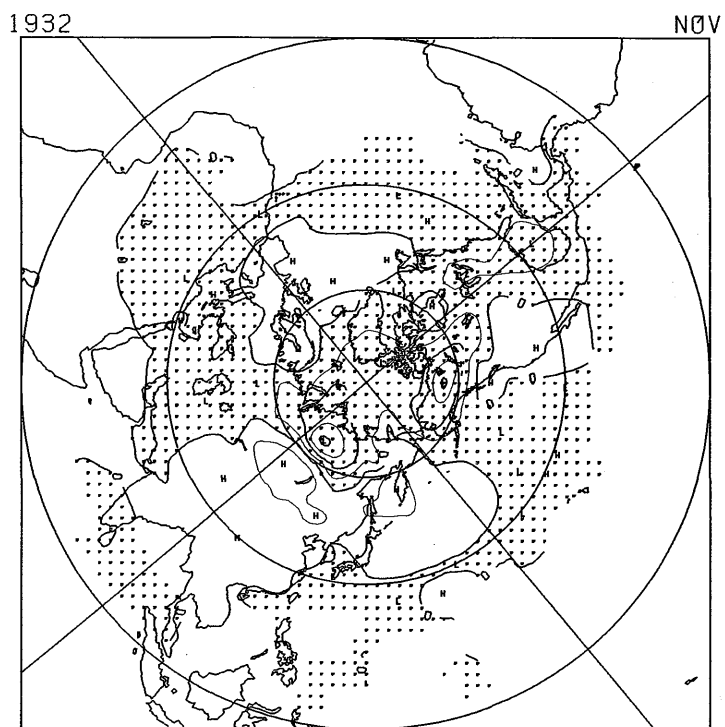
SEPT



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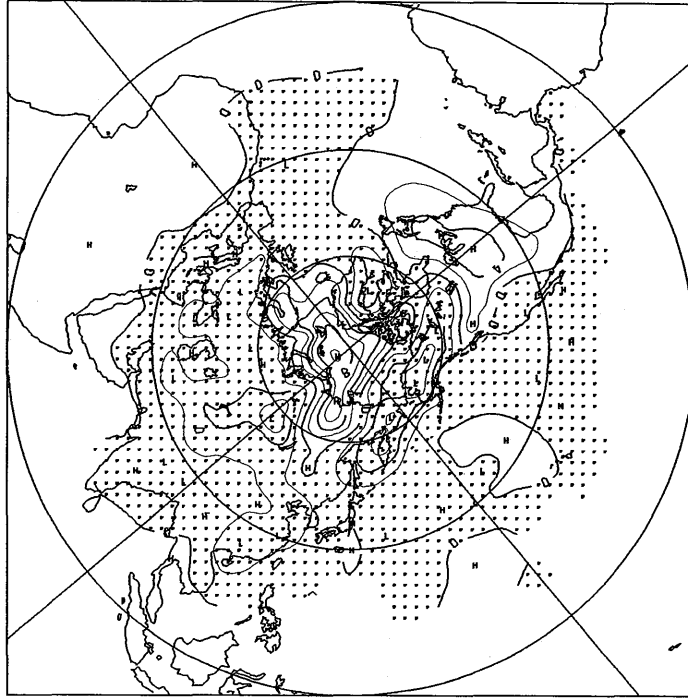
OCT





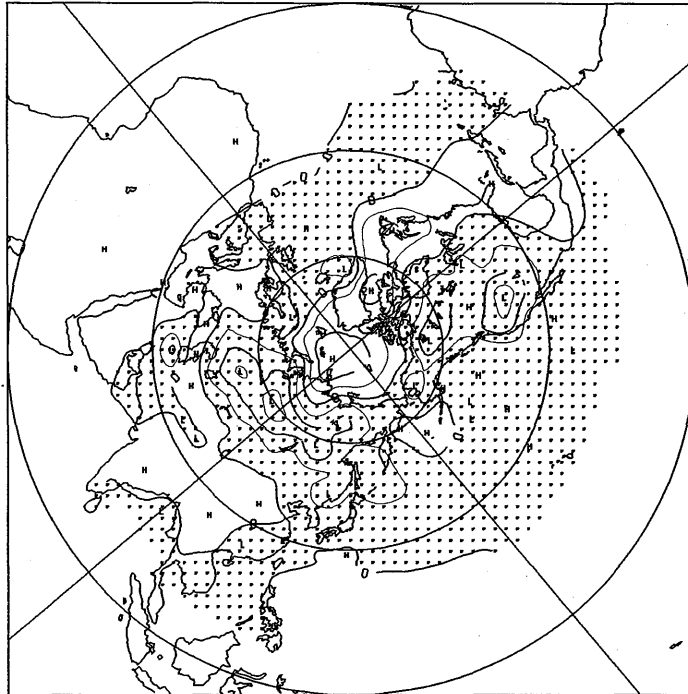
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JAN



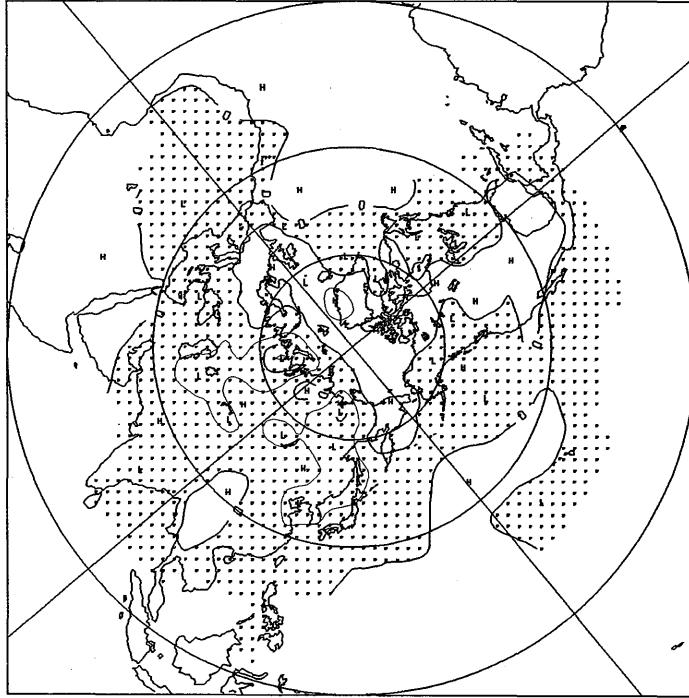
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FEB



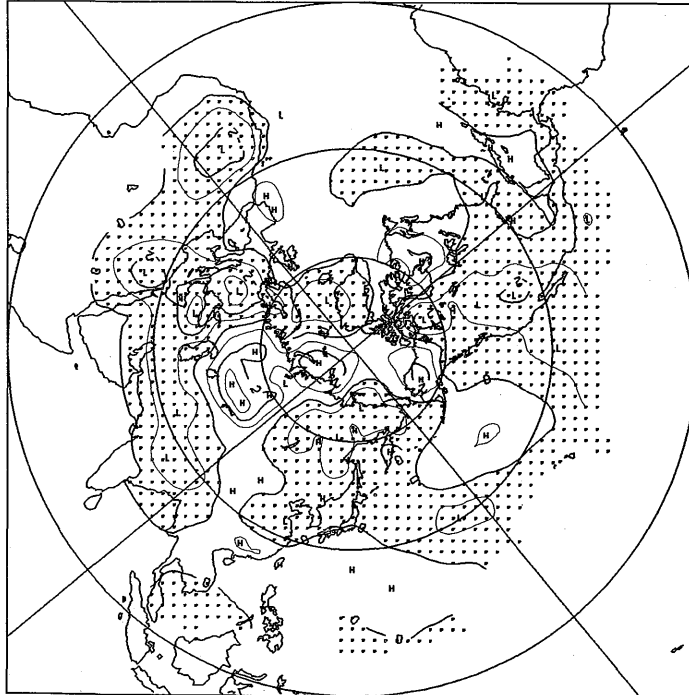
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MAR



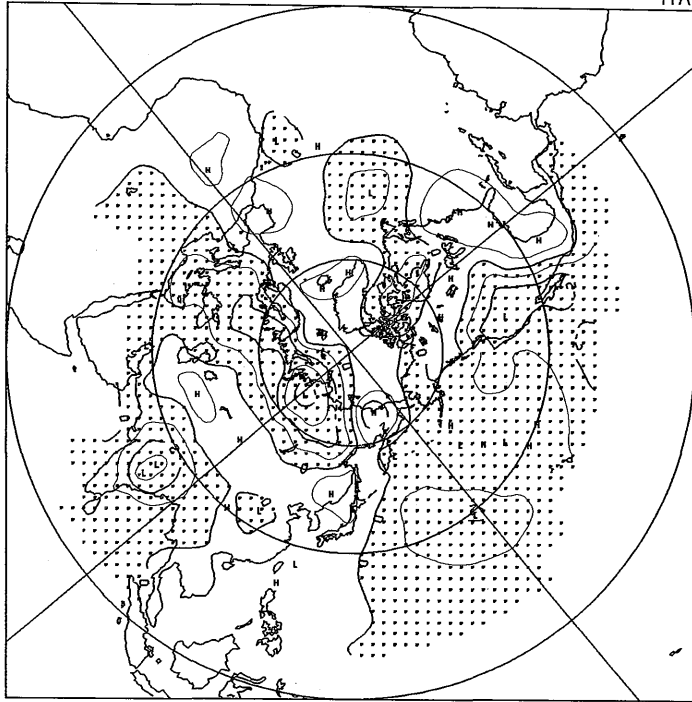
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APR



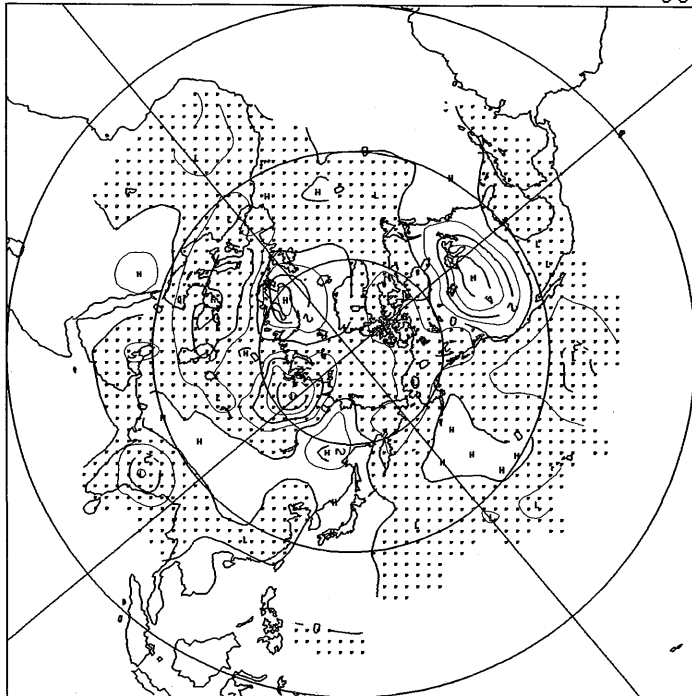
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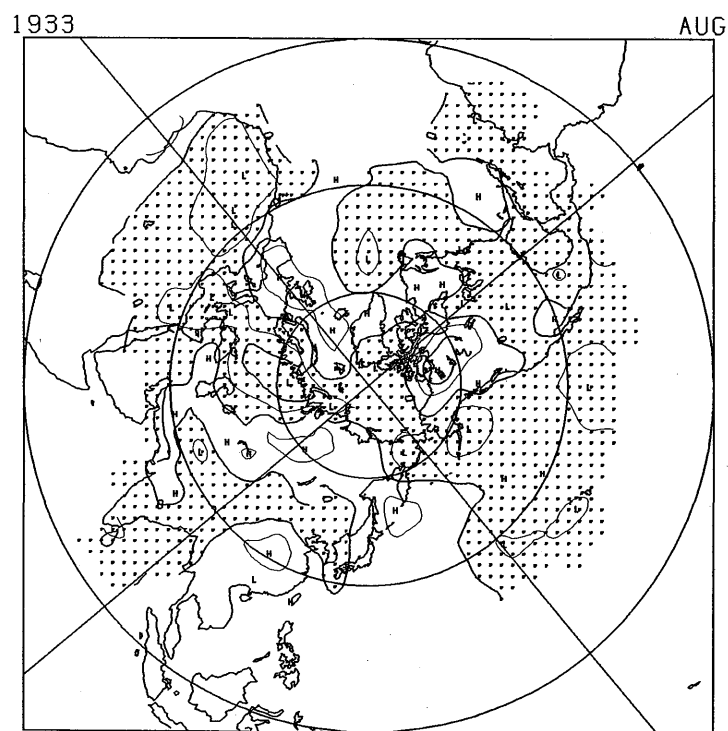
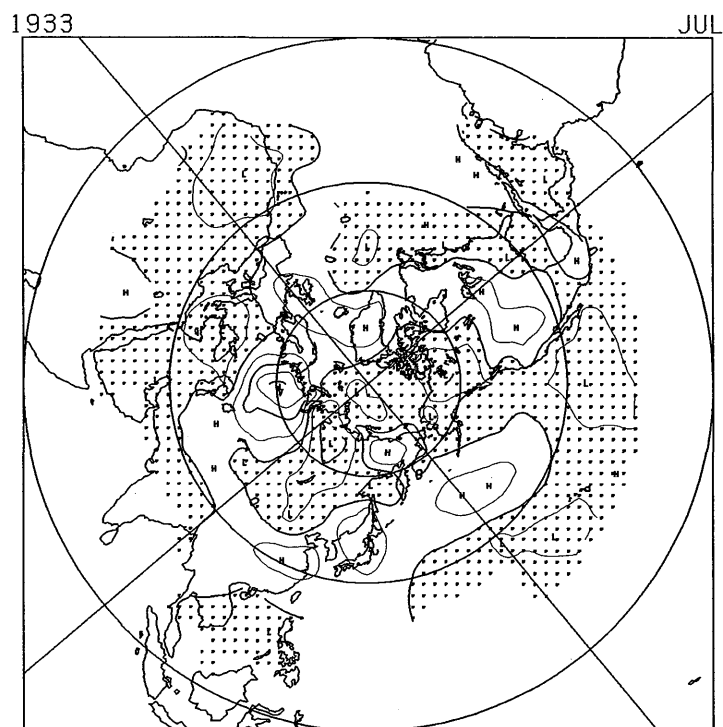
MAY



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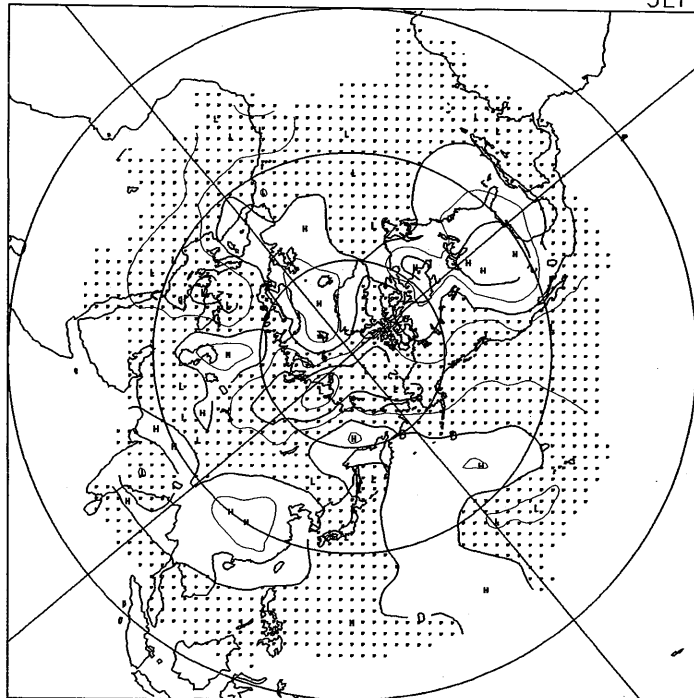
JUN





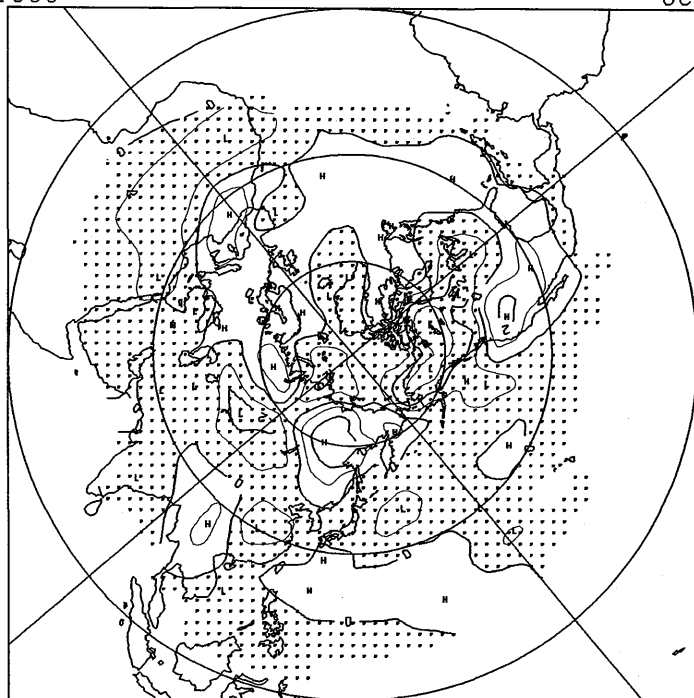
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SEPT



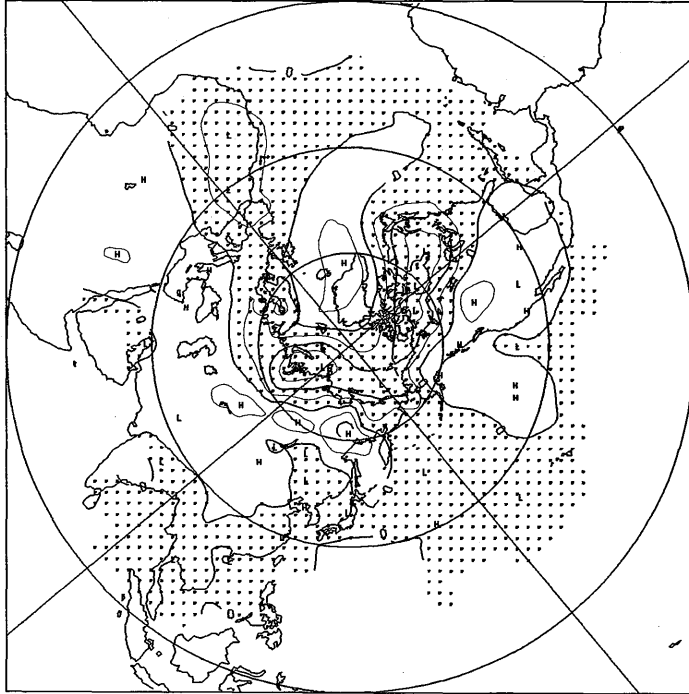
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OCT



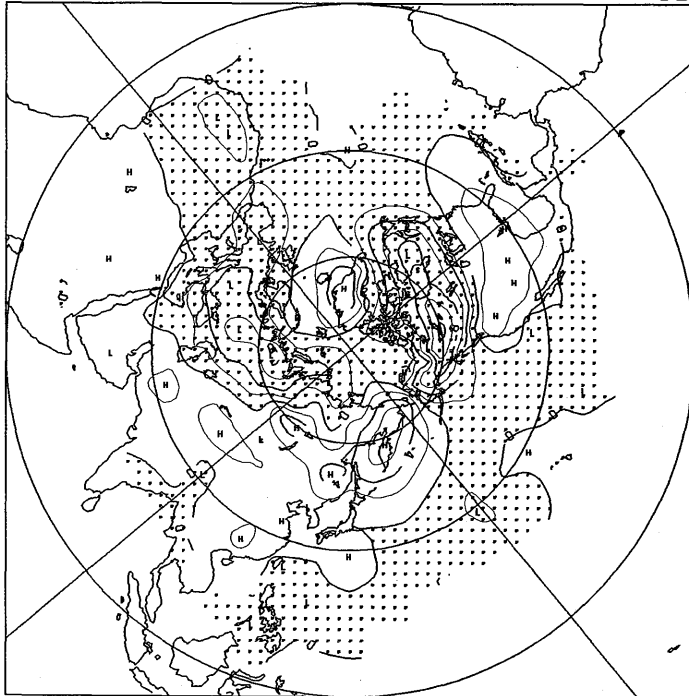
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NOV



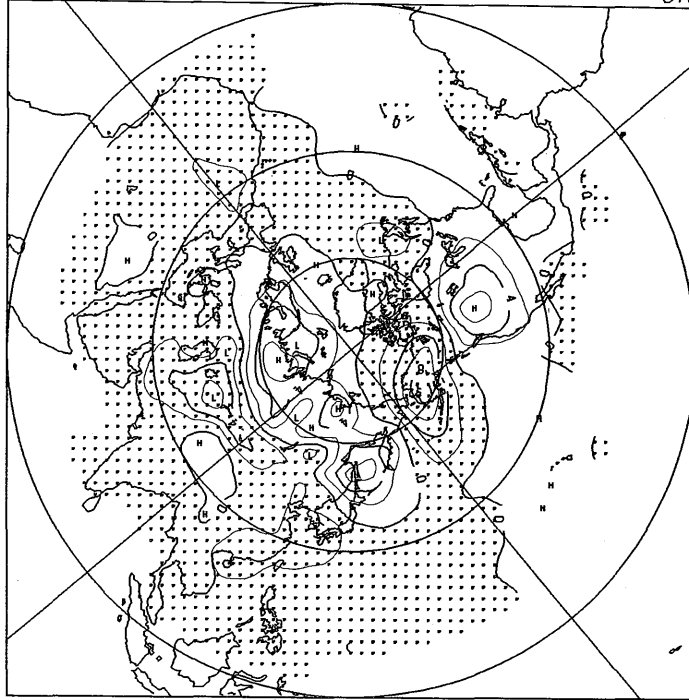
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DEC



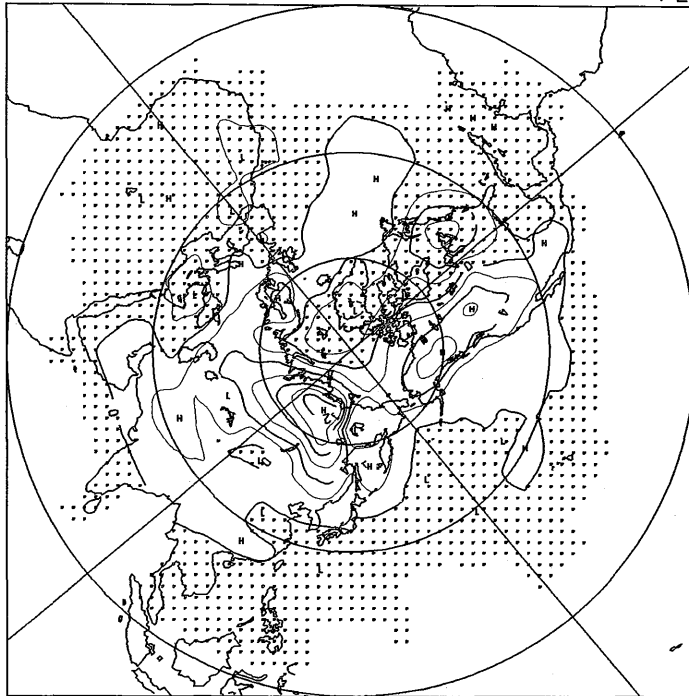
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JAN



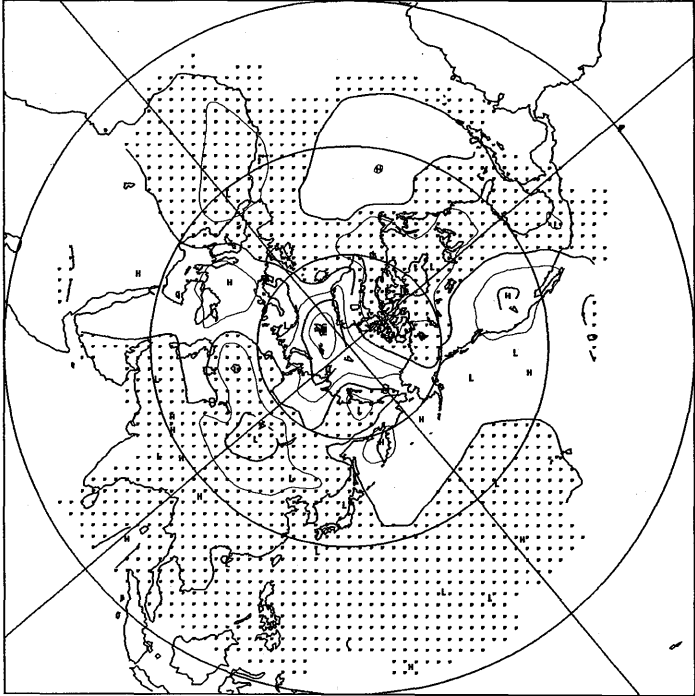
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FEB



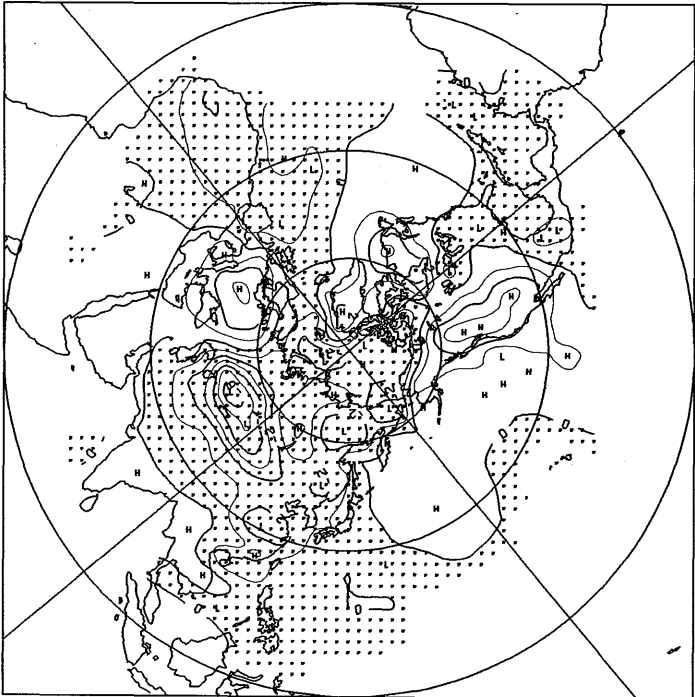
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MAR



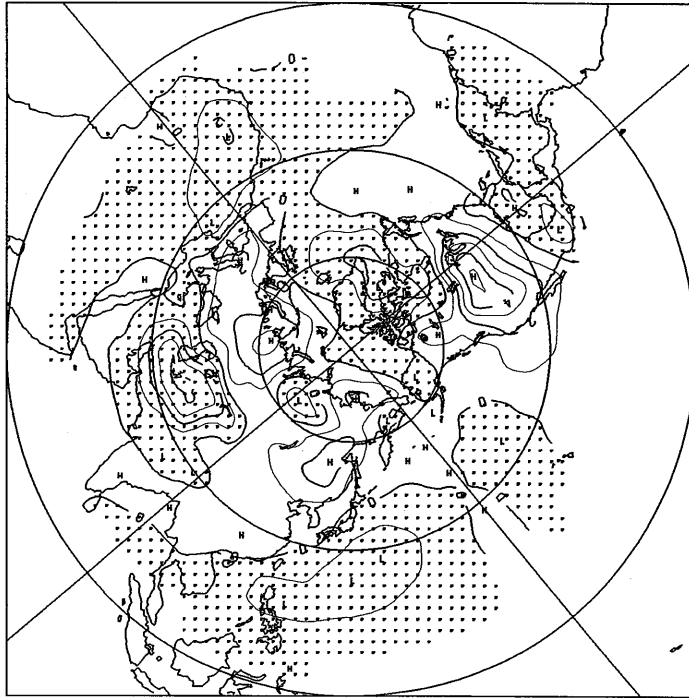
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APR



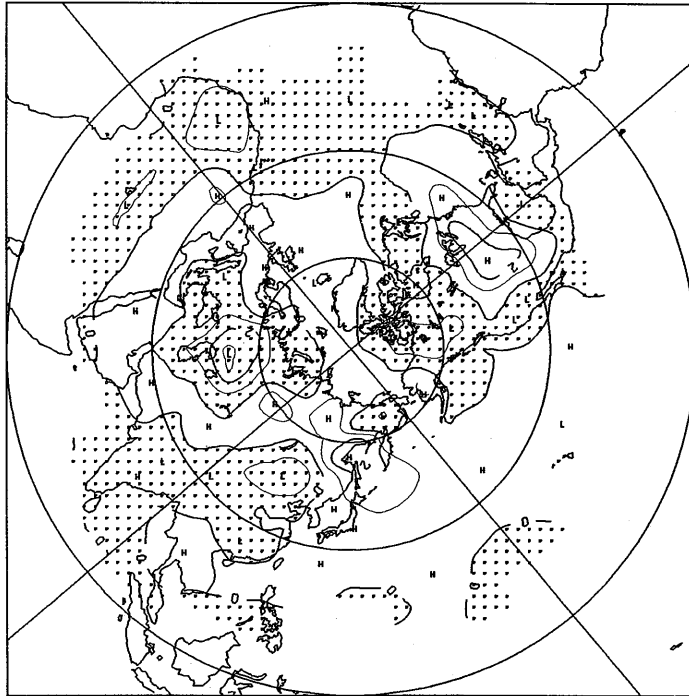
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MAY



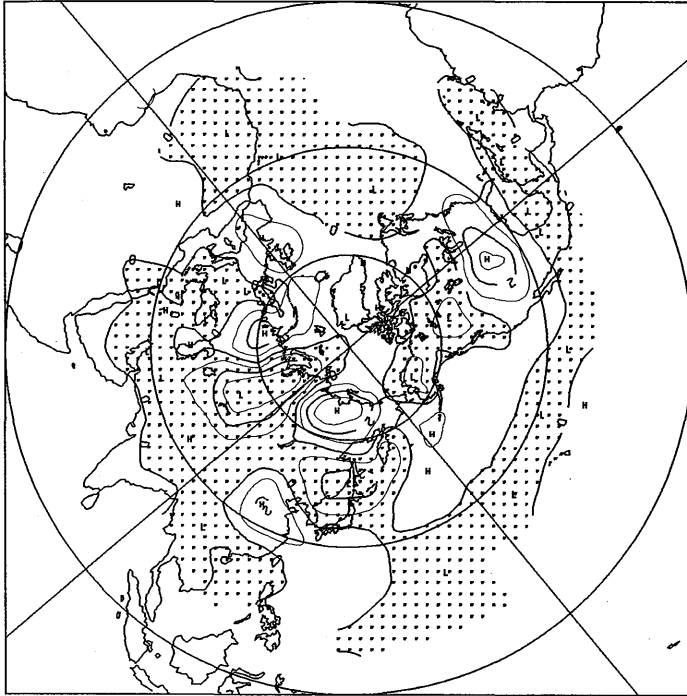
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JUN



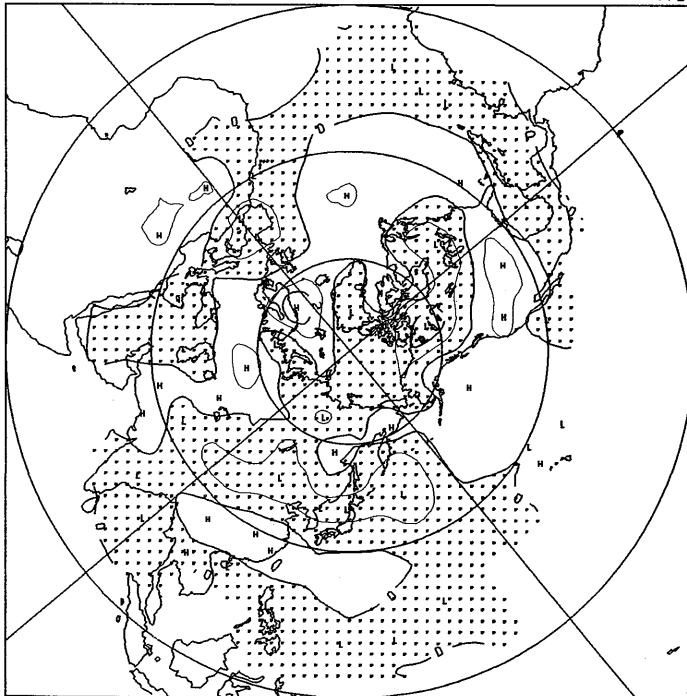
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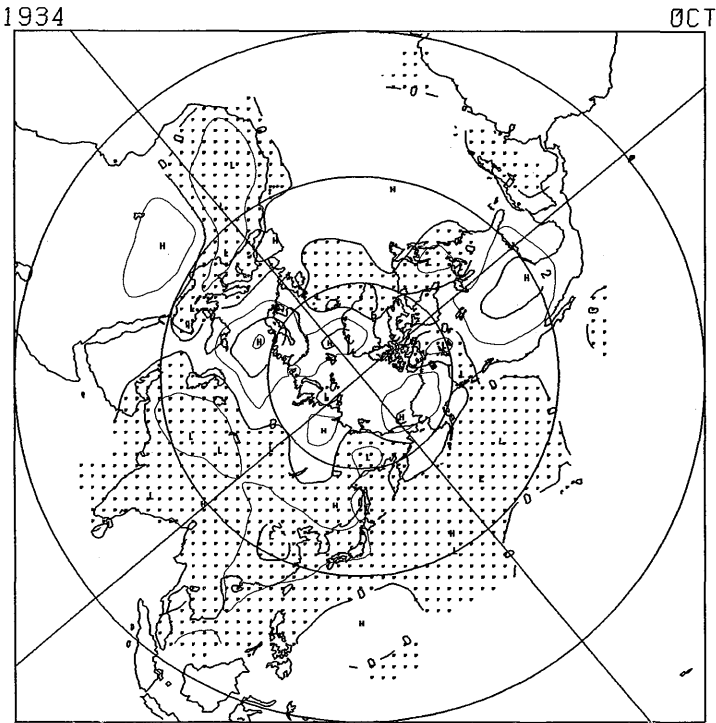
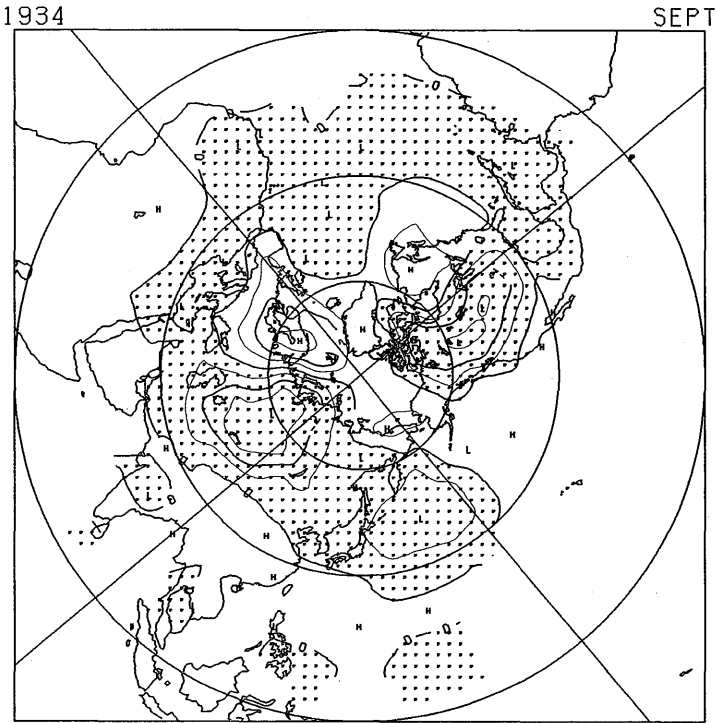
JUL

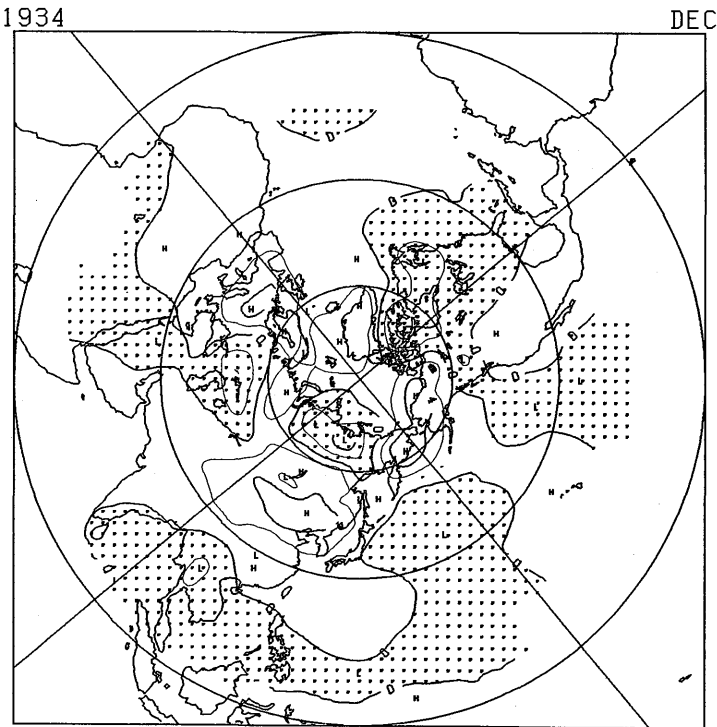
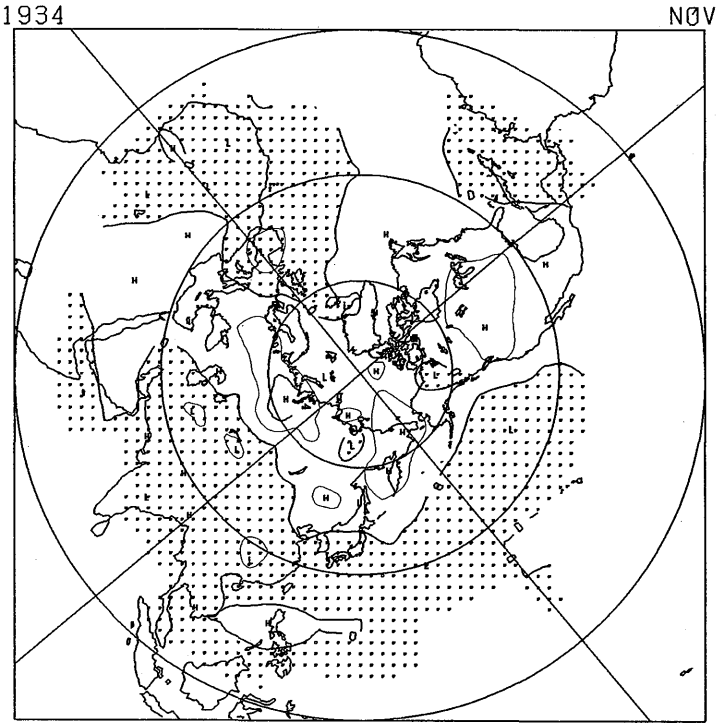


1934

AUG

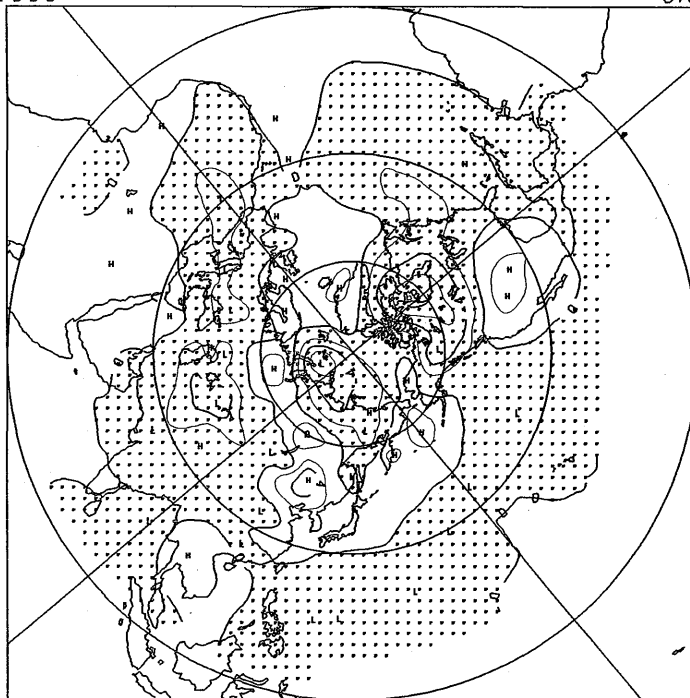






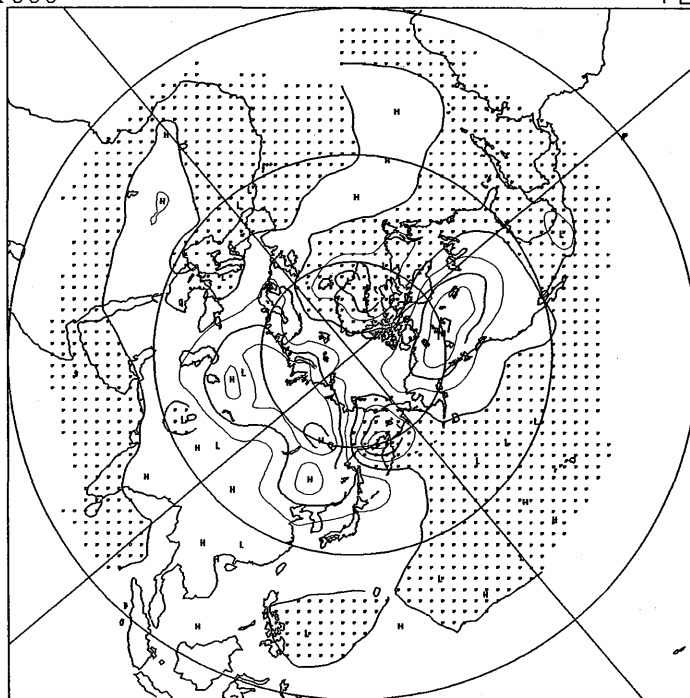
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JAN



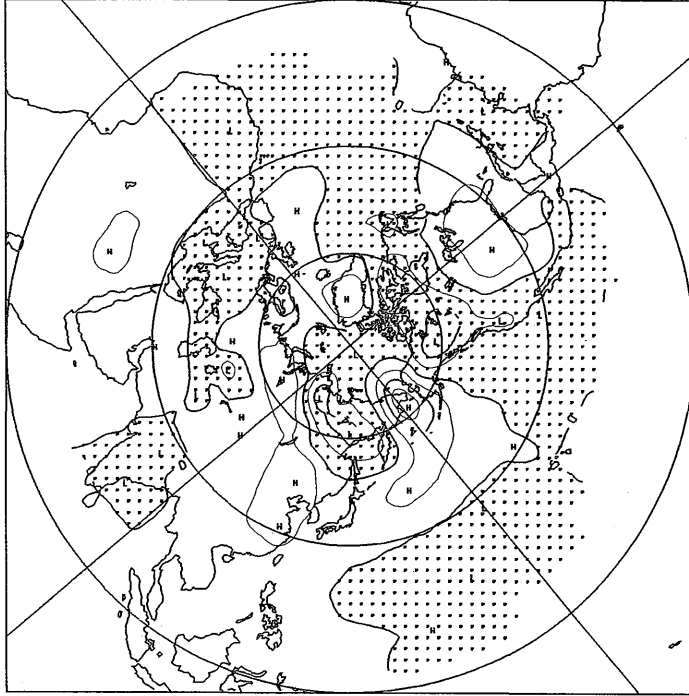
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FEB



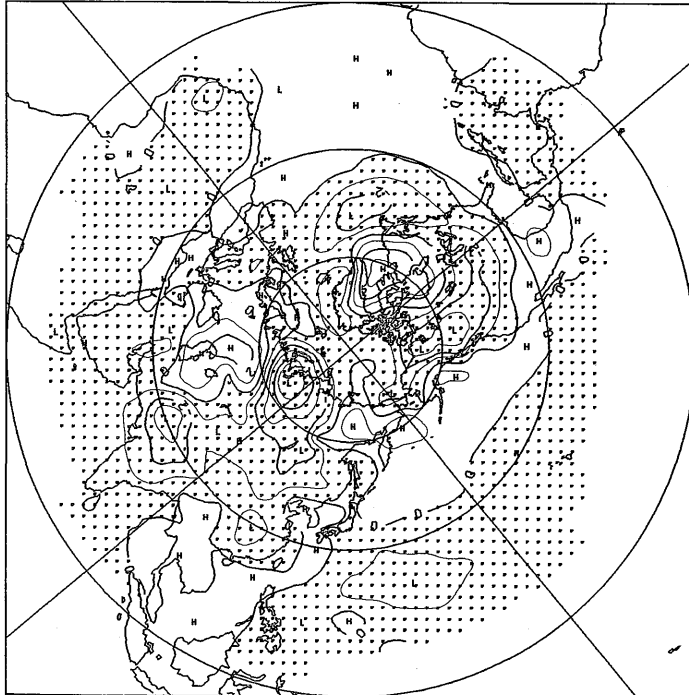
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MAR



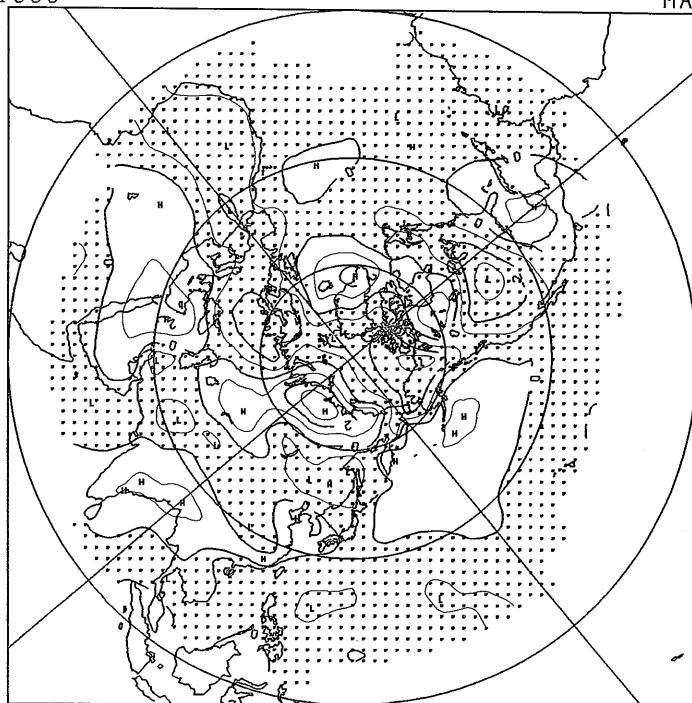
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APR



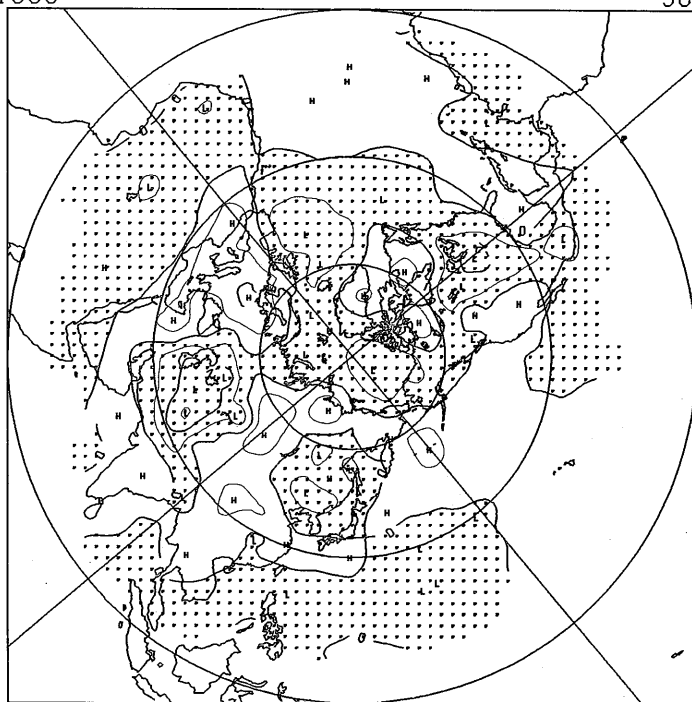
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MAY



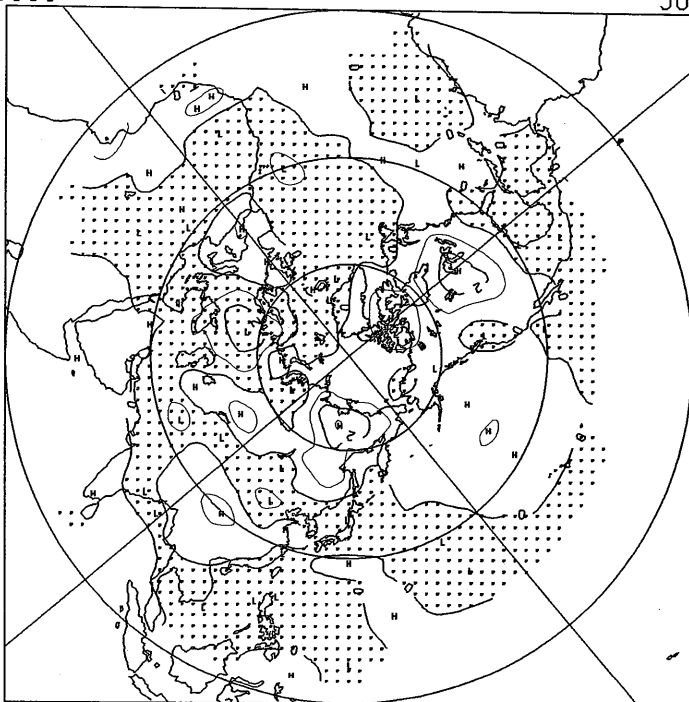
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JUN



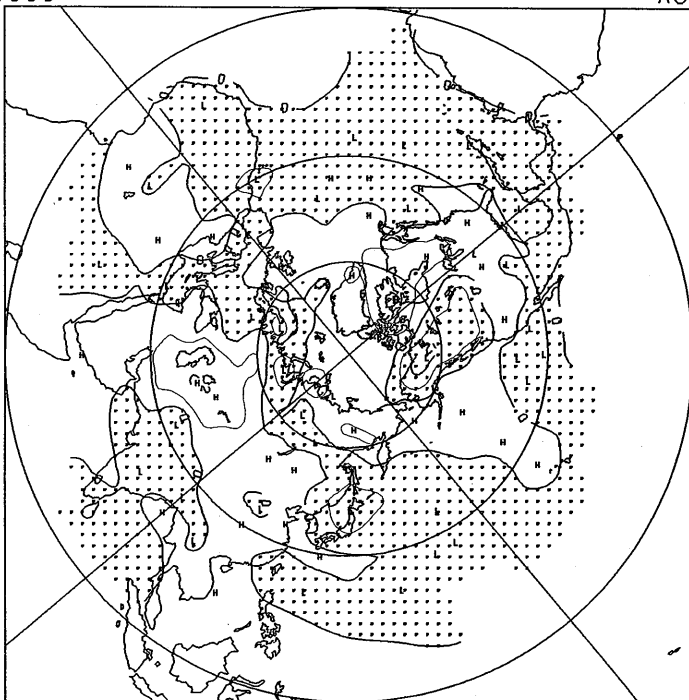
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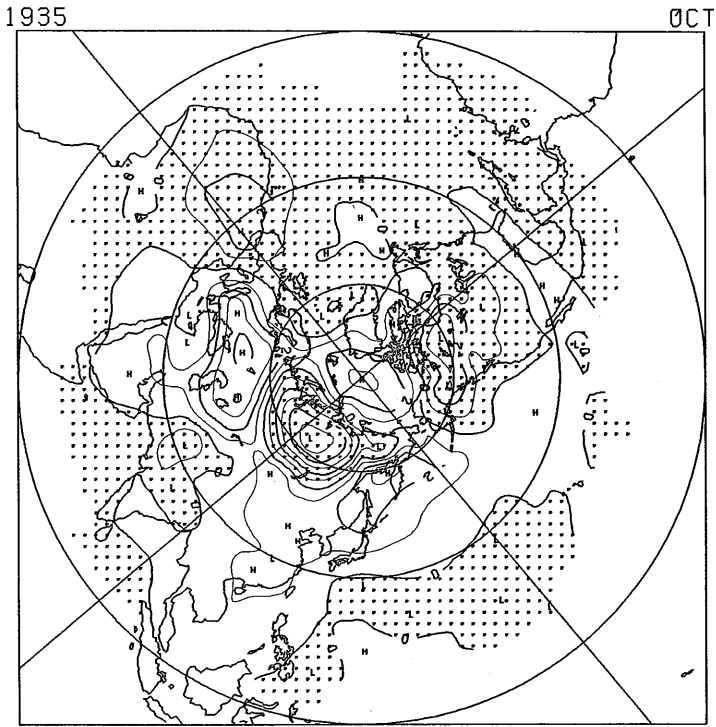
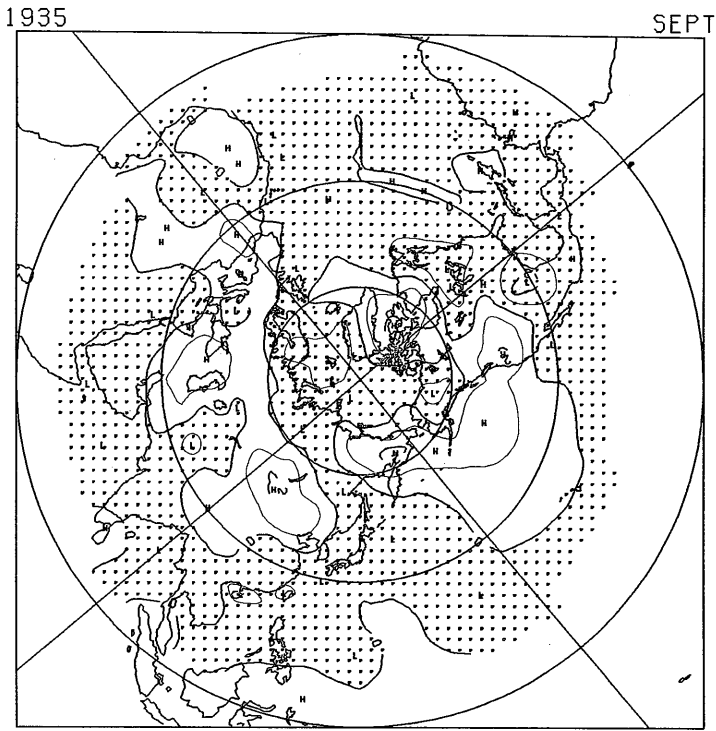
JUL



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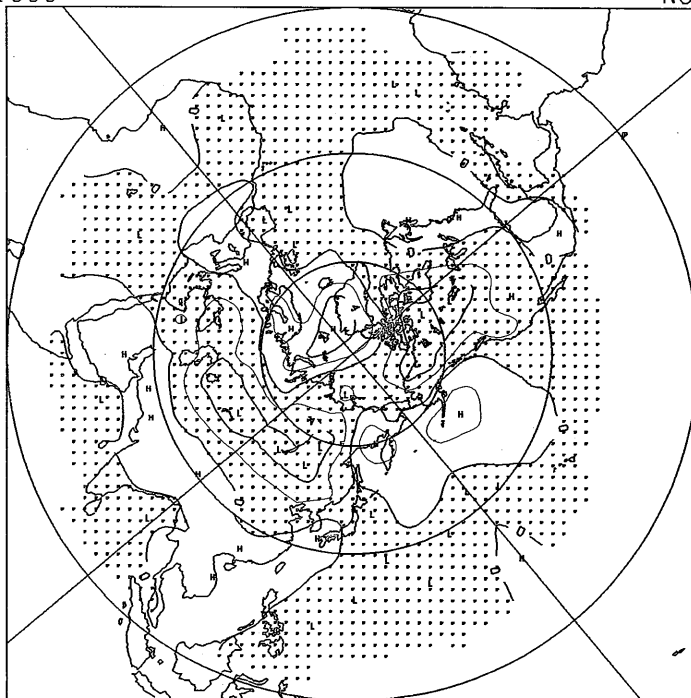
AUG





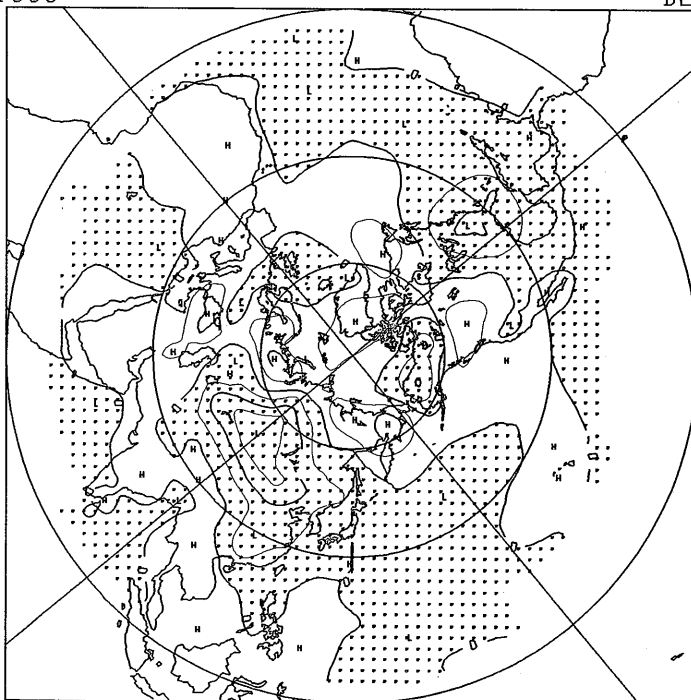
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NOV



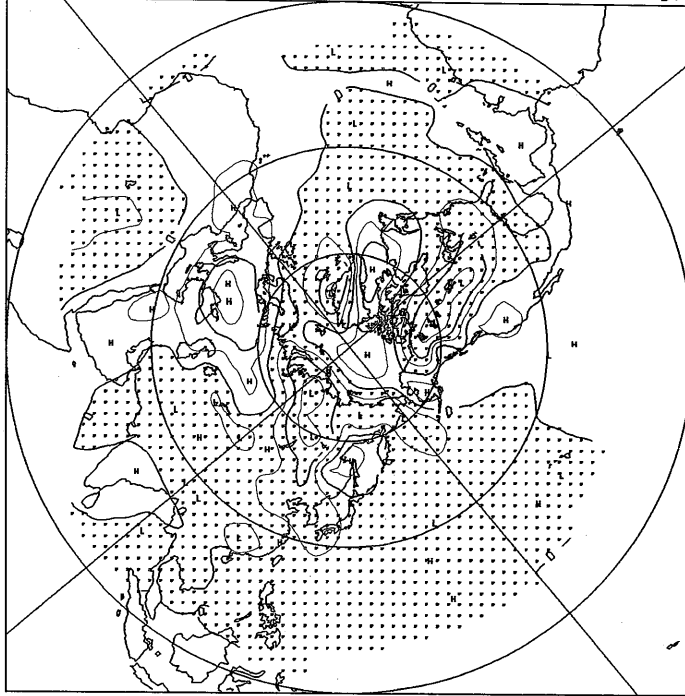
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DEC



1936

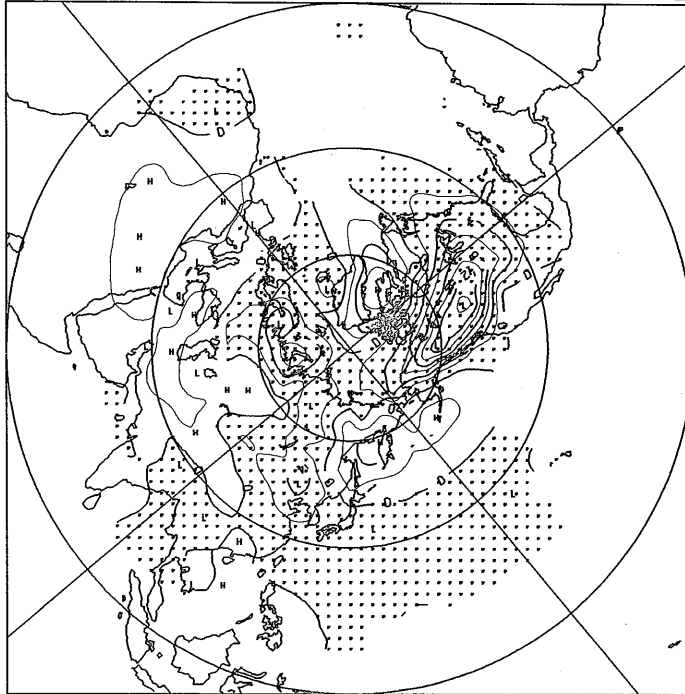
JAN



1936年
1月

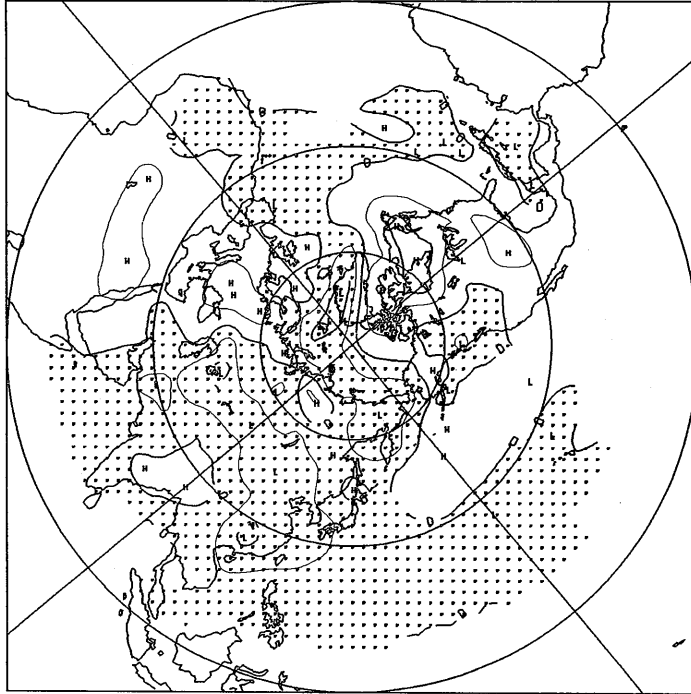
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FEB



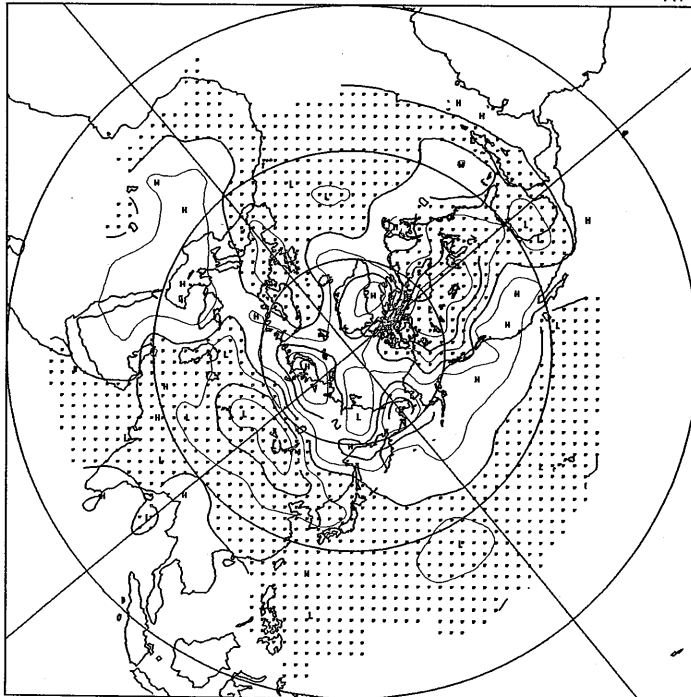
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MAR



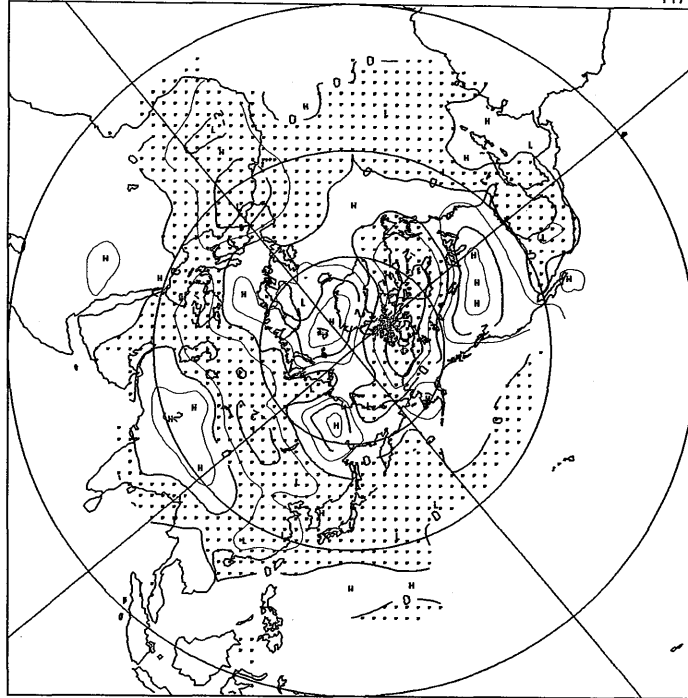
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APR



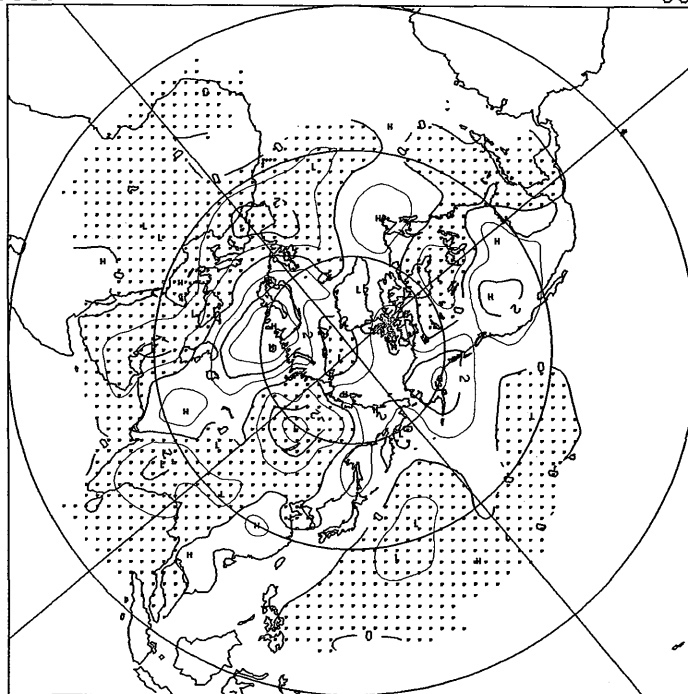
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MAY



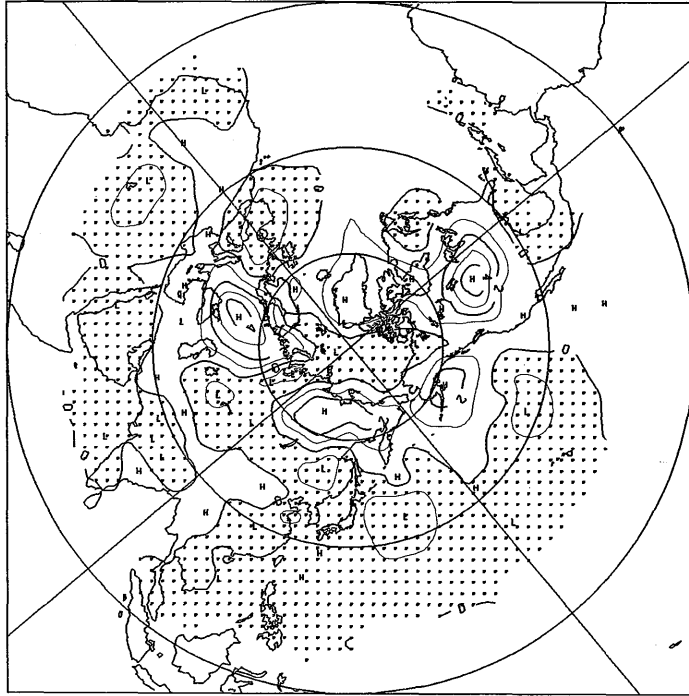
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JUN



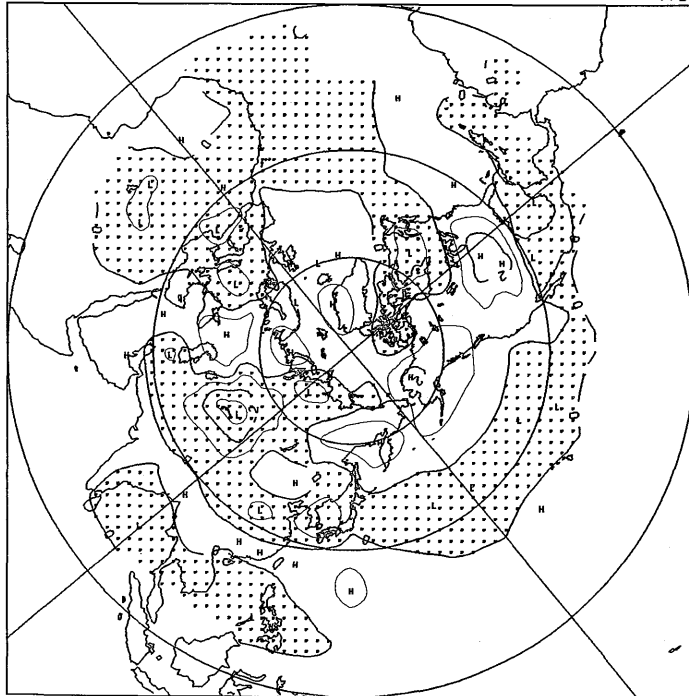
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JUL



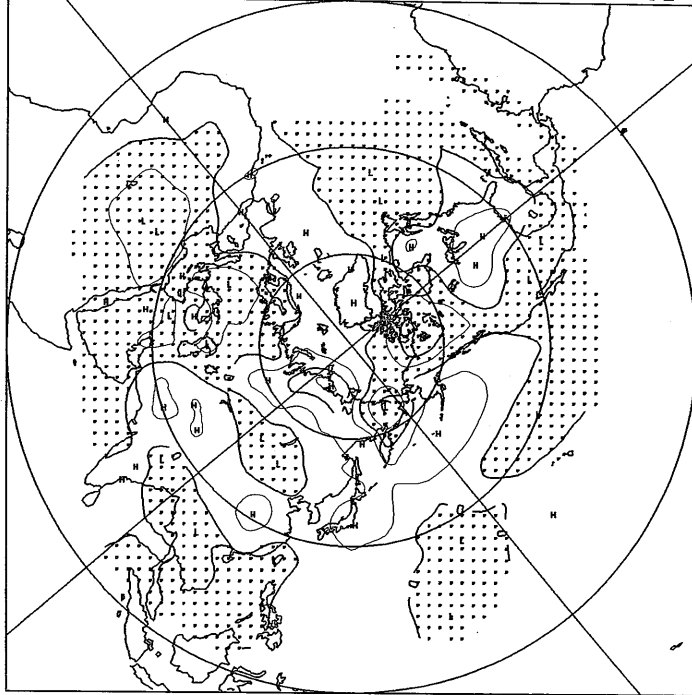
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AUG



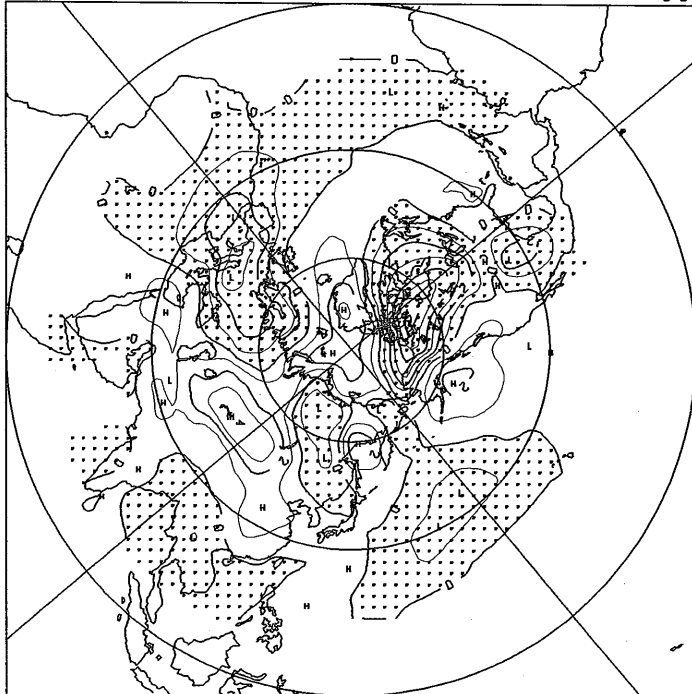
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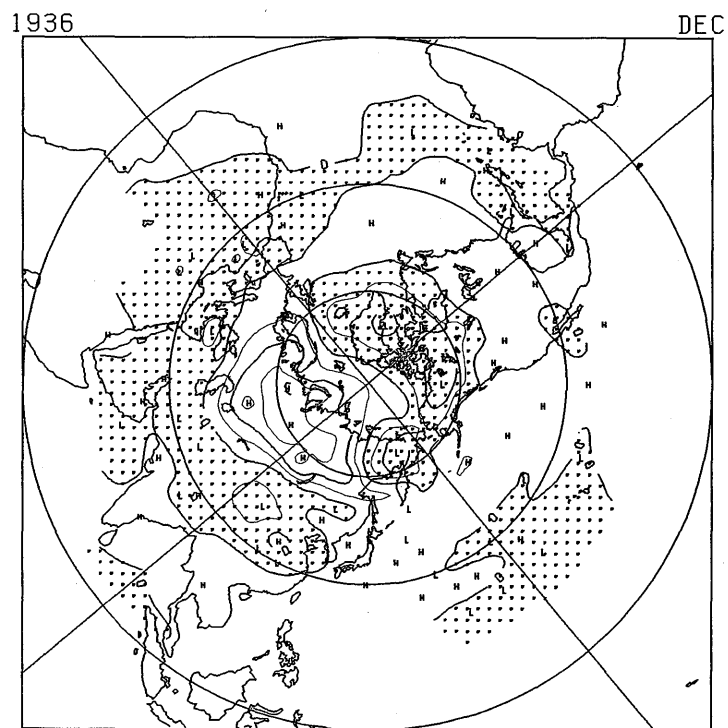
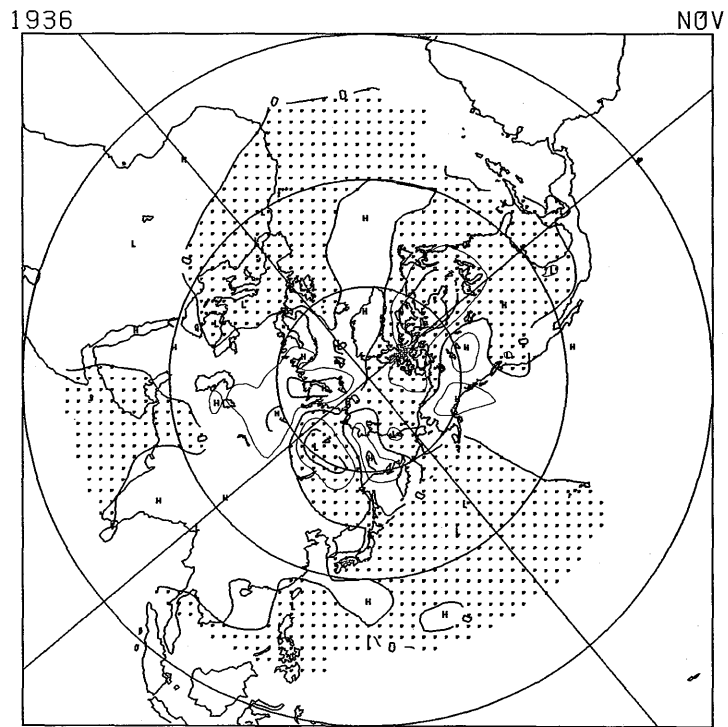
SEPT



1936

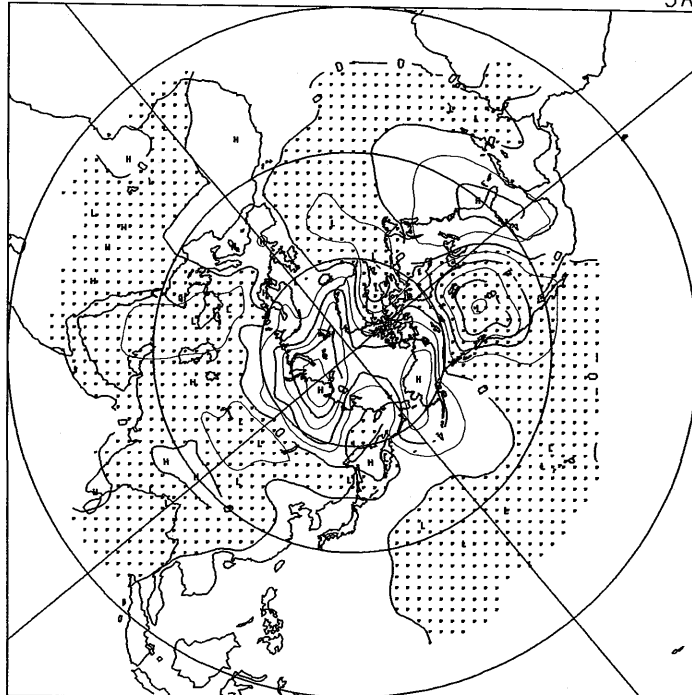
OCT





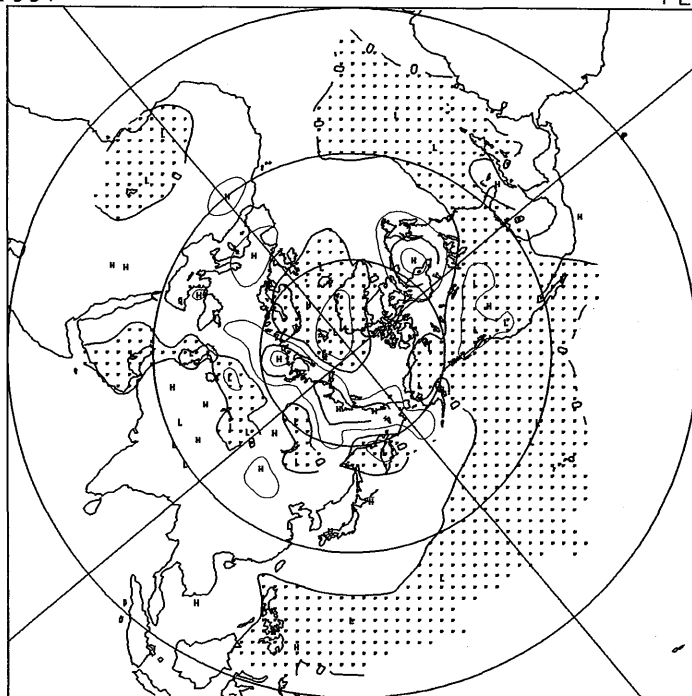
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JAN



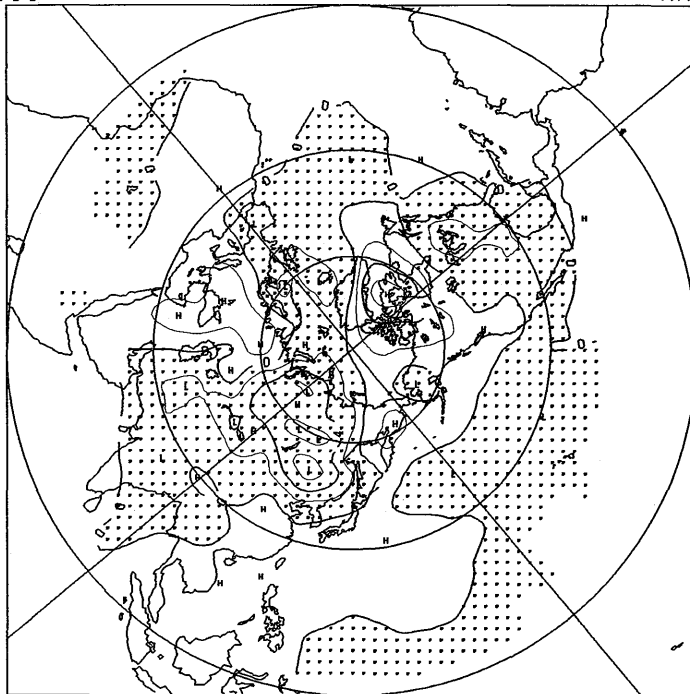
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FEB



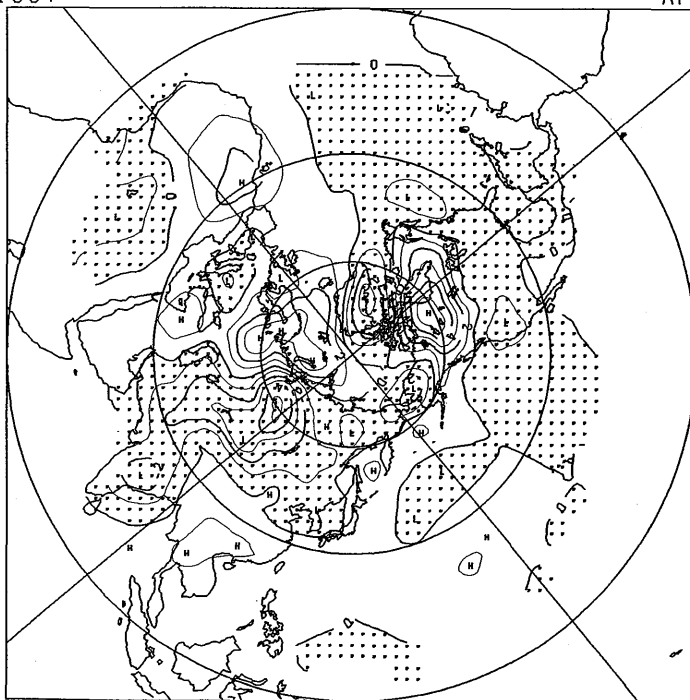
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MAR



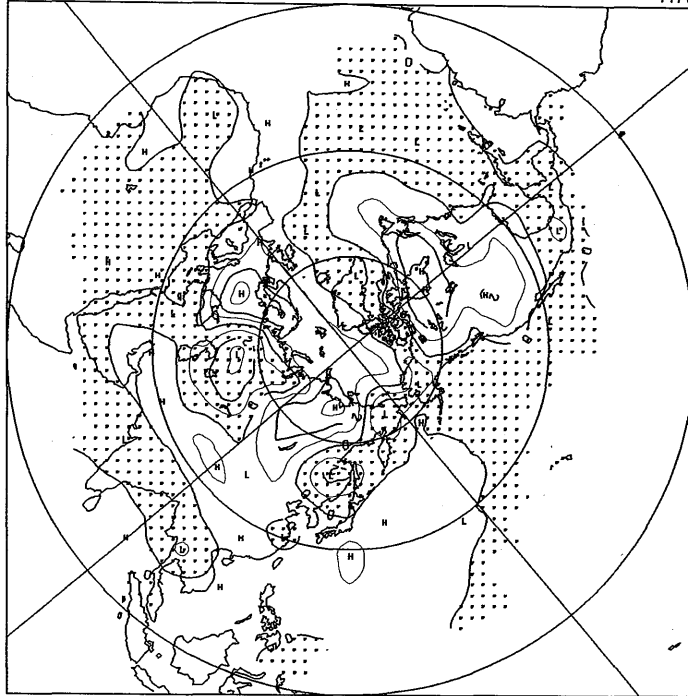
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APR



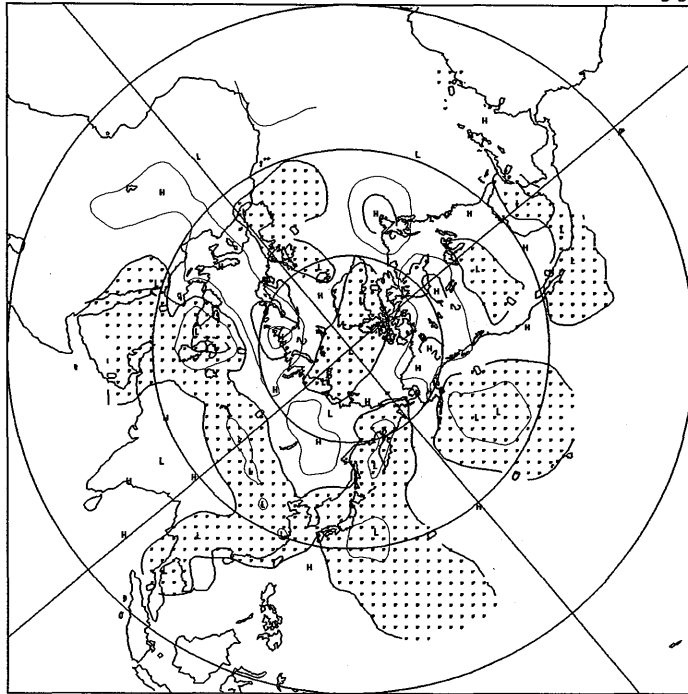
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MAY



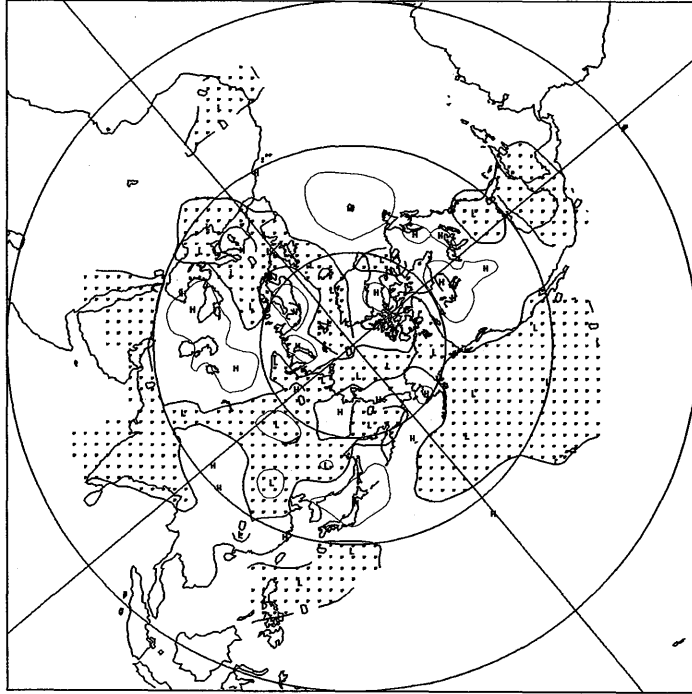
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JUN



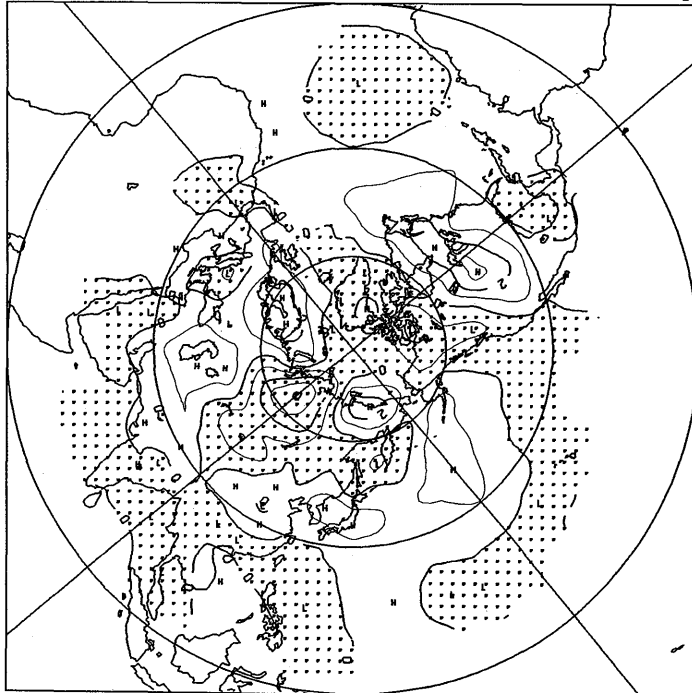
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JUL



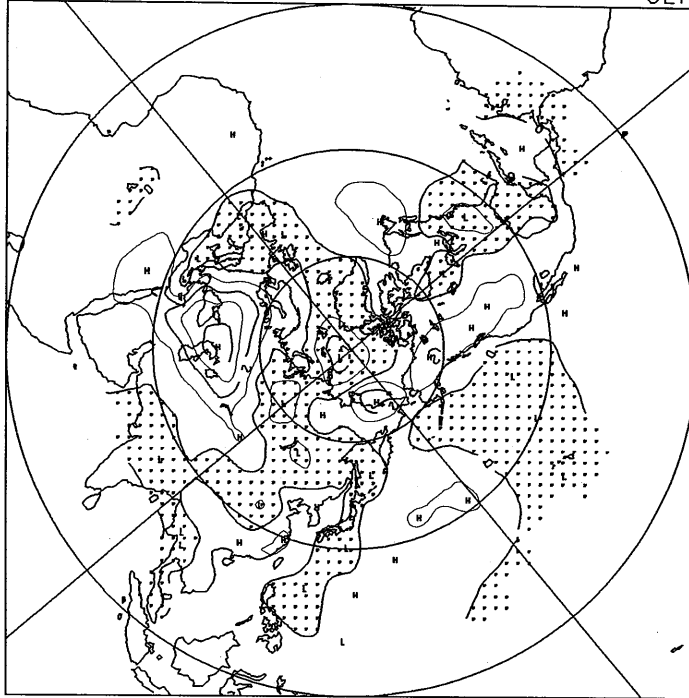
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AUG



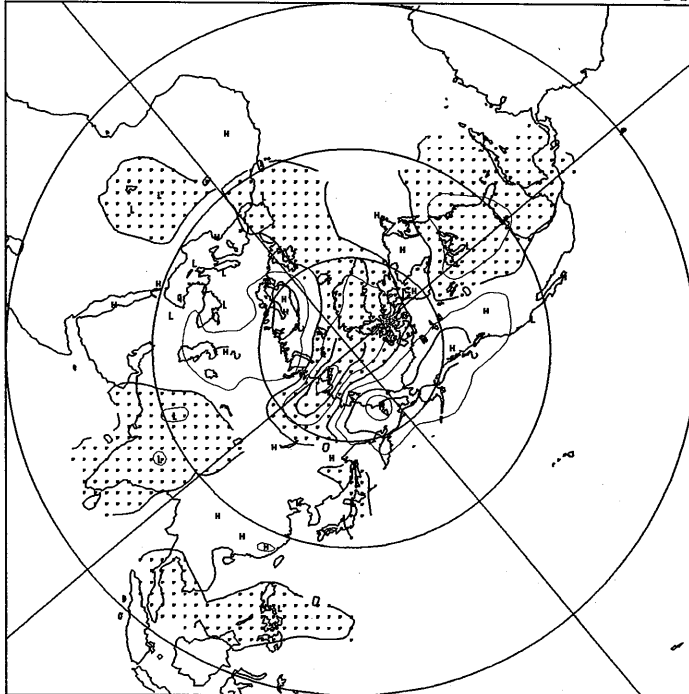
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SEPT



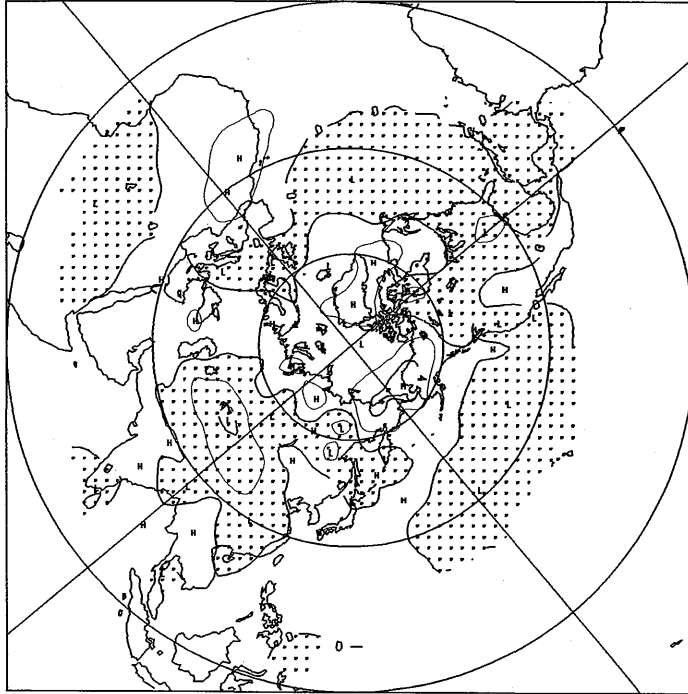
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OCT



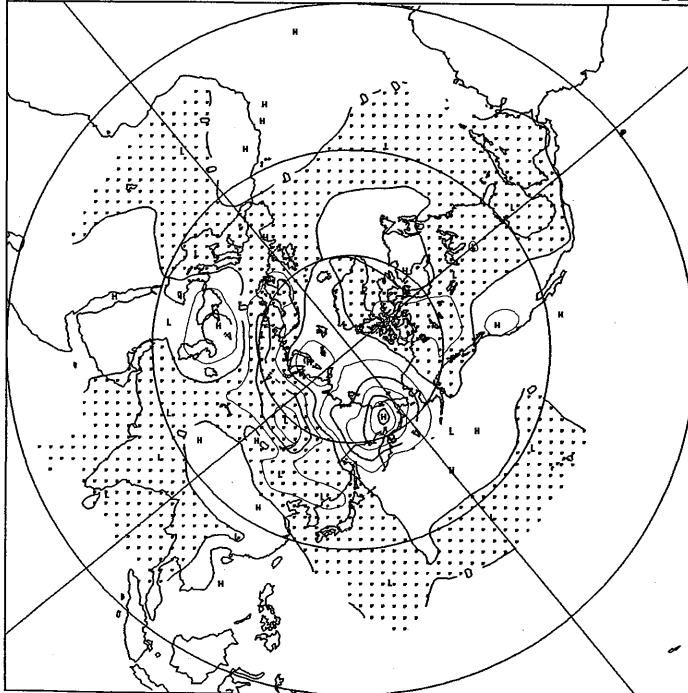
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NOV



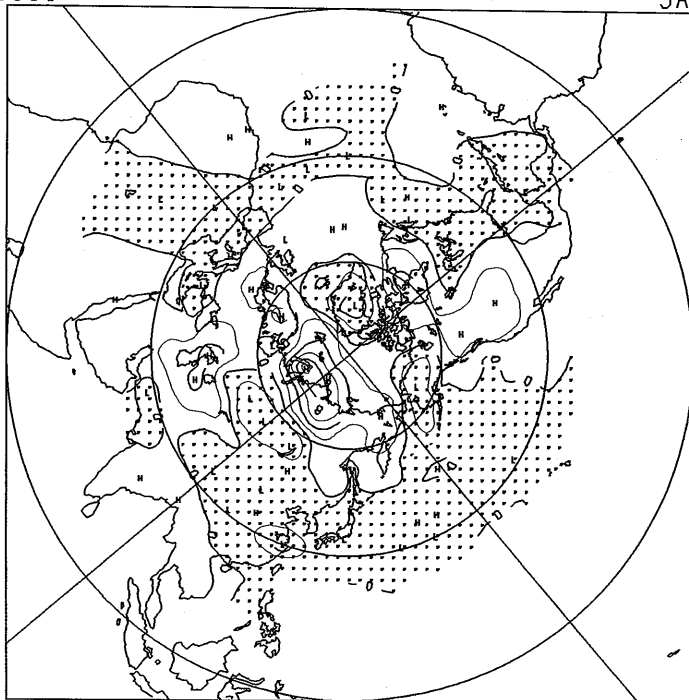
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DEC



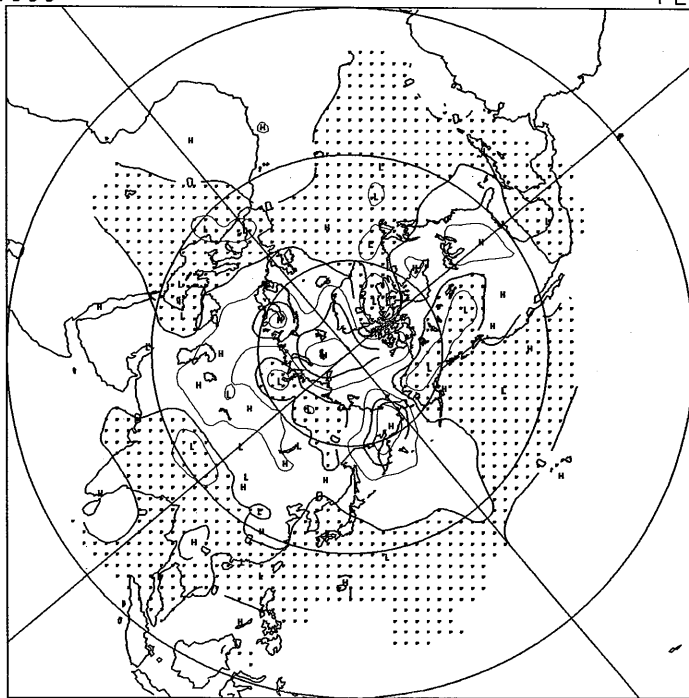
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JAN



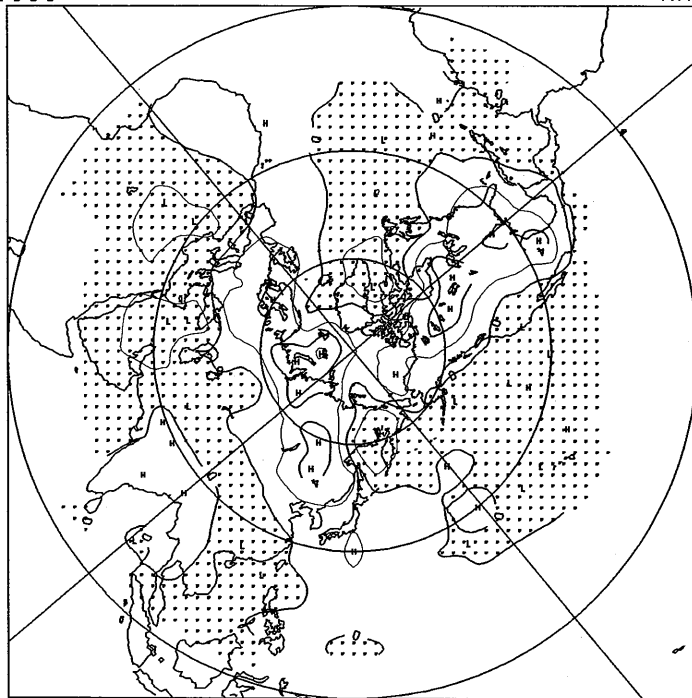
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FEB



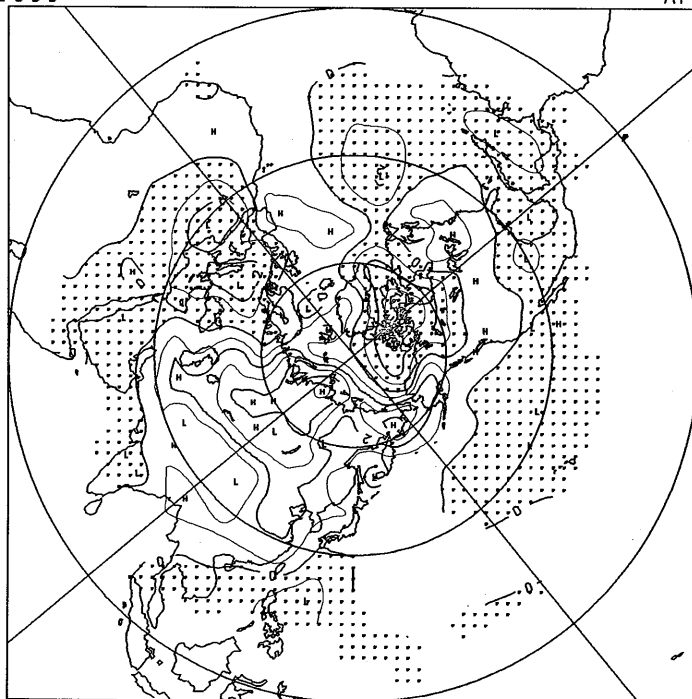
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MAR



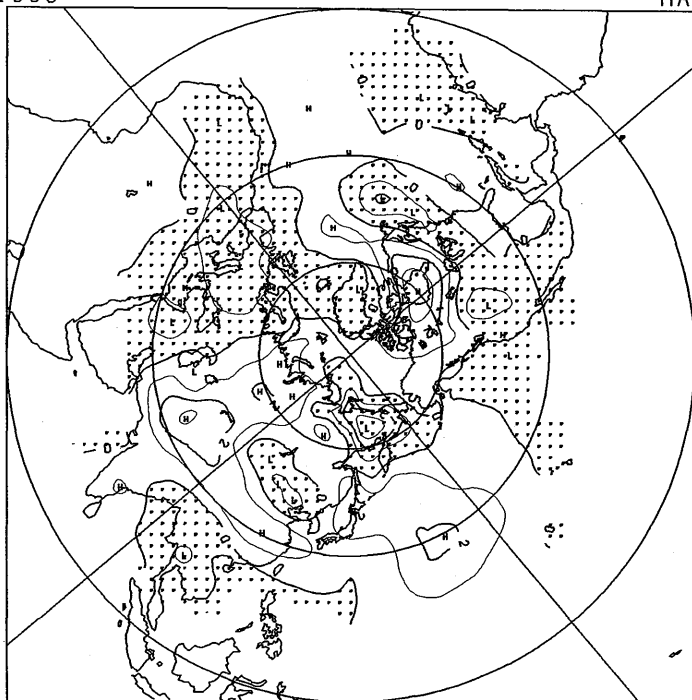
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APR



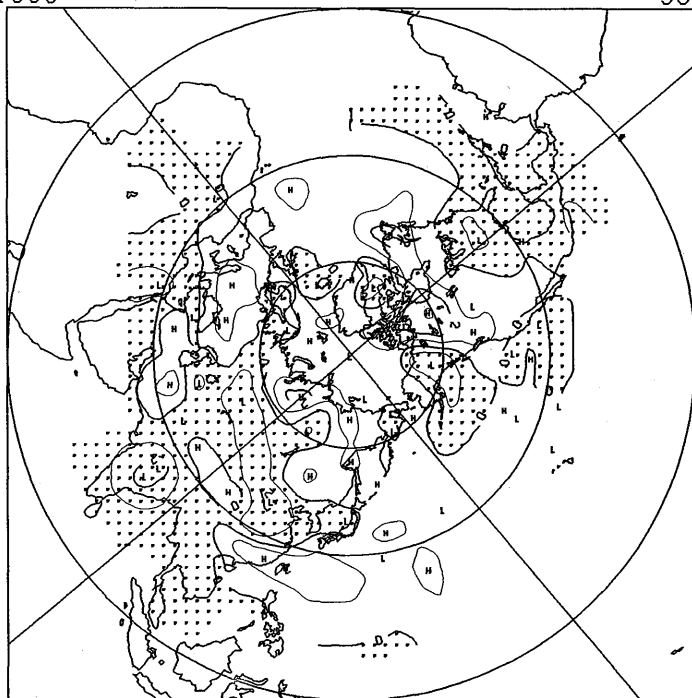
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MAY



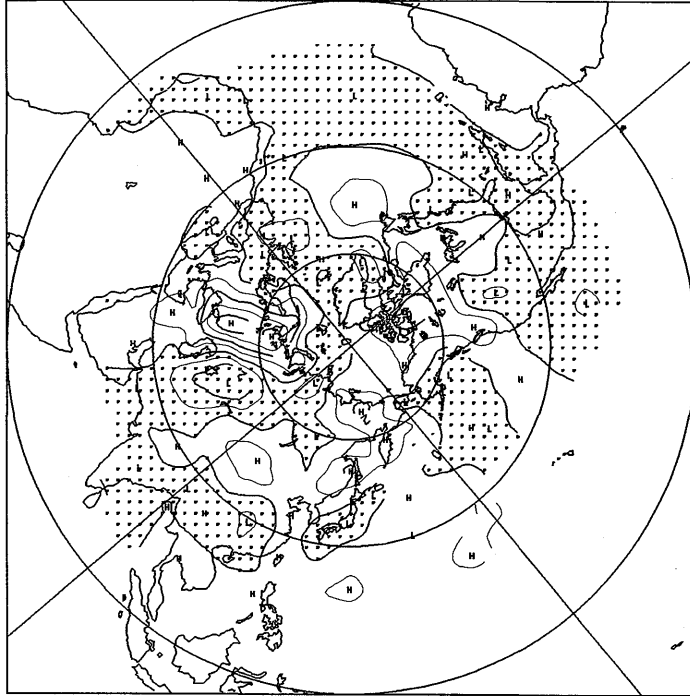
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JUN



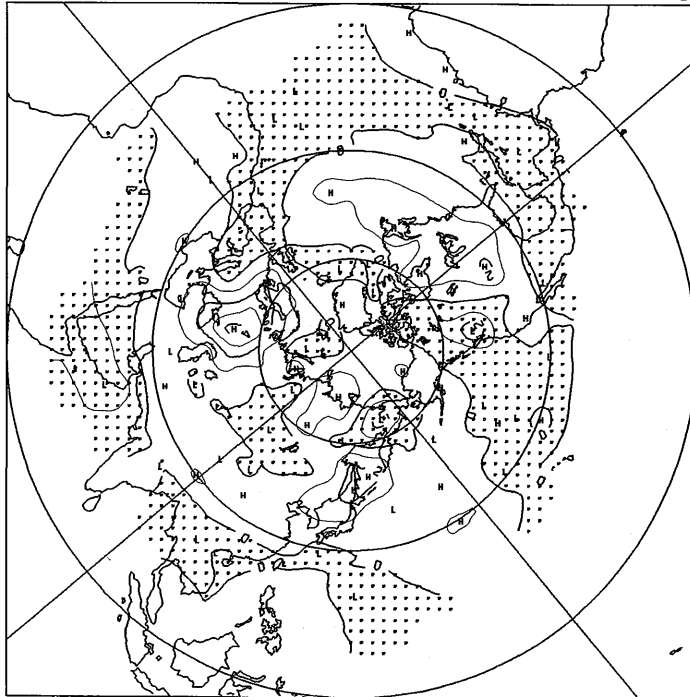
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JUL



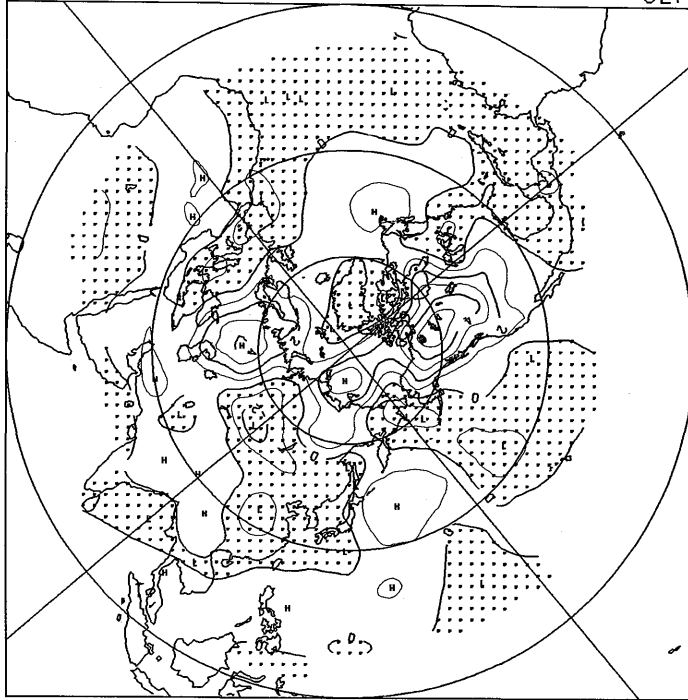
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AUG



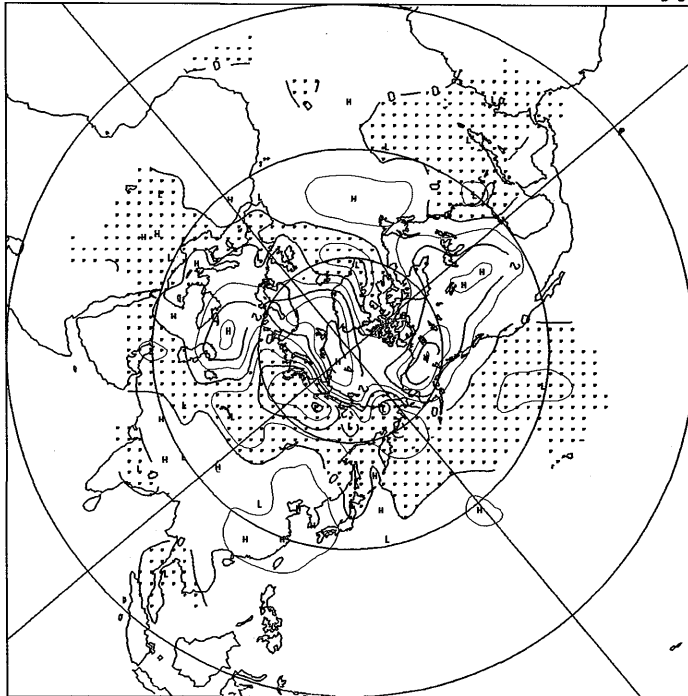
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SEPT



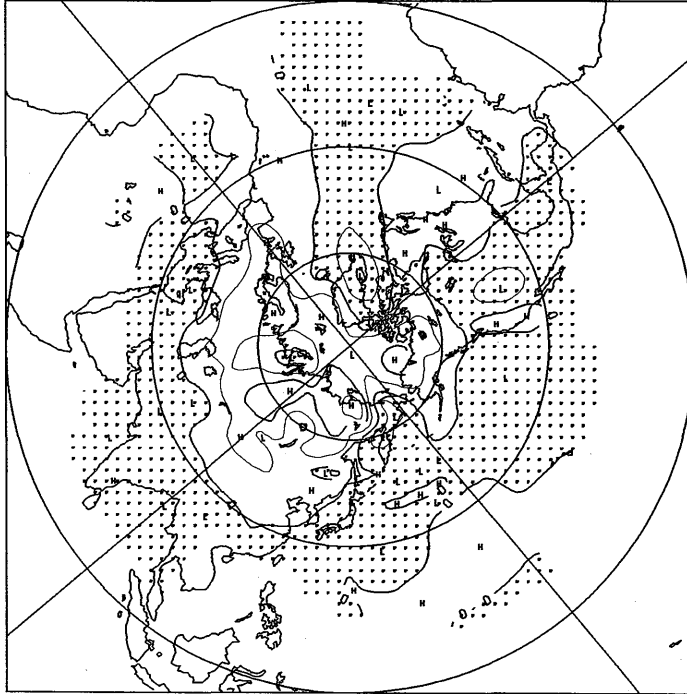
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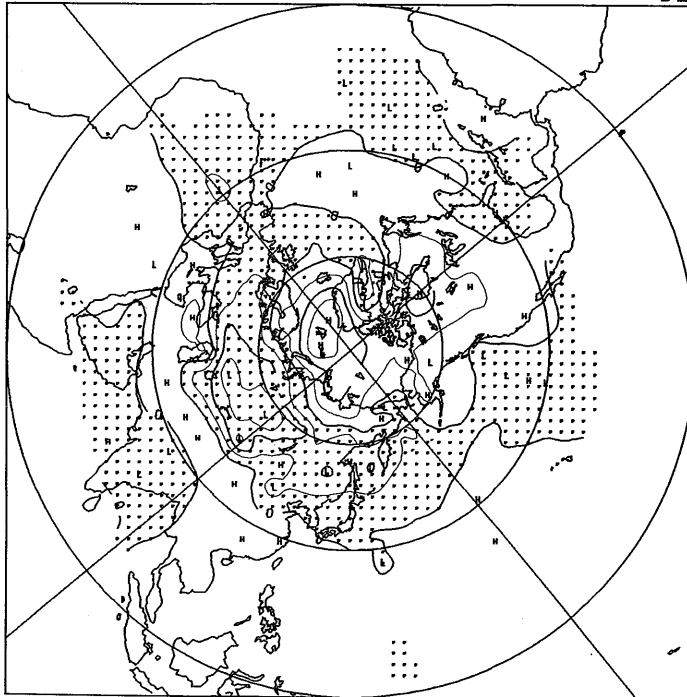
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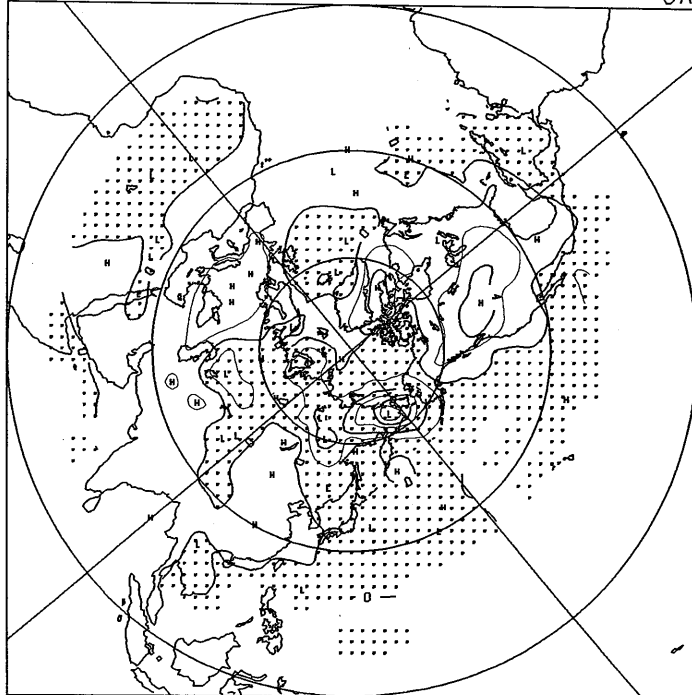
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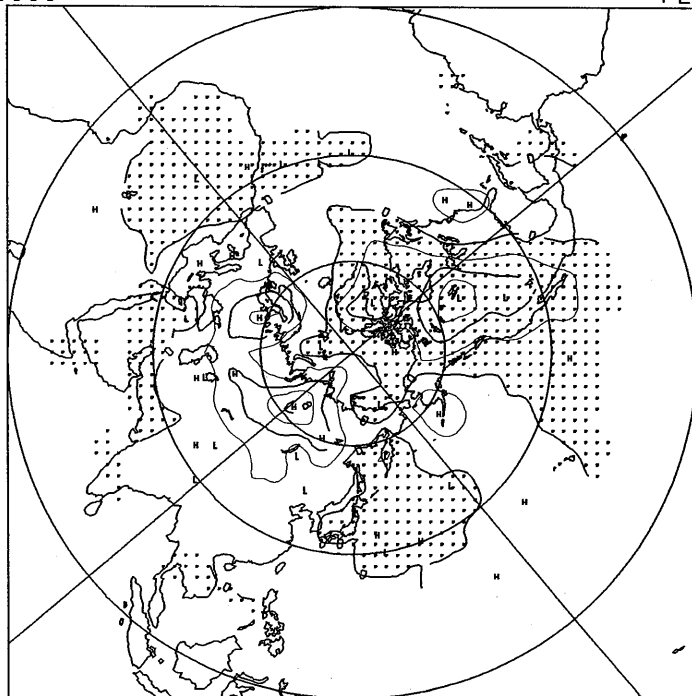
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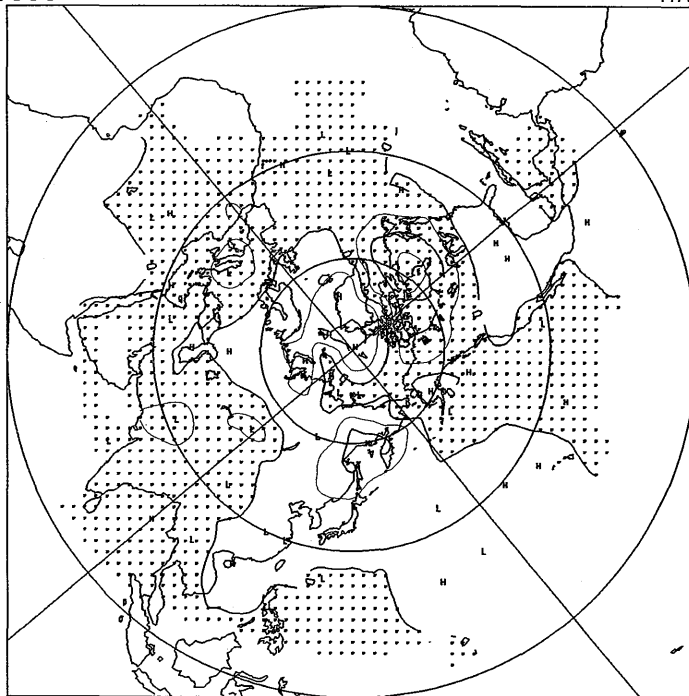
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FEB



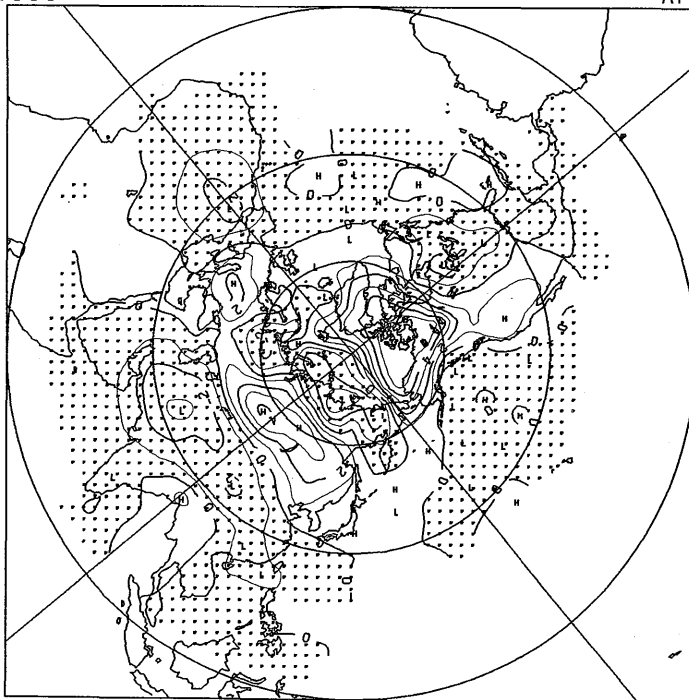
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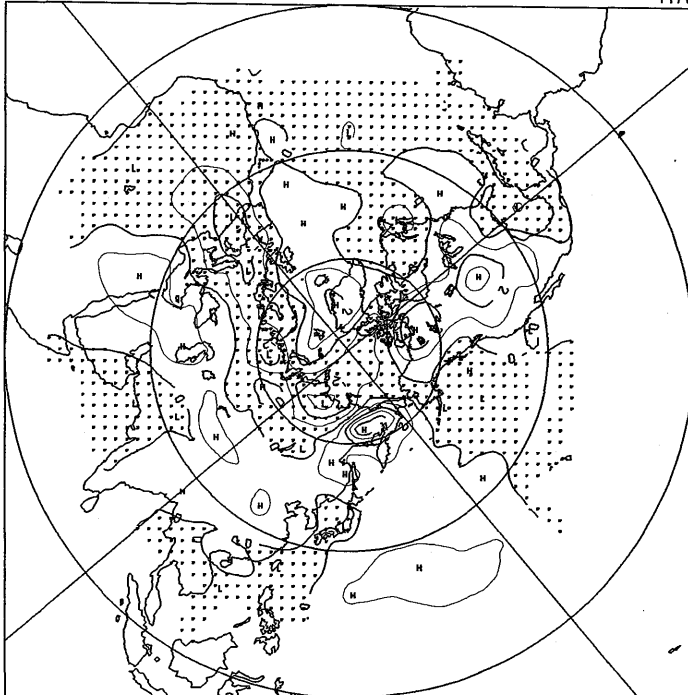
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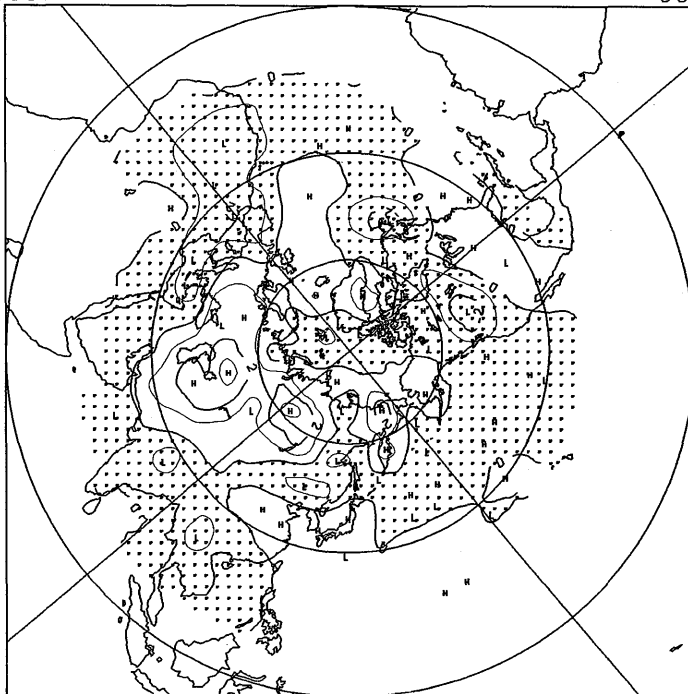
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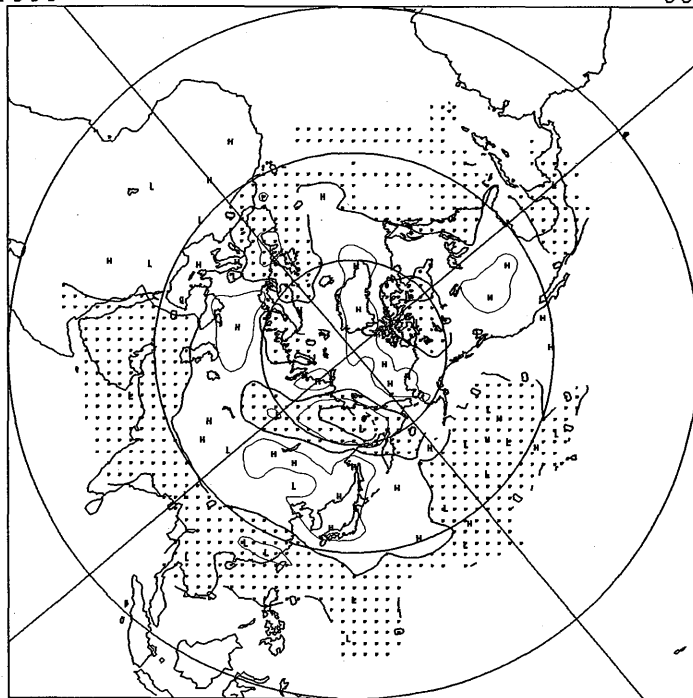
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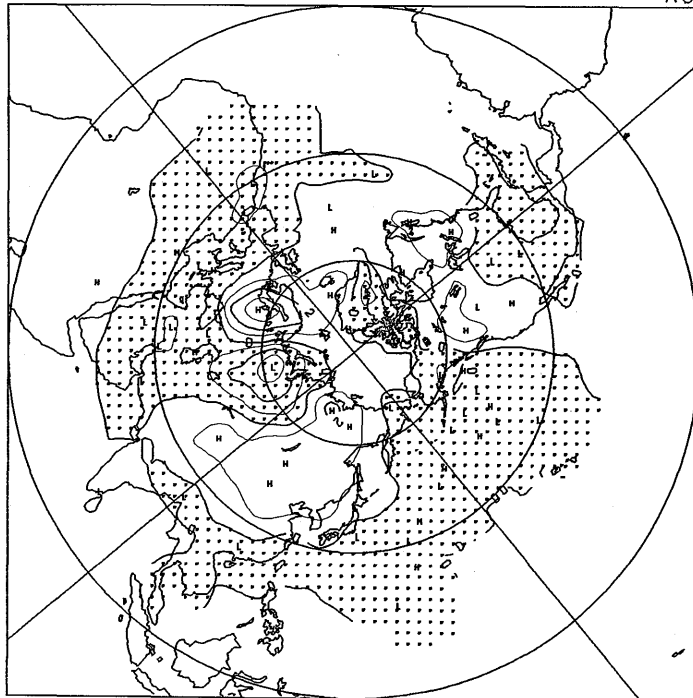
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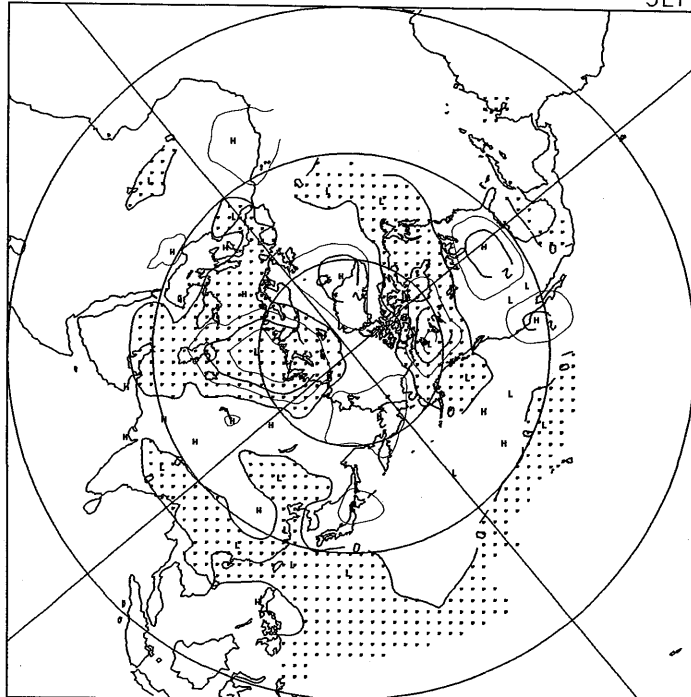
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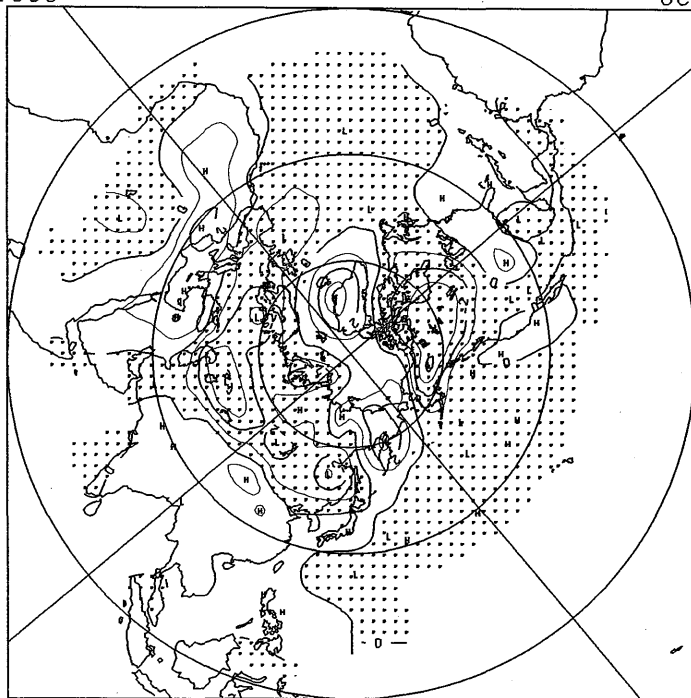
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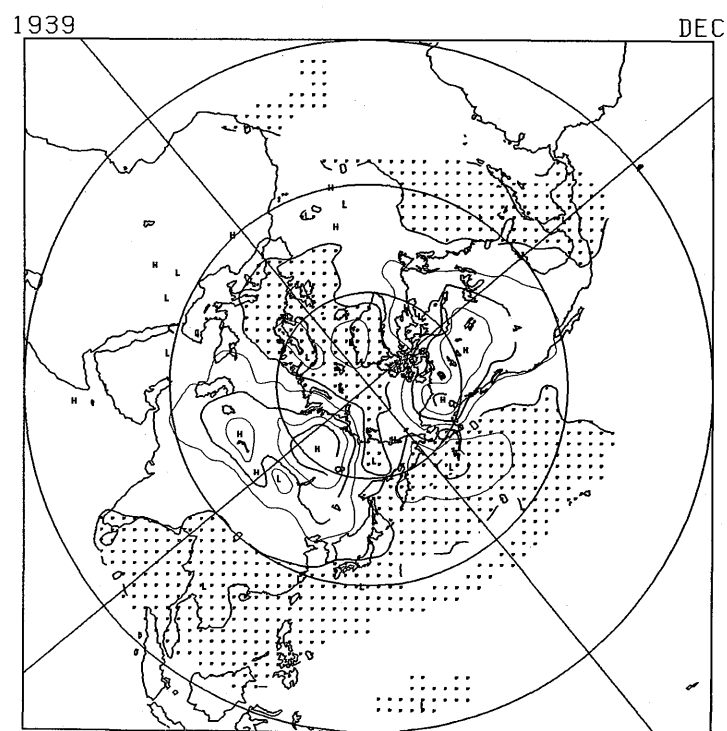
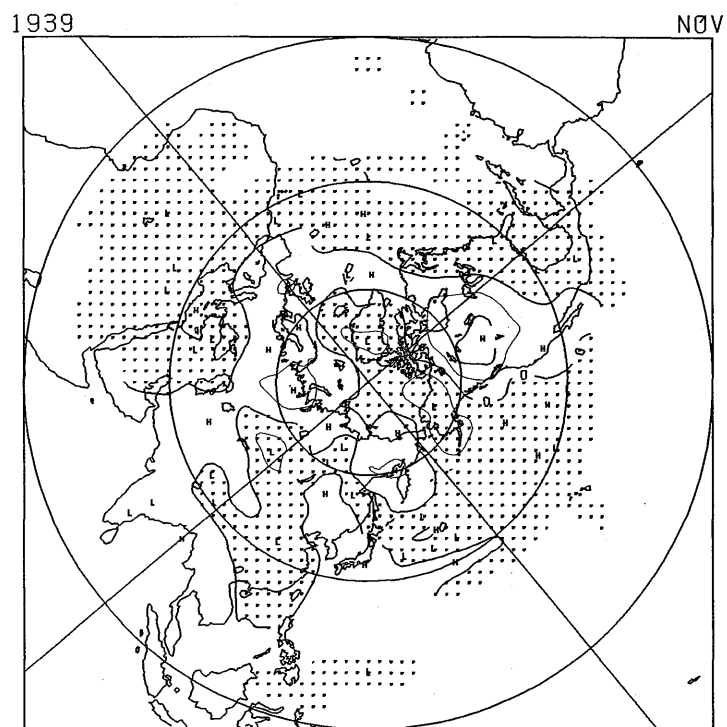
SEPT



1939

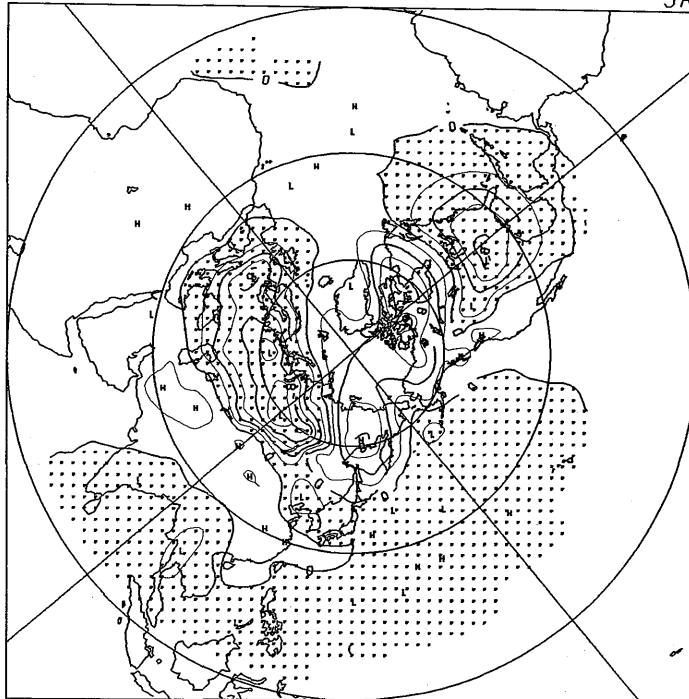
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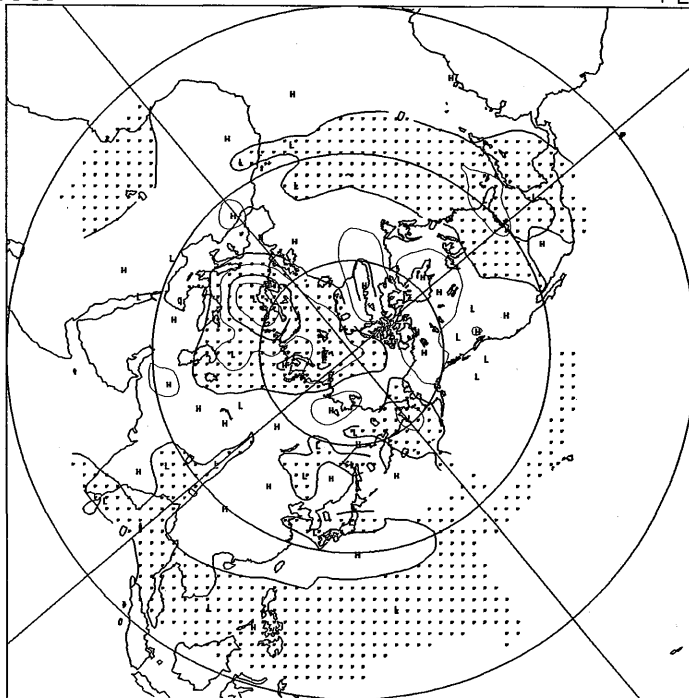
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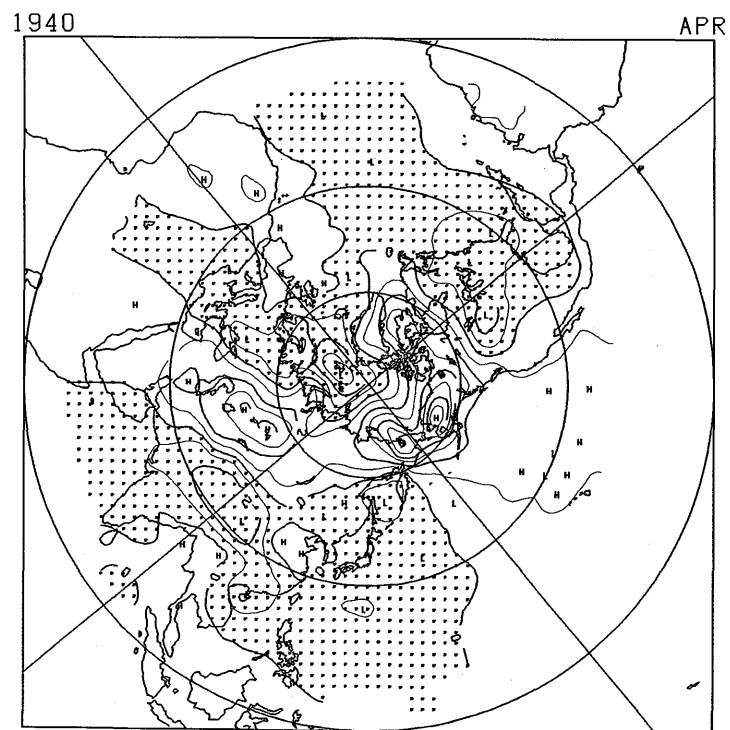
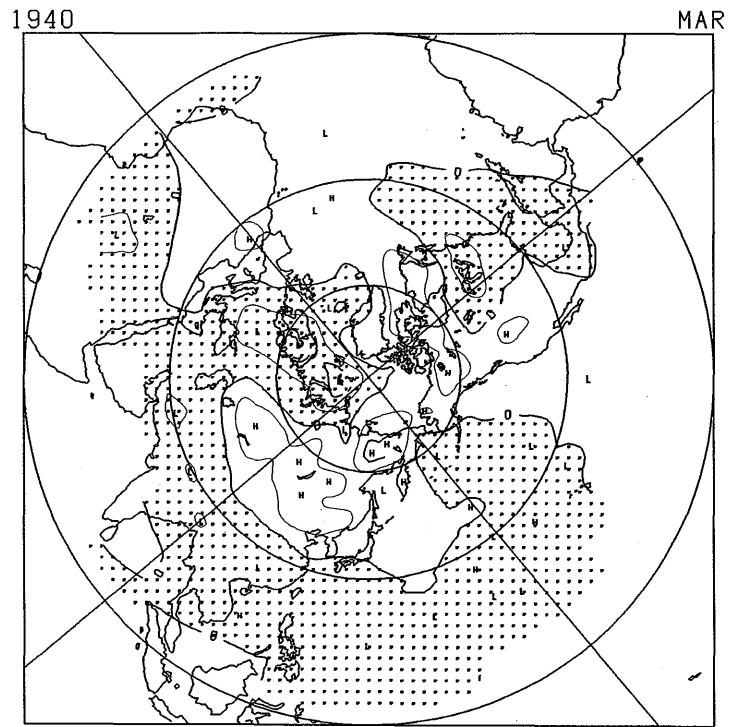
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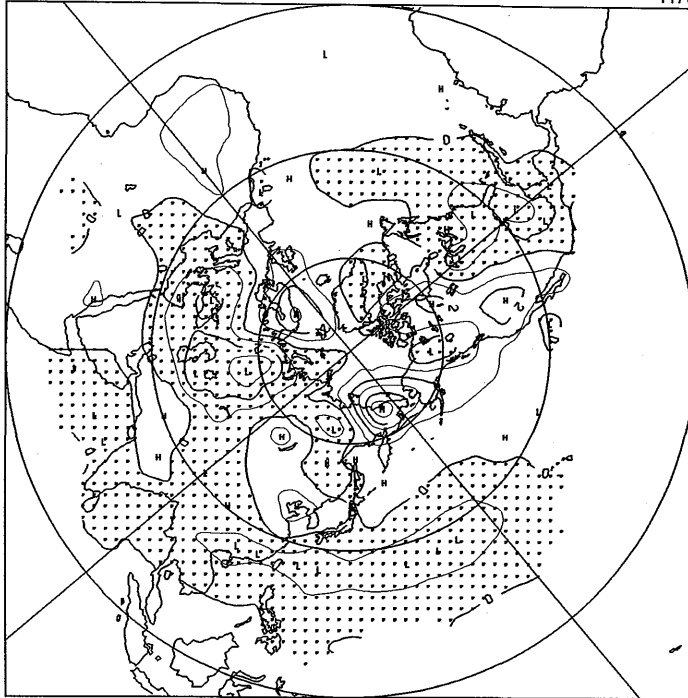
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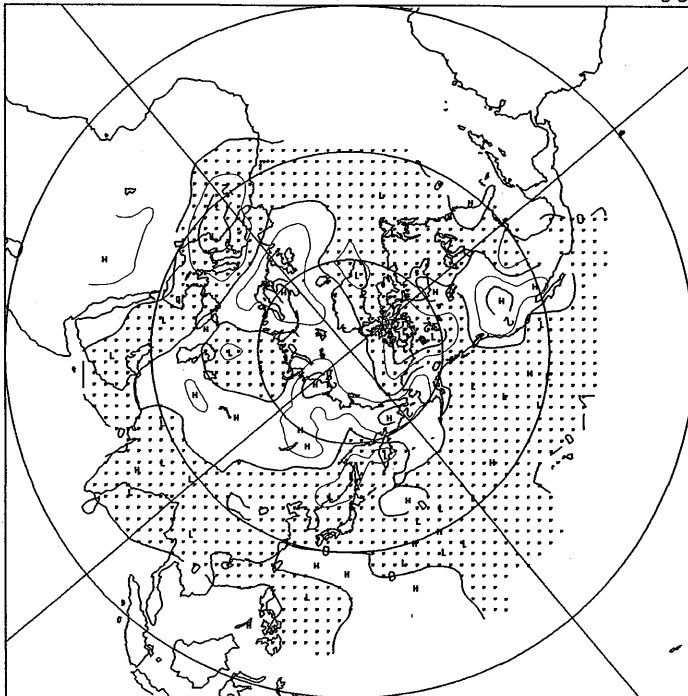
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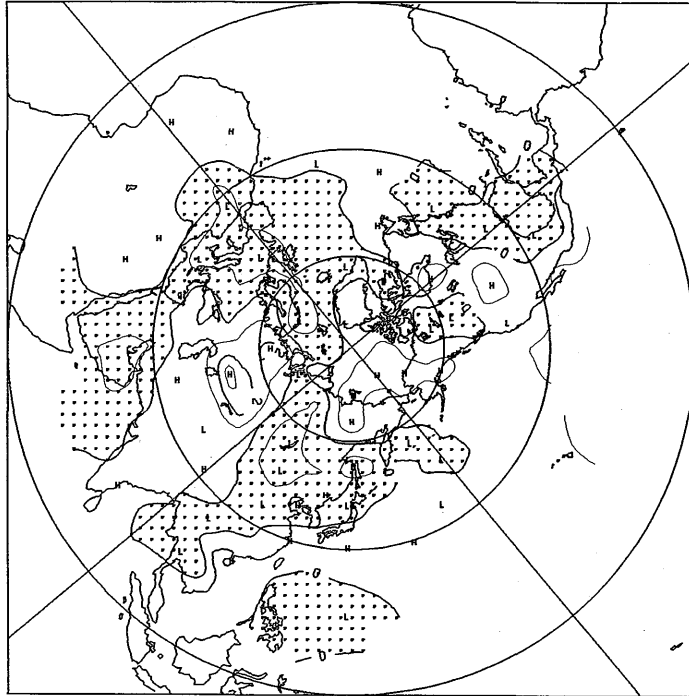
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JUN



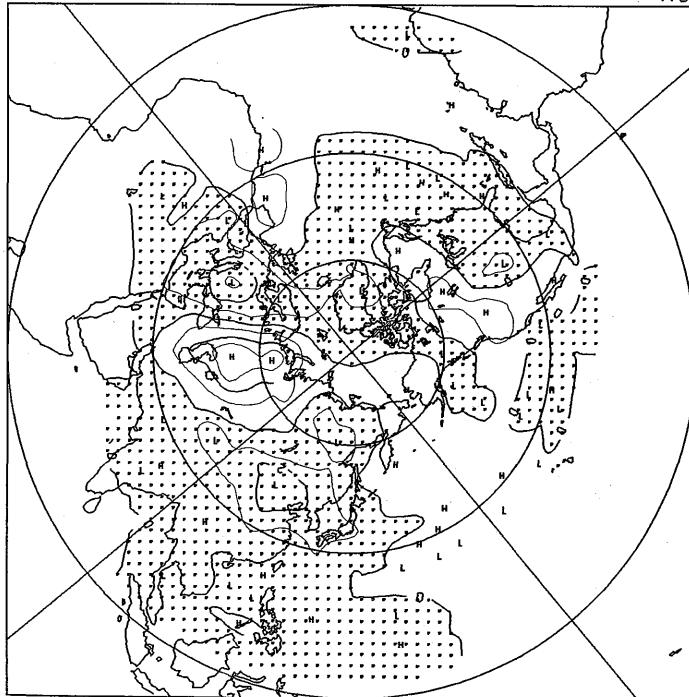
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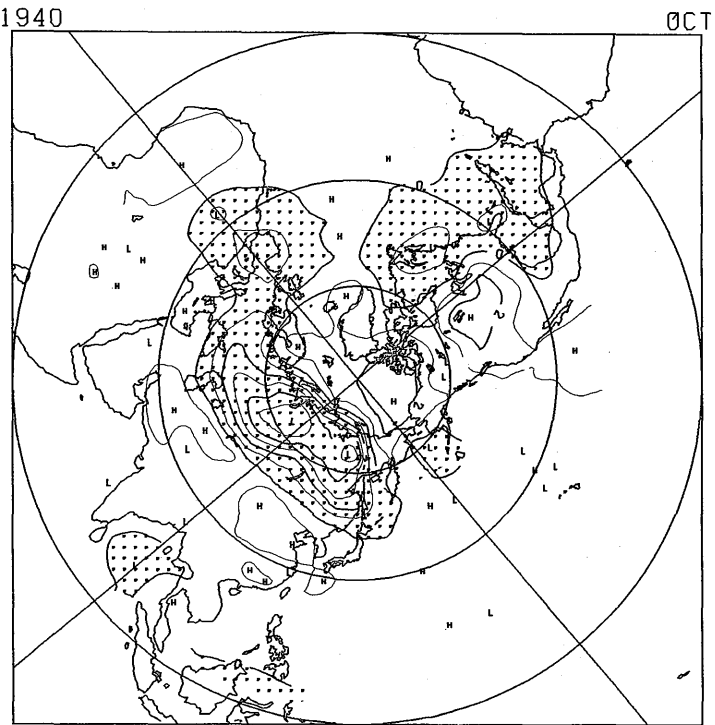
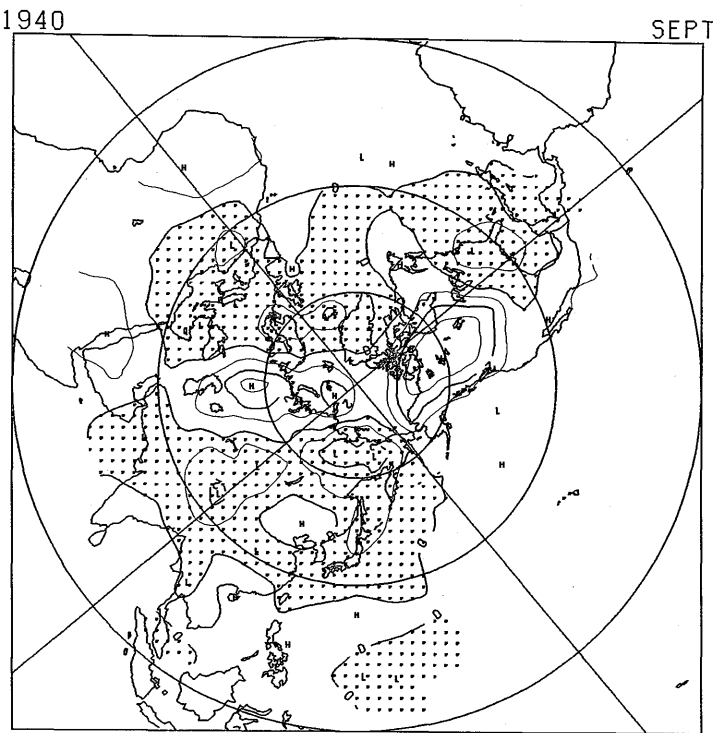
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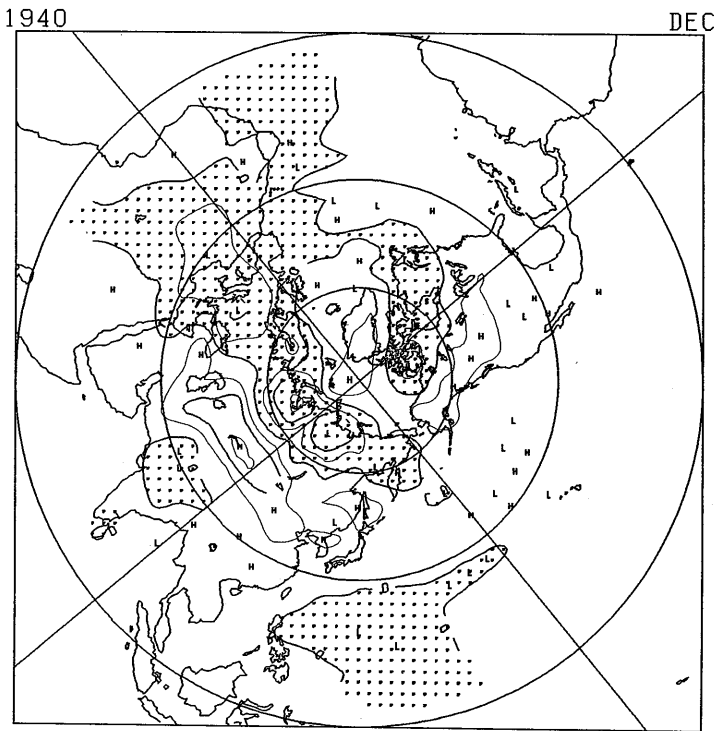
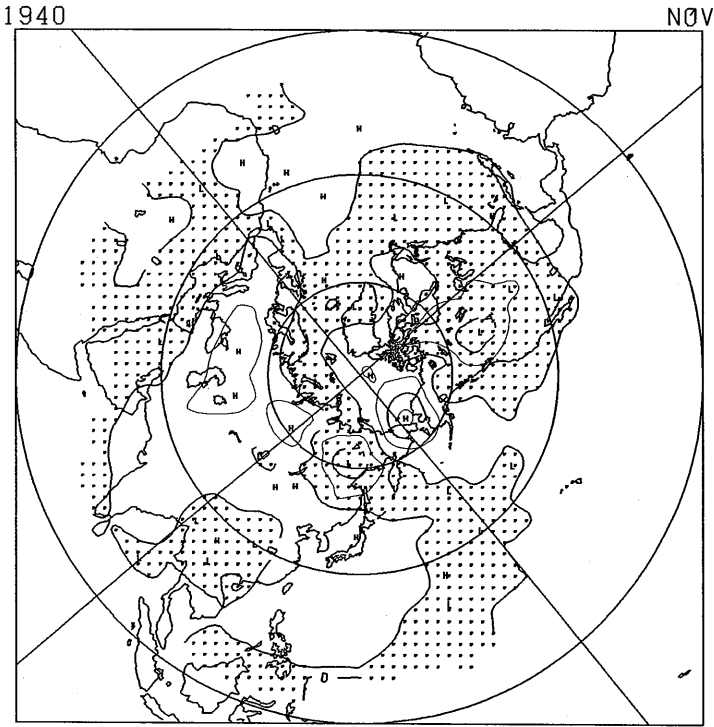


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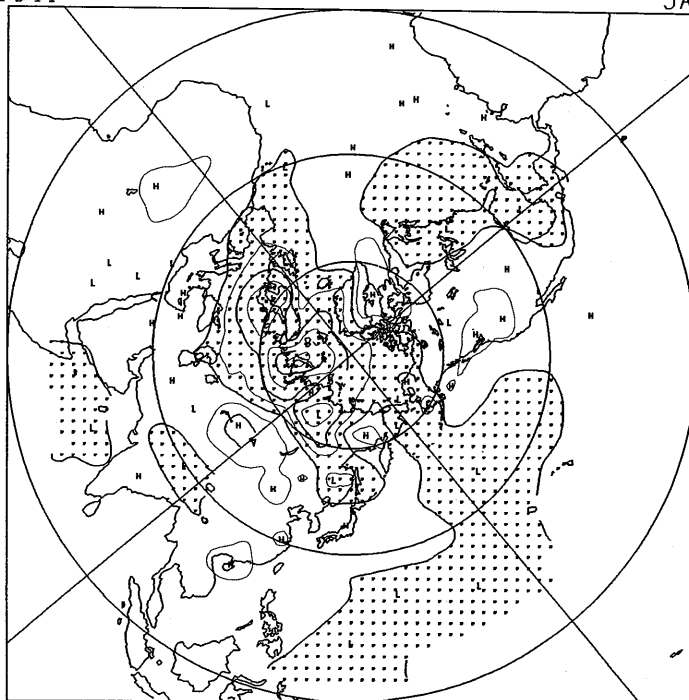






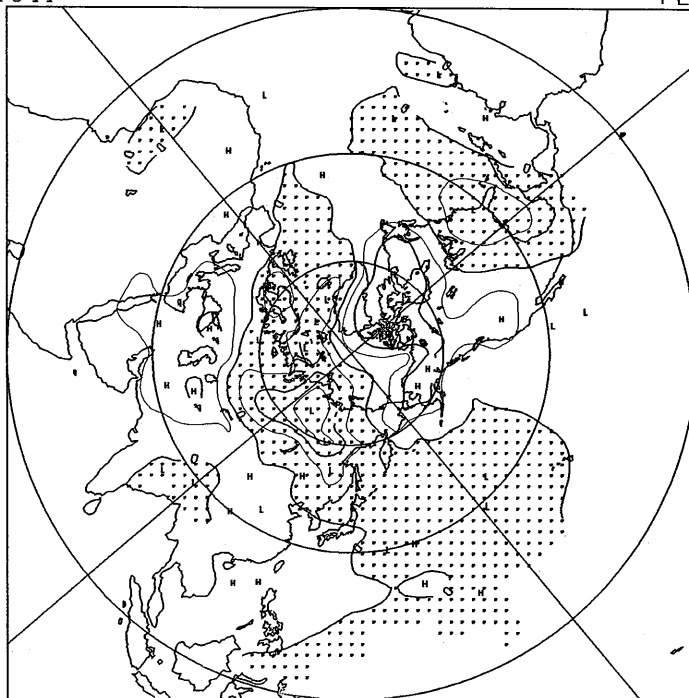
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JAN



1941

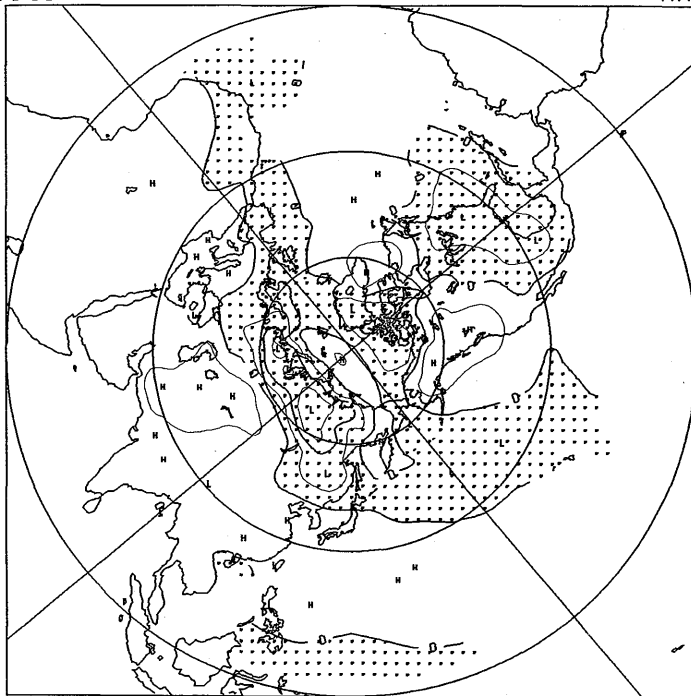
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1941年
1月

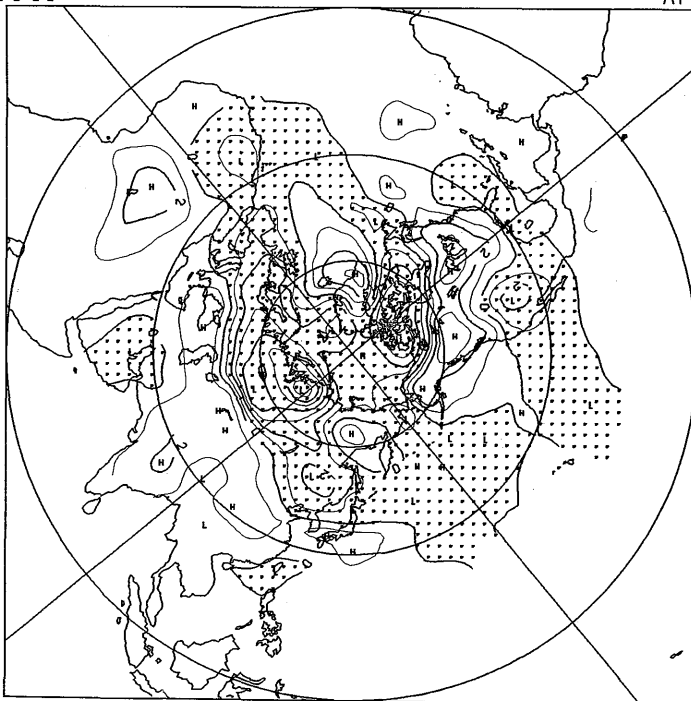
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MAR



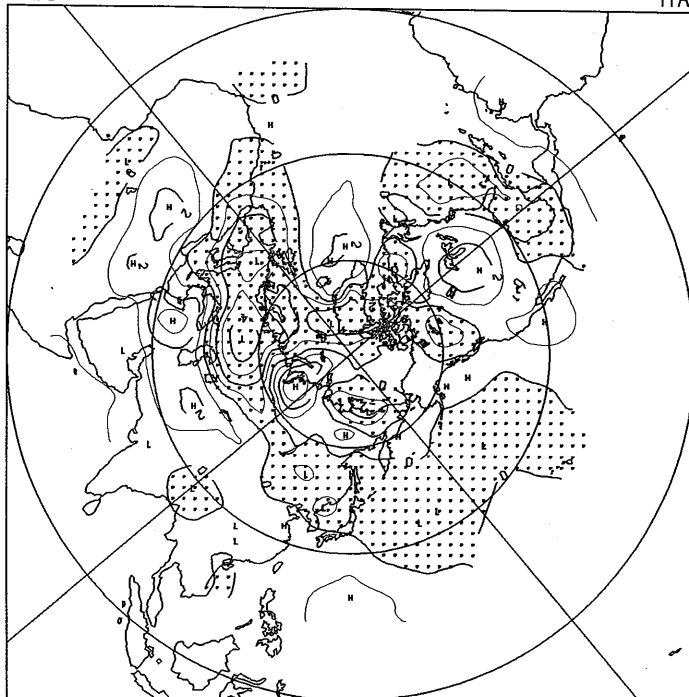
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APR



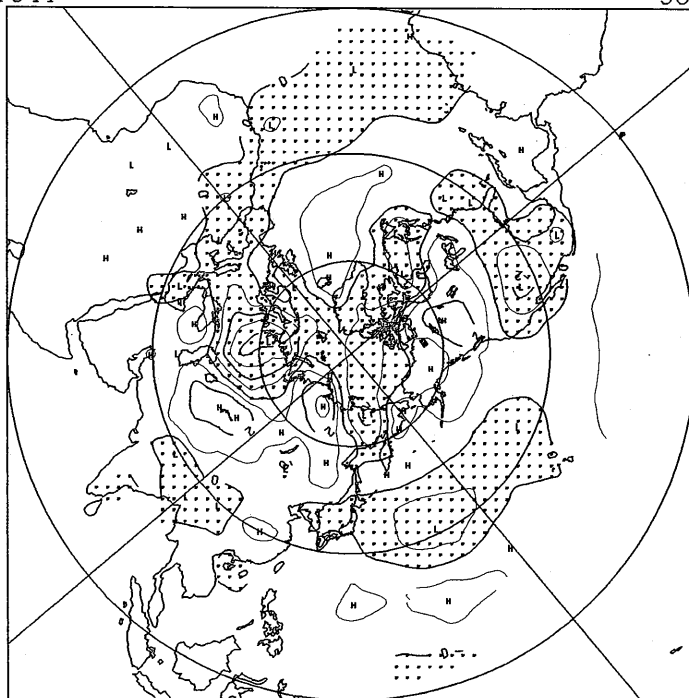
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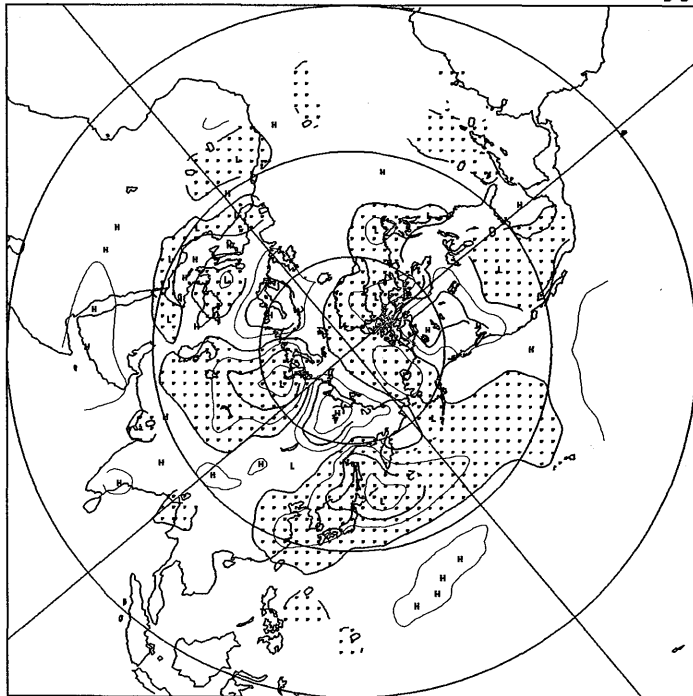
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JUN



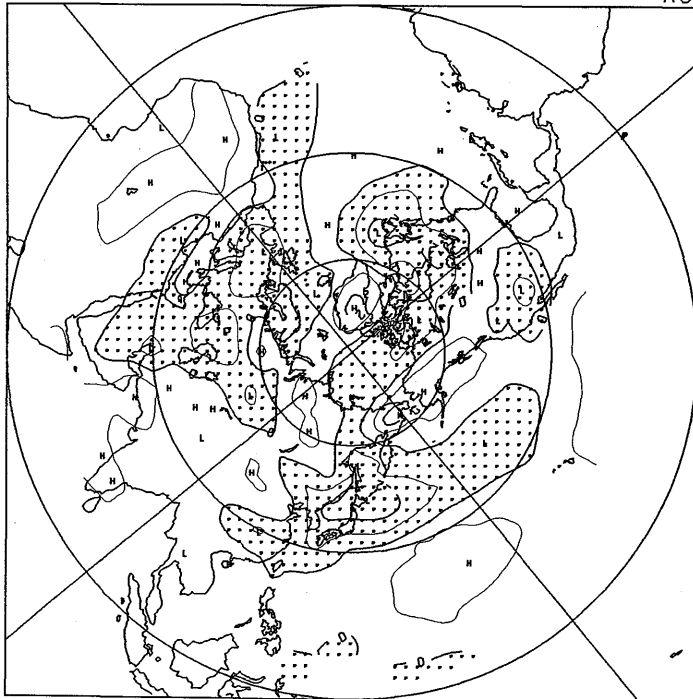
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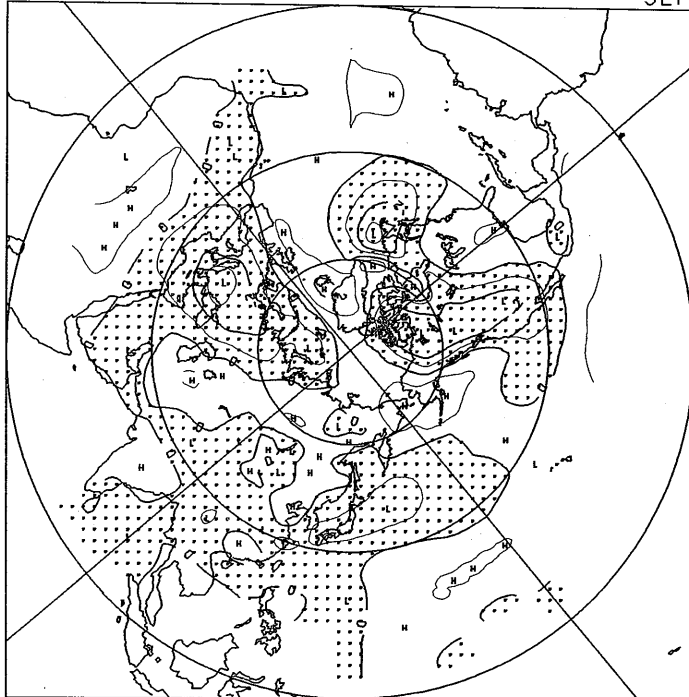
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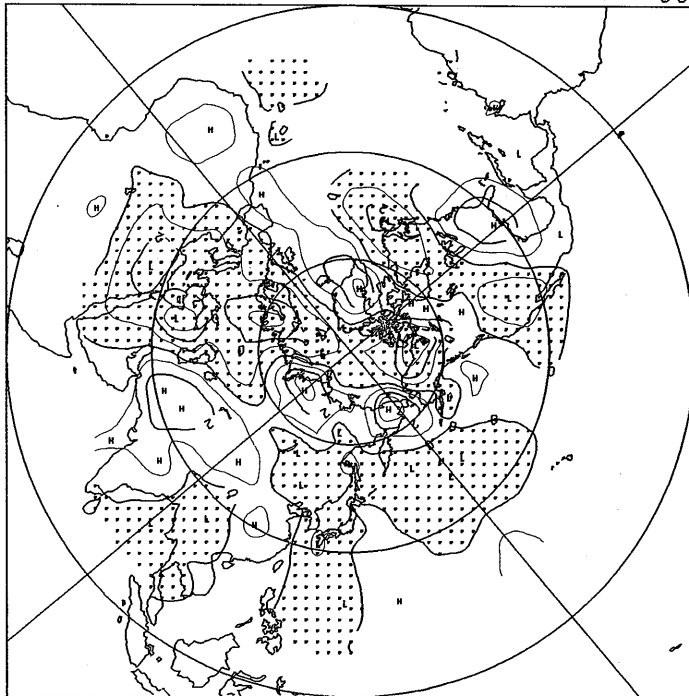
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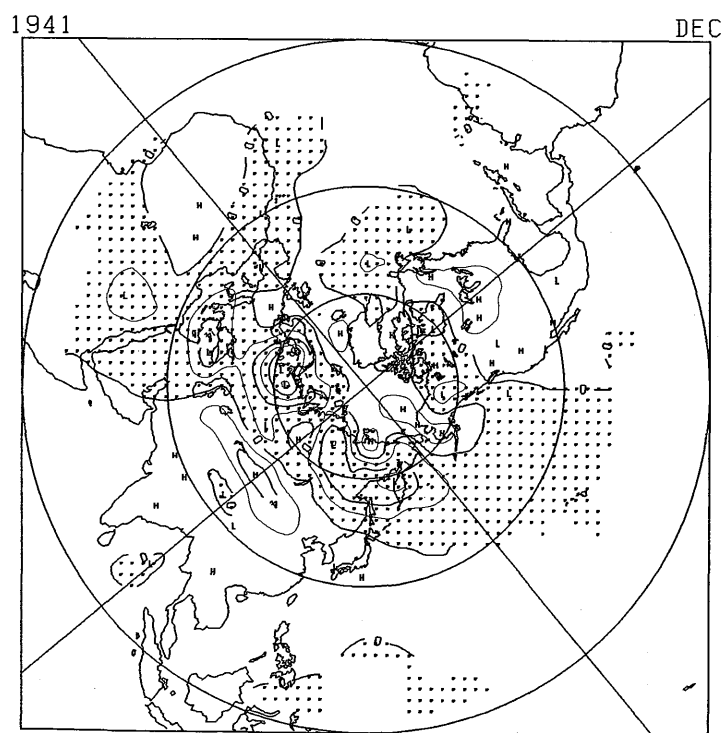
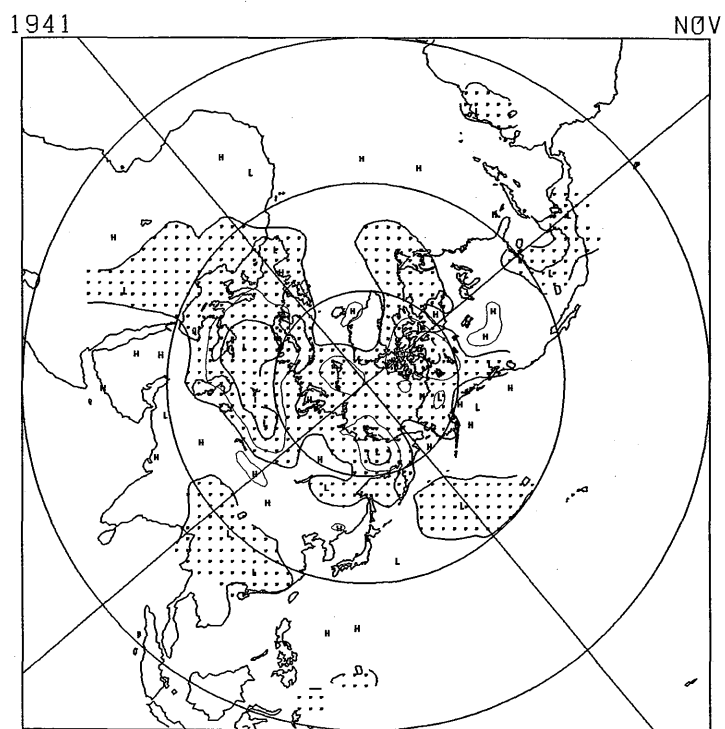
SEPT



1941

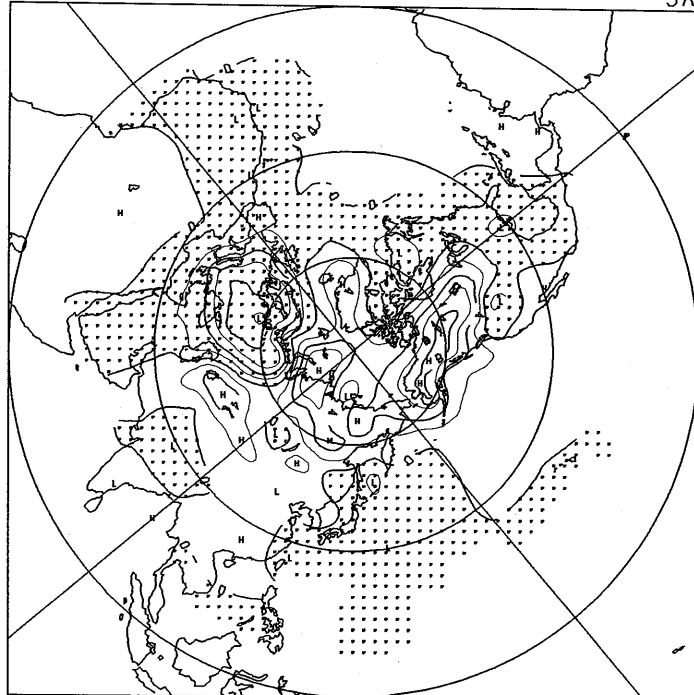
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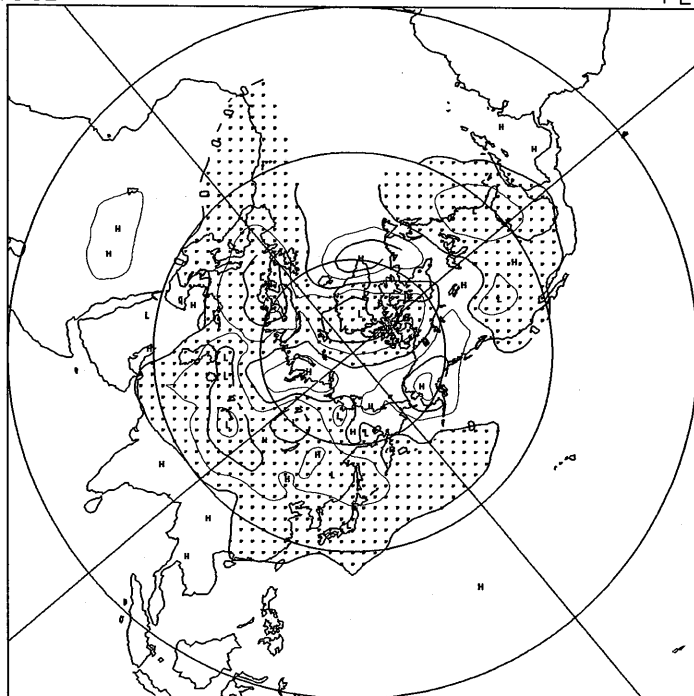
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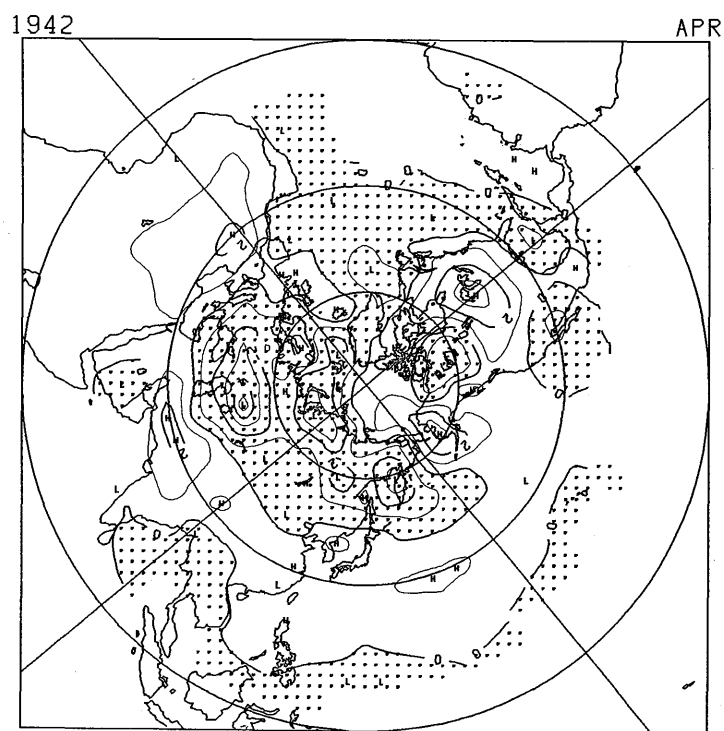
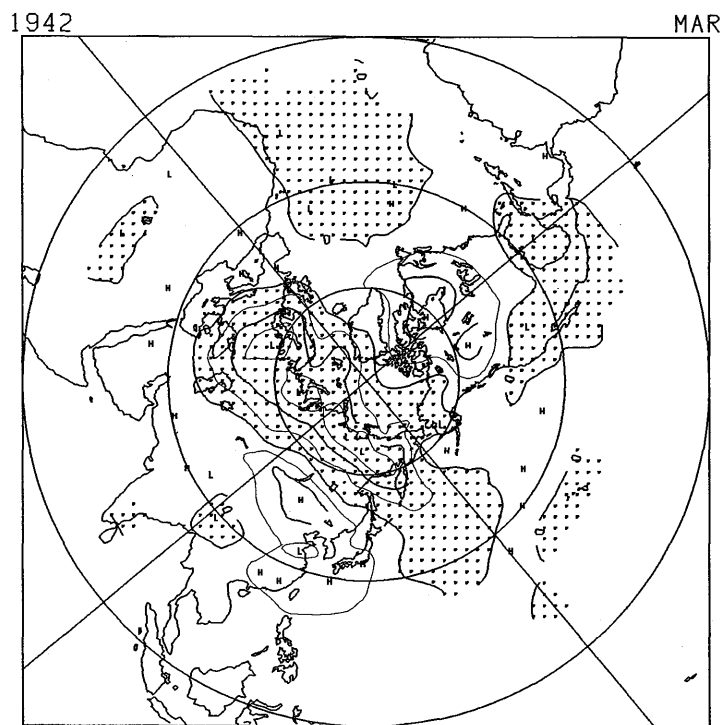
JAN



1942

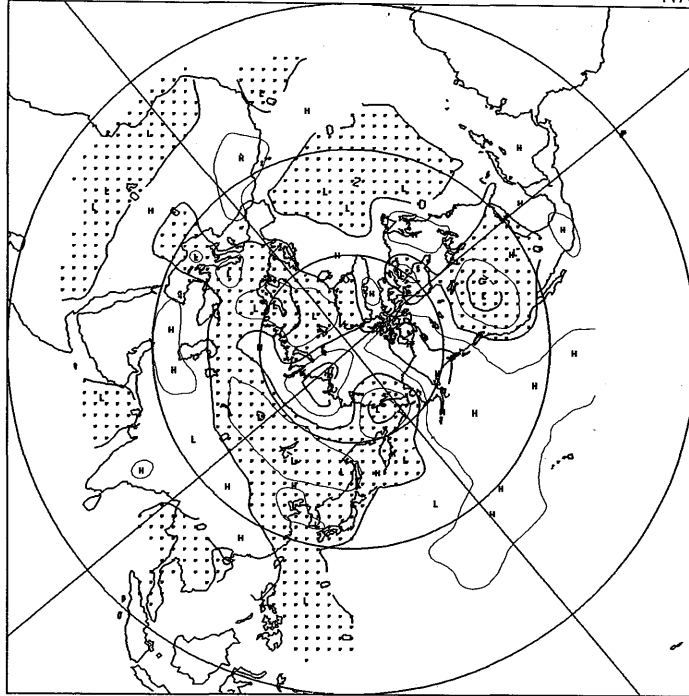
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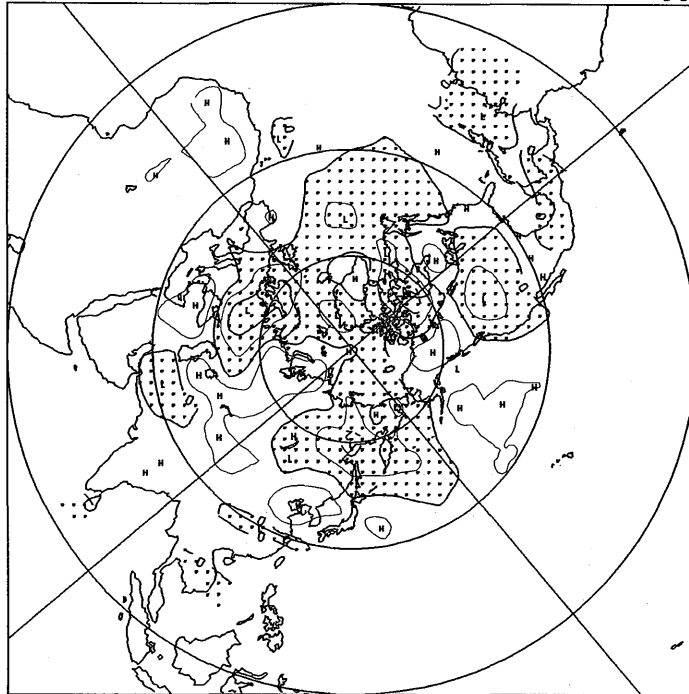
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MAY



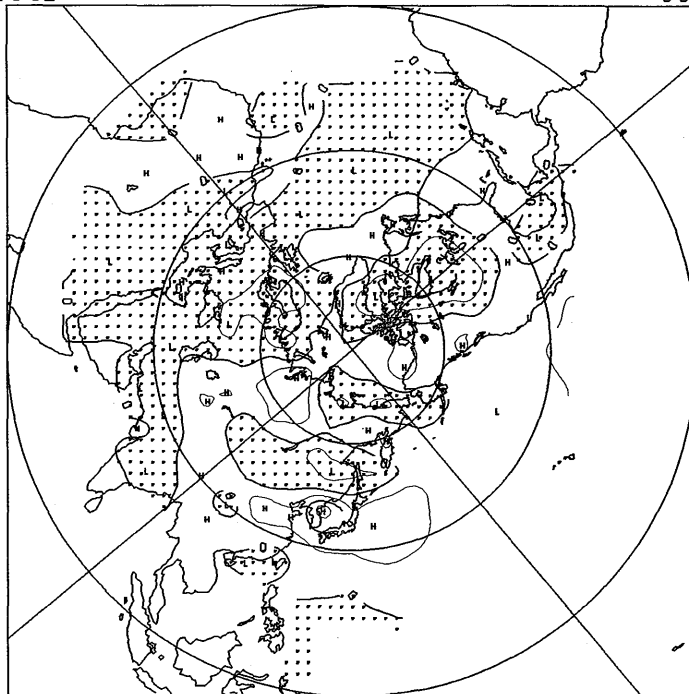
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JUN



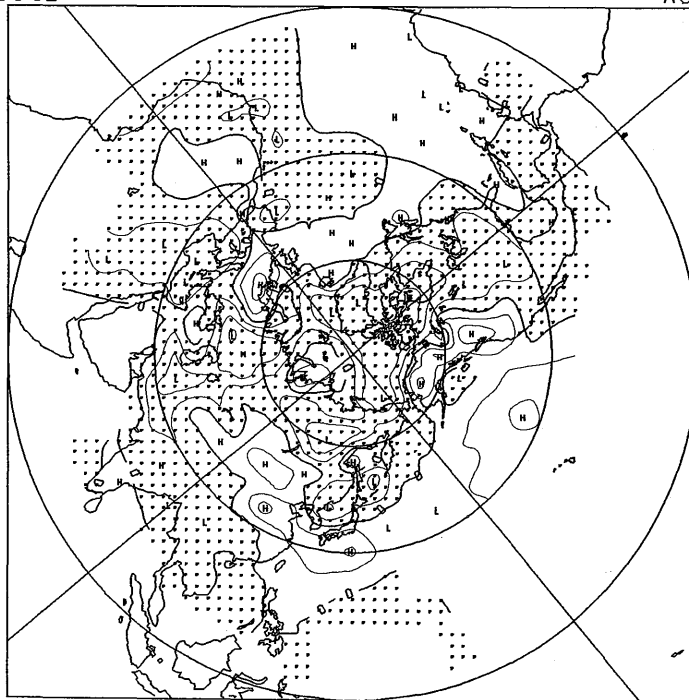
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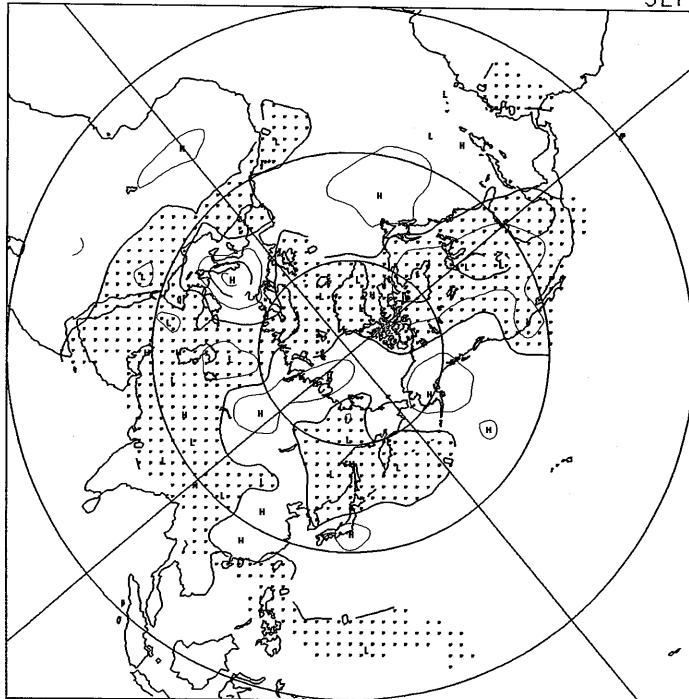
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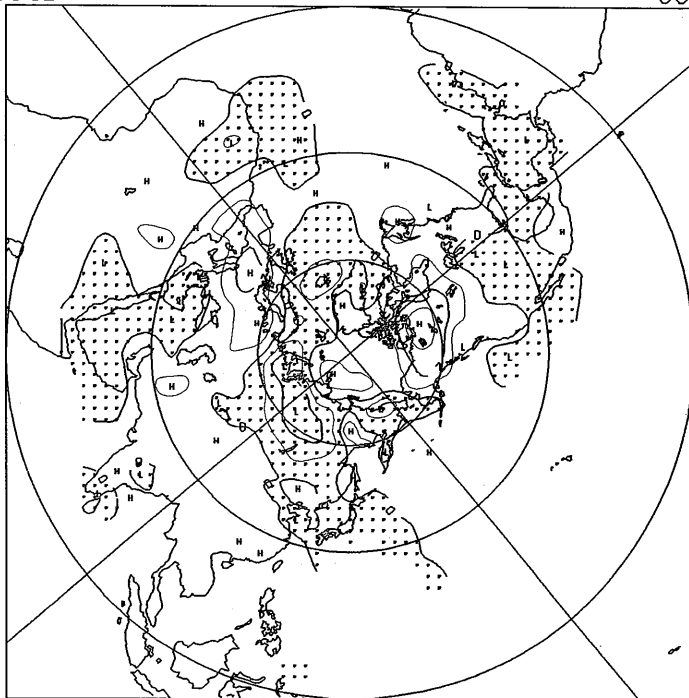
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SEPT



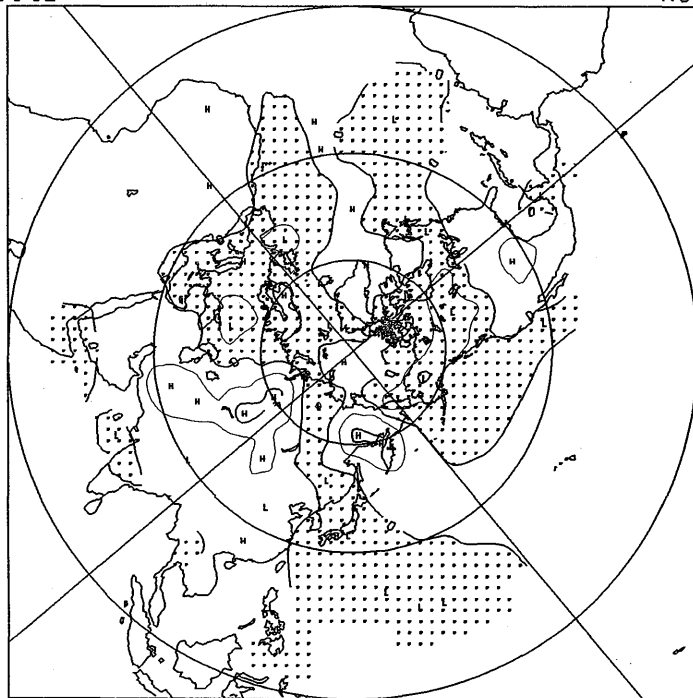
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OCT



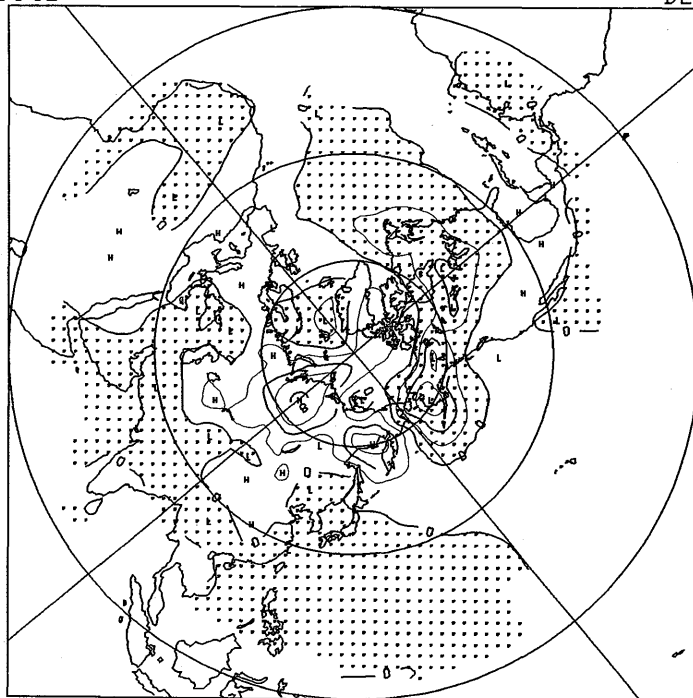
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NOV



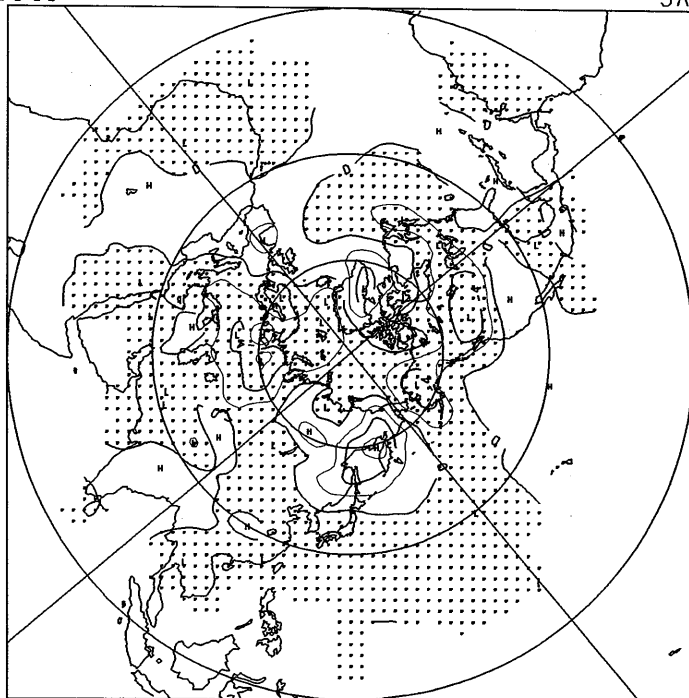
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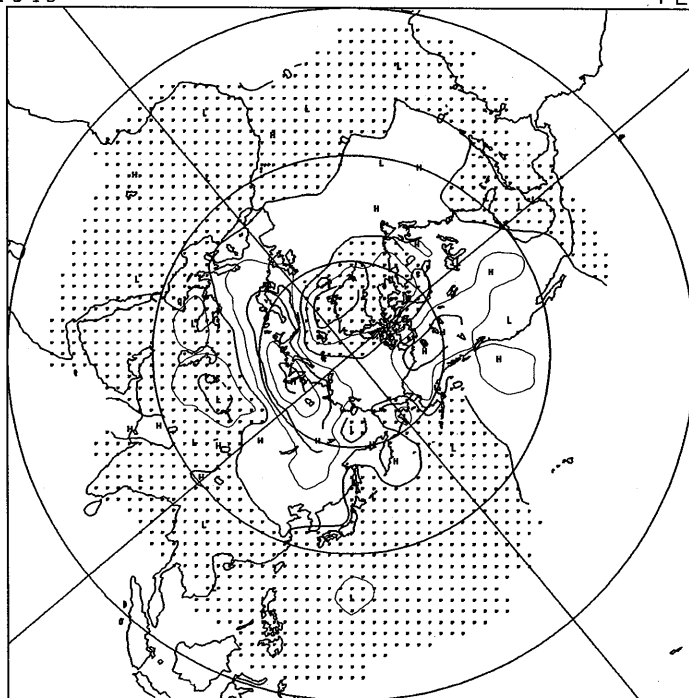
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JAN



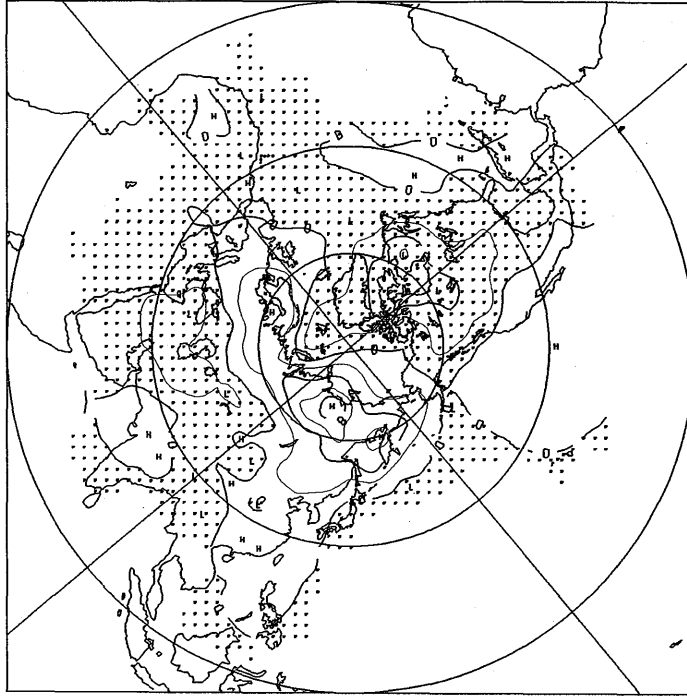
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FEB



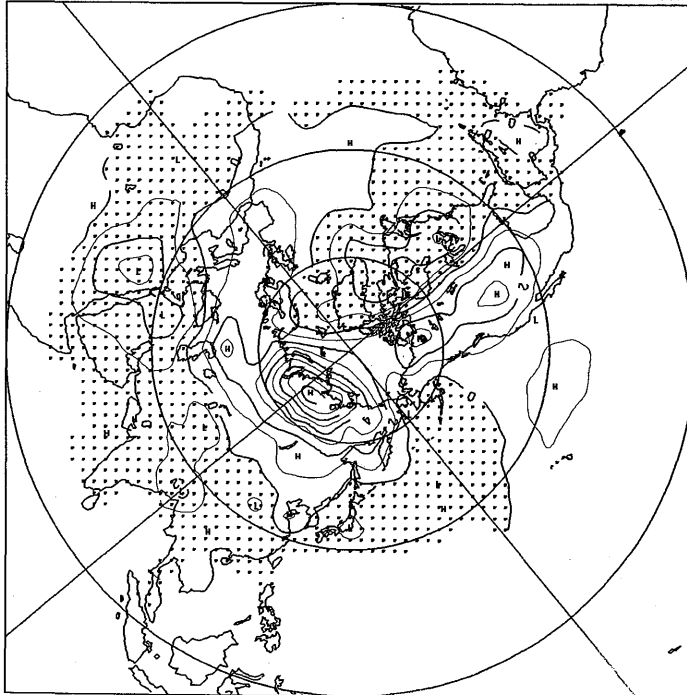
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MAR



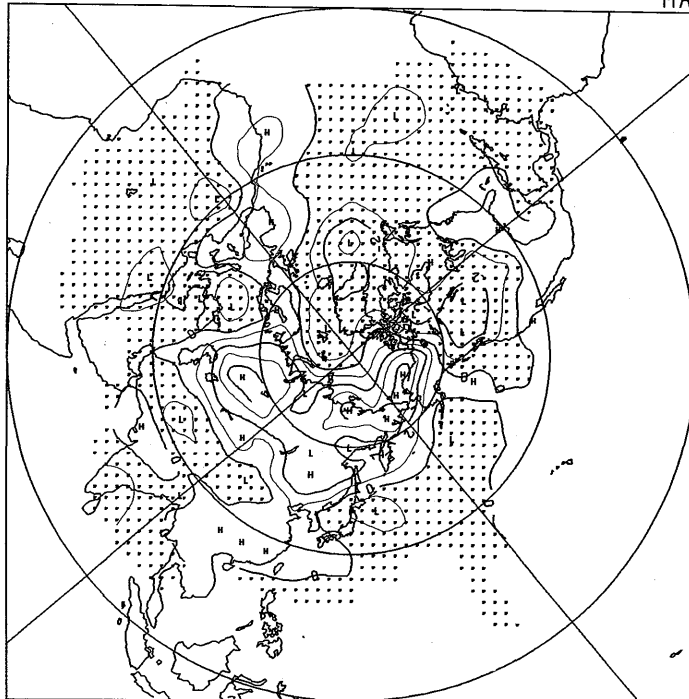
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APR



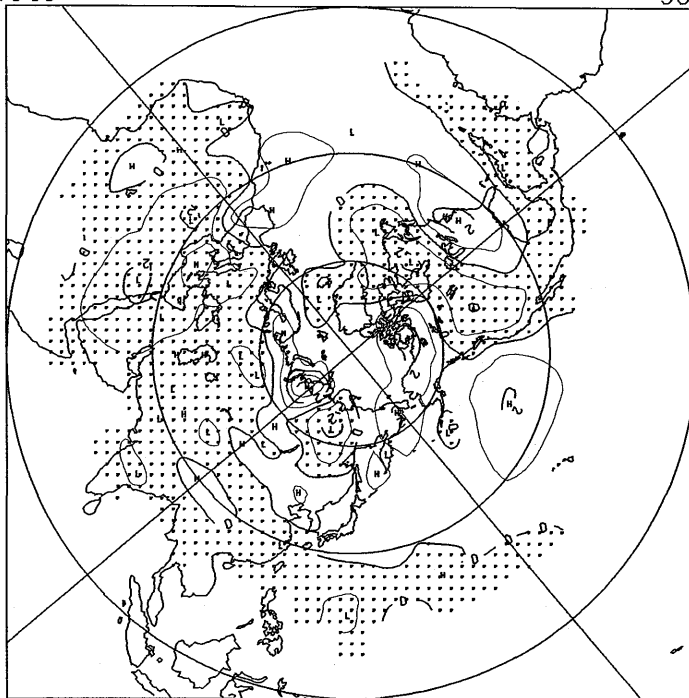
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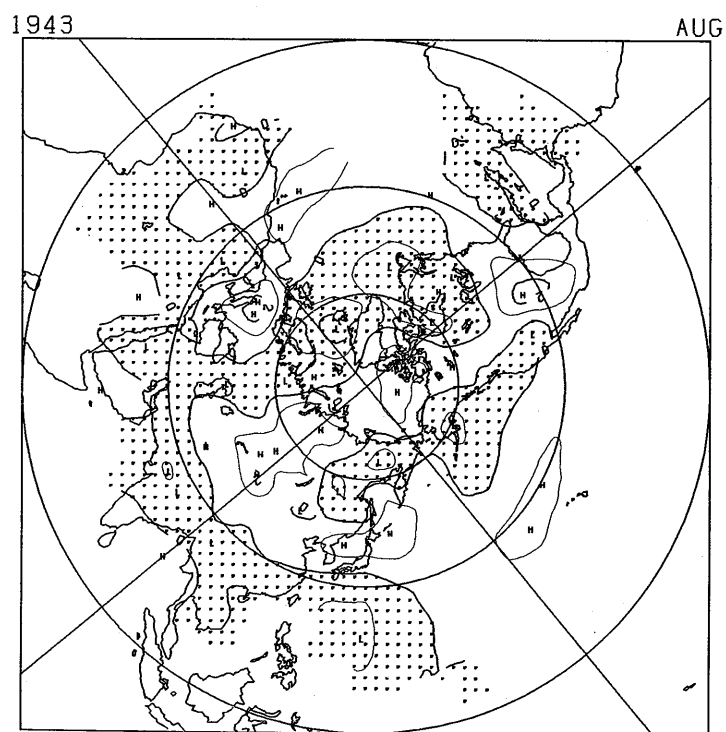
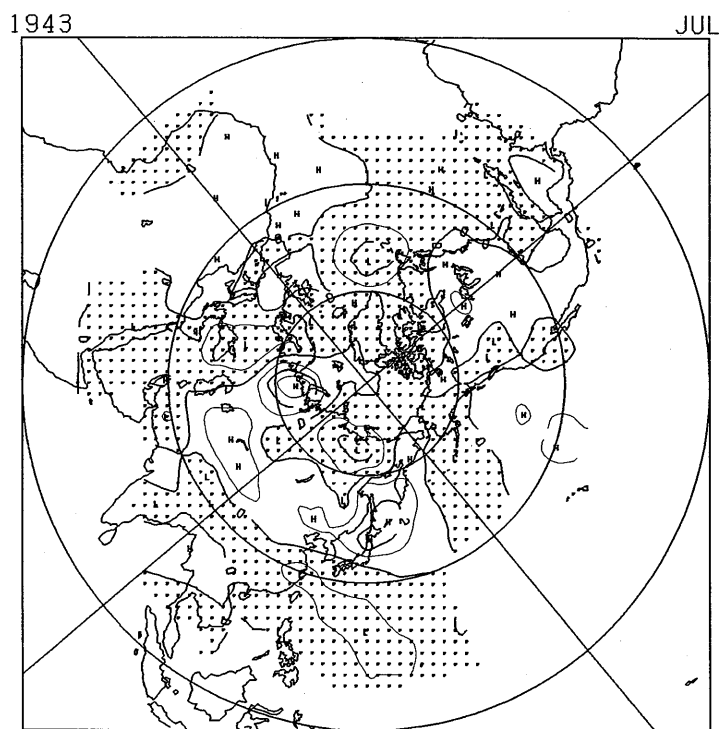
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1943

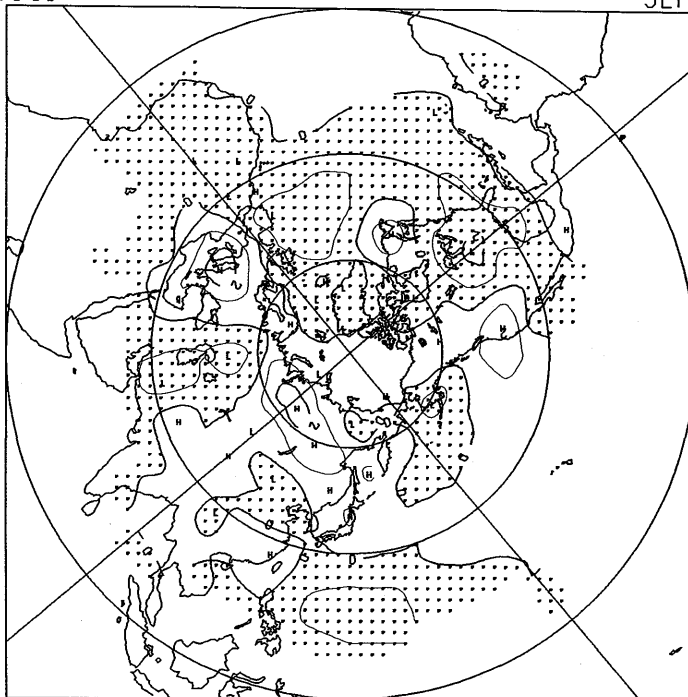
JUN





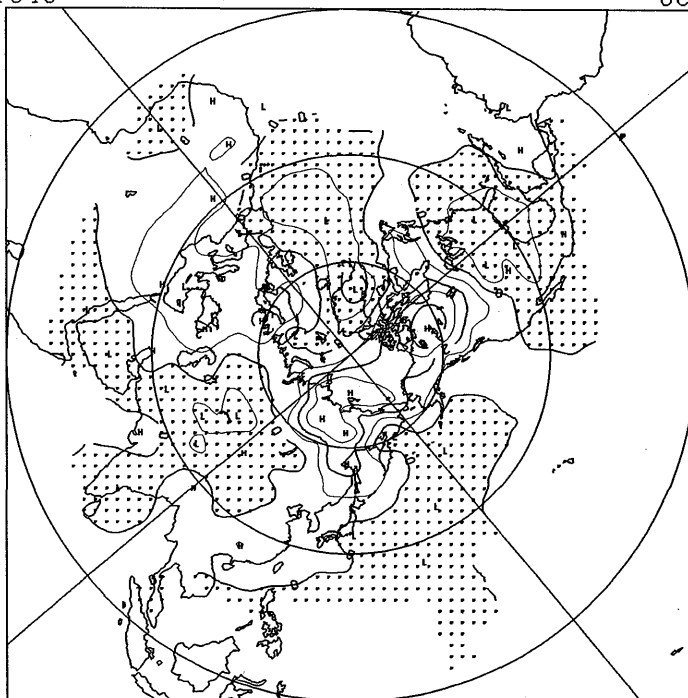
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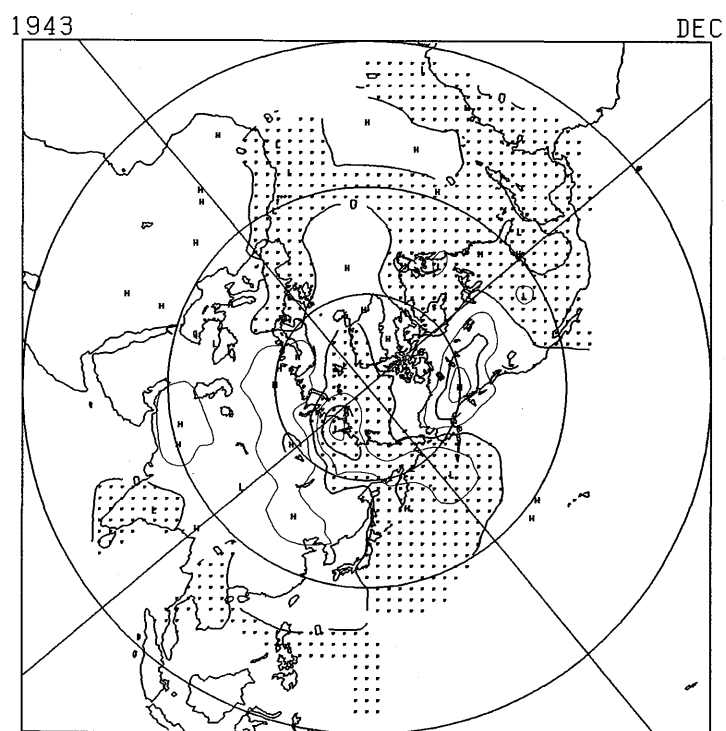
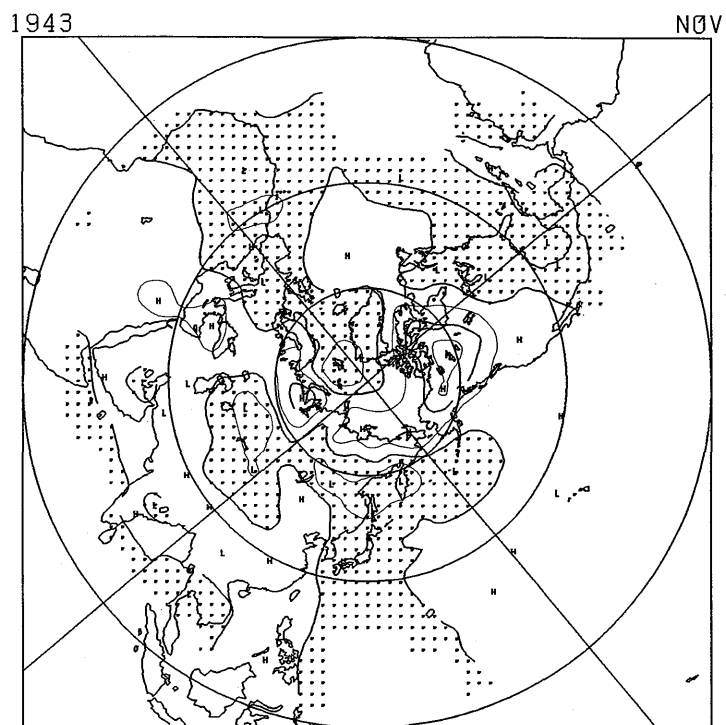
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1943

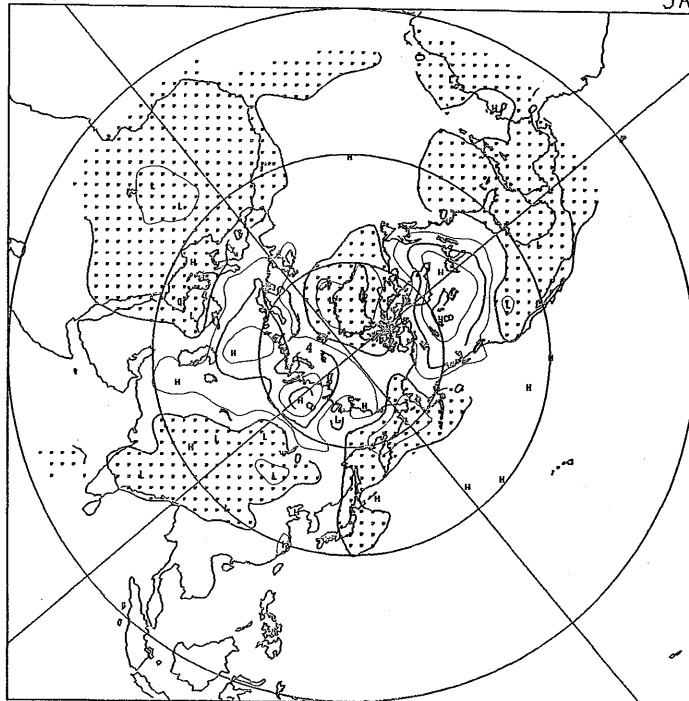
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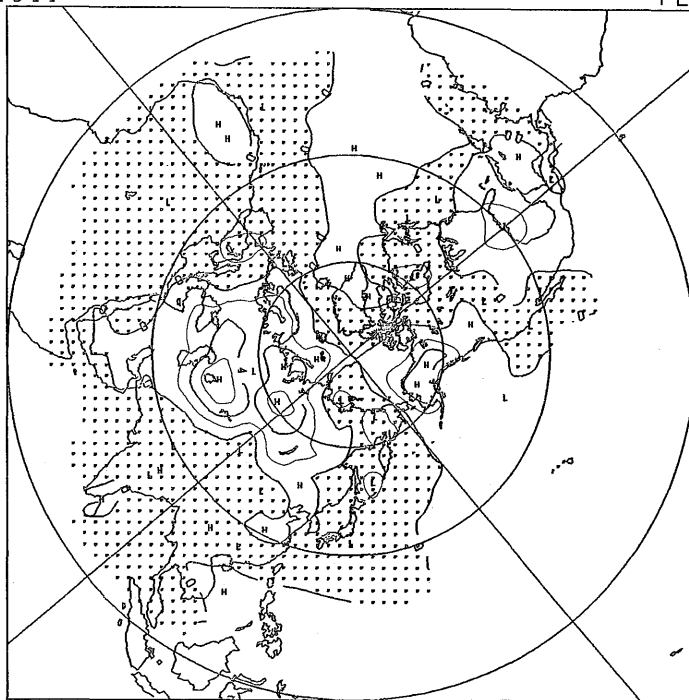
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JAN



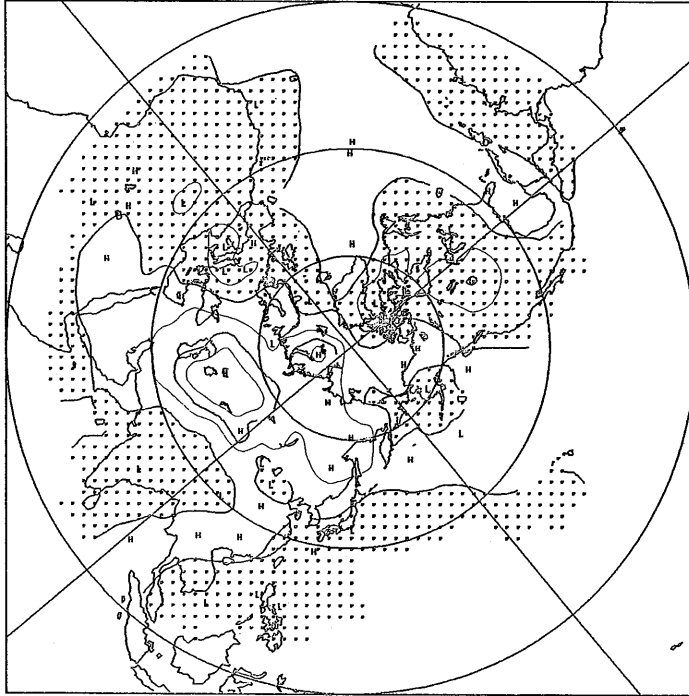
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FEB



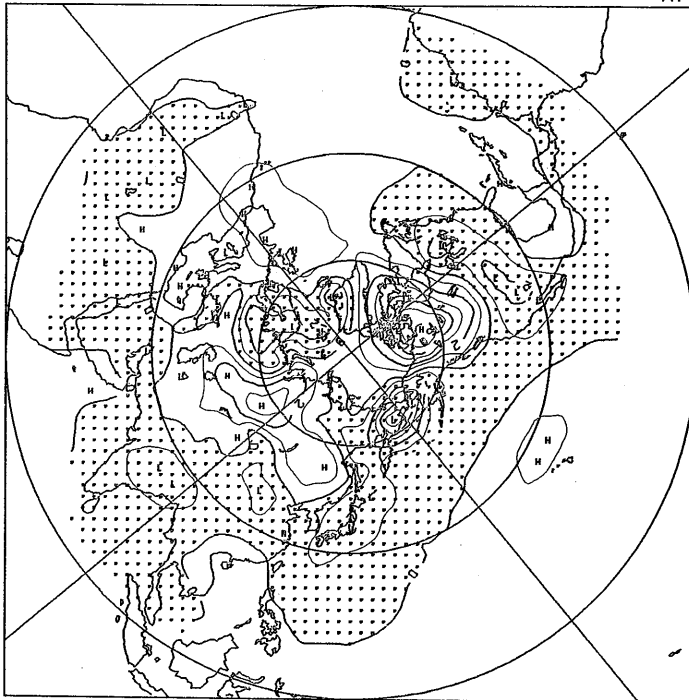
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MAR



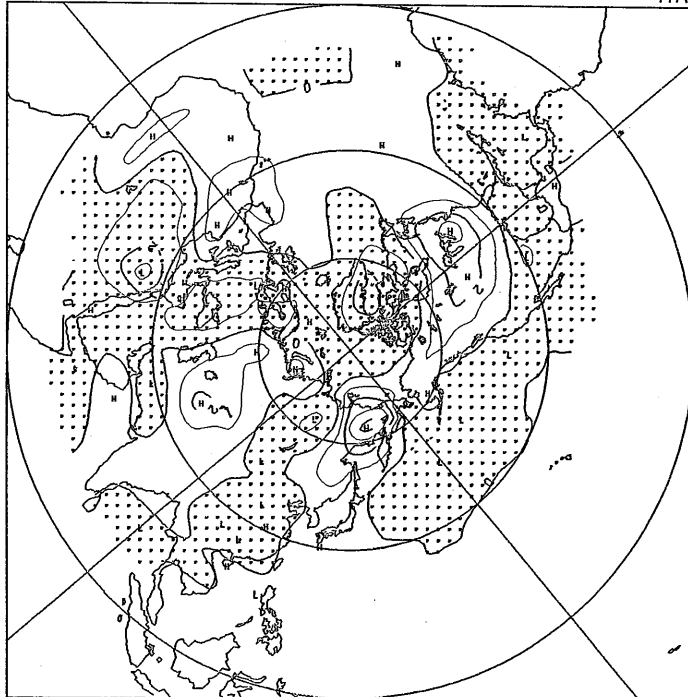
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APR



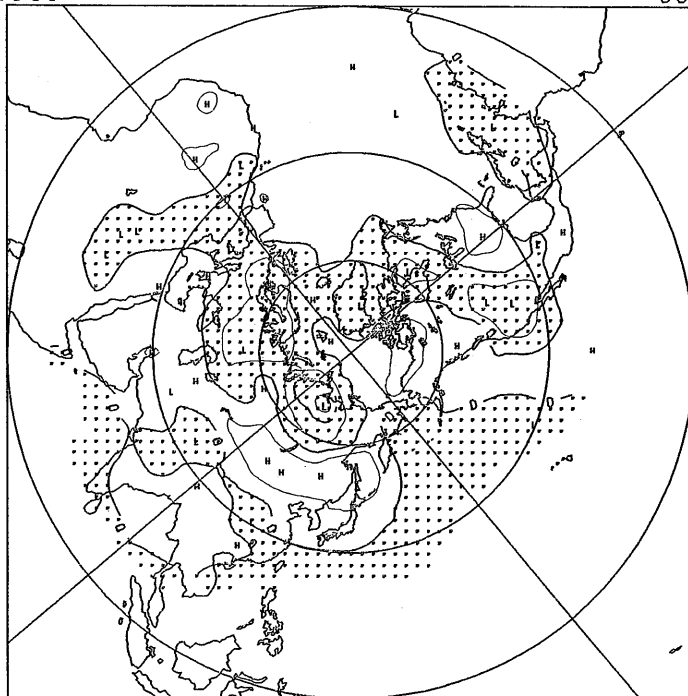
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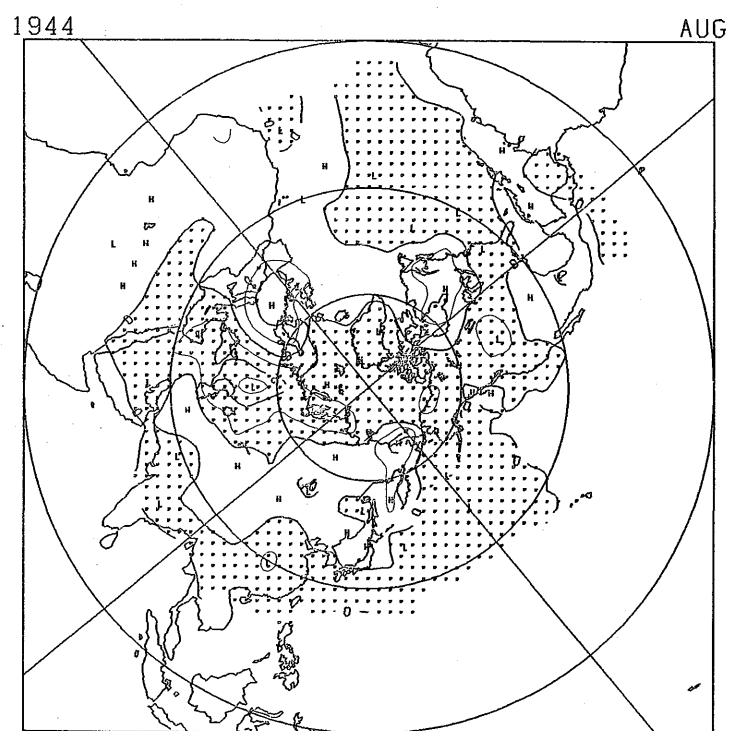
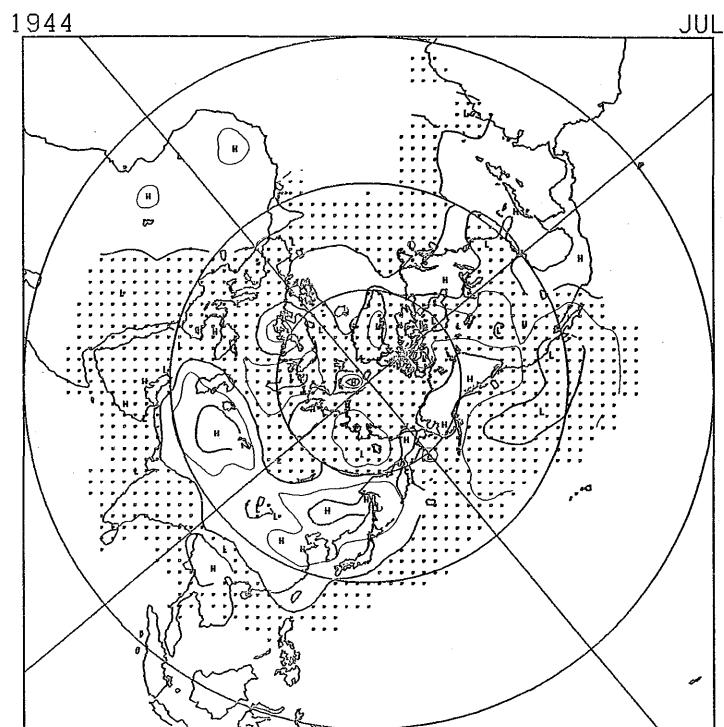
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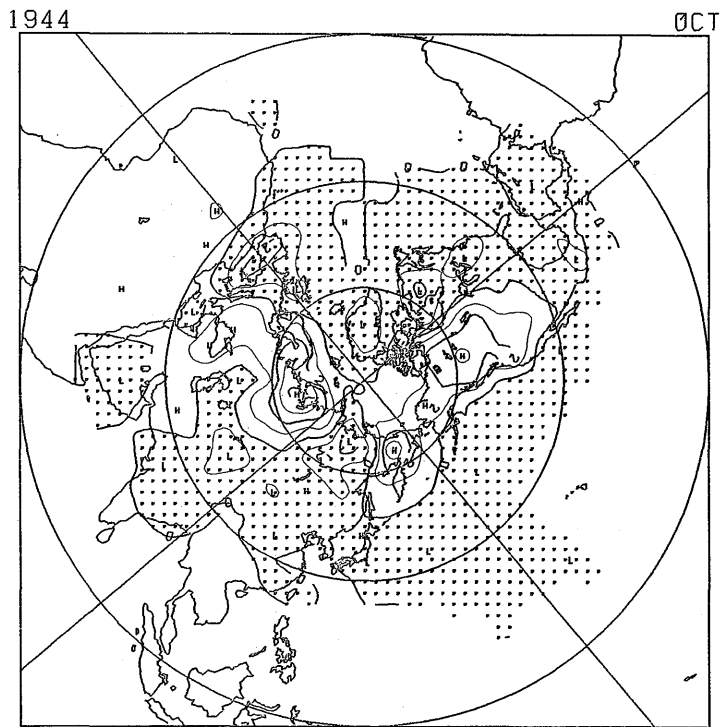
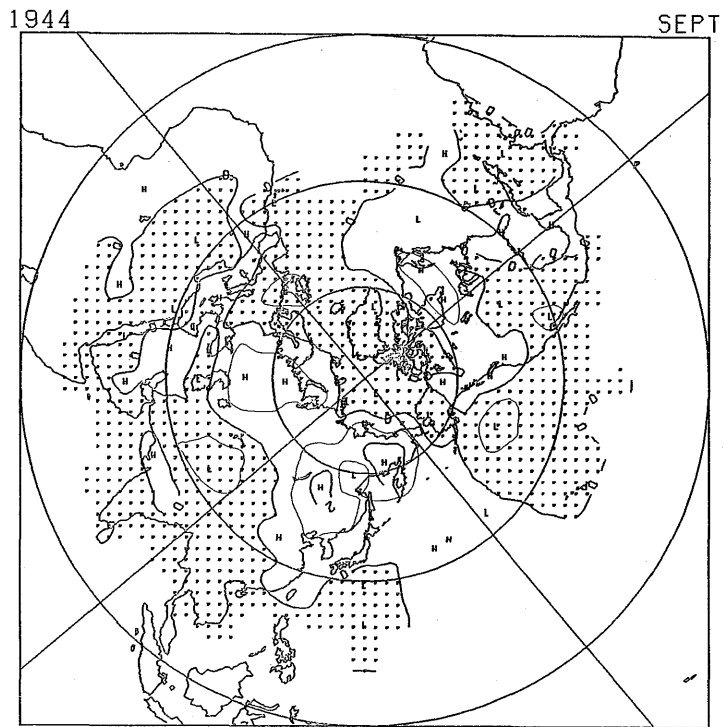


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JUN

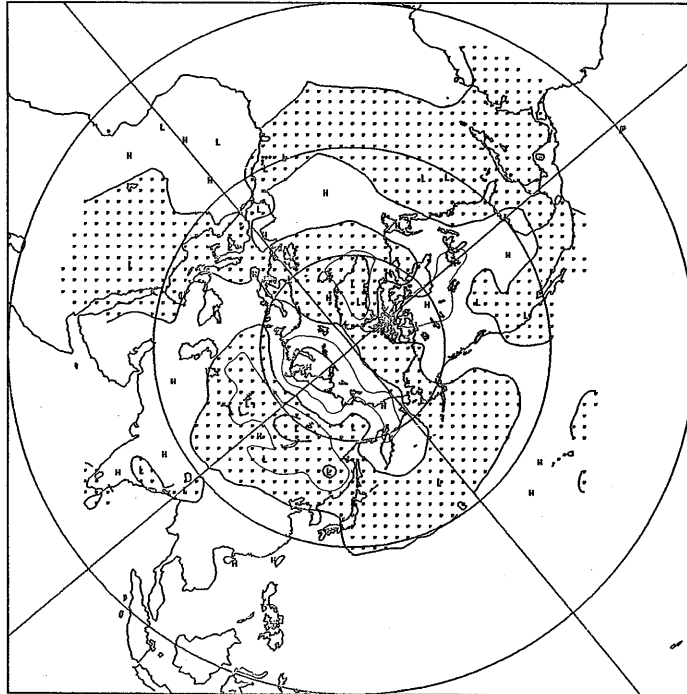






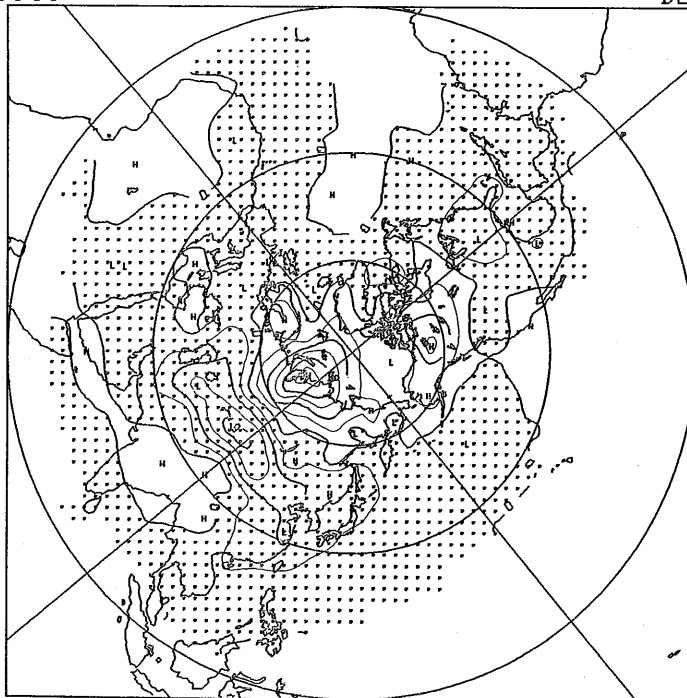
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NOV



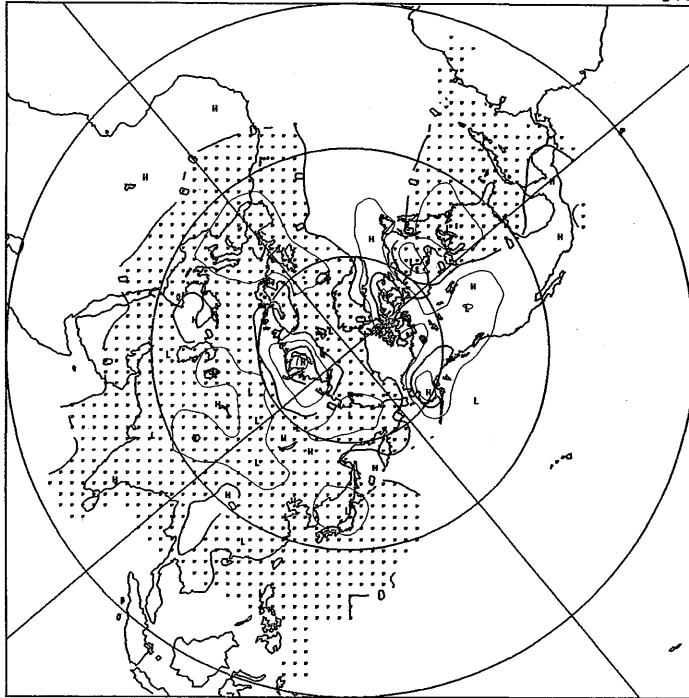
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DEC



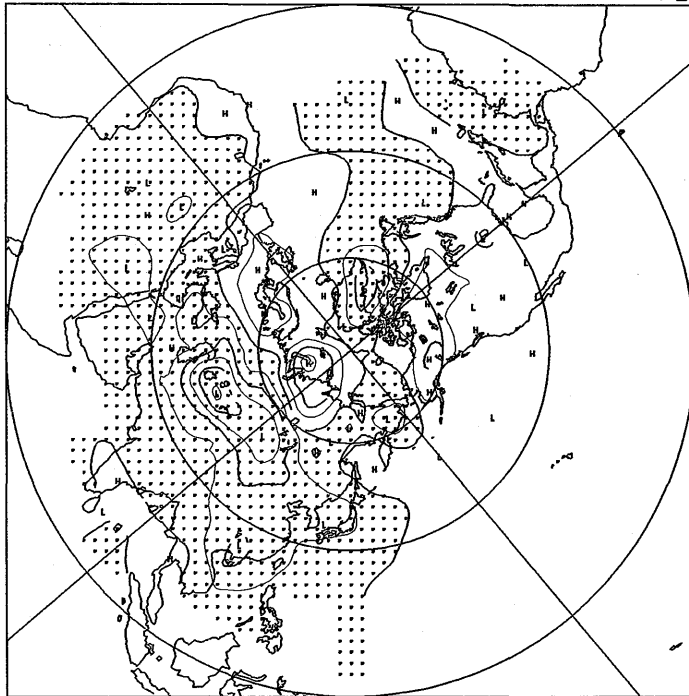
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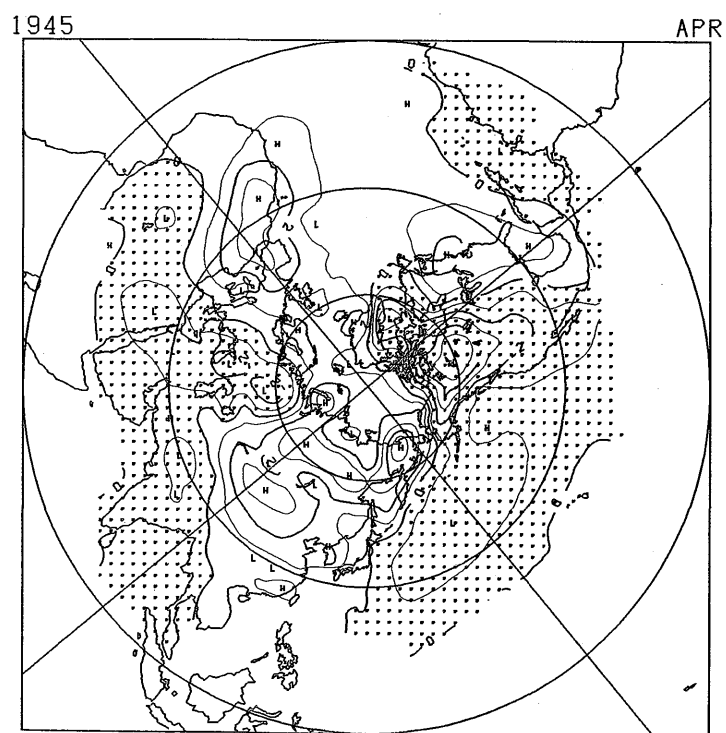
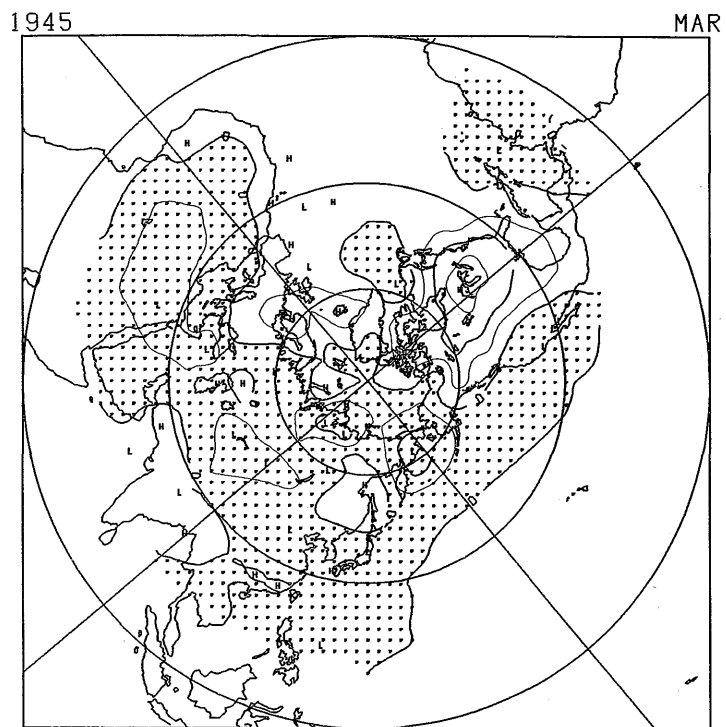
JAN



1945

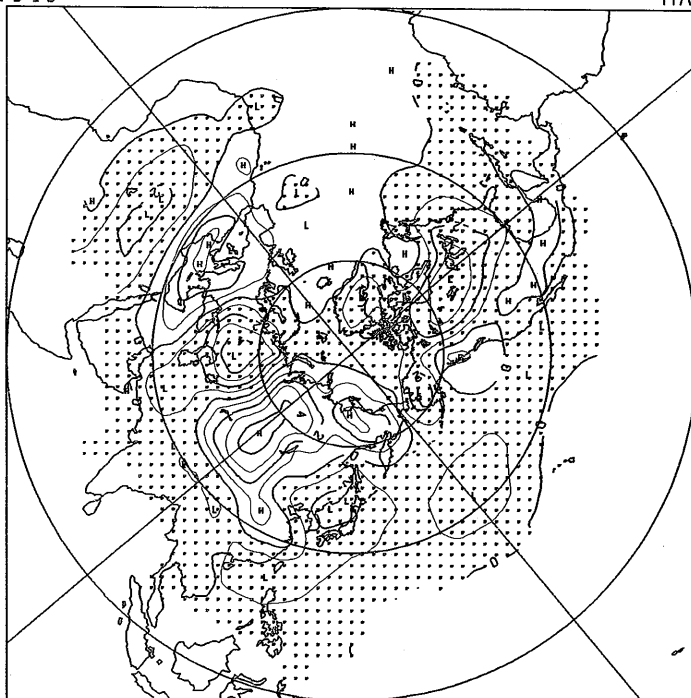
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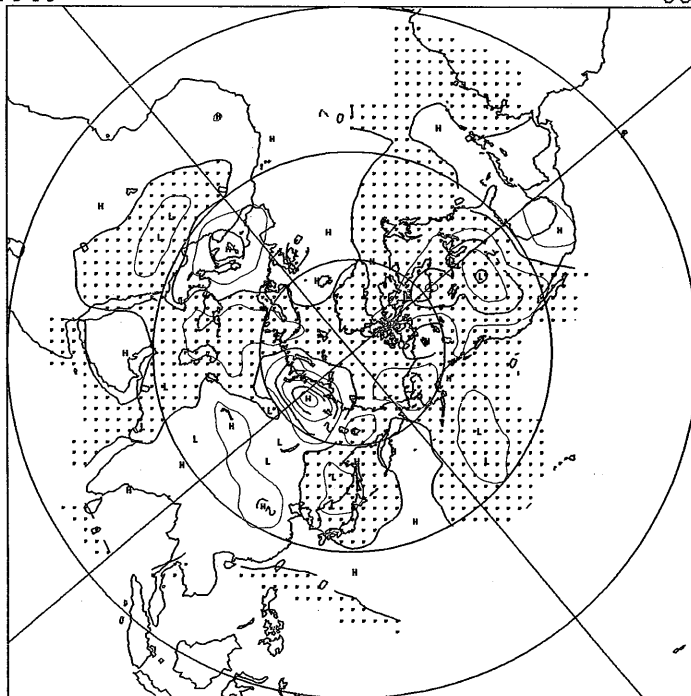
1945

MAY



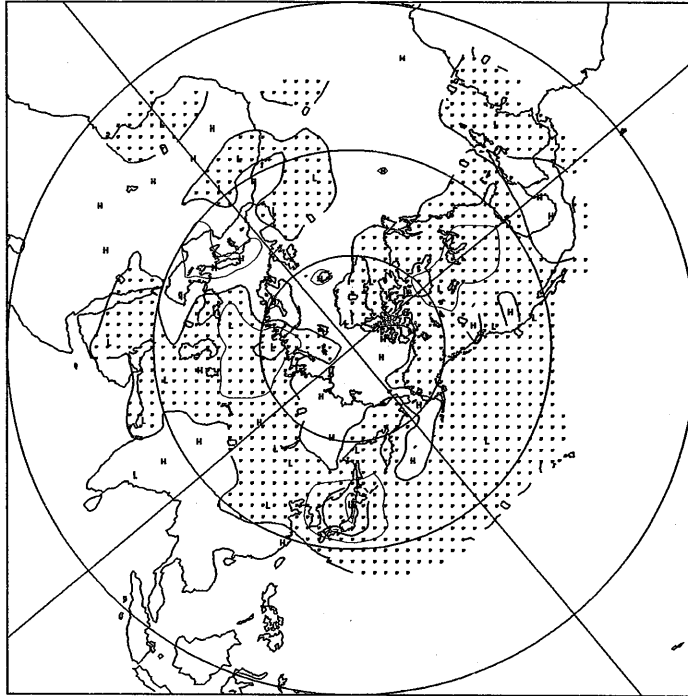
1945

JUN



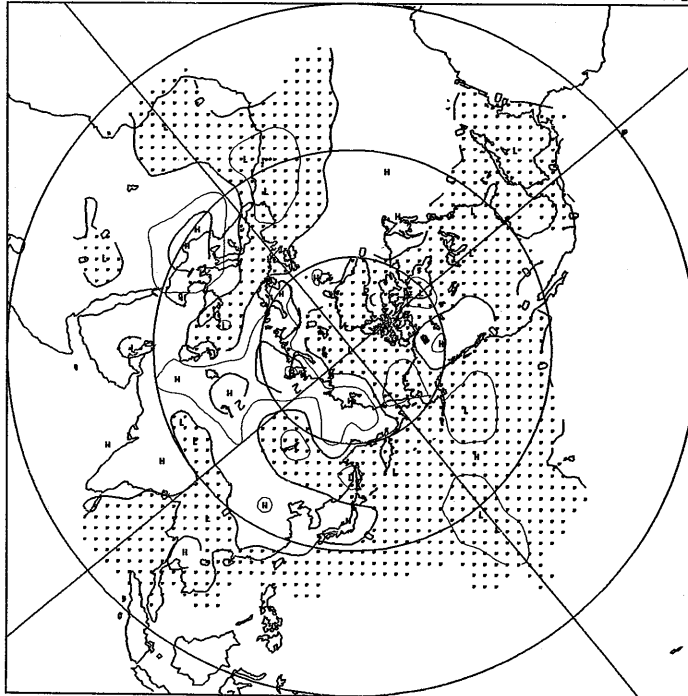
1945

JUL



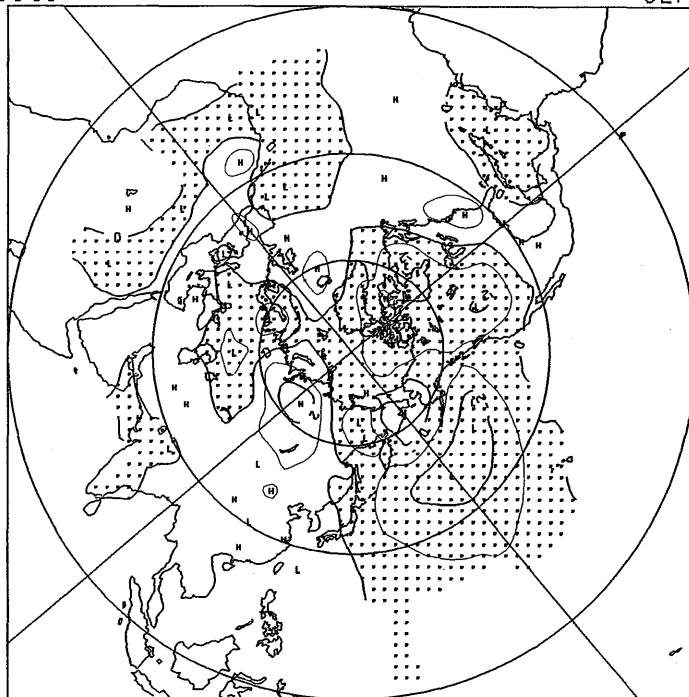
1945

AUG



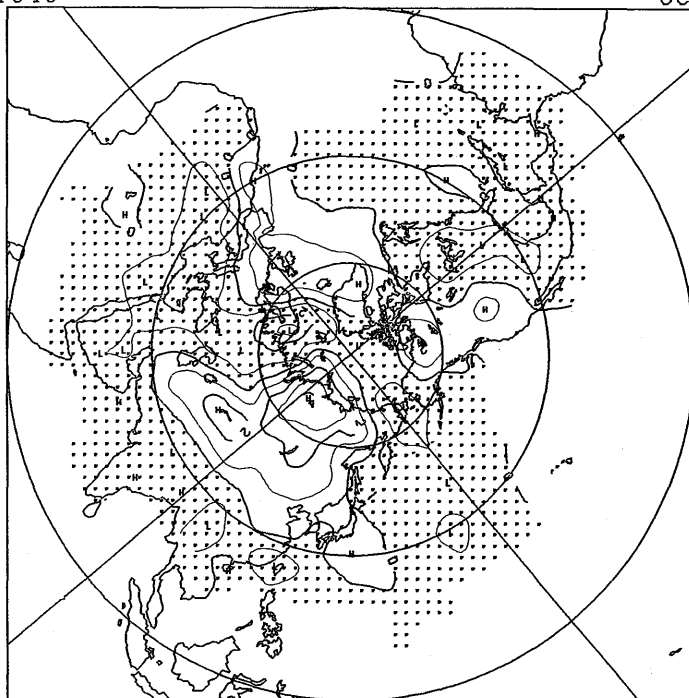
1945

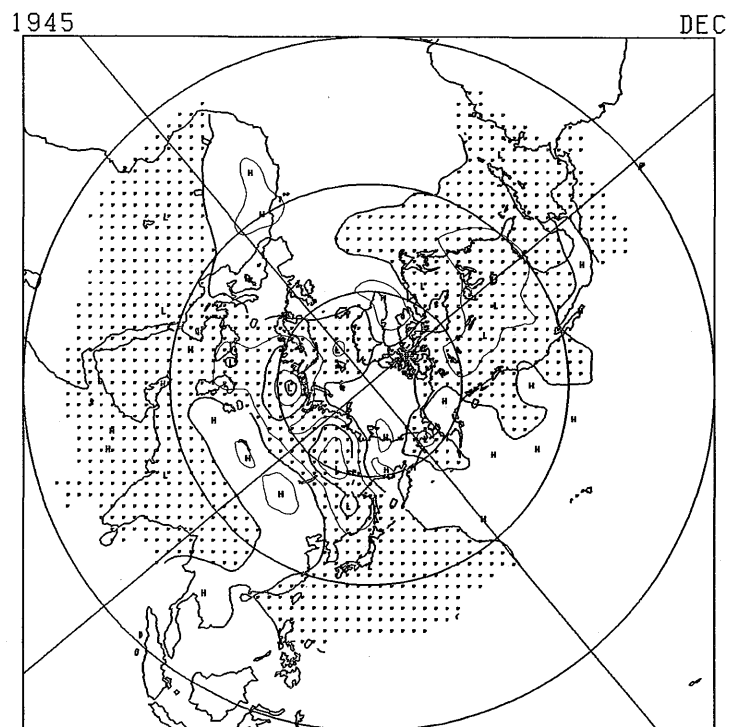
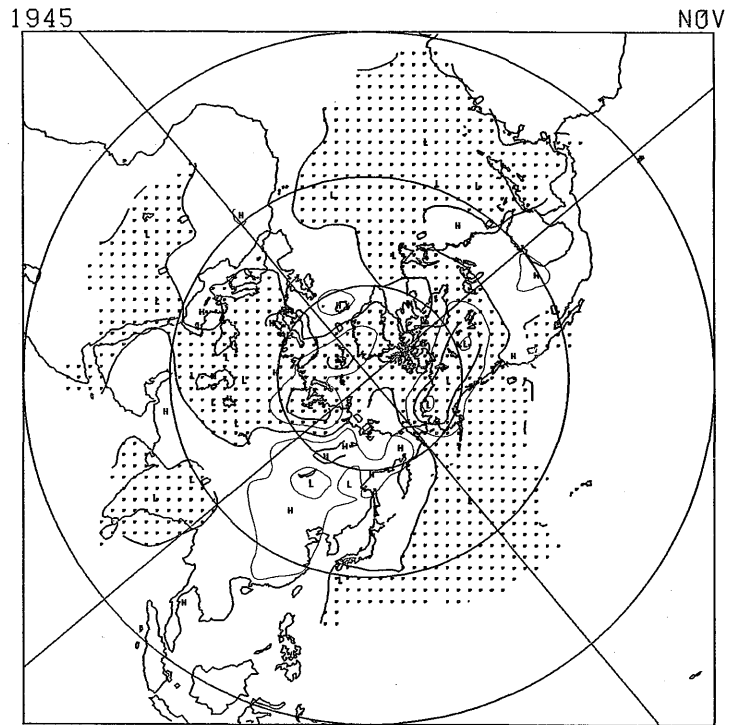
SEPT



1945

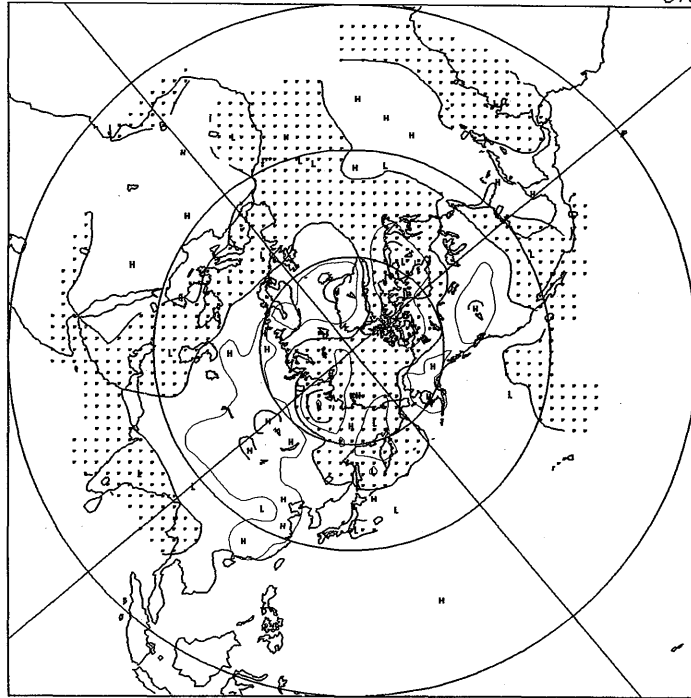
OCT





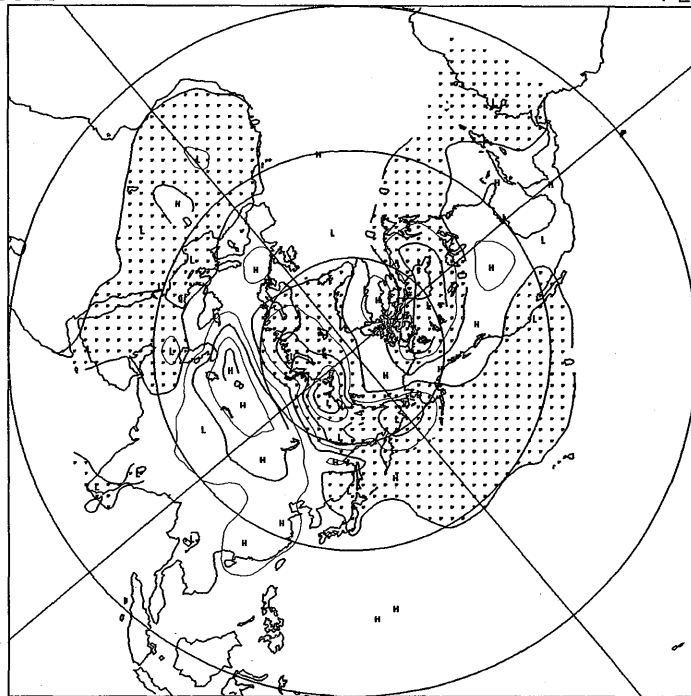
1946

JAN



1946

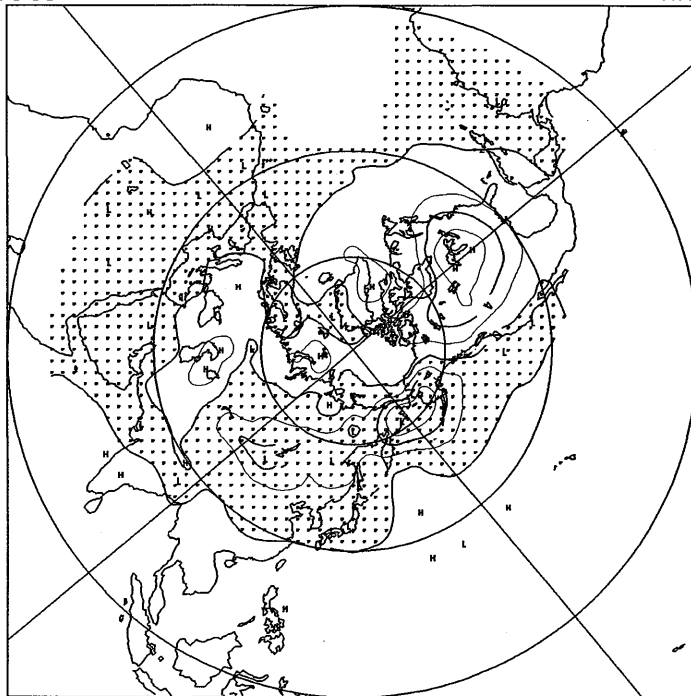
FEB



1946年
1月

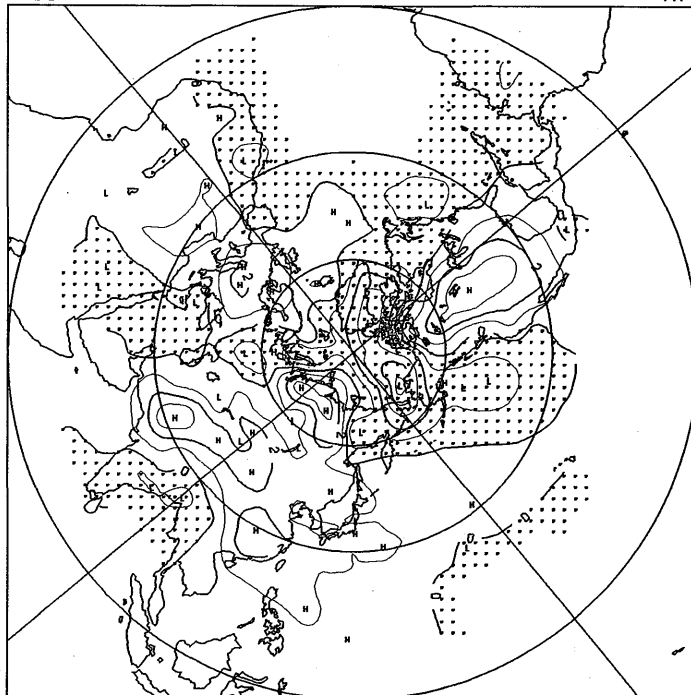
1946

MAR



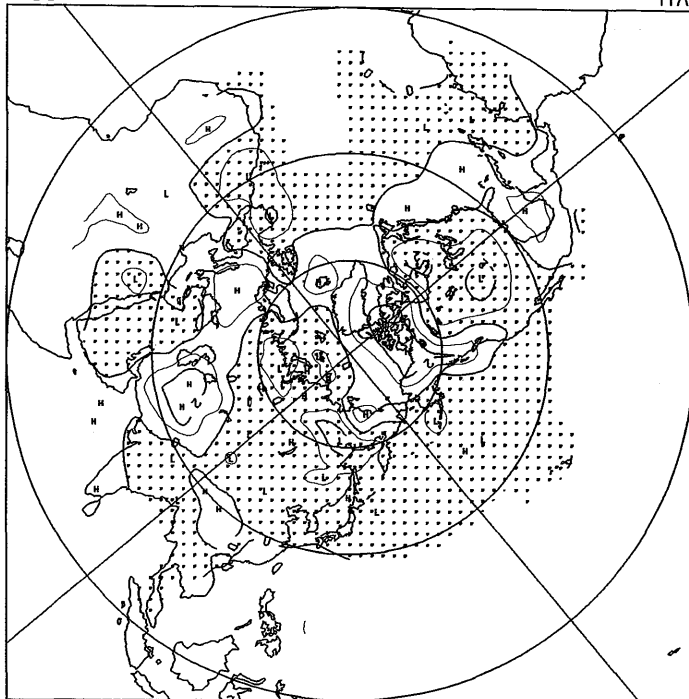
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APR



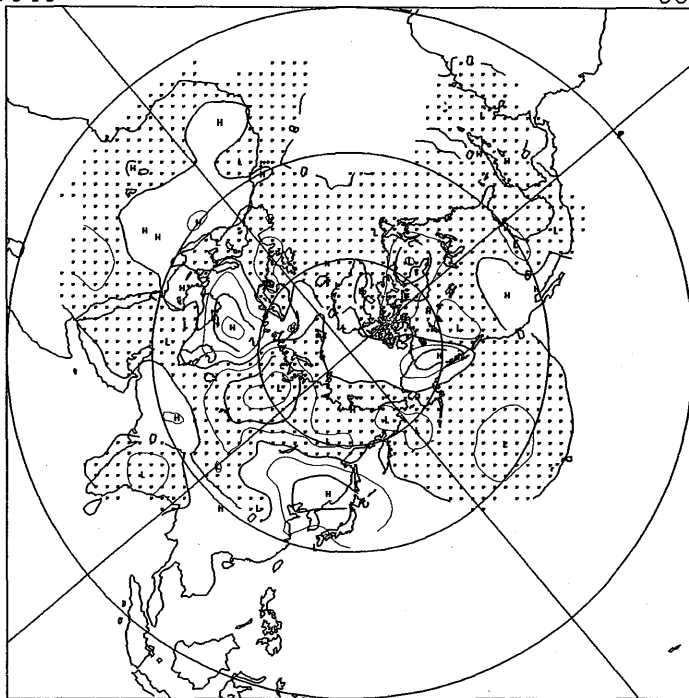
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MAY



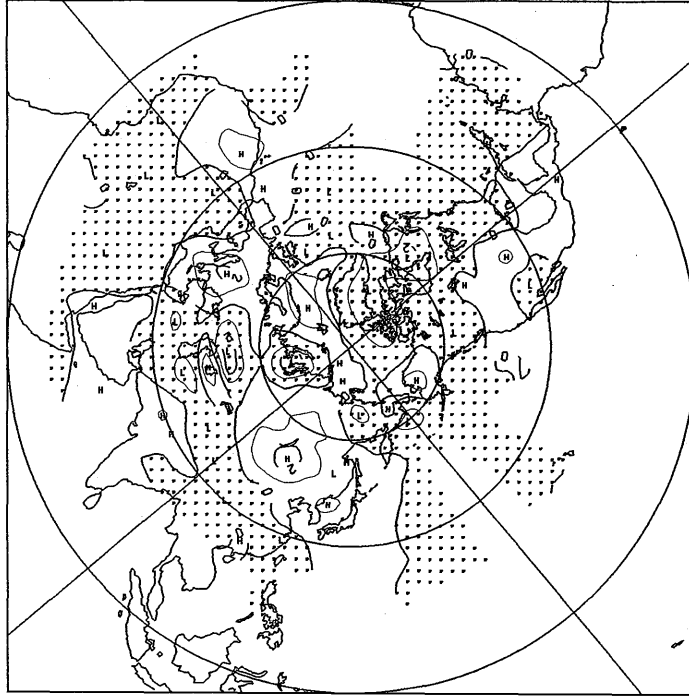
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JUN



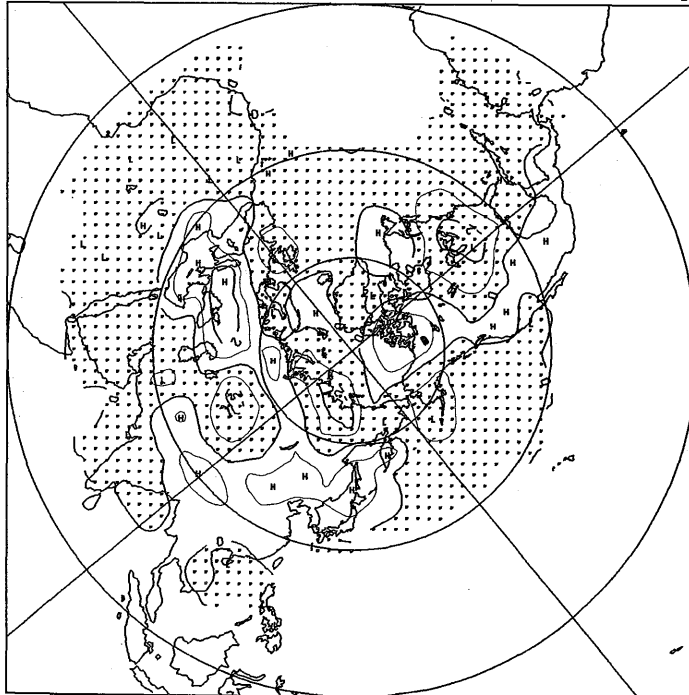
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JUL



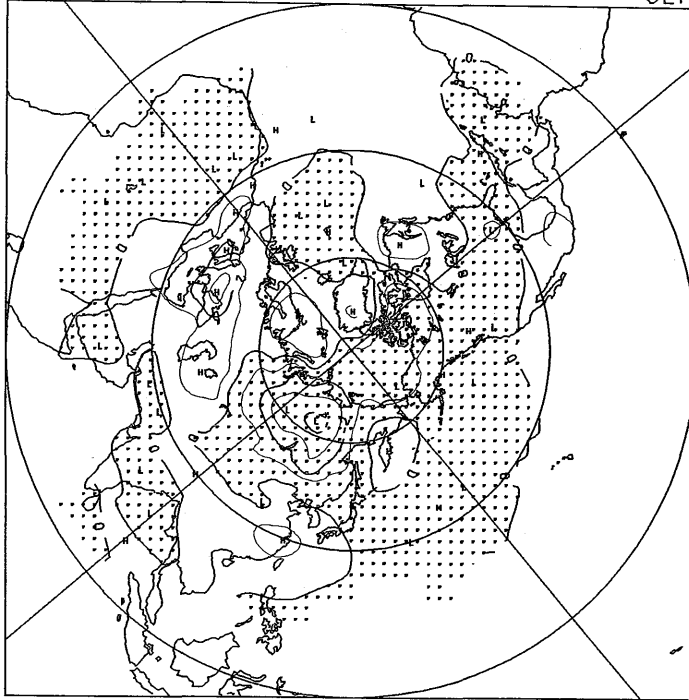
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AUG



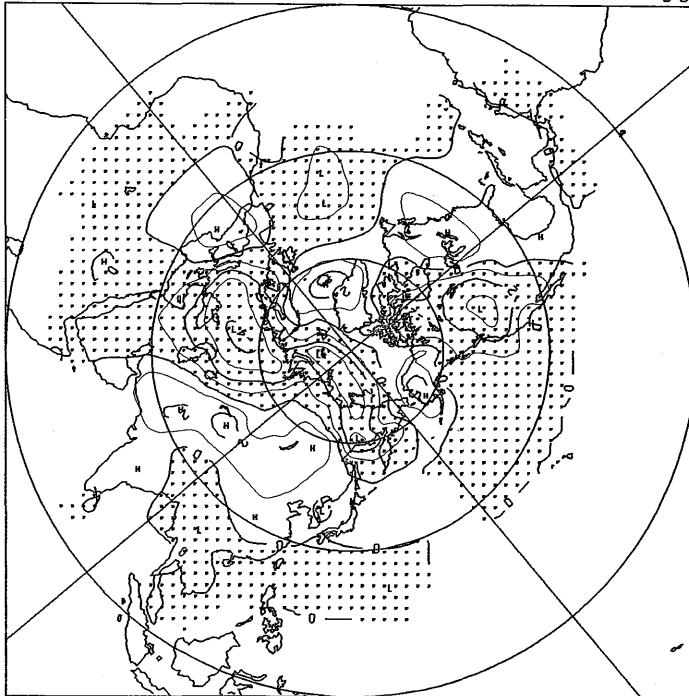
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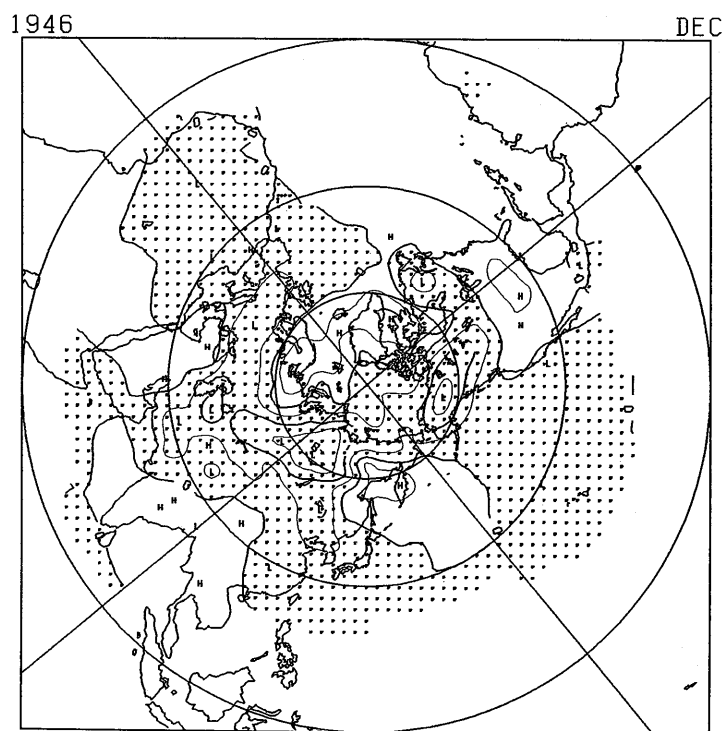
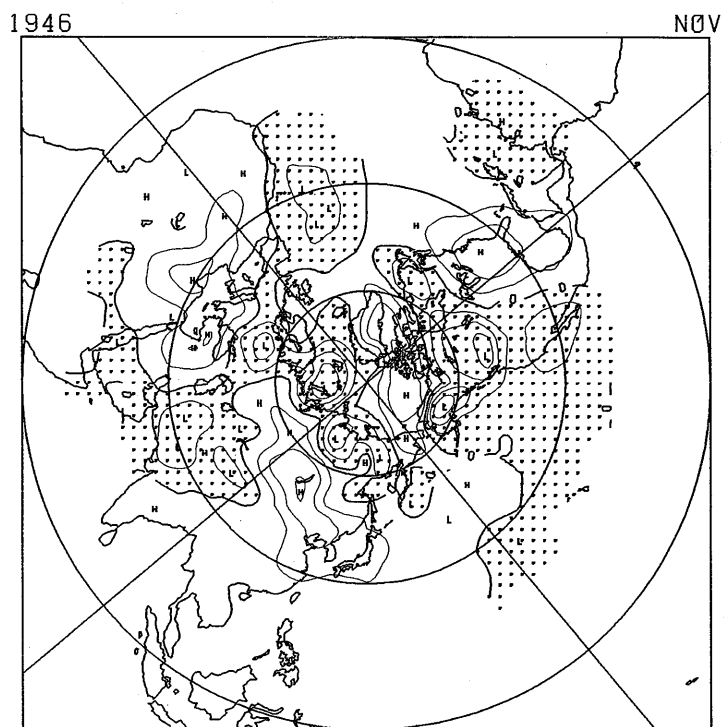
SEPT



1946

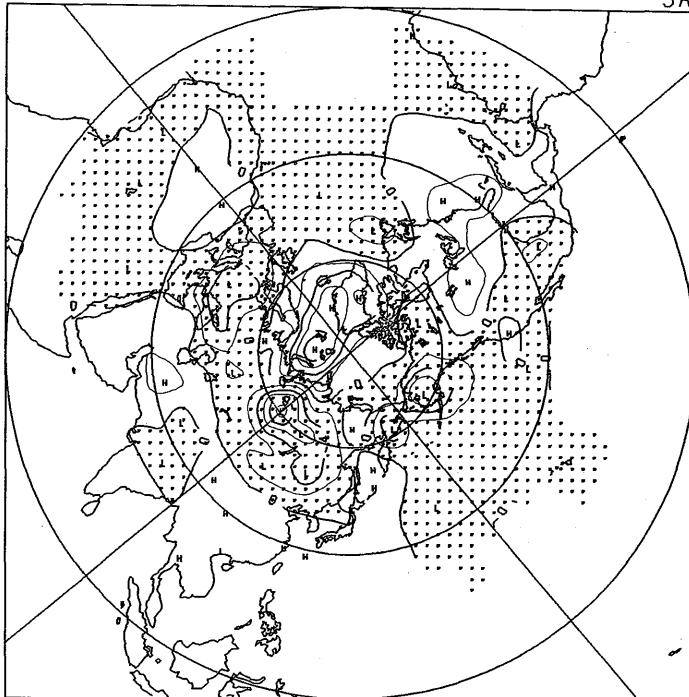
OCT





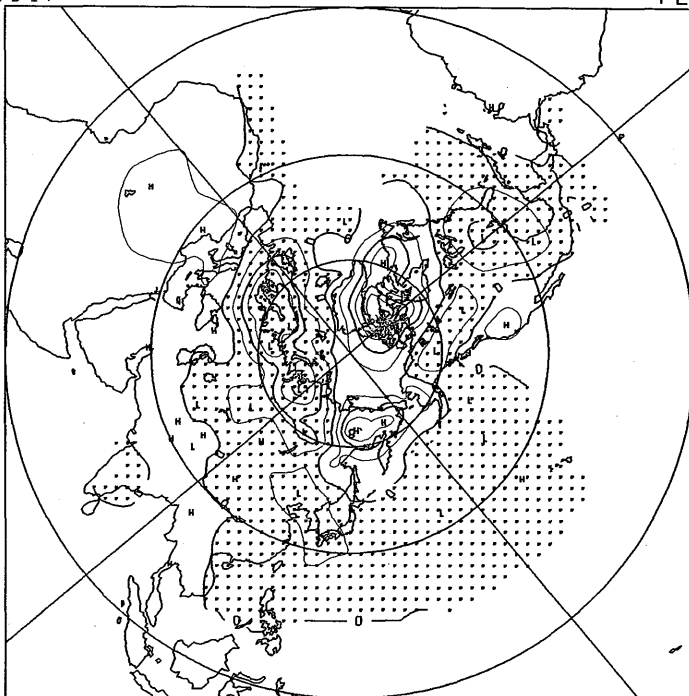
1947

JAN



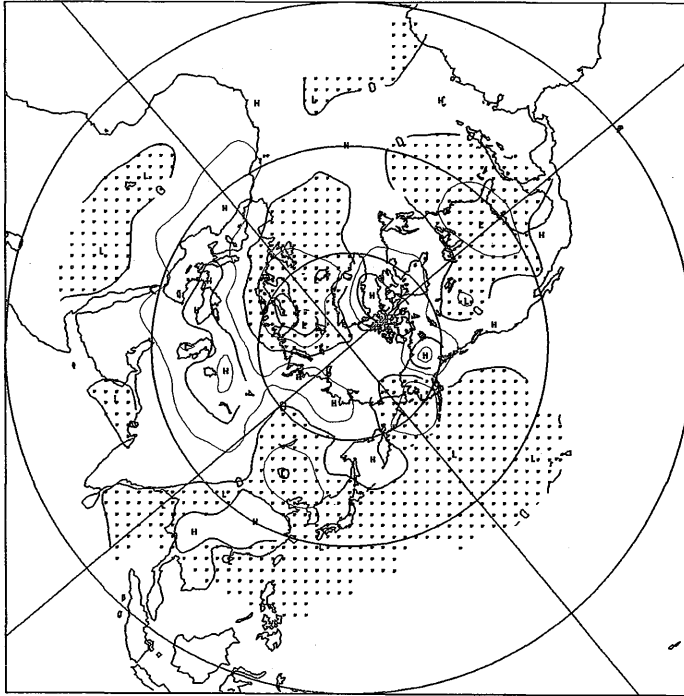
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FEB



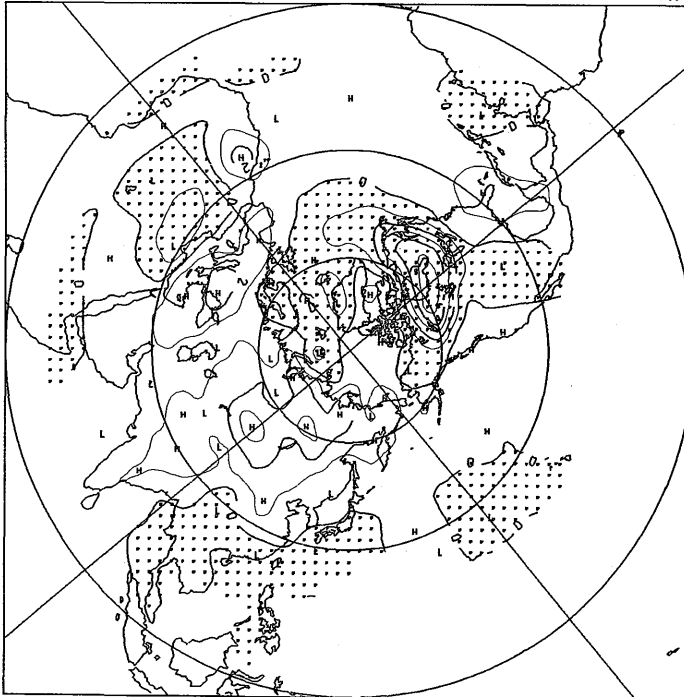
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MAR



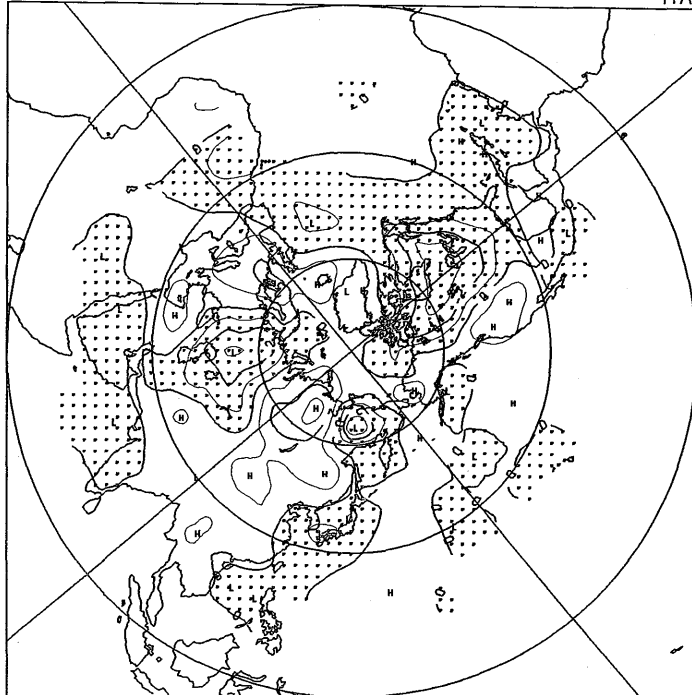
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APR



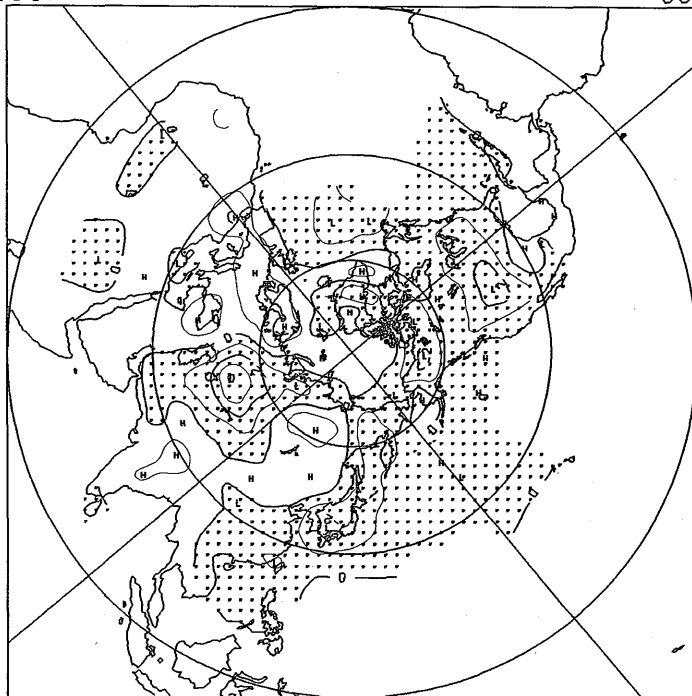
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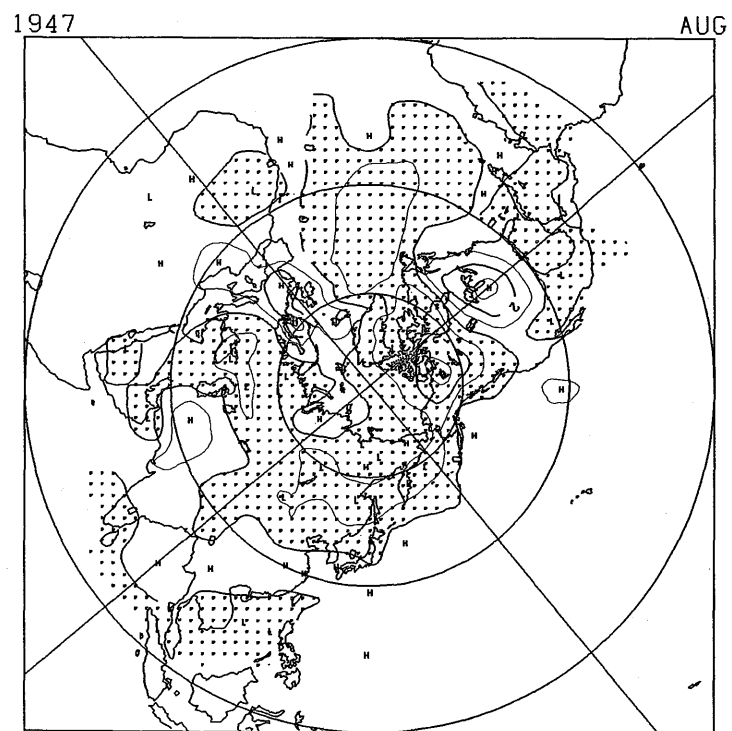
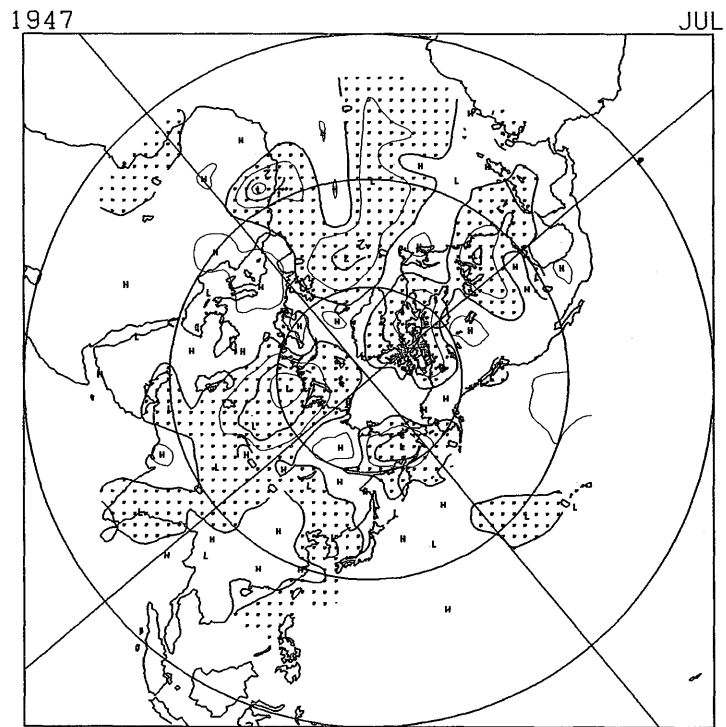
MAY



1947

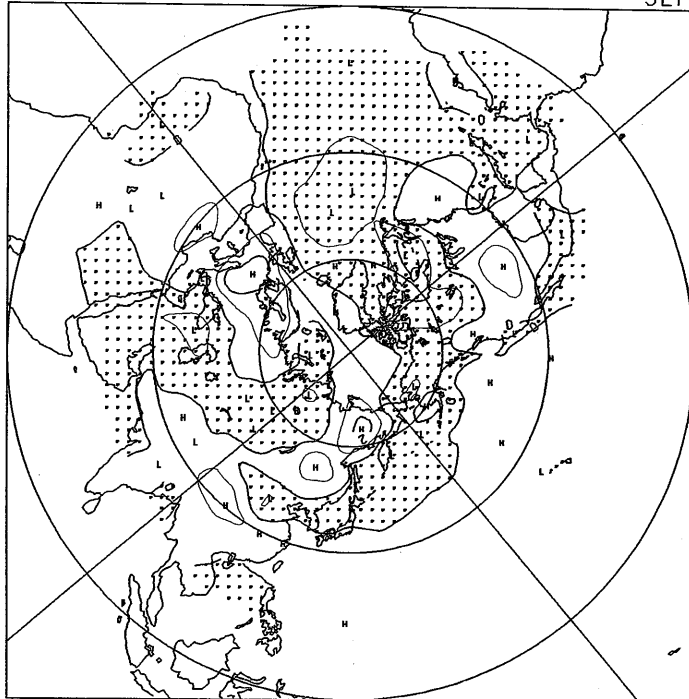
JUN





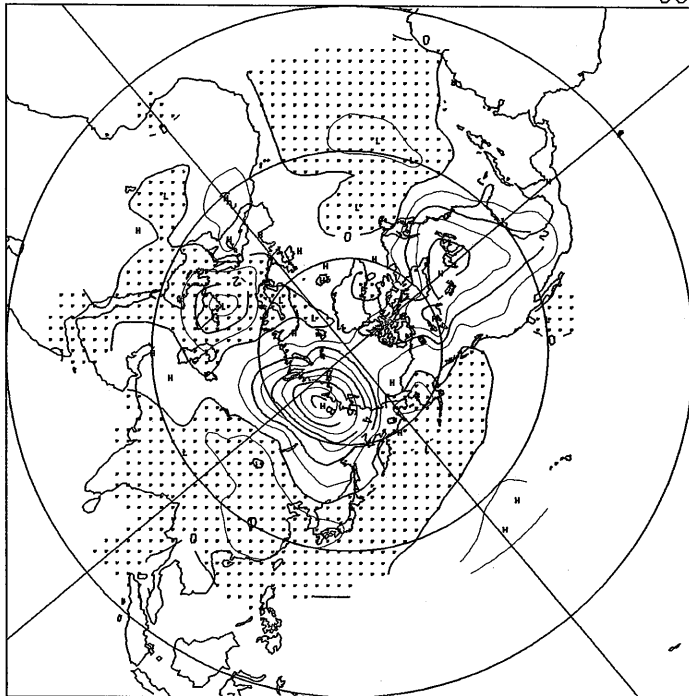
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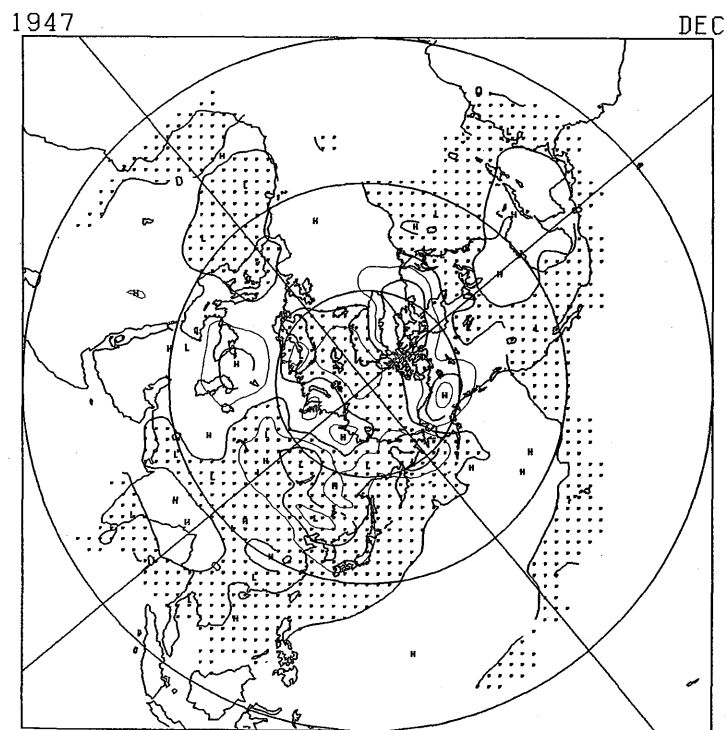
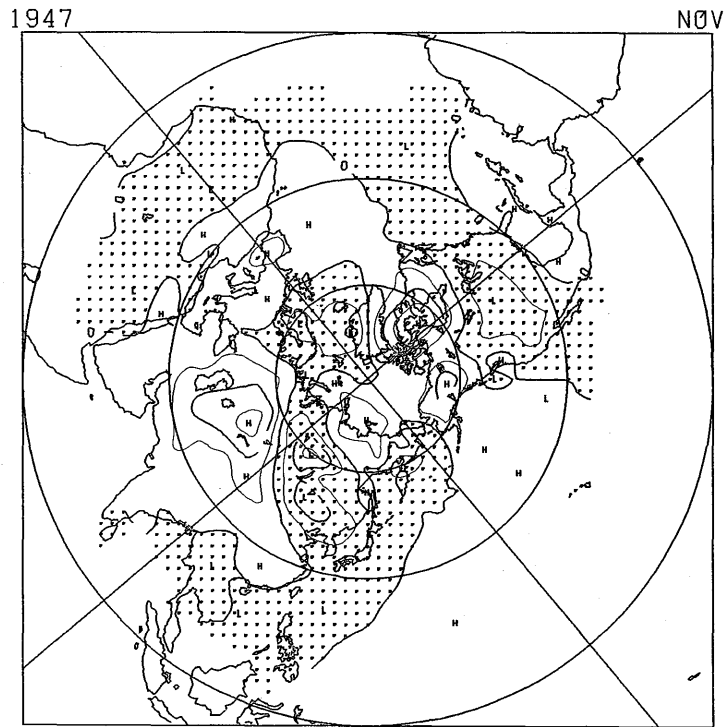
SEPT



1947

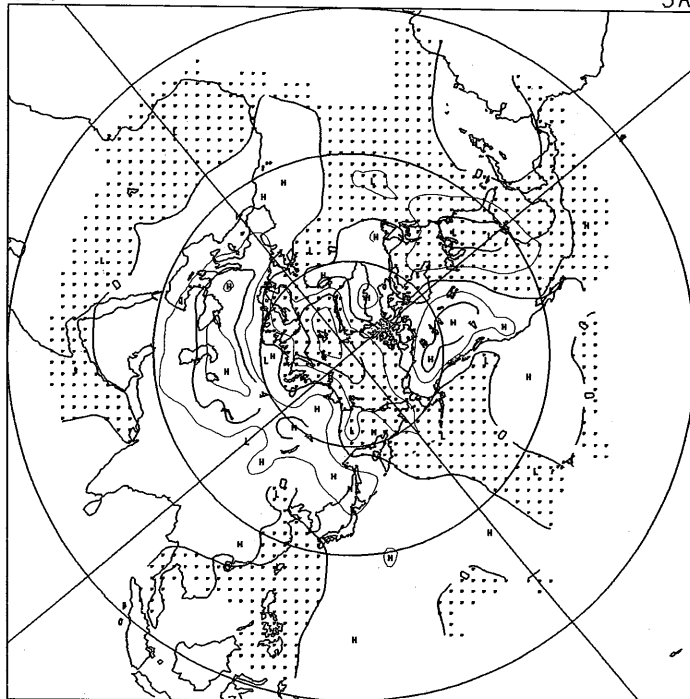
OCT





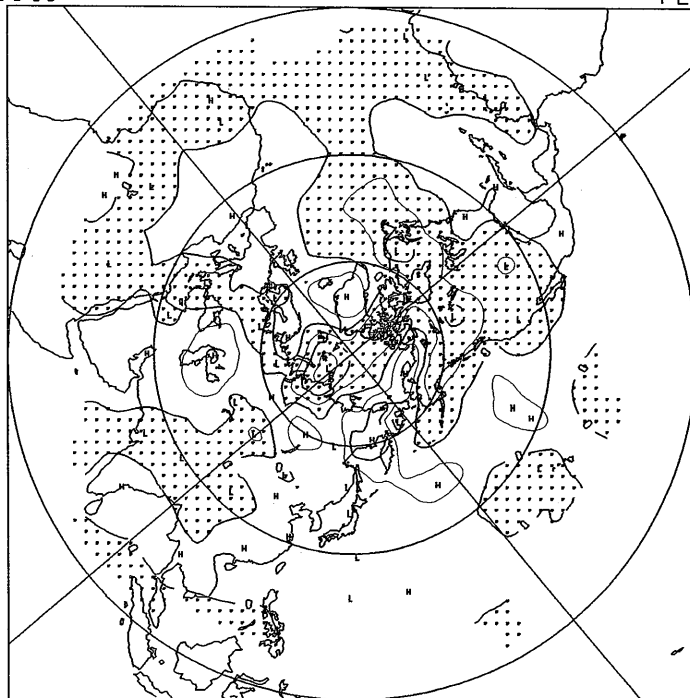
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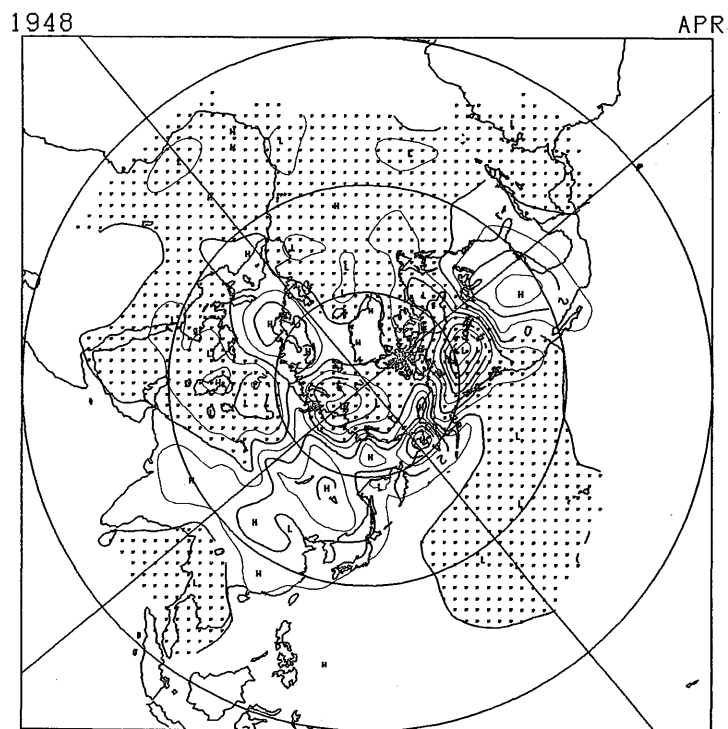
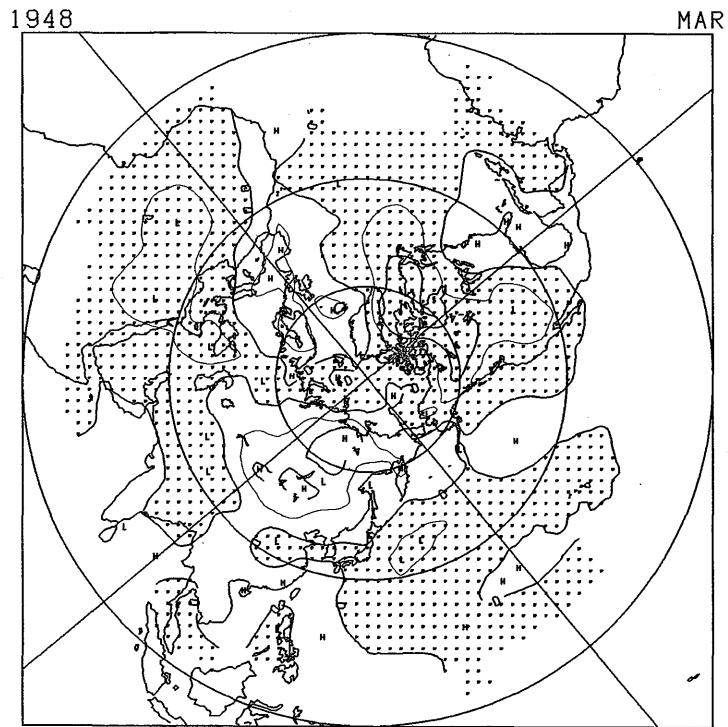
JAN

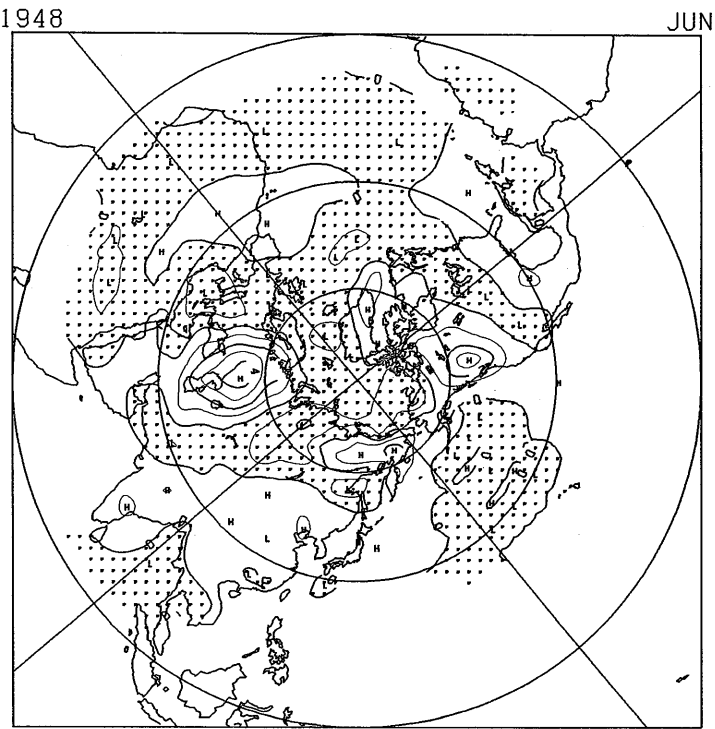
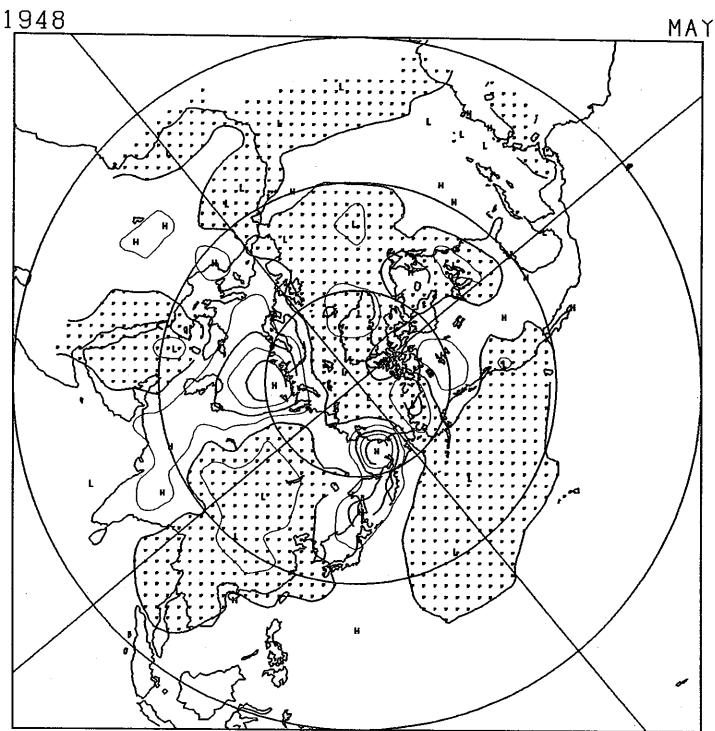


1948

FEB

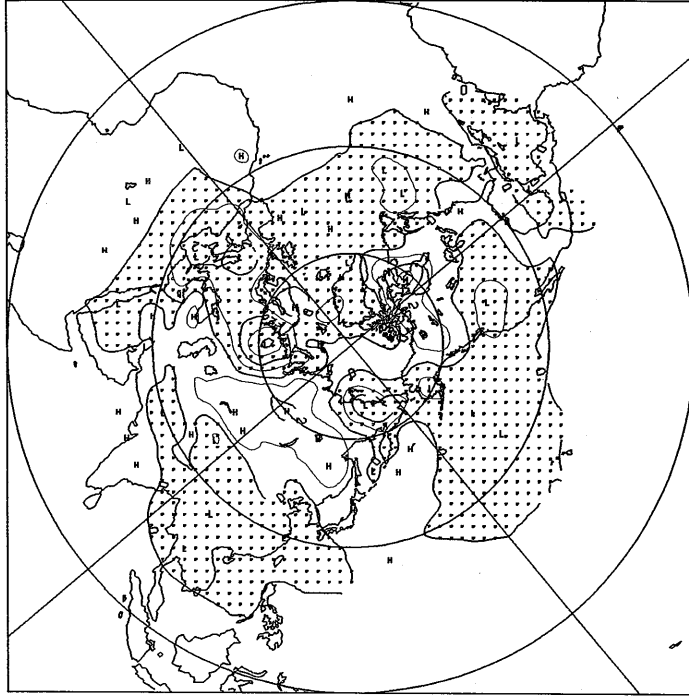






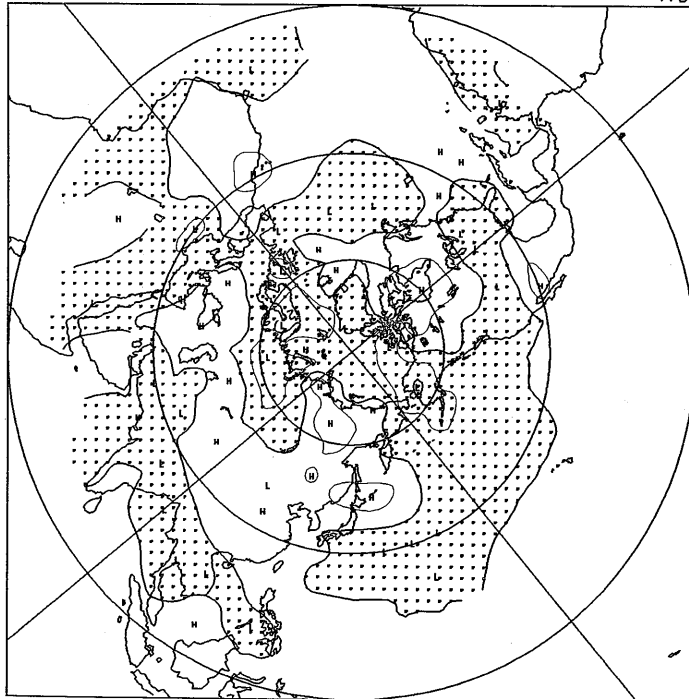
1948

JUL



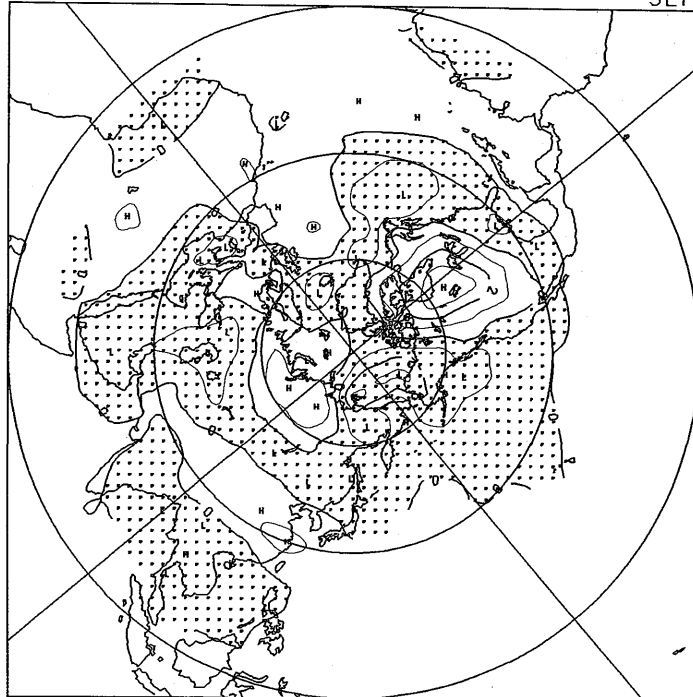
1948

AUG



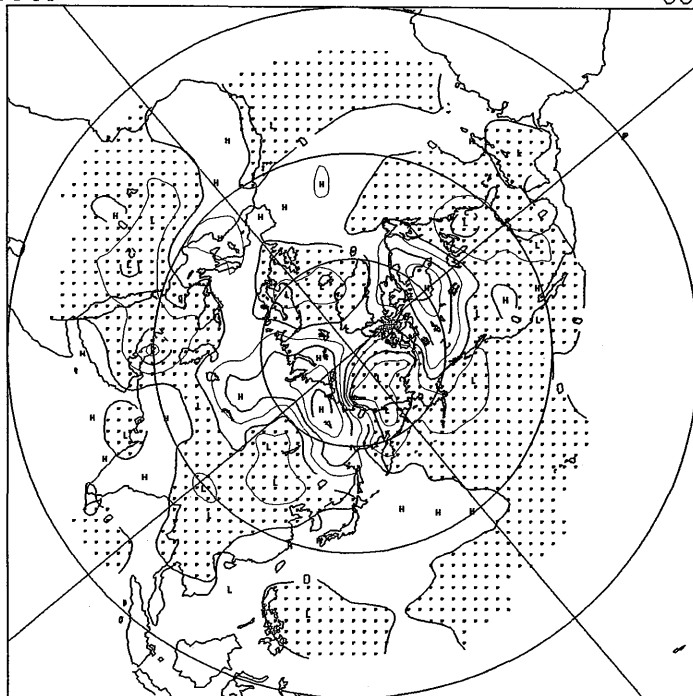
1948

SEPT



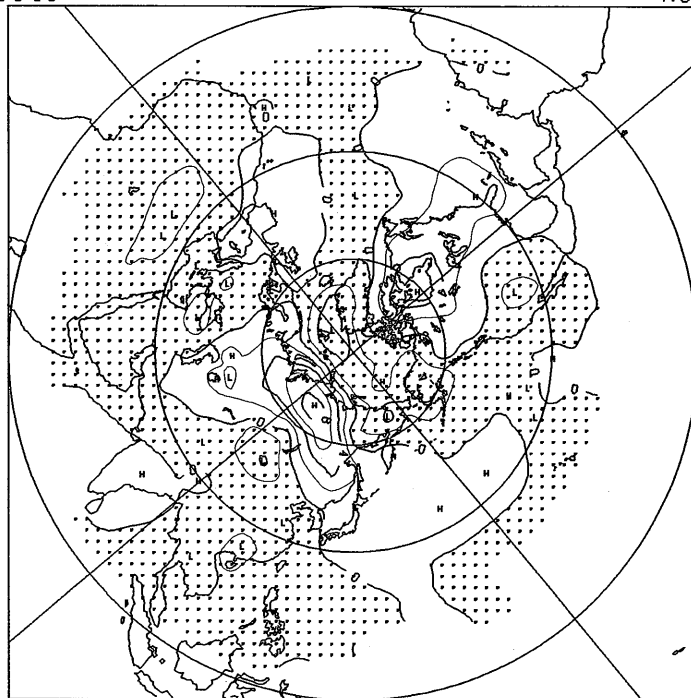
1948

OCT



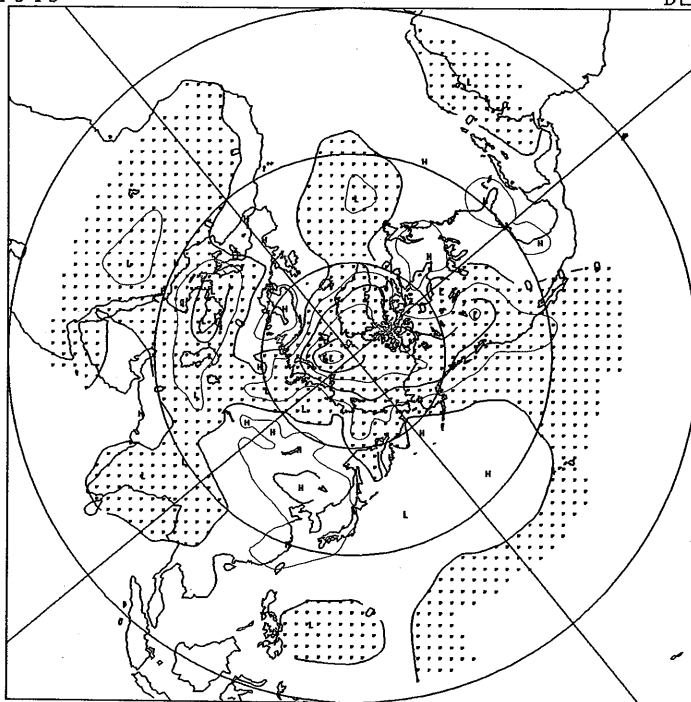
1948

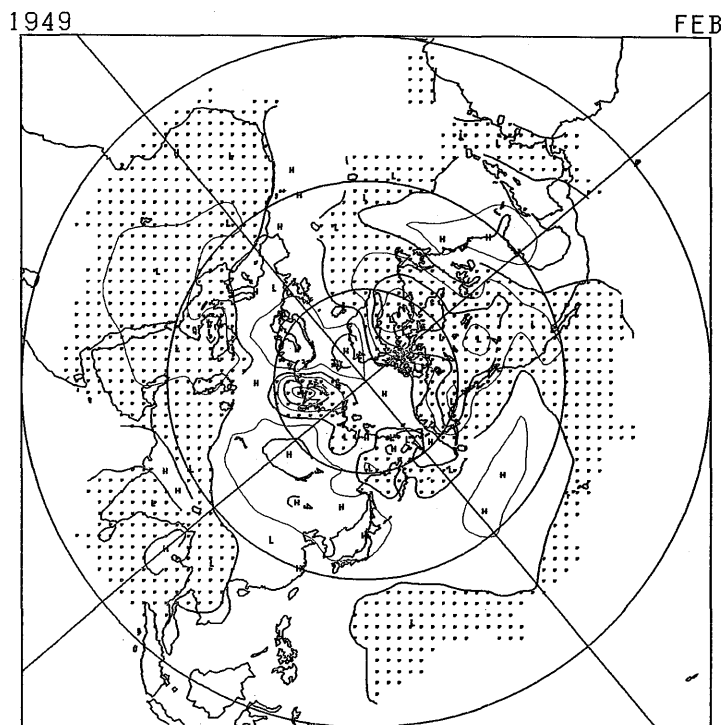
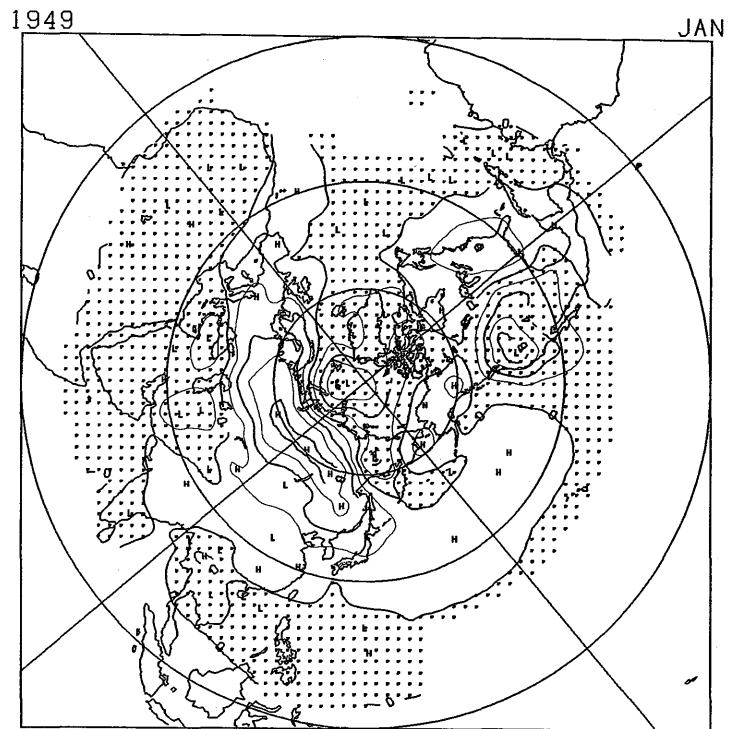
NOV



1948

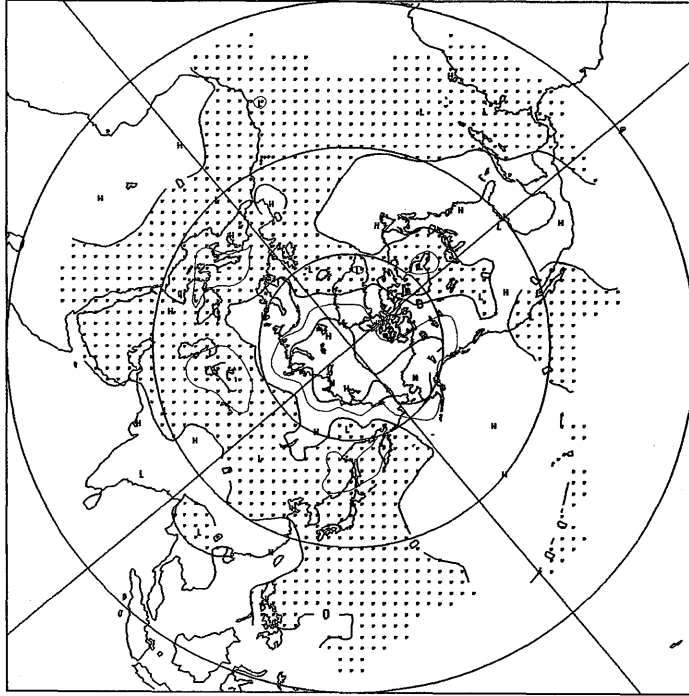
DEC





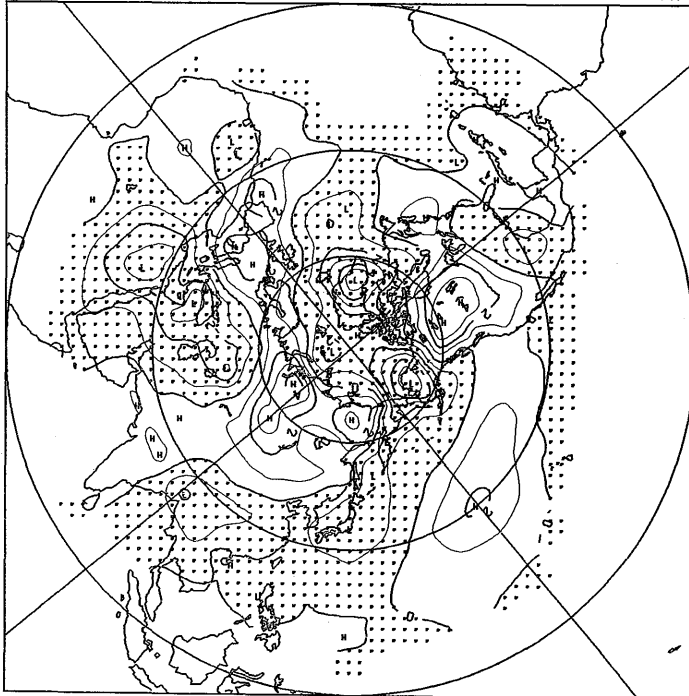
1949

MAR



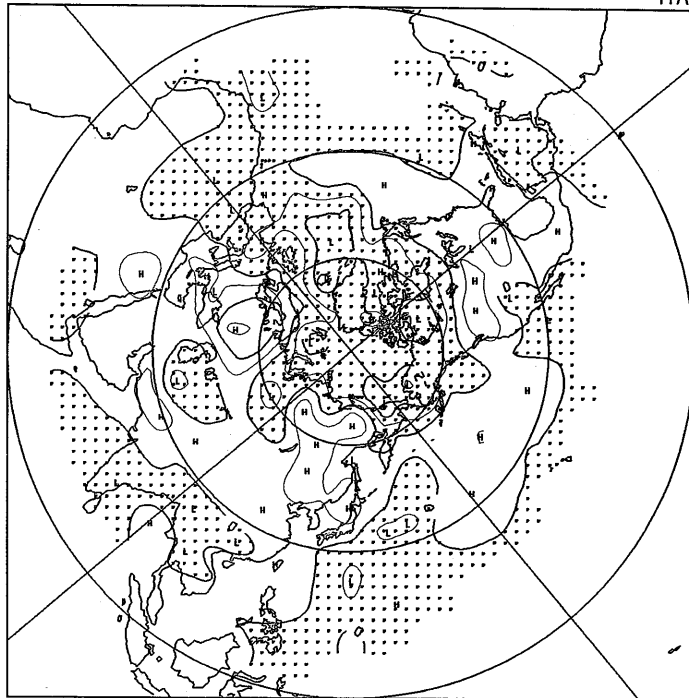
1949

APR



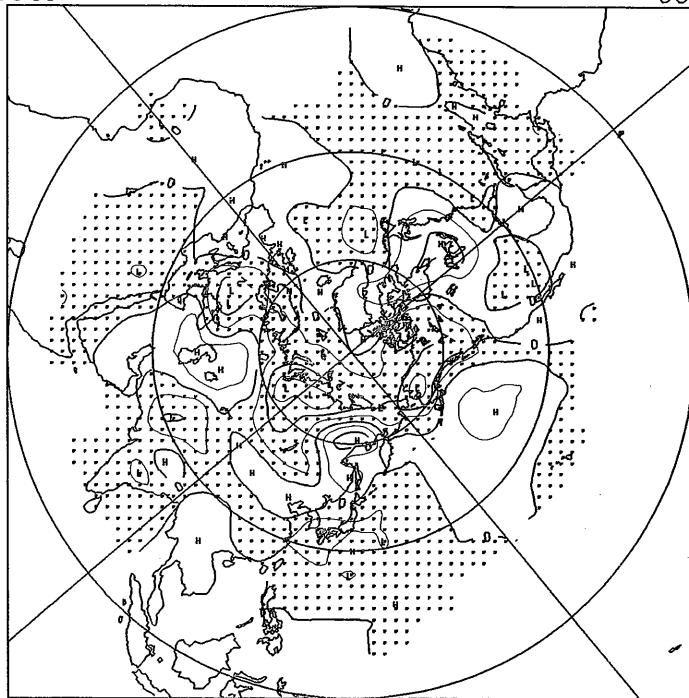
1949

MAY



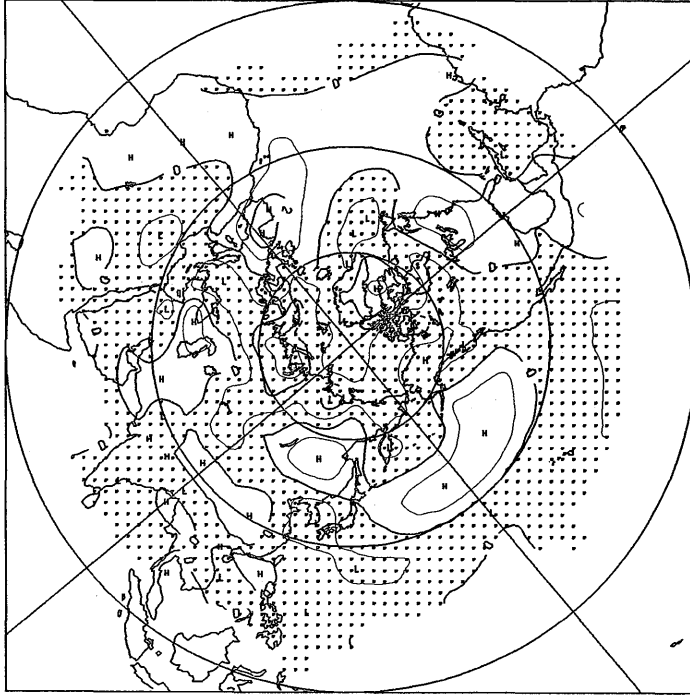
1949

JUN



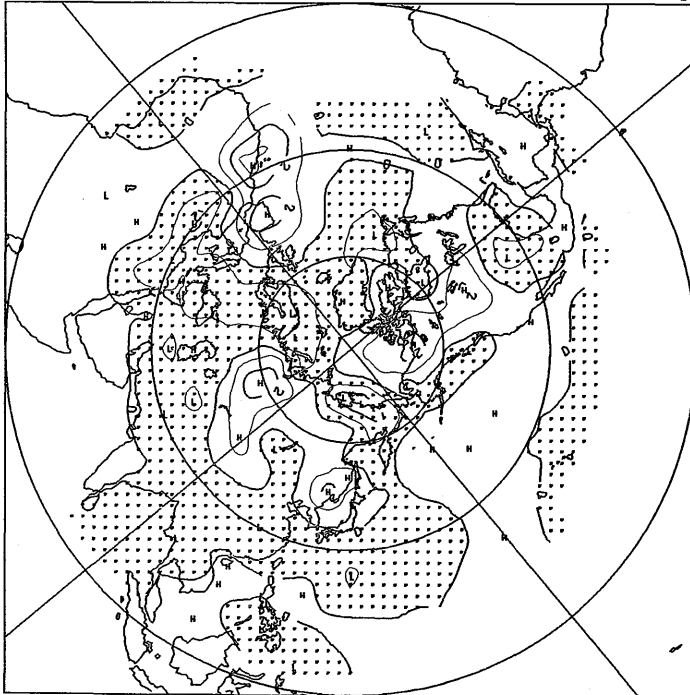
1949

JUL



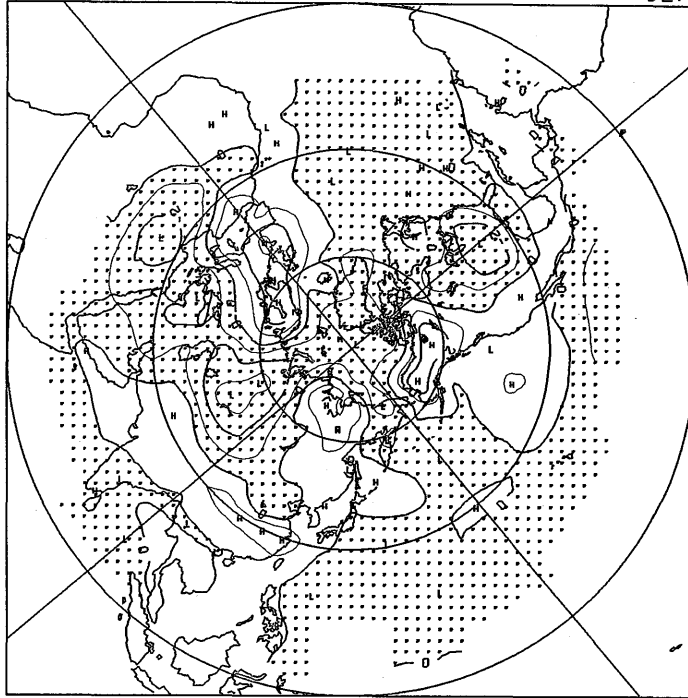
1949

AUG



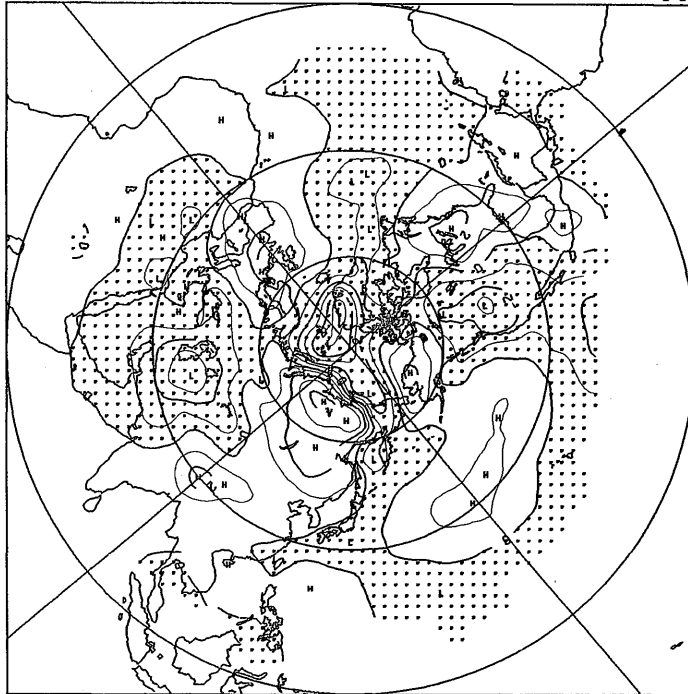
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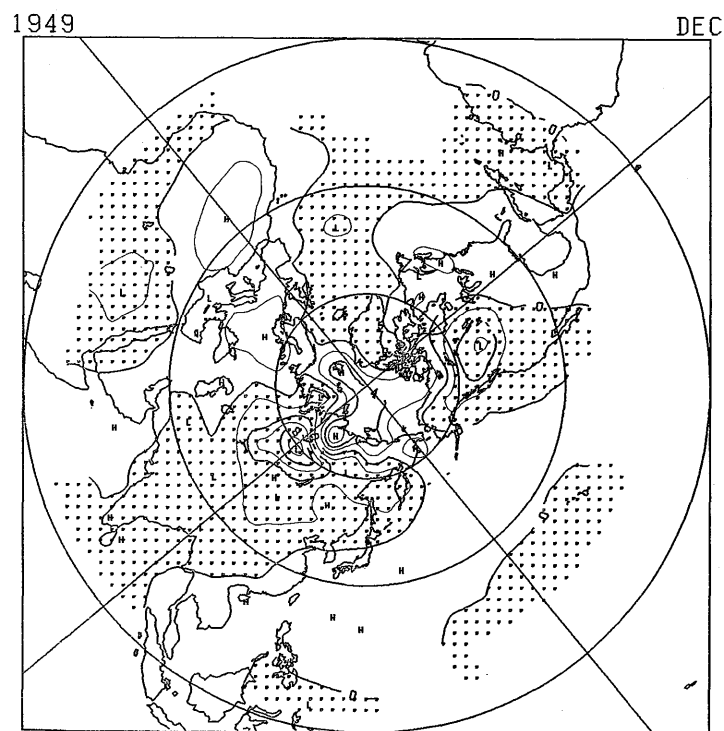
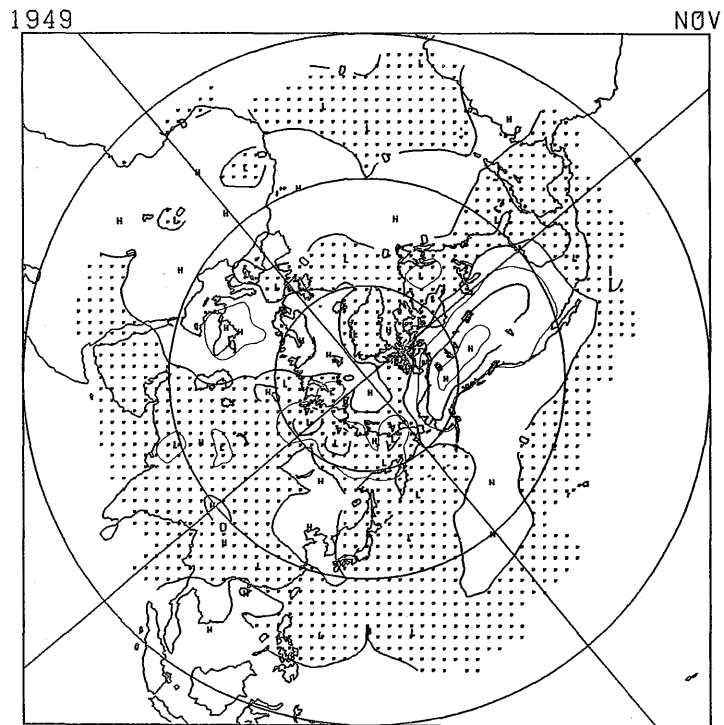
SEPT



1949

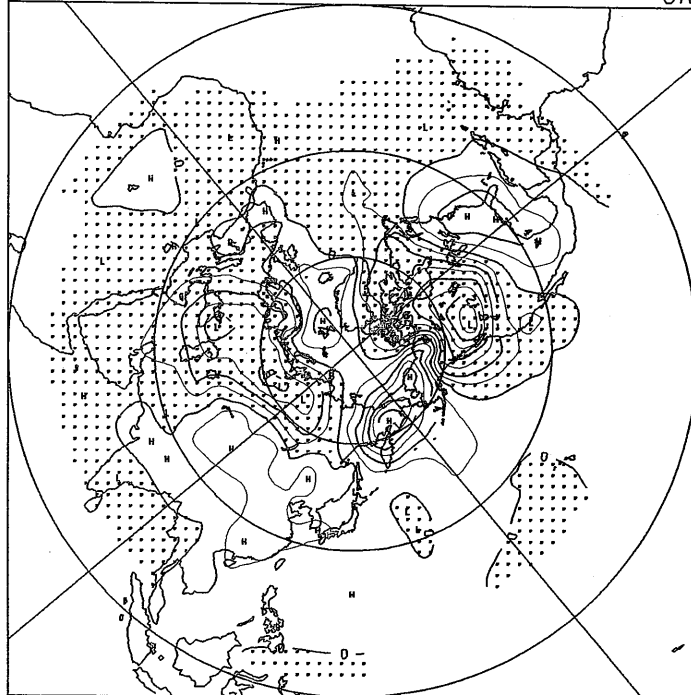
OCT





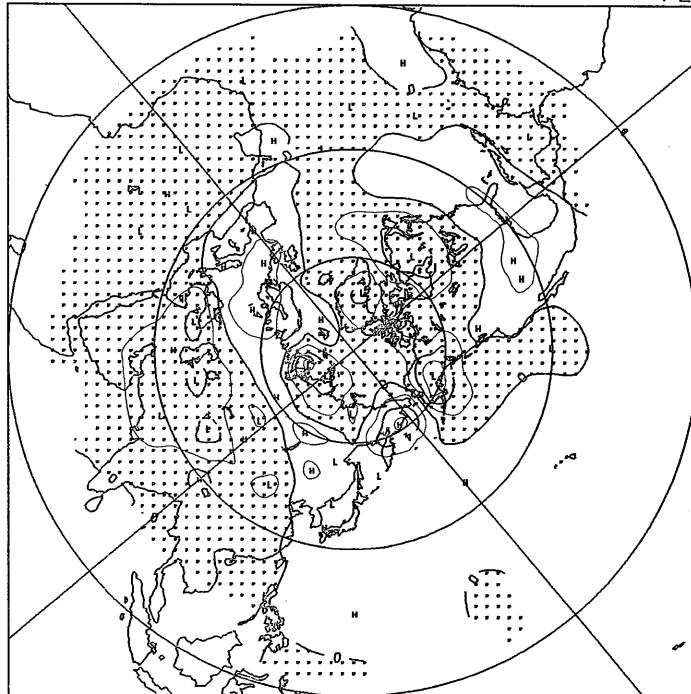
1950

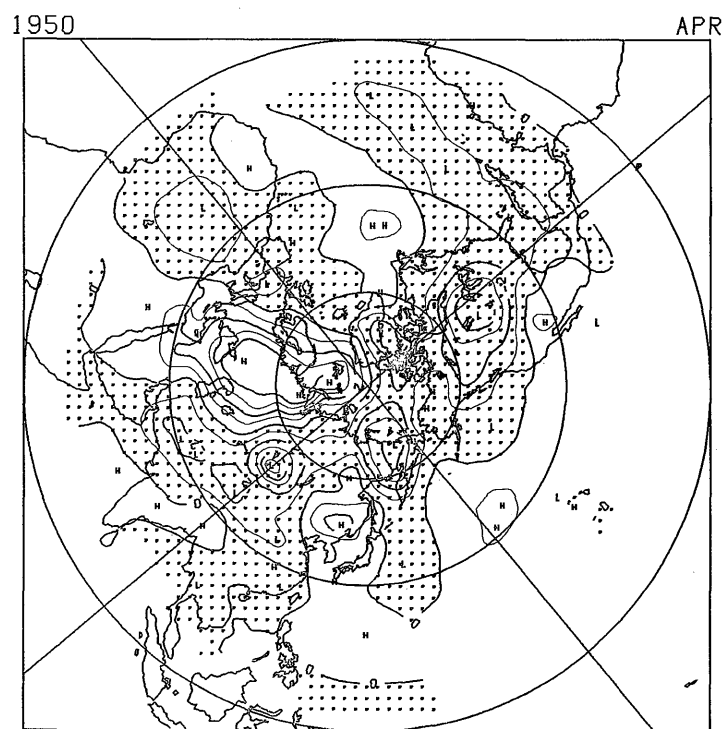
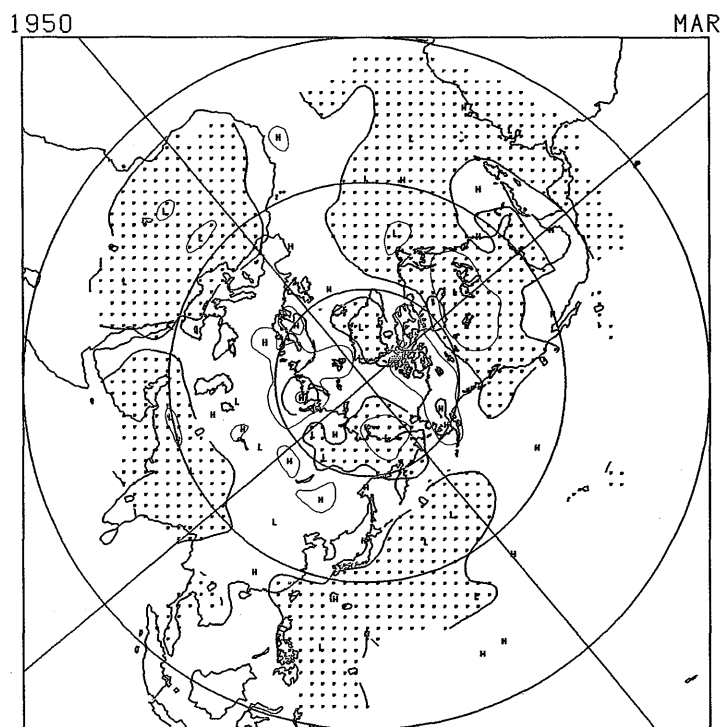
JAN



1950

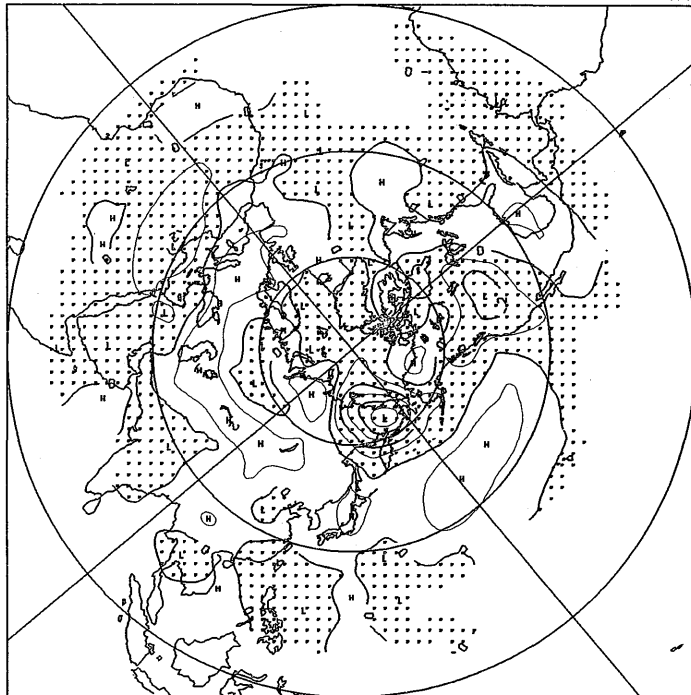
FEB





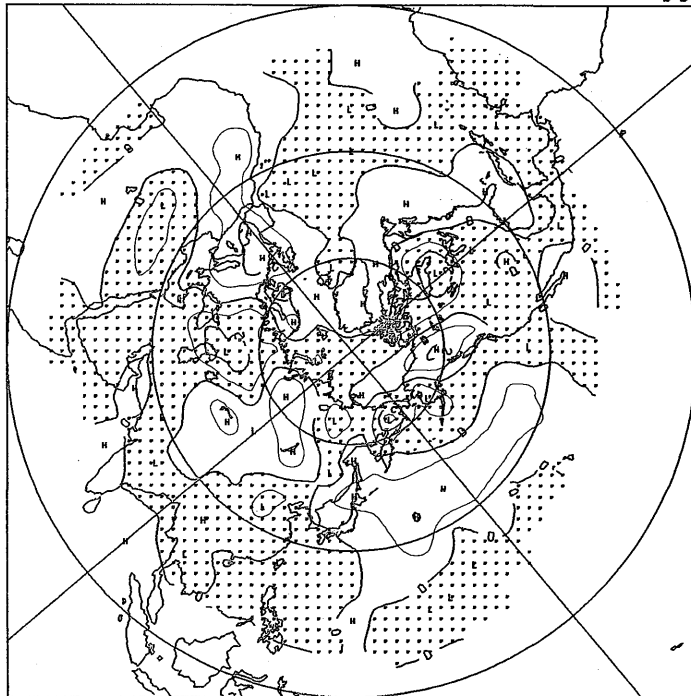
1950

MAY



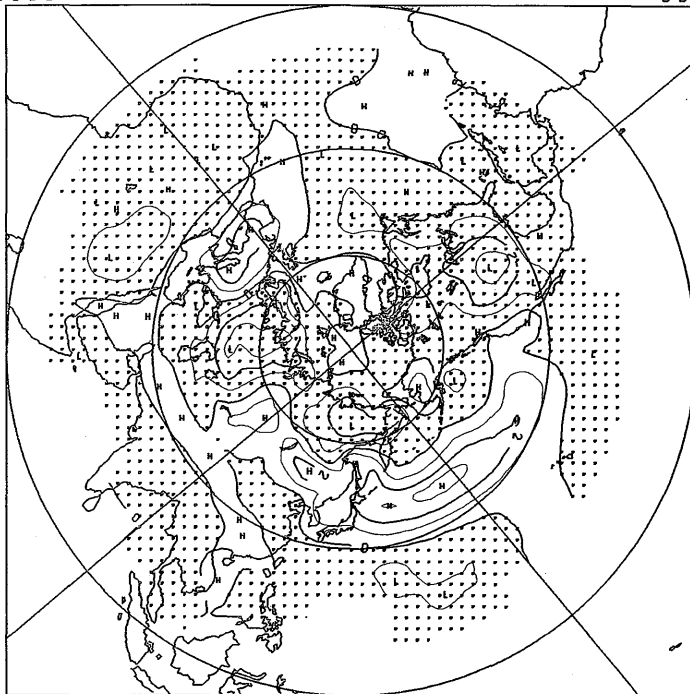
1950

JUN



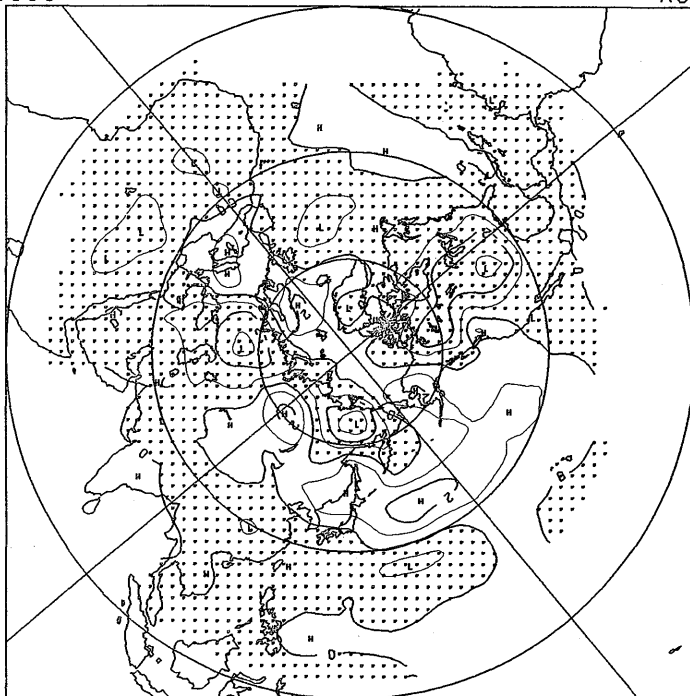
1950

JUL



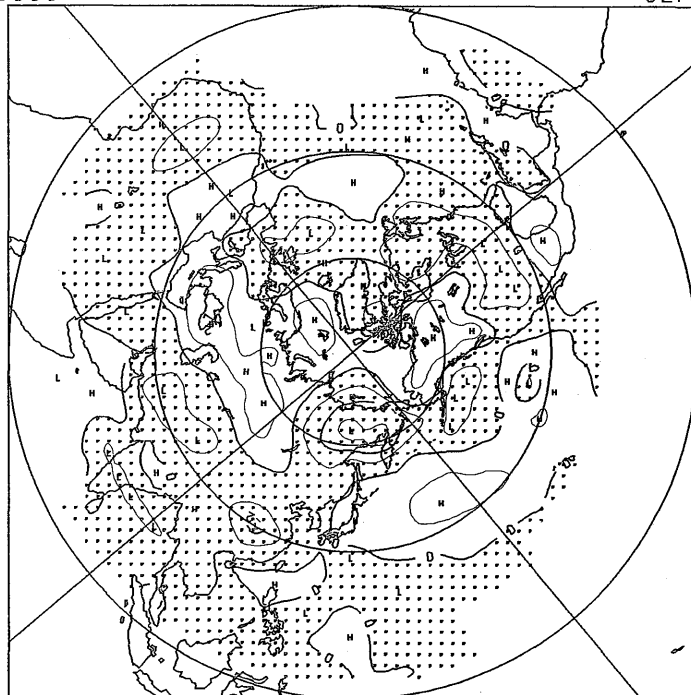
1950

AUG



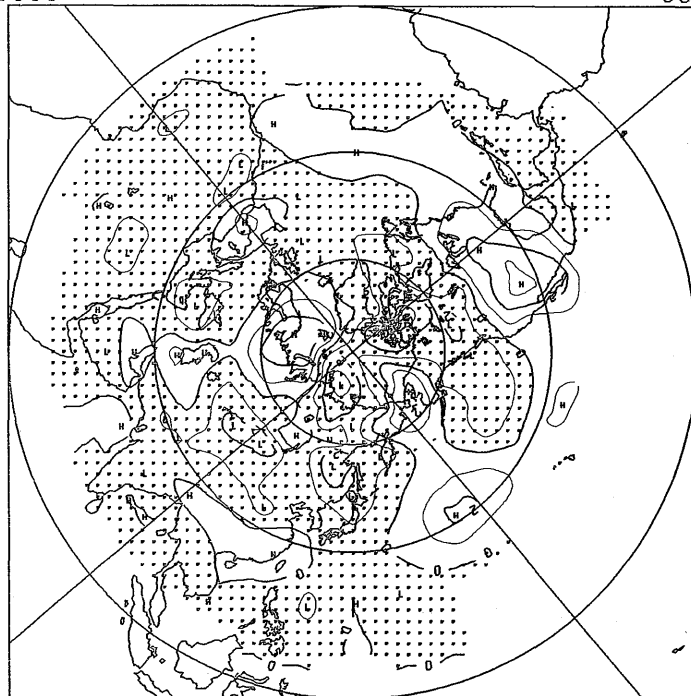
1950

SEPT



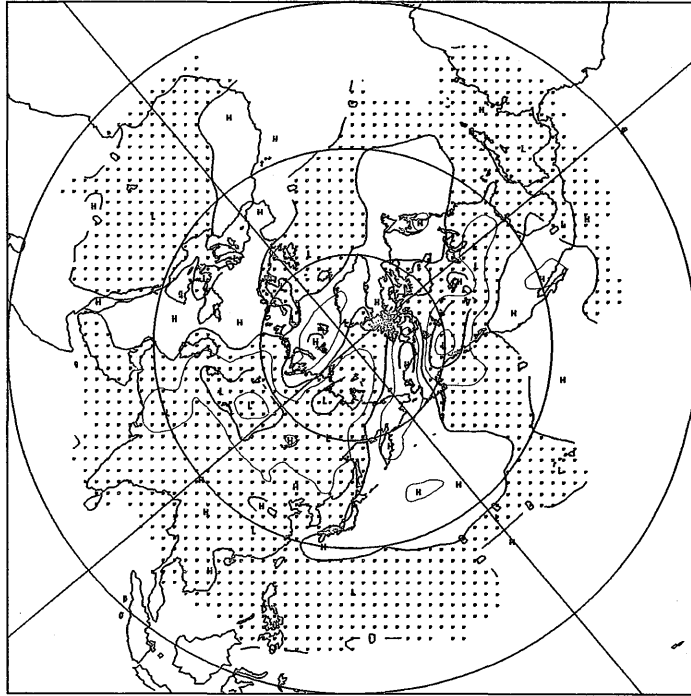
1950

OCT



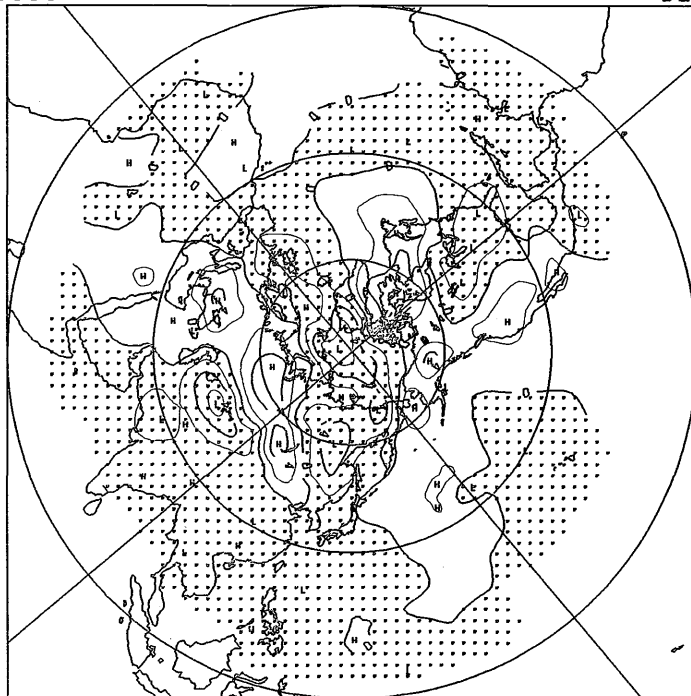
1950

NOV

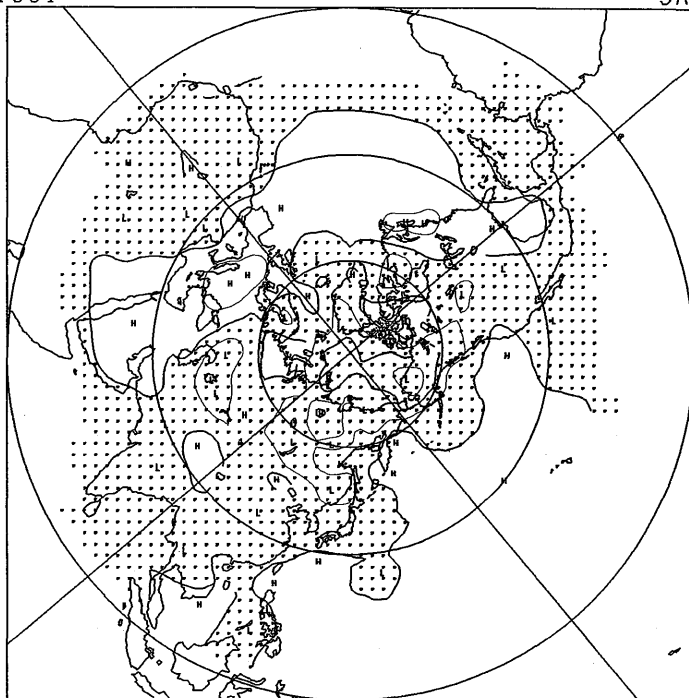


1950

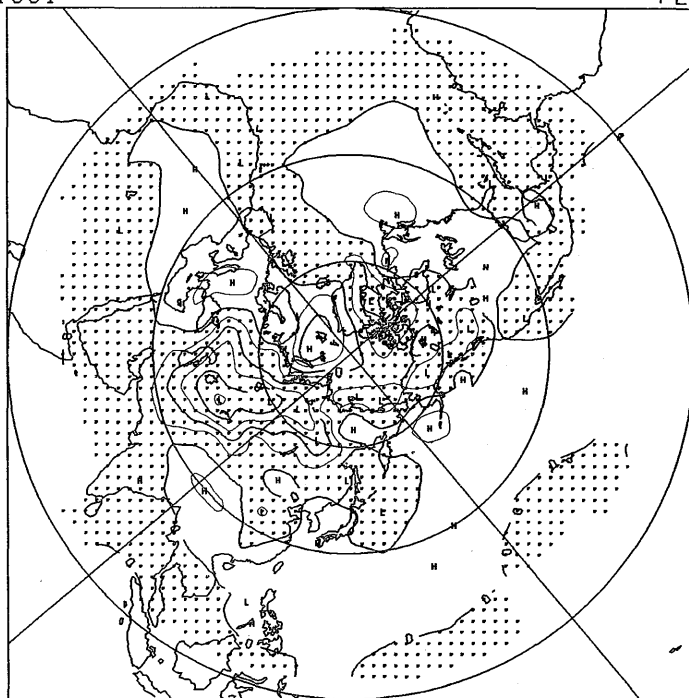
DEC



1951 JAN



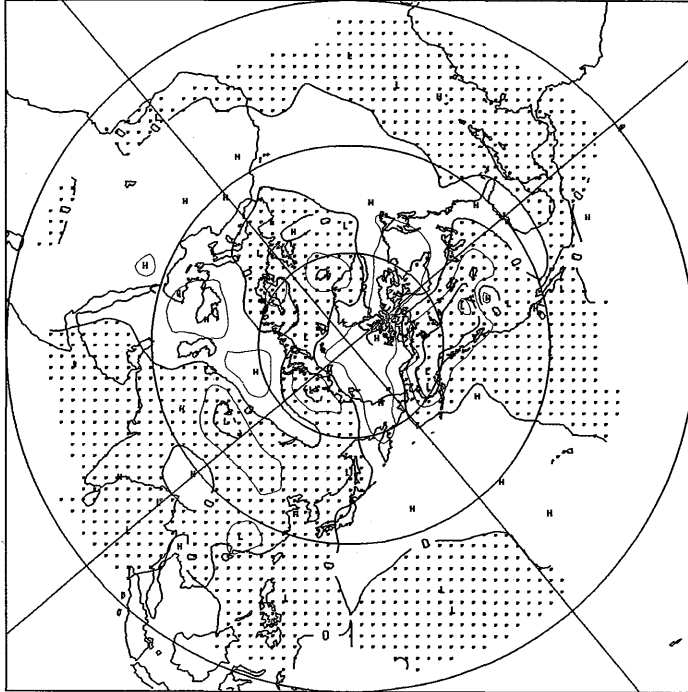
1951 FEB



1951年
1月

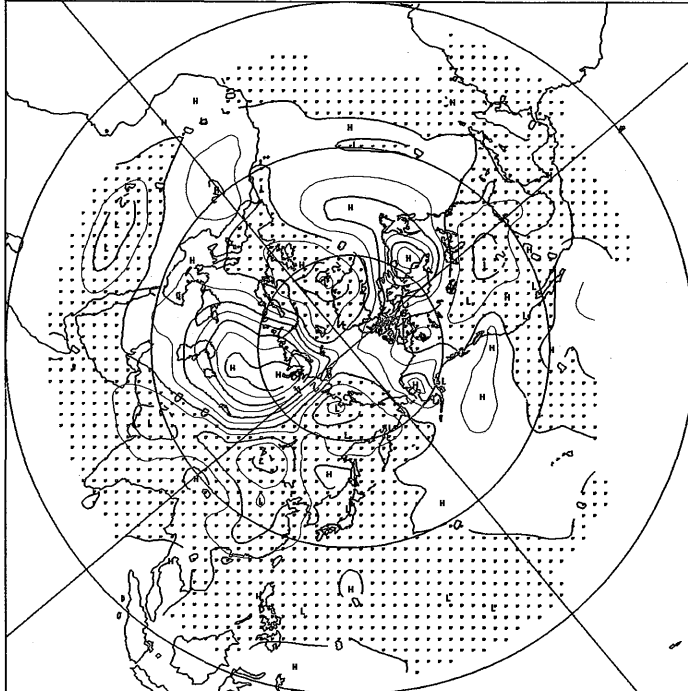
1951

MAR



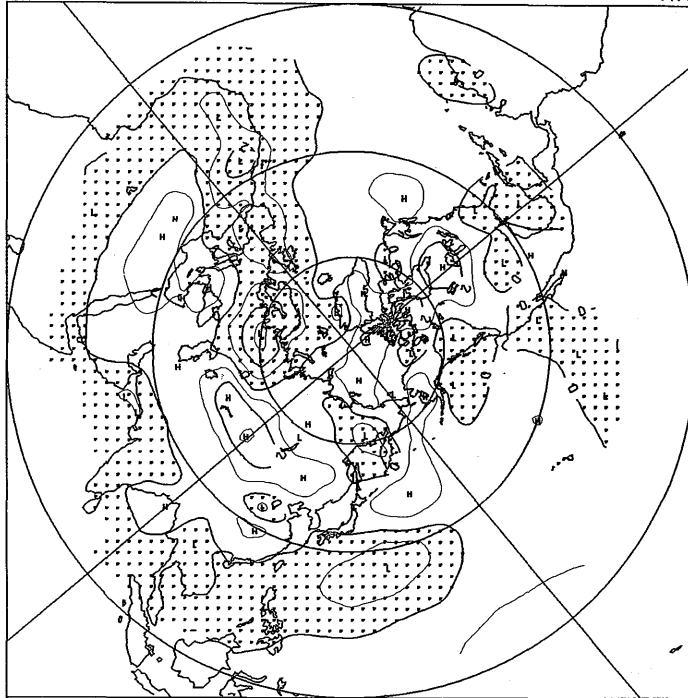
1951

APR



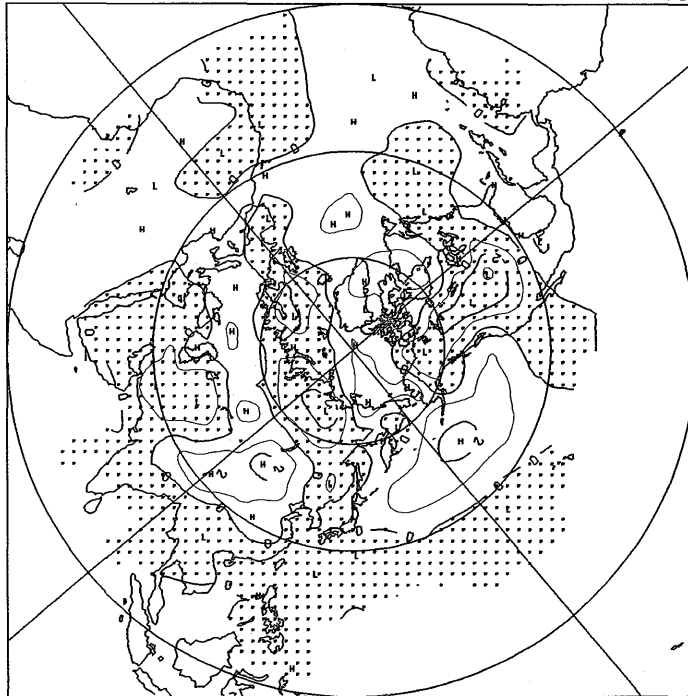
1951

MAY



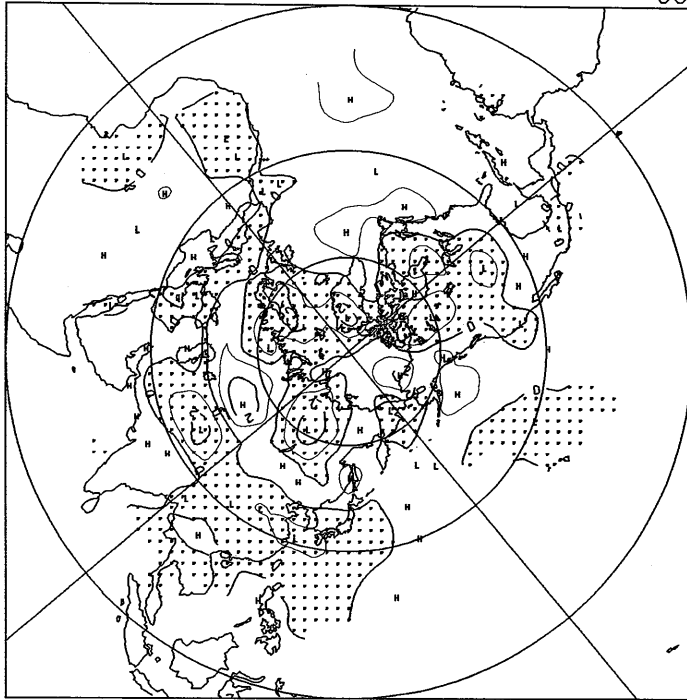
1951

JUN



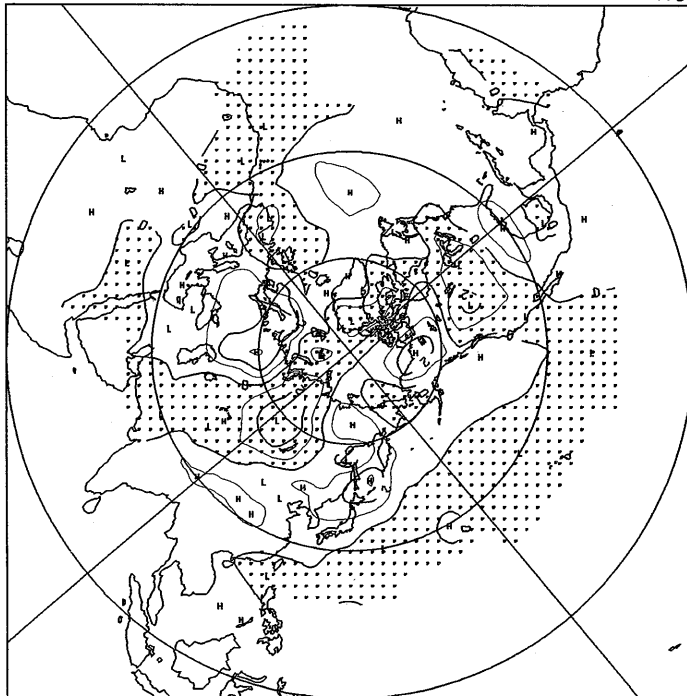
1951

JUL



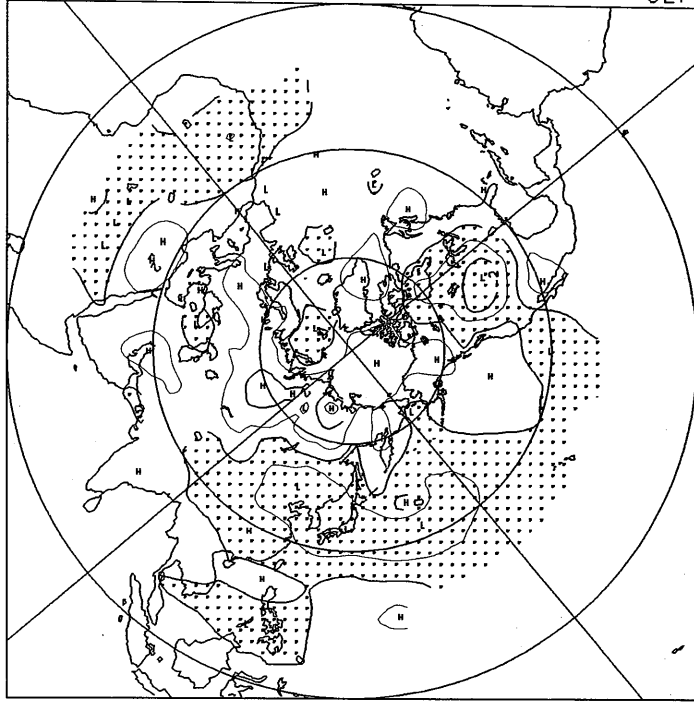
1951

AUG



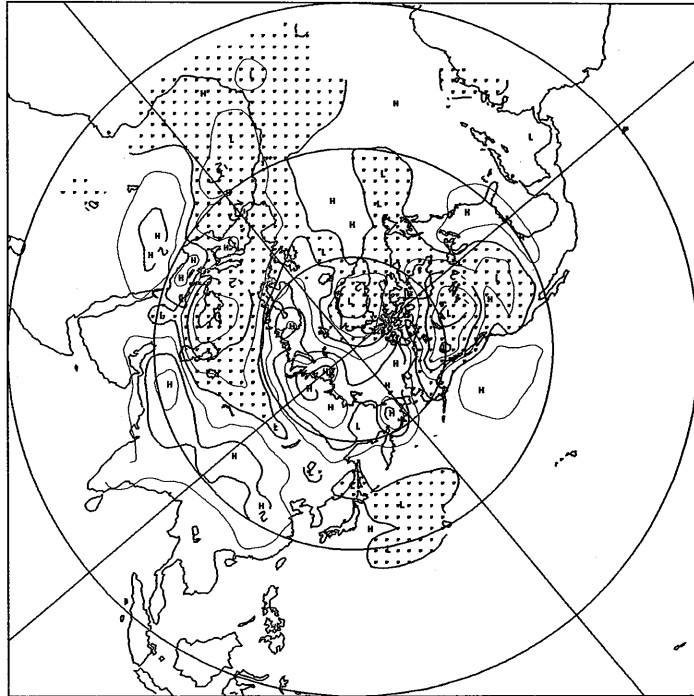
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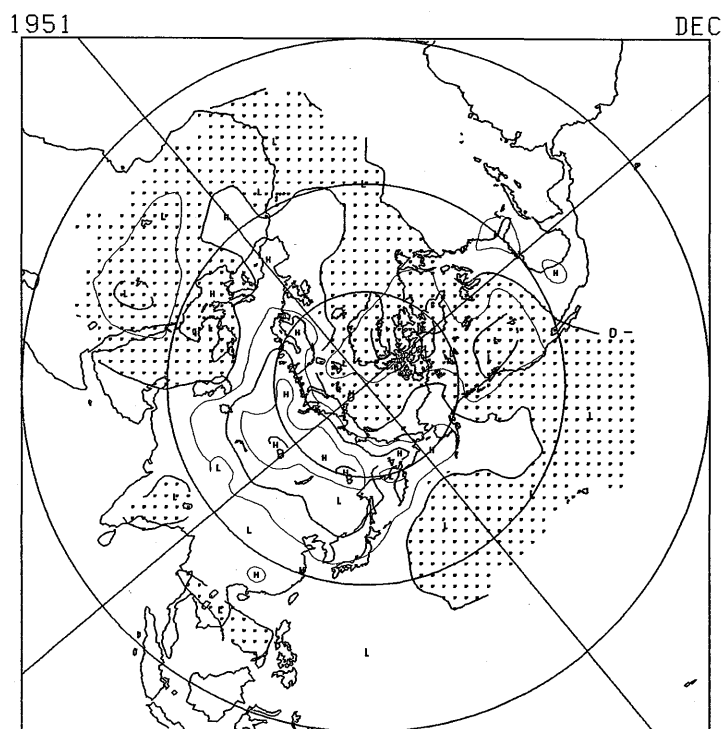
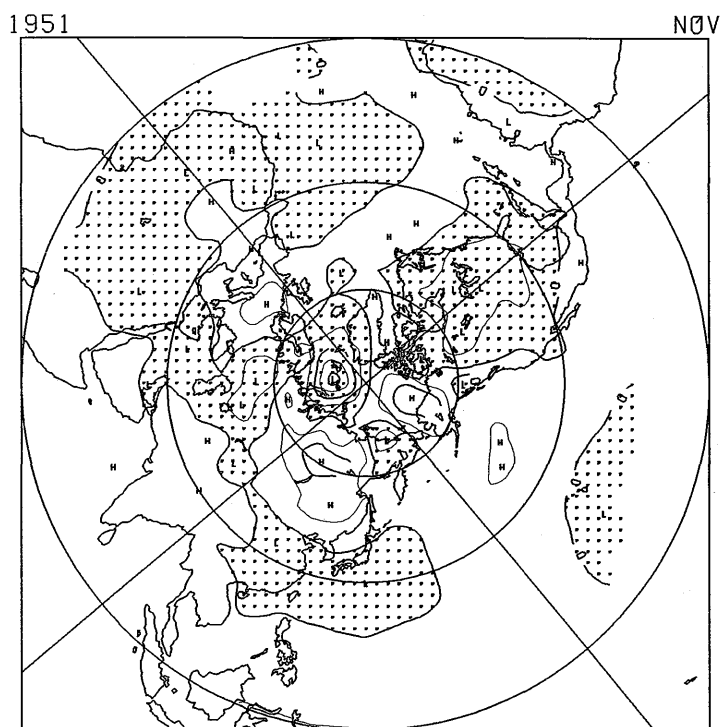
SEPT



1951

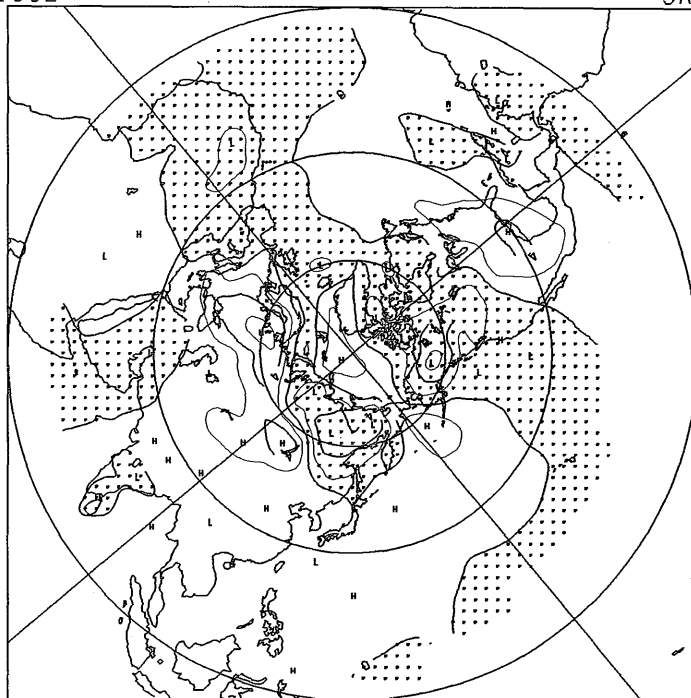
OCT





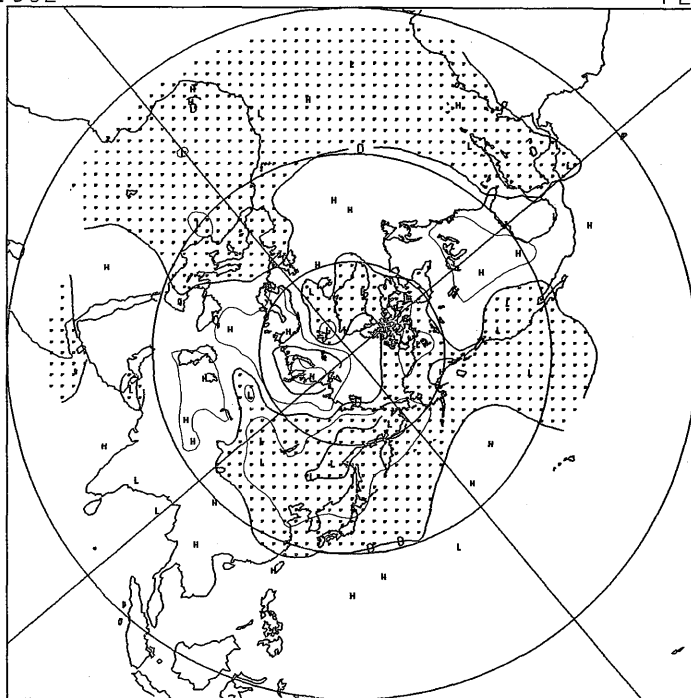
1952

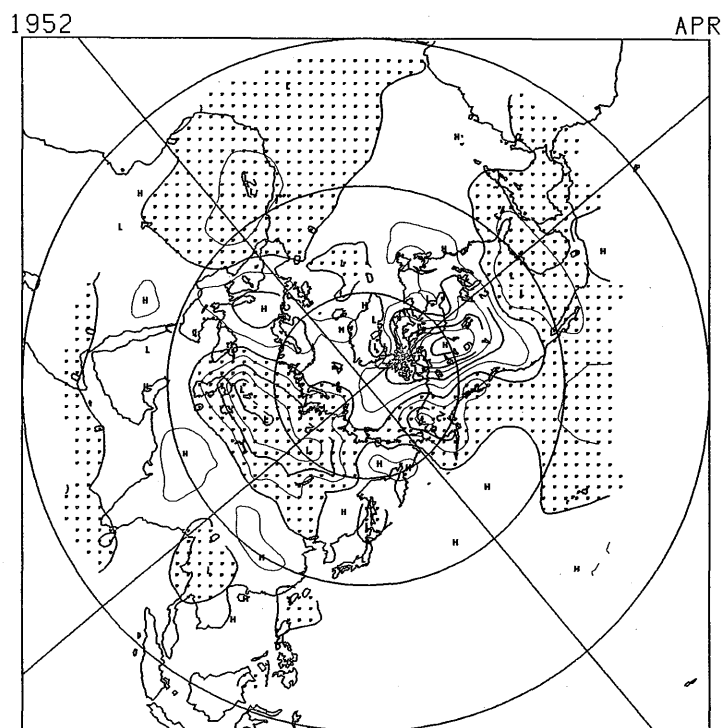
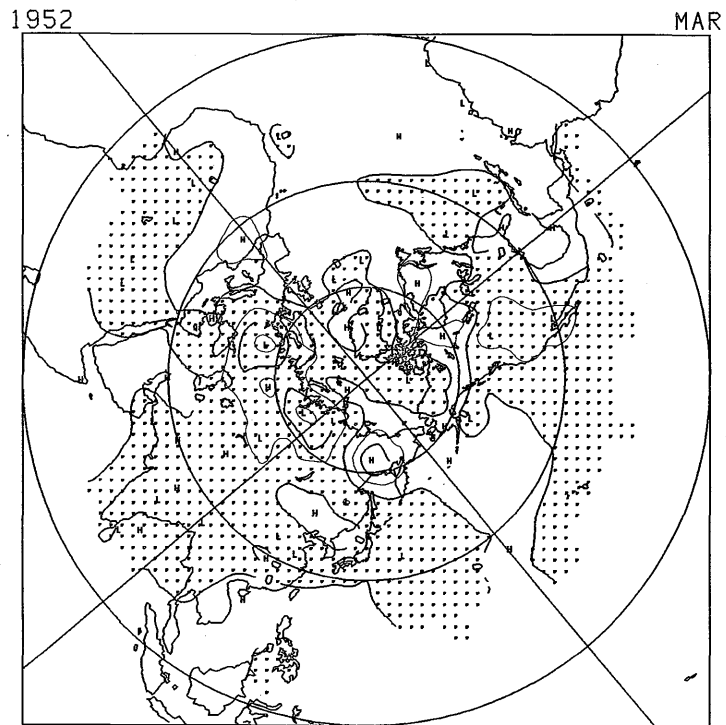
JAN



1952

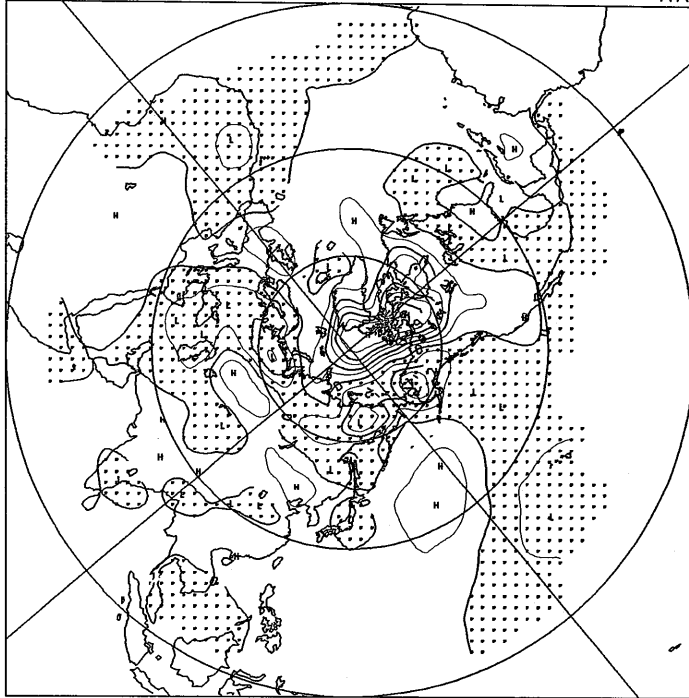
FEB





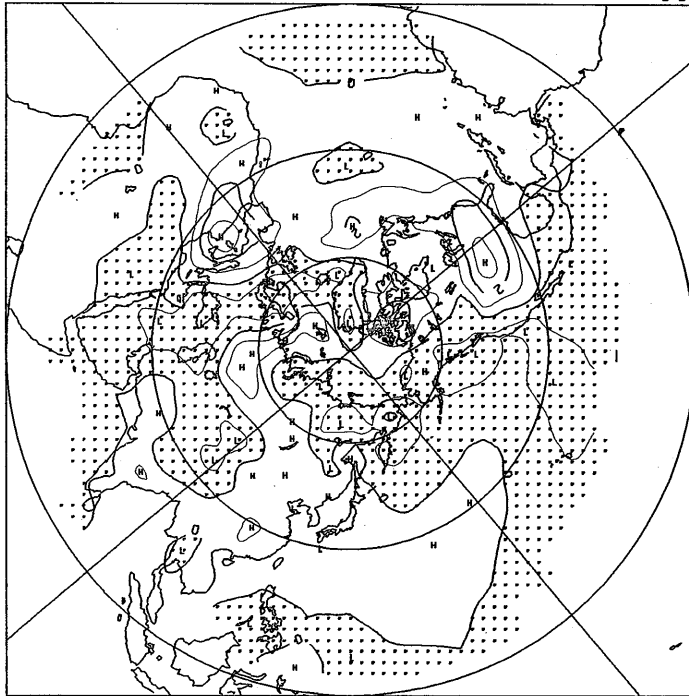
1952

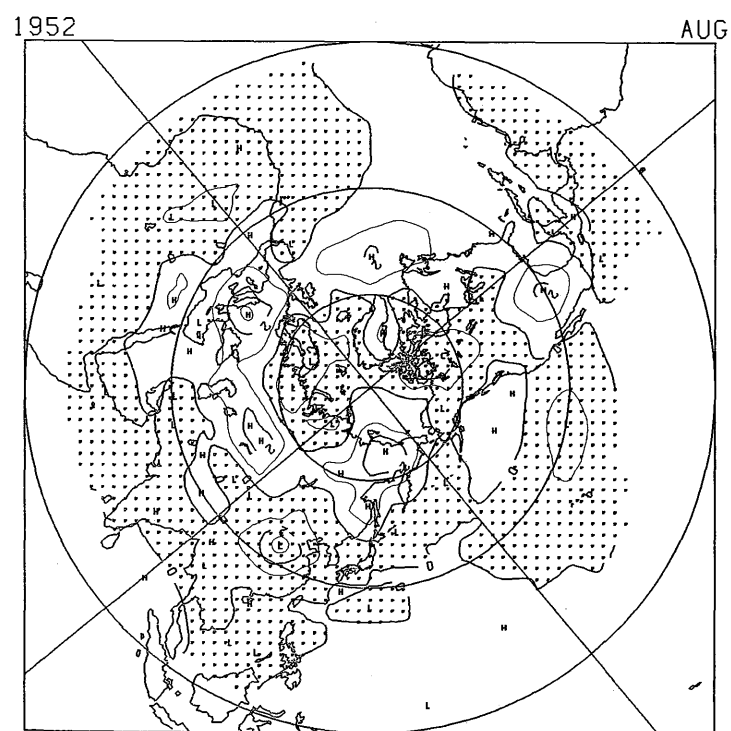
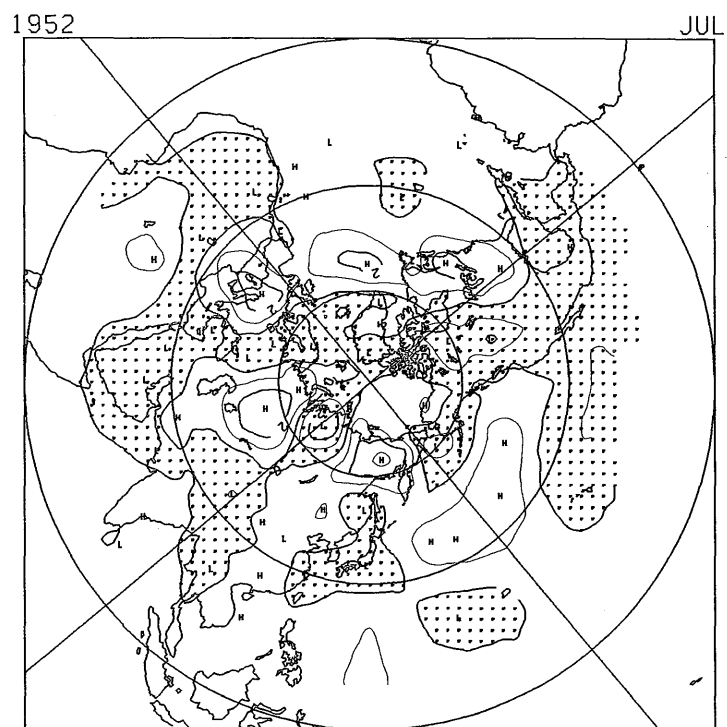
MAY

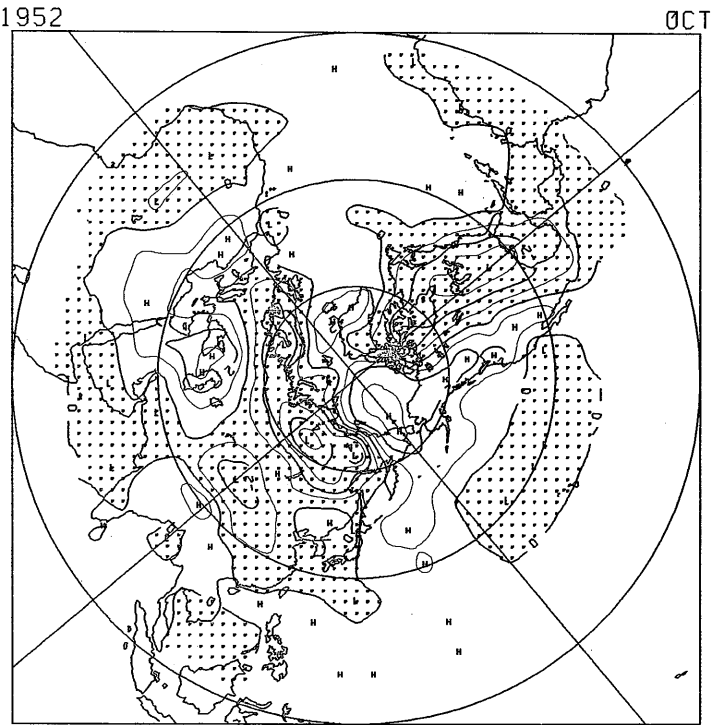
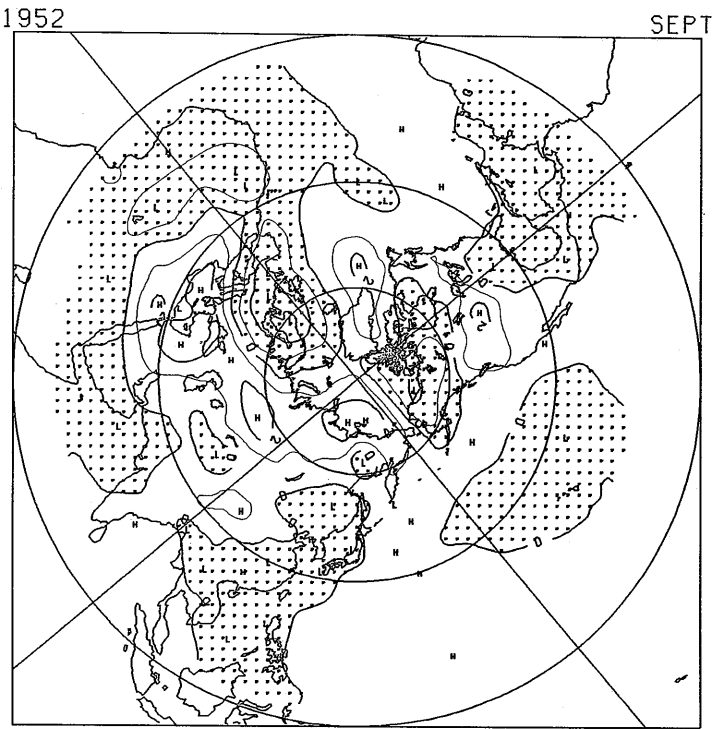


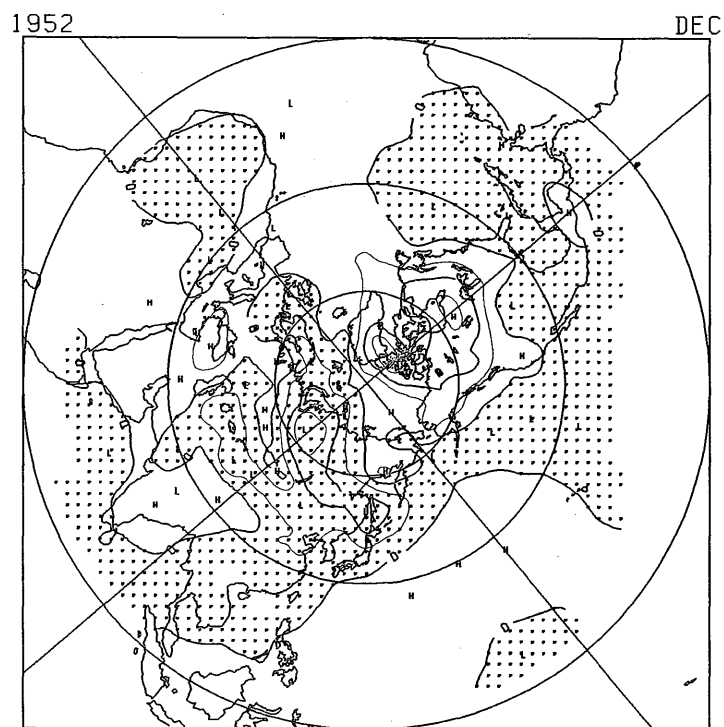
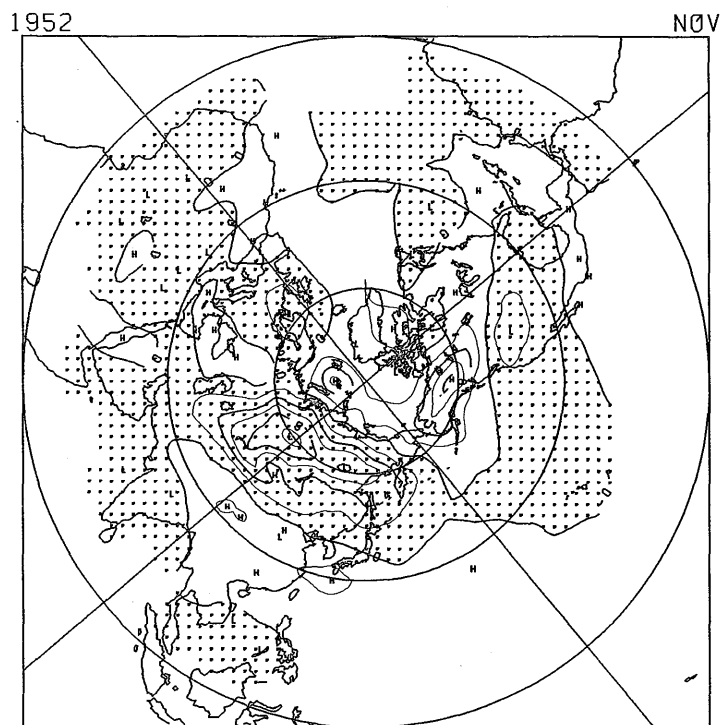
1952

JUN



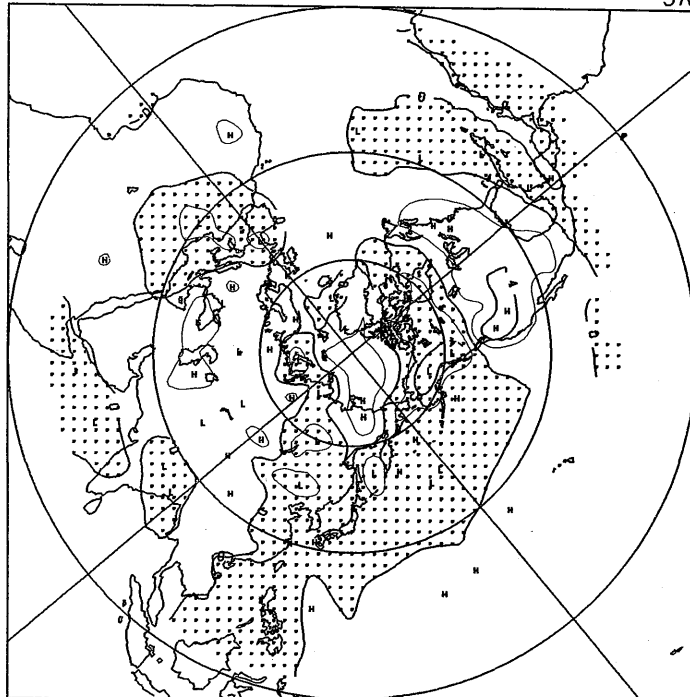






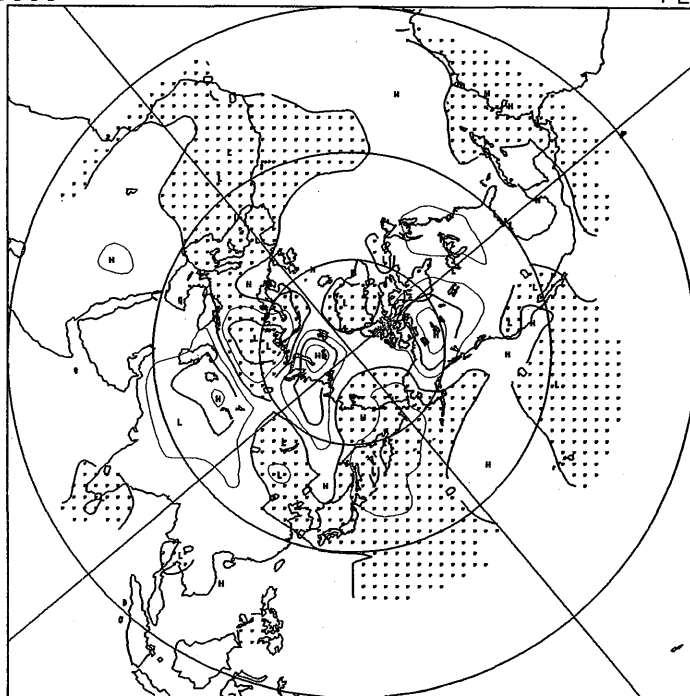
1953

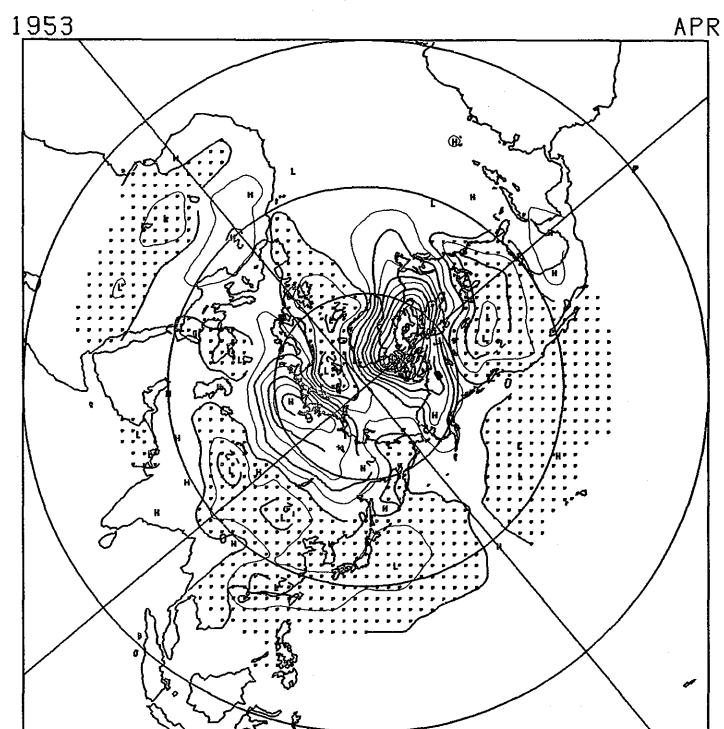
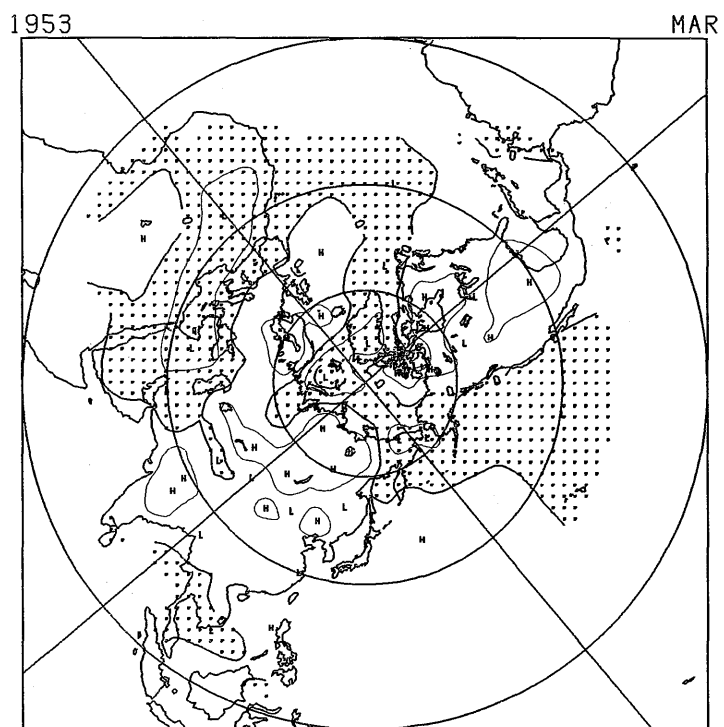
JAN



1953

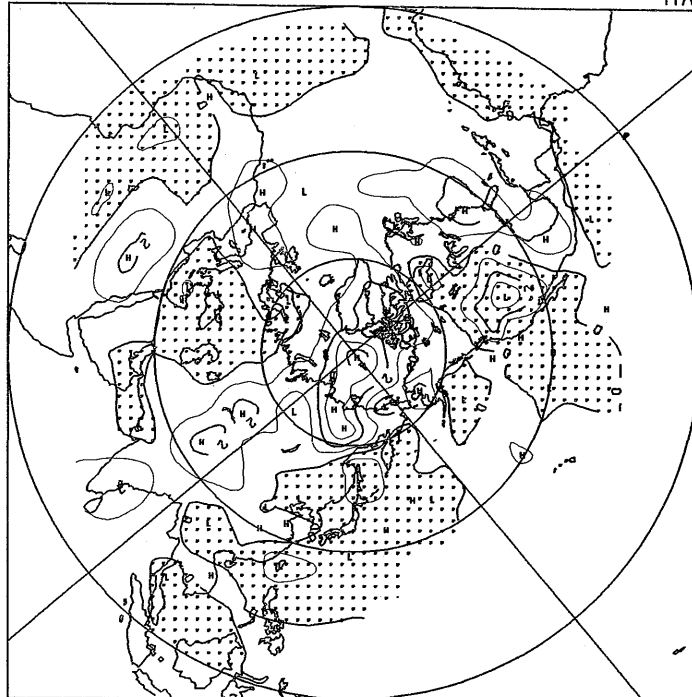
FEB





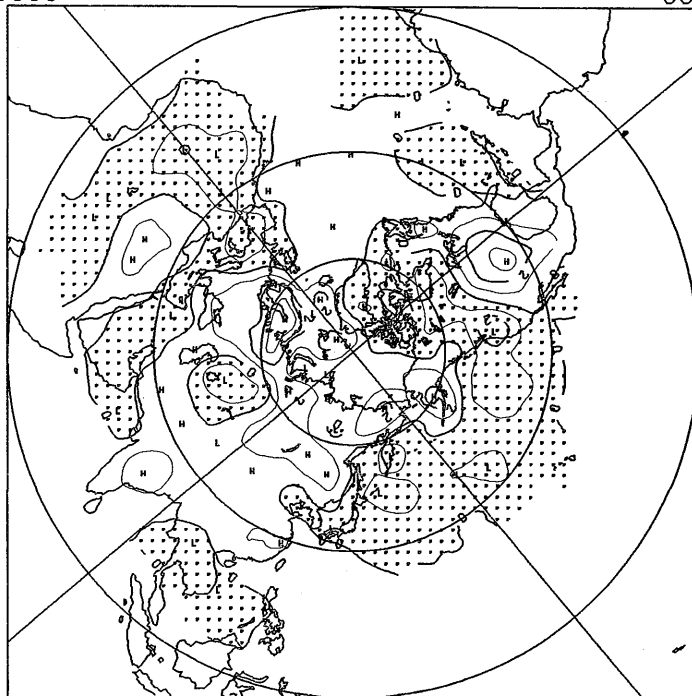
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MAY



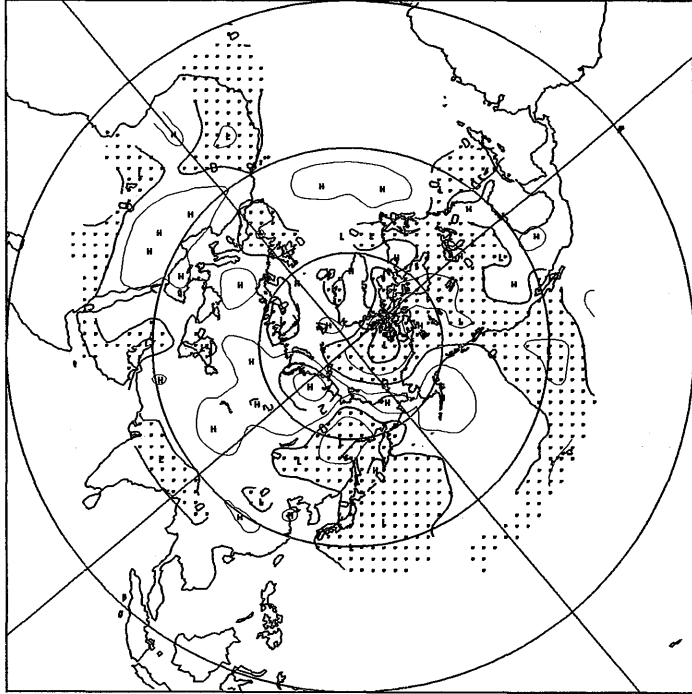
1953

JUN



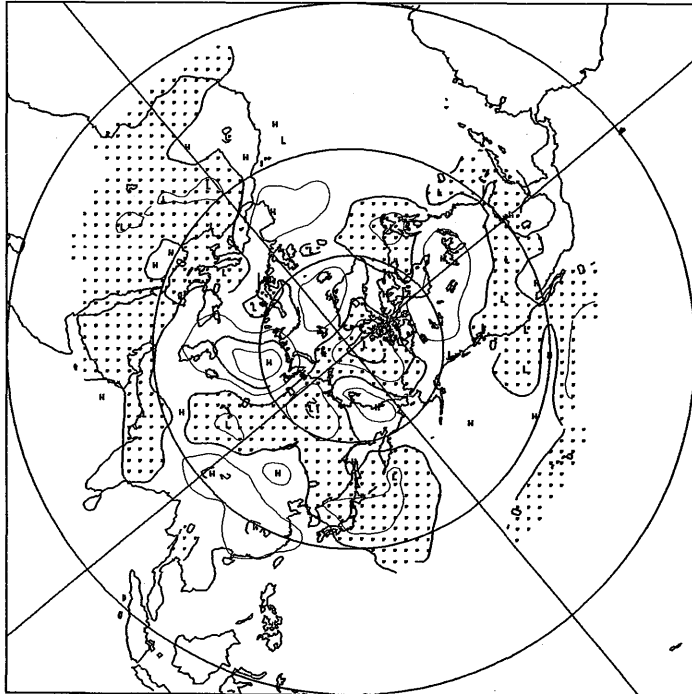
1953

JUL



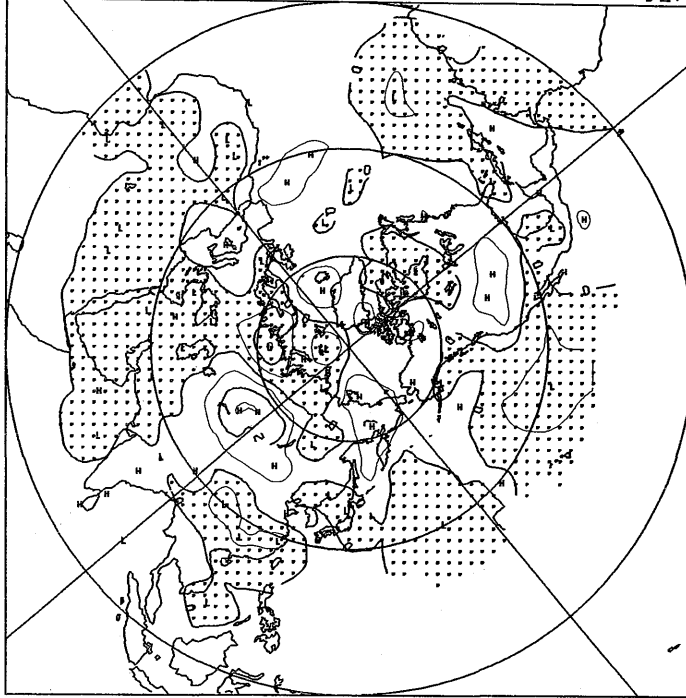
1953

AUG



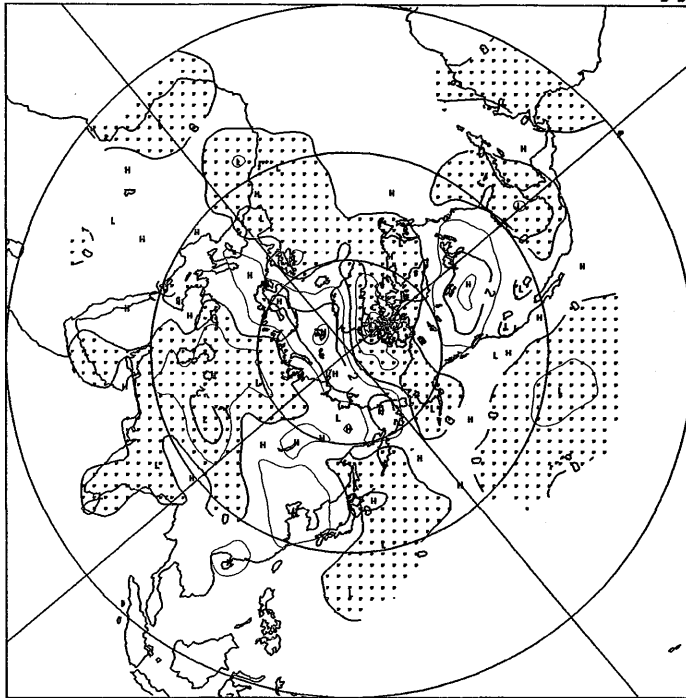
1953

SEPT



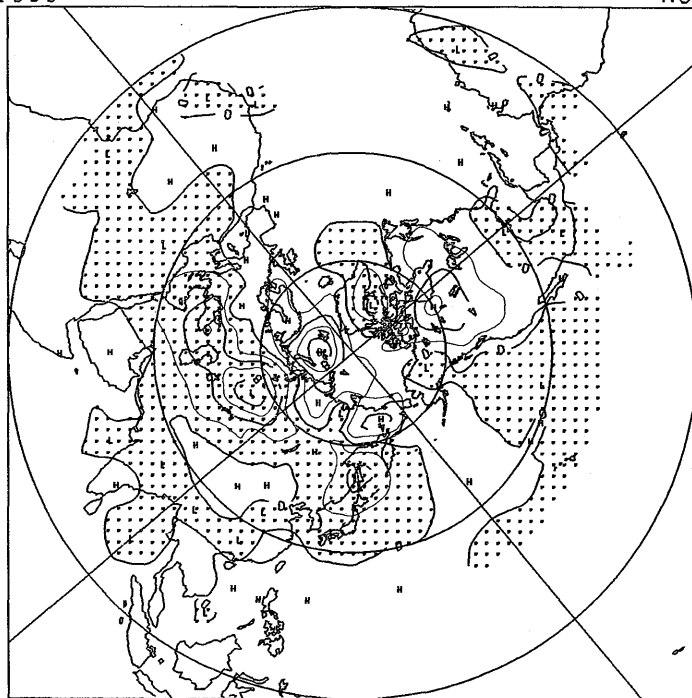
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OCT



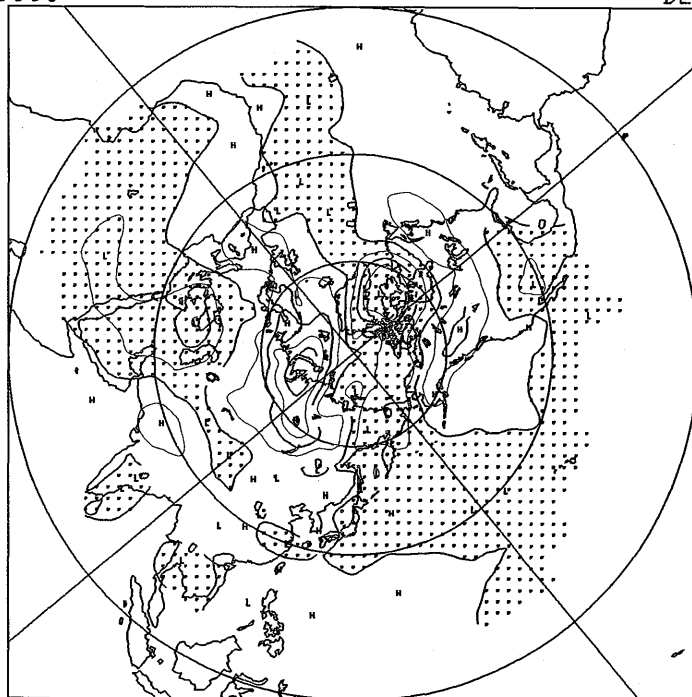
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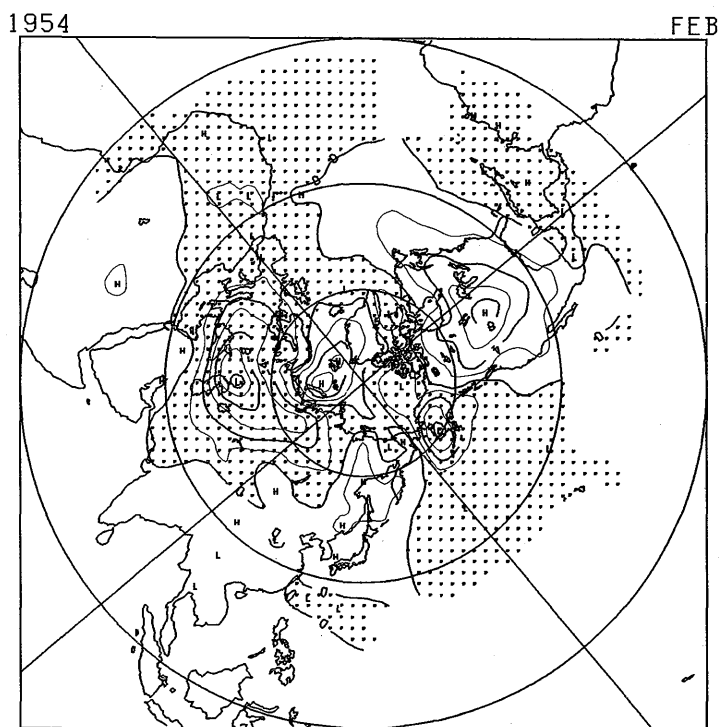
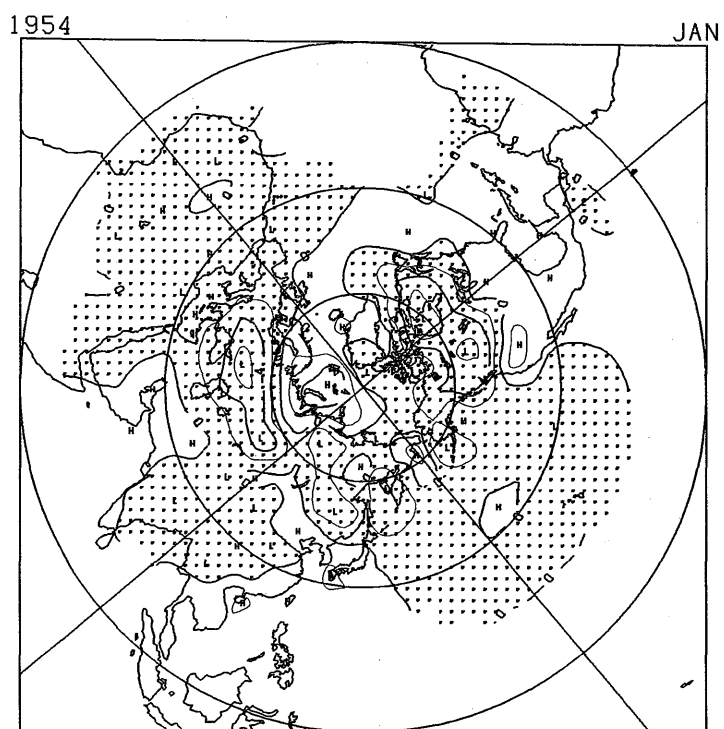
NOV



1953

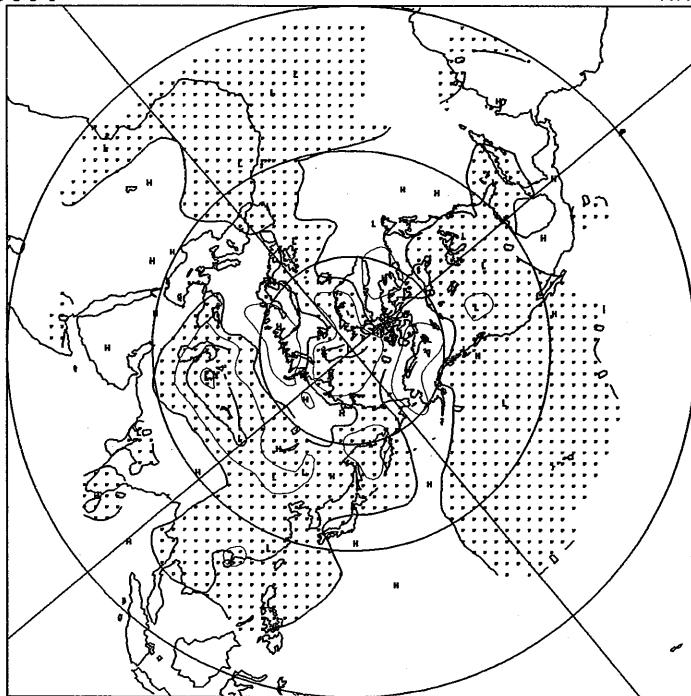
DEC





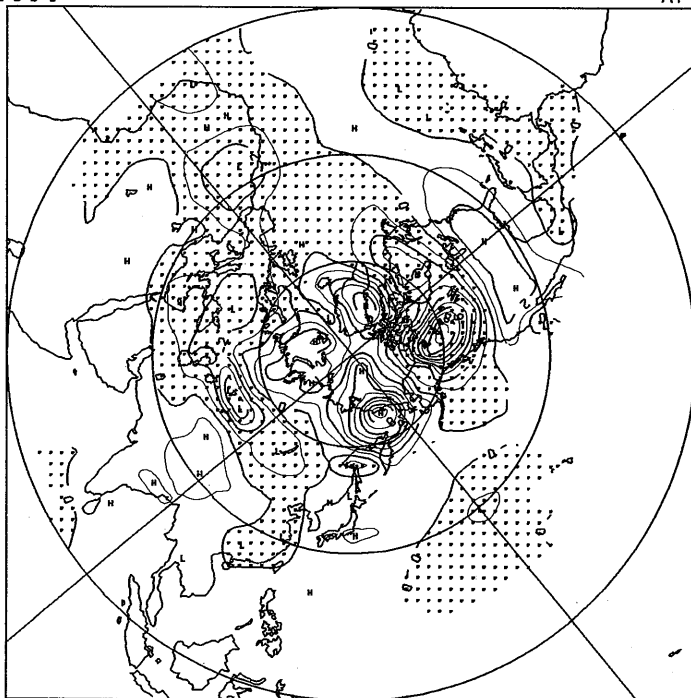
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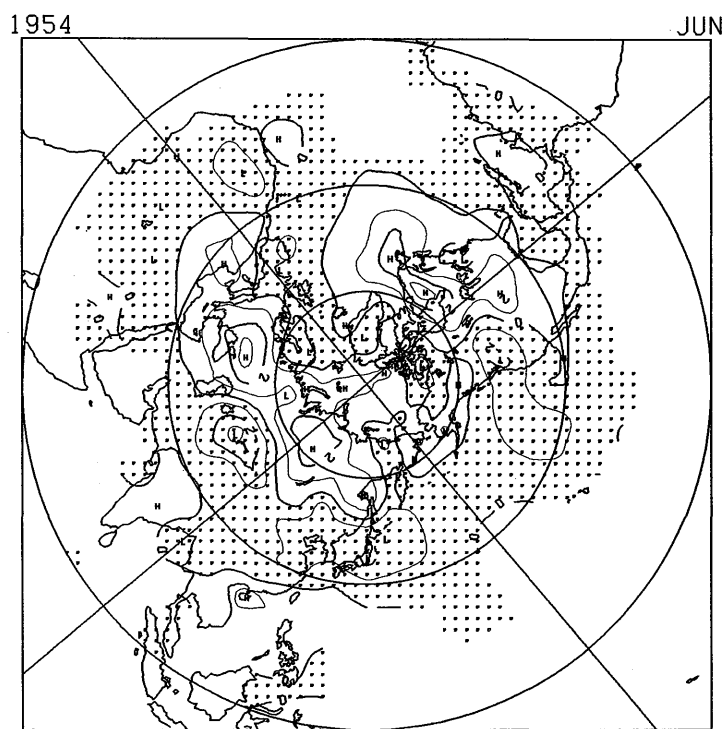
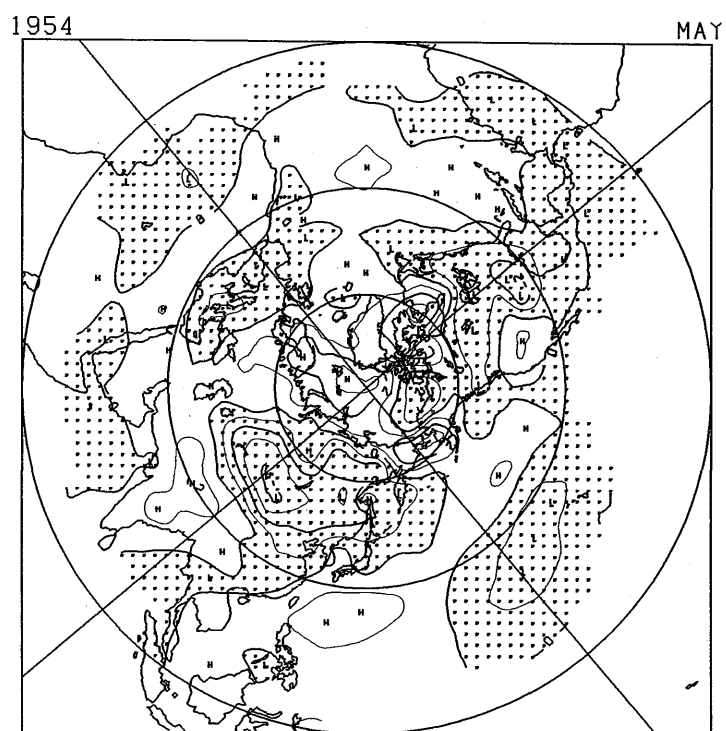
MAR

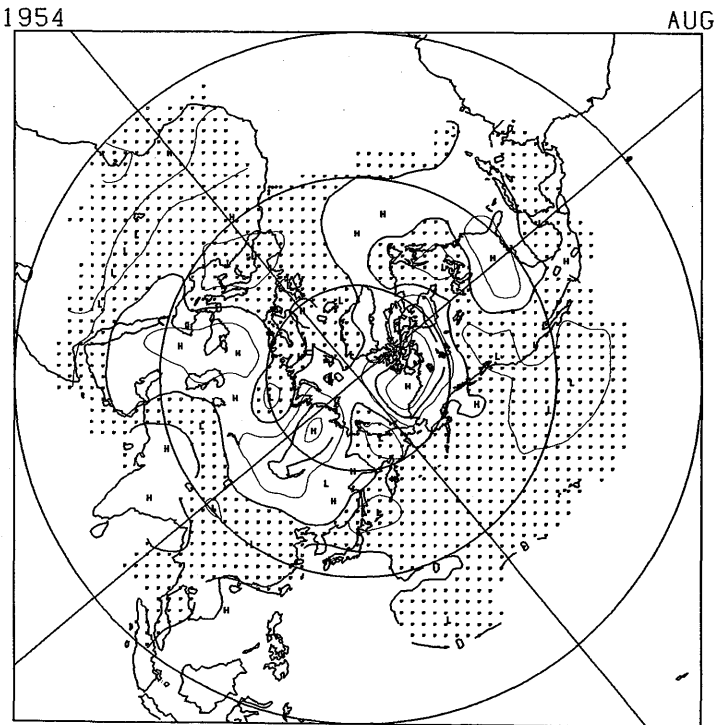
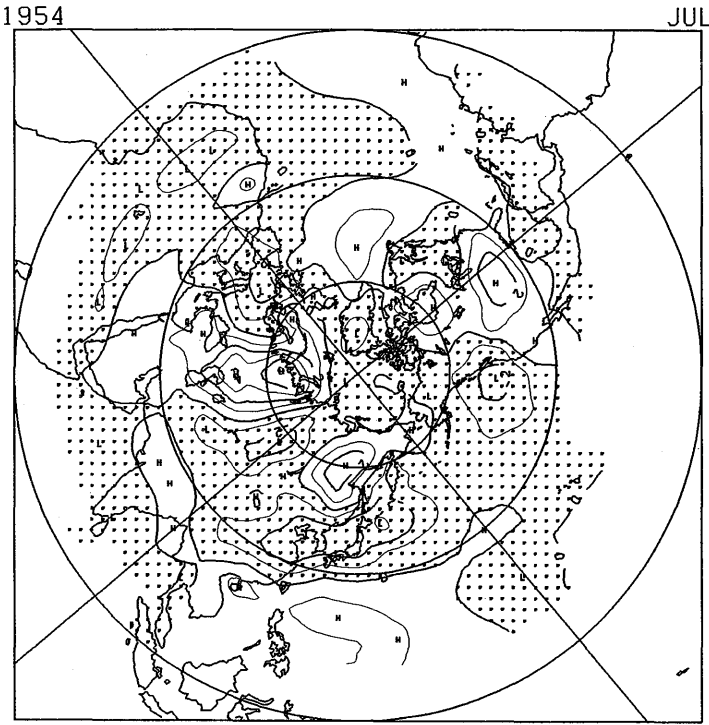


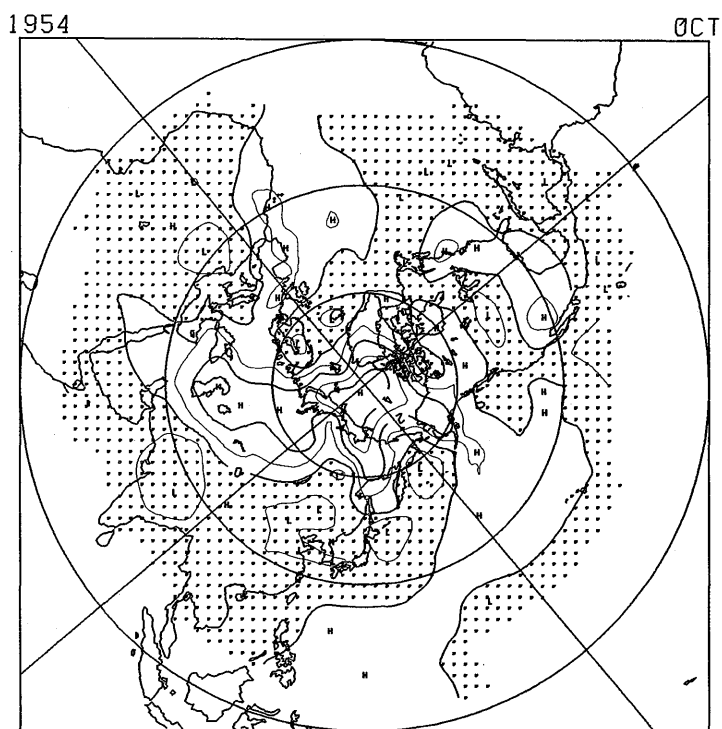
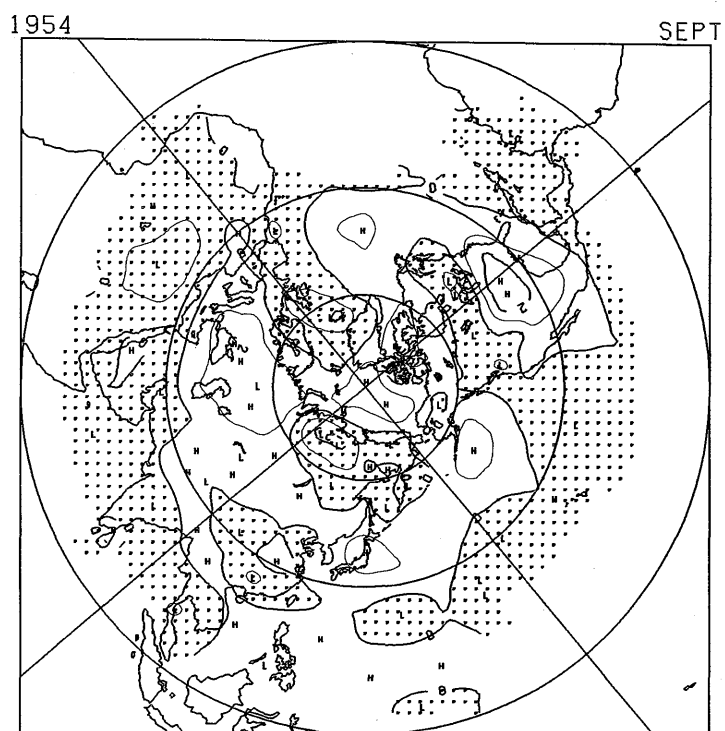
1954

APR



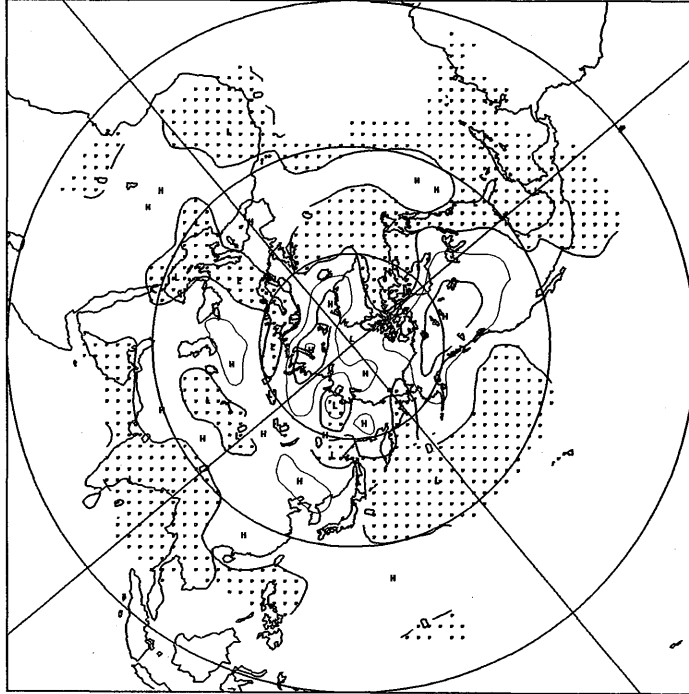






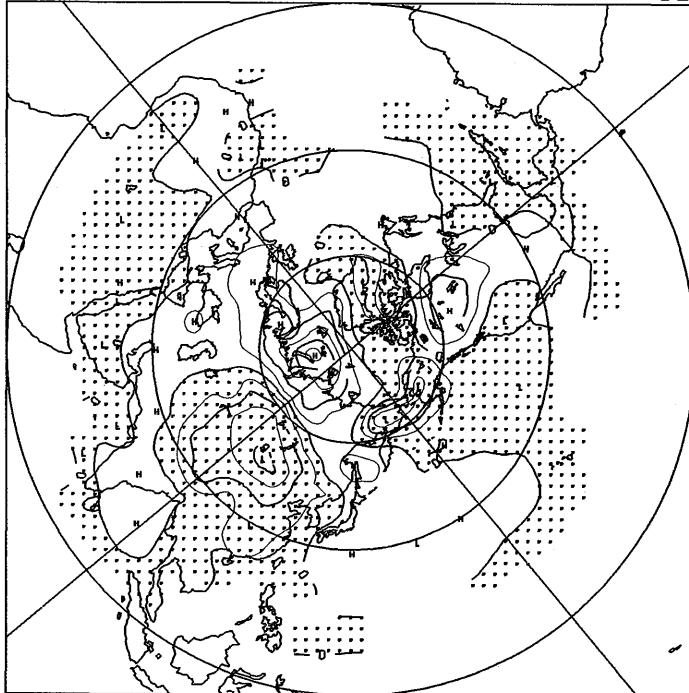
1954

NOV



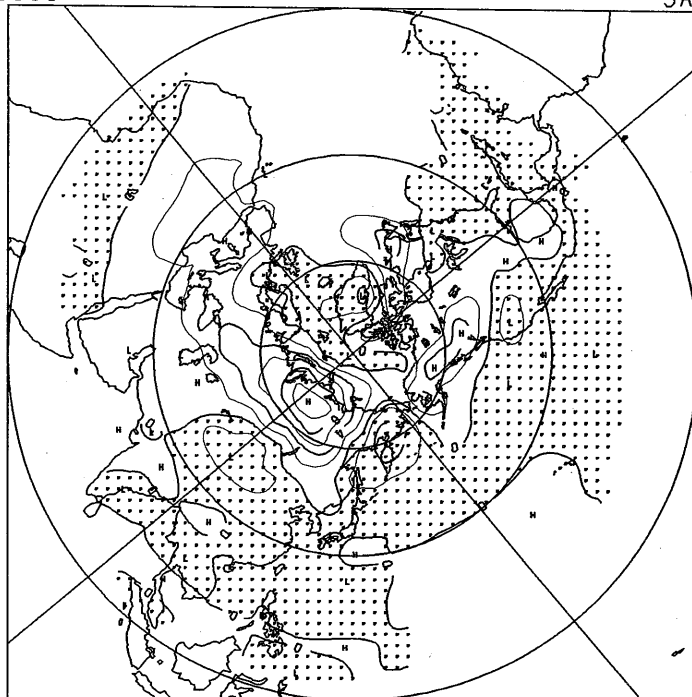
1954

DEC



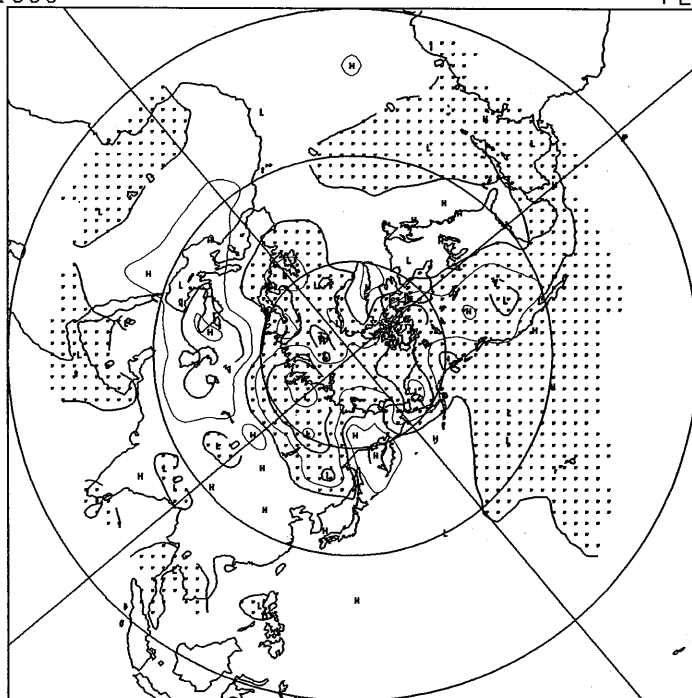
1955

JAN



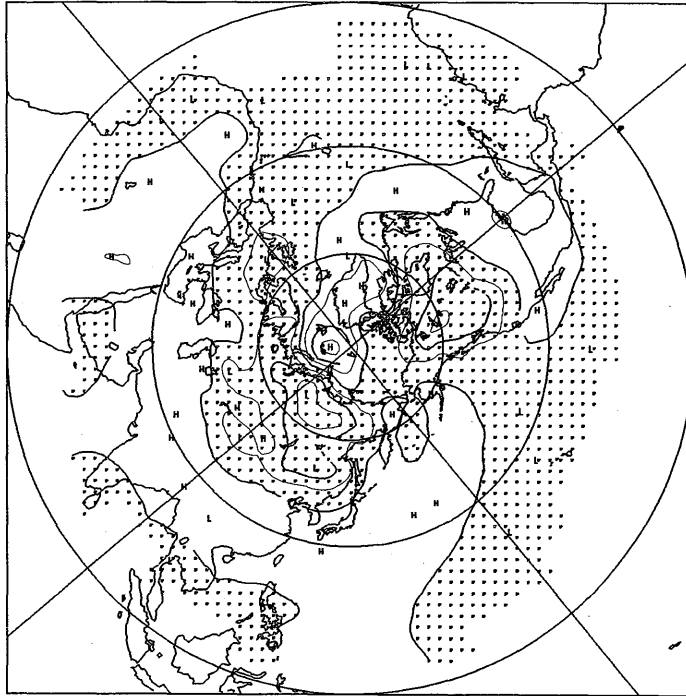
1955

FEB



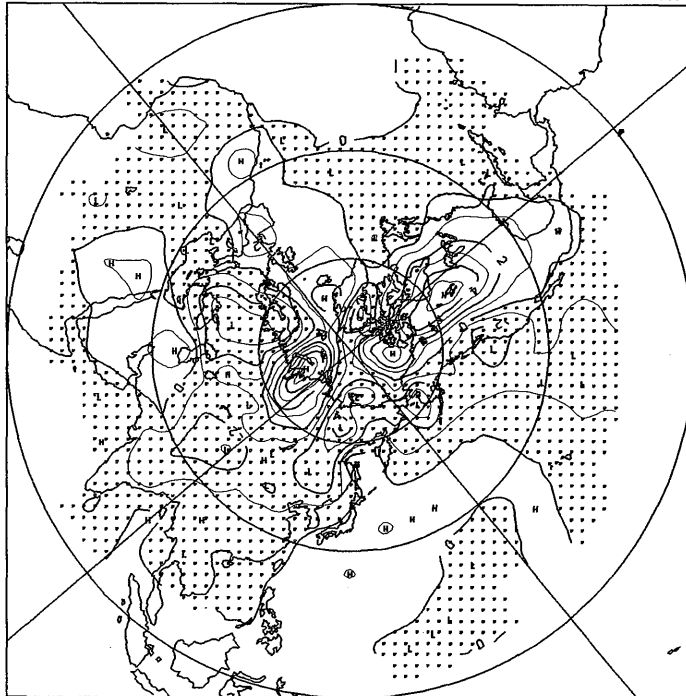
1955

MAR



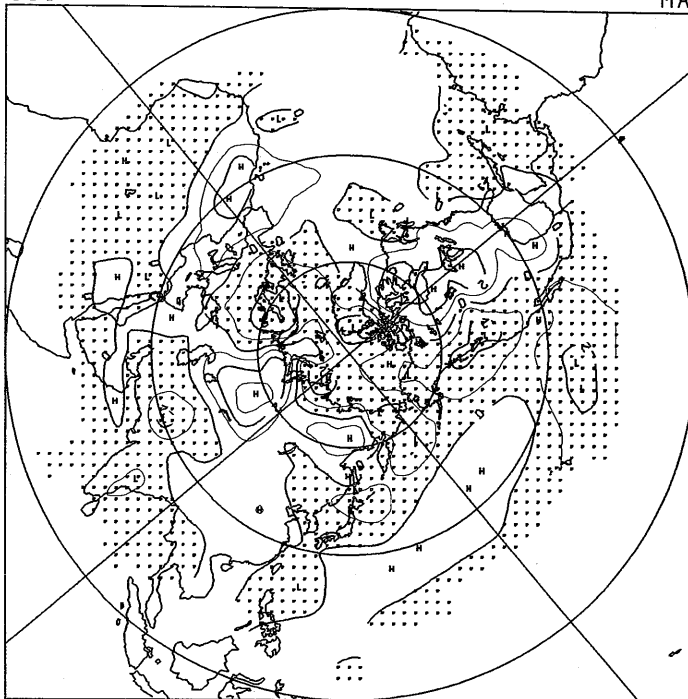
1955

APR



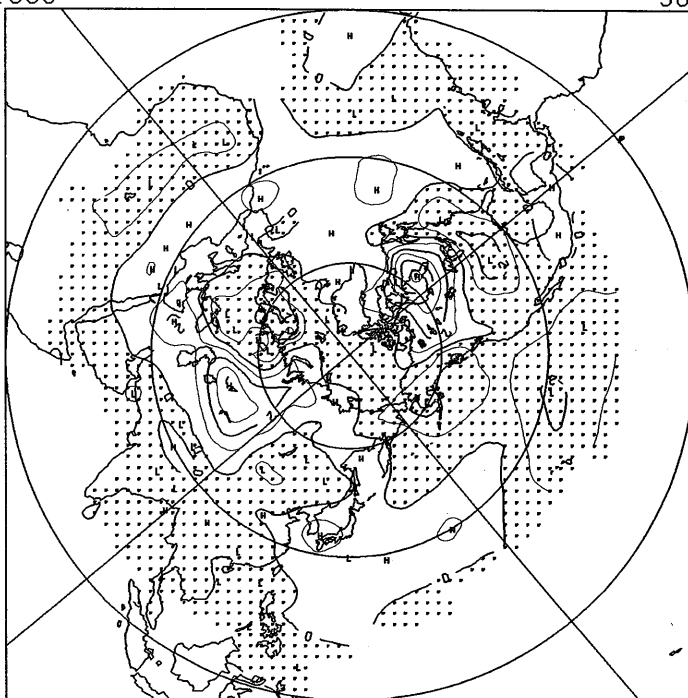
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MAY



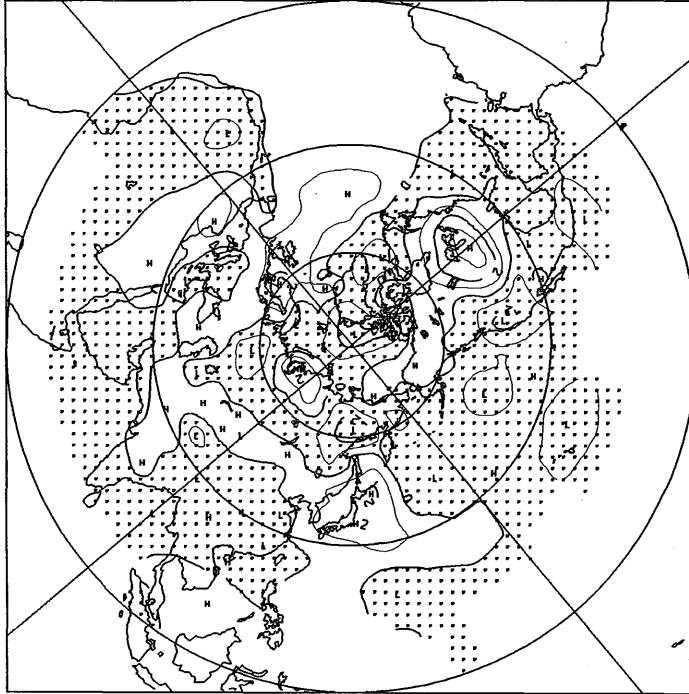
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JUN



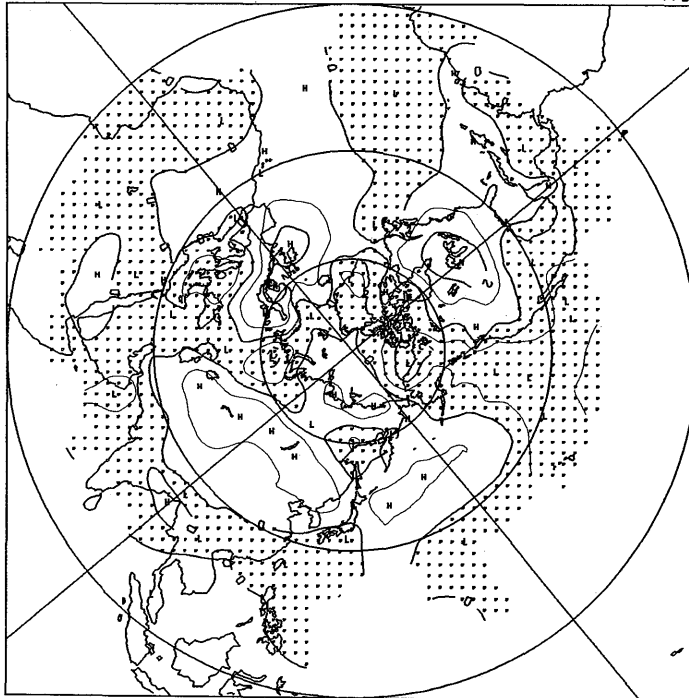
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JUL



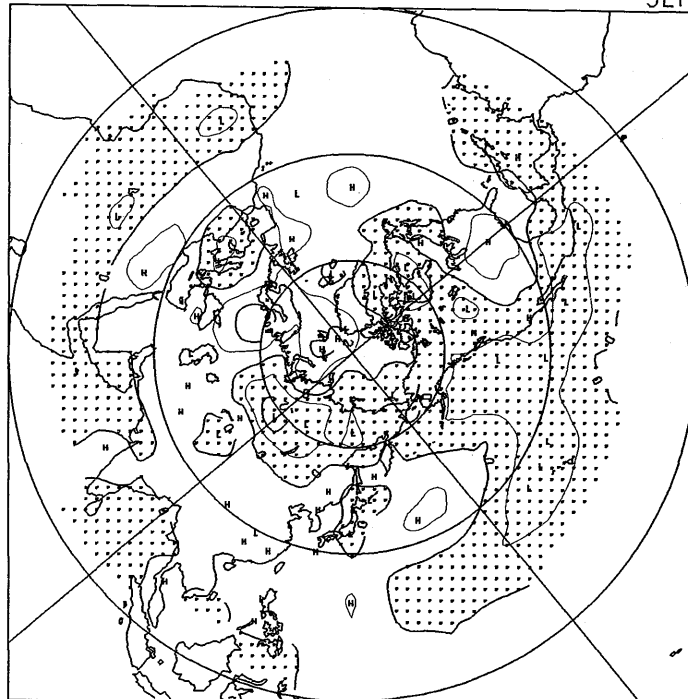
1955

AUG



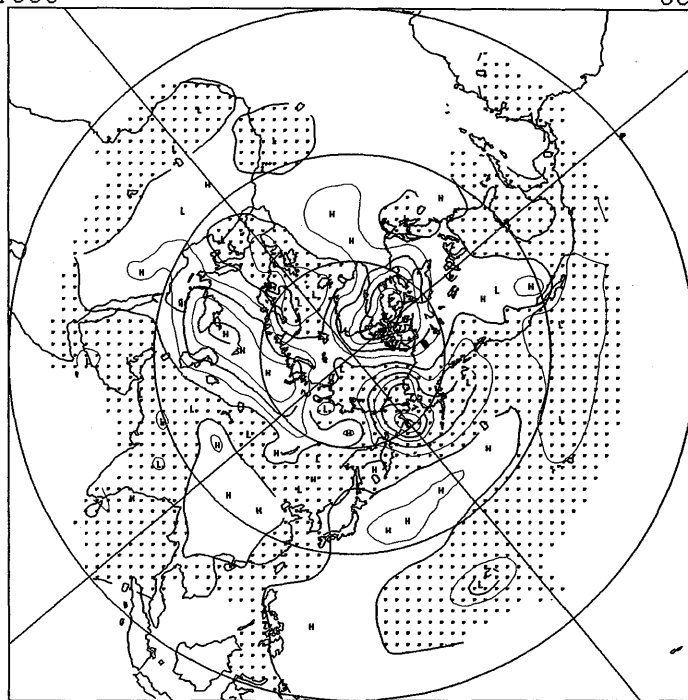
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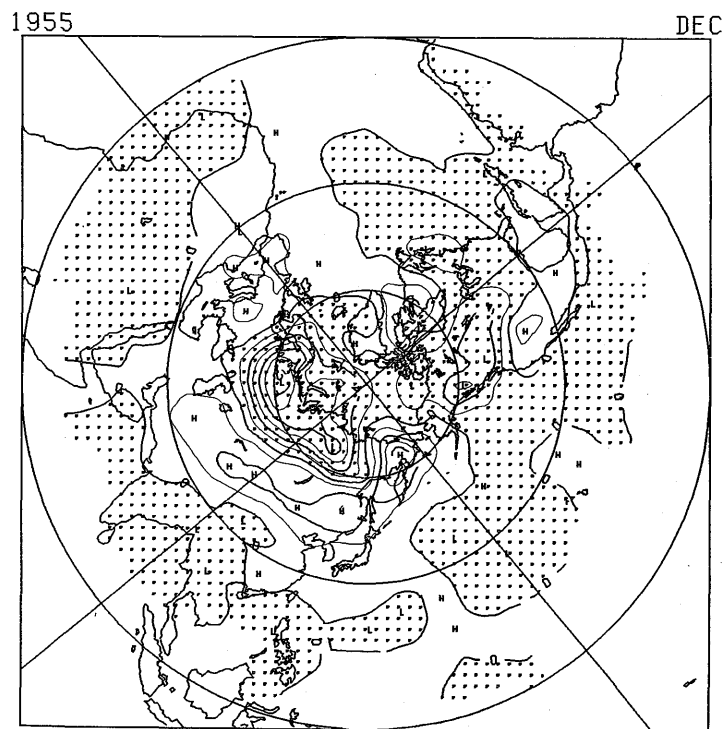
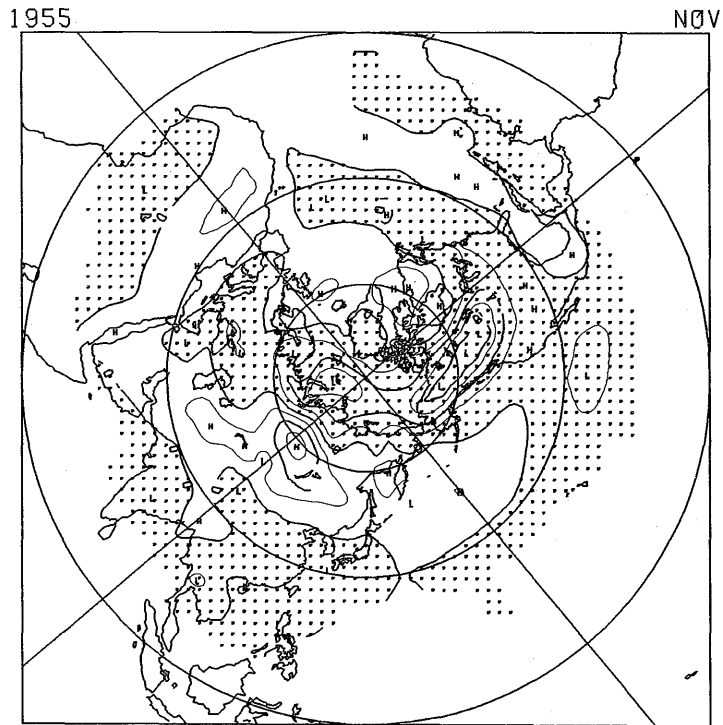
SEPT



1955

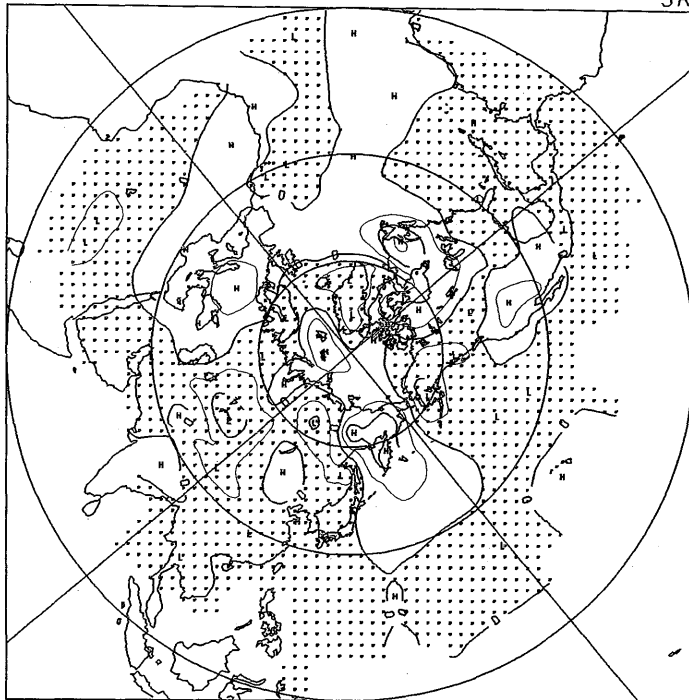
OCT





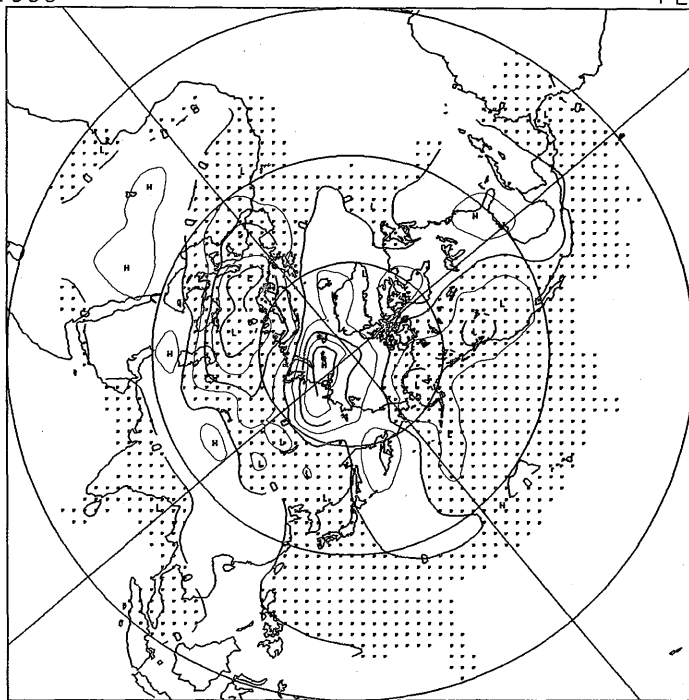
1956

JAN



1956

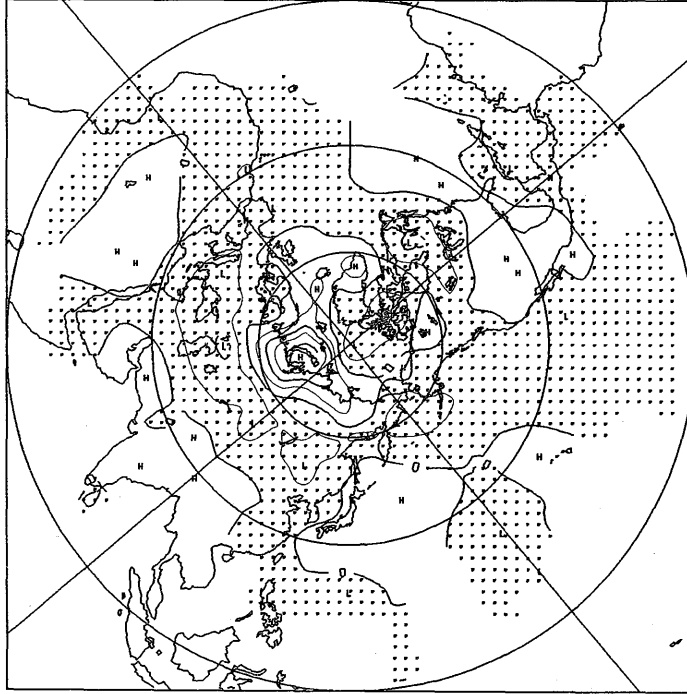
FEB



1956年
1月

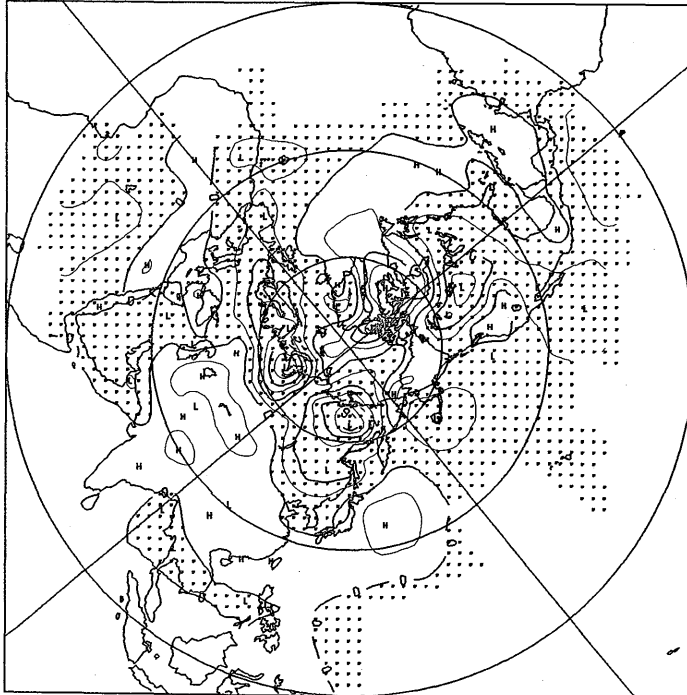
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MAR



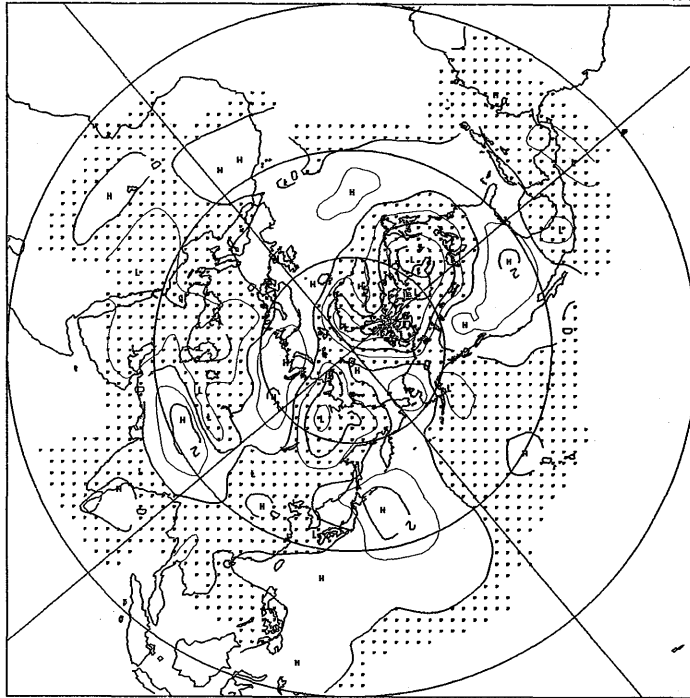
1956

APR



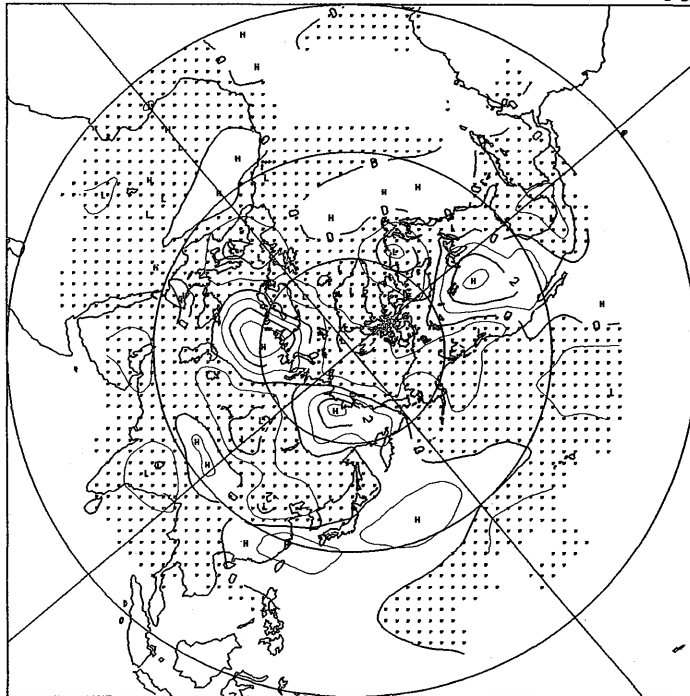
1956

MAY



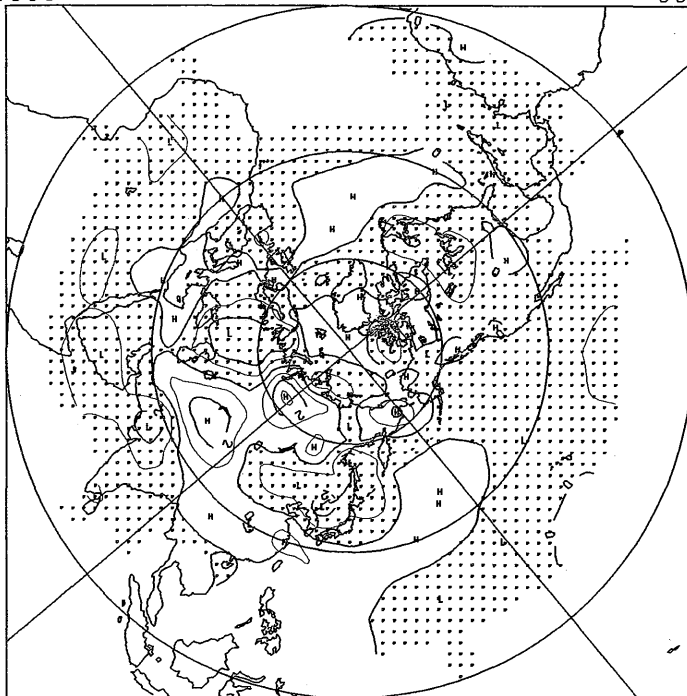
1956

JUN



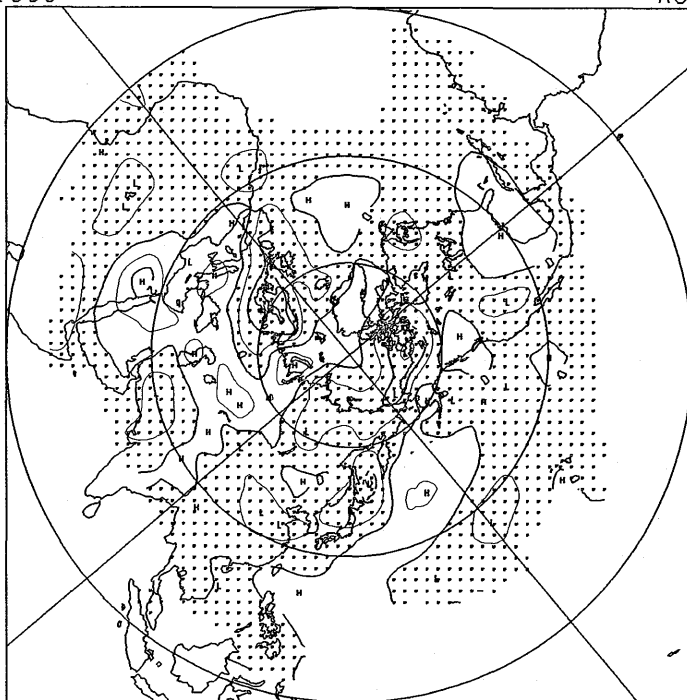
1956

JUL



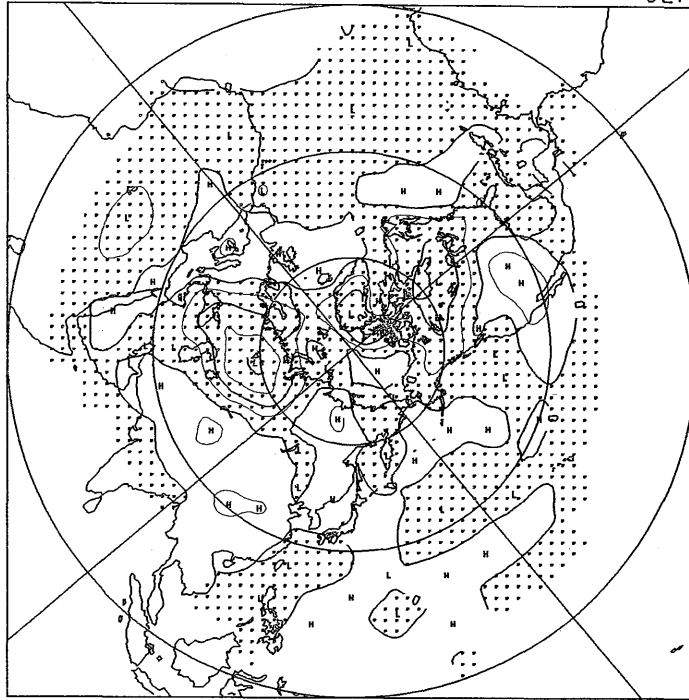
1956

AUG



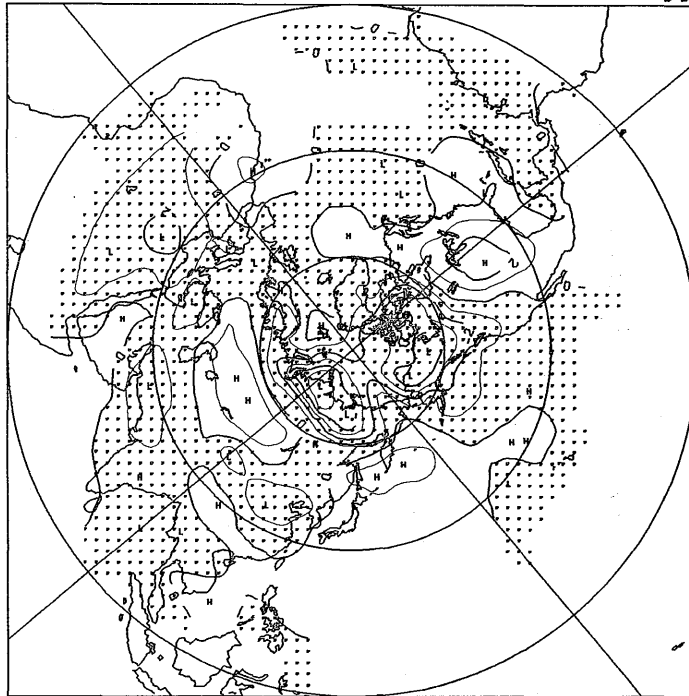
1956

SEPT



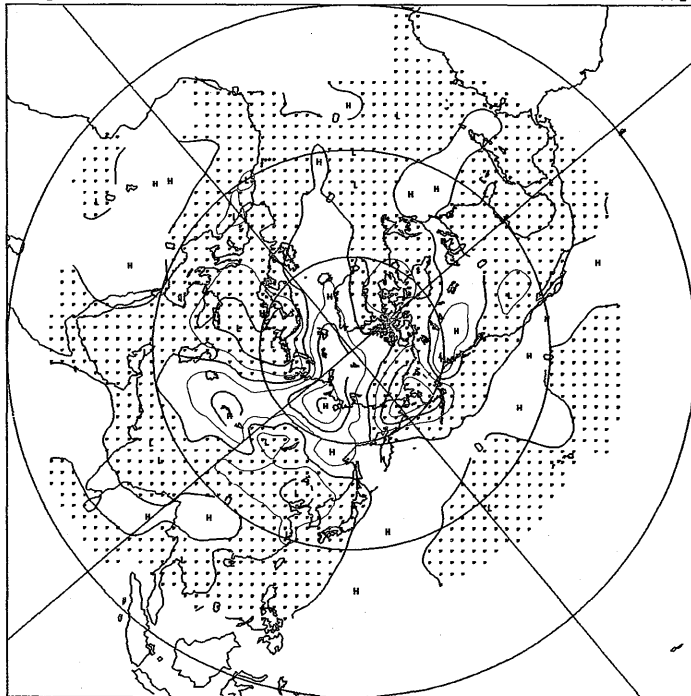
1956

OCT



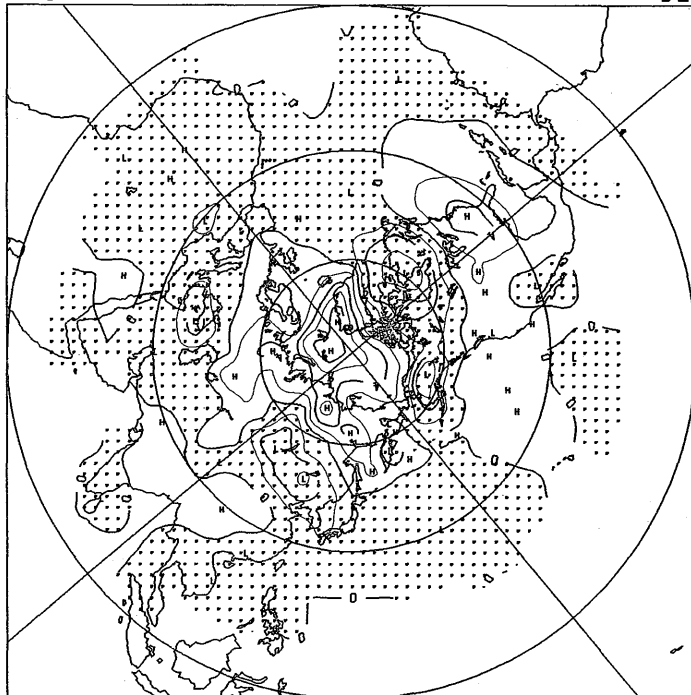
1956

NOV



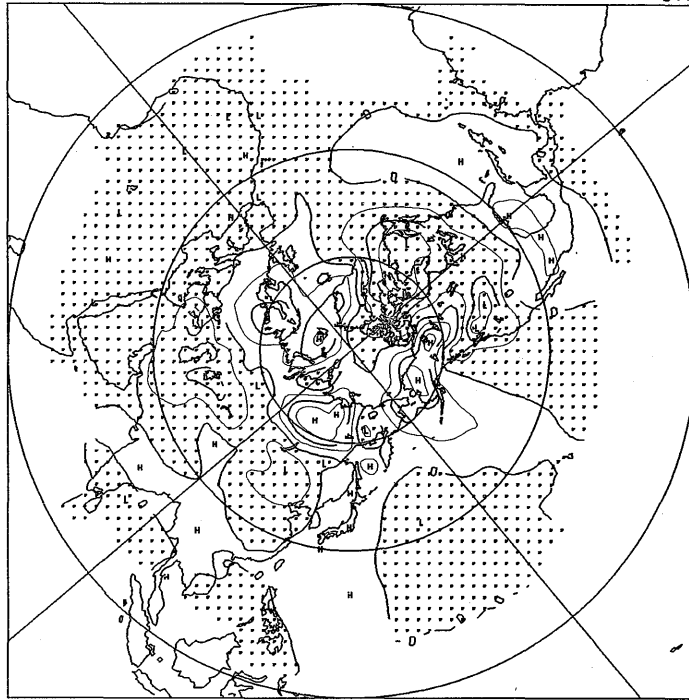
1956

DEC



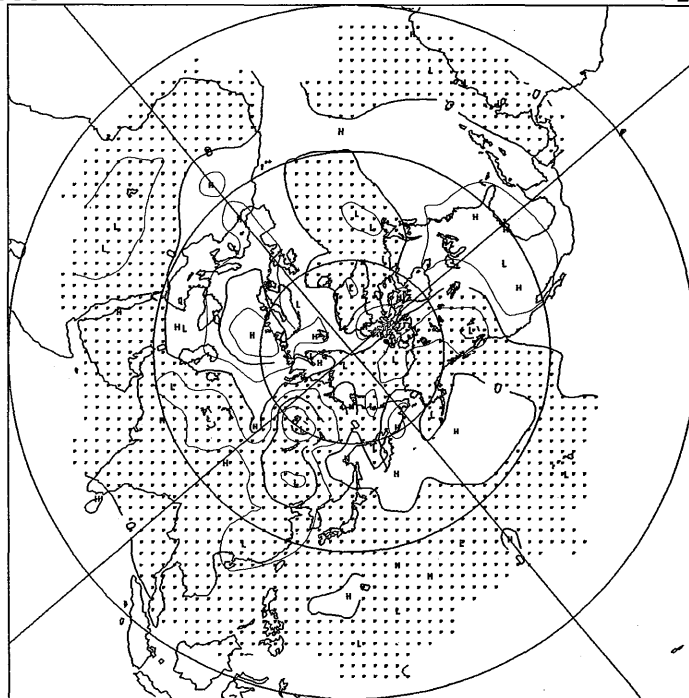
1957

JAN



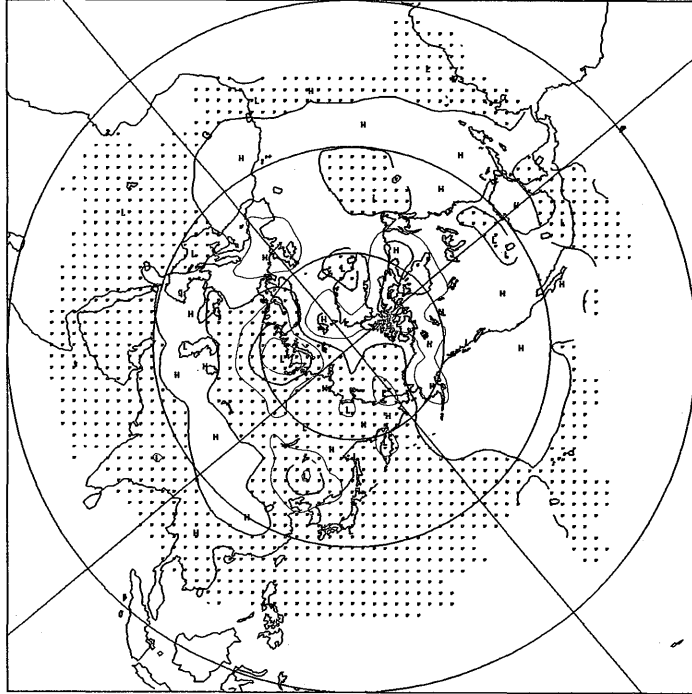
1957

FEB



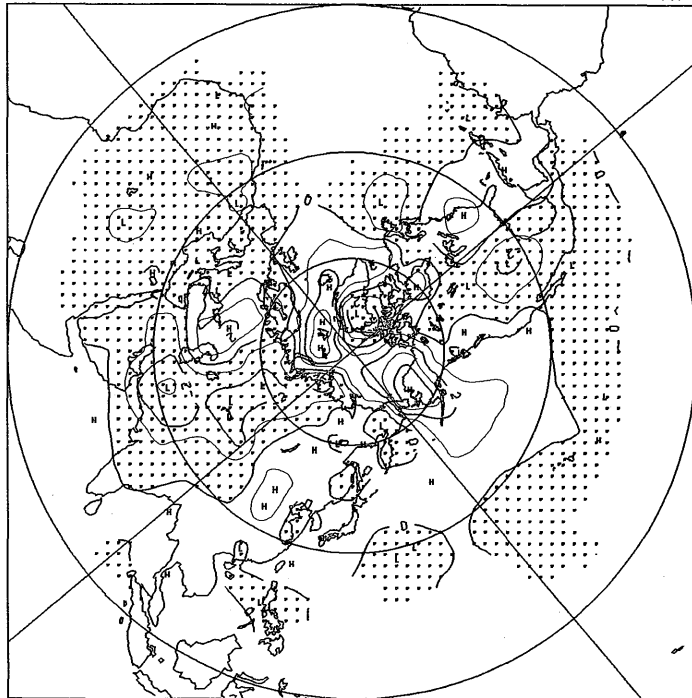
1957

MAR



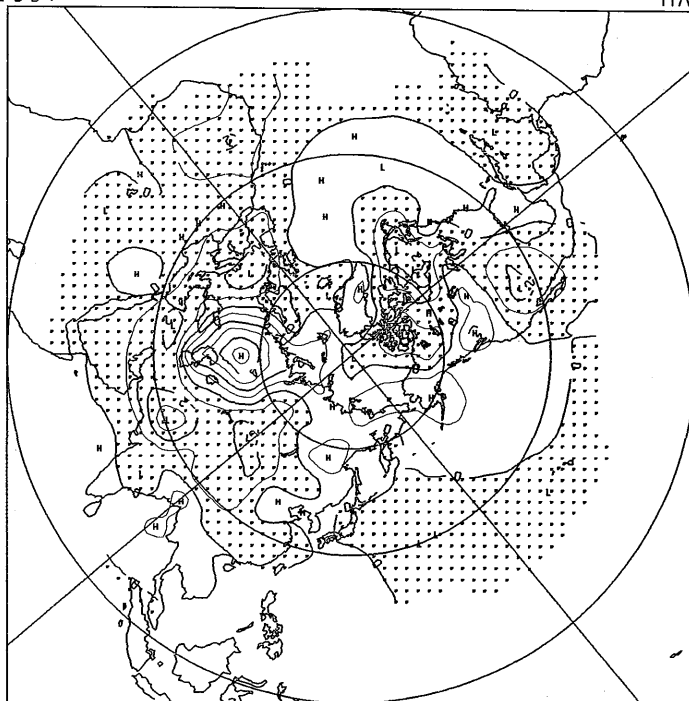
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APR



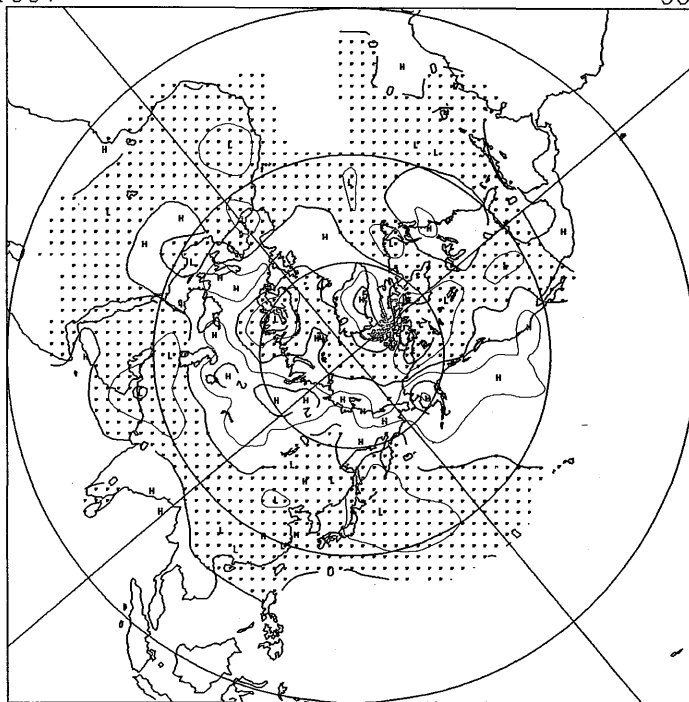
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MAY



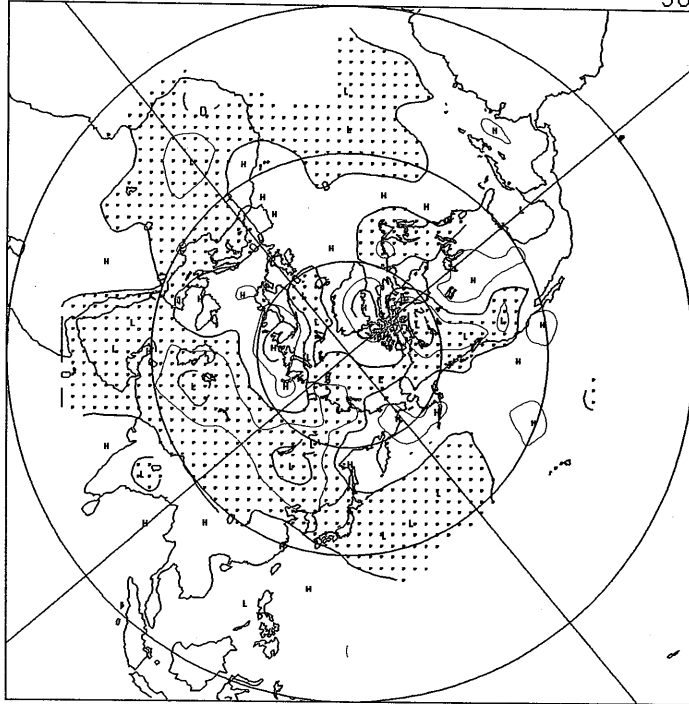
1957

JUN



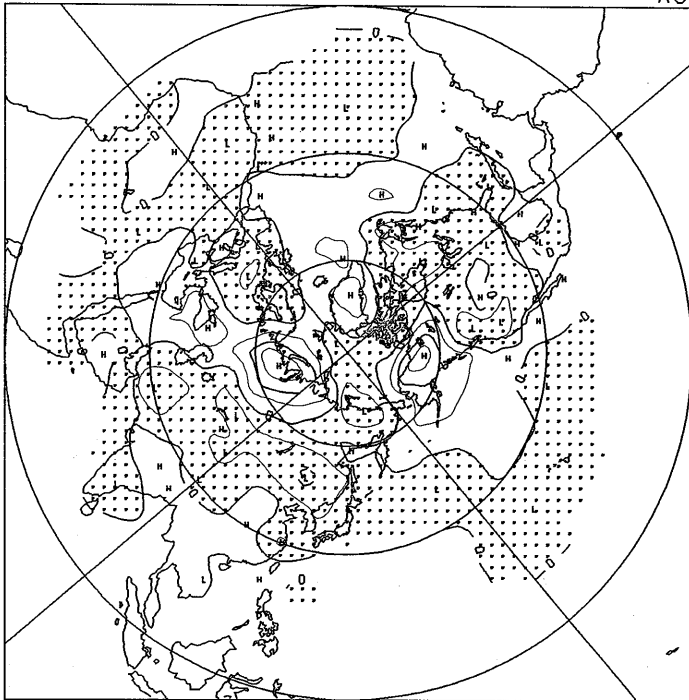
1957

JUL



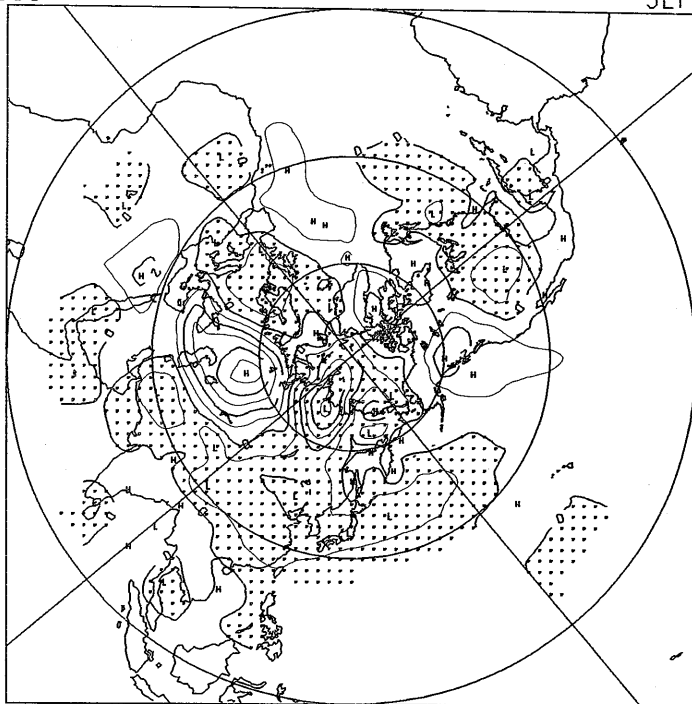
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AUG



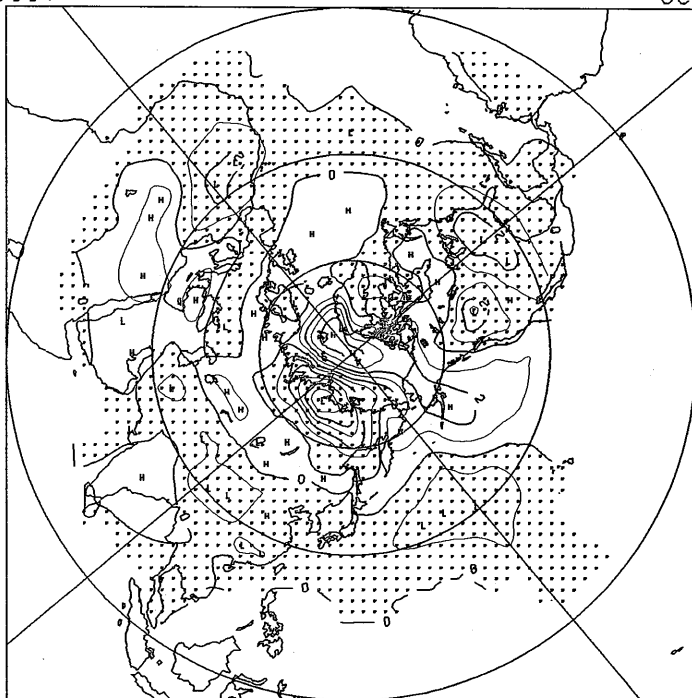
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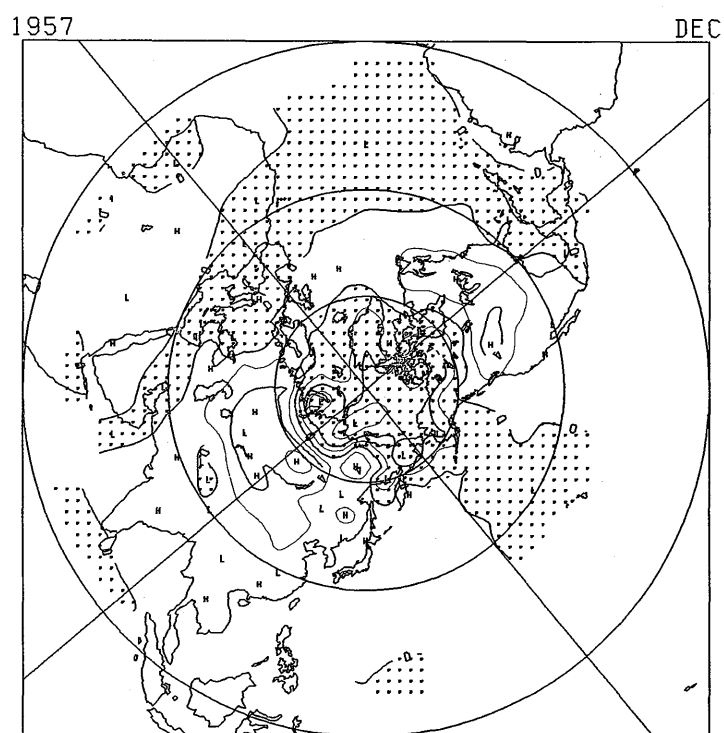
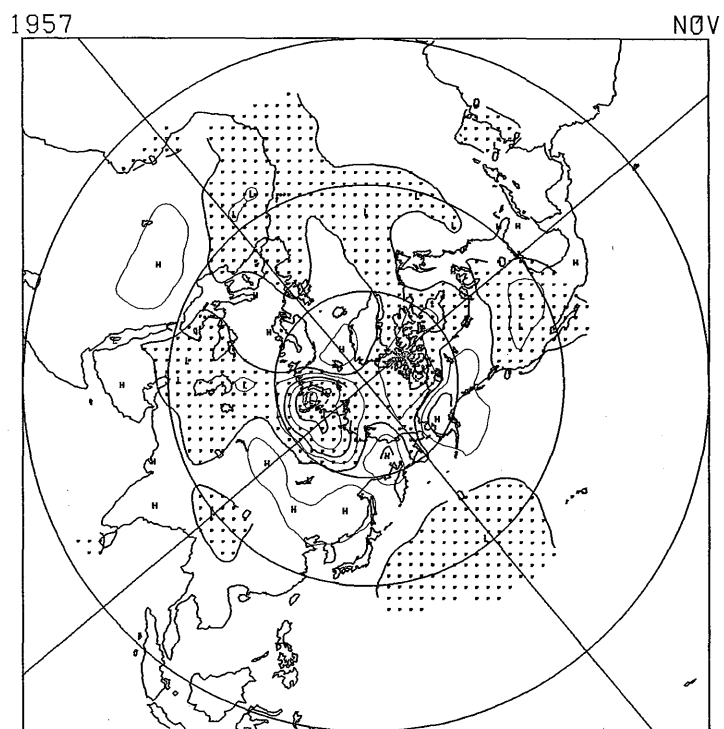
SEPT



1957

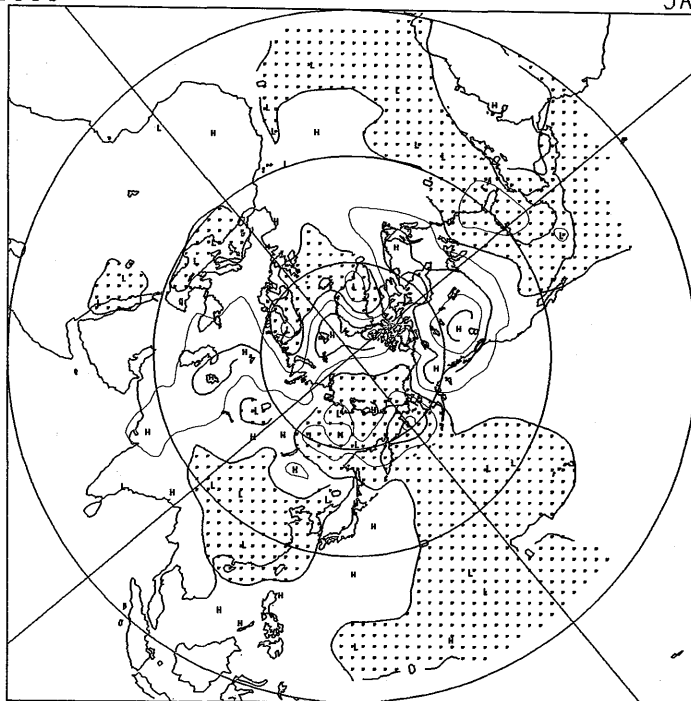
OCT





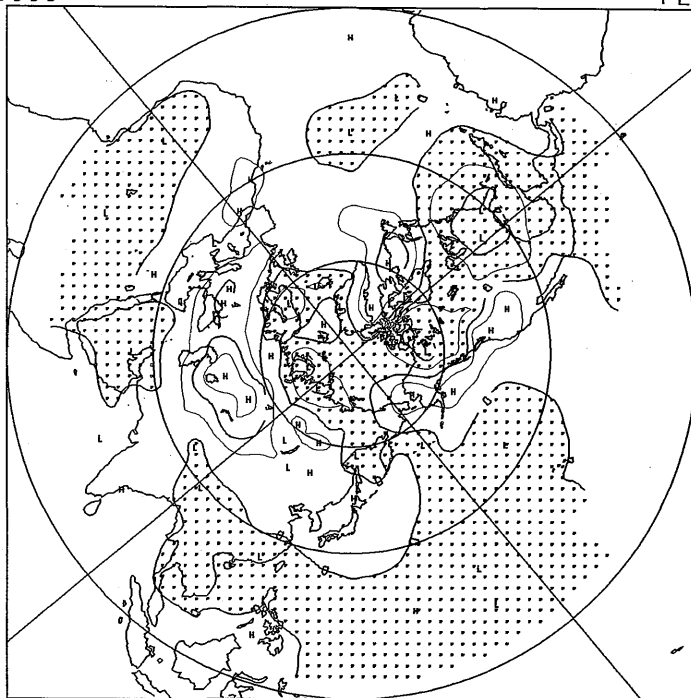
1958

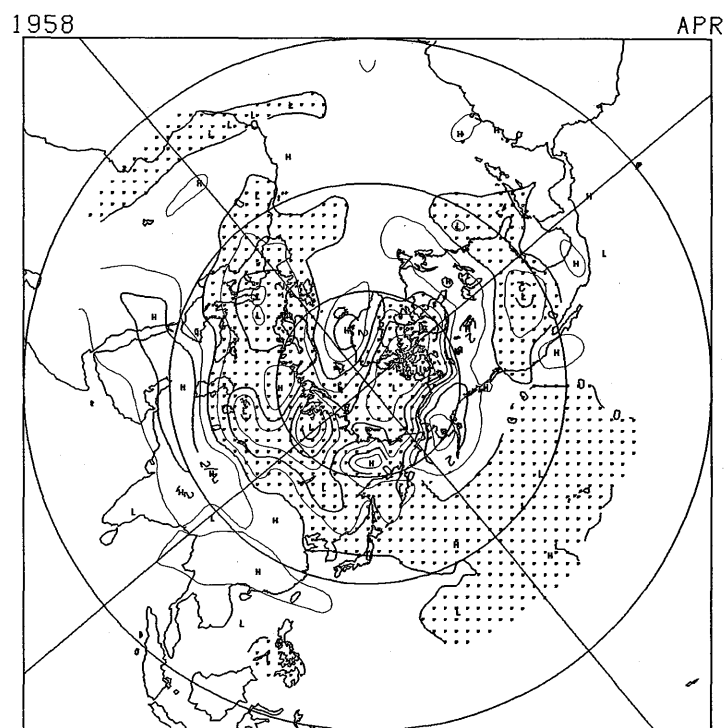
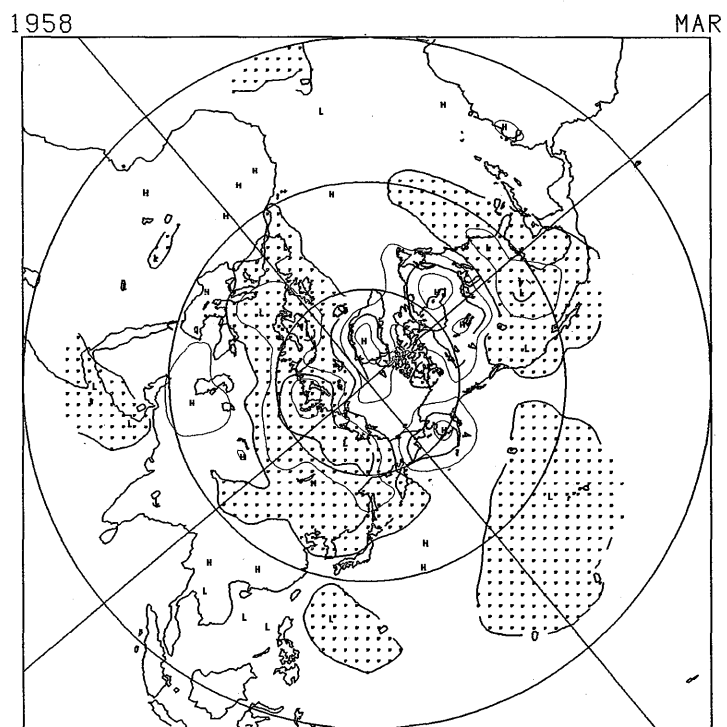
JAN



1958

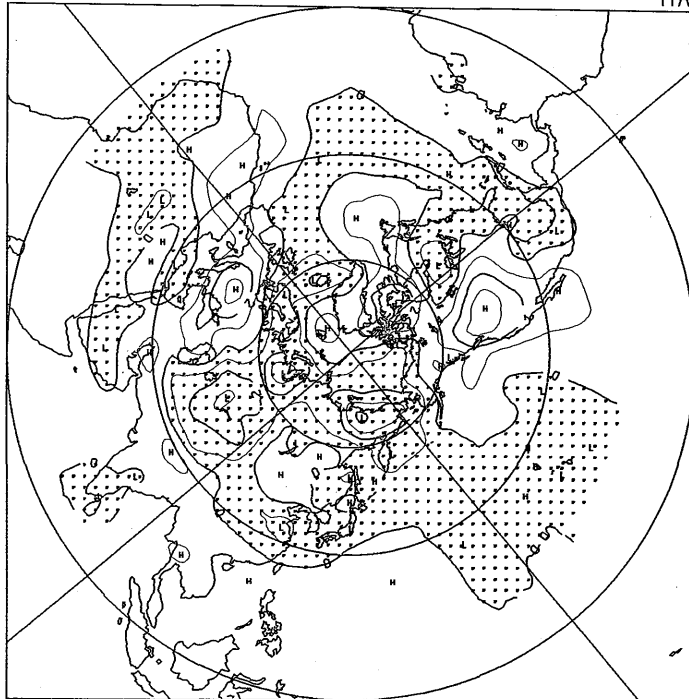
FEB





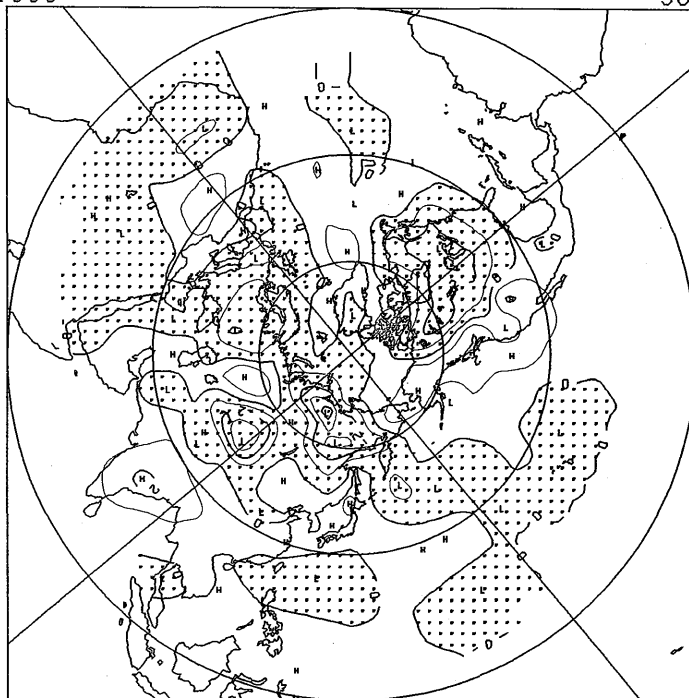
1958

MAY



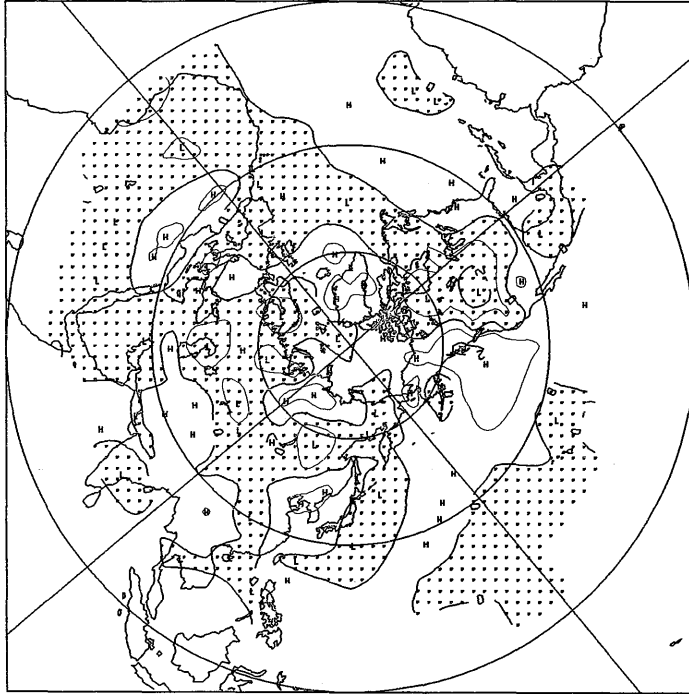
1958

JUN



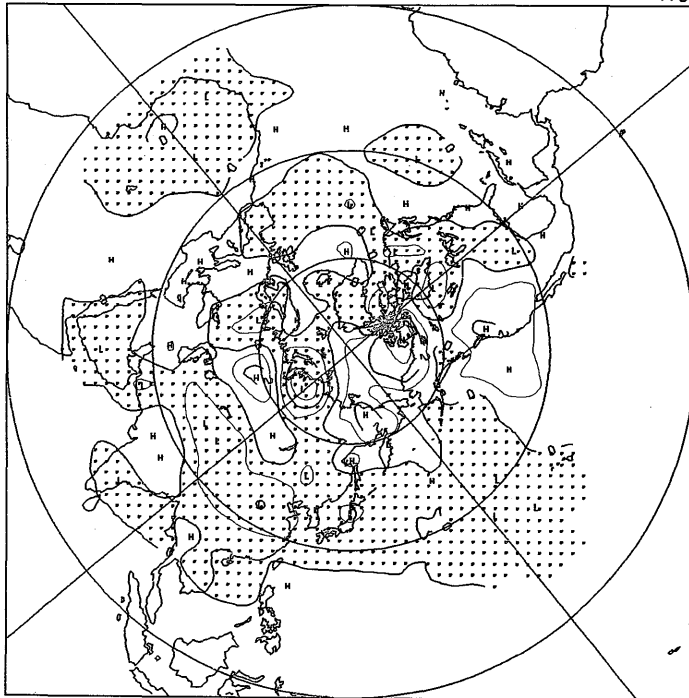
1958

JUL



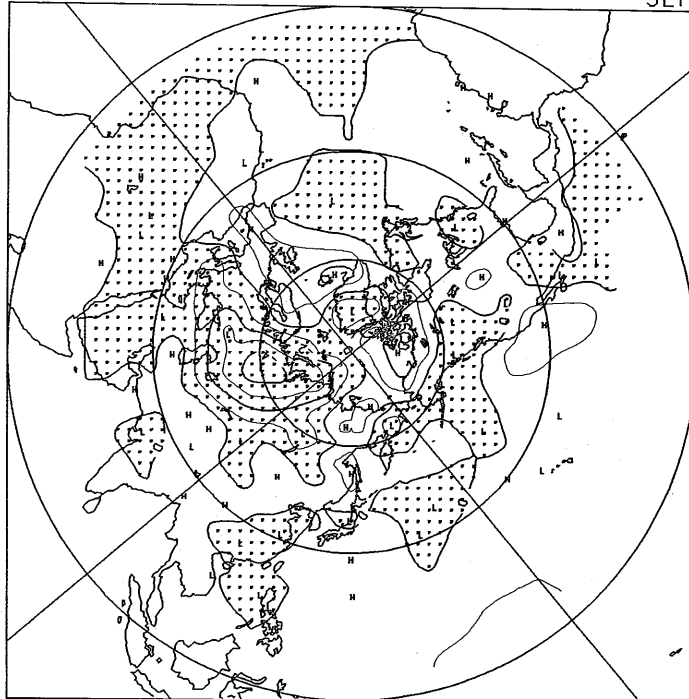
1958

AUG



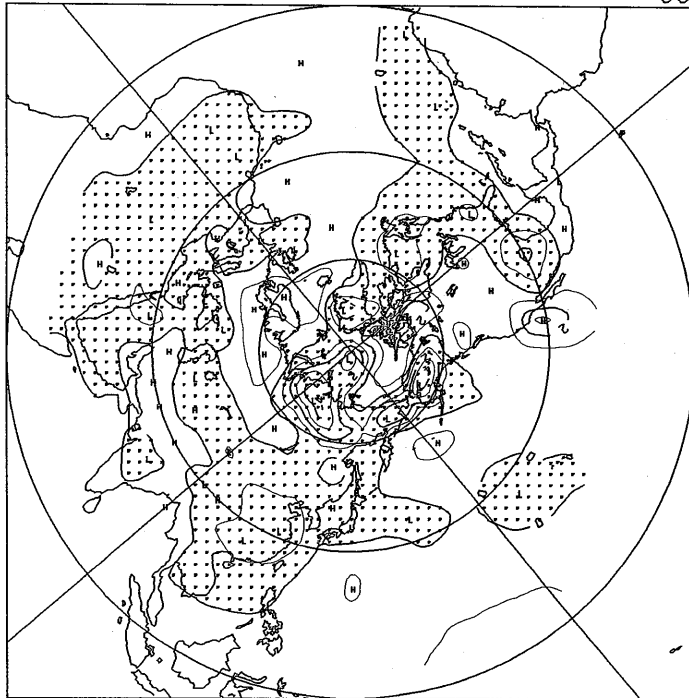
1958

SEPT



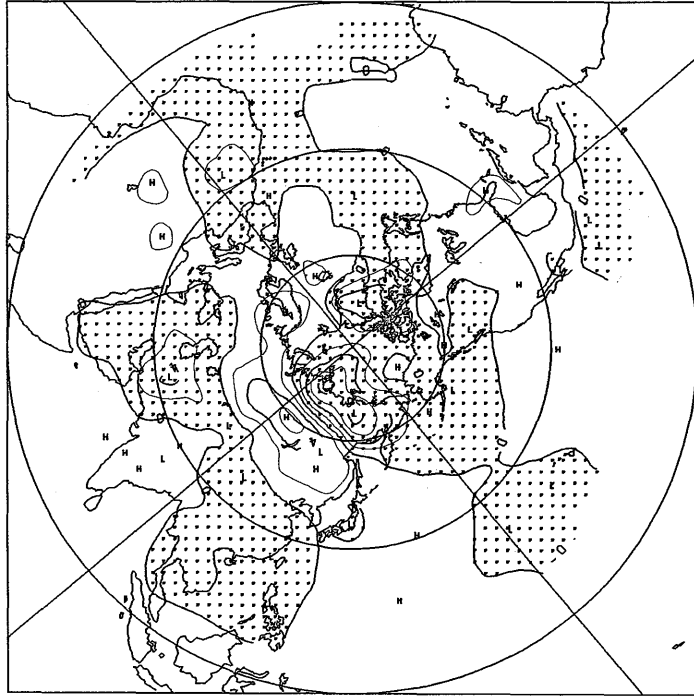
1958

OCT



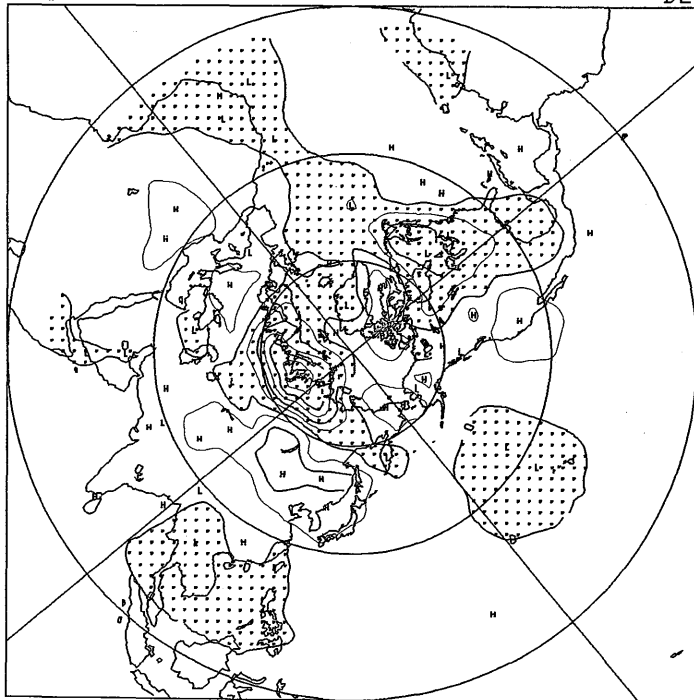
1958

NOV



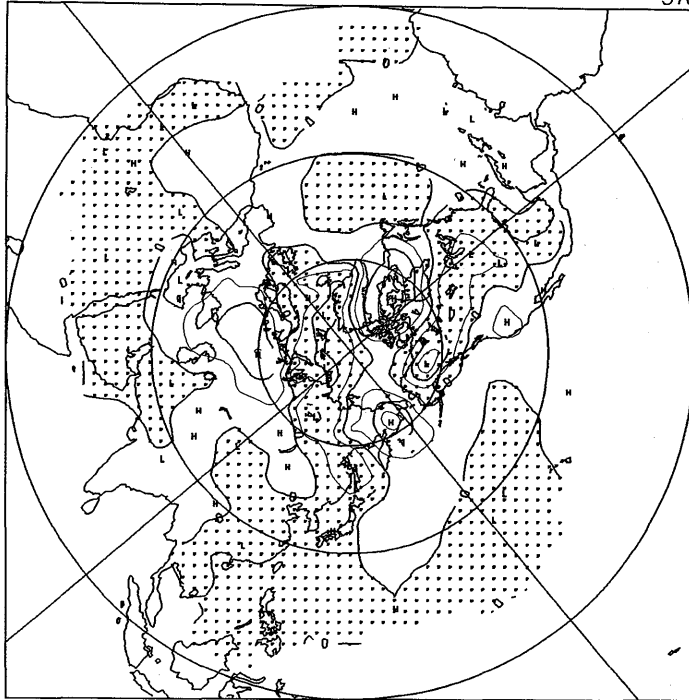
1958

DEC



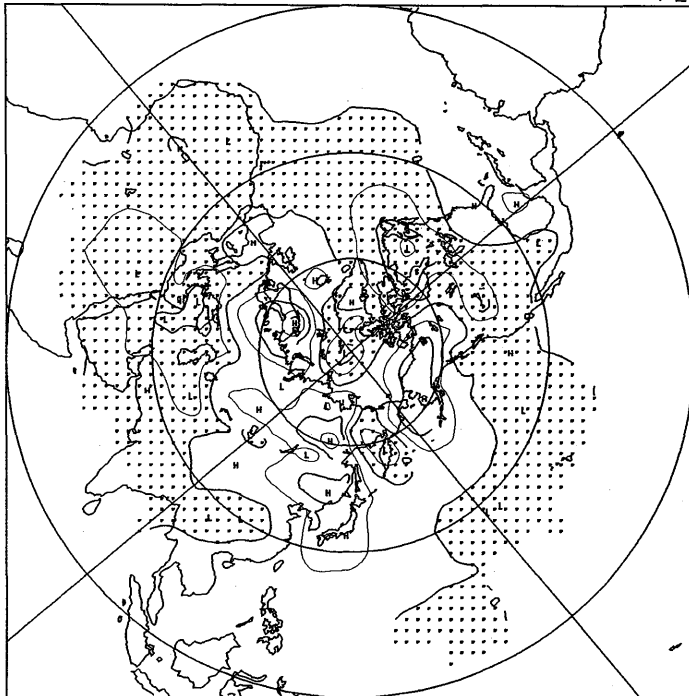
1959

JAN



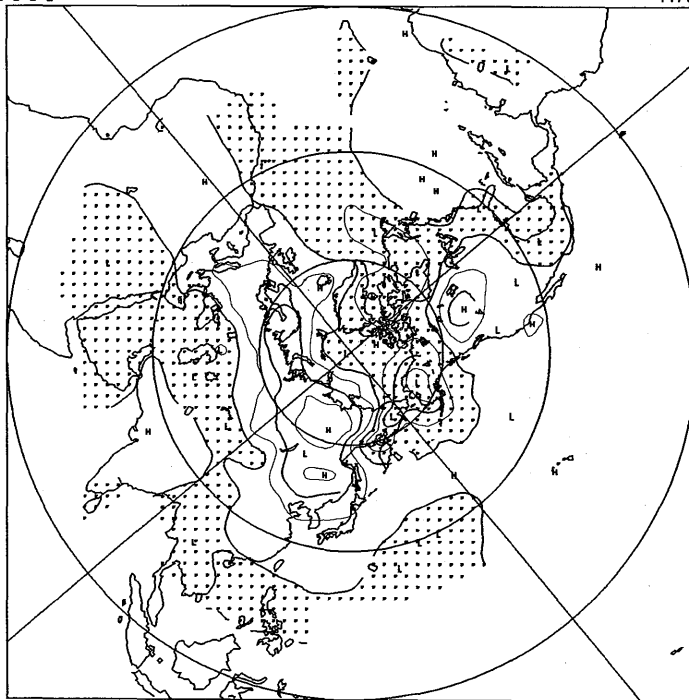
1959

FEB



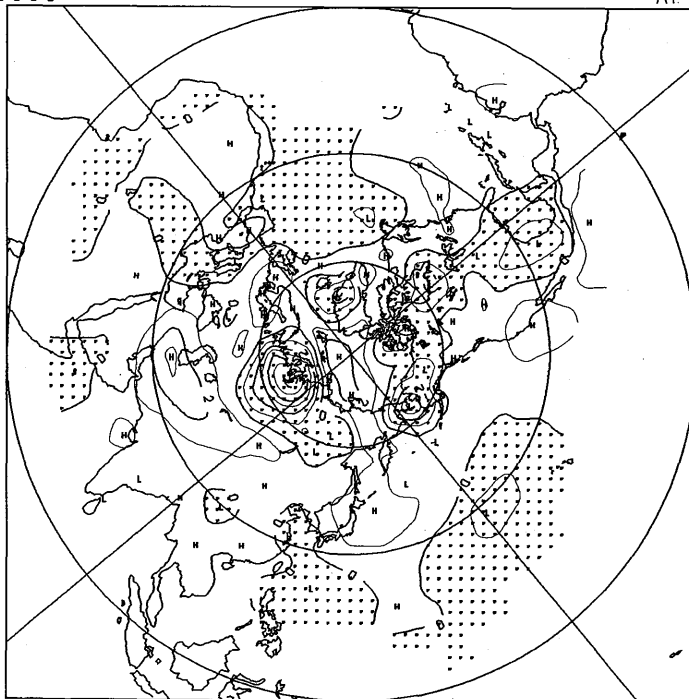
1959

MAR



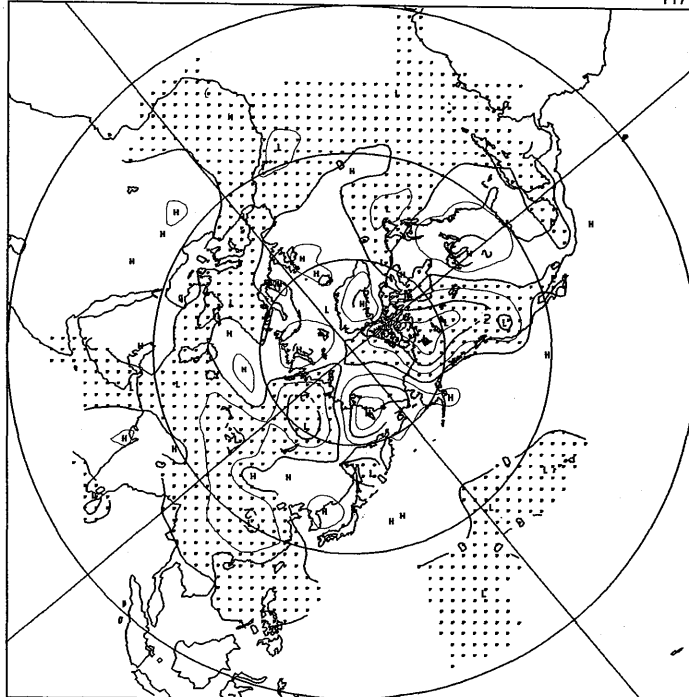
1959

APR



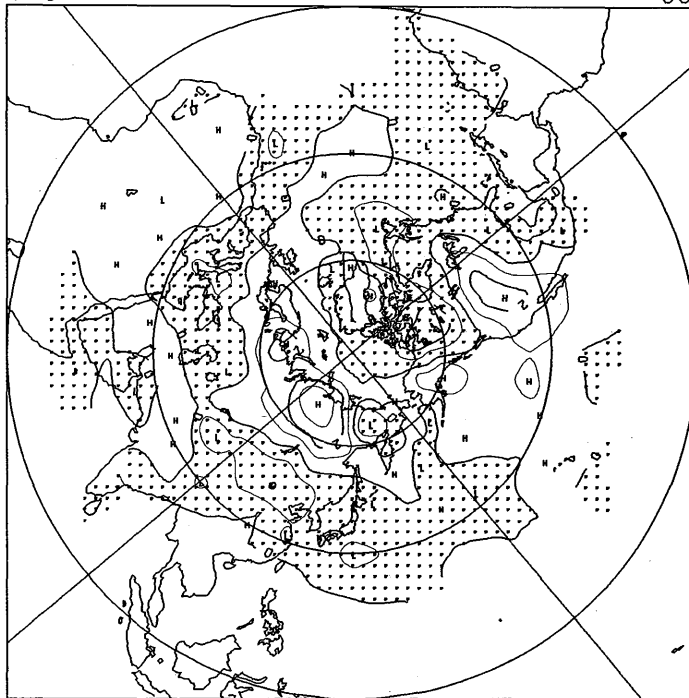
1959

MAY



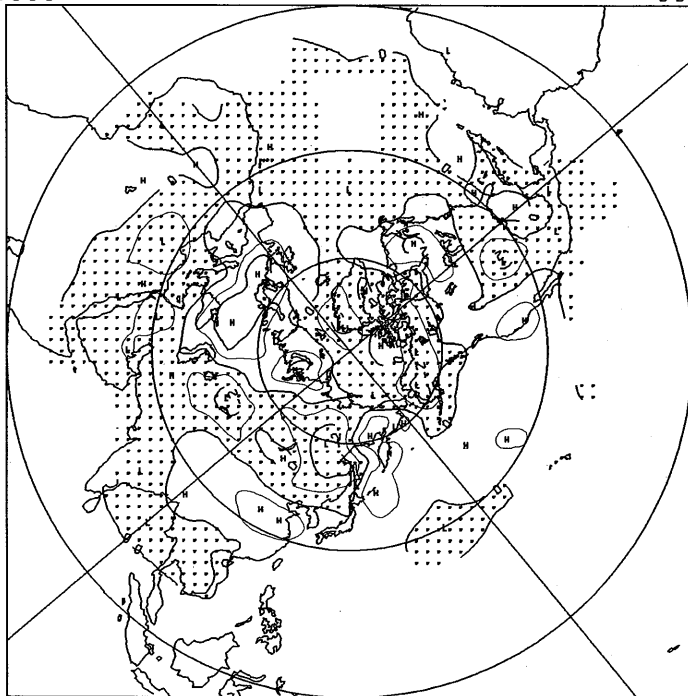
1959

JUN



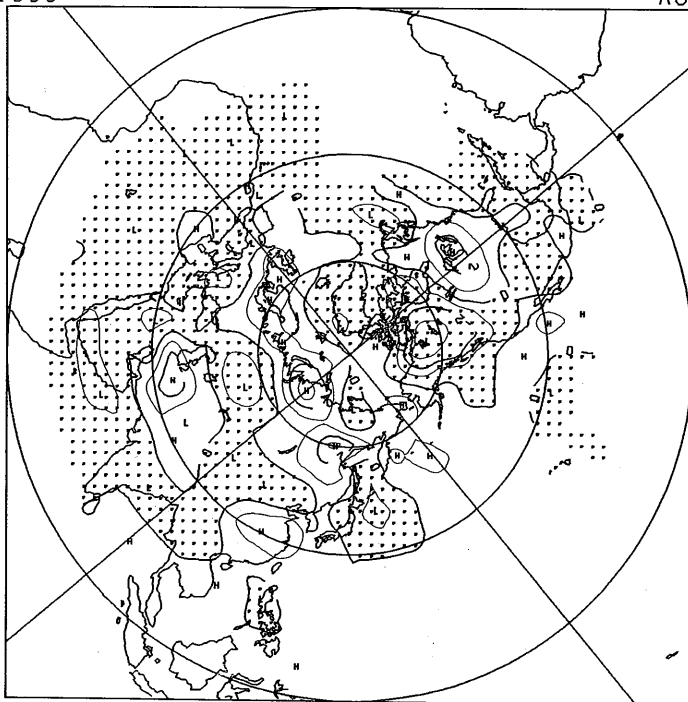
1959

JUL



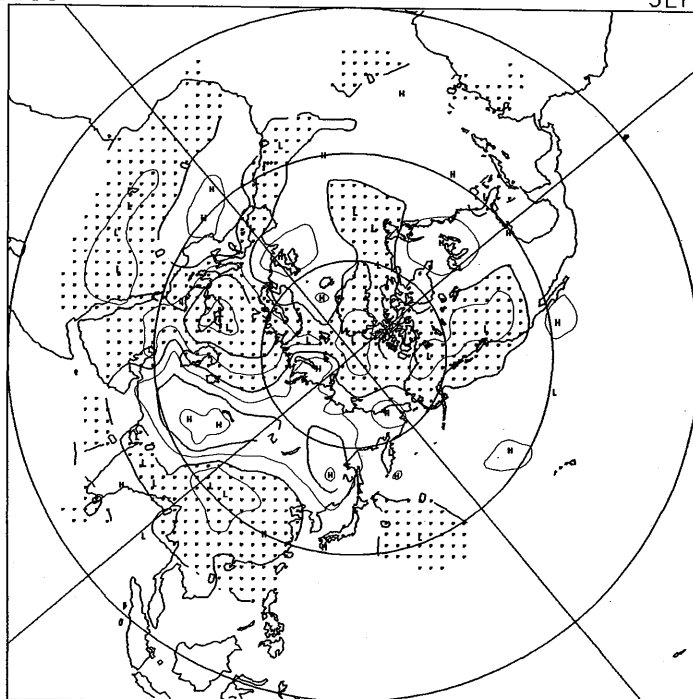
1959

AUG



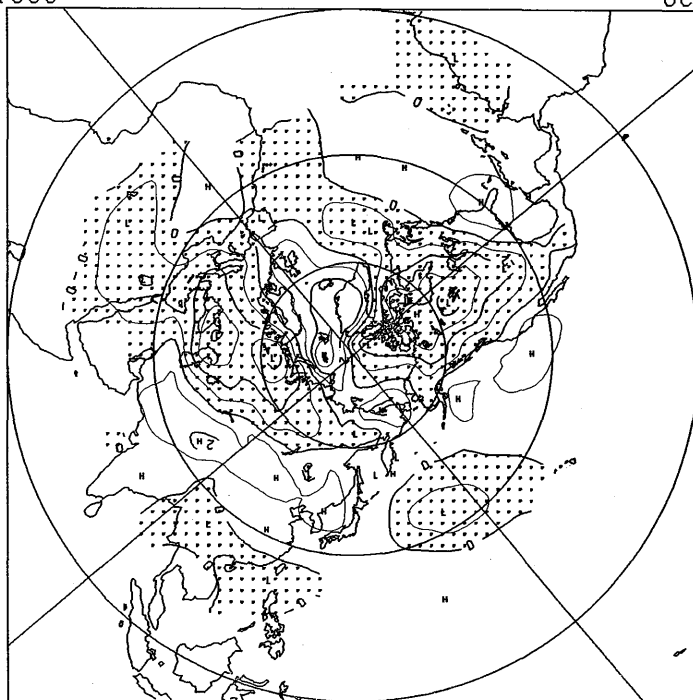
1959

SEPT



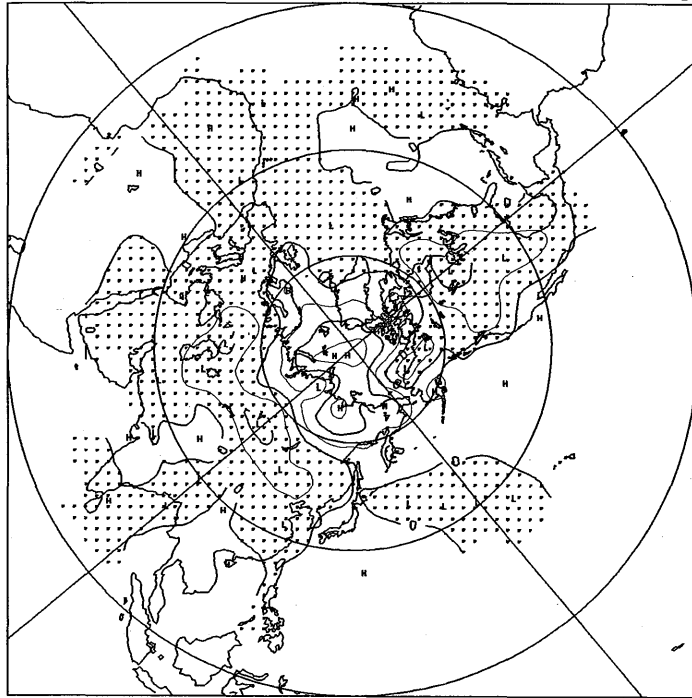
1959

OCT



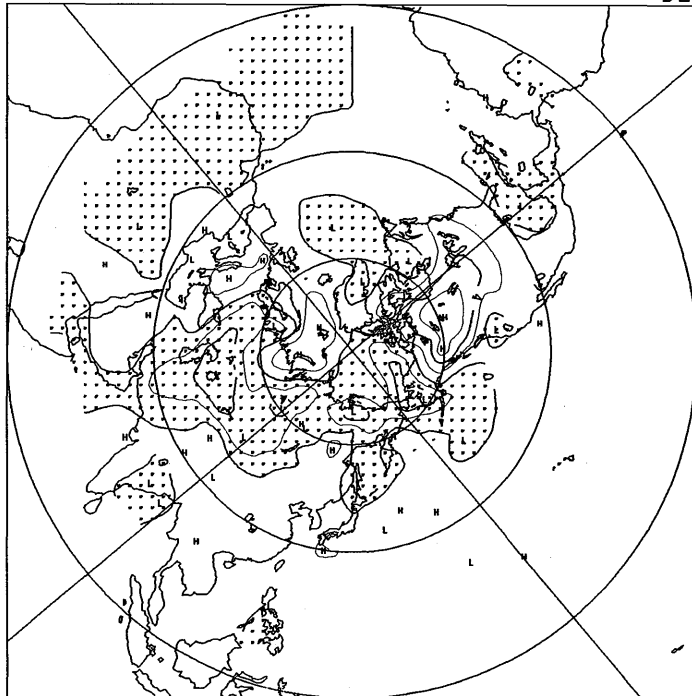
1959

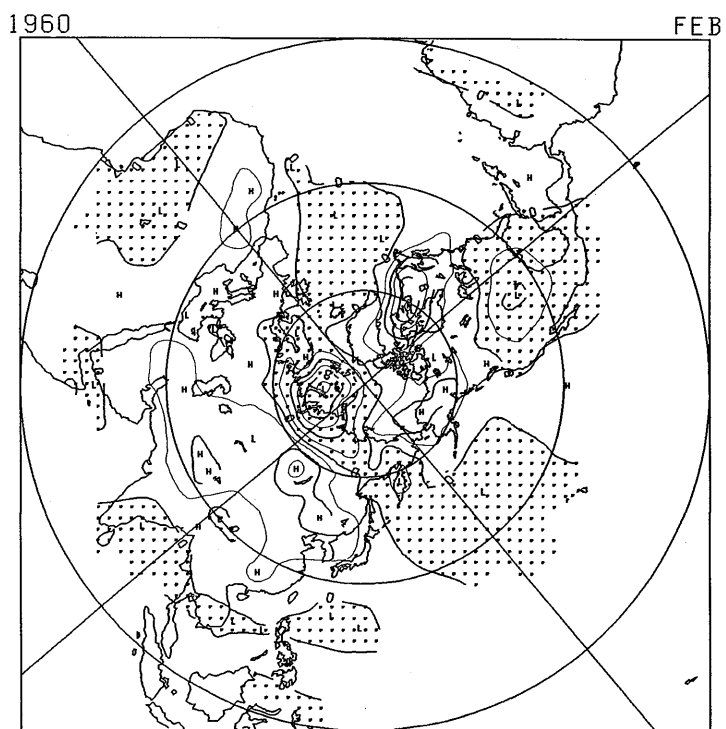
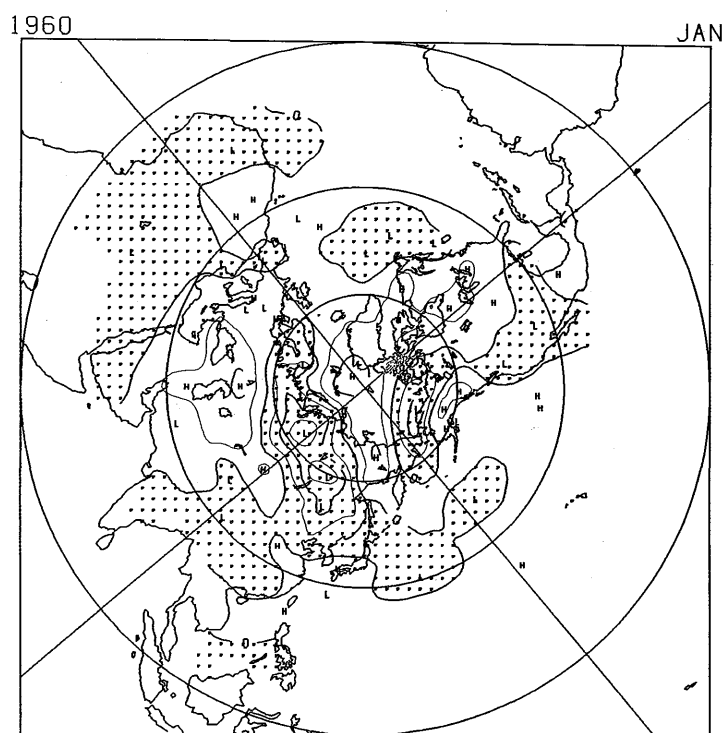
NOV



1959

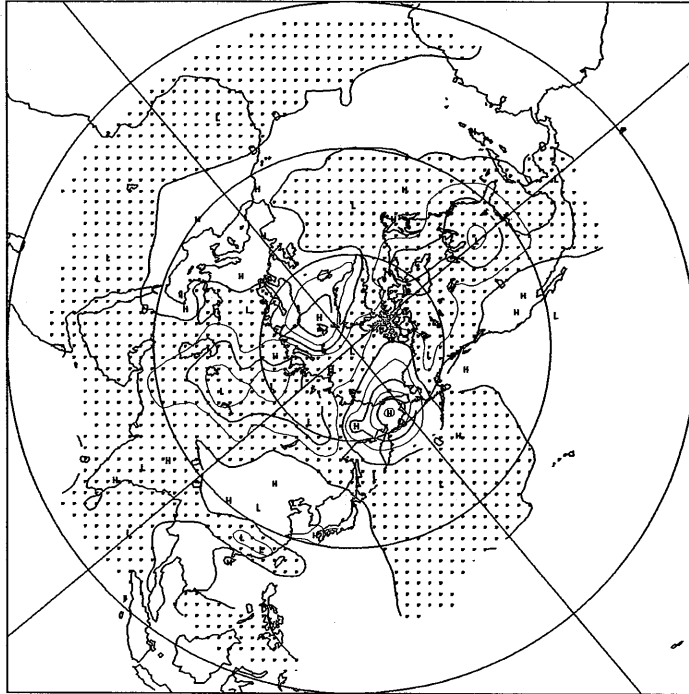
DEC





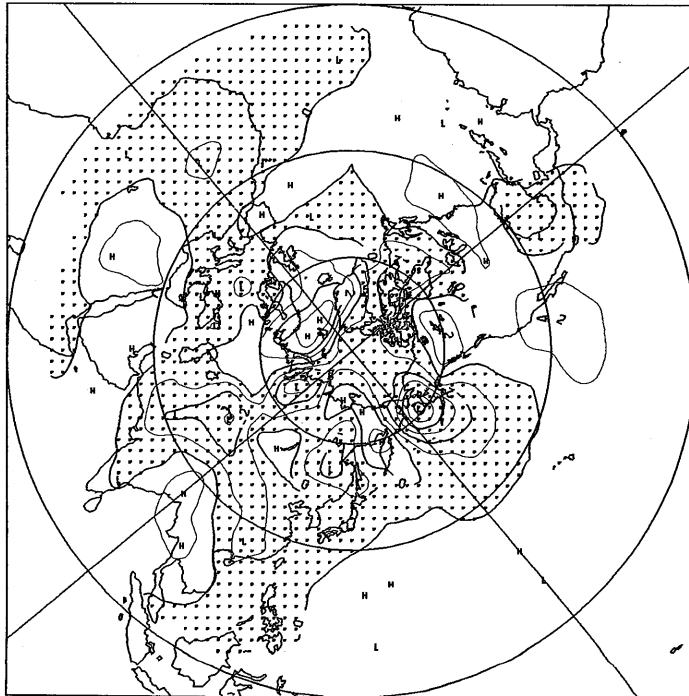
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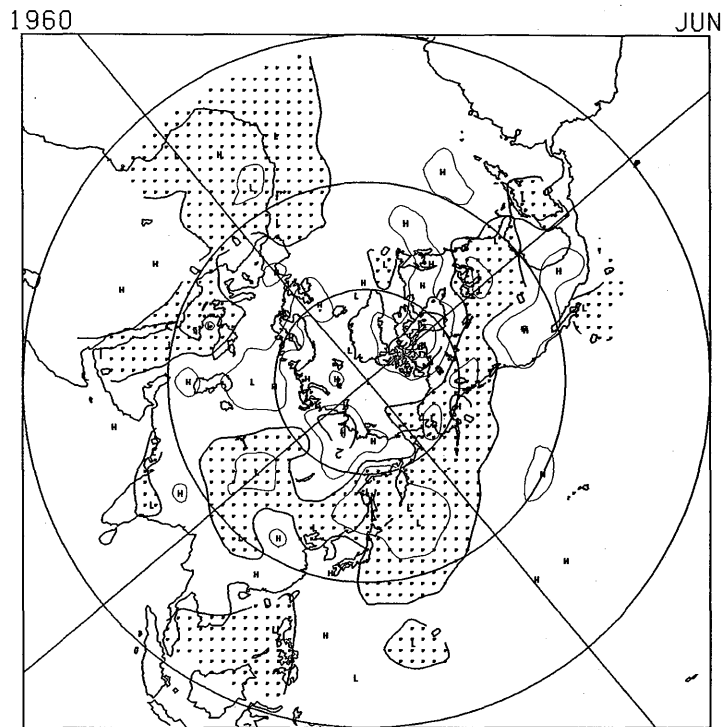
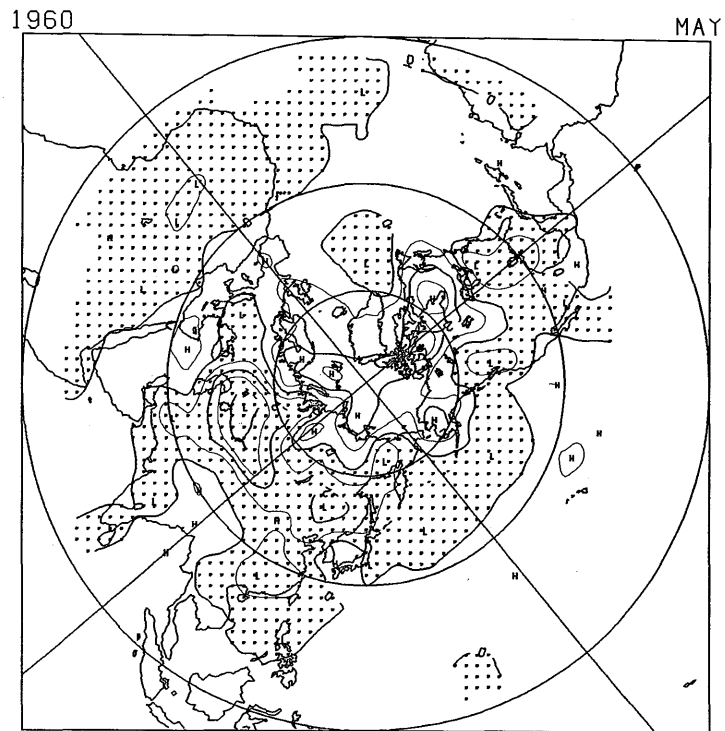
MAR



1960

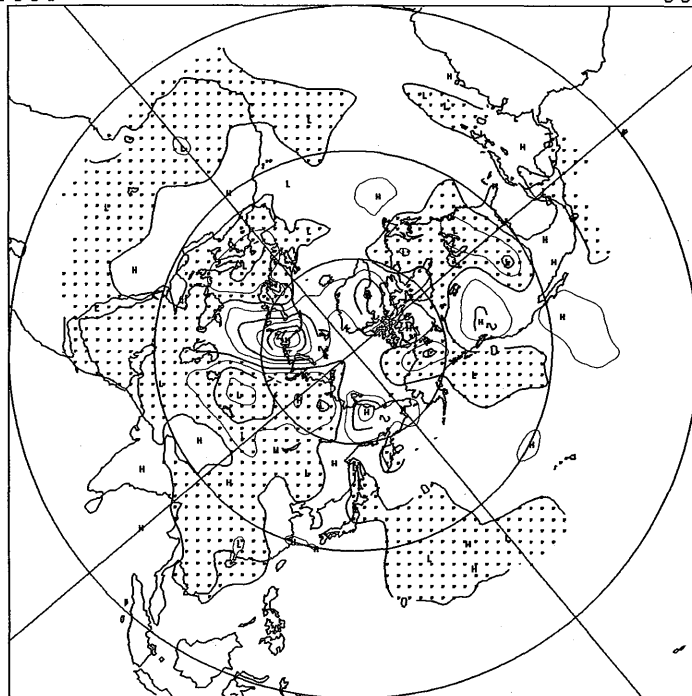
APR





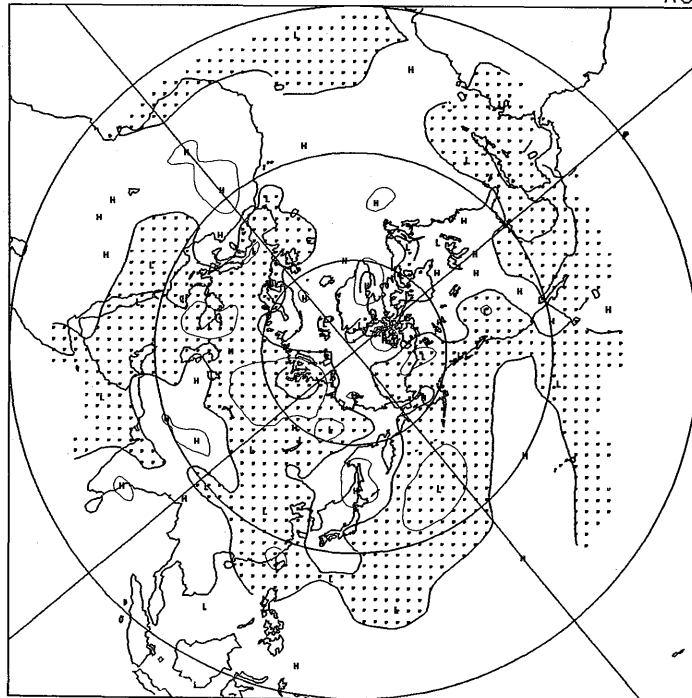
1960

JUL



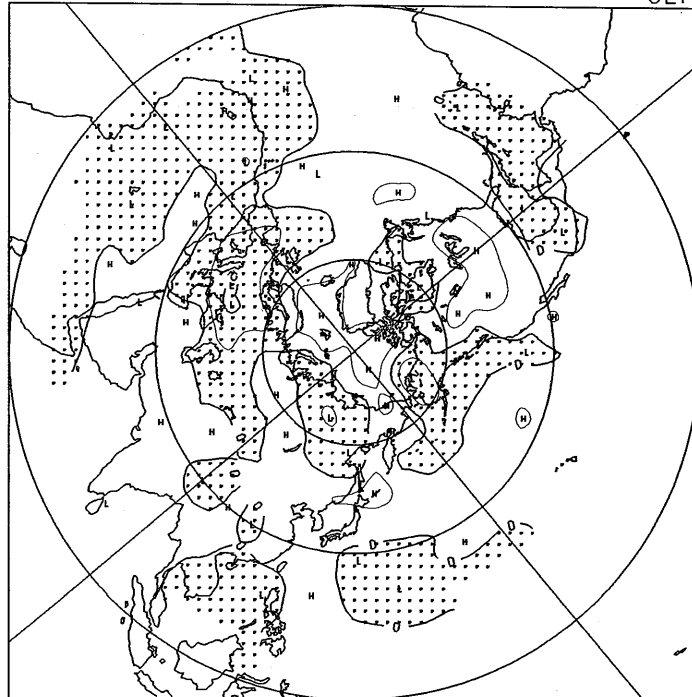
1960

AUG



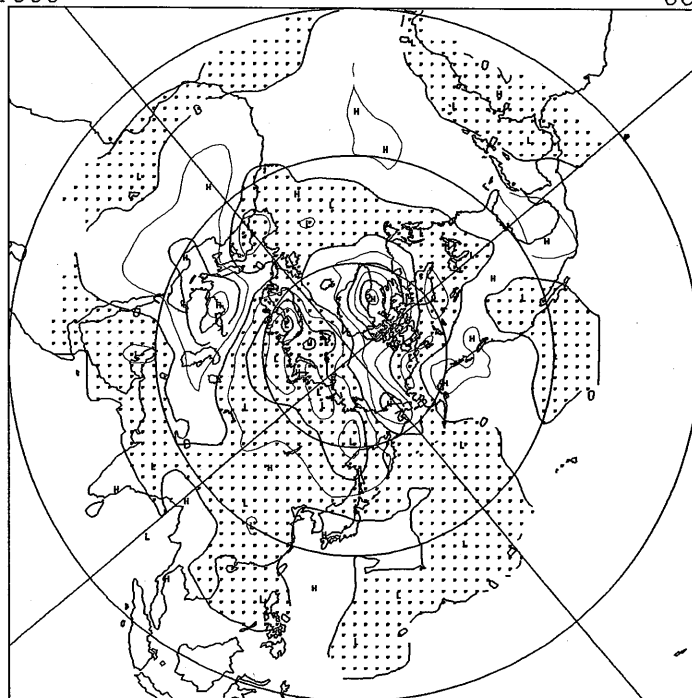
1960

SEPT



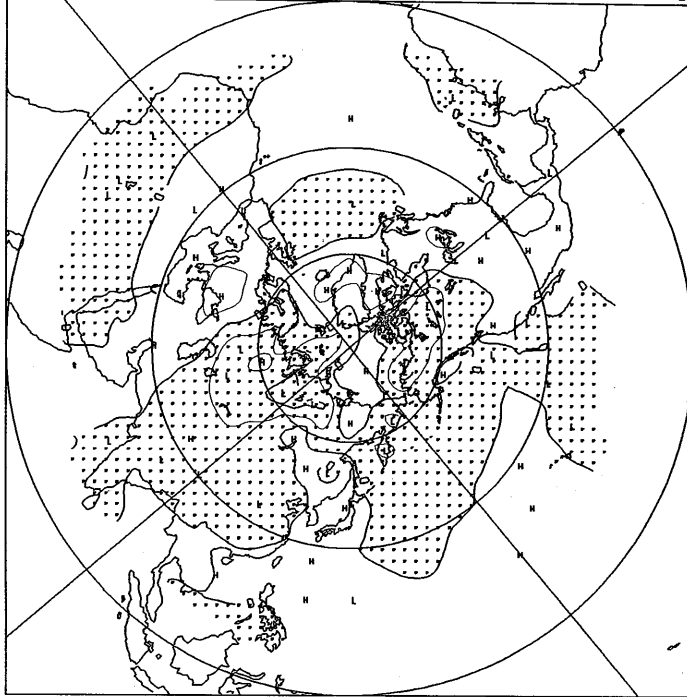
1960

OCT



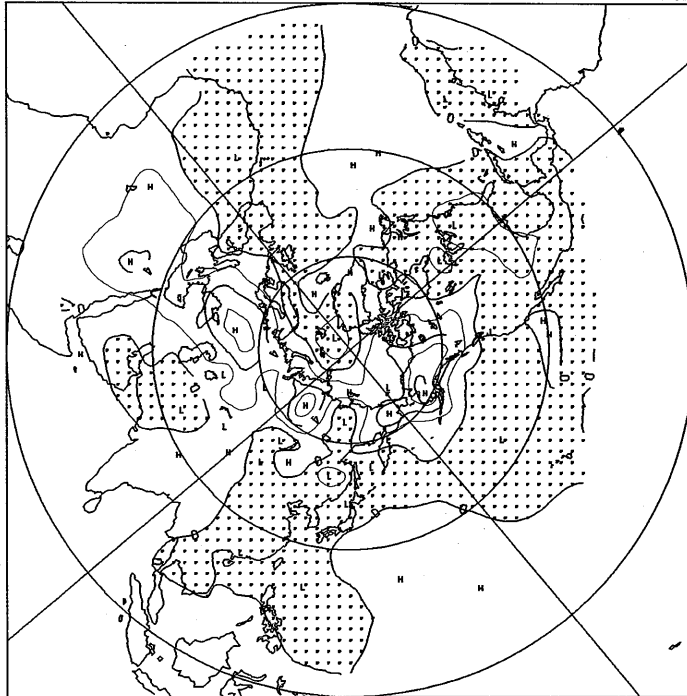
1960

NOV



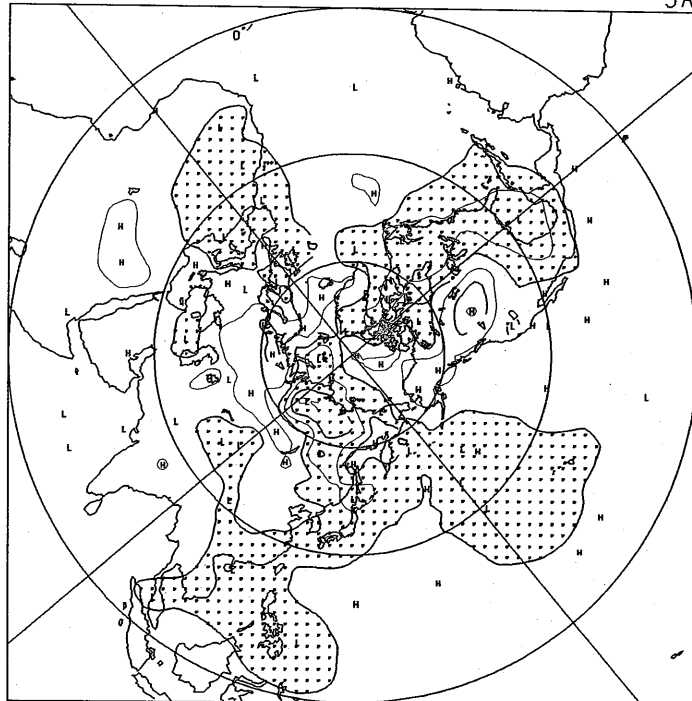
1960

DEC



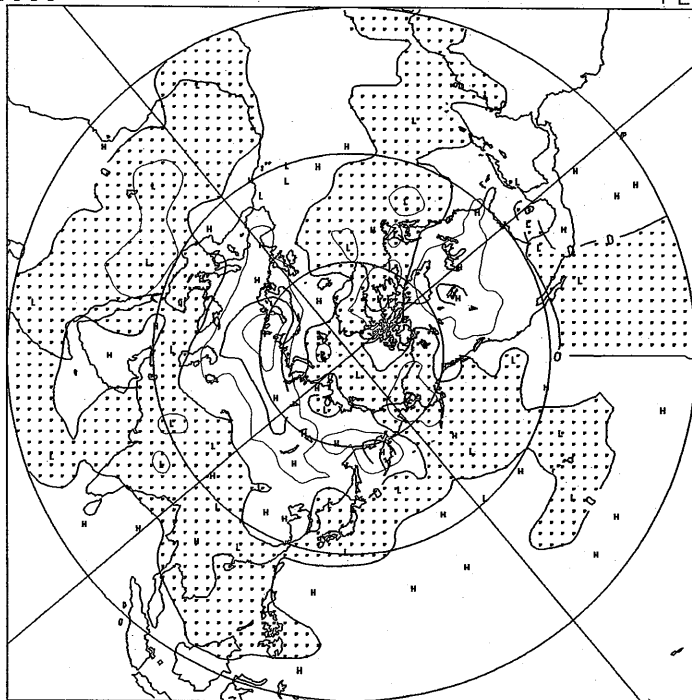
1961

JAN

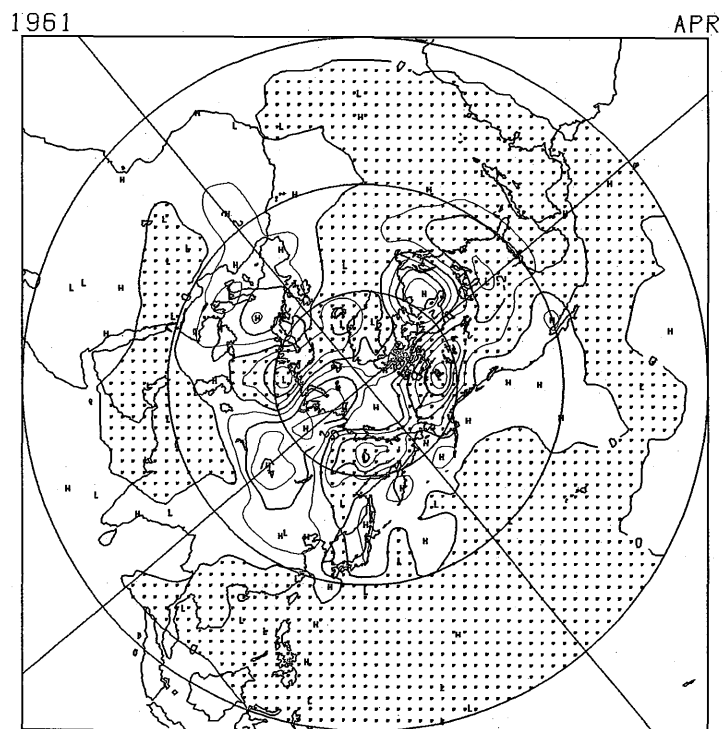
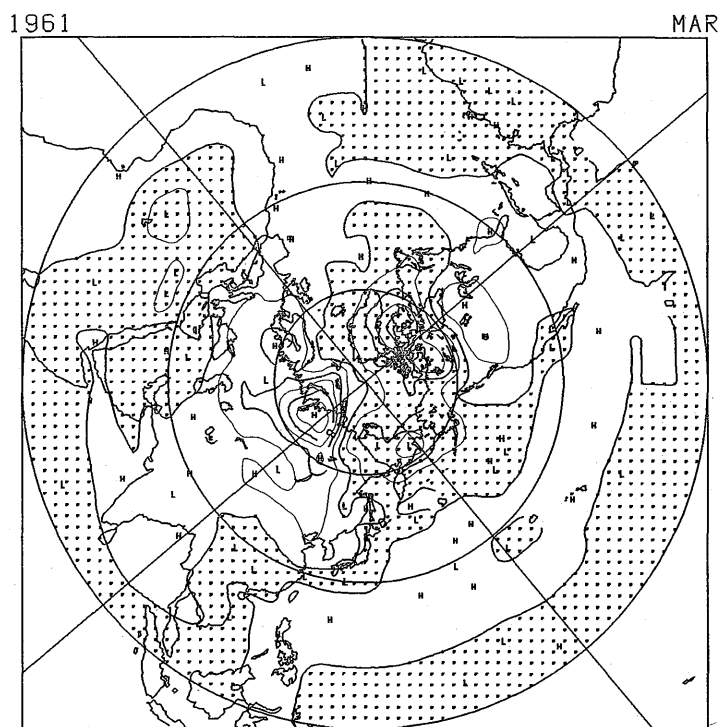


1961

FEB

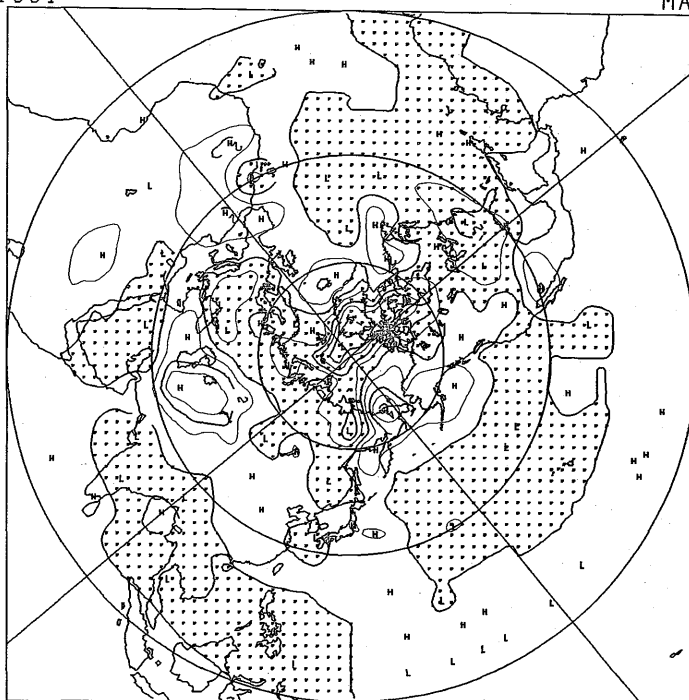


1961年
1月



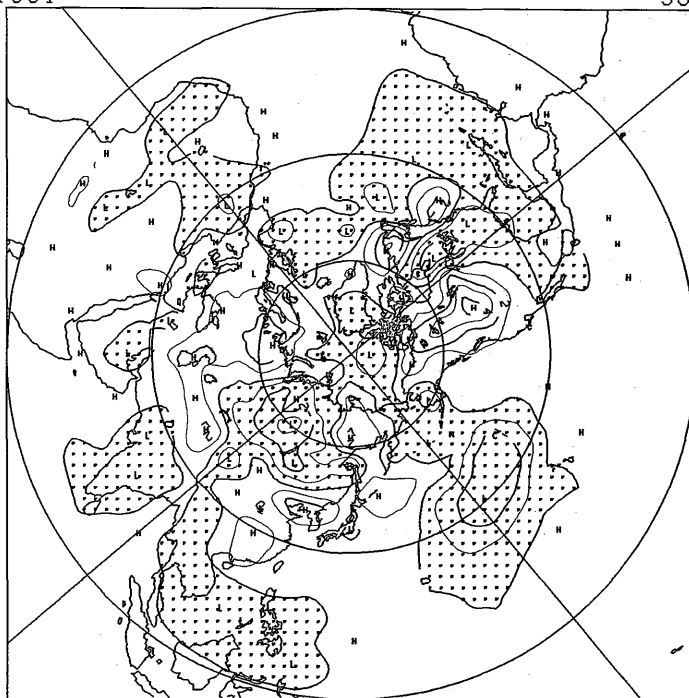
1961

MAY



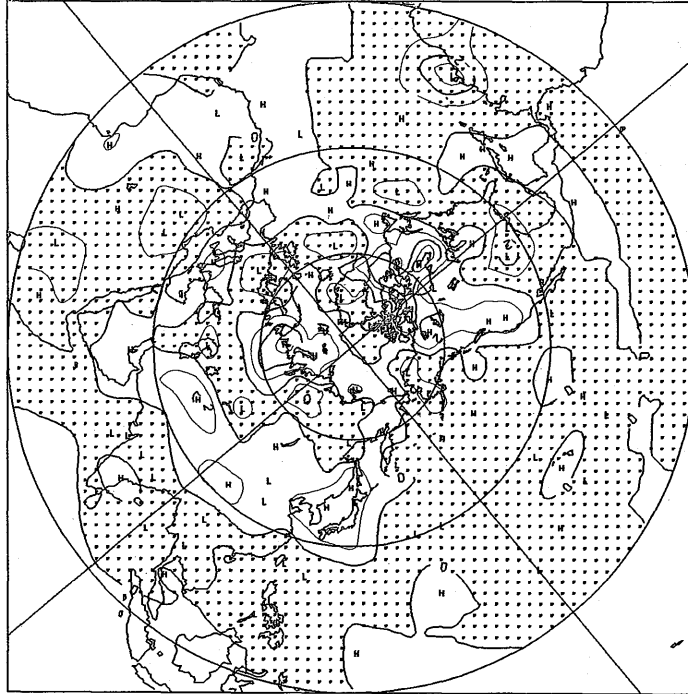
1961

JUN



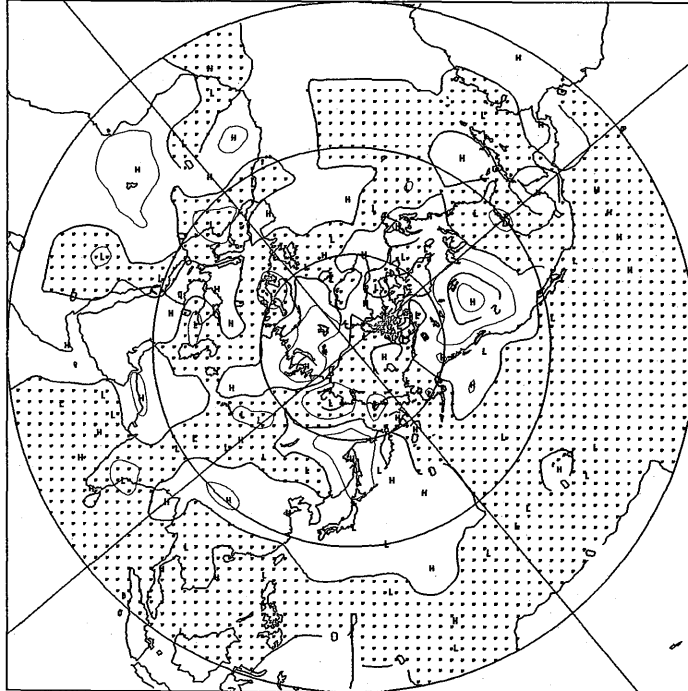
1961

JUL



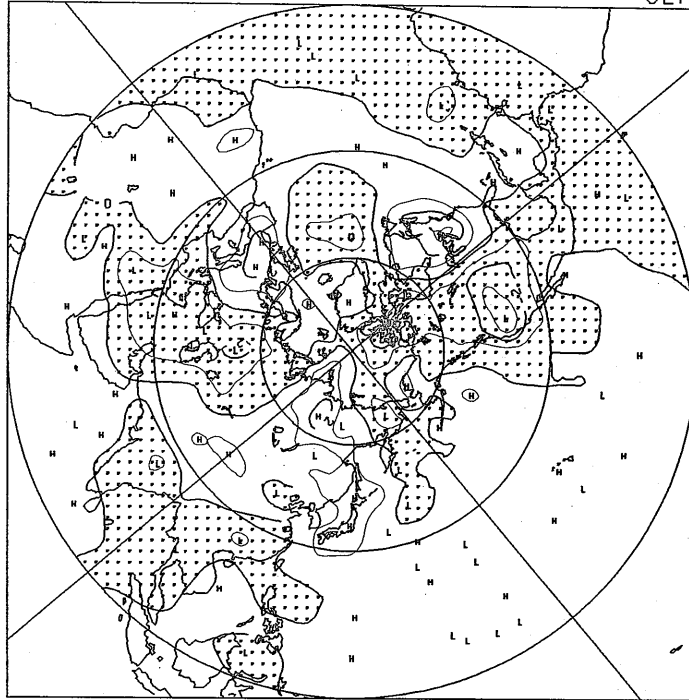
1961

AUG



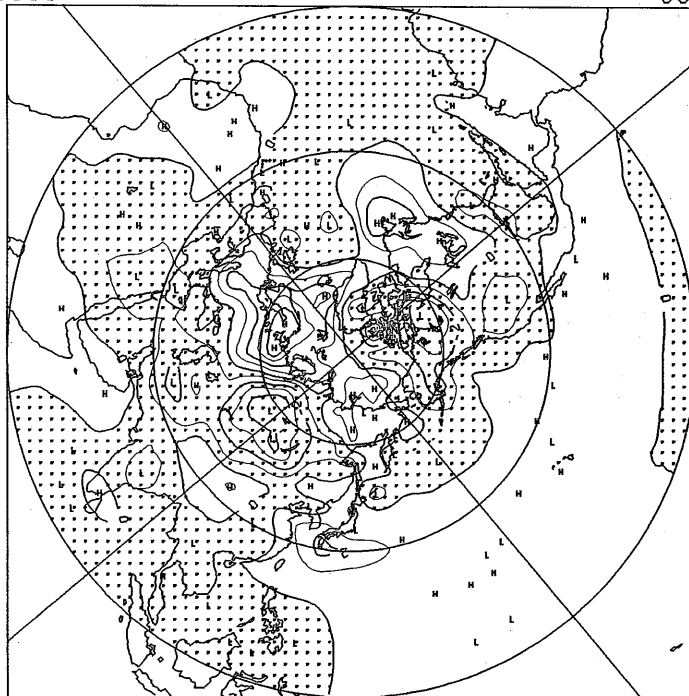
1961

SEPT



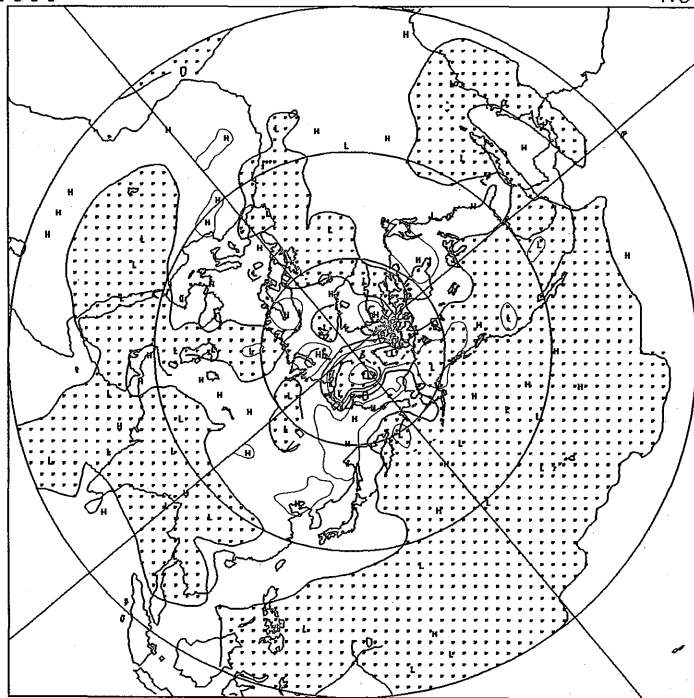
1961

OCT



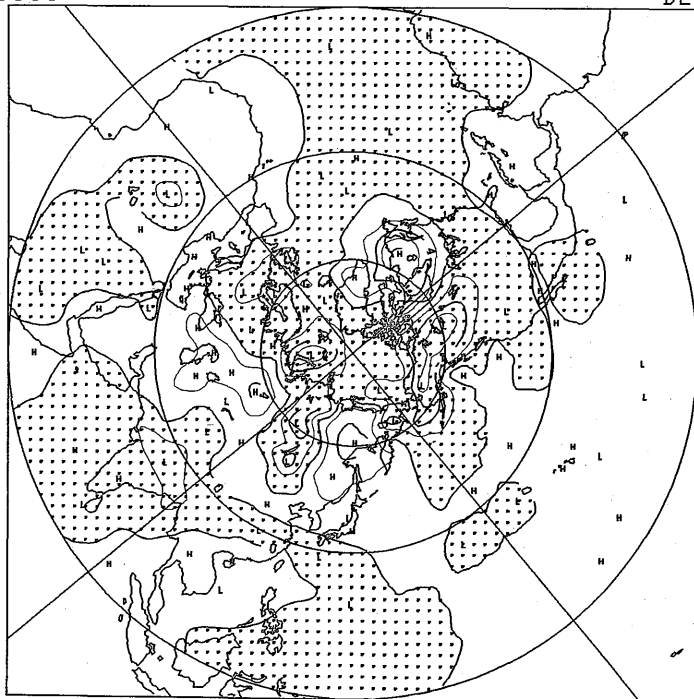
1961

NOV



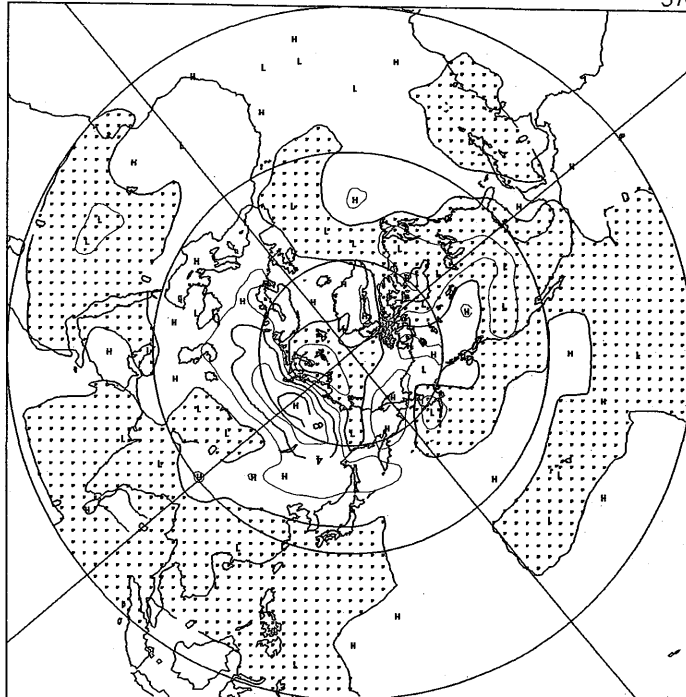
1961

DEC



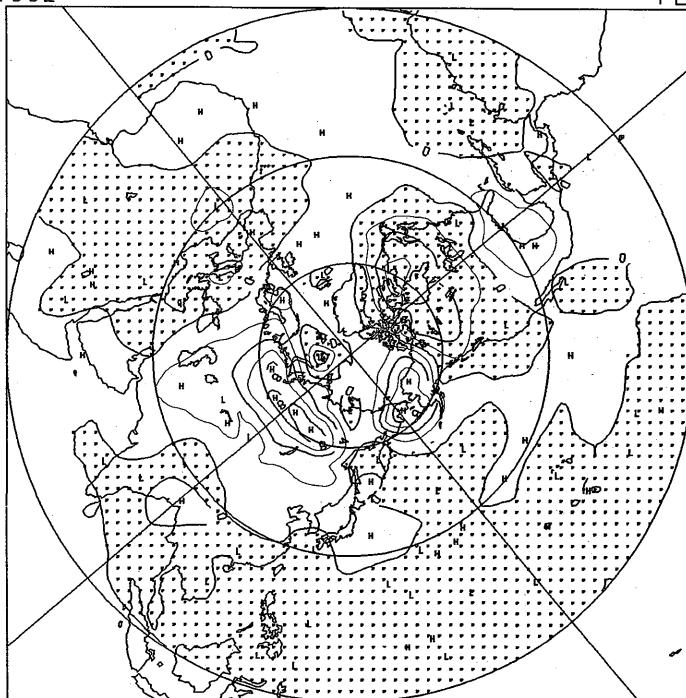
1962

JAN



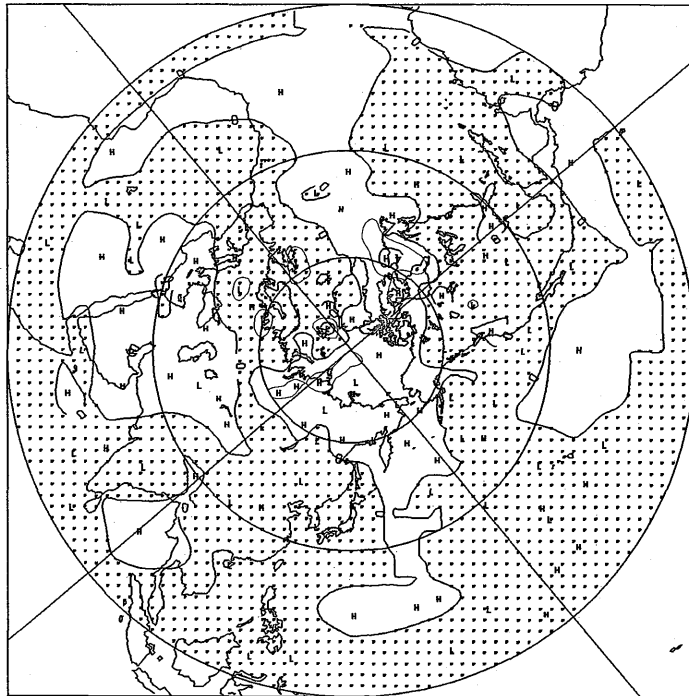
1962

FEB



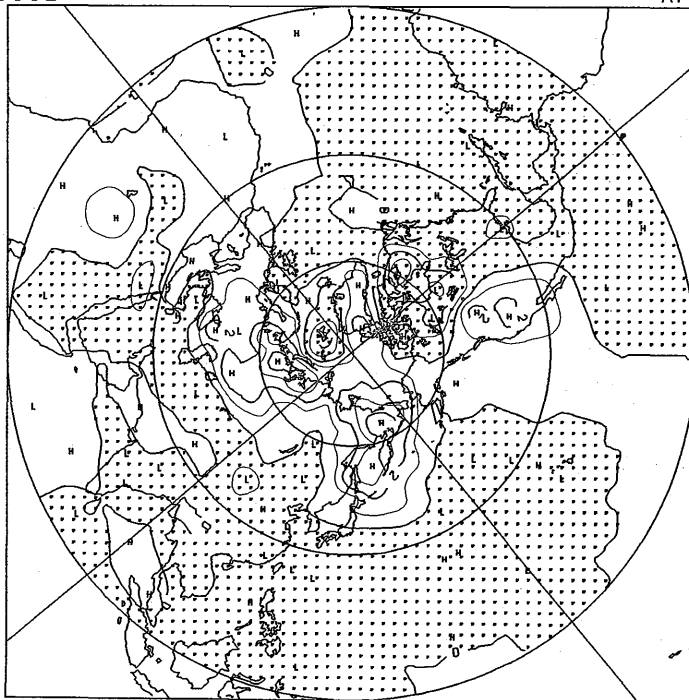
1962

MAR



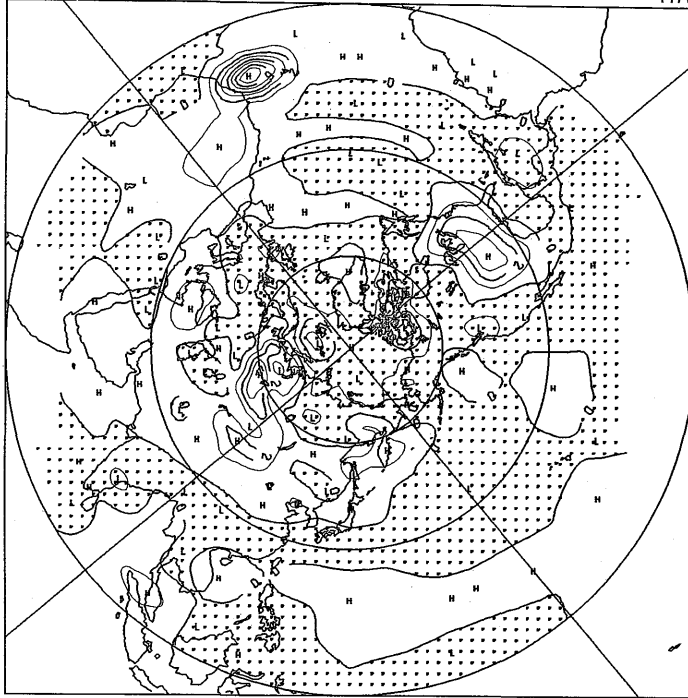
1962

APR



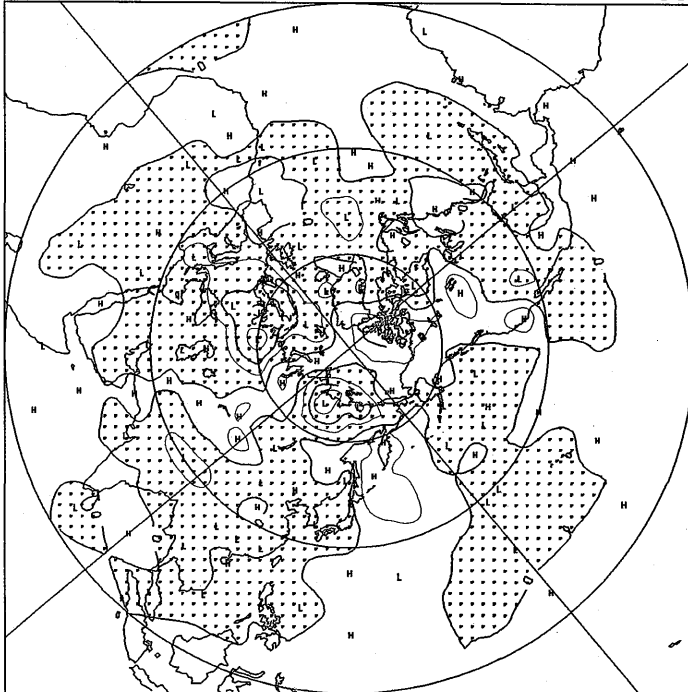
1962

MAY



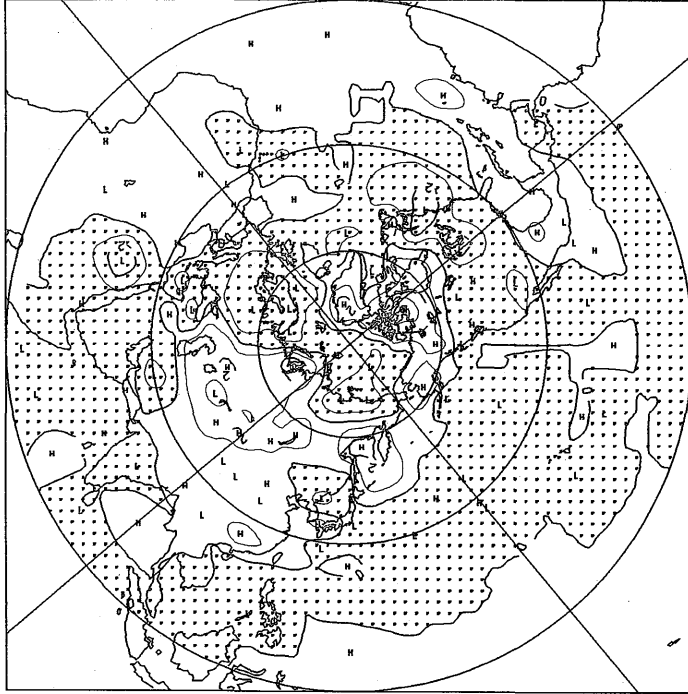
1962

JUN



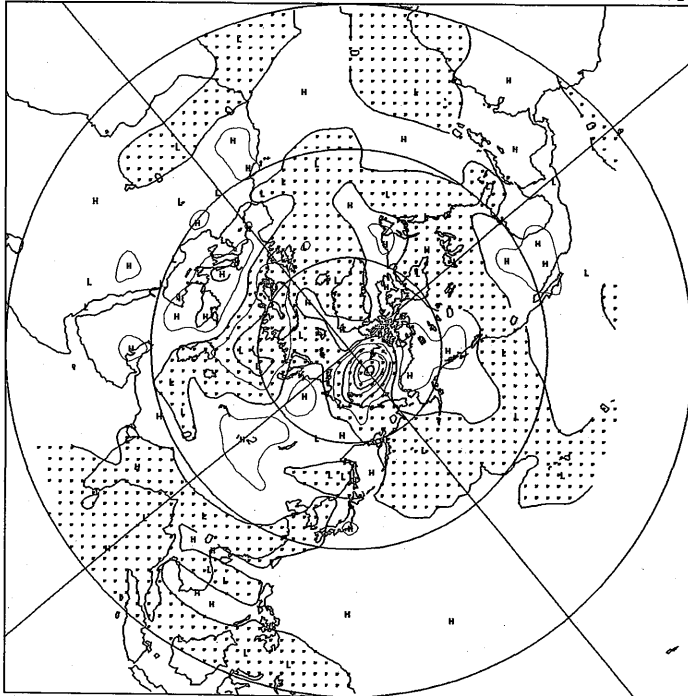
1962

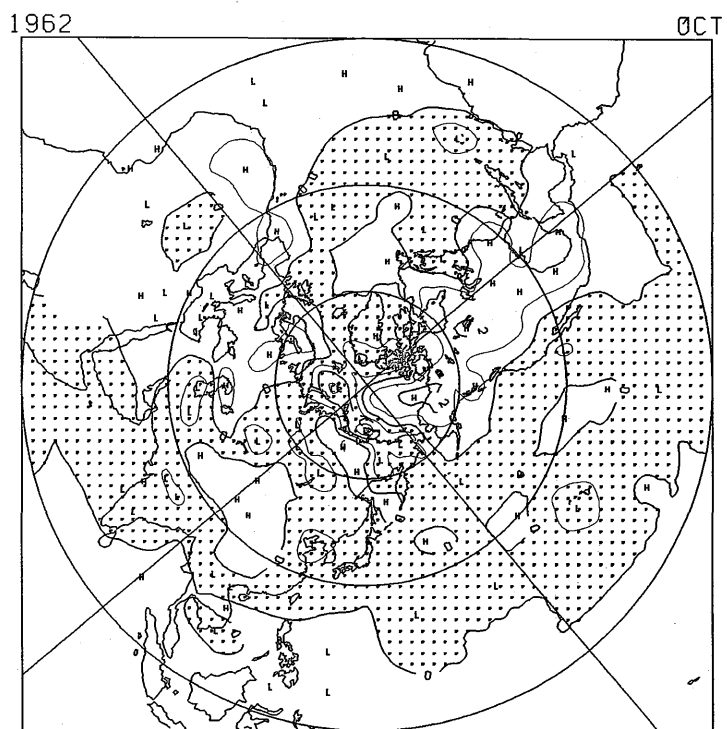
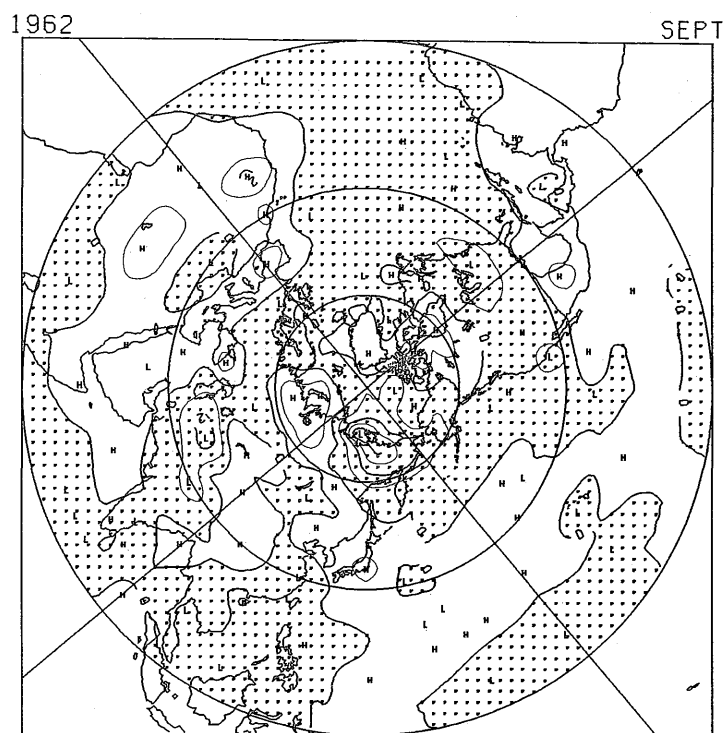
JUL

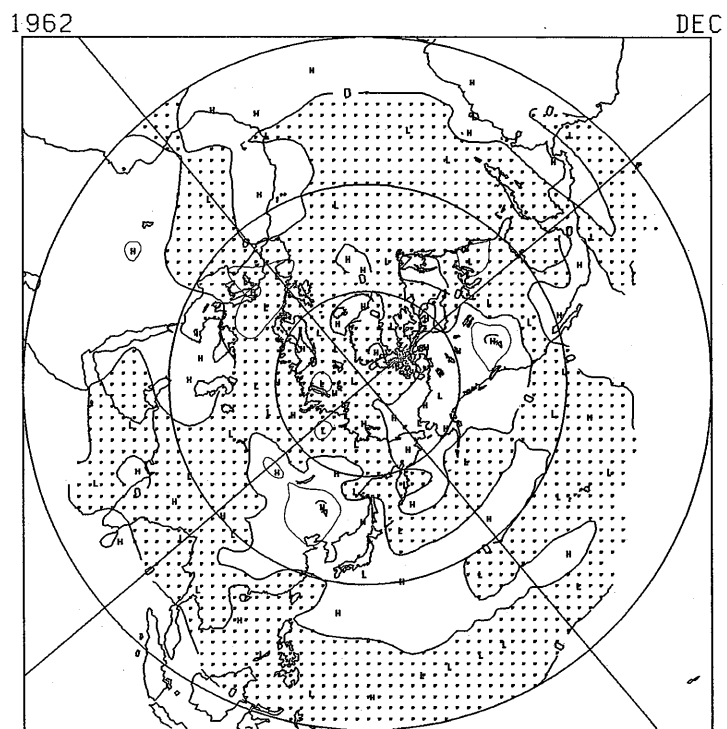
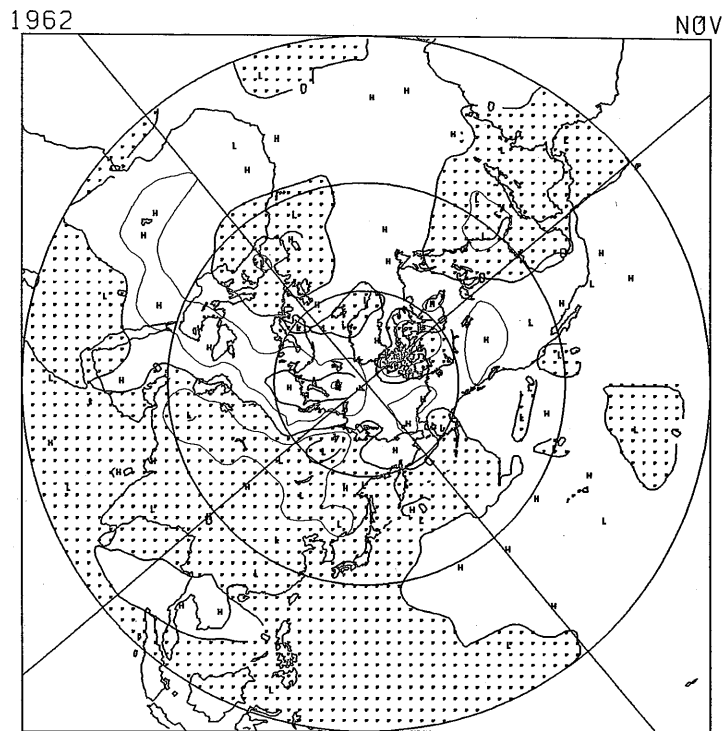


1962

AUG

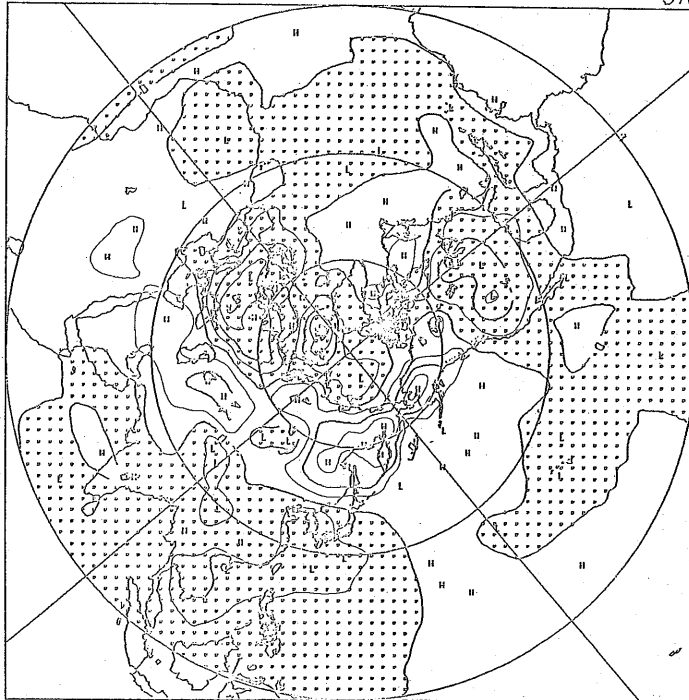






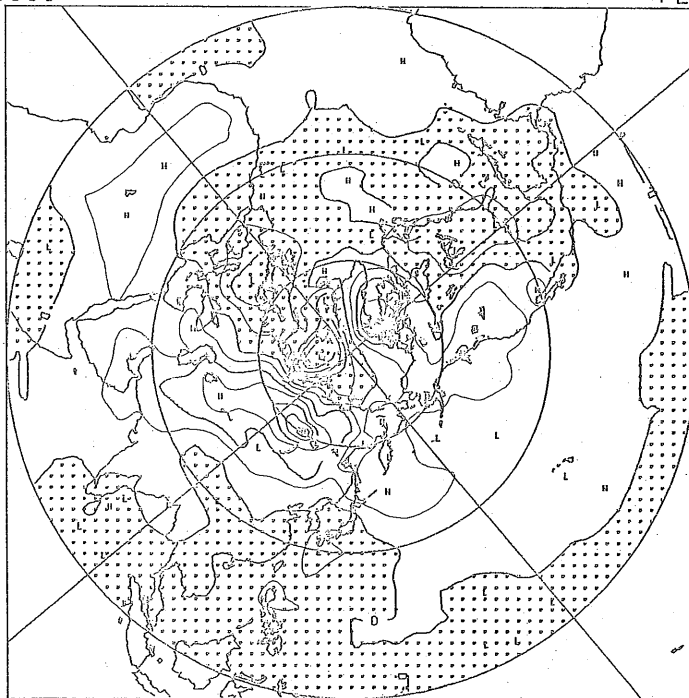
1963

JAN



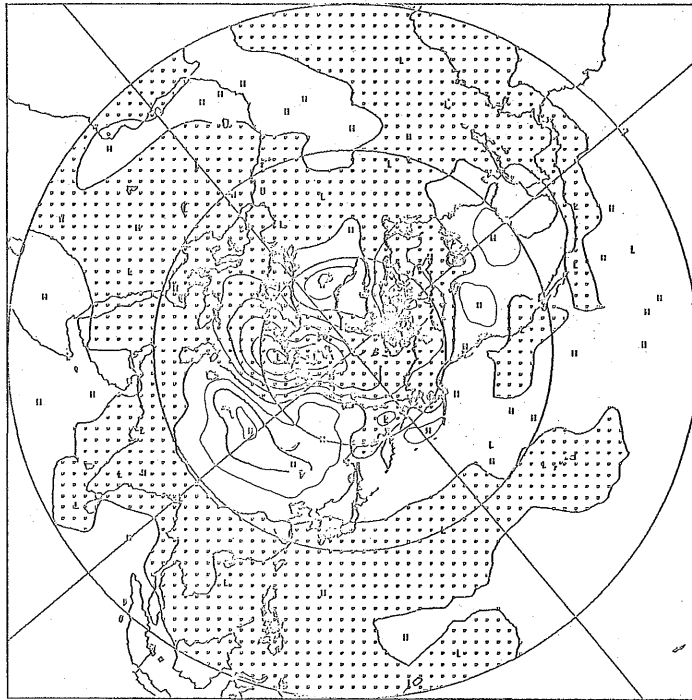
1963

FEB



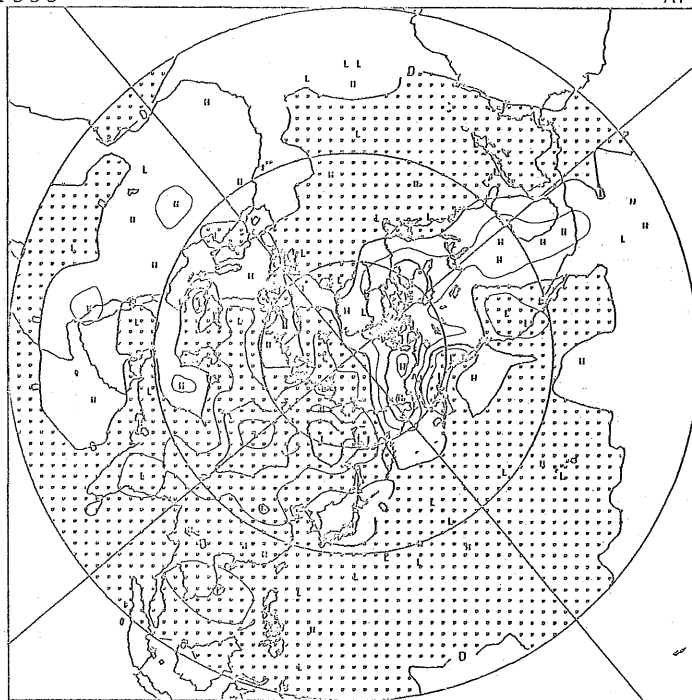
1963

MAR



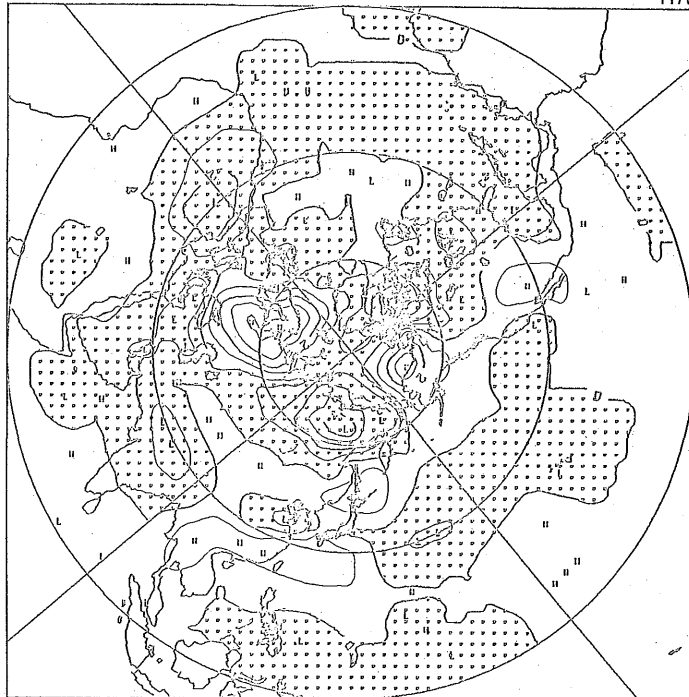
1963

APR



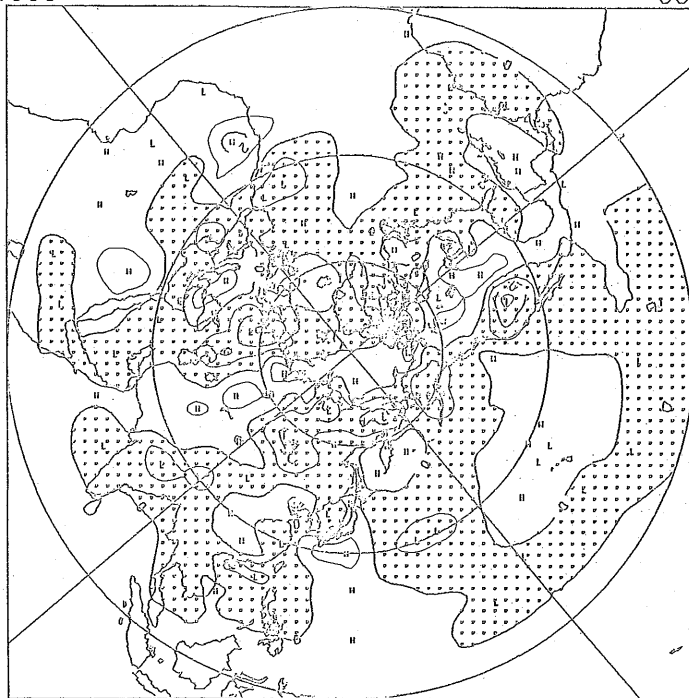
1963

MAY



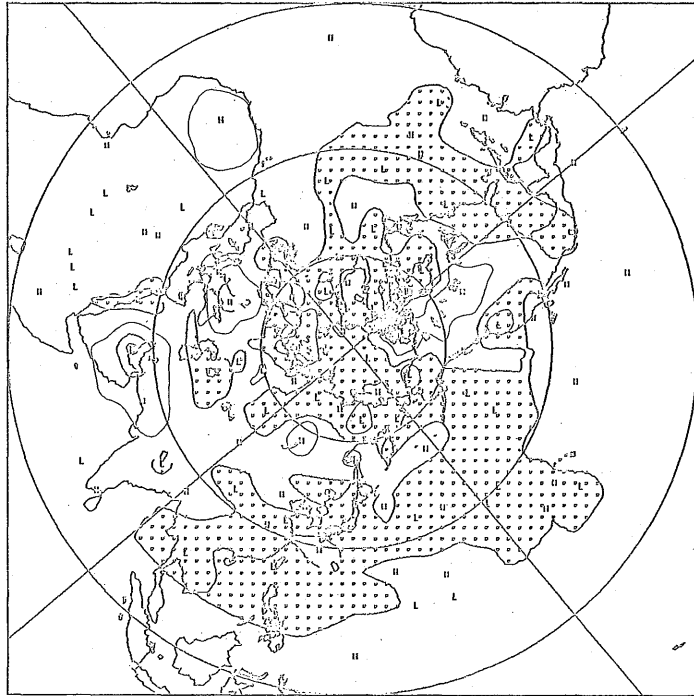
1963

JUN



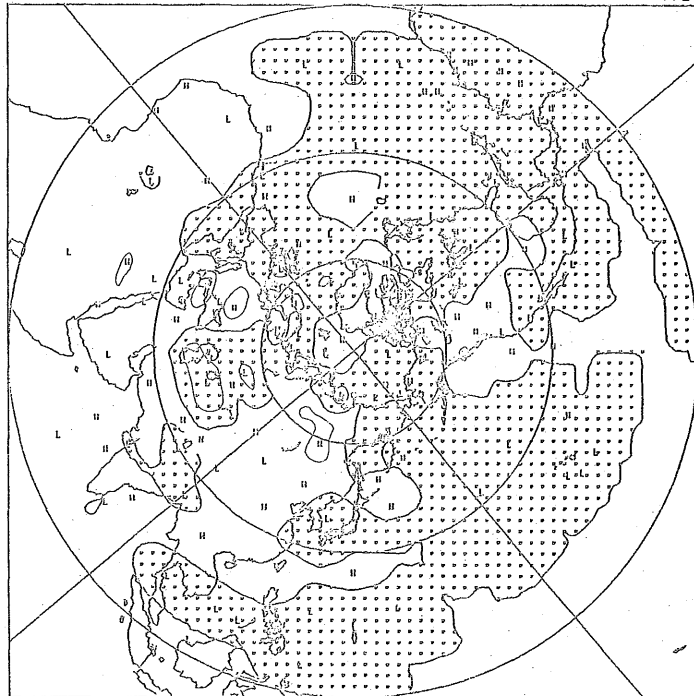
1963

JUL



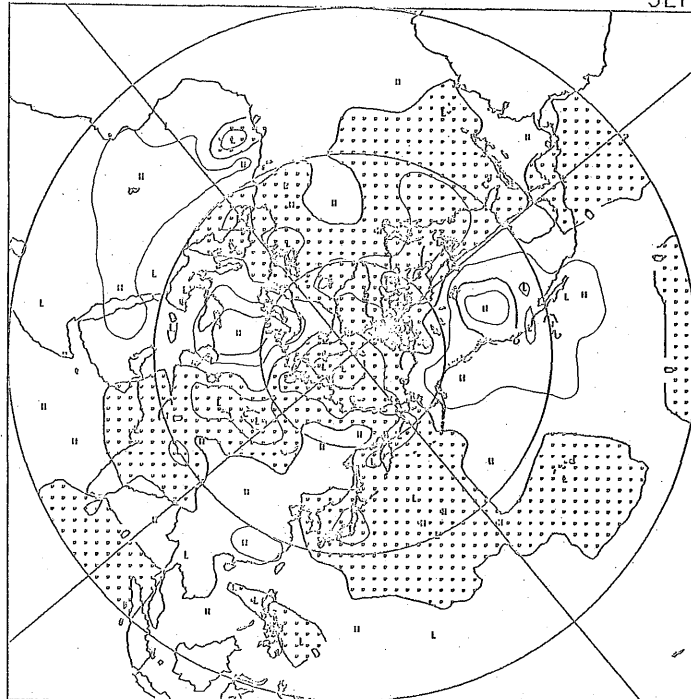
1963

AUG



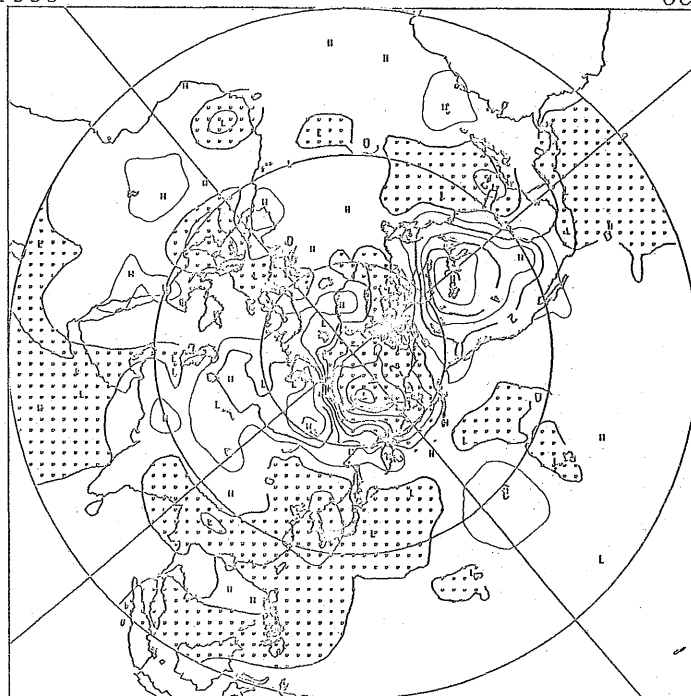
1963

SEPT



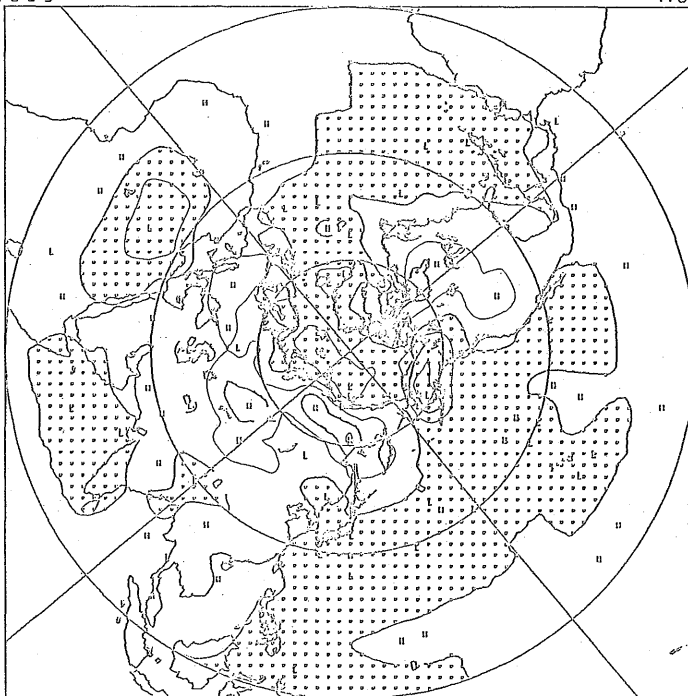
1963

OCT



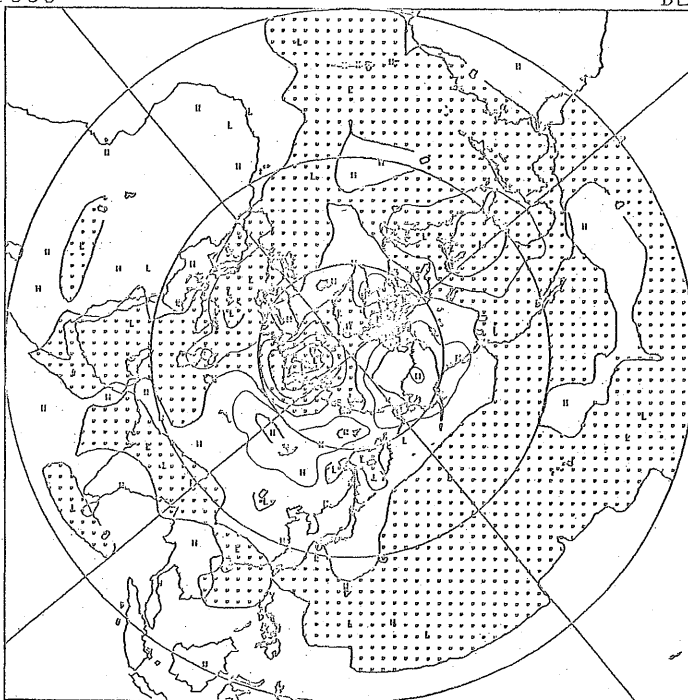
1963

NOV



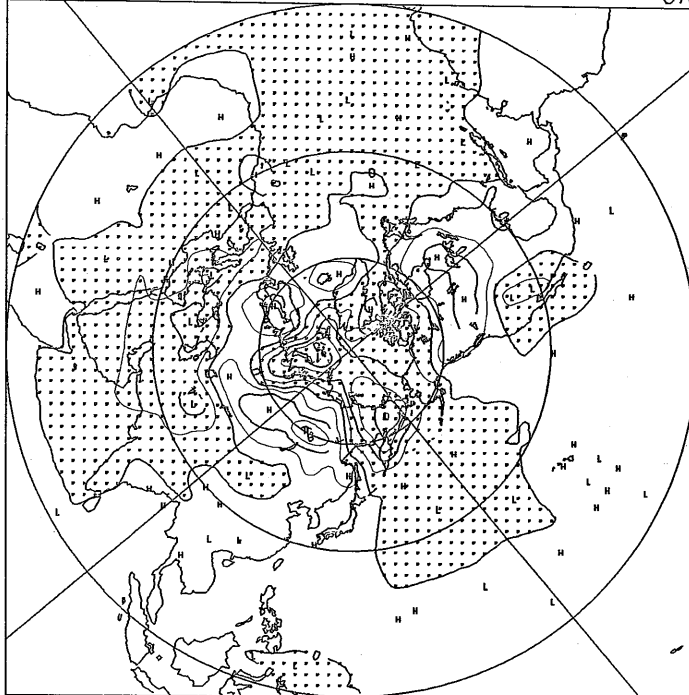
1963

DEC



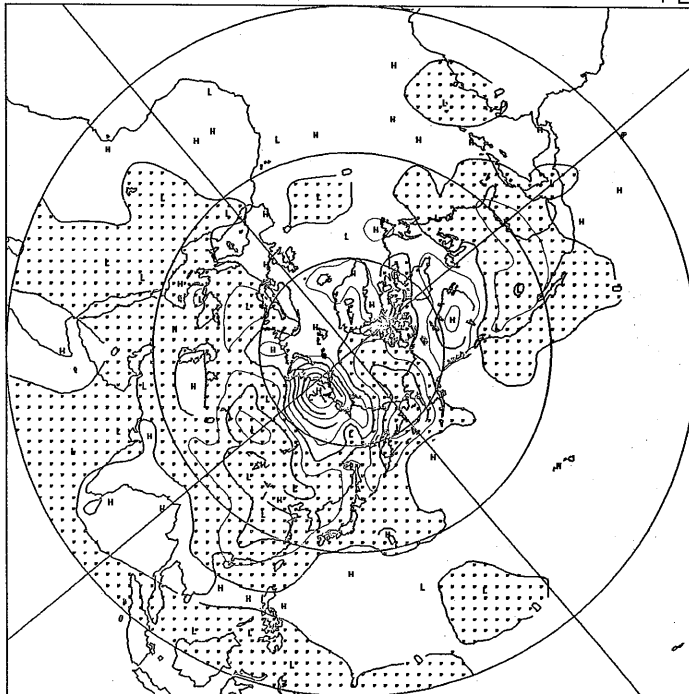
1964

JAN



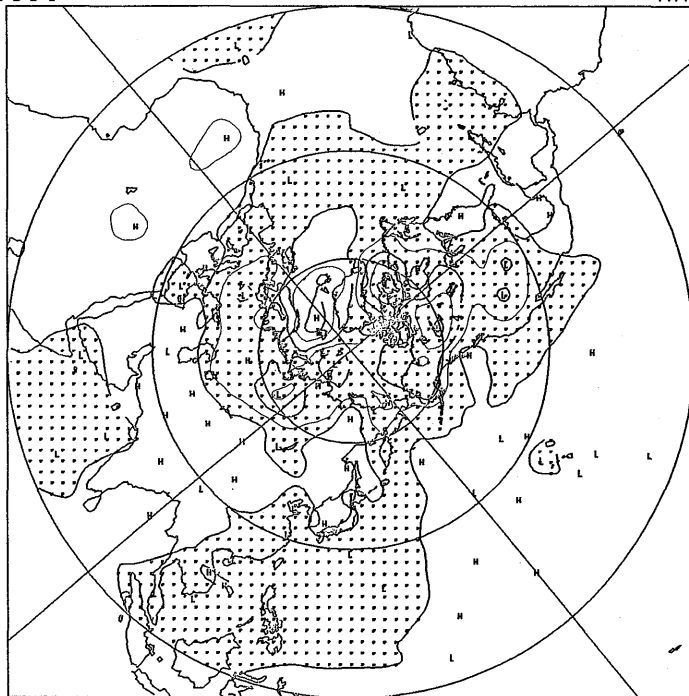
1964

FEB



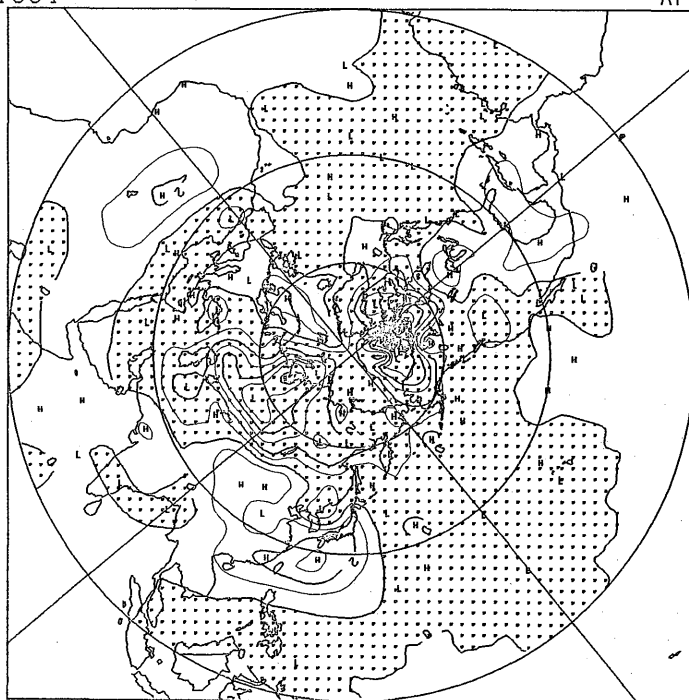
1964

MAR



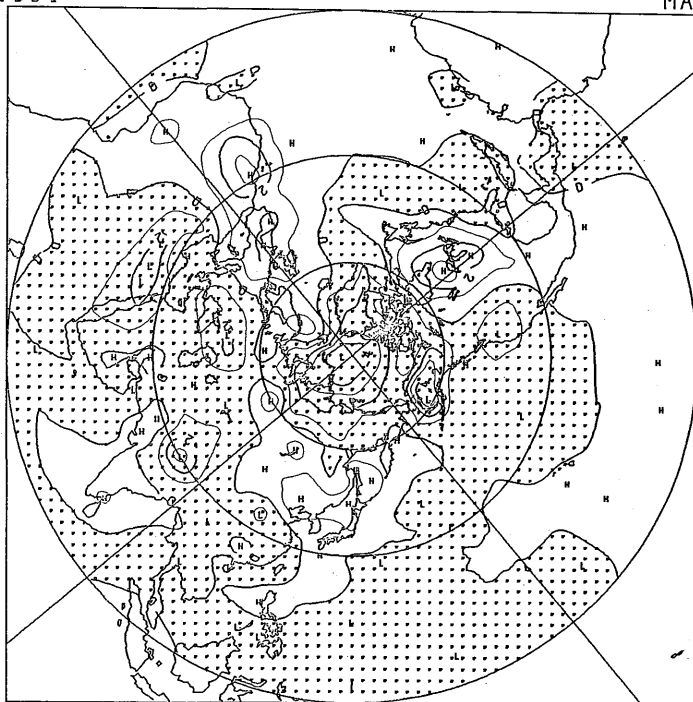
1964

APR



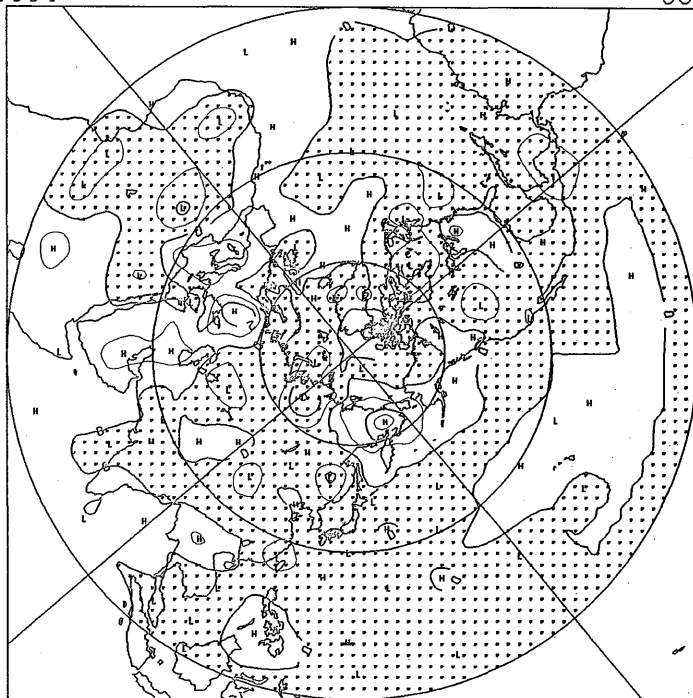
1964

MAY



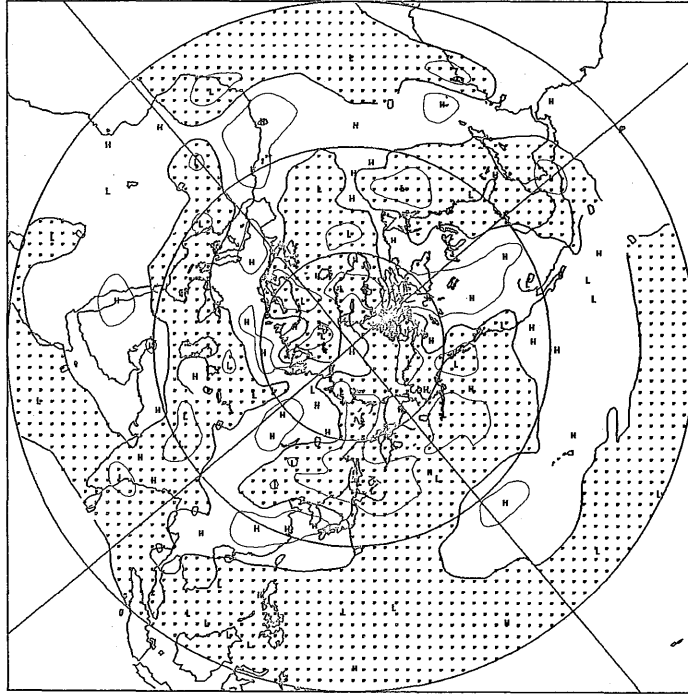
1964

JUN



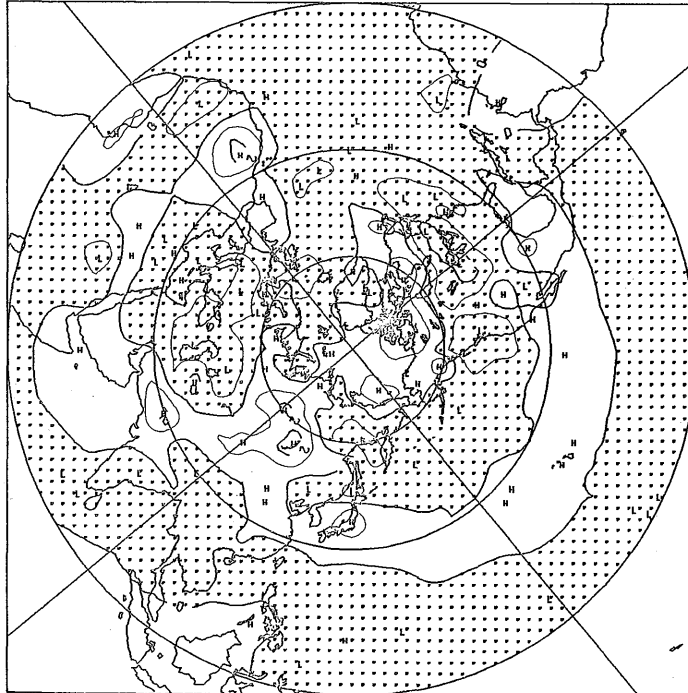
1964

JUL



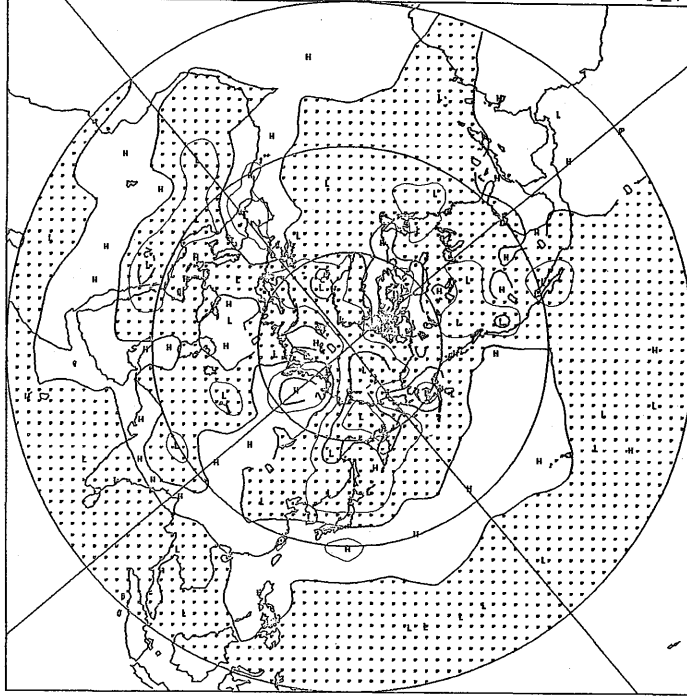
1964

AUG



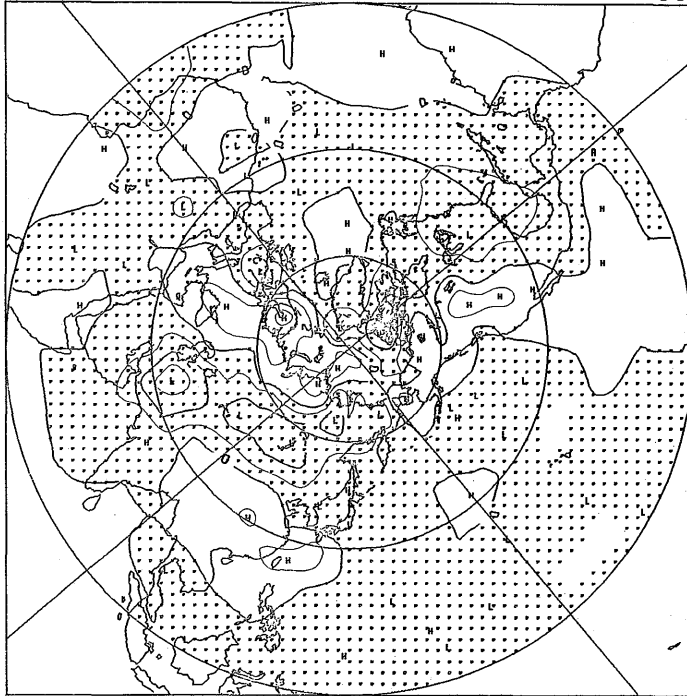
1964

SEPT



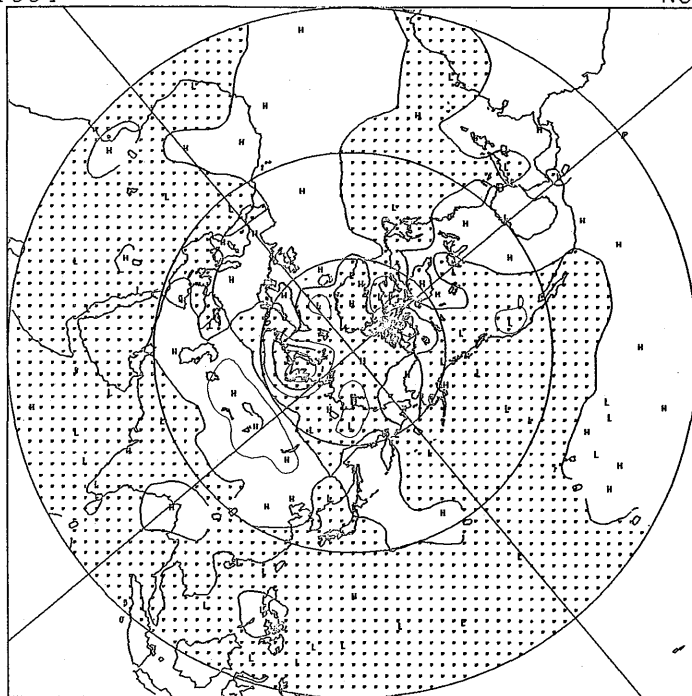
1964

OCT



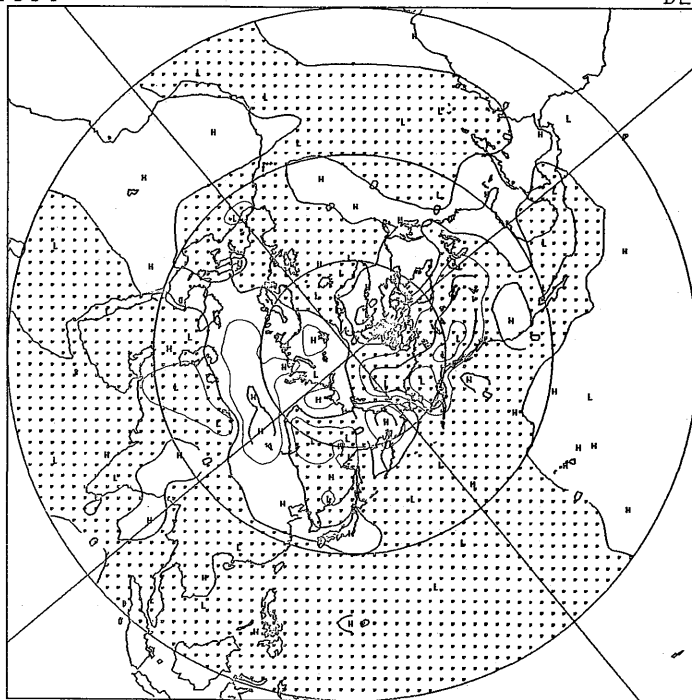
1964

NOV



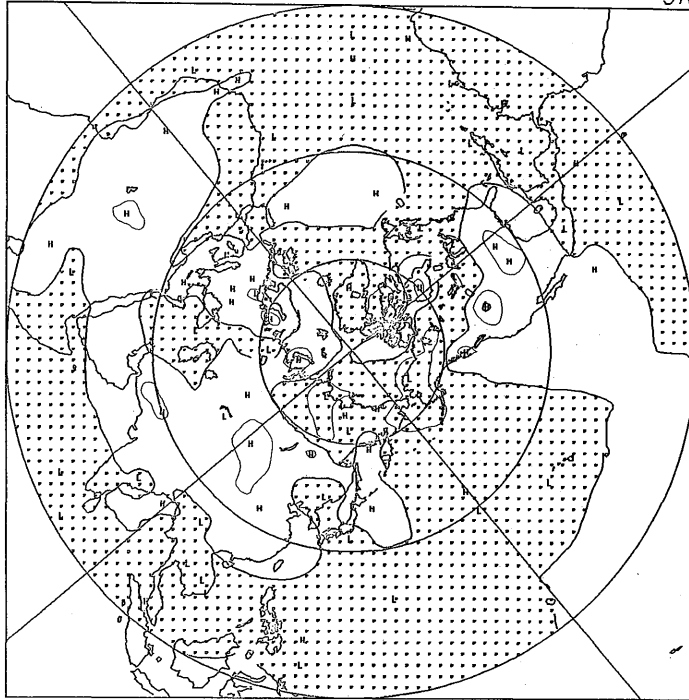
1964

DEC



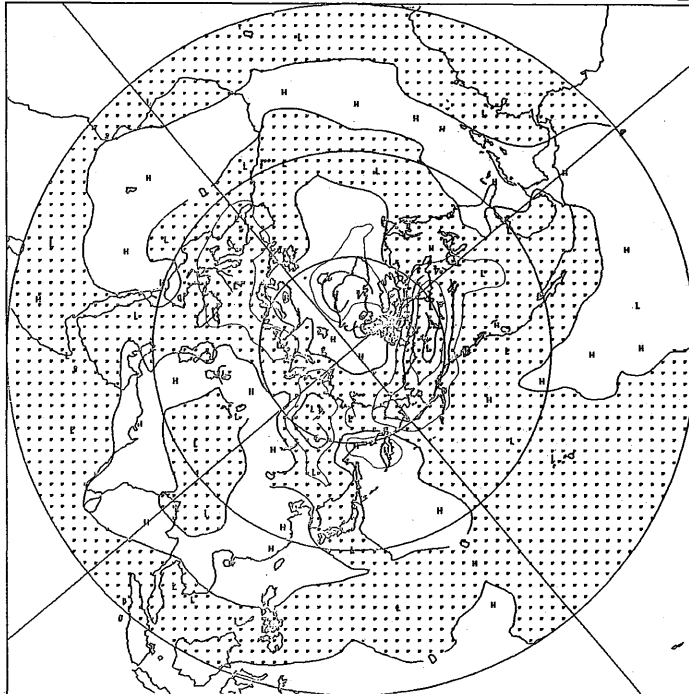
1965

JAN



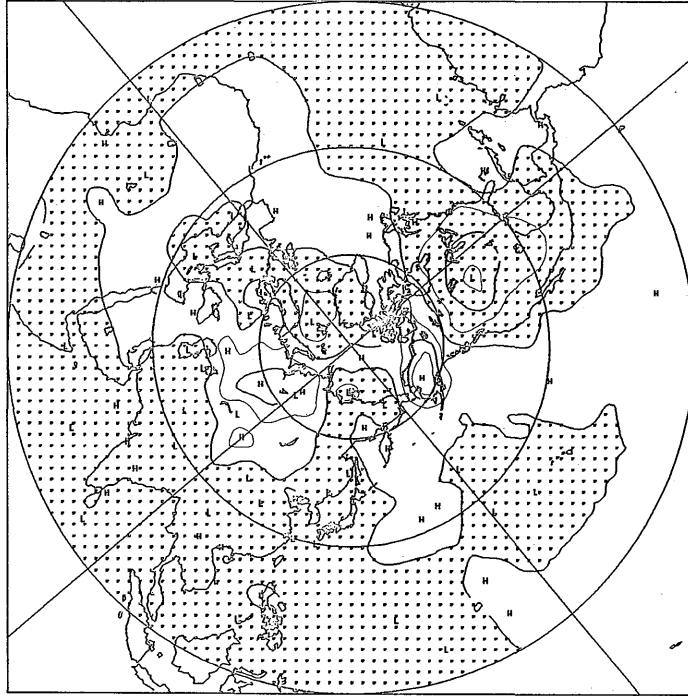
1965

FEB



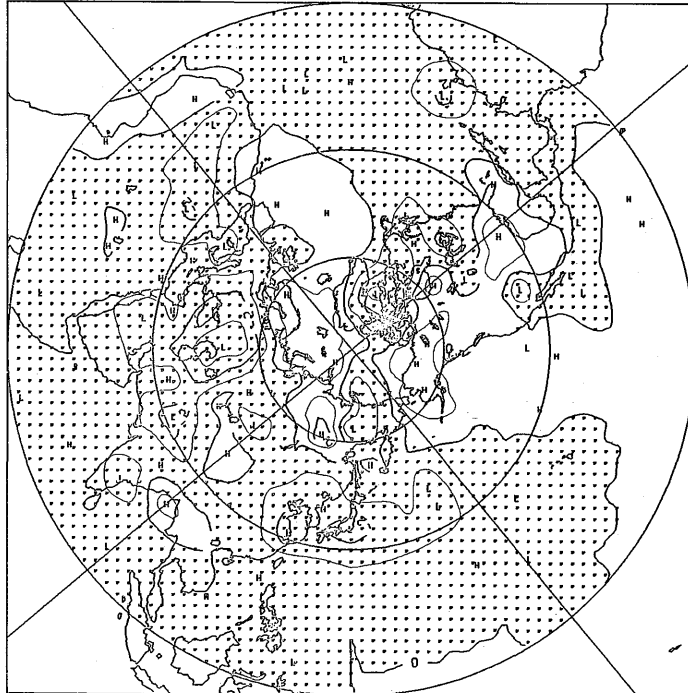
1965

MAR



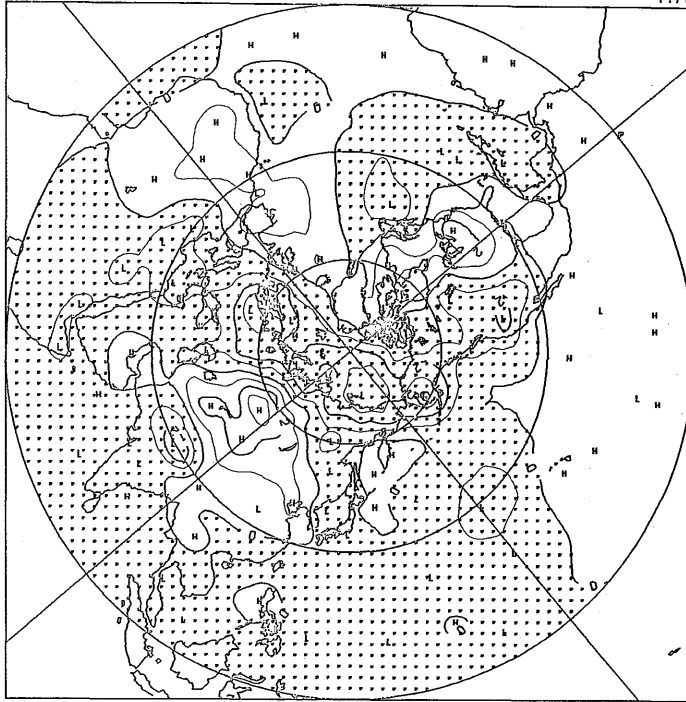
1965

APR



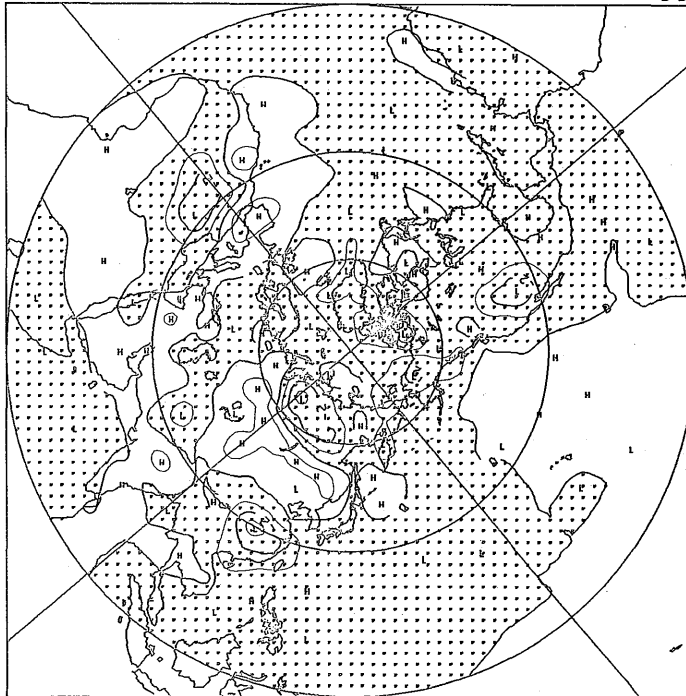
1965

MAY



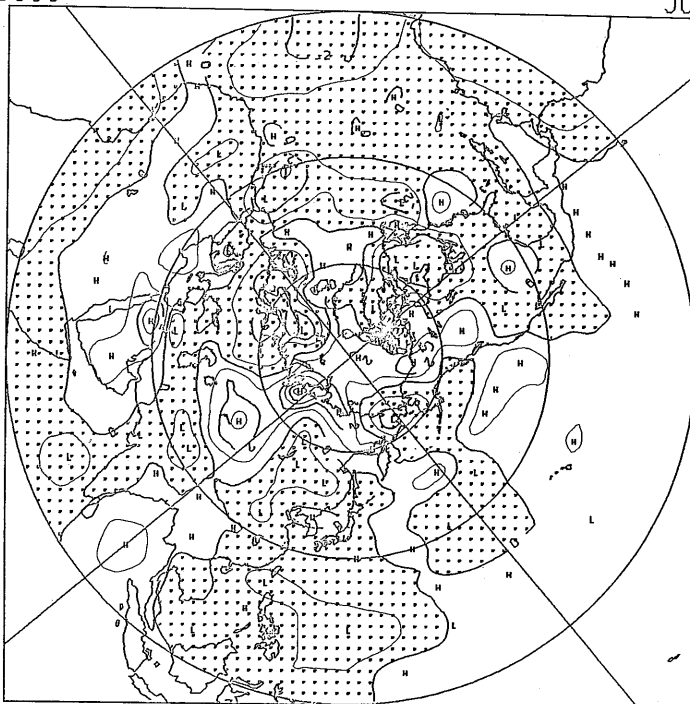
1965

JUN



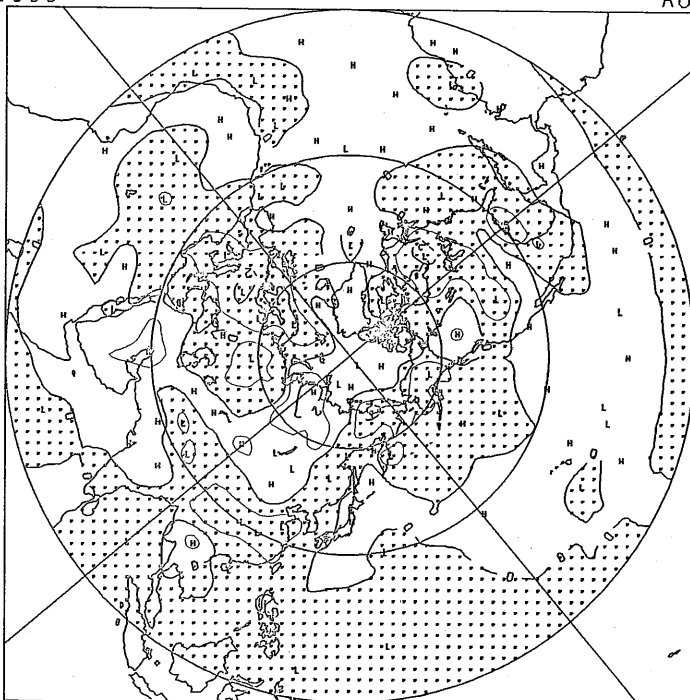
1965

JUL



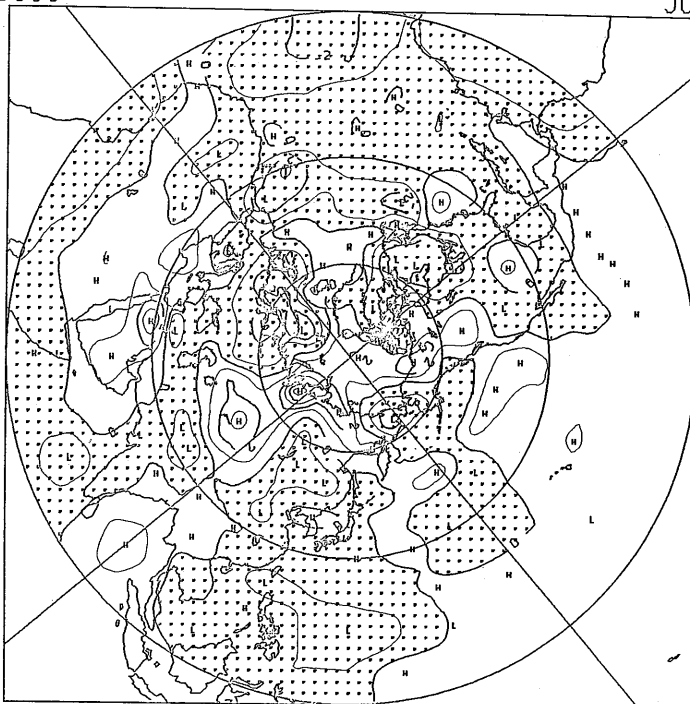
1965

AUG



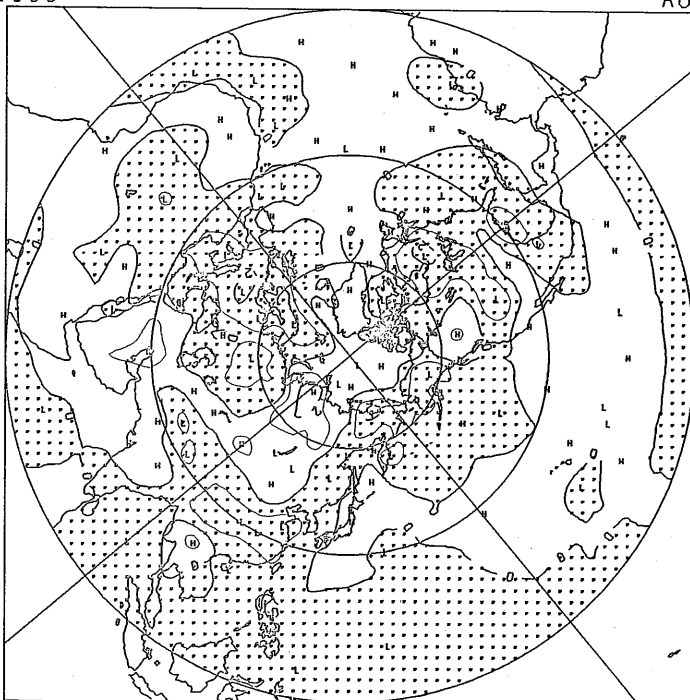
1965

JUL



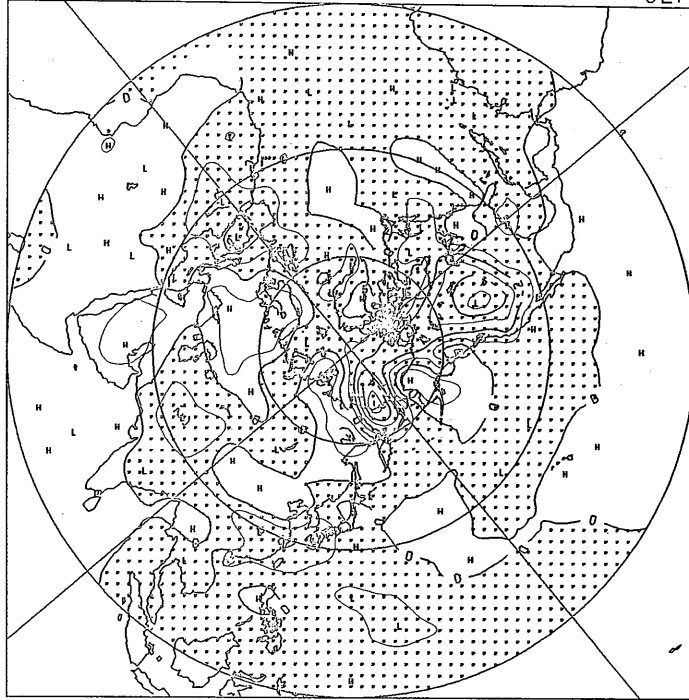
1965

AUG



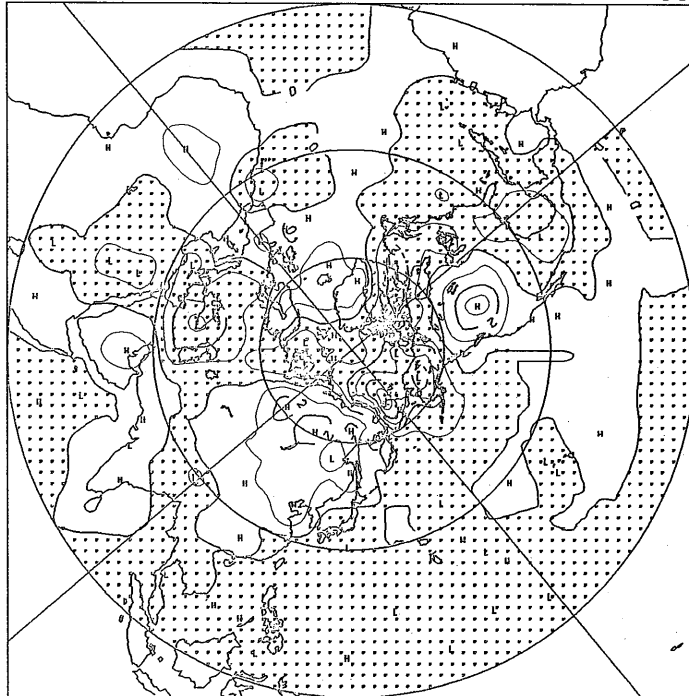
1965

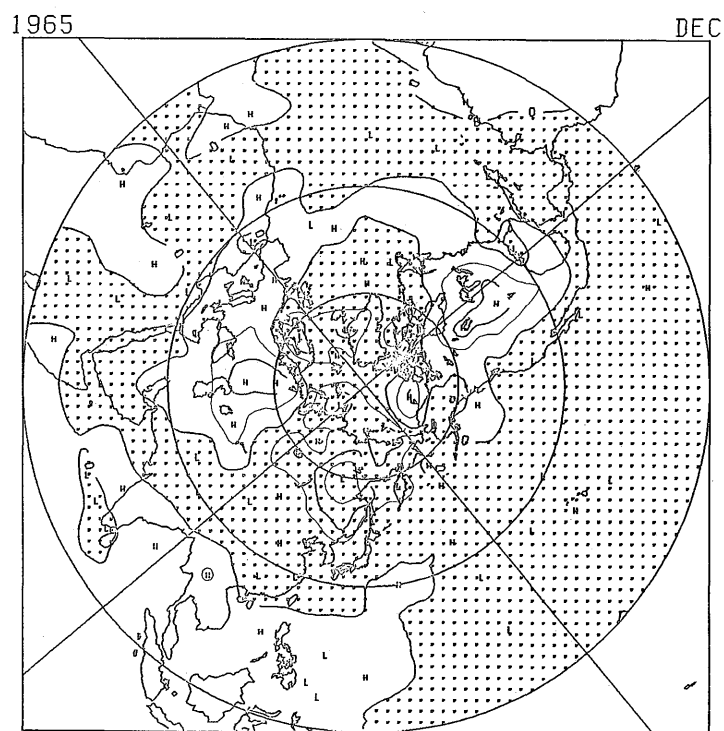
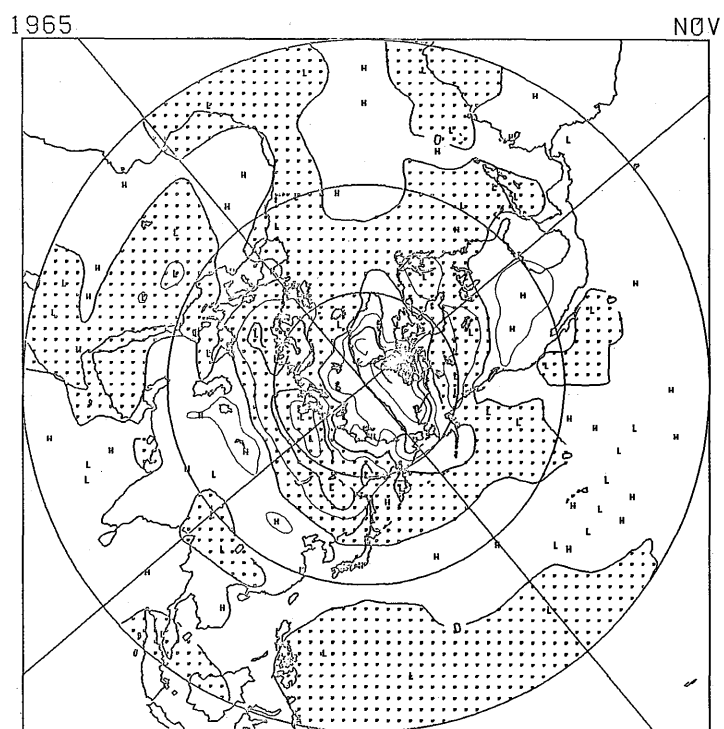
SEPT



1965

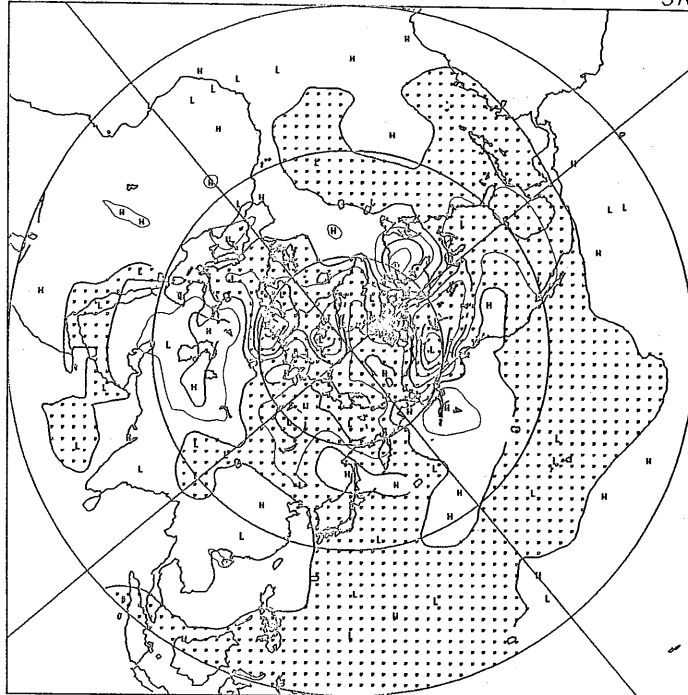
OCT





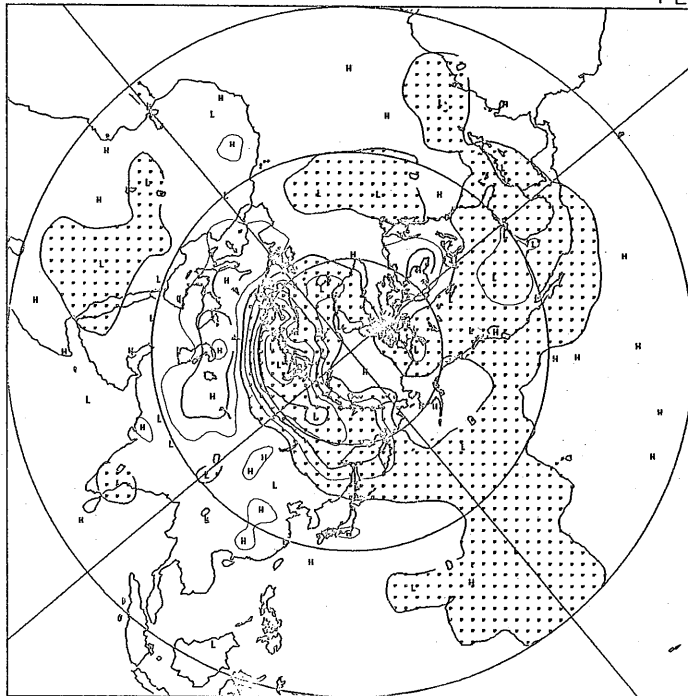
1966

JAN



1966

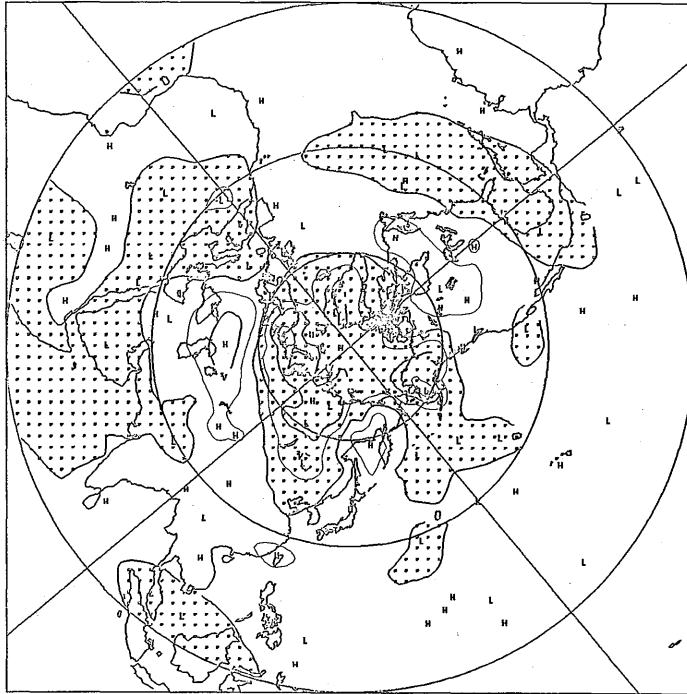
FEB



1966年
1月

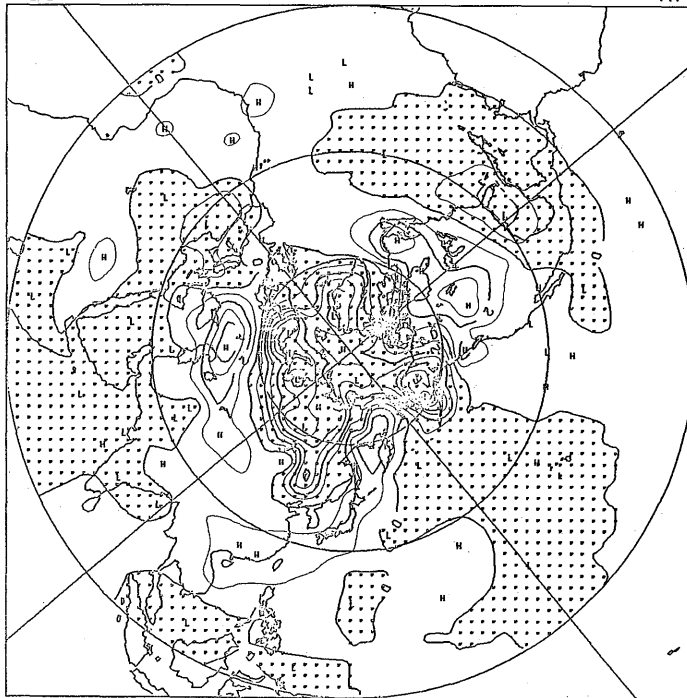
1966

MAR



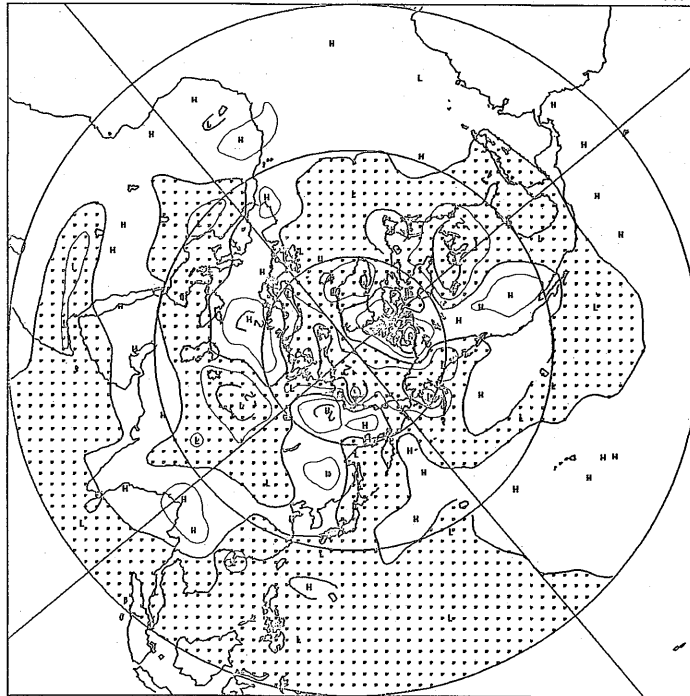
1966

APR



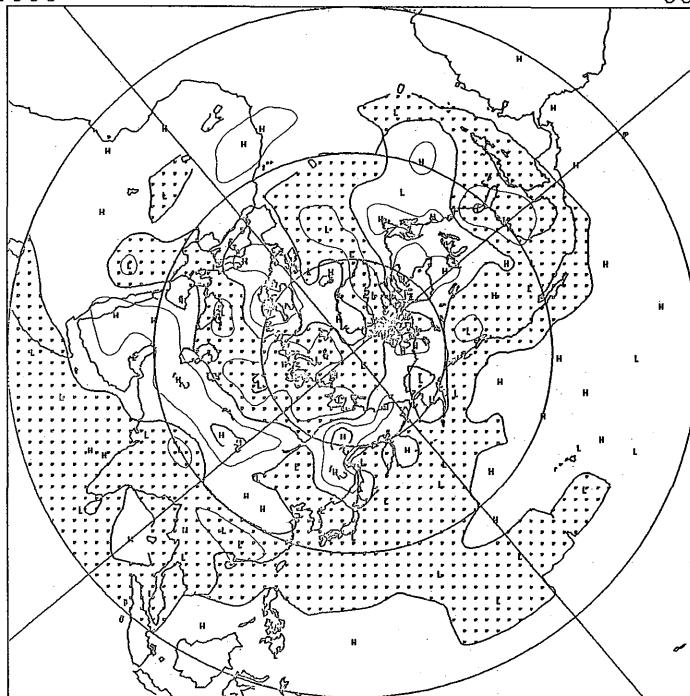
1966

MAY



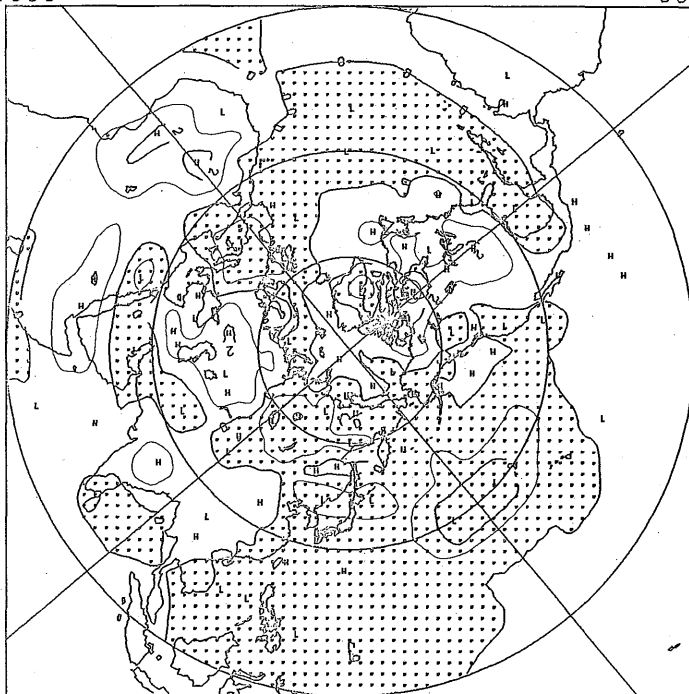
1966

JUN



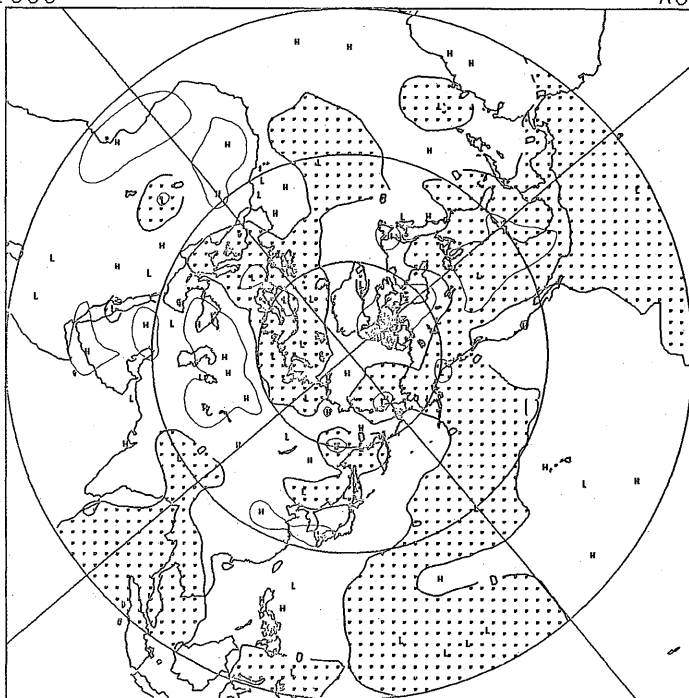
1966

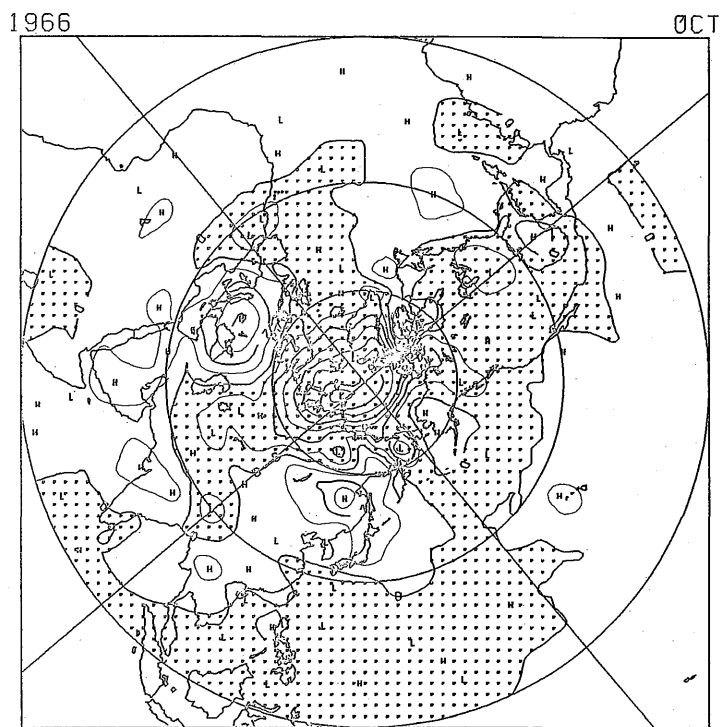
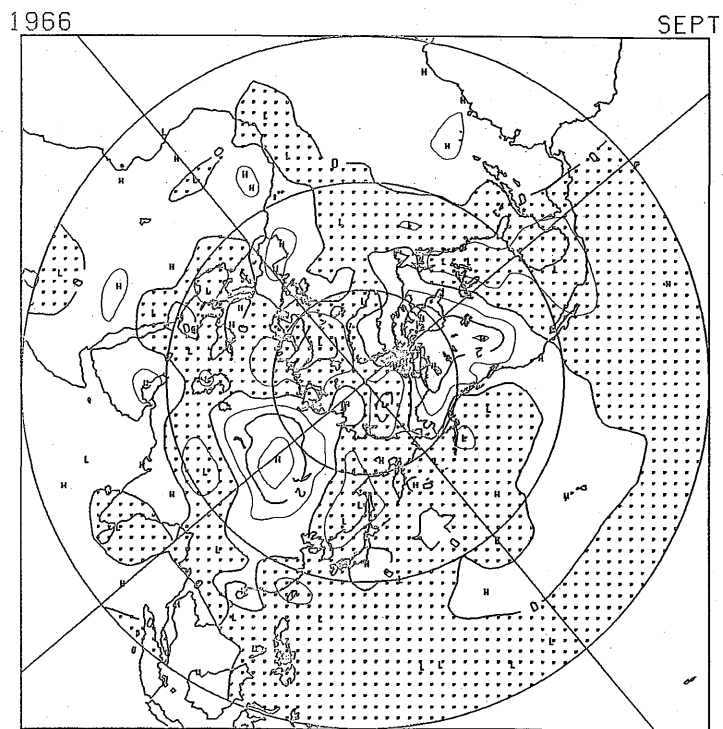
JUL



1966

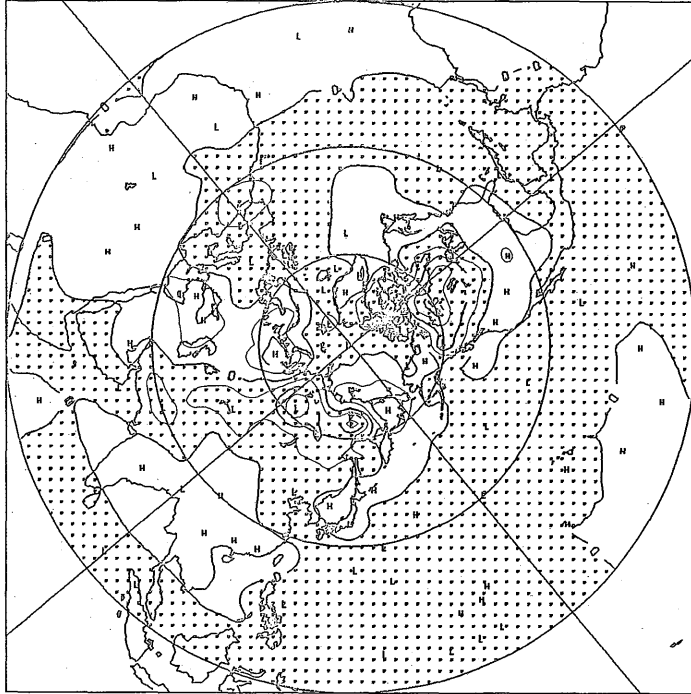
AUG





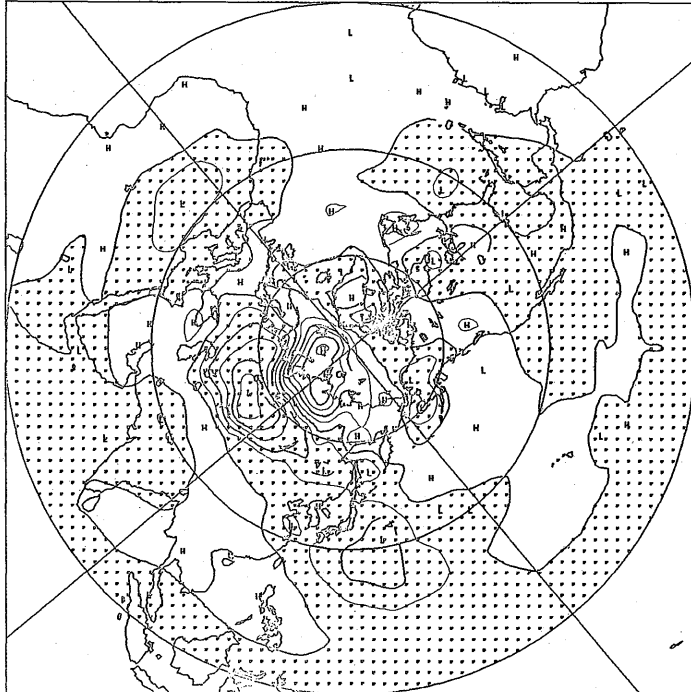
1966

NOV



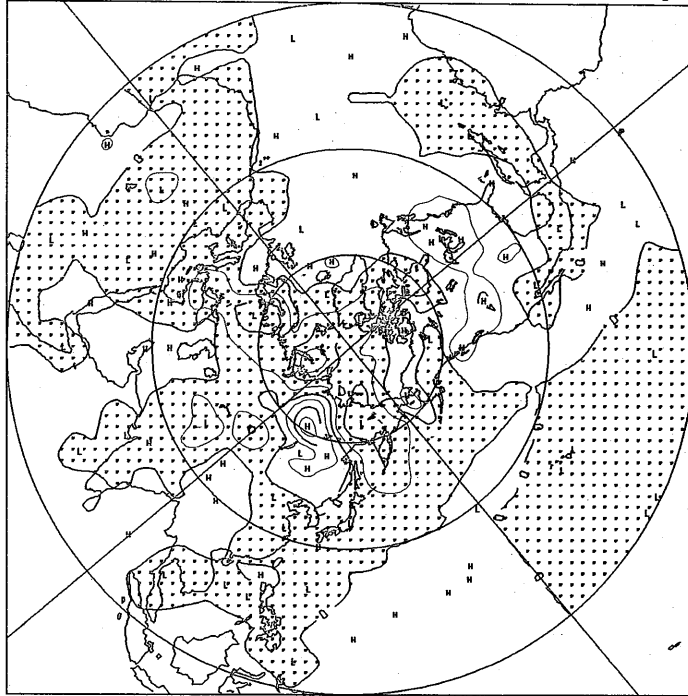
1966

DEC



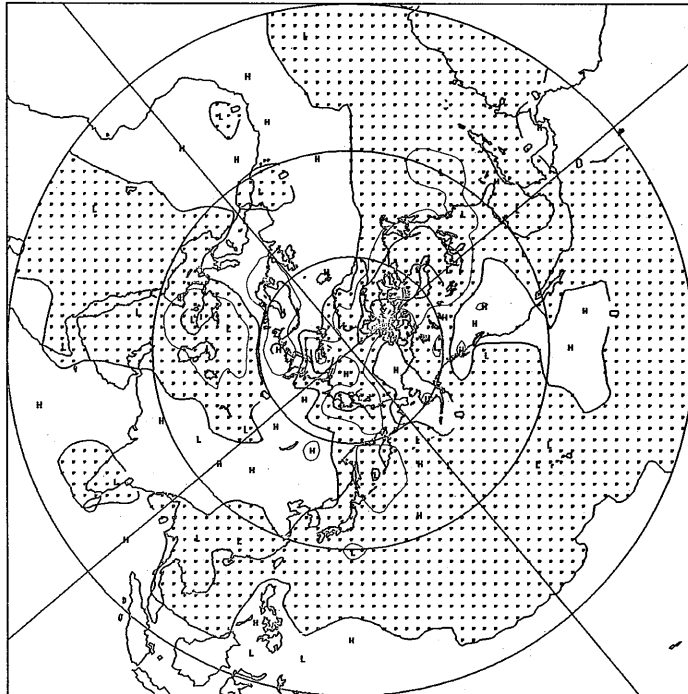
1967

JAN



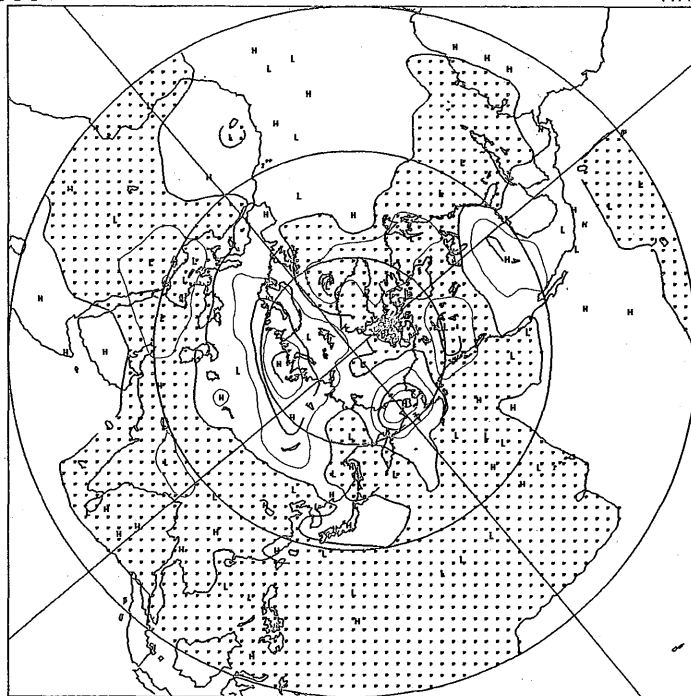
1967

FEB



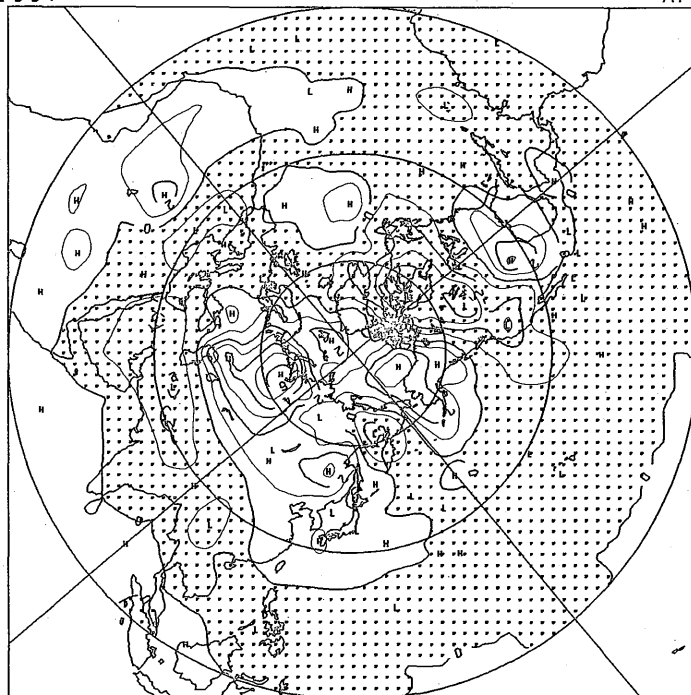
1967

MAR



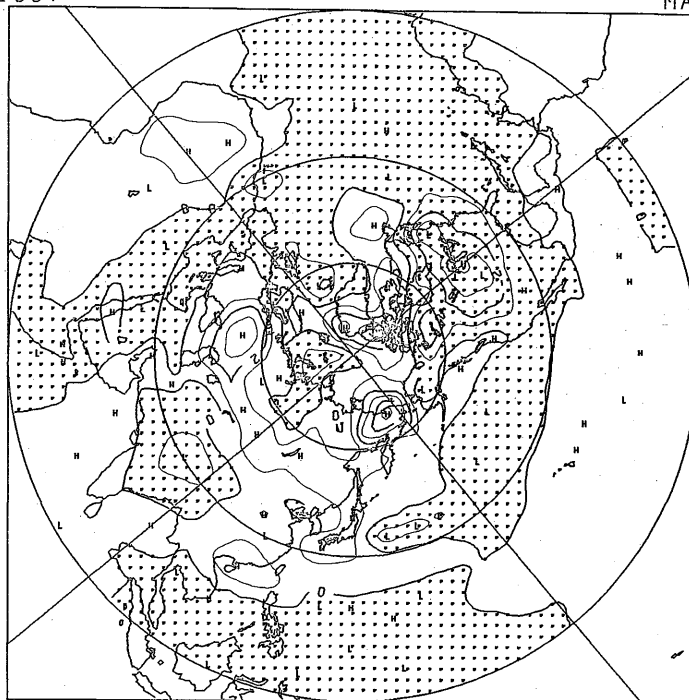
1967

APR



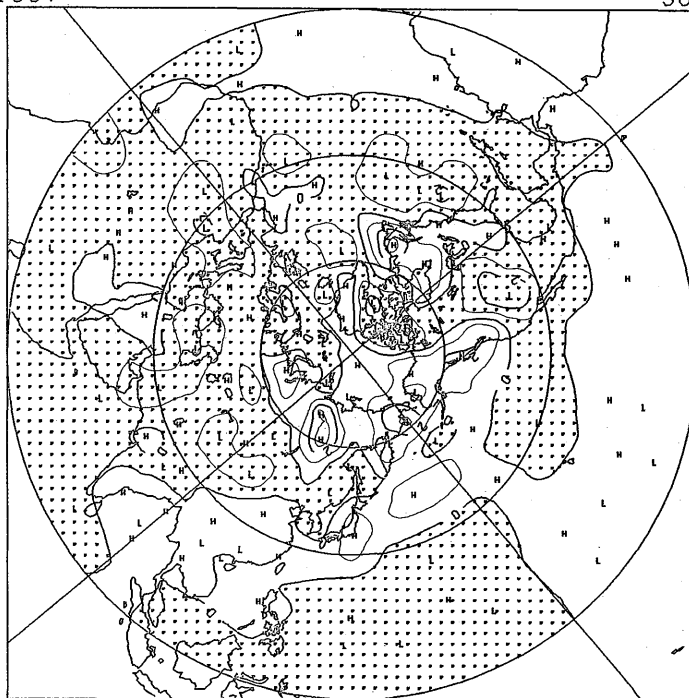
1967

MAY



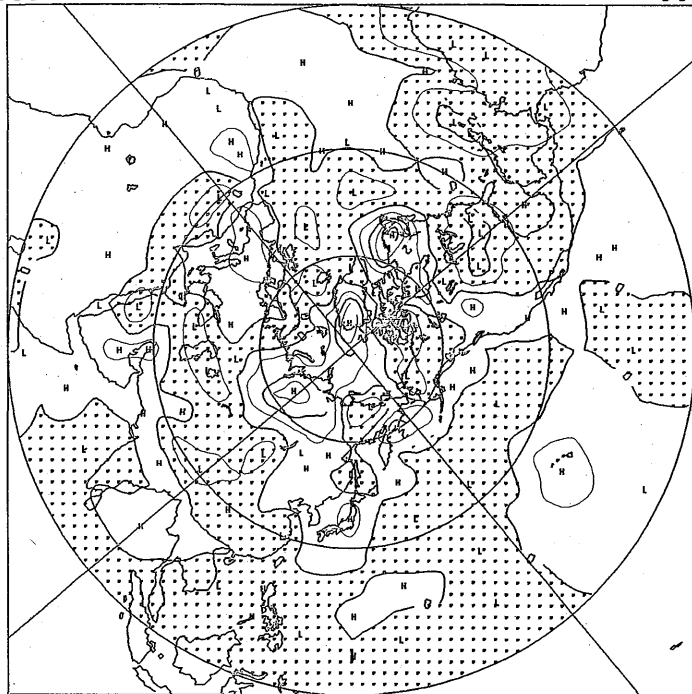
1967

JUN



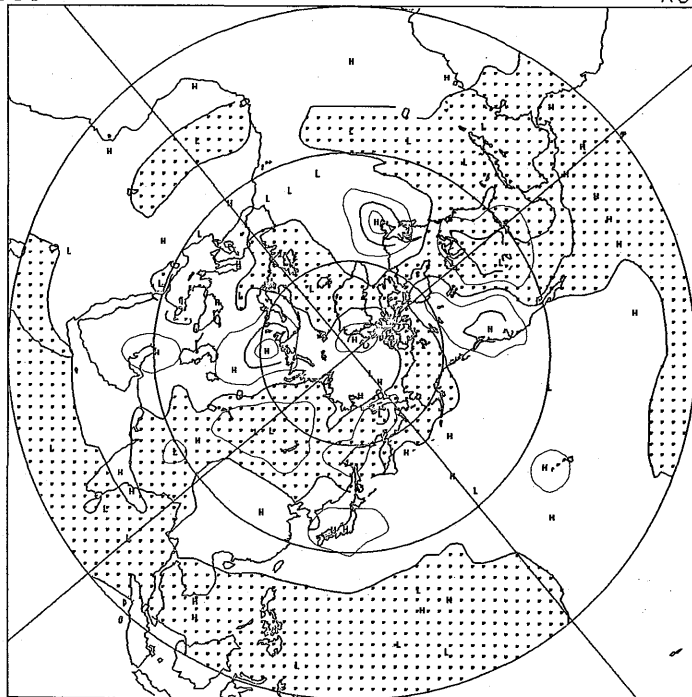
1967

JUL



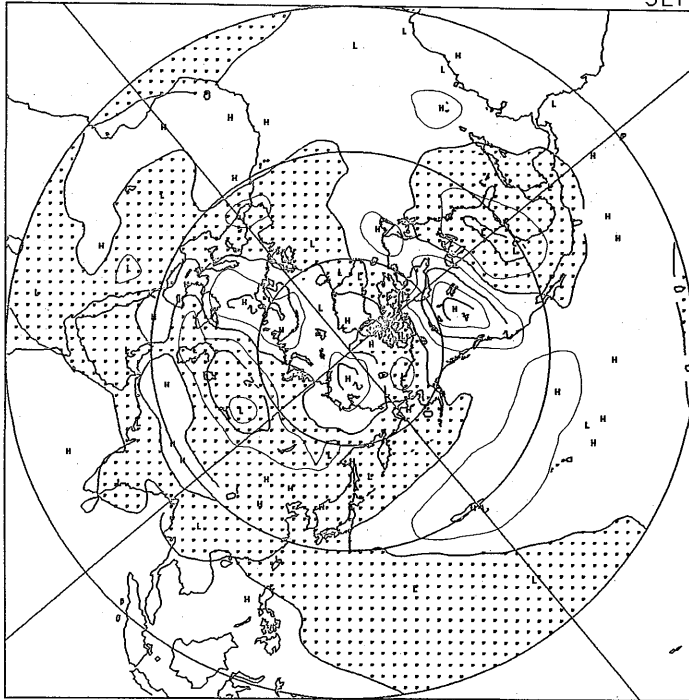
1967

AUG



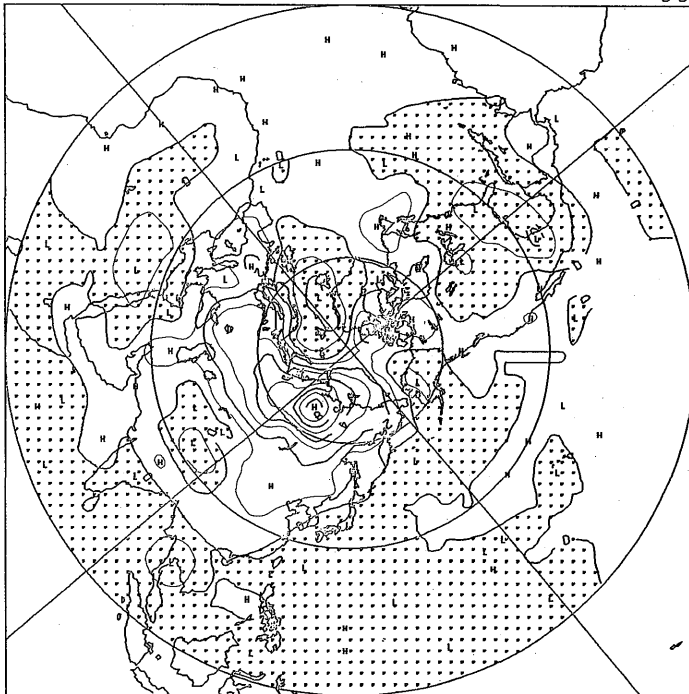
1967

SEPT



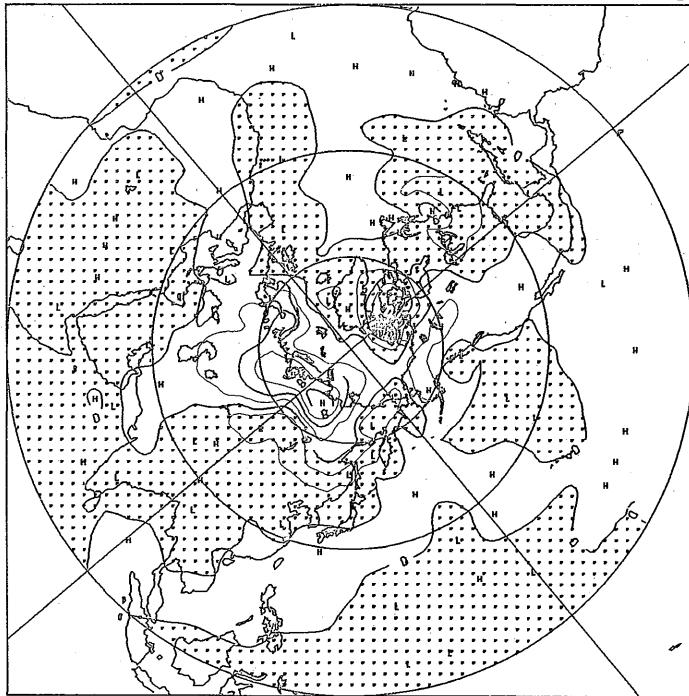
1967

OCT



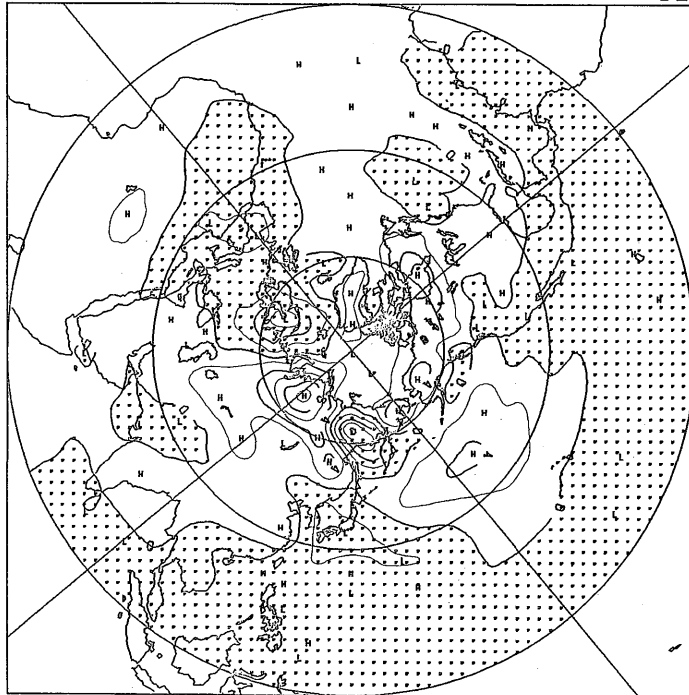
1967

NOV



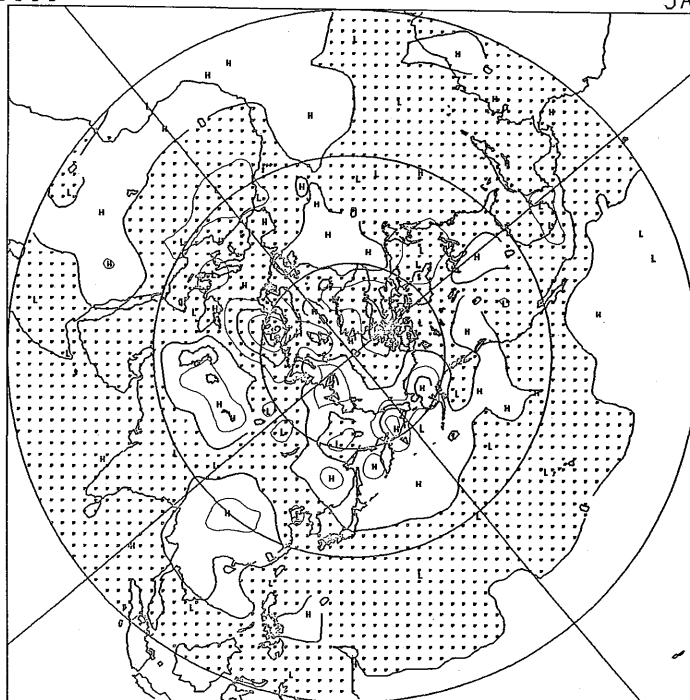
1967

DEC



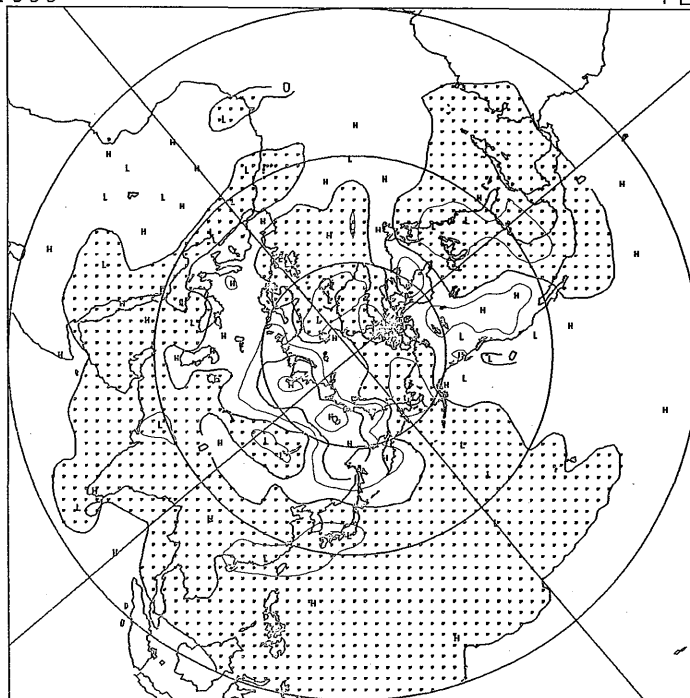
1968

JAN



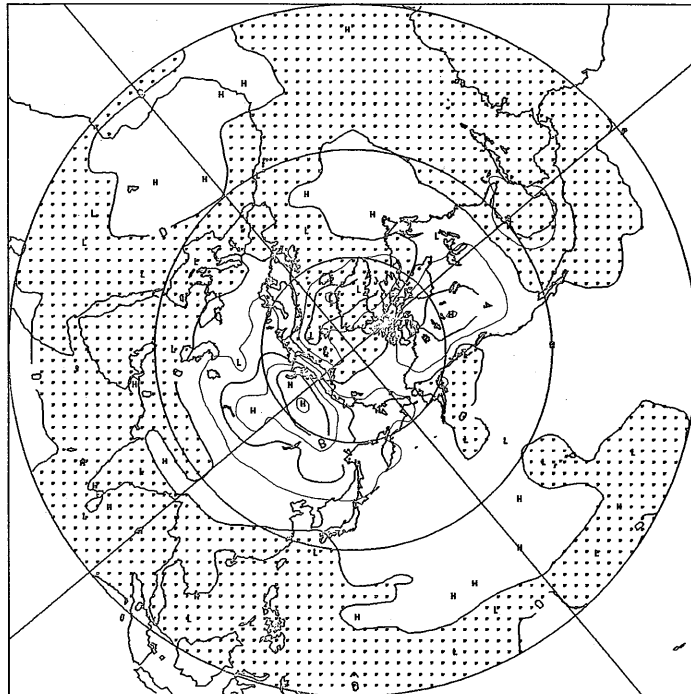
1968

FEB



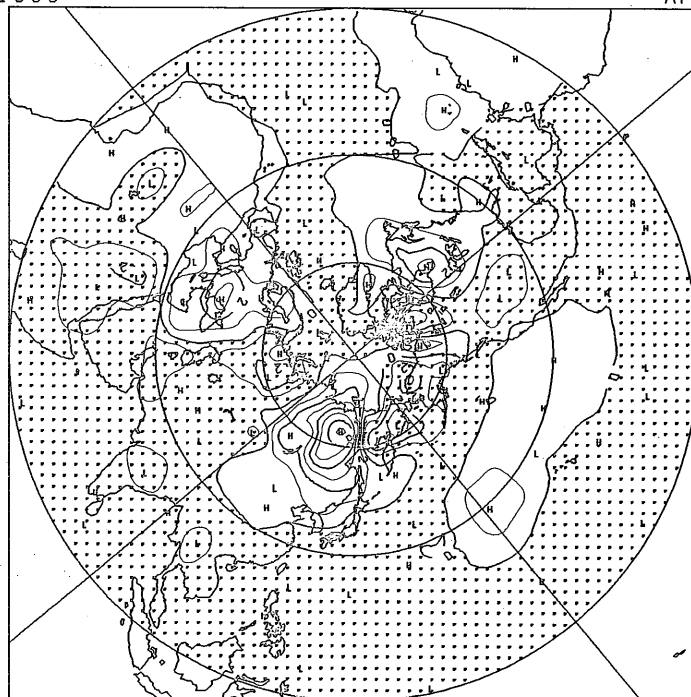
1968

MAR



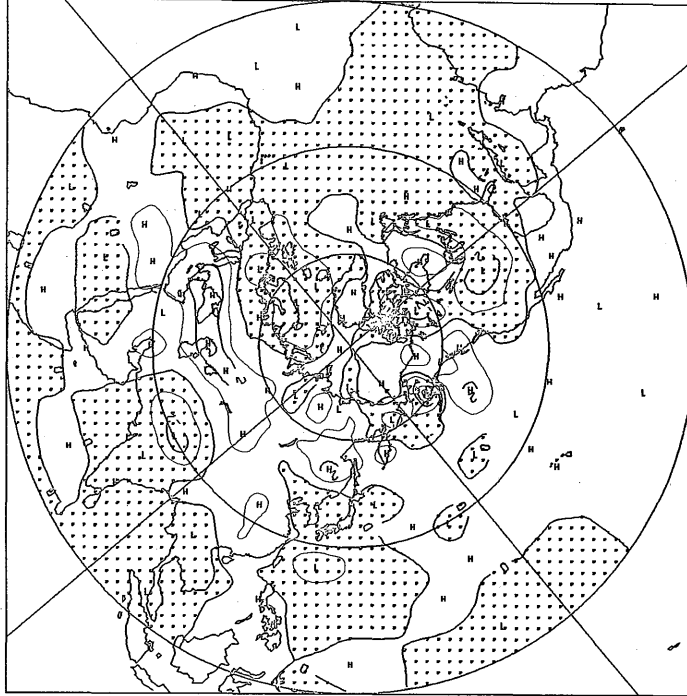
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APR



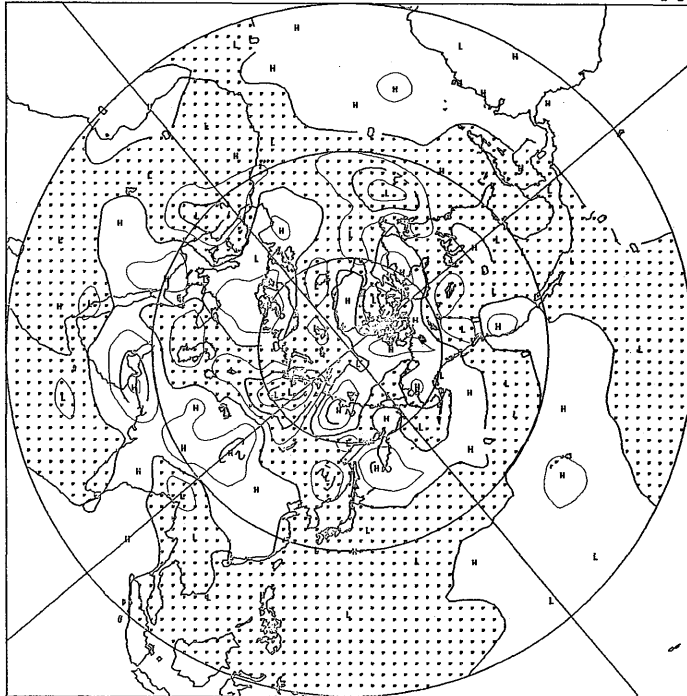
1968

MAY



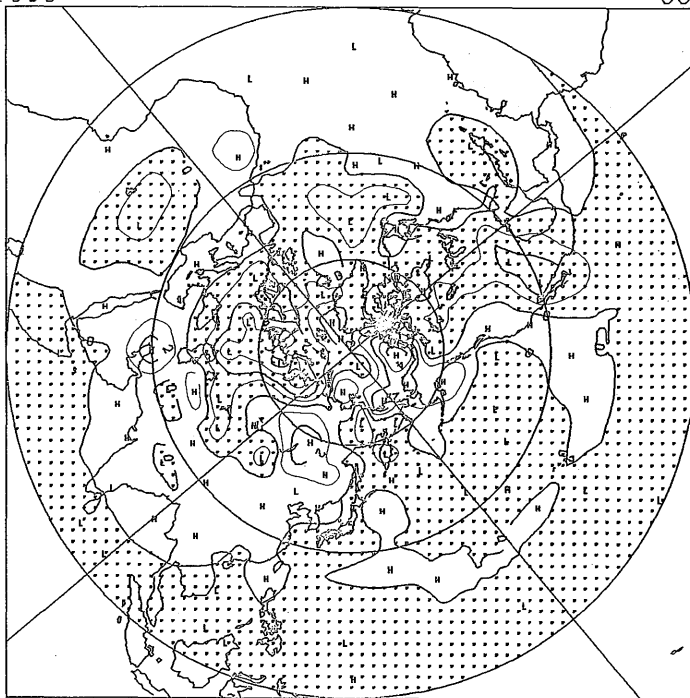
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JUN



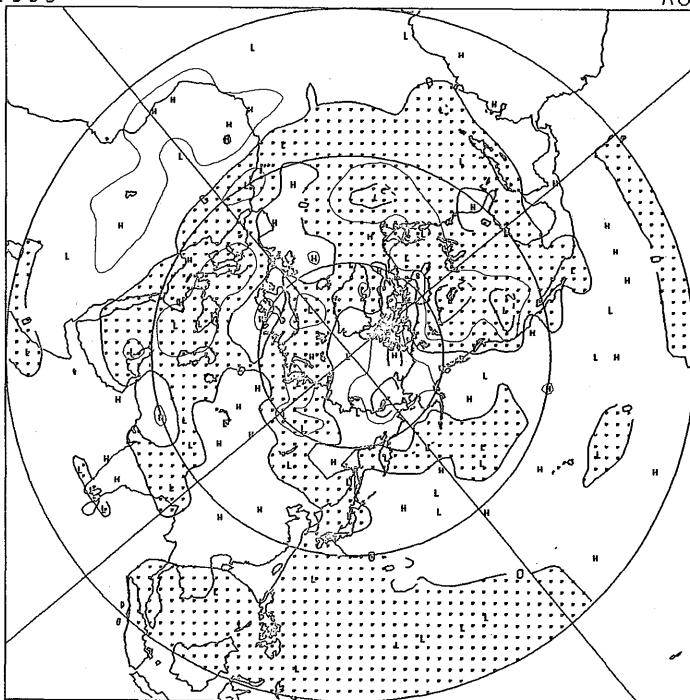
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JUL



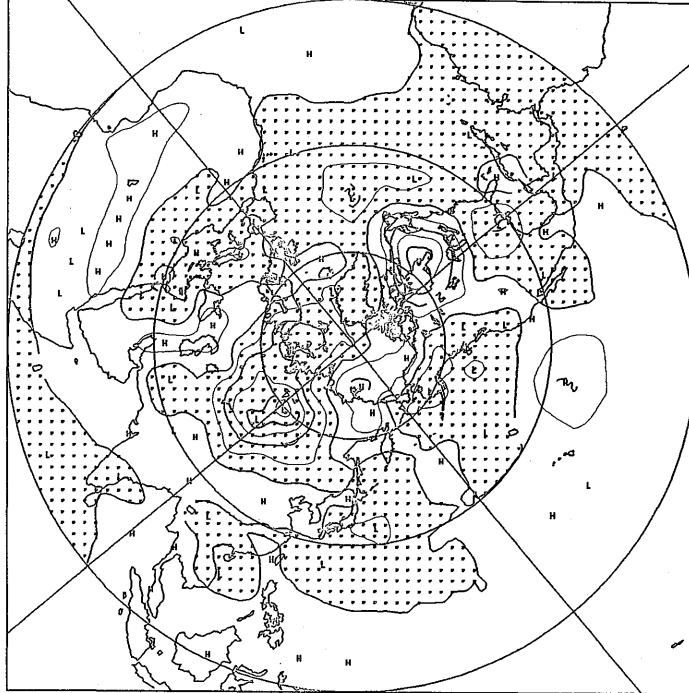
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AUG



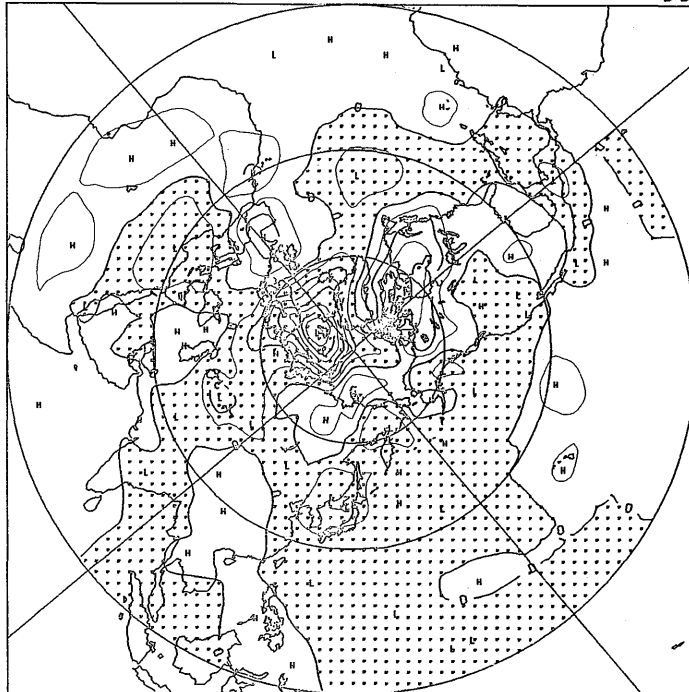
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SEPT



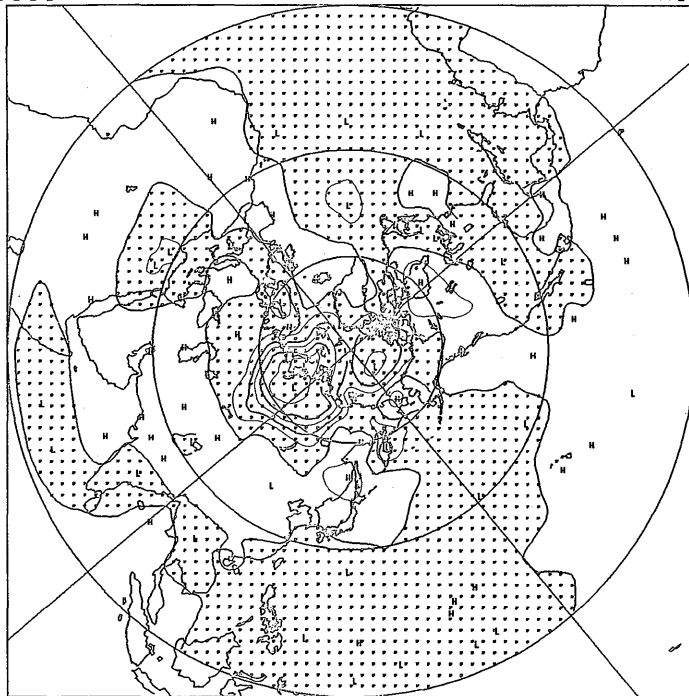
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OCT



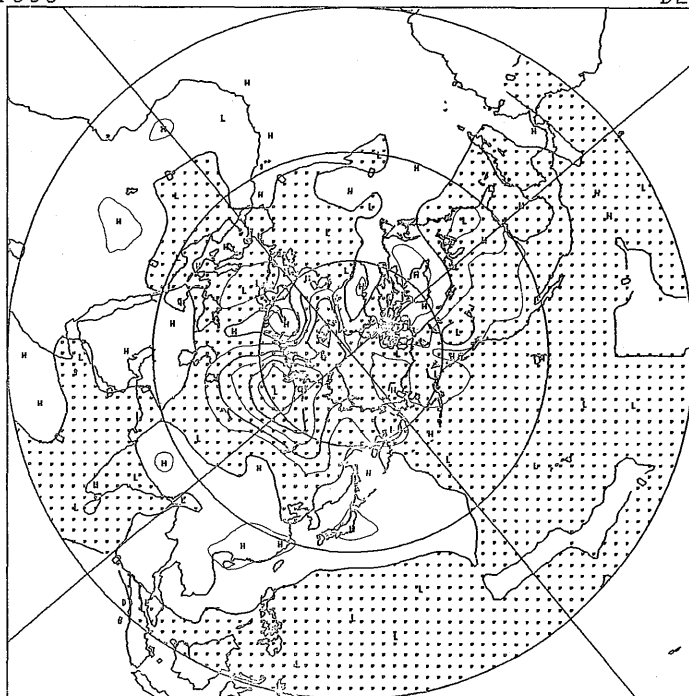
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NOV



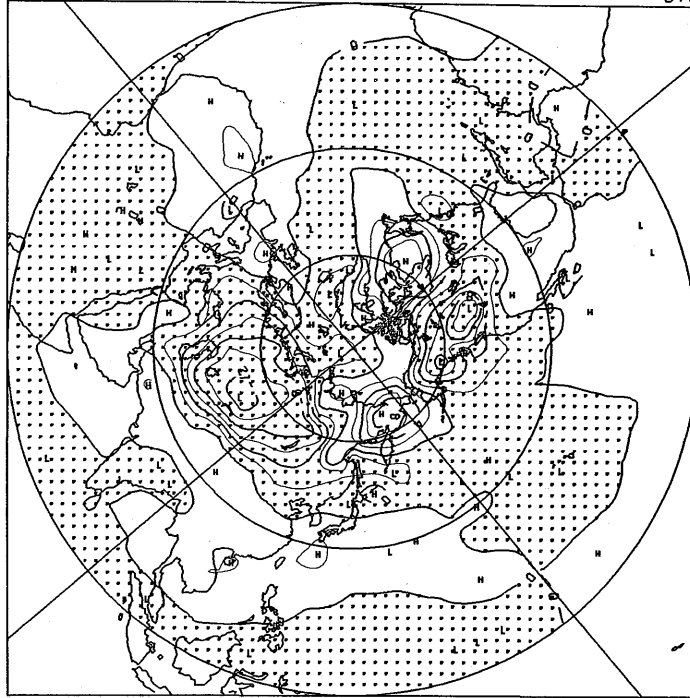
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DEC



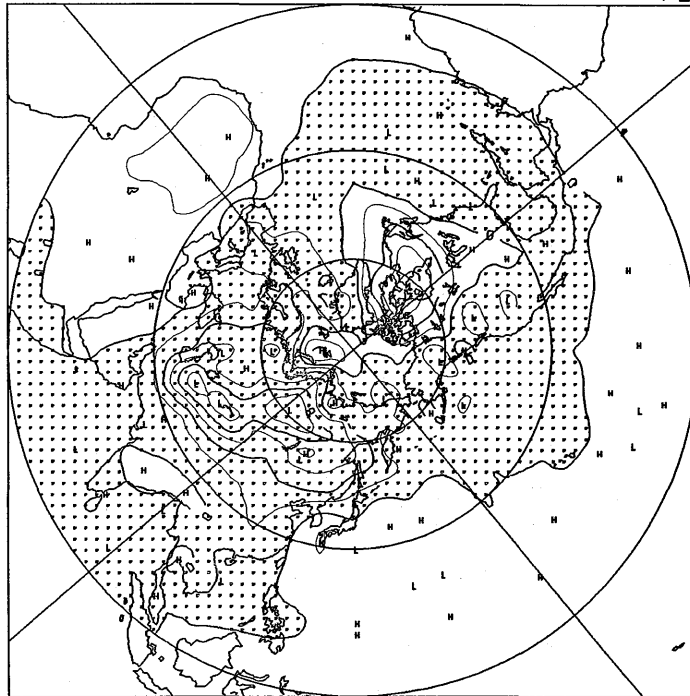
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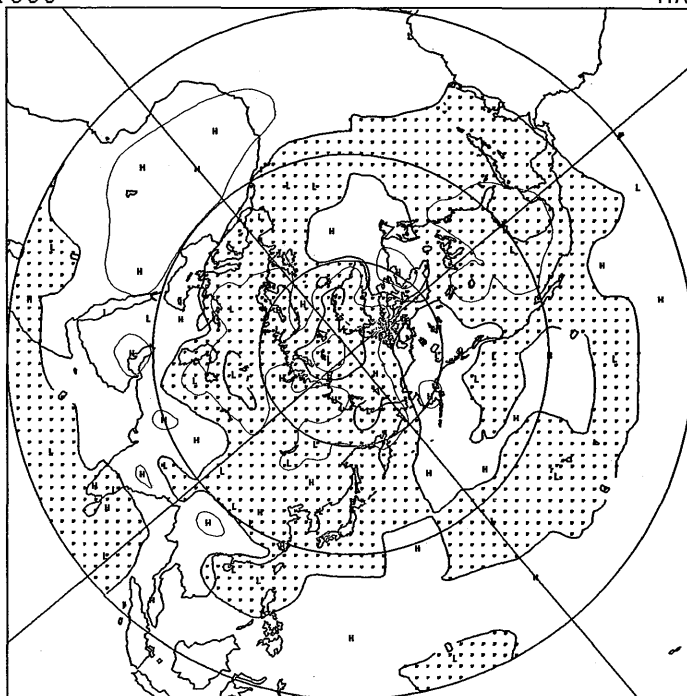
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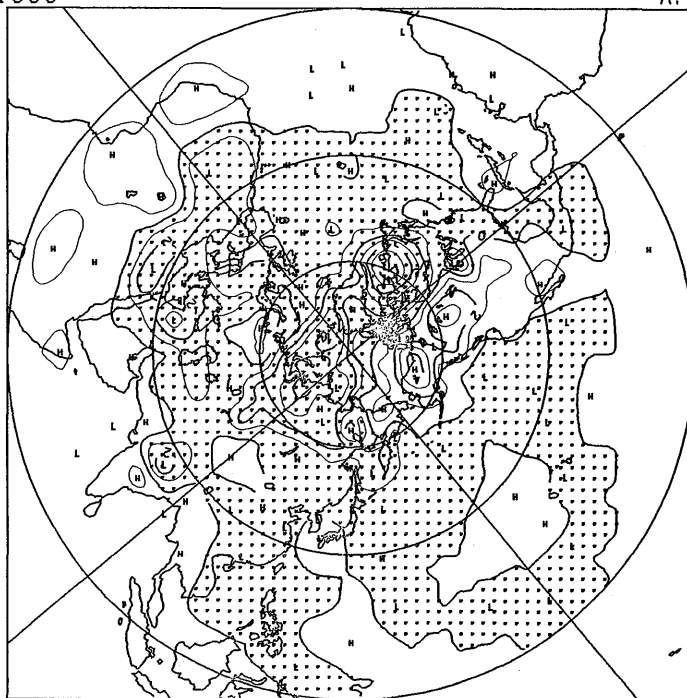
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MAR



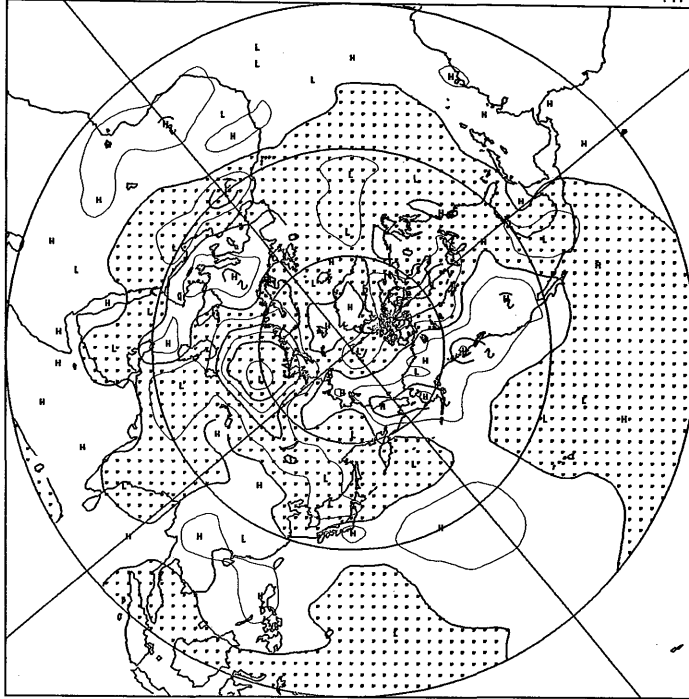
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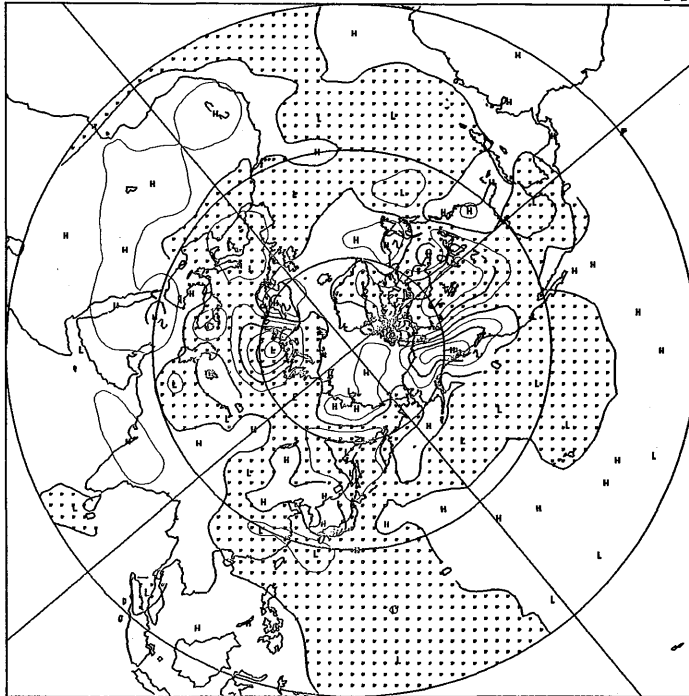
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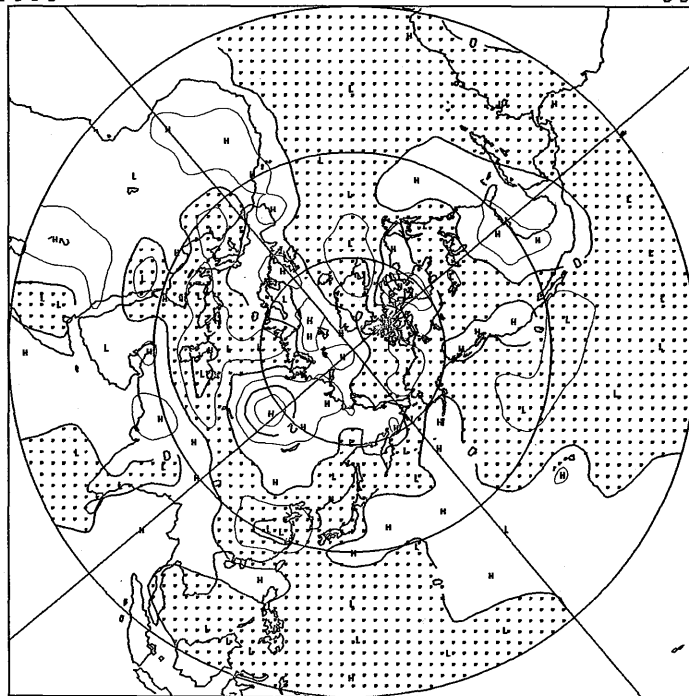
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JUN



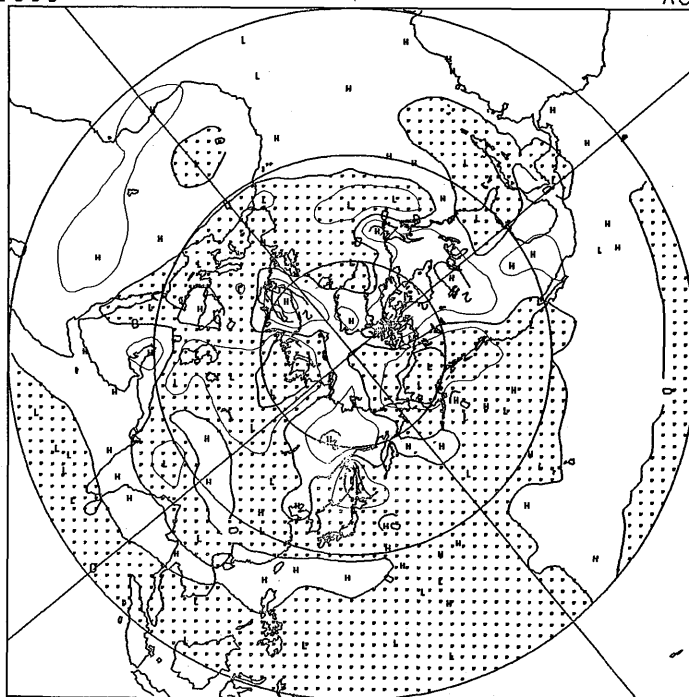
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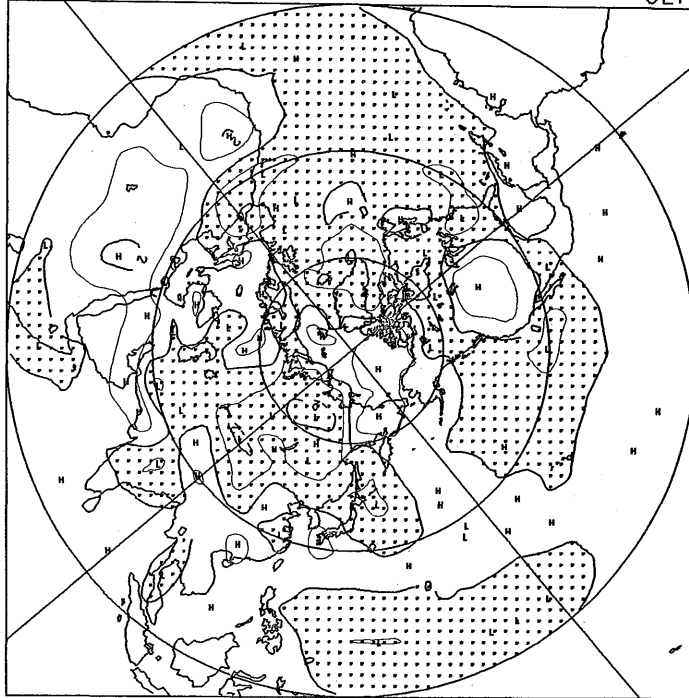
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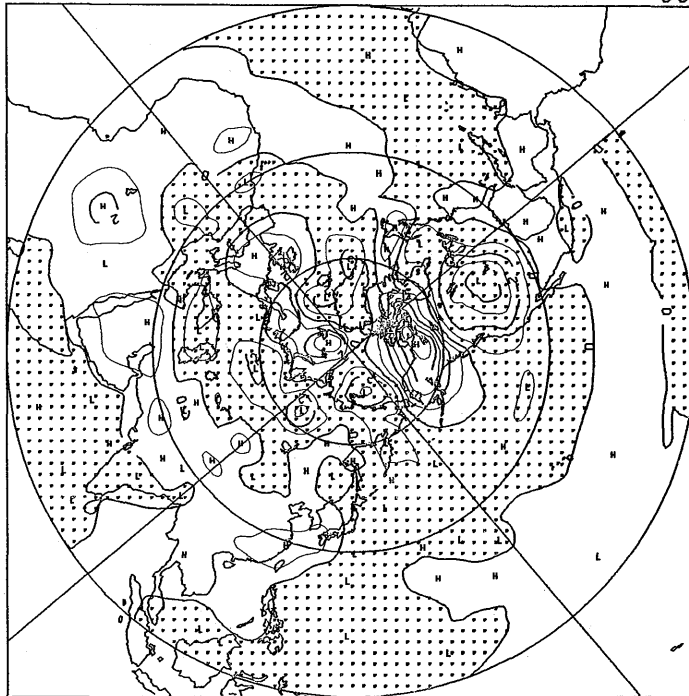
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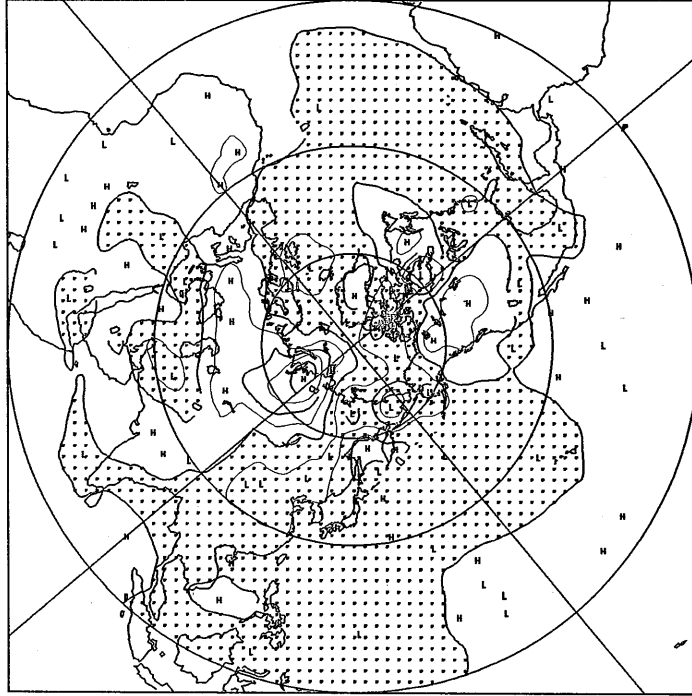
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OCT



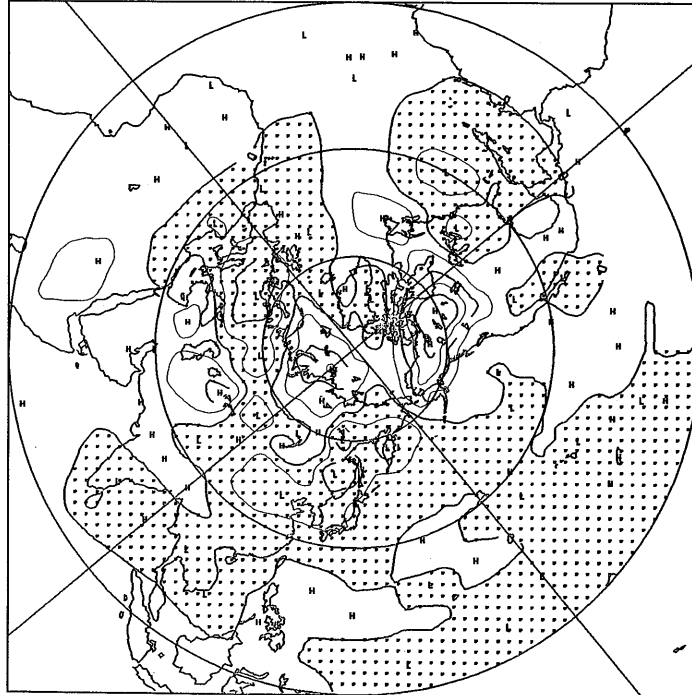
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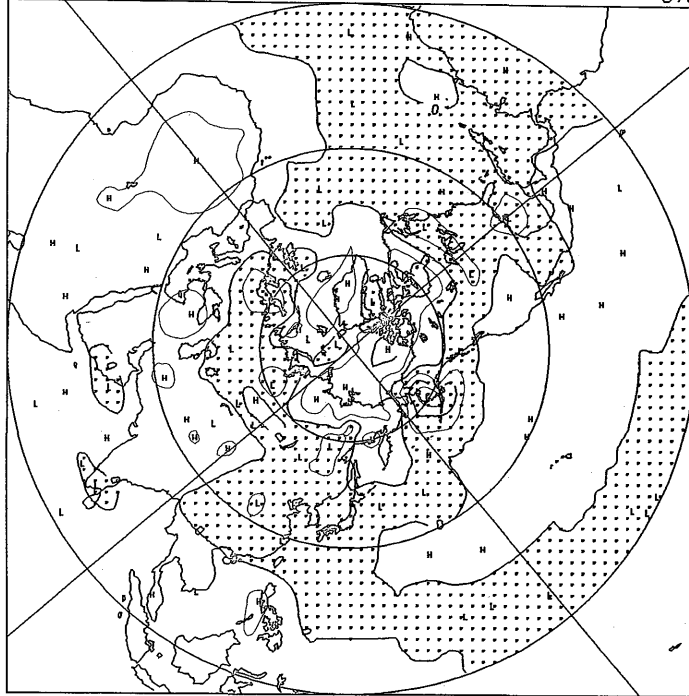
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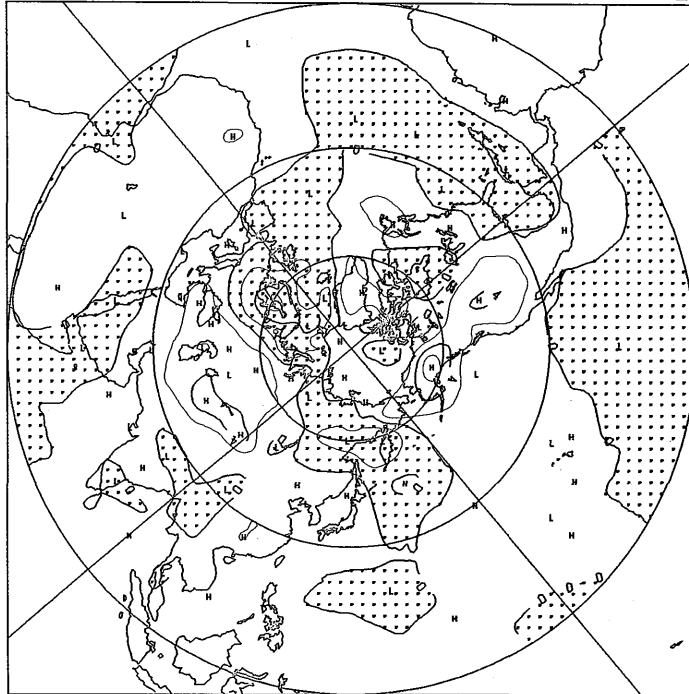
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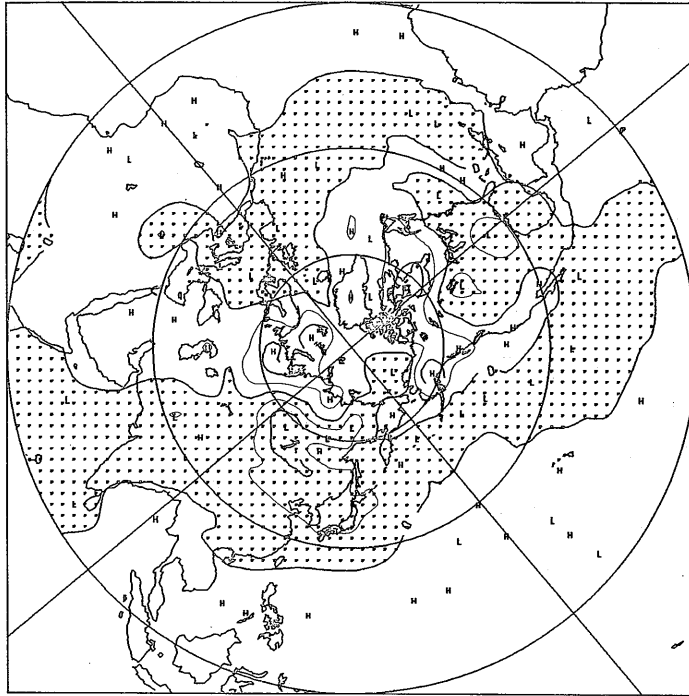
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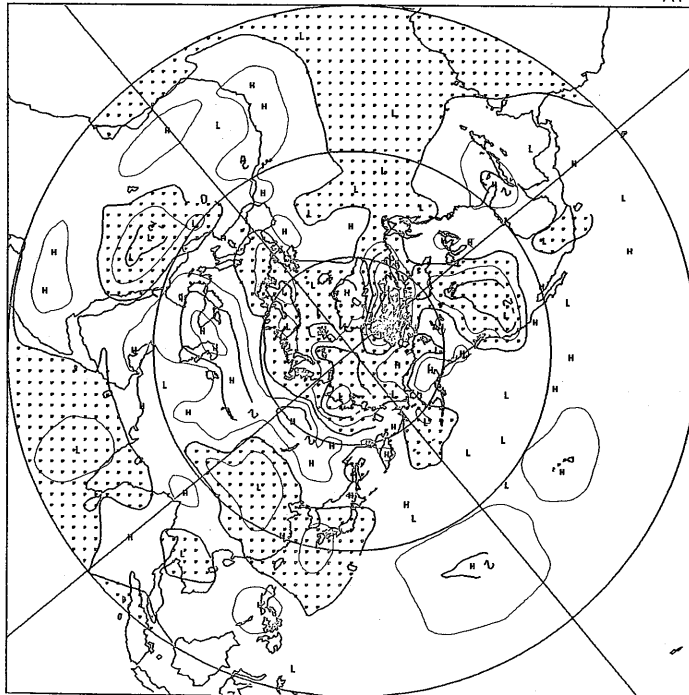
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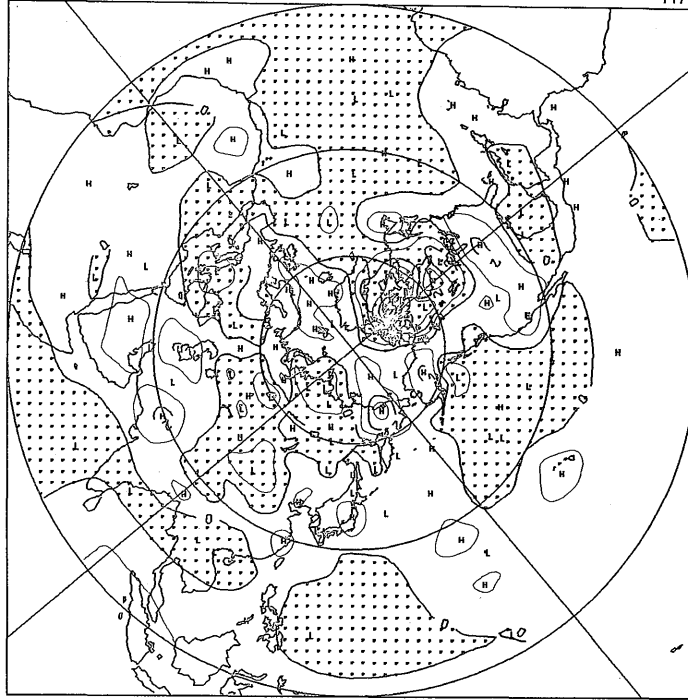
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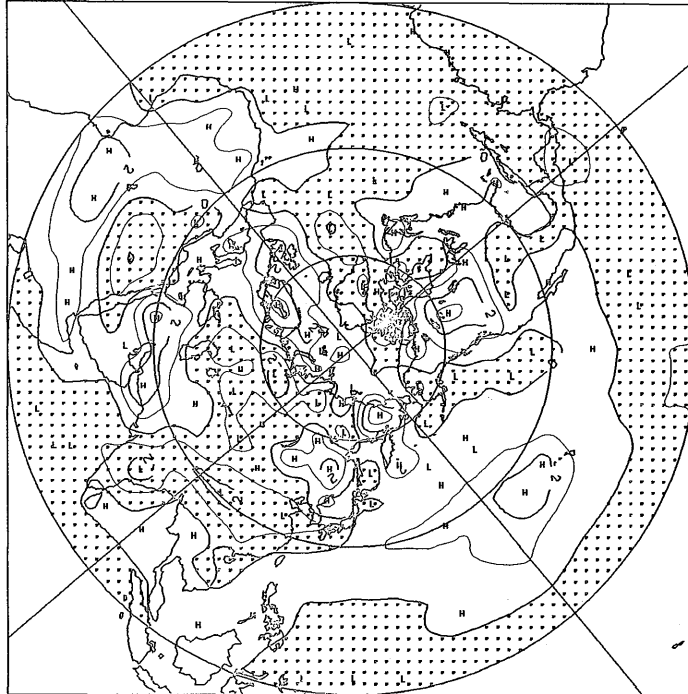
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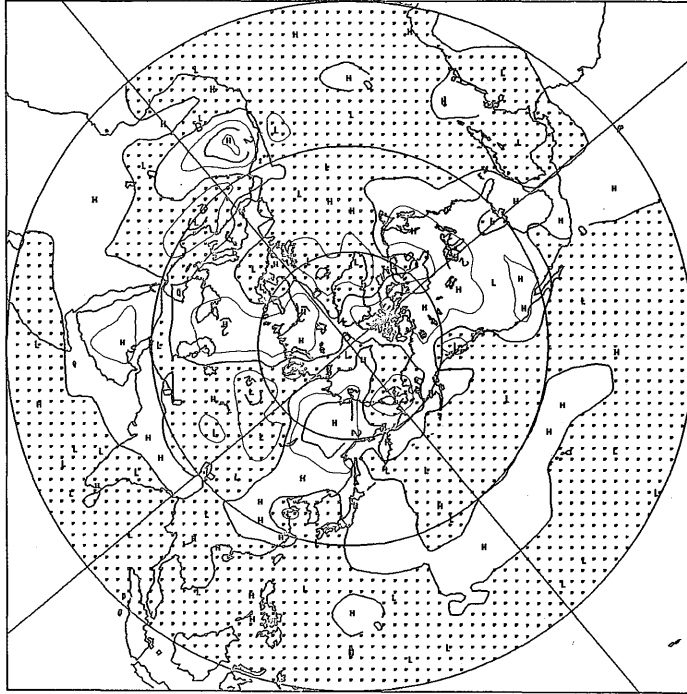
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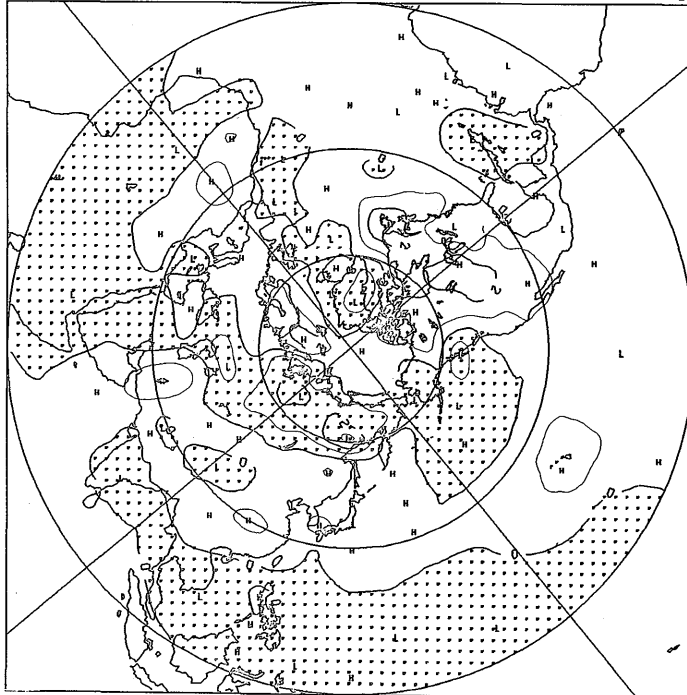
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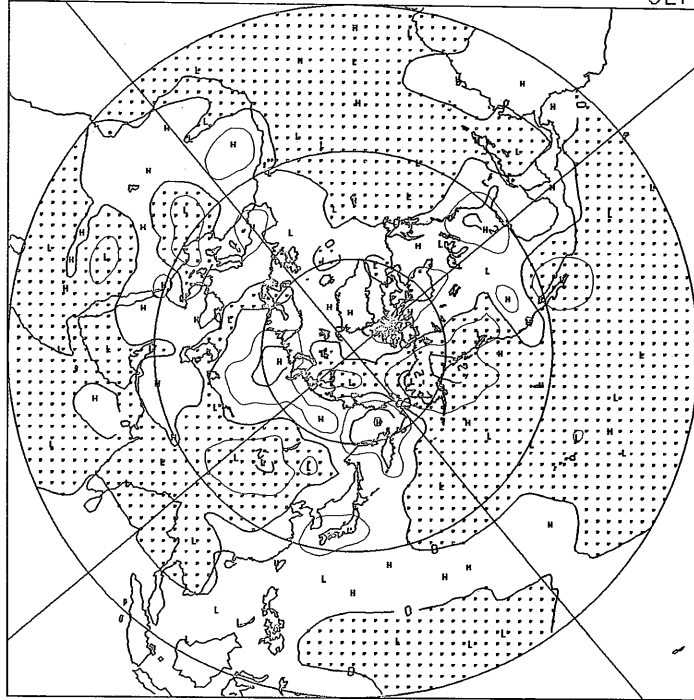
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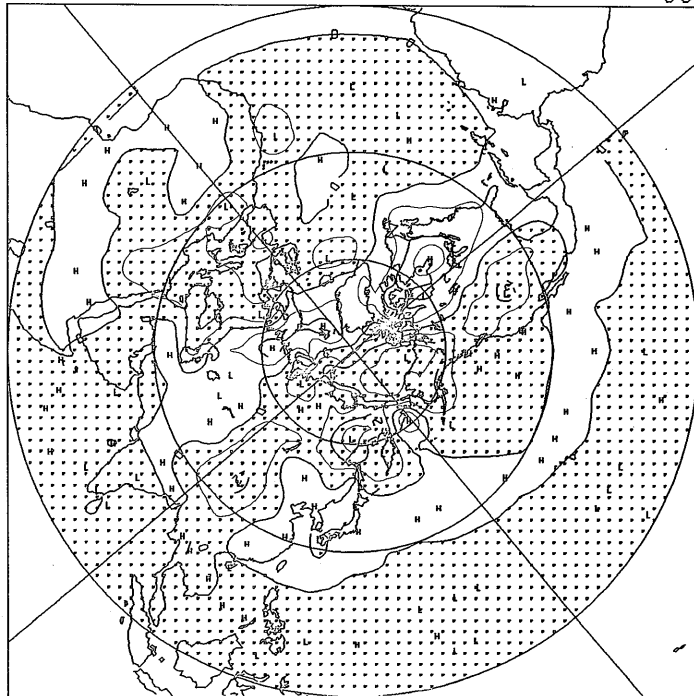
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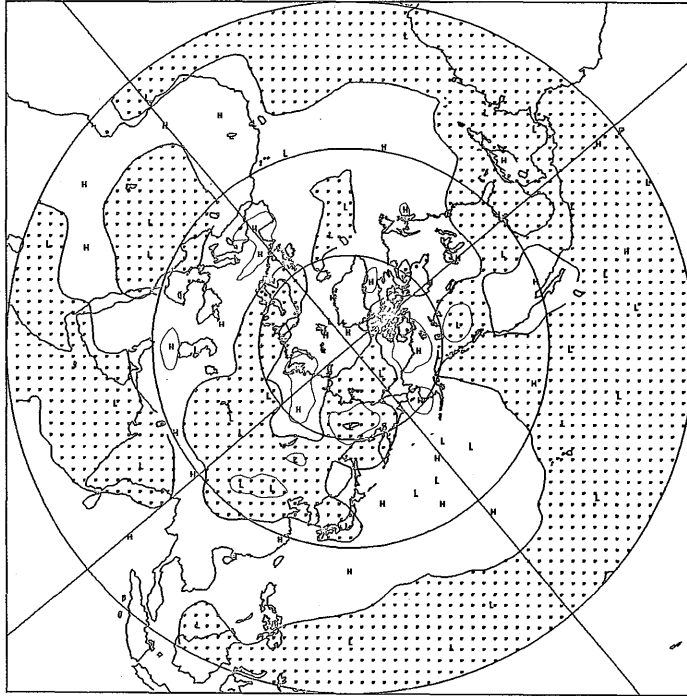
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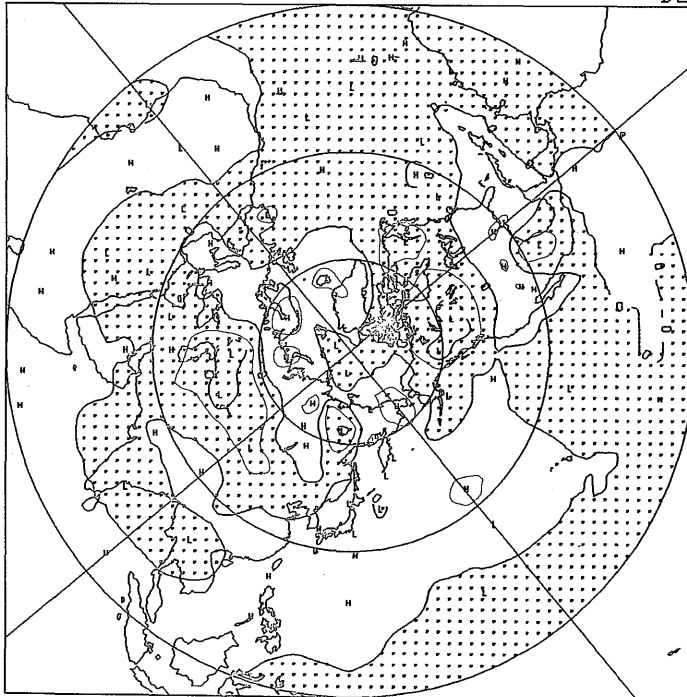
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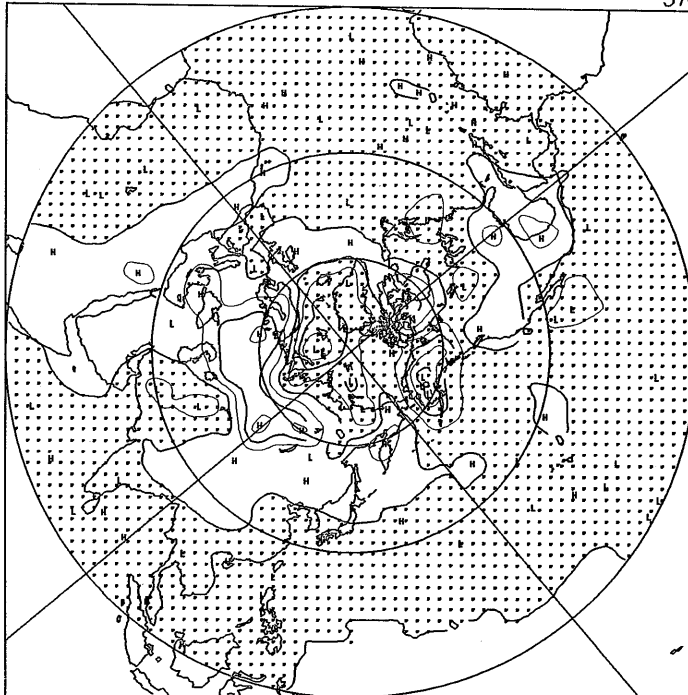
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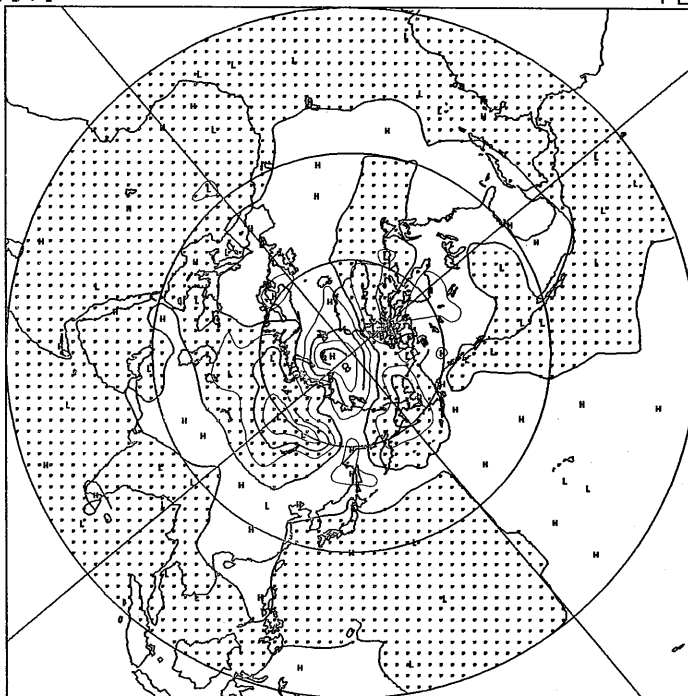
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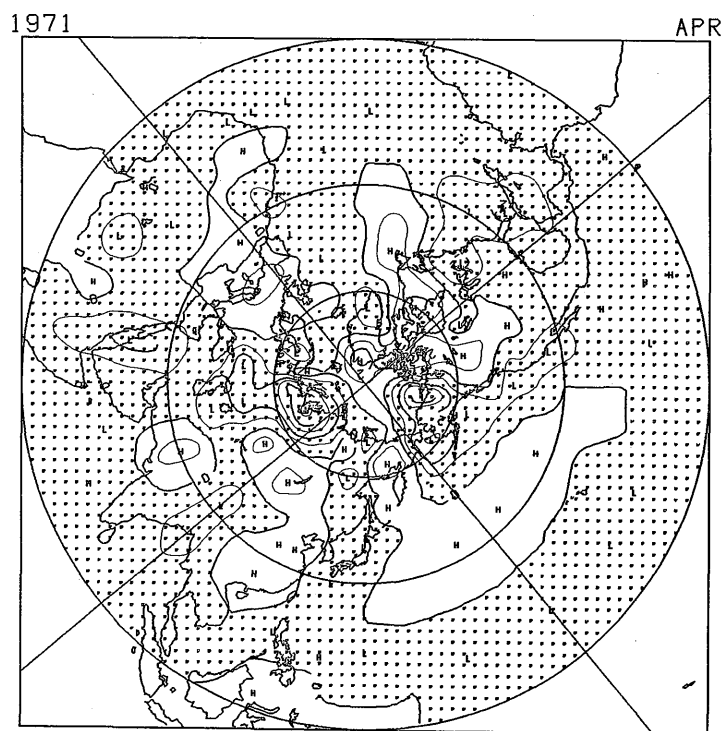
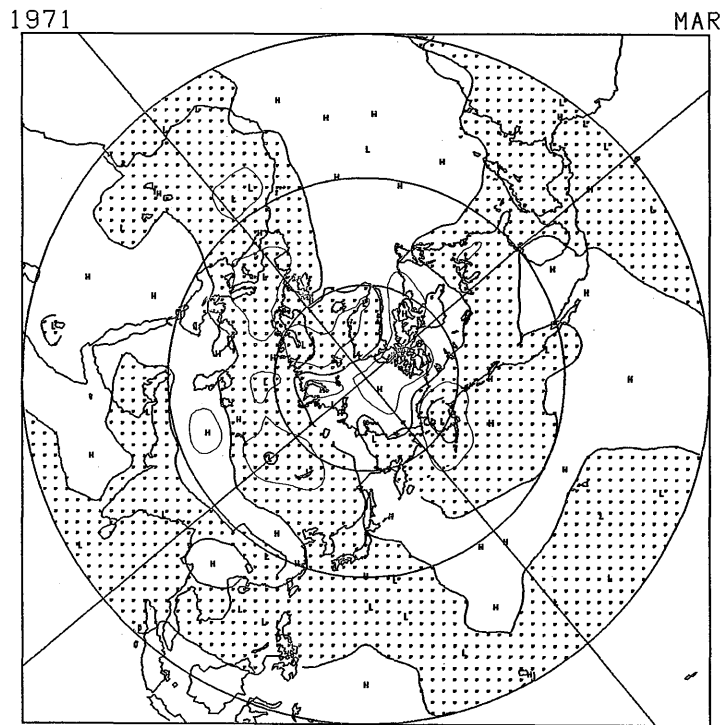


1971

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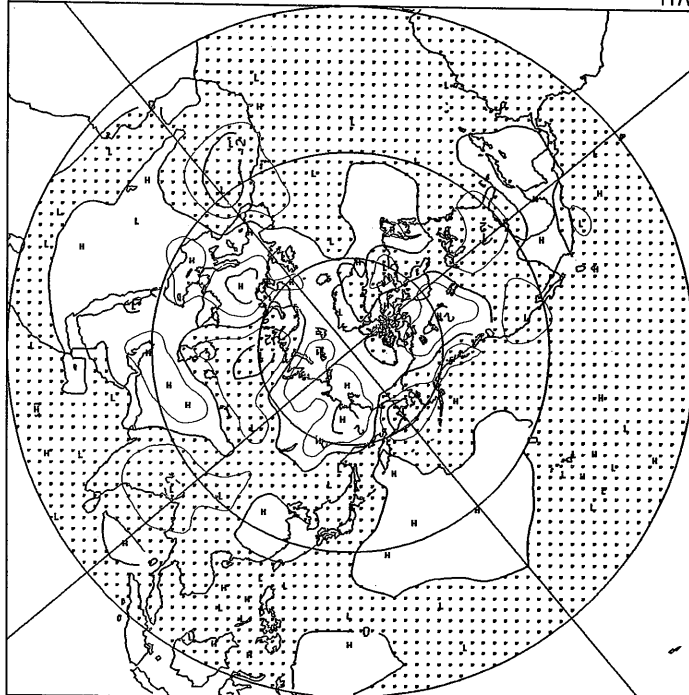


1971年
1月



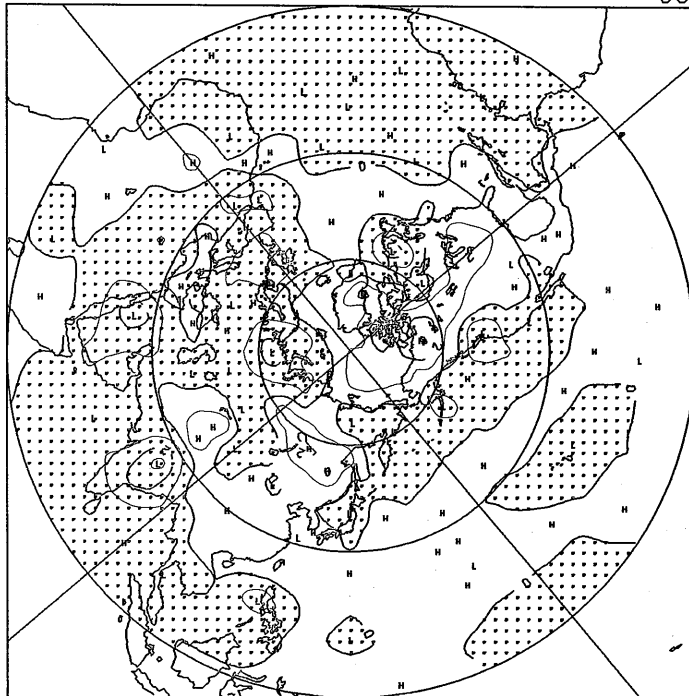
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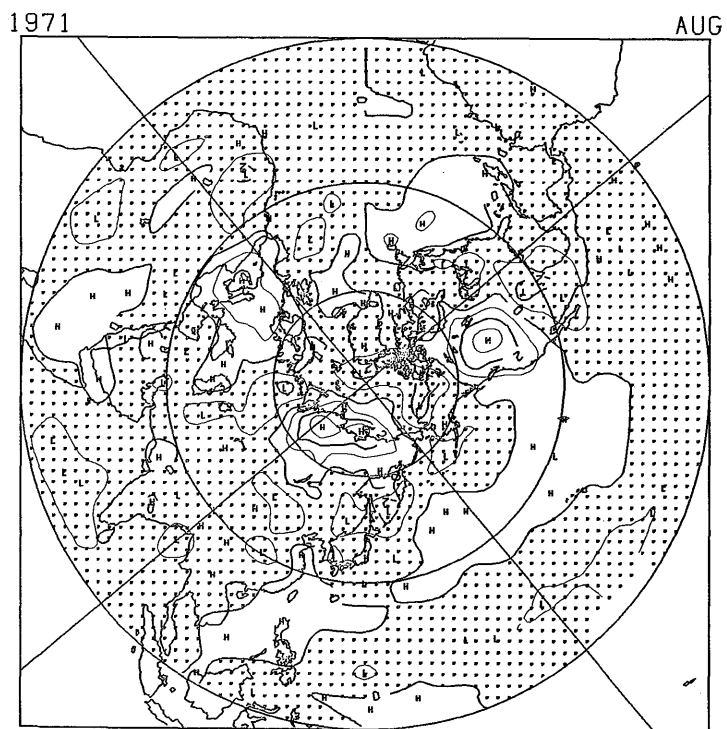
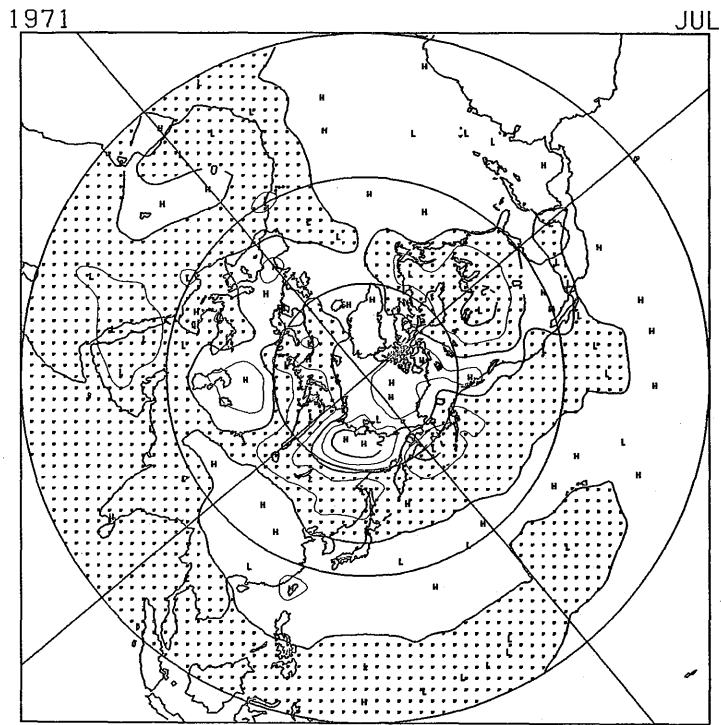
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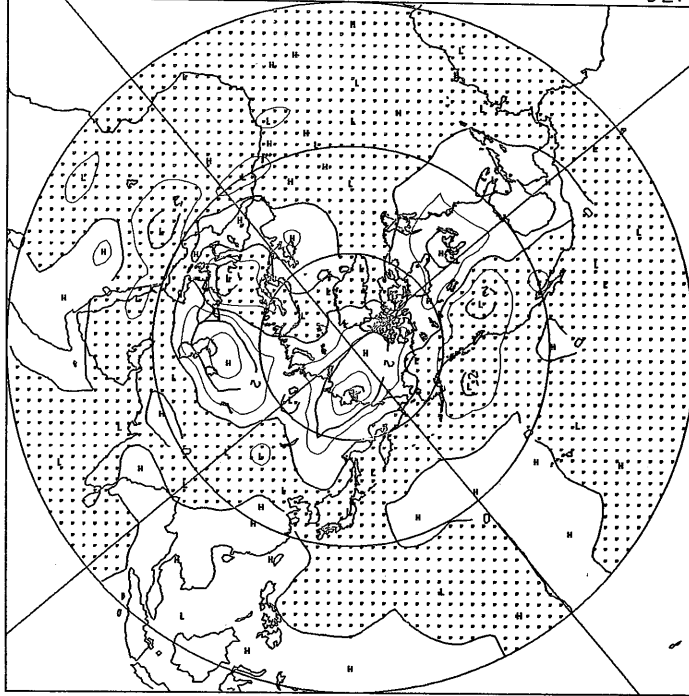
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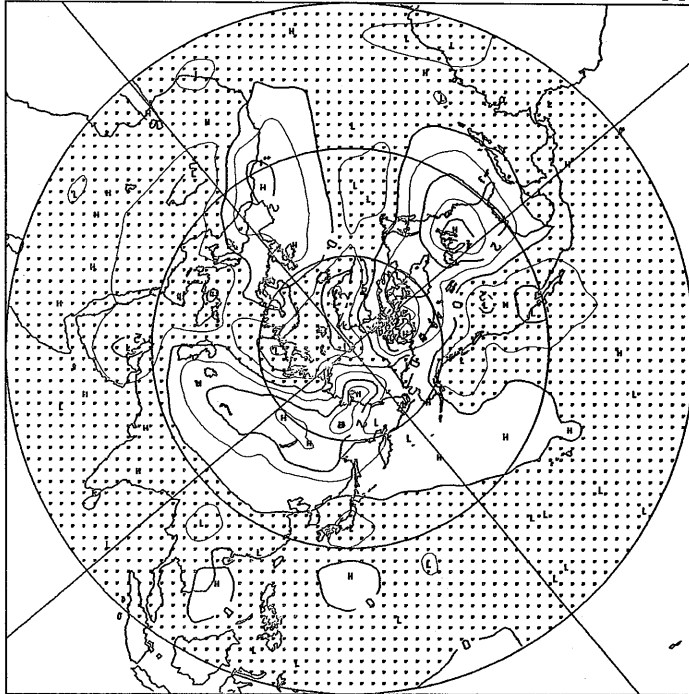
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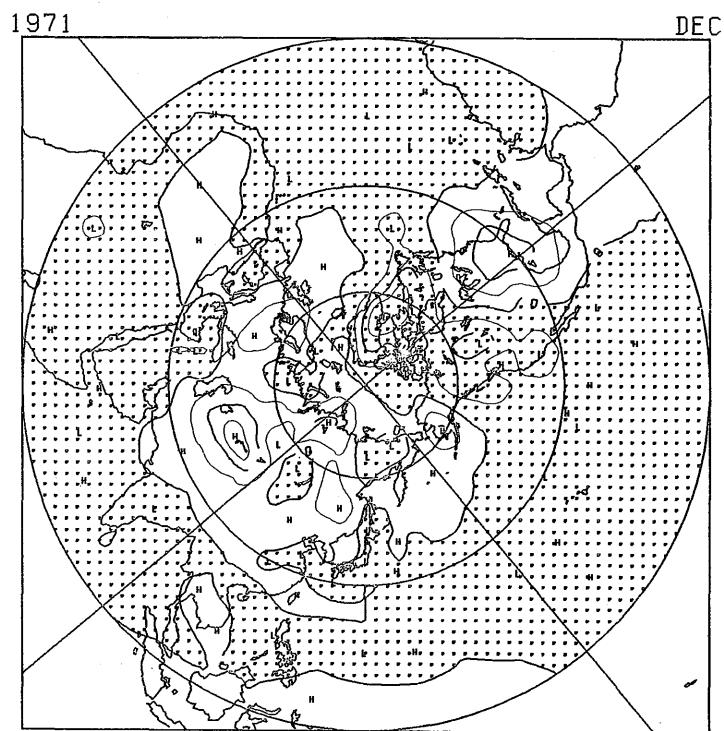
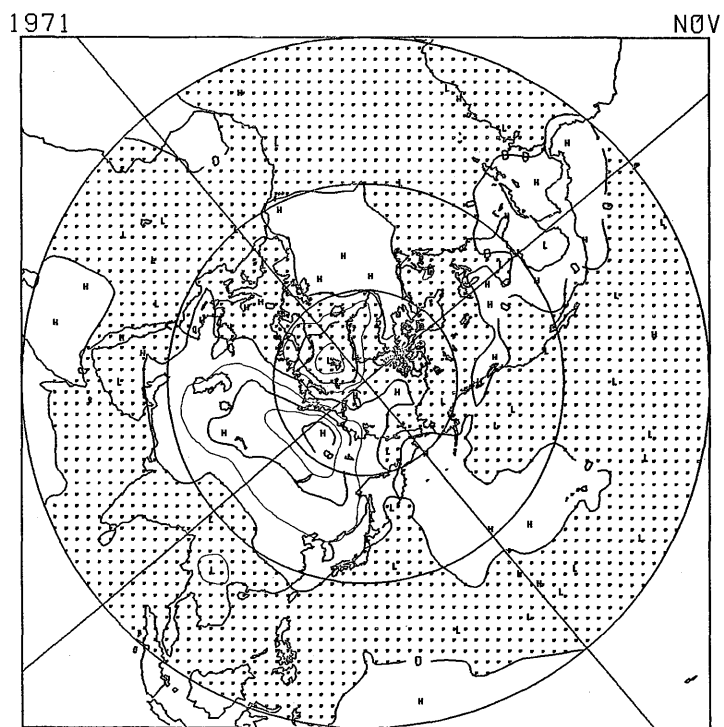
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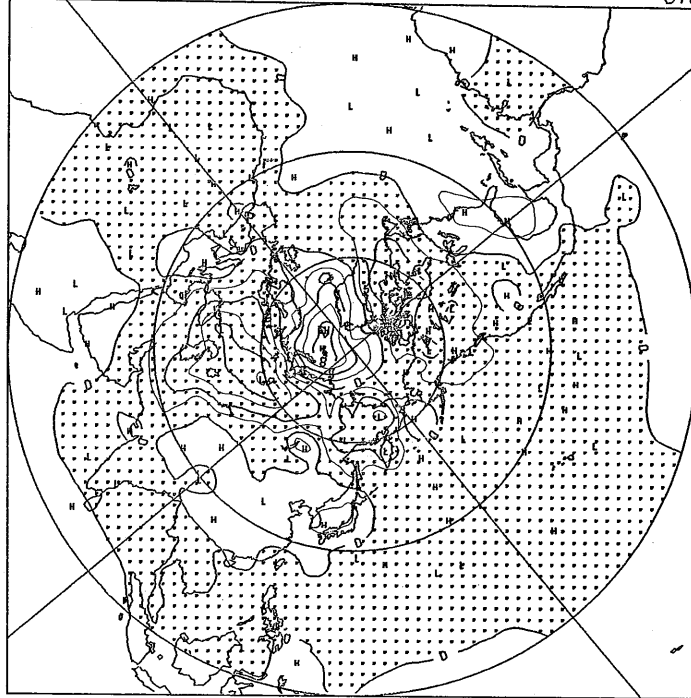
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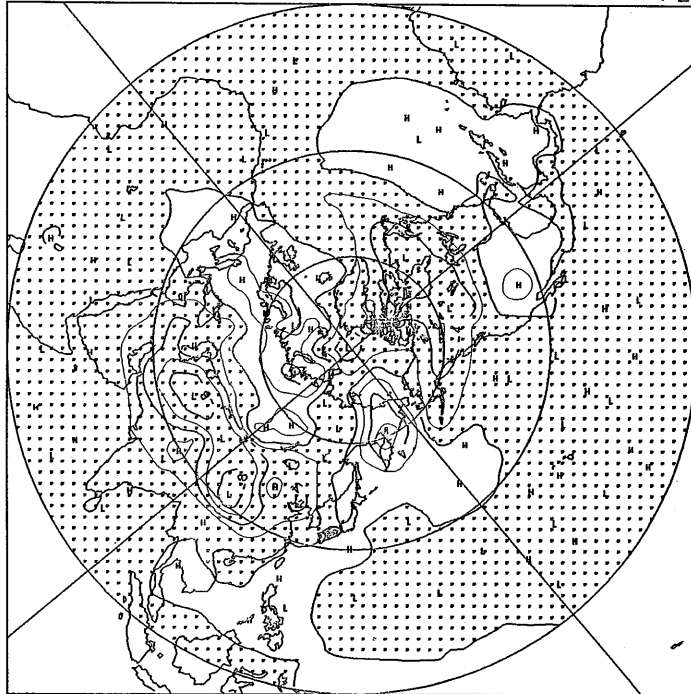
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JAN



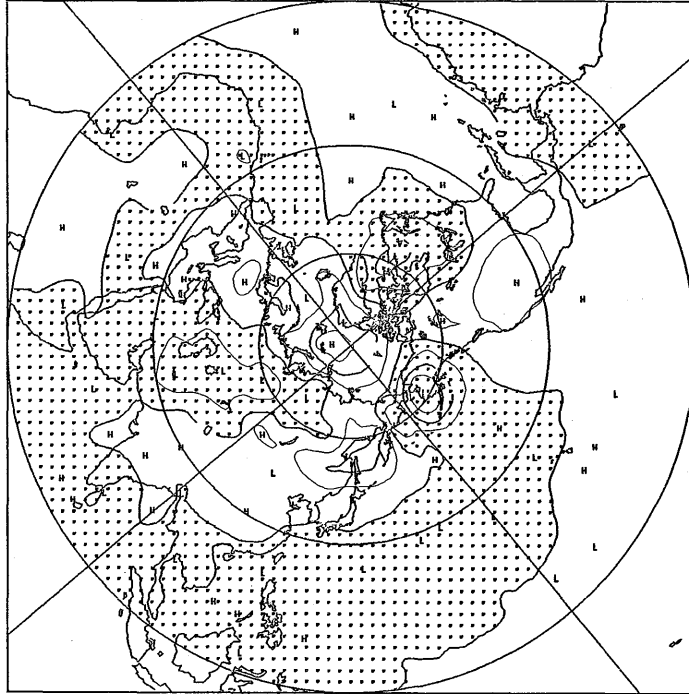
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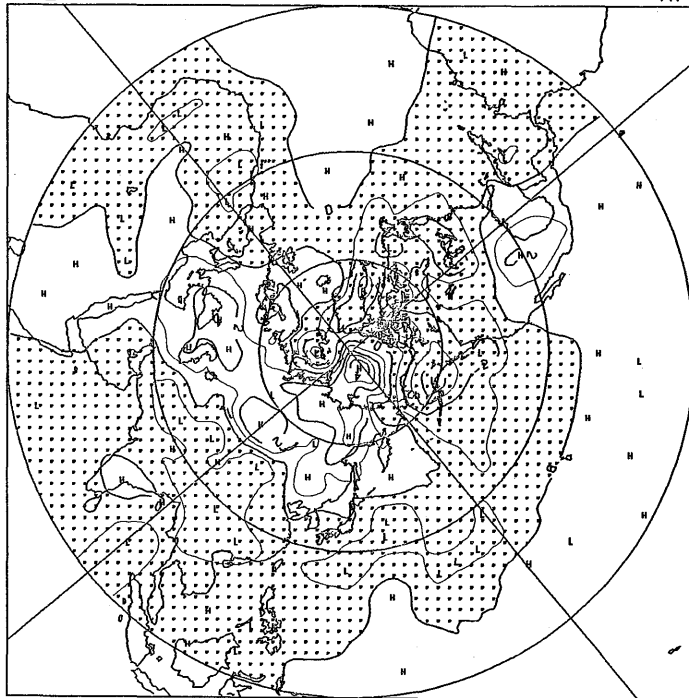
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MAR



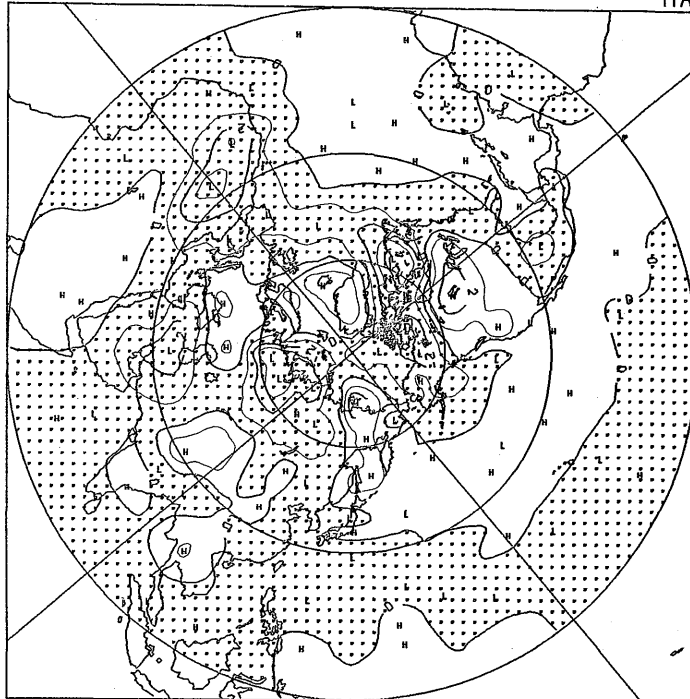
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APR



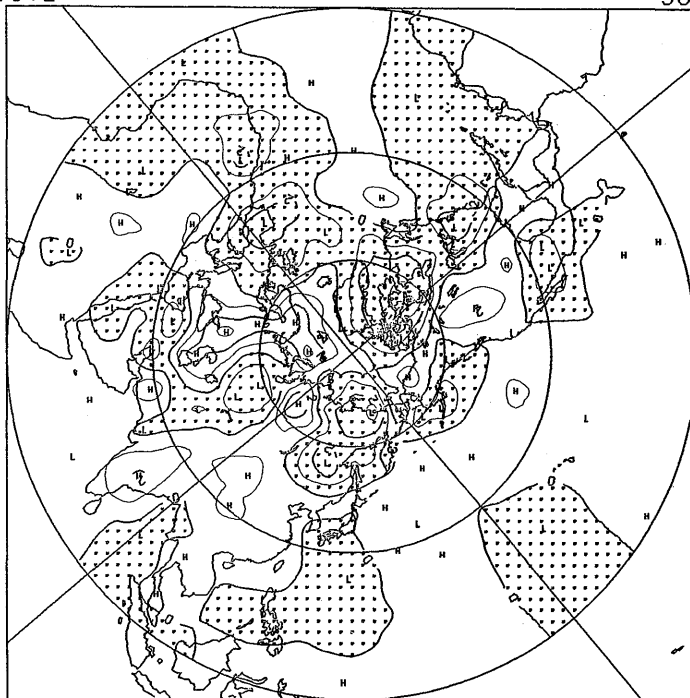
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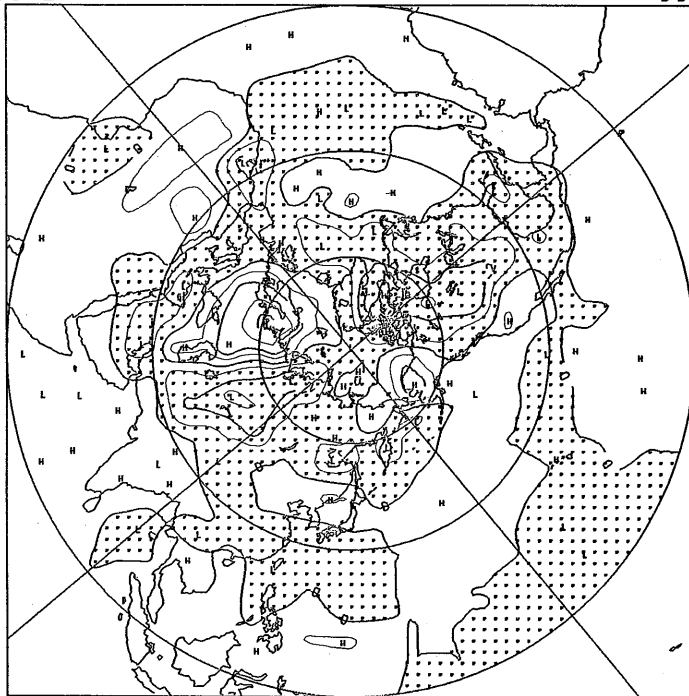
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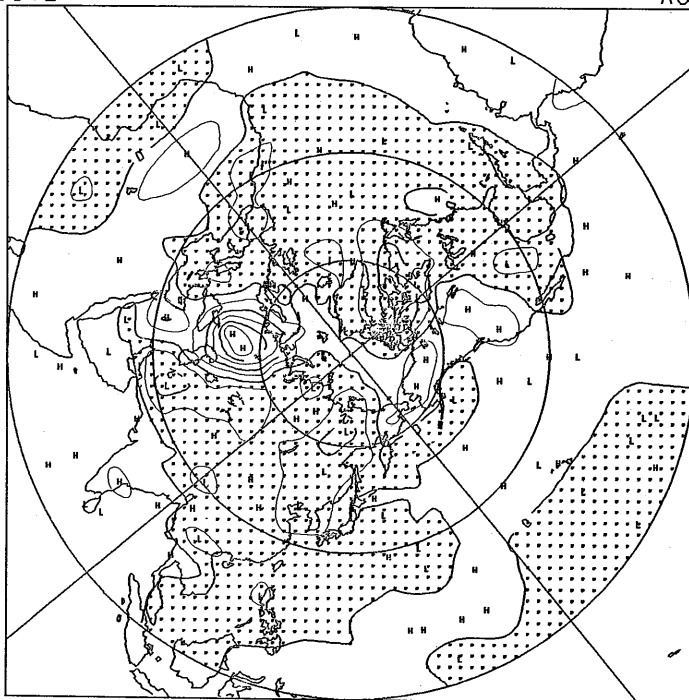
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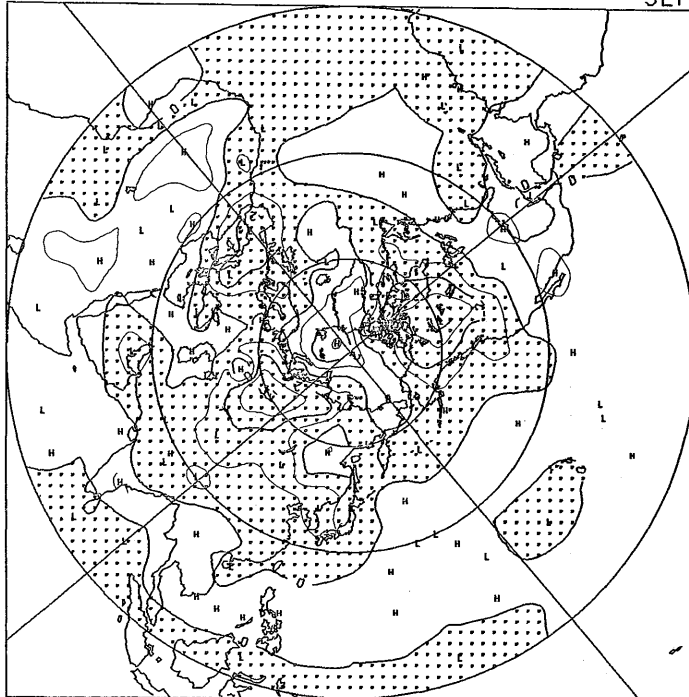
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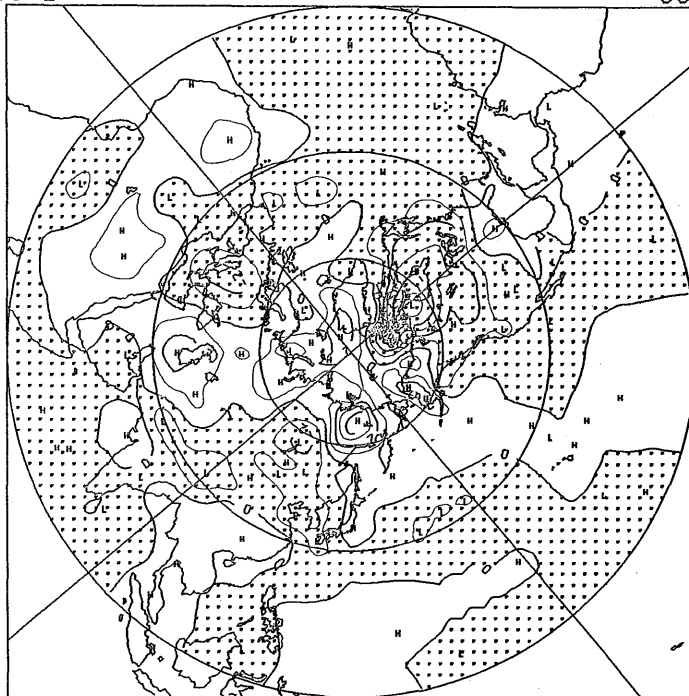
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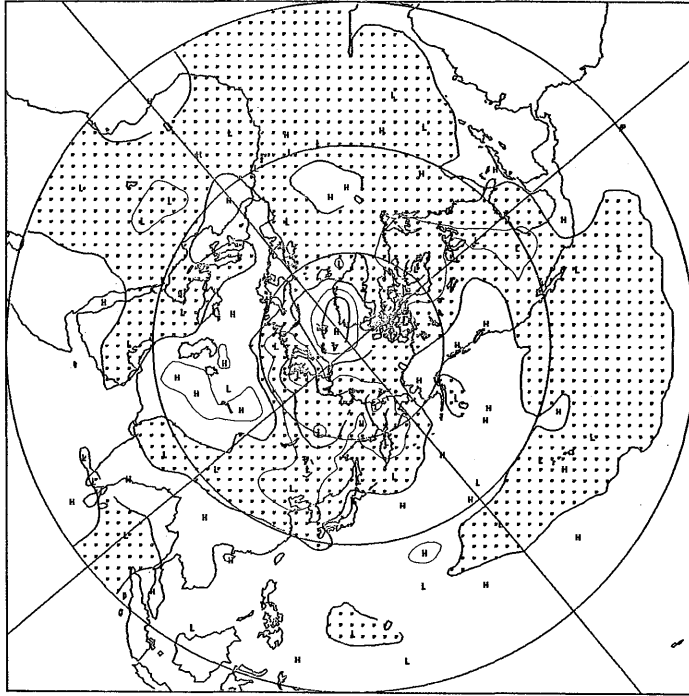
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OCT



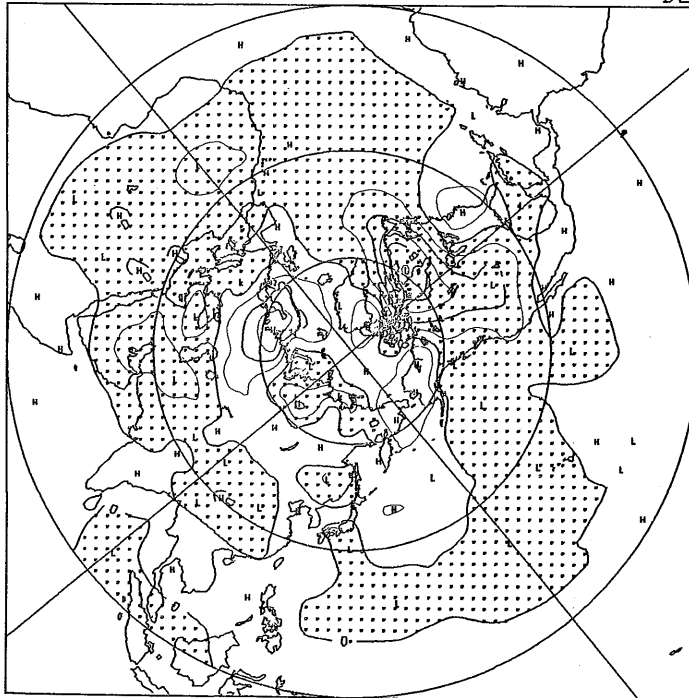
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NOV



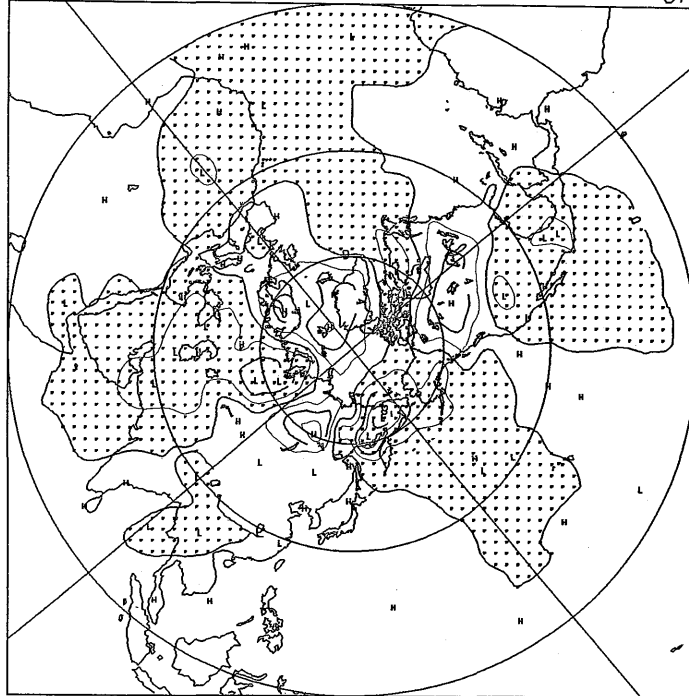
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DEC



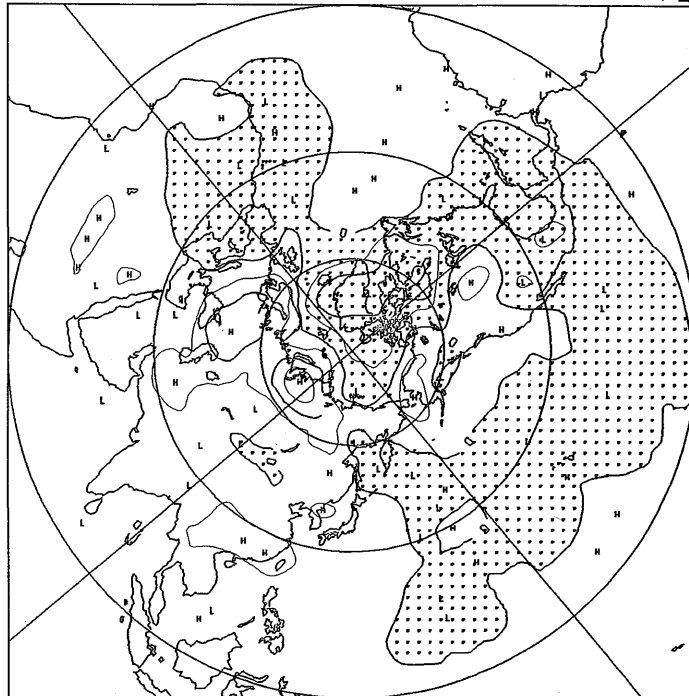
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JAN



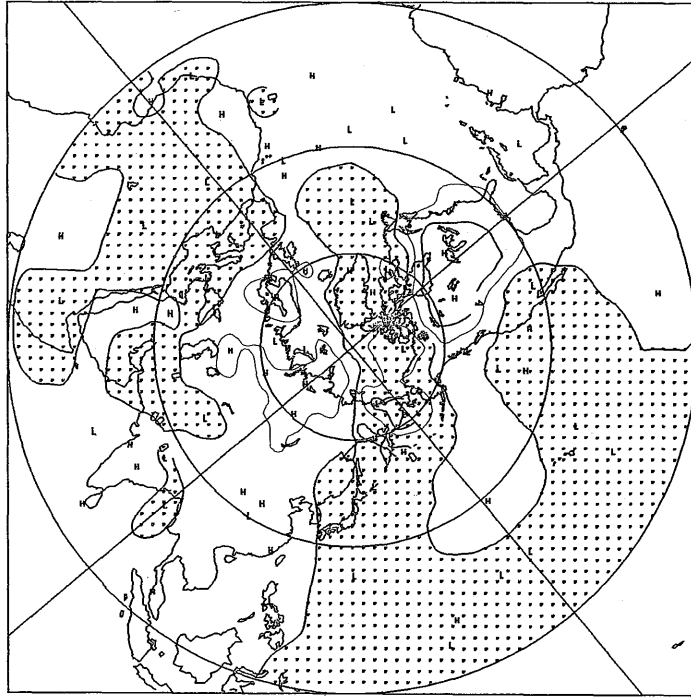
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FEB



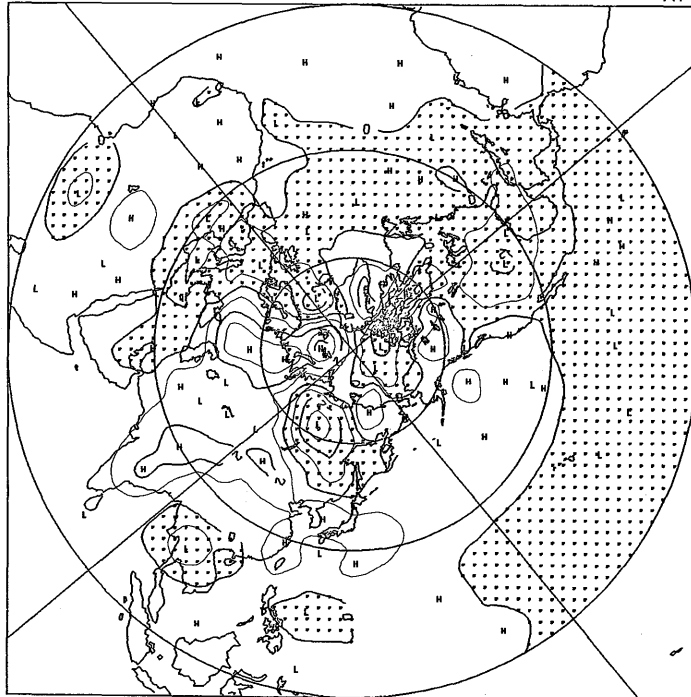
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MAR



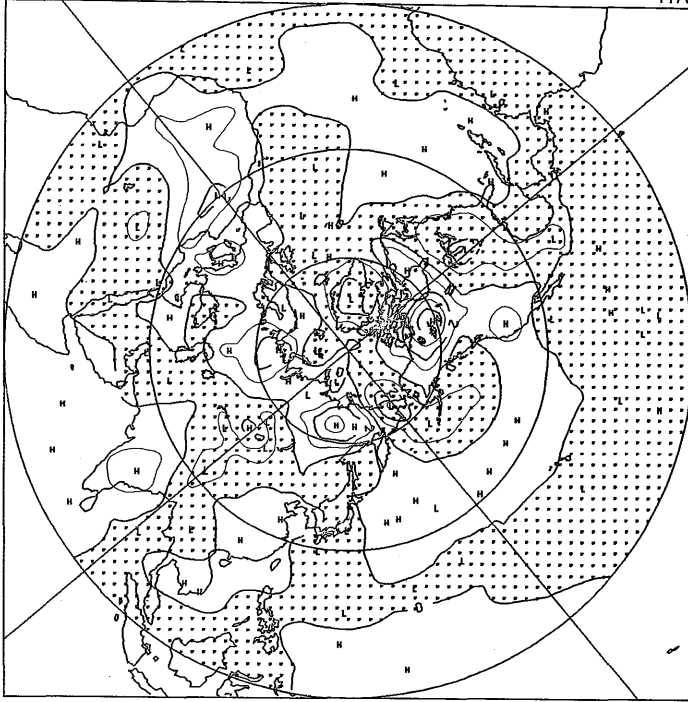
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APR



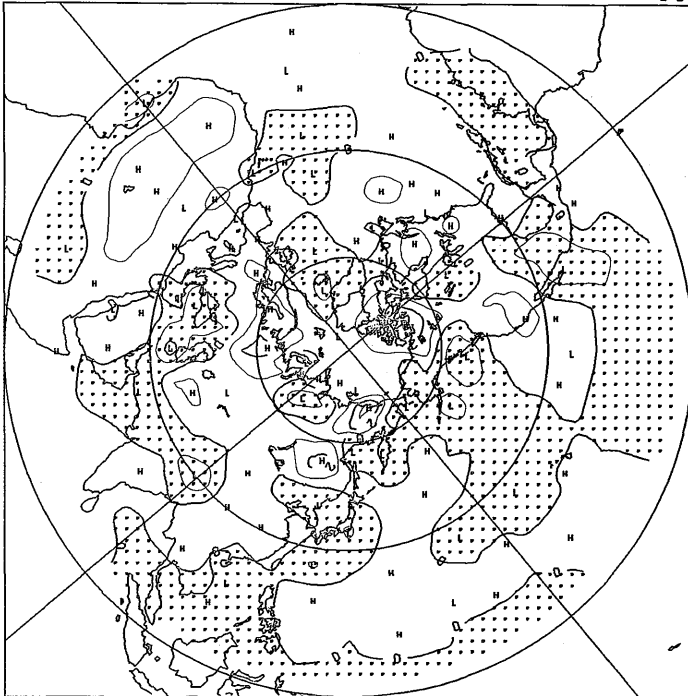
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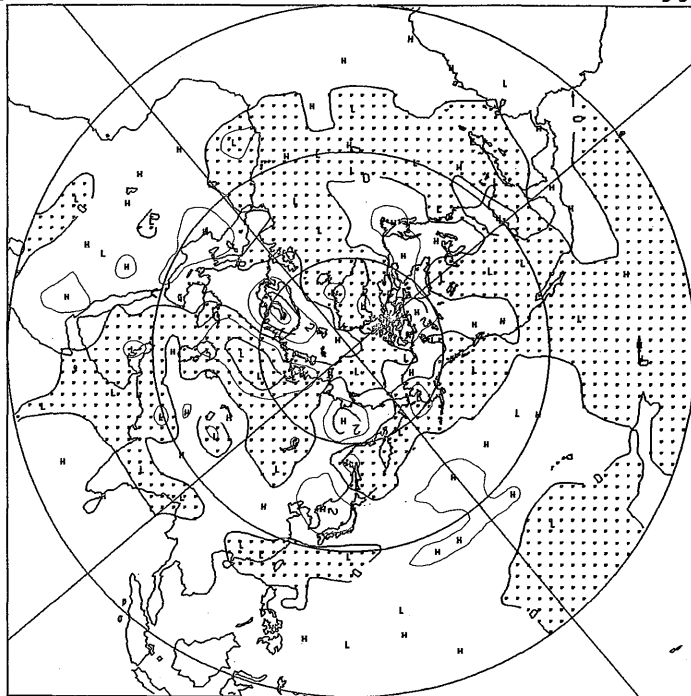
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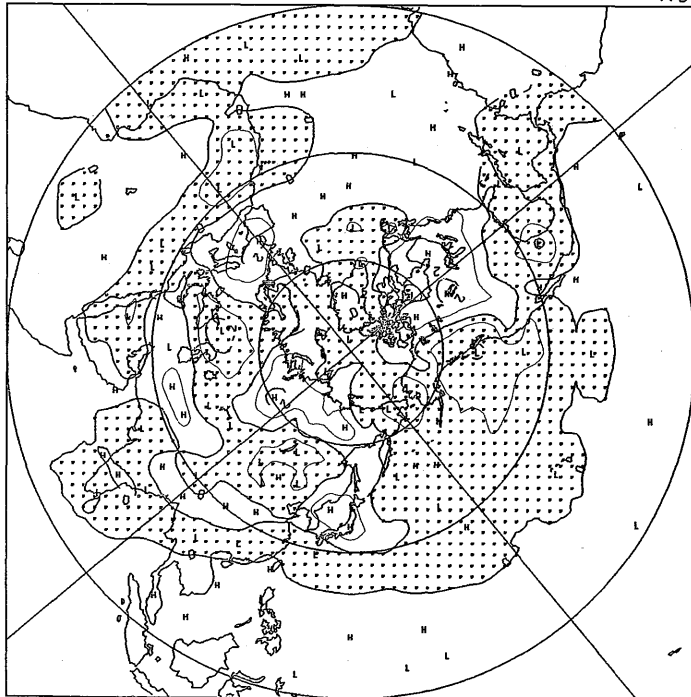
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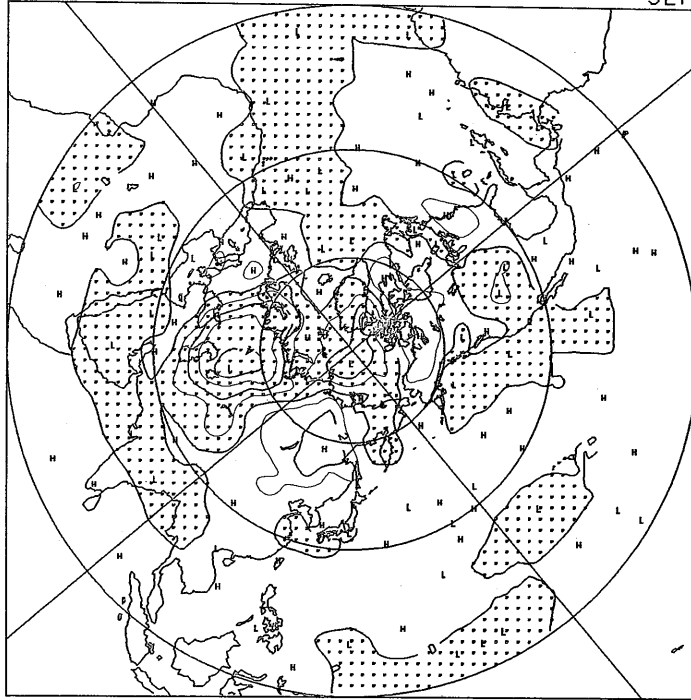
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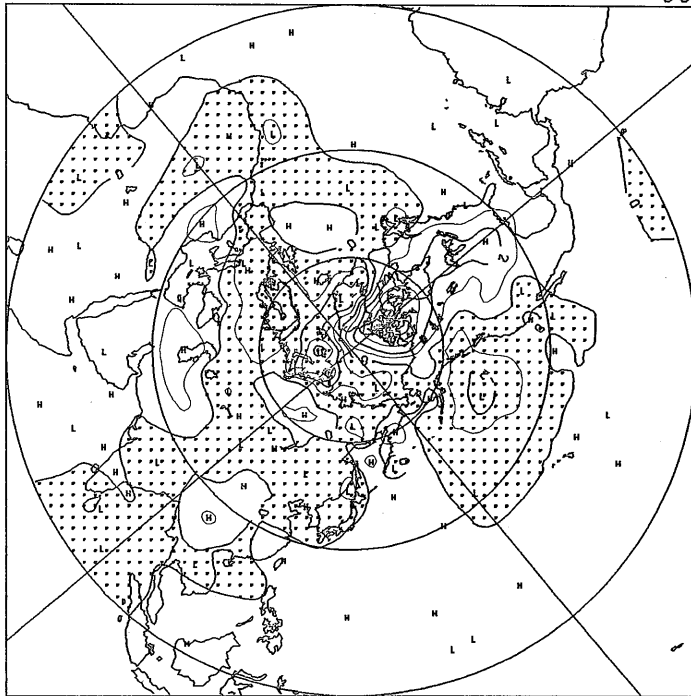
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SEPT



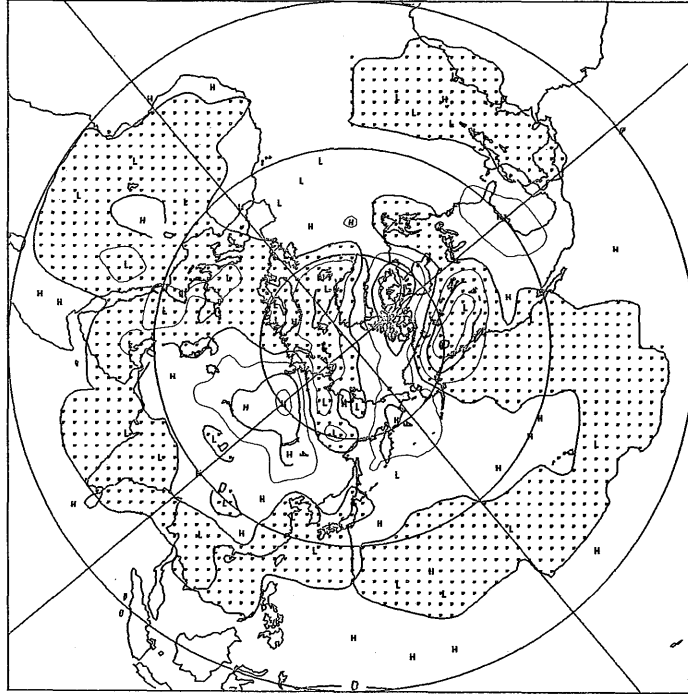
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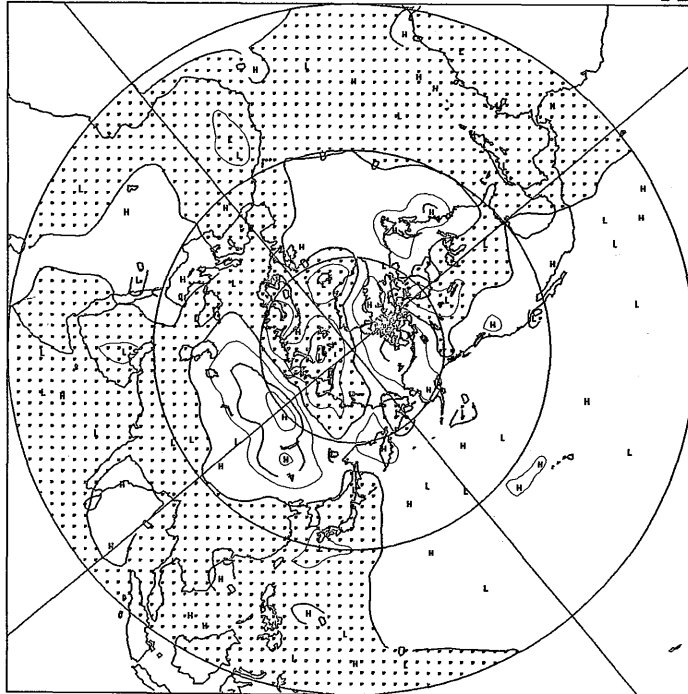
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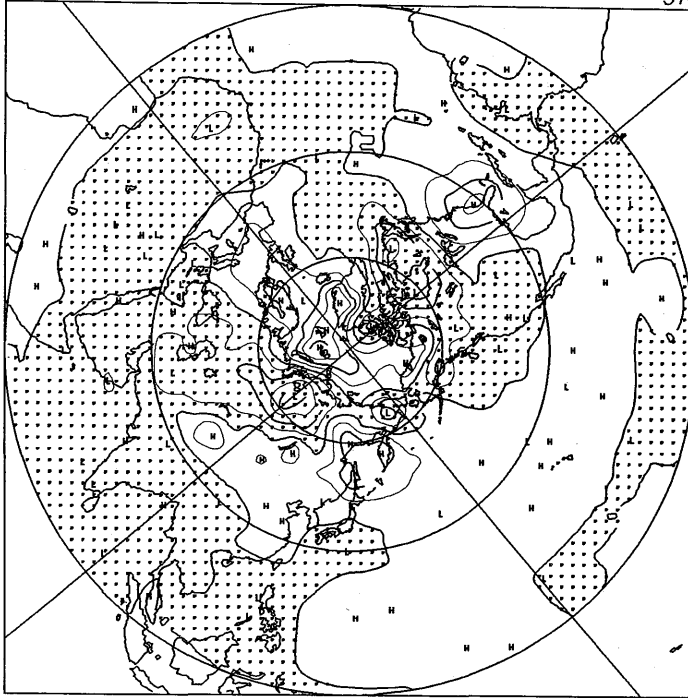
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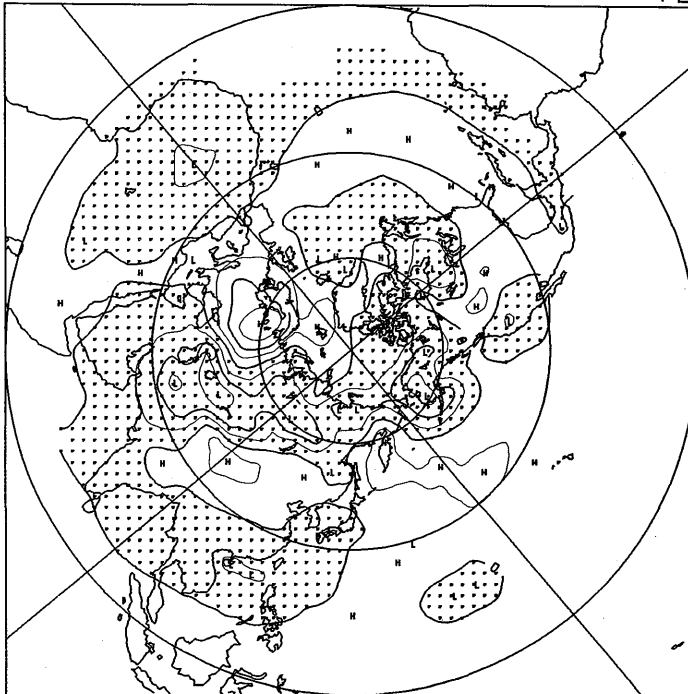
1974

JAN



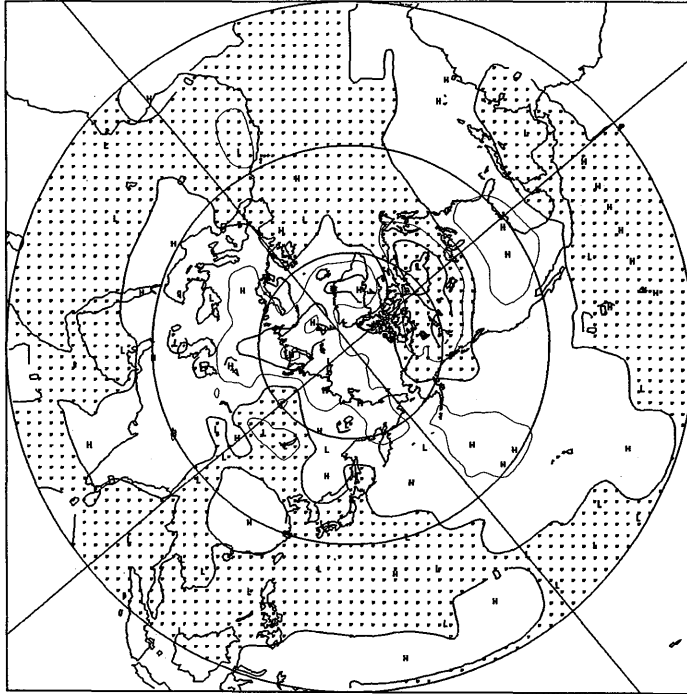
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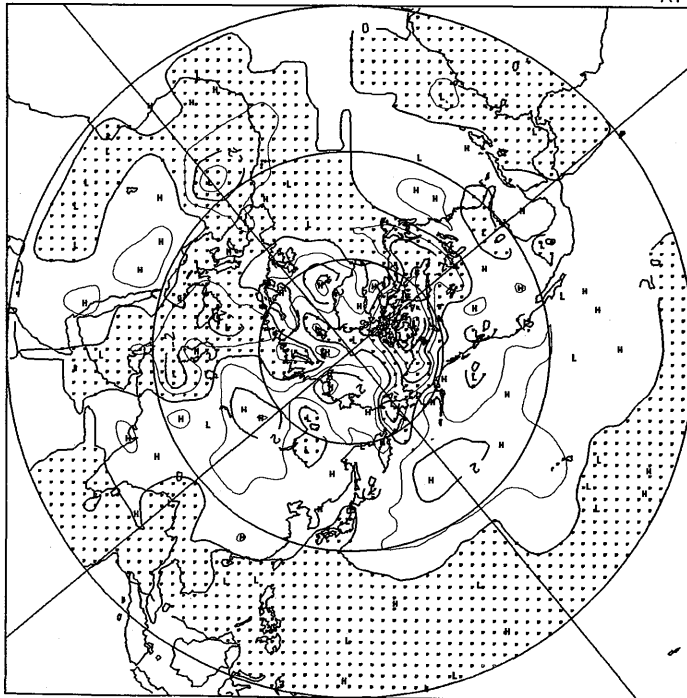
1974

MAR



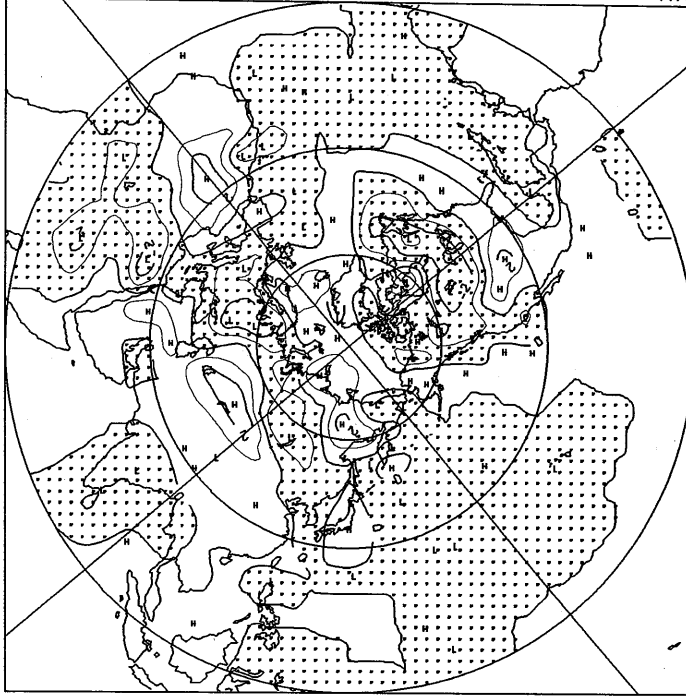
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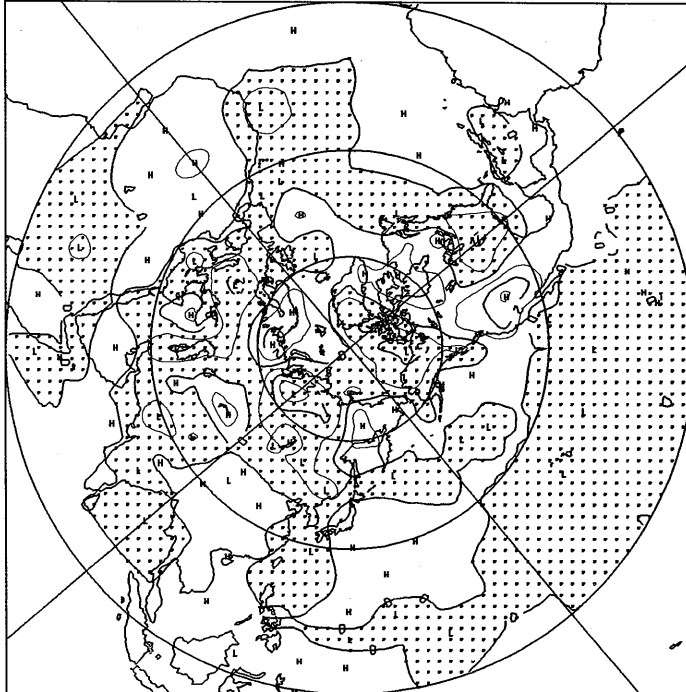
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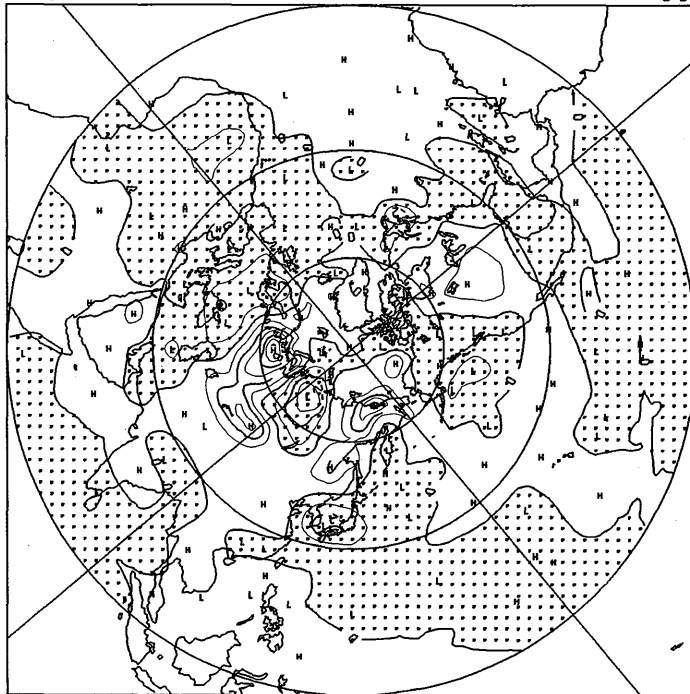
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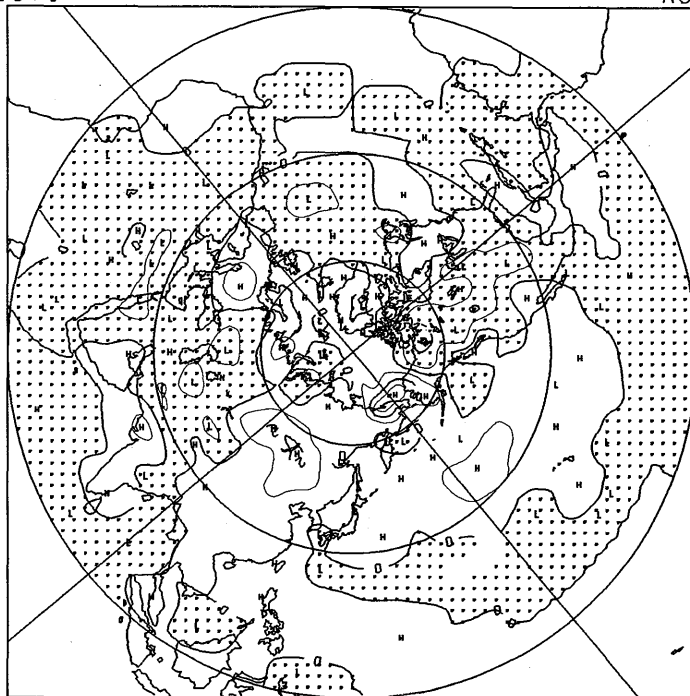
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JUL



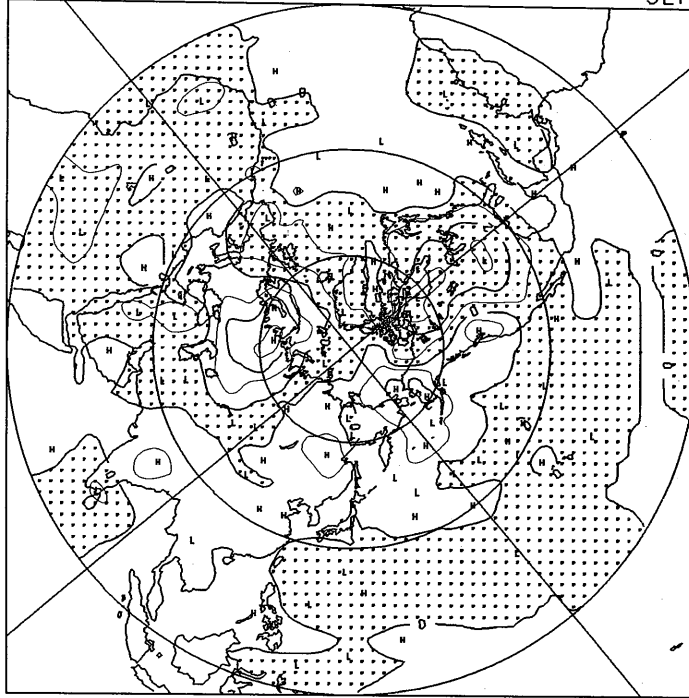
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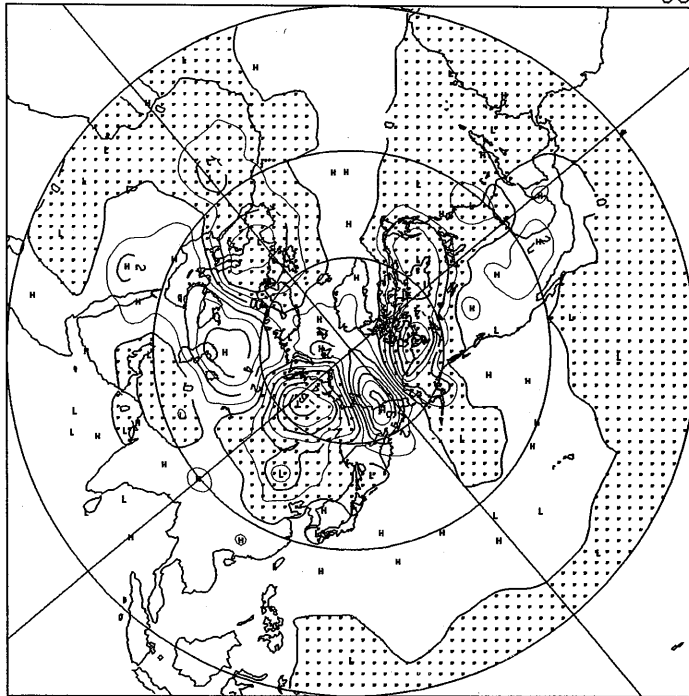
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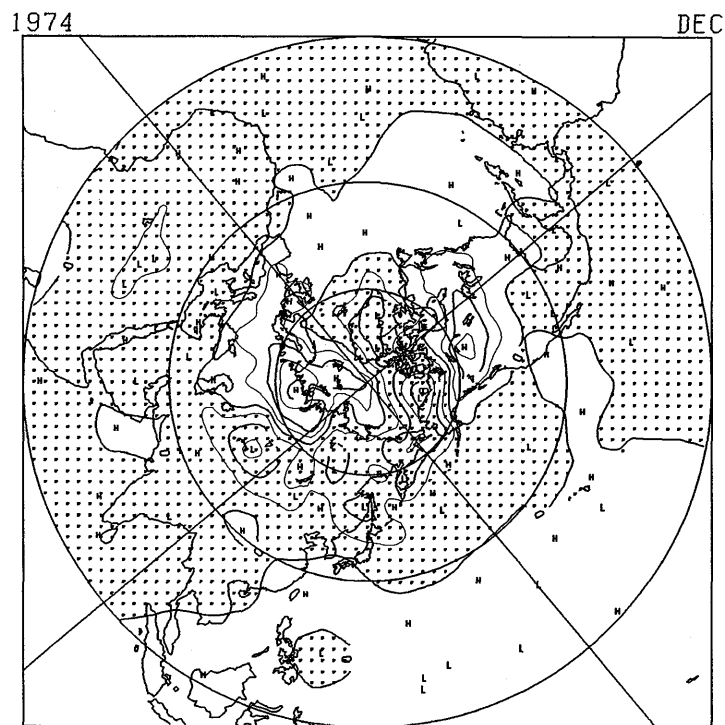
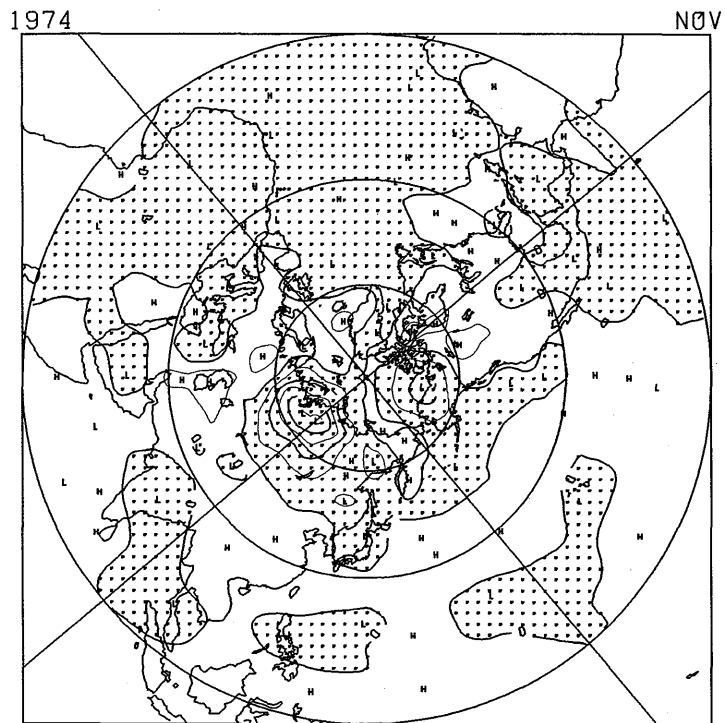
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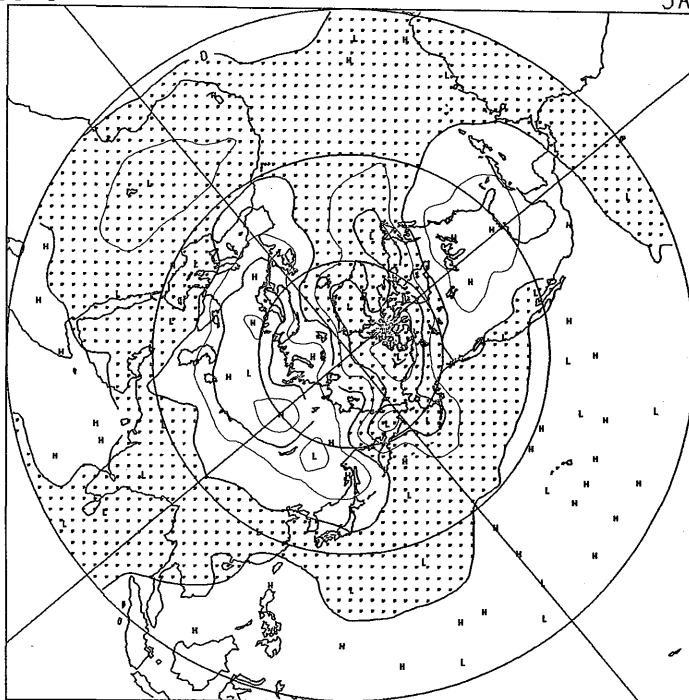
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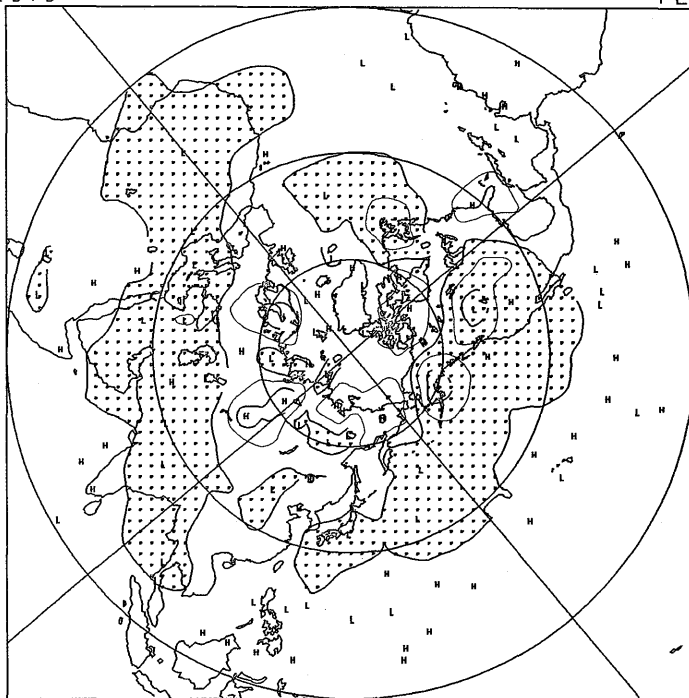
1975

JAN



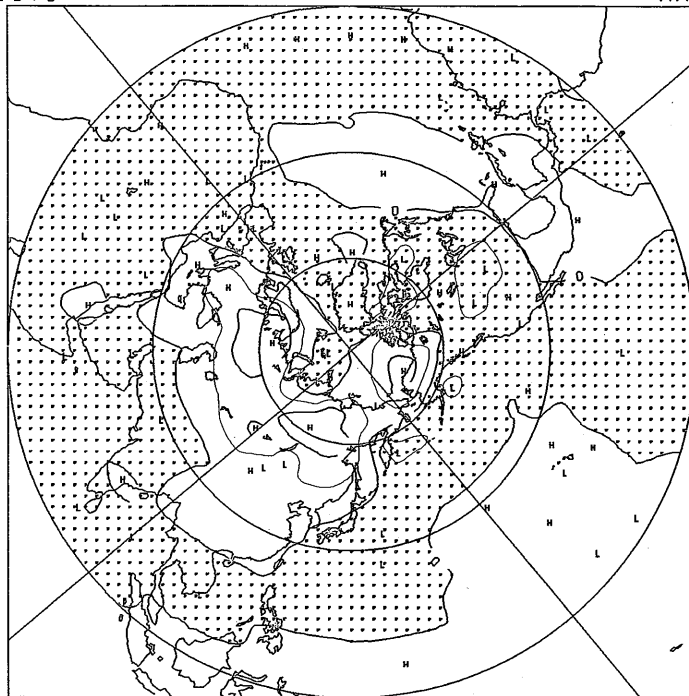
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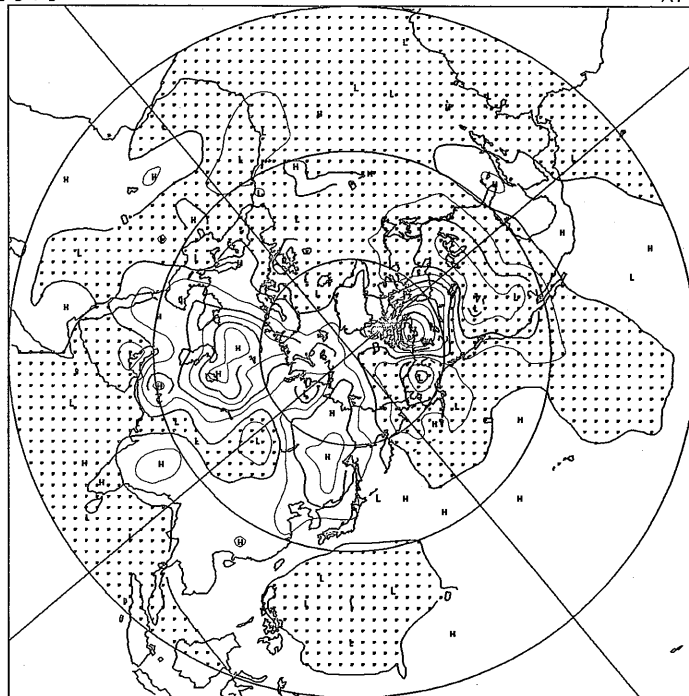
1975

MAR



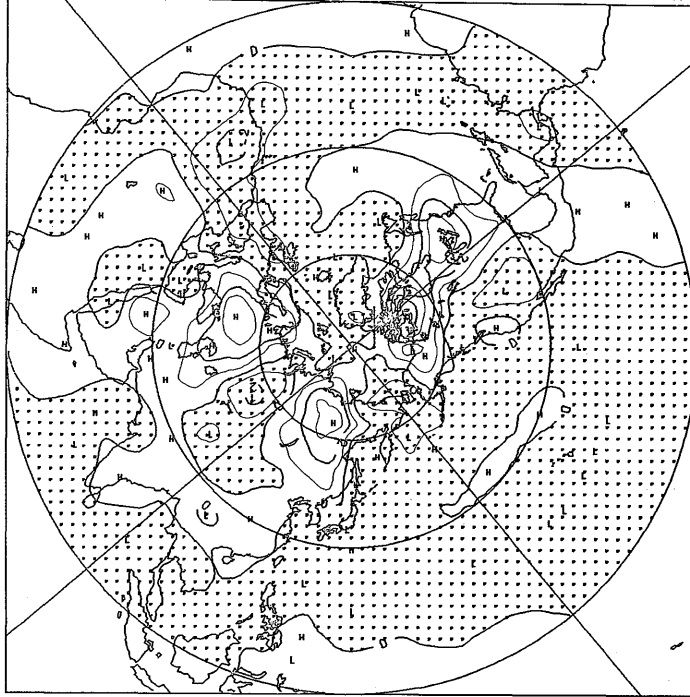
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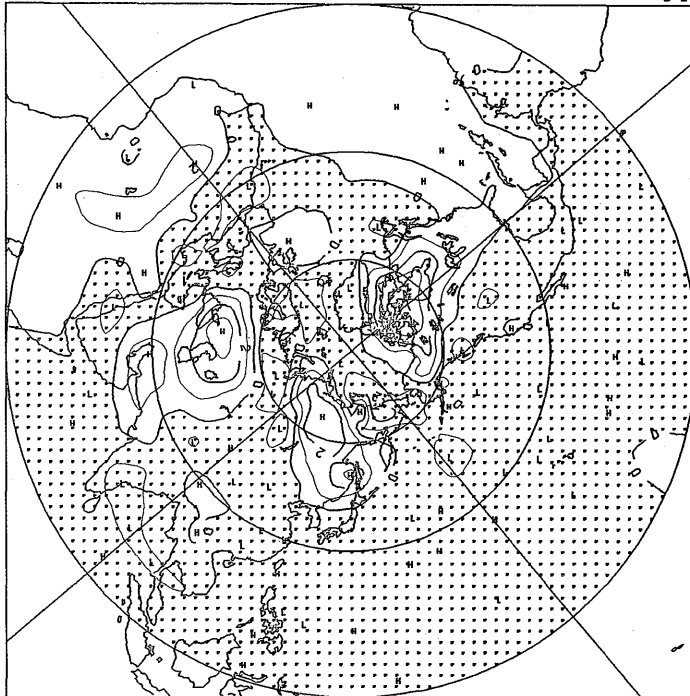
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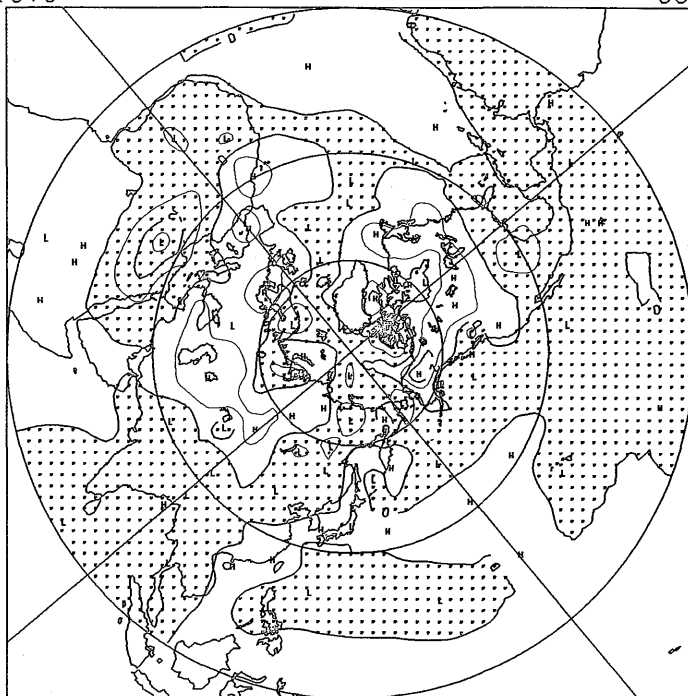
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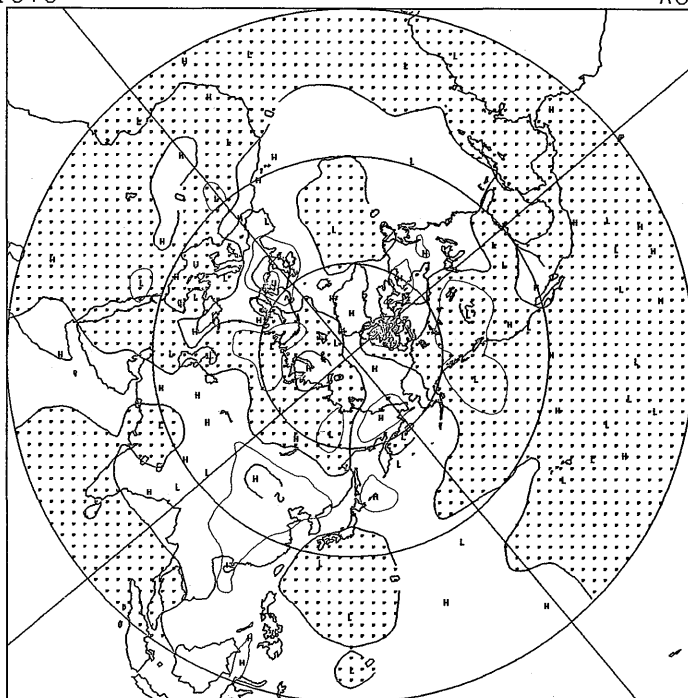
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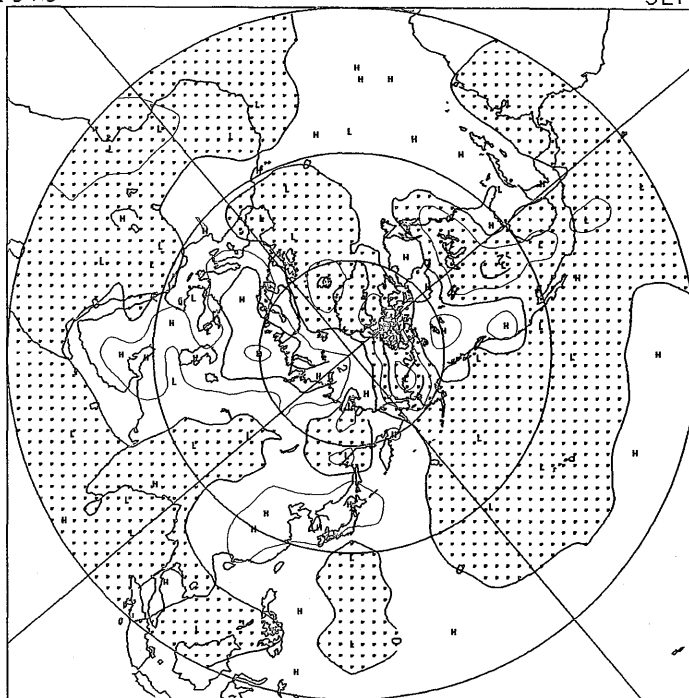
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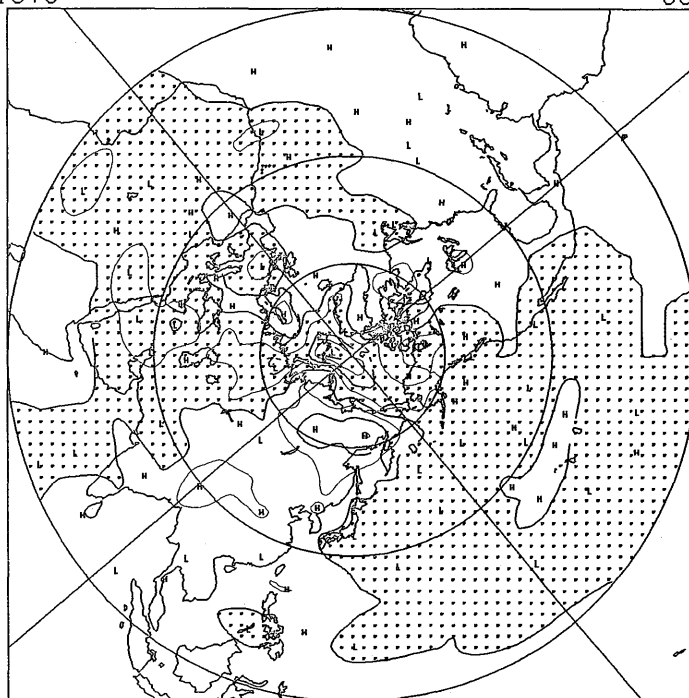
1975

SEPT



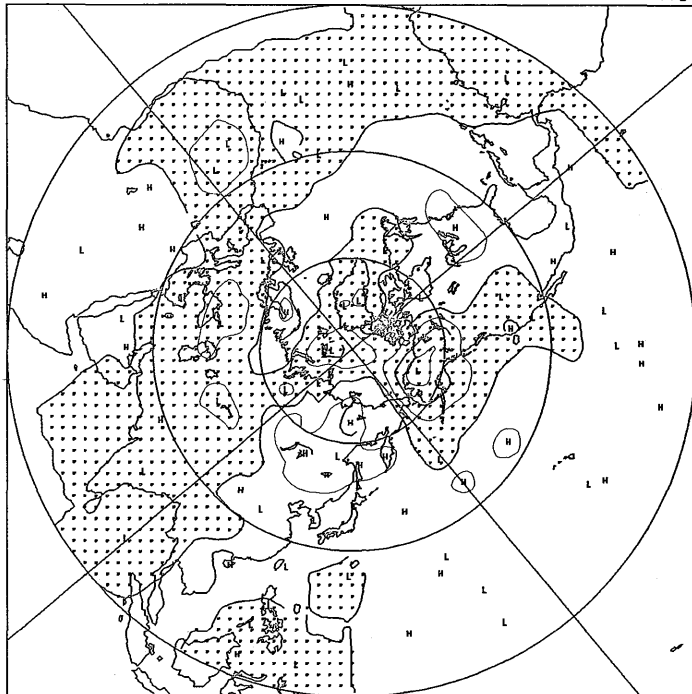
1975

OCT



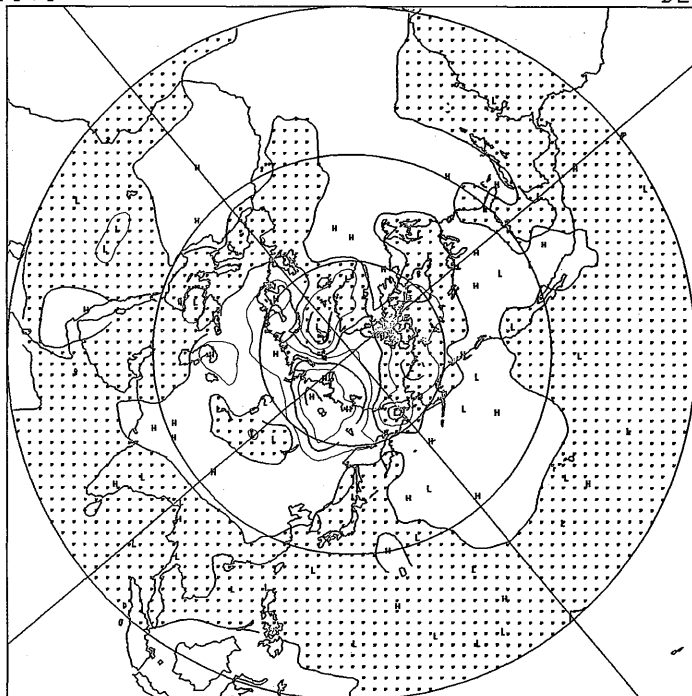
1975

NOV



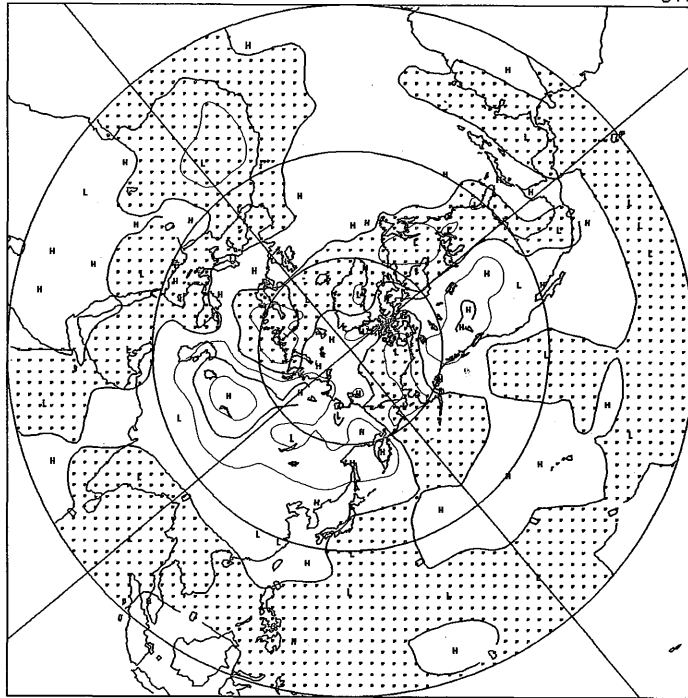
1975

DEC



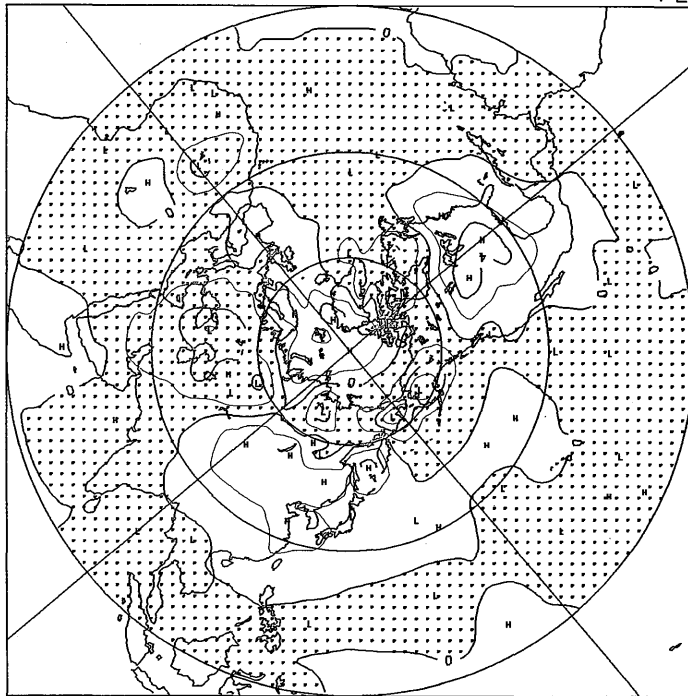
1976

JAN



1976

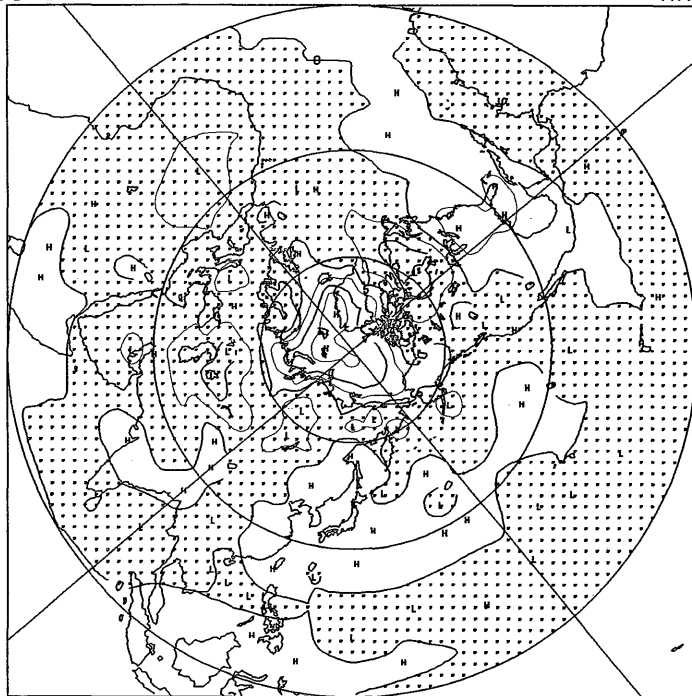
FEB



1976年
1月

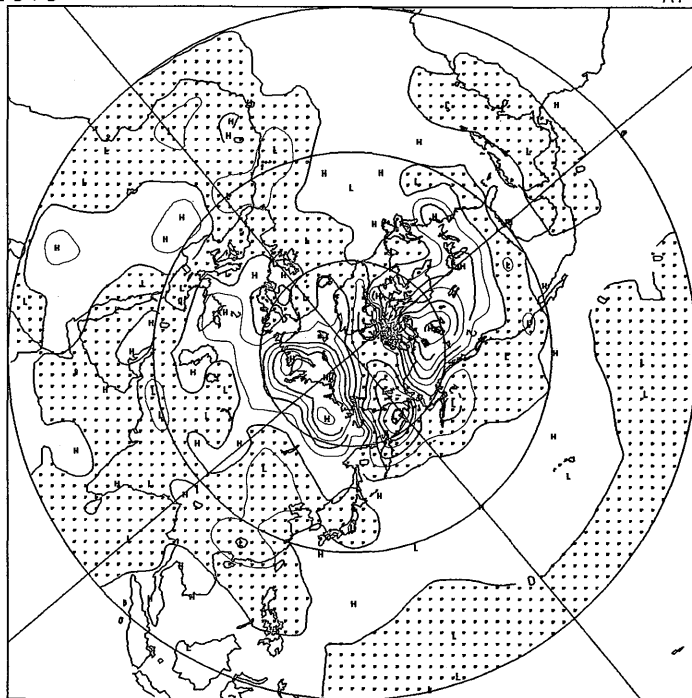
1976

MAR



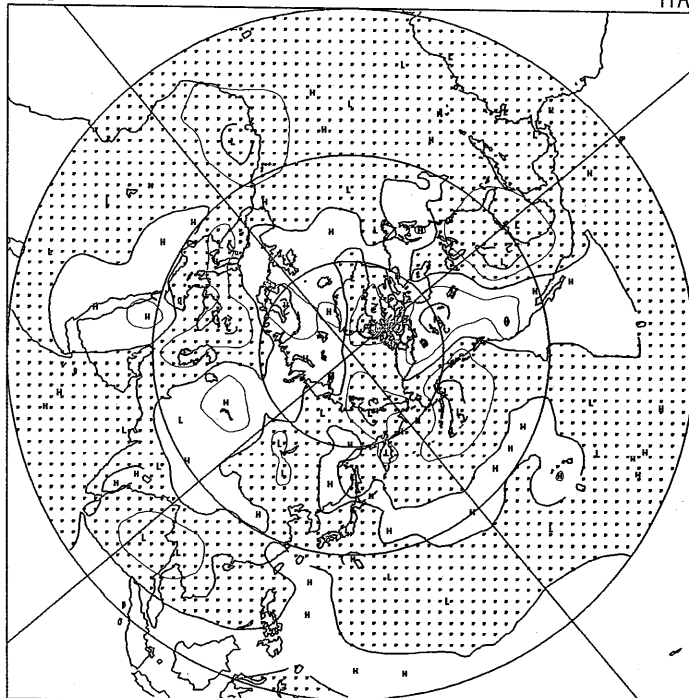
1976

APR



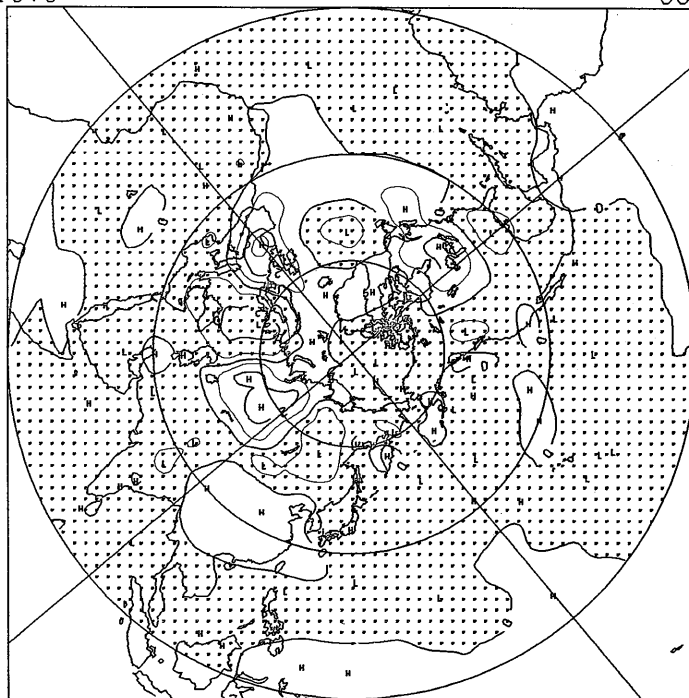
1976

MAY



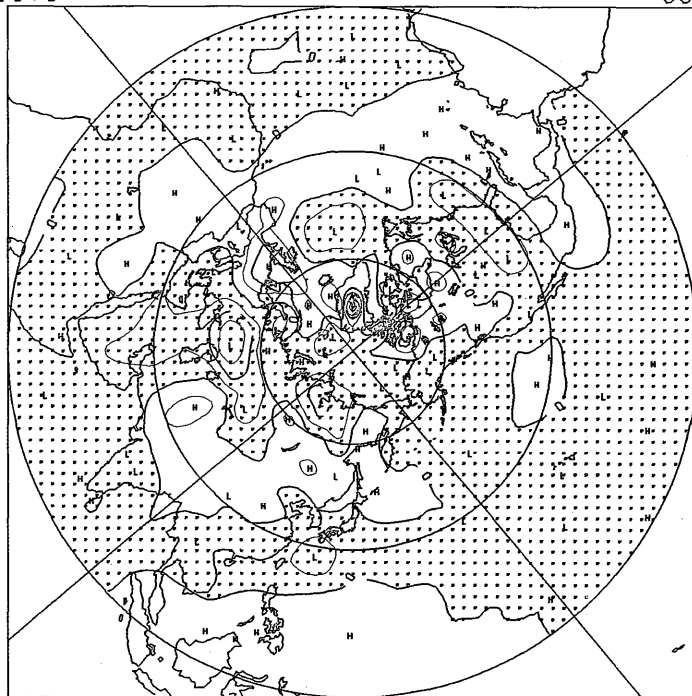
1976

JUN



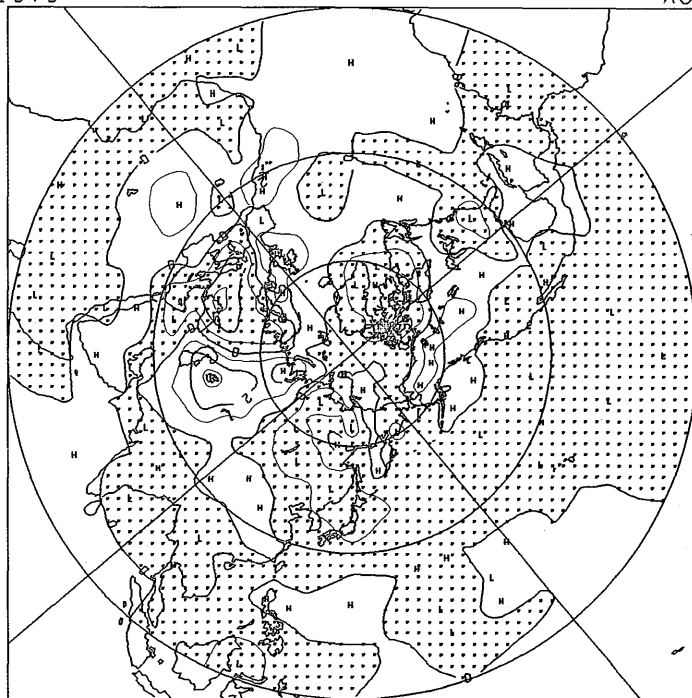
1976

JUL



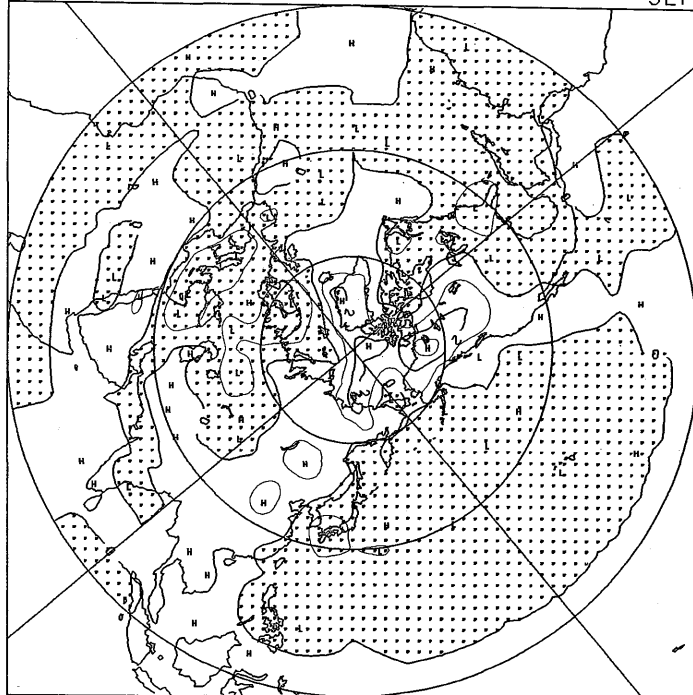
1976

AUG



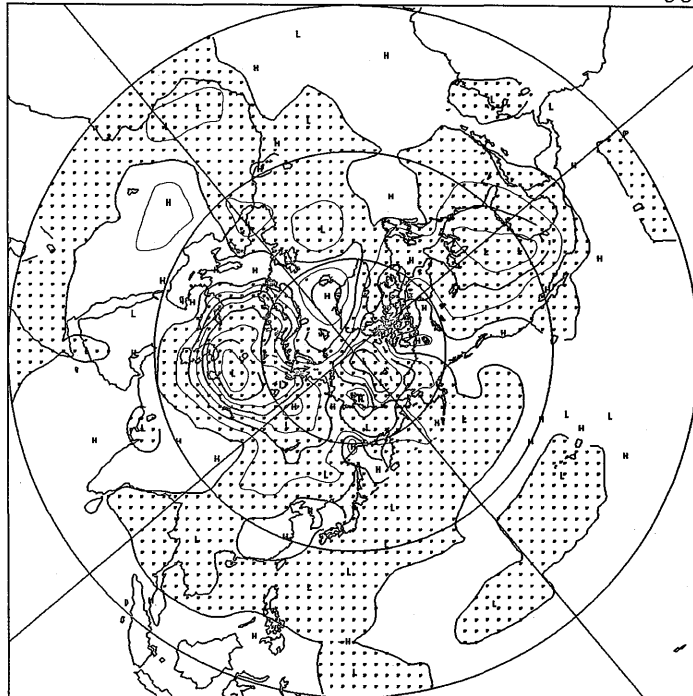
1976

SEPT



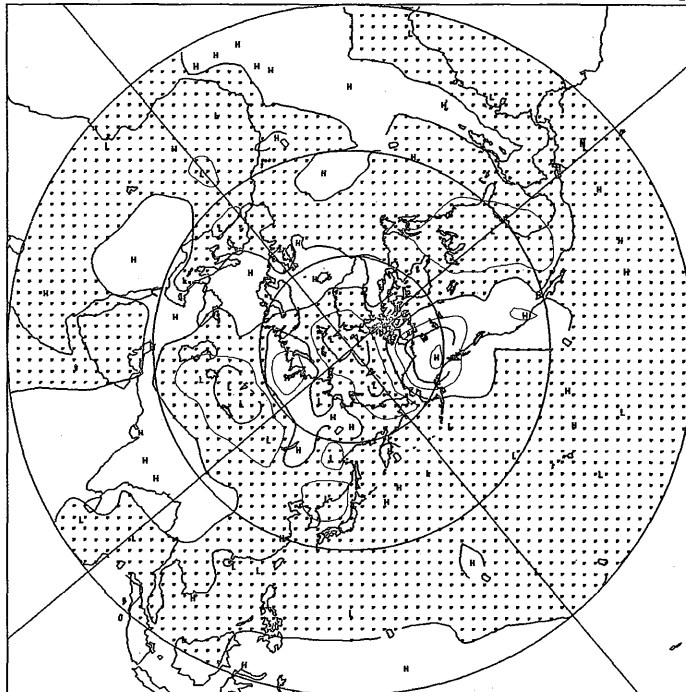
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OCT



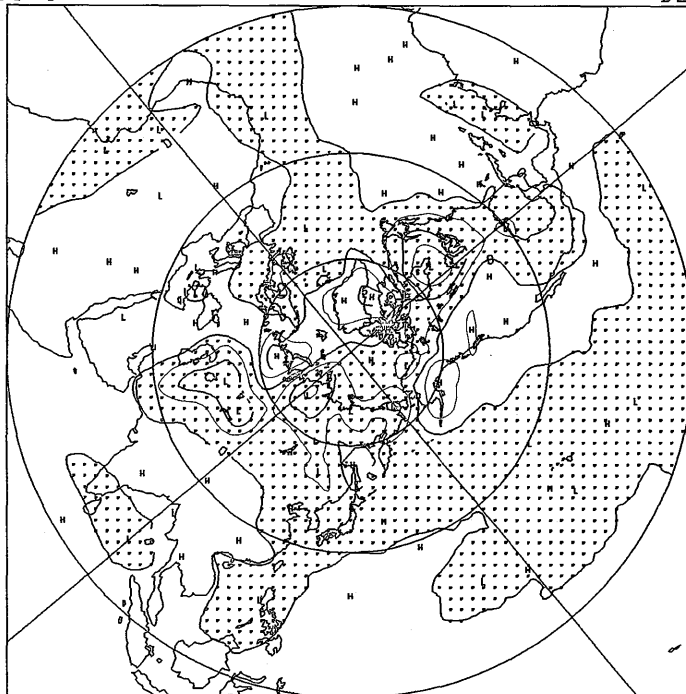
1976

NOV



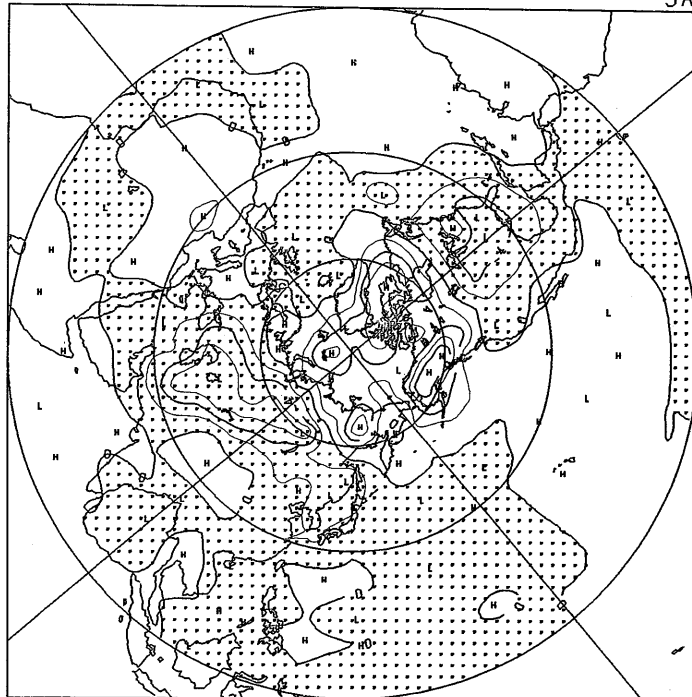
1976

DEC



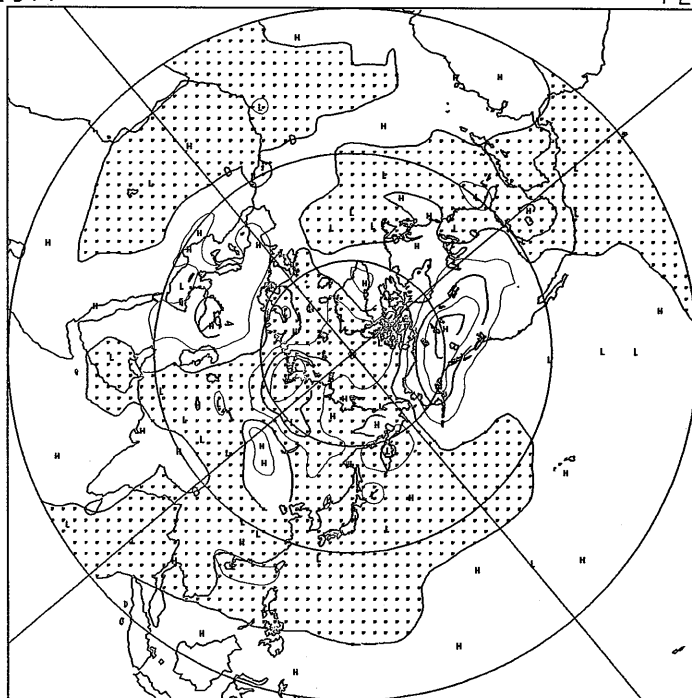
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JAN



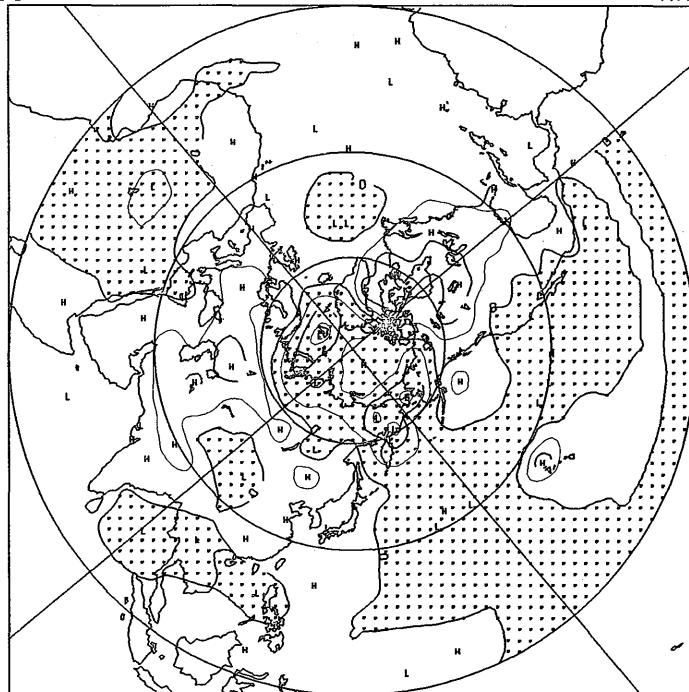
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FEB



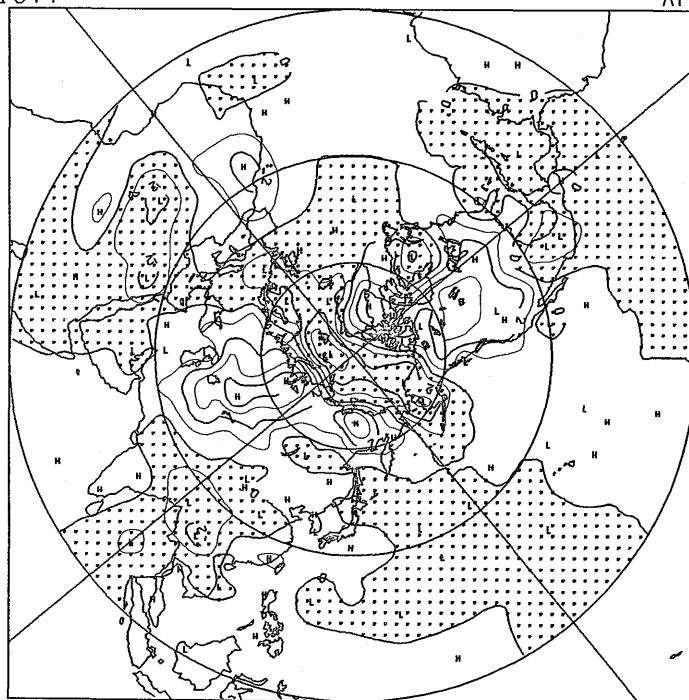
1977

MAR



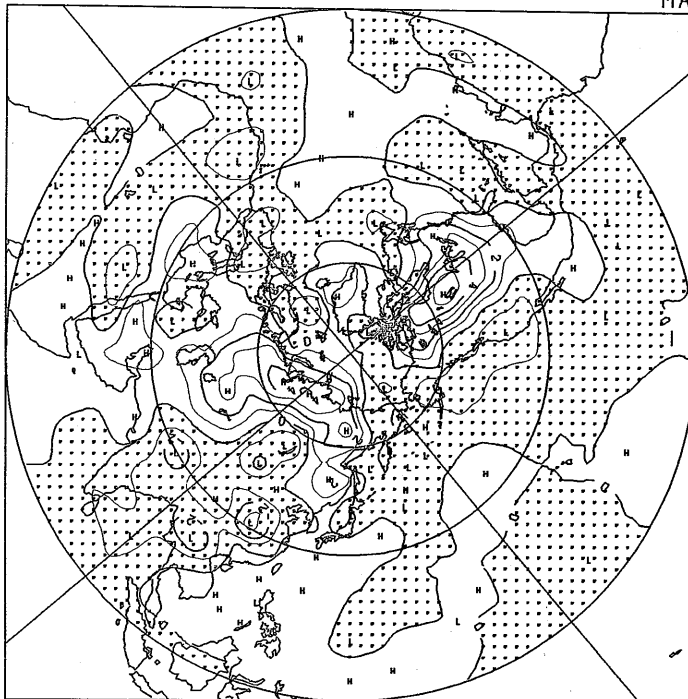
1977

APR



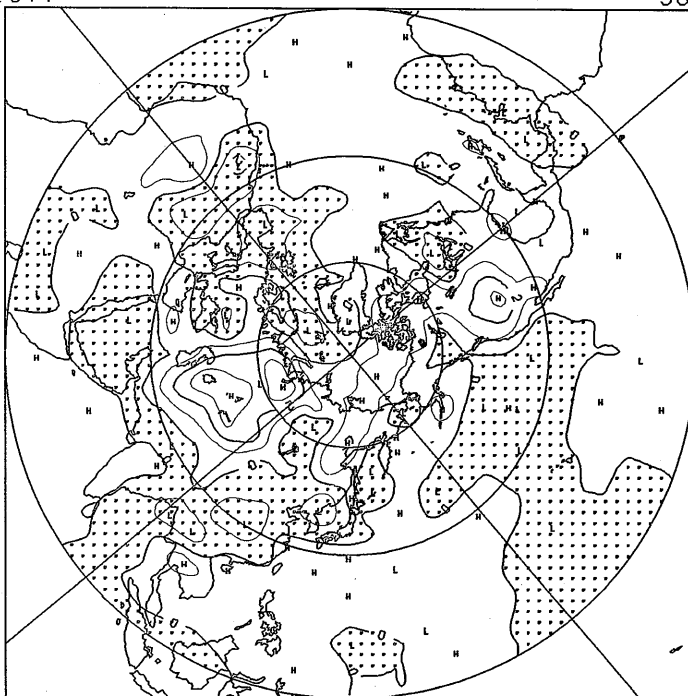
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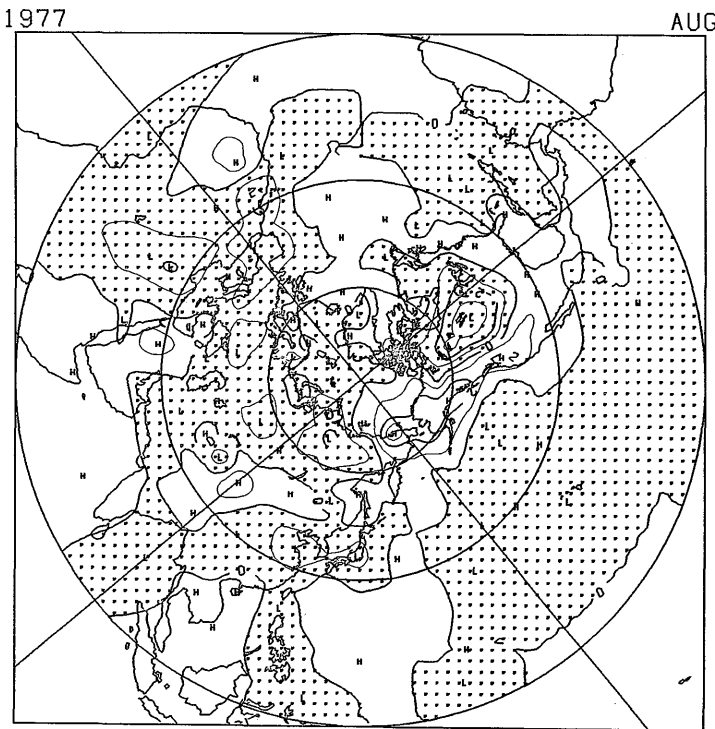
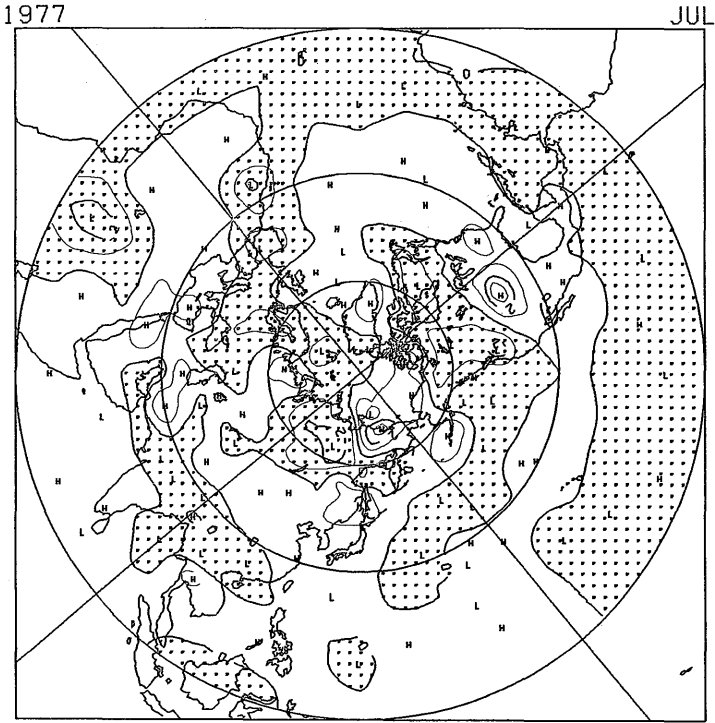
MAY



1977

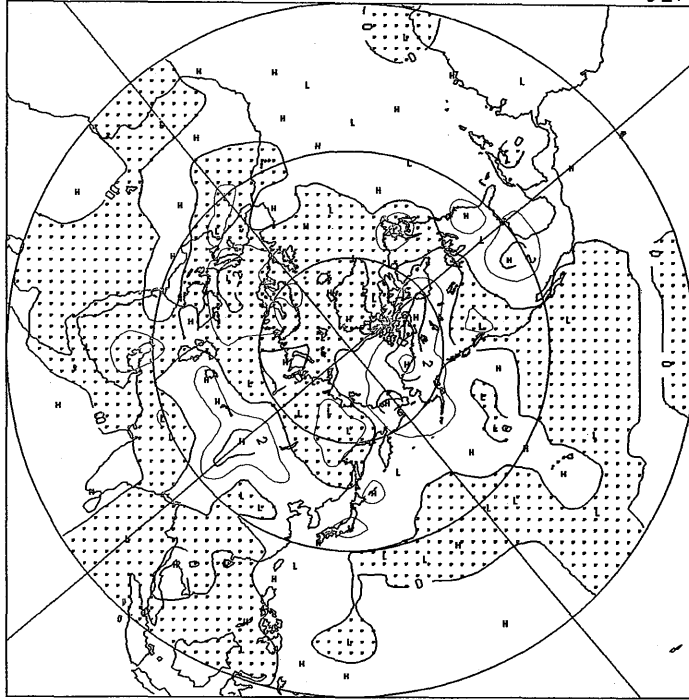
JUN





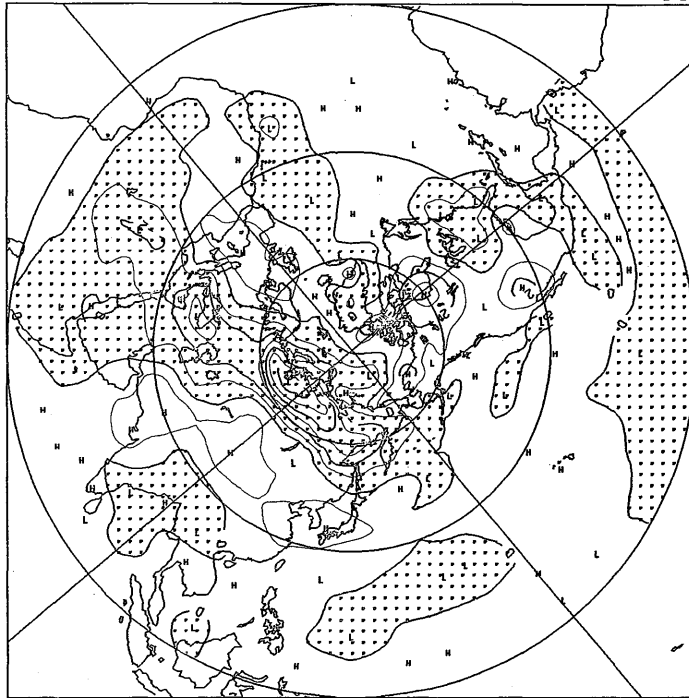
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SEPT



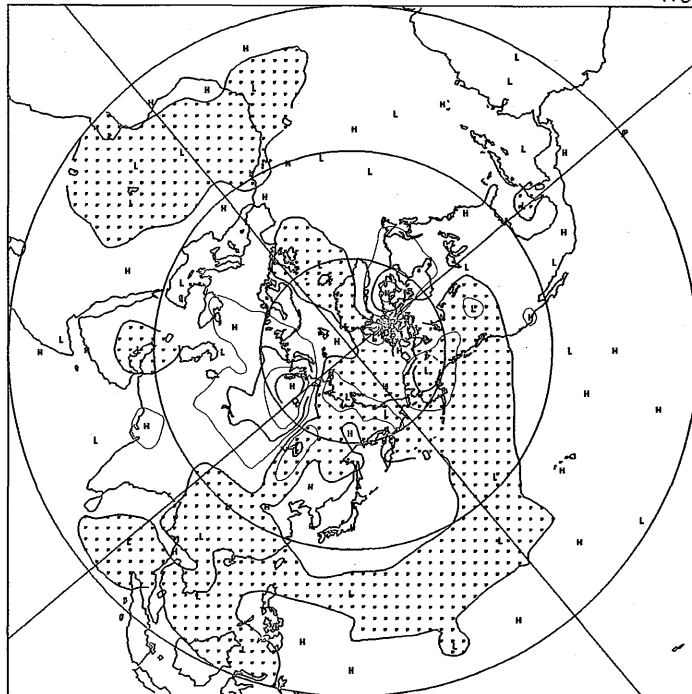
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OCT



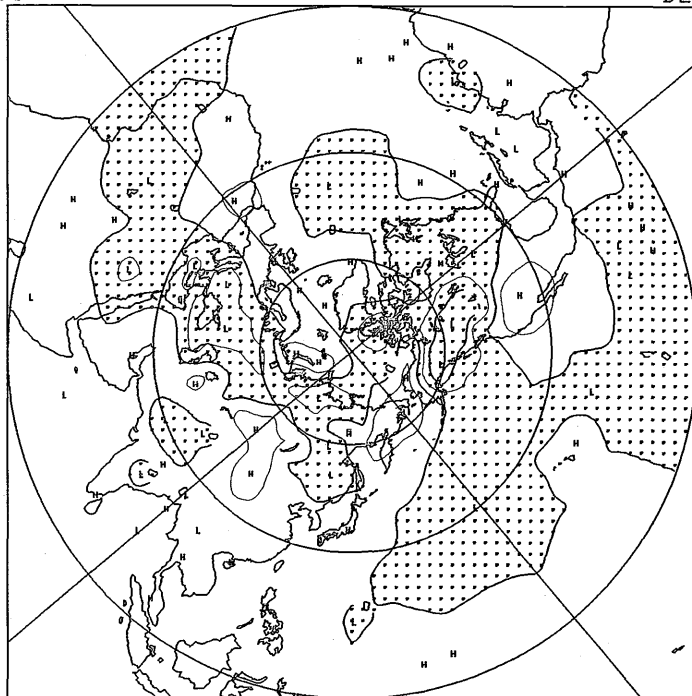
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NOV



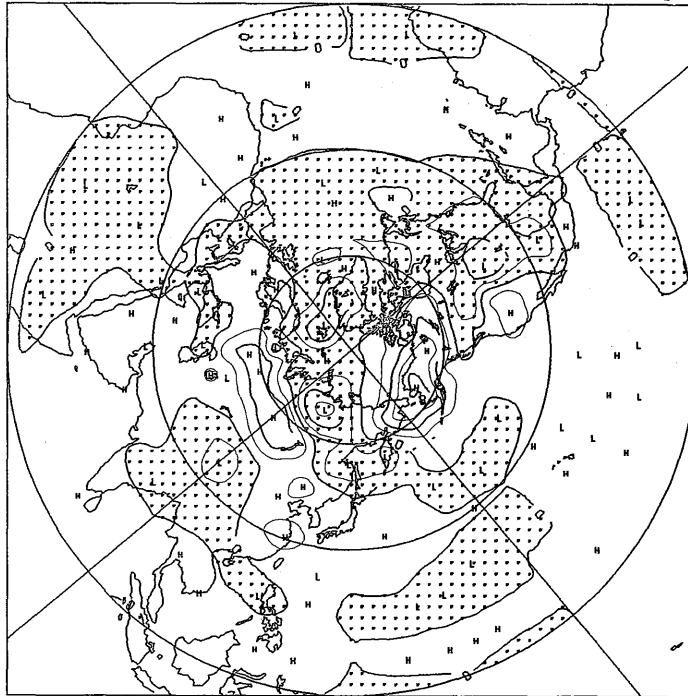
1977

DEC



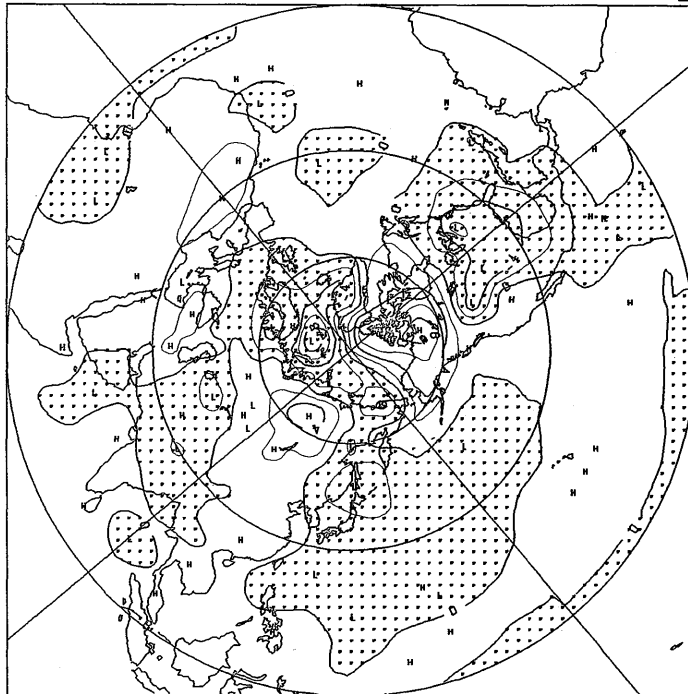
1978

JAN



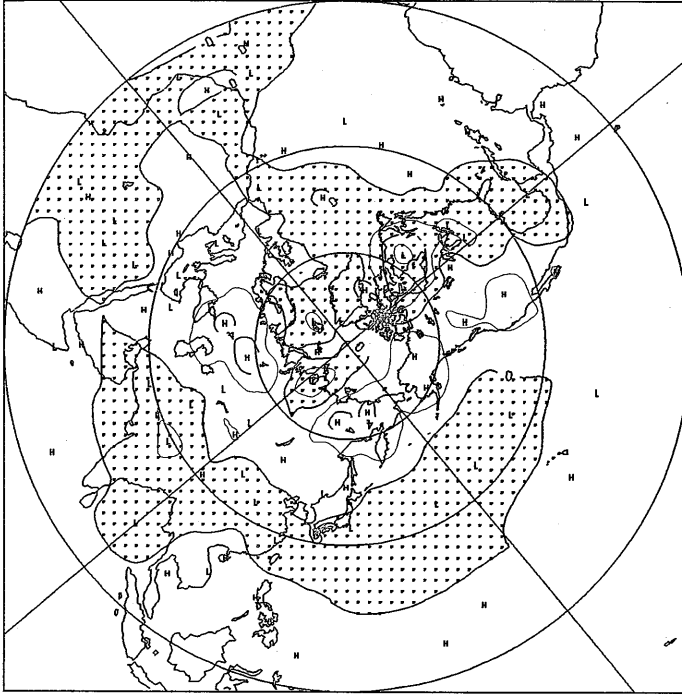
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FEB



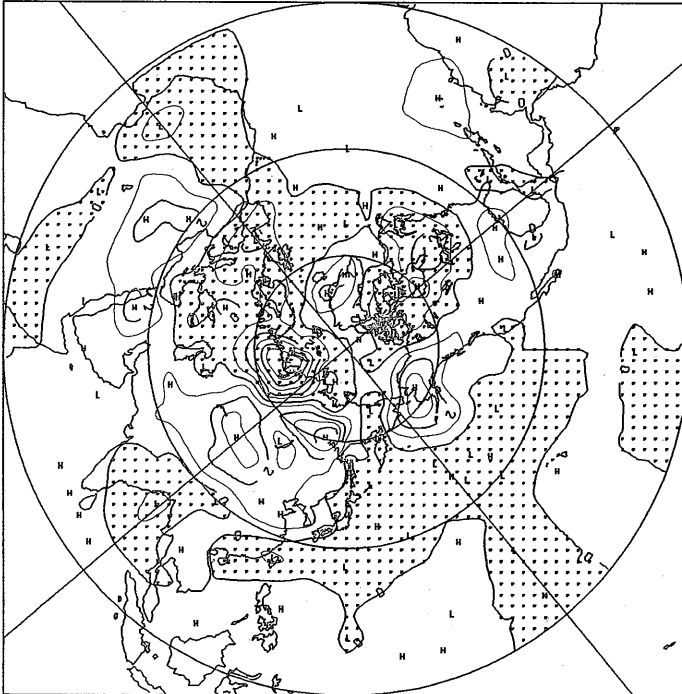
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MAR



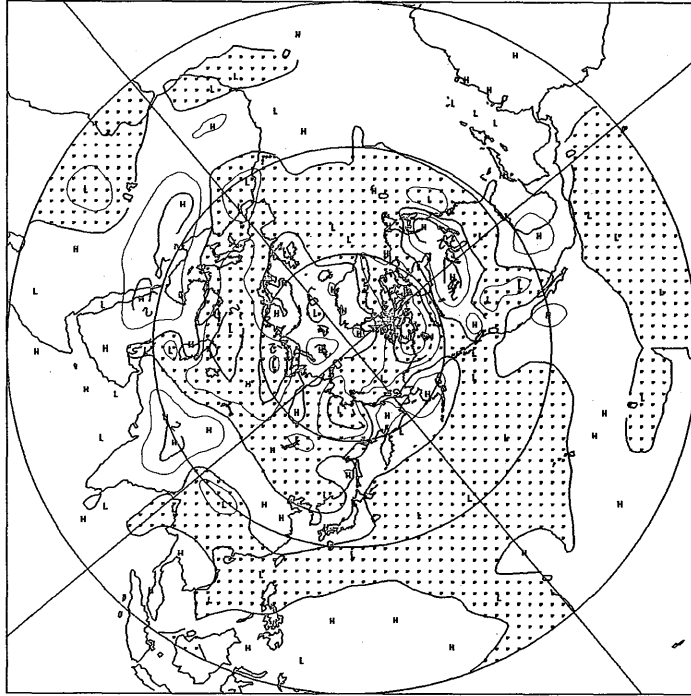
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APR



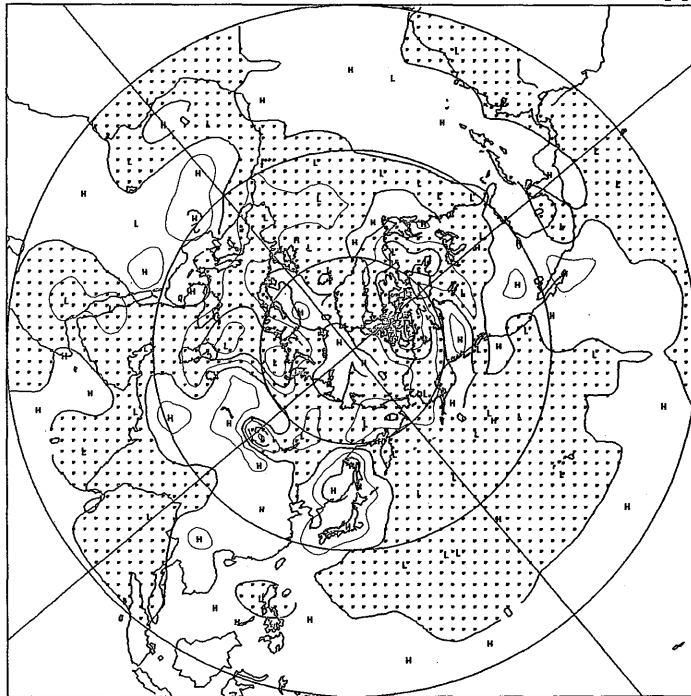
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MAY



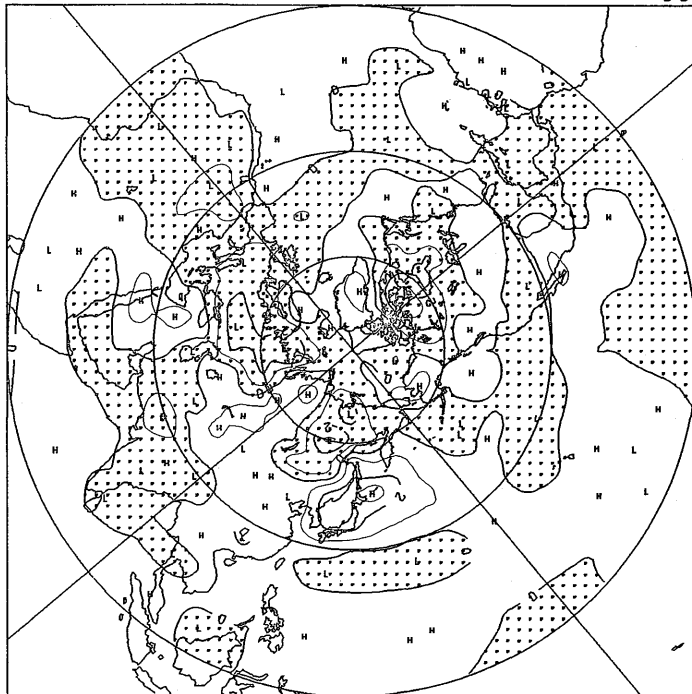
1978

JUN



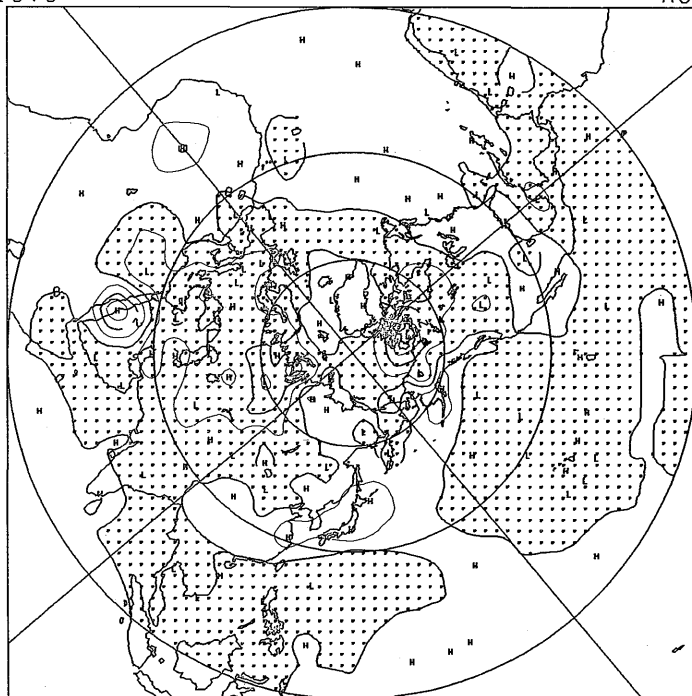
1978

JUL



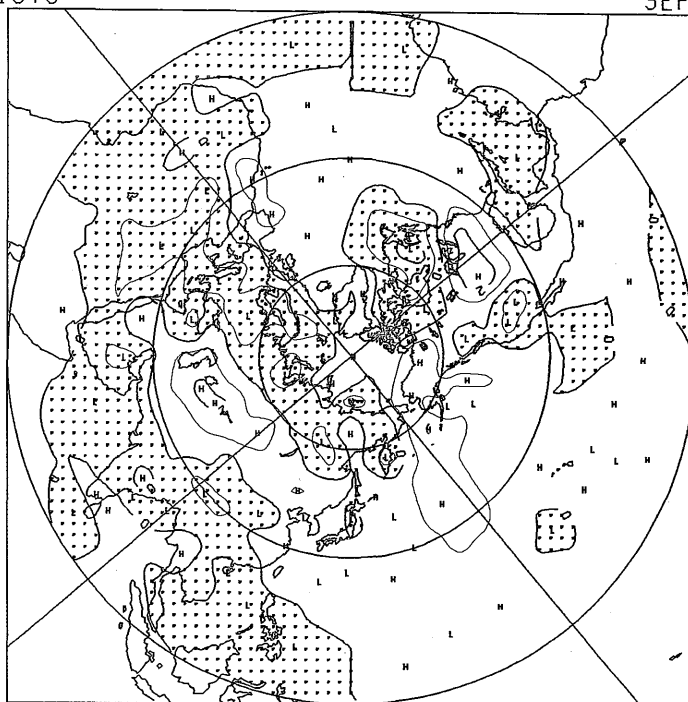
1978

AUG



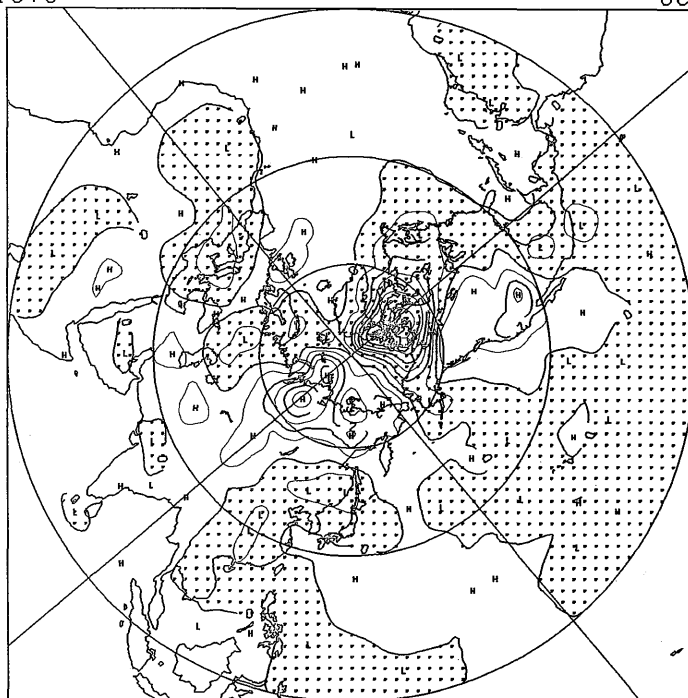
1978

SEPT



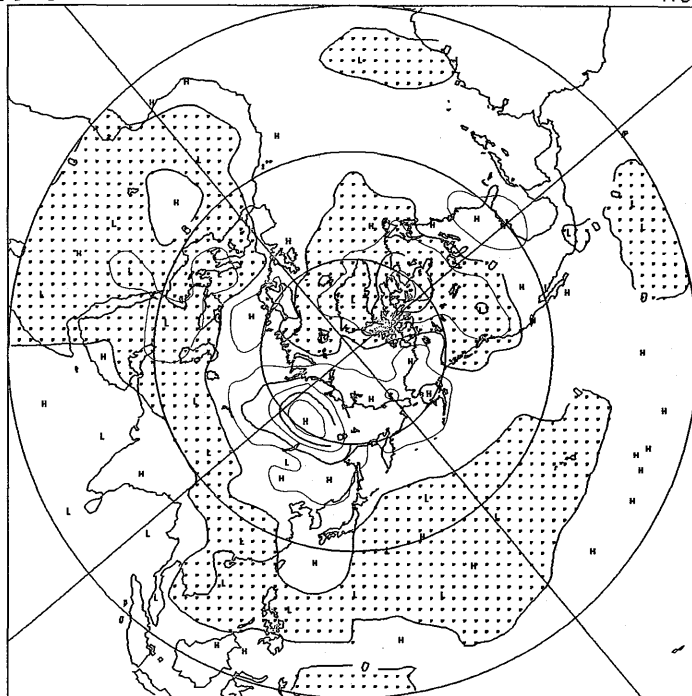
1978

OCT



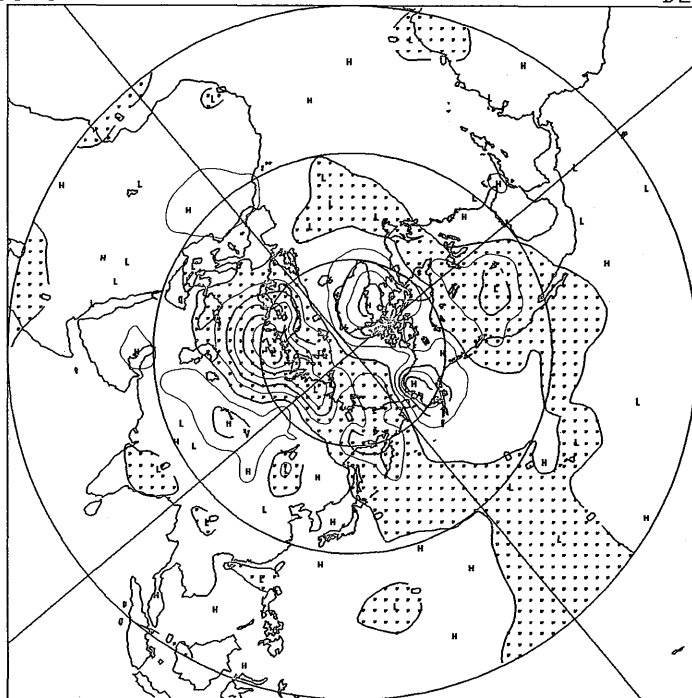
1978

NOV



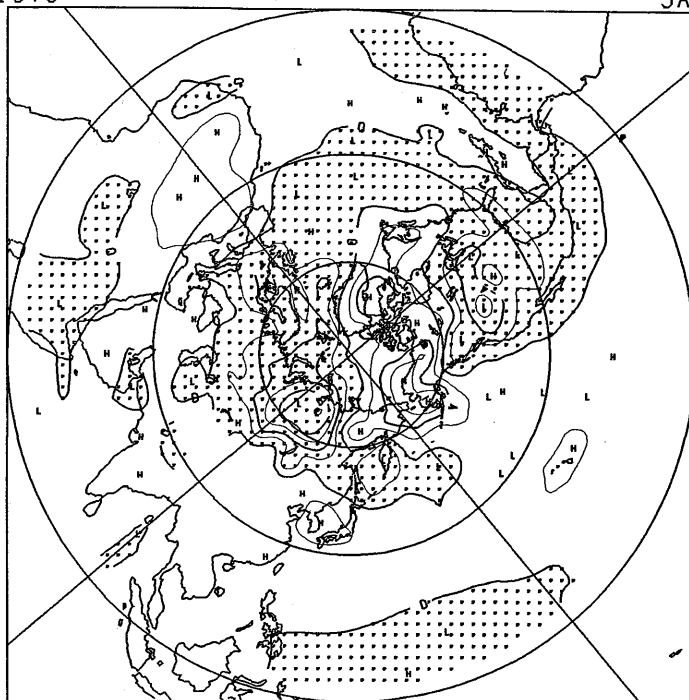
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DEC



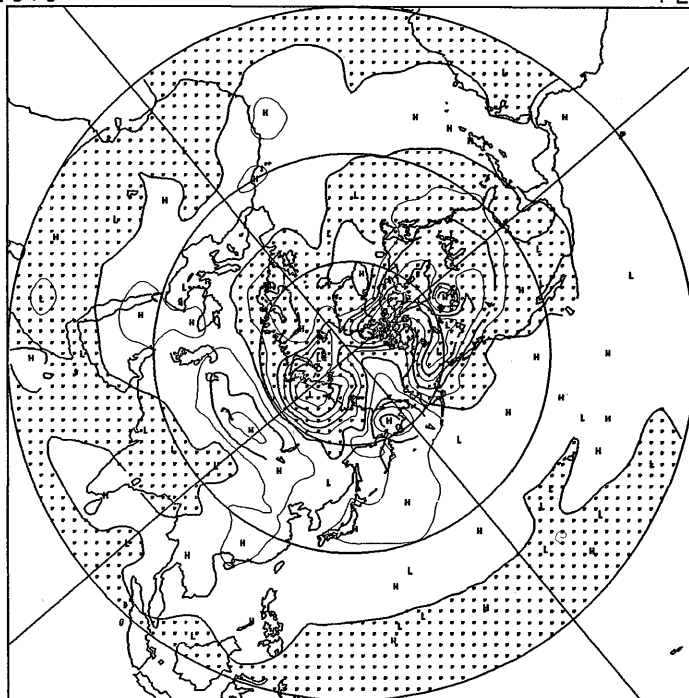
1979

JAN



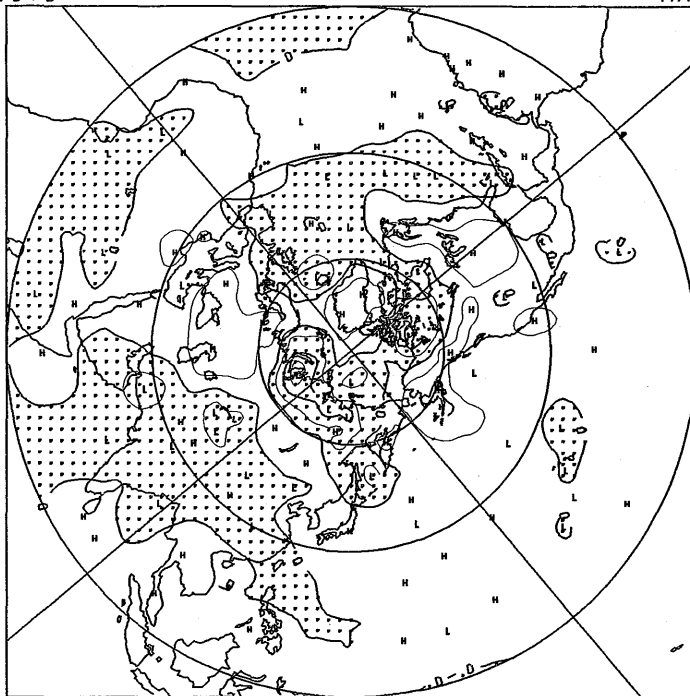
1979

FEB



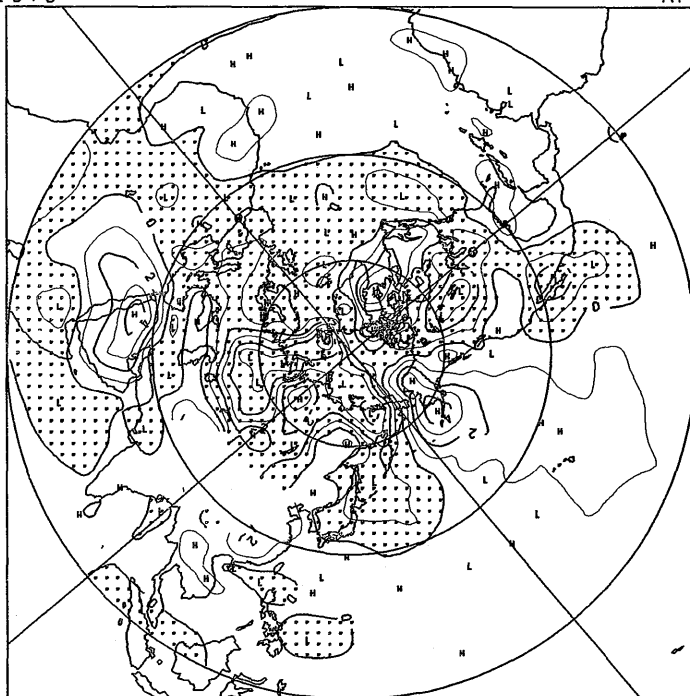
1979

MAR



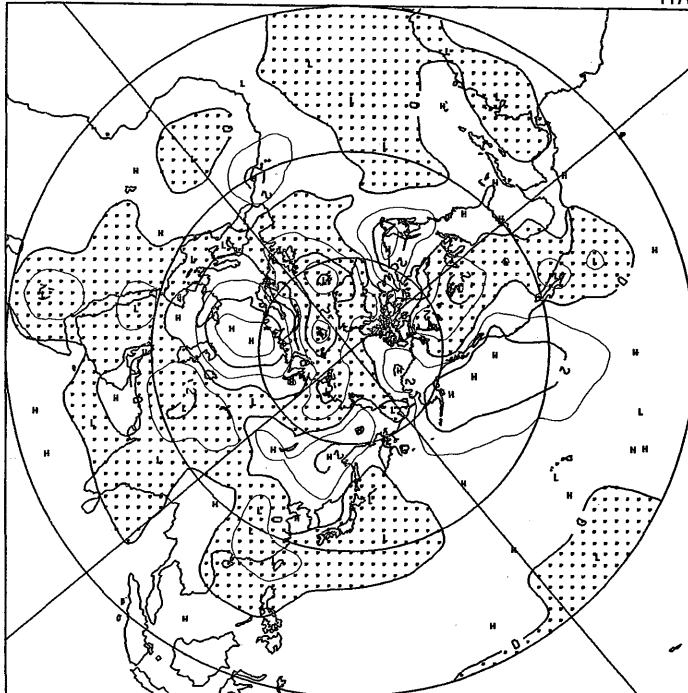
1979

APR



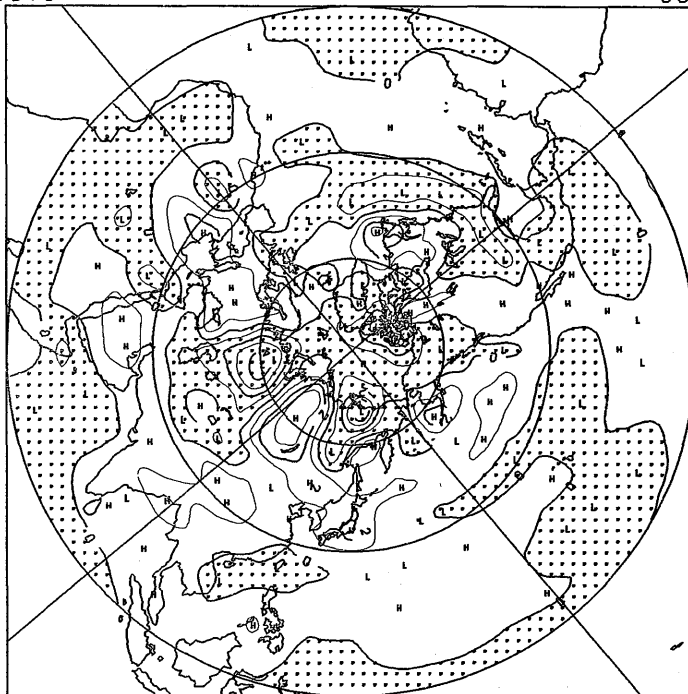
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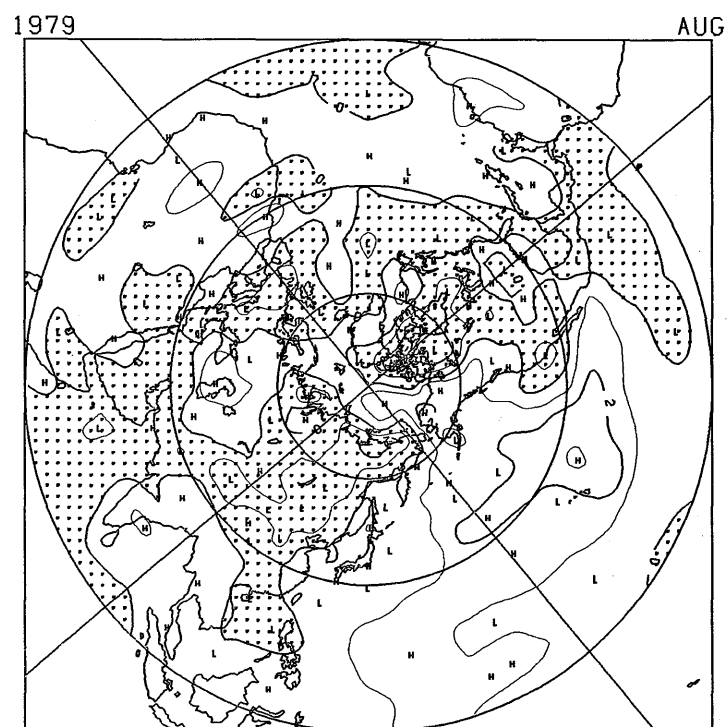
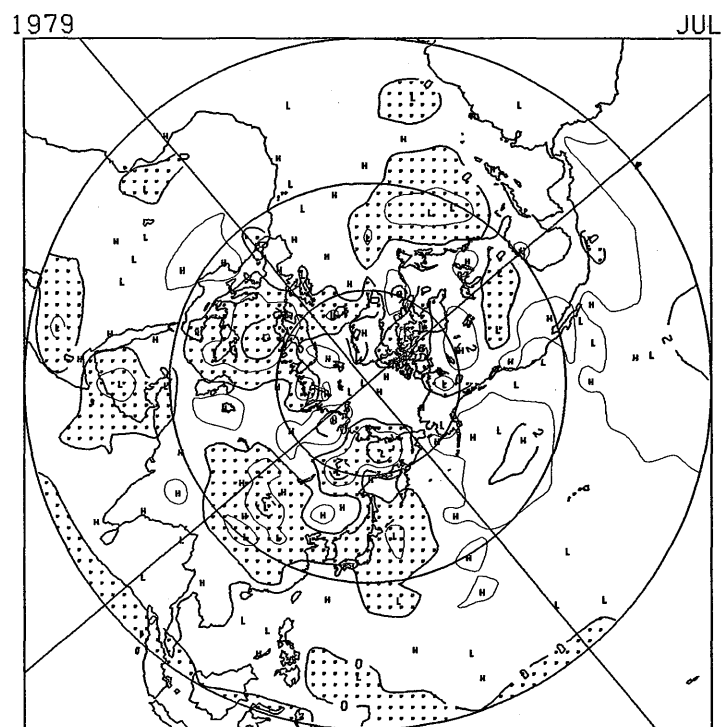
MAY



1979

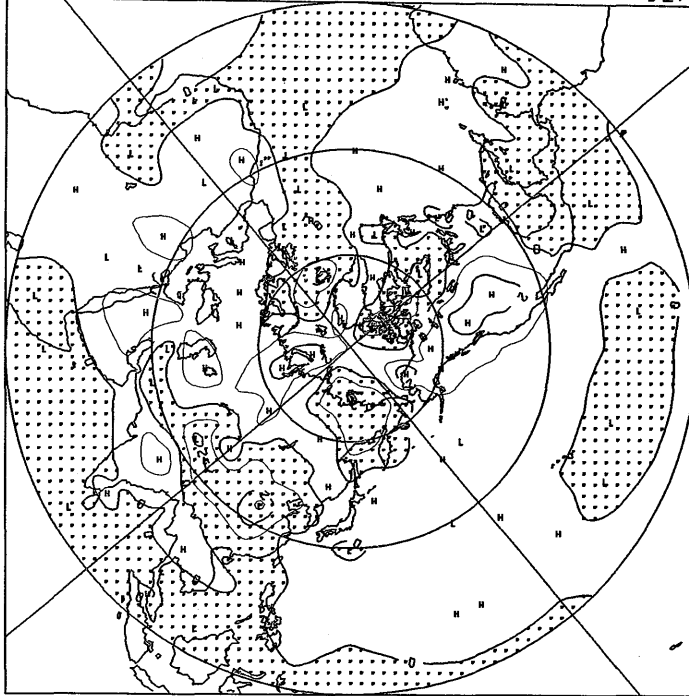
JUN





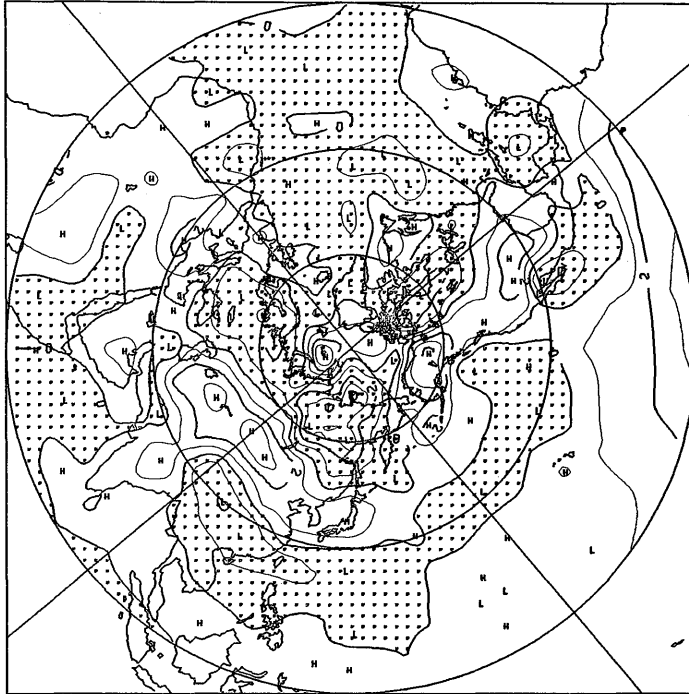
1979

SEPT



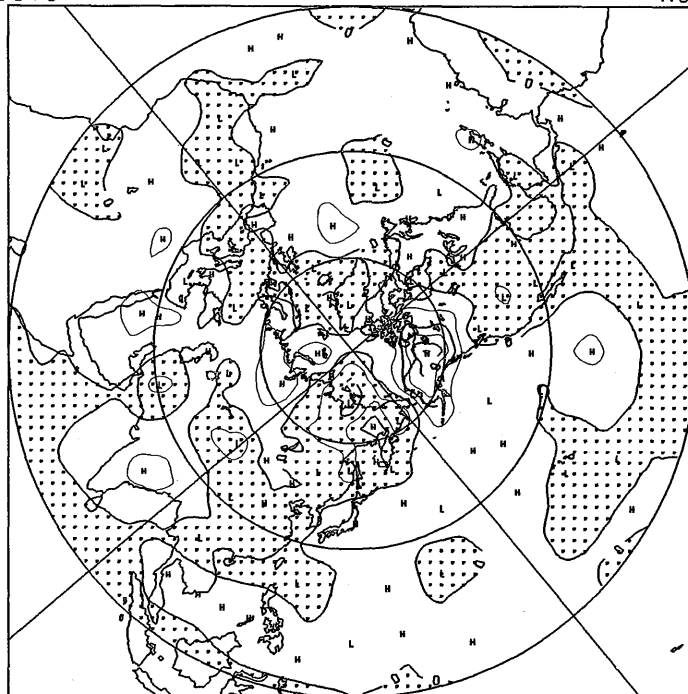
1979

OCT



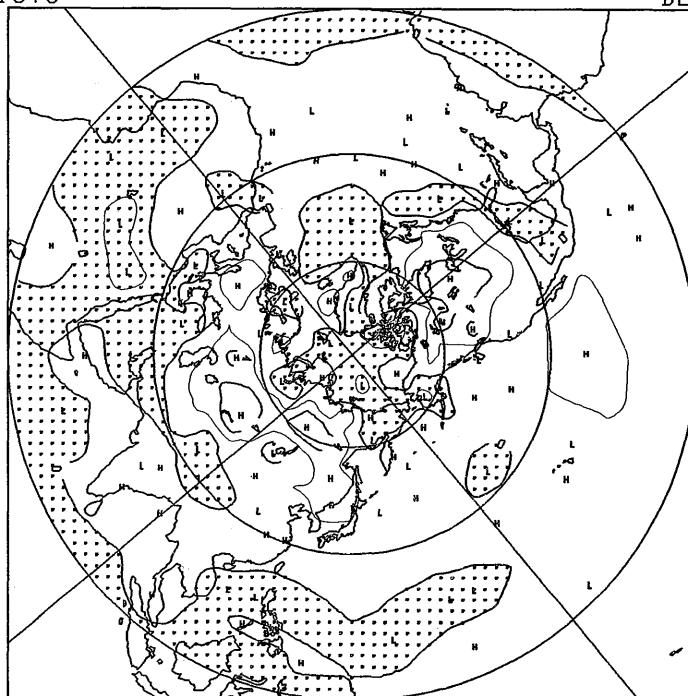
1979

NOV



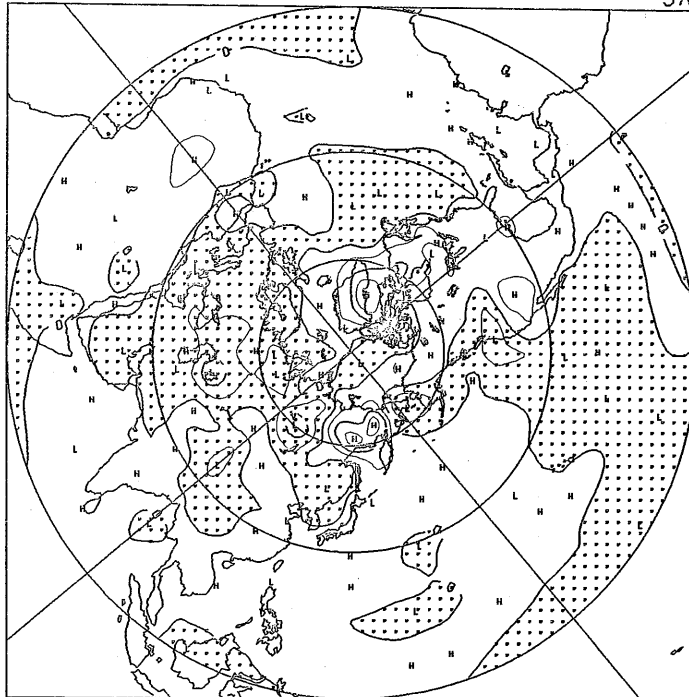
1979

DEC



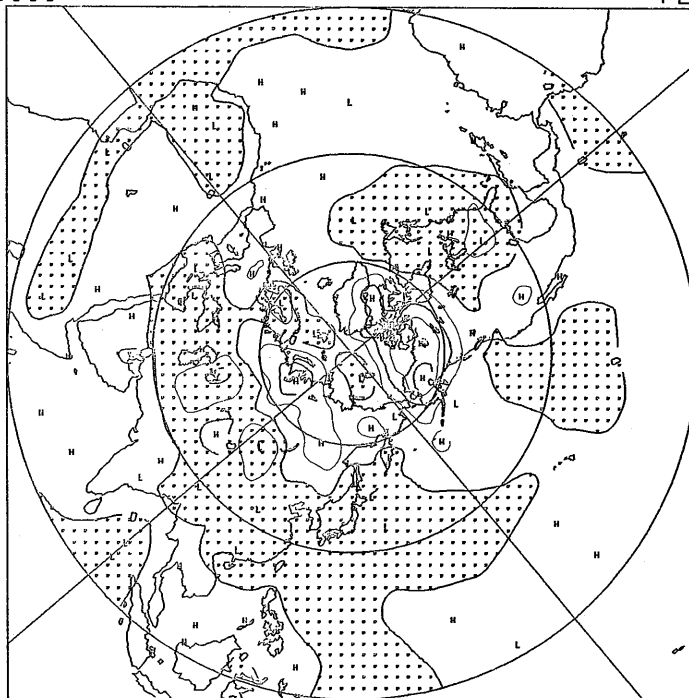
1980

JAN



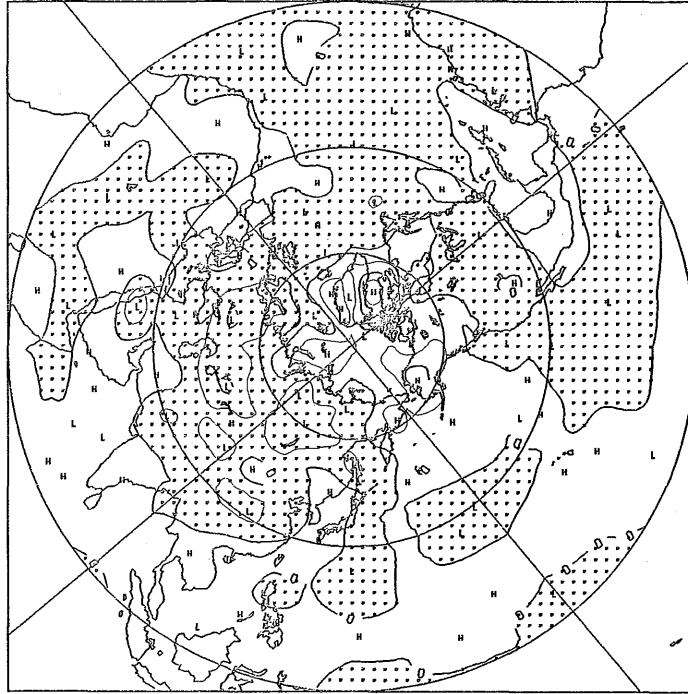
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FEB



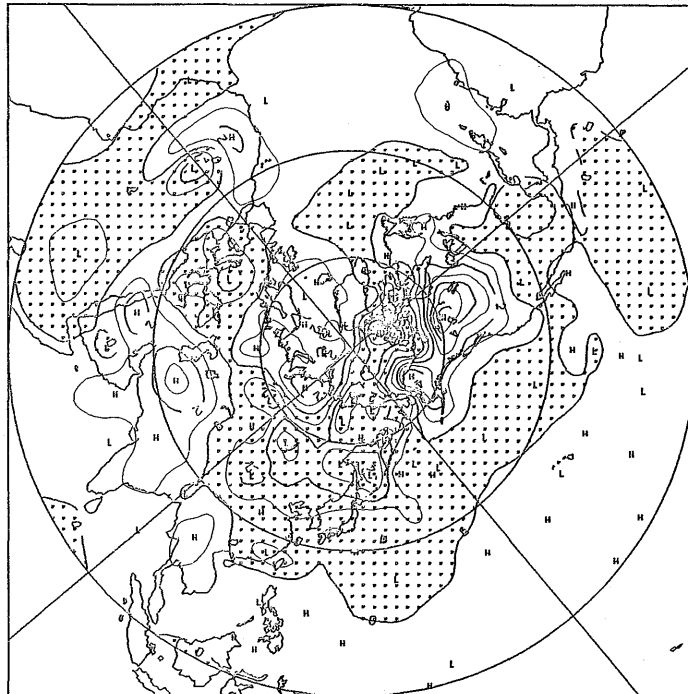
1980

MAR



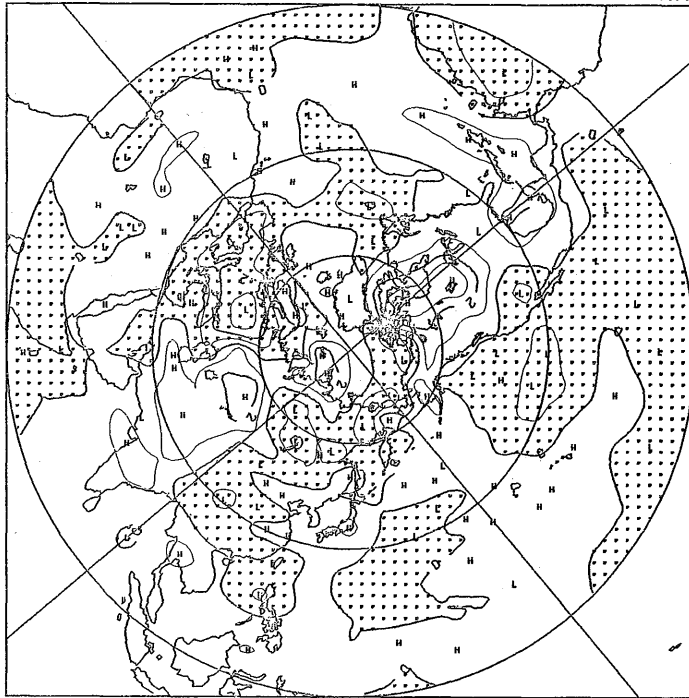
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APR



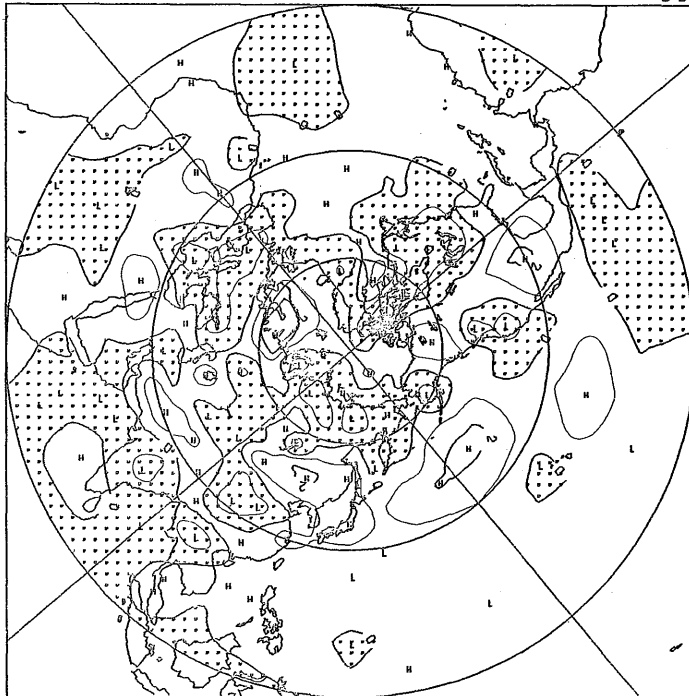
1980

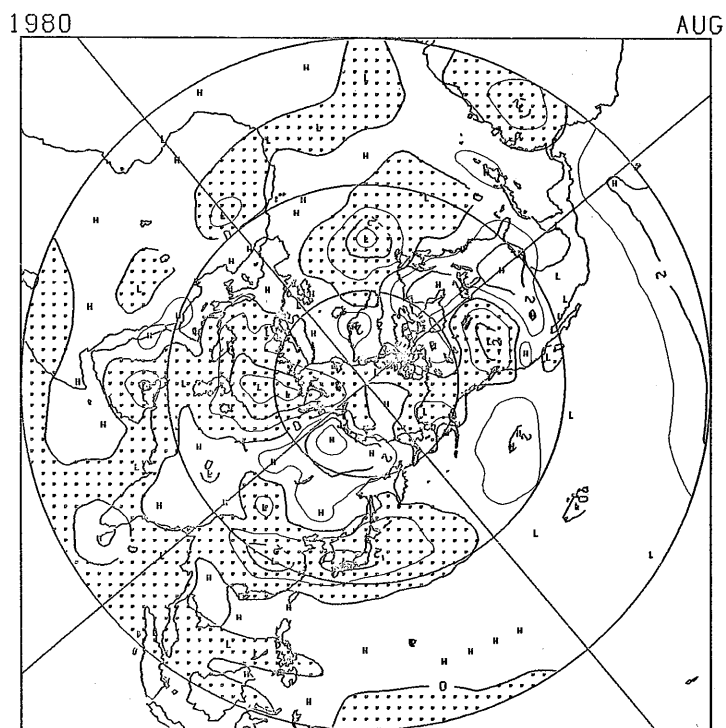
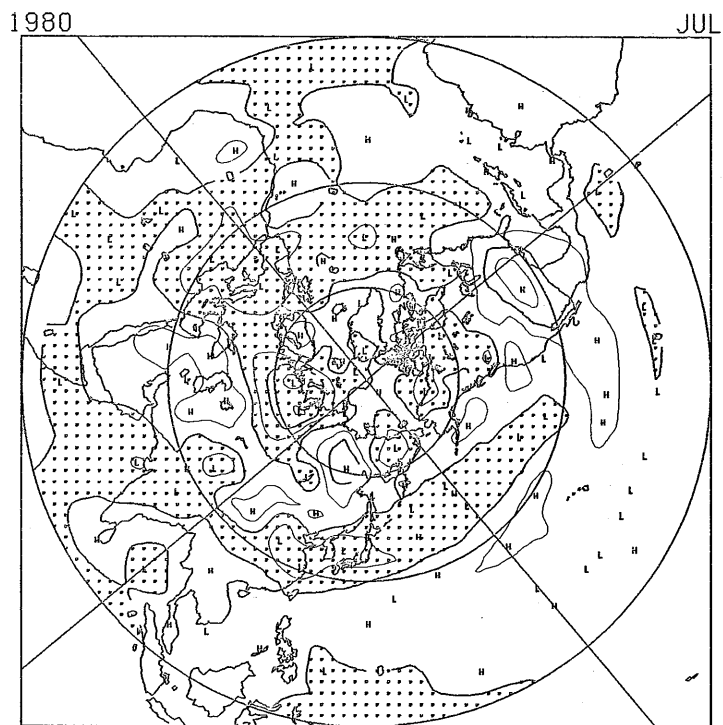
MAY



1980

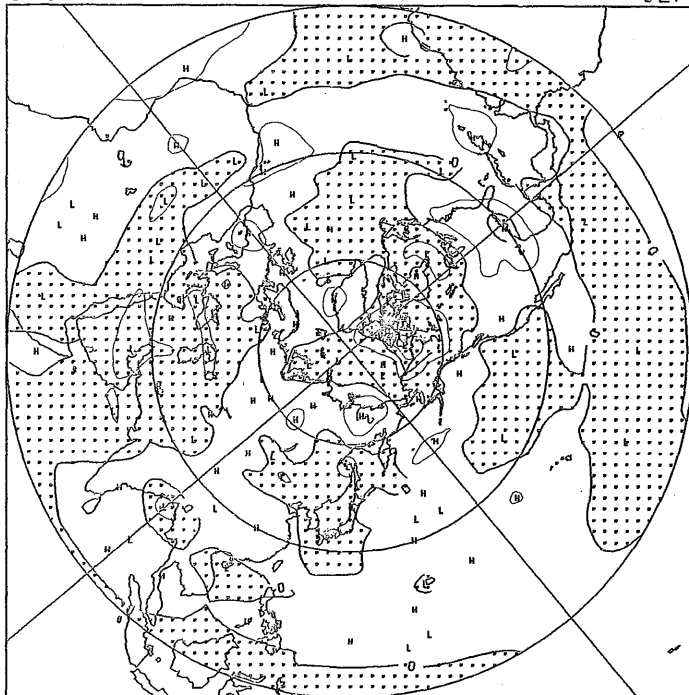
JUN





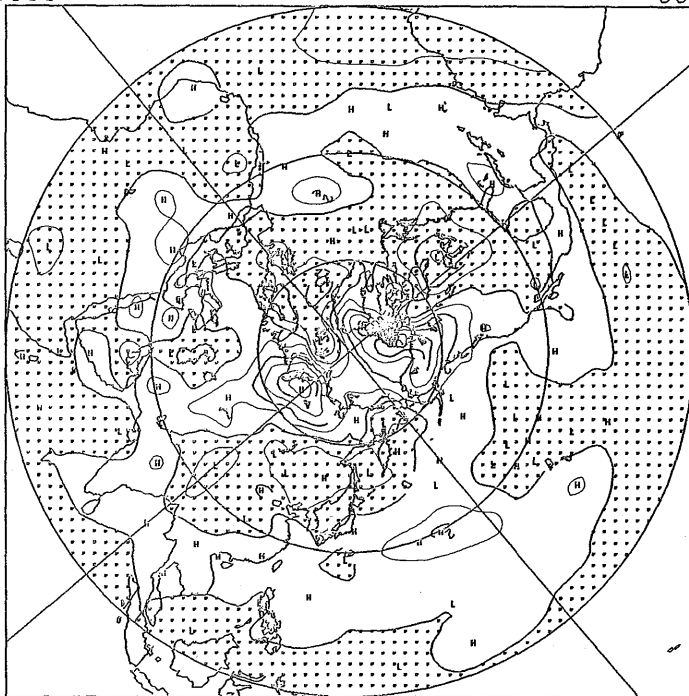
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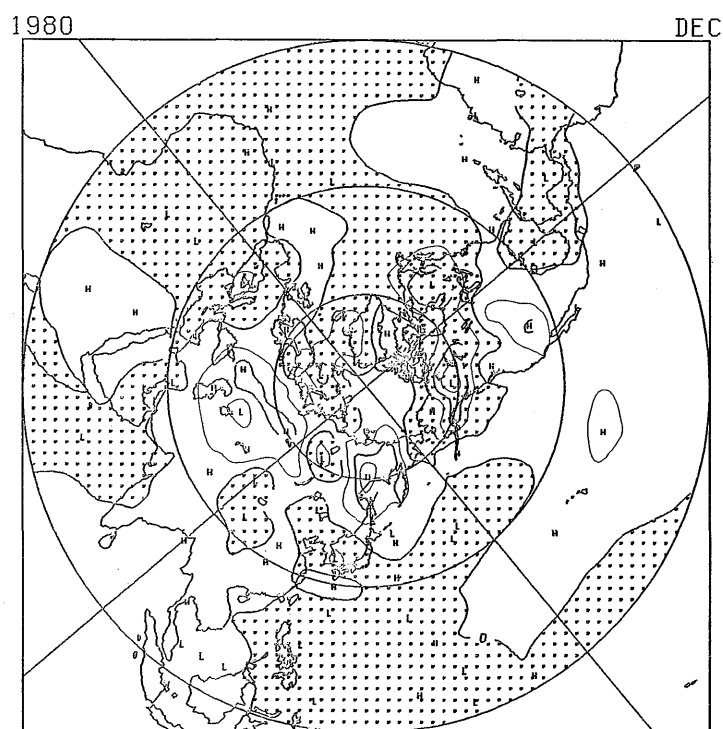
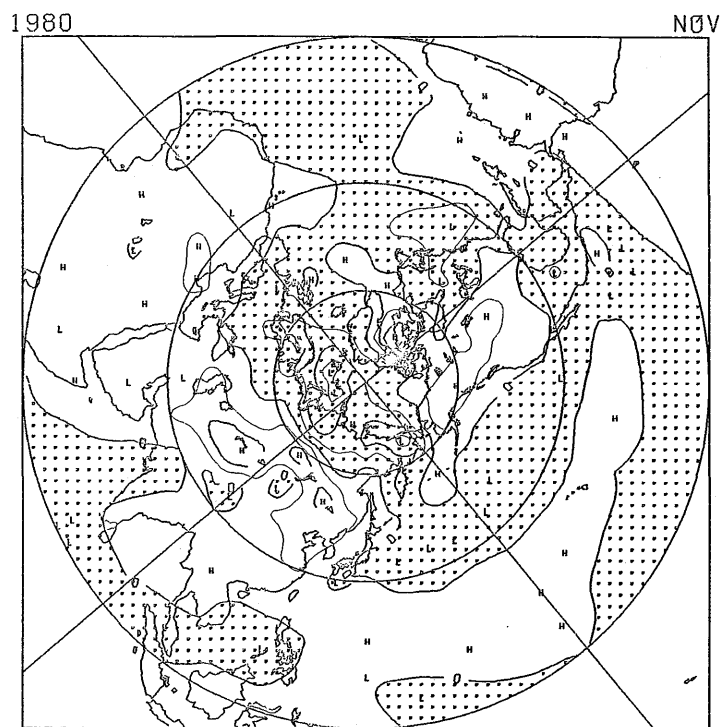
SEPT

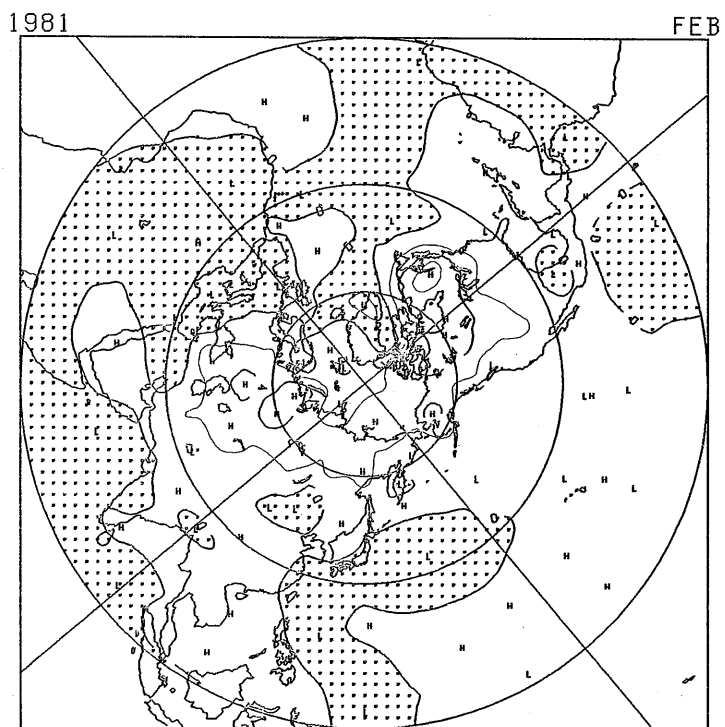
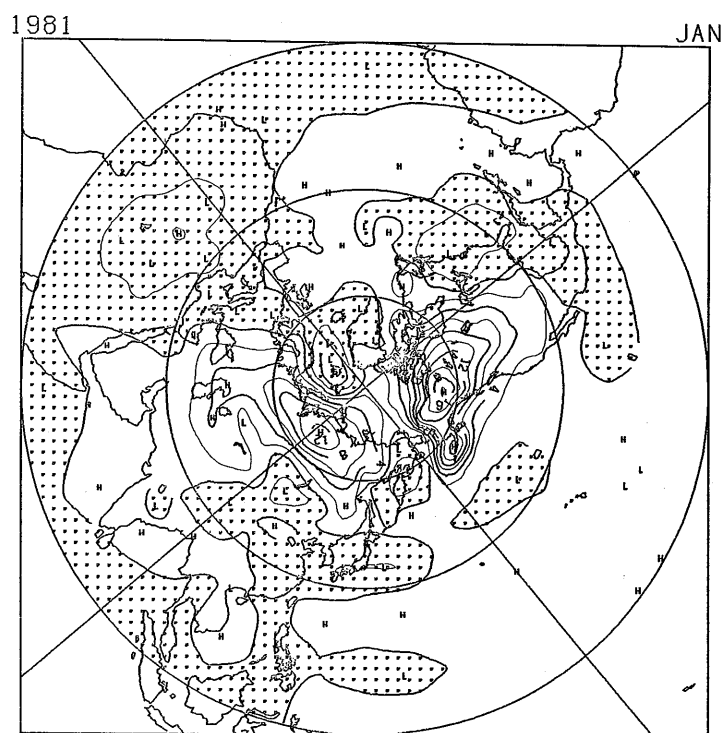


1980

OCT



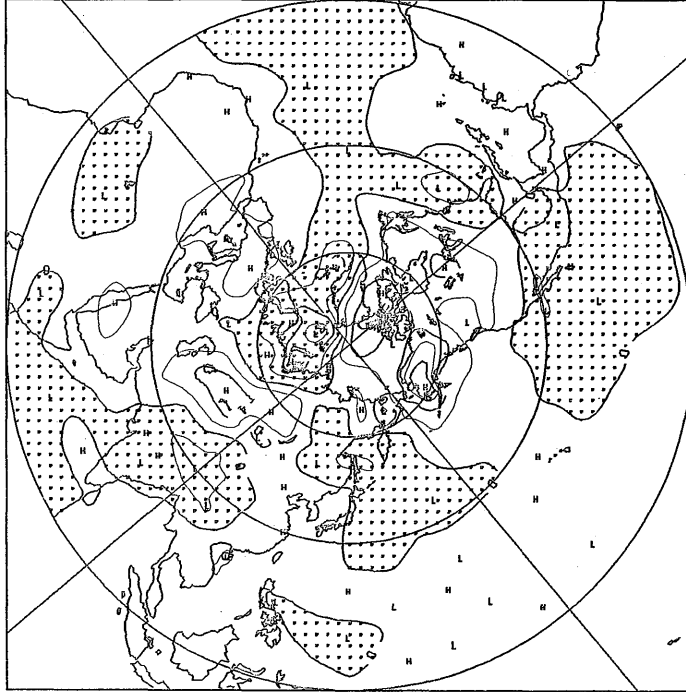




1981年
1月

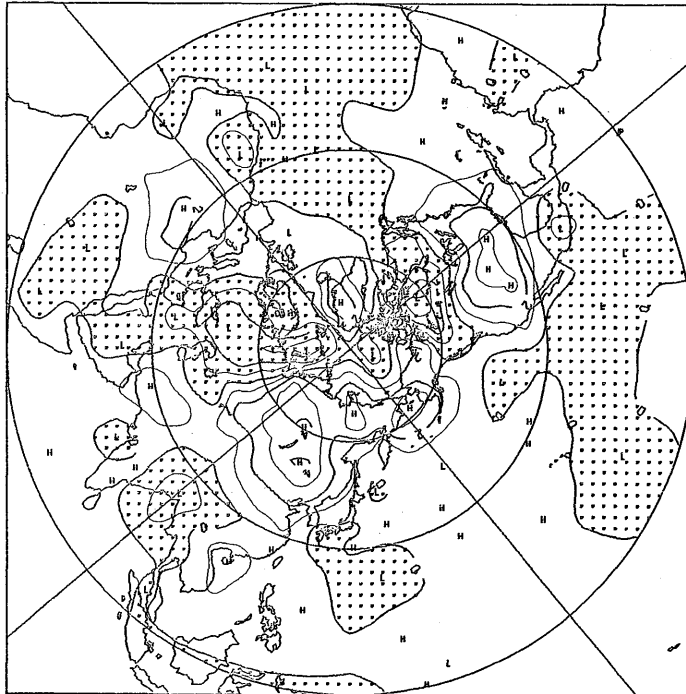
1981

MAR



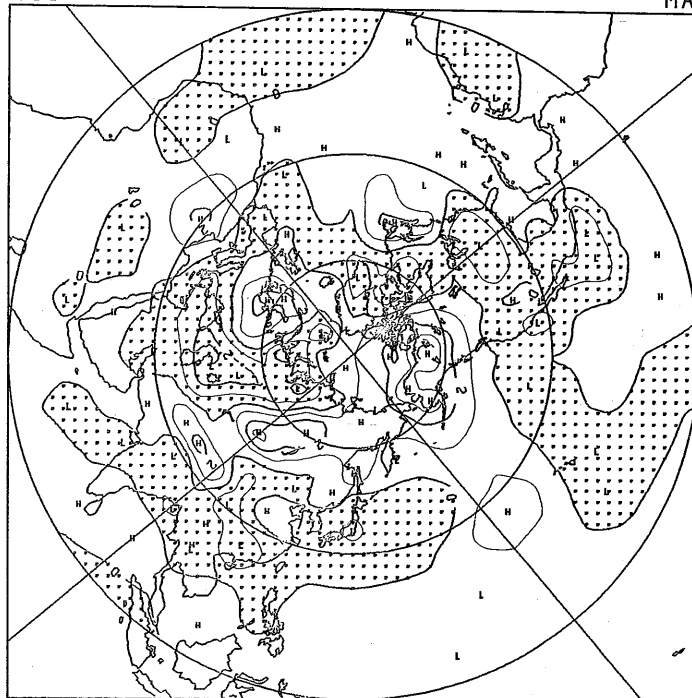
1981

APR



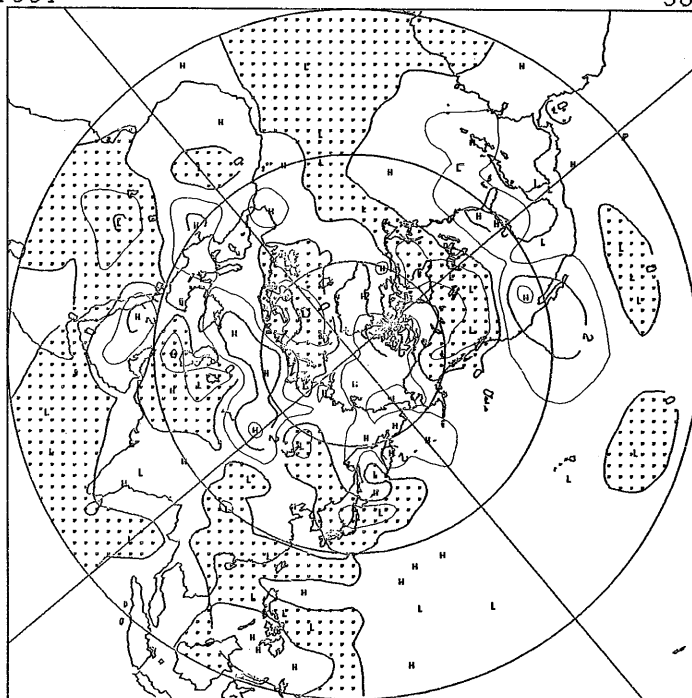
1981

MAY



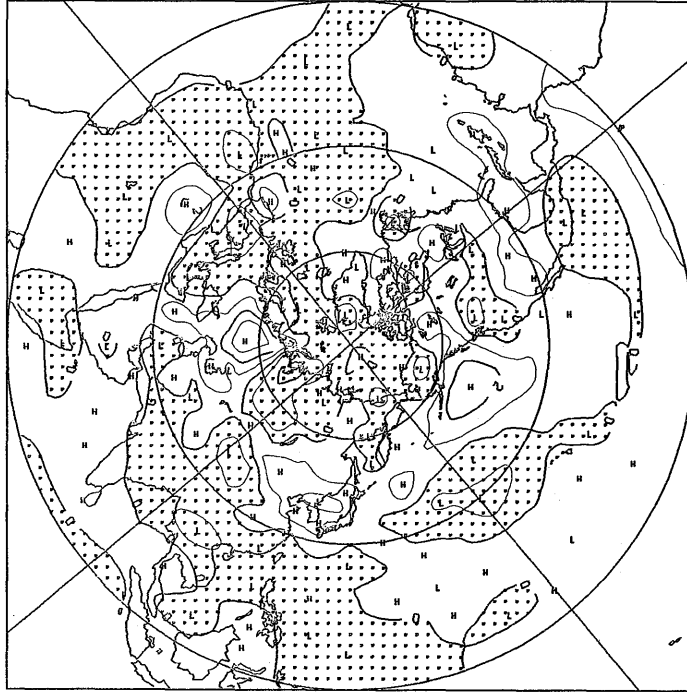
1981

JUN



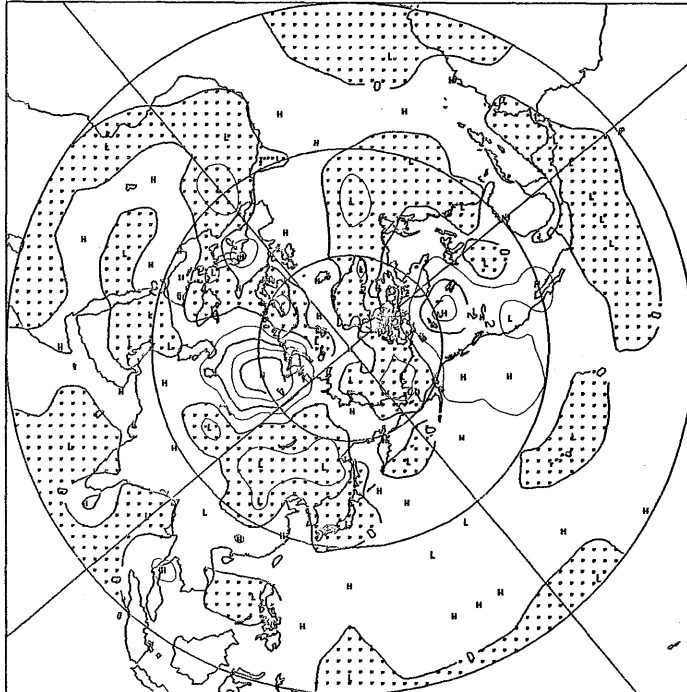
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JUL



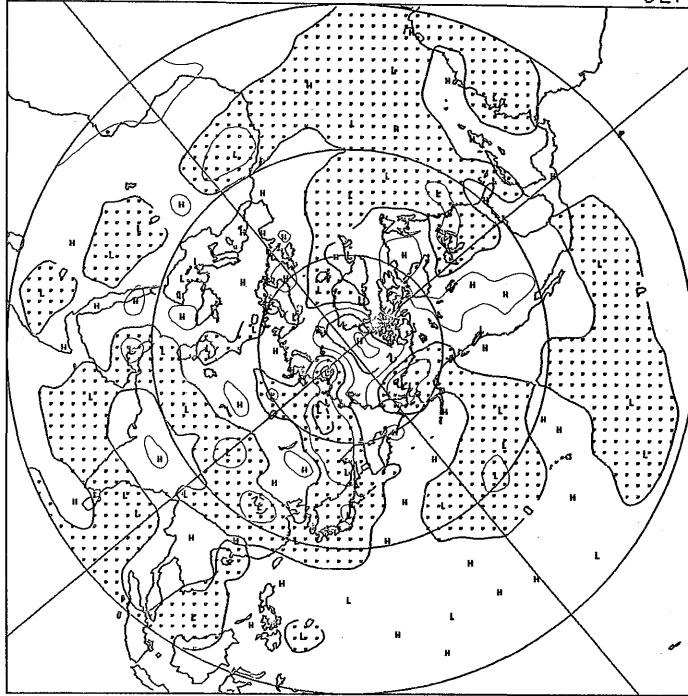
1981

AUG



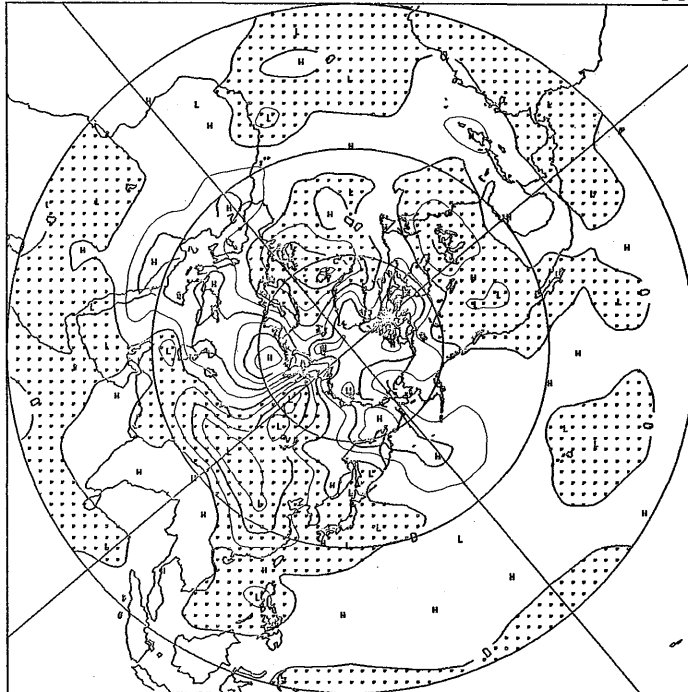
1981

SEPT



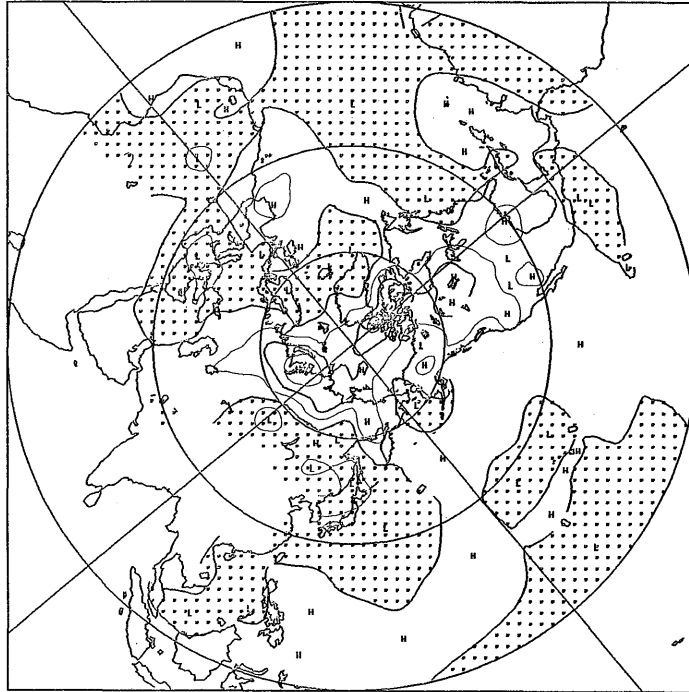
1981

OCT



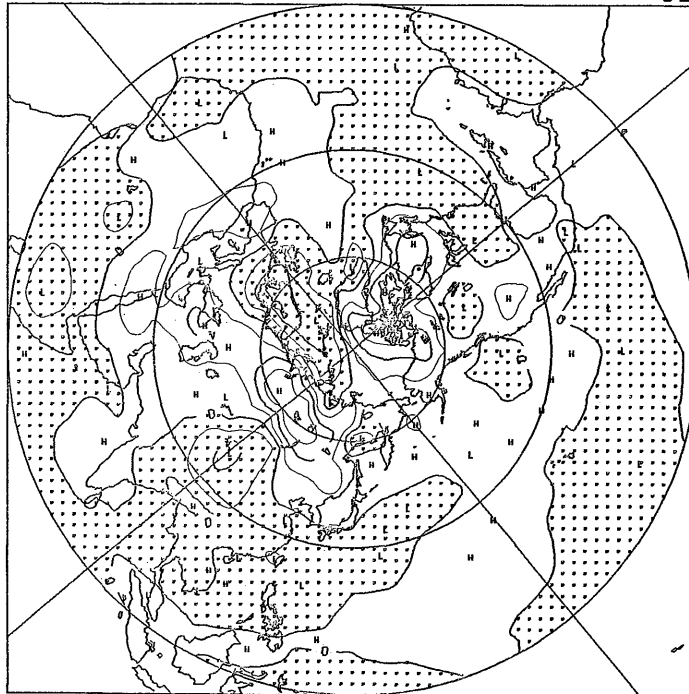
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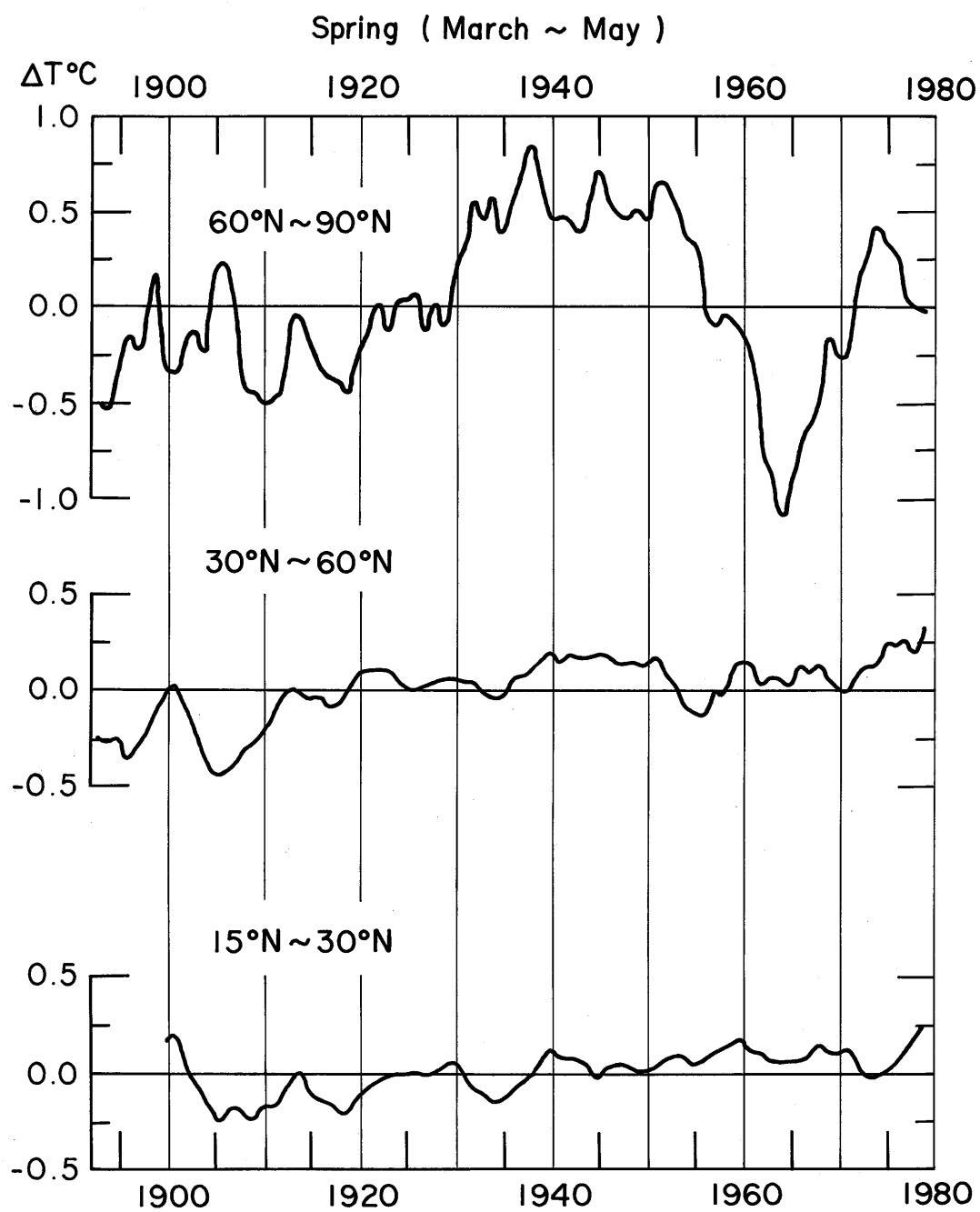
NOV

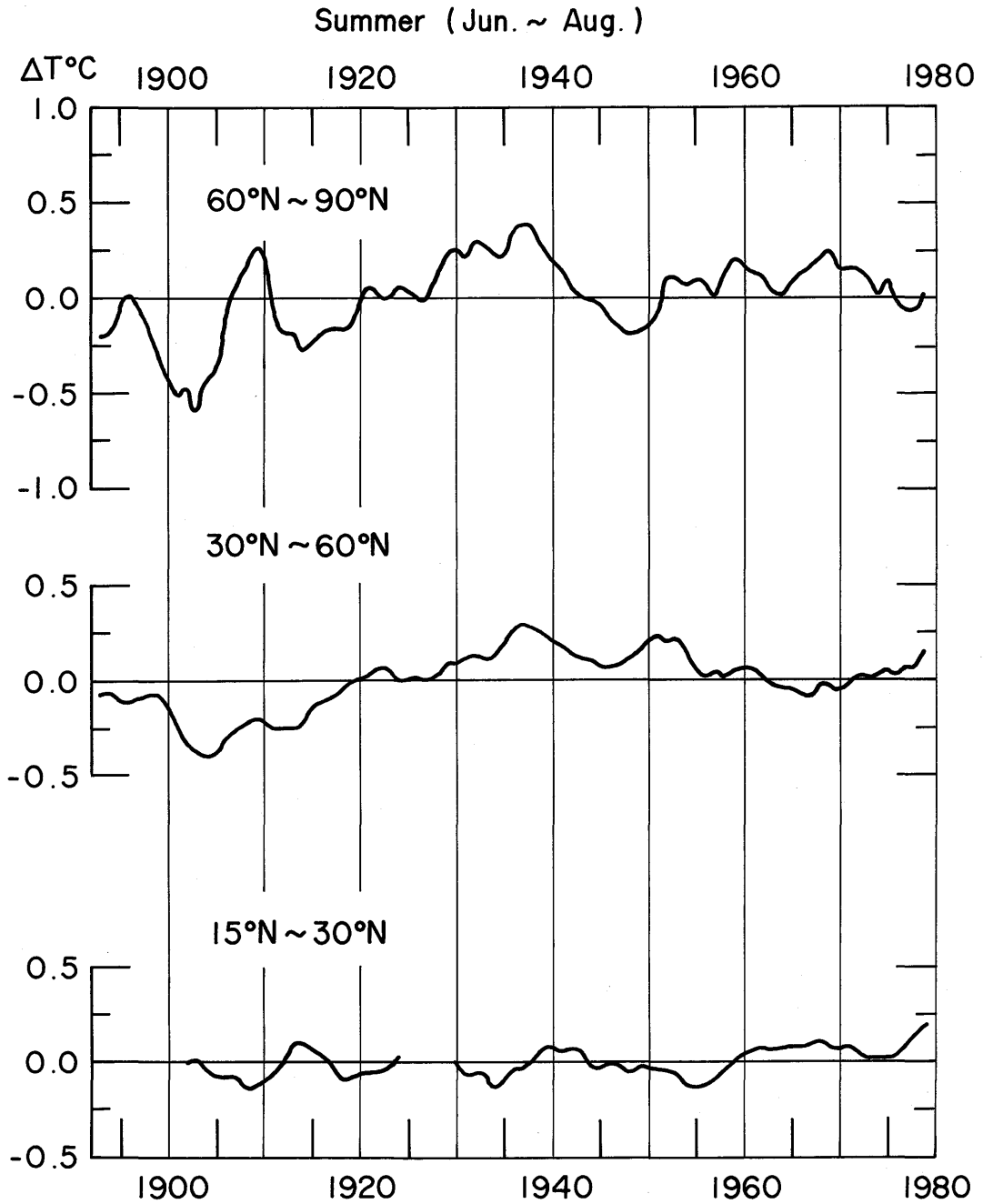


1981

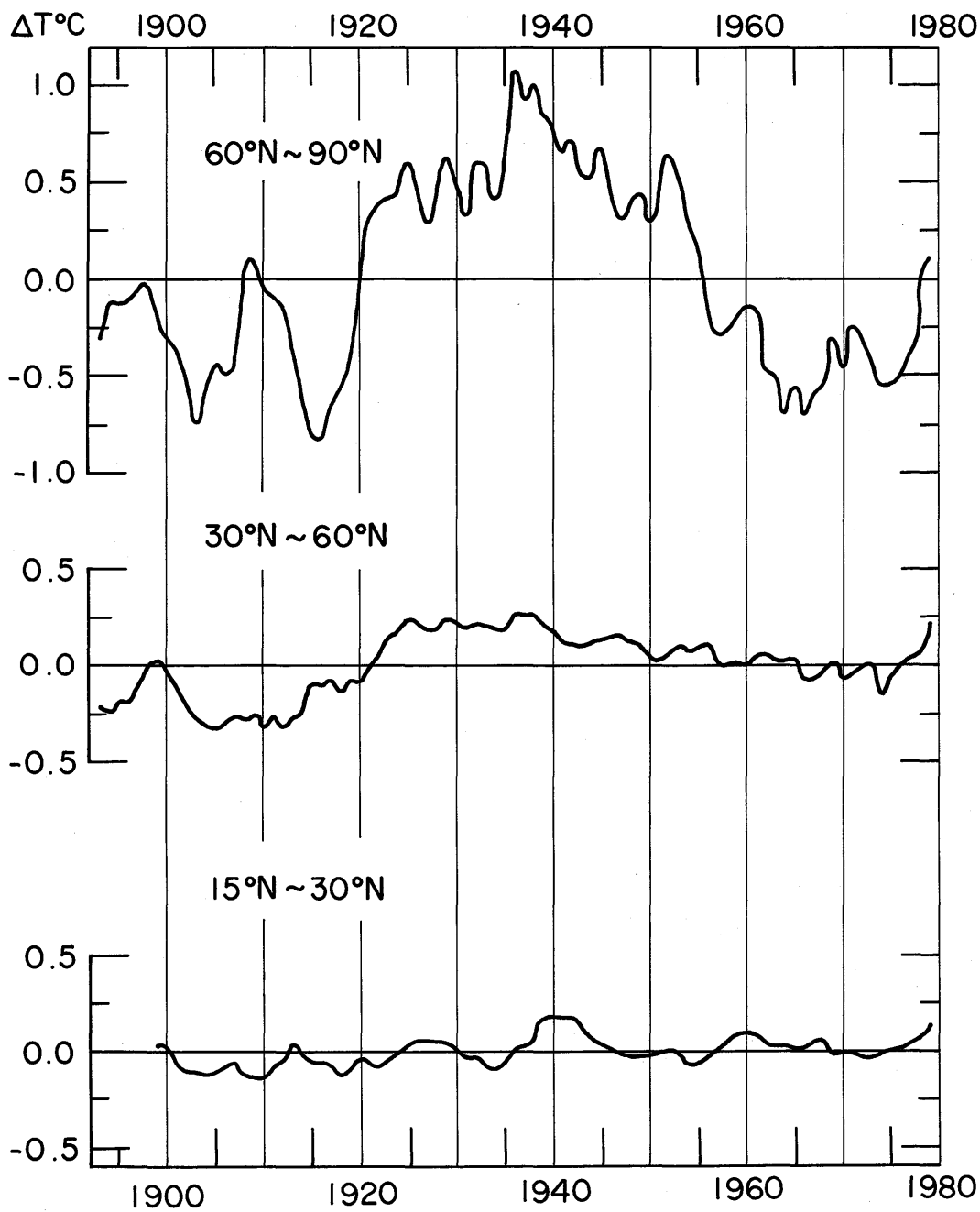
DEC

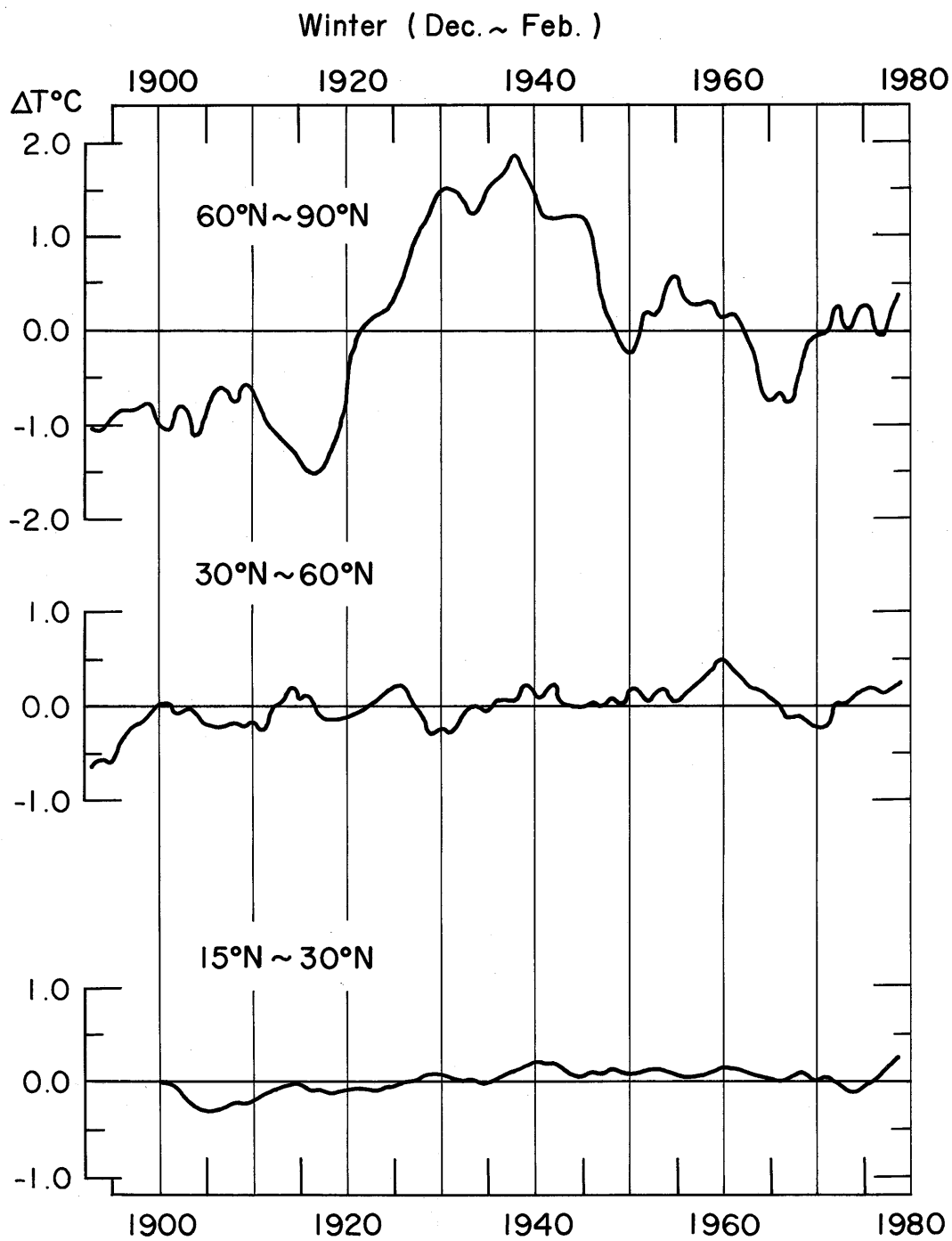


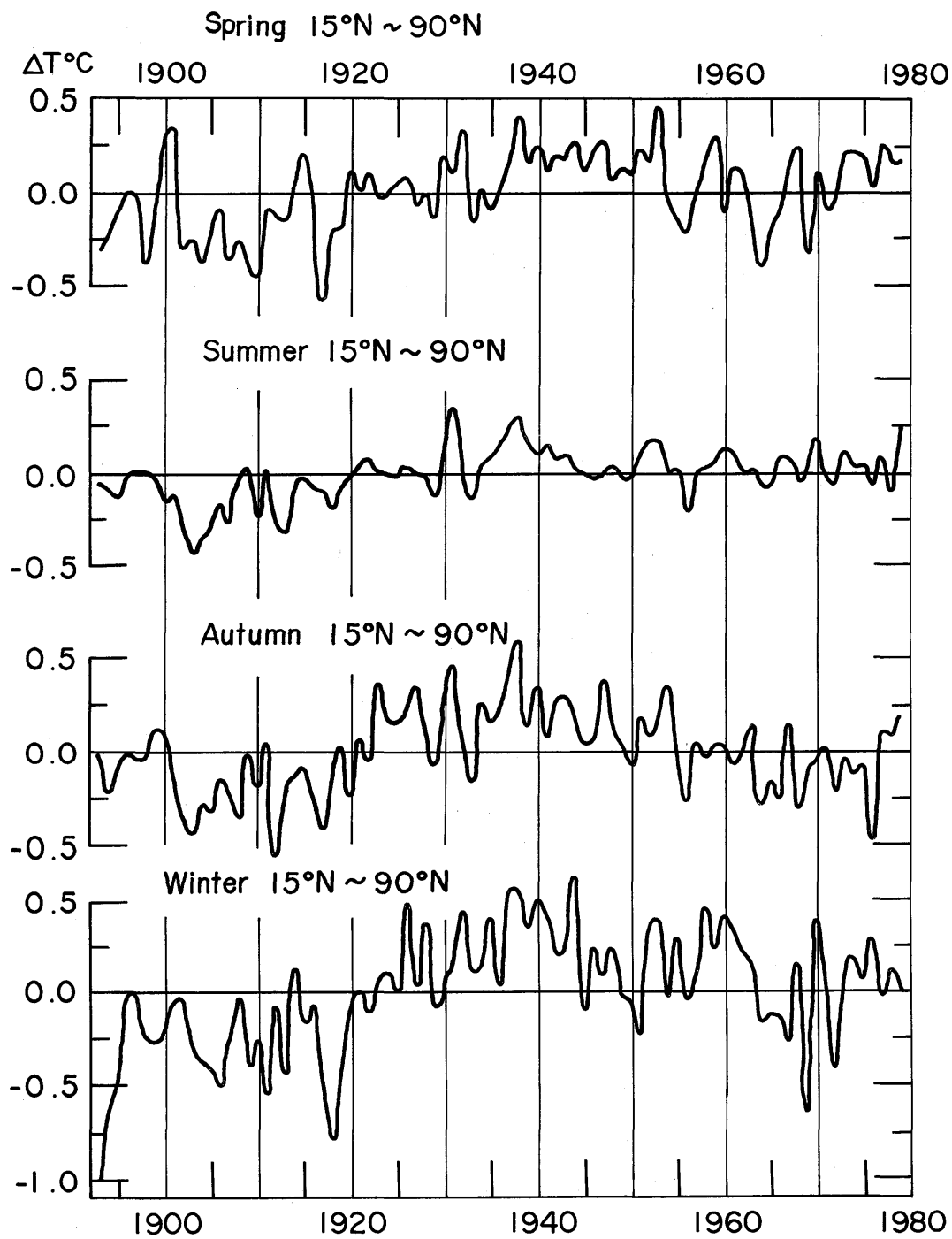




Autumn (Sept. ~ Nov.)







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1946（昭和 21 年）設立

所 長 ： 理 博 柳 原 一 夫

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台 風 研 究 部	部 長	：	正 村 敬 三
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