

付録 E 入力データフォーマット

GPV 前処理 (Figure B.1 の PreGpv[E|M|L]f) に入力する定数データと ATM 計算 (PrePoint および FcATM) に入力する前処理した GPV の要素一覧を記す。

E.1 定数データフォーマット

いずれも乾性沈着過程で用いる空気力学的抵抗を求めるための定数データである植生パラメータ、植生分布、海面水温 (SST) の気候値のフォーマットをそれぞれ付録 E.1.1, E.1.2, E.1.3 に示す。植生分布と SST の水平分解能は 640×320 の標準的な矩形ガウス格子である。

E.1.1 植生パラメータ

Table E.1 Data format of vegetation parameter (veg.dat). The extents of vegetation type ityp = 25 (1–12: Northern Hemisphere, 13–24: Southern Hemisphere, 25: Ice sheet), months imon = 12 and icg = 2.

Variable name	Variable type	Description	Unit	Remarks
Record #1 (Omitted)				
Record #2				
xgreen(ityp*imon*icg)	real(8)	(Omitted)		Not used in ATM
xcover(ityp*imon*icg)	real(8)	(Omitted)		Ditto
xzlt(ityp*imon*icg)	real(8)	(Omitted)		Ditto
x0x(ityp*imon)	real(8)	Roughness length	m	
xd(ityp*imon)	real(8)	Zero-plane displacement	m	

E.1.2 植生分布

Table E.2 Data format of vegetation type (typ.dat). Grid numbers nx_surf = 640 in the West–East direction and ny_surf = 320 in the South–North direction.

Variable name	Variable type	Description	Unit	Remarks
imask(nx_surf*ny_surf)	integer(4)	Vegetation type	-	0 (Water) – 13 (Ice sheet)

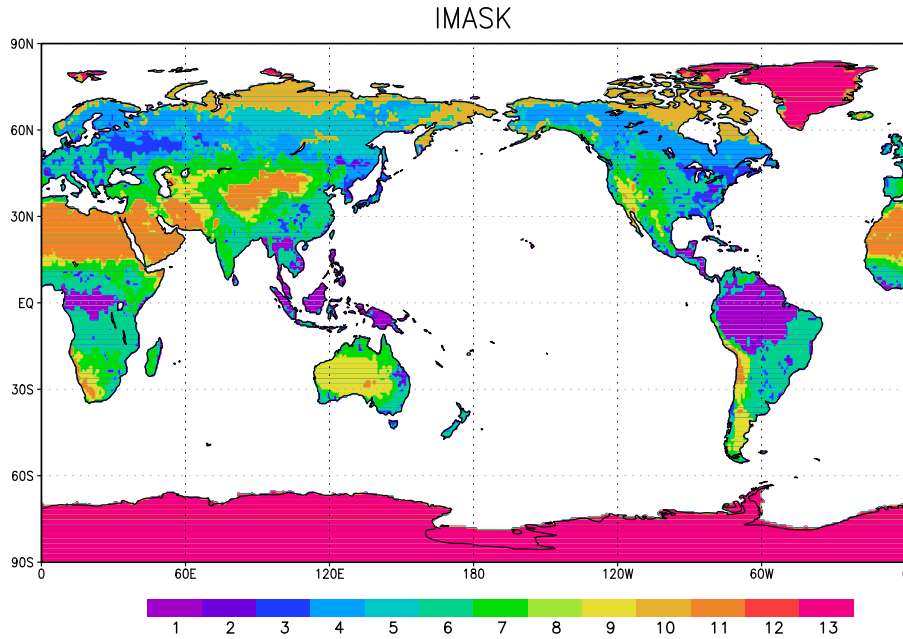


Figure E.1 Distribution of vegetation type (*typ.dat*). 1: Broadleaf evergreen, 2: Broadleaf deciduous, 3: Mixed broadleaf deciduous and needleleaf evergreen, 4: Needleleaf evergreen, 5: Needleleaf deciduous, 6: Grass and broadleaf deciduous shrubs, 7: Grass, 8: Broadleaf deciduous shrubs, 9: Semi-desert, 10: Tundra, 11: Desert, 12: Cultivated land and 13: Ice sheet (Sato *et al.*, 1989).

E.1.3 海面水温の気候値

Table E.3 Data format of climate values of SST (*sst.dat*). Grid numbers *nx_surf* = 640 in the West–East direction and *ny_surf* = 320 in the South–North direction.

Variable name	Variable type	Description	Unit	Remarks
Record #1–6 (Omitted)				
Record #7 (January, header)				
Record #8 (January)				
level	character(4)	(Omitted)		Not used in ATM
nlem	character(4)	(Omitted)		Ditto
title	character(32)	(Omitted)		Ditto
unit	character(16)	(Omitted)		Ditto
ktsd	integer(4)	(Omitted)		Ditto
ktsa	integer(4)	(Omitted)		Ditto
base	real(4)	Base	K	
amp	real(4)	Amplitude	-	
idata(<i>nx_surf</i> * <i>ny_surf</i>)	integer(2)	SST	(K)	Decode by $\text{base} + \text{amp} * \text{idata}$
Record #9 (February, header)				
Record #10 (February, same format as Record #8)				
...				
Record #29 (December, header)				
Record #30 (December, same format as Record #8)				

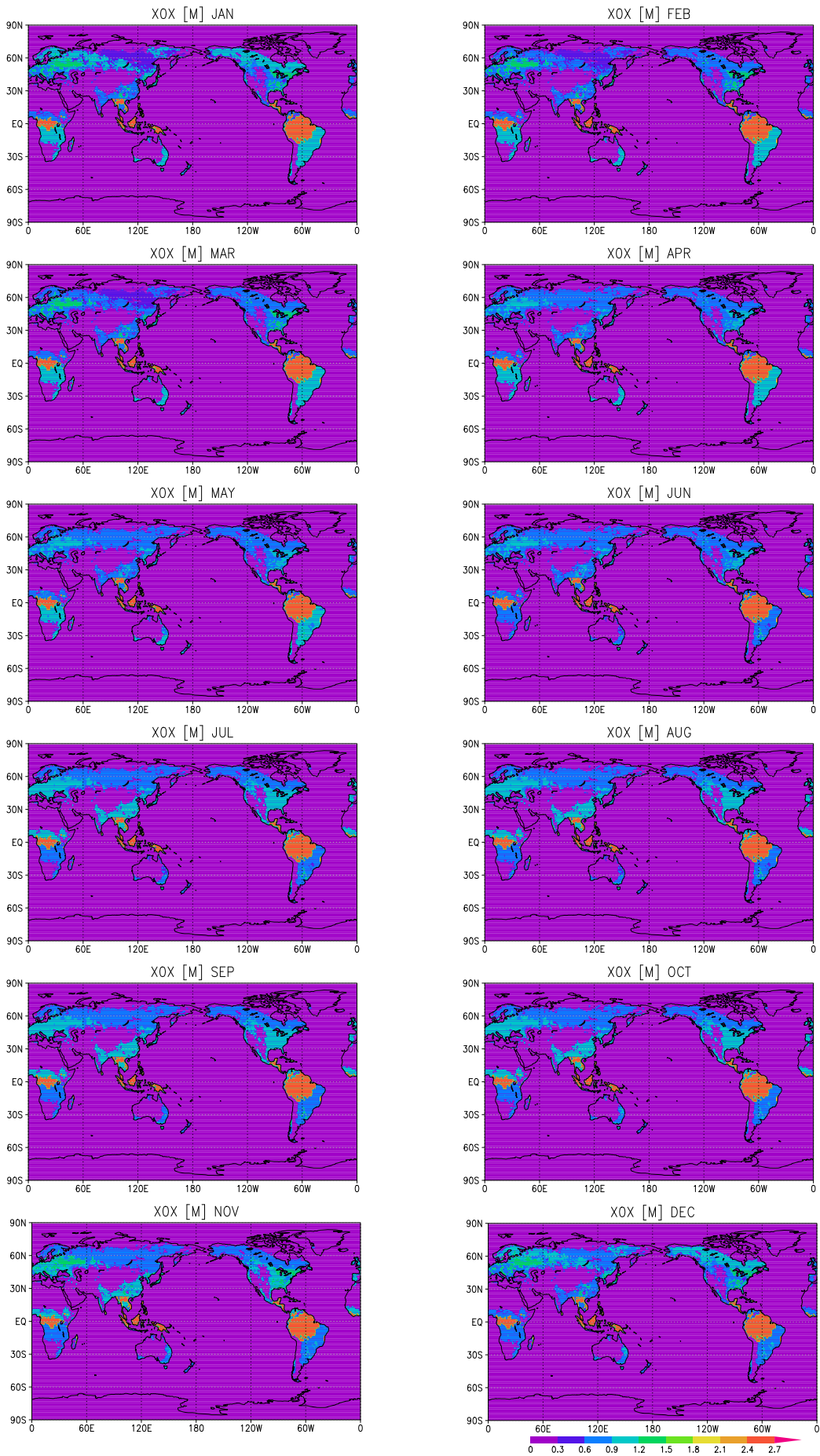


Figure E.2 Monthly distribution of roughness length with vegetation parameter (veg.dat)

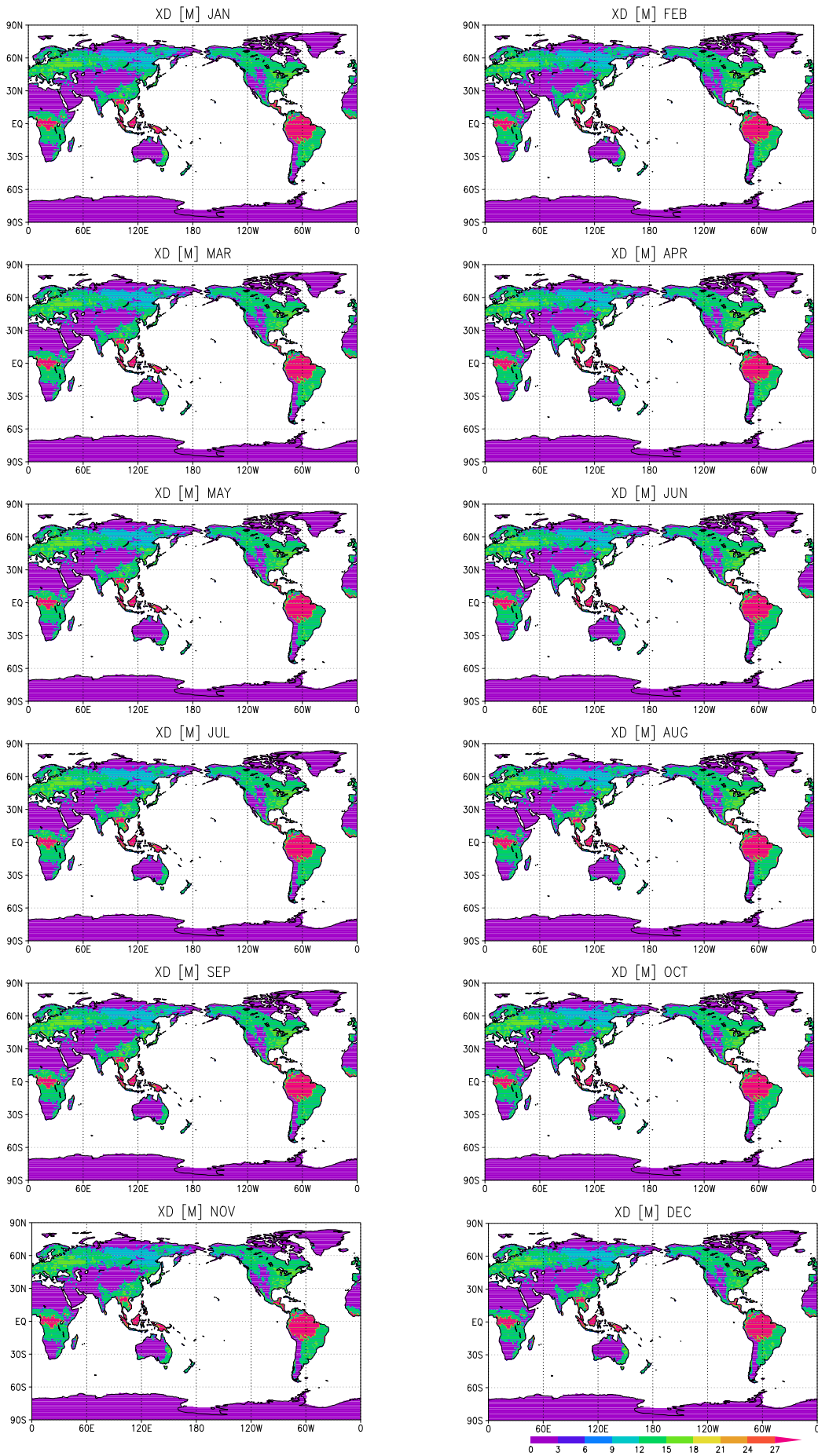


Figure E.3 Monthly distribution of zero-plane displacement with vegetation parameter (veg.dat)

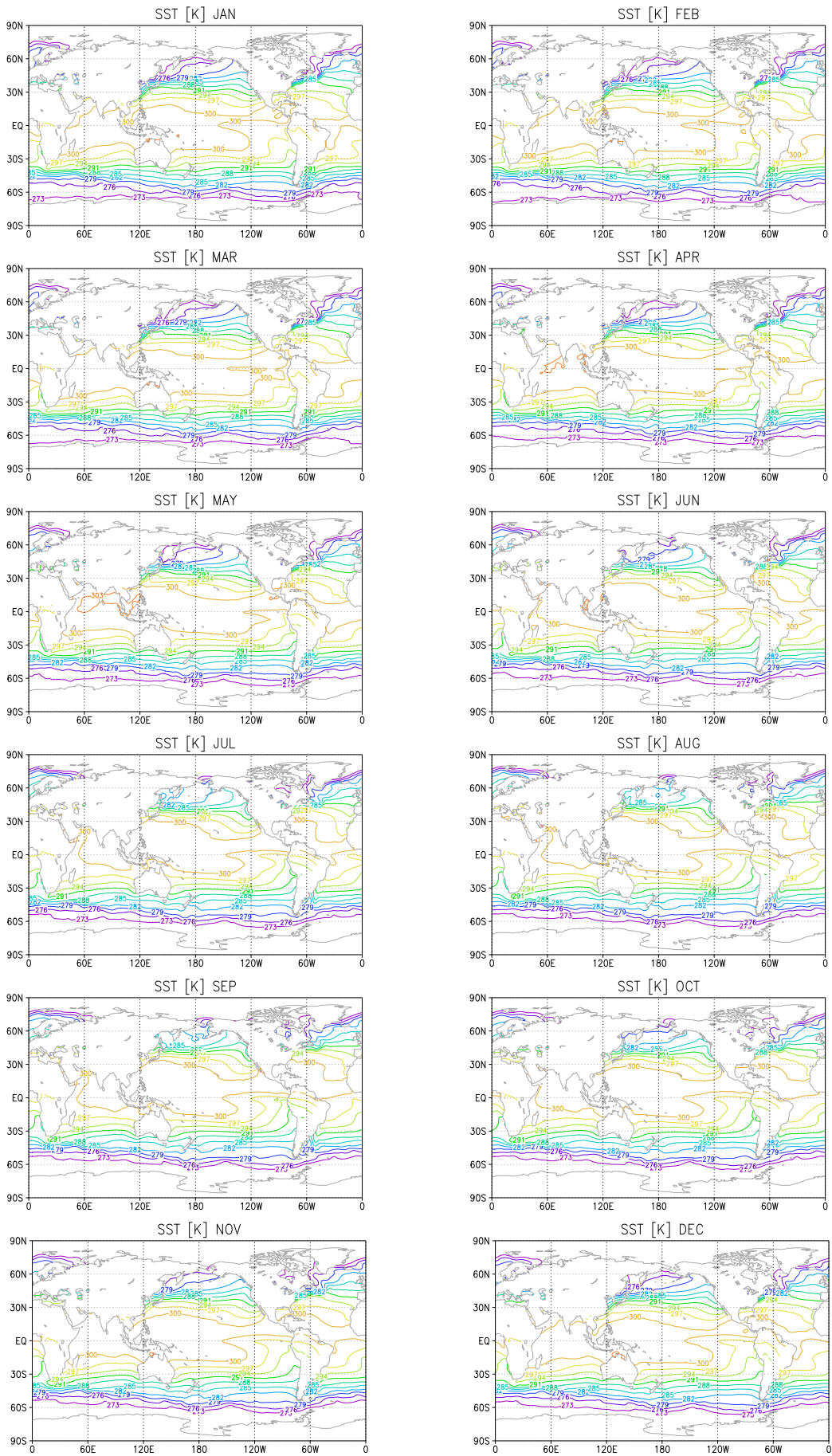


Figure E.4 Monthly distribution of SST (sst.dat)

E.2 NuSDaS による入力要素一覧

ATM に入力する GPV は、気象庁数値予報システムの格子点値フォーマットである NuSDaS のデータセットで格納している。前処理後の ATM 計算へ入力する GPV の要素を付録 E.2.1 に示す。前処理前の元の数値予報 GPV の入力要素については Table 4.1 および GSM, MSM, LFM の各マニュアル（例えば、JMA, 2019）を参照されたい。

E.2.1 ATM 計算の入力 GPV

Table E.4 Elements of input GPV (`pre.gpv.nus`) to the JMA-ATM. The data type names of `type1 = _ATMFGZZ`, `type2 = FCSV` and `type3 = GPV1`. SURF and NZ_GPV mean surface and the number of atmospheric planes (footnote 2 of § 4.1), respectively.

Element	Meaning	Unit	Plane	Remarks
Z	Altitude	m asl	SURF, 1, 2, ..., NZ_GPV	Only initial time in cases of MSM and LFM Modeled terrain elevation is stored in SURF
SL	Land coverage rate	0.01%	SURF	Only initial time 0 (Sea) – 1 (Land)
FLAT	Latitude	°	SURF	Only initial time
FLON	Longitude	°	SURF	Only initial time
UU	Horizontal wind speed in the West–East direction	m/s	SURF, 1, 2, ..., NZ_GPV	
VV	Horizontal wind speed in the South–North direction	m/s	SURF, 1, 2, ..., NZ_GPV	
W	Vertical wind speed	m/s	1, 2, ..., NZ_GPV	
Dens	Air density	kg/m ³	SURF, 1, 2, ..., NZ_GPV	
T	Air temperature	K	SURF, 1, 2, ..., NZ_GPV	
P	Air pressure	hPa	SURF, 1, 2, ..., NZ_GPV	Only initial time in case of GSM (except SURF)
EDDYKH	Turbulent diffusion coefficient	m ² /s	1, 2, ..., NZ_GPV	Vertical component
ra	Aerodynamic resistance	s/m	SURF	
CWC	Cloud water content	kg/m ³	1, 2, ..., NZ_GPV	
CTOP	Cloud top	m asl	SURF	<i>cf.</i> Table D.5
CBASE	Cloud base	m asl	SURF	
SMQR1H	Precipitation intensity (Rain)	mm/h	SURF	
SMQS1H	Precipitation intensity (Snow)	mm/h	SURF	
SMQG1H	Precipitation intensity (Graupel)	mm/h	SURF	