

## 付録 F 出力データフォーマット

ESP 関連 (Figure B.1 の PrePoint, IniESP および IniComb) と ATM 計算本体 (FcATM) から出力する可変データと NuSDaS で出力する格子データの要素一覧を記す。

### F.1 可変データフォーマット

放出地点の大気プロファイルを付録 F.1.1、ATM の粒子出力のフォーマットを付録 F.1.2 に、タグ出力のフォーマットを付録 F.1.3 に示す。粒子出力のフォーマットは ESP と ATM 本体で共通である。ESP の出力データはまた ATM 本体の入力データとなり初期値を与える。

#### F.1.1 大気プロファイル

Table F.1 Text format of atmospheric profiles above emission points (`point_stagenn.txt`,  $nn = 1, 2, \dots, n\_stage$ ).  $nz\_gpv = NZ\_GPV + 1$  ( $NZ\_GPV$  is the number of atmospheric planes of Table E.4).

Column index	Variable type	Description	Unit	Remarks
<b>Row #1</b> (Header caption)				
<b>Row #2</b> (Surface)				
1	integer	Start time of emission (year)	UTC	
2	integer	Start time of emission (month)		
3	integer	Start time of emission (day)		
4	integer	Start time of emission (hour)		
5	integer	Start time of emission (minutes)		
6	real	Altitude above emission point	m asl	Modeled terrain elevation at surface
7	real	Eastward wind speed	m/s	
8	real	Northward wind speed	m/s	
9	real	Vertical wind speed	m/s	Null value at surface
10	real	Air density	kg/m <sup>3</sup>	
11	real	Air temperature	K	
12	real	Air pressure	hPa	
<b>Row #3</b> (The first atmospheric plane, same format as Row #2)				
...				
<b>Row #nz_gpv+1</b> (The NZ_GPV-th atmospheric plane, same format as Row #2)				
<b>Row #nz_gpv+2</b> (Partition line)				

F.1.2 粒子出力ファイル

Table F.2 Data format of tracer particles (`ini_particle.dat` and `fcst_particle.dat`). Variable type of integer means integer(4), real are selectable from real(4) or real(8).

Variable name	Variable type	Description	Unit	Remarks
<b>Record #1</b>				
<code>n_tracer</code>	integer	Total number of tracer	-	Sum of <code>n_tracer_stage</code>
<code>n_stage</code>	integer	Total number of emission source (stage)	-	
<code>basetime_gpv(5)</code>	integer	Base time of GPV	UTC	TIMECARD
<b>Record #2</b>				
<code>source_name_stage(n_stage)</code>	character(24)	Name of source	-	
<code>source_lat_stage(n_stage)</code>	real	Latitude of source	°	
<code>source_lon_stage(n_stage)</code>	real	Longitude of source	°	
<code>emission_start_time_stage(n_stage,5)</code>	integer	Start time of emission	UTC	TIMECARD_RUN
<code>emission_duration_stage(n_stage)</code>	real	Duration of emission	s	
<code>emission_mass_stage(n_stage)</code>	real	Mass of emission	kg	
<code>source_btm_asl_stage(n_stage)</code>	real	Bottom altitude	m asl	
<code>source_top_asl_stage(n_stage)</code>	real	Top altitude of source	m asl	
<code>n_tracer_stage(n_stage)</code>	integer	Number of tracer in this stage	-	
<b>Record #3- (Repetition until the end of forecast time)</b>				
<code>tracer_id(n_tracer)</code>	integer	ID of tracer	-	Same as 1st field of Table F.3
<code>elapsed_time</code>	real	Elapse time	s	From base time
<code>tracer_release_time(n_tracer)</code>	real	Release time of tracer	s	Ditto
<code>tracer_current_time(n_tracer)</code>	real	Current/Stop time of tracer	s	Ditto
<code>tracer_lat(n_tracer)</code>	real	Latitude of tracer	°	
<code>tracer_lon(n_tracer)</code>	real	Longitude of tracer	°	
<code>tracer_alt(n_tracer)</code>	real	Altitude of tracer	m asl	
<code>tracer_size(n_tracer)</code>	real	Diameter of tracer	m	
<code>tracer_dens(n_tracer)</code>	real	Density of tracer	kg/m <sup>3</sup>	
<code>tracer_mass(n_tracer)</code>	real	Mass of tracer	kg	
<code>n_falg_status(n_tracer)</code>	integer	Status flag of tracer	-	
<code>n_falg_result(n_tracer)</code>	integer	Result flag of tracer	-	

### F.1.3 タグ出力ファイル

Table F.3 Data format of tracer tags (`ini_tag.dat`). `n_tracer` and `n_stage` are given by Table F.2. Variable type of integer means integer(4).

Variable name	Variable type	Description	Unit	Remarks
<code>tracer_id(n_tracer)</code>	integer	ID of tracer	-	1, 2, ..., <code>n_tracer</code>
<code>emission_stage_id(n_tracer)</code>	integer	ID of emission stage	-	1, 2, ..., <code>n_stage</code>
<code>emission_point_id(n_tracer)</code>	integer(8)	ID of emission point	-	18th field of Table D.17

## F.2 NuSDaS による出力要素一覧

ATM から出力する格子データは NuSDaS のデータセットで格納している。出力要素を付録 F.2.1 に示す。

### F.2.1 ATM 計算の格子出力データ

Table F.4 Elements of output (`fcst_atm.nus`) from the JMA-ATM. The data type names of `type1 = _ATMLLLY`, `type2 = FCAV` and `type3 = STD1`. SURF and NZ\_ATM mean surface and the number of atmospheric planes set by Table D.16, respectively. Time attribute of TDEP, FOUT, DDEP, WOUT and ROUT is defined by `n_switch_atm_value_deposit` and that of TCLM and ACON is defined by `n_switch_atm_value_concent` of Table D.15.

Element	Meaning	Unit	Plane	Remarks
TDEP	Total deposition	kg/m <sup>2</sup>	SURF	= FOUT + DDEP + WOUT + ROUT
FOUT	Gravitational fallout	kg/m <sup>2</sup>	SURF	N/A
DDEP	Dry deposition	kg/m <sup>2</sup>	SURF	
WOUT	Wet scavenging (Washout)	kg/m <sup>2</sup>	SURF	
ROUT	Wet scavenging (Rainout)	kg/m <sup>2</sup>	SURF	
MAXD	Maximum grain size	m	SURF	From start to valid time
CTOP	Tracer cloud top	m asl	SURF	Snap value at valid time
CBASE	Tracer cloud base	m asl	SURF	Ditto
TCLM	Total column content	kg/m <sup>2</sup>	SURF	
ACON	Atmospheric concentration	kg/m <sup>3</sup>	1, 2, ..., NZ_ATM	