VI.5.3C-MAT PROGRAM FCST MEAN AREAL TEMPERATURE FUNCTION (MAT)

Purpose

Function MAT is a preprocessor Function that creates 6 hour Mean
Areal Temperature time series.

MAT time series are used by the Forecast Function (FCEXEC) as input
to the snow accumulation and ablation model.

Function MAT reads maximum/minimum and instantaneous (1, 3 and 6
hour) temperature data from the Preprocessor Data Base, corrects the
data, estimates missing data, calculates 6 hour means for all
stations and calculates 6 hour MAT values.

Instantaneous data are processed before the maximum/minimum data so
that the diurnal variations of the 6 hour means at the instantaneous
stations can be used to calculate the 6 hour means at the
maximum/minimum stations. Missing instantaneous data are estimated
from surrounding instantaneous stations and missing maximum/minimum
data at instantaneous stations are estimated from the instantaneous
values. If more than two values are missing from a 6 hour
instantaneous station, or if at least one value can not be estimated,
the station is treated as a maximum/minimum station.

Missing maximum/minimum data at maximum/minimum stations are
estimated from surrounding stations. If values can not be estimated
then a blend procedure is used. If no previous data are available
for the blend then the long-term monthly mean is used.

Forecast maximum/minimum temperature data are used to compute MAT
values for future data days. Maximum/minimum values are estimated at
all stations from the available forecast maximum/minimum data. A
fixed diurnal variation is used to calculate 6 hour means from the
maximum/minimum values.

MAT values are computed for all MAT areas defined by the user. MAT
values are computed for full days, but the Function has the
capability to use available instantaneous data on a partial day when
a forecast update run is made after the regular morning forecast.
Display options include the capability to print observed
instantaneous data, observed maximum/minimum data, forecast
maximum/minimum data and computed MAT values.

A technical description of Function MAT is in Chapter II.7-OFS-MAT
[Hyperlink].

HCL Input

Input to Function MAT is through the Hydrologic Command Language
(HCL).

The input consists of Techniques and their Arguments (see Section
VI.5.3C-MAT-TECH [Hyperlink]).

Sample HCL Input

The following example will produce an MAT run from 3 days before
TODAY to 5 days after TODAY. The last observed data value was for
May 4, 1983 at 12Z. The computed MAT values will be printed.

```
@SETOPTIONS
 STARTRUN *-3
 ENDRUN   *+5
 LSTCMPDY 05048312Z
 PRTMAT
@COMPUTE MAT
@STOP
```

Output

There are two types of output from Function MAPX. The first is
printer output. The second is time series data written to the
Processed Data Base.

Error Messages

Error messages printed by Function MAT are described in Section
VI.5.3C-MAT-ERROR [Hyperlink].