DAILY SYNOPTIC UPPER-AIR REPORTS

The upper-air reports are derived in the same general manner as the surface data. For the most part, these observations have been for O3002, especially in Canada, Alaska, and the United States, with some additional observations at other hours when the station does not report at or near O3002. In the U.S.S.R. observations for all available hours have been included. Stations using the 1945 Radiosonde Code use the convention of adding 50 to the Greenwich time to indicate that part of the observation above 400 millibars of pressure, commonly known as the "second transmission." Many stations outside North America indicate the time of observation other than on-the-hour by adding to the Greenwich hour 25, for 15 minutes past the hour; 30, for 30 minutes; and 45, for 45 minutes. Although this has not been 'subtracted out' of the reports, the data have been listed chronologically by hour within station.

Assignment of Index Numbers:
The same method used in assigning station numbers in surface reports has been employed.

Station Lists:
The upper-air numerical station index which precedes the upper-air data is presented in the same form as the surface index. The alphabetic index following the charts includes all stations, both surface and upper-air. Stations for upper-air only are designated with a single asterisk; those for both upper-air and surface, with two asterisks; while those for surface only are indicated by triangles.

Method of Presentation:
The upper-air data are presented in the same general way as the surface data. Stations are listed numerically within certain geographical areas according to their International Index Numbers. The teletype data have been edited for obvious errors, garbled data, etc.; but no attempt has been made to present the various wire codes and radiosonde codes in a standard form. To the right of each line of the listed observations is a code number which indicates the type of code used for that report, as follows:

1. PIBAL
2. RAWIN
3. RABAL
4. Russian PIBAL
5. TEMPS
6. PRAM
7. PRAT
8. CORAC
9. 1945 Radiosonde Code
10. Russian RABAL

While the upper-air observations usually have more than one line to an observation, the station number and hour appear only on the first line.

All land stations are listed first, and are followed by ship reports.

Description of Codes:
1. Winds Aloft
a. IIIOG Gddv
b. IIIOG Hddv

The meaning of symbols in above codes, whose values will be found in tables of international codes and symbols, is as follows:

C International cloud code.
Cl Form of low cloud (International code).
Cm Form of middle cloud (International code).
dd Wind direction in tens of degrees.
GG Greenwich hour or Moscow time.
H Height in thousands feet/meters.
HH Height of last observation.
Hh Height in hundred meters.
HH Height at which observations were discontinued in tens of meters.
III Station index number.
W Reason for ceasing upper wind observation (International code).

2. RAOBs
a. 1945 Radiosonde Code.

b. TEMPS

2. PRAT

3. CORAC

4. Russian PIBAL

5. Russian RABAL

6. Russian RAWIN

7. Russian PRAM

8. Russian PRAT

9. Russian CORAC

10. Russian 1945 Radiosonde Code
f. Russian RAOB

IIIOG H H H T T T T T H H H T T T T H H H H 98765
H H P P P T T T T U U 0000 H H P P P T T T T U U
Q Q Q Q E E 0000 E E

The meaning of symbols in above codes, whose values will be found in tables of international codes and symbols, is as follows:

A 01 01 Form of additional data follows (1945 Radiosonde code).
DD Direction of wind near ground on 32-point scale.
dd Wind direction in tens of degrees.
EE Equivalent potential temperature in °C.
GQ Greenwich hour or Moscow time.
HH (PRAT and PRAWT) Height in tens of feet or whole meters dependent on KK.
H H H H H H H H Height in hectometers.
H H H H H H H H Height in hundreds of geodynamic meters.
H H H H H H H H Height to which upper-air observations of temperature and humidity are referred, expressed in geodynamic meters.
H H H H H H H H (Russian code) Height in geodynamic decameters at pressure levels as follows:
1 - 1000 mb 6 - 400
2 - 900 7 - 300
3 - 700 8 - 200 etc.
4 - 500
hh Height of level in 100's of feet or tens of meters according to regional agreement.
hh, h h h h h h, h h h h h h Height in tens of feet or whole meters.
III Station index number.
KK Indicator of form of report in PRAT code.
mm Mixing ratios in grams of water vapor per kilogram of dry air.
nn Significant levels given consecutively, 11, 22, 33, etc.
0 0 0 0 0 0 Thousands figure in heights above M.S.L. of the 1000 mb, 900 mb, etc.
P P Pressure in tens of millibars.
P P P P Pressure in tens of millibars of 1st, 2nd, etc. levels.
P P P P P P Units figure of pressures for following levels which report in tens of millibars.
Q Q Q Q Q Q (Russian code) Mixing ratio in grams and tenths.
T T Temperature of air in whole degrees.
T T T Temperature of air at surface.
T T T T Temperature at certain levels.
T T T T Temperature in degrees and tenths.
U U Relative humidity (International code).
U U Relative humidity in percent (split between 2 groups in PRAT code).
U U Relative humidity in percent at surface.
U U, U U, U V V V Moisture values indicated by x 1.
v v One-fifth actual wind speed.
vv Wind speed.
X Used to make a five digit group.
x 1 x 1 x 1 Indicator figures to show units used, x 1 for heights, x 2 for wind, x 3 for moisture values.
(x International code.)
O Indicator figure for wind group.
0 0 0 0 0 0 Indicates that temperatures and humidities are for fixed pressures, 1000, 900, 800 mb, etc.
0 0, 0 5 7 0, 50 etc. (1945 Radiosonde) Indicator figures for 1000, 850, 700 mb levels.
1 0 1 Indicator for additive data group.
1 1 1 9 9 Indicator for additional groups following.
7 7 7 8 8 8 8 Indicator of form of report in PRAT code.
1 0 1 7 1 Indicator (Russian code) that significant levels follow.
9 8 7 6 5 Indicator of form of report in PRAT code.

The following symbols, not used in the data section, are listed here to explain the symbols in the station models printed at the lower left corner of each upper air map:

HHHH Height in tens of feet above M.S.L.
v v Wind speed in knots; half barb = 5 knots.
whole barb = 10 knots, pennant = 50 knots.