

NCEP Surface Analyses

When and where:

1. U.S./North America – Every 6 hours (00, 06, 12, 18 GMT)
2. U.S. only – every 6 hours (03, 09, 15, 21 GMT)
3. Atlantic Ocean region (every 6 hours)
Pacific Ocean region (every 6 hours)

Data Sources:

SA reports (surface airways), surface synoptic, ship and buoy reports, (~ 1000 obs per map), Plotting models are described elsewhere on the class web site.

Analysis procedure:

After collecting data for ~ 20-30 minutes, an objective analysis of surface pressure is performed on a 127 km grid (“automated isobars”). The first guess field is the previous map. After collecting more data (primarily from ships), a human analyst uses the objective analysis as a guide and modifies it where necessary, especially over oceans. The final data dump is at 43-45 min. (the cut-off time is printed on the map in the southern Gulf of Mexico). Fronts are normally by the human analyst. If first data dump is slow, then only “automated isobars” are sent out.

The human analyst uses a variety of information to improve the isobars and locate the fronts. Among them are: previous surface maps for time continuity, satellite imagery, radar charts, 850 and 500 mb temperature and heights, 1000-500 mb thickness and 500 mb vorticity. Due to time deadlines, however, fronts may be mis-located or not identified. One should always look at the data to see if the fronts are in the right place.

Additional Information:

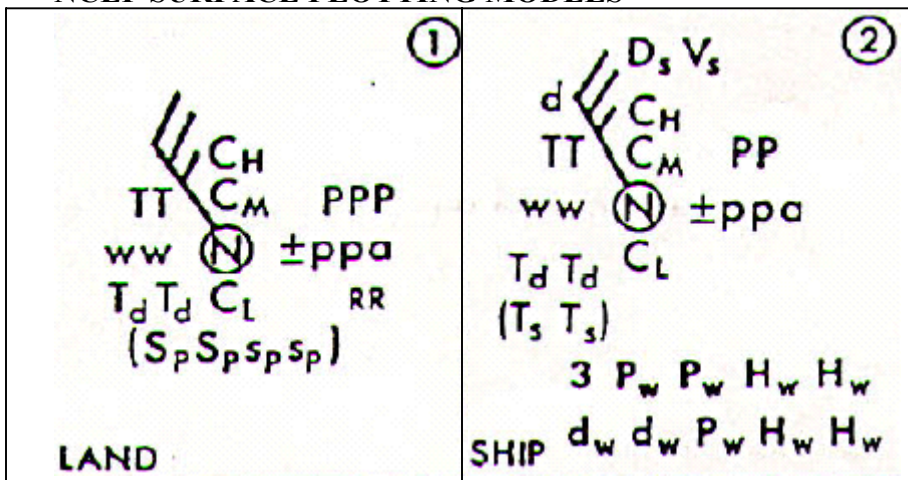
Isobars are solid lines spaced 4 mb apart, with 2 mb dashed intermediates where necessary. Highs and lows are indicated with estimates of central pressure made in whole mb (last 2 digits only.) Fronts are labeled with a frontal specification code indicating the type, intensity and character of the front. The frontal symbols and code identifications are defined elsewhere.

WEATHER ANALYSIS SYMBOLS

These are the symbols generally used by the
National Meteorological Center (NCEP).

| | |
|---------------------------|--|
| COLD FRONT | |
| COLD FRONT ALOFT | |
| WARM FRONT | |
| STATIONARY FRONT | |
| OCCLUDED FRONT | |
| COLD FRONTOGENESIS | |
| WARM FRONTOGENESIS | |
| STATIONARY FRONTOGENESIS | |
| COLD FRONTOLYSIS | |
| WARM FRONTOLYSIS | |
| STATIONARY FRONTOLYSIS | |
| OCCLUDED FRONTOLYSIS | |
| INSTABILITY (SQUALL) LINE | |
| TROUGH | |
| RIDGE | |
| CONVERGENCE LINE | |

NCEP SURFACE PLOTTING MODELS



F_tF_iF_c – FRONTAL SPECIFICATION CODE

F_t – type of front

- 0 Quasi-stationary at surface
- 1 Quasi-stationary aloft
- 2 Warm at surface
- 3 Warm aloft
- 4 Cold at surface
- 5 Cold aloft
- 6 Occluded
- 7 Instability line
- 8 Intertropical front
- 9 Convergence line

F_i – intensity of front

- 0 No specification
- 1 Weak, decreasing (includes frontolysis)
- 2 Weak, little or no change
- 3 Weak, increasing (includes frontogenesis)
- 4 Moderate, decreasing
- 5 Moderate, little or no change
- 6 Moderate, increasing
- 7 Strong, decreasing
- 8 Strong, little or no change
- 9 Strong, increasing

F_c – character of front

- 0 No specification
- 1 Decreasing
- 2 Little change
- 3 Increasing
- 4 Intertropical
- 5 Forming or existence suspected
- 6 Quasi-stationary
- 7 With waves
- 8 Diffuse
- 9 Position doubtful