

Contouring and Analysis

Meteorology 3110

Contouring and Analysis

- Aids in organizing and displaying an enormous quantity of data in a meaningful manner.
- Isopleth: Line of constant value of any parameter.

Isopleths

- List on page 33 of course notes.
- Isobar – pressure
- Isallobar – pressure tendency
- Height contour – height
- Isotherm – temperature
- Isallotherm – temperature tendency
- Isohume – humidity

Types of Analysis

- Subjective: hand analysis (manual)
- Objective: computerized (automated), making use of interpolation schemes.
- Contours should fit the data, yet be smooth enough so that features that are smaller scale than the spacing between observations do not appear.

Method

- Pre-analysis orientation: General inspection
 - Previous weather maps
- Isopleth analysis
 - Lightly at first being sure to fit the data, maintain some smoothness, establish continuity with previous maps.
- Data representativeness
 - Interpret the results, decide which features are significant on the analyzed map.
- Frontal Analysis
- Weather Analysis

Interpolation, not Extrapolation

- Interpolation
 - a process of determining the unknown values that lie in between the known data points.
 - the act of inserting or interjecting an intermediate value between two other values.
- Extrapolation
 - estimating an unknown value based on extending a known sequence of values or facts
 - to infer something not explicitly stated from existing information.
- Contouring involves **interpolation**, not extrapolation.
 - If there is not a data point on both sides of your contour, there should not be a contour there in the first place!

Rules of Isopleths

- The interval between isopleths doesn't normally change.
 - Dash or color isopleths that don't match the interval
- Isopleths are continuous and should never fork or cross.
- Isopleths of the same value should never cross.
- Field is usually smoothed to be consistent with the spacing of the data analyzed.
- By agreement, saddle points, ridge lines, and trough lines are not used (see course notes).

Rules of Isopleths cont.

- Isopleths often do not close off, but run off the edge of the map.
- Do not contour data sparse areas.
 - Use dashed contours in these areas if data is present, but sparse.
 - If data is not present, do not contour.
- Always sketch isopleths lightly with a soft, easily erased pencil line.
 - Darken once final positions are determined.