

1. **DESCRIPTION:** This event emphasizes understanding of basic meteorological principles with emphasis on interpretation and analysis of meteorological data.

A TEAM OF UP TO: 2

APPROXIMATE TIME: 50 Minutes

2. **EVENT PARAMETERS:** Each team may bring one 8.5" x 11" two-sided page of notes containing information in any form from any source.

3. **THE COMPETITION:** The questions will be from the following topics:

- The modern atmosphere:** structure, composition and unique characteristics
- Heat transport:** the energy budget, insolation, albedo, convection, radiation, advection etc.
- Water:** its states and properties as they relate to weather
- Clouds and precipitation:** types, formation, and associated weather patterns
- Atmospheric circulation:** Coriolis effect, jet streams, and the three-cell model of circulation
- Local wind patterns:** Chinook winds, mountain and sea breezes, panhandle hook, Santa Ana winds, Alberta Clippers, and similar regional weather patterns
- Air Masses:** origin, temperature, density, moisture content, and stability
- Highs, lows, and fronts (warm, cold, occluded & stationary)**
- Surface Weather Stations and Surface weather maps:** analysis, construction, and interpretation
- Weather Data (analysis and interpretation):** meteograms, stuve diagrams, isobars, isotherms, fronts, radar and Doppler imagery data
- Modern weather technology (use and interpretation of data):** satellite imagery, radiosondes, rawinsondes, Doppler radar
- Atmospheric phenomena:** sundogs, rainbows, aurora, virga, crepuscular rays, green flash, etc.

4. **REPRESENTATIVE ACTIVITIES:**

- Examine a surface weather map of radar, fronts, and data and predict 24-hour weather trends at different geographic locations.
- Examine surface weather stations on a U.S. Map and interpret local weather conditions.
- Examining meteograms for a specific city interpret precipitation patterns and the movement of fronts.
- Using a blank U.S. State map, create a radar, fronts and data surface weather map from provided weather data.

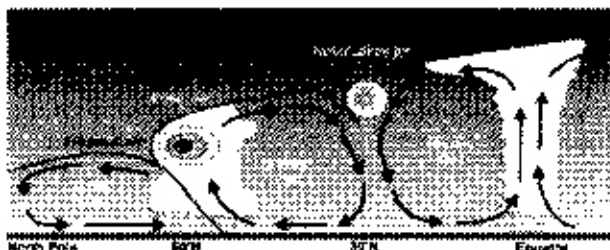
5. **SCORING:** Points will be awarded for the quality and accuracy of responses, the quality of supporting reasons, and proper use of scientific technique. Highest score wins.

SUGGESTED RESOURCES:

[http://ww2010.atmos.uiuc.edu/\(Gh\)/home.xml](http://ww2010.atmos.uiuc.edu/(Gh)/home.xml)

<http://www.ametsoc.org/amsedu/dstreme/>

Meteorology The Atmosphere and the Science of Weather by Joseph M. Moran and Michael D. Moran



National Science Education Standards: Science as Inquiry, Content Standard A: Develop Descriptions, Explanations, Predictions, and Models Using Evidence, Earth and Space Science, Content Standard D: Structure of the Earth System (Grades 5-8).