Developing an Upper-Air Climate Monitoring Capability

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- Radiosondes as a touchstone for upper-air climate monitoring
- Spatial sampling issues
Map of the trend in seasonal mean 500-mb temperature over North America during MAM 1959–96 based on the full NCEP–NCAR reanalysis with isolines drawn every 0.1 K (decade)^{-1} and negative contours dashed. Closed circles indicate grid points lying near radiosonde stations in the GCOS network.

- Continental-scale temperature trends can be adequately sampled with a small network of stations
Requirements

1) Quantities: temperature, humidity, wind, ozone, trace species, tropopause height, cloud properties, radiation… priorities?
2) Accuracy: means, variability, and trends; benchmark observations
3) Precision: level needed to achieve desired accuracy
4) Spatial/Temporal Resolution: biases, aliasing
5) Long-term stability
6) Climate monitoring principles: parallel testing, metadata, historical significance, data access, …

Need to address:
Challenges to Developing Requirements for Climate Monitoring

- Relative inexperience with operational climate services to help refine requirements
- Diverse nature of the “climate community” in reaching a consensus on requirements
- Multiplicity of scientific problems under the climate umbrella

Workshop Agenda
NOAA Approaches to Coordinating Activities

Internal

Mission Goals: Climate, Ecosystems, Weather & Water, Commerce & Transportation
Cross-cutting programs

NOAA Councils: Observing Systems Council (chaired by NESDIS & NWS)
– Strategic Direction for NOAA’s Global Integrated Environmental Observation and Data Management System
Research Council (chaired by OAR)
– 5-yr Research Plan and 20-yr Research Vision
Ocean Council (chaired by NOS & NMFS)

External

Coordinated Observation and Prediction of the Earth System (COPES)/World Climate Research Program (WCRP)
Global Earth Observation System of Systems (GEOSS)