

CEOP Model Planning and Objectives

Aspects of CEOP Modeling and Water and Energy Cycles

- Global models are integral in defining the global water and energy cycles (not enough data) – Link for GEWEX to the Operational NWP centers
- Regional Models provide the resolution and physics to get at local water and energy
- Land DA – research critical to Integrated Earth System analyses, and link to water and energy applications
- HAP – Applications and Society links to models and data
- GMPP Collaborations – work on parameterizations

Phase I Multi-model Project Update

- Multi-model Analysis for CEOP (MAC) evaluation and overview published Aug 2009 in Journal of Hydrometeorology
- Added both ECMWF Interim and GMAO MERRA Reanalyses (As per the commitment from those centers) as part of version 2, available on ftp within weeks
- Will provide an overview to Landflux
- Issues made apparent: Documentation lacking, missing variables and missing data

CEOP Data Improving Model Parameterization

- GMAO Diurnal cycle of land precipitation – Study by Andrea Molod
- Diurnal Precip tracks the solar cycle, rather than lag towards night time
- CEOP station data (primarily ARM-CART, but others will be tested) show the proper relationship of PBL height and LCL
- Model relationship to be improved with a single column representation of the physics and observational forcing from the CEOP data
- Key for the RHP data is the availability of boundary layer data and surface obs

Issues for CEOP Global Modeling

- Continuing/Restarting data contributions
 - Points (MOLTS)/Gridded, Analysis and Forecast
 - Format Grib, NetCDF
 - Resolution
 - Variables (well-defined list of variables, and unified variable name convention)
 - Who is committed to provide data?
 - Who is committed to using the data?
- Can the centers adhere to a well-defined convention, or should this be a further reprocessing at a central data location?
- Collaborate with the GMPP to support their parameterization development efforts
 - Is the eventual effort something that itself can contribute to GEWEX objectives?

Science Issues

- Impetus for the Centers: Focus on improving/ understanding the physical processes in the Analysis/Forecast cycles, likely also climate and weather
- Comments from the GEWEX SSG
 - Continental scale water and energy budgets
 - Point scale representativeness and uncertainty
 - High resolution satellite observations for comparison
- CEOP Crosscuts – What model data is needed?

GMAO Phase II Contribution still forming based on this meeting

- Data will come from the Modern Era Retrospective-analysis for Research and Applications (MERRA)
- Currently 1979-2005 available on line (anyone can start downloading it and subsetting it now)
- ½ degree resolution, hourly surface and budget data
- For a separate effort to provide subset or synthesized data to CEOP
 - What are the science questions?
 - What is the scope of the request?