

Coordinated Enhanced Observing Period (CEOP) Status for SSG'03
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Accomplishments in 2002

CEOP has had two major milestones this year: 1) The CEOP Implementation Planning Meeting, 6-8 March 2002 in Tokyo, Japan; and 2) a CEOP status session that was held on 13 September 2002, in conjunction with the GEWEX Hydrometeorology Panel (GHP) meeting.

Most recently Dr Koike, CEOP lead Scientist, confirmed that the build-up phase of CEOP was on schedule. Progress has been made according to the CEOP Implementation Plan on the CEOP Data Management, Satellite Data Integration, Model Output Production, Water and Energy Simulation and Prediction (WESP) and Monsoon Systems Studies, activities within CEOP.

Since March, CEOP has been focusing on the development of an initial enhanced observing period (EOP-1) data set, which covers the period from July through September 2001.

In response to a key action item for the CEOP Data Management Working Group (DMWG), the co-chairs of the Working Group, Drs Williams and Isemer, have set up a File Transfer Protocol (FTP) for delivery of data from the CEOP Reference Sites to the CEOP Central Archive in the USA. Data is being received from 41 CEOP Reference Sites located around the globe. Most of the sites are associated with GEWEX Continental Scale Experiments.

A high degree of co-operation between GEWEX and CEOP has been achieved since the kick-off of CEOP implementation in March. This co-operation has been based on the establishment of multi-national commitments that have been coordinated and maintained in handling interactions among the operators of the CEOP reference sites in the CSE regions in Europe, Asia, Africa and the Americas.

Channels of communication between the reference site operators and the CEOP data managers have been established through a series of CEOP Conference Calls. Thirteen calls have been held since March 2002, to ensure that data will be provided for the purpose of improving the collective contribution of the CSEs to the global requirements of CEOP.

As a result a large amount of information about the characteristics of the CEOP reference sites has been provided by the CSE CEOP spokespersons and placed in the CEOP Reference Site Table at: <http://www.joss.ucar.edu/ghp/ceopdm/rSITE.html>. Data for EOP-1 are continuing to be received by FTP from the CSEs to the CEOP Central Archive at UCAR, in the USA.

Following the discussion at the September CEOP Status meeting on CEOP Model Output product development, an action was undertaken by Drs Ken Mitchell and John Roads, with others, to standardize the CEOP Model Output requirements. As a result of this action a document has been produced which incorporates a framework that provides guidance for CEOP model output generation at NWP centers, Meteorological agencies and data assimilation centers. Since the meeting, commitments, which are aligned with the guidance strawman document, have been obtained for the provision of CEOP model products from major National and Multi-National Centers including the JMA, NCEP, DAO, ECMWF, the UK Met Office, CPTEC and BMRC.

It has also been announced that the Max Planck Institute for Meteorology (MPIM) at Hamburg, Germany will contribute support to CEOP by assisting with the centralized handling and retention of the CEOP model output data being generated by the various contributing centers. Work is underway to integrate the CEOP data into a World Data Center (WDC) on Climate database scheme at MPIM. The most efficient input, storage and access structure is currently being defined. Mirror sites for some or all of the CEOP model output data products may be established in Asia and the USA.

Drs John Roads and Jose Marengo, Co-Chairs of the CEOP WESP Working Group have produced a WESP Major Activities Plan that clarifies the methodology CEOP will use in applying enhanced observations to better document and simulate water and energy fluxes and reservoirs over land on diurnal to annual temporal scales and to better predict these on temporal scales up to seasonal for water resource applications. The CEOP WESP Working Group strategy is to build on work by the GHP related to closing simplified vertically integrated water and energy budgets with observations and analyses, and beginning efforts to simulate these budgets regionally. WESP plans to transfer this knowledge to global scales, include more land and water and energy cycle processes, and begin to examine the vertical structure in the atmosphere.

The CEOP Monsoon Systems Working Group, held its first implementation planning workshop, in parallel with the GHP meeting from 10 to 11 September 2002. Drs Lau and Yasunari, as Co-Chairs of the Working Group, reported the results of the workshop during the CEOP status session on 13 September 2002. It was recommended that the Working Group proceed with a CEOP Inter-monsoon Model Study (CIMS) as developed during the Workshop. CIMS will be an international research project to validate and assess the capabilities of climate models in simulating physical processes in monsoon regions around the world. For CIMS, a major effort will be devoted to defining the data requirements, and modeling strategy for validating model physics. Validation data will be derived from CEOP reference sites, which include GEWEX CSE and planned CLIVAR field campaign sites. Numerical experiments will be designed to target the simulation of fundamental physical processes that are likely to uncover limitations in model physics. A draft report of the Workshop findings with the versions of the presentations made at the meeting have since been put on the Internet at: <http://monsoon.t.u-tokyo.ac.jp/ceop/meeting/CEOP-MSS/index.html>.

Drs Toshio Koike and Paul Houser, Co-chairs of the CEOP Satellite Data Integration Working Group, have defined a data integration, storage and access scheme that is now under development by NASDA and the University of Tokyo (UT). This capability has been demonstrated as an integral part of the satellite integration process in CEOP. It was reconfirmed that this 500 tera-byte data integration and archival system at UT will be available for the CEOP satellite data products work. The scheme that utilizes the NASDA/UT capability for production and archiving of satellite data products for CEOP reference sites has been presented as a three-phased process. The new schedule, presented by Dr. Koike shows that the first phase (June 2002 to November 2002) will focus on data received from NASDA and the University of Tokyo related to all of the CEOP Reference Sites. Specifically this will be for SSM/I, and TRMM/TMI, PR data.

NASDA and the UT hosted a CEOP Satellite Data Integration Issues Workshop from 9 to 10 October 2002 in Tokyo, Japan. The outcome of the meeting included details associated with a NASDA proposal for a CEOP CEOS Working Group on Information Systems and Services (WGISS) Test Facility (CEOP-WTF) that would be developed to assist with the derivation of CEOP special products from each satellite sensor. The CEOP WTF proposal, which now includes a Satellite Data Integration Center in Japan and one in the USA, has already been accepted for further implementation with the support of the IGOS Partners including Space Agencies.

Dr. H. Grassl, Chair of the CEOP Science Steering Committee (SSC), has had the group deliberate on a number of important issues related to the efficient organization and management of CEOP to achieve the main science objectives. These actions have included finalizing the CEOP Data Policy statement; setting minimum standards for temporal sampling of CEOP Reference Site parameters, maximizing the science and technology benefits from CEOP, especially associated with setting a goal for delivery of a CEOP seasonal data product (EOP-1); and providing inputs on CEOP publications including the CEOP Brochure (See the CEOP home page at <http://www.ceop.net>).

It has been confirmed that the CEOP Advisory and Oversight Committee (AOC), would be activated by the end of 2002 under the co-chairmanship of Drs A. Sumi (NASDA) and J. Kaye (NASA). Invitations letters are currently in the process of being sent to prospective members.

More specifics about CEOP and the kick-off meeting can be found through the CEOP Internet site: <http://www.ceop.net>. All of the main actions and recommendations in CEOP are being undertaken in reference to the goals and objectives contained in the CEOP Implementation Plan. The Plan, which was finalized following recommendations formulated at a CEOP Implementation Workshop held at the Goddard Space Flight Center (GSFC) in March 2001, was published in May 2001 and can be found at: http://www.gewex.com/ceop/ceop_ip.pdf.

CEOP has gained the interest of other international organizations outside of the WCRP community, as evidenced by the proposal for an Integrated Global Water Cycle Observations (IGWCO) theme within the framework of the International Global Observing Strategy Partnership (IGOS-P), which has re-affirmed CEOP as 'the first element of the IGWCO'.

Plans for 2003

The next CEOP implementation planning meeting will be held from 2 to 4 April 2003, at Berlin, Germany, hosted by ESA and the Max Planck Institute. Presentations associated with preliminary results from the application of the available site data in the EOP-1 data sets, at that time, will be part of the agenda. The implementation of the two other enhanced observing periods covering annual cycles taken from data collected from October, 2002 to December, 2004, will begin at the time of the meeting, marking the start of the next phase of CEOP. A CEOP reference site managers meeting may occur in conjunction with the 2-4 April 2003 CEOP meeting and a CEOP Monsoon Systems Working Group Workshop focused on high Altitude regions is being planned at Milan Italy from 7 to 8 April 2003.

Issues

Due to a funding shortfall, which has arisen since September, the initial set of sites contained in the EOP-1 data set being readied for delivery by 15 January 2003, will be limited. Although much has been accomplished in CEOP Implementation as a result of a large number of national and multi-national commitments there should be no complacency about the level of success achieved so far. The current commitments are *ad hoc* and barely sufficient for the short-term focus within CEOP on the EOP-1 data set. In some cases, even these are in jeopardy. The SSG should, therefore, support and promote the efforts of the CEOP organizational structure to formalize current agreements. All relevant agencies and organizations should help to establish a more formal and longer-term funding structure that recognizes CEOP as an important and useful scientific undertaking. We need current groups to formally commit to the delivery of their EOP-1 contributions by the end of January 2003 and, ideally, to establish the budgets, resources, and work programmes needed to ultimately deliver the two CEOP annual cycle data sets. Corresponding commitments are also sought for the CEOP Research Phase, beyond the end of 2004. The SSG should be encouraged to commit to helping achieve the full implementation and success of CEOP.