

**NOTES FROM THE FOURTH FORMAL COORDINATED ENERGY AND WATER-CYCLE
OBSERVATIONS PROJECT (CEOP) TELECONFERENCE SATELLITE DATA ISSUES HELD ON
18 FEBRUARY 2009
FINAL DRAFT, 2 May 2009**

1. INTRODUCTION

The Fourth CEOP Satellite Data Teleconference took place on Wednesday 18 February 2009 at 13:30 UTC. The issues that were brought up and discussed on the subject conference calls included:

- (i) GEWEX update, Legacy Document and CEOP accomplishments, and outcomes of the GEWEX SSG Meeting in Irvine, January 2009;
- (ii) The 3rd CEOP Annual Meeting in Melbourne, Australia, 19 – 21 August 2009;
- (iii) Status of the CEOP satellite data archive and the CEOP Satellite Data Gateway;
- (iv) Centralized Data Archive;
- (v) Satellite data providers' reports.

Participants

The participants were:

Toshio Koike	Tokyo, Japan, CEOP Co-Chair & Satellite Data WG Chair
Michael Teague	Maryland, USA, NASA MODIS Team
Gang Ye	Maryland, USA, NASA MODIS Team
Bruce Vollmer	Maryland, USA, NASA AIRS data
Michael Theobald	Maryland, USA, NASA AIRS Team)
Ed Kearns	Washington DC, USA, NOAA NESDIS
Kazuo Umezawa	Tokyo, Japan, JAXA
Einar-Arne Herland	Frascati, Italy, ESA Earth Science Division
Steve Williams	Boulder, Colorado, USA, CEOP Data Management
Petra Koudelova	Tokyo, Japan; CEOP International Coordination Function
Sam Benedict	San Diego, California, USA; CEOP International Coordination Function

Drs Christopher Lynnes (Representing NASA AIRS team), John Bates (Representing NOAA NESDIS), Satoko Miura (Representing JAXA), and Yoshiyuki Kudo (JAXA/RESTEC) were not available for this call.

2. NEXT CONFERENCE CALL

The next, **5th CEOP International Satellite Data Teleconference** is proposed to take place on **Thursday 7 May 2009**. **Koudelova/Benedict** have the **action (A1)** to inform the group of the details of the next call nearer to the time of the call and to coordinate the origination of the call through the WebEx service (**action A1a**).

3. SATELLITE DATA GROUP GENERAL ISSUES

3.1 Opening

Benedict welcomed everyone on the call and introduced the call agenda. He reiterated that **CEOP Strategic Implementation Plan (SIP)** had been revised reflecting the comments received from the GEWEX SSG. The latest version of the SIP document is dated on 1 December 2008 and is available through the CEOP Home Page: <http://monsoon.t.u-tokyo.ac.jp/ceop2/implementationplan.html>.

3.2 GEWEX Legacy Document and the SSG meeting outcomes

(3.2a) **Benedict** advised the group that CEOP had submitted its contribution to the WCRP/GEWEX Legacy Document as requested that included (1) CEOP accomplishments and (2) the legacy for future based on what has been done and what is felt to be important to be continued. The document covers all the CEOP components and is based on the material presented at the 2nd CEOP Annual Meeting and the CEOP element reports that were submitted by end of November 2008.

Van Oevelen appreciated a wide scope of CEOP achievements that were presented in the CEOP contribution to the Legacy Document and acknowledged the CEOP leaders for producing such valuable document. At the same time, he mentioned that it would be desirable if CEOP also provides a **brief summary of a few main accomplishments** contributing to the GEWEX objectives that would not exceed several pages. **Benedict and Koike** took **action (A2)** to provide such document to the GEWEX Office in the near future. Subsequently after the call, **Van Oevelen** provided an example of this brief GEWEX project accomplishment document and suggested the WEBS, MAC, and ICTS outcomes to be highlighted in the CEOP input. CEOP Co-chairs and Coordination Function followed up on this action and provided the requested input on WEBS, MAC, and ICTS to the GEWEX Office duly.

(3.2b) **Van Oevelen, Koike, and Benedict** further informed the group of the outcomes of the GEWEX SSG meeting that was held in Irvine, USA, January 2009. They voiced that CEOP was well received, especially the data component including satellite data and their application through CEOP and also Model analyses and intercomparison studies. It was also pointed out that CEOP was a large project with wide scope of activities and it was difficult to provide rather brief overview of its activities that would fit to the SSG meeting format. At such events, CEOP should focus on major topics contributing to the overall objectives of GEWEX and provide broader reports at the CEOP meetings and through annual reports.

(3.2c) **Van Oevelen** also mentioned that as it was agreed at the SSG meeting in 2008, the summer issue (August/September) of GEWEX News would be dedicated to and published by CEOP. Accordingly, CEOP should begin to consider the contents of this year CEOP issue of GEWEX News. CEOP Co-Chairs and Coordination Function have **action (A3)** to prepare the Newsletter contents and inform the GEWEX Office in due course.

3.3 The 3rd CEOP Annual Meeting in Melbourne, Australia, 19 – 21 August 2009

(3.3a) **Benedict** reiterated that the next, **3rd CEOP Annual Meeting** would be held in Melbourne, Australia, 19 – 21 August 2009, i.e. the event would precede the GEWEX and iLEAPS science conferences. Because of the opportunity to present scientific and technical papers at the GEWEX and iLEAPS science conferences, the **CEOP meeting** itself will be more **programmatically oriented and will focus on strategic planning inputs and discussions**. Accordingly, participants were recommended to submit their **scientific and technical achievement papers to the GEWEX/iLEAPS conferences** (see the paragraph 3.3b below). The venue for the CEOP meeting will be the Bureau of Meteorology (BoM) and Drs. Lawrie Rikus, Helen Cleugh, and Michael Manton have kindly accepted the role to serve as the local organizing committee. Further details and the meeting website will be released in due course.

(3.3b) The 6th International Scientific Conference on GEWEX and the 2nd iLEAPS Science Conference will be held in Melbourne, Australia, 24 – 28 August 2009. The conference website is available at: http://www.gewex.org/2009gewex_ileaps_conf.html. Abstracts for all sessions can be submitted on-line through the meeting website. The final extended deadline for abstract submission is **15 April 2009**. As a part of the GEWEX conference, a special poster session on High Elevations is being organized by the CEOP High Elevation group. The due date for abstract submission to this session is also 15 April 2009. More information is available through the High Elevation element website at: <http://www.ceop-he.org/cms/>.

3.4 CEOP Special Issue

Koike advised the group that a second CEOP Special Issue of a peer reviewed scientific journal was being planned by the CEOP Co-Chairs. Further details and call for papers will be announced in spring 2009. The due date for paper submissions is considered in spring 2010. In addition, CEOP Co-Chairs, Drs. Koike and Stewart, are preparing an article on CEOP for BAMS.

3.5 CEOP Satellite Data Gateway

(3.5a) It was reiterated that the CEOP Satellite Data Gateway was opened in June 2008 and allowed the registered users to download satellite data available in the CEOP Satellite Data Archive administered jointly by the University of Tokyo and JAXA. The University of Tokyo IT team is responsible for the database management and making the data accessible through the Gateway. The Gateway is available at: <http://monsoon.t.u-tokyo.ac.jp/ceop2/satellite/> and the link has been added to the main CEOP Data Management Page (<http://www.eol.ucar.edu/projects/ceop/dm/>).

(3.5b) CEOP satellite as well as in-situ and model output data are also accessible through the CEOP Centralized Data Integration System that offers multiple tools for data visualization and analysis. The System is available at: http://monsoon.t.u-tokyo.ac.jp/ceop-dc/ceop-dc_top.htm. **Taniguchi** advised the

group that the system would include the data of all the CEOP 52 reference site when these are available and also the data provided through the GEOSS Asian Water Cycle Initiative (AWCI) that includes streamflow information of a number of basins in Asian countries that participate in the AWCI activities. These data will be fully available for the CEOP community and other users as agreed by the AWCI country representatives.

3.6 Reference site data

Williams reported that three series of conference calls had been initiated that focused on Regional Hydroclimate Projects and reference site data. The calls are organized separately for three regions of the world, namely (i) Americas, (ii) Europe, NEESPI and Africa, and (iii) Asia-Pacific-Australia. As it was expected, the calls have reactivated the reference site data submission and new data have been already received at the NCAR archive. The updates can be reviewed and available data downloaded through the Data Management website at: http://data.eol.ucar.edu/master_list/?project=CEOP/EOP-3/4.

3.7 JAXA CEOS/WGISS Test Facilities (WTF) for CEOP (Yoshiyuki Kudo – in writing)

(3.7a) **Kudo** reported in writing that the system hardware had been replaced and since 29 January it was back in full operation and running smoothly at the former URL: <http://ceop.restec.or.jp/>.

(3.7b) **Kudo** further pointed out that no new data or functionality was being added to the system due to budget limitations for this fiscal year. He explained that in order to include further data on the system a certain steps had to be undertaken by the system administrators that were beyond the current budget. It means that even though new data is submitted to the MPI (model output), NCAR (reference site observations), and JAXA/UT (satellite data) these will not be accessible through the JAXA system until specific menus and links are added to the system.

4. THE SATELLITE DATA ARCHIVE STATUS AND AGENCY REPORTS

4.1 The CEOP Satellite Data Archive Status

(4.1a) It was reiterated that the work on making new satellite datasets available through the CEOP Satellite Data Gateway was progressing but it was demanding on human as well as financial resources and therefore it was being undertaken gradually. As it was agreed, the priority would be on the CEOP Phase 1 EOP-4 data in order to achieve as much complete database as possible for the most recent period of CEOP Phase 1 that is in connection to current CEOP. Data for EOP-3 will follow up and subsequently more recent data for current CEOP phase will be added.

Data currently available through the CEOP Satellite Data Gateway in the three subsets (global, monsoon regions, and reference sites) include:

CEOP Phase 1 EOP-1 period (01/07/2001 – 30/09/2001): DMSP F13 – F15 SSM/I; TRMM PR, TRMM TMI, GMS-5 VISSR, NOAA AVHRR, TERRA MODIS

CEOP Phase 1 EOP-3, EOP-4 period (01/10/2002 – 31/12/2004): DMSP F13 – F15 SSM/I; TRMM PR, TRMM TMI, GMS-5 VISSR, GOES-9 VISSR, ADEOS-II AMSR, ADEOS-II GLI, Aqua AMSR-E

Detailed data overview is available at the mentioned Gateway site at:

<http://monsoon.t.u-tokyo.ac.jp/ceop2/satellite/docs/eop1.pdf> for the CEOP 1 EOP-1 datasets and <http://monsoon.t.u-tokyo.ac.jp/ceop2/satellite/docs/eop3-4.pdf> for the CEOP 1 EOP-3, EOP-4 datasets.

(4.1b) It was reiterated that it would be highly desirable to periodically prepare “data metrics” describing the available data and also including statistics of usage. **Koike and the UT group** have ongoing **action (A4)** to prepare such document.

4.2 JAXA report (Kazuo Umezawa)

(4.2a) **Umezawa** reiterated that JAXA continued the generation of the 2008 JAXA’s products according to the prioritized list provided by T. Koike. These include: Aqua/AMSR-E, TRMM/PR, TMI, DMSP/SSM-I re-sampled on three scales (52 reference sites, 5 monsoon areas and entire area of the Earth) and ALOS products on the 12 prioritized areas including the CEOP sites and the Asian Water Cycle Initiative (AWCI) river basins (<http://monsoon.t.u-tokyo.ac.jp/AWCI/>).

(4.2b) In addition, JAXA continues work on generation of Terra/MODIS products for CEOP Phase 1 (EOP-4) in cooperation with the NASA MODIS team. **Umezawa** reported that all the data generated by the NASA MODIS team so far had been successfully downloaded by JAXA, which represents 20% of the Terra/MODIS data for CEOP Phase 1 EOP-4 period.

(4.2c) **Umezawa** further mentioned that JAXA had investigated the possibility of sending a physical disc to the NASA MODIS team to expedite that data transfer process but unfortunately this option had to be abandoned due to several issues associated with actual shipping of the disc. Nevertheless, **Umezawa** voiced that JAXA would be able to increase the data download and processing speed if the MODIS team increases data production speed (see section 4.3 below).

4.3 NASA MODIS team report (Michael Teague and Gang Ye)

(4.3a) **Teague** acknowledged and emphasized the excellent work the JAXA team has accomplished in preparation for the MODIS data transfer and processing into the CEOP format datasets. He confirmed that the actual transfer of data had begun but pointed out that with the current speed of data transfer, the Terra/MODIS EOP-4 data production/transfer/processing would take one year. Accordingly, he asked JAXA and University of Tokyo to reconsider the possibility of a physical disc or try to increase the data download rate. **Koike** took **action (A5)** to discuss this matter among UT and JAXA again.

(4.3b) **Umezawa** emphasized that the current data download rate was equal to the data production rate at the NASA side and that JAXA would be able to increase the transfer as well as data processing rate considerably. Subsequently after the call, **Umezawa** provided further details on JAXA's possibilities:

Until the end of February, JAXA downloaded 600 GBytes of the products, which were observed during the period from 01 Oct. 2003 to 06 Dec. 2003. The MODIS team generated the MODIS products about 4 to 8 GBytes per day during this period. Concerning JAXA's capability of the data download, according to their calculation, **JAXA can download almost 100 GBytes per day**, and thus it will take **62 days to download 6 TBytes of 15 months data which is all the EOP-4**.

In addition, it will take about **47 days to process all the 15 months data to generate the CEOP datasets for EOP-4**. The process includes re-sampling and re-formatting. Thus, if the MODIS team can speed up the products generation to almost the same as the download speed, JAXA can generate all the EOP-4 datasets in 3 to 4 months by running all of the processes of download, re-sampling and re-formatting in parallel.

In this context, JAXA considers the option of using a physical disc for data transfer as unnecessary.

(4.3c) Further details including the Aqua/MODIS data generation schedule will be discussed at the time of the next call. **Koike** took **action (A5a)** to clarify the priority of the data production considering JAXA's limited budget by the end of May 2009.

4.4 NASA AIRS team report (Mike Theobald)

(4.4a) **Theobald** reported that the AIRS team had completed generation of the level 1 products and submitted them to the CEOP satellite data archive (UT) however, they had found an error in the data generation code and thus the data would be corrected and resubmitted in the near future. **Theobald** took **action (A6)** to provide more details of the data error to the group by via email. Moreover, **Koike** took **action (A6a)** to check whether these data have been downloaded from the CEOP archive and if yes, then the information on the data issues should be sent to those users.

(4.4b) **Theobald** further mentioned that the work on level 2 products was progressing and should be completed in April 2009. Generation of the monsoon subsets was planned after completing the level 2 products task.

4.5 NOAA report (Ed Kearns)

Kearns reiterated that they were anticipating further specification of data requirements from CEOP and thus they were not currently undertaking any steps in the CEOP data preparation. Nevertheless, they plan to be involved in the process and participate in these calls.

Koike voiced that he was aware of the need to review the NOAA data requirements and to communicate with the NOAA team possibilities of the NOAA data provision. **Koike** and **the UT group** will undertake this **action (A7)** in the near future.

4.6 ESA report (Einar-Arne Herland)

Herland reiterated that the CEOP requirements submitted to ESA had been approved and processed into the required formats and the data was available for competent person(s) to order and receive them. The detailed information on where and how to order the data has already been sent to Toshio Koike. ESA also provides a number of tools for further processing the data and the UT/JAXA group should contact the ESA data "helpdesk" about the capabilities of these tools regarding the metadata generation. **UT group and Koike** has **action (A8)** to try to order the data and check the ESA tools according to the instructions given in the said email.

In this context, **Koike** mentioned that a new expert on the SAR data had joined the UT group and he would be responsible for the above action to download the required ENVISAT data from the ESA site as soon as possible.

5. OTHER CEOP ISSUES

5.1 Meetings

(5.1a) The next **3rd CEOP Annual Meeting** will be held in **Melbourne, Australia, from 19 through 21 August 2009** in conjunction with the GEWEX/iLEAPS science conferences that will take place in Melbourne, 24 – 28 August 2009 (http://www.gewex.org/2009gewex_ileaps_conf.html). Further details of the CEOP meeting will be provided in due course.

(5.1b) The **2nd Lund Regional-scale Climate Modeling Workshop** will be held in **Lund, Sweden** from **4 – 8 May 2009** (see the GEWEX calendar page for more information).

(5.1c) The International Conference "**Mountains: energy, water and food for life. The SHARE project: understanding the impacts of climate change**" will be held in **Milan, Italy**, from **27 – 28 May 2009** (see the CEOP website for further information: <http://monsoon.t.u-tokyo.ac.jp/ceop2/meetings.html>).

(5.1d) The **3rd International AMMA Conference** will be held in **Ouagadougou, Burkina Faso**, from **20 – 24 July 2009** (conference webpage: http://www.amma-international.org/rubrique.php3?id_rubrique=1).

(5.1e) The **6th International Scientific Conference on GEWEX and the 2nd iLEAPS Science Conference** will be held in Melbourne, Australia, 24 – 28 August 2009. The conference website is available at: http://www.gewex.org/2009gewex_ileaps_conf.html. Abstracts for all sessions can be submitted on-line through the meeting website. The final extended deadline for abstract submission is **15 April 2009**.

6. CLOSING

Koike acknowledged the participants for attending the calls and providing their valuable contributions, comments and suggestions. The call was adjourned at 14:50 UTC.