NOTES FROM THE NINTH FORMAL COORDINATED ENERGY AND WATER-CYCLE OBSERVATIONS PROJECT (CEOP) TELECONFERENCE SATELLITE DATA ISSUES HELD ON 15 JULY 2010
FINAL DRAFT, 13 August 2010

1. INTRODUCTION

The Ninth CEOP Satellite Data Teleconference took place on Thursday 15 July 2010 at 13:00 UTC. The issues that were brought up and discussed on the subject conference call included:

1. 10-year Dataset Development Activity
2. Satellite data formats and metadata
3. Satellite data providers reports

Participants

The participants were:

Toshio Koike	Japan, CEOP Co-Chair & Satellite Data WG Chair
Kazuo Umezawa	Japan, JAXA
Gang Ye	USA, NASA MODIS Team
Michael Theobald	USA, NASA AIRS Team
Bruce Vollmer	USA, NASA AIRS Team
Steve Williams	USA, CEOP Data Management
Sam Benedict	USA; CEOP International Coordination Function
Petra Koudelova	Japan; CEOP International Coordination Function

Drs Peter van Oevelen (Rpresenting GEWEX Project Office), Christopher Lynnes (Representing NASA AIRS team), John Bates (Representing NOAA NESDIS), Satoko Miura (Representing JAXA), Yoshiyuki Kudo (JAXA/RESTEC), Einar-Arne Herland (Representing ESA Earth Science Division), Michael Teague (Representing, NASA MODIS Team), and Ed Kearns (Representing NOAA NESDIS) were not available for this call.

2. ACTION ITEMS

A set of action items were proposed and accepted at the call that include:

JAXA/CEOP teams:

A2.1 Must verify that it has received all of the EOP-3 and EOP-4 AIRS data and inform about the location and possible access.

A2.2 Must specify the Calendar/Schedule of EOP-3 data requests needed from the NASA MODIS Team considering step-wise approach, i.e. scheduling shorter (e.g. 1 month) periods for download and processing at one step followed by a control for missing data and other issues.

A2.3 Verify that the EOP-4 MODIS missing data has been provided and processed.

A2.4 Complete definition of new Metadata scheme and distribute to all Satellite Data Teams.

A2.5 Have conversion software for the Metadata available if requested by the Satellite Teams or establish that the conversion can be done at the JAXA end.

A2.6 Updated draft of the 10-Year Dataset Whitepaper to be sent to the Satellite Data group.

AIRS Team:

A3.1 Process 2008-2009 data from the Asian Monsoon Region as the highest priority

A3.2 Evaluate the New Metadata scheme and determine if it can be adapted to current processing methods or if it is preferable or not to have conversion software at their end or to have JAXA do the conversion at their end.

A3.3 Begin planning for involvement in the WCRP/GEWEX/CEOP 10 Year Dataset Project. Initially be prepared to generated data for 15-20 sites geographically distributed around the globe for the years that data are available beginning in 2002 and including data up to 2011 and have it available by March 2011.

MODIS Team:

A4.1 Process EOP-3 data in accordance with the Calendar provided by JAXA in item A2.2 above. Use the LAADS capability to write the requests for CEOP and to submit them and arrange for them to be staged for ingestion by JAXA from the LAADS portal.

A4.2 Evaluate the New Metadata scheme and determine if it can be adapted to current processing methods or if it is preferable or not to have conversion software at their end or to have JAXA do the conversion at their end.

A4.3 Begin planning for involvement in the WCRP/GEWEX/CEOP 10 Year Dataset Project. Initially be prepared to generated data for 15-20 sites geographically distributed around the globe for the years that data are available beginning in 2002 and including data up to 2011 and have it available by March 2011.

3. NEXT CONFERENCE CALL

The next, **10th CEOP International Satellite Data Teleconference will be held on Tuesday 16 November 2010. Benedict and Koudelova** 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 **(action A1a)**.

4. SATELLITE DATA GROUP GENERAL ISSUES

4.1 WCRP and GEWEX related issues

(4.1a) **Benedict** welcomed participants on the call and appreciated the work that the satellite data teams had undertaken in response to the action items from the last call.

(4.1b) **Koike** reiterated that a **10-Year Dataset** project had been initiated in response to the climate modeling community need of **a high quality observation data** of a sufficient length for evaluation of climate models under the CMIP5 project and quantification of model projections uncertainties. This activity was proposed by the WCRP Observation and Assimilation Panel (WOAP) and is compliant with the CEOP commitment taken at the 3rd Annual CEOP Meeting in Melbourne in August 2009 to develop the CEOP 10-year dataset as well as with the **GEWEX post 2013 Imperatives** (http://www.gewex.org/2010pangewex/Draft_Imperatives.pdf). The WOAP suggested activity, coordinated by CEOP (T. Koike) and CMIP5 (Carl Taylor), is envisioned as a collaborative effort of a broader observation and climate modeling communities including GEWEX/CEOP, LandFlux-EVAL, GSWP, AsiaFlux, from the observation side. The targeted dataset will consists of **in-situ as well as satellite observations** from multiple providers including CEOP, FLUXNET, AsiaFlux, iLEAPS.

Koike reported that the 10-Year Dataset project had been discussed with the LandFlux-EVAL, FLUXNET, AsiaFlux, and GSWP representatives at the occasion of the HESSS2 Meeting in Tokyo in June and it was agreed that a Whitepaper would have been developed and submitted for discussion at the Pan-GEWEX meeting in August. The Whitepaper development is underway and it was agreed that the next version of its draft would be provided to the Satellite data group (action item **A2.6** for **Koudelova**).

It was emphasized that the **satellite data were essential** for this dataset and the JAXA, NASA MODIS, and NASA AIRS teams were asked for their kind cooperation on this task (**actions A3.3** and **A4.3** above). The schedule for providing additional satellite datasets for this activity (beyond the CEOP set of reference sites and CEOP period) will be confirmed at the Pan-GEWEX meeting in August (see 4.1c below) and the CEOP satellite data providers including JAXA, NASA, ESA, and NOAA teams will be informed duly. Nevertheless, the final target is beginning of the year 2012 because the due date for submitting CMIP5 contributions to the IPCC AR5 is around April 2012.

Koike also explained that the 10-year period had been decided with respect to the CMIP5 planned experiments that include a near term projection (30 years) and also a time-slice experiment that will cover a few years but with high spatial and temporal resolution. For these experiments, the proposed 10-year dataset of observational data is critical. Nevertheless, considering a large amount of satellite data that will result from the 10-year period and the tight schedule, it was mentioned that even a partial fulfillment would be very valuable, e.g. 3 additional years after the end of the EOP-4 would make a 5-year dataset. The details the satellite data provision scheme will be discussed and confirmed at the Pan-GEWEX meeting.

(4.1c) **Benedict** reiterated that the 2nd Pan-GEWEX meeting would take place in **Seattle, USA, 23 – 27 August 2010** (http://www.gewex.org/2010pangewex/home.html). The Pan-GEWEX meeting will address how the GEWEX panels and their projects and working groups will continue to work over the next 2 years to achieve their short-term goals, and how they will evolve to accomplish post 2013 Imperatives. This process will include determining what enabling infrastructure is necessary and developing a strategy for dealing with the GEWEX and WCRP cross cutting or overarching themes.

According to the updated Pan-GEWEX agenda, each panel (including CEOP, GRP, and GMPP) will have one and a half day (Tuesday 24th and Wednesday 25th morning) of separate sessions dedicated to its own issues. A CEOP evening session on Thursday 26th August has been added on the CEOP request. In addition, a half day for panel interaction is scheduled on Wednesday 25th afternoon. Further information including logistics details can be found at the meeting website.

4.2 Data format and metadata issues

(4.2a) **Koike** reiterated that the JAXA team had developed a new metadata design because a certain problems had been found in the previous metadata format. The team has been working on converting the old version metadata to the new one for all the JAXA and NASA MODIS as well as AIRS data already available in the Tokyo archive.

Koike further voiced that the JAXA and UT teams would appreciate if the NASA teams could incorporate the new metadata generation subroutine to their data processing systems in order to generate the data with correct metadata files in future. Both the **AIRS and MODIS teams** took action (**A3.2, A4.2, resp.**) to evaluate the New Metadata scheme and determine if it can be adapted to current processing methods or if it is preferable or not to have conversion software at their end or to have JAXA do the conversion at their end.

(4.2b) It was also reiterated that a document metadata registration system had been developed and was available as part of the Japanese DIAS services that enables an easy on-line input of metadata using a user-friendly interface. The input items/information of meta-data registration system which was developed under the framework of Data Integration and Analysis System (DIAS) consists of six mandatory items and six other items as noted in Appendix A.

4.3 JAXA CEOS/WGISS Test Facilities (WTF) for CEOP

(4.3a) It was reiterated that the JAXA/RESTEC team was working on expansion of their Distributed Data Integration system's capabilities and inclusion of the CEOP Phase 2 data. The upgraded System will include more data from more data centers and will target a broader group of users including operational users, scientists, as well as policy and decision makers. Accordingly, more intuitive and efficient search schemes are being developed in cooperation with representatives of user communities, e.g. the CEOP Model group. The first phase of this task focused on fundamental features and CEOP Phase 2 data should be completed by the end of 2010. The activity will continue with the second phase targeting further development of additional features and including additional data on the system.

5. THE AGENCY REPORTS/ISSUES

5.1 JAXA

(5.1a) **Umezawa** reported that the JAXA team has completed the JAXA microwave product for 2009 and 10 new target areas were identified for the ALOS products for CEOP.

(5.1b) The team has begun to use the updated metadata generation scheme and they plan to reproduce metadata files for all the datasets already stored in the CEOP archive including JAXA, NASA MODIS and NASA AIRS data in the near future. In terms of the new MODIS and AIRS datasets, the JAXA team would

appreciate if the MODIS and AIRS teams could incorporate the new metadata generation subroutine to their data processing systems in order to generate the data with correct metadata files in future as mentioned in the section (4.2a) above.

(5.1c) **Umezawa** further reported that the MODIS Terra and Aqua data for EOP-4 period had been almost completed. A list of Aqua-EOP4 missing data has been provided to the MODIS team who is currently working on this issue. The JAXA team has been examining the MODIS L1 and Atmospheres Archive and Distribution System (LAADS) and considering its use for the Terra and Aqua EOP-3 data processing. The discussion on this issue is summarized in the section 5.2b below.

5.2 NASA MODIS

(5.2a) **Ye** reported that the MODIS team had completed the Aqua and Terra EOP-4 data processing and these had been transferred to JAXA. They have been working on the reported missing data and part of these has been already available on the FTP server for download.

(5.2b) **Ye** further explained that they would prefer a different approach for processing the EOP-3 data since when they use their operational system (as it was the case of the EOP-4 data), they must process a whole requested period at once and then remove the data to make the system available for other projects and thus it causes additional load of work when missing data are identified after the whole period processing is completed. This is the current situation with the Aqua EOP-4 data and in order to avoid similar issues in future, the MODIS team recommends their LAADS system is used for further CEOP data processing. The procedure on the LAADS system is the same in terms that the data are first processed and then subsetted but the difference is that the whole requested period can be processed in a step-wise manner for smaller volumes of data that can be checked for missing items while the next processing is pending until the completion of the previous volume is confirmed. In this manner, the whole process will be more effective and excessive delays may be avoided.

Ye also mentioned that the data download interface would remain the same as the processed data would be uploaded on the same FTP server as before. It was agreed that the requests to the LAADS system would be made by the MODIS team, while JAXA would prepare and provide to the MODIS team a schedule for the EOP-3 considering smaller volumes of data, e.g. monthly periods, to be processed at once and subsequently checked for missing data and other issues (see action item A2.2 above).

5.3 NASA AIRS

(5.3a) **Theobald** reported that the AIRS team had completed the EOP-3 and EOP-4 data and asked the JAXA/UT for a confirmation that the data had been archived and where they were located and could be accessed. **Koike** took **action (A2.1)** to provide this information to the AIRS team.

(5.3b) With regards to the new metadata scheme, **Theobald** mentioned that they would need to evaluate the scheme and additional workload and resources the implementation of the new scheme would require (see action item **A3.2** above). He also voiced that if the metadata conversion software existed, it might be easier to maintain the current metadata generation scheme and convert the metadata files to the desired format than to incorporate the new scheme in their data processing system. **Koike** took **action A2.5** to find out if such conversion software was available and could be provided to the NASA teams.

(5.3c) **Koike** clarified the special request for the AIRS team to process the data for the Asian Monsoon Region for the period January 2008 – December 2009 with highest priority because these data are crucial for research work of the Asian Monsoon Year related activities including CEOP studies over the Tibetan Plateau. **Theobald** mentioned that they would initiate this task (action item **A3.1**) after the full completion of the EOP-3 and EOP-4 dataset transfer and archiving has been confirmed and they can remove these datasets from their site.

APPENDIX A:

The input items/information of meta-data registration system which developed under the framework of Data Integration and Analysis System (DIAS), consists of six mandatory items and six other items.

The mandatory items are as follows;

1. Title
    - Name
    - Edition
    - Abbrevation
2. Contact
    - Contact Person name
    - Contact Person Organization
    - Address
    - Tel, Fax, E-mail
3. Document Authors
    - Name
    - Organization
    - E-mail
4. Dataset Creators
    - Name
    - Organization
    - E-mail
5. Date of Dataset
    - Event
    - Date
6. Dataset Overview
    - Topic Category
    - Abstract
    - Temporal Extent
    - Geographic Bounding Box
    - Grid
    - Geographic Description
    - Dataset Keywords
    - Online Resource

The other items are;

7. Data Environmental Information
8. Distribution Information
9. Data Processing
10. Data Remarks
11. Use Constraints
12. References

The document metadata registration system can support to input this kind of information very easily and can create a metadata document (dataset documentation) with common format and based on ISO standard.