



Discussion

Are we jointly realizing our overall objectives (regional, global context)?

What is your opinion on your RHP/regional foci contribution to and benefit from CEOP/GEWEX/WCRP?

Are we adequately addressing comments made by others? If not, how do we improve this?

What is the unique contribution that CEOP is bringing to this issue?

Are there examples of common issues for RHPs and regional foci?

Are the RHP criteria still a reasonable requirement?

What are the major stumbling blocks for moving ahead individually and collectively?



MORE DISCUSSION ...

1. How do we bridge the scales from small-scale hydrologic basin studies to GCM scale?
2. How do we acquire higher resolution climate information (including modeling of physical processes, regional climate prediction, global models run at higher resolution) to meet societal needs?
3. It is 2013 (or a similar year) and CEOP/GEWEX/WCRP is evolving. What notable and unique contributions did RHPs/regional foci make (in comparison with other parts of GEWEX, WCRP, other projects)?
4. Do you think it is worthwhile to prepare a synthesis article on RHP/regional foci status and issues?
5. From your perspective, what (if anything) should CEOP activities evolve into afterwards?

any other questions ...



SYNTHESIZING



ISSUE

- Need straightforward, clear summary
- One option: BAMS article
- Other options:
 - other synthesis articles
 - book
 - ...
- Specific actions



CEOP COLLECTIVE ARTICLE: BAMS

1. Introduction (background, objectives, strategy)
2. Datasets and data integration (model, observations)
3. Science Progress (regions, issues, global perspective)
4. Implications (models, remote sensing, monitoring, climate change)
5. Concluding Remarks (the problem, progress, to be done, plans)

material: Input to WCRP/GEWEX Legacy: 33 pages



AUTHORS ...

A long list ... Ron Stewart, Toshio Koike, Sam Benedict, Jin Huang, Jair Maia, Hugo Berbery, Hans-Joerg Isemer, Amandou Gaye, Jun Matsumoto, Helen Cleugh, Pasha Groisman, T. Ohata, G. Tartari, Jun Matsumoto, Hugo Berbery, Congbin Fu, Kun Yang, Bill Lau, David Noone, Kei Yoshimura, Mike Bosilovich, Burkhardt Rockel, Ray Arrit, Matt Rodell, Lauri Rickus, Paul Earnshaw, Eric Wood, Steve Williams, Michael Lautenshager, Ben Burford, Kenji Taniguchi, Ulrich Looser, Tobias Fuch, John Roads, ... and numerous additions



Coordinated Hydrometeorological Research: Progress and Plans of the Coordinated Energy and Water-Cycle Observations Project (CEOP) **PROPOSED SYNTHESIS ARTICLES**

(I) General/Comprehensive

1. Introduction (background, objectives, strategy) 2. Datasets and data integration (model, observations) 3. Science Progress (regional to particular themes and global perspectives) 4. Implications (models, remote sensing, monitoring, climate change) 5. Concluding Remarks (the problem, progress, plans)

(II) Special Topic: Regional Climate Foci

1. Introduction of each science/ implementation strategy including target areas, durations, data, and models/ initial achievements 2. Contributions by RPHs/ Science Cross Cuts/ Data Management Group (Reference sites, satellites, model outputs)/ Modeling Group 3. Synthesis and Outstanding Issues 4. Concluding Remarks

(III) Special Topic 2: Science Cross Cuts

1. Introduction of each science/ implementation strategy including target areas, durations, data, and models/ initial achievements 2. Contributions by RPHs/ Regional Climate Foci/ Data Management Group (Reference sites, satellites, model outputs)/ Modeling Group 3. Synthesis and Outstanding Issues 4. Concluding Remarks

(IV) Special Topic 3: Model Integration

1. Introduction of each science/ implementation strategy including target areas, durations, data, and models/ initial achievements 2. Contributions by RPHs/ Regional Climate Foci/ Science Cross Cuts/ Data Management Group (Reference sites, satellites, model outputs) 3. Synthesis and Outstanding Issues 4. Concluding Remarks



SPECIFICS

- Who, what, when ...



Toward Integration of CEOP Components

RHPs + Regional Climate Crosscuts + Crosscut Sciences

- Summary of key roles of RHPs bridging between regional/basin scale needs and applications and global observation and prediction
→ synthesis article
- High quality regional data sets:
 - ✓ Precip. Data sets → start from BALTEX and MAHASRI
 - ✓ Integrated Forcing Data in Tibet by WEBS
 - ✓ RHP Water Budget by Isotope GCM(RCM)
- Regional Cross-cut Activities
 - ✓ HE-Cold regions
 - ✓ Monsoonal Regions: Starting with AMY/MAHASRI-AMMA



Toward Integration of CEOP Components

Model

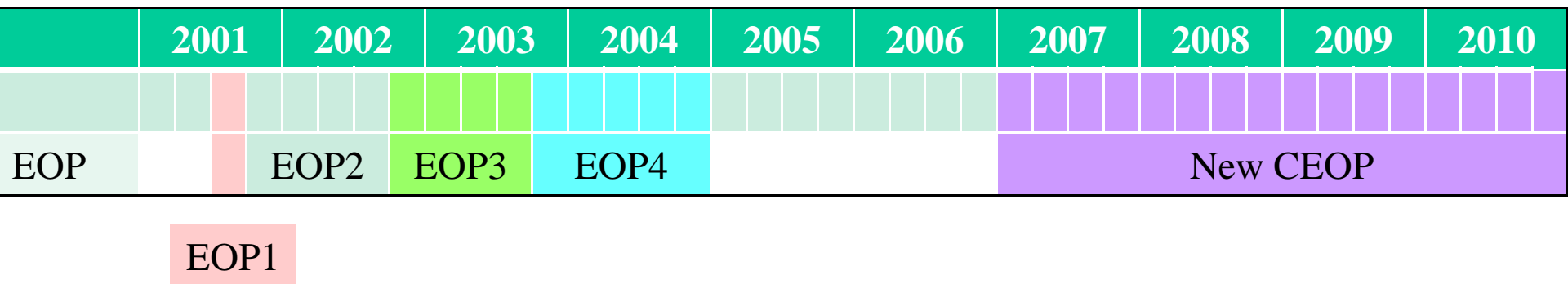
- Global Model: MAC subsets for each RHPs
- Regional Model
 - ✓ ICTS Regional Analysis, CORDEX in cooperation with RHPs.
 - ✓ Conversion of RCM output to netCDF CF by RHP and Regional Climate Foci (SAR, Monsoon) in cooperation with ICTS
- Land Model
 - ✓ WG Coordination
 - ✓ Well managed forcing data sets and parameter sets
- HAP
 - ✓ Focusing on seasonal forecast, mainly drought, in cooperation with HAPEX
 - ✓ Flood prediction and Climate change impact analyses in cooperation with GEOSS/AWCI



Toward Integration of CEOP Components

Data

- Data Periods

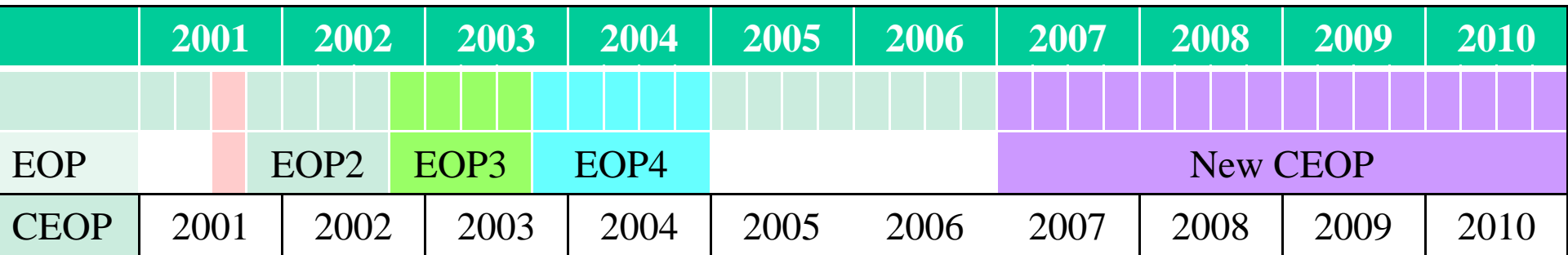




Toward Integration of CEOP Components¹

Data

- Data Periods
- Data Submission Schedule: 6 months. 15 months after observations.





Integrating CEOP Uniqueness

Regional Approach

(RHPs, R. Climate Foci, R. Model)

Doable Collaborative Actions.
(1-2 years)

Inputs into Synthesis Article(s)

Legacy

Near Future Targets:
Climate Change Adaptations

Global Approaches

(Science Cross-cut, G/L Model, HAP, Data)

Doable Collaborative Actions.
(1-2 years)

Inputs into Synthesis Article(s)

Legacy

Near Future Targets:
Climate Change Adaptations



GEWEX SSG Rapporteur's Comments on CEOP

1. Introduction

Kevin expressed concern about the diversity of projects and the coordination of observing and modelling activities. CEOP addressed these issues by putting more emphasis on the cross cutting activities.

2. General comments

2.1. Coordination of RHPs by defining a few key priorities, for example, MAC.

2.2. CEOP unique contribution to GEWEX

a defined set of specific tasks, or unique technological elements : effective data management and archiving, model inter-comparison with satellite measurements and in-situ data, development of high resolution data sets.

2.3 Through well coordination of RHPs, to obtain a deeper understanding of the key processes of the water cycle in collaboration with GMPP and GRP.

2.4. Global/regional water and energy budgets based on NWP analyses and satellite data and its validation and process studies coupled with the in-situ data in cooperation with RHPs.

2.5. Reporting skill.



GEWEX SSG Rapporteur's Comments on CEOP

3. Specific comments on outstanding issues

3.1. What is the focus of the satellite data?

3.2. AMMA's position in CEOP

3.3. CEOP land surface data assimilation – Landflux, GLASS

3.4. HAP's linkage with the RHPs, GRP, GWSP.

3.5. HAP targets: seasonal forecasting + Extremes or a separate Extremes initiative

3.6. Global water and energy budgets based on regional detail.

3.7. Ocean-atmosphere data.

3.8. Climate prediction of specific hydroclimate phenomena in a synergetic manner by CEOP.

3.9. The transferability modelling project in collaboration with RHPs.

3.10. Aerosols - Monsoonal circulations in collaboration among some

RHPs3.11. CEOP-GMPP collaboration for the validation of extremes in models.

3.12. Creation and archiving of high resolution gridded precipitation products.



SSG'S Recommendations to GEWEX Panels:

It is recommended that **the leaders of monsoon studies** develop common themes to be studied and that the Coordinated Energy and Water Cycle Observations Project (CEOP) **organize a meeting** concerning this.

It was agreed that the current focus of Hydrologic Applications Project (**HAP**) primarily addresses **seasonal forecasting**. There are a number of other priority areas for linking meteorological and hydrological science under the GEWEX remit to facilitate hydrological applications. In particular the user community urgently requires scientific guidance to support the management of **hydrological extremes (floods and droughts)** under scenarios of climate change. Extremes of precipitation and drought persistence are two relatively undeveloped areas. It is recommended that HAP broadens its focus to include the aforementioned issues.



ACTION ITEMS Defined by SSG:

1. Clarify the relationship between CEOP activities and African and Asian water
2. NOAA/CPPA financial support for CEOP data collection
3. CEOP to prioritize its objectives to ensure that the needs of the hydrological community are met by CEOP
4. HAP: more accessible to the hydrologic communities, GRP, WMO hydrology department, Thorpex, UNESCO/IHP, G-WADI
5. CEOP- AMMA collaboration
6. GEWEX – GWSP collaborative data collection
7. CEOP- CliC collaboration