

# Extremes and GEWEX<sup>1</sup>

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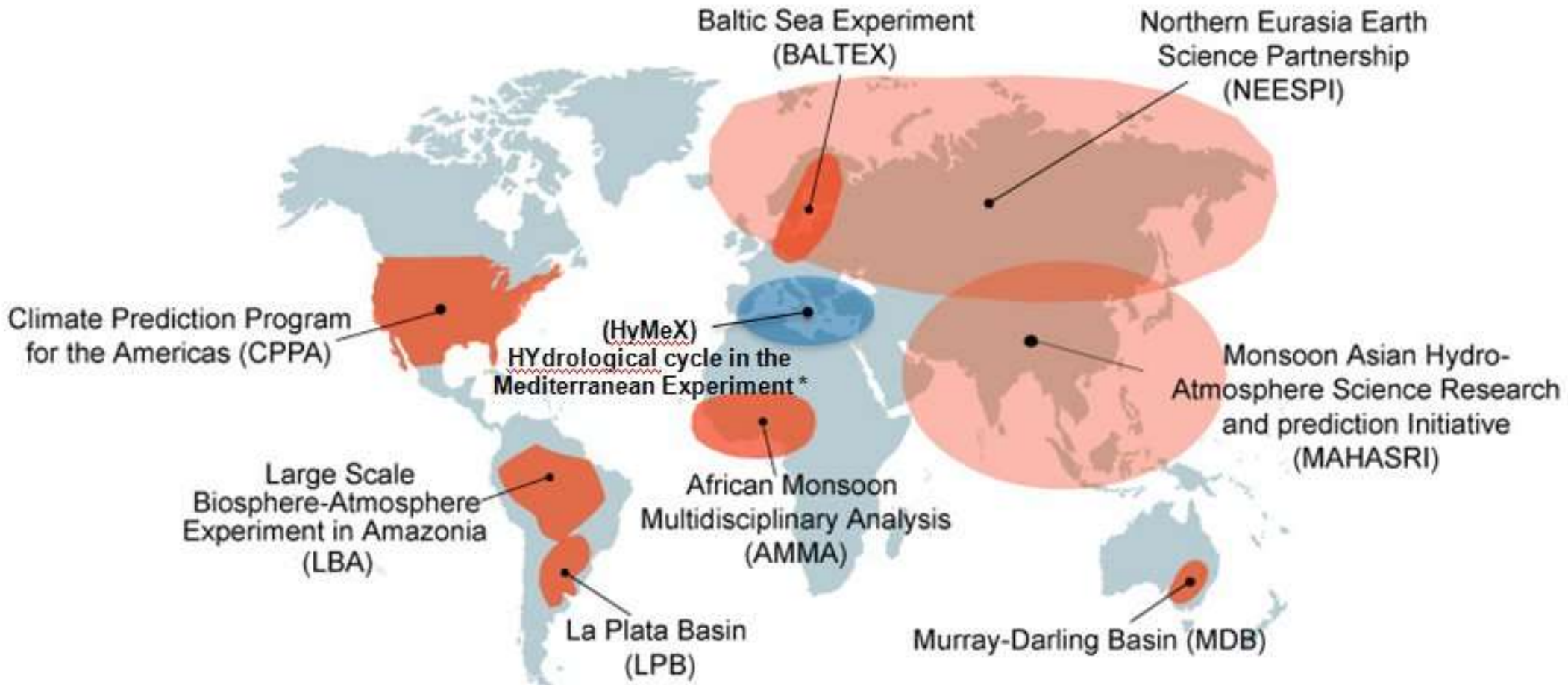
*<sup>1</sup>Global Energy and Water Cycle Experiment*

# ONE PART OF GEWEX

## **Coordinated Energy and Water-Cycle Observations Project**

The goal of CEOP is: To understand and predict continental to local-scale hydroclimates for hydrologic applications

# GEWEX REGIONAL HYDROCLIMATE PROJECTS



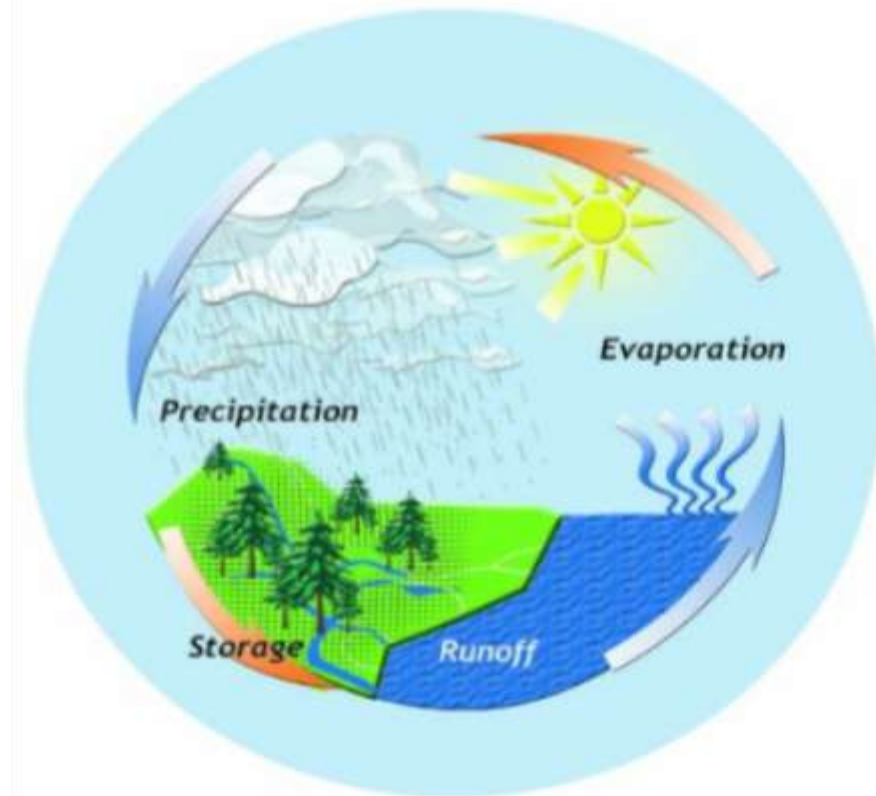
# The CEOP Elements

1. Regional Hydroclimate Projects (RHPs)
2. Regional Cross Cutting Studies
3. **Topical Cross Cutting Studies**
4. Models
5. Data Management

# EXTREMES WITHIN GEWEX/CEOP

## Objectives ...

- To better **document, understand and simulate** the **occurrence, evolution, and structure** of **hydrometeorological extremes** within the climate system
- To contribute to their better **prediction** at various time scales and to addressing **societal concerns**



Global Energy and Water cycle Experiment

# FOCUS

- **Extremes of Interest**

**Drought**

**Heavy precipitation**

**Floods**

**Low Flows**

**...**

- **And, in some instances**

**Inter-meshing of these extremes**

**Related phenomena**

## *Component Phenomena Studies*

AMMA	D	requested
BALTEX	HP, F, TE	T, S, PR
CPPA	D, HP, F, TE	DI, DE, T, S, PR
HyMeX	D, HP, F, LS	D, PR, A
LBA	requested	
LPB	D, HP, F	T, S, PR, A
MAHASRI	D, HP, F	DI, T, S, PR, A
MDB	D, HP, F, TE, FI	T, S, PR, A
NEESPI	D, HP, F	T, S, PR, A
HAP	D, HP, F	PR
High Elevation	HP, GL, F	DC, DI, T, S, AQ
Isotopes	HP	DI, S
Modelling	D, HP, F	S, PR
Monsoon	D, HP, F	DI, T, S, PR

D	drought
HP	heavy precipitation
F	flooding
LS	land slides
TE	temperature extreme
FI	fire
DC	data collection
DI	data integration
DE	definitions
T	trends
S	science-simulation
PR	prediction
AQ	aquatic ecosystems
A	research for adaption

## *Component Articles*

AMMA	requested
BALTEX	requested
CPPA	requested
HyMeX	14 since 2008
LBA	requested
LPB	>> 4 since 2006
MAHASRI	30 since 2007
MDB	18 since 2006
NEESPI	requested
HAP	requested
High Elevation	3 since 2007
Isotopes	3 since 2008
Modelling	requested
Monsoon	requested

Lots of journal articles on regional extremes and particular aspects of extremes



# CURRENT ACTIVITIES in CEOP include:

## RHPs:

- Numerous Extremes related activities underway within the regional and other components of CEOP

## Other specific steps currently underway include:

- Assess current definitions and determine if changes needed
- Assess existing extreme event catalogues and as appropriate incorporate this into the Extremes information base
- Produce a high resolution dataset on global precipitation
- Pull together at least one comprehensive, continental-scale dataset on multi-year drought
- Develop a review article on extremes

# SYNTHESIS ARTICLES

- EOS - spring 2010 submission

Summary of activities underway

- BAMS - end 2010 submission

Collective examination of droughts/floods in different regions

# MOVING AHEAD ...

Common and unique issues:

- How does the role of land surface processes vary during the evolution of an extreme?
- In a long-lived drought, was the large scale forcing relatively constant or did it change?
- For drought, how has this ended (at least the meteorological one)? Slowly, major event, either?
- ...

# SUMMARY

- Extremes are being addressed within many components of GEWEX and synthesis-type activities are underway