



Coordinated Enhanced Observing Period

an Element of WCRP (CEOP) initiated by GEWEX

CEOP HP : <http://www.ceop.net>

CEOP Objectives:

1. Water and Energy-Cycle Simulation and Prediction
2. Monsoon System Studies

CEOP Strategy:

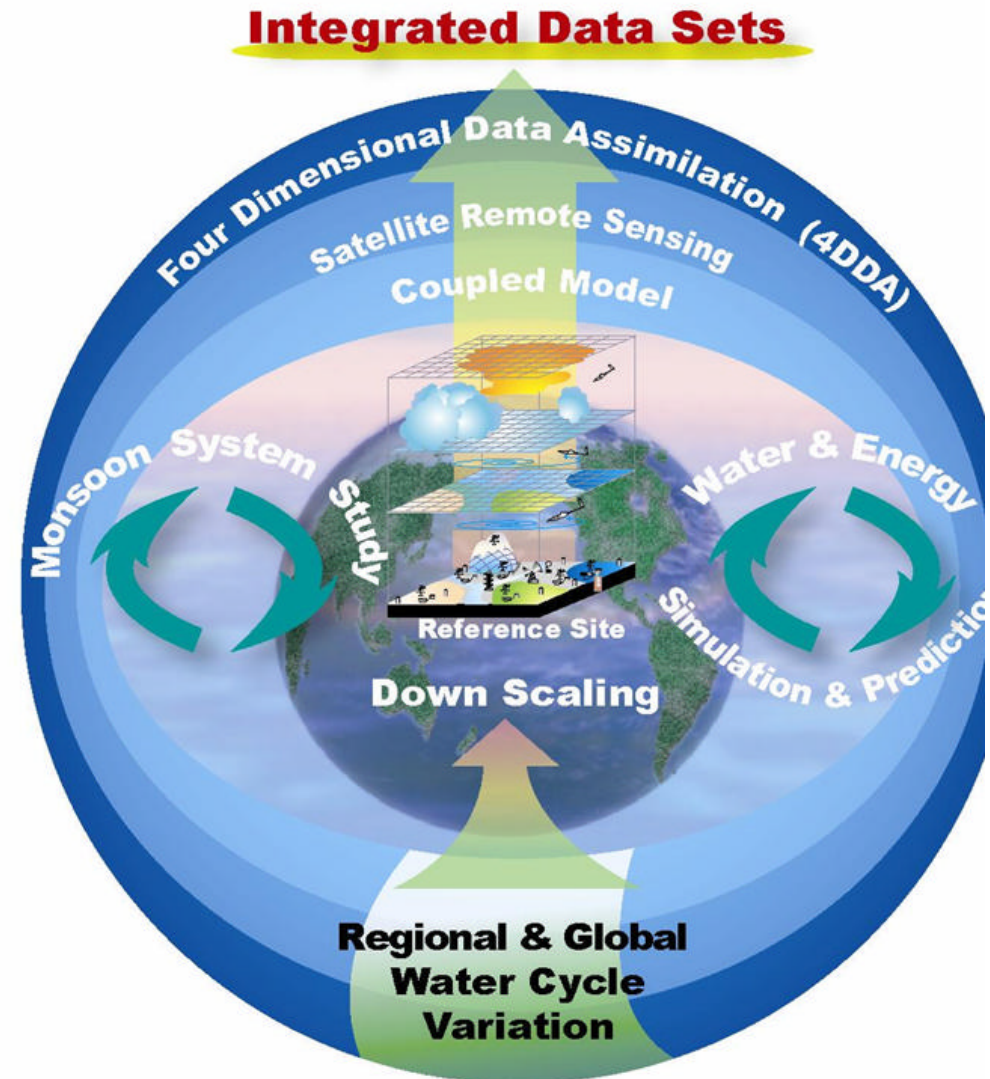
1. The first global integrated data sets of the water cycle with spatial consistency and climate variability, through
 - (i) the ground-based observations from the 36 CEOP reference sites
 - (ii) the satellite observations of the entire water cycle
 - (iii) the simulations of numerical models with physical consistency
2. Challenges to inter-connection of regional water cycles and Down-scaling applications to water resources

CEOP Schedule:

	2001	2002	2003	2004
The Preliminary Data period	1 July - 30 Sep			
The Buildup phase		1 Oct - 30 Sep		
The First Annual Cycle period			1 Oct - 30 Sep	
The Second Annual Cycle period				1 Oct - 31 Dec

EOP-1
EOP-2
EOP-3
EOP-4

Data Collection:2001-2004 / 2005-2007: Research



CEOP SCIENTIFIC OBJECTIVES

LONG-TERM GUIDING GOAL

To understand and model the influence of continental hydroclimate processes on the predictability of global atmospheric circulation and changes in water resources, with a particular focus on the heat source and sink regions that drive and modify the climate system and anomalies.

OVERALL OBJECTIVE 1

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 resources application.

**Water & Energy
Simulation & Prediction
(WESP)**

OVERALL OBJECTIVE 2

Document the seasonal march of the monsoon systems, assess their driving mechanisms, and investigate their possible physical connections.

**CEOP Intern-Monsoon
Study (CIMS)**

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Document the seasonal march of the monsoon systems, assess their driving mechanisms, and investigate their possible physical connections.

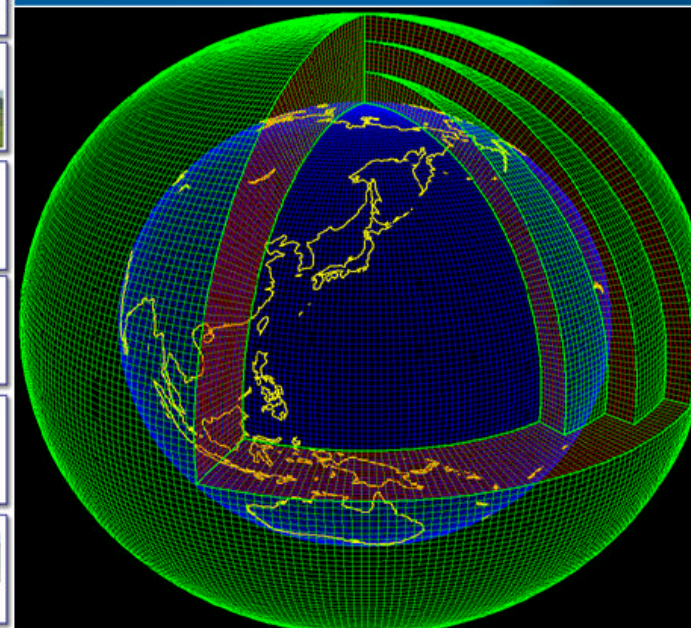
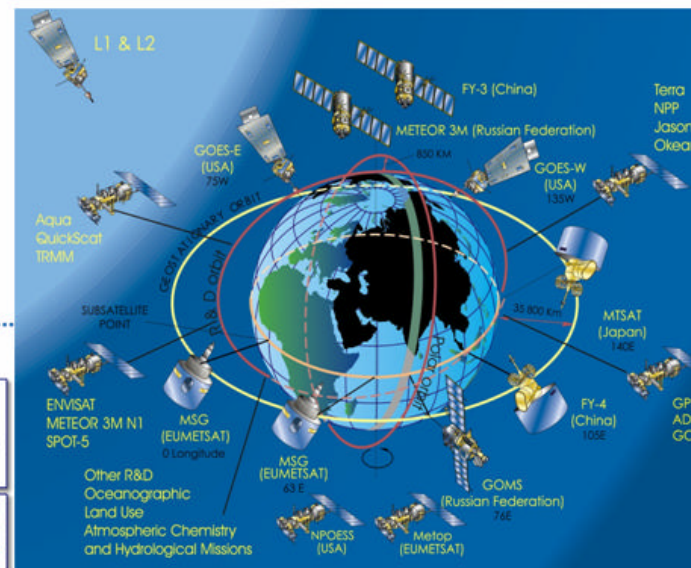
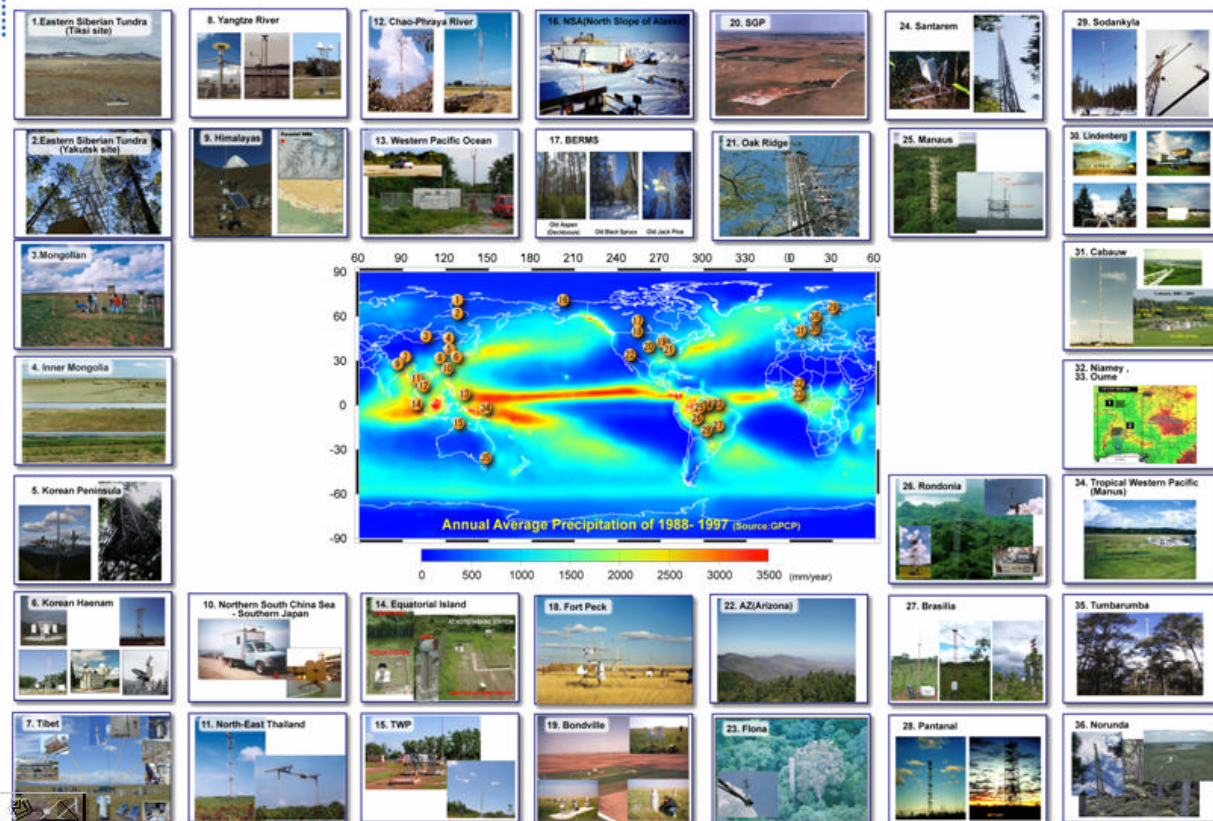
**CEOP Intern-Monsoon
Study (CIMS)**



Coordinated Enhanced Observing Period Three Unique Capabilities

Convergence of Observations *A Prototype of the Global Water Cycle Observation System of Systems*

International Cooperation for the Global Coverage

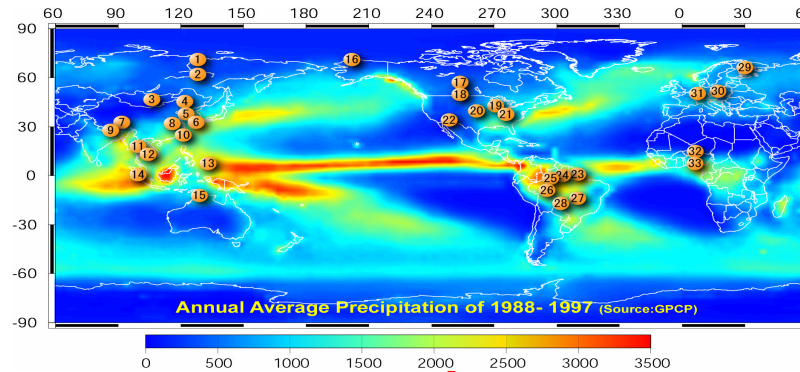
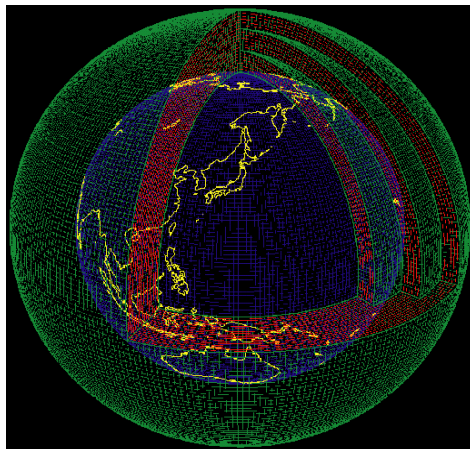




Coordinated Enhanced Observing Period Three Unique Capabilities

Interoperability Arrangement

A well organized collecting, processing, storing, and disseminating shared data, metadata and products



Model Output Data Archiving
Center at the **World Data
Center for Climate, Max-Planck
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Germany

In-Situ Data Archiving
Center at **NCAR (National
Center for Atmospheric
Research)** of USA

Data
Integrating/Archiving
Center at **University of
Tokyo and JAXA** of
Japan

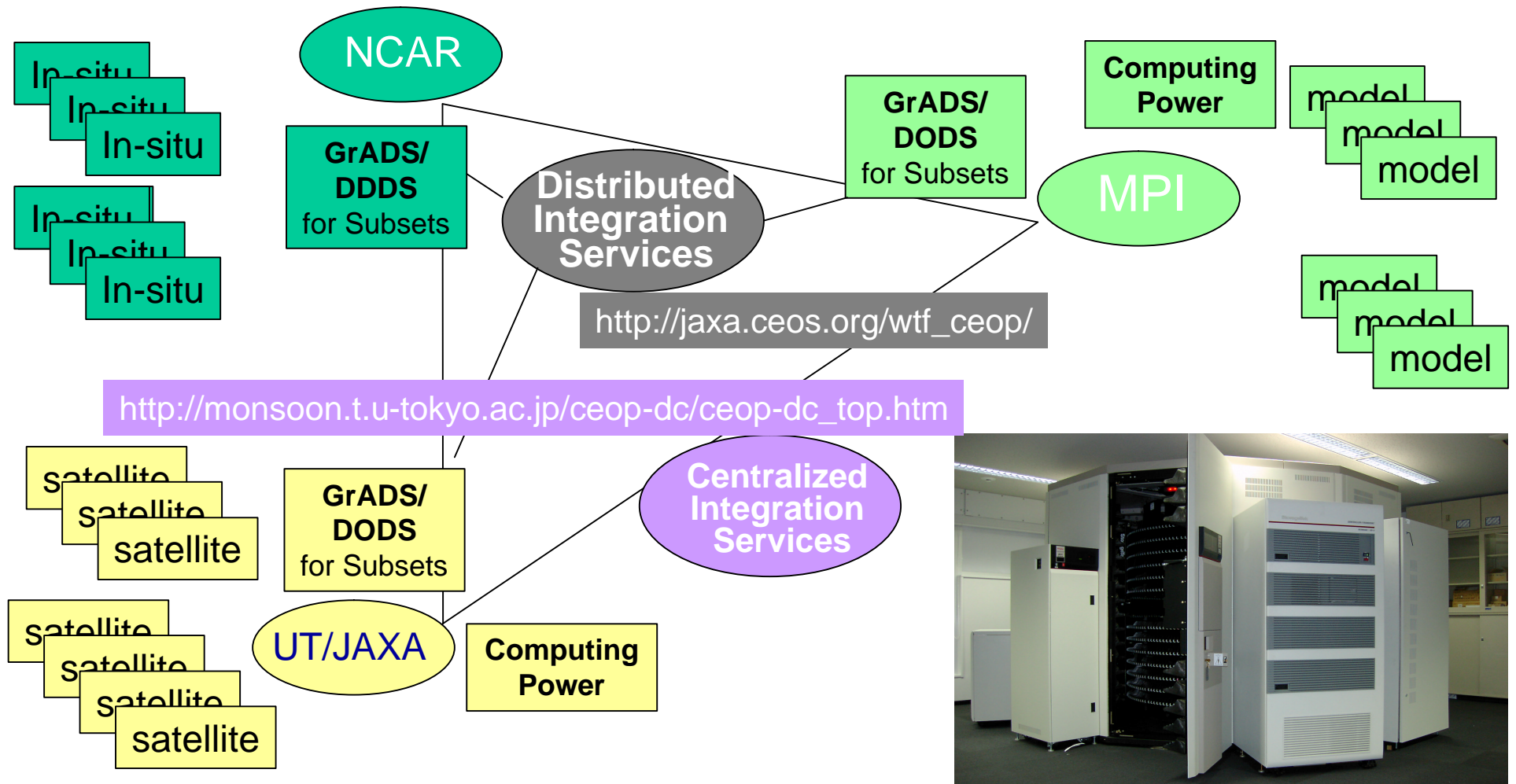




Coordinated Enhanced Observing Period Three Unique Capabilities

Data Management

Distributed- and Centralized- Data Integration Functions



SCIENTIFIC ACTIVITIES OF CEOP PHASE1

MODEL OUTPUT

Global
Regional
Local

REFERENCE SITES

SATELLITES

Diurnal
Intra-seasonal
Seasonal

DATA INTEGRATION & DISSEMINATION

**WATER & ENERGY
SIMULATION & PREDICTION
(WESP)**

**Water and Energy Budget
Studies**

**Global Land Data
Assimilation Systems**

**Inter-CSE Transferability
Study**

**CEOP INTER-MONSOON
STUDY (CIMS)**

**Coordinated Model
Integration Process**

**Monsoon System Inter
Comparison**



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CEOP Tokyo WORKSHOP'05

43 Extended Abstracts

29 Oral Presentations &

14 Poster Presentations

**→CEOP Special Issue of JMSJ
Paper Submission Due : 30 Sep. '05
Publication: Jan. '07**



Paper Submission Due : 20 Feb. '06



An Element of WCRP initiated by GEWEX

WESP(14):

WEBS(4): In-situ data, Model Simulation, Data Integration

Data Assimilation(4): LDAS and L-ADAS Development and Validation,
Parameter Estimation

Model(6): Development, Validation, Transferability

NWP and Data Assimilation Centers (8)

BMRC, CPTEC, EPCP, GLDAS, GMAO, JMA, NCMRWF, Intercomparison

CIMS(8)

Data Analysis, Data Integration, Model Simulation, Satellite Remote Sensing

Satellite Remote Sensing (4 + Satellite DAS(4))

Radiative Transfer Model, Algorithm Development, Validation, Application for
Monsoon System Study

Data System(7):

Quality Checking System, Model Data System, Meta Data, Centralized
Integration System, Distributed Integration System, Visual Mining

THANK YOU VERY MUCH FOR 41 PAPER SUBMISSION!



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Editorial Board of JMSJ CEOP Special Issue

S. Benedict, M. Bosilovich, C. Fu, P. Houser, H-J. Isemer

J. Kim, F. Kimura, T. Koike, P. Koudelova, W. Lau

M. Lautenschlager, J. Marengo, J. Matsumoto, T. Ose, J. Roads

B. Rockel, R. Stewart, S. Williams, E. Wood, K. Yang

One Month Review and Two Months Revise @ 3



An Element of WCRP initiated by GEWEX

CEOP/IPTT: Implementation Plan Task Team

S. Benedict	:Coordination
M. Bosilovich	:Global Model
C. Fu	:Semi-Arid Region
T. Koike	:Cold Region/ Data Integration
W. Lau	:Aerosol
M. Lautenschlager	:Model Output Management
J. Matsumoto	:CIMS
J. Roads	:WESP
R. Stewart	:Extreme
S. Williams	:Ref. Site Data Management
E. Wood	:Hydrologic Ref. Basin



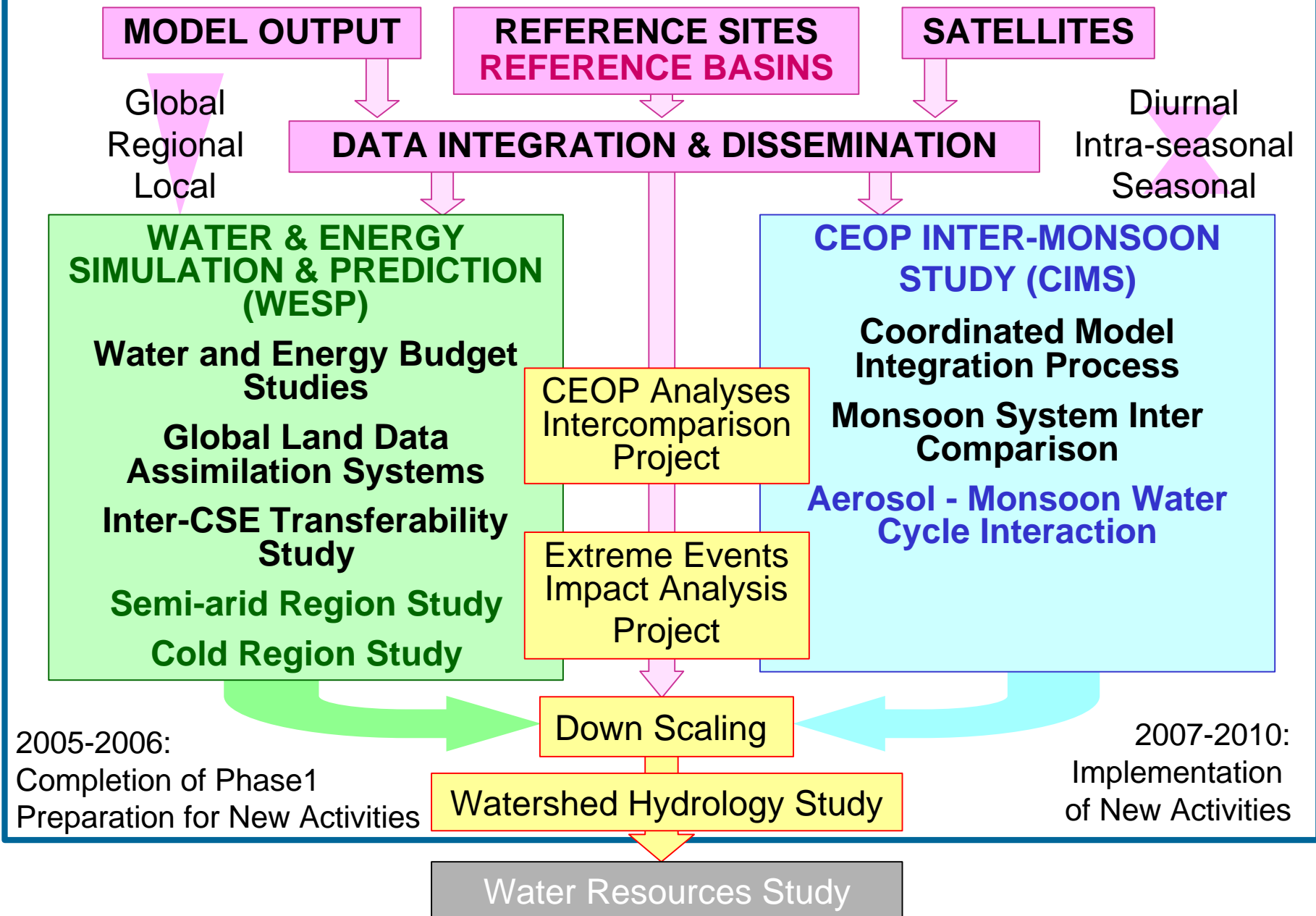
An Element of WCRP initiated by GEWEX

Planning Process of the CEOP Phase 2 Implementation Plan

- Feb. 28 – Mar. 4, 2005:
Basic Consensus and Establishment of IPTT
- March 21, 2005: 1st Conference Call
- March 29, 2005: 2nd Conference Call
- May 6-7, 2005: 1st IPTT Working Session in Boulder
- May 23, 2005: 3rd Conference Call
- June 1-3, 2005: Briefing at the WOAP Meeting
- June 19-22, 2005: 2nd IPTT Working Session in Irvine
- August 2, 2005: Submission to GEWEX SSG
- January 13, 2006: Endorsement by GEWEX SSG in Dakar

THANK YOU VERY MUCH the IPTT Members!

SCIENTIFIC ACTIVITIES OF CEOP PHASE1



GROUP ON EARTH OBSERVATIONS



Vision for

Global Earth Observation System of Systems (GEOSS)

The vision for GEOSS is to realize a future wherein decisions and actions for the benefit of humankind are informed by coordinated, comprehensive and sustained Earth observations and information.

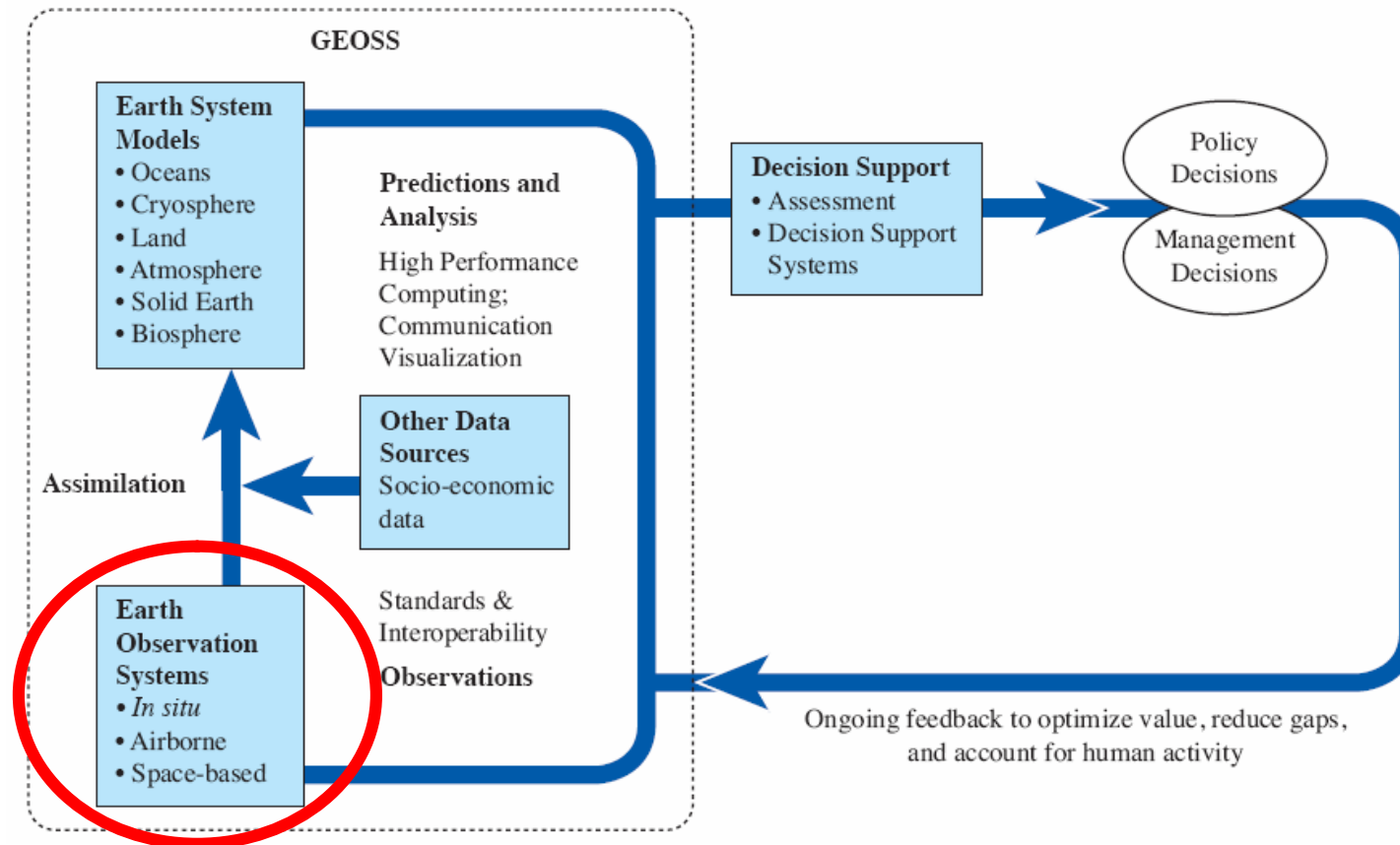
(The 10-Year Implementation Plan)

A Broad Scientific and Political Consensus:

the assessment of the state of the Earth requires continuous and coordinated observation of our planet at all scales.

This new approach has gathered the political support of the world's leaders.

Three Meanings of “A System of Systems”



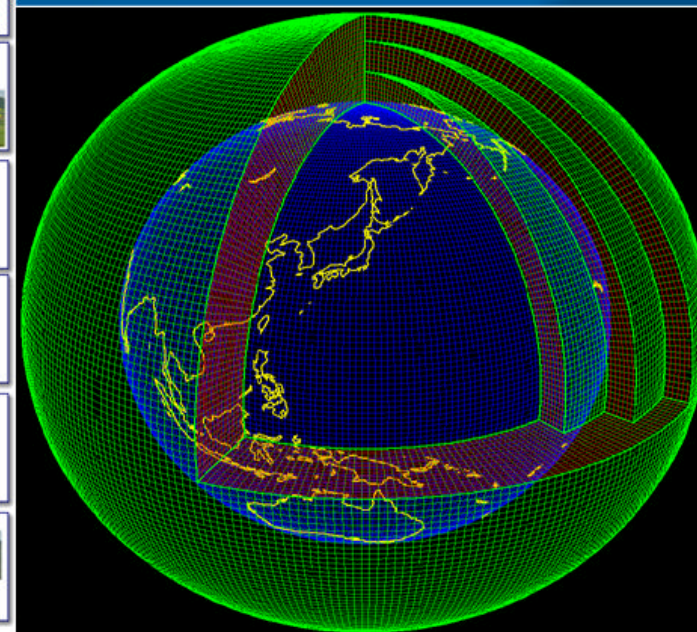
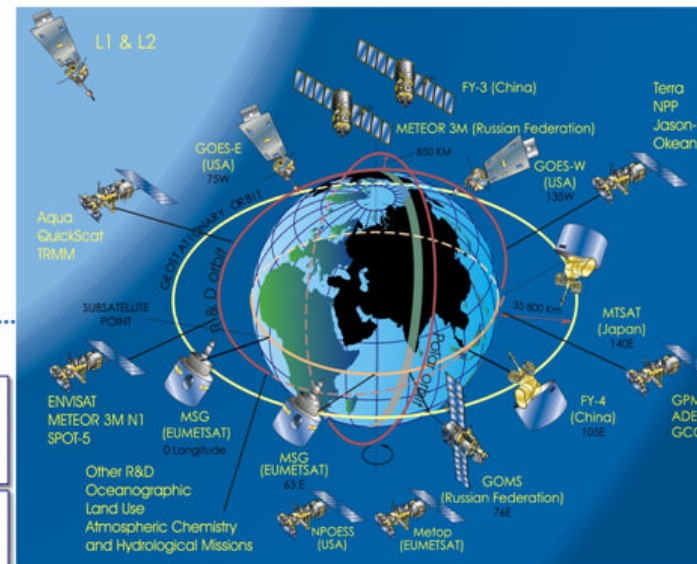
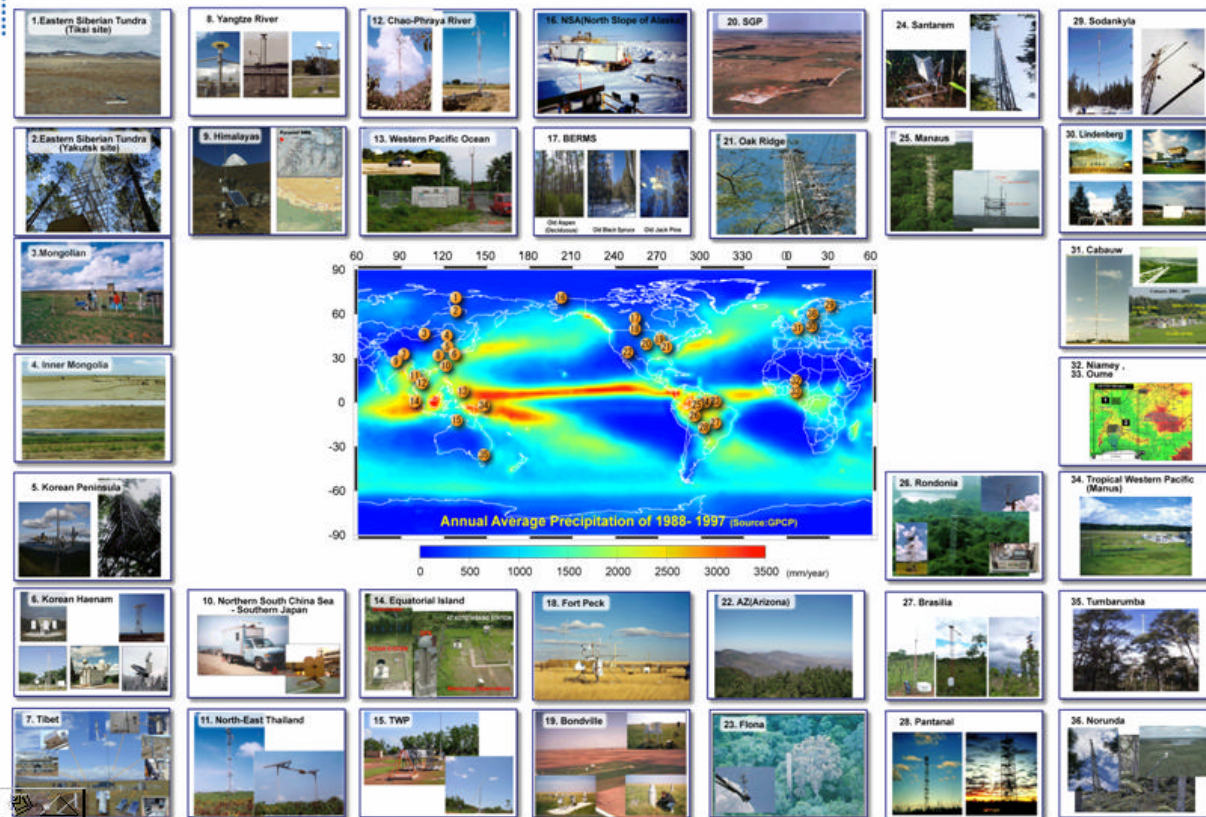
**A System for Converging
Observation Systems Worldwide**



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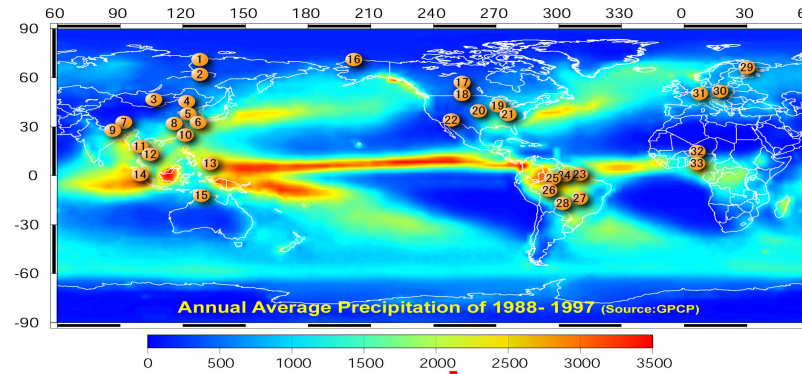
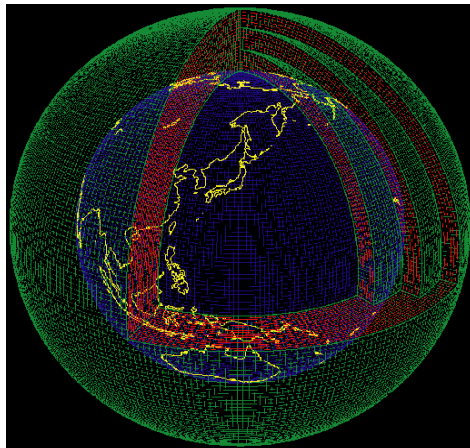




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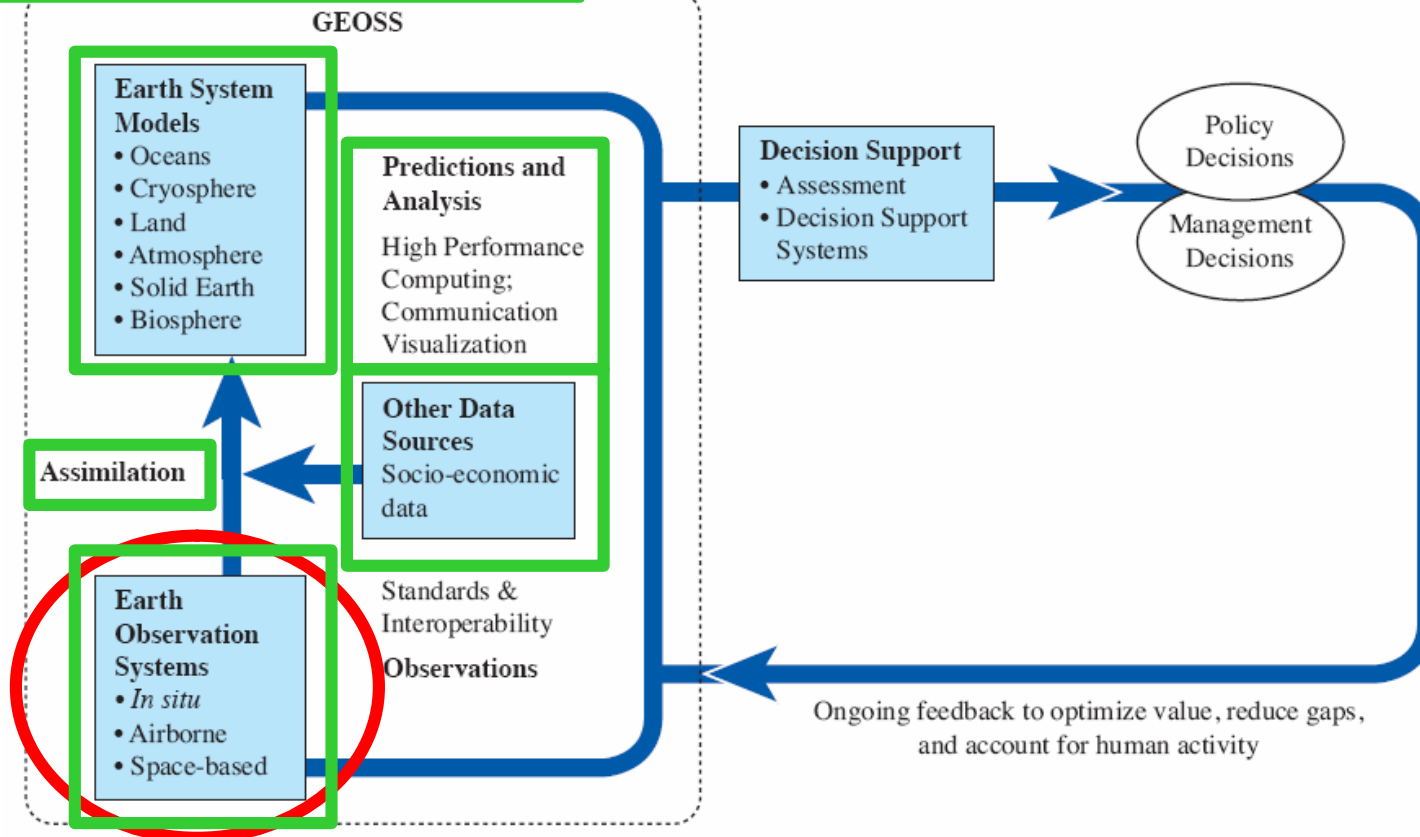
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Center at **NCAR (National
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Research)** of USA

Data
Integrating/Archiving
Center at **University of
Tokyo and JAXA** of
Japan



Three Meanings of “A System of Systems”

A System for Integrating Observation, Modeling, and Data Management Systems



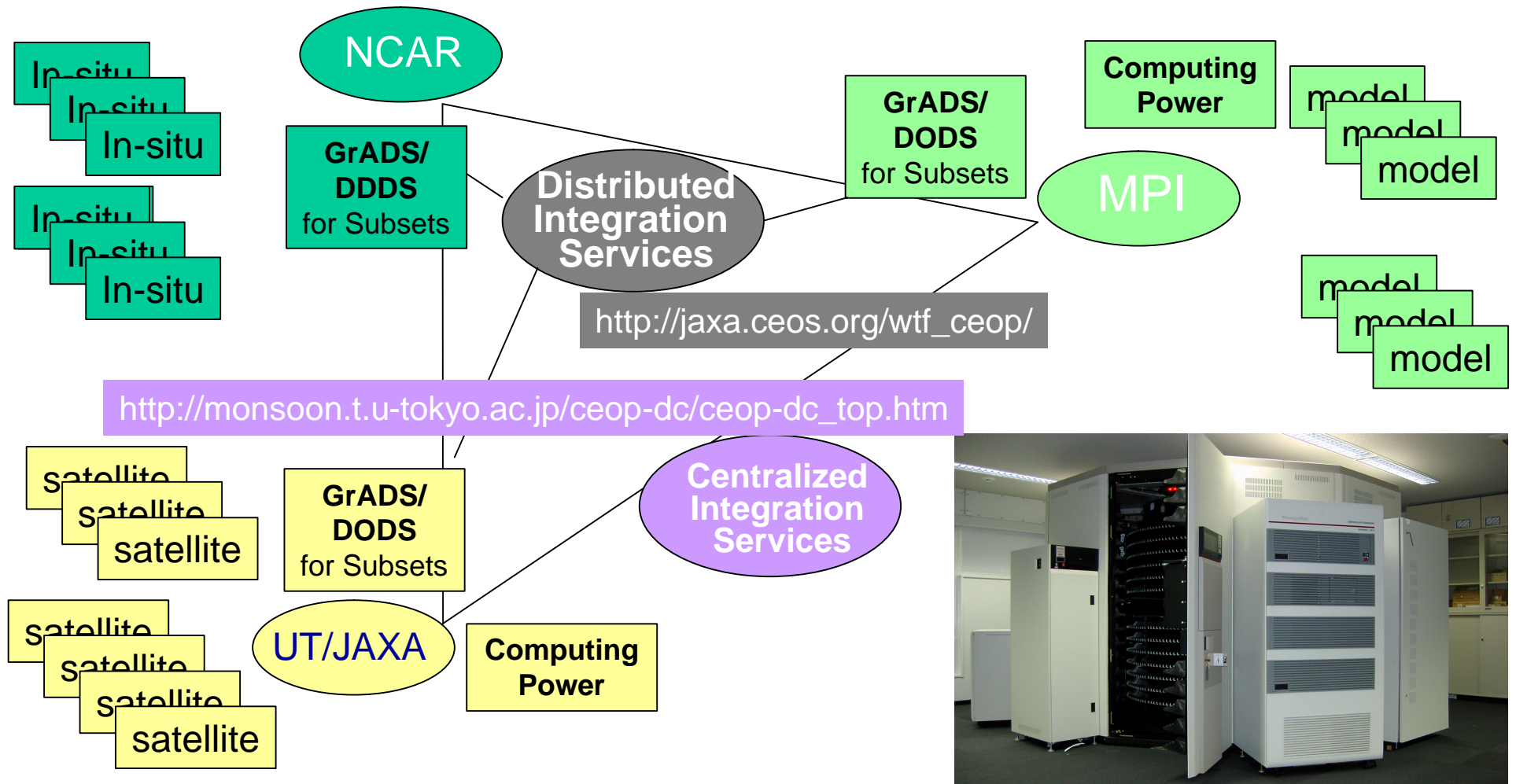
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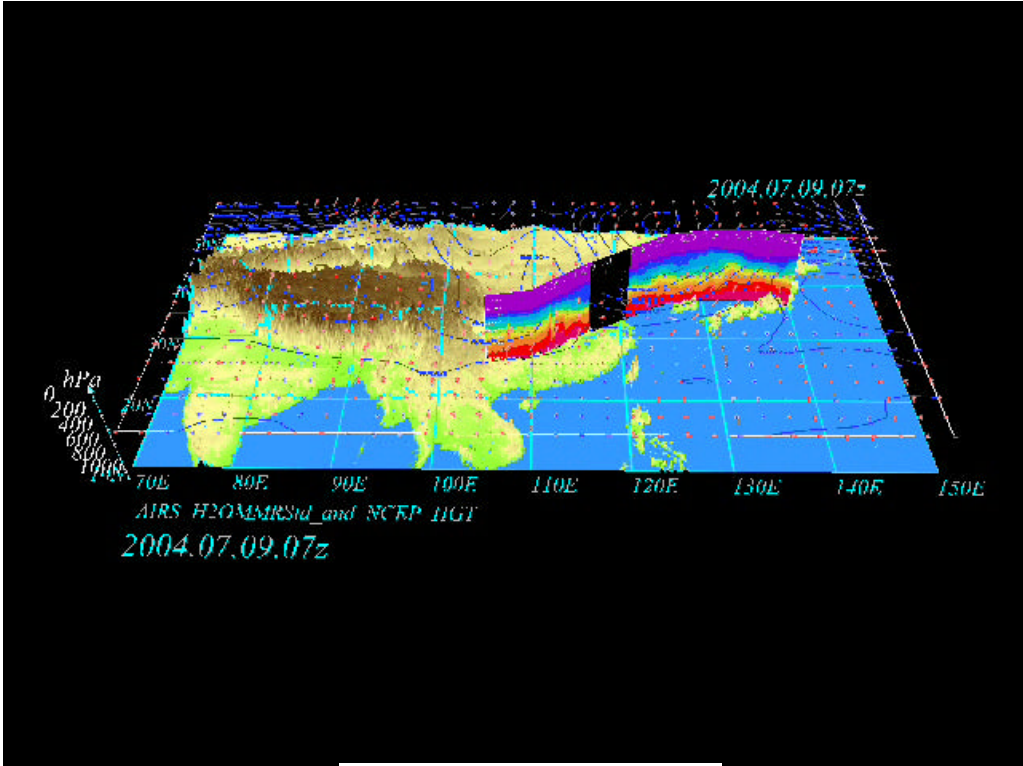
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Data Management

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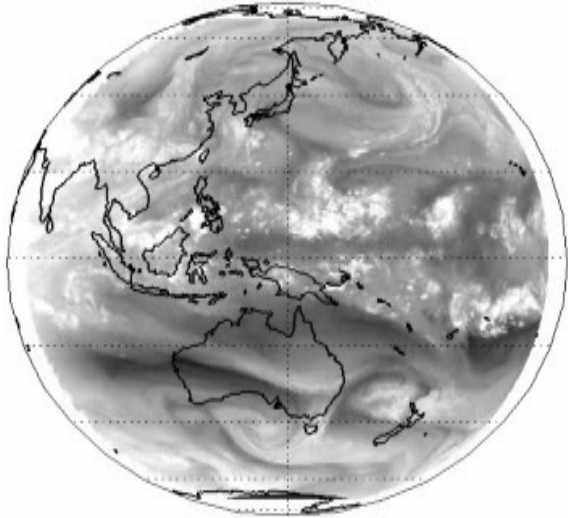
July 13, 2004 Niigata, JAPAN



AIRS (Water Vapor)

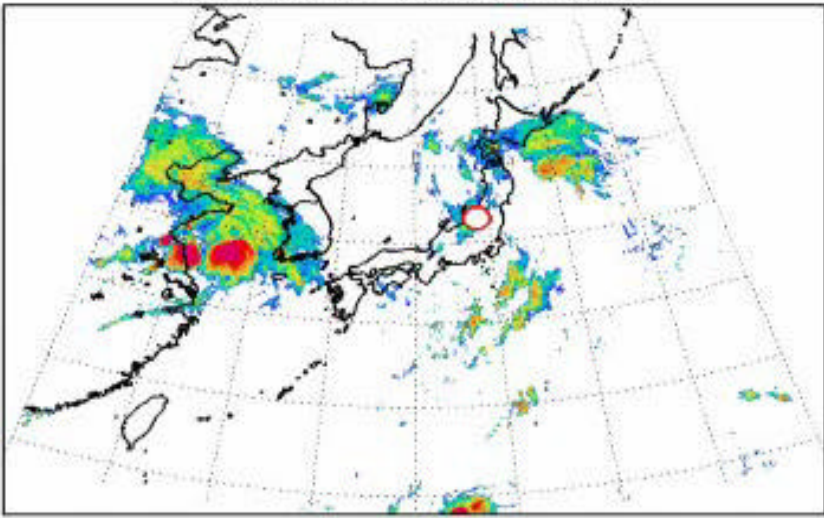
GMS (Water Vapor)

GOES9-IR3 20040709 00UTC



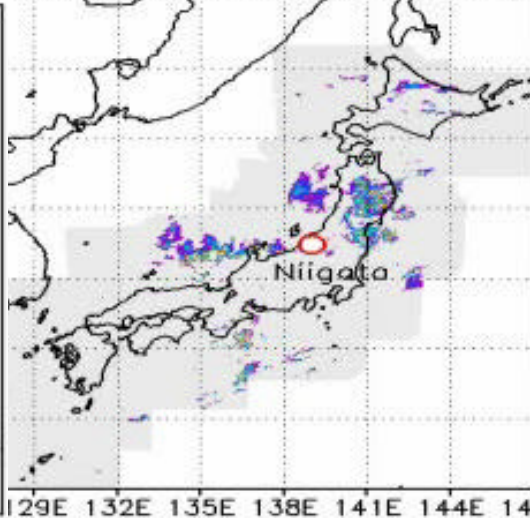
GMS (Brightness Temp.)

GOES9 IR1 TB 2004 0711 09JST



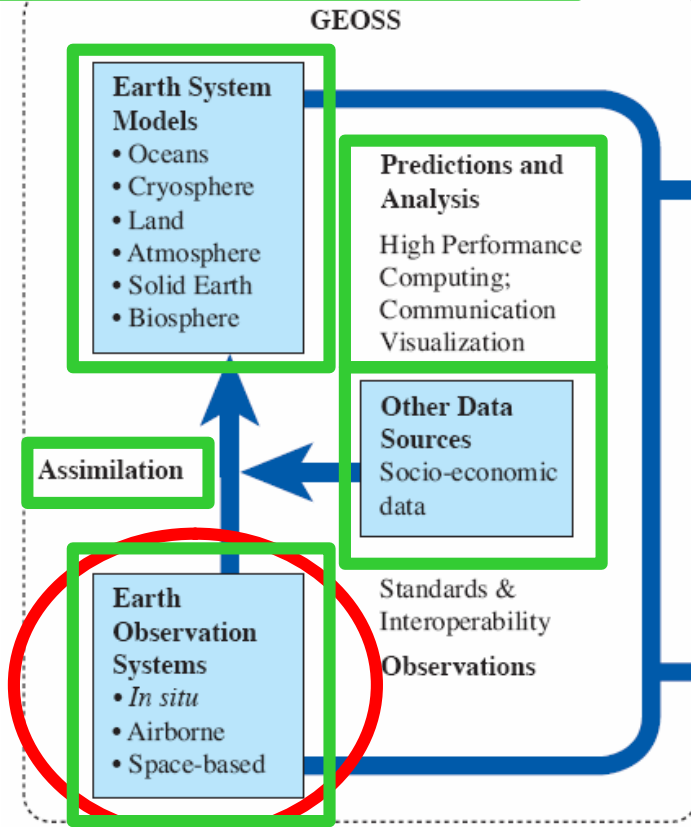
RADAR-Rain Gauge (Precipitation)

RADAR-AMeDAS 2004 0711 00:30

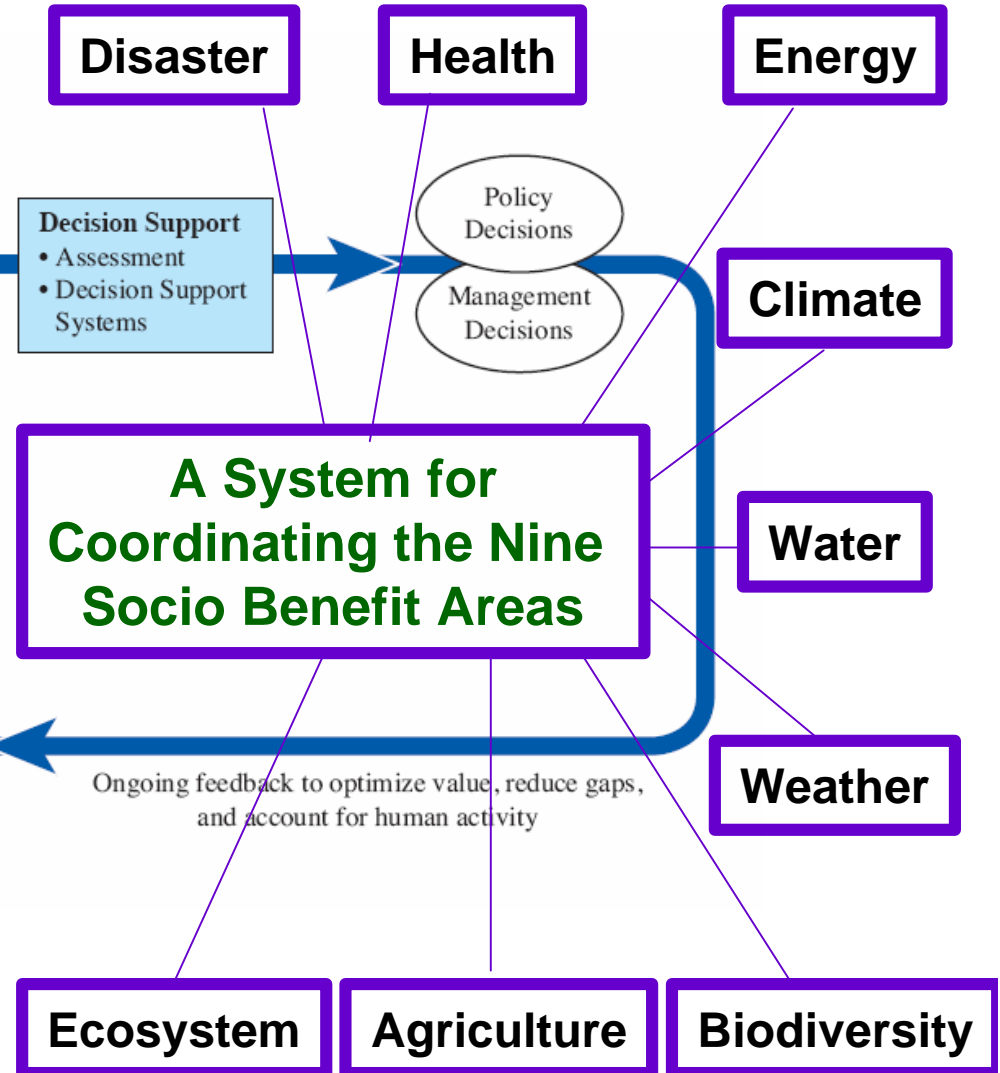


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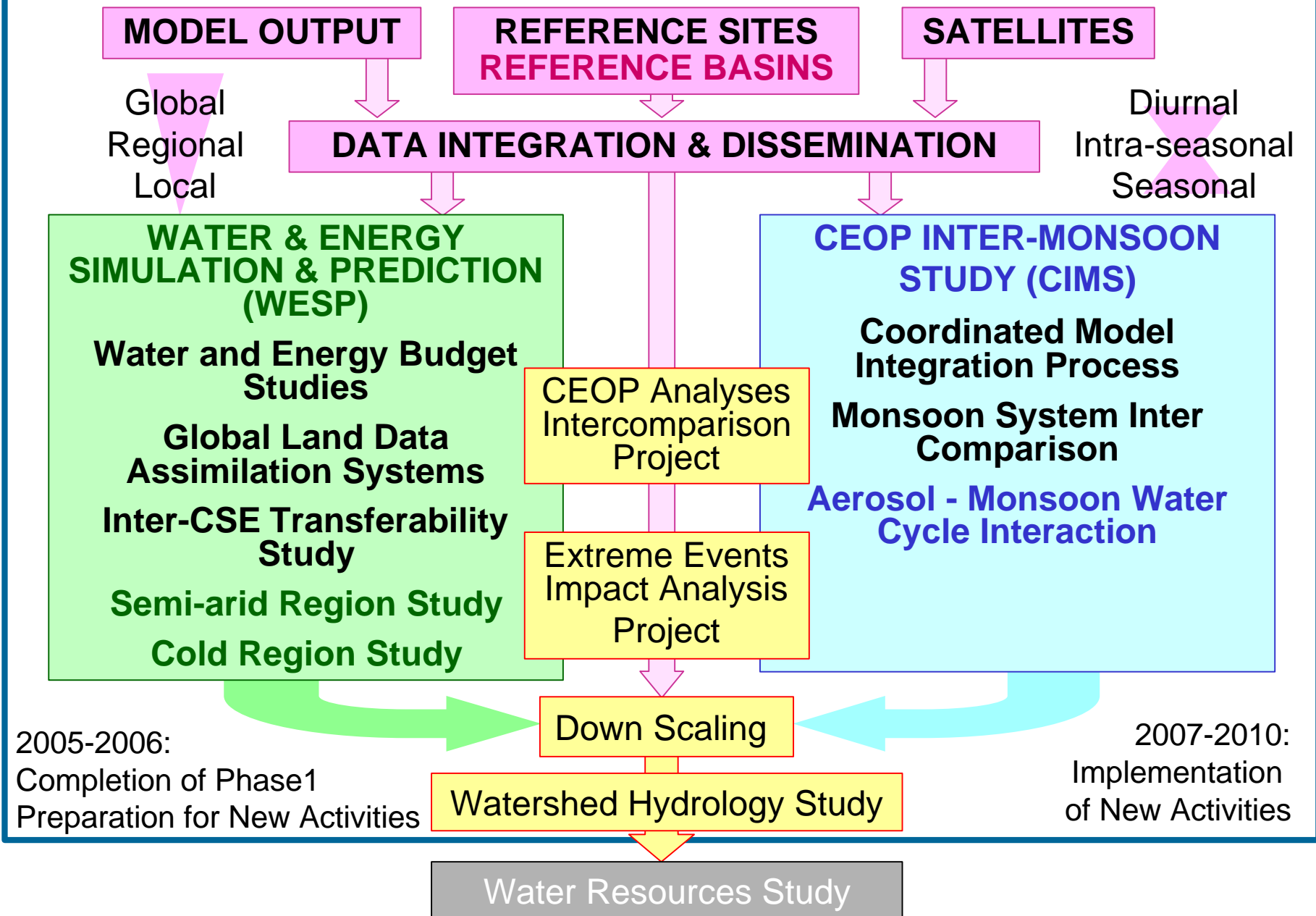
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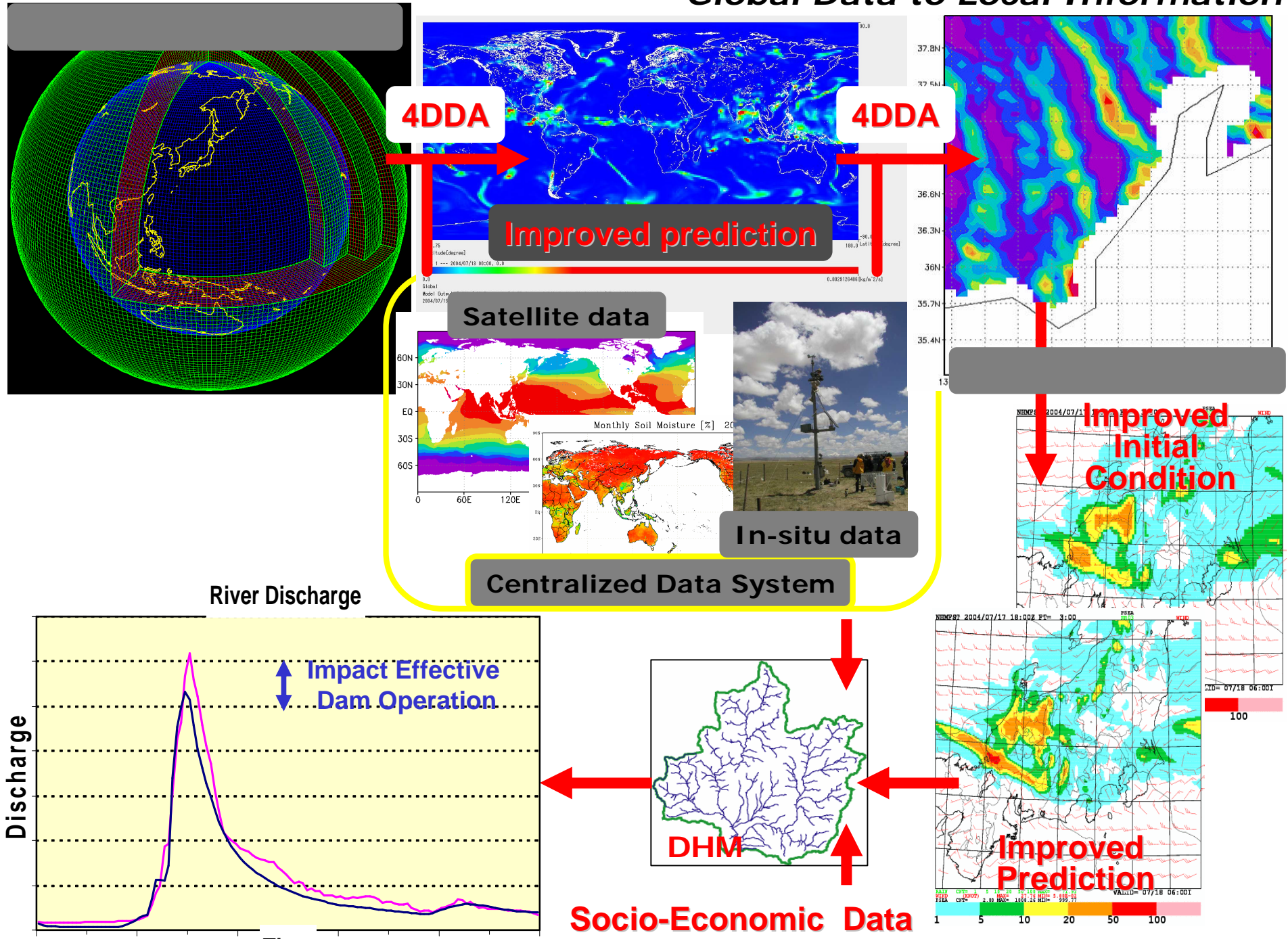
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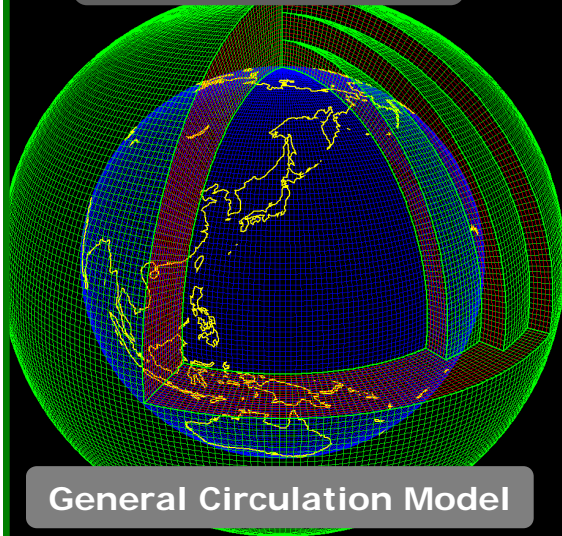
SCIENTIFIC ACTIVITIES OF CEOP PHASE1



Global Data to Local Information

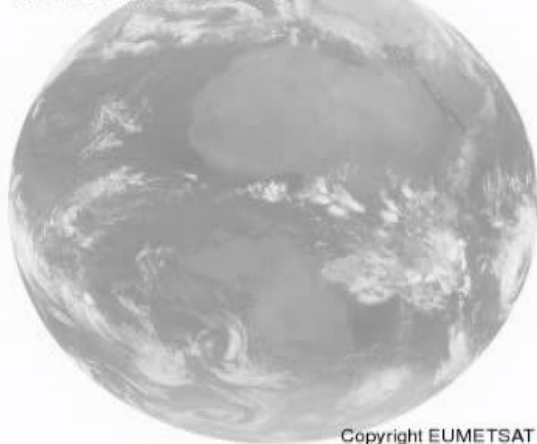


Global Scale

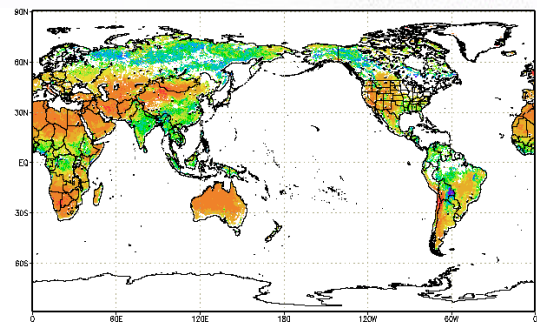


General Circulation Model

2002/12/25-06UTC

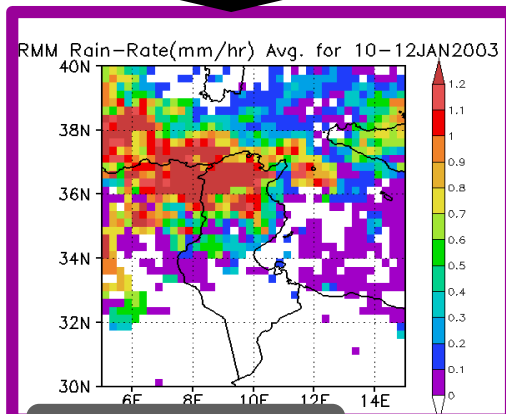
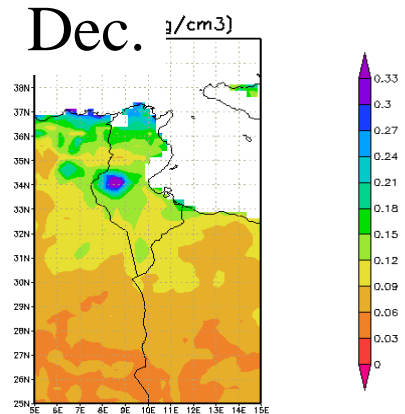
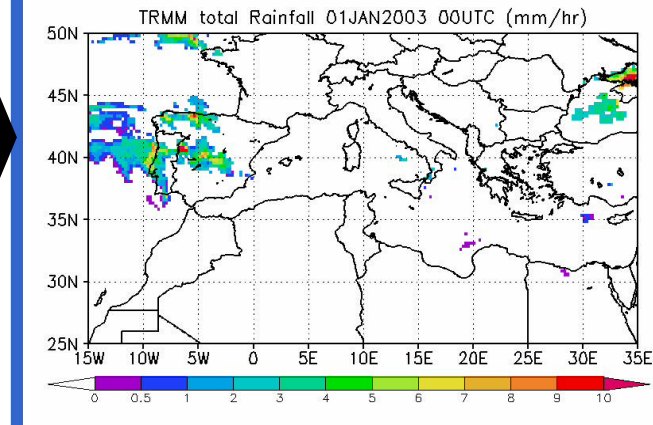


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Modeling Strategy

Regional Scale

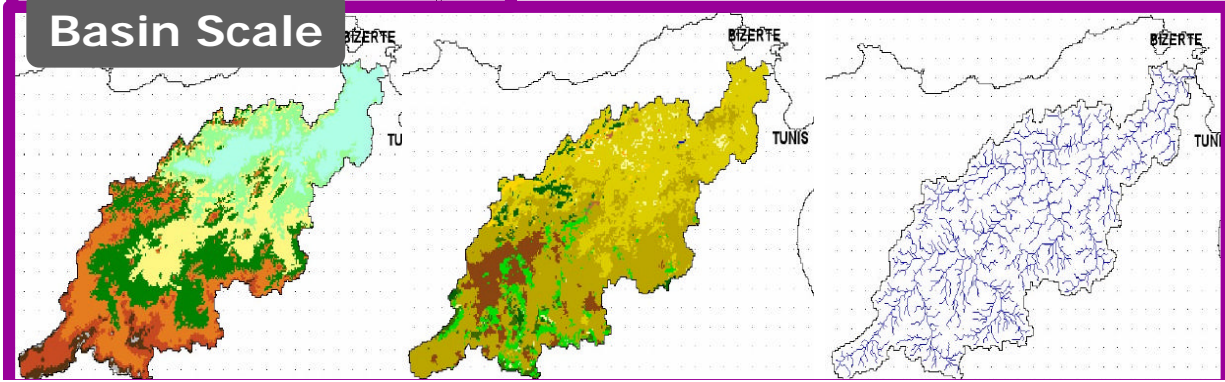


Physically-based Down-Scaling Distributed Hydrological Model Optimization Schemes for IWRM

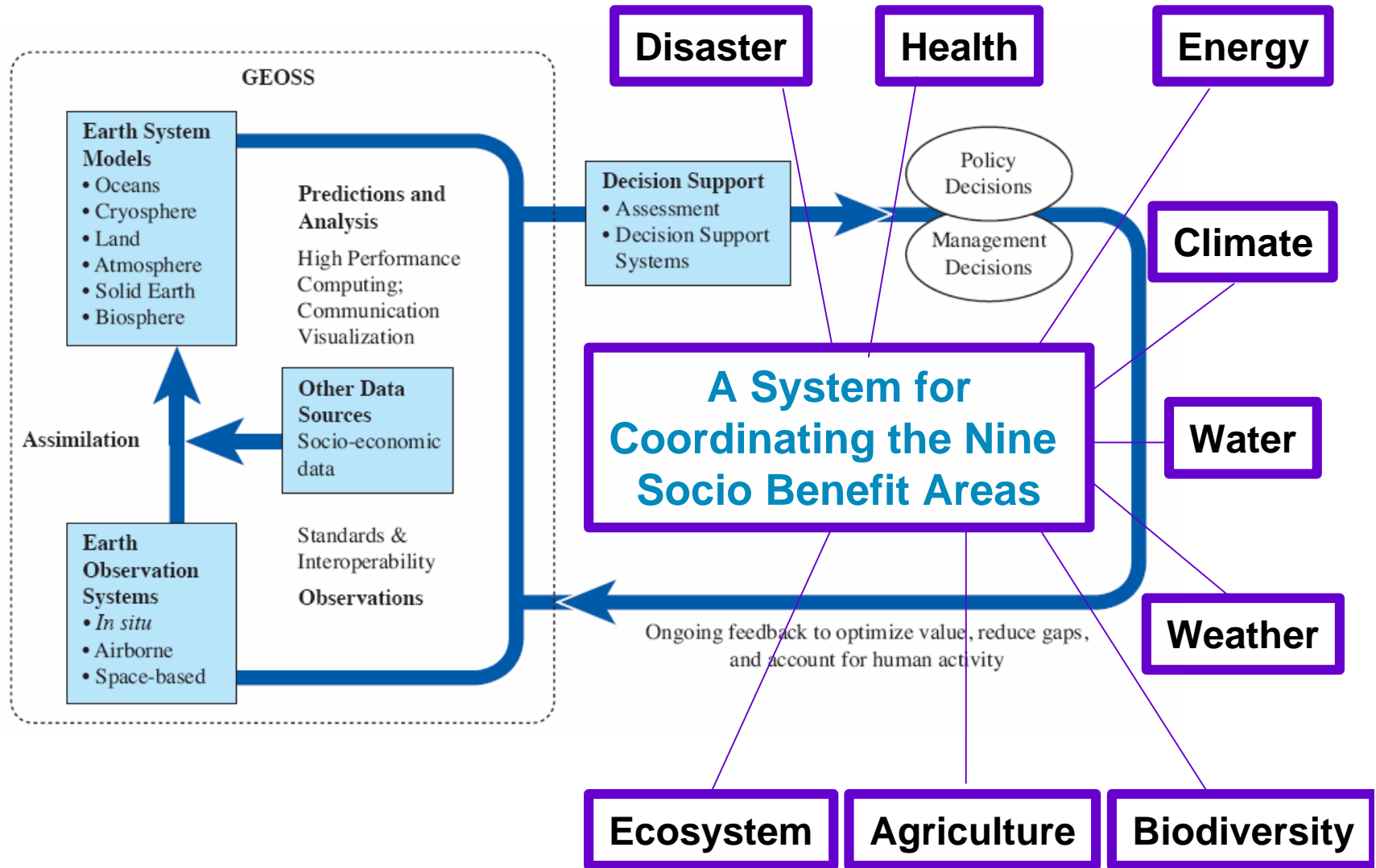
- Flood Control
- Draught/Water Use
- Salinity Control
- Sedimentation Assessment
- Ecosystem Conservation

I
W
R
M

Basin Scale

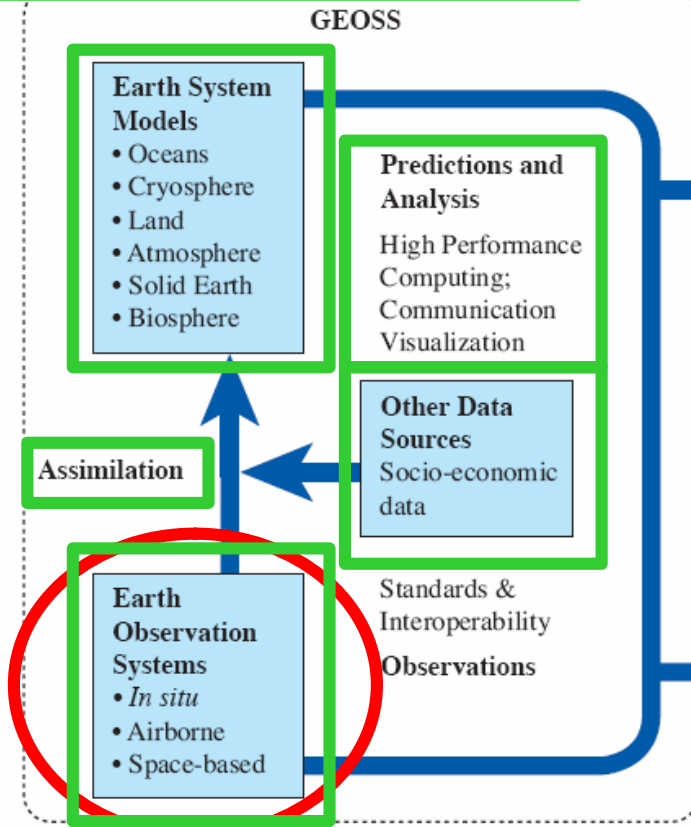


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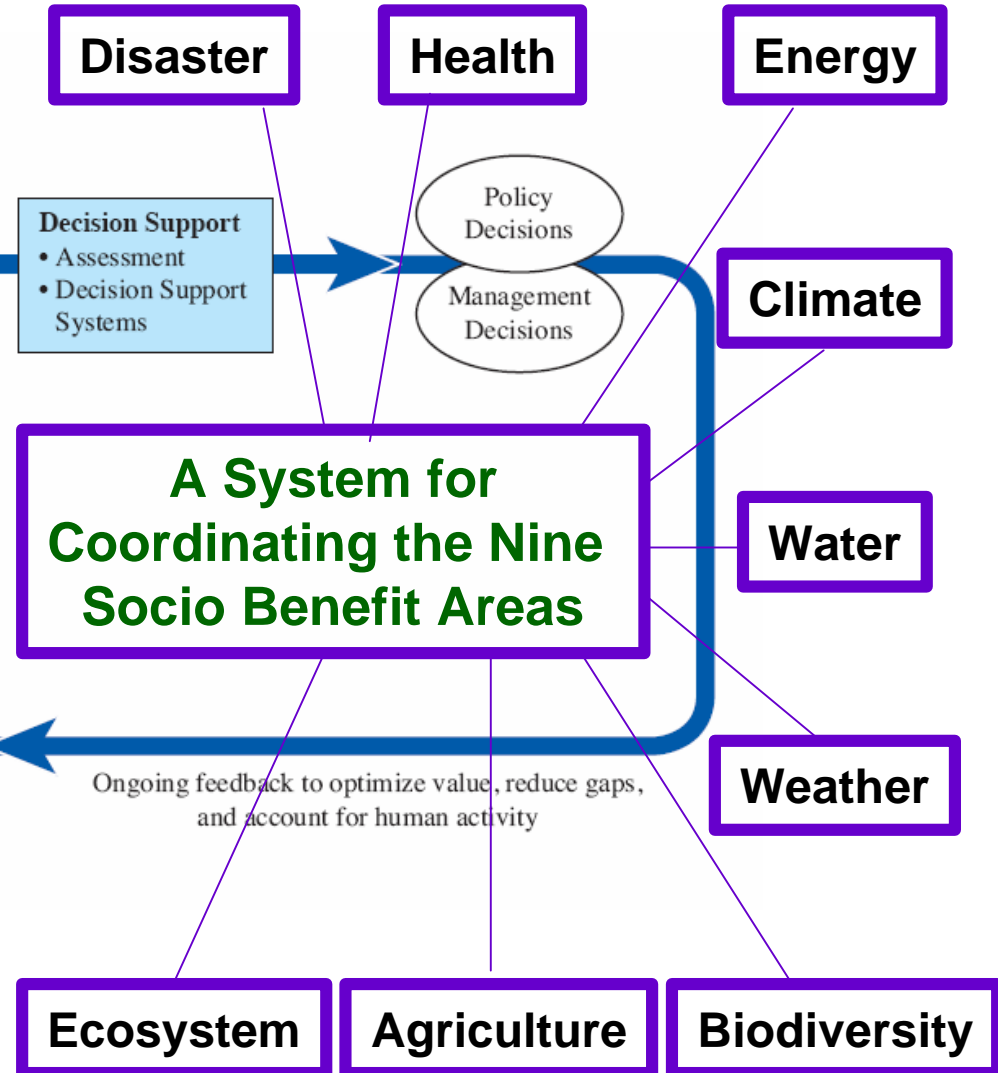


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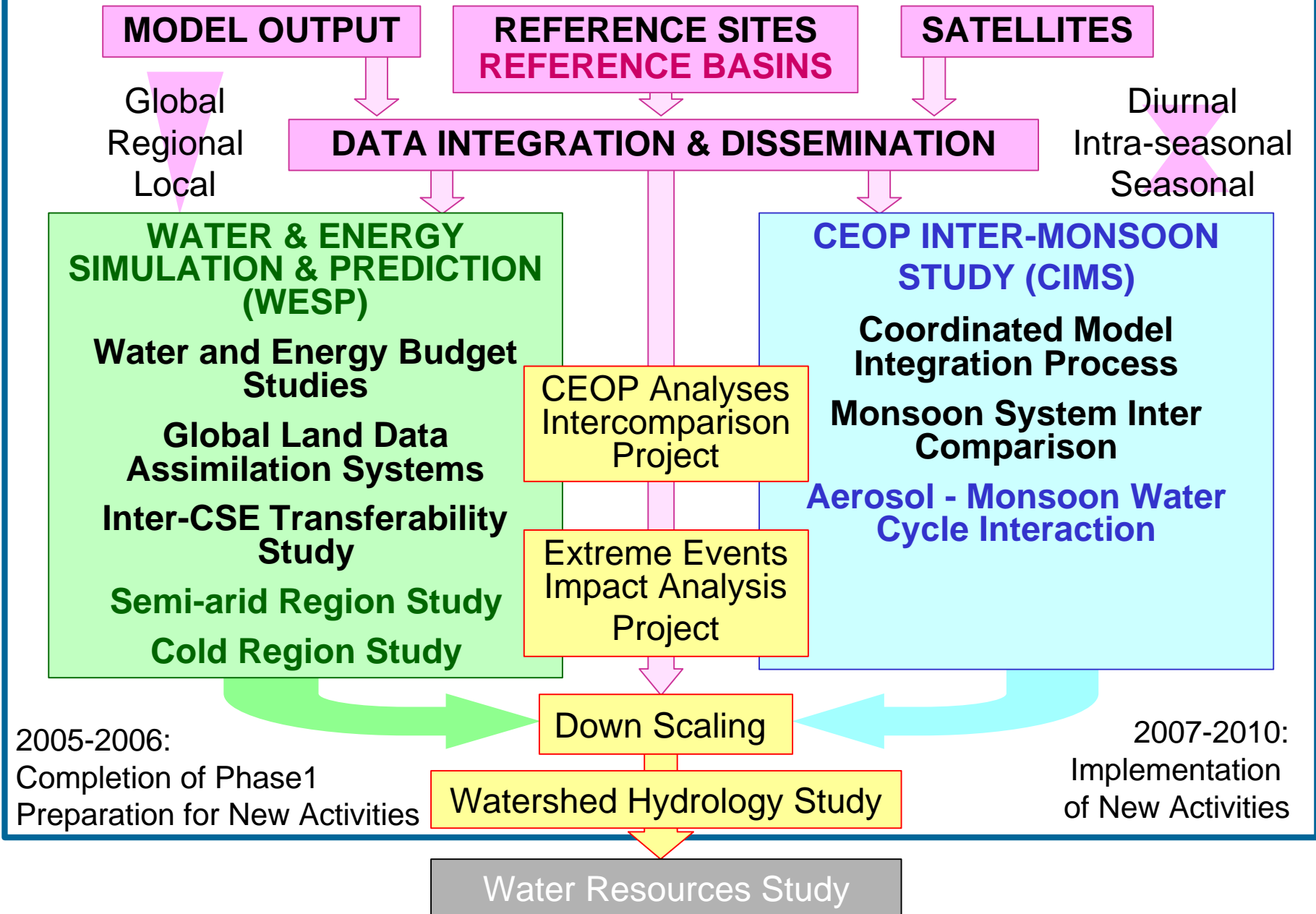
A System for Integrating Observation, Modeling, and Data Management Systems



A System for Converging Observation Systems Worldwide



SCIENTIFIC ACTIVITIES OF CEOP PHASE2



CEOP Work Plan 2006

CEOP Phase2 Preparation

- Data Policy
- Data Archive Procedure
- Reference Site Selection/Addition
- Reference Basin Establishment
- Coordination with Other Activities
- WG Organization
- Data System Expansion
- Definition of New Deliverables
- Definition of Unique Roles of CEOP Phase 2 *etc.*

5th Int'l IP Mtg. for CEOP Feb.-Mar. 2006

Pan-GEWEX Panel Mtg. Oct. 2006

CEOP Phase 2 Launching Jan. 2007

6th Int'l IP Mtg. for CEOP Feb.-Mar. 2007

CEOP Data Archive Completion

CEOP Special Issue of JMSJ

CEOP Phase1 Completion

