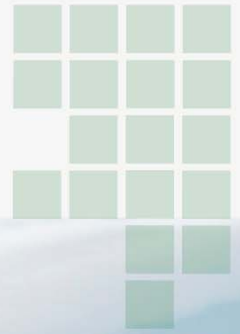




DATA COORDINATION AND MANAGEMENT



Steve Williams

NCAR Earth Observing Laboratory (EOL)

Boulder, Colorado

3rd Asian Water Cycle Symposium

Beppu, Japan

2-4 December 2007



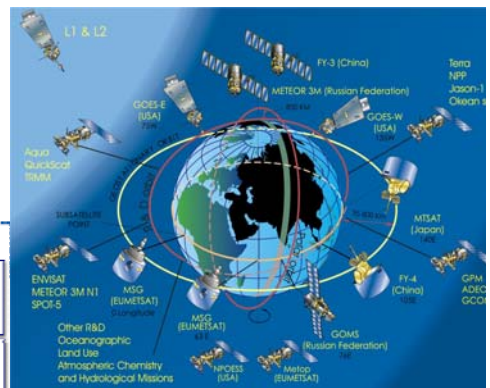
EOL CEOP work supported by NOAA Climate Projects Office



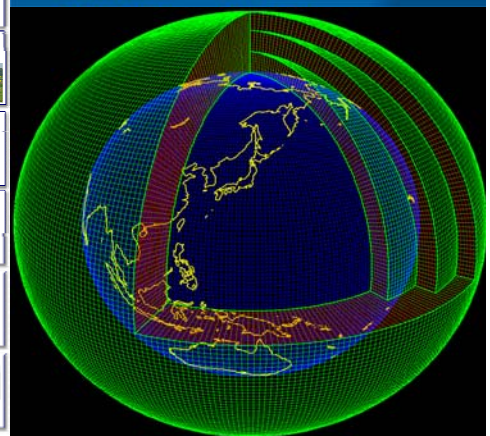
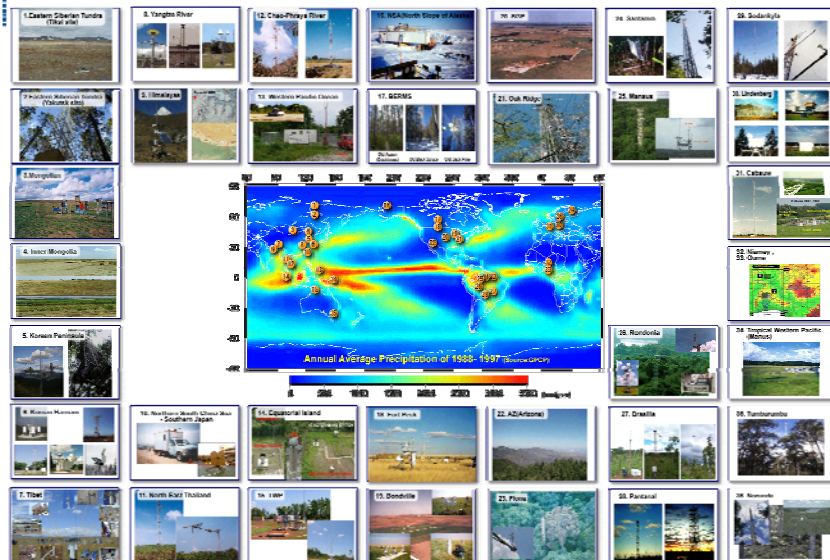
Coordinated Energy and water-cycle Observations Project

Convergence of Observations

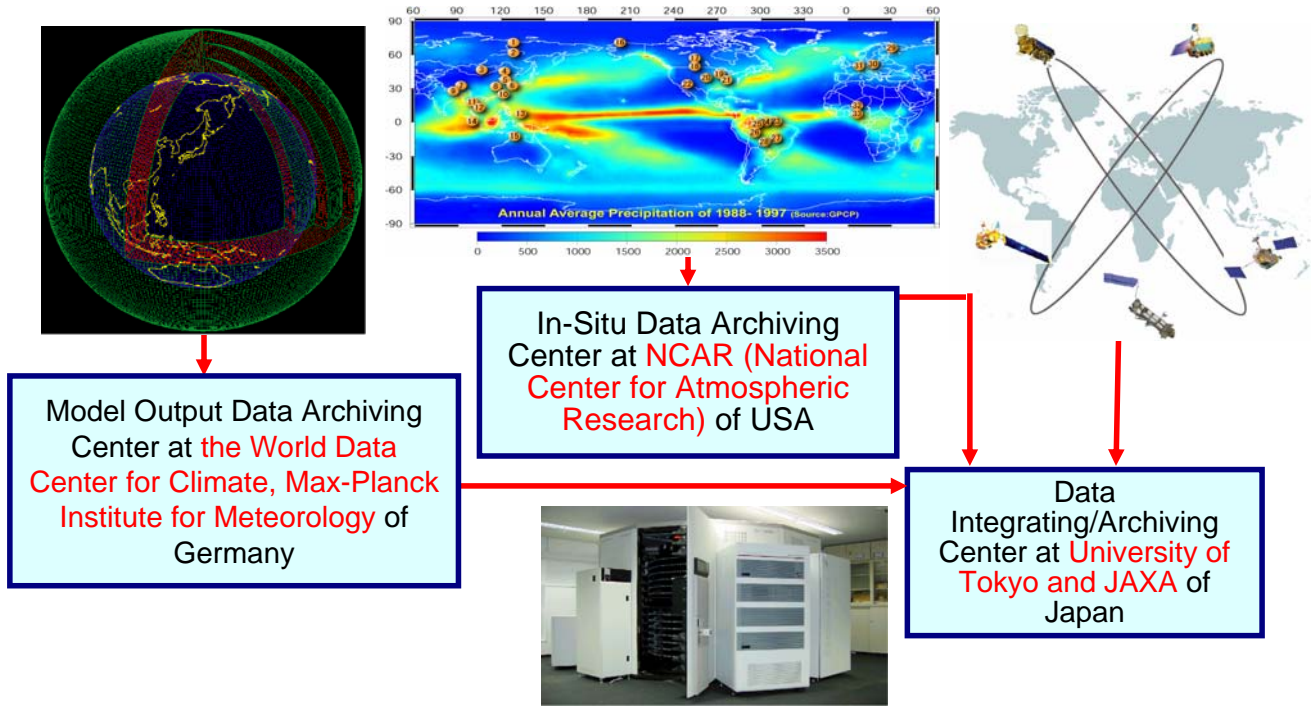
A Prototype of the Global Water Cycle Observation System of Systems



International Cooperation for the Global Coverage



A Well Organized Data Archive System



<http://www.eol.ucar.edu/projects/ceop/dm/>

INTEGRATED →

IN-SITU →

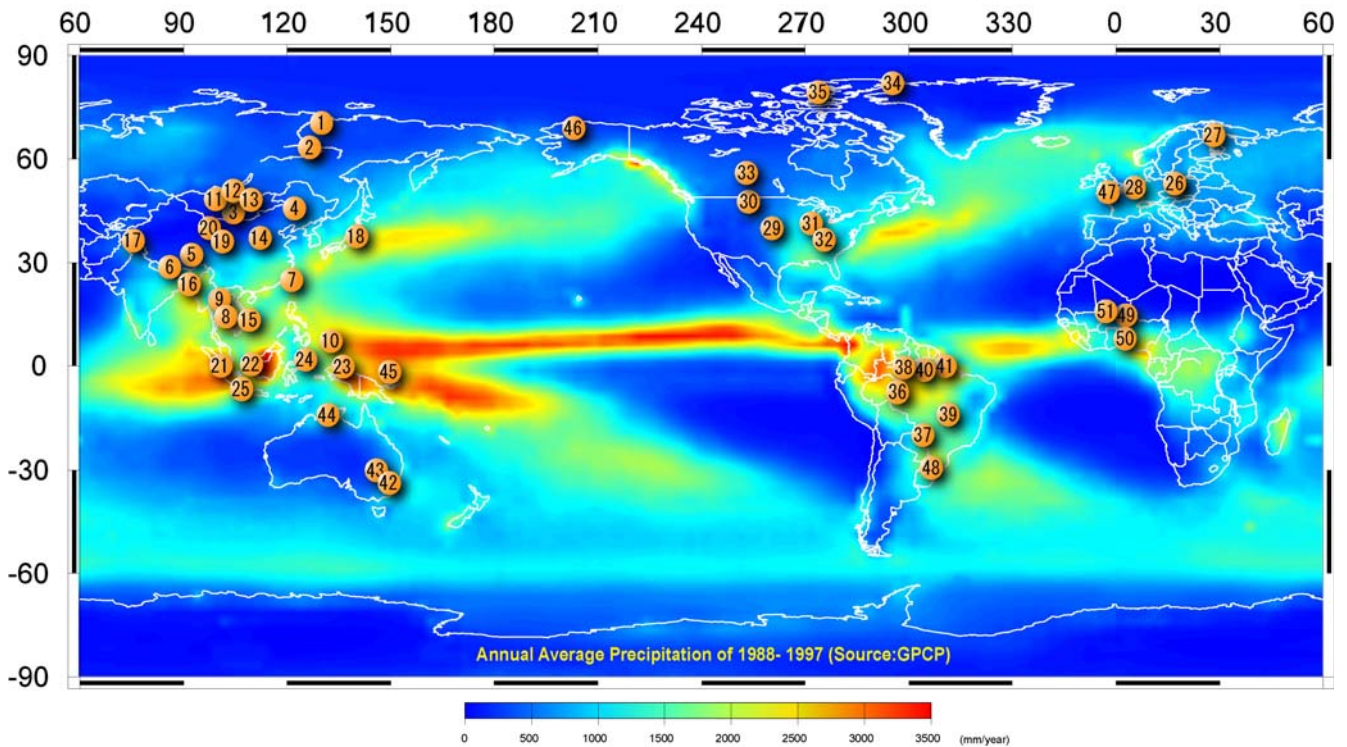
SATELLITE →

MODEL →

Coordinated Enhanced Observing Period Data Management

CEOP Data Access	CEOP Documentation
Integrated Data Servers	Data Policies
<ul style="list-style-type: none"> WTF-CEOP Distributed Data Integration Prototype System CEOP Centralized Data Integration System GCMD CEOP Portal 	<ul style="list-style-type: none"> CEOP Reference Sites Data Release Guidelines BALTEX CAMP AMMA GAPP LBA MAGS
In-Situ	Data Standards Information
Data Sets	<ul style="list-style-type: none"> CEOP Metadata Design (Proposed) National Spatial Data Infrastructure (NSDI) Presentation (September 2004) Assistance for Land-surface Modelling activities (ALMA) Atmospheric Model Intercomparison Project (AMIP) ISO/TC 211
<ul style="list-style-type: none"> CEOP EOP-3/4 Data Sets CEOP EOP-1 Data Sets NASA/GMAO GRADS/DODS Server Baseline Surface Radiation Network (BSRN) GEWEX Land Processes Database Map Server IAEA Global Network of Isotopes in Precipitation 	Documents
Information	<ul style="list-style-type: none"> CEOP Implementation Plan 3rd Implementation Planning Meeting Report (March 2004) Executive Summary Appendices 2nd Implementation Planning Meeting Report (July 2003) WESP Major Activities Plan (1 June 2003) Establishment of a Global Hydrological Observation Network for Climate* GCOS/GTOS/HWRP Meeting Report (June 2000)
Satellite	Questionnaires
Data Sets	<ul style="list-style-type: none"> CEOP Land Cover and Soils Questionnaire Responses CEOP Frozen Precipitation Questionnaire Responses CEOP Reference Site Rawinsonde Station Responses
<ul style="list-style-type: none"> EOP-1 Satellite Data Sets NASA/GMAO GRADS/DODS ISCCP Surface T and Cloud Amount for CEOP EOP1 NOAA CLASS Archive TRMM Online Visualization and Analysis System 	Other Links
Information	<ul style="list-style-type: none"> CEOP Home Page WCRP Home Page GEWEX Home Page CLIVAR Home Page CIIC Home Page ACSYS Home Page Global Modeling and Assimilation Office (NASA/GSFC) Land Information System (NASA/GSFC) Model Parameter Estimation Experiment (MOPEX) NASA/Goddard Institute for Space Studies (GISS) Data International Atomic Energy Agency (IAEA) IAEA Isotope Hydrology Section
Model	
Data Sets and Information	
<ul style="list-style-type: none"> Model Output and Information 	

EOL work supported by NOAA/CPO



CEOP Reference Site Data Release Guidelines



Data exchange guidelines:

- (1) To comply with WMO Resolutions 40 (CG-XII) and 25 (CG-XIII) in particular: **No financial implications.**
- (2) CDA and *data users*: Commercial exploitation of CEOP data is prohibited.
- (3) *Data users*: No transfer to third parties.
- (4) Data release to *data users*: Turn-around period.
Category 1 data: 6 months Category 2 data: 15 months
- (5) Acknowledgement and citation
- (6) Co-Authorship for Reference Sites' PIs recommended, collaboration base required if PI requests co-authorship (in particular for *category 2* data)
- (7) CEOP Publication Library at CDA



Reference Site Data Set Procedures Report

(<http://www.eol.ucar.edu/projects/ceop/dm>)

- Introduction
- Data Set Description, submission schedule, formats
- Metadata
- Gap filling
- Quality Control/Quality Assurance
- File naming convention
- Submission instructions to CDA
- CDA Composite formation
- CDA Quality Assurance
- Rawinsonde Data Sets
- Ancillary Data Sets

Data Set	Data Category	Submission Date (First Half EOP-3)	Submission Date (Second Half EOP-3)	Submission Date (First Half EOP-4)	Submission Date (Second Half EOP-4)	Detailed Format Description
Surface Meteorological and Radiation Data Set	Category 1	1 October 2003	1 April 2004	1 October 2004	1 April 2005	Surface Meteorological and Radiation Format
Flux Data Set	Category 2	1 July 2004	1 January 2005	1 July 2005	1 January 2006	Flux Format
Soil Temperature and Soil Moisture Data Set	Category 1	1 October 2003	1 April 2004	1 October 2004	1 April 2005	Soil Temperature and Soil Moisture Format
Meteorological Tower Data Set	Category 1	1 October 2003	1 April 2004	1 October 2004	1 April 2005	Meteorological Tower Format



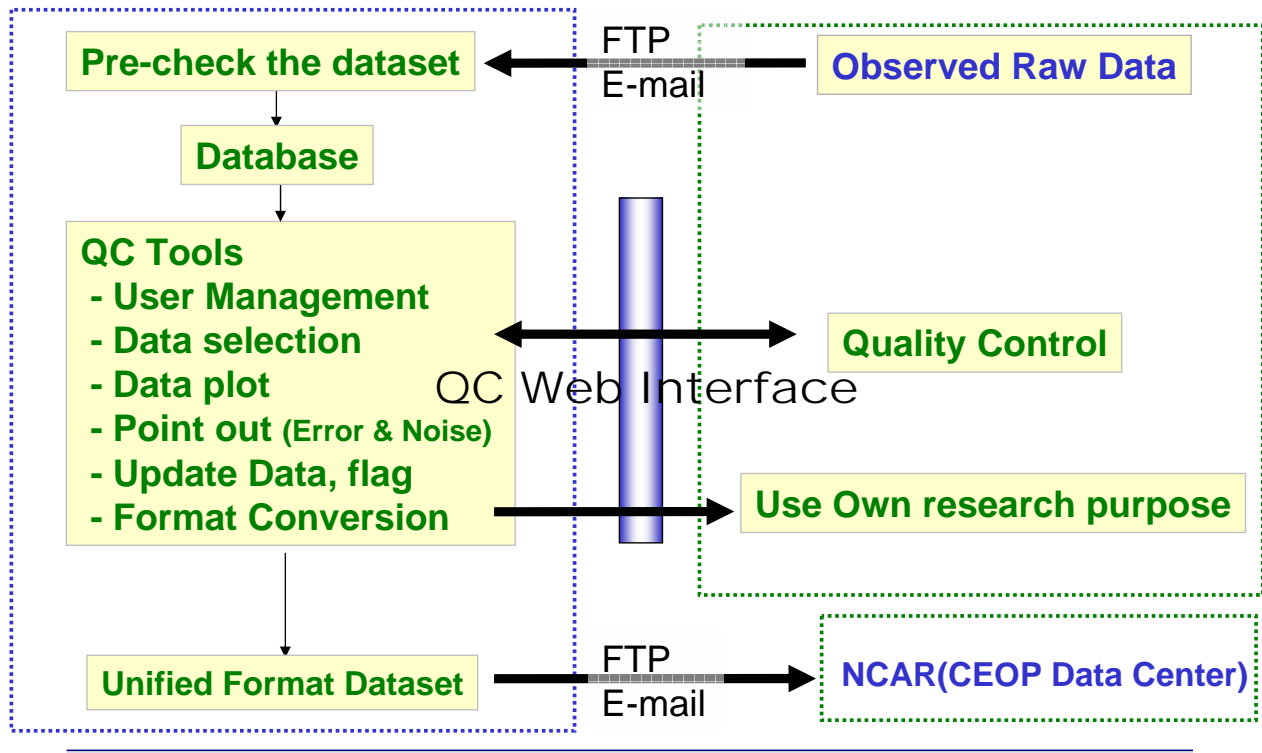
REFERENCE SITE SURFACE METEOROLOGICAL AND RADIATION DATA SET FORMAT

Parameter	C Format	Missing Value	Final Units/Equations/Notes
UTC Nominal Date/Time	16 chars	N/A	yyyy/mm/dd HH:MM, where MM is 00 or 30, only
UTC Actual Date/Time	16 chars	N/A	yyyy/mm/dd HH:MM
CSE Identifier	10 chars	N/A	Fill name with underscores, not spaces.
Reference Site Identifier	15 chars	N/A	Fill name with underscores, not spaces.
Station Identifier	15 chars	N/A	Fill name with underscores, not spaces.
Latitude	f10.5	-99.99999	decimal degrees. South is negative.
Longitude	f11.5	-999.99999	decimal degrees. West is negative.
Elevation	f7.2	-999.99	meters
Station Pressure	f7.2	-999.99	hPa (mb).
Station Pressure Flag	1 char	M	See Flag values .
Air Temperature	f7.2	-999.99	Celsius.
Air Temperature Flag	1 char	M	See Flag values .
Dew Point Temperature	f7.2	-999.99	Celsius. See Equations
Dew Point Temperature Flag	1 char	M	See Flag values .
Relative Humidity	f7.2	-999.99	percent. See Equations
Relative Humidity Flag	1 char	M	See Flag values .
Specific Humidity	f7.2	-999.99	g/kg. See Equations
Specific Humidity Flag	1 char	M	See Flag values .
Wind Speed	f7.2	-999.99	m/s. See Equations
Wind Speed Flag	1 char	M	See Flag values .
Wind Direction	f7.2	-999.99	degrees. See Equations

Outline of the CAMP Data Management

CAMP Data center: UT

Site Manager



Reference Site Metadata



Lindenberg
Reference Site



STATION NAME:

Falkenberg

CONTACT:

Name: Dr. Frank Beyrich
Affiliation: Meteorologisches Observatorium Lindenberg
 Deutscher Wetterdienst (DWD)
Address: Am Observatorium 12
 D - 15848 Tauche - OT Lindenberg
 Germany
E-mail: frank.beyrich AT dwd DOT de
Telephone: +49 33677 60228
Fax: +49 33677 60280

WEB PAGES:

- [Lindenberg Meteorological Observatory Web Page](#)
- [BALTEX Home Page](#)

STATION LOCATION:

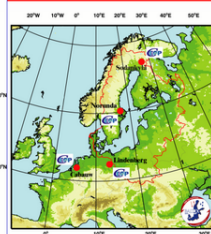
All meteorological, radiation, soil, tower and flux measurements have been performed at the Falkenberg Boundary Layer Field Site of the Meteorological Observatory Lindenberg (MOL).

The coordinates of the GM Falkenberg are given by: 52° 10' 01" N (52.17°N) and 14° 07' 27" E (14.12°E) at 73 m elevation.

The radiosondes are released at the site of the Meteorological Observatory Lindenberg (MOL) which is about 5 km to the North of the Falkenberg site.

The co-ordinates of the MOL are given by: 52° 12' 36" N (52.21°N) and 14° 07' 12" E (14.12°E) at 112 m elevation.

BALTEX Reference Sites for CEOP



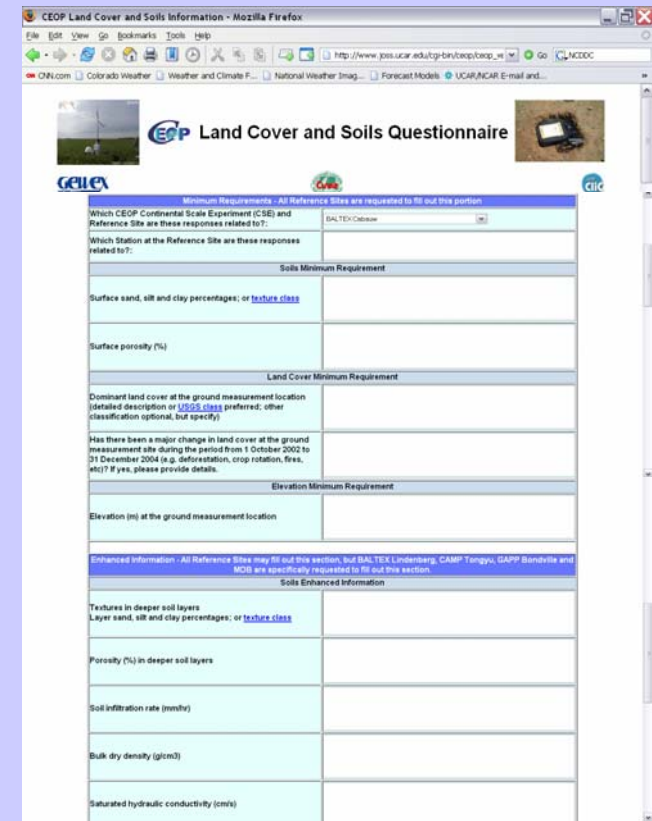
Sodankylä (FMI) 67.4N/26.7E B. Tamminen
Norunda (Lund University) 60.1N/17.5E A. Lindroth
Lindenberg (DWD) 52.2N/14.1E F. Beyrich
Cabauw (KNMI) 52.1N/5.2E F. Bosveld

STATION DESCRIPTION:

Individual Site Metadata includes:

- Station (s)
- Contact (s)
- Links to relevant web pages
- Station location (e.g. maps, photos)
- Google Earth Files (.kmz)
- Station description (e.g. vegetation characteristics, soil types, climate, DEMs)
- Parameters and Instrumentation descriptions (SFC, TWR, STM, FLX, UA)
- Links to presentations
- Links to data sets and additional documentation

CEOP LAND COVER AND SOILS QUESTIONNAIRE



Reference Site (Station)

Minimum Soils Information

Texture Class, Porosity

Minimum Land Cover

USGS Class, Site Changes

Enhanced Soils Information

Profile (texture, porosity, infiltration, bulk dry density, saturated hydraulic conductivity, reference groups)

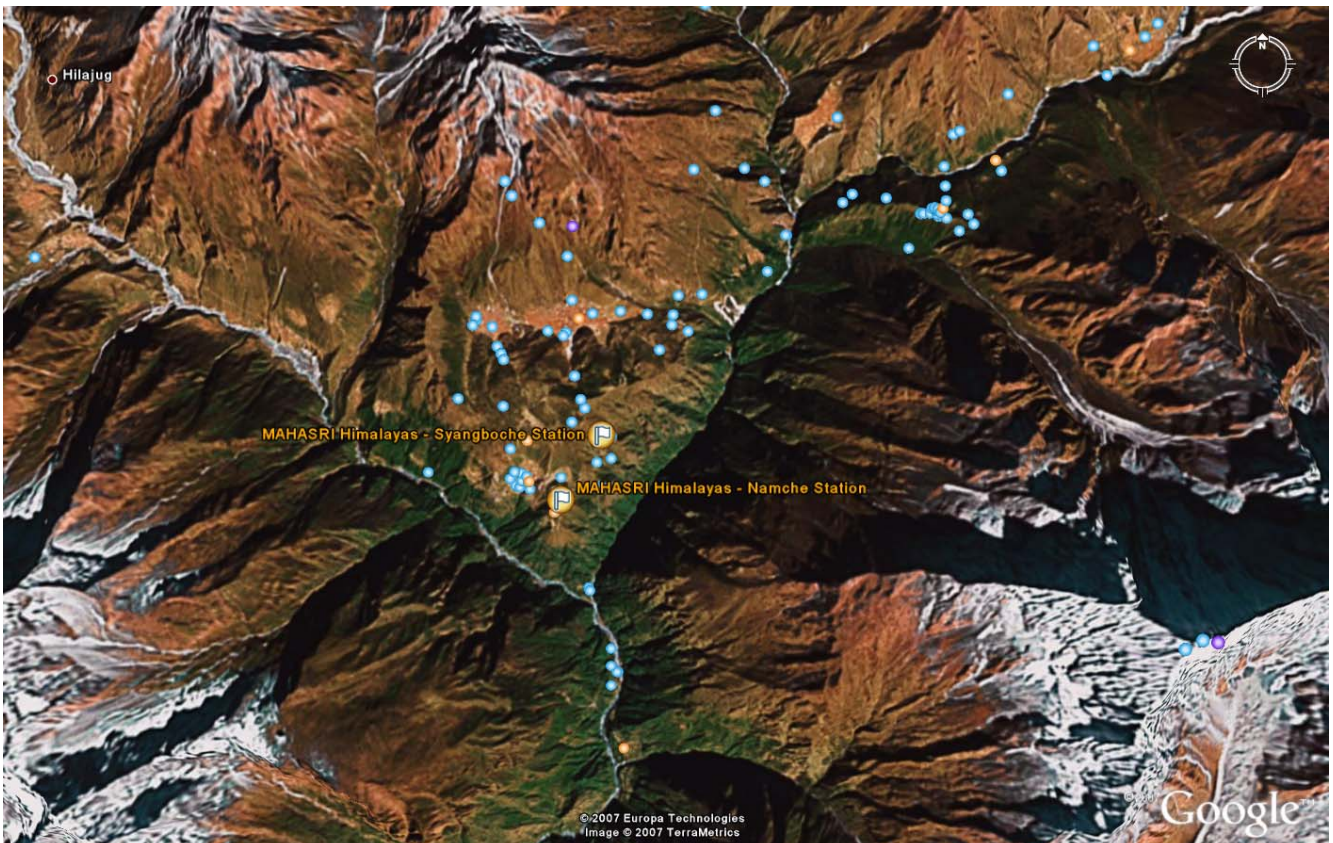
Enhanced Land Cover Information

Land cover (50m, 500m, 12km, seasonal changes)

Elevation information (slope)

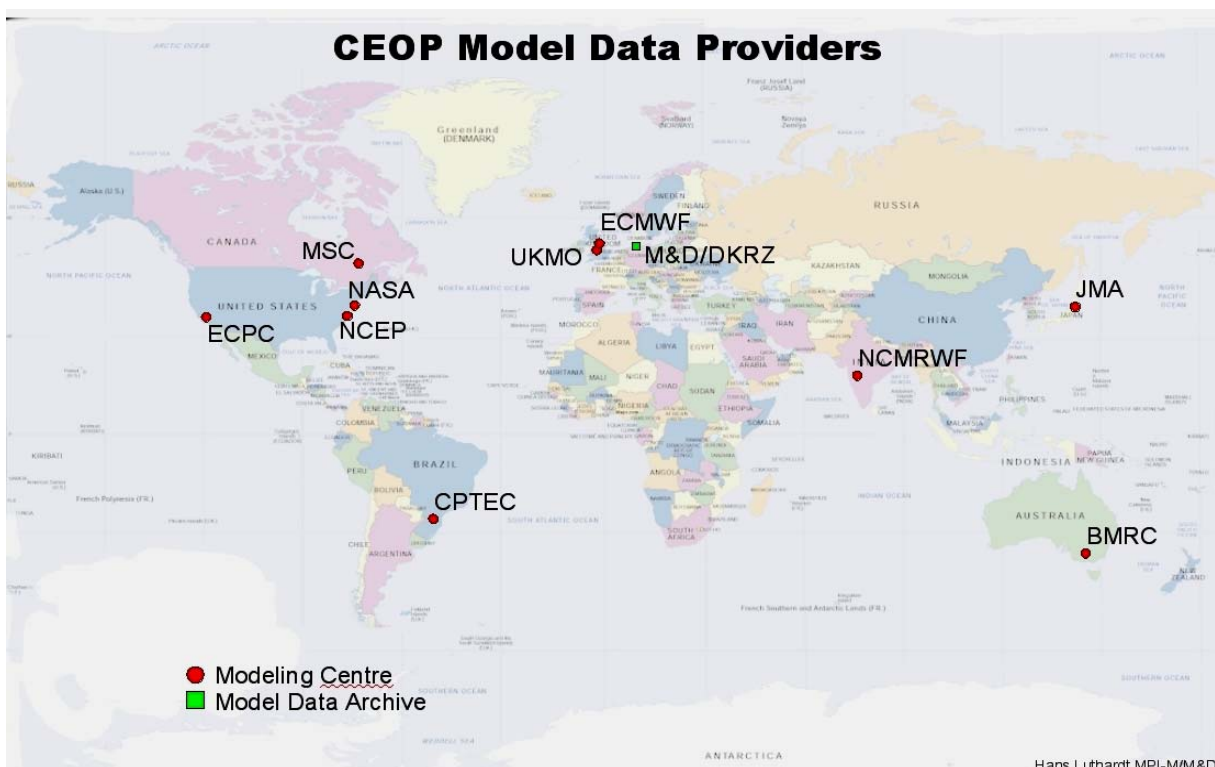
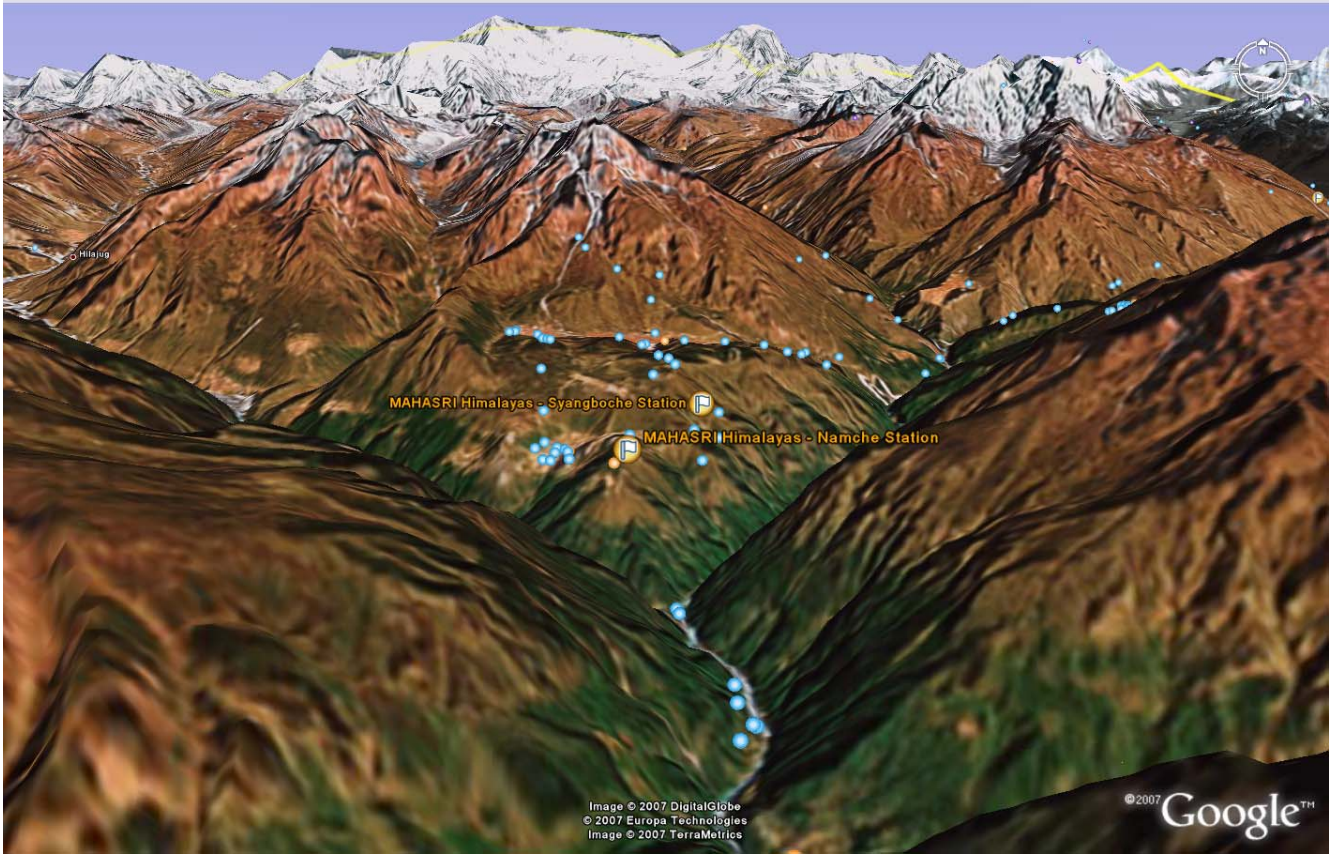


REFERENCE SITE GOOGLE EARTH (.KMZ) FILE





REFERENCE SITE GOOGLE EARTH (.KMZ) FILE



CEOP data	2001												2002												2003												2004												included	Size	
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
05-FEB-2007	Prelim												Building phase												1. Annual Cycle												2. Annual Cycle														
NCEP	GRID																																																		574.2 GB
	MOLTS																																																		5.4 GB
	CDAS_GRID																																																		7.4 GB
	CDAS_MOLTS																																																		
UKMO	GRID																																																		558.6 GB
	MOLTS																																																		9.7 GB
JMA	GRID																																																		465.7 GB
	MOLTS																																																		15 GB
ECMWF	GRID																																																		42.9 GB
	MOLTS																																																		
ECPC	SFM_GRID																																																		1282 GB
	SFM_MOLTS																																																		12.2 GB
	RII_GRID																																																		1282 GB
	RII_MOLTS																																																		12.2 GB
	RSINCTS																																																		8.9 GB
BMRC	GRID																																																		1.8 GB
	MOLTS																																																		
NASA/GMAO	GRID																																																		14.3 GB
	MOLTS																																																		0.1 GB
NASA/GLDAS	GRID																																																		215.3 GB
	MOLTS																																																		0.1 GB
NCMRWF	GRID																																																		20.5 GB
	MOLTS																																																		
CPTEC/INPE	GRID																																																		160.2 GB
	MOLTS																																																		0.05 GB
MSC	GRID																																																		946.5 GB
	MOLTS																																																		0.6 GB
EMC	GRID																																																		
	MOLTS																																																		

■ Gridded data ■ MOLTS data ■ WTF - tables
 Data arrived in the Hamburg file archive but not yet included into the data base
 Data will shortly be replace by an updated version

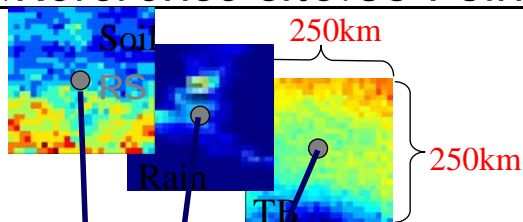
Hans Luthardt MSDMPLM 5836.76 GB

The most recent version of the data status (time line) can be found from:
<http://www.mad.zmaw.de/wdc-for-climate/ceop/>

Satellite datasets for CEOP

At 3 type scales

1. Reference site: 35 Points



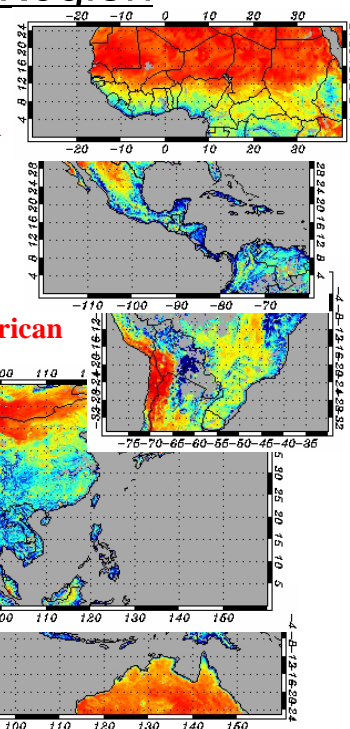
2. Monsoon Region

>West African

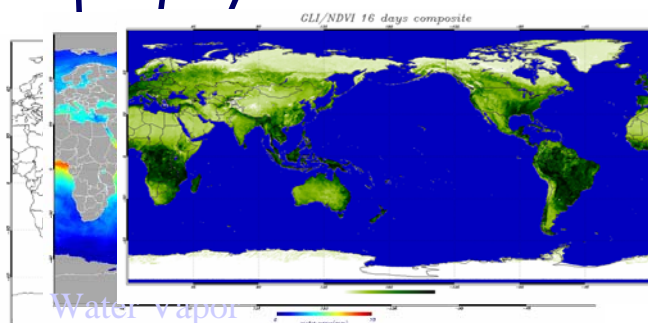
>North American

>South American

>Asia- Australian

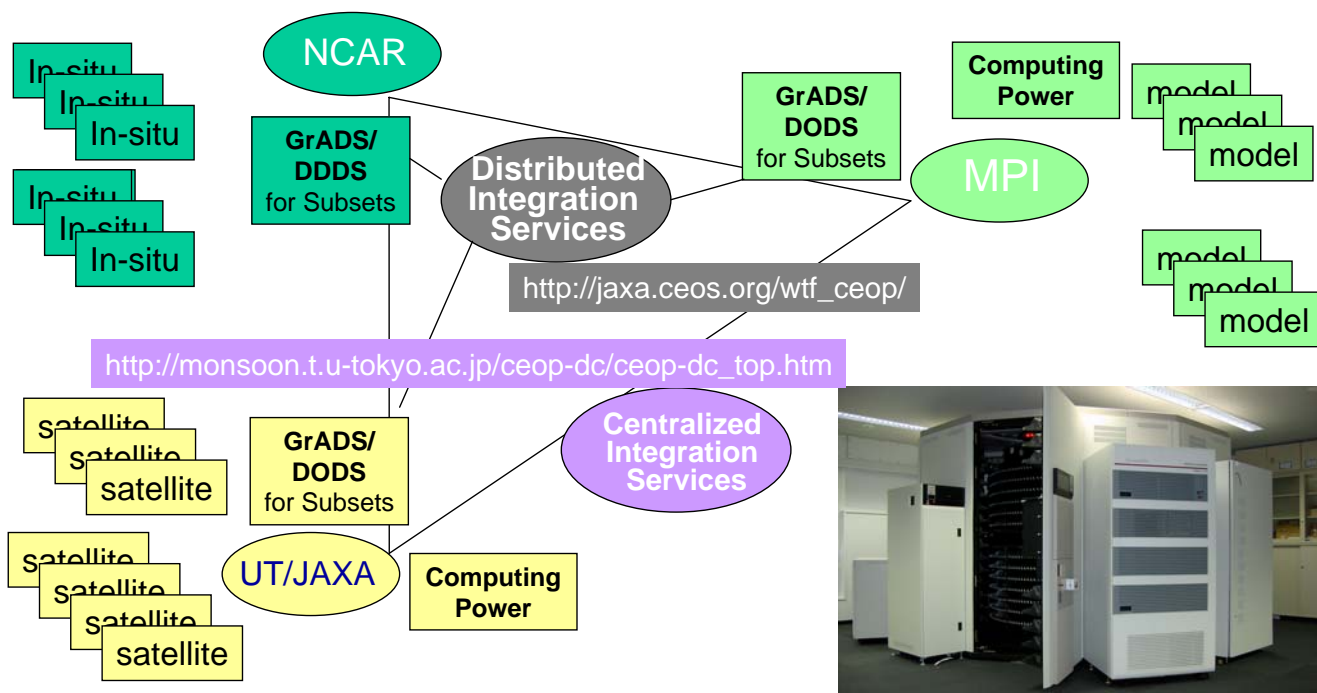


3. Global

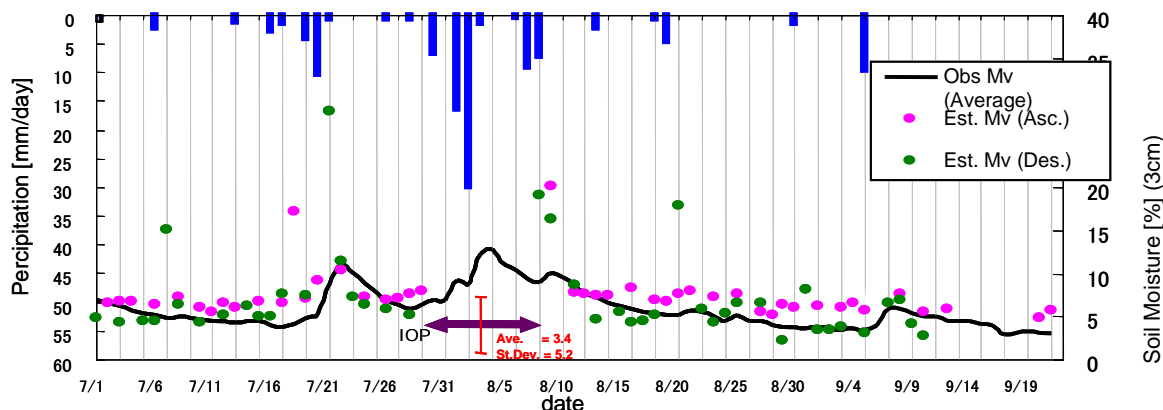
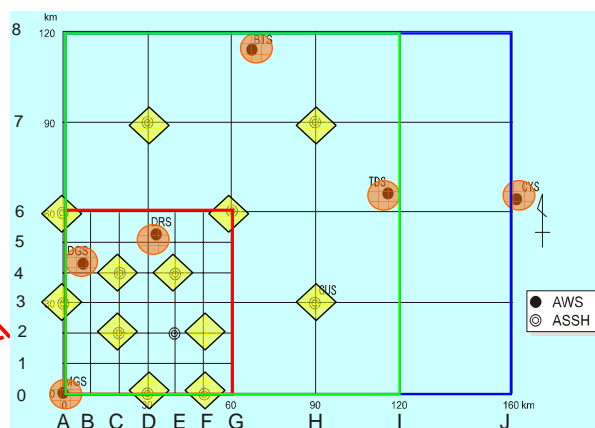


Data Management

Distributed- and Centralized- Data Integration Functions



AMSR-E Soil Moisture Validation at the Reference Site in Mongolia



(Koike et al., 2003)



Oita International Center

THANK YOU!
QUESTIONS?

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Image © 2007 DigitalGlobe

Pointer 33°17'09.78" N 131°30'21.14" E elev 20 ft

Streaming ||||| 100%

Eye alt 1246