



Session 3.5 – CEOP Data Management

In-situ, Model, Global, Integrated

Introduction:

CEOP Data Management System provides solid foundation for CEOP research and is being evaluated as prototype for other DM systems (e.g., GEOSS, AWCI)

Presentations:

Background and Issues

Reference Site Update (S. Williams and others)

Model Output Data Center (S. Benedict/ M. Ek)

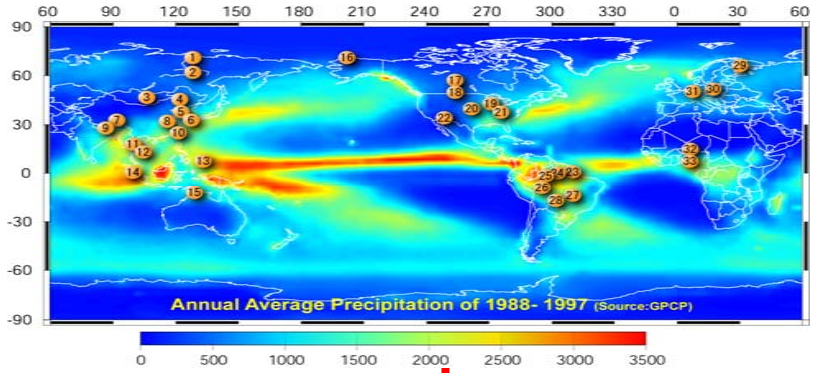
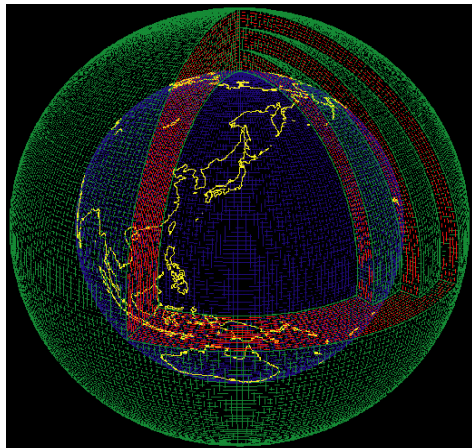
Global Data Centers (U. Looser – GRDC)

Data Integration (E. Ikoma/ M. Yasukawa)

Discussion

Coordinated Energy and water-cycle Observations Project Unique Capabilities

A Well Organized Data Archive System



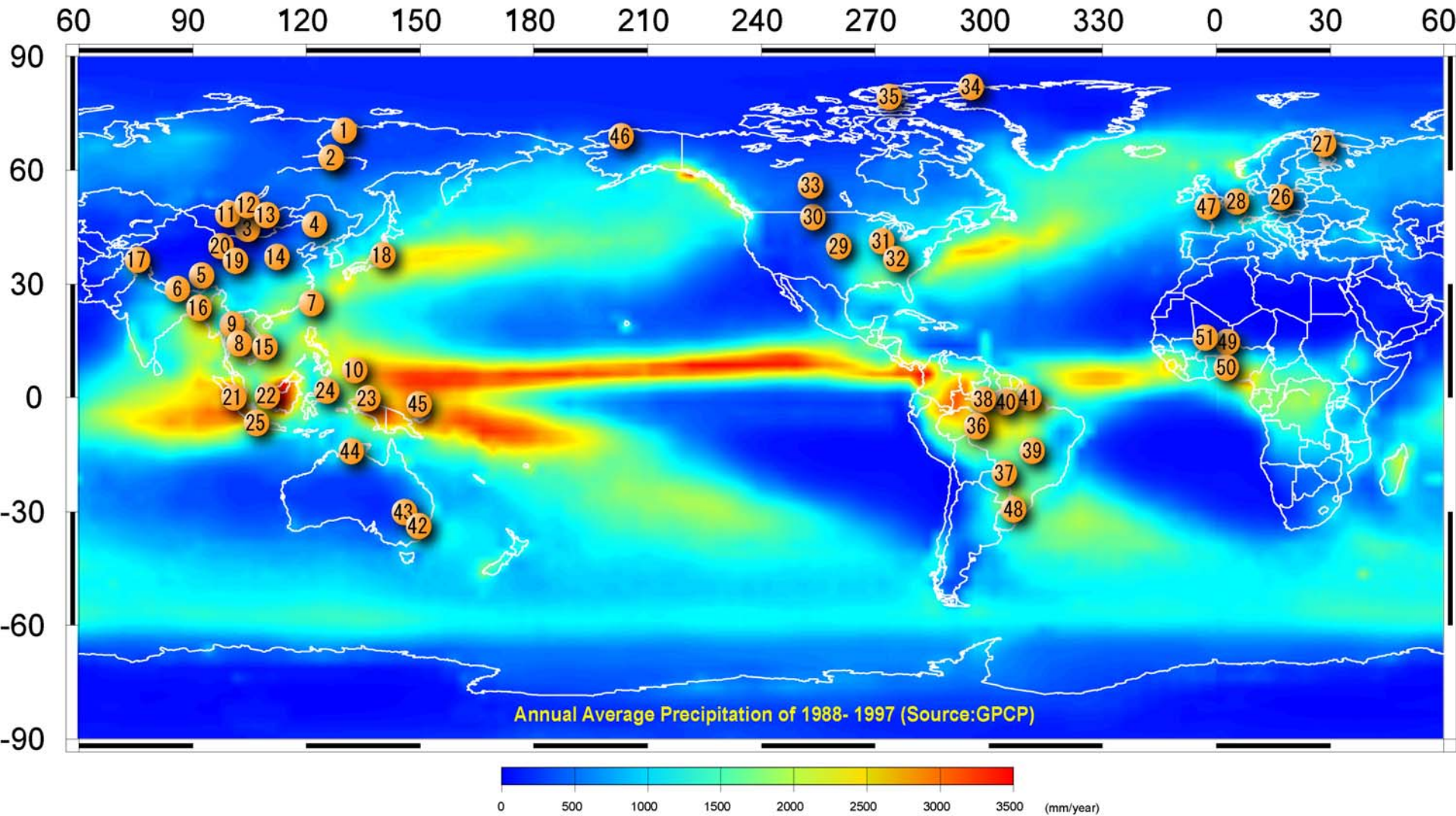
Model Output Data Archiving
Center at the **World Data
Center for Climate, Max-Planck
Institute for Meteorology** of
Germany

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

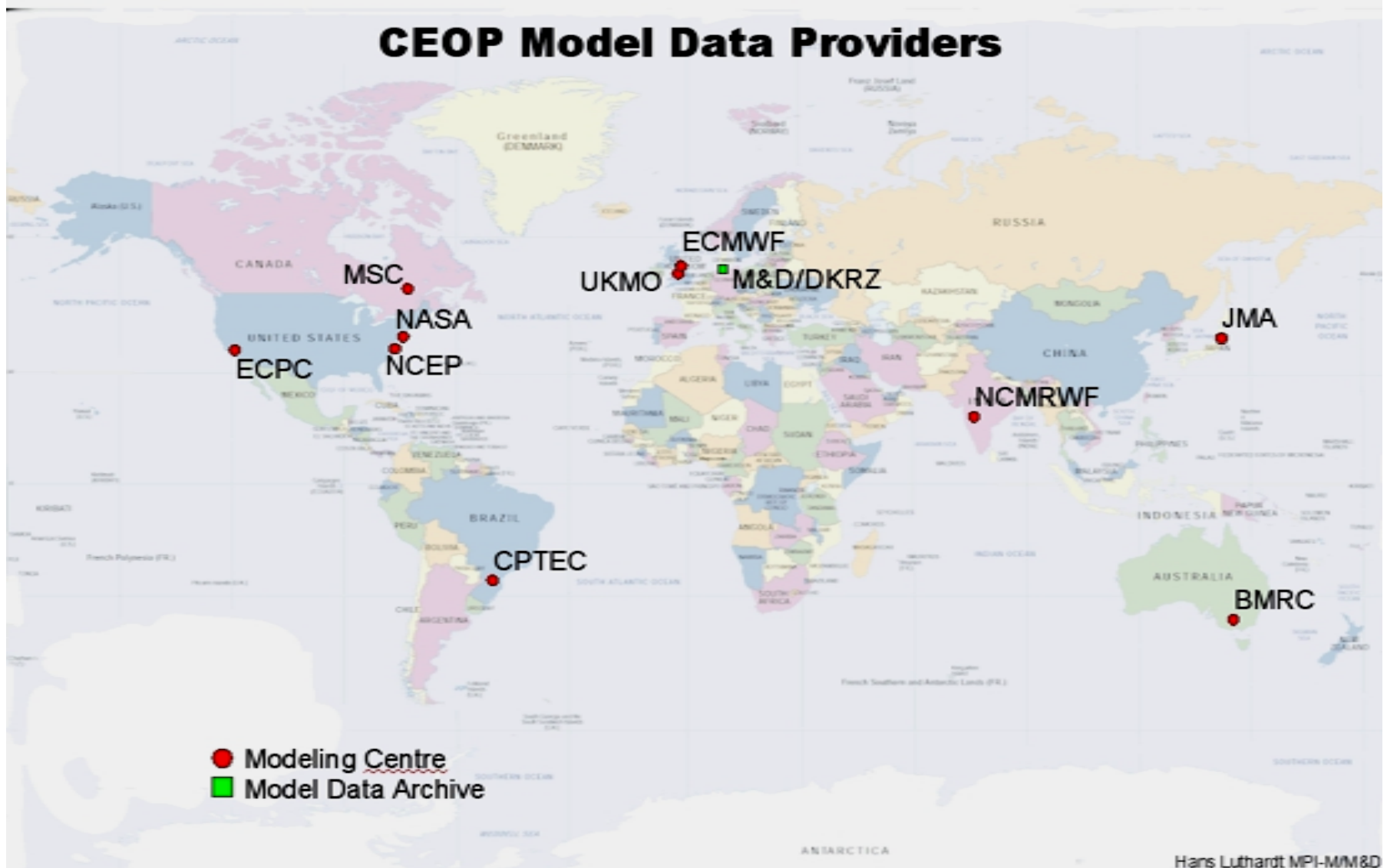


CEOP Reference Site Map





CEOP Model Data Providers

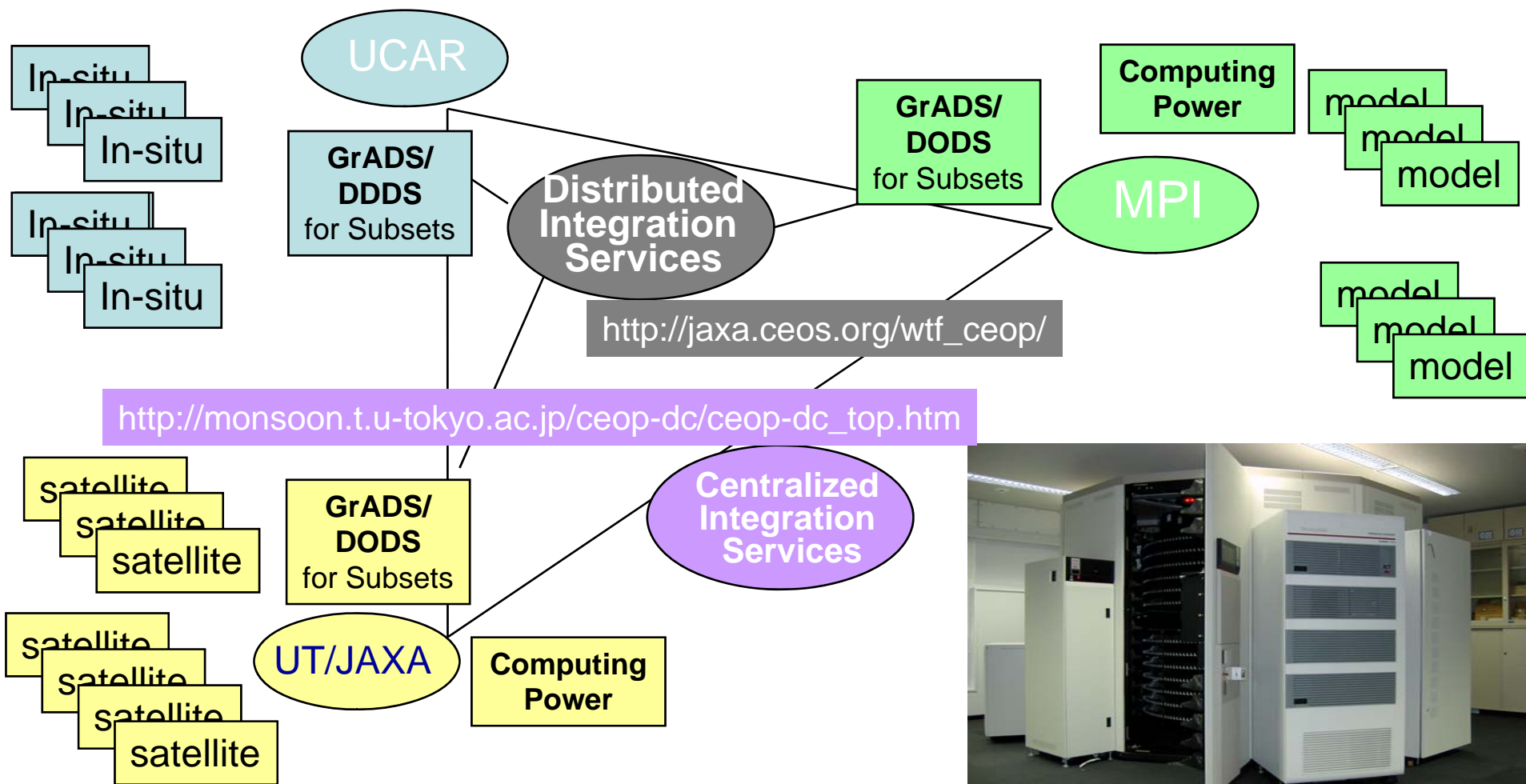




Coordinated Energy and water-cycle Observations Project

Data Management

Distributed- and Centralized- Data Integration Functions



Coordinated Energy and Water

Cycle Observations Project

Data Management



INTEGRATED →

Integrated Data Servers

[Distributed Data Integration System](#)
[Centralized Data Integration System](#)
[GCMD CEOP Portal](#)

Reference Site Data

[Reference Site Data Gateway](#)
[CEOP Reference Site Data Policy](#)
[Browse Imagery](#)
[Data Format Documentation](#)
[Reference Site Documentation](#)
[Reference Site Virtual Tour](#)
[CEOP EOP-1 Data Sets](#)
[Hydrology Reference Sites](#)

Satellite Data

[CEOP Satellite Data Gateway](#)
[CEOS satellite data exchange principles for research](#)
[CEOS satellite data exchange principles for operations](#)



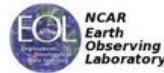
Model Output

[CEOP Model Data Gateway](#)
[CEOP Model Center Documentation Table](#)
[CEOP Model Supporting Documents](#)
[Multi-model Analysis for CEOP \(MAC\)](#)

CEOP Contacts

[CEOP Contacts](#)

Acknowledgement

 EOL Reference Site Data activities and coordination supported by NOAA
[Climate Program Office \(CPO\)](#)
 

IN-SITU →

SATELLITE →

MODEL →

RHP Data and Policies

AMMA	Data Access	Policy
BALTEX	Data Access	Policy
CPPA	Data Access	Policy
LBA	Data Access	Policy
LPB	Data Access	Policy
MAHASRI		
MDB		
NEESPI	Data Access	Policy

Global Data Centers

GPCC	Data Access	Policy
GRDC	Data Access	Policy

Related CEOP Data Contributors

ARM	Data Access	Policy
AWCI		
BSRN	Data Access	Policy
CAMP		
Cloudnet	Data Access	Policy
MAGS	Data Access	Policy

Documents

[CEOP Strategic Implementation Plan](#)
[CF Metadata Convention](#)
[Coordinated Enhanced Observing Period Documents](#)
[Questionnaires](#)

Related Links

[CEOP Home Page](#)
[Related Links](#)

Related Project Links








Metadata design for integrating CEOP satellite imagery, reference site data and simulation result data

Version 1.0

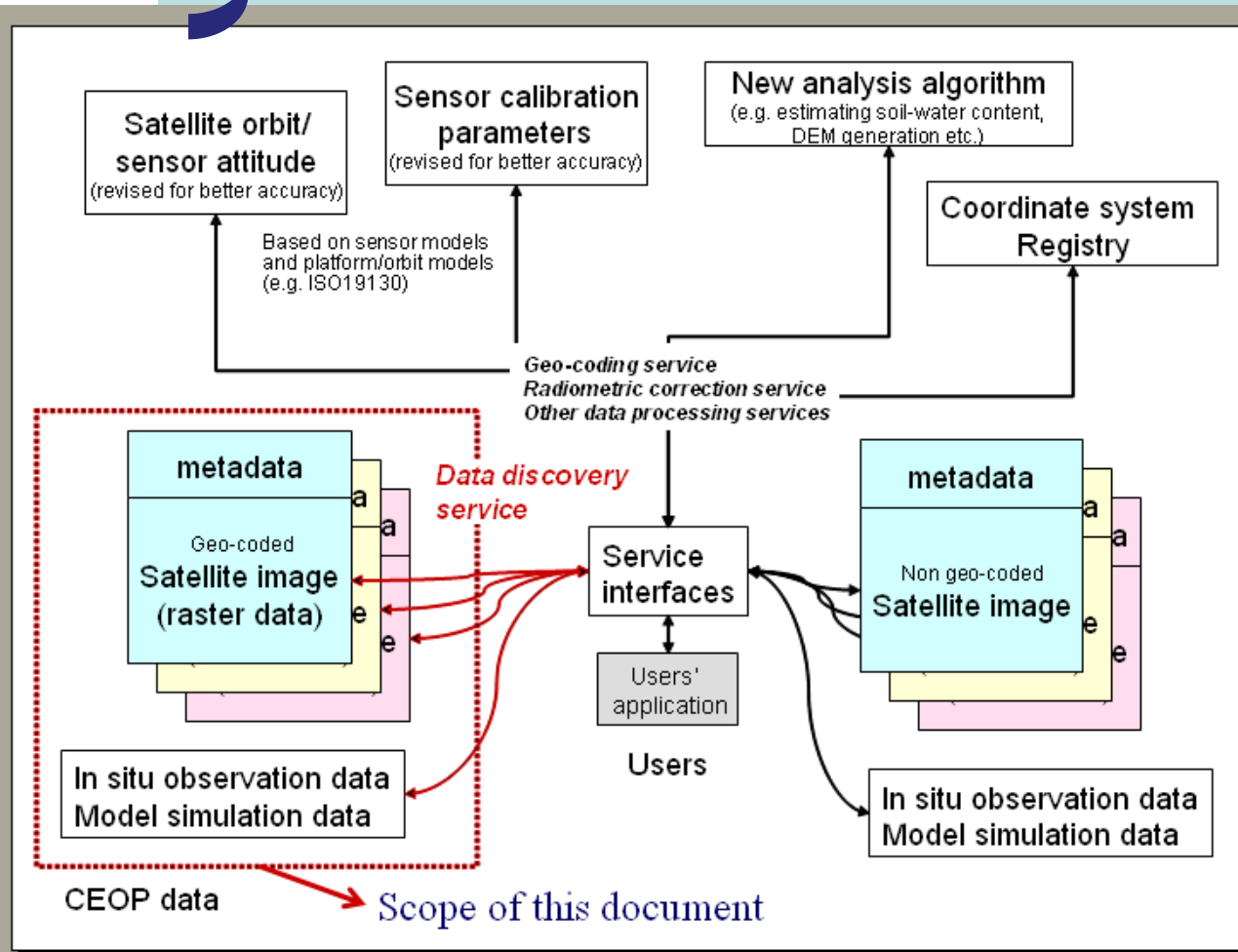
Shbasaki Group
For "Koike global water informatics" project

October 30, 2004

Center for Spatial Information Science
The University of Tokyo
4-6-1 Komaba, Meguro-ku, Tokyo 153-8505, Japan
Tel: +81-3-5452-6412
Fax: +81-3-5452-6414
<http://shba.is.u-tokyo.ac.jp>

CEOP Metadata Design Meeting

University of Tokyo, 1-2 November 2004



- Based on ISO 19115 Metadata Standards
- Design for *Finding and Integrating* data

GCMD
Global Change Master Directory

a directory of Earth science data and services

[Home](#)
[Data Sets](#)
[Data Services](#)
[Portals](#)
[Authoring](#)
[What's New](#)
[Community](#)
[Calendar](#)
[Links](#)

[About Us](#) | [FAQ](#) | [Contact Us](#) | [Site Map](#)

Find Data Sets by Topic:

User Community

- Provide Feedback
- Subscribe
- Download
- Add to the GCMD
- Keywords
- Discussion List
- Learning Center

What's New

- New Data Sets for September 2004
- Featured News Story

[More >](#)

CEOS

GCMD is the North American Coordinating Node of the CEOS International Directory Network


 **Agriculture**
forest science, soils ...

 **Oceans**
marine biology, salinity ...

 **Atmosphere**
precipitation, air quality ...

 **Paleoclimate**
ice cores, land records ...

 **Biosphere**
vegetation, zoology ...

 **Snow and Ice**
frozen ground, sea ice ...

 **Climate Indicators**
air temperature, drought ...

 **Solid Earth**
geochemistry, seismology ...

 **Human Dimensions**
land use, population ...

 **Spectral / Engineering**
radar, visible imagery ...

 **Hydrosphere**
rivers/streams, water quality ...

 **Sun-Earth Interactions**
auroras, solar activity ...

 **Land Surface**
erosion, topography ...

 **Data Centers - Locations - Instruments - Projects - Platforms/Sources**

Data Set Text Search

[Advanced Search](#)

Find Data Services

- Data Analysis and Visualization
- Data Management / Data Handling
- Education / Outreach
- Environmental Advisories
- Hazards Management
- Metadata Handling
- Models
- Reference and Information Services

Services Text Search

[Advanced Search](#)



The Global Earth Observation System of Systems (GEOSS)

2009-2011 Work Plan

GEOSS themes:

- Disasters
- Health
- Energy
- Climate
- Water
- Weather
- Ecosystems
- Agriculture
- Biodiversity

GEOSS Common Infrastructure

- GEO Portal
- Components Registry
- Standards Registry
- Best Practices Wiki
- Task Force

Data Sharing Principles Implementation

Committees

Communities of Practice

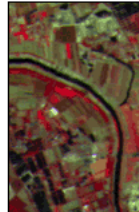
Home



Are you new to GEO and GEOSS? Find out more [here!](#)

GEOSS on-line

Scroll below for a sampling of GEOSS information resources; more sites can be found [here](#).



Comprehensive Land Surface Imagery now available via GEOSS

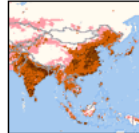
In an exciting advance for the Global Earth Observation System of Systems (GEOSS), ten leading space-related agencies collaborating through the [Committee on Earth Observation Satellites \(CEOS\)](#), its Land Surface Imaging Constellation Study Team, and its Working Group on Information System and Services (WGISS) have developed a [portal](#) that collects and distributes satellite imagery of the Earth's land surface.

Users can now access images from all ten partners via a [single web portal](#). This [new portal](#) is a gateway to the world's largest collection of Land Surface Imagery and data (LSI) taken from space. Read more [here](#).



Accessing the Landsat archive

The Landsat Earth observing satellites have assembled an essential record of moderate-resolution data sets of the planet's surface features that can now be downloaded via the internet. The nearly four decades of data provide a valuable resource for scientists and decision makers concerned with changes to the land surface, as do the daily, current observations. Read more [here](#).



The UNEP Global Environment Outlook Data Portal

The [United Nations Environment Programme's](#) (UNEP) [Global Environment Outlook Data Portal](#) is the authoritative source for the data sets used by UNEP and its partners for the widely respected Global Environment Outlook report and other integrated and thematic environment assessments. Read more about this Data Portal [here](#)

Enter GEOSS

To learn more about GEOSS, visit the three GEO Portals: [The ESRI GEO Portal](#), [The ESA/FAO GEO Portal](#) and the [The CompuSult GEO Portal](#)

The GEOSS Common Infrastructure (GCI)

Evaluating the GEO Portal prototypes

Evaluate the GEO Portals

The assessment phase for the GEO Portals runs until May 2009. The Portals are updated regularly so please make repeat visits and provide your feedback.

Components registration

Register your components

The GEO community is invited to register its data bases, catalogues, services and tools in the GEOSS Components and Services Registry

Standards registration

Register your standards

The GEO community is encouraged to register standards, protocols and other specifications for ensuring an interoperable "system of systems" in the GEOSS Registry

As of Monday, 11 May 2009

0249 components registered
0183 services registered

What's new?

GEO newsletter

- [GEO News Issue #2](#)
(13 March 2009)
- [GEO News Issue #1](#)
(22 January 2009)

UNEP and partners to contribute Black Sea data to GEOSS

The UN Environment Programme, the University of Geneva, and 26 other partners, with funding from the European Commission, are adding an important system to GEOSS by deploying the latest observation and assessment technologies to monitor environmental trends in the Black Sea. See the UNEP press release [here](#).

EARSC newsletter highlights GEO

The spring 2009 edition of the Earth Observation magazine of the European Association of Remote Sensing Companies (EARSC) features [an interview with GEO Secretariat Director José Achaache](#) about the progress being made by GEO in implementing GEOSS and engaging the private sector.

EEA Workshop will explore how GEOSS can support MEAs

The European Environment Agency (EEA) is organizing a workshop in Copenhagen on 13-15 May to address the growing mismatch between the expectations of Multilateral Environmental Agreements (MEAs) and the ability of space- and ground-based Earth observation systems to support them. The workshop will focus on strengthening institutional links, promoting sustained funding, and identifying the most relevant data streams and information services. For more information, see [eea.europa.eu](#).

Austria joins GEO as 78th



GEWEX SSG Comments and Action Items for Data

- Rapporteur's comments generally favorable and encourages continued development *"...The concept is innovative, the data archiving is well organized and the data policy is sensible...."*
- Need to finalize data collection activities support (NOAA, NASA)
- CEOP should consider adding ocean Reference Site(s) or include buoy data
- Need to develop high resolution datasets (e.g., precipitation)
- Continue model transferability project and integrate regional studies
- Continue to maintain and report data usage metrics



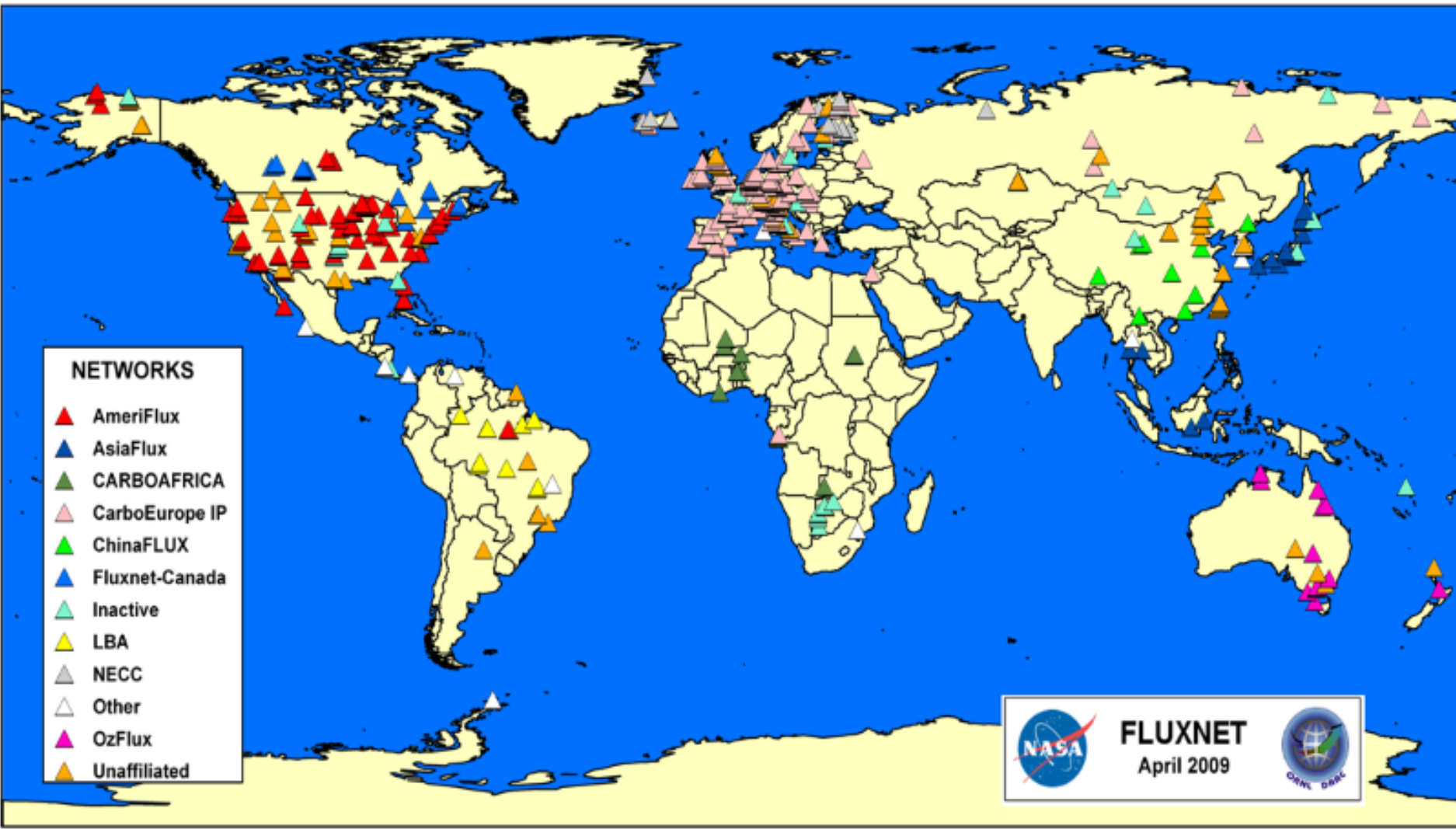
Data Management Outstanding Issues.....

- Continue to update and add new Metadata
- Update model output documentation and model descriptions
- Need data requirements (and identify additional parameters) from cross cut activities
- Identify other supporting datasets (e.g., gridded RHP precipitation)
- AMMA participation and inclusion of Reference Site data
- Identify NEESPI Reference Site(s)
- Continue Reference Site Regional Teleconferences
- Continue to coordinate with other global projects and archives (e.g. BSRN, FluxNET, GTN-H, TIGGE, etc.)
- **MUST improve Data Submission!**

FLUXNET Networks

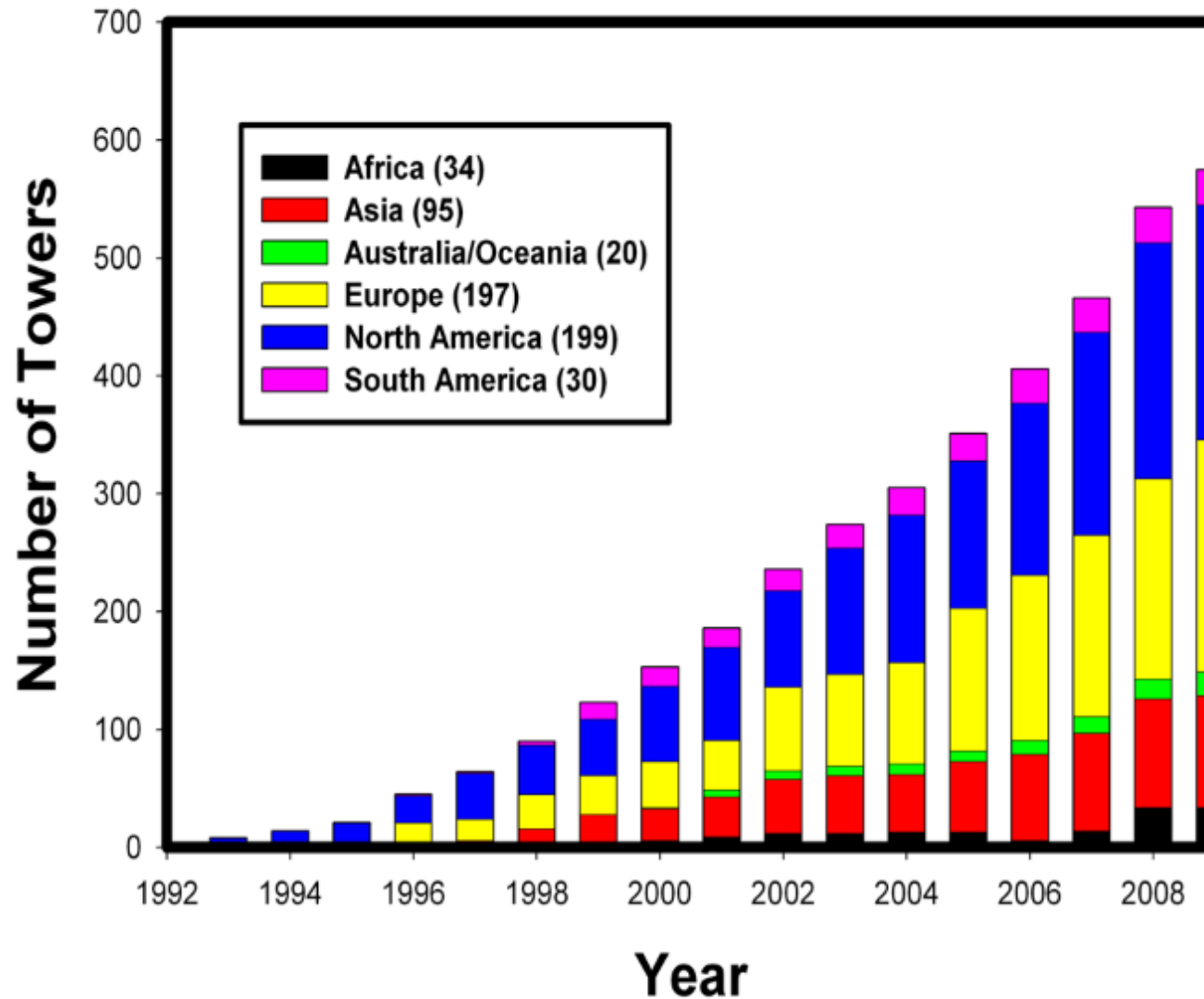
- NETWORKS**
- ▲ AmeriFlux
 - ▲ AsiaFlux
 - ▲ CARBOAFRICA
 - ▲ CarboEurope IP
 - ▲ ChinaFLUX
 - ▲ Fluxnet-Canada
 - ▲ Inactive
 - ▲ LBA
 - ▲ NECC
 - ▲ Other
 - ▲ OzFlux
 - ▲ Unaffiliated

 **FLUXNET**
April 2009 



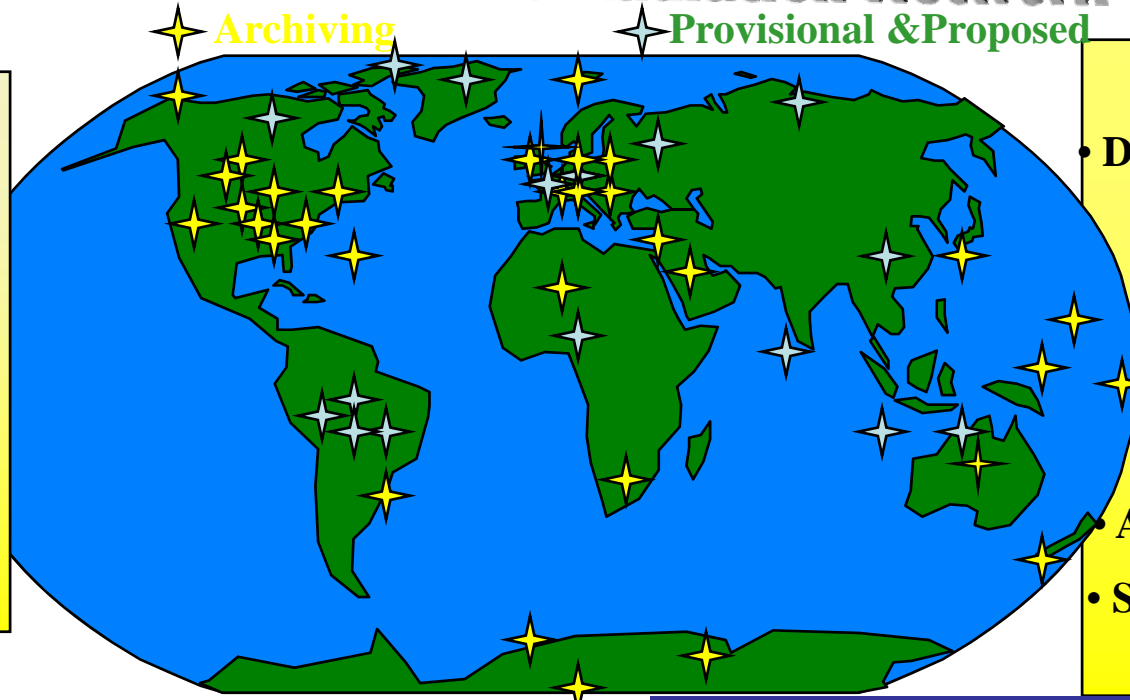
Growth of FLUXNET

576 Towers as of March 31, 2009



Goal:

To acquire the highest possible quality, globally-diverse, surface-based radiation measurements for climate research.



Measurements

- Direct & diffuse solar*
- Downward IR *
- Upwelling irradiance
 - PAR & UV
- Upper air met.
- Aerosol optical depth
- Surface meteorology*

*all sites

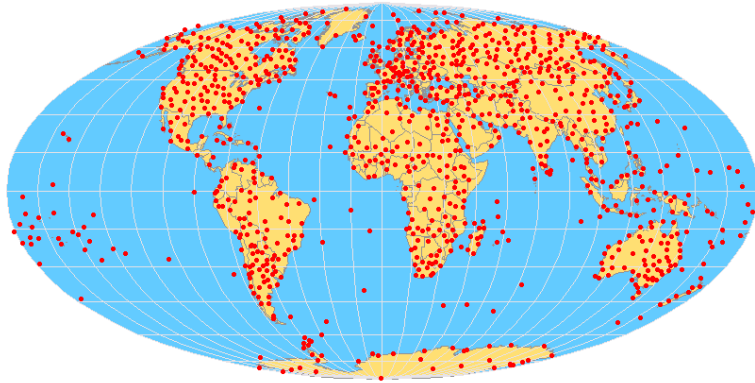
Network Status

<http://www.bsrn.awi.de>

- > 4000 station-months of data in archive (as of April 2009)
- Archive started in early 1990s
- 45 archiving sites + 5 new candidate sites
- Archive moved to Alfred Wegener Institut (AWI) in June 2008
- New Brazilian network (4 Sites began in 2006-2007)
- New Site (operational) – Plataforma Solar de Almeria (Spain)

OTHER CLIMATE GLOBAL MONITORING NETWORKS

GCOS Surface Network
(1025 Stations)

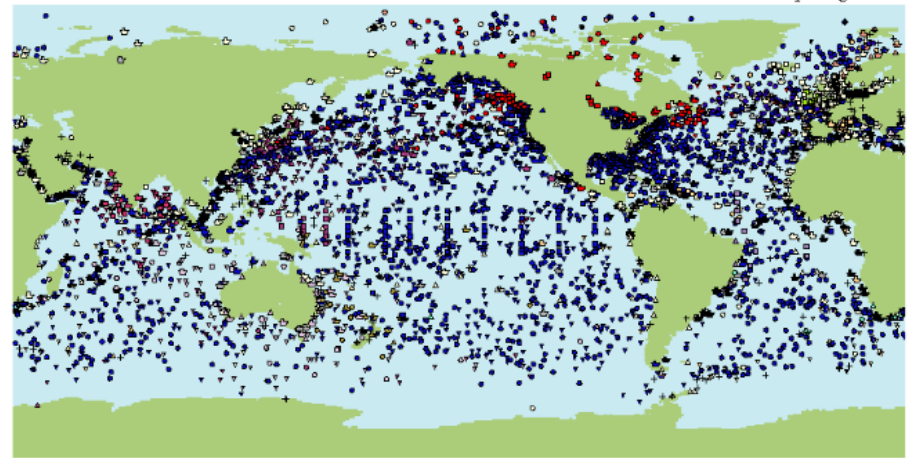


GCOS Secretariat, 1 January 2009

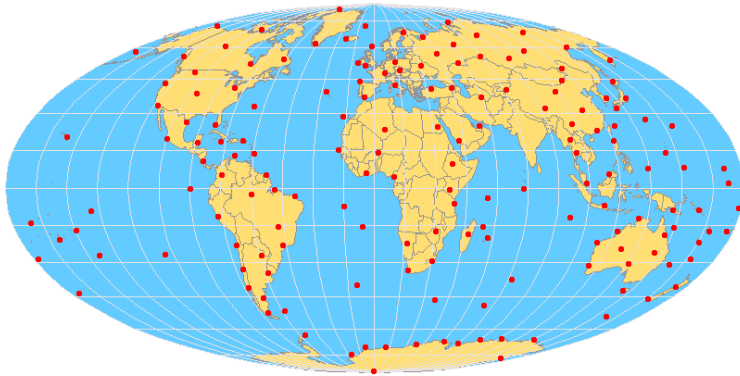
Global Reference Mooring Network

Date: 23-Sep-2008 00:00:00 to 25-Sep-2008 23:59:59

Platforms Reporting: 5098



GCOS Upper-air Network
(166 Stations)



GCOS Secretariat, 1 January 2009

NOAA Global Monitoring Observatories

