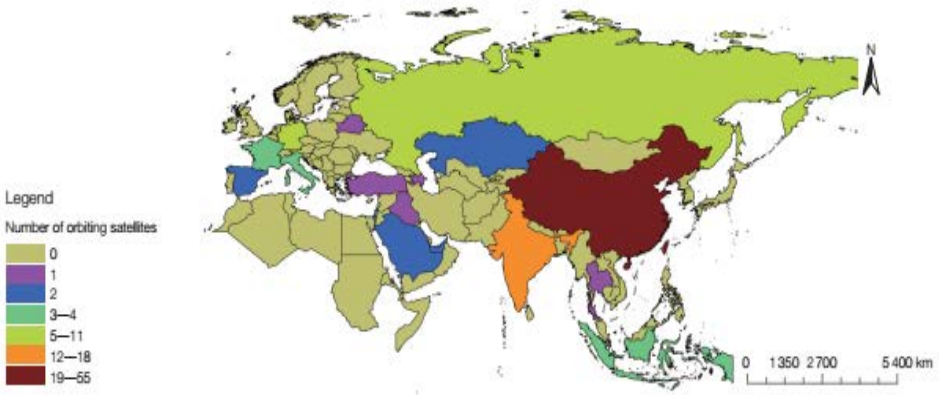
Asia-Oceania GEOSS Task 10/11 — Update on data sharing and data cubes

Presented by Qinhuo Liu (RADI)

24th October 2018
Kyoto, Japan

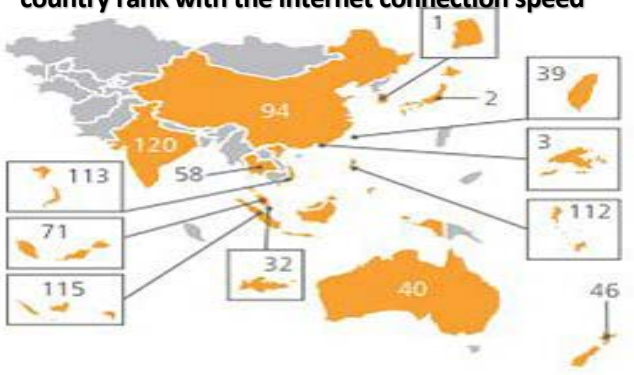
Our challenge for AOGEOSS data sharing

country rank with its in-orbit civil EO satellites



how much data they can feed self?

country rank with the internet connection speed



how much data they can move back?

Big difference on the capacity of earth observation data for regional countries:

- Data-rich country
- Data-poor country

Vision of AOGEOSS data sharing

- To bridge the EO **gap** between data-rich and data-hungry countries in AO region
- To promote geospatial data service **cooperation** around regional countries and programmes
- To support the **projects** AOGEOSS identified

Developing Approaches and Datasets

Utilize infrastructure, resources and capacity to develop integrated and sustained observations products; Provide a platform for regional countries to advance data sharing and information services;

- Member countries of AOGEOSS are highly engaged and committed to providing a long term operational infrastructure, products, services, support and capacity building, Datasets and platforms are encouraged to be developed regarding users' needs .

- The Open Data Cube (ODC), Japan's Data Integration and Analysis System (DIAS) and China's SpectrumEarth (SE) system were all recognised as mature systems addressing different needs within AO community.

AOGEOSS Data Response for Emergency Management

	New Zealand 2016	Mexico 2017	Iran-Iraq 2017	Gita Typhoon 2018
Satellites	7	10	10	4
Images	219	293	570	294

AOGEOSS Disaster task, focused on recovery, to be finalized by the Coordination Board this week and endorsed by AO Caucus next week.

ARD framework

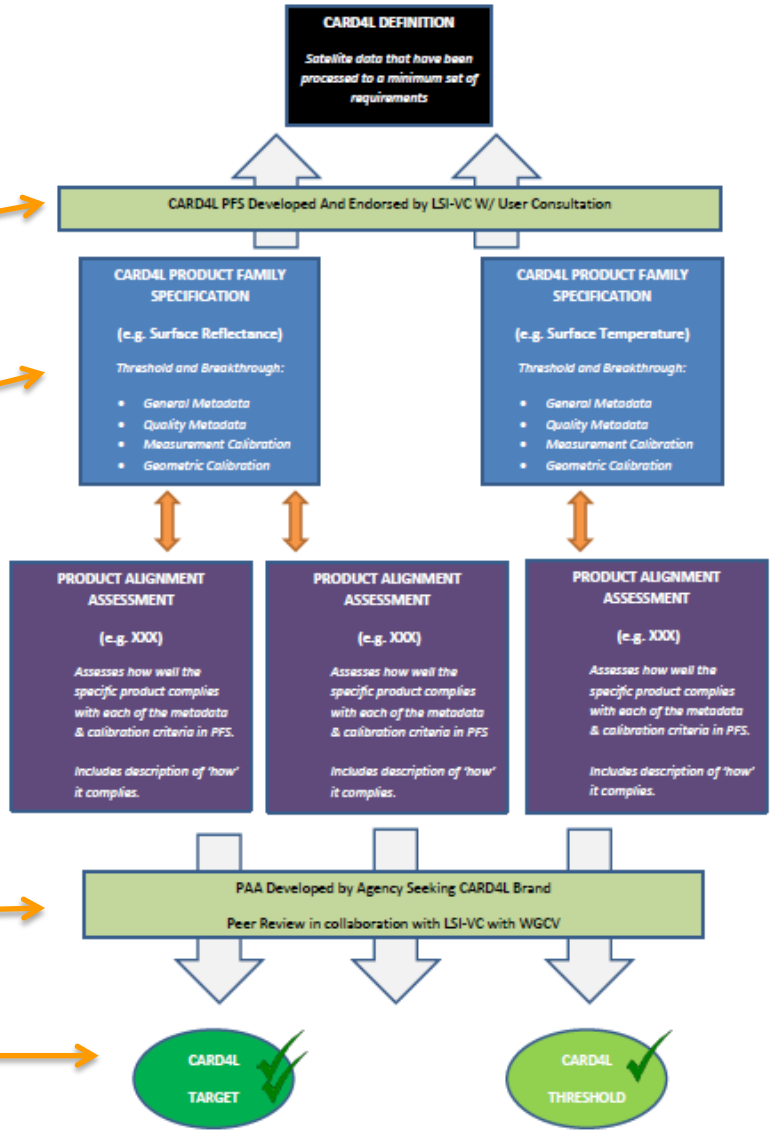
Definition of CARD4L

Product families with specifications

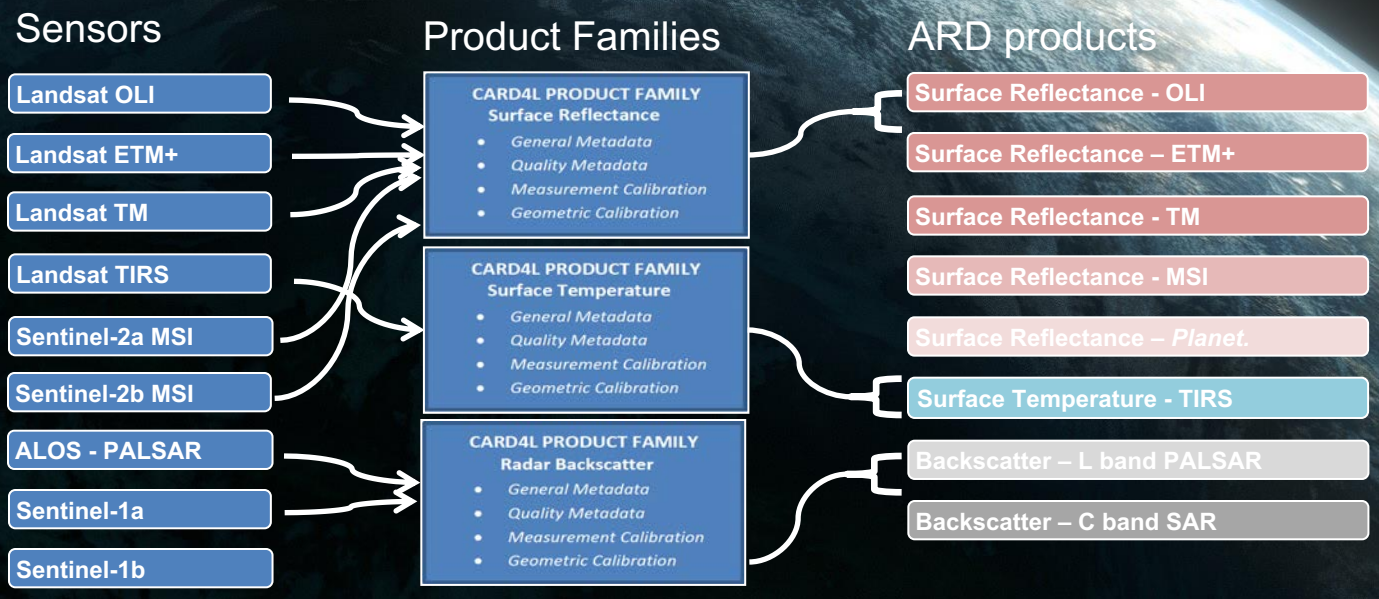
Providers self-assess how well their products meet the specifications

Peer review

CARD4L stamp !



2018 ARD Standards: http://ceos.org/ard/



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ARD needs a home: Asia Oceania Data Hub

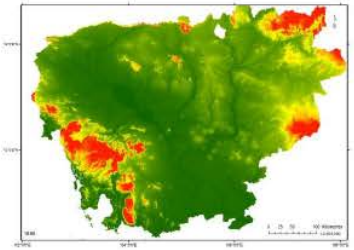
Rolling out in 2019

- **Landsat, Sentinel , CBERS/GF, ZY-3, GCOM-C, Himawari-8, ALOS and more**
- **CEOS CARD4L compliant**
- **Based in a commercial cloud(s)**
  - **Platform for regional cooperation**
  - **Cheaper/easier/more reliable access to download and analyse in-situ data**
  - **Increasing interest in studying the region not just single country**
  - **Platform for aid-related projects in the region**
  - **Platform for export of commercial products**
  - **Data is ready to ingestion into any platform**
  - **Hub funds storage and users pay for their own compute**

Open Data Cube: An international movement

Basic set up of Cambodia Cube

Landsat 5, 7, 8,
Sentinel 2a/2b, ALOS



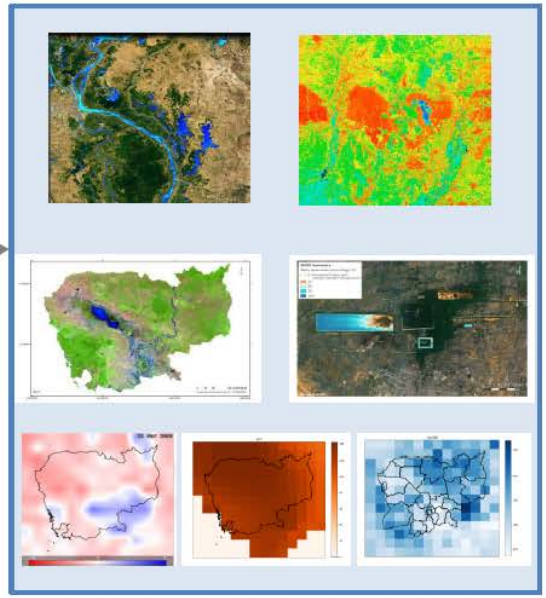
Environmental Data
Temperature
Digital Elevation Model

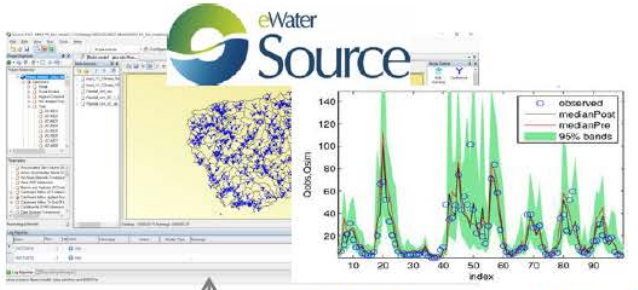
Australian Government
Bureau of Meteorology

Gridded rainfall
Bias corrected data
Forecasted data

Download
Process
Index

Open Data Cube: Cambodia Cube





eWater Source Ensembles of
Hydrological Response

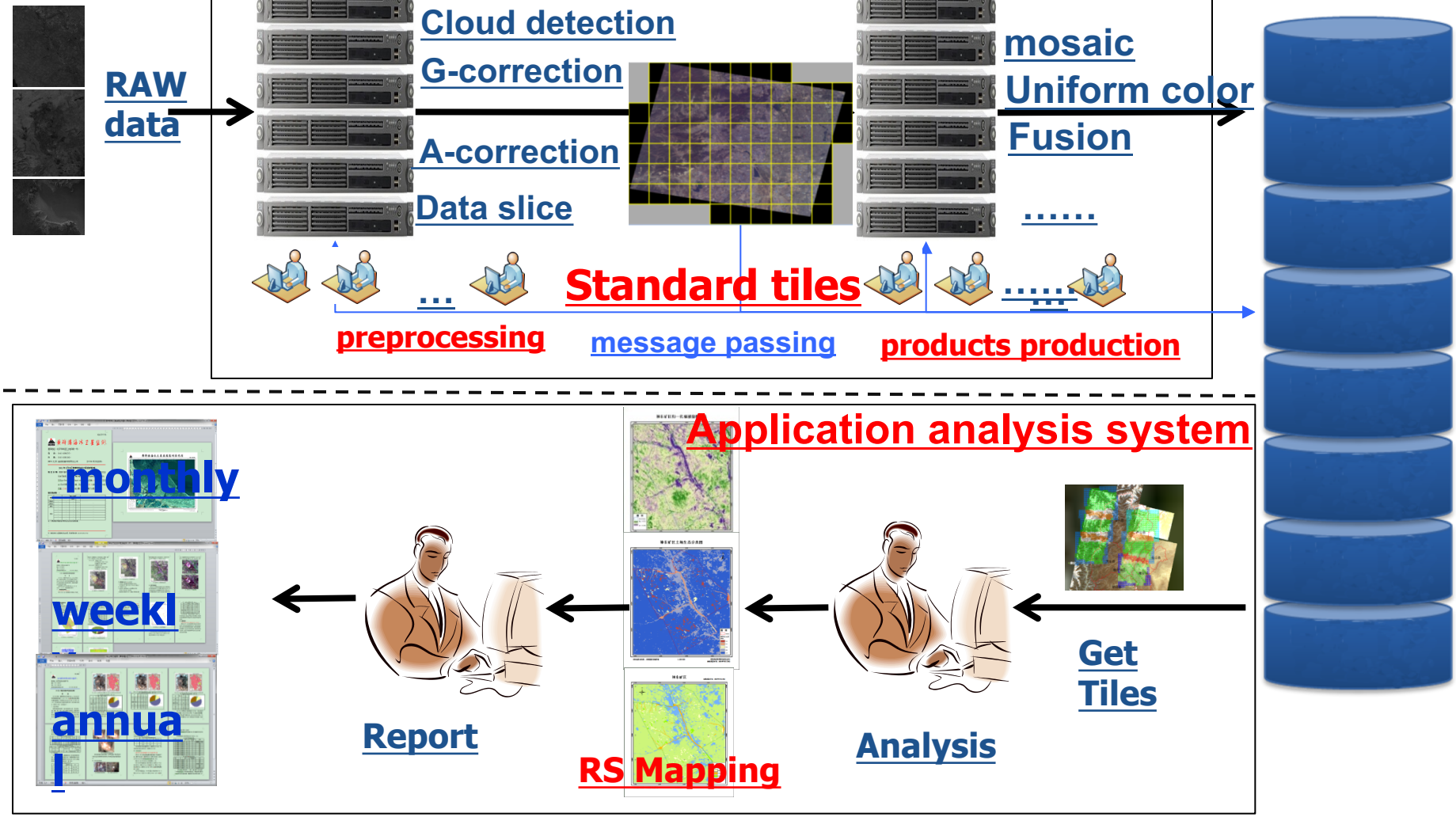
amazon
web services™

eWater Dashboard

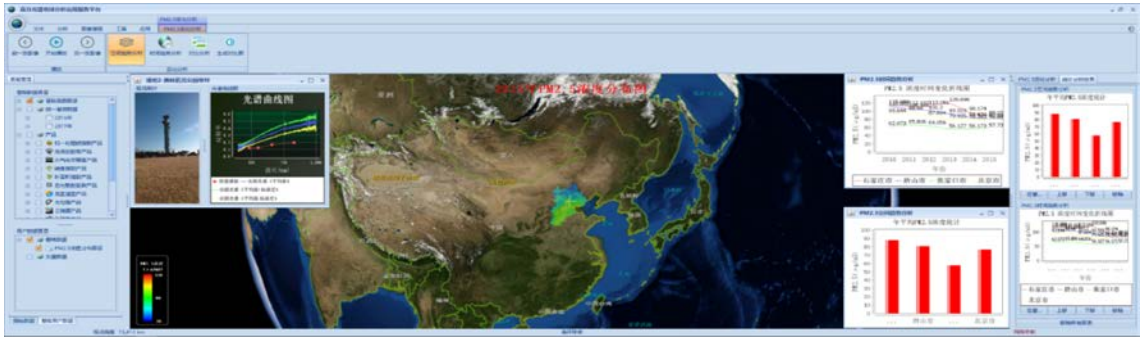
GROUP ON EARTH OBSERVATIONS

GEOSS

SpectrumEarth



System performance



Data Service

More than 3 million scenes, near 3PB satellite remote sensing data

Information extraction

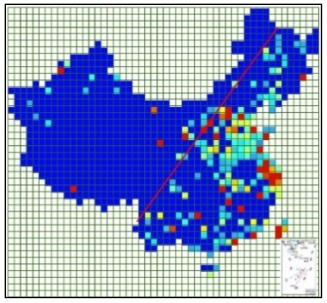
More than 300 information product extraction algorithms。

Computing capability

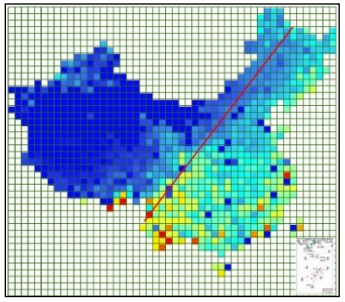
100 trillion times per second platform processing capability。

Group

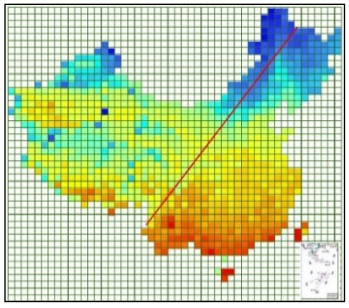
Nearly 200 remote sensing information R & D and production teams 。



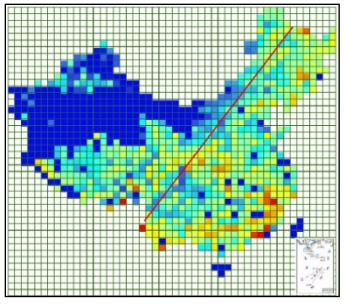
1° population density



1°NPP

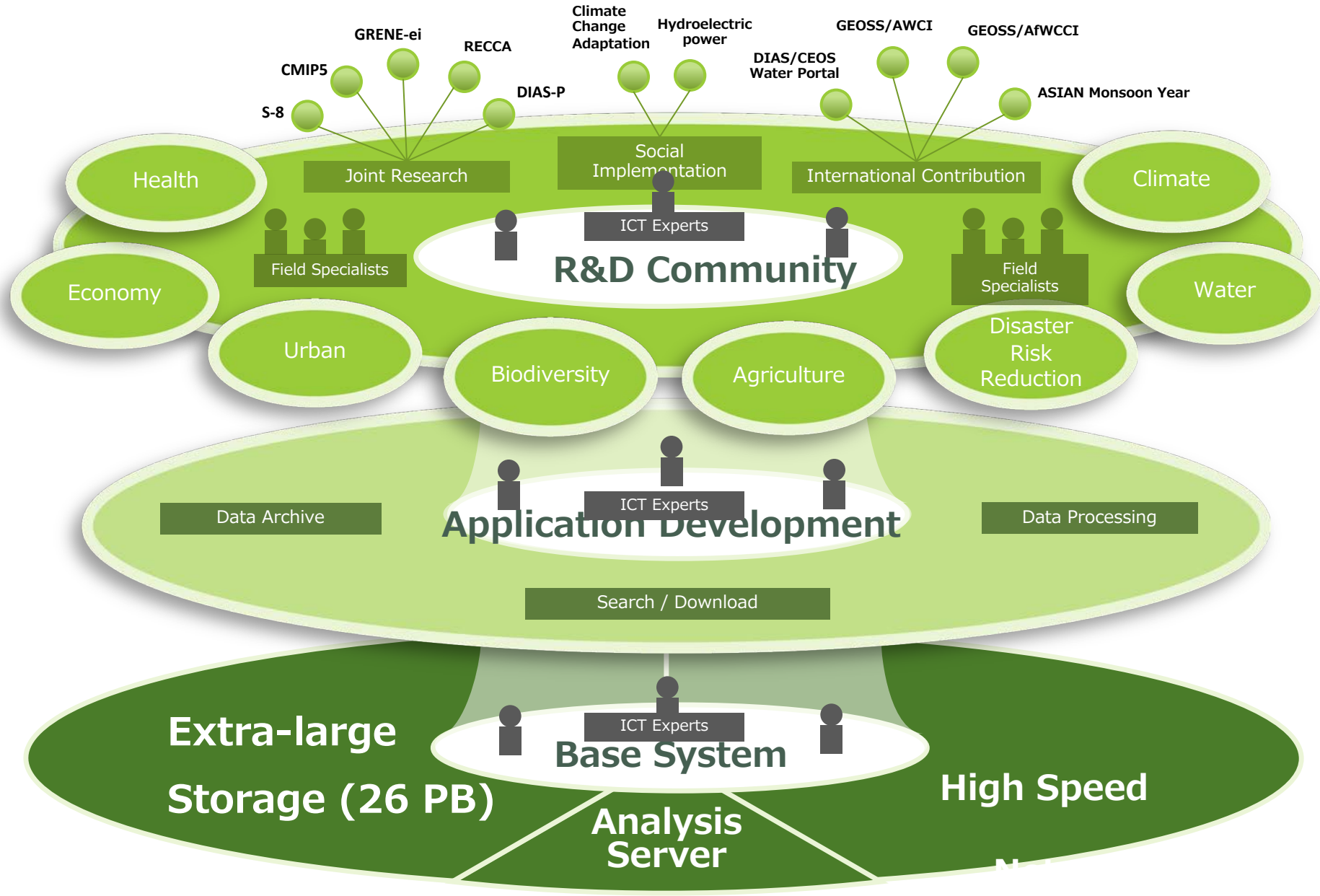


1°mean monthly temperature



1° evapotranspiration

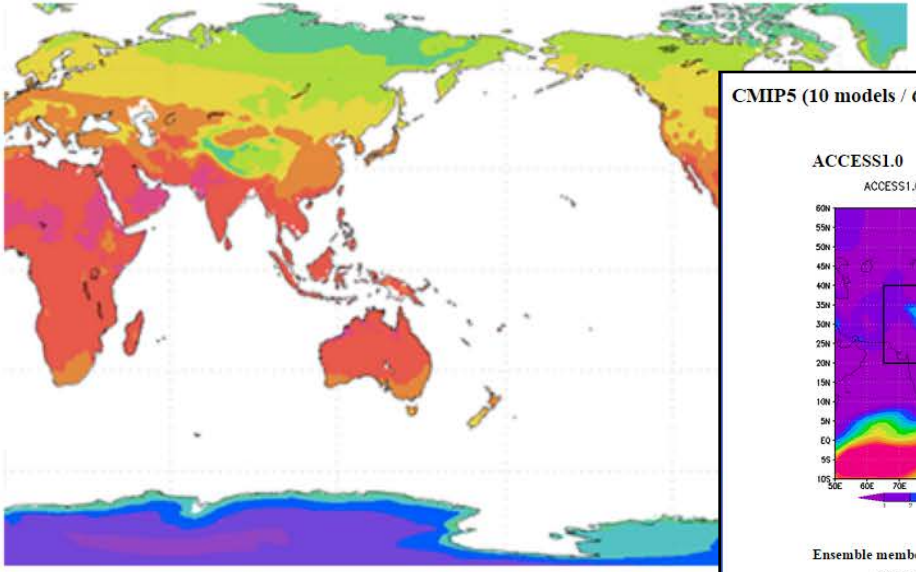
DIAS: Structure

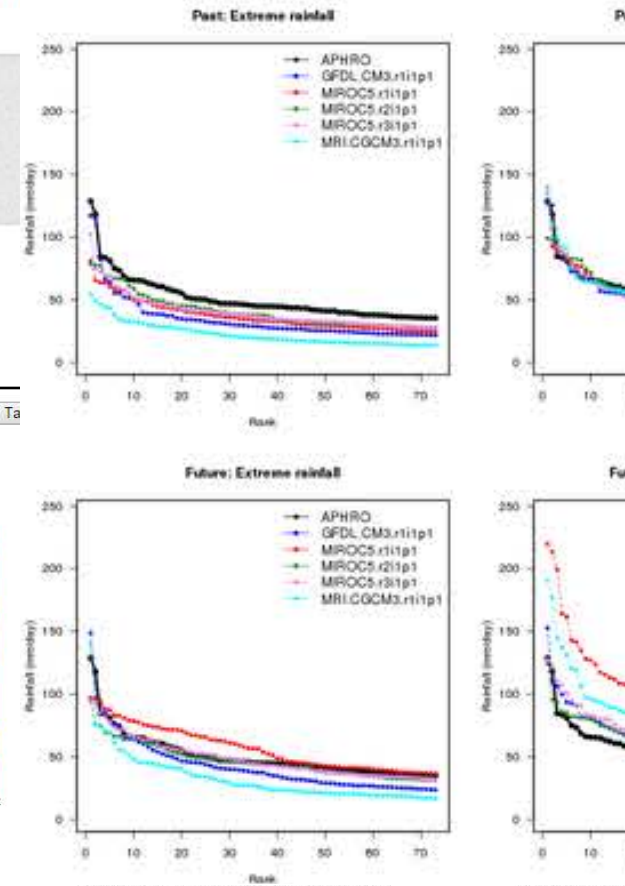


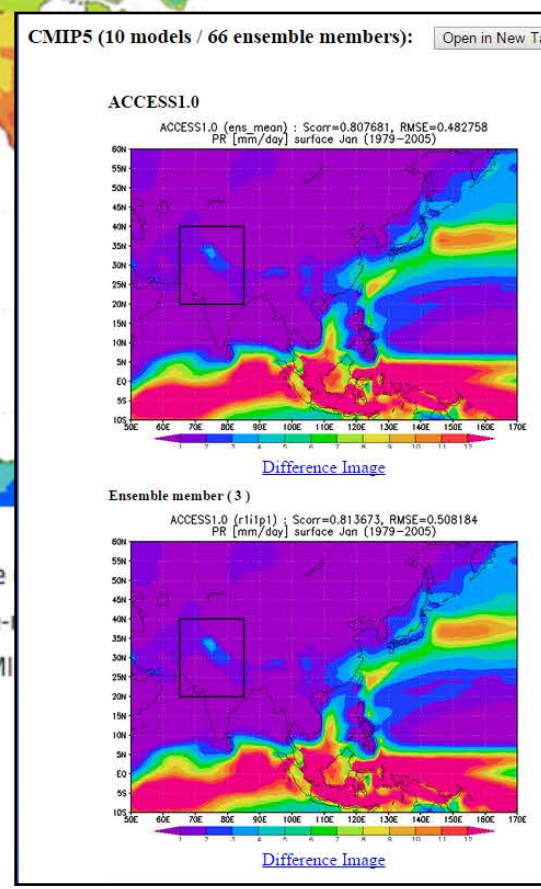
DIAS Data Integration and Analysis System Program

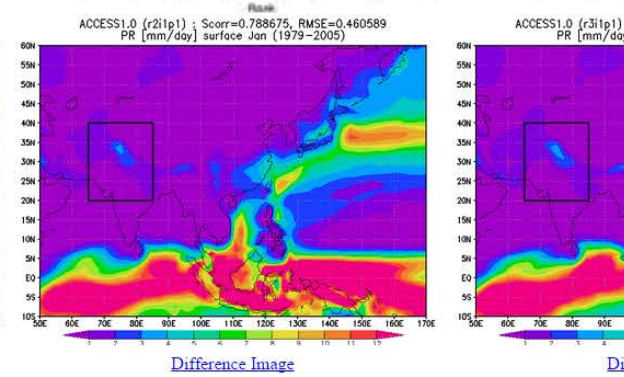
Hor

CMIP5 Data Analysis System









This system is comprised of a set of tools that provide the
Intercomparison Project Phase 5 (CMIP5), which has wide-
reanalysis data as reference data for comparison with CMI
reproducibility of climate models.

HOW TO USE

A common web application account is necessary.
Please contact the DIAS Office for details:

AO GEOSS Capacity Building

2019 plans

ARD Development

- Increased uptake of CARD4L from data providers in Asia Oceania
- Development of new ARD standards for SAR, Oceans and coasts

Asia-Oceania Data Hub

- Roll out of ARD for Landsat and Sentinel for all of SE Asia and Oceania
- Establishment of regional governance and membership model
- Inclusion of ARD data from AO data providers

Capacity building

- Run greater than three training course within the year
- Development of greater self service materials (Webinars, wikis, forums etc)

Information Services & Pilot Researches

- Development of products to aid reporting of GEO's three priority engagements
- Further cooperation and intergration between ODC, Spectrum Earth and DIAS
- Explore operational deployments of ODC for AO GEO's priority regions (Mekong, Himalayas and Pacific

GROUP ON EARTH OBSERVATIONS

AOGEOSS

Open Data Cube: Harnessing the Power of Satellite Data ONE PIXEL AT A TIME

THANKS!

AOGEOSS

Better Observation for a Better Future