Current Status of AMY (Asian Monsoon Years 2007-2012) - Outcome of Kunming (Dec. 2009) and Tokyo (Jun. 2010) meetings

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CLIVAR/AMMP-10 at APCC, Korea
June 18, 2010

Programmatic Development

- AMY stems from grass-root scientific and societal imperatives

  Initiated in August 2006, Xining meeting.
- Strongly supported by GEWEX and CLIVAR

  GEWEX/MAHASRI workshop, Jan. 8 2007, Tokyo

  GEWEX SSG, Jan. 22/25 2007, Honolulu <Co-Chair: Prof. Jun Matsumoto>

  CLIVAR/AAMP, Feb 19/21 2007, Honolulu <Co-Chair: Prof. Bin Wang>
- Endorsed by WCRP/JSC on 28th JSC meeting

  Mar. 26-30 2007 Zanzibar, Tanzania
- Identified as a cross-cutting weather and climate activity by WMO/WWRP/Monsoon panel.
- 1st AMY Workshop, Apr. 23-25 2007, Beijing, China
- 2nd AMY Workshop, Sept. 3-4 2007, Bali, Indonesia
- 3rd AMY Workshop, Jan. 20-21 2008, Yokohama, Japan
- 4th AMY Workshop, Jun. 18 2008, Busan, Korea
- 5th AMY Workshop, Oct. 24-25 2008, Beijing, China
- 6th AMY Workshop, Nov. 30-Dec. 2 2009, Kunming, China

Meetings in 2009 - 2010

- Mar. 5-7, 2009: The 2nd Vietnam-Japan MAHASRI Workshop, at Danang, Vietnam
- Jul. 13-14, 2009: YOTC Implementation Meeting at Honolulu, HI, USA
- Aug. 13, 2009: AOGS6 at Singapore
  Session AS8 “AMY: A Coordinated Asian Monsoon Experiment”
  AMY mini-workshop
- Nov. 30-Dec. 1, 2009: 6th AMY Workshop at Kunming, China
- Jun. 9-11, 2010: 1st Data Workshop at Tokyo, Japan

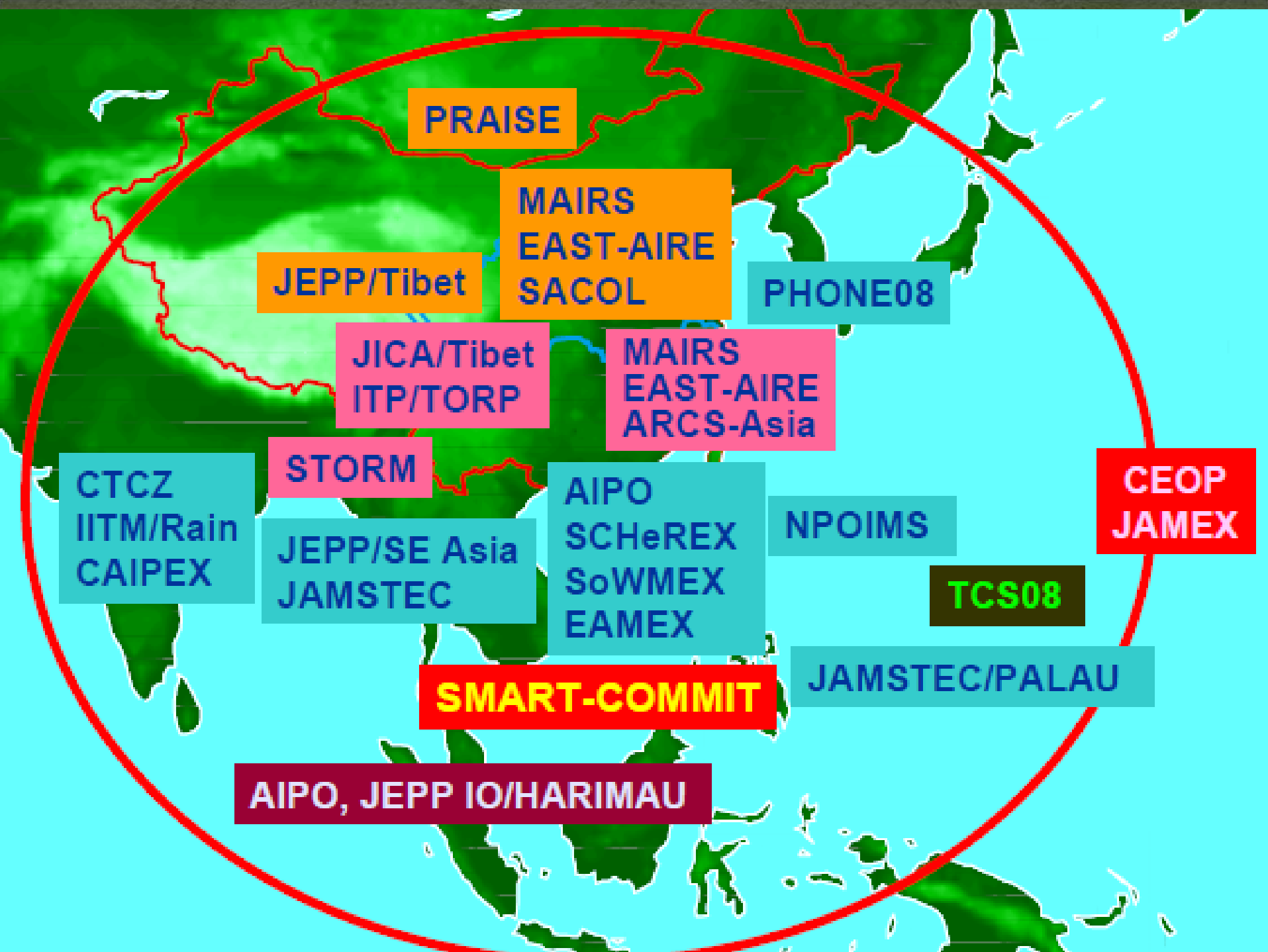
Overarching Goal

To improve Asian Monsoon prediction for societal benefits through improving understanding of the variability and predictability of the Asian-Australian monsoon system

It is believed that coordination and cooperation of individual participating and partner projects will greatly facilitate the efforts to reach this goal.

Cross-Cutting Science Themes for understanding Asian Monsoon

- Multi-scale interactions from diurnal to intraseasonal
- Atmosphere-Ocean-Land-Cryosphere-Biosphere interactions
- Aerosol-Cloud-Monsoon interactions and Human-environmental interactions


PRAISE
MAIRS
EAST-AIRE
SACOL
JEPP/Tibet
PHONE08
JICA/Tibet
ITP/TORP
MAIRS
EAST-AIRE
ARCS-Asia
STORM
CTCZ
IITM/Rain
CAIPEX
AIPO
SCHeREX
SoWMEX
EAMEX
NPOIMS
CEOP
JAMEX
JEPP/SE Asia
JAMSTEC
TCS08
SMART-COMMIT
JAMSTEC/PALAU
AIPO, JEPP IO/HARIMAU

Classification of Projects

Hydroclimatology, weather	CEOP, SACOL, PRAISE, SCHeREX, SoWMEX/TiMREX, IITM/rain, CTCZ, STORM, MAHASRI/JEPP, ITP/TORP, JICA/Tibet
Aerosols	CEOP, SACOL, IITM/CAIPEX, JAMEX, EAST-AIRE & AMF, SMART-COMMIT, ARCS-ASia
Ocean interactions	AIPO, CTCZ, JEPP/IO, PALAU2008, TCS08
Monsoon prediction	AAMP, APEC, CEOP, …
Human interactions	MAIRS; others link across

Plus other National & International contributions

Japan EOS Promotion Program (JEPP) + Indonesian Research/Technology Grant

Hydrometeorological Array for ISV-Monsoon Automonitoring (HARIMAU)

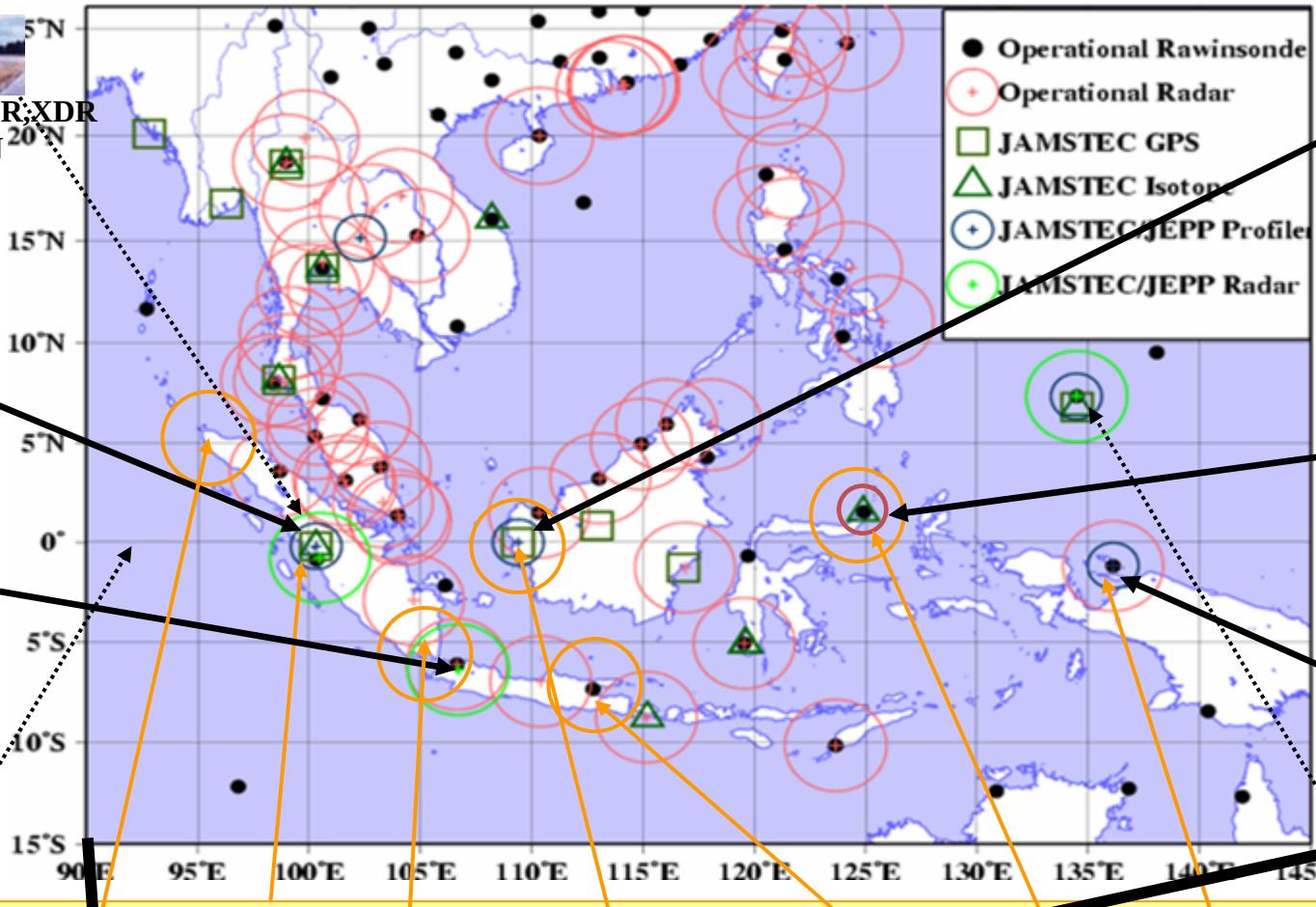
Kototabang EAR,BLR,XDR
KU + LAPAN

MIA XDR

Serpong CDR

Mirai CDR
JAl

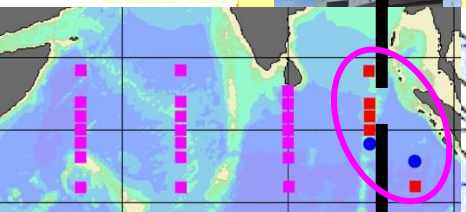
BMG

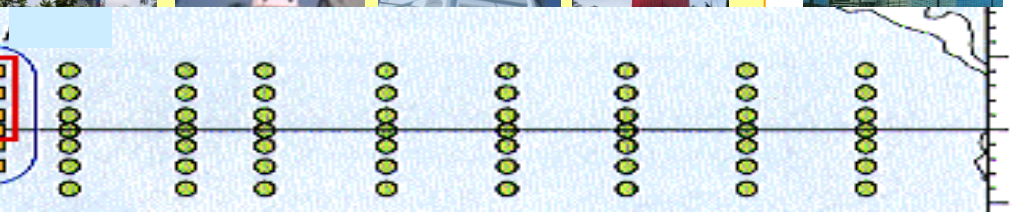


Pontianak WPR

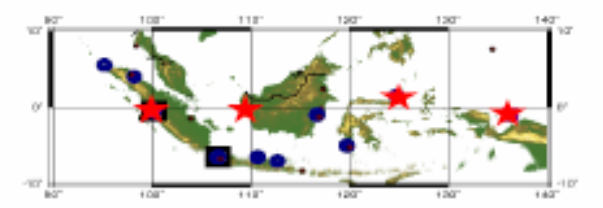
Manado WPR

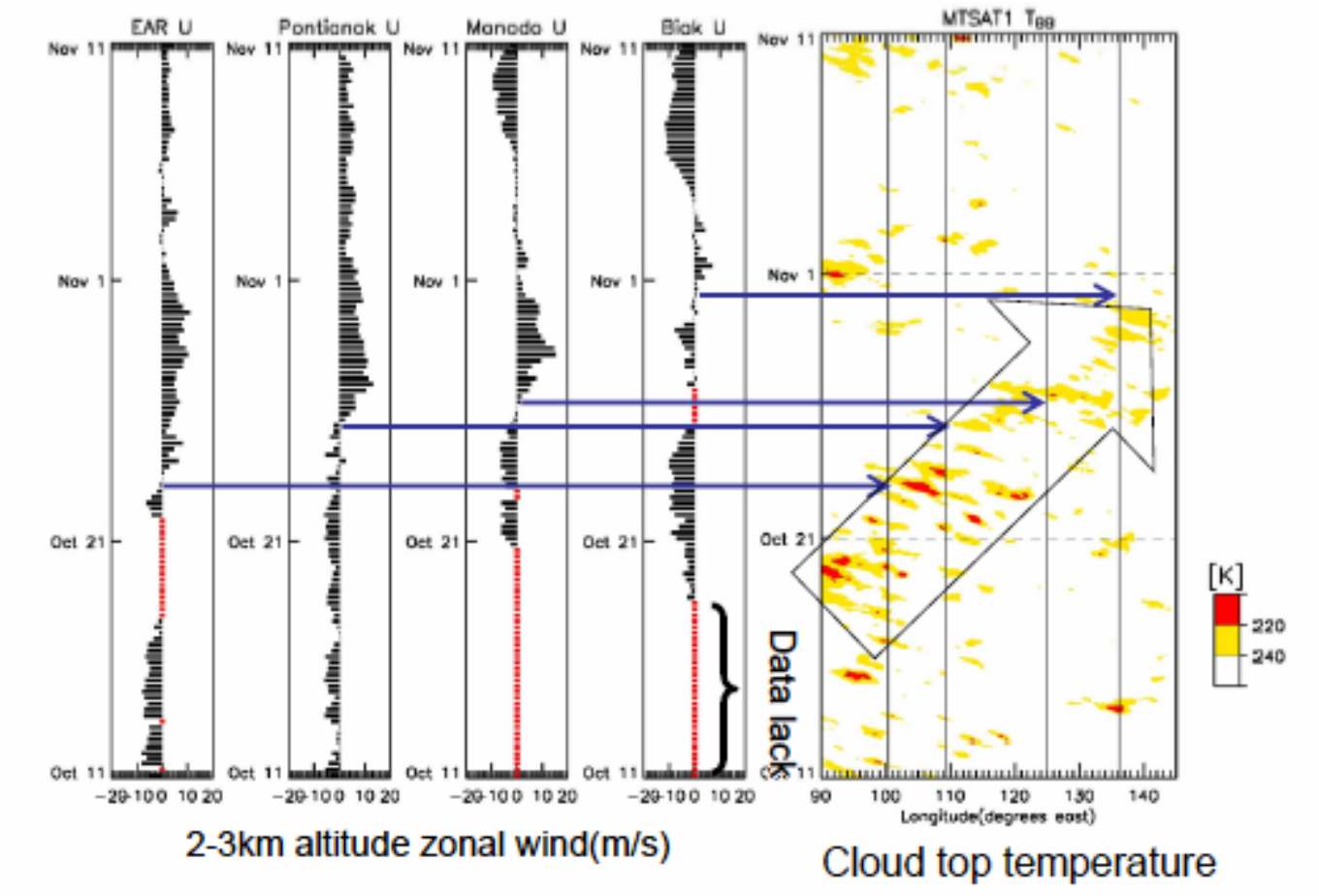
Biak WPR



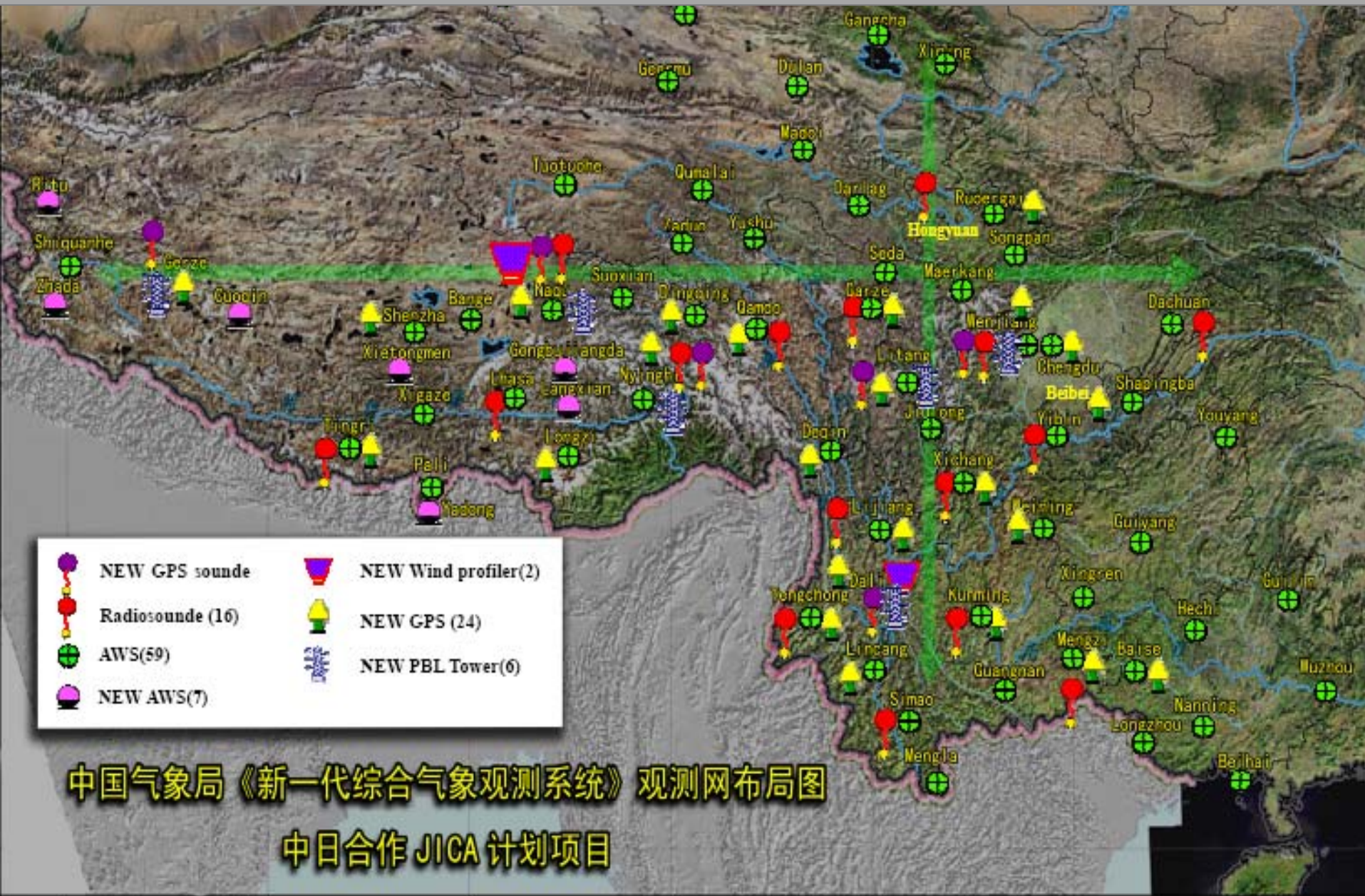


Wind Profiler Network Observation for ISVs

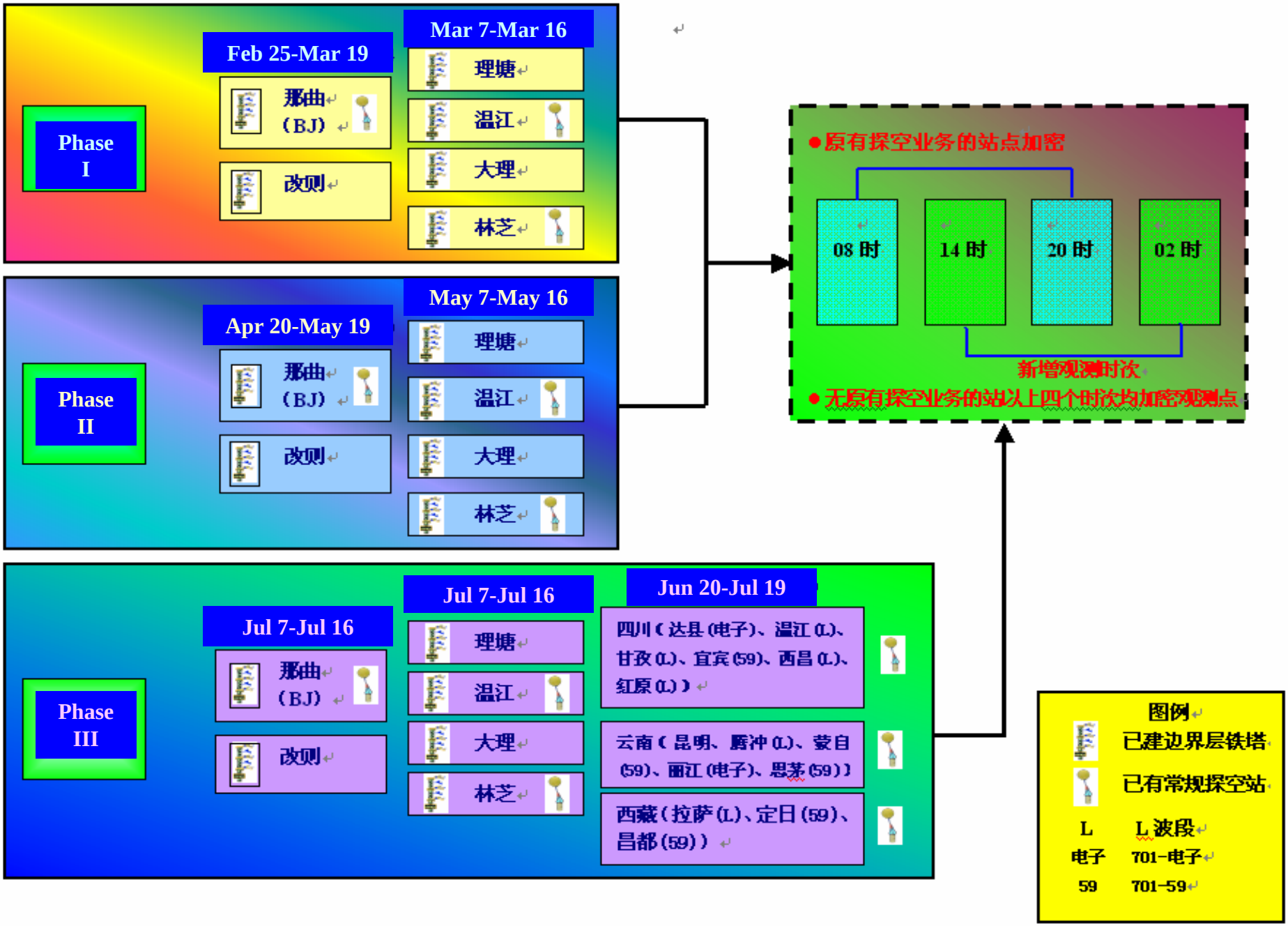




All new systems installed by JICA are correctly operated.
More than 90% data are obtained and used operationally.



Intensive Upper-air Sonde Observations in 2008



AMY2007-2012 SSC and WGs (Revised Dec., 2009)

- Scientific Steering Committee (SSC)
  Co-Chairs: Bin Wang and Jun Matsumoto
  (including 17 scientists)
- AMY International Program Office (IPO)
  Director: Jianping Li
- Observation Coordination WG
  Co-Chairs: Dongxiao Wang and Manabu D. Yamanaka
- Data Archiving and Management WG
  Co-Chairs: Atsushi Higuchi, Toshio Koike, Ping Zhao and Dongxiao Wang
- Modeling and Prediction WG
  Co-Chairs: Harry Hendon and Akio Kitoh
- Aerosol-Monsoon WG
  Co-Chairs: Zhanqing Li and J.R. Kulkarni

Highlights

- AMY-IOP (2008-2009) has been successfully conducted.
- MJO/MISO Hindcast Experiment has been conducted as a joint effort by CLIVAR/AAMP, APCC, YOTC and AMY.
- Central Data Archiving System has been launched in the Univ. Tokyo, Japan and SCSIO, China.
- AMY Re-analysis will be conducted by MRI/JMA, Japan.
- JMSJ Special Issue on MAHASRI will be issued in Jan. 2011.

Data sharing policy

Issues of data policy, data management, and data assimilation remain to be addressed. This will be done as a component of the implementation plan. (AMY-SP)

Draft Data Sharing Policy

1. Release of Data in Compliance with WMO Resolution 40 (CG-XII) and WMO Resolution 25 (CG-XIII)
2. No Commercial Use or Exploitation
3. No Data Transfer to Third Parties
4. Data Archiving Procedure
5. Timing for Data Submission to CDA: 15 Months after the Observation
6. Timing for Data Release from CDA: 2 Year after the Observation
7. Acknowledgement and Citation
8. Co-operation between Data Users and Data Providers
9. Co-Authorship with for Data Providers
10. Publication Library at AMY Web

Sing-up by Project Leaders

Assign a focal point of each Project Lead

Clearance of National Data Regulation → Letter from WCRP JSC Chair

Data archiving strategy

Data Loading, Quality Control, and Meta Data Generation

Separate System

Data Sharing and Opening

CDA-Data Provider Contract for research-oriented data.

a. Meta data opening
b. Prohibit of observed data use in any purpose before data
   opening permission by the data provider
c. Before opening permission, CDA provides a function of users'
   contact to the data providers based on the user management system.
d. Smooth communication between CDA representative – Focal Point of each project

Decision on Data Management

In addition to the data management functions of each project,

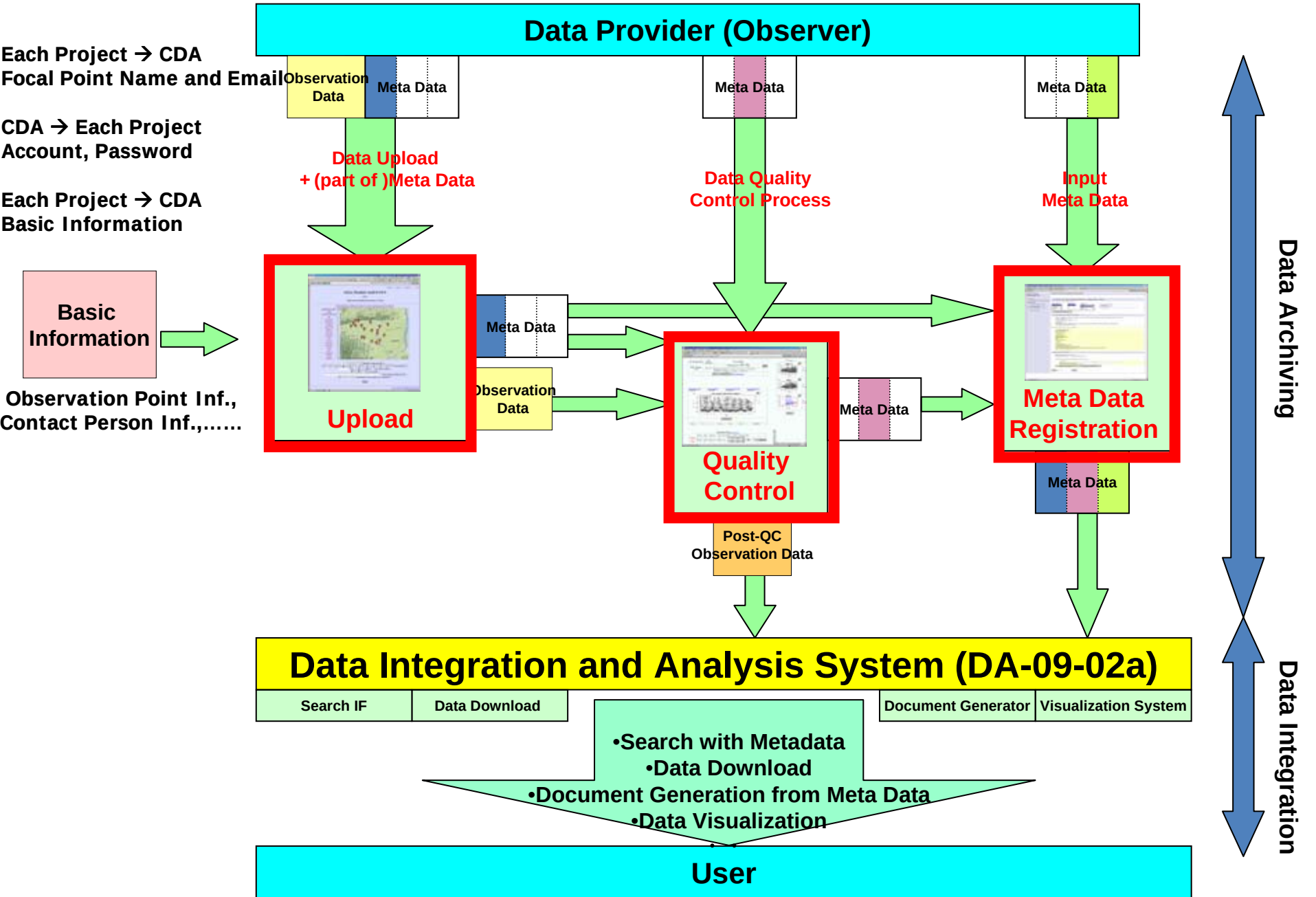
AMY will develop two central data archives, considering ;

- Ocean data at South China Sea Institute of Oceanography (SCSIO)
- Atmosphere and Land data at the University of Tokyo (UT)
- UT also tries to develop an integrated central data archive for ocean-land-atmosphere in cooperation with SCSIO

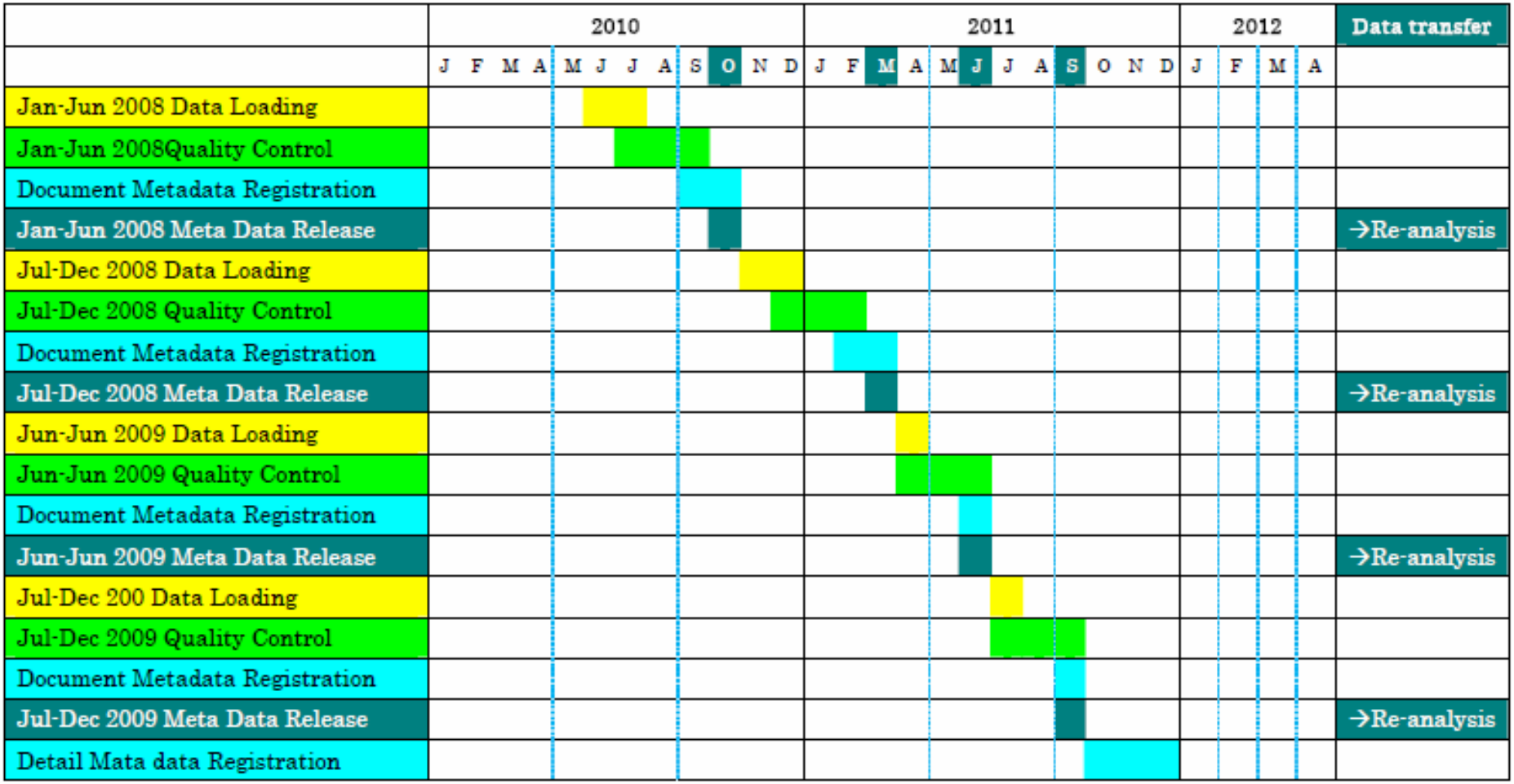
Data is classified into two categories:

- Type A to be archived at CDAs
- Type B to be archived only at each project group, because of data sharing limitation due to national regulation and too specific data to be archived in a general way.

Web-based Data Archiving & Integration System



Schedule, Action items



Outline of AMY-RA

- Reanalysis calculation by MRI/JMA
- Target Period : Jan2008~Dec2009

  (Detail is flexible depending on requests)
- Coverage : Global

  Horizontal resolution ~ 60km

  Temporal resolution ~ 3hour
- Distribution : By internet

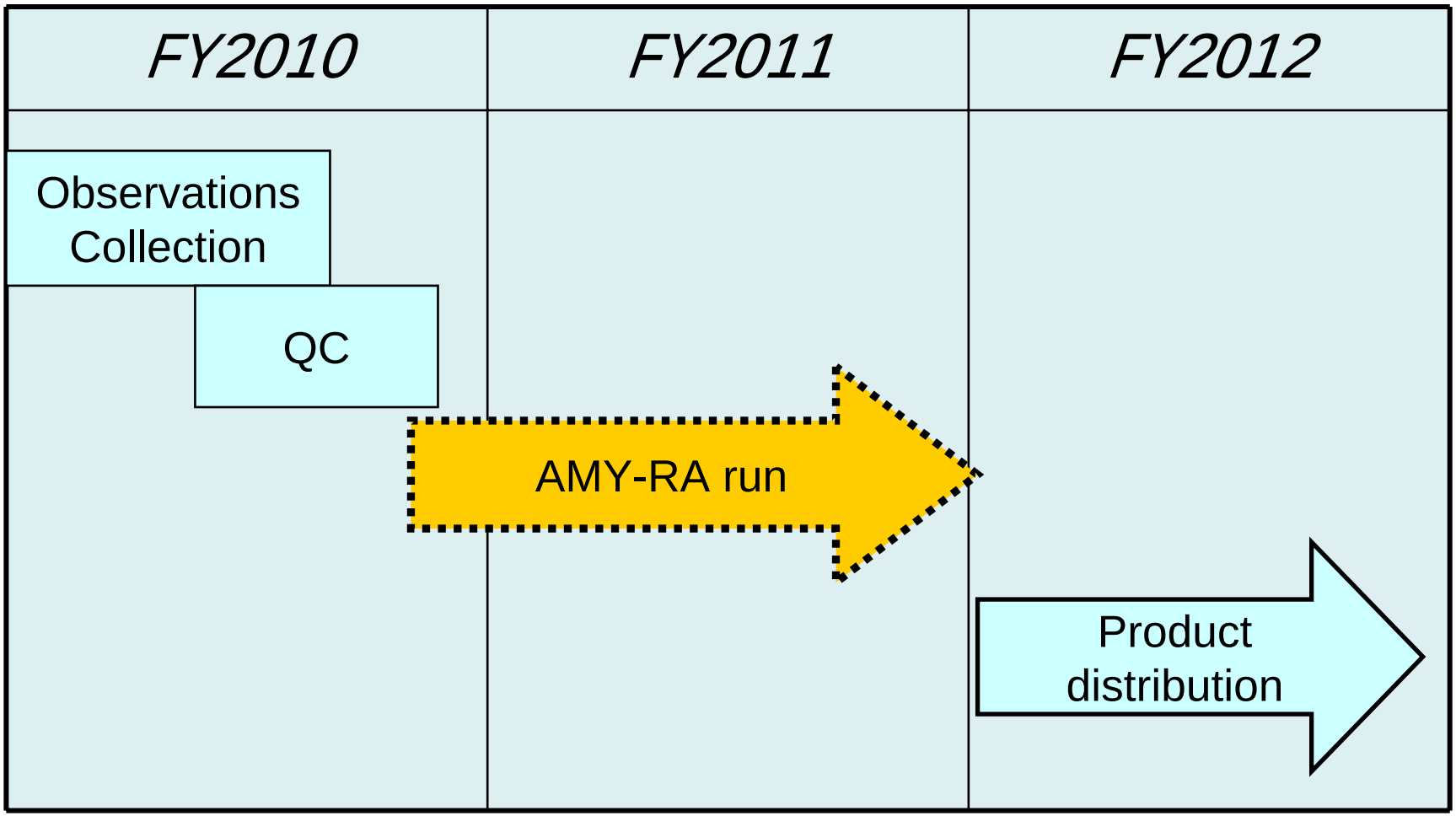
Input observations and output products

- Input observations
  Surface (Ps, T, Q, U, V)
  Upper (Z, T, Q, U, V)
  Ship and buoy (Ps/Z, T, Q, U, V)
  Aircraft (Z, T, Q, U, V)
  Satellite (AMV, NOAAs, DMSPs,,,)
  Wind profiler (U,V), etc.
- Products
  Analyses on model grids (640x320 : 0.5625deg) ~ 60Km
  Analyses on P-levels (288x145 : 1.25deg) ~ 140Km
  Physical monitor (Flux, Radiation, Heating rate, …)

Global Data Assimilation System

- ✓ Forecast model
  - resolution：TL319L60（top:0.1 h Pa） ~ 60km
  - cumulus：Arakawa-Schubert
  - SST：COBE by JMA
  - PBL：Mellor-Yamada level-2
- ✓ Assimilation system
  - algorithms： 4 D-VAR (4-Dimensional Variational method)
  - resolution：T106L60 (inclimental) ~ 120km
    (interpolating to 60km grids)
  - land：snow analysis（by Surface snow + SAT snow cover）

Time Table


FY2010
FY2011
FY2012
Observations Collection
QC
AMY-RA run
Product distribution

Do you need higher resolution?

- Our current goal

  Reanalysis at 60km and 3hr resolution (TL319)

- Higher resolution? Then, 2 possibilities

  Regional downscaling (~20km) --> easier

  TL959 reanalysis (~20km) --> more difficult, but valuable to try,
  in particular, for some specific periods.

Problems are man power and computer resources.

If problems are resolved, we like to try …

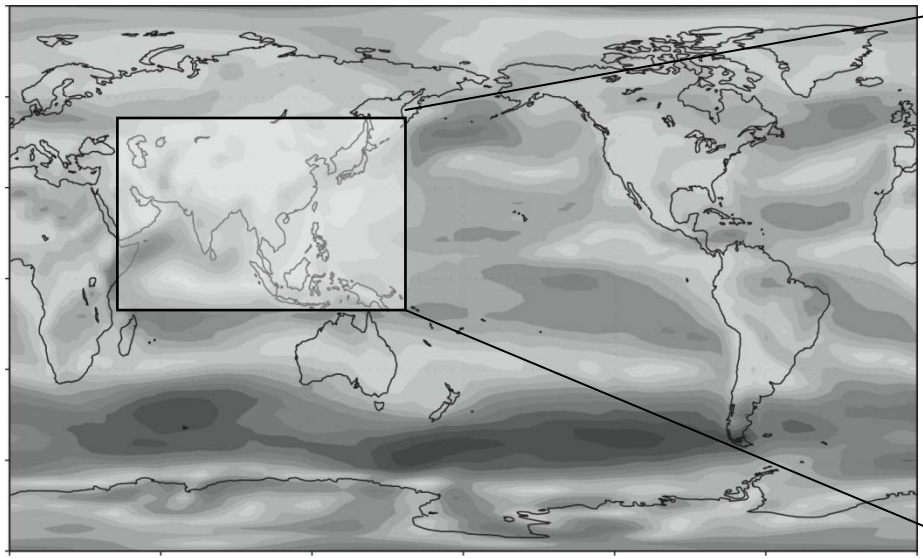
Regional downscaling (20km)

if enough man power possible, …

Using JMANHM(Non-Hydrostatic Model)

Covering south and east Asia including all AMY observations

Global-RA(60km and 3hr)



Regional (20km and 1hr)

Coverage is tentative and depends on requests.

Coming Events and Future Plan

- The 7th AMY Workshop at IITM, Pune, India (July 10, 2010)
- AMY Open Science Conference? When and where?
  2011? Venue: China?
- IUGG 2011, J-M10 Session: Monsoons, Tropical Cyclones and Tropical Dynamics, Melbourne, Australia (June 28-July 7, 2011)

Lead Conveners: Jianping Li and John McBride

Co-Conveners: Bin Wang, Jun Matsumoto, Harry Hendon, E. Hugo Berbery, Richard Grotjahn, Michael Montgomery, Roger K. Smith, Masato Sugi, Georg Kaser, and Dave Nolan

- Special issue on AMY in 2012 (?)

Action items proposed in AMY-6 at Kunming

- Task team on Asian-Australian monsoon for CMIP5 established by Jan. 20, 2010 get approval from GEWEX, CLIVAR, WCRP.
- By the middle of 2010 establish plan.
- Data will be available in Oct. 2010 then analysis should start immediately.
- Feb.-Mar. 2011 Task force will organize science workshop jointly with AMY.
- Special issue on CMIP5 paper acceptance by fall 2011.

Future issue

- Planning of new AM program after 2013