



2008.4.14-16 GEOSS AP Symposium
at Mirai-kan, in Tokyo, Japan



Reports of APWSCCO & Introduction for this session

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Plenary Session for APWSCCO
Report from Oceanic carbon cycle observations
in Pacific, Indian and Southern Oceans

Ocean CO₂ observation program in Australia

B. Tilbrook (CSIRO, Australia)

**Proposed carbon measurements in the Indian Ocean by
National Institute of Oceanography**

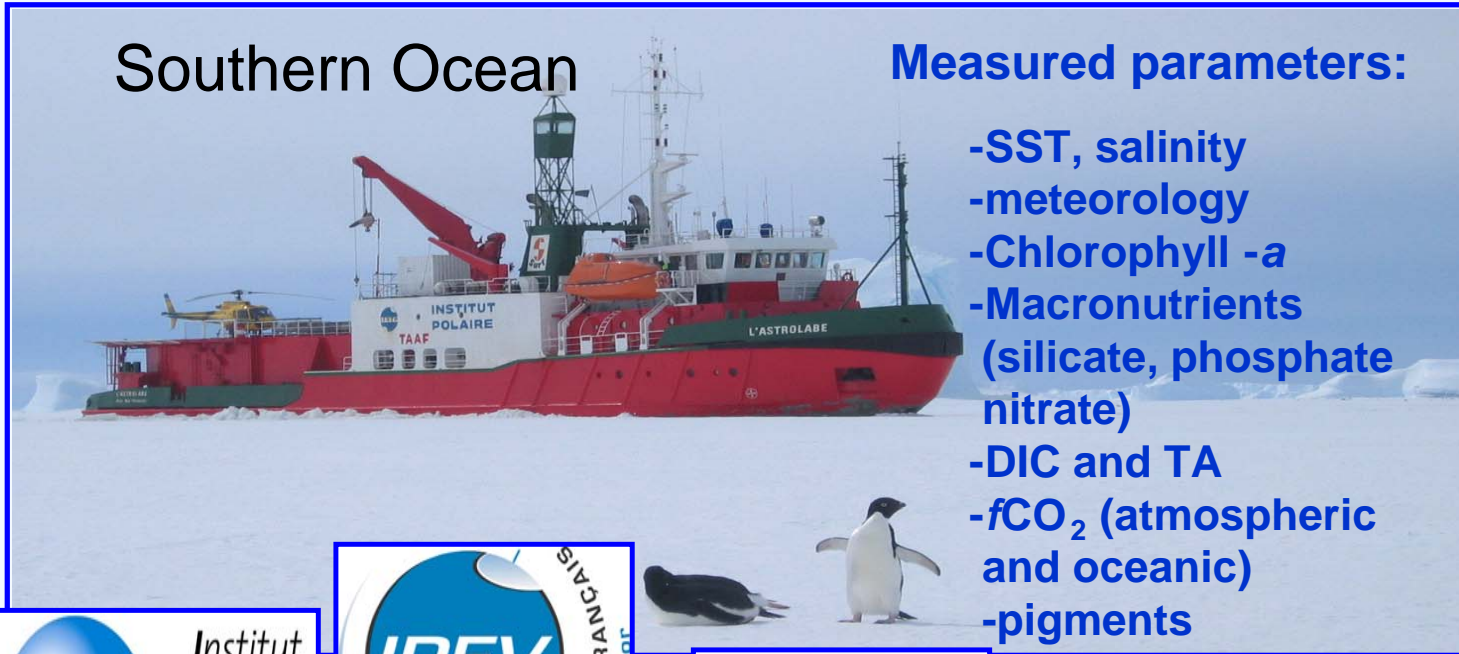
VVSS Sarma (NIO, India)

Oceanic CO₂ observation in Pacific Ocean

M. Ishii (MRI, Japan)

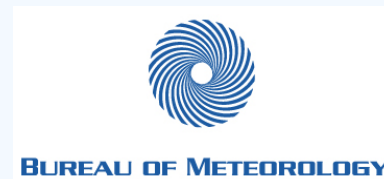
Astrolabe biogeochemical observations

Southern Ocean



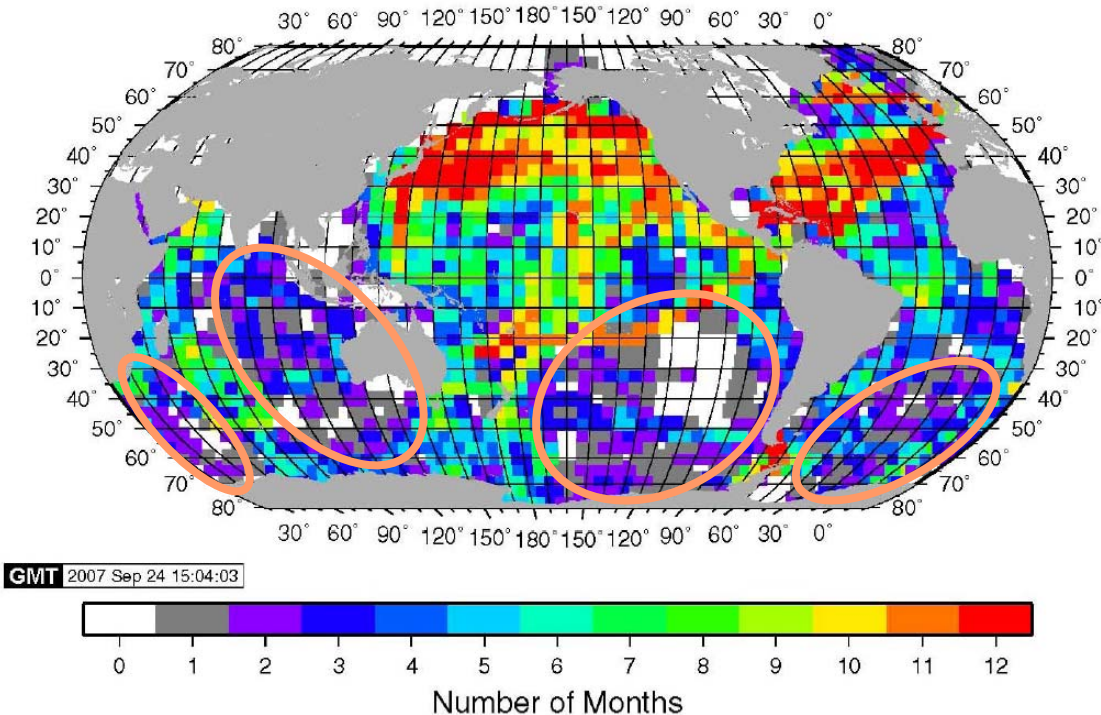
Measured parameters:

- SST, salinity
- meteorology
- Chlorophyll -a
- Macronutrients (silicate, phosphate nitrate)
- DIC and TA
- fCO₂ (atmospheric and oceanic)
- pigments



By courtesy of B. Tilbrook

Number of months observation of $p\text{CO}_2\text{sw}$



Oceans in the southern hemisphere have been badly undersampled.

To fill these gaps, an autonomous $p\text{CO}_2$ sensor on a small float is now under development at MIO/JAMSTEC



By courtesy of M. Ishii

Plenary Session for APWSCCO
Report from Atmospheric observations by
GAW and research projects

Activities of Greenhouse Gas Monitoring in NIES

T. Machida (NIES, Japan)

Recent WDCGG activities

Y. Tsutsumi (JMA, Japan)

GHG observation in CSIRO-past, present and future

C. Allison (CSIRO, Australia)

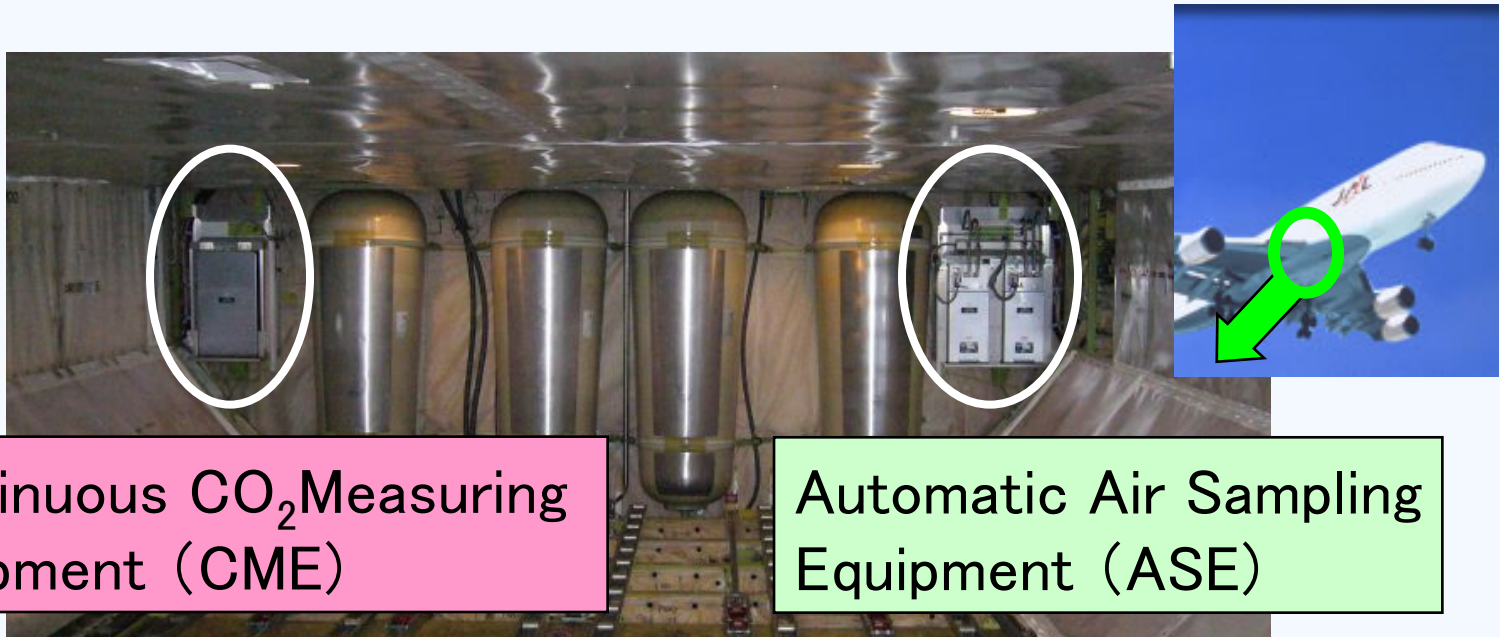
Observation of CO₂ and other Trace Species by Commercial Airlines



NIES, MRI, JAL, JAMCO, Tohoku U., JAL F.

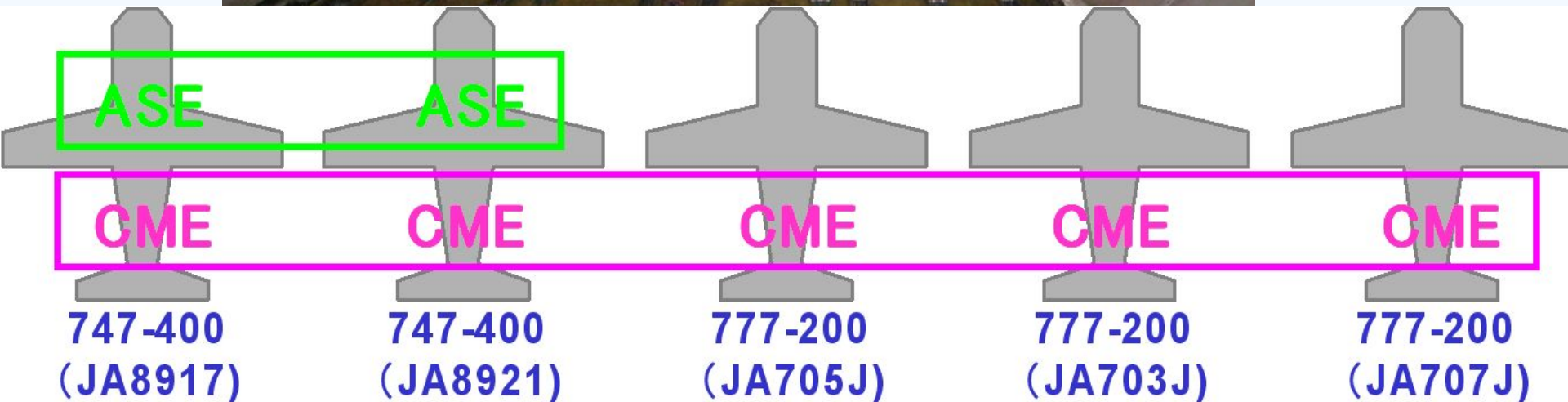
By courtesy of T. Machida

Install in the Cargo Room



Continuous CO₂ Measuring Equipment (CME)

Automatic Air Sampling Equipment (ASE)



Plenary Session for APWSCCO
Report from atmospheric and oceanic
observation by VOS

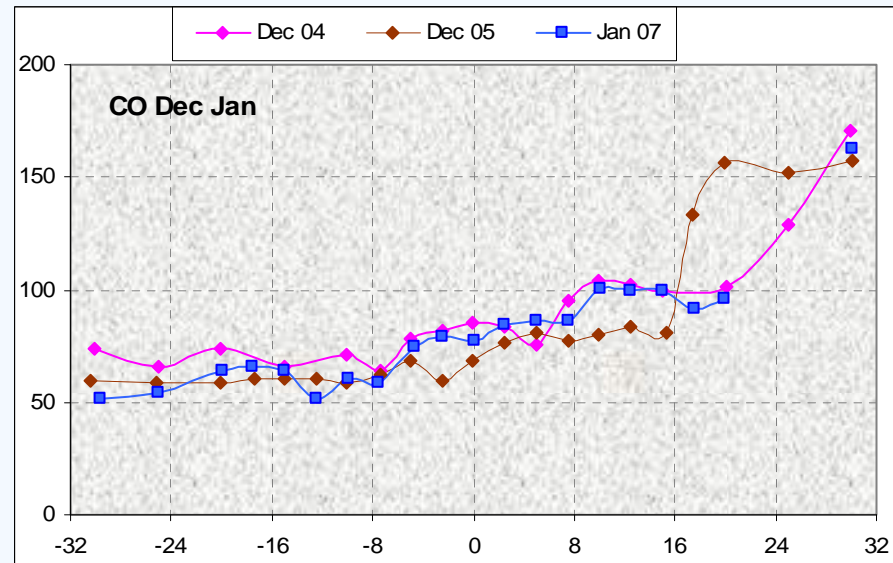
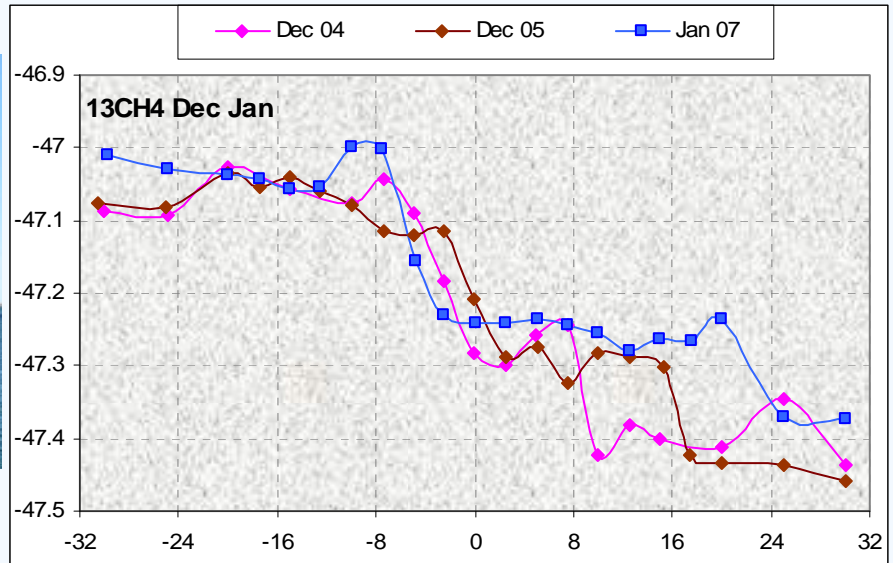
Methane and other trace gases: NIWA measurements

K. R. Lassey (NIWA, New Zealand)

**Trend analysis of ocean pCO₂ and the air-sea CO₂ flux in the
North Pacific**

Y. Nojiri (NIES, Japan)

Shipboard $\delta^{13}\text{C}(\text{CH}_4)$ and CO



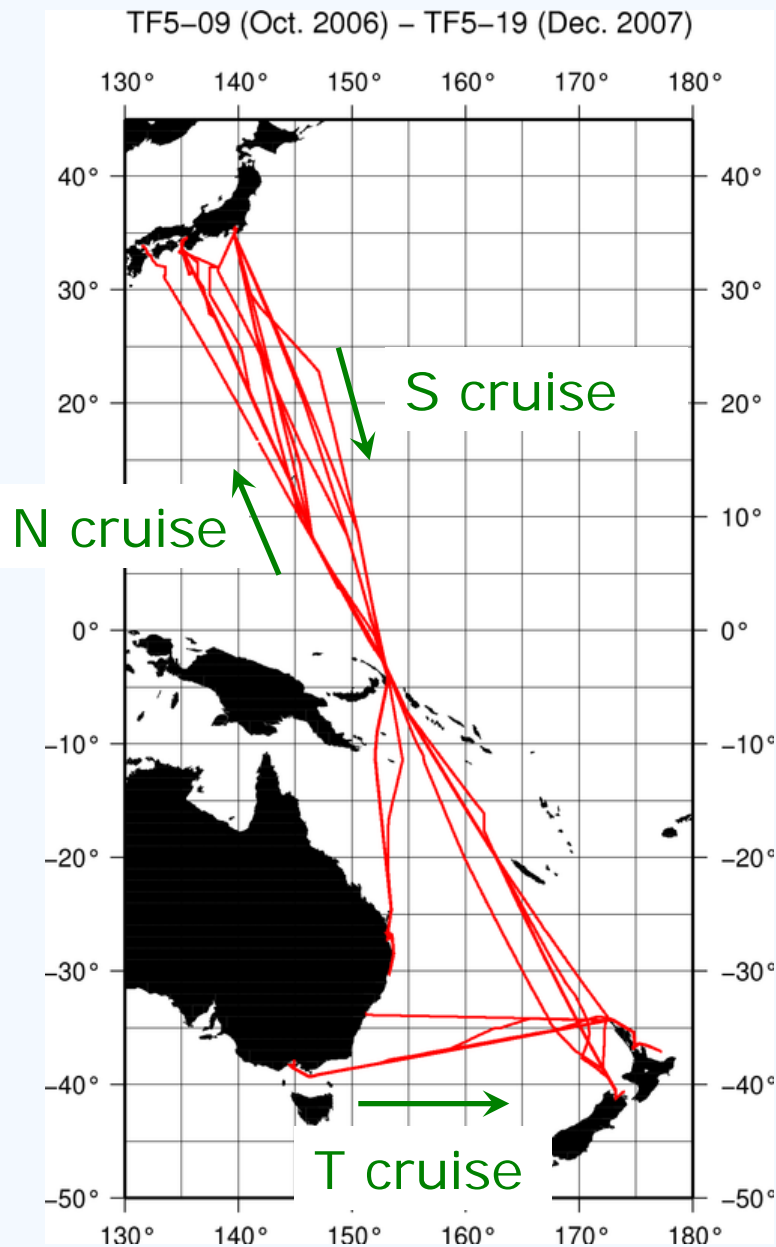
By courtesy of K. Lassey

CO₂ monitoring by Trans Future 5 in western Pacific



Ocean: From TF5-06N (June 2006)
CO₂, SST, SSS, DO, Chl-a, Nutrients

Atmosphere: From TF5-01N (Nov 2005)
CO₂, O₃, CO, O₂/N₂, Bottle sampling



By courtesy of Y. Nojiri

Plenary Session for APWSCCO
Report form Terrestrial Carbon Cycle
Observation

The new vision of AsiaFlux

J. Kim (Yonsei Univ., Korea)

Carbon cycle observation research in terrestrial ecosystems

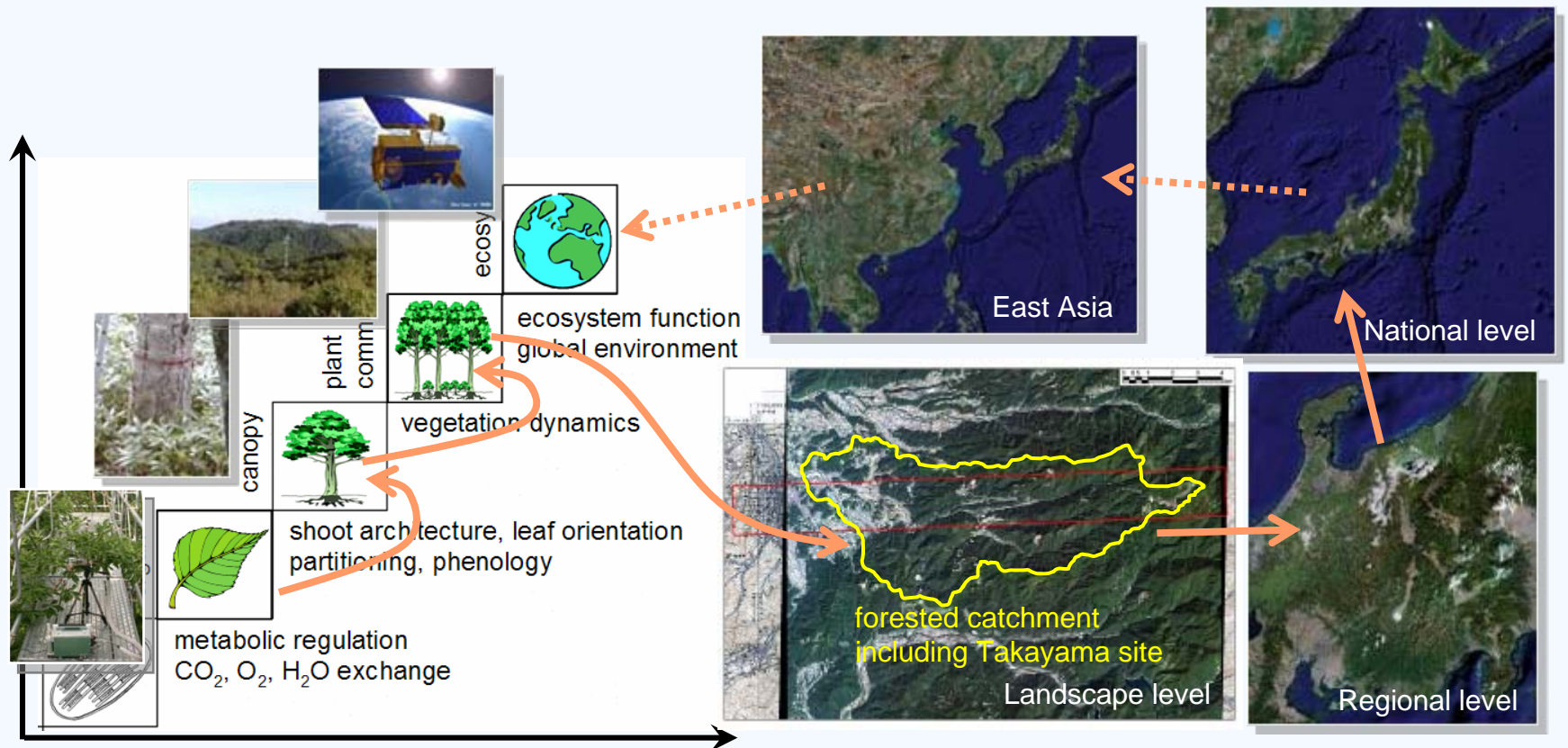
H. Muraoka (Gifu Univ., Japan)

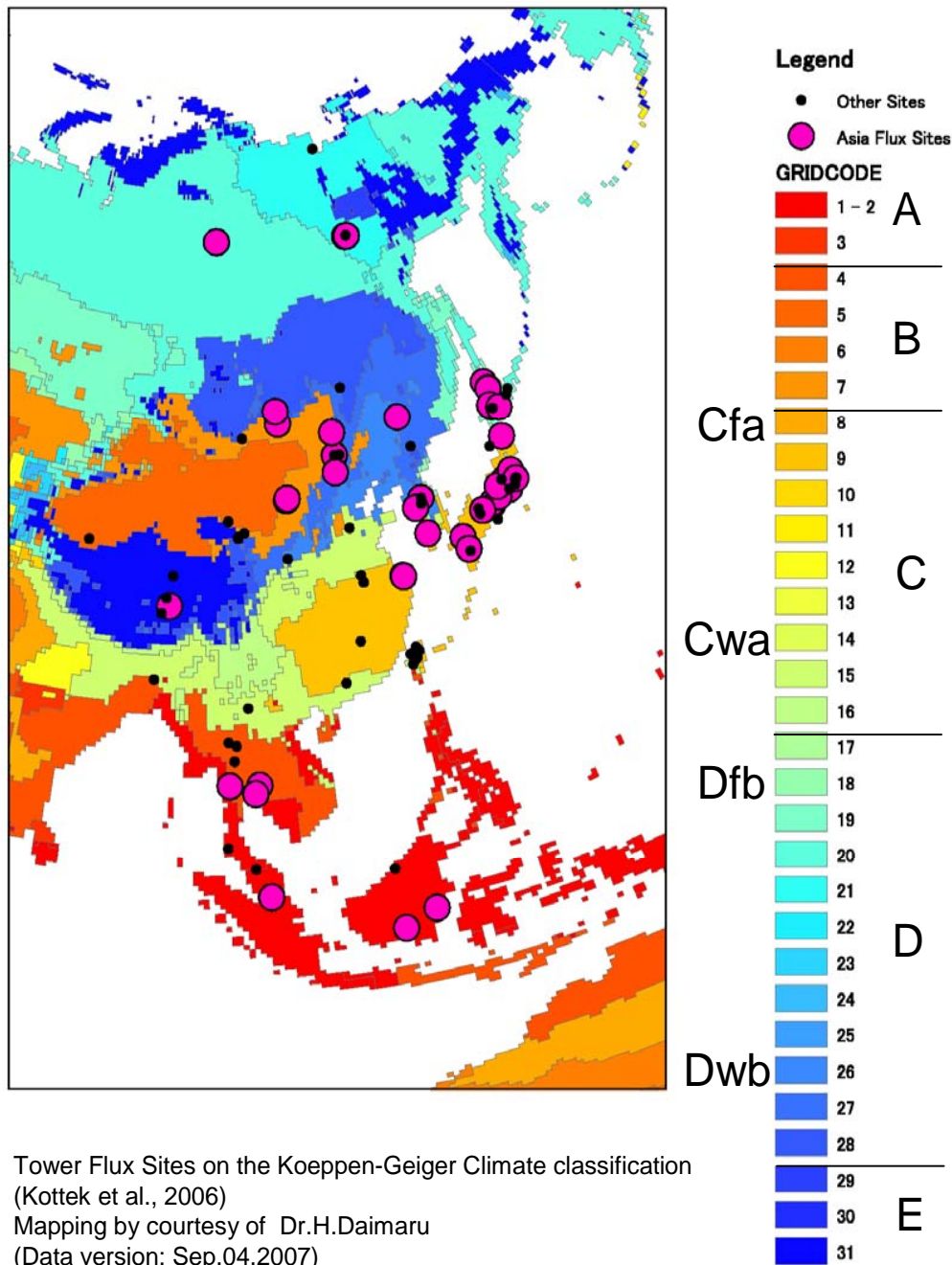
Revealing carbon cycle processes and scaling

Carbon cycling in plot, landscape, regional, continental and global.....

In mountainous landscapes, scaling should be done carefully from a canopy to ecosystems, landscape, regional....,

... If we don't want to miss the consequences of the processes ...





Tower Flux Sites on the Koeppen-Geiger Climate classification
(Kottek et al., 2006)
Mapping by courtesy of Dr.H.Daimaru
(Data version: Sep.04,2007)

Present Situation of the Flux Observations in Asia

- Number of sites: 111 (68)*
Number of sites listed in the AsiaFlux web page: 45 (39)*
* currently continuing
- Climate: Tropical (14),
Arid & Semi-Arid (5),
Temperate (44), Boreal (7),
Cool-Temperate (41)
- Vegetation, Topography,
Instrumentation, Analysis tech.
method... under investigation
(to keep data compatibility and
consistency for synthesis
analysis and to expand
observation network to
the unrepresented areas.)

AsiaFlux Training Courses

AsiaFlux Training Course 2007 on Micrometeorology

- Theory and Practice of CO₂ Flux Measurement -

Date: Tue.17 July - Thu.26 July 2007

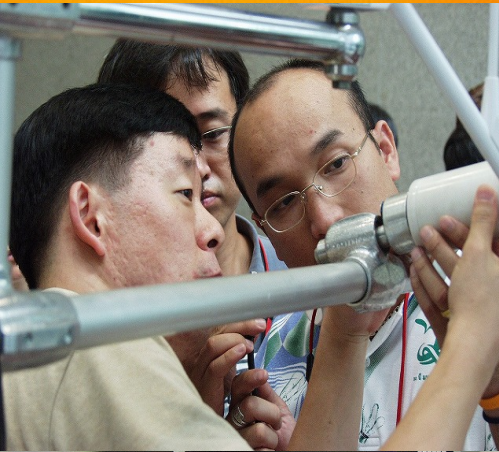
Venue: NICEM Seoul Natl Univ & Yonsei Univ, Korea

Field practice: Gwangneung KoFlux Supersite, Korea
organized by Yonsei Univ, Seoul Natl Univ, Korea,
AsiaFlux TC-SWG and KoFLux teams

- To teach basic theory and observation techniques
to Asian flux researchers

- 24 participants from 10 Asian countries

- Several leading scientists from Korea, Japan, US and
China served as volunteers/lecturers



OCCCO is supported/supporting Japanese GEOSS activity.
OCCCO is the component of Climate Change in GEOSS.

Target Areas are

Carbon Cycle Observation

1. Atmosphere
 2. Ocean
 3. Terrestrial
- and these interactions

Climate Change Impact Observation (possibly) Socio-Economic Observation/Data set

Targeted workshop (in Japan) to help GEOSS activity in Asia-Pacific area can be funded or hosted by OCCCO.