

# New Climate Change Synthesis Report for policy makers in Asia-Pacific Region and initiatives for capacity development.

## Asia Pacific Network for Global Change Research

**Dr. Andrew W. Matthews**

APN Steering Committee Member

SBSTA Dialogue

19 May, 2012, Bonn, Germany



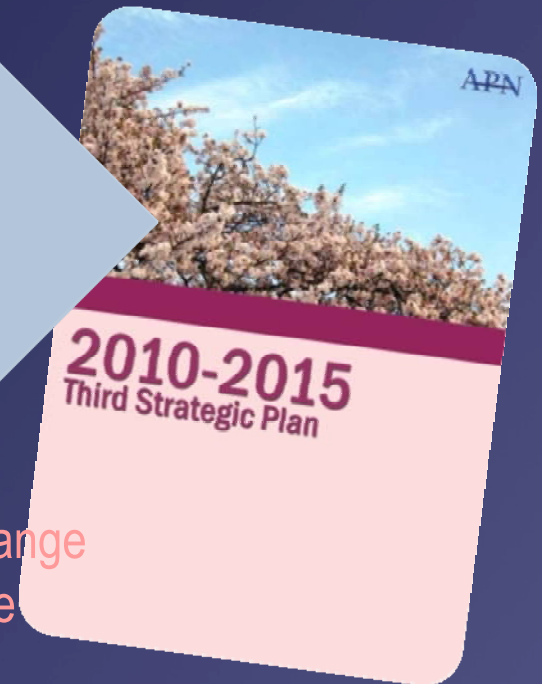
United States  
Global Change  
Research Program



Ministry for the  
Environment  
*Moneta Mo To Teiao*

APN  
Asia Pacific Network for Global Change Research

# APN is in its 3<sup>RD</sup> STRATEGIC PHASE



## APN GOALS

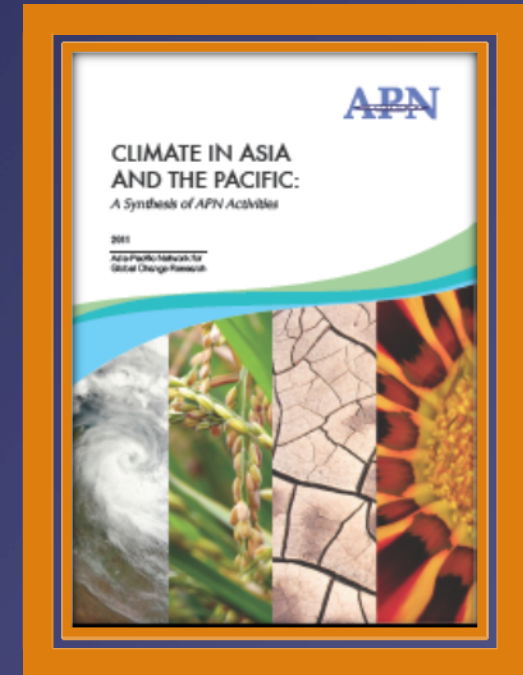
- Supporting regional cooperation in global change research on issues particularly relevant to the region
- Strengthening appropriate interactions among scientists and policy-makers, and providing scientific input to policy decision-making and scientific knowledge to the public
- Improving the scientific and technical capabilities of nations in the region, including the transfer of know-how and technology
- Cooperating with other global change networks and organisations

# APN Climate Synthesis Report

- Synthesis of climate-related research and capacity development over **10 years**
- **56** completed projects in an 88-page synthesis
- Strong emphasis on “policy relevance”
- Synthesis published September 2011.

## Focus Chapters

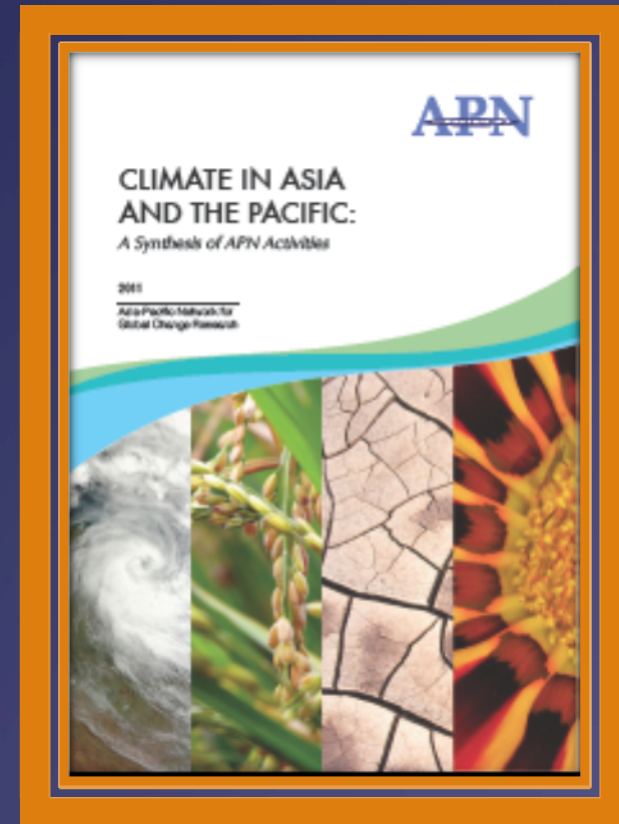
- Food, Agriculture and Climate
- Seasonal Climate Prediction & Application
- Climate Variability, Trends and Extremes
- Regional Climate Change Modeling
- Vulnerability & Adaptation to Climate Change
- Climate Change Mitigation
- Climate Change Policy & Outreach



# APN Climate Synthesis Report

✿ Contributing authors of the present synthesis report are leaders in their field and many of them are authors of the IPCC Fifth Assessment Report.

✿ Useful tool for IPCC, scientists, decision-makers and educators as it identifies both research gaps and future research activities for the Asia-Pacific region in the context of natural climate variability and climate change.



<http://goo.gl/gVW8M>

<http://www.apn-gcr.org/uploads/reports/2011/Climate%20in%20Asia%20a...>

Created: 2011 Oct 4



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<http://www.apn-gcr.org/2011/10/04/apn-publishes-climate-synthesis/>

APN  
Asia-Pacific Network for Global Change Research



# 2011 Climate Synthesis Report in AP Climate Change Adaptation

## Recommendation

✿ **Community-based climate adaptation**, as well as reducing vulnerability and building resilience, requires *much more attention*....

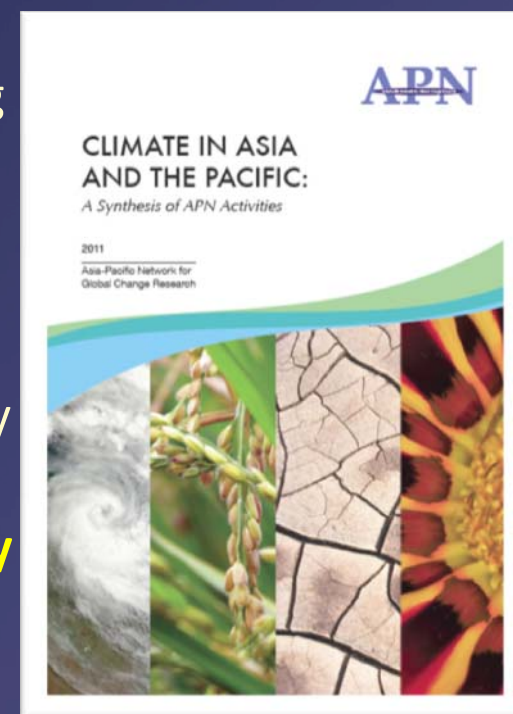
✿ **Climate change and disaster risk management** must be mainstreamed into national development strategies....

✿ Critical to climate adaptation research, practice, and policy are **downscaled climate data**....

✿ Encourage APN member countries to increase the **capacity to formulate national strategies on adaptation**....

✿ Develop programmes to enhance the **capacity of major players** in adaptation planning and implementation; local universities and academic institutions, communities and local governments....

✿ Develop **localized climate change impact tools**, especially Integrated Assessment Models, (IAMs)...



# New Focused Activities on Climate Adaptation

- ✿ **Component 1:** Scoping workshop to enhance climate adaptation actions of APN developing countries

- ✿ Collaboration with Institute for Global Change Adaptation Science, ICAS Ibaraki University
- ✿ Develop prioritized thematic areas
- ✿ Develop methodologies and tools to support developing countries

- ✿ **Component 2:** Joint Training Course on adaptation planning and implementation in the A-P region

- ✿ Collaboration with the University Network for Climate and Ecosystems Change Adaptation Research, (UN-CECAR)
- ✿ Invite researchers and practitioners in prioritized thematic areas

- ✿ **Component 3:** Proposal Development Training Workshop (PDTW) with focus on adaptation

# Climate Adaptation Programme

Regional scale Research

Downscaled modeling technologies

Information and knowledge sharing

Disaster risk management  
(contributing to loss and damage)

Systematic training and capacity  
building for scientists / practitioners

Science-Policy dialogue in AP region



# New Focused Activities on Low Carbon Initiative

✱ **Duration:** 3 years

✱ **Components**

- Regional-based research
- Capacity development
- Communication activities (i.e., Low Carbon Asia Research Network (LoCARNet))

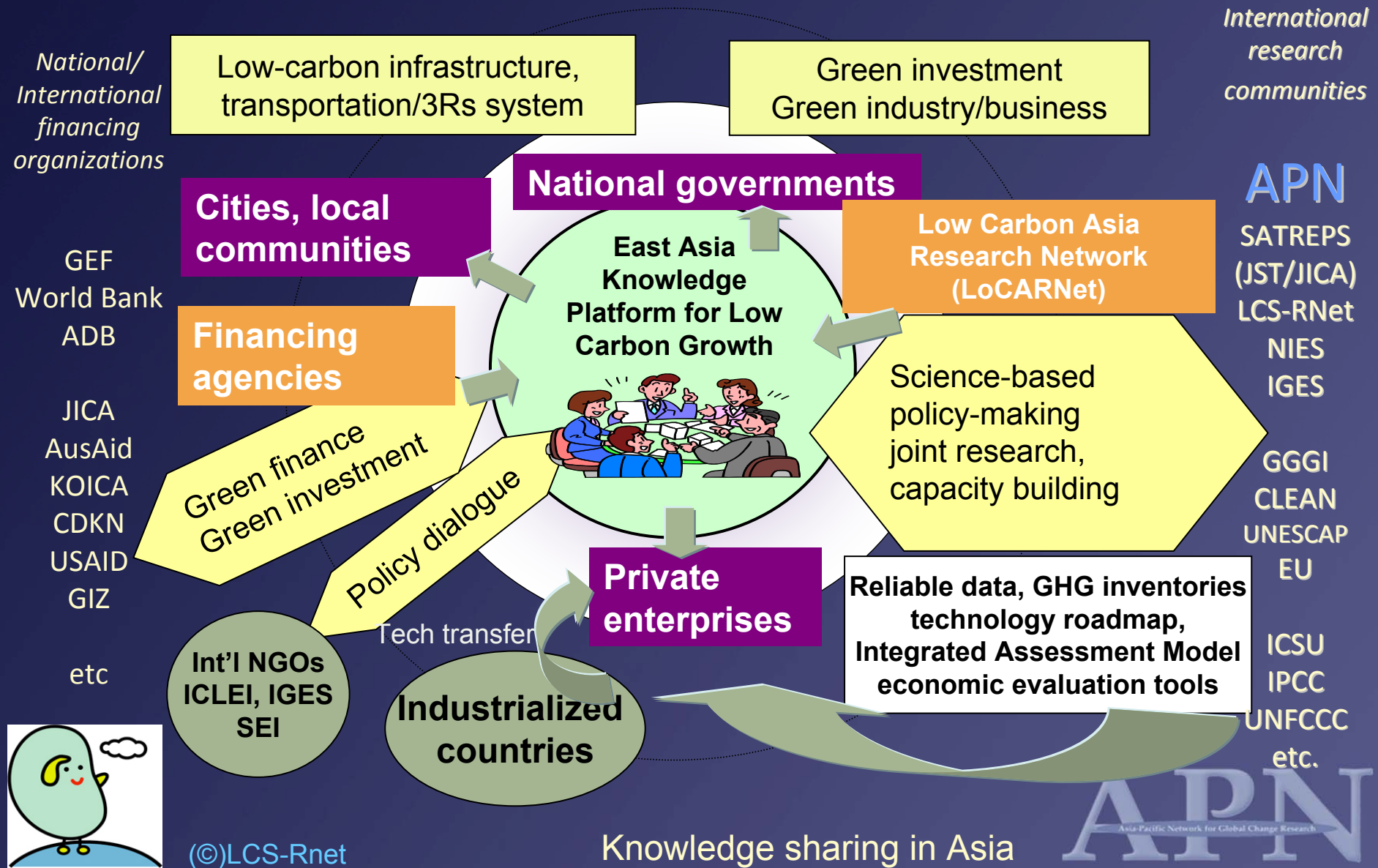
✱ **Process**

- Develop prioritized thematic areas
- Develop tools and methodologies to support developing member countries
- Call for proposals (if necessary)



# East Asia Knowledge Platform for Low-Carbon Growth

to lead sustainable low-carbon world through growth of Asian research, knowledge, policy, investment & collaboration



# Annual Regional Call for Research Proposals (ARCP)

- ✱ One of the scientific pillars of the APN to support global change research in the Asia-Pacific region.
- ✱ Competitive process launched in 1998 to select projects for funding under the Science Agenda.





For more information, please visit

<http://www.apn-gcr.org>

or email

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United States  
Global Change  
Research Program



Ministry for the  
Environment  
*Monsetsu Mo To Yatai*

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Asia-Pacific Network for Global Change Research

# **ARCP2011-11NMY-Patra/Canadell: Greenhouse gas budgets of South and Southeast Asia**

**P. K. Patra**  
RIGC/JAMSTEC

**J. G. Canadell**  
GCP/CSIRO

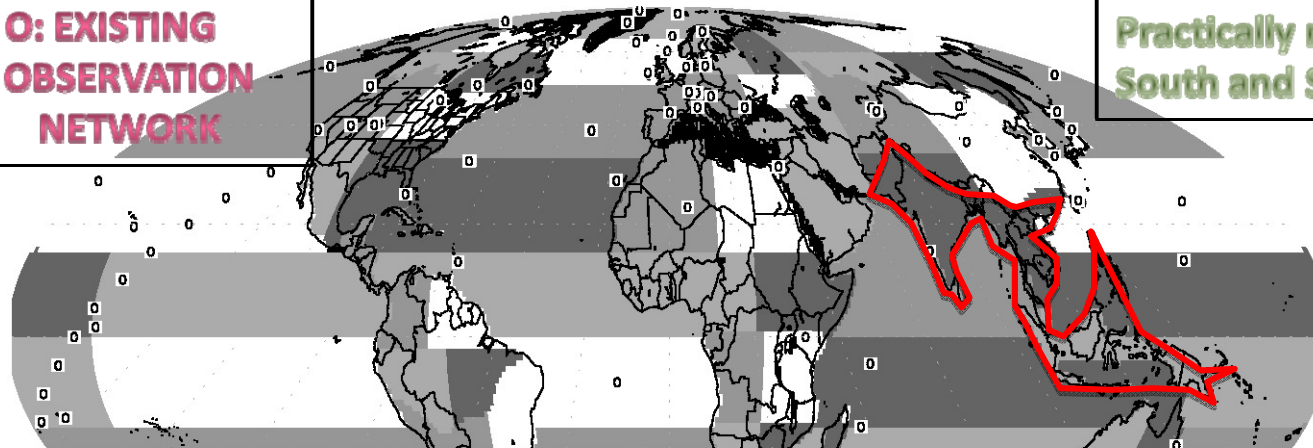


# Emission estimations lacks data coverage for APN regions

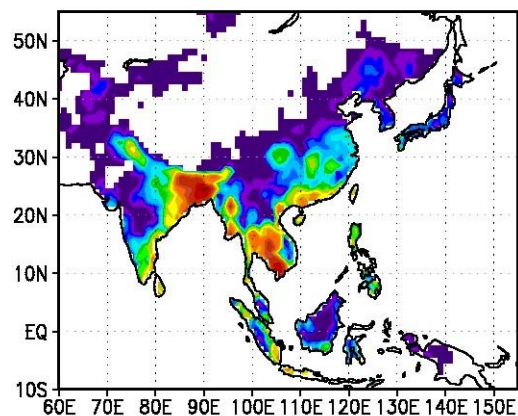
Surface observation network for GHGs concentration

**O: EXISTING  
OBSERVATION  
NETWORK**

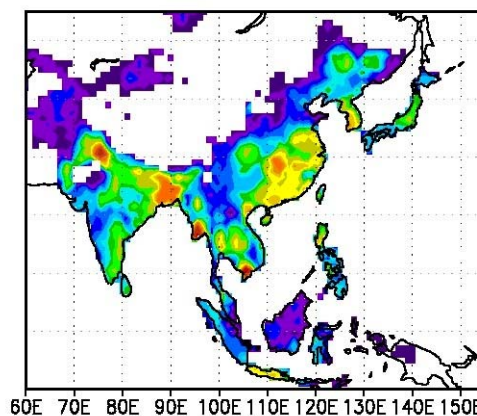
**Practically no data from  
South and Southeast Asia**



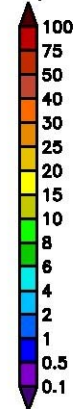
(a) VISIT (Cao) flux (39.2 Tg/yr)



(b) REAS flux (26.7 Tg/yr)



mg/m<sup>2</sup>/day



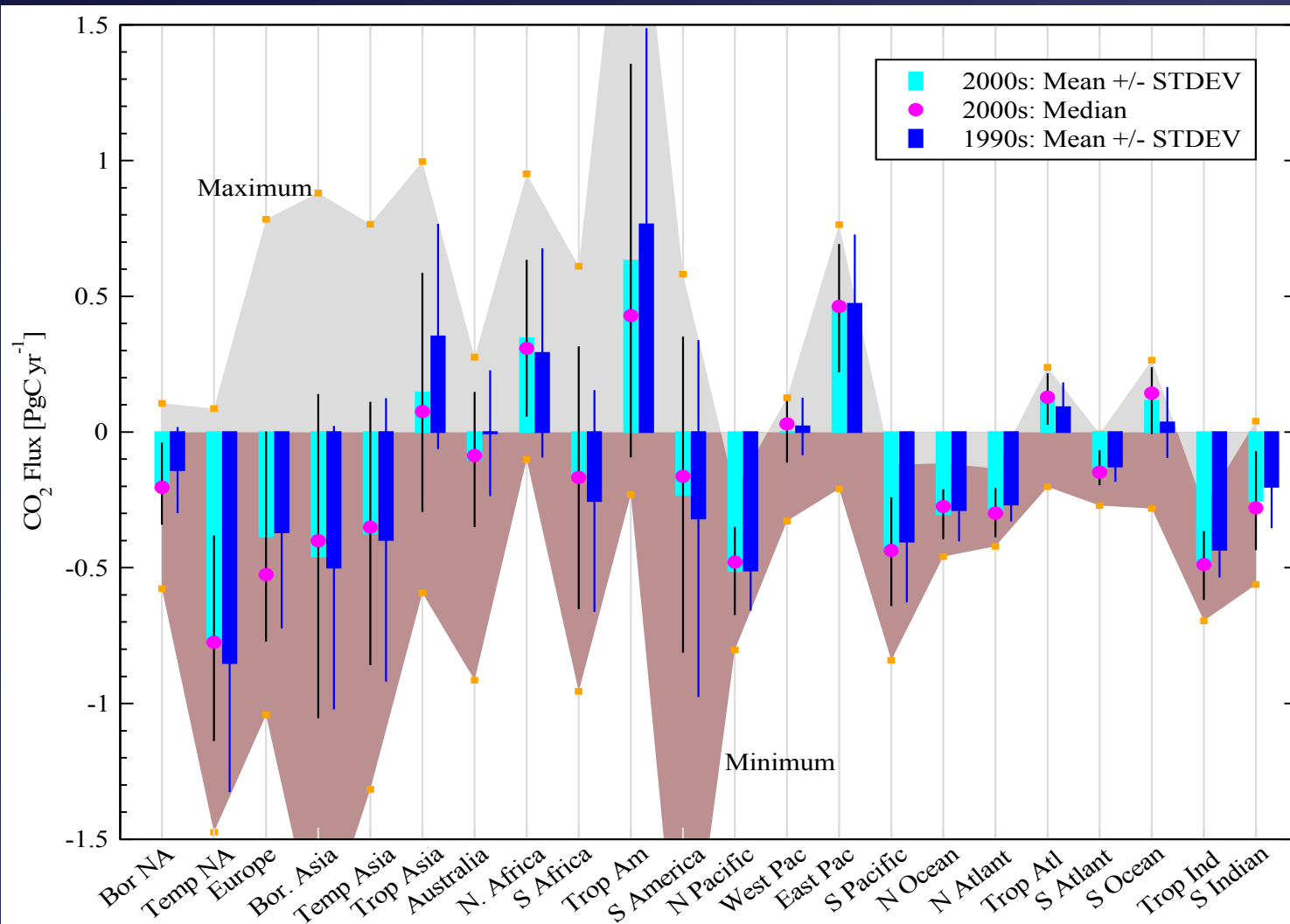
Terrestrial ecosystem model (left) and emission inventories (right) suggest strong CH<sub>4</sub> emission from from Bangladesh, but no agreement in intensity (Patra et al., 2012)

**APN Project coordinates  
an air-sampling site in  
Comilla, Bangladesh**



# Top-down synthesis of CO<sub>2</sub> fluxes from terrestrial ecosystems

(TransCom inversions; Peylin et al., 2012; <http://transcom.lscce.ipsl.fr/>)



## Participant Models

LSCE\_an\_v2.1\_peylin  
 LSCE\_var\_v1.0\_chevallier  
 C13\_CCAM\_low  
 C13\_MATCH\_rayner  
 CTRACKER\_US\_peters  
 CTRACKER\_EU\_peters  
 JENA\_s96\_v3.3\_rodenbeck  
 JENA\_s99\_v3.3\_rodenbeck  
 TRCOM\_mean\_9508\_gurney  
 TRCOM\_mean\_9008\_gurney  
 RIGC\_patra  
 JMA\_2010\_maki  
 NICAM\_niwa  
 NICAM\_niwa\_woaia  
 GEOSTAT\_michalak  
 PSU\_mbutler\_sib  
 CSU\_ravindra

Large uncertainties for all APN regions. The differences in regional flux estimation arise from (1) **transport model error** and (2) **patchy observational network** (Gurney et al., 2002; Law et al., 2003; Patra et al., 2006)