



APN CAPaBLE

- Making a Difference -
Scientific Capacity Building & Enhancement for Sustainable Development in Developing Countries

Seed Grant for Inter-Agency Earth Observation (EO) Information Collaborative Technologies Changing the Global Change (GC) Research in Asia-Pacific Region

Final Report for APN CAPaBLE Project:
CBA2008-13NSG-Li



Project Title

**Proposal Development for Inter-Agency Collaborative
Technologies in Earth Observations (EO) for Global Change
Research in the Asia-Pacific Region**

CBA2008-13NSG-Li

Final Report submitted to APN

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Overview of project work and outcomes

Non-technical summary

Objectives

The present project aimed to:

1. To hold a scoping meeting with the main aim of strengthening the team and country composition in the proposal submitted to the APN for continual funding.
2. To build a communication platform between international leading communities (CEOS/WGISS, UN GAID, GEOSS and CODATA), and Asian Pacific Area entities in form of workshop, contributory publications.
3. To introduce the latest EO data and information serving technologies to more global change researchers in Asian Pacific countries.
4. To bring the new research methods based on next generation inter-agency EO systems.
5. To show powerful inter-agency EO data and information resources facilitated by CEOS/WGISS to Asian Pacific Area global change researchers.
6. To call for the cooperation of building an Asian-Pacific Area Global Changing used Earth Observation joint data infrastructure (GC-APWG, Global Changing Asian-Pacific Wide Grid).

Amount received and number years supported

It is a one year seed grant project. The Grant awarded from APN to this project was US\$ 10,000 for the year of 2008-2009.

Work undertaken

1. to communicate with APN science office for the clear understanding on the requirement for proposal development.
2. to disseminate such work in UN-GAID/e-SDDC workshop (International Workshop on Open Data and Knowledge Environments for Innovative Research and Development) in Shanghai China, 124-26 May 2008.
3. to hold the scope meeting in The Grand Mercure Fortune Hotel at Bangkok during July 28~30 of 2008, with local help from GISTDA.
4. to take teleconferences and mail exchange for the scope and preparation of proposed project.
5. to attend APN Proposal Training Workshop (PWTW) in Shanghai at 28 October 2008.
6. to disseminate such work in WGISS-27 plenary in Toulouse France, 12 May of 2009.
7. to communicate with other international organizations for the their support on cooperation in the proposed project events, such as GEO/ADC and ICSU-ROAP.

Results

1. Scope:
 - a) Well understand to the seed grant requirement from APN has been reached, with a lot of communication and discussion in the project team.
 - b) Bridge and good communication with GEO society has been taken and GEOSS experts in the Asia-Pacific region has been involved in to integrate GEOSS activities more substantially into this project.
 - c) Longer term cooperation with joint international societies is hoped to build for the capability promotion in AP area on the using of new EO technologies.
 - d) Training the Global Change experts and users in AP area is planned to implement with three years plan, beginning from the East Asia countries, and followed with South-East Asia Countries and Pacific Islands

- countries.
- e) Team members agreed to place workshop in developing countries with less knowledge on related technologies and urgent requirement to such technologies, with first place in Ulaanbaatar, Mongolia.
2. Organization:
 - a) New partners such as ICSU-ROAP have been involved in this project, to provide promoted understanding to scientists on Global Change Research in AP area.
 - b) Project team has been reconstructed to fit the new challenge raised in the new proposal.
 3. Activities:
 - a) A scoping workshop has been held with the main aim of strengthening the team and country composition in the proposal.
 4. Output and Achievement
 - a) A new proposal has been rewritten and finally submitted to APN for the 2009 CAPABLE project, which has been approved by APN in April of 2009 as APN project CBA2009-10NSY-Li.
 - b) Additional financial funds have been fixed to support this proposed events. China and Mongolia has agreed to provide some kind of funding to the event in their countries.

Relevance to the APN CAPaBLE Programme and its Objectives

Earth Observation data, mainly the space-based satellite observation data, is the most important global change information resource. Most global change researches are keeping close relationship with the using of EO data. EO data related processing and analysis technologies are also heavily affecting work of global change researching, in level of both possibility and methodology. The proposed workshop will benefit the sharing and easy-accessing to satellite-based data among multi agencies. The promotion of such capability will also give great help to the regional global changing research works.

Self evaluation

With financial and scientific support from APN, the seed granted project team has realized how to promote the original proposal to well contribute the capability building on Global Change Research. A well connected and understood working team has been organized and a lot of international professional societies have also been integrated to contribute to AP global change studies. A new proposal targeted to enhance the regional cooperation and GEO related contribution has been given out as the project main output.

The whole team members are pleasure to finish this seed project work with the successfully applying for the new project.

Potential for further work

Through the successful application for new APN proposal, many new ideas and understanding had been raised from the seed stage studies and discussion. (1) What are the suitable methods to take the training work for experts in AP Global change field? (2) What is the requirement from GC experts about EO technology? (3) We should promote and deploy some kinds data exchange platform based on recommended technologies to server GC experts as live demo and useful showcase.

Publications

Because this seed project is targeted as the proposal promoting and scope enhanced activities, no scientific publication has been taken. However, we will provide one CD-ROM to package the reports, presentations, group photos and meeting minutes.

Acknowledgments

Besides the support on both finance and scientific scope from APN, our work also has been supported in form of human resources and meeting facilities by the Centre for Earth Observation and Digital Earth, CAS and Thailand Geo-Informatics and Space Technology Development Agency (Public Organization). We also appreciate the support from Mrs. Martha Maiden, the chair of WGISS and Mr. Ivan Petiteville, the formal chair of WGISS.

Technical Report

Preface

As seen from western countries, the new EO infrastructures deployed in the last decade have deeply and successfully influenced the global change research. These new technologies and their implemented information systems have been an important foundation for the modern Global change research. Therefore, it is necessary for the researchers in our AP area to learn more about it. Supported by the leading international organizations as CEOS, GEOSS and CODATA, this proposed project will promote the understanding and awareness of such new technical trends in Asian Pacific areas, especially for the developing countries. Workshop is a good activity to organize experts both sides together, to exchange their idea and to develop systemic conception. Most of AP area GC related and EO data providers will be invited to join this discussion, and a Global Changing Asian-Pacific Wide Grid is waiting for taken out.

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1. Introduction

One of most difficult problems APN scientists facing now is the lack of EO data and data usage experience. Global change research mostly depends on multi-discipline knowledge and multi-source EO data. The scientists in this field mostly have to base their model research and system development on some given EO data sets. The next generation of EO data and information infrastructures is focusing on the multi-agency collaboration technologies. It provides users a new way to use and organize the global change studies. As the leading international organization promoting interoperability and sharing of multi-source EO data, CEOS/WGISS has a lot of experience and knowledge on this topic. The target of our project is to bring the experience and knowledge on EO from CEOS/WGISS to scientists in the APN area, discuss how to use the next generation EO information technology, and find appropriate approaches to develop their global change models based on this new EO capability and support. Finally, the most important target of this proposed activity is, working with other international leading work from UN GAID eSDDC and CODATA, as well as focusing the activities of GEOSS, to call for and then to promote an Asian-Pacific Area Global Changing used Earth Observation joint data infrastructure (GC-APWG, Global Changing Asian-Pacific Wide Grid).

2. Methodology

- I Before the formal activities, a scoping meeting will be taken to enhance the team and country composition in the proposal submitted to the APN for continual funding.
- I Through this workshop, three international organizations will transfer their experiences to AP; it is mainly WGISS, as well as UN GAID, GEOSS and CODATA. UN GAID project gives clear how the next generation GC resource data providing system should be done under United Nation. CODATA can bring more data providers together to work with this work and help to build the next generation AP Global Changing data infrastructure. Fundamentally, WGISS can give strong technical support to this approach.
- I CEOS/WGISS special tiger team, plus the help from UN GAID, GEOSS and CODATA, will prepare the representatives and select contributions, supported by every space agencies.
- I There are three parts in workshop, inter-agency EO data and information cooperation technology introduction, the analysis of application based on such technologies, and the suggestion to build Global Changing Asian-Pacific Wide Grid.

- I This workshop will invite and collect some important AP Area EO data providers, decision-makers and experts to participate, some famous experts from WGISS, UN GAID and CODATA will also be invited to give lectures and take discussions together.

3. Results & Discussion

(1) How can we influence the institutional and regional collaboration?

- 1) Make emphasis on developing countries – how reduce the gap between developed and developing countries. Developing countries are the most vulnerable to climate change.
- 2) How to successfully transfer technology and knowledge gained in countries like Japan, US etc. to developing countries like Mongolia. Central Asia is still behind in Global Change research. How to better deliver technology for use in developing countries, in issues such as water shortage, food, productivity, human populations etc.
- 3) Regional perspectives on global change research, not just countries.
- 4) Examples of Showcases
 - a. Mongolia Water Resources: drying up/disappearing of water sources – rivers, springs).
 - b. Glacial Melting in Himalaya and Mongolia.
 - c. ASIAES
 - d. GEO Action
- 5) Incorporate stakeholders (policymakers, community members etc.)
- 6) Incorporate young professionals into the project

(2) How does the project benefit to GEOSS?

- 1) Our contribution can be presented through two GEO Actions directly
 - a. WA-06-07: Integrated Earth Observation Water Resource Management
 - b. DI-06-09: Use of Satellites for Risk Management (led by Canada, China and UNOOSA)
- 2) To identify the relationship of the above two actions with APN priorities.
 - a. Intensify communication and information sharing
 - b. Research on climate modeling and socio-economic impacts and adaptation
 - c. Promote public awareness
 - d. Collect, rescue and analyze historical data
 - e. Detect ongoing phenomena related to climate change and variability
 - f. Link earth observation and climate modeling

(3) The Cooperation of UN-GAID and APN Project

Dr. Chuang Li presented an overview of the UN-GAID (Global Alliance for Enhancing Access). Since its initiation at the UN Headquarters in Geneva in , 200x, GAID is focusing on 4 priority areas, including education, which covers scientific research. Under the umbrella of scientific research there are 5 main projects, one of which is the eSDDC. The eSDDC has 3 main areas of priority which include poverty reduction, disaster management and public health. The e-SDDC strategy includes networking (decentralized network of networks); open access (enhance open access data policy); innovation (encourage innovative use of data using creative knowledge) and development (in a win-win manner).

The sSDDC's implementation strategy includes joint action with institutions including IAP for ODKE; CODATA for database development; APN for capacity building; CEOS/WGISS for technology transfer and assistance; UNDESA for knowledge database management; and SCA on ODKE for poverty reduction and ecosystem protection. Activities this year have included a Young Scientists Forum and an International Workshop (Shanghai).

APN then provided an overview of its activities; including networking, capacity building and research activities and explained that APN is a unique network in that both scientists and policy-makers come together as members of the APN and advise, collectively, the scientific agenda and programme of activities for the APN. This ensures that stakeholders from both the scientific and policy communities of APN member countries actively involved in planning and executing the activities of the network.

The APN outlined areas where it could provide assistance in aiding UN-GAID in developing and executing its Implementation Plan for 2008-9 and beyond. These include:

1). In general:

- Providing contacts in the Asia-Pacific region at the governmental and scientific levels
- Providing information and contact details for "sister" organizations of the APN namely IAI (for the Americas) and AFRICAness for Africa
- Providing funding support (based upon successful proposal submission) for capacity building activities
- Assist UN-GAID/eSDDC by actively participating in its steering committee
- Suggest contacts to the Global Change Community to participate in the eSDDC network of activities (IAI, START, ESSP, AFRICAness, etc.)
- Disseminate the work and activities of eSDDC on the APN website and via the APN's Electronic Mailing List (EML)
- Science-Policy interactions
- Development of Young Scientists Network
- Assist young scientists in writing proposals for submission to the APN

2). Specifically with respect to successful re-submission of APN Proposal.

- Advise on the proposal itself up until the point of submission (after this any involvement would be a Conflict of Interest)
- Advise on and participate in a joint conference on global change and scientific data application and development

(4) Project Output

The Main outcome of this proposed project should be located on the capacity building of APN scientists in Global Change Research.

We can indentify some possible outcomes from this project.

1) Workshops

o Content

Introduce the technology. Make it known that there is a new approach to gain EO data, and that it could be used for their applications. It is suggested that we should ensure that infrastructure exists for follow up, sustainability. Could be a recommendation for second phase?

o User

Users can be considered to include developing country scientists, expert scientists and young scientists. Before the meeting, we can get users (scientists in the region) requirements (e.g. infrastructure, financial, technologies, data, research needs etc.) – a discussion on brainstorming on constraints.

Because of the budget reason, we have to make clear how many participants and how many participants to support.

o Training the trainers

Make it a requirement for the trainer to possess the infrastructure to train other/younger scientists.

o Meeting Venue

Where to host the workshop? There are two choices, one is China and another is Mongolia. We should make a decision about the meeting venue by Mid September 2008.

§ Mongolia. Hold the meeting in Mongolia – can help Mongolia to enhance its capability. Mongolia has a greater need for

training than China. Explore financial resources, attempt to engage co-funders.

§ China. Will the Chinese government provide funding if the workshop is held in Beijing?

- 2) Publications (contents and simple title for guidelines section) Contents:
 - Recommendations on EO Technologies for GC research
 - Non-technical executive summary with recommendations and some impacted showcases for policy makers.
- 3) Website containing online showcases
- 4) Relationship with other activities
 - Stakeholders meeting, invite them to workshops, send publications, try to inject the project to a formal process recognized by the governments (such as GEOSS), and involve the media such as local newspapers and TV.
 - Target side meetings with international policy related events to get the message across (identify specific meetings for the proposal). E.g. GEO plenary in China (Nov 2009).
 - Address the APN/GEOSS capacity building needs of developing countries (reference to summary reports of APN workshops).

(5) Which geographical area should be covered by this proposal?

However, causing from the selection of meeting place, there are two definitions of workshop scope. One is the whole SAP area; another is limited to Temperate East Asia (China, Mongolia, Japan, South Korea and Russia).

We agreed that maybe we can limited the scope inside Temperate East Asia as the stage 1 of this proposal. Sub-regional level activity also can be supported by APN, compared with AP regional project. In the next stage, it can be extended to whole AP area.

4. Conclusions

(1) How can we influence the institutional and regional collaboration?

There are four recommendations can be raised to put inside the proposal.

- (1) Through two or three showcases to show how the next generation inter-agency EO technologies can promote the GC research works. These showcases include Mongolia activities (Water Resources, Glacial Melting) and Thailand Activity (ASIAES project, related to a Geo action).
- (2) To make cooperation with the stakeholders (policymakers, community members etc.) and invite them to join the workshop and provide them with the non-technical executive summary publish.
- (3) To encourage young professionals into the project. We have absorbed the youth scientist into the proposal team and we also will invited 1/3 youth scientists to join the workshop.
- (4) To make emphasis on developing countries. What we will do as following:
 - I Most of participants will come from the developing countries.
 - I All showcases have been selected from developing countries.
 - I Train courses will be given to developing country scientists.
 - I A new technology requirement survey will be taken around the developing countries from the AP area.

(2)How does the project benefit to GEOSS?

There are two recommendations can be raised to put inside the proposal.

(1) Our showcases should be the ones with relationship with GEO actions. There are two GEO actions will be involved in the proposal scope.

- I WA-06-07: Integrated Earth Observation Water Resource Management.
- I DI-06-09: Use of Satellites for Risk Management (Thailand ASIAES project is contributing to it)

(2) To Connect the GEO actions with APN priorities. We have identified the following

six items priorities.

- I Intensify communication and information sharing
- I Research on climate modeling and socio-economic impacts and adaptation
- I Promote public awareness
- I Collect, rescue and analyze historical data
- I Detect ongoing phenomena related to climate change and variability
- I Link earth observation and climate modeling

(3) The Cooperation of UN-GAID and APN Project

There are two recommendations can be raised to put inside the proposal.

- (1) APN capacity building has been included in the UN-GAID/eSDDC's implementation strategy.
- (2) The APN outlined areas can provide assistance in aiding UN-GAID in developing and executing its Implementation Plan for 2008-9 and beyond.
 - I Advise on the proposal itself up until the point of submission (after this any involvement would be a Conflict of Interest)
 - I Advise on and participate in a joint conference on global change and scientific data application and development

(4) Project Proposed Output

There are four recommendations can be added into the proposal.

- (1) Training the trainers
- (2) Non-technical executive summary with recommendations and some impacted showcases for policy makers.
- (3) Website and online showcases
- (4) To publish and send message from this project to other Stakeholders meeting/GEOSS meeting and so on.

5. Future Directions

Through the successful application for new APN proposal, many new ideas and understanding had been raised from the seed stage studies and discussion. (1) What are the suitable methods to take the training work for experts in AP Global change field? (2) What is the requirement from GC experts about EO technology? (3) We should promote and deploy some kinds data exchange platform based on recommended technologies to server GC experts as live demo and useful showcase.

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- 2) GEO, GEOSS 2009-2011 work plan,
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- 4) CODATA, CODATA White Paper on the Implementation Guidelines for the GEOSS Data Sharing Principles
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- 5) ICSU, Global Environmental Change Research Programmes in 2007-2009
- 6) Luigi Fusco, Roberto Cusso, Chapter 11, Open Grid Services for Envisat and Earth Observation Applications, High Performance Computing in Remote Sensing, CRC Press, 2008

Annex 1 Scope Meeting Agenda

Agenda	
A Scope Meeting for the APN Project	
Conference 2 Room, 3 rd Floor, The Grand Mercure Fortune Hotel, Bangkok, Thailand	
July 28-30, 2007	
July 28, 2008	
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Open session (Chaired by Guoqing)	
9:00-9:20	Project Overview
9:20-9:30	Agenda review
Session 1 (Chaired by Chuluun)	
9:30-10:30	The institutional and regional collaboration for the project
10:30-10:45	<Coffee break>
10:45-12:00	The institutional and regional collaboration for the project (cont.)
<Lunch>	
Session 2 (Chaired by Liqin)	
13:00-14:30	Benefit of the project to GEOSS
14:30-14:45	<Coffee break>
14:45-16:00	Benefit of the project to GEOSS (cont.)
18:00	Reception Dinner
July 29, 2008	
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Session 3 (Chaired by Linda & Chuang)	
9:00-10:30	The Cooperation of UN-GAID and APN project
10:30-10:45	<Coffee break>
10:45-12:00	The Cooperation of UN-GAID and APN project
<Lunch>	
Session 4 (Chaired by Pakorn)	
13:00-14:30	Project output
14:30-14:45	<Coffee break>
Session 5 (Chaired by Guoqing)	
14:45-16:30	Meeting Summary
July 30, 2008	
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Meeting break (prepare for the update document of each chapter)	
Session 6 (Chaired by Guoqing)	
14:00-16:00	Review of each modified chapter
16:00	Close

Annex 2 Scope Meeting presentations

(1) Dr Chuang Liu's presentation on Joint Action between UN GAID e-SDDC and APN


Global Alliance for Enhancing Access to and Application of Scientific Data in Developing Countries (e-SDDC)

Joint Action between UN GAID e-SDDC and APN

Prof. LIU Chuang
Institute of Geography and Natural Resources, CAS
Co-Chair of Executive Committee of UN/ GAID e-SDDC

28-30 July 2008, Bangkok, Thailand


1. Background and Strategy

Global Alliance for Enhancing Access to and Application of Scientific Data in Developing Countries (e-SDDC)

One of the Five Projects of the Community of Expertise in Education in the UN GAID Business Plan



Strategy for Implementation :

- Networking:** Build a Decentralized Network of Networks
- Open Access:** Enhance Open and Access Data Policy
- Innovation:** Encourage innovative use data and data mining with creative knowledge
- Development:** Development oriented and development in win and win manner

2. Actions and Progress in 2007

- ◆ Proposal approved by UN in Dec. 2006
- ◆ Implementation Plan for 2007 was submitted in January 2007
- ◆ GAID Strategy Council Approved the Implementation Plan in February 2007

Lead Team Established

- Lead Organization: Chinese Academy of Sciences
- Co-Lead Organizations:
 - CODATA TGDG (International organization)
 - CRIA (Brazil)
 - NRF (South Africa)
 - CIESIN/Columbia University (USA)
 - CCTI/CAST (China)
 - ISC (China)

**UN GAID e-SDDC Launched
on 7 May 2007 at Atibaia, Brazil**



Photo of Part of Participants at the UN GAID e-SDDC Launch Meeting

Series of meetings in Latin American, African, USA, UN and Asia :

1. Latin American and Caribbean Region
Brazil meeting: 7-11 May 2007, e-SDDC Launch meeting, CODATA TGDC Workshop and IAP Project meeting
2. African
Pretoria (SA) meeting: 14-16 May 2007
CODATA TGSA/CODATA TGDC/ IAP actions related
3. Asian-Pacific Region
 - International workshop (emergency management): September 22-24, 2007
 - Beijing Meeting: 4-5 December 2007
CODATA TGAP/IAP actions related
4. North American
US-China Around table Meeting, 31 October, 2007, Washington D.C., USA

UN GAID Activities (cont.)

- 10th UN Conference on Science, Technology and Development from 21-25 May, Geneva

The e-SDDC was appointed to be the Panel Member in the GAID Session: What can we do for developing countries?

- First UN GAID Forum from 24-26 Sept. 2007, Geneva
- 2nd IGF, 13-15 November 2007. Rio de Janeiro, Brazil

**3. Assessment
from GAID Strategy Council**

- A. Prof. HU Qiheng was invited to be the GAID Strategy Council Member from 2008-2010
- B. Prof. GUO Huadong and Prof. LIU Chuang were invited to be the GAID High Level Advisors from 2008

**3. Assessment
from GAID Strategy Council**

(CoE Report Card, the GAID at Two – A Process Evaluation, Strategy Council Meeting 10 May 2008, Kuala Lumpur, Malaysia)

C. Comments:

- The CoE (e-SDDC) has been very successful and work closely with the Secretariat in implementing its action plan.
- e-SDDC is one of the CoE's that gives prominence to its relationship with GAID and has a well-articulated program.
- It is one of the successful efforts.

**3. Assessment
from GAID Strategy Council**

(Strategy Council Meeting 10 May 2008, Kuala Lumpur, Malaysia)

- D. Commend category in four categories
(commend, keep, keep with new lead organization, drop)**

4. Actions in 2008-2009 Proposed:

(1) Lead and co-lead organizations



New Co-Lead: NSTIC/MOST

Actions in 2008-2009 Proposed:

- (2) establishing an online and offline collaborator network (20 network and 37 individual organizations from 17 countries)
- (3) Showcase applications network of poverty reduction and ecosystem protection, disaster mitigation and critical region of global climate change and public health

Actions in 2008-2009 Proposed:

(4) Joint Actions:

- Joint Action with IAP on ODKE
- Joint Action with CODATA on Think Tank network and Global database development
- Joint Action with TIEMS for Disaster mitigation
- Joint Action with AIN on Capacity Building
- Joint Action with UNDESA on Knowledge database management
- Joint Action with CEOS/WGES on technology transfer and assistance
- Joint Action with SCA on OIKER for poverty reduction and ecosystem protection

Actions in 2008-2009 Proposed:

- (5) Yong Scientists Forum
- (6) International workshops and meetings
 - International workshop in Shanghai, May 2008
 - e-SDDC Session in 21st CODATA Conference in Ukraine, October 2008
 - US-China Bilateral meeting in Kunming, December 2008

Actions in 2008-2009 Proposed:

(7) Publication (GAID Series)

(8) Cooperation with GAID regional network

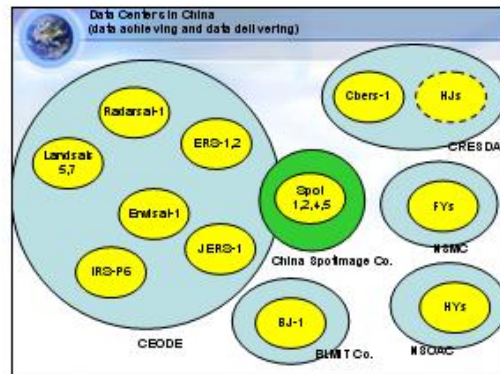
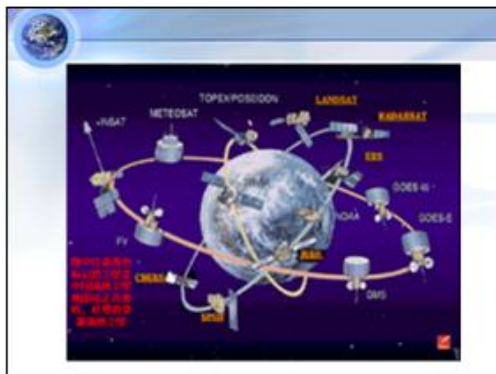
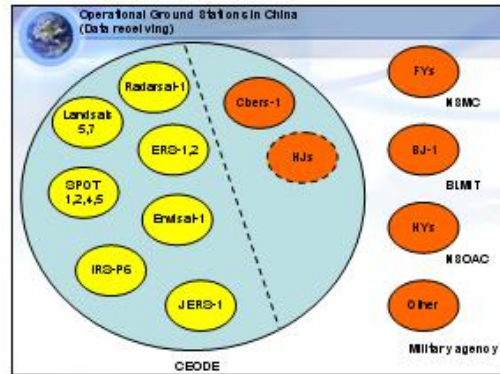
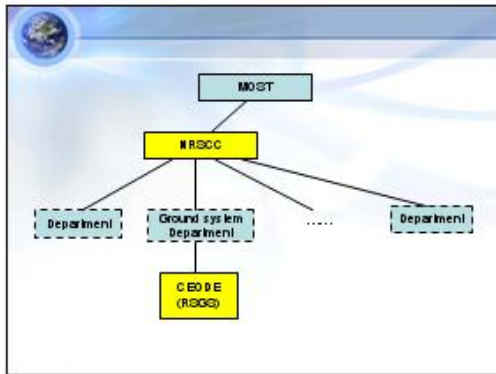




Thank You !

- Contents of the Cooperation
1. Linda was invited to attend the Shanghai meeting and provided a presentation
 2. Linda is one of the co-authors of the Shanghai meeting report, which will be online at <http://www.e-sddc.org>
 3. APN is one of the e-SDDC Collaborators
 4. Shanghai meeting report will be listed in the ODKE – the GAID Series publications which will be published in UN Press 2008
 5. Proposal led by Dr. Li will be submitted to APN
 6. APN and e-SDDC will explore more opportunities for the cooperation, more important is for the APN capacity buildings and Young Scientist Forum (YSF)
 7. Linda will be invited to be one of the executive committee members of the UN GAID e-SDDC

(2) Dr. Guoqing Li's presentation on Introduction to Center of Earth Observation and Digital Earth



Earth Observation Activities of China

China has launched some 50 satellites since '70s. Among them are:

Meteorological Satellites	7
Recoverable Satellites	17
Earth Resources Satellites	4
Ocean Observation Satellites	1

Earth observation payloads carried on "Shenzhou" Spaceships

Recoverable satellite

FY - 1A/B/C/D

FY - 2

CBERS - 1 & 2

BJ-1

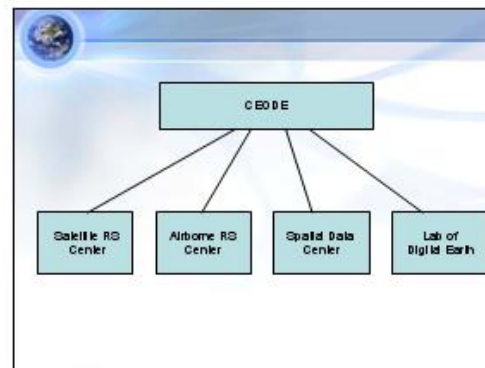
SHENZHOU-5 (SZ-5) - A China's Manned Spacecraft
SZ - 5


Satellites to be launched in the near future:

- Oceanic Satellite HY - 2
- New Generation of Meteorological Satellite FY - 3
- Earth Resources Satellites CBERS - 03 & 04
- Environment and Disaster Monitoring Small Satellite Constellation HJ-1A, 1B, 1C



Center of Earth Observation and Digital Earth Chinese Academy of Sciences





Researcher Team

- About 200 Researcher stuffs
- About 100 Graduated students

Capability

- More than 200TB Satellite RS data achieved
- More than 100TB Airborne RS data achieved
- Three web-based data distribution systems
- One Digital Earth monitoring and visual system



International Cooperation

- Three international joint lab.
- Members of many international org.
- Initiator of ISDE
International Society for Digital Earth
- Publishing one international journal IJDE
by Taylor & Francis Publish Group



Miyun Station at Beijing




Kashi Station, Xinjiang, China




Sanya Station, Hainan, China



Will be finished at middle of 2008



Airborne R.S. Center

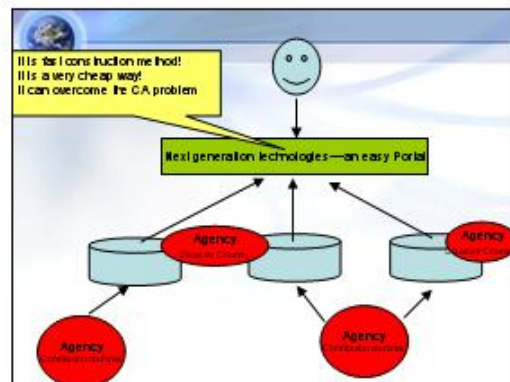
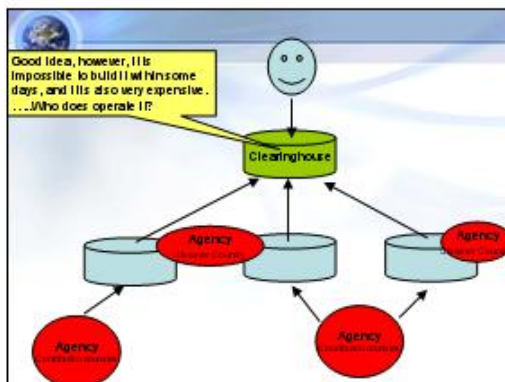
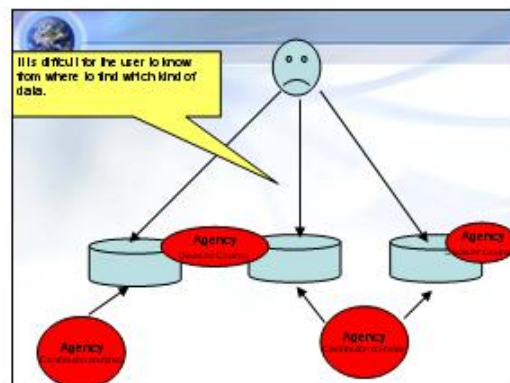
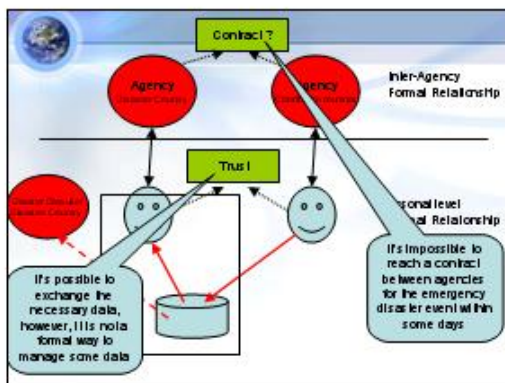
- Two Planes in use
- Two new planes will be put in use
- About ten type of sensors, include airborne SAR
- Data Processing systems

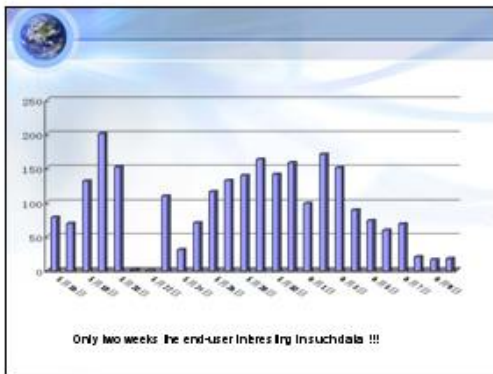
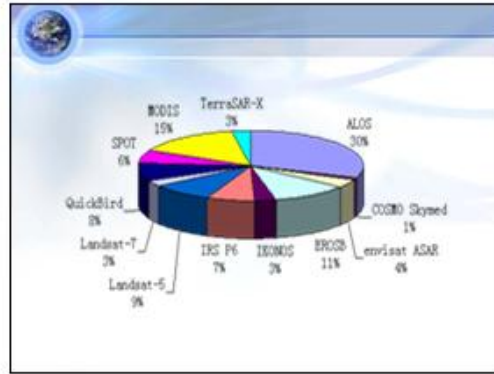
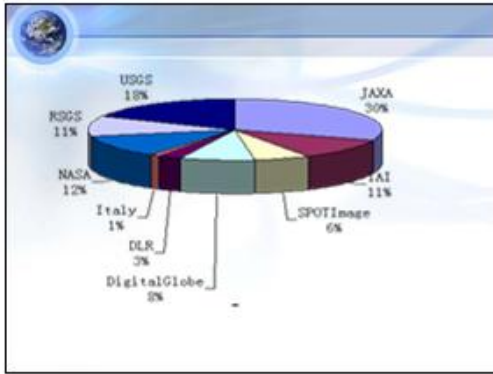


(3) Dr. Guoqing Li's presentation's on showcase of Wenchuan Earthquake International EO Data Assistance Grid

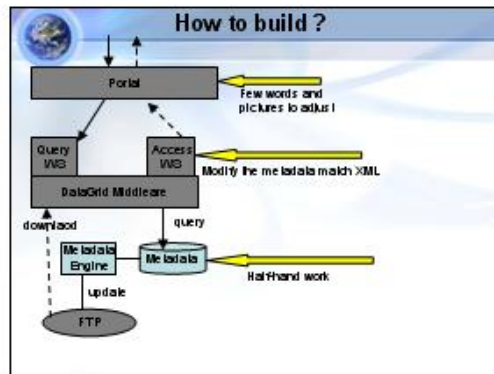
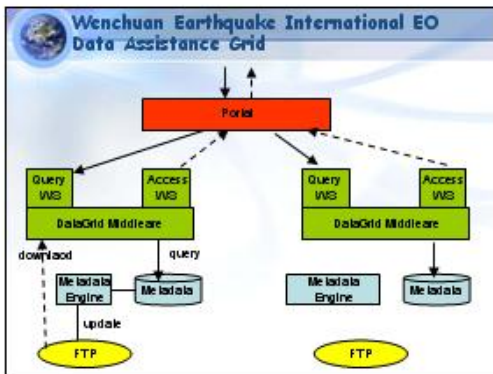


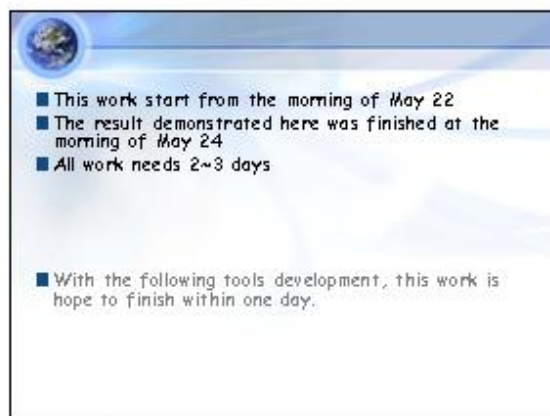
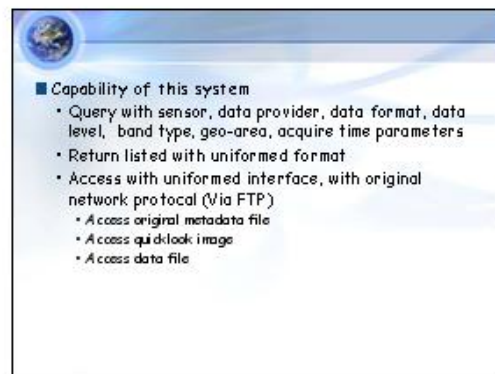
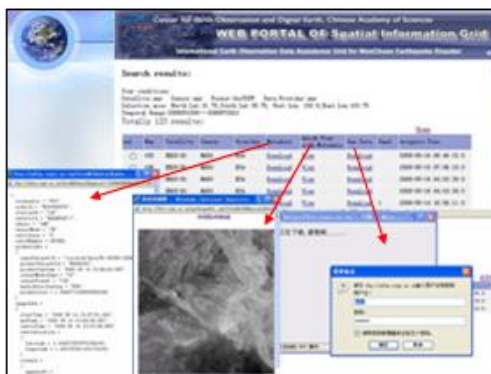
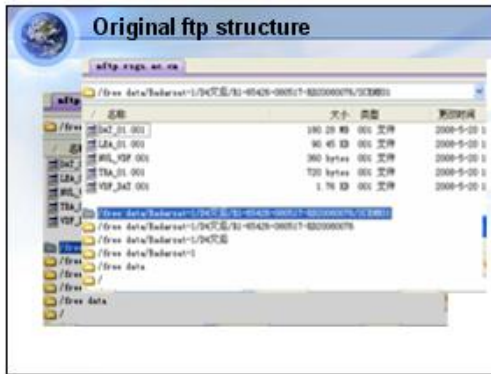
- May 12, 2008
Huge Earthquake, Wenchuan, Sichuan, China
- Many International Space Agencies shown their will to give EO data assistance to China
- Every day, there are lot of EO data transferred to China
 - More than ten sensors
 - Different production level
 - Different format
 - Different package methods and assistant files
 - Different POCs in China, different way to storage





- The main way to access such data is FTP sets
 - No metadata
 - No uniform access URL
 - No suitable authority control
- It will be a big work to update it to be traditional Catalogue System





Annex 3 Scope Meeting Participants Name list

Dr. Guoqing Li	Center of Earth Observation and Digital Earth, CAS	gqli@ceode.ac.cn
Prof. Chuang Liu	China Global Changing Research Center, CAS	lchuang@igsnr.ac.cn
Dr. Liqin Shao	National Remote Sensing Centre of China	shaolq@nrsc.gov.cn
Dr. Pakorn Apaphant	GISTDA	pakorn@gistda.or.th
Dr. Togtoh Chuluun	NUM-ITC-UNESCO Environmental RS/GIS Laboratory, National University of Mongolia	chuluun@nrel.colostate.edu
Dr. Tomoko Doko	Keio University	dokochan@sfc.keio.ac.jp
Dr. Linda Stevenson	APN office	l Stevenson@apn-gcr.org

Annex 4 Bangkok meeting Photos



Dr. Chuang Liu



Dr. Togtoh Chuluun



Dr. Guoqing Li



Dr. Linda Stevenson



Dr. Liqin Shao



Dr. Pakorn Apaphant



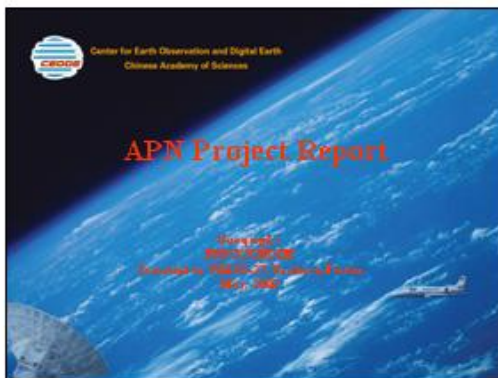
Dr. Tomoko Doko



Group Photo


Annex 5 Dissemination Report in WGISS Plenary, May, 2009

Dr. Guoqing Li gave the report on APN project processing during WGISS plenary 10~15 May of 2009, Toulouse, France



Outlines

- What is APN?
- WGISS contribution to APN
- Approved APN projects
- Following activities



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What is APN?

- The Asia-Pacific Network for Global Change Research (APN) is an inter-governmental network for the promotion of global change research and links between science and policy making in the Asia-Pacific Region.
- HQ in Japan



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WGISS contribution to APN

- Dr. Martha, the WGISS chairwoman, forwarded the information of APN 2007 call to us.
- WGISS partners submitted a proposal to answer APN call.




WGISS members involved in this proposal

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WGISS contribution to APN (cont)


- Topic of the proposal
Inter-agency Earth Observation information collaborate technologies changing the Globe Change research in Asian Pacific Region



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WGISS contribution to APN (cont)

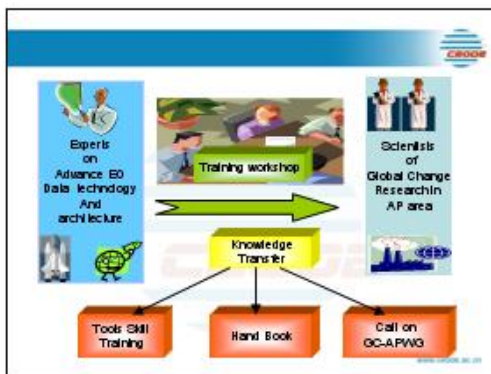
- The target of this project is to
 - ◆ bring the experience and knowledge on EO from CEOS/WGISS to scientists in the AP area,
 - ◆ discuss how to use the new EO information technology,
 - ◆ find appropriate approaches to develop their global change models based on this new EO capability and support,
 - ◆ call for cooperation on building the AP regional GC scientific data sharing platform.



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WGISS contribution to APN (cont)

- What's WGISS role?
 - ◆ Initial idea of such proposal.
 - ◆ Playing the leadership in the application.
 - ◆ Professional experience on this topic.
 - ◆ Main force of the proposal team.
 - ◆ Main force of the project team.



Approved APN Proposal

- The first seed grant project was approved at the April of 2008 (USD10,000)
 - ◆ With target to make much better communication
 - ◆ Bangkok meeting, July of 2008

A group photo of seven people standing in front of a banner that reads 'A Scope Meeting for the APN Project July 28-30, 2008 Bangkok, Thailand'.

- The second project was approved last month, April of 2009 (USD\$38,000)
 - ◆ Training workshop in East Asia Area.
- APN hopes WGISS and ICSU can support to operate such projects continually for SE Asia and Pacific island countries in the following three years.

Following activities in 2009

- APN+ICSU+WGISS+UNGAID joint workshop in ISDE-6 conference
 - ◆ 10th of September, 2009
 - ◆ Beijing, China
- APN international training workshop
 - ◆ September 12-15, 2009
 - ◆ Ulaanbaatar, Mongolia

Who will be there ?

- WGISS: Guoqing Li, Chuang Liu, Dingheng Liu, Pehr M. A., Luigi Fusco, Jean-Pierre Antkowiak
- GEO ADC: Jianbin Zhang
- CODATA: Chuang Liu, Paul Uhlir, Iqbal Chahum
- IEEE: Liping Di
- UNGAID: Chuang Liu
- ICSU-AP: Mohd Noridin Hassan
- APC: Chuang Liu
- APNHQ: Laila Anne Stenstrom

and other participants from Japan, South Korea, Korea and Malaysia.

Totally attendees will be about 40 persons.

Speaker	Representative of organization	Draft topic (to be confirmed)
Dr. Chuang Liu	United Nations Global Alliance for ICT and Development (UN-GAID) & Asian Science Council (ASC)	UN-GAID e-SDC and its activities in the AP Region
Prof. Guoqing Li	The Working Group of Information Service and Systems in Committee of Earth Observation Satellites (WGISS)	WGISS studies and spatial data services for global change research
Dr. Guoqing Li	Centre for Earth Observation and Digital Earth, CAS, China	New Generation Spatial Data Infrastructure and its application in disaster mitigation
Prof. J. Zhang	China Meteorological Administration for Co-Chair of GEO Architecture and Data Committee (GEO/ADC)	GEO/ADC requirements and contributions to EO data service systems
Prof. Liping Di	IEEE Geoscience and Remote Sensing Society	IEEE activities on easy access portable EO data
Dr. Iqbal Chahum	The Working Group of Information Service and Systems in Committee of Earth Observation Satellites (WGISS)	WGISS EO data sharing plan and inter-agency activities
Dr. Paul Uhlir	The Committee on Data for Science and Technology in the International Council for Science (ICSU/CODATA)	Full and Open Access to Data in the Global Earth Observing System of Systems (GEOSS): Implementing the GEOSS Data Sharing Principles
Dr. Luigi Fusco	GEOSS/IEEE European Space Agency (ESA)	ESA based concepts applied to Virtual Collaboration creation
Dr. Jean-Pierre Antkowiak	GEOSS/IEEE French Space Agency (CNES)	Young scientists and EO/RS
Dr. Tomoko Sato	United Nations Global Alliance for ICT and Development (UN-GAID) APC officer	APN scope and actions on EO/RS
Dr. Laila Anne Stenstrom	ESU-AP officer	ESU scope and action on EO/RS
Dr. Mohd Noridin Hassan	ICSU-AP officer	ICSU scope and action on EO/RS
Dr. Pehr M. A.	APNHQ officer	APNHQ scope and action on EO/RS

We need support from WGISS...

- Welcome other WGISS members to attend both Beijing and Ulaanbaatar meetings.
- Hope WGISS can identify some materials (handbooks, recommendations and showcases) to be disseminated and published to this APN project, before 1st of July.
- Topic related also:
 - ◆ Data democracy
 - ◆ CODATA whitepaper on data sharing principle

Thank you!

Annex 6 Contributions to APN PWTW Workshop, 28 October, 2008

Dr. Guoqing Li was invited to give a report to introduce his team work about APN proposal on APN Shanghai PWTW workshop at 28 of October, 2008.



Stage A: Preparation to write proposal

Who am I?

- ◆ A scientist from CAS, with technical background on earth observation
- ◆ A member of WGISS/CEOS international society. I served as the chair of Grid Task Team at that time.
- ◆ A member of GEOS/ADC technical team.

Stage A: Preparation to write proposal (2)

How did we get the information of APN?

- ◆ Dr. Martha, the WGISS chairwoman, forwarded the information of APN 2007 call to us.

Stage A: Preparation to write proposal (3)

Why do we want to contribute to APN? And how will such work benefit to us?

- ◆ WGISS is the leading society and main technical exchange platform in EO area. WGISS can always guide the technical trends in this area.
- ◆ Next Generation Spatial Data Infrastructure is the important concept generated from WGISS. Some systems had been built by its page cycles.
- ◆ I have had a lot of experiences on these systems and I believe it can deeply change the research methods of GC.
 - (ESA CAT-1 Plus Programme and Dragon Programme)
- ◆ We were looking for the opportunities to spread this concept to GEO and GC.



Stage A: Preparation to write proposal (5)

□ How did we organize the proposal team?

- ◆ Firstly, I informed WGISS society what I want to do, and I got three volunteers.
 - Prof. Ching Li and Dr. Pakorn A.
- ◆ Secondly, according to the project target we reached, we should find additional peoples to extend our scope.
 - Prof. Ching Li and Dr. O. Osami
- ◆ Thirdly, according to the draft proposal, we try to find suitable persons to fill the needs on the proposal.
 - Reaching to more than 100 people from necessary outside international societies and different AP countries.

Stage A: Preparation to write proposal (6)

□ Which kinds of resource should we get to support such proposal?



Stage B: Generating the proposal

□ Proposal Title:

Inter-Agency Collaborative Technologies in Earth Observations (EO) for Global Change Research in the Asia-Pacific Region (CBA2008-13NSG-LI)

□ Executive Team

- ◆ Writing Team
 - Gongqing Li, Ching Li
- ◆ Review Team
 - All key members
 - Three rounds review

Stage B: Generating the proposal (2)

□ Answer to APN comments after stage 1

- ◆ It is very important to give reasonable and clear explain to APN review comments
- ◆ This work cannot be done only by PI.
 - We exchanged our answer with all team members many times before it was sent out.

Stage C: Seed-Granted project activities

□ For our first application, APN approved the seed-grant of \$10,000 in April, 2008

□ APN gave clear requirements to update this proposal in some factors.

- ◆ To make strong relationship with GEO
- ◆ To strength the team and the proposal

Stage C: Seed-Granted project activities (2)

□ Scope meeting of proposal updating was taken in Bangkok at the July of 2008

- ◆ GEO experts participated
- ◆ Paying much attention to developing countries

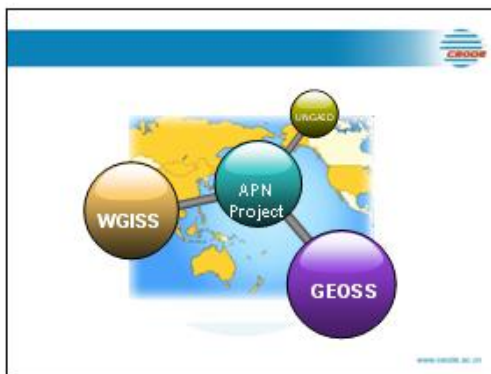


Stage D: Updating the proposal

- GEOSS was added into the scope of proposal
 - ◆ Dr. J. Fan from GEO HQ and Prof. Shao from China GEO have been involved in the proposal team
 - ◆ More than two showcases are related with GEOSS action (2008-2009 GEO Work-Plan)
- To start such training from part of AP area, and then spread the experience to other AP area
 - ◆ Fixing East Asia area this time, instead of Whole AP Area
 - ◆ Encouraging Mongolia as the workshop host

Stage D: Updating the proposal (2)

- To welcome young scientists to participant
 - ◆ Inviting Miss Tomoko from Japan as the key member in proposal team
 - ◆ Planning to fund and involve more young scientists from Mongolia and China to attend the workshop



Lessons learned

- Well-organized proposal team is the basic of successful application.
 - ◆ To make clear the target
 - ◆ To overcome the problem
 - ◆ To find the potential support from personal background
- Carefully to understand any comment from APN peer review experts, which can help the team go much close to what APN want.
 - ◆ If you are not sure, feel free to ask help from the friendly and professional APN staff.

Lessons learned (2)

- Frequently Conversations are necessary to reach the reasonable and valuable proposal.
 - ◆ More than 200 mail conversations
 - ◆ Four meeting conversations, two of them was funded by APN
 - Hanoi, Vietnam (2007, joint with WGISS 24)
 - Beijing, China (2008, joint with ISPRS conference)
 - Bangkok, Thailand (2008, independent APN action)
 - Boulder, USA (2008, APN action, joint with WGISS 26)
 - ◆ Three teleconference

Lessons learned (3)

- Paying much attention to the budget design.
 - ◆ Budget planning is not only a mathematic game
 - ◆ It can help PIs to make their proposed plan more reasonable and reliable.
- You are special, you should keep yourself and do what you are best. It's a cooperation between you and APN.
- We should not answer APN just for a fund, but for contribution.

Now
we are working on the new proposal.....

Thank You !

Annex 7 Dissemination Report in UN-GAID workshop, May, 2008

Dr. Guoqing Li presented a report on UN-GAID workshop at May of 2008, Shanghai


Workshop on Inter-agency Earth Observation (EO) information collaborate technologies changing the Globe Change research in Asian Pacific Region



Dr. Guoqing Li, CEODE/CAS
25 May 2008
UN GAID E-SDDC, Shanghai

Introduction

- One activity of APN 2008-2009 (CB)
- APN
 - The Asia-Pacific Network for Global Change Research (APN) is an inter-governmental network for the promotion of global change research and links between science and policy making in the Asia-Pacific Region.
 - HQ in Japan



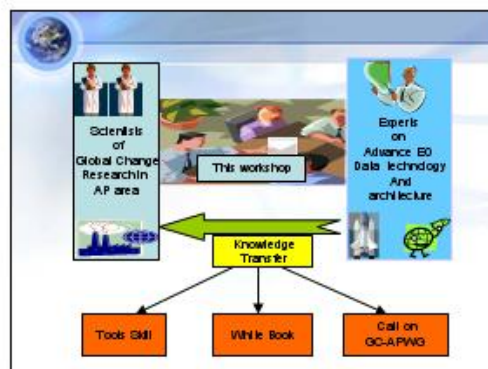
Target of this training workshop

- One of most difficult problems APN scientists facing now is the lack of EO data and data usage experience.
 - Global change research mostly depends on multi-discipline knowledge and multi-source EO data. The scientists in this field mostly have to base their model research and system development on some given EO data sets.
- The next generation of EO data and information infrastructures is focusing on the multi-agency collaboration technologies. It provides users a new way to use and organize the global change studies.
- As the leading international organization promoting interoperability and sharing of multi-source EO data, CEOS/WGISC has a lot of experiences and knowledge on this topic.

The target of our project is to

- bring the experience and knowledge on EO from CEOS/WGISC to scientists in the APN area,
- discuss how to use the next generation EO information technology,
- find appropriate approaches to develop their global change models based on this new EO capability and support.

- Finally, the most important target of this proposed activity is,
 - working with other international leading work from UN GAID eSDDC and CODATA, to call for and then to promote an Asian-Pacific Area Global Changing used Earth Observation joint data infrastructure (GC-APWG, Global Changing Asian-Pacific Wide Grid).
- GC-APWG will be active part of UN E-SDDC






Participants

- Country wide
 - Mongolia, Russia, Thailand, India, Nepal, Indonesia, Philippines, Vietnam, Malaysia, Bangladesh, China, Japan, Korea, USA
- Professional fields
 - The main Global change research scientists in their country
 - The decision maker of their country
 - The GEOSS experts from A-P area
 - Technical train experts from all over the world




Activities

- Preparation Meeting
 - July, 2008
 - Thailand
 - 6-8 key members
- Formal Meeting
 - Middle of 2009
 - China
 - 50 attendee



Outputs

- Technical Training
 - NASA ECHO
 - ESA GPOD and GENESI-DR
- Technical White Book
 - To publish CEOSS/WGISS technical recommendation white book
- Call on GC-APWG
 - To publish a call on Global Changing Asian-Pacific Wide Grid (GC-APWG)
 - At scientific level
 - Contribution and sharing



Relationship with e-SDDC

- GC-APWG will be an active part of e-SDDC
- This workshop is trying to take the first step, to start the process of building GC-APWG platform



Thank you for your attention.

Q&C?

Contact information:
• Prof. Guoqing Li qqli@ceode.ac.cn

Annex 8 Glossaries of Terms

EO	Earth Observation
AP	Asia-Pacific
GC	Global Change
CEOS	Committee on Earth Observing Satellites
WGISS	The Working Group on Information Systems and Services
UN-GAID	The Working Group on Information Systems and Services
e-SDDC	Global Alliance for Enhancing Access to and Application of Scientific Data in Developing Countries
GEO	Group on Earth Observations
GEOSS	Global Earth Observation System of Systems
CODATA	Committee on Data for Science and Technology
ISCU	International Council for Science
ICSU-ROAP	ICSU Regional Office for Asia&Pacific
GC-APWG	Global Changing Asian-Pacific Wide Grid
PWTW	APN Proposal-Writing Training Workshop
CEODE	Center for Earth Observation and Digital Earth
CAS	Chinese Academy of Science
GISTDA	Geo-Informatics and Space Technology Development Agency
ASIAES	The ASEAN+3 Satellite Image Archive for Environmental Study
UNOOSA	United Nations Office for Outer Space Affairs