

ABCC Program: Update and Next Steps



Huadong GUO
ABCC Program Team

November 19, 2012 Iguacu, Brazil

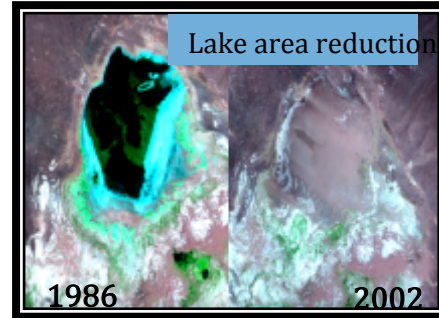
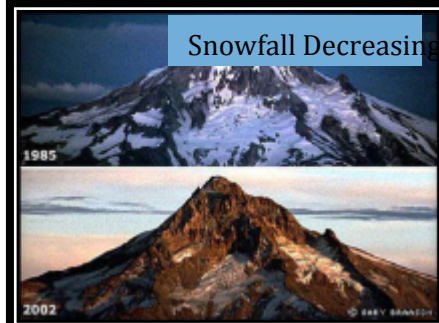
Outline



- ① **Global Change and Earth Observation**
- ② **Summary of ABCC - Phase I**
- ③ **Some thoughts on ABCC^E**

1. Global Change and Earth Observation

Environmental Change



We are facing the severe global change challenges

1. Global Change and Earth Observation

Role of Earth Observation



Earth Observation



DATA

Global Change



2. Summary of ABCC - Phase I

ABCC (2009-2012)



ABCC program is originally conducted by **Australia, Brazil, Canada and China**, “**ABCC Program**” for short

ABCC



FULL NAME

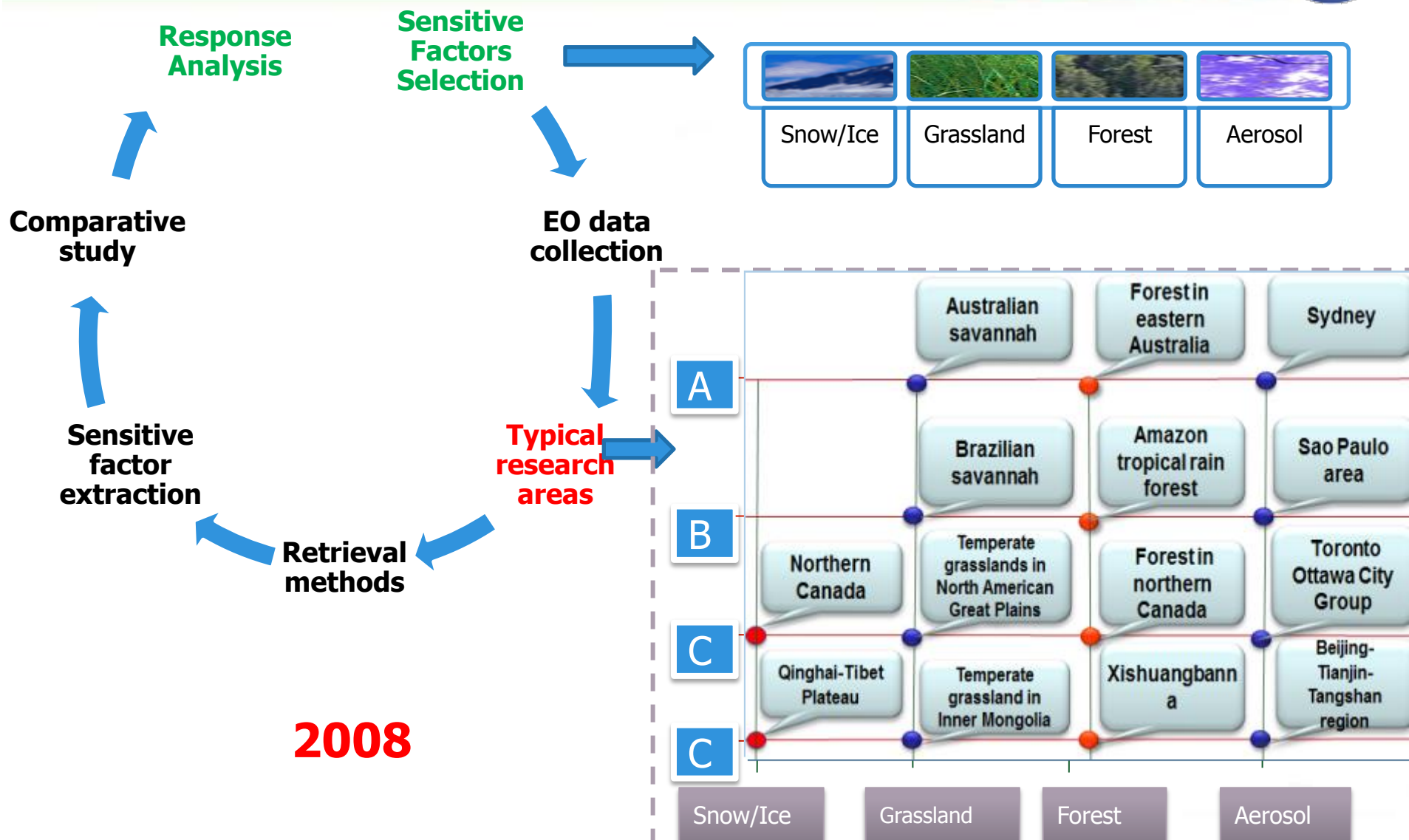
**Comparative Study on Global Environmental Change
Using Earth Observing Technology**



2. Summary of ABCC - Phase I

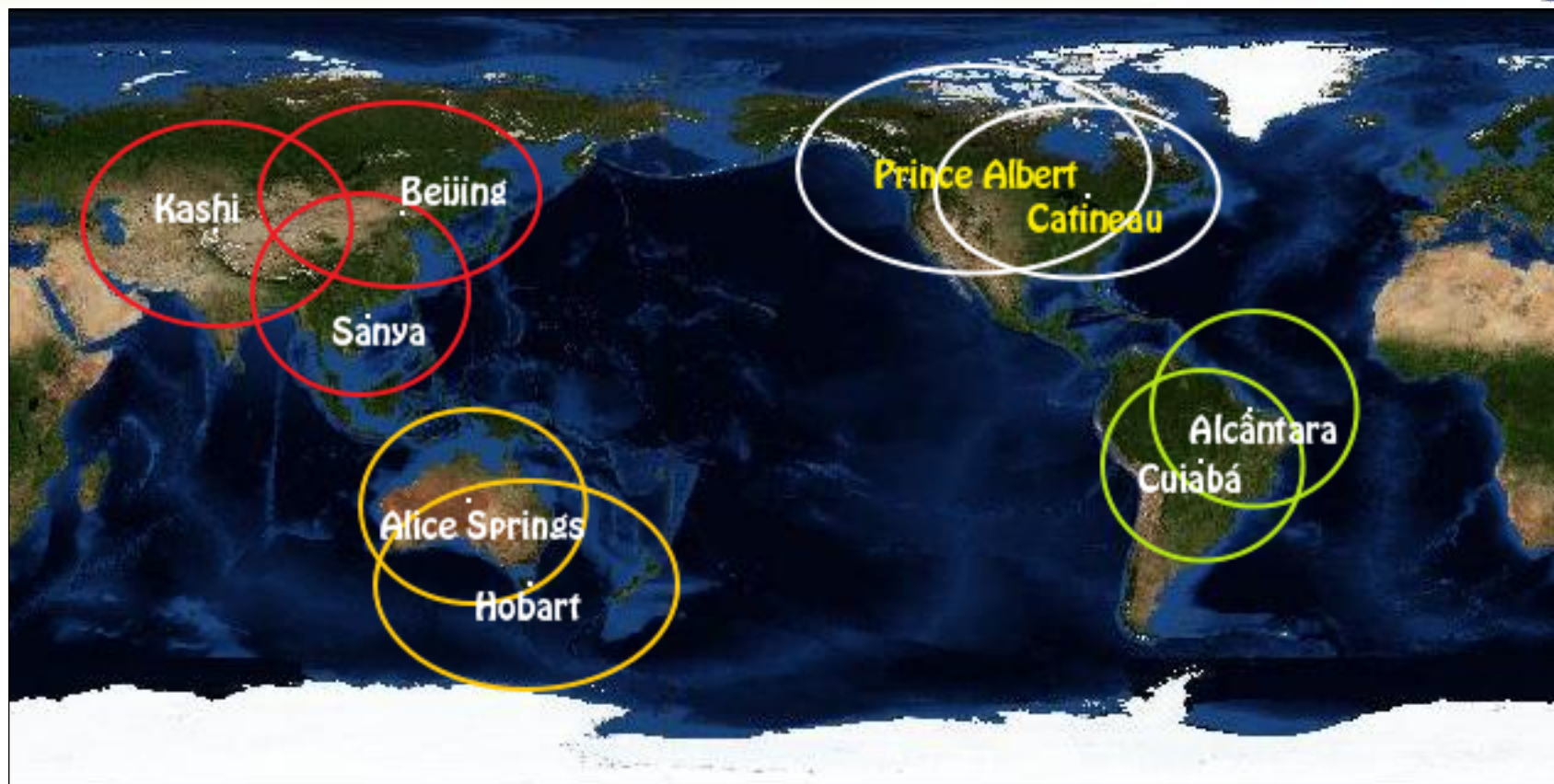


Scientific Initiatives



2. Summary of ABCC - Phase I

Remote Sensing Satellite Data Ground Stations



Australia	Brazil	Canada	China
Hobart Alice Springs	Cuiabá Alcântara	Catineau Prince Albert	Beijing Kashi Sanya

2. Summary of ABCC - Phase I

Uniqueness

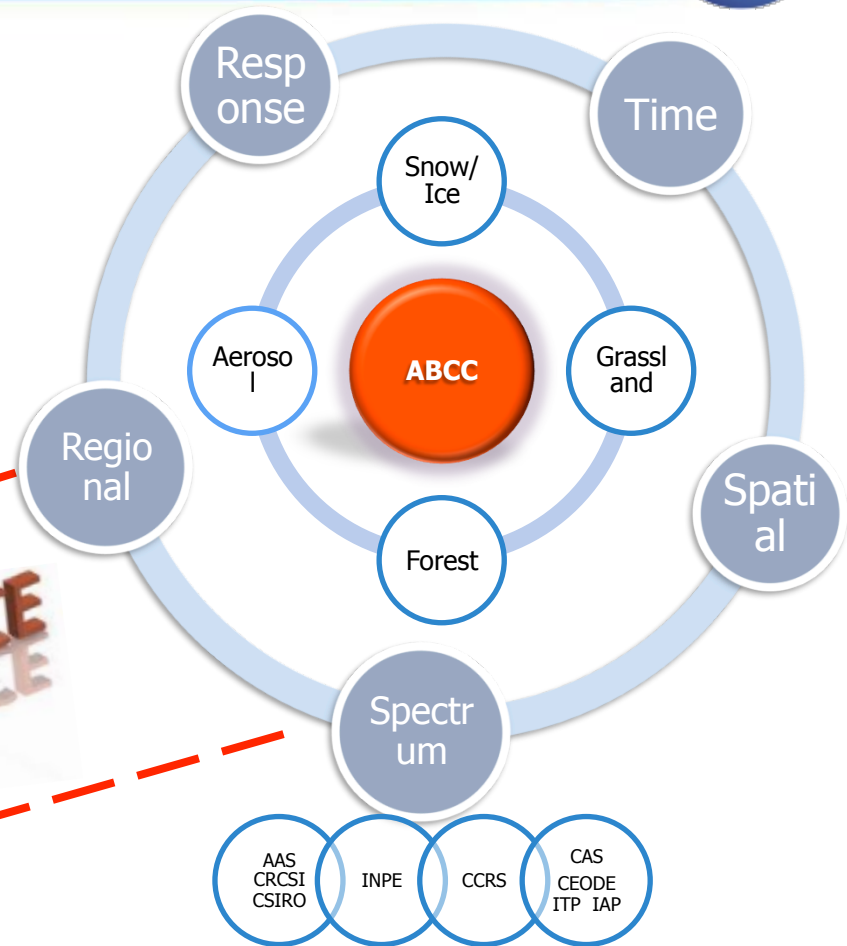
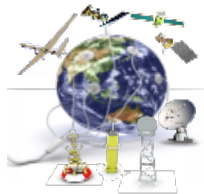


Comparative Study



Earth Observation

Global Environmental Change



GLOBAL IGBP International Geosphere-Biosphere Programme CHANGE
 Gmes
 GEO CARBON
 IRDR Integrated Research in Disaster Risk
 GEO-GLAM
 GEO GFOI

Difference with other programmes

2. Summary of ABCC - Phase I

Nature and Objectives



NATURE

- To establish a **cooperative relationship** among the Participants in the use of **Earth Observation** in the study of **global environment change**, on the basis of equality, reciprocity and mutual benefit.

OBJECTIVES

- To develop and use **earth observation** to launch the **comparative study** on the **global changing** over different environment to tackle the global change mechanism .
- To focus their efforts and together **develop** new and **innovative methods, mechanisms, technologies, platforms** and **systems** to expand their collective knowledge base to address mutual problems.

2. Summary of ABCC - Phase I

ABCC Co-chair and Secretariat



- **Co-chair**



Peter Woodgate, CEO, Cooperative Research Centre for Spatial Information (CRCSI)



Gilberto Câmara , Director General ,Brazil's National Institute for Space Research (INPE)



Douglas Bancroft, Director General, CCRS, Natural Resources Canada



Huadong Guo, Director General, Center for Earth Observation and Digital Earth (CEODE)

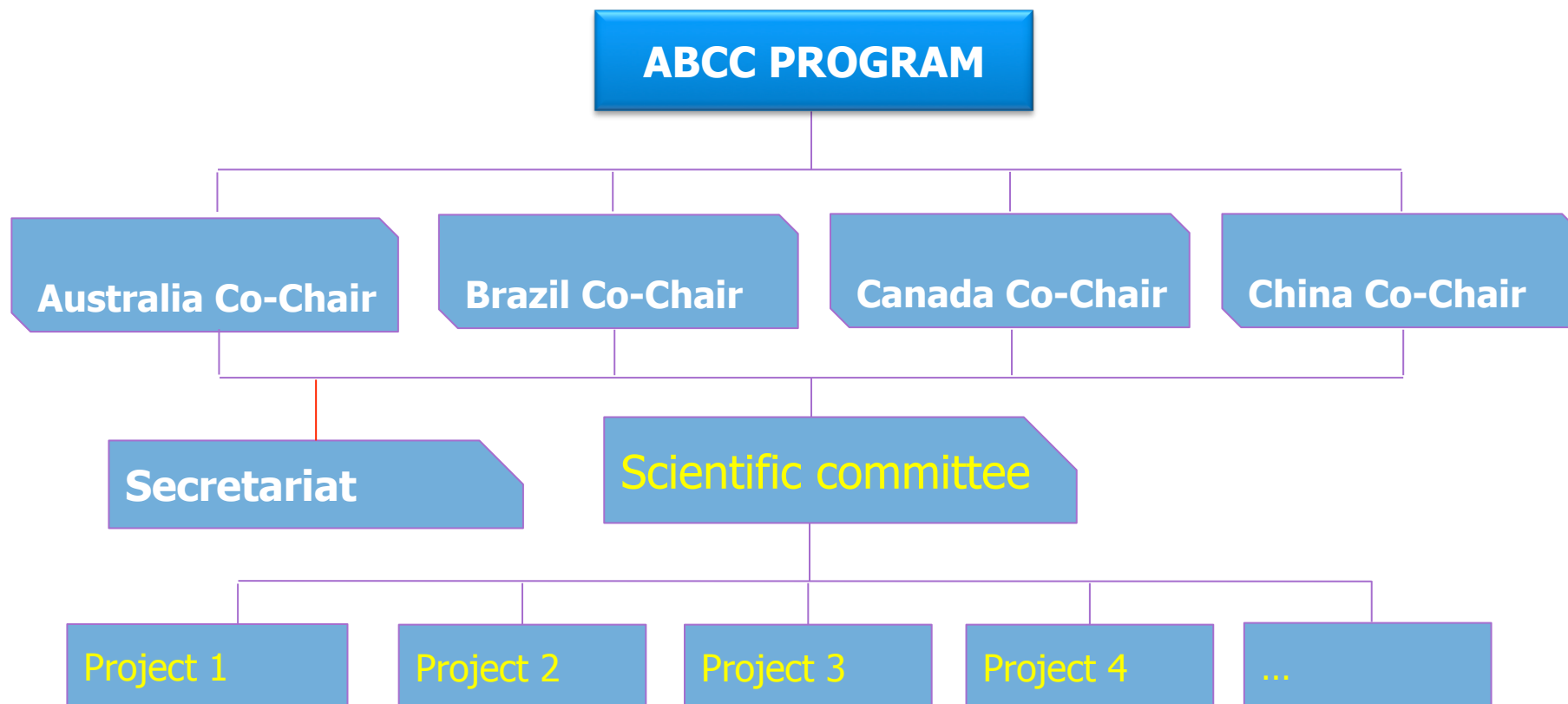
- **Secretariat**

Fred Campbell, fred-kadri.campbell@sympatico.ca, Executive Director

Jie Liu, LiuJ@ceode.ac.cn, Deputy Director

2. Summary of ABCC - Phase I

Program Research Framework



2. Summary of ABCC - Phase I



Workshops

The **1st** Workshop of Earth Observation for Global Change (**May 25-27, 2009**, Beijing, China)

The **2nd** Workshop of Earth Observation for Global Change (Sept. 10, 2009, Beijing, China)

The **3rd** Workshop of Earth Observation for Global Change (**Sept. 22, 2010**, Ottawa, Canada)

The **4th** Workshop Earth Observation for Global Change (**2011, Perth, Australia**)

(TODAY) The **5th** Workshop Earth Observation for Global Change (**2012, Iguazu, Brazil**)

1st workshop



2nd workshop



3rd workshop



4th workshop



2. Summary of ABCC - Phase I

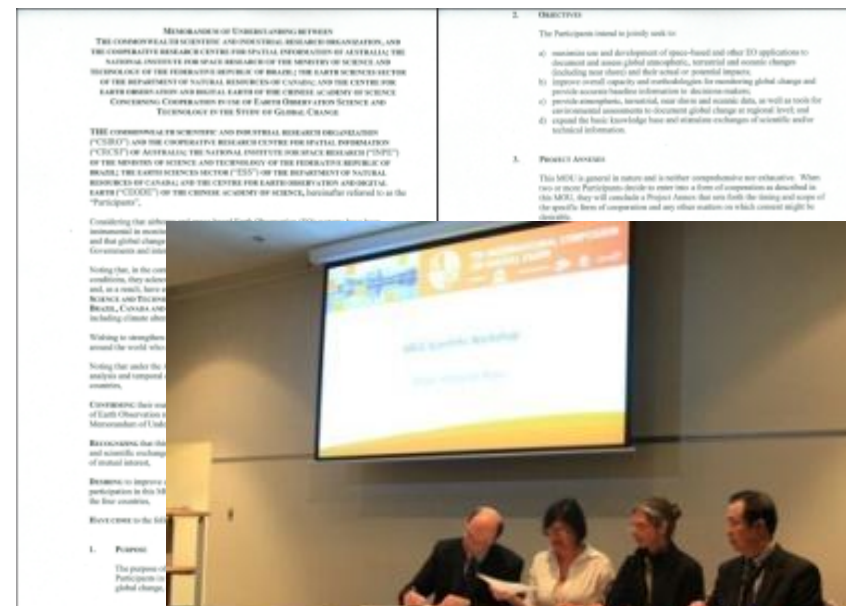


Memorandum of Understanding (MOU)

MOU (2011, Perth)

- PURPOSE
- OBJECTIVES
- PROJECT ANNEXES
- FORMS OF COOPERATION
- AREAS OF COOPERATION
- SCIENTIFIC COMMITTEE
- SHARING OF INFORMATION
- FINANCIAL CONSIDERATIONS
- EQUIPMENT
- APPLICABLE LAW
- PARTICIPATION OF OTHER ORGANIZATIONS
-

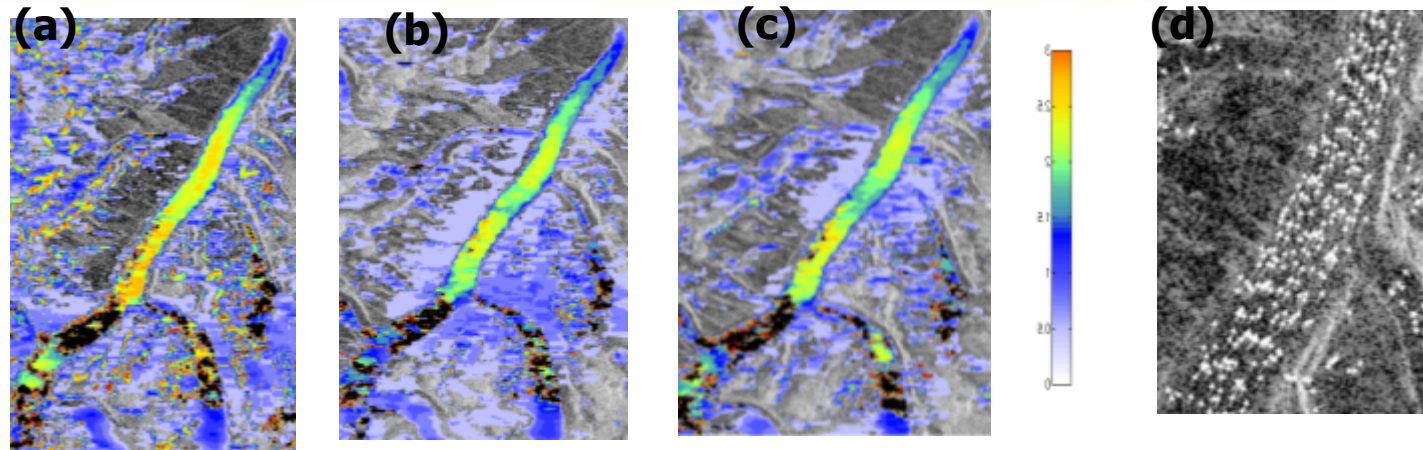
MEMORANDUM OF UNDERSTANDING CONCERNING COOPERATION IN USE OF EARTH OBSERVATION SCIENCE AND TECHNOLOGY IN THE STUDY OF GLOBAL CHANGE




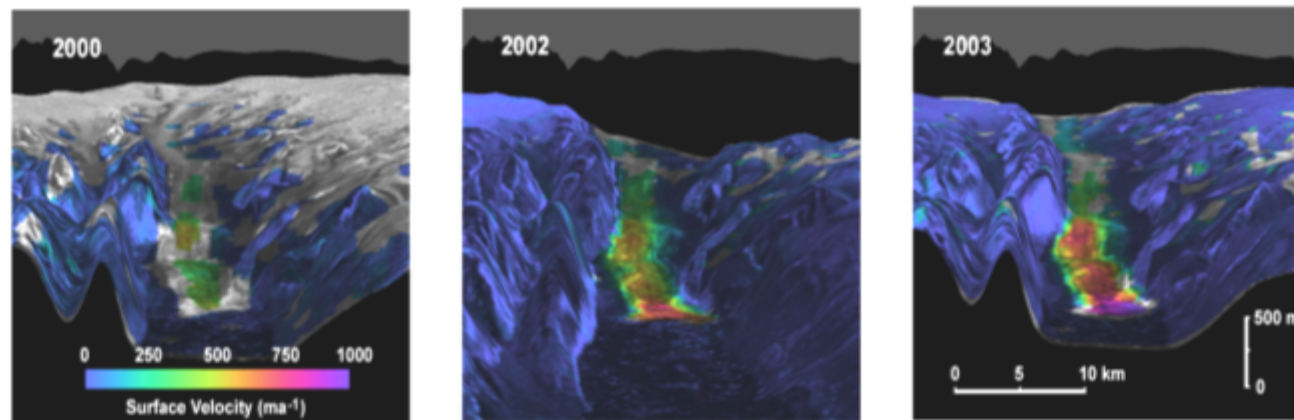
2. Summary of ABCC - Phase I




Glacier Study



Xikunlun glacier movement by PALSAR. (a) 2007.12.11-2008.01.26, (b) 2008.12.13-2009.01.28, (c) 2009.12.16-2010.01.31, (d) the main flow of the glacier movement. The results show: 2007-2010, the velocity has a decrease trends. **(China)** 

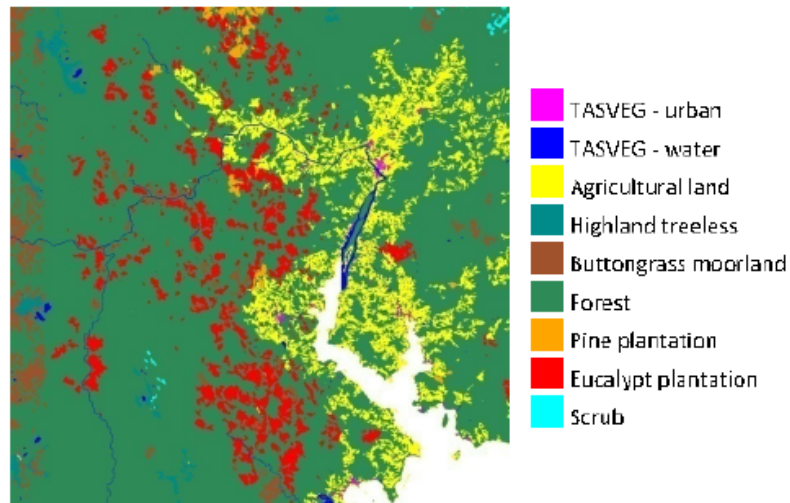


Velocity field of Otto glacier of Ellesmere Island of Canada by RADARSAT-1. The results show: The velocity of this area increased a lot. And the mass balance is decreasing. **(Canada)** 

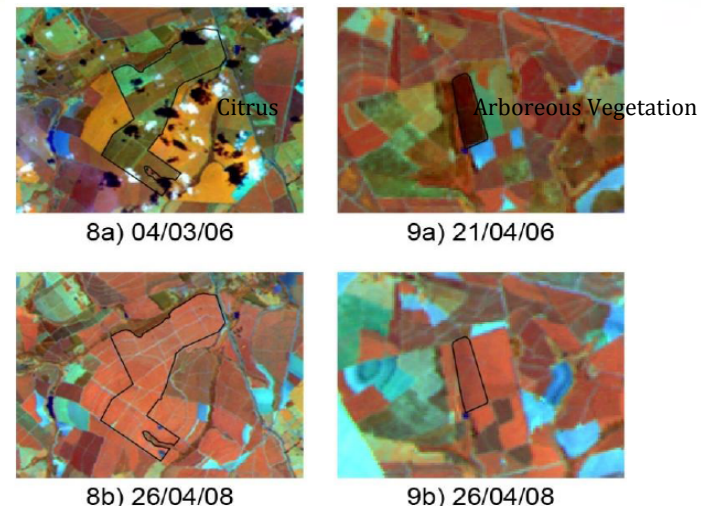
2. Summary of ABCC - Phase I



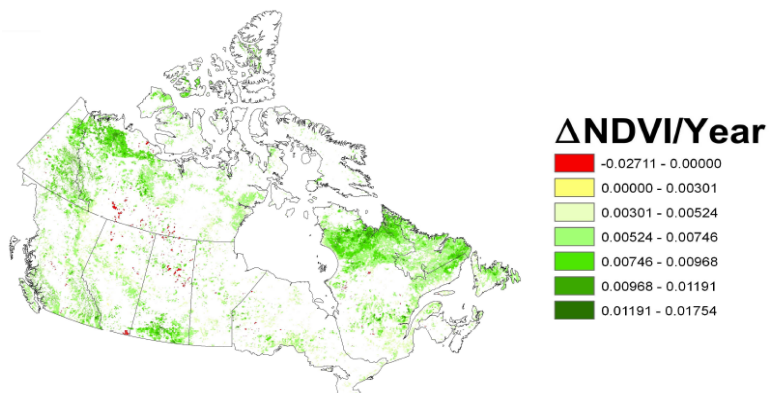
Vegetation Cover Study



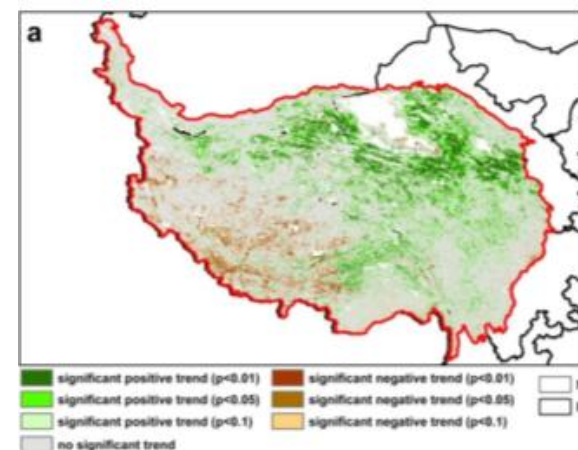
Annual land cover mapping (Australia)



Land conversion to sugarcane (Brazil)



Gradual land cover change (Canada)



Vegetation changes in Western China

2. Summary of ABCC - Phase I

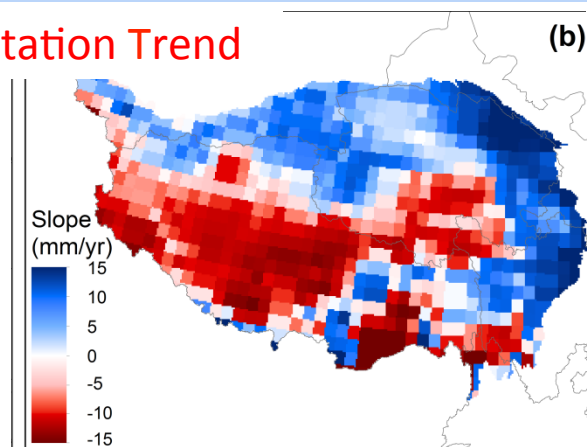


Vegetation Cover Study

Long-term vegetation greenness trend in the Tibetan Plateau

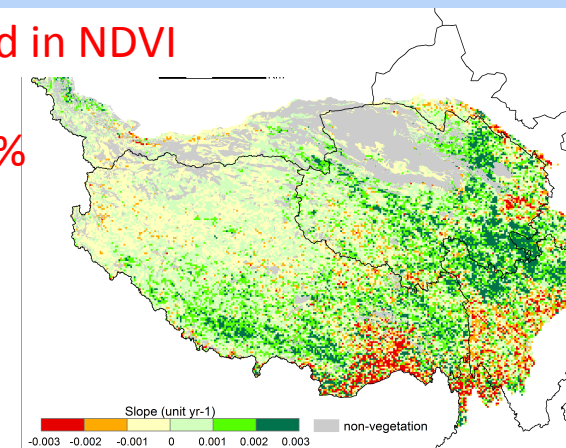
Increased precipitation and temperature in east contributes to favorable conditions for vegetation.

Precipitation Trend



(b) Trend in NDVI

+18%

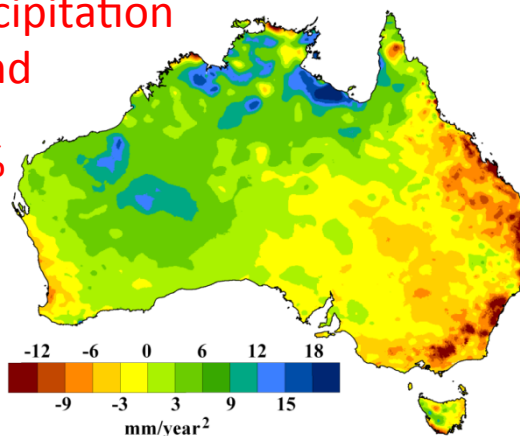


Australia-wide trends in P and AVHRR fPAR 1981-2006

Decreases in total fPAR are ONLY occurs where precipitation is also decreasing;
Where precipitation is increasing, total fPAR is usually also increasing

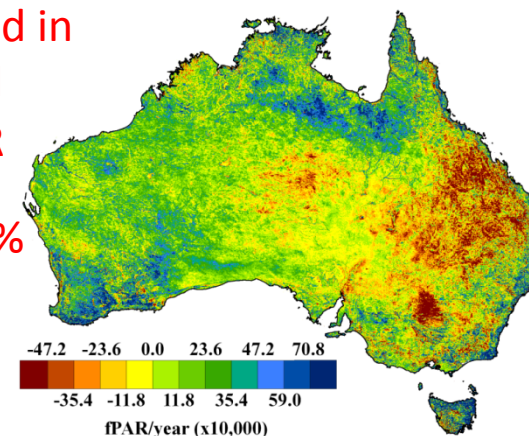
Precipitation trend

+7%



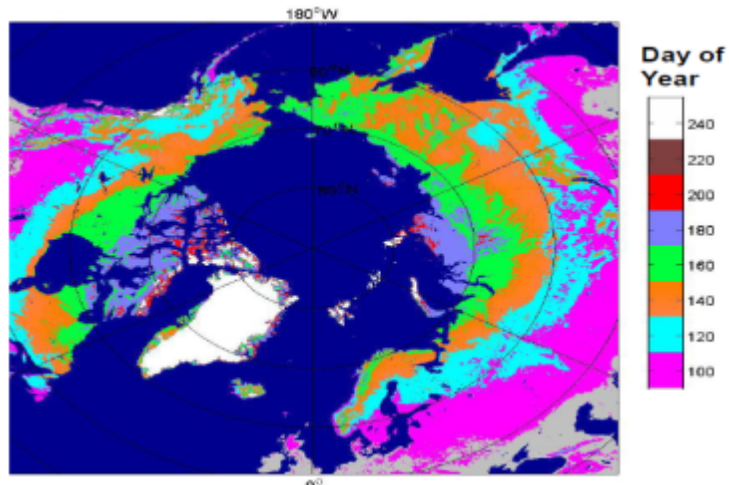
Trend in total fPAR

+8%

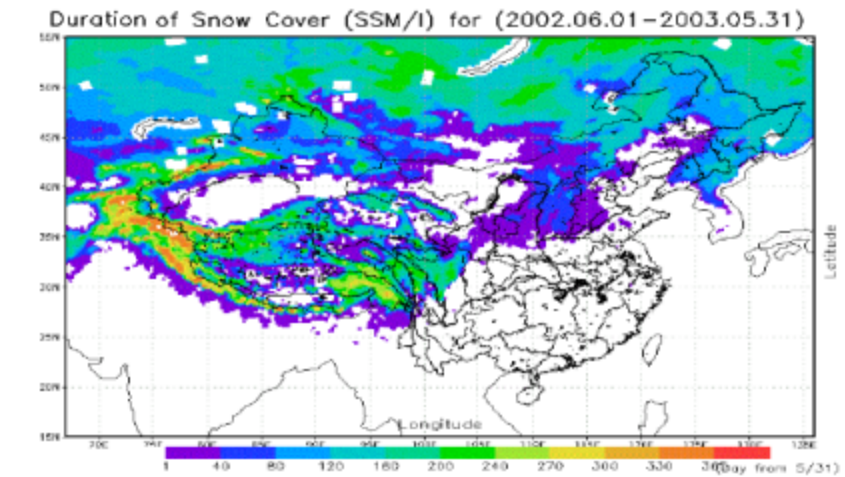


2. Summary of ABCC - Phase I

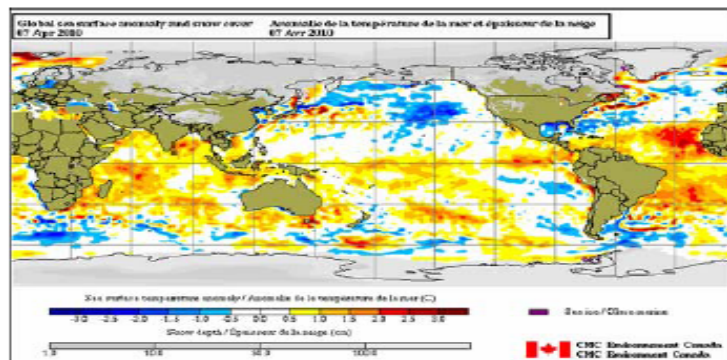
Snow Cover Study



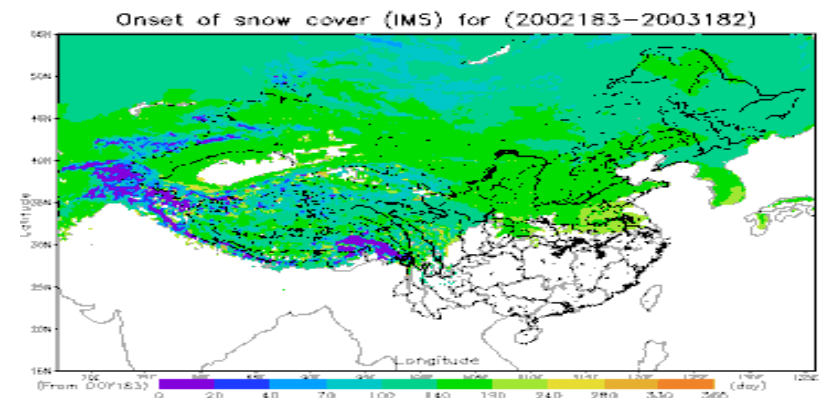
Extracted melt date 1981-2004(Canada)



Duration of snow cover at 2002~2003 (China)



Daily snow depth 1/3 degree (Canada) 



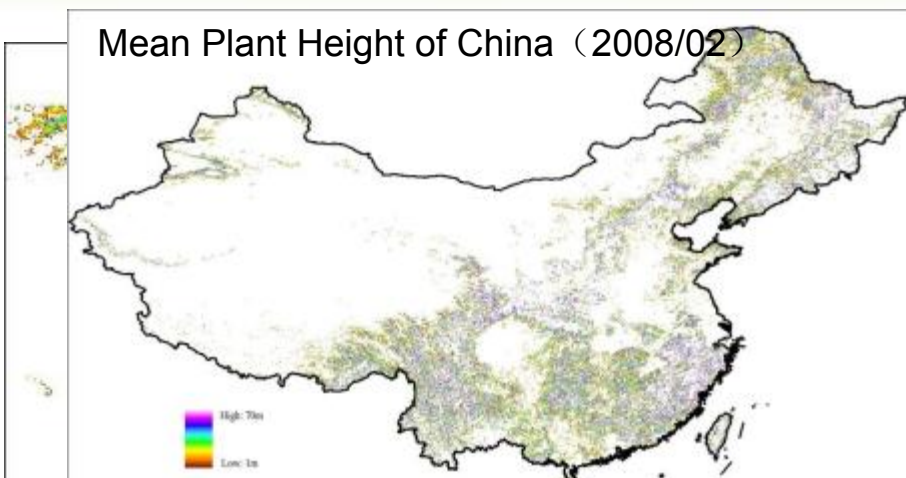
Onset of snow cover at 2002-2003 (China) 

2. Summary of ABCC - Phase I

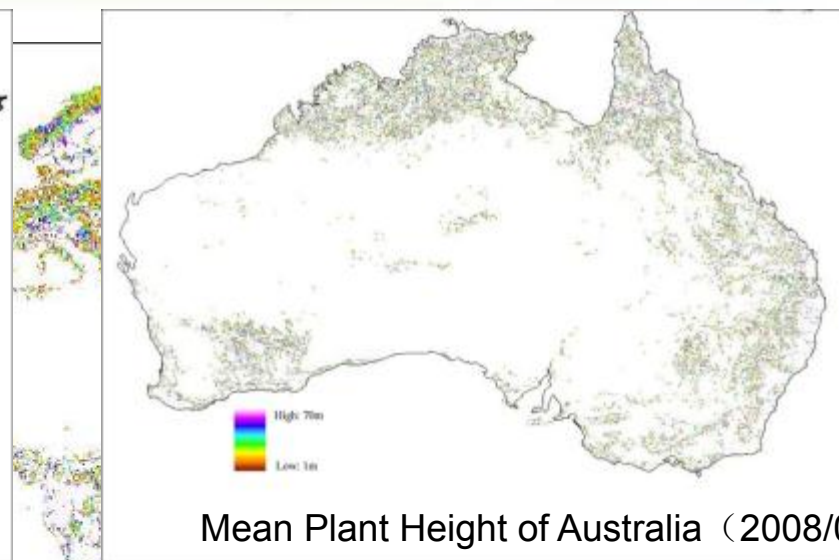


Forest Study

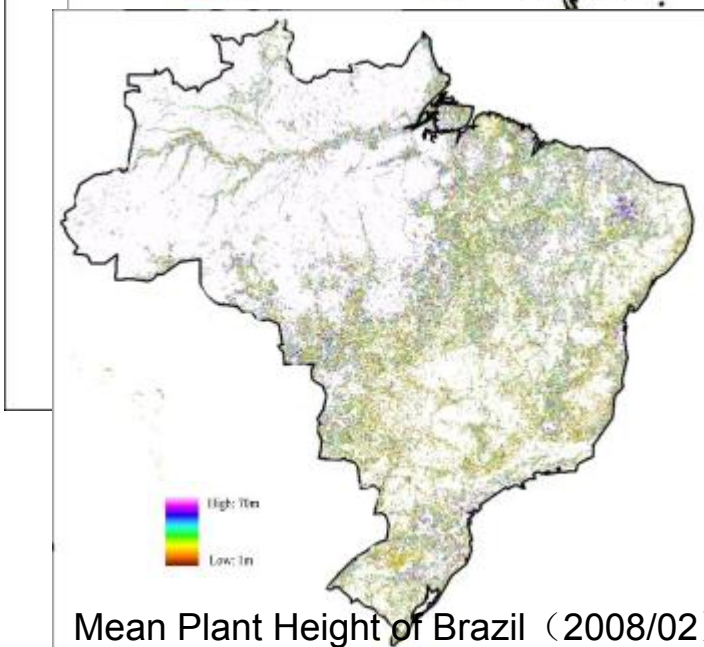
Mean Plant Height of China (2008/02)



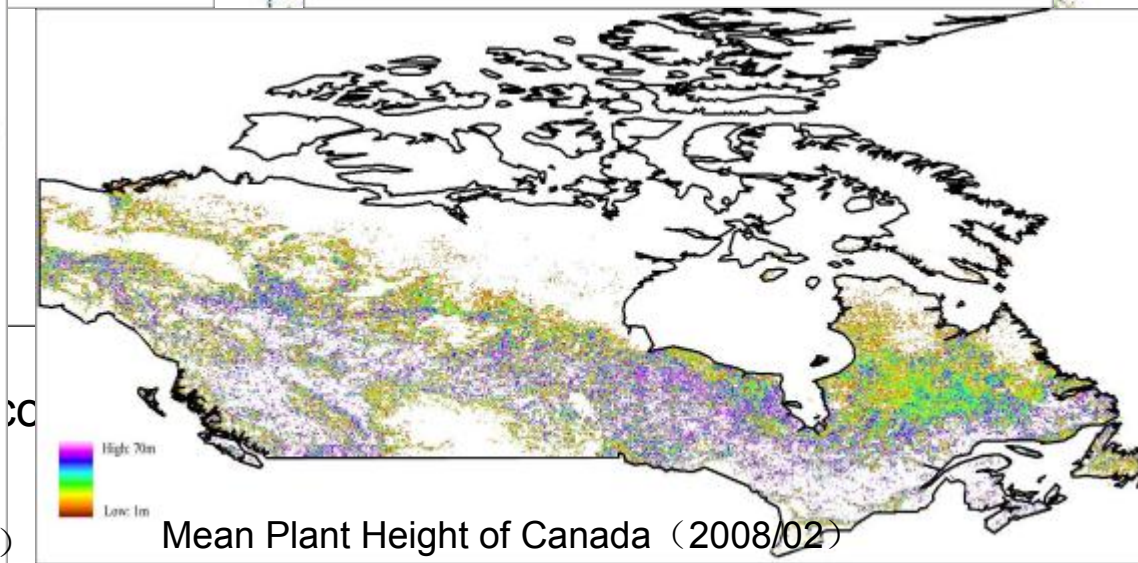
Mean Plant Height of Australia (2008/02)



Mean Plant Height of Brazil (2008/02)



Mean Plant Height of Canada (2008/02)



2. Summary of ABCC - Phase I



Dissemination

Website, Brochure,
Workshop...

ABCC Program

RESEARCH FIELDS
Carbon Cycle
Water and Ecosystems
Land Use and Land Cover
Disaster and Resource Management
Environment Monitoring

KEY WORDS
Earth Observation
Global Change
Comparative Study

FOR FURTHER INFORMATION CONTACT
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ABCC PROGRAM PARTNERS

- A. Australia**
CSIRO: Commonwealth Scientific and Industrial Research Organization
<http://www.csiro.au/>
CRCSI: Cooperative Research Centre for Scientific Information
<http://www.crcsi.com.au/>
- B. Brazil**
INPE: National Institute for Space Research
<http://www.inpe.br/ingles/index.php>
- C. Canada**
ESS: The Earth Sciences Sector of the Department of Natural Resources of Canada
http://ess.nrcan.gc.ca/index_e.php
- D. China**
CEODE: Center for Earth Observation and Digital Earth, CAS
<http://emlsh.ceode.cas.cn/>

Home > Meetings & Events > GEO-IX

Home : About GEO & GEOS : Communications : GEO Work Plan : GEO Community : Meetings & Events : D

GEO Portal

Browse Earth observation data and services

Products & Information

INFRASTRUCTURE

- Architecture
- Data Management

INSTITUTIONS AND DEVELOPMENT

- Capacity Building
- Science & Technology
- User Engagement

INFORMATION FOR SOCIETAL BENEFITS

- Disasters

Ninth Plenary Session of the Group on Earth Observations (GEO-IX)
(22-23 November 2012 - Foz do Iguacu, Brazil)

Introduction:
On behalf of the government of Brazil, the National Institute for Space Research – INPE - is pleased to organize the GEO-IX Plenary Session, in the city of Foz do Iguacu, in southern Brazil. You can download the [full information note here](#)

This page provides you with as much information as possible. For any further assistance, please contact us (see below).

Location
Plenary Host
Registration
Badges
Week at a Glance last updated on 31 October 2012 - 13h00 UTC [Click here to print](#)

November 2012		Event	Venue / Room
Time	Day		
09h00-17h00	Mon 19	5th ABCC Program Workshop ABCC Program website	Brasilia
13h00-17h00	Mon 19	ID-Board meeting	Montevideo
09h00-12h00	Tue 20	5th ABCC Program Workshop	Brasilia
09h00-17h00	Tue 20	GEO Brasil	Buenos Aires
09h00-12h00	Tue 20	ID-Board meeting	Montevideo

2. Summary of ABCC - Phase I

ABCC into GEO



GEO Members

Americas

- Argentina
- The Bahamas
- Belize
- Brazil
- Canada
- Chile
- Colombia
- Costa Rica
- Honduras
- Mexico
- Panama
- Paraguay
- Peru
- United States

Asia and Oceania

- Australia
- Bahrain
- Bangladesh
- China
- India
- Indonesia
- Iran
- Israel
- Japan
- Korea, Republic of
- Malaysia
- Nepal
- New Zealand
- Pakistan
- Philippines
- Thailand



GEOS

Global Earth Observation System of Systems



2. Summary of ABCC - Phase I



ABCC into GEO

GEO 2012-2015 Work Plan Implementation Report

EC-01 Global Ecosystem Monitoring

Overview	Highlights	
<p>Efforts to assess the present state and trends of ecosystem conditions and services (including protected areas) are building momentum, with ecosystem mapping continuously progressing and new activities gradually joining. Also linkages with GEO BON are developing. However key gaps remain in implementation related to the monitoring of moist/dry forest, wetland, and dry land ecosystems</p>	<ul style="list-style-type: none"> • Global ecosystem mapping initiated for Australia and China, and planned for Europe • All ecosystem mapping data available online, ready for ingestion into GEOSS DataCORE • Atlas of 40 Chinese World Heritage Sites produced • 17 mountain monitoring stations (SHARE) operational in Europe, Asia, Africa and South America • Mapping of growing season in Northern Europe completed • Circum Arctic vegetation map under development • Species monitoring ongoing in Asia Pacific (AP BON) contributing to GEO BON • Decision-making support on global change provided through ABCC program (China, Australia, Brazil, and Canada) 	<p><i>Management</i></p> <ul style="list-style-type: none"> • Propose a Task Coordination "Operational Monitoring" <p><i>Additional Resources and</i></p> <ul style="list-style-type: none"> • Identify representative moist/dry forests, arc • Support ecosystem ma

China (CEODE, CAS) established a strong cooperation with **Australia, Brazil, and Canada** around a **Comparative Study of Global Environmental Change Using Earth Observation (ABCC Program)**. The program focuses on sensitive areas of global environmental change and utilizes multi-source, multi-dimensional and multi-temporal remote sensing data to conduct analysis and research on Snow/Ice, Grassland, Forest and Aerosol variations. The project provides scientific data and decision-making support on global change response. Four ABCC workshops have been held so far (in Australia, Canada and China), and a 5th workshop will be held along with the GEO-IX Plenary in Brazil.

2. Summary of ABCC - Phase I

Some thoughts on ABCC program



Dear Colleagues,

I am writing to you to propose some new ideas, directions and options for the ABCC Program.

As you are all aware, the Program has existed for several years, and we have made some progress toward our joint objectives, and will continue to work together in future, as agreed in Perth last year. At this time, I feel that it is appropriate to examine ways and means to increase the visibility, successes and accessibility of the Program on a broader scale, for applications, projects, and geographic scope.

Firstly, as you may be aware, the ABCC Program has been approved as one Task Group of Group on Earth Observations (GEO), and I would suggest that we increase our level of activity within GEO. This would definitely add value to the ABCC Program, increase high level visibility, and provide additional services to participants. GEO is an inter-governmental organization to build the Global Earth Observation System of Systems (GEOSS) at 2015 and beyond, and the commitments from its members or participant organizations are secure. The GEO Work Plan provides a flexible targets-oriented framework for developing new initiatives within and across areas, as well as coordinating strategies and resources. In addition, there would be the capability to leverage global resources for activities (such as GEOSS implementation) and activate new applications, especially for those with a global perspective (GFOI, GEOBON, GEOGLAM, etc.).

August 19, 2012

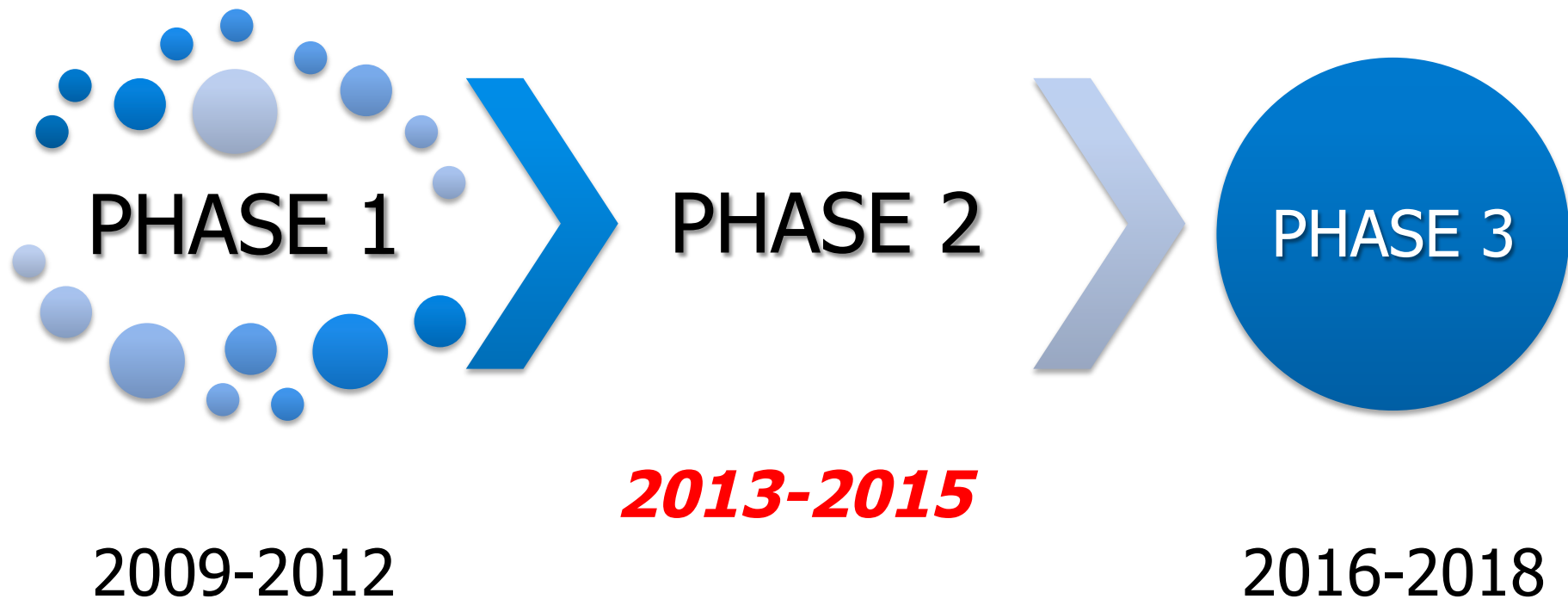
The email has got lots of response of attendant, and put many ideas together for our ABCC program.

3. Some Thoughts on ABCC^E

ABCC (2013-2015)



ABCC propose a ten year Programme,
divided into THREE phases



3. Some Thoughts on ABCC^E

Benefits and Contributions



Other international/national projects and agencies
(IGBP, International Charter..., World Bank)

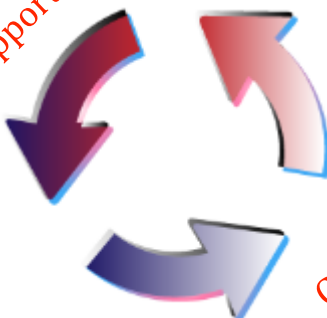


Data and Knowledge Support

Finance and data Support

Inter-project Sharing

ABCC



GEO GROUP ON EARTH OBSERVATIONS

Support national GEO's work
Finance and EO data Support

Global level EO data Sharing
EO Data Sharing



National GEO
(Australia, Brazil, Canada, China...)

3. Some Thoughts on ABCC^E



Key Items for discussion

--Scientific, Vision, Value, Output--

--ABCC Extension/Expansion--

Key Items

--Governance and Institutions --

--Interaction with international organization--

3. Some Thoughts on ABCC^E

Suggested topics for discussion - 1



Increase the level of ABCC activity within GEO

- **What are the benefits for ABCC being under the umbrella of GEO?**
- **Can ABCC mobilize resources under GEO, and, if so, how?**

Increase the number of participants in ABCC

- **Should the ABCC be open or exclusive?**
- **How can we increase the visibility, successes and accessibility of the Program, for applications, projects, and geographic scope?**

3. Some Thoughts on ABCC^E

Suggested topics for discussion - 2



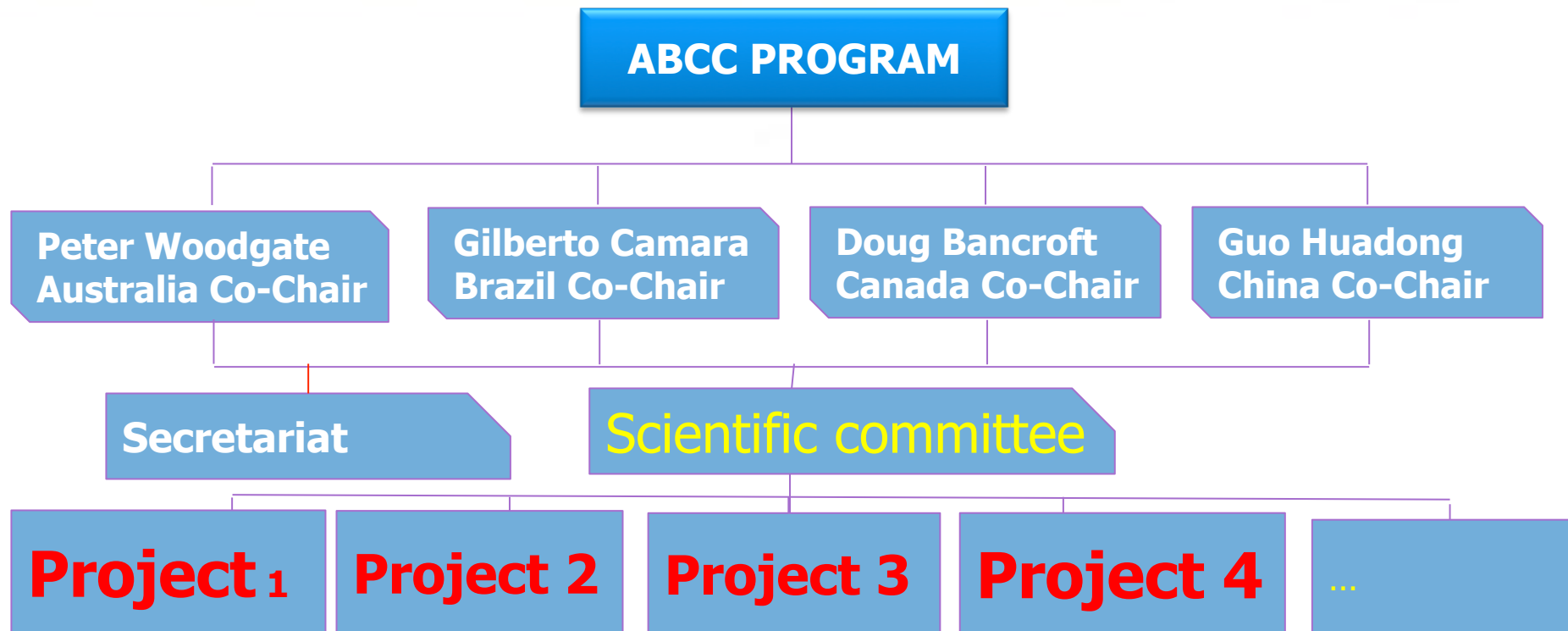
Scientific, Vision, Value, Output

Can we identify the expected scientific output of ABCC (e.g., data, papers, reports, tools or systems)?



3. Some Thoughts on ABCC^E

Suggested topics for discussion - 3



Projects are the foundation of effective implementation

Let us make the Project Teams

ABCC-I → ABCC-II → ABCC - III



A Program of **COMPARISON RESEARCH** on global environment change using Earth observing technology

Extend the **COOPERATION** of member countries and others

To be a **FLAG INTERNATIONAL PROGRAM** on the Earth Observation and Global Change after 10 years' executive term.

Thank You!

