

Opportunities for China in a *Global Agricultural Monitoring System of Systems*

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Outline of talk

- Context
- *Global Agricultural Monitoring System of Systems* needs China
- China needs the *Global Agricultural System of Systems*
- Conclusions

Context

- Origin of this activity lies in the work of IGOL (Integrated Global Observations of the Land)
- Initiated as part of IGOS-P (Integrated Global Observing System Partnership) when Minister Xu was co chair of IGOS-P and CEOS.
- The success of IGOL relied significantly on his personal support and that of China.
- Work on Agriculture within IGOL led rapidly to its adoption by GEO.
- Continued support by China of the Agriculture System of Systems through this workshop.
- Meeting appropriate in the IRSA since Minister Xu was its first director
- Context also lies in the long rich history in development of agricultural monitoring and forecasting in China.
 - CAAS/MOA
 - CMA
 - IRSA/CAS

Context -2

- Importance of China's large population and rising living standards in relation to food.
- Nowadays national food security means understanding global food security
- Crucial importance of present economic crisis
- Need to have reliable information on global food supply availability.
- Increasing importance of Earth Observation in providing information
- Workshop has clearly demonstrated maturity of procedures in providing high quality information on:
 - Acreage and Condition Monitoring
 - Monitoring Trends in Yields
 - Forecasting Production
 - Early Warning of Food Shortages
- Workshop clearly outlined recommendations to greatly improve abilities.

What do we want?

- More quantitative results
- Reduce costs
- Estimates earlier in the season
- Increasing use of EO

Benefits to GEOSS from China

- Provision of remote sensing data.
 - Participation in the CEOS Land Surface Imaging Virtual Constellation
- Many Land Chinese satellites can contribute to Agricultural Information Systems
 - Many launched with mapping as primary goal
 - But great potential for monitoring and biophysical properties.
- New research input from China
 - Crop condition mapping
 - Crop acreage estimation
 - Using biomass and harvest index directly for estimation of yield.
 - Integration of satellite and field data.
 - GVG Sampling system
 - Experiments in best practices.

Benefits of participation to China

- Involvement in the latest methods for providing agricultural information.
- Engagement in adoption of international standards and protocols.
- Provision of data to suit China's needs
 - all users must rely on multiple data sets
 - no one country can do it all.

Data policy

- Key to the success of GEOSS.
- Openly available and free data will help the *Agricultural Monitoring System of Systems* and GEOSS as a whole.
- Very much welcome the Chinese initiative in making CBERS data more openly available.
- Adoption of same policy for all Chinese civilian remote sensing data sets will be invaluable.
 - Major indicator of China's status as a world leader in Earth Observation and GEOSS.

Organization requirements for *Global Agricultural Monitoring System of Systems*

- Project Office (Indian Space Agency)
- Input data unit
- Analytical and modeling functionality
- Dissemination system
- Capacity development unit.

Conclusions

- China was a major force in creation of GEOSS and continues in its development.
- China can and should play an increasing role in the *Global Agricultural Monitoring System of Systems*.
- China will gain much from its participation in the *Global Agricultural Monitoring System of Systems*.
- China's active participation will encourage and enhance participation from other nations.

Thank you

Contributor and receiver of data

- Need for all users to rely on multiple data sets – no one country can do it all.
- Include LSI
- Data policy – mention CBERS.
- Take materials from my policy document, - get from mengxue

Contributor of models and analytical techniques

- Understanding how to integrate satellite and field data.

Chinese new methods

- Crop condition map
- Crop acreage estimation
- For yield currently rely on met models – instead biomass and harvest index directly for estimation.
- GVG Sampling system
- Experiments in best practices.

Contemporary context

- China's large population and rising living standards.
- Not just national food security but global food security
 - Stakeholders – member states for FEWS; Users; beneficiaries -
- Coming out of an economic crisis
- Confidence with global food supply availability – information is essential.
- Gaining improved access to EO and EO derived information; exploit existing successes; i.e. build on strengths.
- Define the customer/early adopter.
- Improved definition of the value of EO – need to explain this at the beginning of the talk

Why do we monitor

- Trends
- Sufficiency and access
- Who has who wants (seasonally geographically)
- Globalization
 - Trade
 - Multi-national organizations
- National systems vary greatly
- Few regional systems

GVG ground based patent from China

Early warning to be successful is not just to be accurate but must stimulate early response to reduce loss of life

Outline of talk

- Context
 - (include outline of recommendations from workshop)
 - Highlight the possibility of building up a global ag. System of system based on existing related systems from each countries, eg. China
- China's contributions
- China's benefits
- Conclusions