

Flood Monitoring WG Report

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March 13-15, 2007

3rd JPT Meeting, Singapore

Objective of Flood WG

- To contribute to the reducing risk flood risks in Asia through:
 - utilizing satellite, GIS and information network technologies as much as possible,
 - enhancing the development of the basis for sharing information on flood risks and disasters among national and international organization in relation to flood risk reduction,
 - and realizing the above concepts through Sentinel Asia Project with equal partnership

Sentinel-Asia Flood WG

(as of 2nd JPTM, June 2006)

- Member
CSIRO, CCOP, NDRCC, LAPAN, IDI, AIT, DWIDP, NDCC, NAMRIA, DWR, RID, NSD, NDWI, NDMO, GISTDA, DDPM, ICHARM, UNESCAP, JAXA
(Total 28 participants from 19 organizations)
- Objective of WG
Develop an action plan activities within Sentinel-Asia framework for flood risk reduction

Activities of Flood WG

- June 28, 2006:
1st Flood WG at 2nd JPTM, Bangkok
 - Launch of Flood WG, Discussions on the concept of Flood WG
- August 24, 2006:
Coordination meeting among IFNet, Keio Univ., ICHARM and JAXA at IDI, Tokyo
 - Implementation plan of GFAS (Global Flood Alert System) on Digital Asia
- March 14, 2007:
2nd Flood WG at 3rd JPTM, Singapore
 - Discussions on action plan

Other relevant meetings

- September 26-28, 2006:
Capacity Building in Asia "Earth Observations in the Service of Water Management", Bangkok
- January 9-10, 2007
2nd Asian Water Cycle Symposium (AWCS), Tokyo
- January 11-12, 2007
GEOSS Symposium on Integrated Observation for Sustainable Development in the Asia-Pacific Region (GEOSS AP Symposium), Tokyo

Outcome of 1st Flood WG (3)

- Identification of potential pilot activities (2/2)-

- *Rapid response with high-resolution satellite data to monitor flood disaster*
 - JAXA, ADRC and member countries/organizations
- *Global satellite-based hourly rainfall mapping (2nd phase)*
 - JAXA and ICHARM/PWRI are planning to jointly develop the prototype system based on the JST-CREST GSMaP led by Prof. Okamoto (Osaka Prefectural Univ.)
- *Next-phase GFAS (2nd phase)*
 - Flood forecasting and inundation mapping using the above satellite-based rainfall products using IFAS (Integrated Flood Analysis System, ICHARM)
 - Pilot demonstration in a river watershed
 - Parallel exploration of assimilating river-and rain-gauge observation from WMO

Outcome of 1st Flood WG (5)

- Draft Action Plan (Guiding Principles) -

- To build upon existing capability
- To integrate flood components with Sentinel Asia
- User driven
- To organize the WG activities (probably two meetings, depending on goal setting)
- Visible outcome by the end of 2007

Sentinel-Asia Flood WG Action Plan (1st WG)

2006

2007

June

Sep

Dec

Feb

Sep

Dec

▲
WG#1

☆
APRSAF11

◎ 3rd Ministrual Meeting
△
WG#2

☆
APRSAF12
△
WG#3

SA development

SA operations

Data Providing Node

Prep

FAS integration

FAS test

Higher resolution
New satellite data
Integration with in-situ data

User nodes

User req

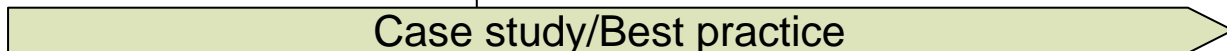
Eval sys dev

FAS improve

Training nodes

User evaluation.

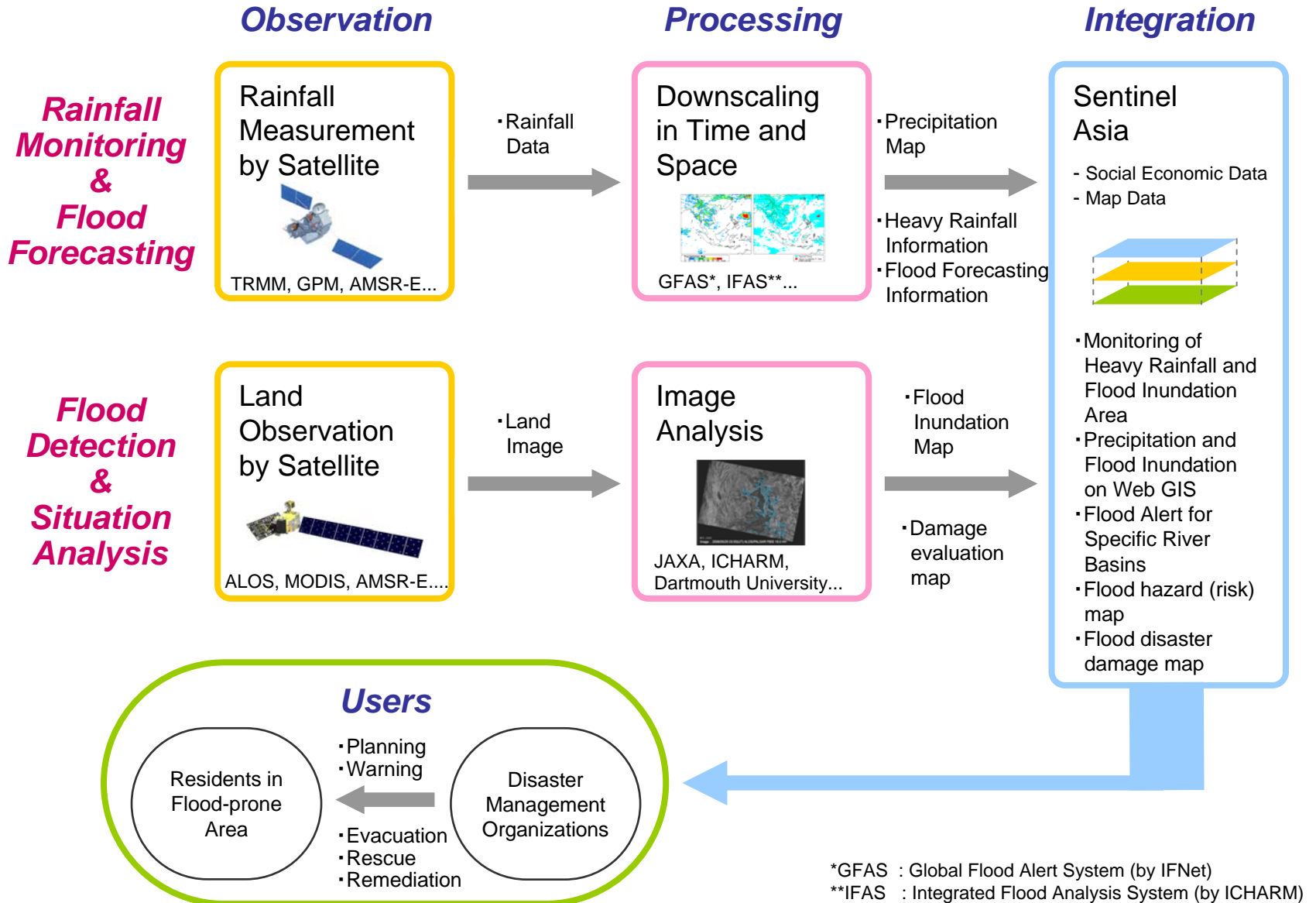
Case study/Best practice



Summary of 2nd Flood WG

- Participation by JPTM members from Cambodia, Indonesia, Japan, Malaysia, Nepal, Singapore, Sri Lanka, Thailand, Vietnam, Myanmar, Philippines
- 3 Presentations;
 - 1st WG summary and action plan (Mr. Fukami)
 - Rainfall estimation by MTSAT and GSM (Mr. Lek Seng Chng)
 - Water Watch? (Mr. Matsuura)
- Discussion
- Short-term action plan

Sentinel Asia Flood Monitoring



*GFAS : Global Flood Alert System (by IFNet)
 **IFAS : Integrated Flood Analysis System (by ICHARM)

Discussion 1/2

- E-flood portal of Thailand was exemplary to demonstrate how satellite and local information can help flood risk reduction,
- Nepal Mini-Project demonstrated various aspects of remote sensing data usage in flood risk mapping and capacity building,
- Need of high resolution rainfall data (both spatial and temporal) was discussed and members requested to find ways to downscale in both time and scale. Current GFAS data available in 3hour and 0.25degree are not very suitable for accurate rainfall estimation,
- Members requested to provide information and data such as GFAS through Sentinel Asia portal
- There is also a possibility of getting 4 km rainfall data from MT-SAT and JPTM member demonstrated the work done with the collaboration of JMA for better resolution.

Discussion 2/2

It was recognized that AMSER-E, PR, TRMM data are very useful until high resolution data become available and members requested to collaborate with each of these projects and provide data through Sentinel Asia portal.

- In the event of a flood, JAXA should acquire the data and provide it to competent institute (AIT, ..) to process and make a value added product for distribution among JPTM member countries through internet.
- Members recognized the importance of local data for better use of satellite data for flood risk analysis
- Importance of capacity building of each country based on country requirements was discussed and continues support for capacity building through Mini-Projects and other means was requested.

Immediate Action Plan 1/2

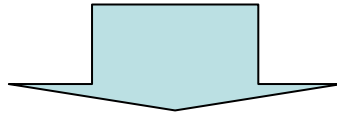
- Develop an interface to access IFNET data through Sentinel Asia Portal, targets before next WG meeting,
- Develop an interface for existing Water Cycle Database to provide AMSER data,
- Documentation (Research work, summary, algorithms) of GFAS and Water Cycle Database information and provide through Sentinel Asia Portal to members,
- Highly recommending to discuss with AIST for avail ASTER DEM for JPTM members,
- Discussions will be initiated to avail 10km/1hr data by March, 2008 through IFNET collaboration. However, the quality of the initial datasets may not be very good, but it will be improved over the time,

Immediate Action Plan 2/2

- Provision for MTSAT/GSM for high resolution data will be discussed urgently,
- A research project may be taken up under the Mini-Project for determining the accuracy of a satellite derived DEM,
- Capacity building through Mini-Projects need be continued.
- Provide training materials through Sentinel Asia portal for self learning

Proposed pilot activities

- Global Flood Alert System (GFAS by IFNet) and Next GFAS
- Surface Water Watch with AMSR-E & MODIS (by Dartmouth Flood Observatory)
- Rapid-response flood disaster monitoring with high-res. satellite data
- Mini-projects for five countries, user testing and evaluation system



Goal setting (by end of 2007)

- Research node and user node feedback on the approach of IFNet-GFAS and Dartmouth Flood observatory
- Any of FASs' integration with Sentinel Asia
(Overlay with maps, satellite images)
- User testing and evaluation of prototype system, and feedback