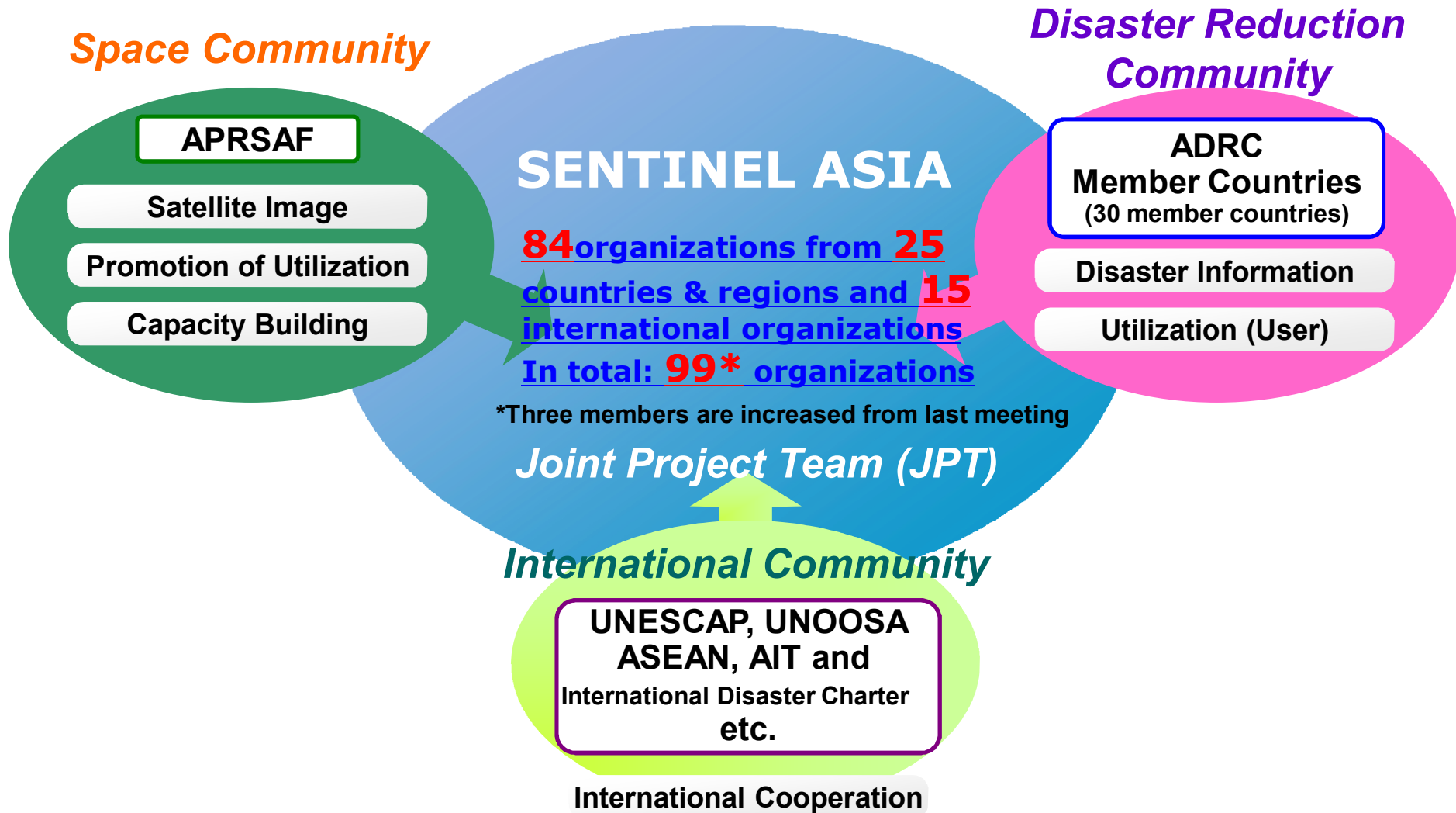


# Sentinel Asia Step3 Progress Report



# Member Status

(As of Jan 1, 2016)



# **New Members**

## **(1) 2015**

- **Dept of Geology & Mines, Ministry of Economic Affairs  
(Bhutan)**
- **Udayana University (Indonesia) DAN**
- **Ministry of Marine Affairs and Fisheries (Indonesia) DAN**

## **(2) 2015 Sep**

- **Vietnam Academy of Science and Technology (Vietnam)  
DPN**

## **Events**

- **Sentinel Asia Steering Committee meeting, Oct 13-15, 2015**
- **Asia Pacific Space Agency Forum (APRSAF)-22  
December 1-4, 2015 in Bali, Indonesia**
- **Sentinel Asia Joint Project Team Meeting January, 2016  
Colombo, Sri Lanka**

# Emergency Observation Request (EOR) Review

Country	Region	Type	Date	Charter Escalation	Requester
Sri Lanka	Koslanda district	Landslide	2014/10/29	YES	DMC./Sri Lanka
Philippines	Samar Island	Flood and Storm	2014/12/6		PAGASA
Indonesia	Central Java	Landslide	2014/12/12	YES	LAPAN
Malaysia	Kelantan, Pahang and Terengganu states	Flood	2014/12/21		ANGKASA
Indonesia	Jakarta	Flood	2015/2/8		LAPAN
VietNam	Coast of Vung Tau province	Oil spill	2015/3/12	Yes	Dept of national remote sensing
Vanuatu	Vanuatu Islands	Cyclone	2015/3/13		SOPAC, NDMO

# Emergency Observation Request (EOR) Review

Country	Region	Type	Date	Charter Escalation	Requester
Nepal	Nepal, China, India, Bangladesh	Earthquake and Snowslide	2015/4/25		CEA(CN)
Nepal	Nepal, neighbor countries	Earthquake	2015/5/12		ICJMOD
Nepal	Myagdi district	Landslide and Landslide Dam	2015/5/24		ICIMOD
Japan	Kuchinoerabu island	Volcanic Eruption	2015/5/29		JAXA
Nepal	Dudh Koshin Basin, Hunga Khola	Flood	2015/6/10		ICIMOD
Bhutan	Laya district	Flood	2015/6/28		DGM(BT)
Myanmar	Kachin State and Sagaing Region	Flood	2015/7/19		RRD(MM)

# Emergency Observation Request (EOR) Review

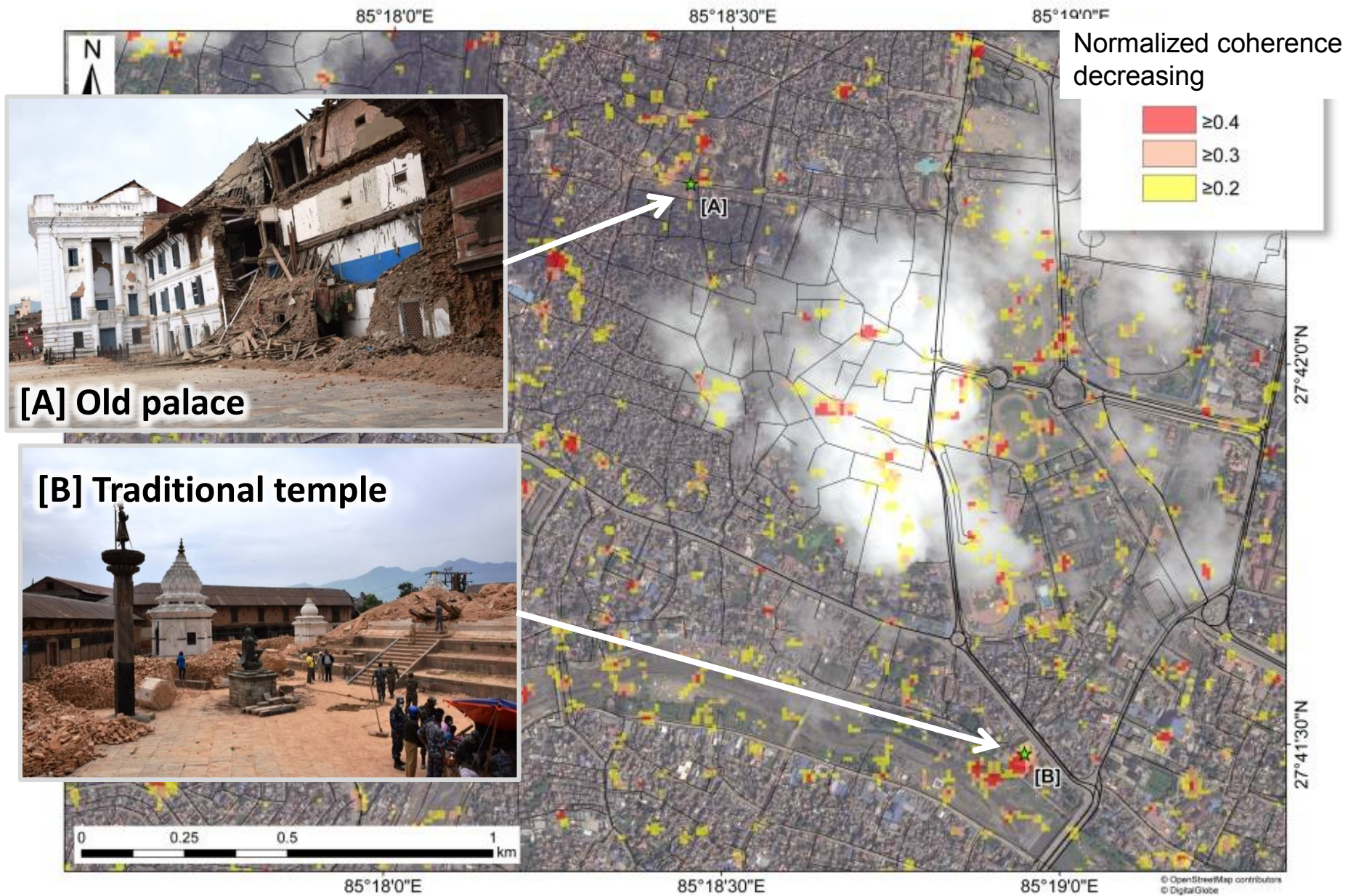
Country	Region	Type	Date	Charter Escalation	Requester
Pakistan	Throughout Pakisutan	Flood, GLOF	2015/7/15		SUPARCO
Tajikistan	Shugnan District, Gorno-Badakhshan Autonomous Oblast (GBAO)	Mudflow	2015/7/16		KAIAG(KG) ↓ CoES
Vietnam	The northern part of Vietnam, Quangninh province	Flood, Landslide	2015/7/28		MONRE
Taiwan	Green Island and Orchid Island off the coast of the eastern county of Taitung	Typhoon	2015/8/6		NARL
Bangladesh	West of Bangladesh	Flood	2015/9/8	Yes	
Japan	Ibaraki, Tochigi Pref.	Flood	2015/9/10		JAXA
Taiwan	North area of Taiwan	Typhoon	2015/9/28		NARLabs
Sri Lanka	Galle, Matara, Hambantota	Flood	2015/9/30		IWMI
Indonesia	Sumatra Is. Borneo Is.	Forest Fire	2015/10/1		LAPAN

# Emergency Observation Request (EOR) Review

Country	Region	Type	Date	Charter Escalation	Requester
Philippines	Central part and to the north of Ruzon Island	Typhoon	2015/10/20		MO, University of the Philippines
Pakistan	The northeastern part of Afghanistan to the northern part of Pakistan	Earth Quake	2015/11/2		SUPARCO
India	The southern part of India, Tamil Nadu	Flood	2015/12/3		IWMI
Philippines	Samar Is. Sorsogon	Typhoon	2015/12/15		MO, University of the Philippines



# Coherence decreasing suggests building damages.

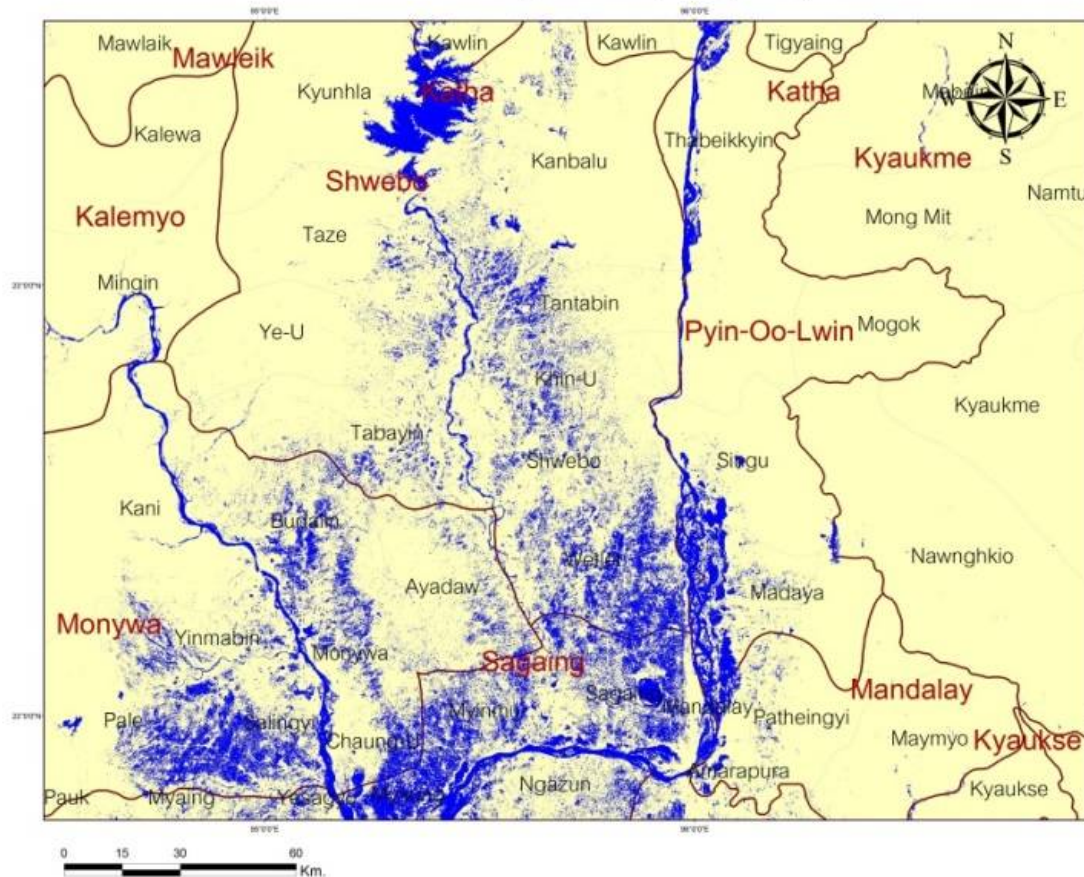




# Sentinel Asia Triggered for Myanmar Flood 2015 July

**SA promptly coordinated with Disaster Authorities and data products was shared among the authorities and used for listing flooded villages (incl. potential), also for response actions etc.**

## FLOOD DETECTION BY ALOS-2/PALSAR-2 Myanmar, July 24, 2015



### MAP INFORMATION

This is possible water area include normal water extent, paddy field, flood area, or others.

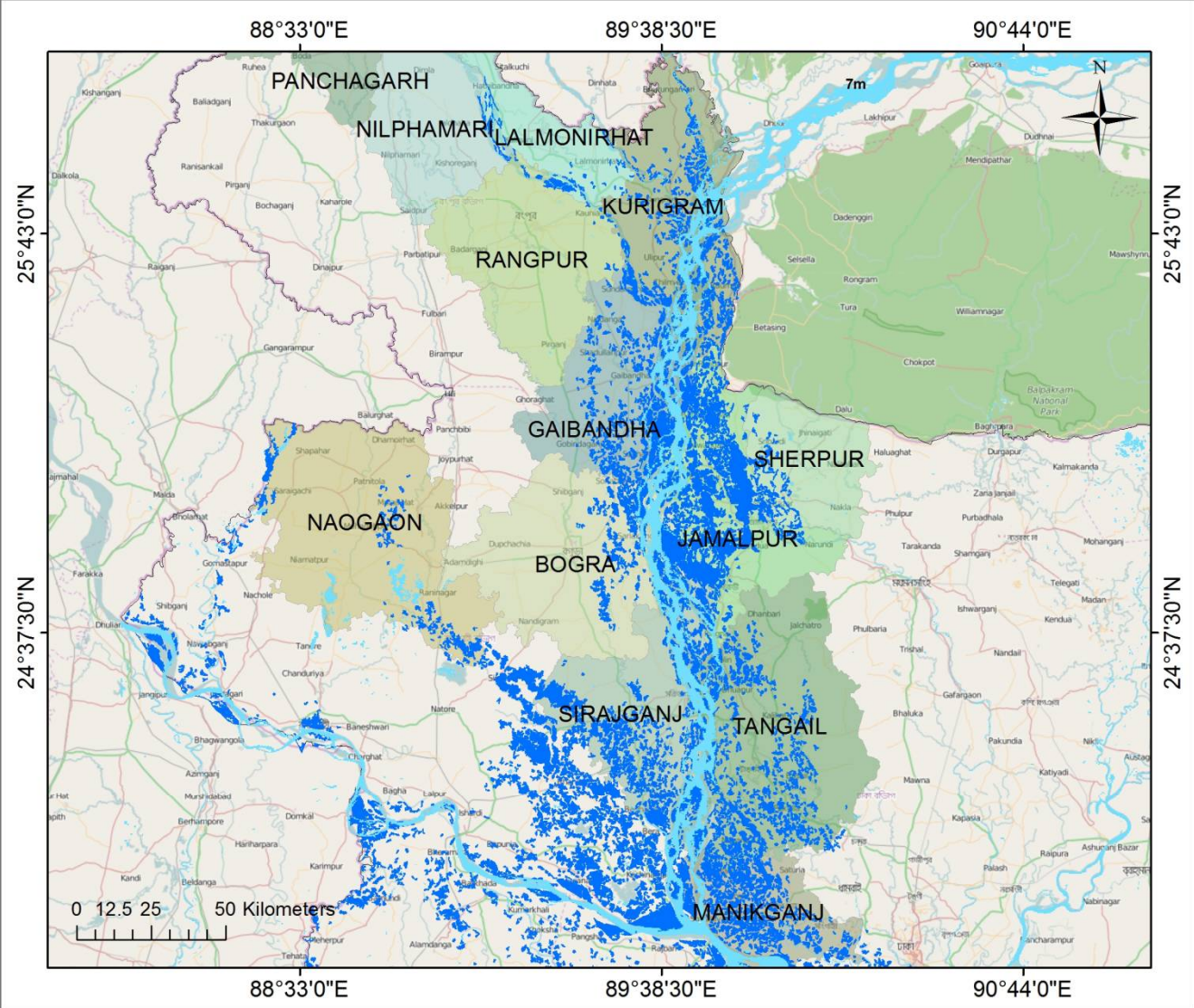
Data Source:

Post-Disaster image  
ALOS-2/ PALSAR-2  
Acquired on 24 July 2015  
Copyright: JAXA

Map Produced by:  
The University of Tokyo and  
Asian Institute of Technology



# FLOOD AREAS IN NORTHERN AND CENTRAL OF BANGLADESH



### Legend

- Water body
- Flood Detected Areas

**MAP RESOLUTION : 1:1,350,000**

Pre Disaster Image: 7-AUG-2015  
 Satellite/Sensor: RADARSAT-2  
 Mode: ScanSAR Wide  
 Resolution: 100 m  
 RADARSAT-2 Data and Products © MacDonald, Dettwiler and Associates Ltd. (2015) - All Rights Reserved. RADARSAT is an official trademark of the Canadian Space Agency.

Post Disaster Image: 7-SEP-2015  
 Satellite/Sensor: ALOS-2/ PALSAR-2  
 Mode: WD1, Beam No: W3  
 Resolution: 100 m  
 © JAXA

Co-ordinate System: GCS WGS 1984  
 Datum: WGS 1984  
 Units: Degree

This map shows the approximate flooded area due to heavy rains in Bangladesh. The possible affected areas are Gaibandha, Serpur, Jamalpur, Kurigram, Rangpur, Bogra, Sirajganj, Tangail, and Manikganj.



Date: 11/09/2015

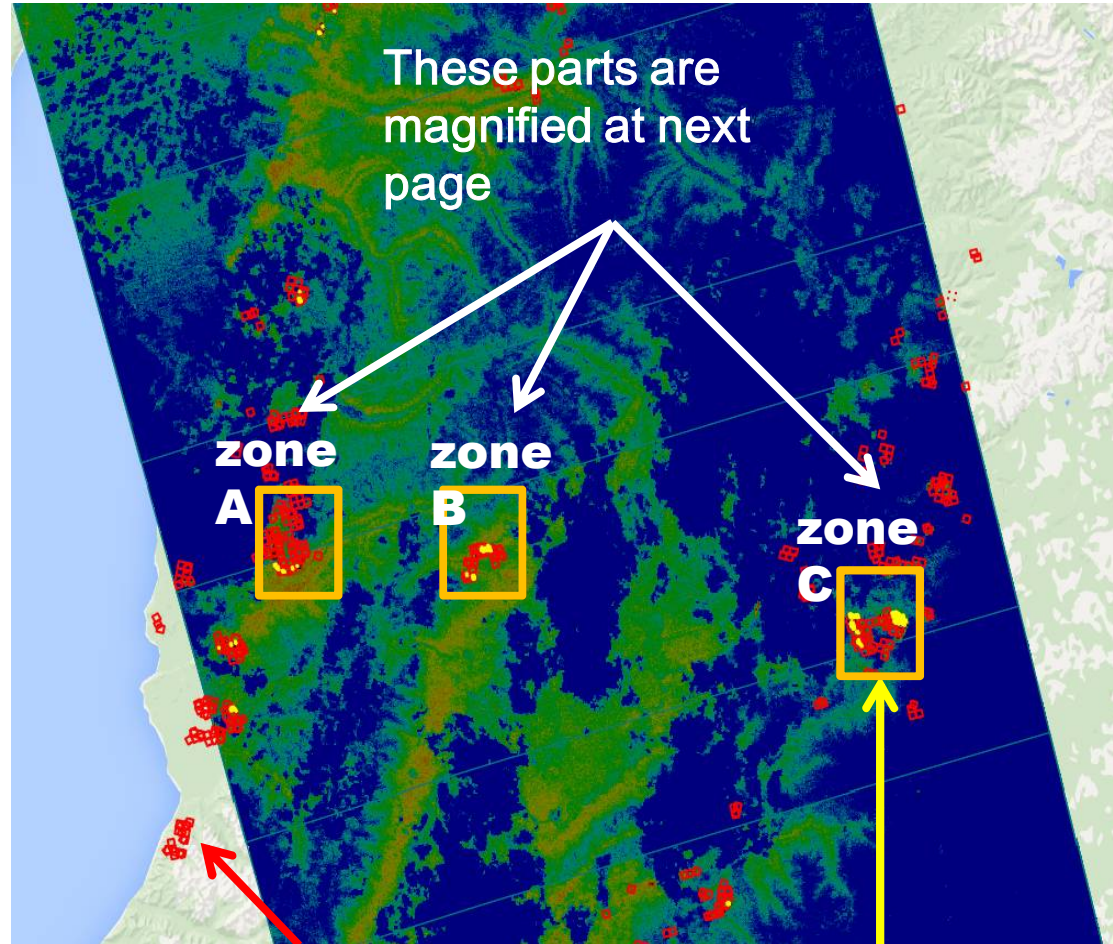
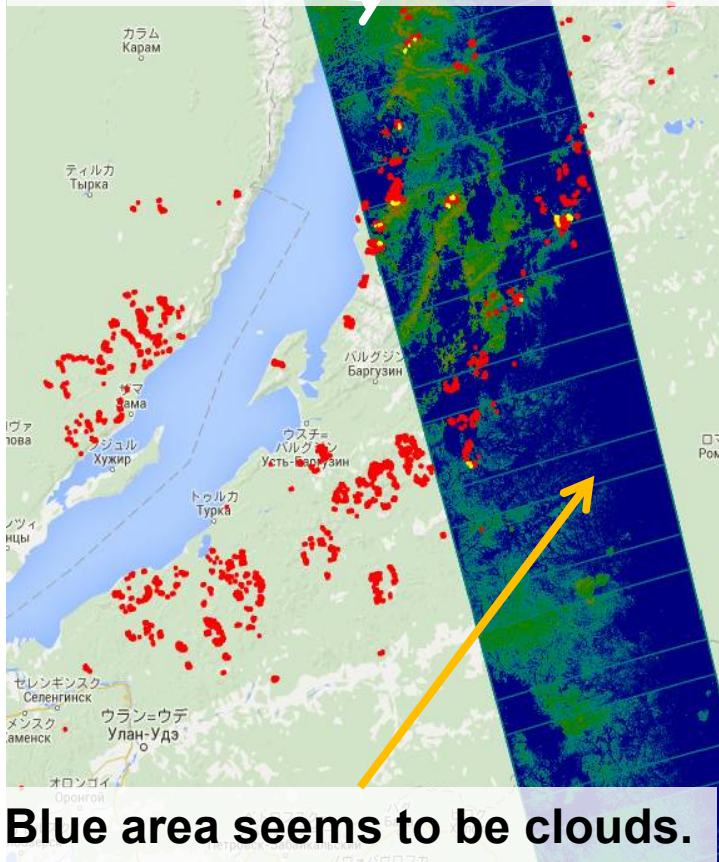
Service Layer Credits: © OpenStreetMap (and) contributors, CC-BY-SA  
 Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS,

Note: The accuracy of this product is not validated



# CIRC Observed Wildfire around Bikal on 2015-08-24

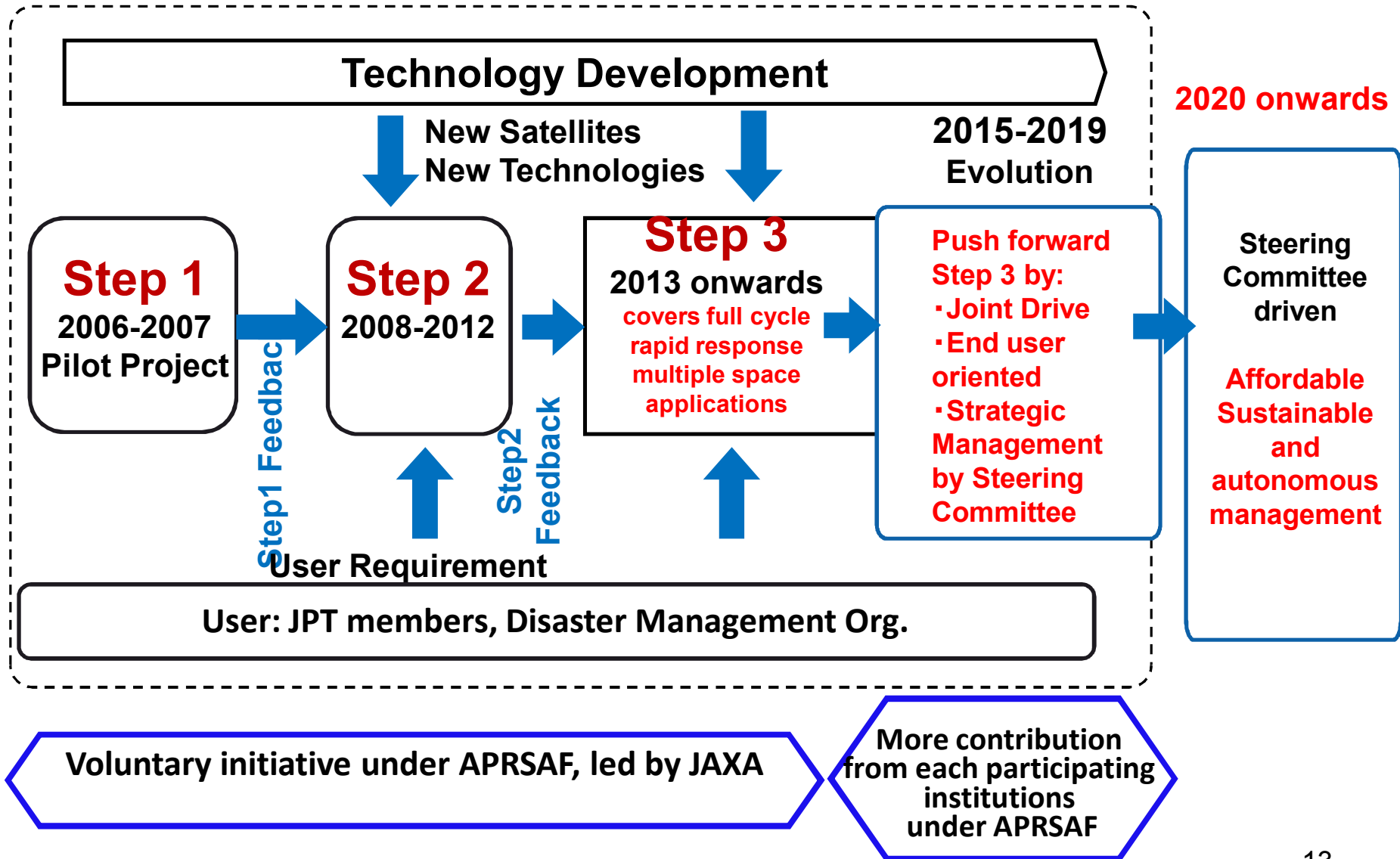
The pseude colored images are CIRC Thermal Infrared Image.  
We aquired 16 scenes along truck.



Red is fire pixel by MODIS **Yellow** is fire pixel by CIRC



# Sentinel Asia Step 3 Evolution (APRSAF-21, Dec. 2014)





# The first Steering Committee (FSC) of Sentinel Asia Step 3 was held from 13 to 15 October 2015 in Bangkok

ARSAF-21 in December 2014 endorsed Sentinel Asia Step 3 to evolve towards its sustainable and autonomous management goal through;

- Strategic management
- End user oriented activity
- Joint drive

About **40** representatives from **24 stakeholders** of Sentinel Asia gathered in Bangkok to discuss implementation strategy

## Participated Organizations

ADB , ADRC, AHA Centre, AIT, CRISP (Singapore), DDPM(Thailand), DMC (Sri Lanka), Chubu Univ.(Japan), ICIMOD (Nepal), ISRO (India), JAXA (Japan), LAPAN (Indonesia), MARD (Viet Nam), MHCA (Bhutan), NARLabs (Chinese Taipei), NIED (Japan), NLC (Bhutan), SD (Nepal), APARRSO (Bangladesh), UNESCAP, Univ. of Tokyo (Japan), Yamaguchi Univ. (Japan)



# Challenges to be addressed towards Sentinel Asia

## Step 3

( Five problems were submitted at APRSAF-21 as a preparation for step 3 evolution )

1. Participation of the disaster management organization (end-user) to substantial activity is inevitable to contribute to disaster management
2. Substantial participation of all the DANs (Data Analysis Nodes) to the activities is inevitable
3. Satellite observation with the consistency of the satellite data policy in each DPN (Data Provider Node) needs to be considered
4. Success story, which is a demonstration project of social contribution with the applications of space technology to disaster risk and damage reduction in pilot countries, should be continuously planned, executed and extended
5. In the long term, autonomous, sustainable and affordable administration and management of Sentinel Asia project is necessary

# JAXA suggests implementation strategies to address the challenges for Sentinel Asia Step 3 evolution

1. Establishment of Steering Committee
2. Strengthen cooperation between disaster management organization (DMO) and space/GIS organization (SGO)
3. Evolution of the WGs activities to strengthen cooperation between DMO and SGO to contribute to disaster preparedness, emergency disaster response and recovery
4. Emergency observation scenario considering preparedness and early warning, emergency response and recovery after disaster
5. Maximize utilization of performance of EOSs of DPN as well as to strengthen cooperation among DAN for rapid provision of analyzed products to end users
6. Improvement and active utilization of Sentinel Asia server system, WEB-portal and WINDS data transportation system
7. Planning and implementation of “success story” by each WG with the cooperation of countries and/or the development support organizations
8. Trainings and capacity buildings for DAN and end users
9. Cooperation with GPM/GSMaP, QZSS and MGA (Multi-GNSS-Asia)
10. Maximize utilization of the WINDS’s high speed internet data transportation at its terminal phase
11. Develop and utilize archive system of the Sentinel Asia observation data



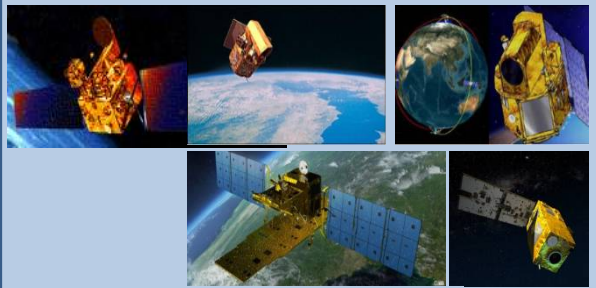
# Implementation strategy for Sentinel Asia Step 3 evolution

- Management by **Steering Committee**
- **Improve EOR** procedure for **close communication between SGO and DMO** to contribute to in situ disaster management
- Maximize **cooperation among DPNs/DANs** for rapid provision of emergency observation products
- **Improve Sentinel Asia server architecture and WEB** for rapid response and to maximize utilization of archives
- Strengthen **capacity building for DAN** as well as **users**
- Establish/reconfigure to **six permanent WGs** to contribute to emergency response as well as to promote success story
- Promote collaboration with **GSMaP/GPM, MGA and GNSS**
- Promote cooperation with **development organization** such as ADB

Sentinel Asia step 3 is the **platform** on which **SGO and DMO collaborate** to utilize space technology and GIS to contribute to disaster risk and damage reduction with the pursuit of

**win-win relationship**

**Space and GIS relevant organizations (SGO)**



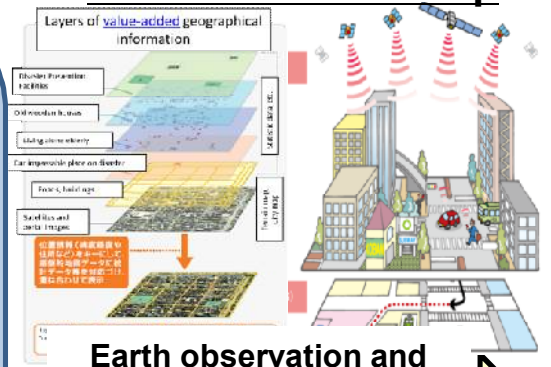
Space



Academy and research institutes



GIS Organizations



Space technology & Geospatial Information to contribute to disaster management (DM)



Opportunity of social demonstration and validation of advanced technology for DM

**Asia-Pacific countries and their Disaster Management Organizations (DMO)**

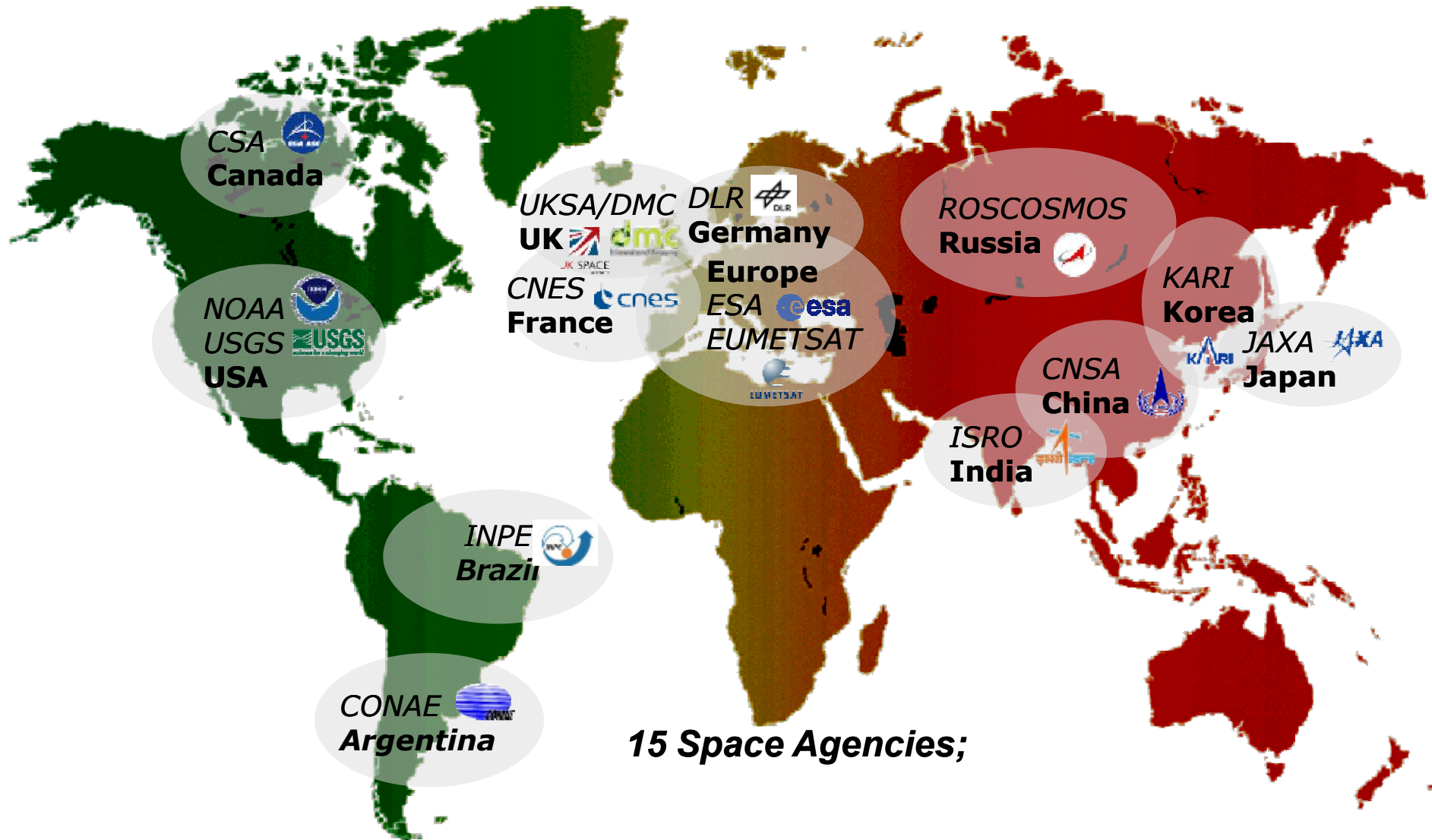


**SENTINEL ASIA Step 3 (Platform)**

Others

International Disaster Charter

# Charter Members



**15 Space Agencies;**

# Universal Access International Disaster Charter

- **Universal Access** will allow national users from other countries to directly submit Emergency requests as Authorized Users (AU).

The following **criteria** must be met by an entity requesting to **become a new Authorized User**:

- The entity must be a **national disaster management authority** or its delegated agency in that country.
- The entity must have the **capacity to download and utilize maps\***.
- The entity must be able to **submit and pursue its activation requests in English\*\***.

\* *Typically Charter products are either remotely sensed imagery or crisis or damage assessment maps (Value Added products).*

\*\* *The request indicates the date/time of disaster occurrence, the affected area with geographic coordinates (Latitude/Longitude), the type of hazard, and the name of the contact person for any communication with the Charter.*

*For further information,*

*<https://www.disasterscharter.org>*