Emergency Observation Request Using Sentinel Asia

The 8th Joint Project Team Meeting
September 18, 2023

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Deputy Executive Sentinel Asia Secretariat

1. Overview of Sentinel Asia

- ✓ Sentinel Asia is an initiative aiming space-based international cooperation for disaster management in the Asia-Pacific region
- ✓ In February 2006, Sentinel Asia was established in accordance with the recommendation at APRSAF-12 in October 2005
- ✓ Sentinel Asia is expected to implement not only emergency observation but activities covering entire disaster management cycle including mitigation/preparedness and recovery phase after a disaster

Concept of Sentinel Asia Strategic Plan

"Challenges for Disaster Risk Reduction by a Collaboration between Space and Disaster Management Agencies"

MITIGATION
- Hazard Map
- Early Warning
- Success Story
- Pre-disaster monitoring

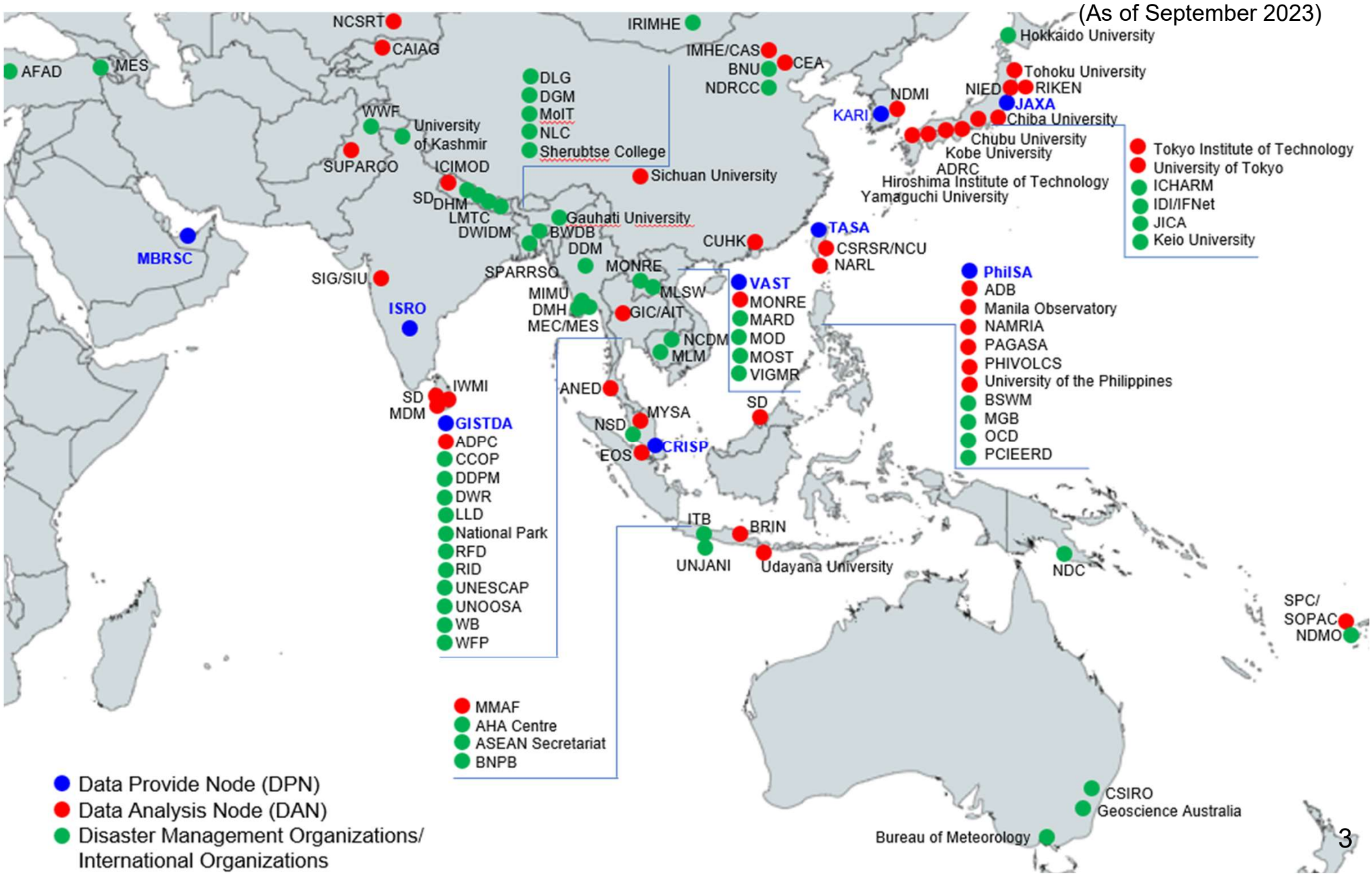
PREPADNESS
- Training
- Capacity Building
- Standard Operation Procedure（SOP)

RECOVERY
- Mid/Long-term monitoring
- Recovery Status

RESPONSE
- Emergency Observation
- Data Analysis
- Damage Assessment

2. Members of Sentinel Asia

All **114** organizations have the privilege to Request for Emergency Observations

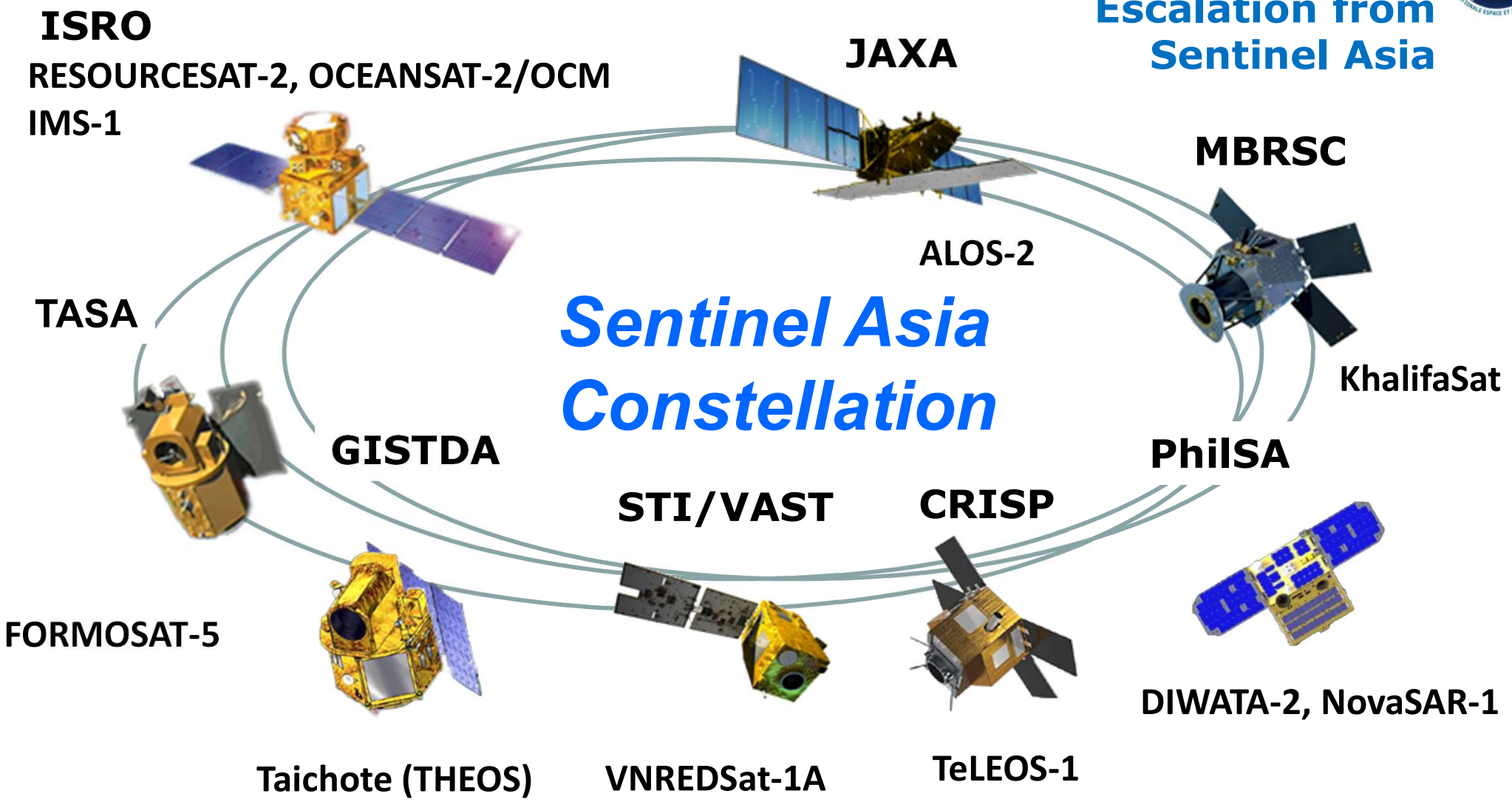


3. Emergency Observation Requests by Geographical Distribution

4.1 Sentinel Asia "Data Provider Node" (DPN) currently contributing to Emergency Observations

- ✓ 8 space agencies/research institutes currently contributing to emergency observation
- ✓ If necessary, escalate Emergency Observation Request (EOR) to the International Disaster Charter (IDC)

International Charter Escalation from Sentinel Asia



4.2 Data Providers of International Charter

- ✓ There are 17 Space Agencies providing Satellite Images to International Disaster Charter upon Emergency Observation Requests.

Agencia Bolivariana para Actividades Espaciales (ABAE)	Centre National d'Etudes Spatiales (CNES)
European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT)	European Space Agency (ESA)
Indian Space Research Organisation (ISRO)	Japan Aerospace Exploration Agency (JAXA)

4.2 Data Providers of International Charter

- ✓ There are 17 Space Agencies providing Satellite Images to International Disaster Charter upon Emergency Observation Requests.

National Institute for Space Research (INPE)

National Oceanic and Atmospheric Administration (NOAA)

The State Space Corporation (ROSCOSMOS)

UK Space Agency and DMC International Imaging (DMCii)

Canadian Space Agency (CSA)

UAE Space Agency (UAESA) and Mohammed Bin Rashid Space Centre (MBRSC)

4.2 Data Providers of International Charter

- ✓ There are 5 Private Sector Companies providing Satellite Images to International Disaster Charter upon Emergency Observation Requests.

BlackSky

ICEYE

Maxar Technologies

Planet

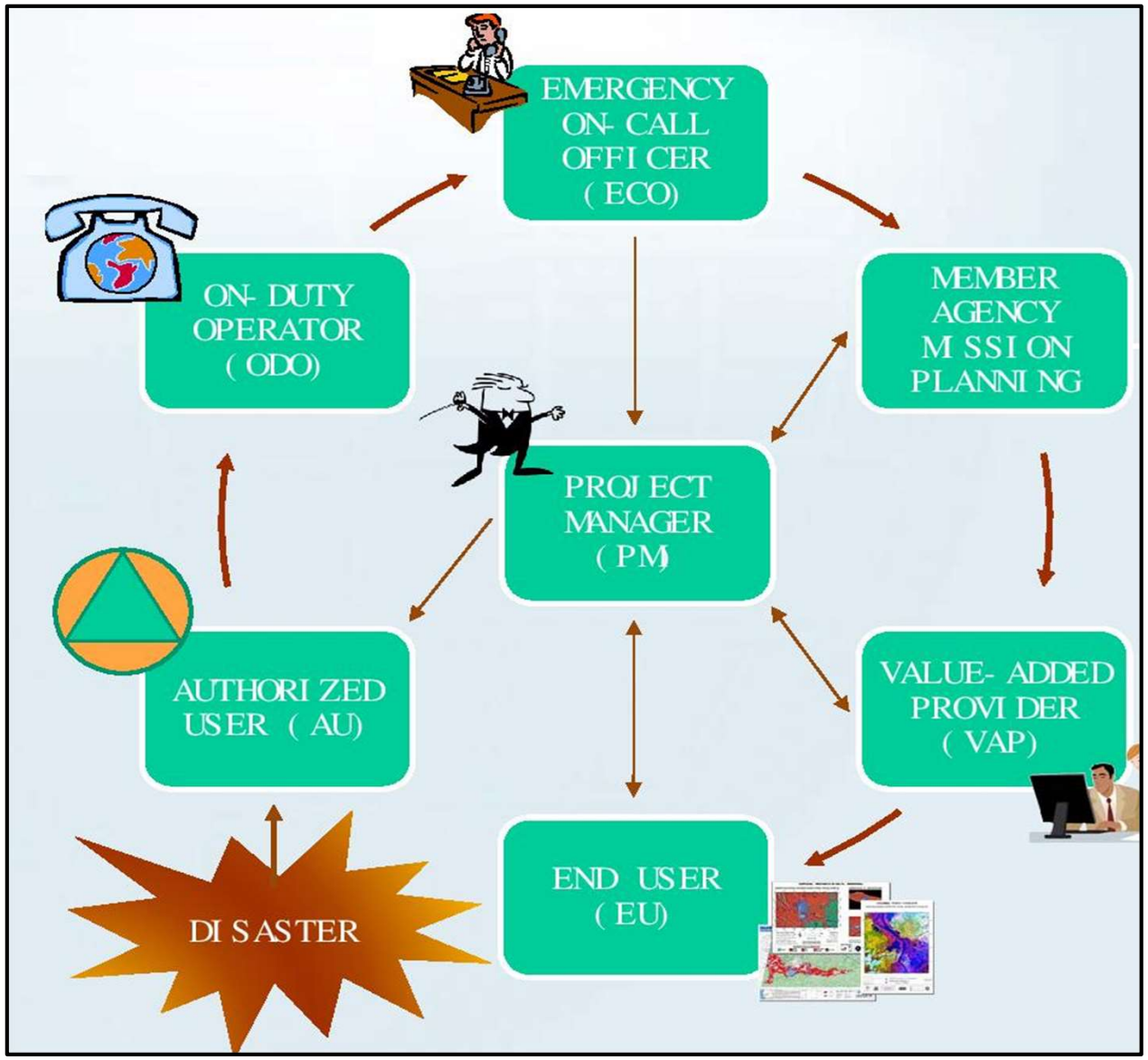
Satellogic

5. Escalation to International Disaster Charter

- ✓ IDC is useful when huge disaster strikes and DMO needs more data than SA may provide.
- ✓ The requester of SA EOR may escalate the request to IDC with simple steps.
- ✓ Once the escalation is activated by IDC, Project Manager(PM) must be assigned.
- ✓ PM will coordinate with the requester to provide VAPs from IDC.
- ✓ It is preferrable to provide PM from the Local DMO or assisting organizations from the country or region of the disaster. (Since they have the knowledge of the geographical characteristics of the area of interest)
- ✓ Sentinel Asia may provide onsite 1 day PM Training.
- ✓ Sentinel Asia may provide PM if there is no one volunteers for the PM.

5. Escalation to International Disaster Charter

- ✓ The Role of PM
- ✓ Sole Interface between the Charter and the User



5. Escalation to International Disaster Charter

IMPORTANT POINT

The PM communicates with the IDC members, Value Adders, and End Users to ensure that the data have been:

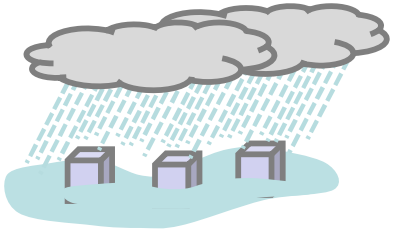
- **collected** (contact with partner agencies)
- **processed** (internally or contact with Value Added Companies)
- **delivered** (contact with Authorised Users / End users)

IDC requests how the Satellite images and VAPs are used to be reported in the PM Report.

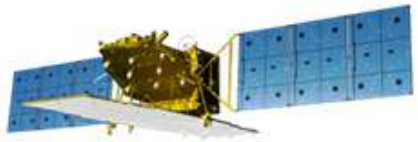
Please keep in mind that there are Extra Loads for tasking to IDC.

6. How to Request Emergency Observation

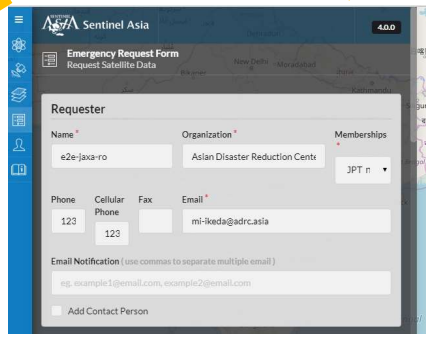
Disaster Occurrence



③ ADRC **Approves EOR**



① SA Members **Request Emergency Observation** using OPTEMIS



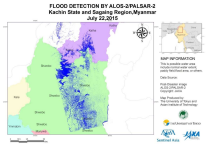
OPTEMIS

SFTP for DPN and DAN

WebGIS

④ Data Provider Nodes (DPN) provide **Satellite Images**

⑤ Data Analysis Nodes (DAN) analyze Satellite Images and provide **Value Added Product (VAP)**



② SA Members may request **Escalation to International Disaster Charter** for more Satellite Images

International Disaster Charter

⑥ SA Members **Retrieve VAP**

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6. Emergency Observation Flow

STEP1
- Disaster occurs

STEP2
- A Sentinel Asia member submits Emergency Observation Request (EOR) to Asia Disaster Reduction Center (ADRC) using OPTEMIS

STEP3
- ADRC review the EOR and send email to Data Provider Node (DPN) and Data Analysis Node (DAN) to ask their support

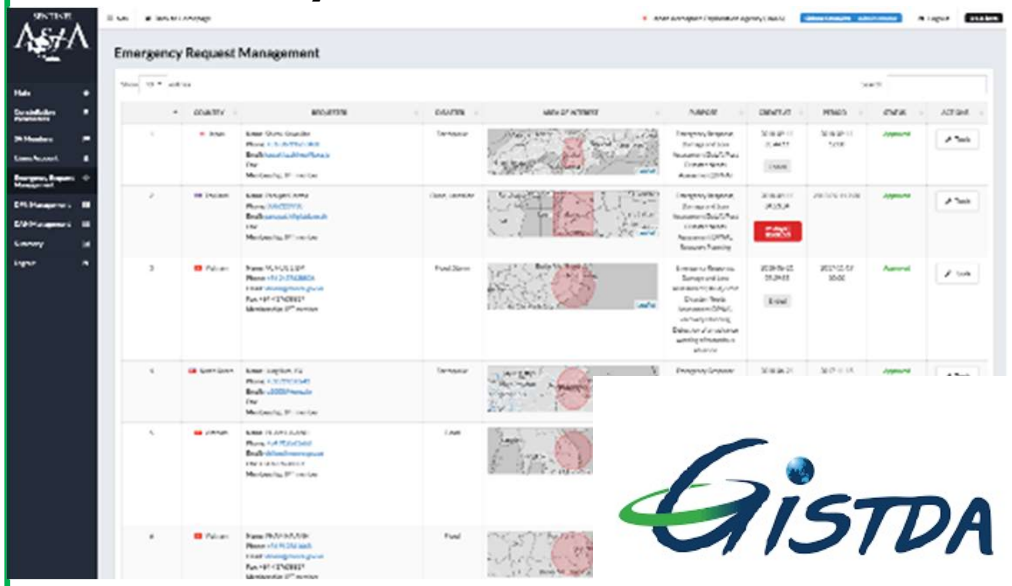
STEP4
- DPN conduct emergency observation and provide satellite data
- DAN analyze the provided satellite data to extract the area of hazards

STEP5
- Sentinel Asia provide analyzed disaster information to requester

※Some disaster information is open to public

7. Tools Developed for SA Emergency Observation Requests

OPTEMIS by GISTDA



Sentinel Asia Cloud Storage
(SFTP in Taipei and Mumbai)

TASA

JAXA

OPTEMIS, developed by GISTDA, is a web application with User Friendly Interface, managing data regarding EORs (such as User requests of Emergency Observation, Area of Interests, Observation Plan, Observation data, Value Added Products).

SFTP, provided by TASA and JAXA, is a Cloud storage SSH File Transfer Protocol (SFTP) site storing Satellite Observation Data and analyzed Value Added Products provided for DPN and DAN

©JAXA

7. Tools Developed for SA Emergency Observation Requests

Web based Geographic Information System (WebGIS)

Observed data and Value Added Products are displayed on easy to use visualization tool (WebGIS), to help Emergency Observation Requesters gather geographical information of the disaster areas.

©JAXA

7. Tools Developed for SA Emergency Observation Requests

Mobile application developed by AIT

- Web link: https://arcg.is/1HWGWX0
- QR Code:

Mobile Application is developed by Asia Institute of Technology (AIT) to collect on-site information of disaster area (such as photographs taken on-site)

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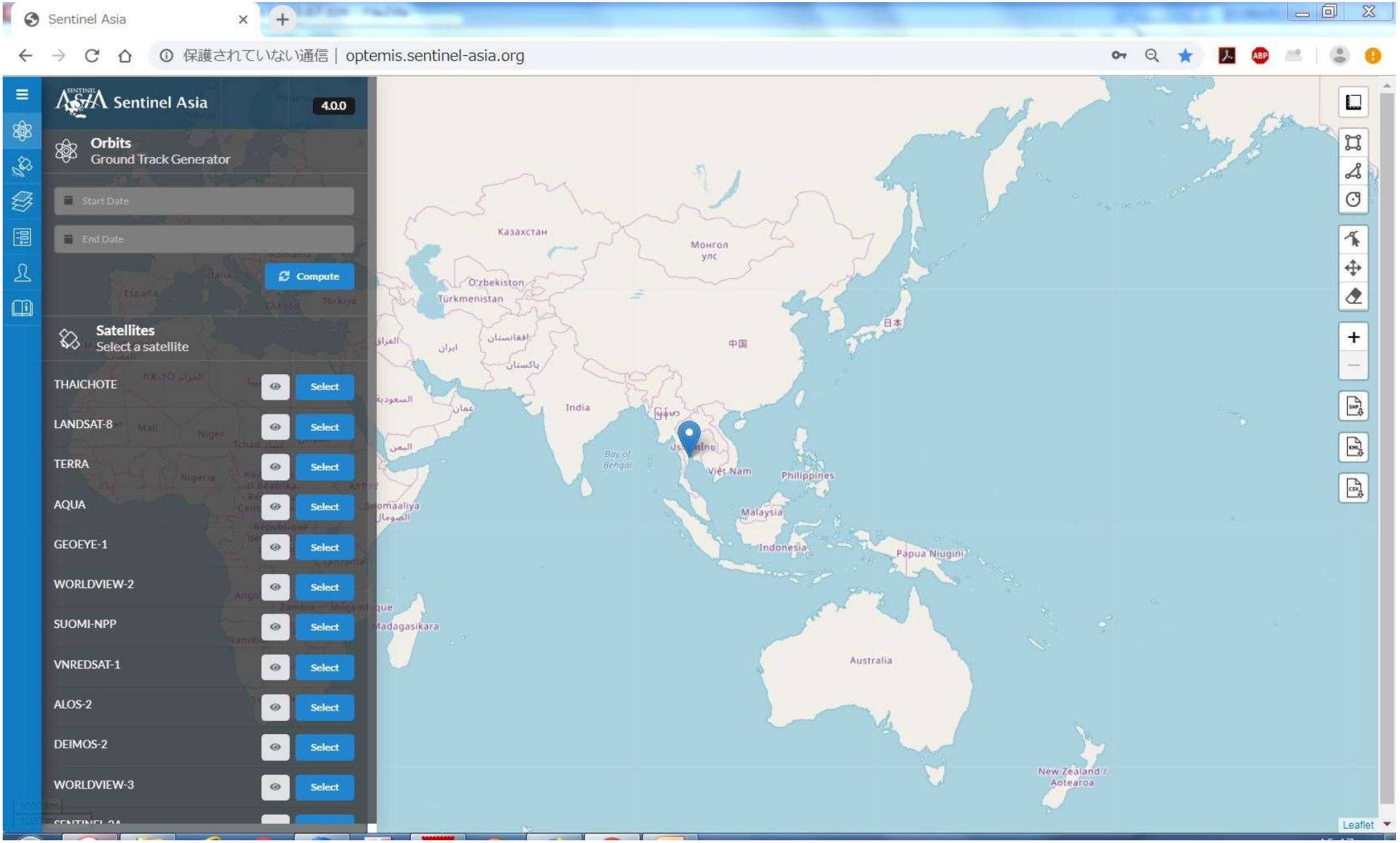
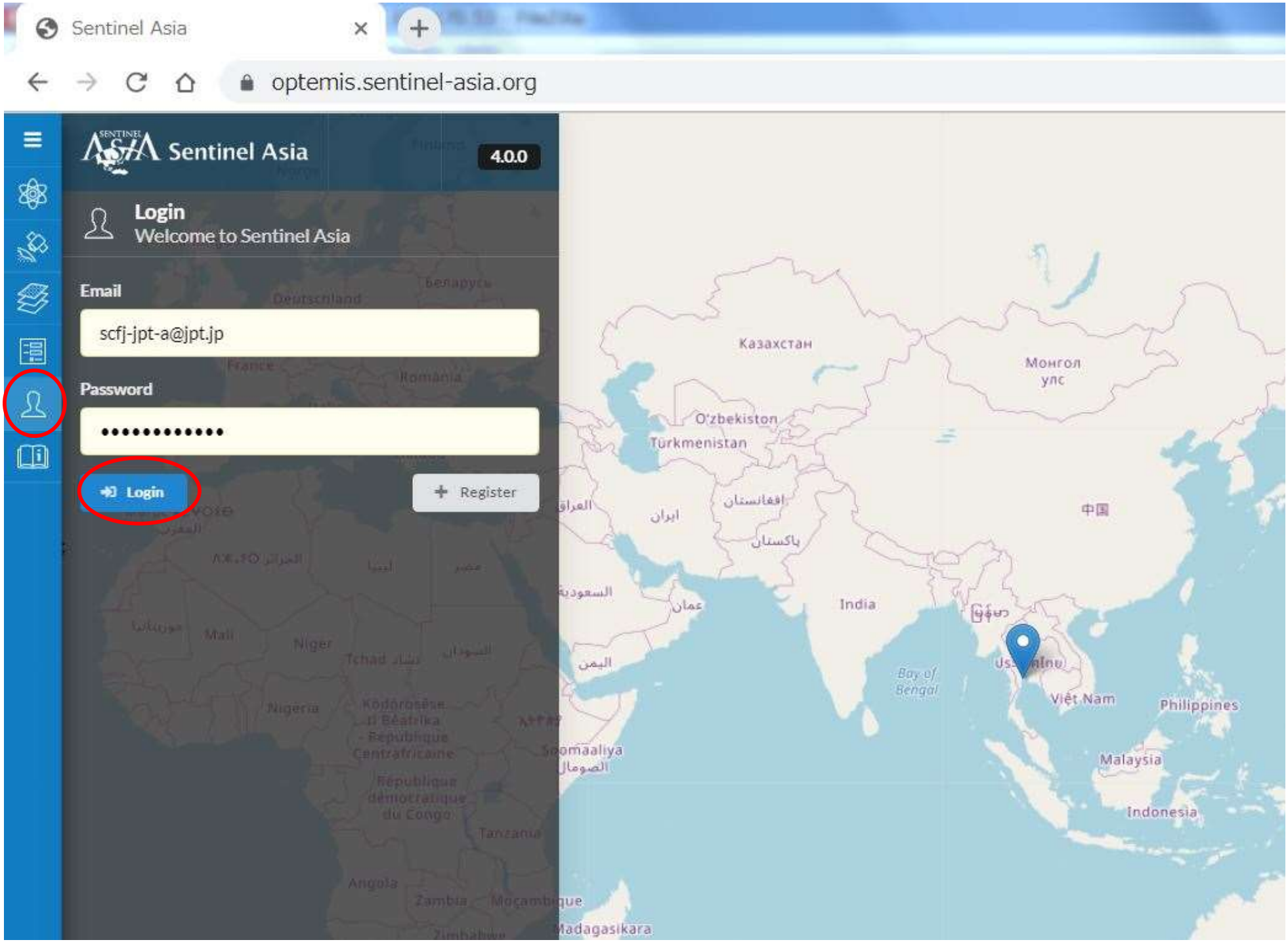
8. How to Use OPTEMIS

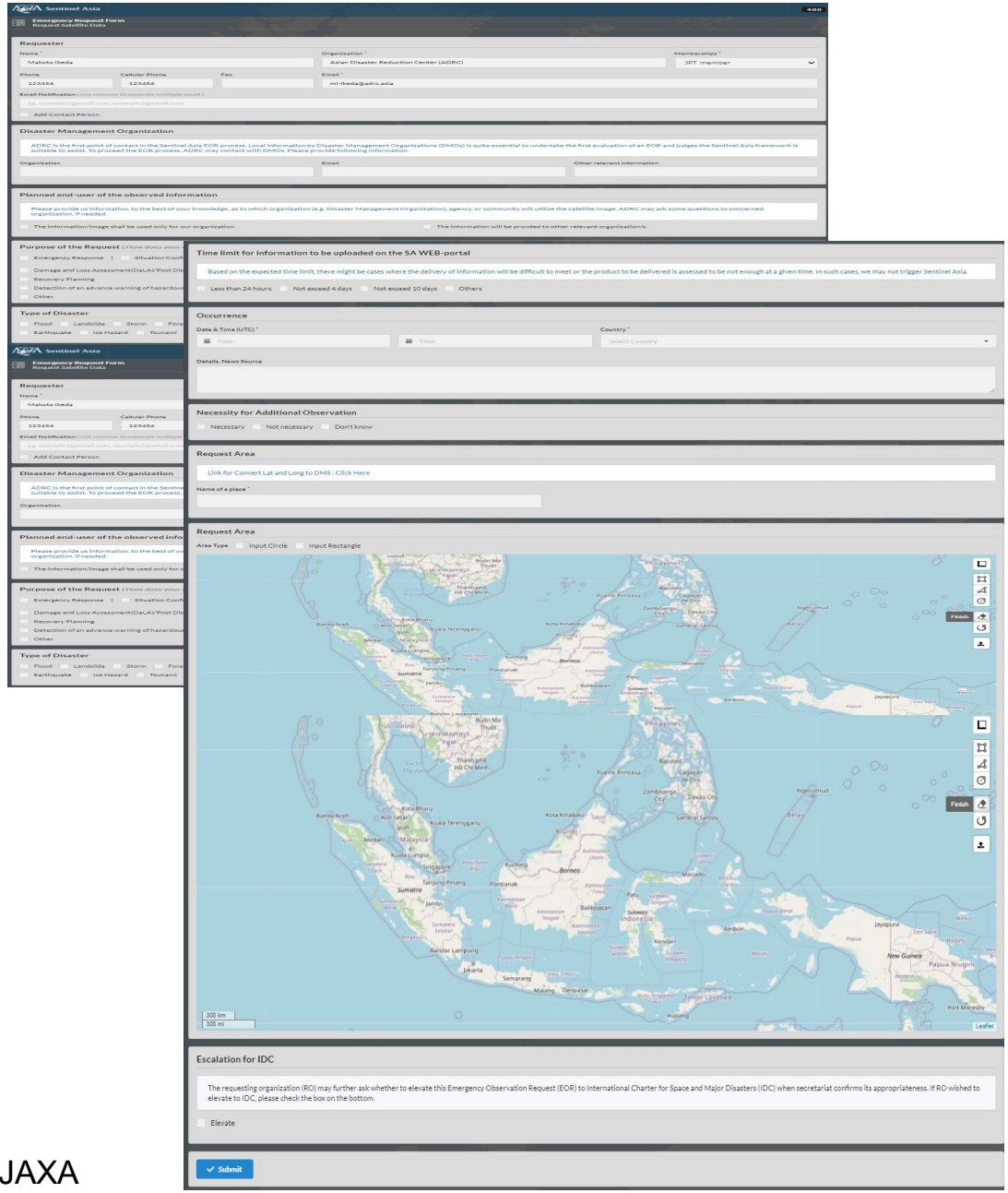
Top page https://optemis.sentinel-asia.org/



8.1 Login to OPTEMIS



8.2 Request Emergency Observation



Information needed to request Emergency Observation

- **Requestor**
- **Disaster Management Organization**
- **Planned end-user of the observed information**
- **Purpose of the Request**
- **Type of Disaster**
- **Analysis requirement for damages**
- **Request for Data Analysis Node**
- **Time limit for information to be uploaded on the SA WEB-portal**
- **Occurrence**
- **Necessity for Additional Observation**
- **Request Area (Place of Name)**
- **Request Area (Extent)**
- **Escalation for IDC**

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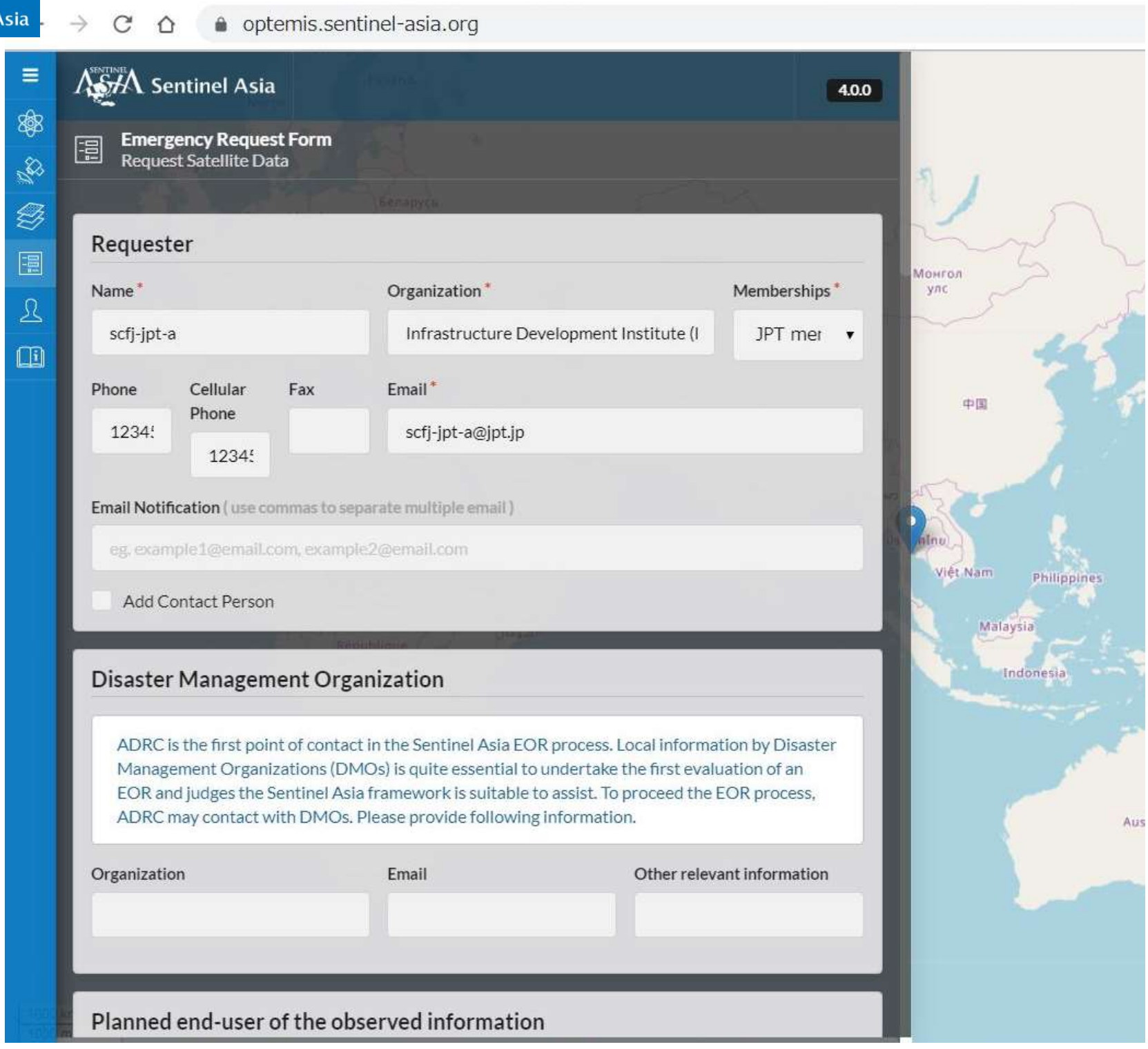
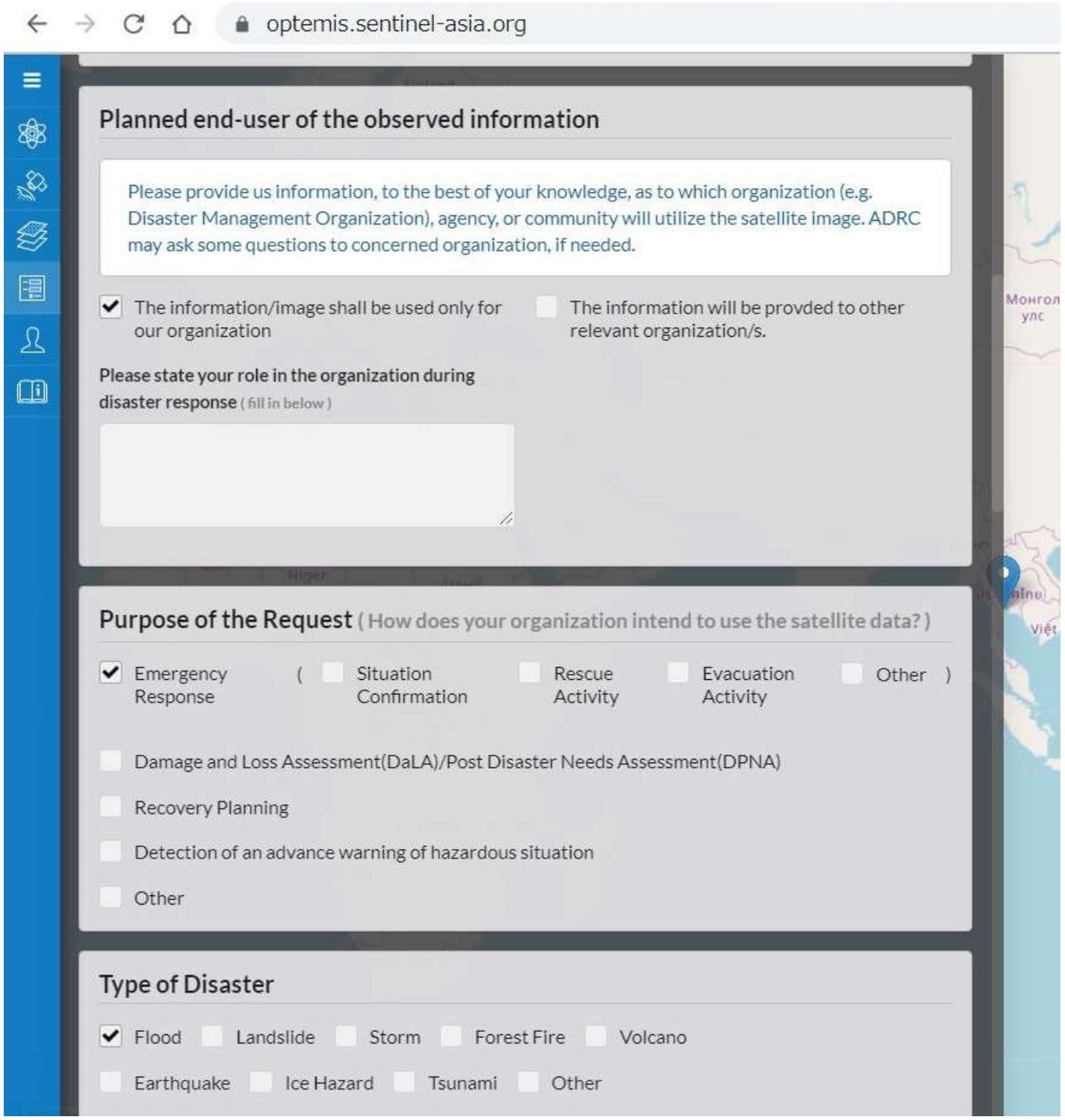
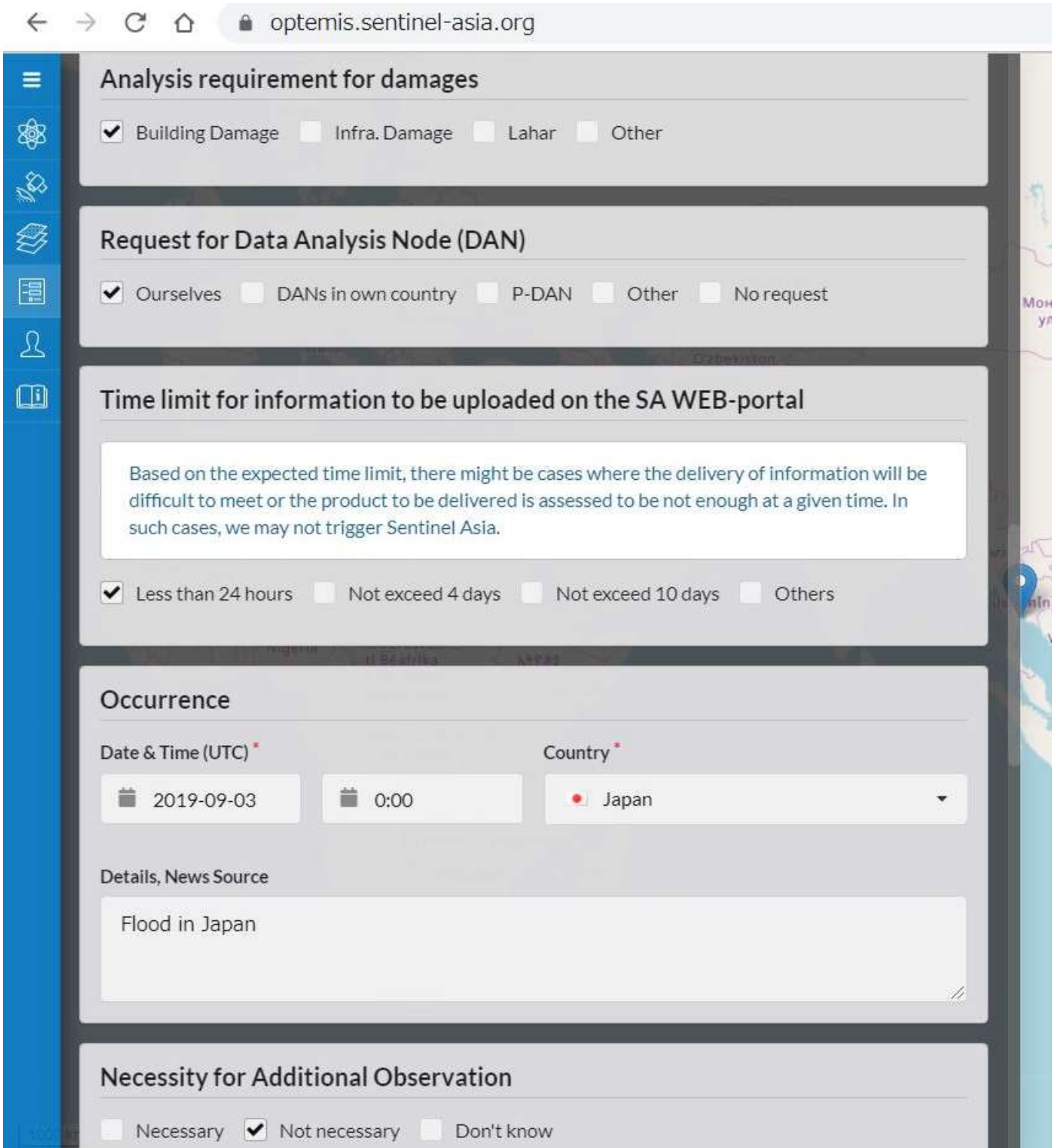
8.2.1 Fill in the EOR Form 1/5



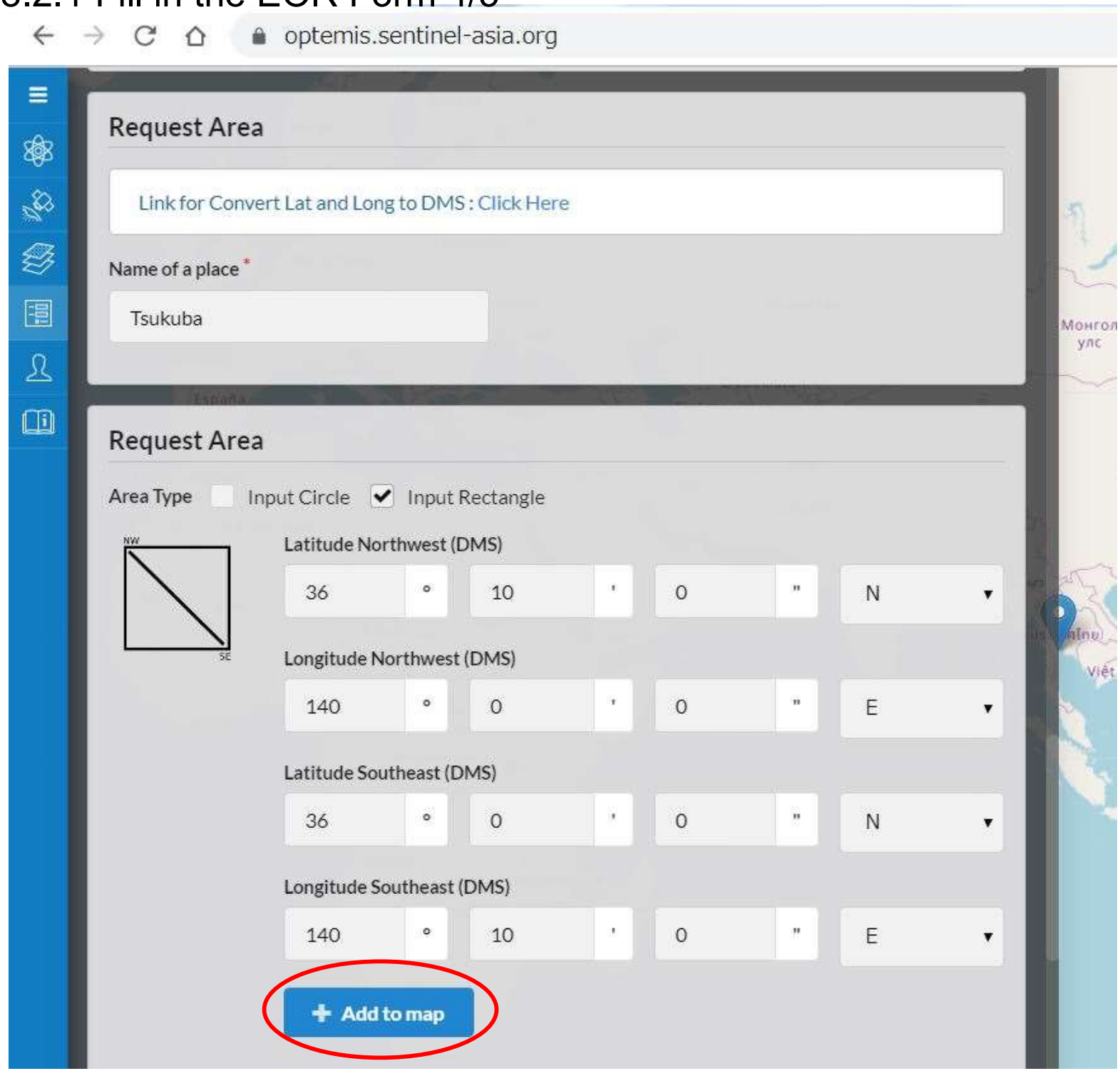
8.2.1 Fill in the EOR Form 2/5



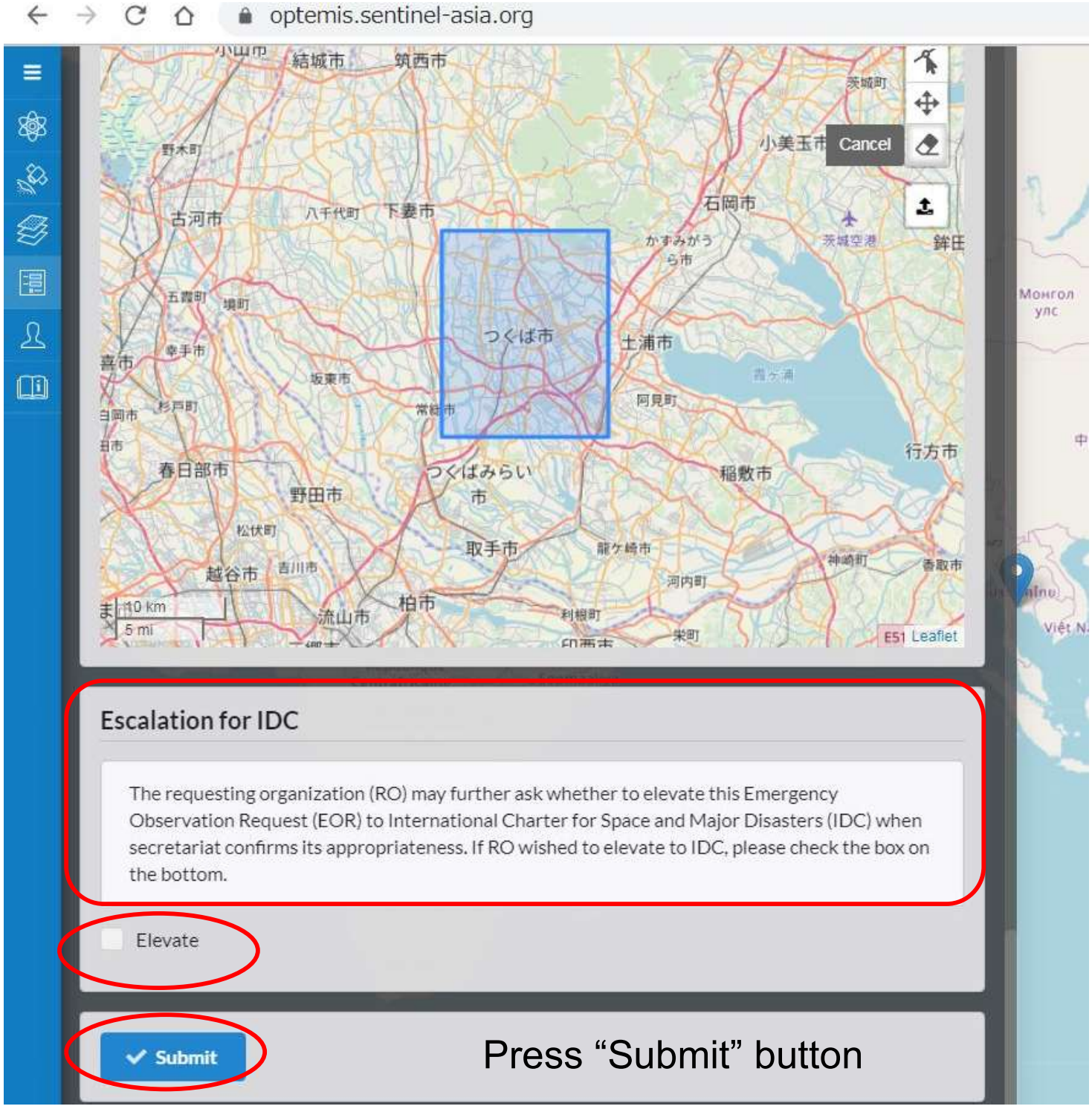
8.2.1 Fill in the EOR Form 3/5



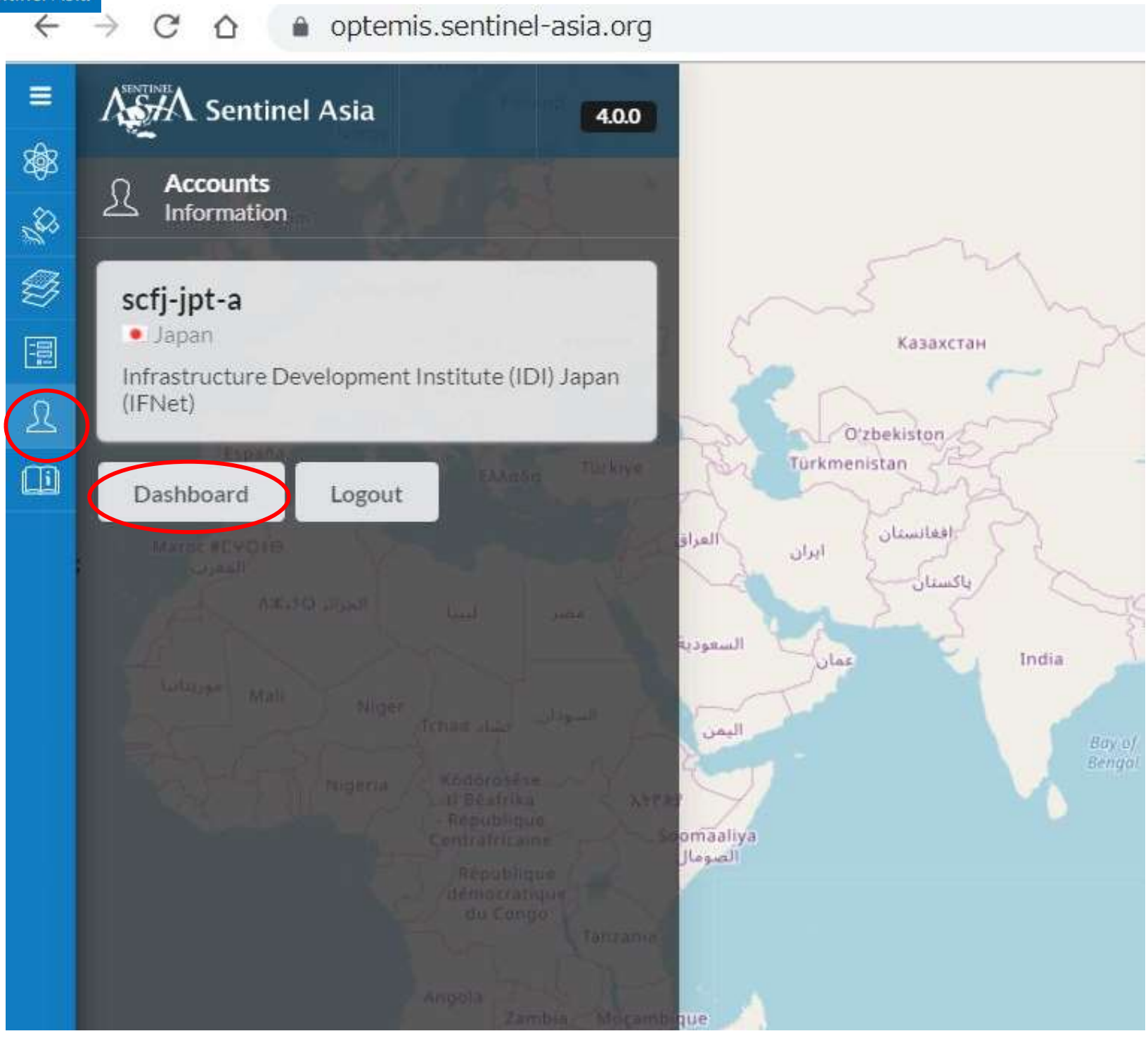
8.2.1 Fill in the EOR Form 4/5



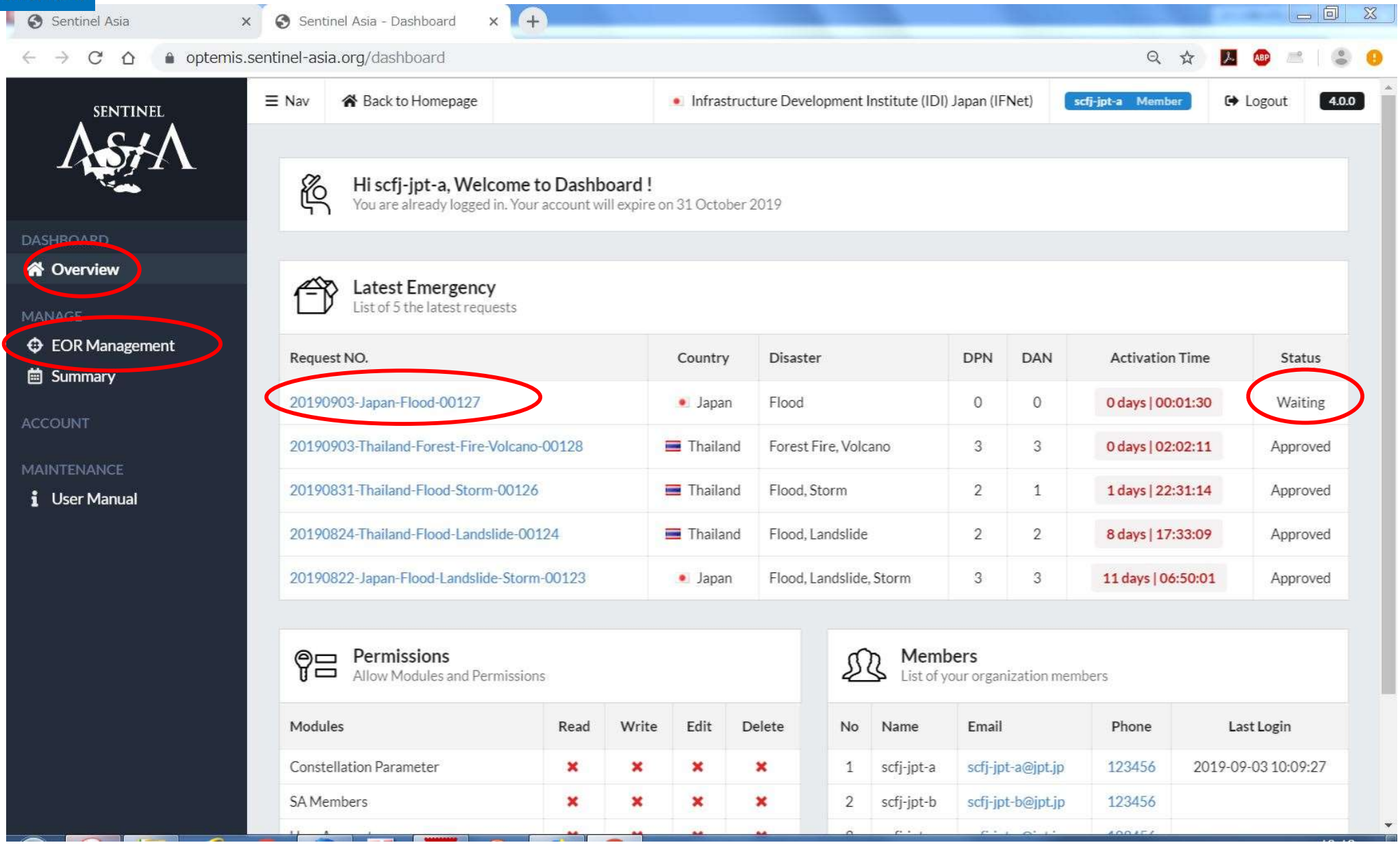
8.1.2 Fill in the EOR Form 5/5



8.3 Transition to Dashboard

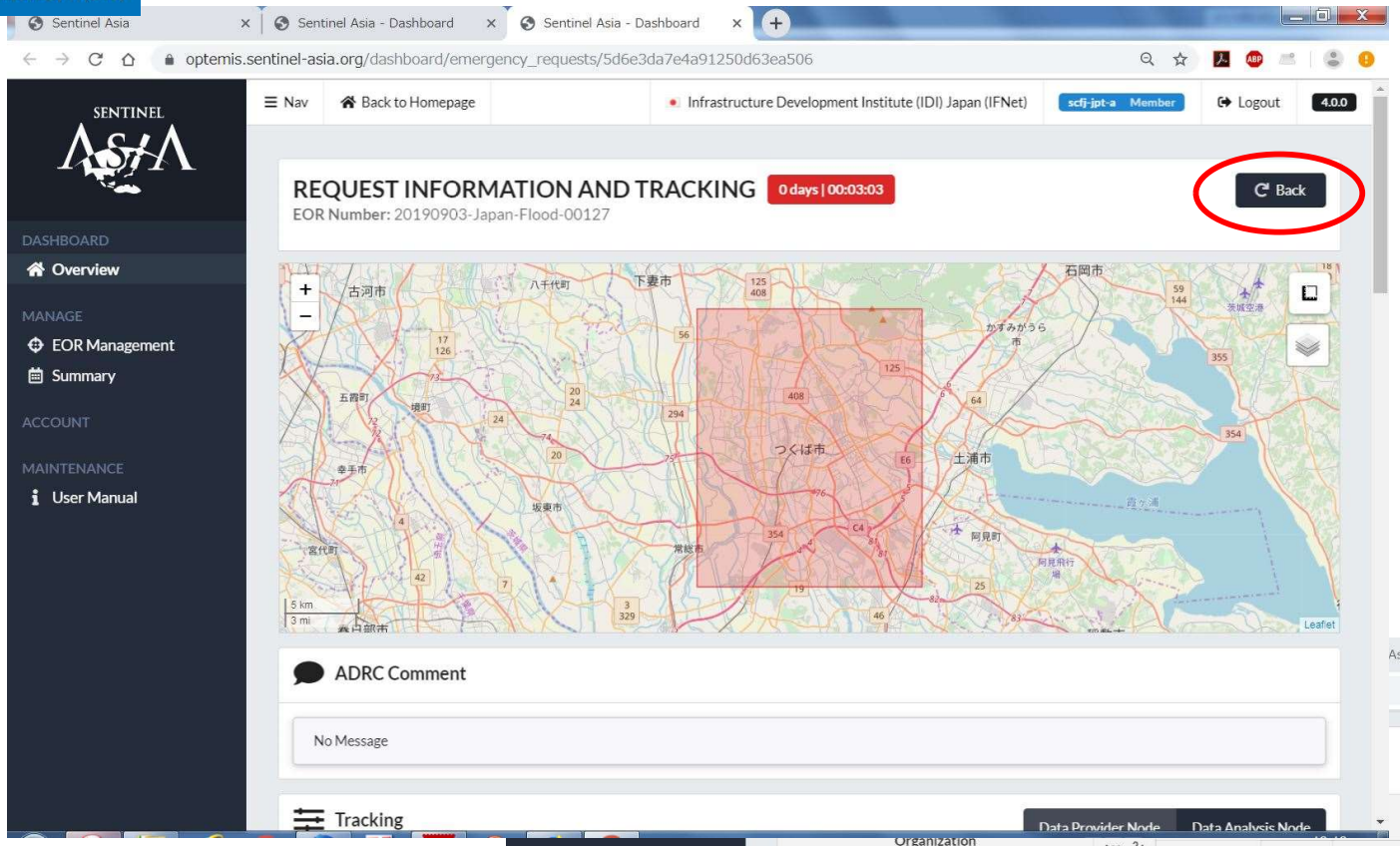


8.3 Dashboard Overview

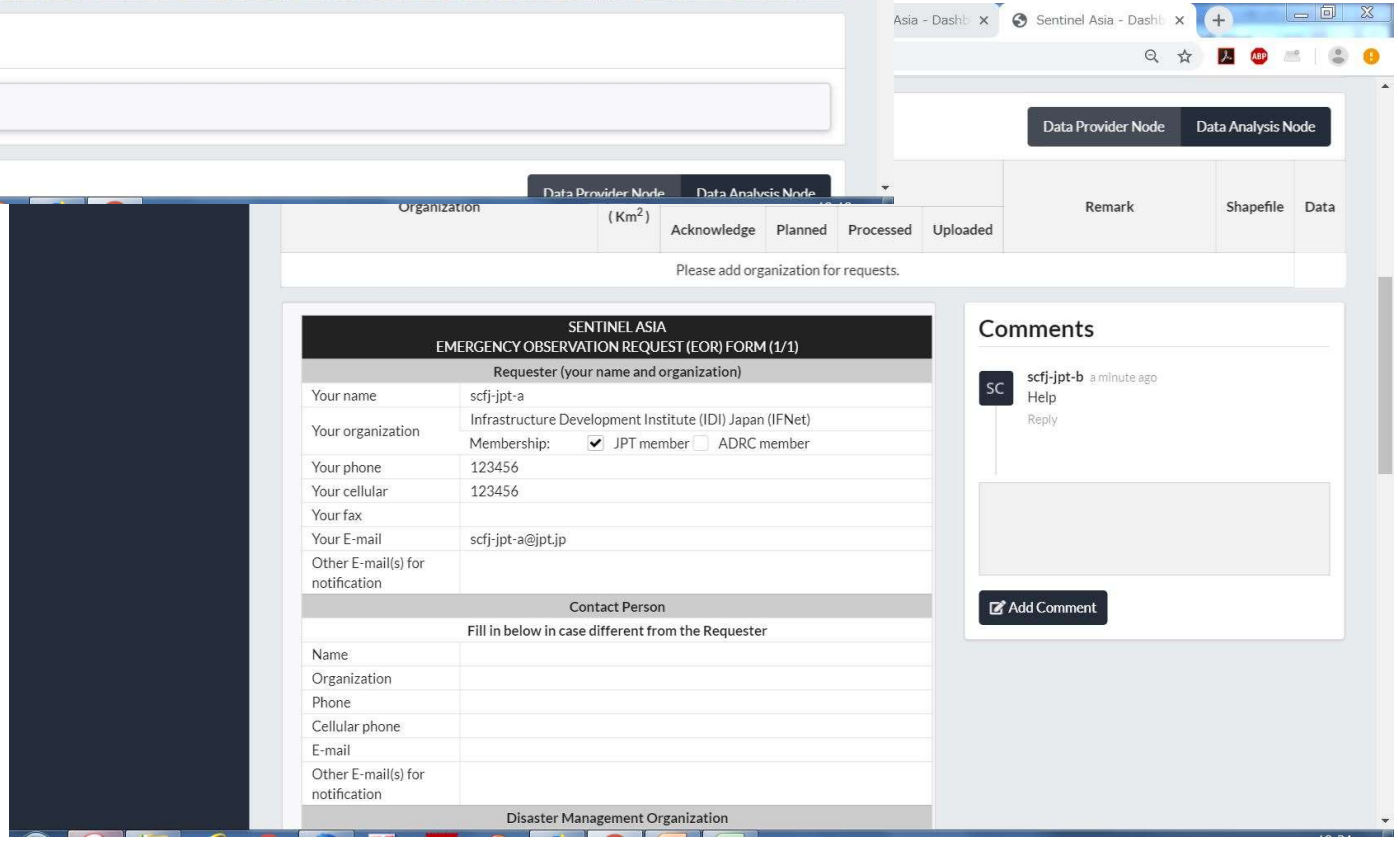


Confirm EOR status on the Latest Emergency list
When the EOR is activated, the status changes from Waiting to Approved

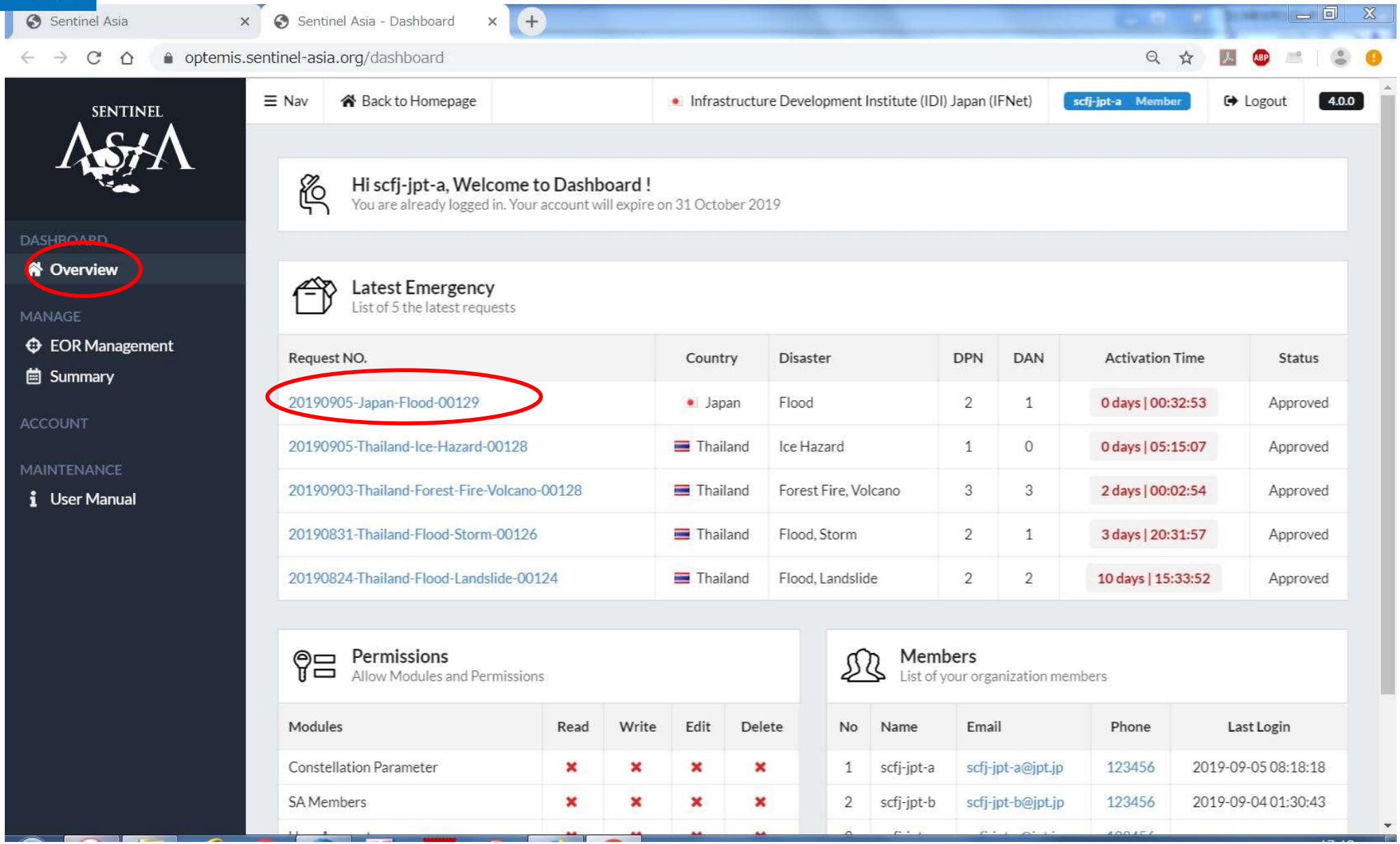
8.4 Request Information and Tracking



Return to previous

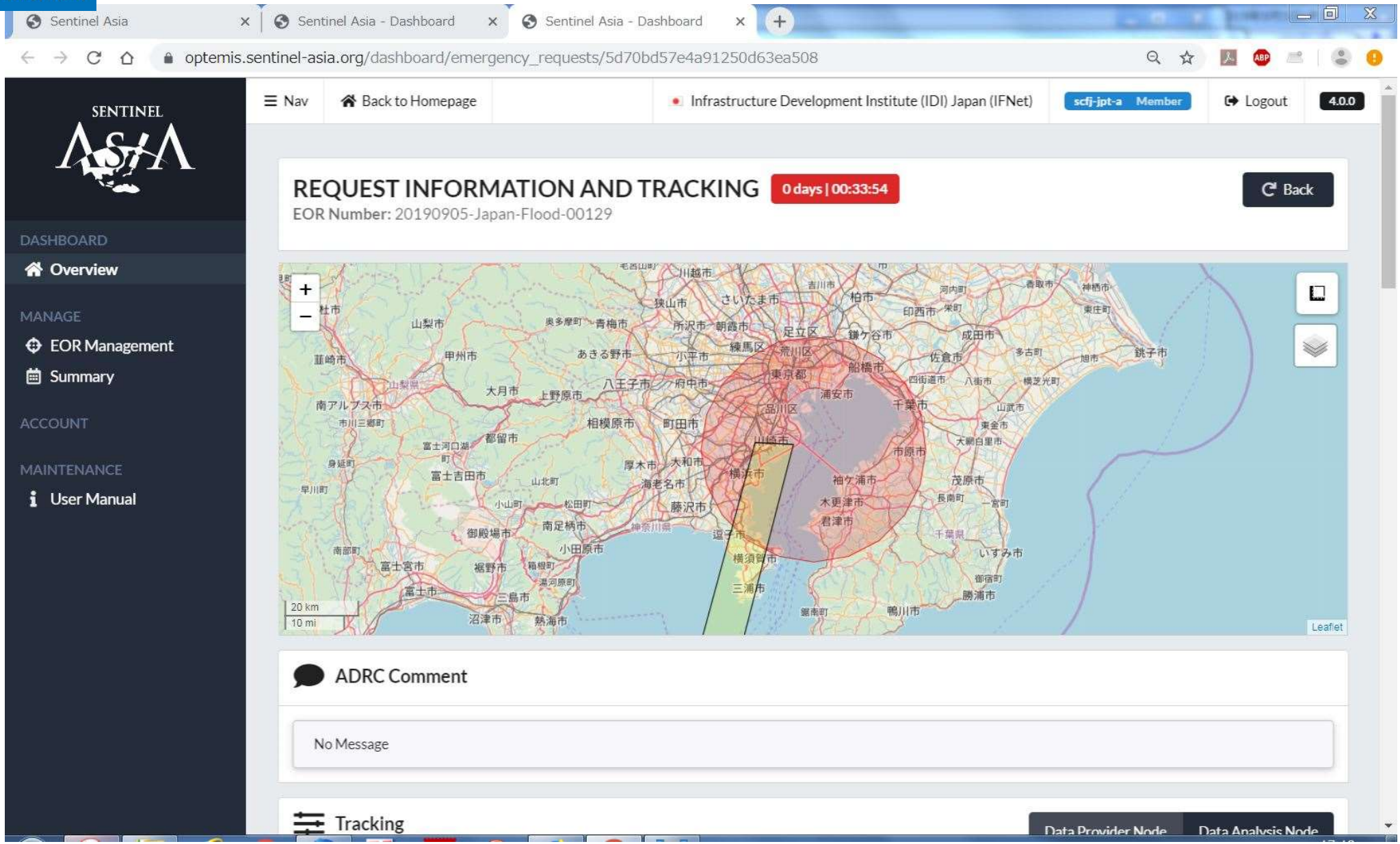


8.6 Get Analysis Product by Requester (JPT member)



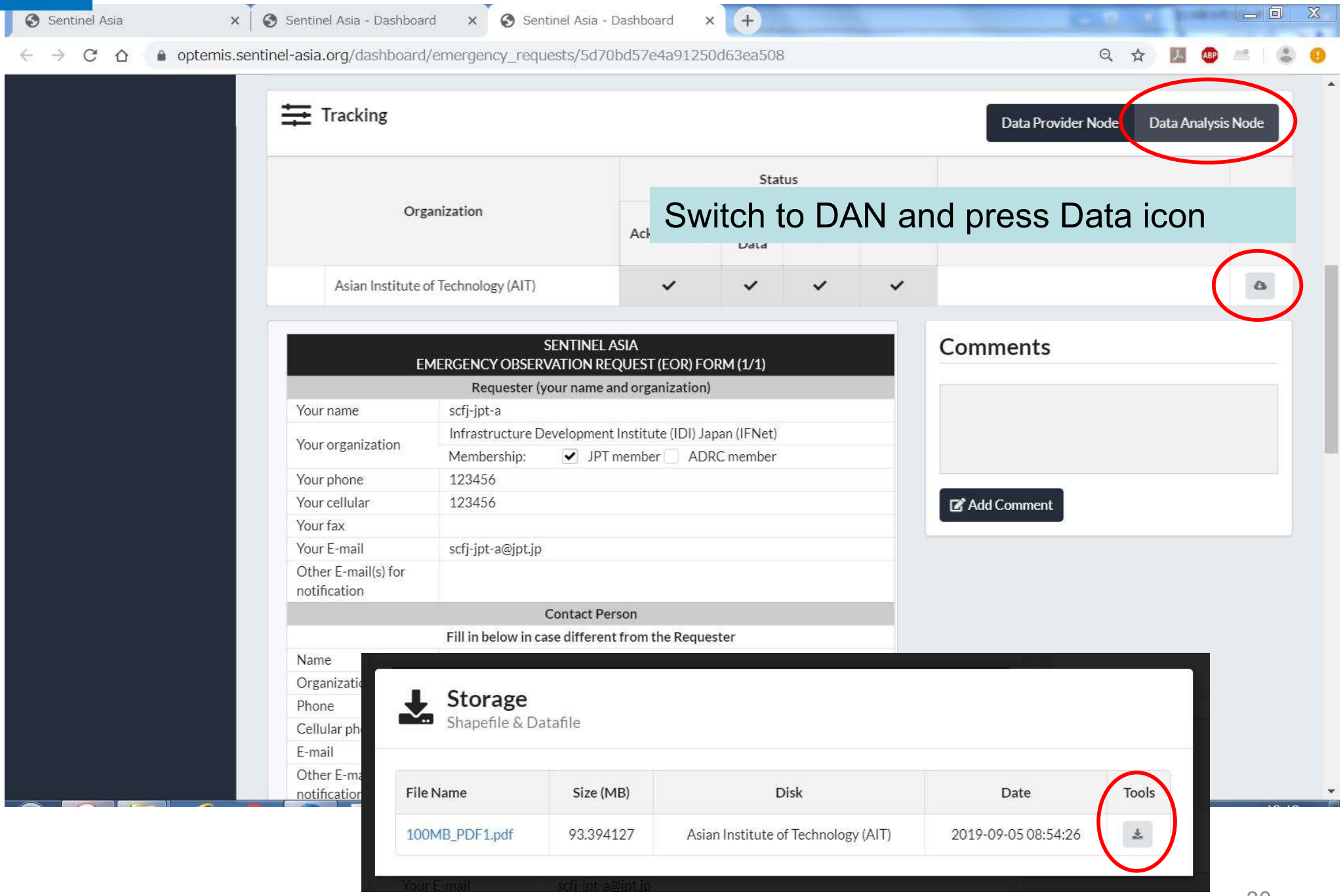
Choose EOR from the Request No. list

8.6 Request Information and Tracking



Scroll down to next page

8.6 Request Information and Tracking



Download the target data with the Tools icon

9. How to Apply for OPTEMIS Account

9.1 Information regarding OPTEMIS Account

Only the Data Provider Nodes(DPN), Data Analysis Nodes (DAN), and Joint Project Team (JPT) Members will be granted the access to OPTEMIS.

Secretariat understand that there are promotions, transfers, technical leave, etc. and operators in our organization change in time.

However, we cannot keep track of human affairs of each member organization. Therefore, we ask the Point of Contact (PoC) of each organization to maintain list of active operators.

9.1 Information regarding OPTEMIS Account

There are two steps needed to acquire new account.

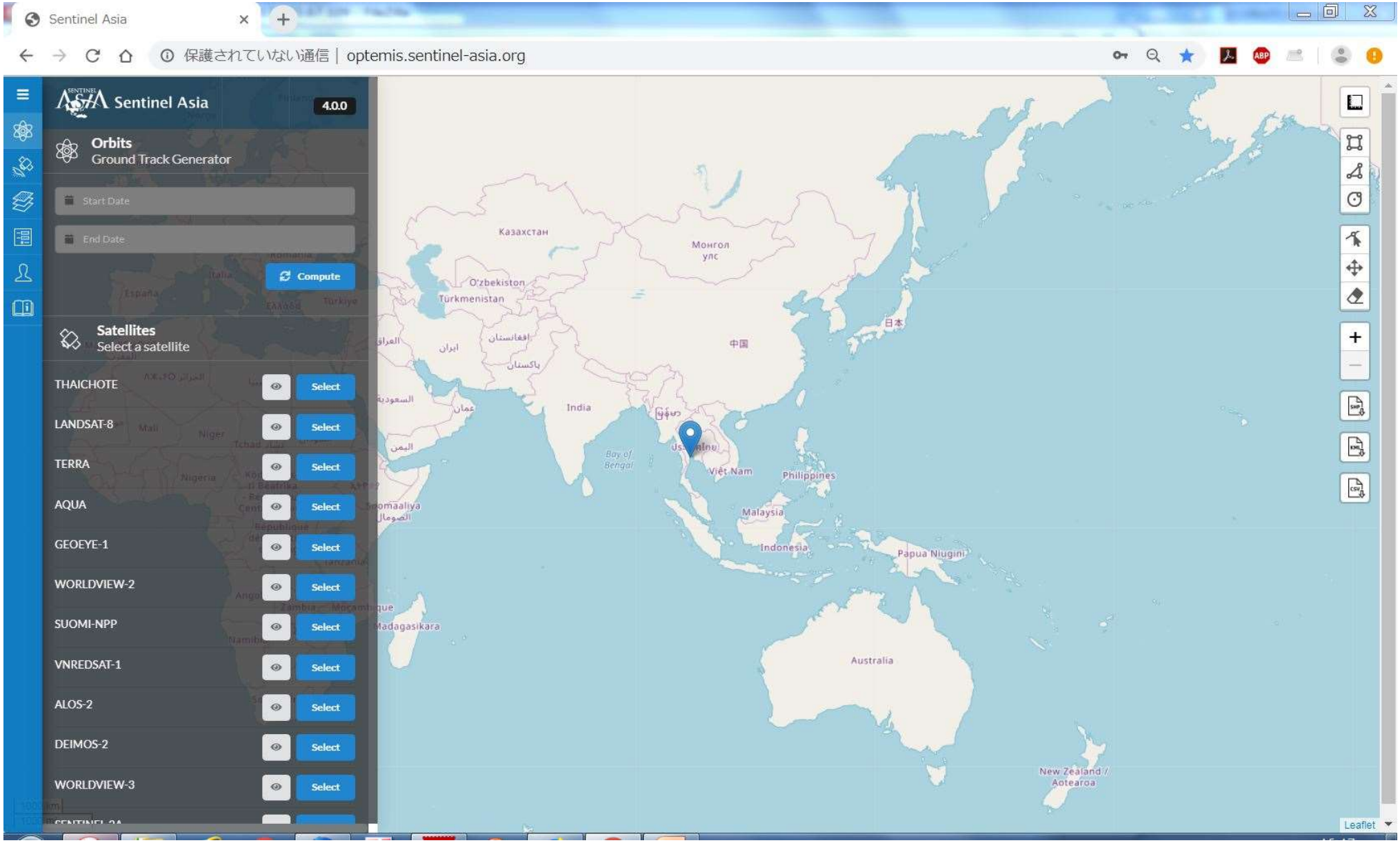
1) Potential user will register new account in OPTEMIS.
2) Please ask PoC to send application form to activate the newly registered account. (Secretariat will send the URL of application form to PoC)

This is to avoid unauthorized user to gain access to satellite imagery and valuable data provided by DPN and DAN's voluntary resources.

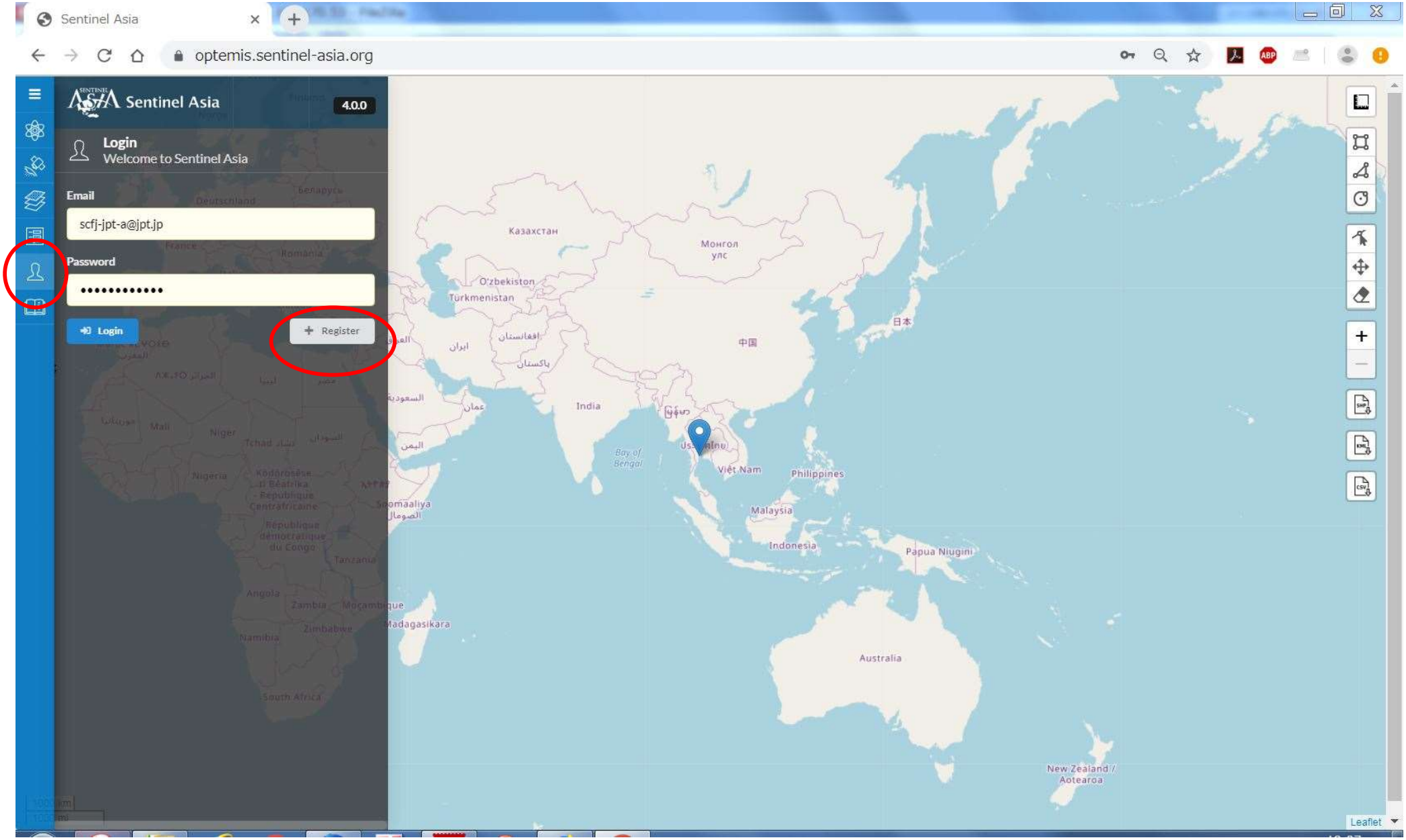
All the accounts expires March 31 of every year. Secretariat will ask PoC, if the registered accounts are qualified for renewal.

9.2 Access OPTEMIS Top page

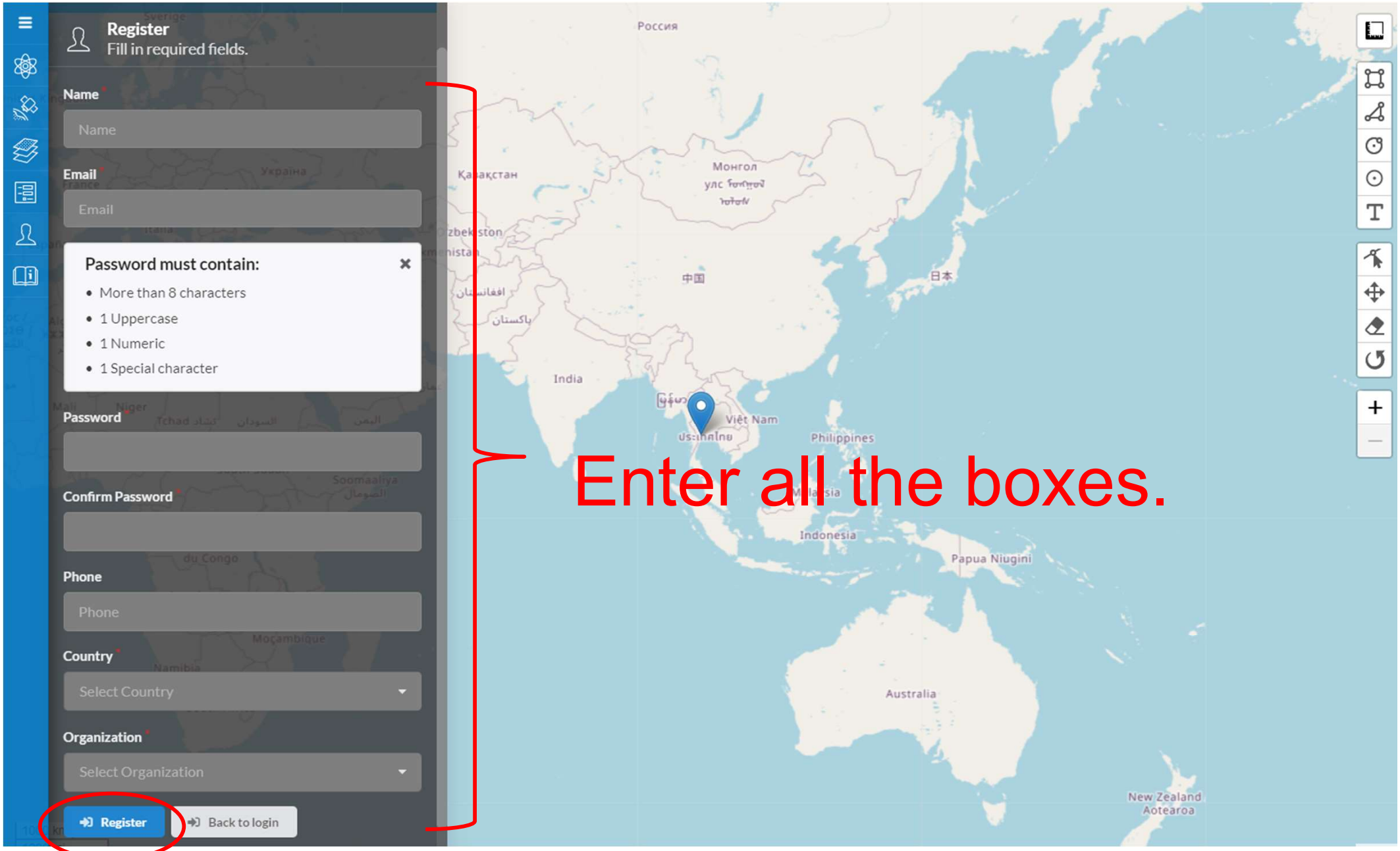
https://optemis.sentinel-asia.org/



9.3 Push Register Button



9.4 Fill in the Form



9.5 Ask PoC to send application form to activate new account from PoC

Secretariat will send URL of application form to PoC of your organization.

Please ask PoC to send application form for activation.

Secretariat will send a notice to the new user, when the account is activated.

Please send e-mail to z-sentinel.asiaml.jaxa.jp if you need information about PoC of your organization

9.6 Important Reminder:

all the accounts expires March 31 of every year.
Secretariat will ask PoC, if the registered accounts are qualified for renewal.

When a user access OPTEMIS when the disaster happens, sometimes account is expired.

This happens when PoC fails to reply the renewal inquiry from the Secretariat.

Please ask PoC to reply renewal inquiry.

Sentinel Asia

Thank you!

The Secretariat hope that EOR will help your Disaster Risk Reduction Activities.