



Committee on Earth Observation Satellites

Review of CEOS Chair Priorities

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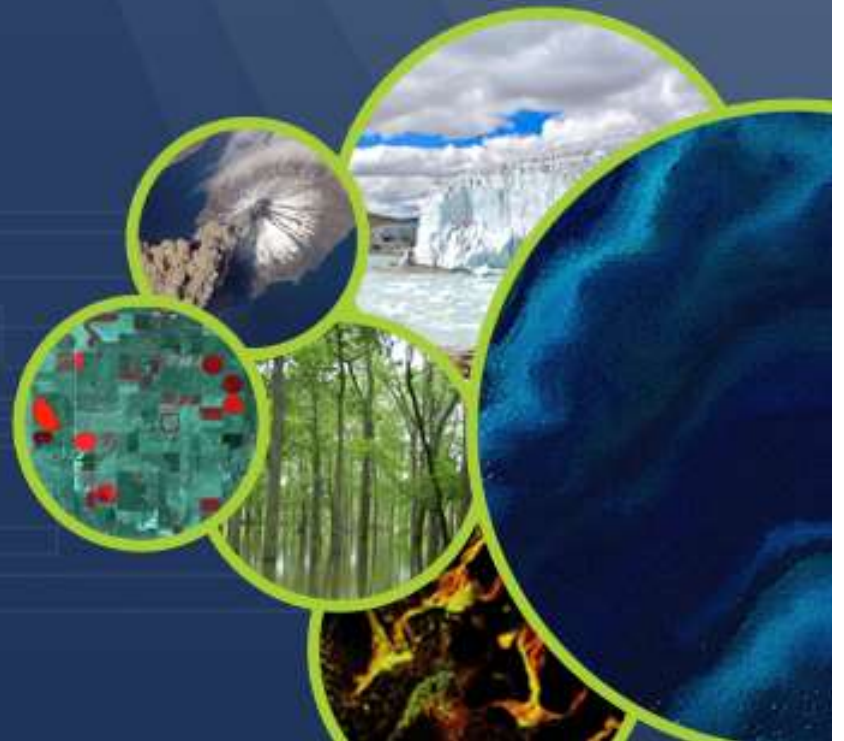
VAST-VNSC, 2019 CEOS Chair Team

CEOS 2019 SIT Technical Workshop

Session and Agenda Item #

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Review of CEOS Chair Priorities



Mekong Initiative Objectives for CEOS Plenary





In 2019, CEOS Chair activities will focus on two specific applications:

- **Carbon Observations, including forested regions:** to coordinate EO observations to support the effective monitoring and management of the forests in the region, through its Ad Hoc Space Data Coordination Group for GFOI, in support of the development of national forest monitoring and measurement, reporting and verification (MRV) systems;
- **Observations for Agriculture:** in line with the CEOS Ad Hoc WG on GEOGLAM, and within the GEOGLAM Asia-Rice regional network, a key focus will be addressed on the practical use of CEOS data, especially SAR for rice crop monitoring in Asia.

Focus on the **Mekong basin region**, which is cross boundary affected by climate change and human activity impacts

- To enhance contribution and cooperation in the region of the CEOS agencies;
- To promote the sharing of CEOS agency data by improving access and use of such data in thematic studies and applications for the whole region.



Forest monitoring for the Mekong

- Algorithms:
 - Developed by VNSC: combination of SAR data and Optical data. Using Sentinel-1 for SAR data; Landsat and Sentinel 2 for optical data
 - Developed by CESBIO: using time series of Sentinel-1 data
- In situ data: 2018 and 2019 data of central highland, Vietnam
- Validation: on-progress. VNSC will create the forest monitoring product for Vietnam and using in-situ data for validation. From validated model of Vietnam, the forest map of other countries in Mekong region will be created. Validation will be helped by CNES CESBIO.
- We plan to test with ALOS-2 data for 4 countries (intended 3 years, up to 2017)
- Forest change map on VDC will be prepared to display for the demonstration at CEOS plenary to show collaboration result. There are should be 2 presentations: Forest change map on VDC developed by VNSC and Forest change map on VDC developed by CNES CESBIO/VNSC.



Rice monitoring for the Mekong

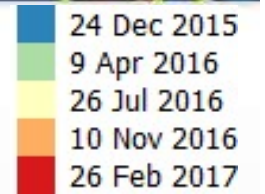
- Algorithm developed by VNSC for the Mekong Delta and Red River Delta have been validating by using in situ data and extending to whole country. CNES CESBIO analyses the Sentinel-1 backscatter time series for different rice ecosystems and tests the ESA GEORICE rice mapping algorithms in 4 countries. JAXA&RESTEC analyses the ALOS-2 backscatter time series with JAXA's rice crop monitoring tool named "INAHOR" NEO (machine learning version) and generating prototype of rice crop map in 2018 rainy season using available ground observation data and statistical information for 4 countries in cooperation with 4 countries related organizations.
- VNSC will use the in-situ data over the Red River Delta and Mekong Delta region to validate the rice map provided by CNES CESBIO and JAXA&RESTEC (Deadline: September 2019).
- Rice maps on VDC will be prepared to display for the demonstration at CEOS plenary to show collaboration result (Deadline: September 2019).



Forest monitoring

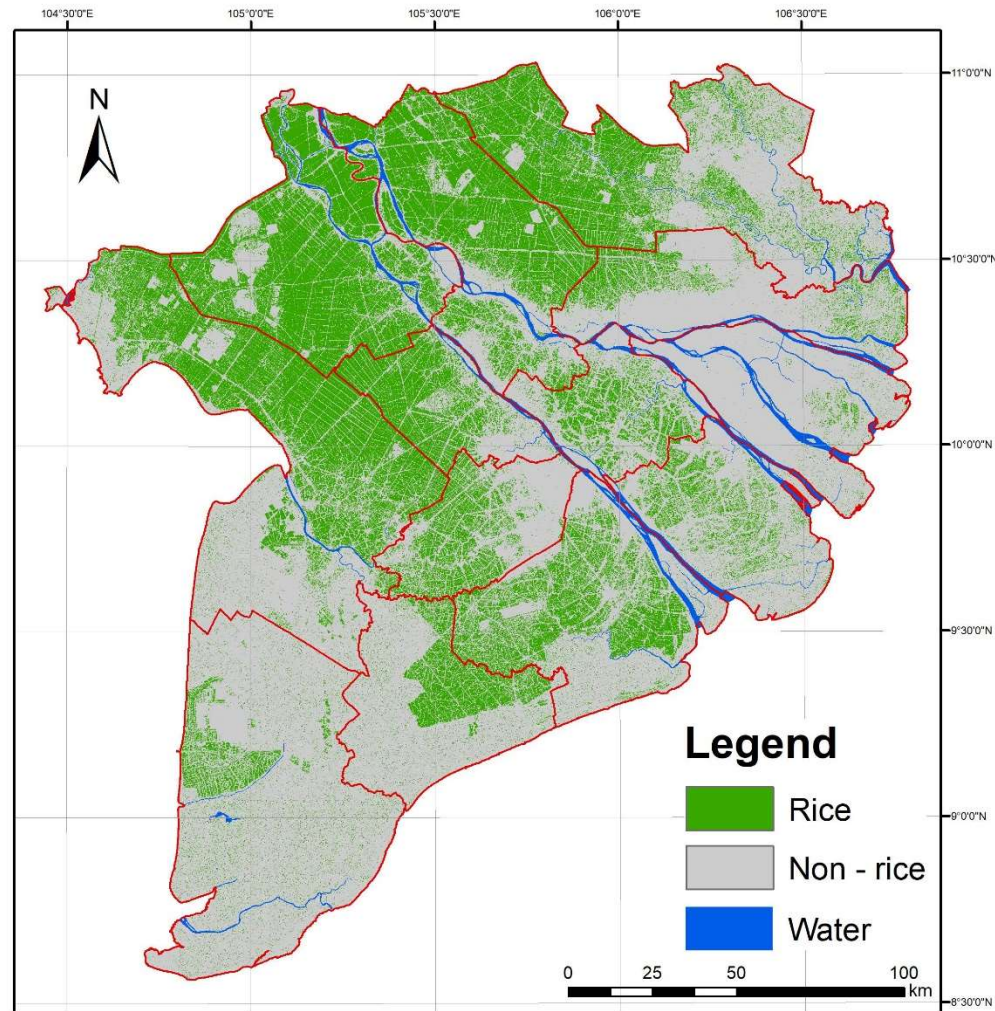


Logging date from Sentinel-1





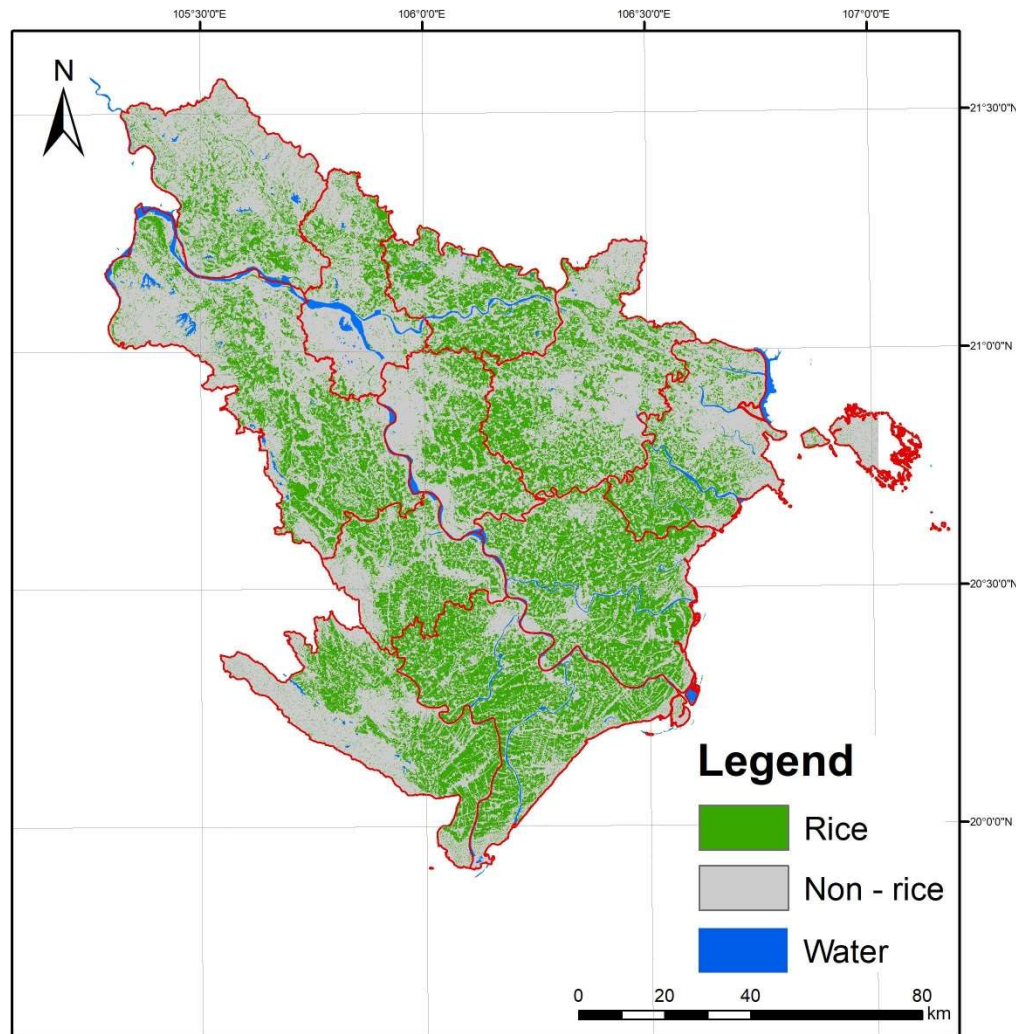
Rice map from Vietnam Data Cube



Summer-Autumn rice crop 2018 in the Mekong Delta, Vietnam



Rice map from Vietnam Data Cube



Rainy season rice crop 2018 in the Red River Delta, Vietnam

**Objectives of Forest Initiative:**

1. Forest maps: Forest map of Mekong area countries. The forest map need to be re-formed since the forest classes different among Mekong area countries. The forest classes need to be simplified and will be discussed with MRC.
2. Forest cover change monitoring:
 - a. Monthly forest cover change monitoring in Vietnam. The forest monitoring will be focus on “forest loss” monthly. Extension to the Mekong region.
 - b. Yearly forest change result will be created with forest loss and forest regrowing.

**Objectives of Rice Initiative:**

1. Rice crop maps (crop season product) of the Mekong area (Cambodia, Laos, Thailand, Vietnam) linked with ESA GEORice.
2. Rice Phenology / Growth Stage (monthly product) of the Mekong Delta and Red River Delta, Vietnam.
3. Rice Crop Production / Yield Estimation (crop season product) of provinces in the Mekong Delta and Red River Delta, Vietnam.
4. Continued development of GEOGLAM National Crop Monitor with NASA Harvest.



Thank you



Questions?

