

REMOTE SENSING FOR RICE CROP MONITORING



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INTRODUCTION

Vietnam is one of the leading rice producers and exporters in the world. Recent year, remote sensing - based technology has been studied and applied broadly in agricultural area to remedy such drawbacks of traditional ground-based survey methods as time-consuming, expensive, imprecise, and unreliable.

This prototype is one of key studies in long time at STAC/VNSC

1. Prototyping Executor

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2. Technical Supporter

- Centre d'Etudes Spatiales de la Biosphère (CESBIO), France
- An Giang University (AGU), Vietnam

3. Data & Application Provider

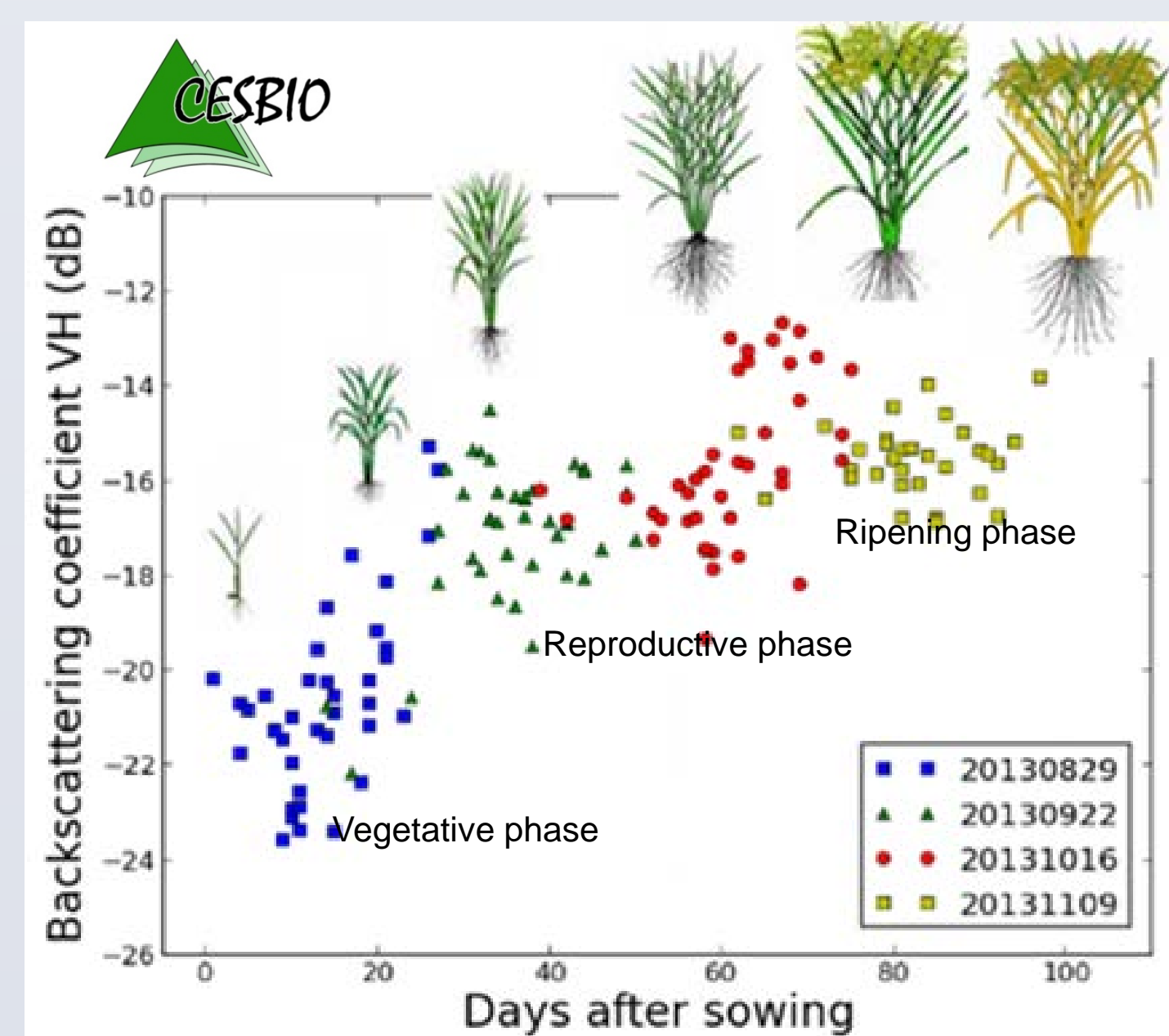
- e-GEOS: COSMO SkyMed
- CSA: RADARSAT-2
- JAXA: ALOS PALSAR, ALOS-2
- ESA: Sentinel-1 (S1)
- NASA: MODIS
- DATACUBE



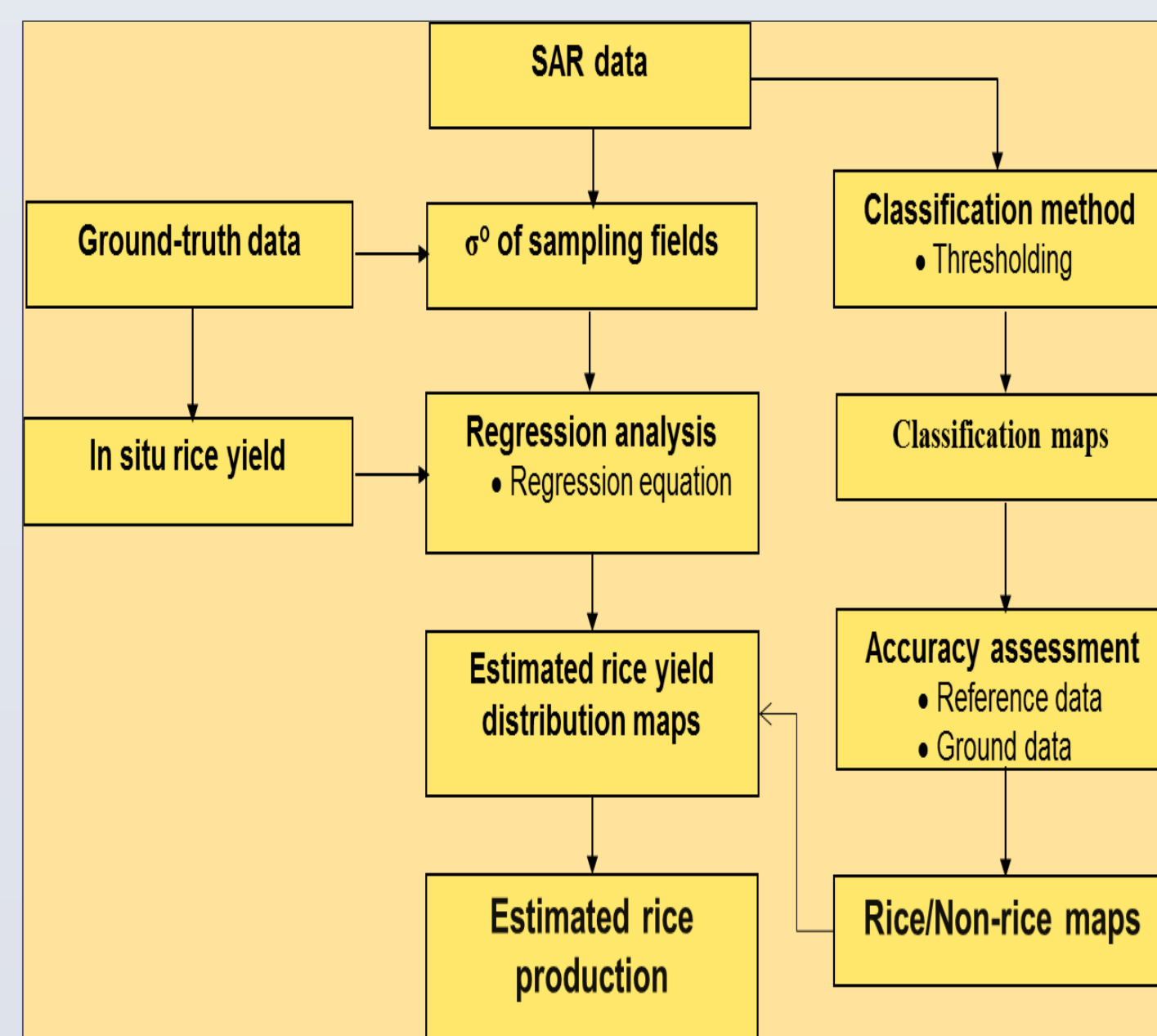
APPROACH

The key point of rice monitoring is tracking the data in time series.

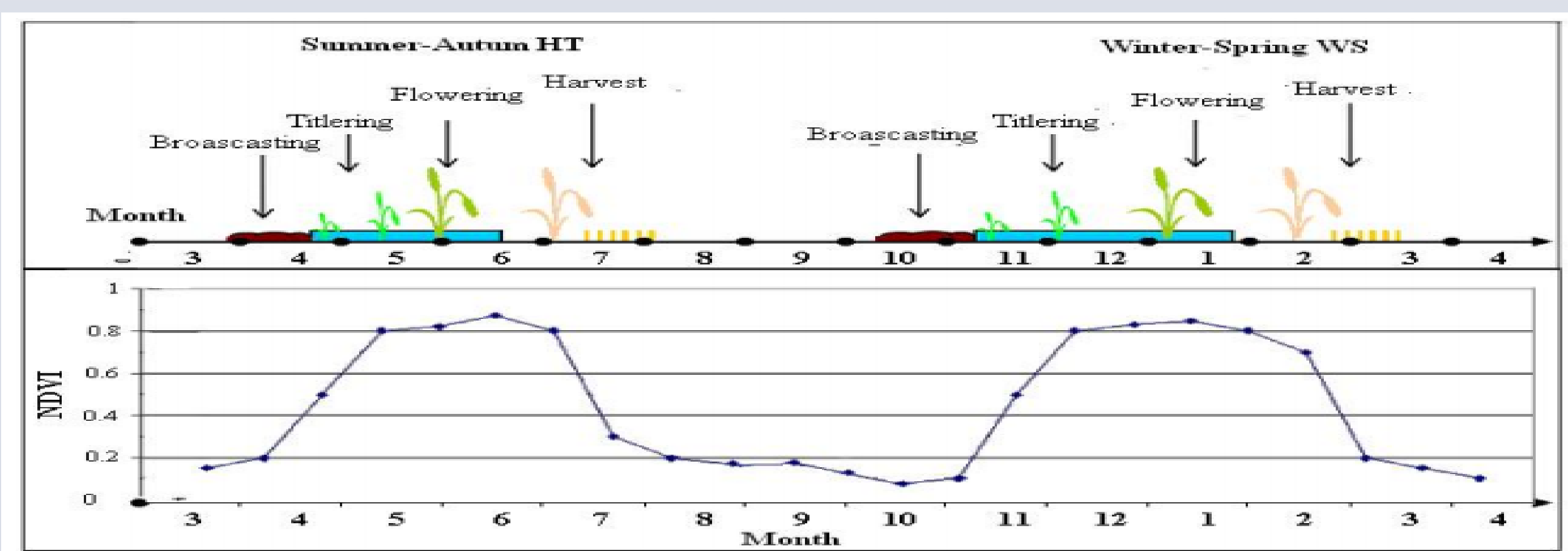
The figures represent the basic of radar or optical data used to monitor rice.



VH backscatter at incidence of 30-45°
Using Radarsat 2, Wide fine 1 in 2013

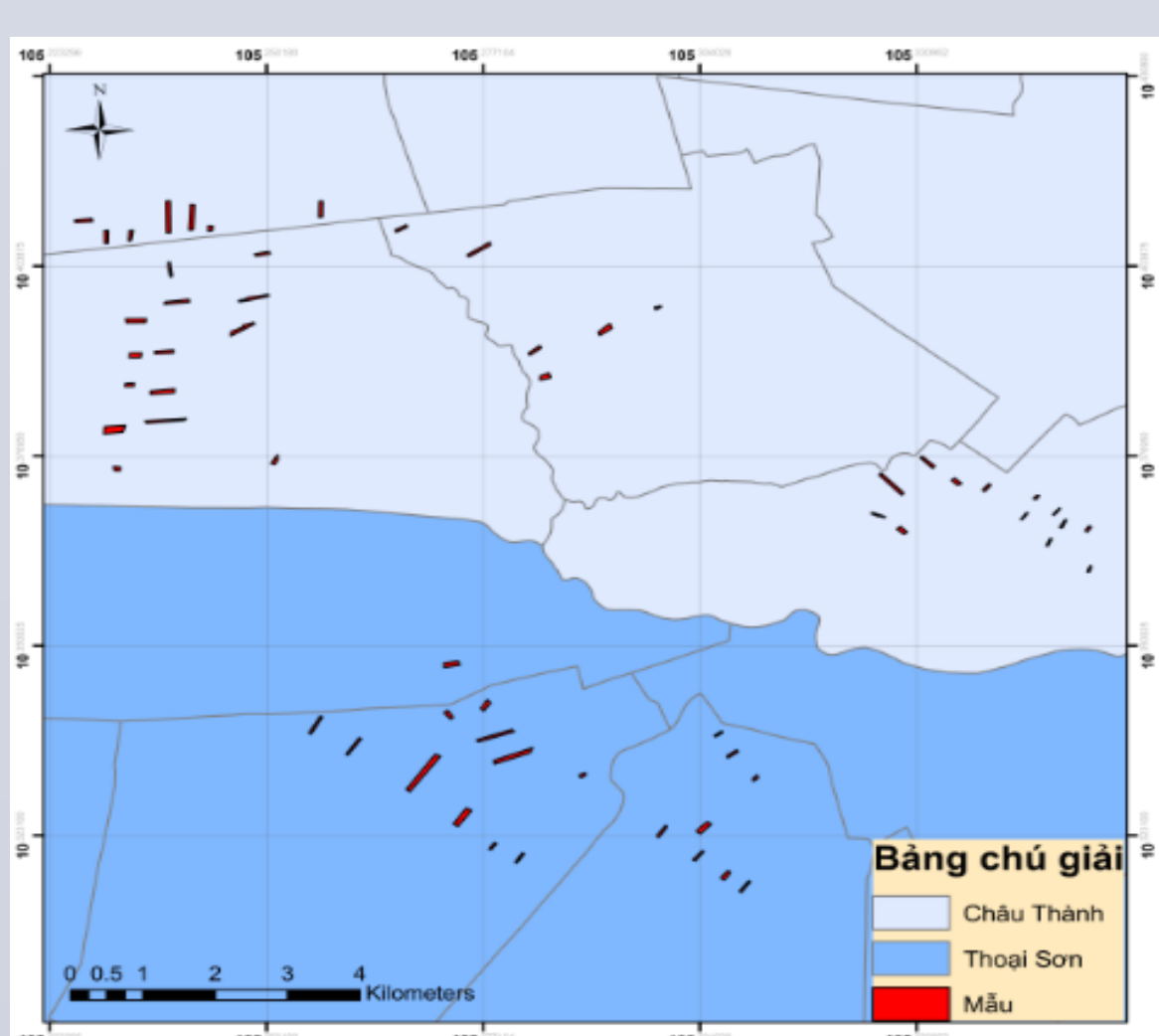


Processing flowchart for radar imagery

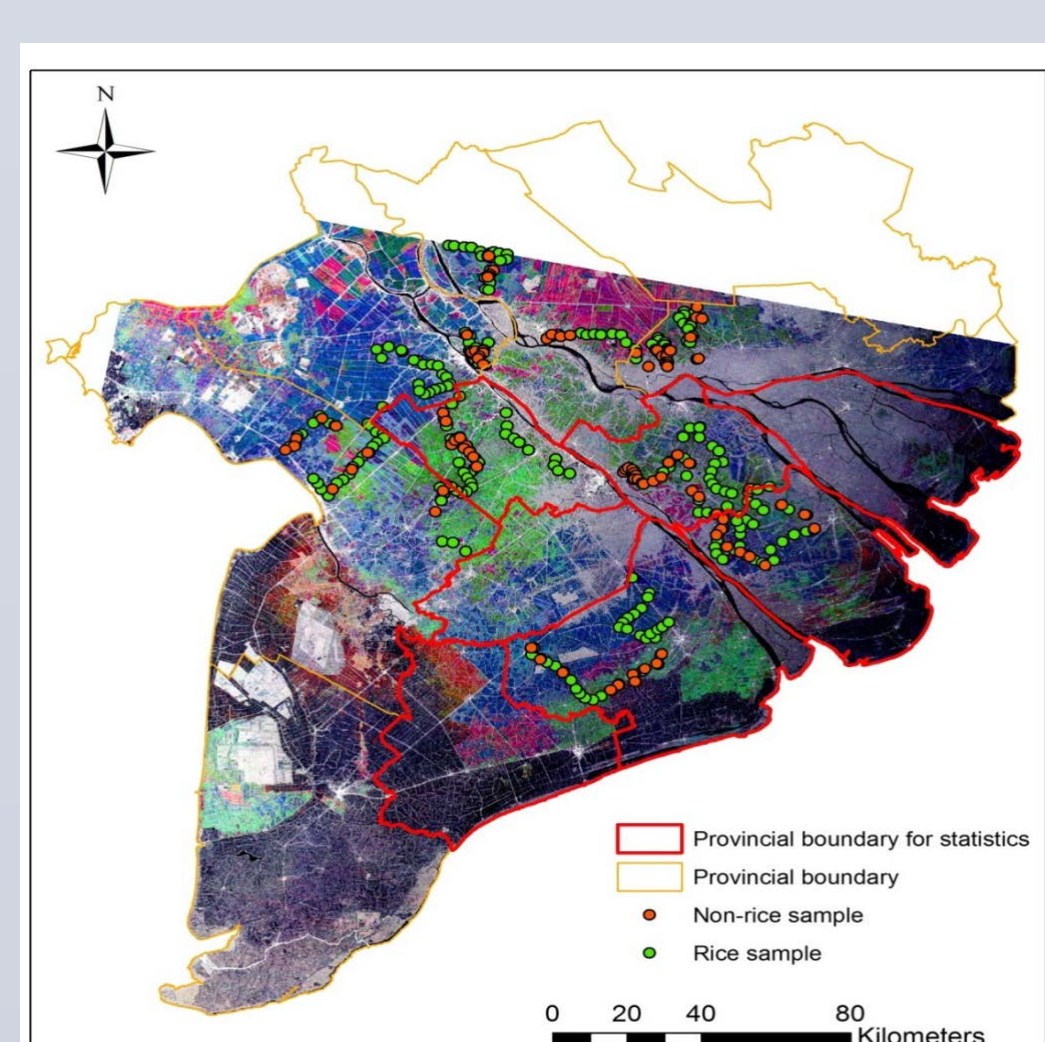


The change of NDVI through rice growth stages in
Summer-Autumn and Winter-Spring crop

For validation, samples and surveys are carried out periodically in collaboration with An Giang University.



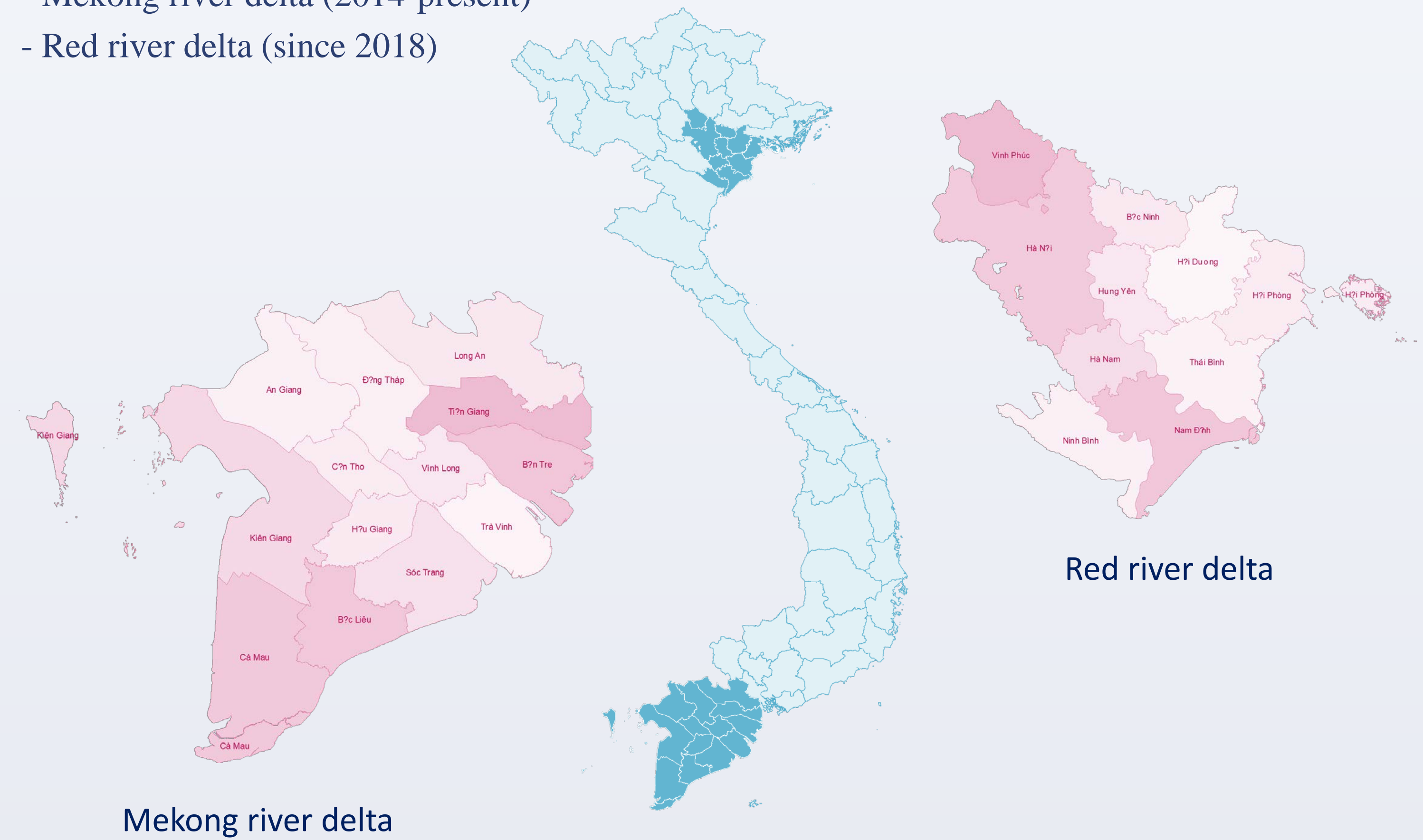
The position of rice samples in Chau Thanh
and Thoai Son district in An Giang province



The samples obtained after a survey in
nine provinces in Mekong delta.

STUDY AREAS

- Mekong river delta (2014-present)
- Red river delta (since 2018)



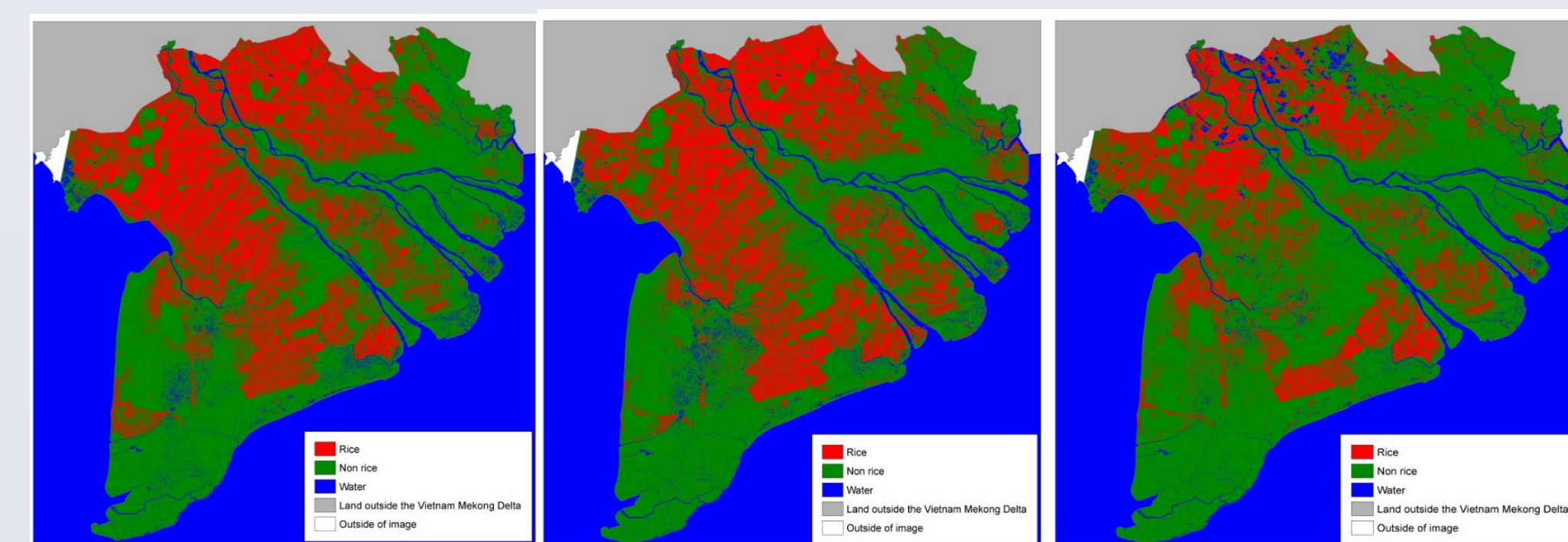
Mekong river delta

Red river delta

ACHIEVEMENTS

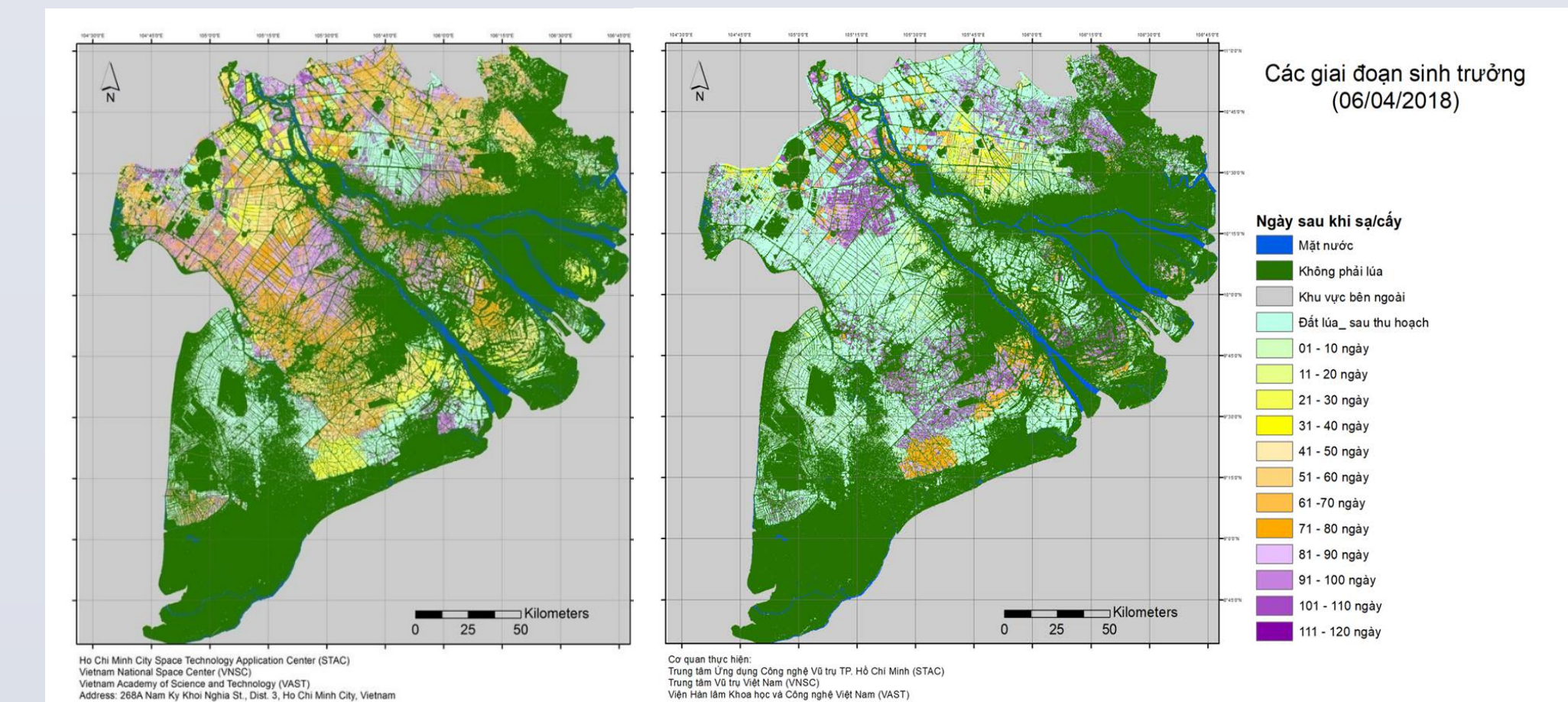
Below is some initial results. These and other are being validating to increase the accuracy.

Map of WS Rice 2017 Map of SA Rice 2017 Map of AW Rice 2017

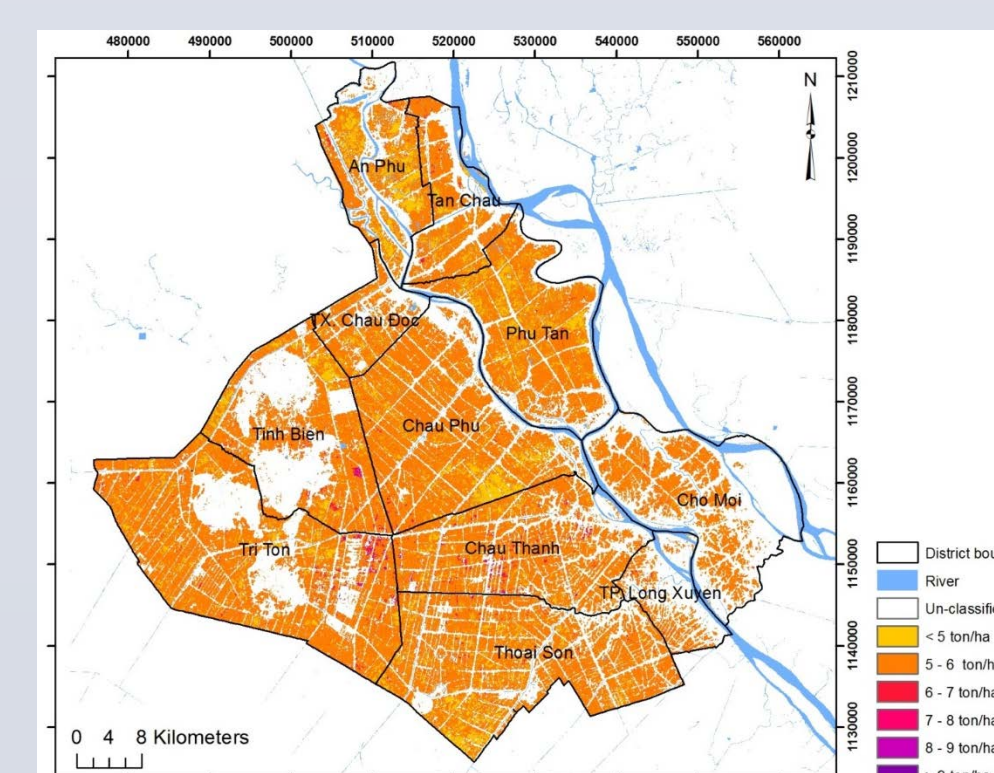


Rice/nonrice maps for
three crops in Mekong
delta by using Sentinel-1
imagery.

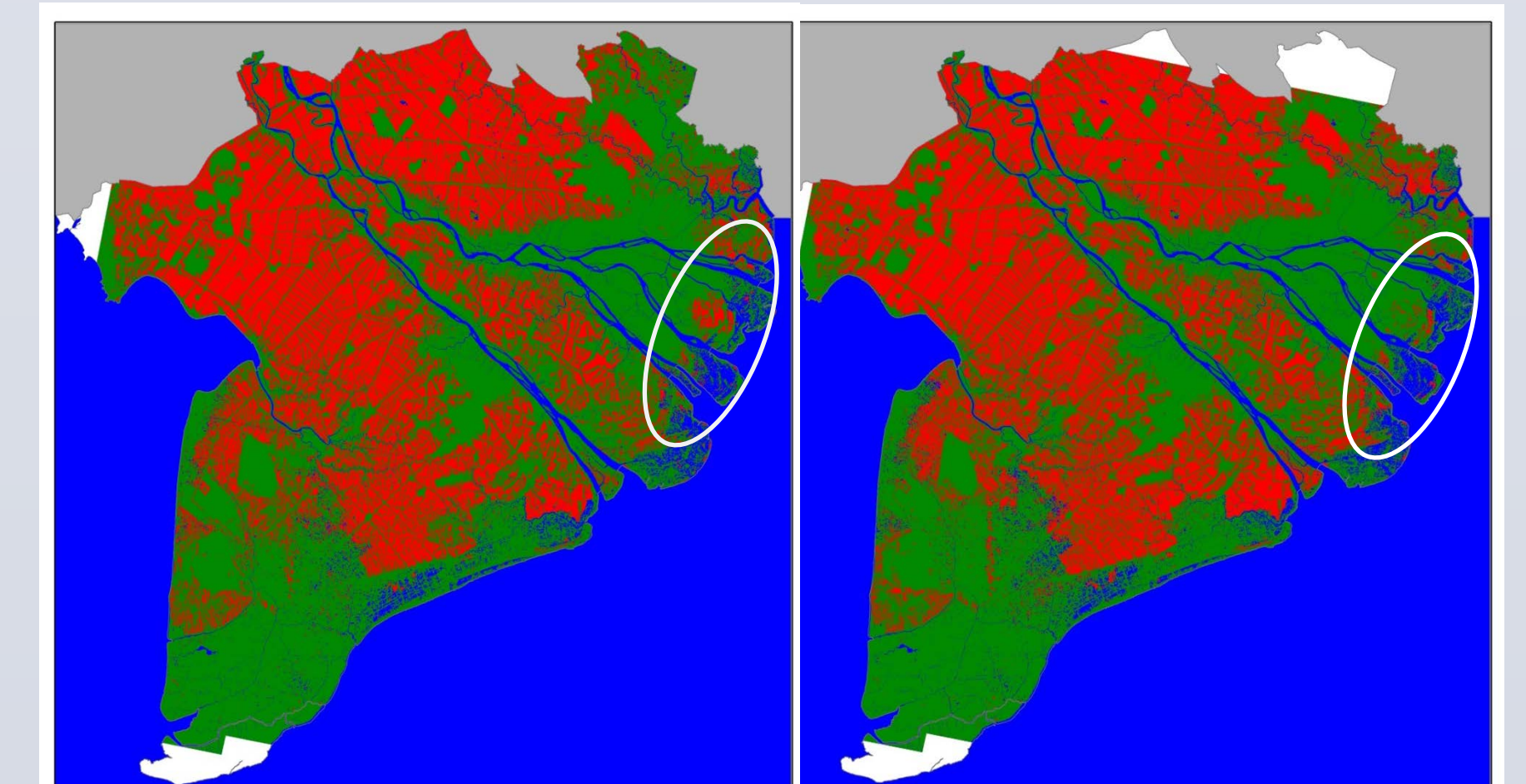
February 17, 2018 April 6, 2018



Rice growth stages map
for Sentinel-1 data



A distribution map of
estimated rice yield in SA 2016
crop at An Giang province
using ALOS-2 data



WS 2015

WS 2016

The effect of saline water intrusion

RESEARCH TEAM

- | | |
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