K&C Phase 4 – Status report

Detecting and Mapping Forest Degradation

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Project Objectives

- ## To identify and map forest degradation

  - For the time being, in Fiji.

  - Later on in other volcanic Pacific islands.

  - PALSAR data will see the forest structure and logging roads change the forest structure.

- ## To map the intertidal zone

  - This is important in order to stratify and monitor mangroves coverage

  - PALSAR data can map the mangrove floor as it penetrates the mangroves.

  - Optical data is limited.

- ## Cloud Patching

  - To see forest structure which is hidden under clouds in optical data

Project Outline

- Detection and Mapping of Forest Degradation is an activity that SPC is carrying out for the Fiji REDD+ project funded by GIZ.

- The REDD+ project focuses on mapping of deforestation and now moves into mapping of degradation.

- K&C thematic drivers –
    - carbon cycle science,
    - climate change
   - environmental conservation

Forest Degradation

- Forest Degradation reduces the amount of carbon, however, leaves the forest as such intact.

- In Fiji selective logging takes place which creates forest degradation

- Deforestation is very limited

- Forest degradation is difficult to see with optical data (Sentinel, Landsat) as:

  - Openings will be closed within short time, by tree ferns
  - Logging roads appear yellow with high contrast to surrounding forest, however they are overgrown by vegetation within few months
  - Recording of optical data is very limited due to frequent cloud cover

- Fiji
  - 18,274 km²
  - Approx 300 islands
  - Approx 100 inhabited

- Project Area:
  - 2 main islands

  - Viti Levu

  - Vanua Levu
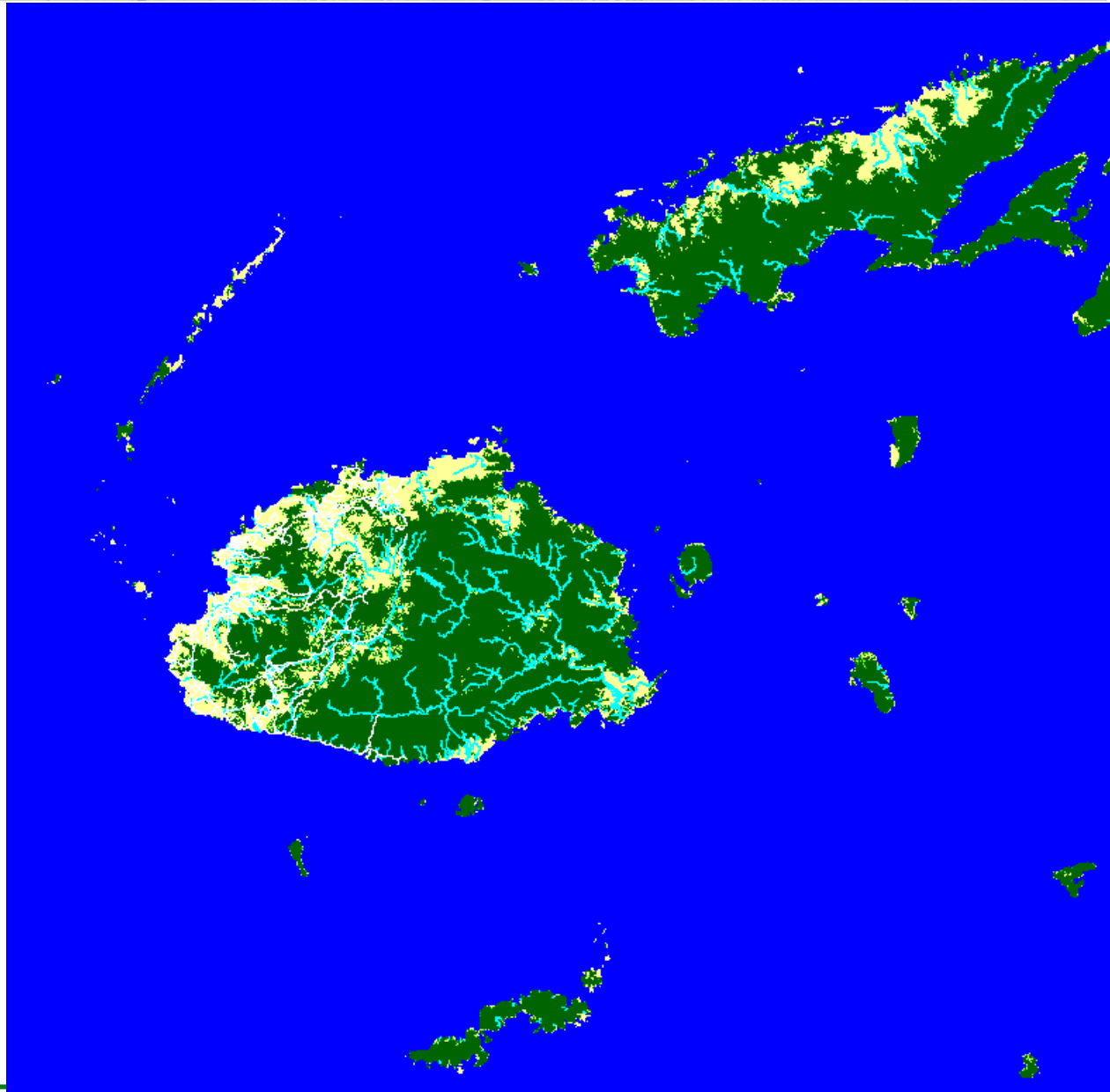
Project Area

- Viti Levu
  - 10,388 km²

- Classes
  - Deforested Areas
  - Reforestation
  - Forest
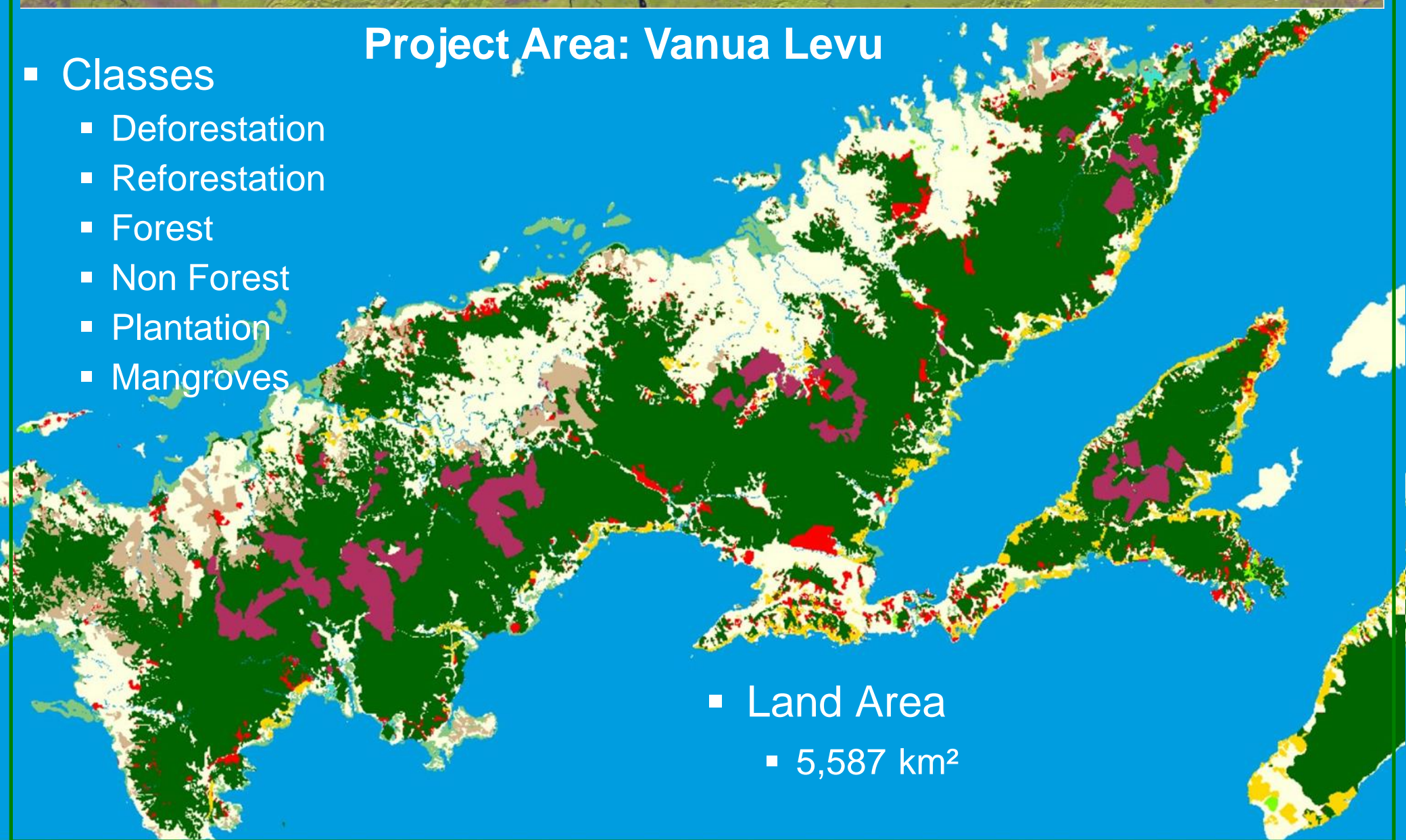 - Non Forest
  - Plantation
  - Mangroves

ALOS

K&C Initiative
An international science collaboration led by JAXA
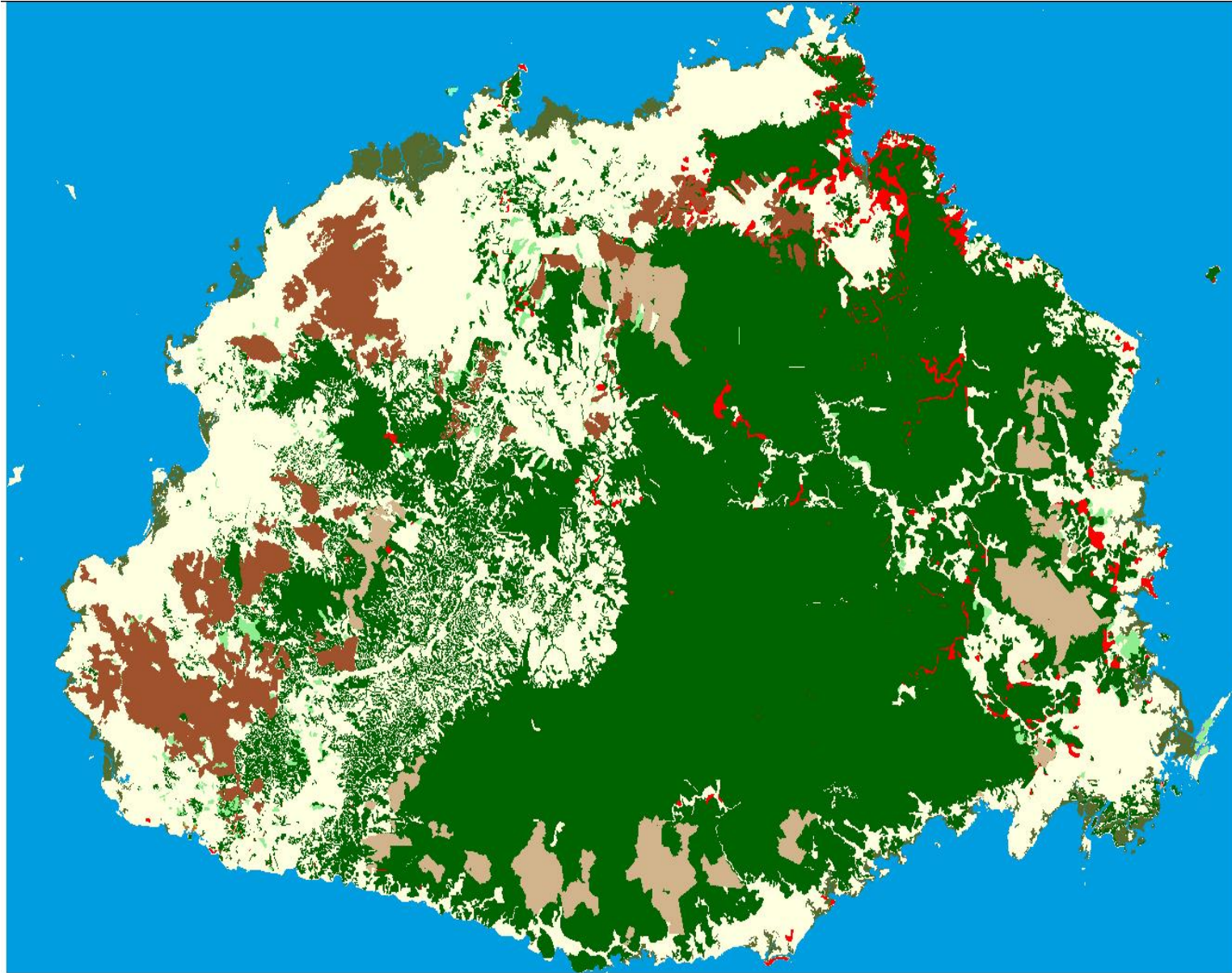
Project Area: Vanua Levu

- Classes
  - Deforestation
  - Reforestation
  - Forest
  - Non Forest
  - Plantation
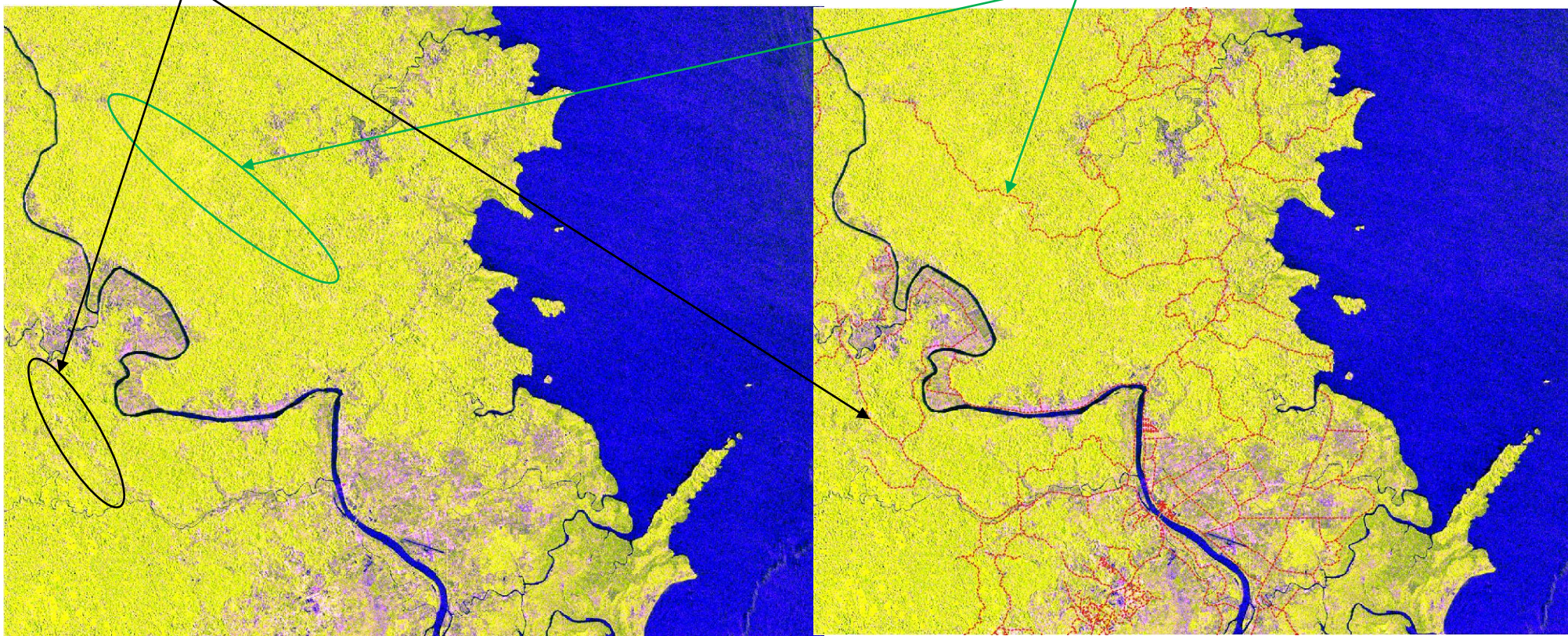 - Mangroves

- Land Area
  - 5,587 km²

Road detection so far

Can see

Cannot see

Deliverables

- ## By March 2018
  - Possibly have mapped degraded areas of forests, with GPS data

- ## By June 2018
  - During the STAR meeting (end of June), first findings of logging tracks identification will be presented if possible

- ## In case of a 1-year extension, additional deliverables by March 2019
  - Result whether logging tracks can used to identify degraded areas
  - Mapped intertidal zones

PALSAR/PALSAR-2 data access

Data was downloaded for SPC, by Johannes Reiche, Wageningen University.

- 2016 (July)
  - 16 PALSAR-2 images for Fiji to continue PALSAR-1/2 time series over Viti and Vanua Levu.
  - Purpose: Forest and Mangrove monitoring

- 2017 (March)
  - 36 PALSAR-2 images for Fiji to continue PALSAR-1/2 time series over Viti and Vanua Levu.
    - Purpose: Forest and Mangrove monitoring
  - 14 PALSAR-2 images for Solomon Islands as requested by Wolf Forstreuter.
    - Purpose: Forest monitoring

- 2018:
  - all quota (50 PALSAR-1 and 50 PALSAR-2 images are still to be ordered)

Thank you