

SPOT5(Take5) Operations in 2015

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1. After a successful Spot4/Take 5 experiment conducted by CNES in 2013, CNES has approached ESA in summer 2014 to seek support for an extended Spot5/Take5 to be conducted in 2015
2. CNES would in this experiment envisage lowering the satellite orbit, for a 5-day revisit, similar to the Spot-4/Take5 experiment conducted in 2013. Similar measurements as during the Spot-4/Take5 experiment could be re-conducted, as well as new experiment sites could be added.
 - a. The resolution would be 10m instead of 20m on SPOT4/Take5.
 - b. The experiment duration would be \pm April – Aug 2015.

3. CNES provides their own workforce/internal cost to the experiment for free, as well as the provision of the Level-1A to Level-2A processing resources.
4. CNES is seeking funding support from ESA to cover the extended operational cost. The ESA funding would include:
 - a. Operations cost of the external industrial teams (satellite and ground segment)
 - b. Processing cost for a defined number of sites (assumed ± 100 sites globally in total)
5. The ESA funding is **subject to PB-EO approval** on 19 Nov 2014.

Status of Spot5-Take5 – sites definition

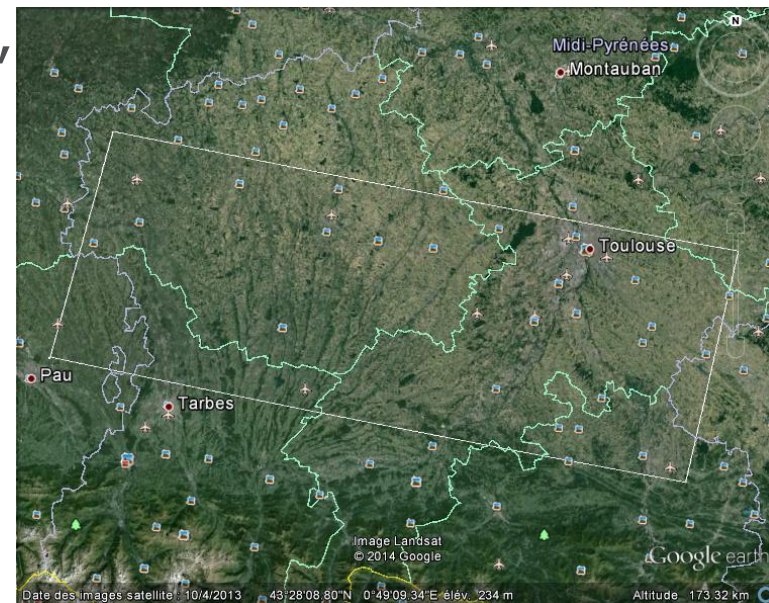


1. ESA has gathered **50-60 internal project 'site' needs** to cover
 - a. Sentinel-2 cal/val sites
 - b. Sentinel-2 preparatory exploitation project sites e.g. S2 for Agriculture (incl. contributions to GEOGLAM, JECAM)
 - c. Applications and projects within ESA's EOEP-4 (e.g. DUE)
2. ESA will/has **launched an external call** (see below) to worldwide users for definition of additional 30-40 sites
3. **CNES would also fund 12 sites.** A call for ideas was sent to TOSCA members at the beginning of 2014 and a call for sites was sent a few weeks ago => the list of proposed sites has just been confirmed by TOSCA
4. Other parties have signalled their interest to join, e.g. NASA, JRC, CSA – those partners would need to cover their own processing cost.

Exemple of applications Midi-Pyrénées site



1. Validation of atmospheric and directional corrections
 - A part of the site observed with 2 different viewing angles
2. Land cover, crop masks (S2-Agri project)
3. Detection of irrigated surfaces
4. Sunflower monitoring, phenology, biophysical variables
5. Productivity of grasslands (EI-Purpan, Dynafor)
6. Estimation of soil water reserve



ESA internal sites suggestions



1. Atmospheric Correction 1
2. Cal/Val activities 13
3. DUE S2 for Agriculture & JECAM 12
4. DUE Permafrost / Lake Ice and River Ice 4
5. DUE GlobBiomass 4
6. DUE GlobWetland Africa 3
7. DUE Cadaster Env project 8
8. Forestry 9
9. REDD 10
10. Geo-referencing 1
11. Inland Water 1
12. SEOM Ocean 4
13. Snow and Ice 2

→ See Veronica Arpaia, Benjamin Koetz and Olivier Arino for details

Objective:

Provide the user communities with a better characteristic of the distribution and changes, and an improved quantification of regional and global biomass

Project Activities:

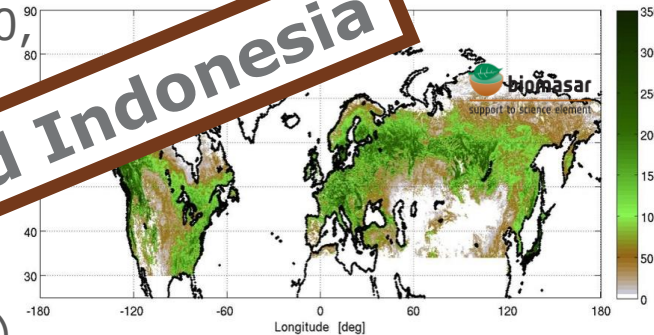
1. Improve above ground biomass maps (stock for 2010, and changes with regional cases in 2005, 2010 and 2015)

- Better geometric resolution
- Improved accuracy
- Validation (discrepancy, error statistics)

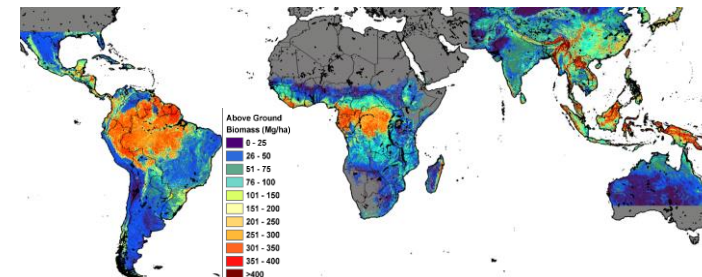
2. Platform for data sharing and validation

3. Better stratification of landscape (forest types)

4. Harmonization of maps



Pan Boreal AGB map Santoro et al.



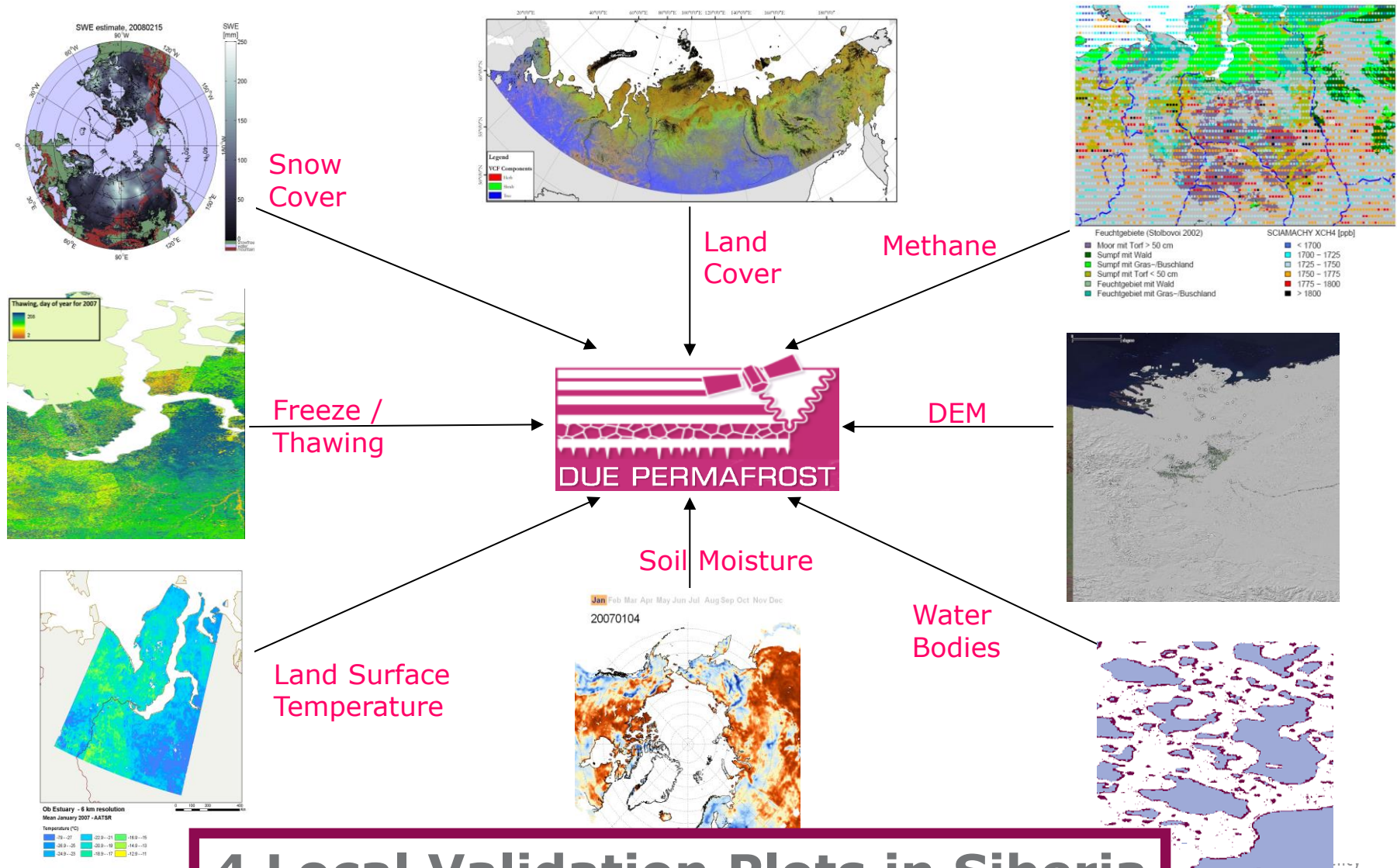
Pan Tropical map AGB - Saatchi et al.

Prime: University of Jena, Germany

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Upcoming DUE Project GlobPermafrost:

Permafrost not directly observable, but ...



4 Local Validation Plots in Siberia

→ GLOBWETLAND AFRICA

Towards satellite-based Wetland Observing Systems in Africa

Take 5 experiment in GlobWetland Africa

- 3 test sites
- Assess high seasonal variability in surface water extent, land use and turbidity
- Complement S2 data to cover full hydrological year in 2015
- Test Sentinel 2 methods and applications
- Showcase utility of GW products in realistic scenarios

Inner Niger Delta
(Mopti, Mali)

Lake Chad
(Cameroon)

Lake Victoria
(Kenya, Uganda)

GLOBWETLAND AFRICA IN A NUTSHELL

- Exploit increasing capabilities of satellite observations for wetlands inventory, assessment and monitoring
- Develop EO methods and tools to better assess conditions of wetlands and monitor trends over time
- Enhance capacity of African stakeholders to develop national and regional wetland observatories
- Access “freely available” satellite data from the Sentinel missions of the European Copernicus initiative

ESA Sites definition: External call



1. ESA will/has launched a call at <https://earth.esa.int/web/guest/pi-community/apply-for-data/ao-s>
2. This call is addressed to the worldwide user community; selection of proposals will be done in accordance with a set of criteria
3. Offers shall be submitted **not later than 5th of December 2014 (tbc)** to Spot5take5@esa.int , using **the template of Annex 1 of the call**. It is **mandatory to send at the same time the shape file (kmz)** of the suggested area.
4. ESA proposes a free and open license (see Annex 2 of the call), with dissemination via a fast registration process @ESA.
5. The call is open to worldwide users, and should result in the definition of additional 30-40 sites, next to the ESA selected sites

1. **License:** Final agreement on the data license

2. **Contracts:**

- a. ESA to send RFQ to CNES, CNES to respond with proposal, contract to be agreed and signed
- b. ESA to send RFQ to Airbus DS, Airbus DS to respond with proposal, contract to be agreed and signed
- c. Any external partners to directly set up a contract with Airbus DS for the processing cost

3. **Sites:** Final confirmation of ESA internal and external and partners sites

4. Technical aspects:

- a. CNES to perform mission analysis: orbit determination, strategy to reach Take5 orbit, impact analysis of local hour drift...
- b. CNES to perform feasibility analysis: system update needs, feasibility to acquire all proposed sites, system test, preparation of operations and images processing

4. Spot 5 Take 5 user workshop towards late 2015/early 2016