Title: Global forest disturbance data: operational monitoring and dissemination.

V. Mantas [1], E. Baltazar [1], A.J.S.C. Pereira [1], , C. Aas [2], N. Lewyckyj [3]

1. University of Coimbra, Portugal

2. S[&]T, AS, Norway

3. VITO, Belgium

AGU Fall Meeting 2018

Contents:

Understanding change and disturbance patterns is a critical step towards the design of sustainable forest management and conservation policies. Earth Observation (EO) data from programs such as Landsat and Sentinel-2 provide an adequate temporal and spatial resolution to monitor forest health and disturbances globally, in a context of increasing pressure over the ecosystems.

To share such data, effective dissemination and exploration services that resonate with the stakeholders are needed, proving reliable and multi-layered information at useful scales.

Silvisense is a scalable forest-oriented cloud computing and visualization service capable of uptaking and processing global multi-mission EO datasets. Existing and new algorithms can be executed upon user request, allowing for the rapid implementation of ready-made and tailored solutions.

Project FOCUS, funded by the European Commission, now aims at expanding the capabilities of the service including the integration of data from different platform categories. To this end, new field-validated algorithms (machine-learning) and visualization solutions are being developed. These incorporate multi- and hyperspectral data from sensors onboard satellites, airplanes, and unmanned aerial vehicles.

As a result, stakeholders with different backgrounds, technical expertise, and data needs (e.g. biotic agent damage, deforestation, phenology, and inventory estimates) can access actionable information on relevant regions and variables in a seamless manner.

Discussion points include current system status and characteristics, dataset development and validation results, as well as the outlook on future research and societal gains generated by the service. A case-study is also presented to demonstrate the challenges and opportunities identified in the use of the platform to monitor Pine Wilt Disease (PWD). PWD is a deadly disease caused by a nematode (*Bursaphelenchus xylophilus*) affecting conifer forests worldwide.

Contact details: Vasco Mantas, vasco.mantas@dct.uc.pt