



## **Sentinel-2 data exploitation with ESA's Sentinel-2 Toolbox**

Ferran Gascon, Fabrizio Ramoino, and Yves-louis deanos  
ESA ESRIN Frascati Italy

The Sentinel-2 Toolbox is a project kicked off by ESA in early 2014, under the umbrella of the ESA SEOM programme with the aim to provide a tool for visualizing, analysing, and processing the Sentinel-2 datasets. The toolbox is an extension of the SeNtinel Application Platform (SNAP), a project resulting from the effort of the developers of the Sentinel-1, Sentinel-2 and Sentinel-3 toolbox to provide a single common application framework suited for the mixed exploitation of SAR, high resolution optical and medium resolution optical datasets. All three development teams collaborate to drive the evolution of the common SNAP framework in a developer forum. In this triplet, the Sentinel-2 toolbox is dedicated to enhance SNAP support for high resolution optical imagery. It is a multi-mission toolbox, already providing support for Sentinel-2, RapidEye, Deimos, SPOT 1 to SPOT 5 datasets.

In terms of processing algorithms, SNAP provides tools specific to the Sentinel-2 mission :

- An atmospheric correction module, Sen2Cor, is integrated into the toolbox, and provides scene classification, atmospheric correction, cirrus detection and correction. The output L2A products can be opened seamlessly in the toolbox.
- A multitemporal synthesis processor (L3)
- A biophysical products processor (L2B)
- A water processor
- A deforestation detector
- OTB tools integration
- SNAP Engine for Cloud Exploitation

along with a set of more generic tools for high resolution optical data exploitation.

Together with the generic functionalities of SNAP this provides an ideal environment for designing multi-missions processing chains and producing value-added products from raw datasets.

The use of SNAP is manifold and the desktop tools provides a rich application for interactive visualization, analysis and processing of data. But all tools available from SNAP can be accessed via command-line through the Graph Processing Framework (GPT), the kernel of the SNAP processing engine. This makes it a perfect candidate for driving the processing of data on servers for bulk processing.