

Sentinel Toolbox Development

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ABSTRACT:

Early 2014 ESA kicked off three new toolbox developments for the Sentinel-1, -2, and -3 satellites. All three toolboxes are based on an evolution of the BEAM development platform. This common platform is called SNAP – SentiNel Applicaton Platform, Similar to BEAM, SNAP will be extendible by plug-ins which can be shared by the toolboxes. All features of BEAM will be continued in SNAP, which can be seen as a successor of BEAM. The first release of the Sentinel toolboxes was in September 2014.

Like BEAM, SNAP uses a simple and powerful extension model. A SNAP module comprises compiled Java code and a module descriptor, which provides module metadata including extension points and extensions. The large number of visual and processing tools that have been created on the BEAM development platform will be available for SNAP. Scientists have also the possibility of using the SNAP application programming interface from Python.

SNAP will be a major evolution of BEAM and a large set of new tools and features will be developed over the next couple of years. This comprises generic as well as features specifically developed for the data products of the Sentinel 1 SAR, Sentinel 2 MSI, and the Sentinel 3 SLSTR and OLCI instruments. Special care will be taken in order to ensure highest performance when dealing with the very large data products. The optical Sentinel-2 and -3 toolboxes will have features such as access of remote in-situ databases, exploitation of data-uncertainty information, new image classification, segmentation and filtering methods, as well as interoperability with the ORFEO Toolbox and the GDAL libraries.

The development of SNAP will be performed in close cooperation of the development teams in a developer forum. External partners, like the NASA OBP group (SeaDAS) participate also in the developer forum.