

SNAP Introduction and News

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SNAP User Forum
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seom
scientific exploitation
of operational missions

#esa_snap

History



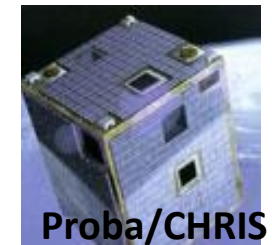
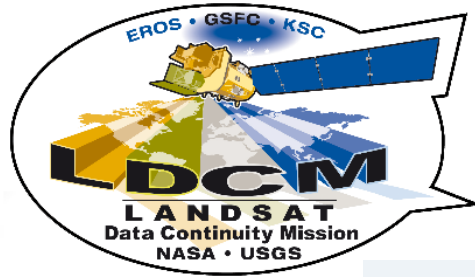
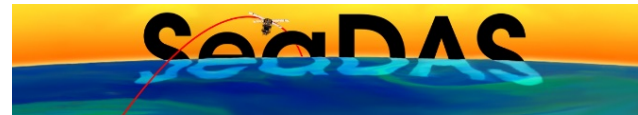
- In early 2014, ESA kicked off the new toolbox development for the upcoming Sentinel platforms
- The Toolboxes were to be developed on a common basis
- SNAP was created on the heritage of BEAM and NEST
 - BEAM (est. 2002) was the standard toolbox for the optical sensors on the Envisat platform
 - NEST (est. 2008) was the standard ESA SAR toolbox and built on top of BEAM
- Therefore SNAP is built on 17 years of experience in EO software development and EO data processing & analysis

Project Organisation

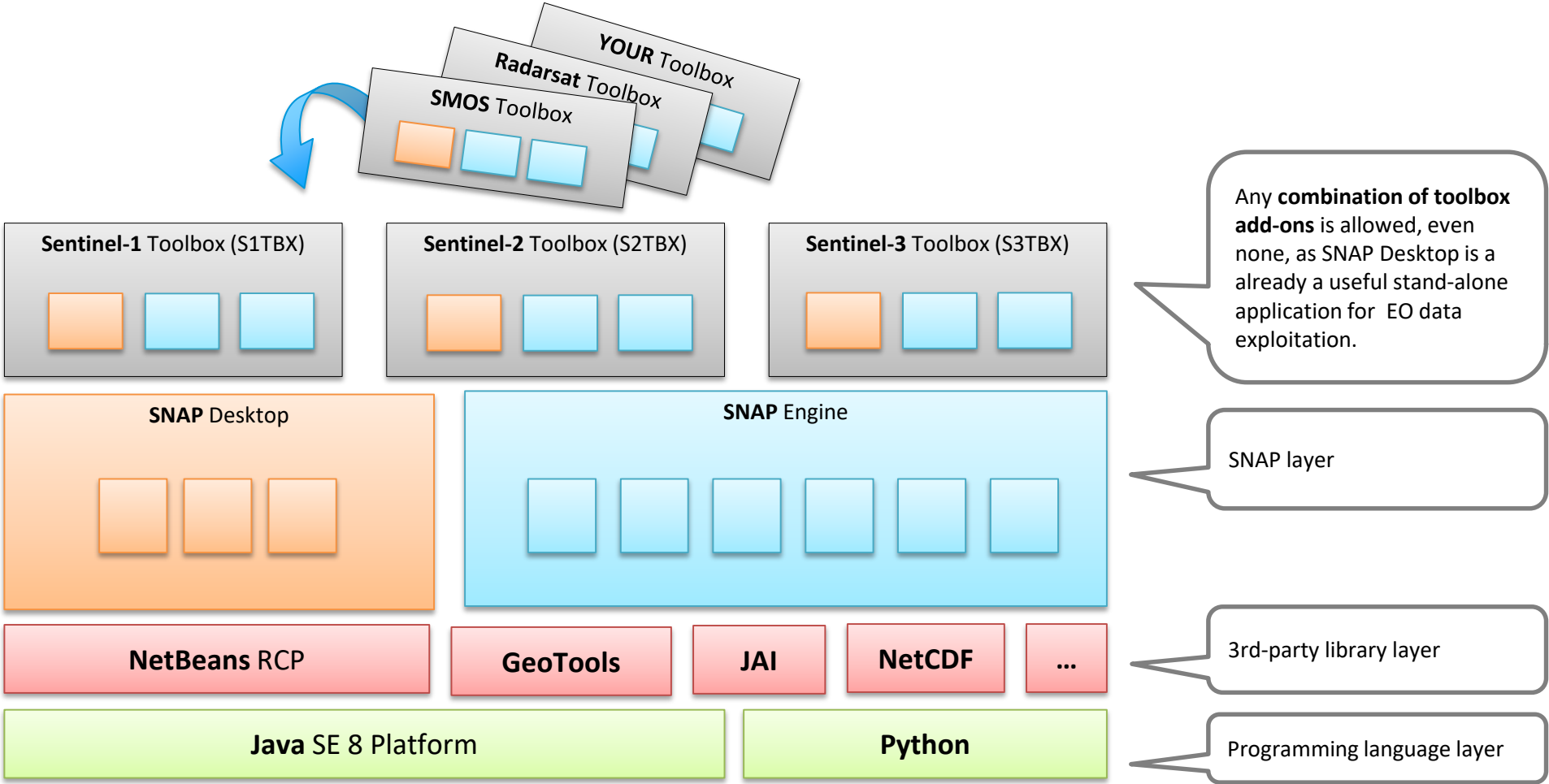
- SNAP is the common software platform and host for the Sentinel Toolboxes and others
- The SNAP core development is led and organised by Brockmann Consult (Germany)
- The toolboxes for the Sentinel platforms are run by
 - SkyWatch (Canada) for Sentinel-1
 - C-S (France, Romania) for Sentinel-2
 - Brockmann Consult (Germany) for Sentinel-3



SNAP & Toolboxes support multiple missions



SNAP Architecture



User involvement: Git, Forum & Issue Tracker



The screenshot shows the GitHub repository page for SNAP. It lists several repositories:

- s2tbx**: Sentinel 2 Toolbox (s2tbx). 38 stars, 15 forks, GPL-3.0 license, updated 2 hours ago.
- snap-desktop**: Desktop GUI for SNAP based on NetBeans Platform. 40 stars, 21 forks, GPL-3.0 license, updated 5 hours ago.
- snap-installer**: Installer(s) for SNAP and its add-ons. 5 stars, 6 forks, GPL-3.0 license, updated 2 days ago.
- s1tbx**: The Sentinel-1 Toolbox. 49 stars, 30 forks, updated 4 days ago.

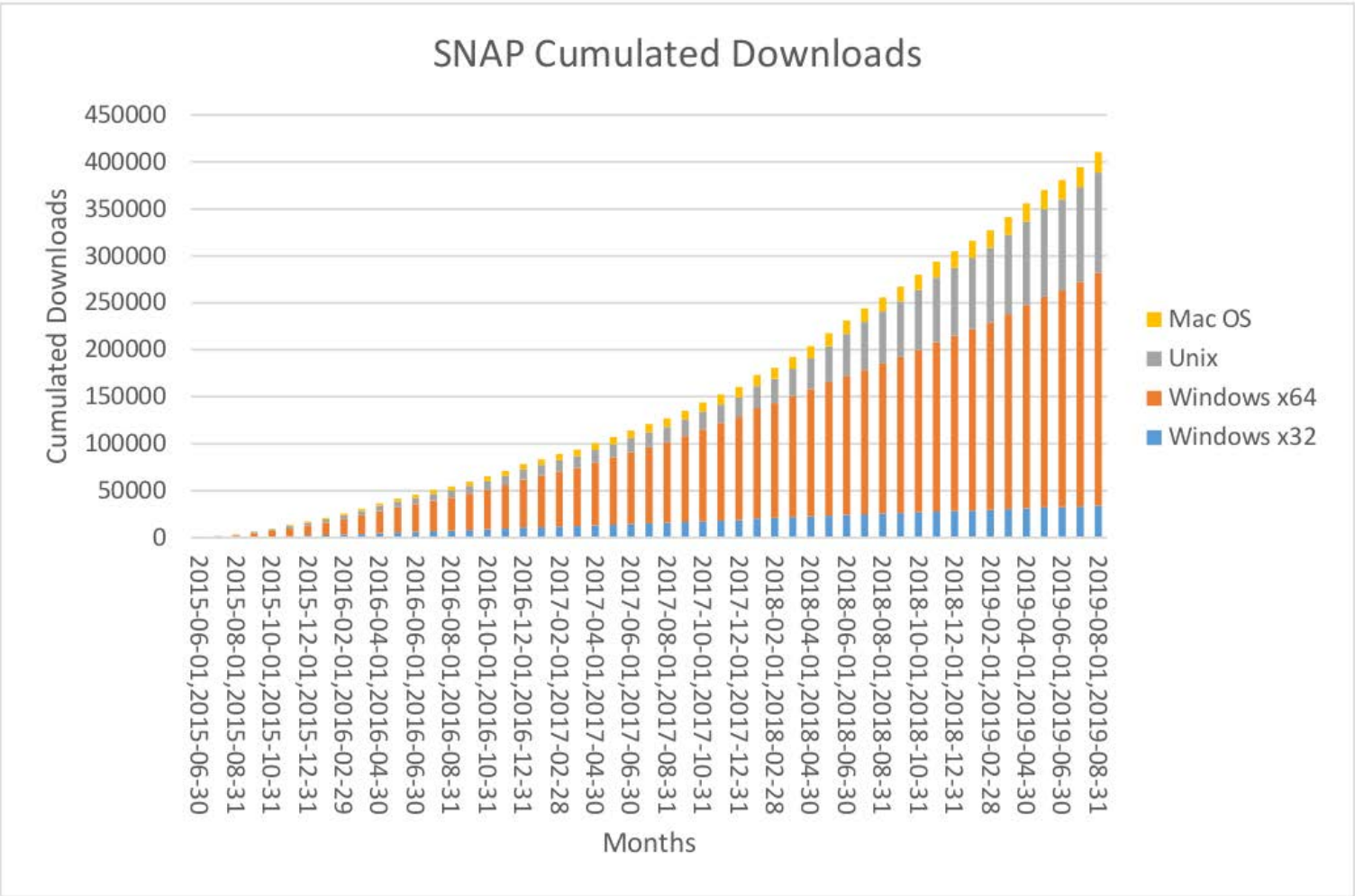
The screenshot shows the 'step forum' website. It features a navigation bar with 'all categories', 'Categories', 'Latest', 'New', 'Unread', and 'Top'. Below this, there are several category listings:

- s1tbx**: The S1 Toolbox category regroups all threads about the Sentinel-1 Toolbox, as SAR readers or processors. 1829 topics.
- s2tbx**: The S2 Toolbox category regroups all threads about the Sentinel-2 Toolbox as Sentinel-2 product readers and product manipulation, Sentinel-2 processors as L2A processor for atmospheric correction, L3 processor for temporal synthesis, etc. 999 topics.
- s3tbx**: The S3 Toolbox category regroups all threads about the Sentinel-3 Toolbox as readers and processors for Sentinel-3 OLCI & SLSTR L1 & L2. 137 topics.
- snap**: This category contains all topic about the Sentinel Toolbox Application (SNAP) not related to a specific Sentinel Toolbox. 625 topics.

The screenshot shows the GitHub issue tracker for the SNAP repository. It displays a list of issues under the heading 'Alle Vorgänge'. The issues are sorted by 'Erstellt' (Created) and include details such as title, status, priority, and assignees. A detailed view of issue SNAP-821 is shown on the right, with the title 'When loading parameters into Reprojection dialog the 'Fit product size' option is not correctly set'. The issue is marked as 'ERLEDIGT' (Completed) and assigned to Marco Peters.

>5000 registered users in the forum

SNAP Downloads

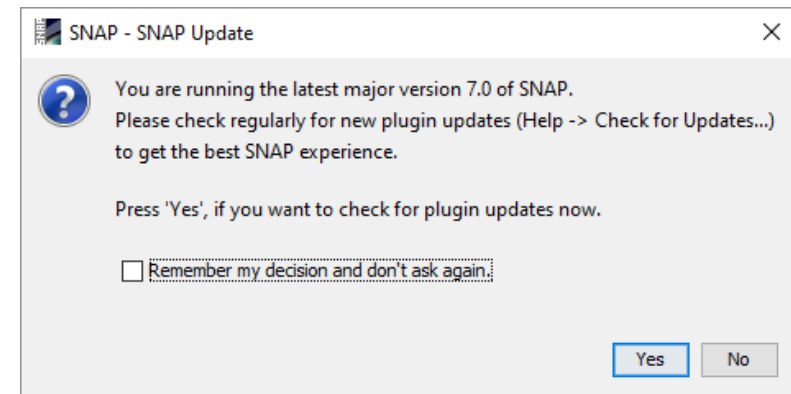
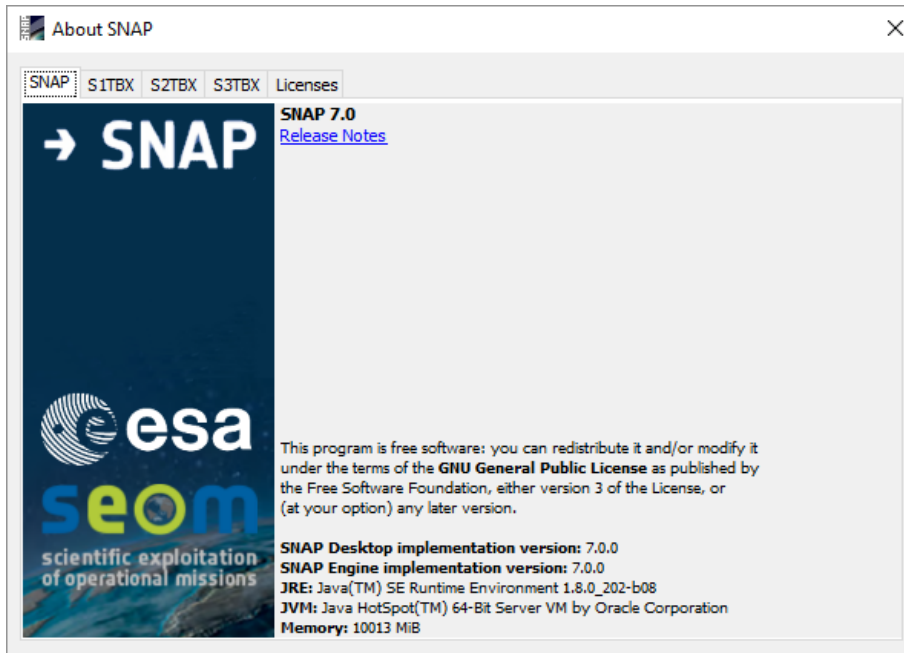


>200000 unique downloads for SNAP 6

SNAP 7

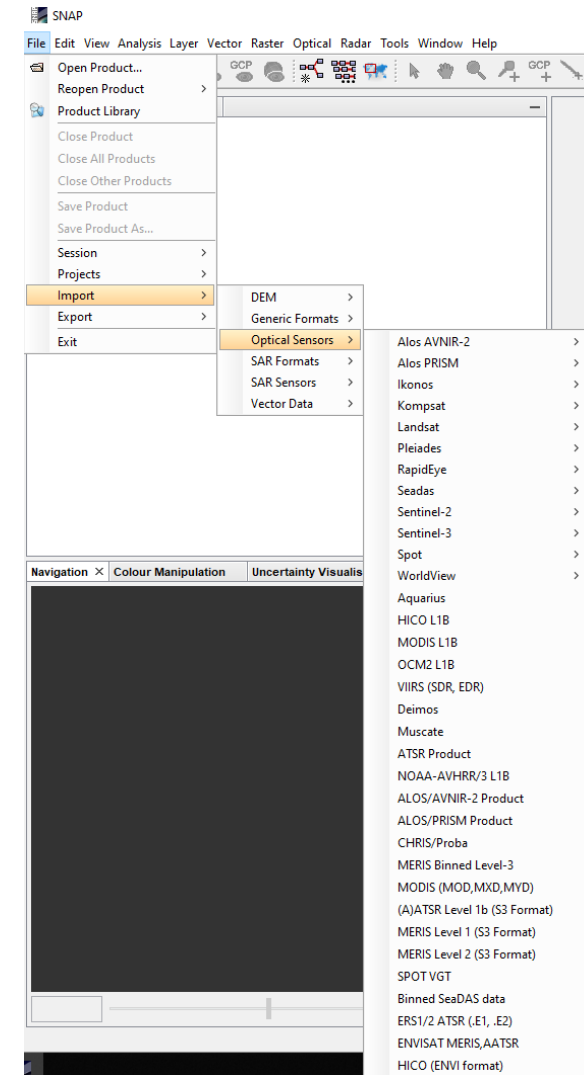


- Release: July 22nd, 2019
- First Update: September 2nd, 2019



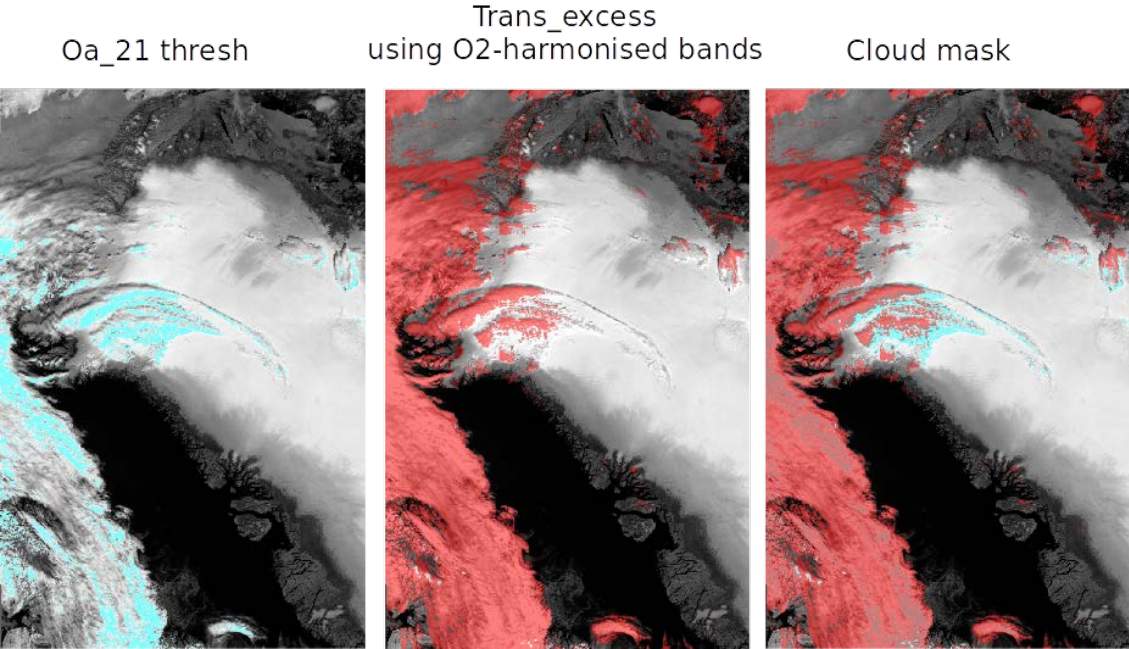
SNAP 7: New Product Readers

- AATSR L1 data in SAFE format
- Sentinel-1 on AWS
- RCM
- Paz
- ICEYE
- RISAT-1
- ALOS-2 in GeoTiff
- Kompsat-2
- Kompsat-5 in GeoTiff
- Landsat L2
- Landsat ESA products
- Pleiades
- WorldView-2
- IKONOS
- ALOS AVNIR2-PRISM



SNAP 7: New Operators

- S1TBX
 - Deramp and Demodulation
- S2TBX
 - Forest Cover Change
 - Spectral Angle Mapper
 - GeFolki Co-registration
- S3TBX
 - OLCI PPE
 - OLCI Harmonisation



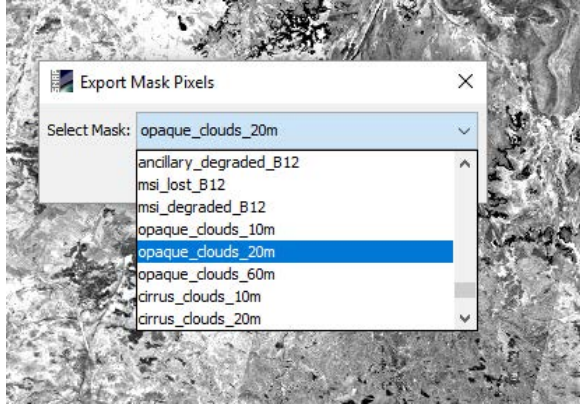
SNAP 7: Improved and Fixed Operators



- SNAP
 - Collocate
 - Resample
 - Merge
 - Binning
 - Subset
- S1TBX
 - Terrain Flattening
 - Thermal Noise Filtering
- S2TBX
 - Refl2Rad
- S3TBX
 - C2RCC

SNAP 7: Extended Multi-Size Support

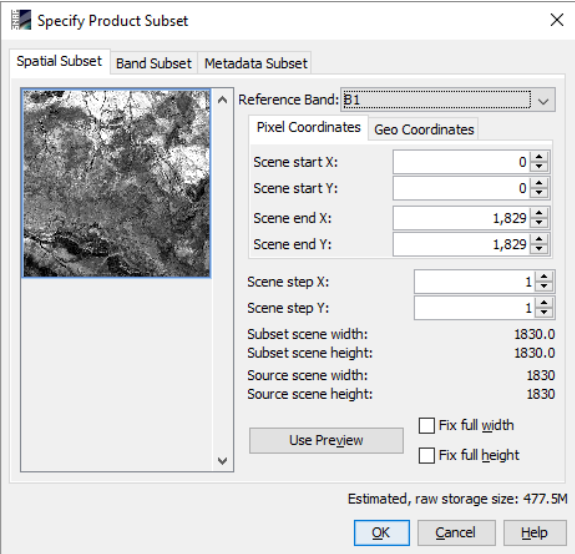
Export Mask Pixels



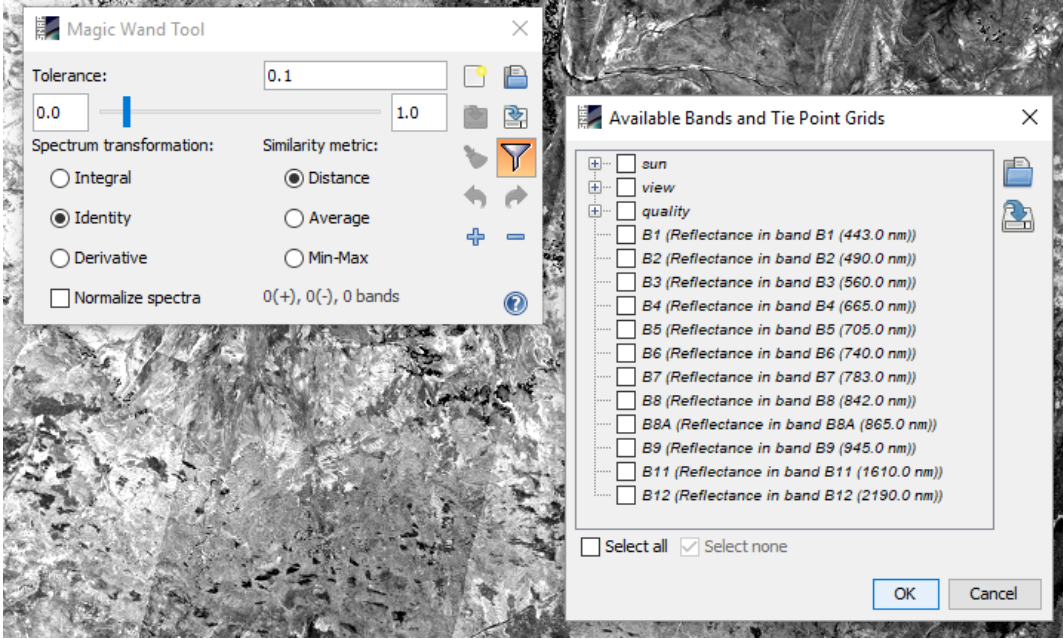
Collocation

BaseIndexOp

Subsets



Magic Wand



Add Elevation Band

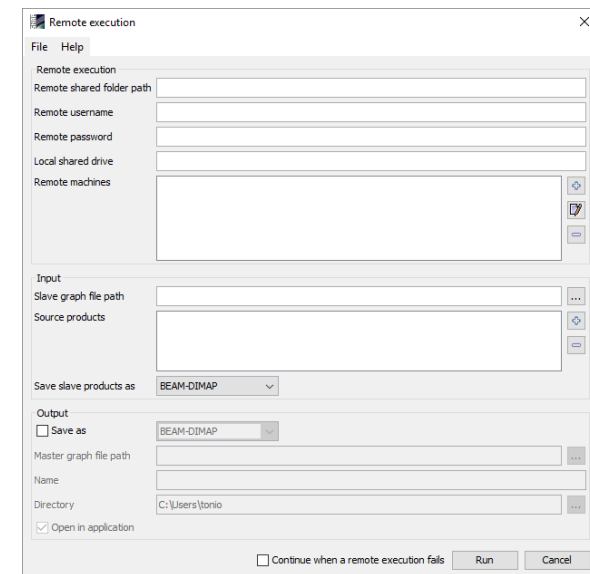
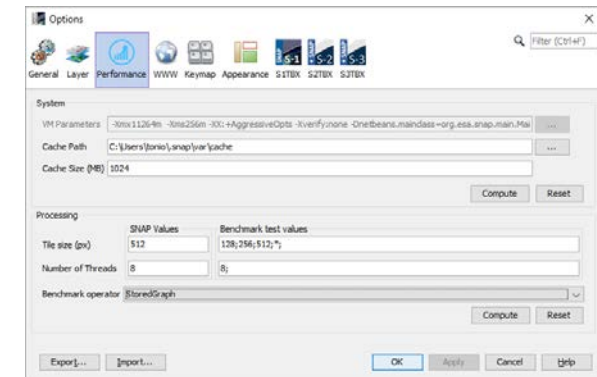
Copy Pixel Info

Export Transect Pixels

SNAP 7: What else is new?

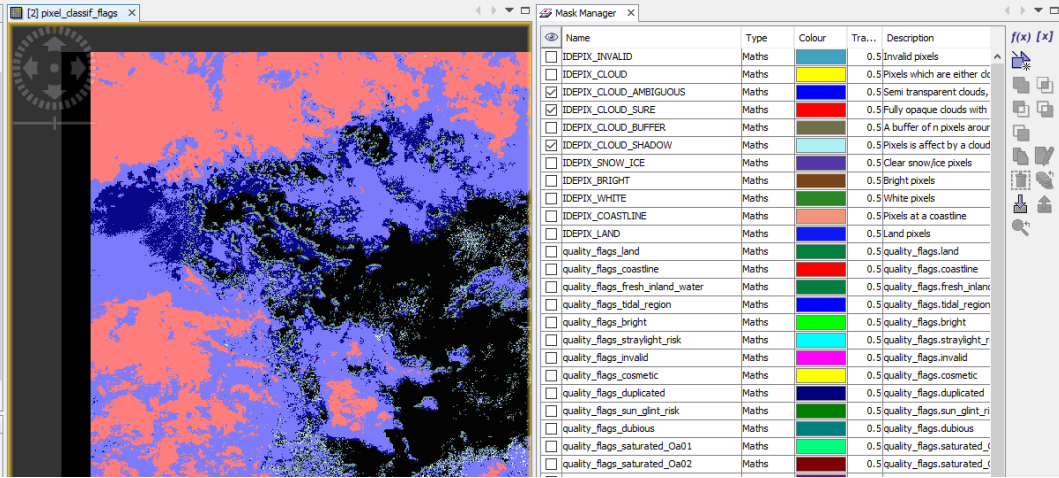
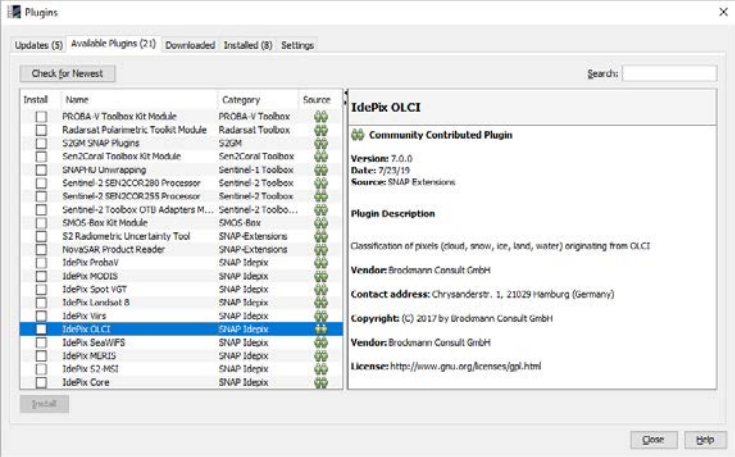


- Allow disabling access to remote auxiliary data
- Automatic orbit download via QC Rest API
- Calibration for RCM, Paz, ICEYE SLC, SLSTR L1B
- Simplified Smart Configurator
- Graphical User Interface for Remote Execution
- Virtual File System
- Added OTB bundle
- Removed question which SLSTR reader to use



SNAP 7: What else is new?

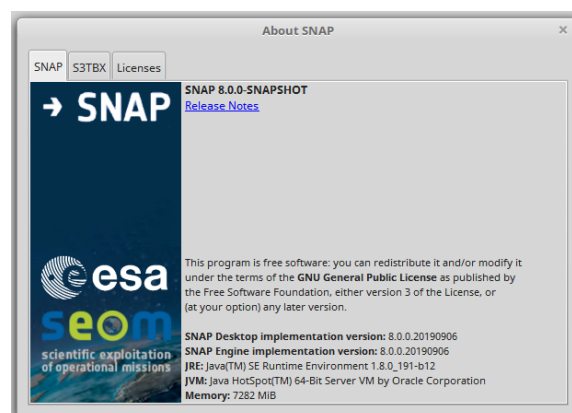
- Improved testing
- Created tutorials
- Updated help entries
- Moved Idepixes to dedicated repository
- Improved Reader performances
 - GeoTiff



SNAP 8 – An outlook



- Release planned for winter 2020



SNAP 8 – Upcoming Features



- New SNAP Standard-I/O Format
 - Required due to
 - Ever-increasing spatial resolution
 - Problems in distributed processing (cloud storage)
 - Stored in a single directory
 - Individual files for
 - Metadata
 - Binary data
 - Vector data
 - Ancillary data

SNAP 8 – New SNAP Standard-I/O Format



- Binary data stored in .zarr-format
- Zarr
 - Originates from Python Library
 - Data is compressed / Big Data Sizes are supported
 - Metadata is stored in separate files

SNAP 8 – Upcoming Features



- GPF-Enhancements
 - Remodeling of framework
 - Improve usage of GraphBuilder
- Improve Python integration
 - Easier implementation of processors
 - Support of multiple Python environments
 - Help & tutorials
- Readers:
 - Sentinel-2 products in AWS format
 - ZIP support for Sentinel-3 readers

SNAP 8 – Upcoming Features



- Export/import functionality between SNAP and PyRate SBAS InSAR processing toolkit
- Eased installation of non-Java S2 / Optical Tools
- Change Detection Toolbox
- Enhancements of Biophysical Processor
- Access to online Geospatial Data



SNAP 8 – And more ...

- Improve Performance
- Improve Multi-Size-support
- Improve User Interfaces
- More tests
- More tutorials