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

sentinel-3

SeaDAS

AVHRR
Advanced Very High Resolution Radiometer

NOAA

proba VEGETATION

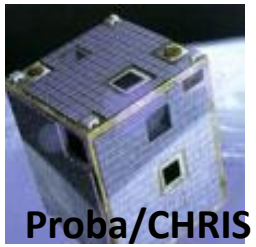
HICO®
Hyperspectral Imager for the Coastal Ocean

VEGETATION

ALOS
Advanced Land Observing Satellite

EROS • GSFC • KSC
LDCM
LANDSAT
Data Continuity Mission
NASA • USGS

sentinel-1


Proba/CHRIS

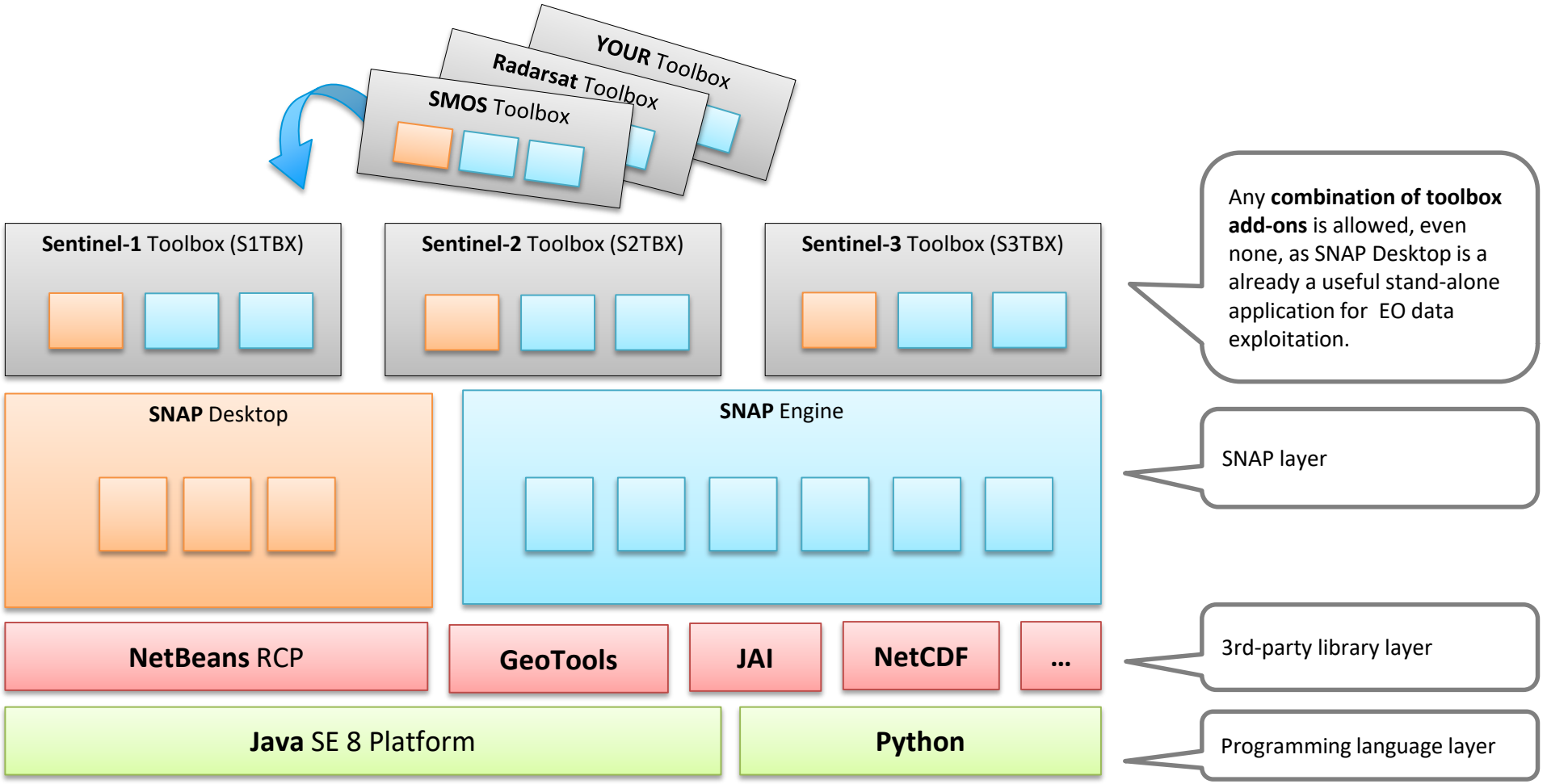
spot
take 5

SMOS

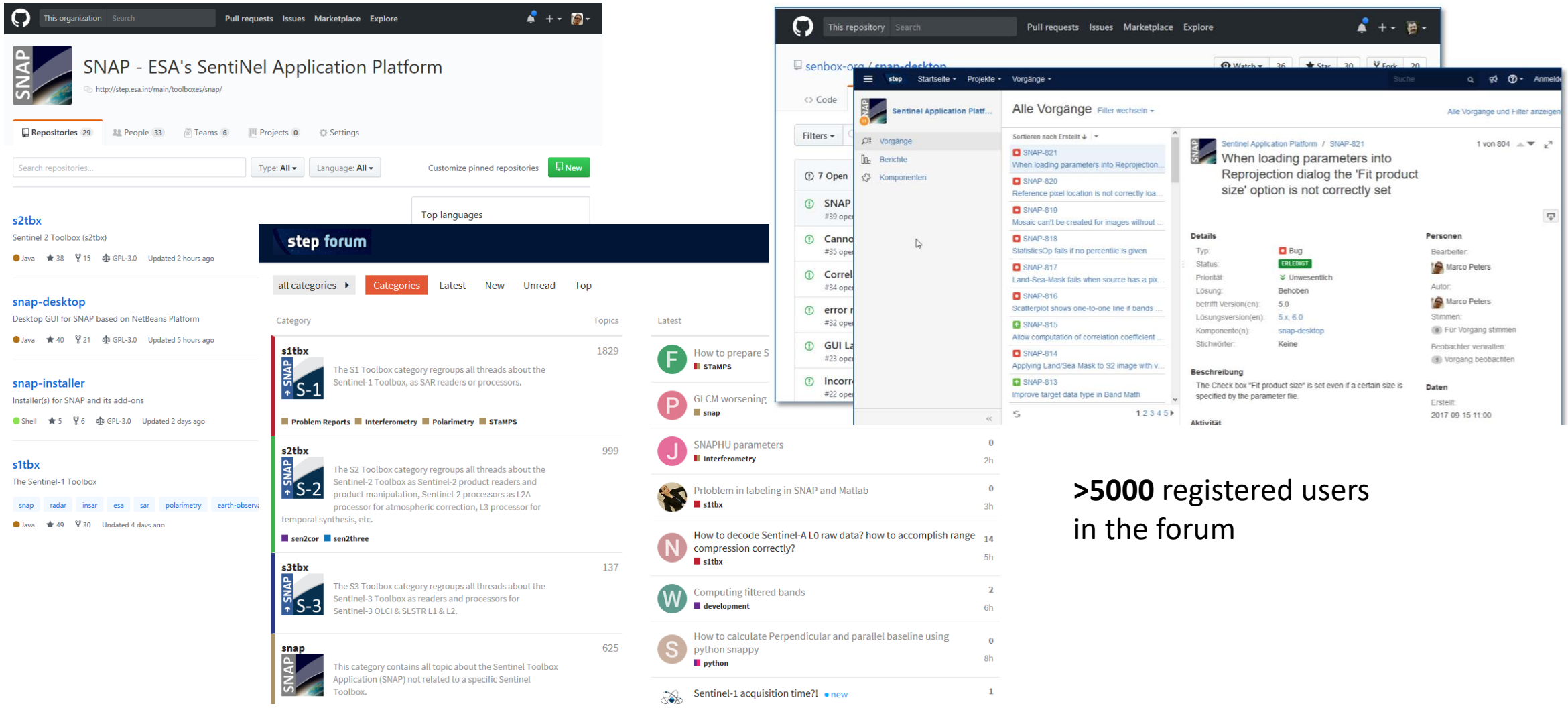
ENVISAT

sentinel-2

SNAP Architecture

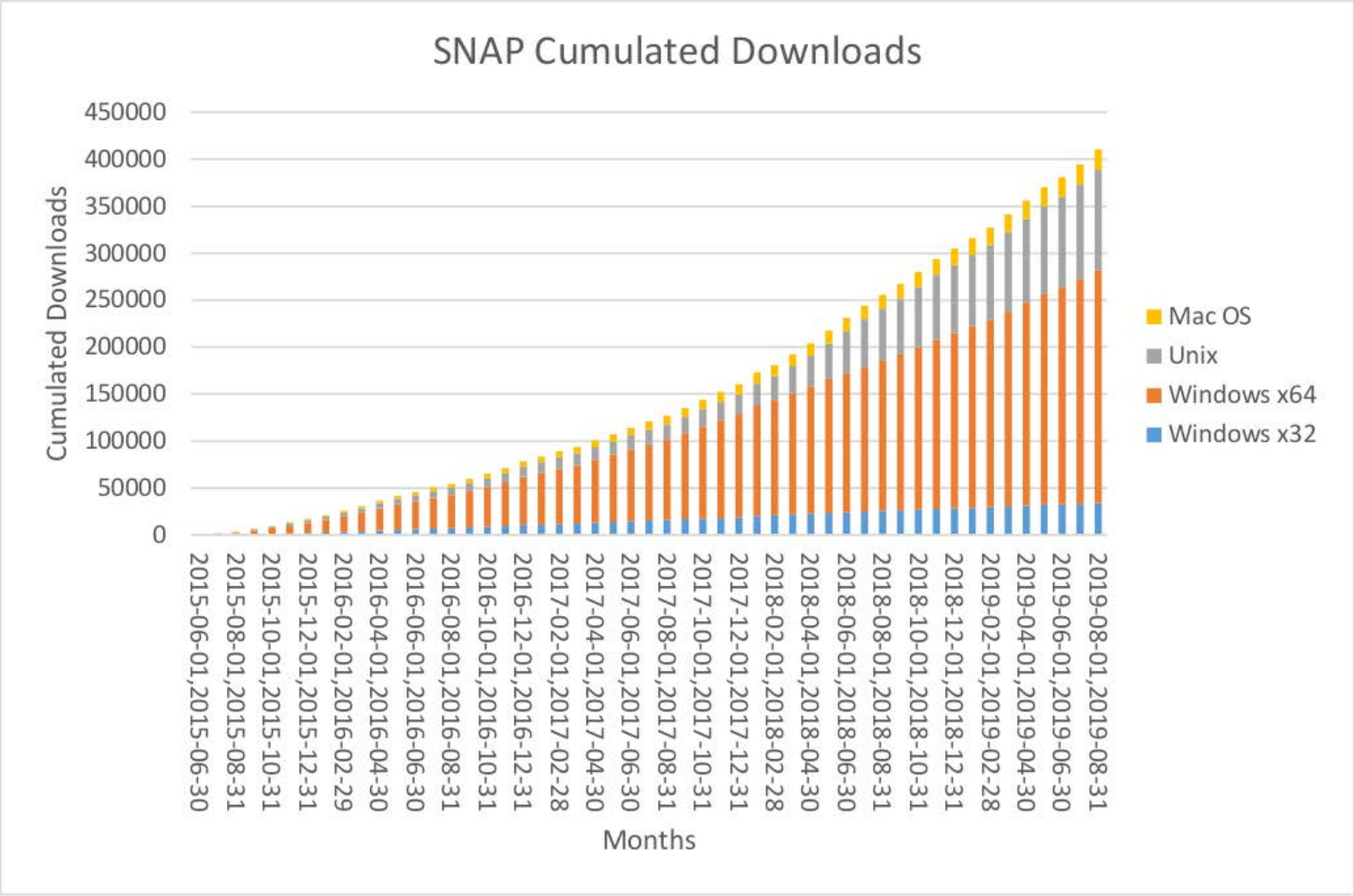


User involvement: Git, Forum & Issue Tracker



>5000 registered users in the forum

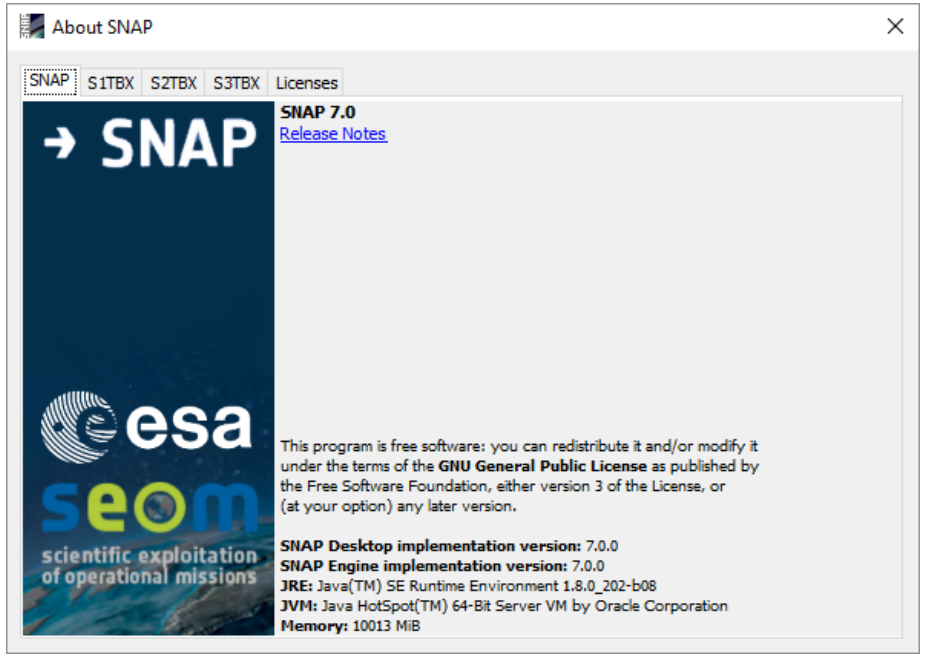
SNAP Downloads

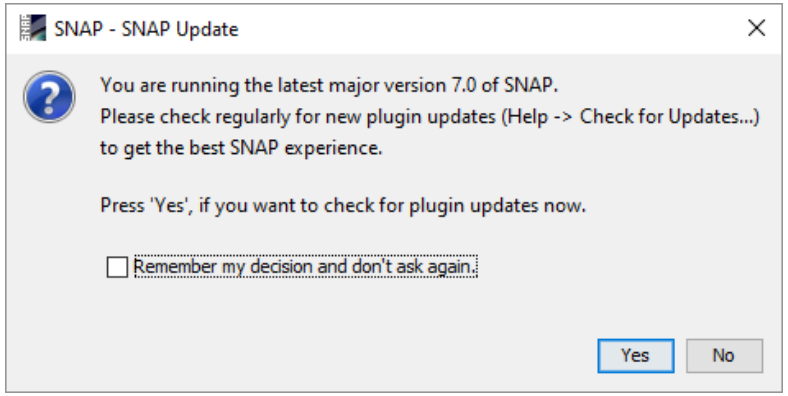


>200000 unique downloads for SNAP 6

SNAP 7

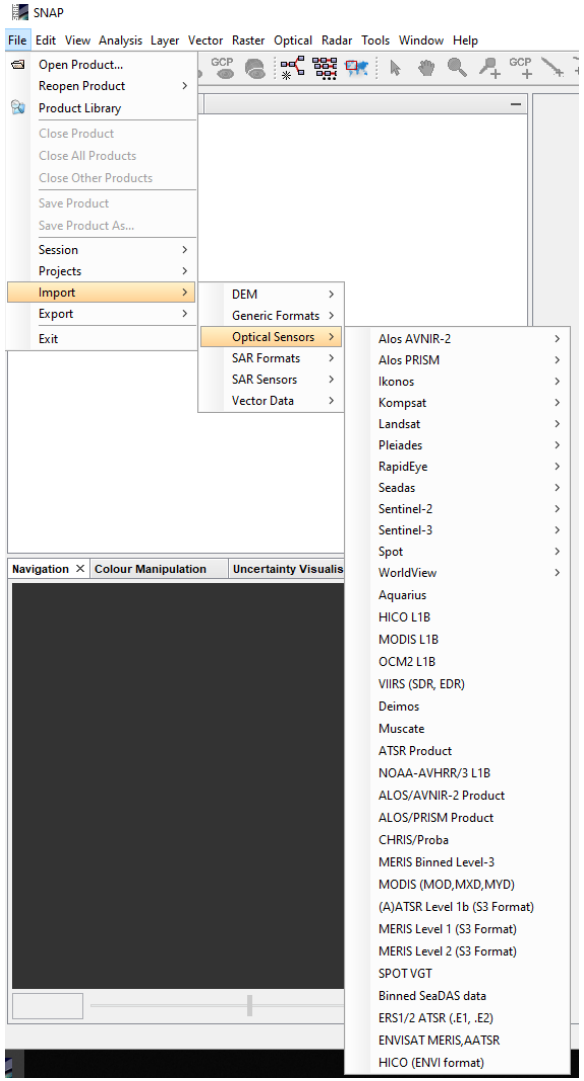
- Release: July 22nd, 2019
- First Update: September 2nd, 2019





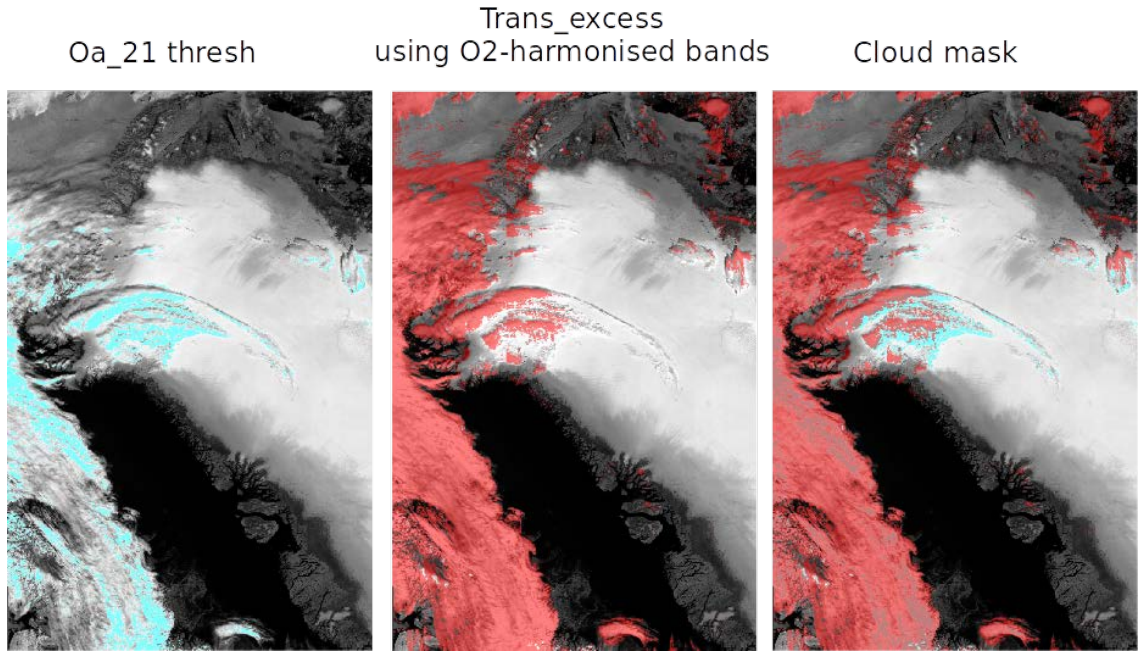
SNAP 7: New Product Readers

- 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

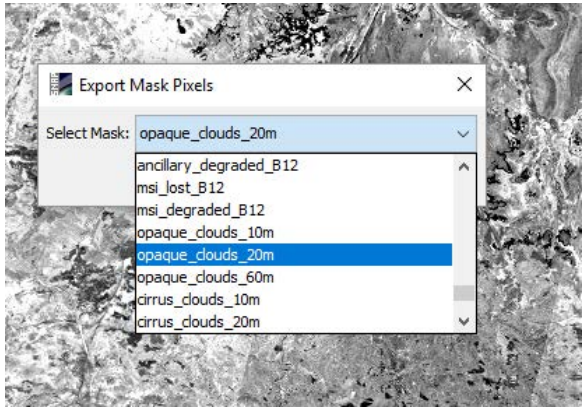


SNAP 7: Improved and Fixed Operators

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

SNAP 7: Extended Multi-Size Support

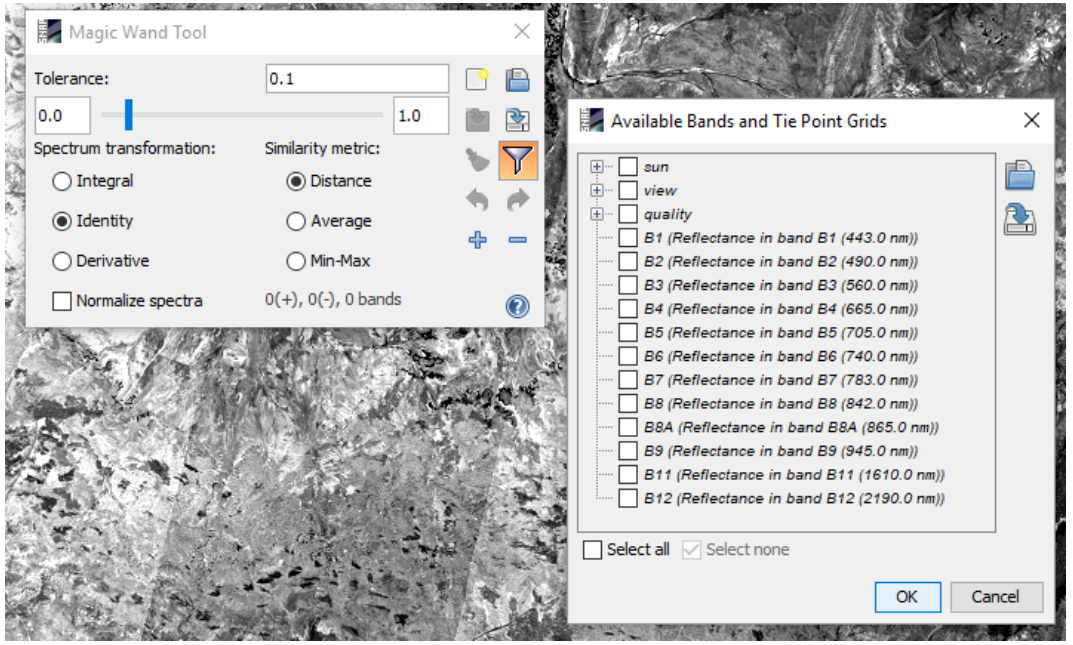
Export Mask Pixels



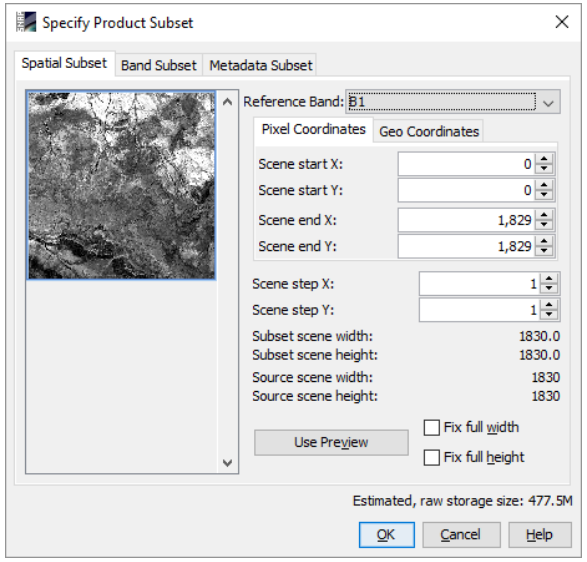
Collocation

BaseIndexOp

Magic Wand



Subsets



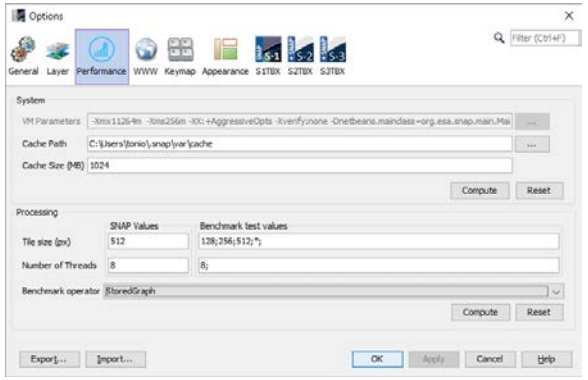
Add Elevation Band

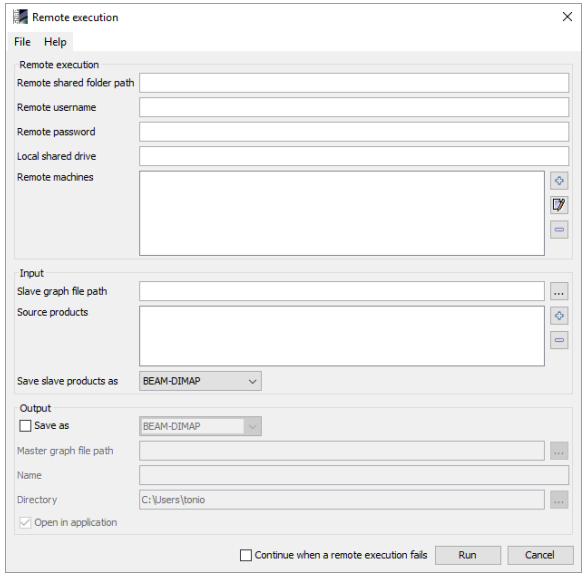
Copy Pixel Info

Export Transect Pixels

SNAP 7: What else is new?

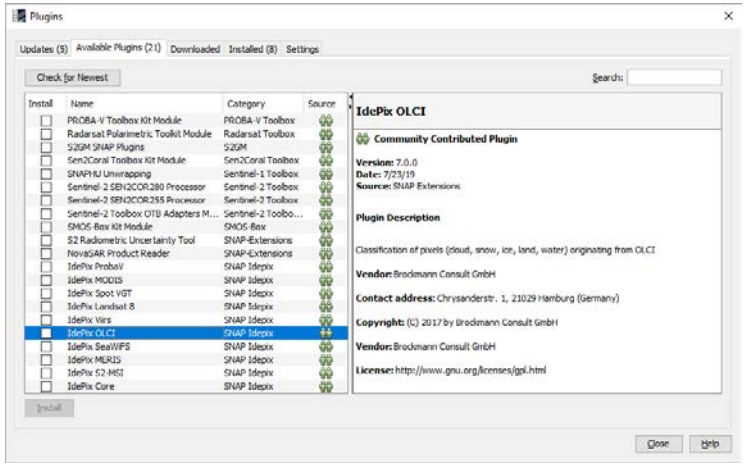
- Allow disabling access to remote auxiliary data
- Automatic orbit download via QC Rest API
- Calibration for RCM, Paz, ICEYE SLC, SLSTR L1B
- Simplified Smart Configurator
- Graphical User Interface for Remote Execution
- Virtual File System
- Added OTB bundle
- Removed question which SLSTR reader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

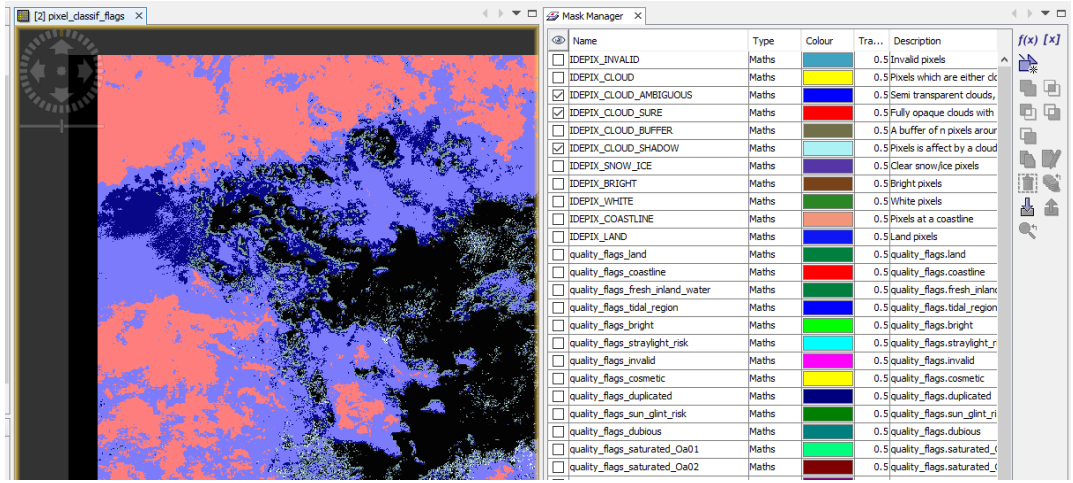




SNAP 7: What else is new?

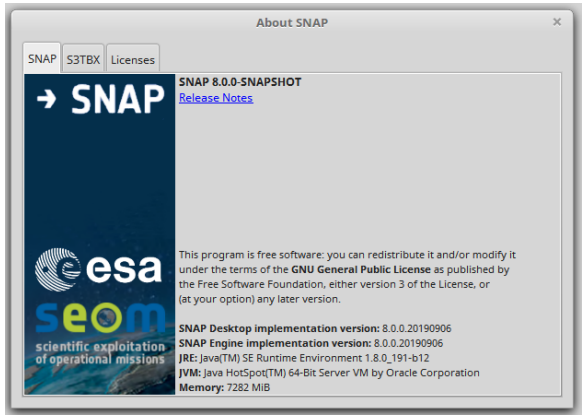
- Improved testing
- Created tutorials
- Updated help entries
- Moved Idepixes to dedicated repository
- Improved Reader performances
  - GeoTiff





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