



National Satellite Data Center (NSDC) and Finnish Collaborative Ground Segment

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Sodankylä National Satellite Data Centre

Finnish Meteorological Institute – Arctic Research Centre (FMI-ARC)



National satellite data center (NSDC) provides satellite data reception and data processing services to Finnish and international partners



Satellite data availability from FMI Arctic Research and Satellite data centre

Current operational (free access)

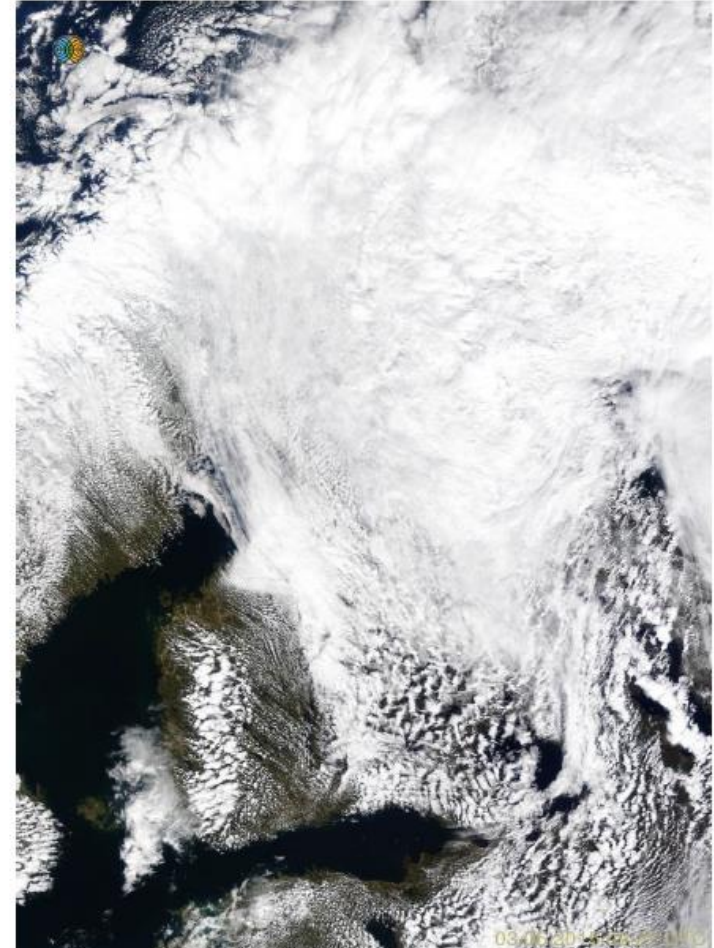
- EOS-Terra/MODIS
- EOS-Aura/ OMI
- Suomi-NPP/VIIRS & OMPS
- Sentinel 1 and Sentinel 2

Current operational (commercial)

- COSMO-SkyMed (SAR)

Sentinel Collaborative Ground station

- **Sentinel-1 Collaborative Acquisition Station (CAS):**
Sentinel-1 NRT delivery from local reception
- **Collaborative Archiving and dissemination Centre (CAC)**
Sentinel-1/2/3/5P National Mirror Site





Services from NSDC

- Local satellite reception
- Data processing
 - Pre-processing
 - Products
- Archiving
- Dissemination

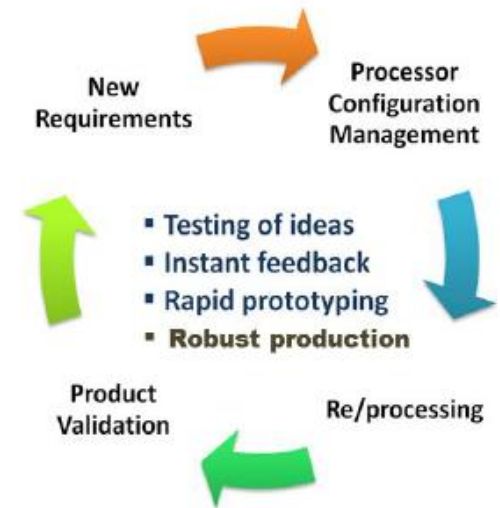
- Infrastructure as a service (IaaS)
 - Processing capacity (cloud, grid, clusters)
- Platform as a service (PaaS)
 - Processing software (toolboxes, commercial sw)

- User driven approach
 - How can we serve external users
- Virtual servers
 - Easy to create – flexible to modify
 - Joint servers vs. dedicated
 - Shared data disk vs. restricted
- Hosting a server vs. a software
- JIRA ticketing system for communication and user requests
- 24/7 surveillance
- Calvalus processing cluster
- Next slide! -



Calvalus processing system

- System for efficient Remote sensing data **storage and processing**
- Based on open source Big Data solution (Apache Hadoop)
- Implements commonly used processing workflows
- Provides common Remote sensing software components
- Provides interfaces for implementing customized data processors and algorithms



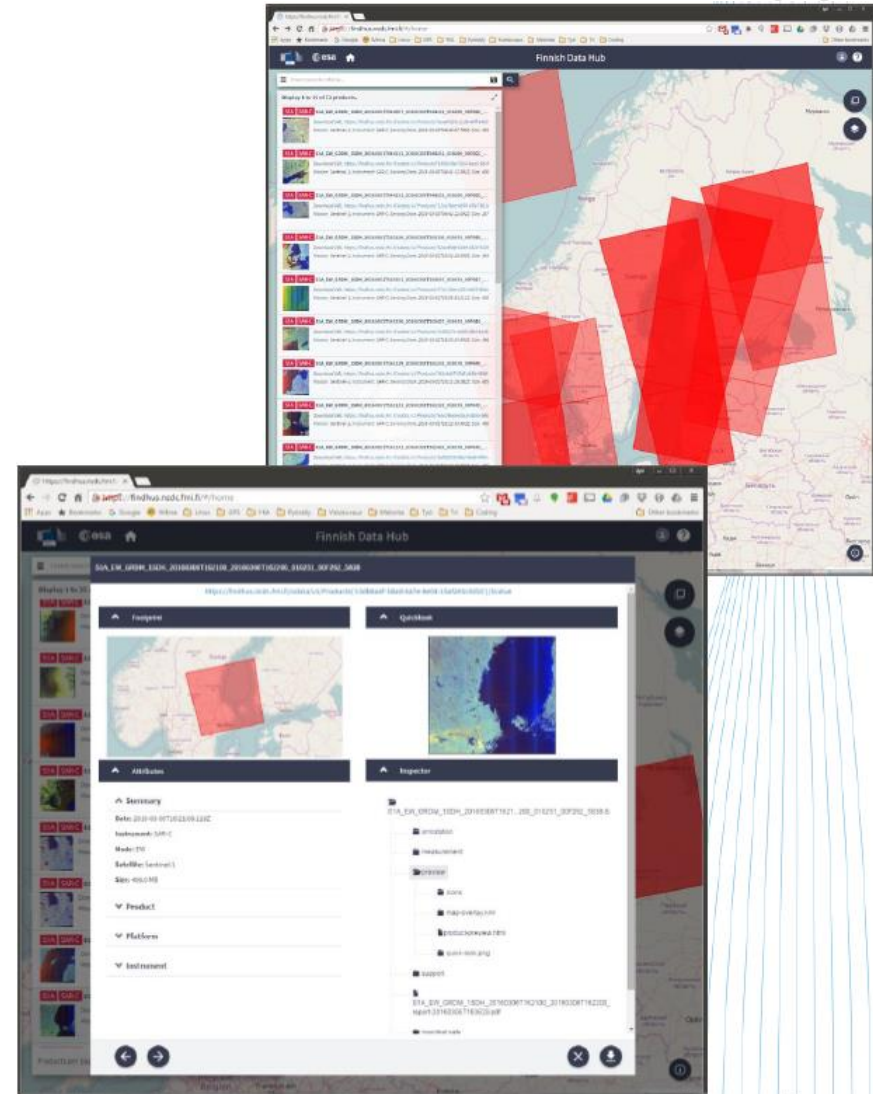


FINHUB

NOW OPEN!!!

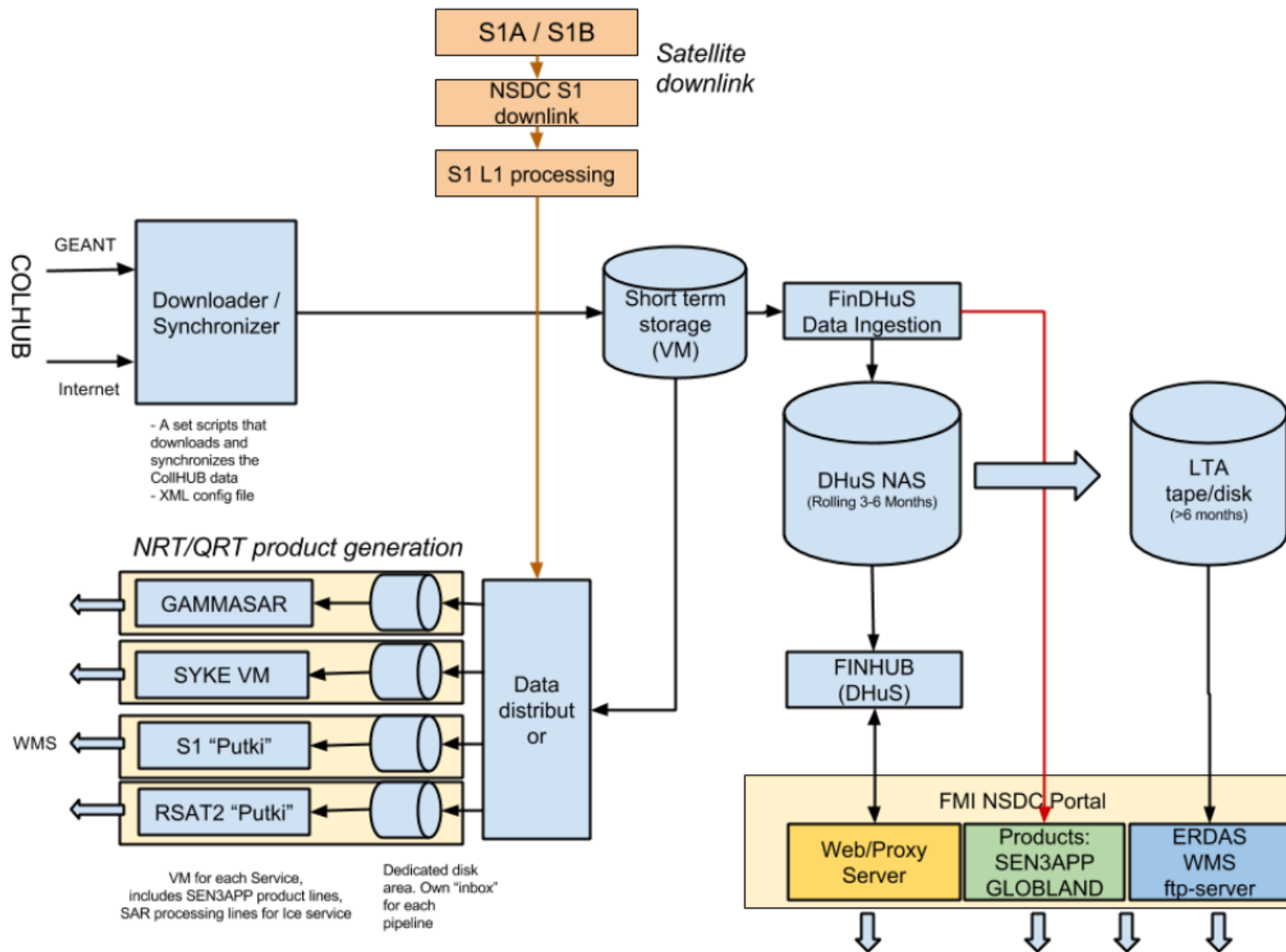
- Sentinels' data dissemination system
- Utilises the ESA developed DHuS system
 - Same Graphical user interface
 - Same M2M interface (curl)
- No self-registration
 - Controlled number of users

finhub.nsd.c.fmi.fi





FINHUB data flow





Why Finnish CollGS

- Provide fast access of S1 scenes for Baltic Sea ice monitoring and icebreaker support
- Provide reliable access to Sentinels' data for Finnish users and partners
 - ESA SciHub: 33 000 users, FINHUB: ~ 500 users
 - ESA SciHub: 2 parallel D/L, FINHUB: no limitation
- Process local and/or NRT products
 - e.g. Baltic Sea water quality, etc.
- Maintain local long-term archive of Sentinels' data
 - Scientific use, long-term change detection
- Perform bulk processing of data for local use
 - e.g. L1b -> L1c with national DEM (TBC)



Supplementary budget 2015

State Treasury:

29.10.2015

3 500 000 € to enhance NSDC activities; new antenna and processing capacity by the end of year 2016



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