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SPOT World Heritage catalogue: 30 years of SPOT 1-to-5 observation

Julien Nosavan, Agathe Moreau, and Steven Hosford

CNES, Earth observation, France (julien.nosavan@cnes.fr)

SPOT 1-to-5 satellites have collected more than 30 million images all over the world during the last 30 years from 1986 to 2015 which represents an amazing historical dataset. The SPOT World Heritage (SWH) programme is a CNES initiative to preserve, open and generate positive impact from this SPOT 1-to-5 archive by providing new enhanced products to the general public.

Preservation has been supported for years by archiving raw data (GERALD format) in the CNES long term archive service (STAF) while the commercial market was served by images provided by our commercial partner Airbus. SWH opens a new era with the will to provide and share a new SPOT 1-to-5 archive at image level. The chosen image product is the well-known 1A SCENE product (DIMAP format) which has been one of the SPOT references for years. As a remind, 1A SCENE is a squared 60 km x 60 km GEOTIFF image including initial radiometric corrections from instrument distortions. Image resolution ranges from 20m to 5m depending on the SPOT satellite/instrument (2,5m using SPOT 5 THR on ground processing mode).

This new SWH-1A archive is currently composed of 17 M images which have been first extracted from STAF magnetic tapes over a period of 1 year and processed to 1A level using the standard processing chain on CNES High Processing Center (~432 processing cores). In parallel, additional images acquired by partner receiving stations are being retrieved to ensure that the archive is as exhaustive as possible.

The SPOT 1-to-5 1A archive will be accessible through a dedicated CNES SWH Web catalogue based on REGARDS software which is a CNES Open Source generic tool (GPLv3 license) used to manage data preservation and distribution in line with OAIS (Open Archival Information System) and FAIR (Findable, Accessible, Interoperable, Reusable) paradigms.

Once authenticated and in respect of the SWH license of use, users will then be able to request the catalogue and download products, manually or using APIs supporting OpenSearch requests.

This paper presents the architecture of the whole SPOT preservation process, from processing chains to data distribution with a first introduction to the SWH catalogue.

A last part of the presentation deals with some examples of use cases foreseen using this SPOT dataset.