

## Ancillary Data for OPERA Dynamic Surface Water Extent from Sentinel-1 (Version 1)

*This document describes the ancillary datasets required to reproduce the OPERA\_L3\_DSWX-S1\_V1 collection and where to download them.*

### Worldcover Map

**Name:** ESA WorldCover 10m v100

**Description:** ESA WorldCover 10m. Broader land cover classes with finer spatial resolution (10m) used to refine 100m Copernicus Land Cover. The full Worldcover map is stored as a set of numerous GeoTIFF files, which may be indexed via a GDAL .VRT (Virtual Dataset) file included with the full map.

**URL:** <https://zenodo.org/records/5571936>

### Digital Elevation Model (DEM)

**Name:** Copernicus Digital Elevation Model (30m)

**Description:** The SAS uses a project-specified DEM for processing based on the Copernicus DEM 30 meters (GLO-30 DEM). The DEM is the same as prepared for The NASA-ISRO Synthetic Aperture Radar mission, referred to as the NISAR-DEM. The full DEM is stored as a set of numerous GeoTIFF files, which may be indexed via a GDAL .VRT (Virtual Dataset) file included with the DEM.

**URL:** <https://doi.org/10.5270/ESA-c5d3d65>

### JRC Global Surface Water

**Name:** JRC Global Surface Water Occurrence

**Description:** The SAS uses the JRC Global Surface Water data to process DSWx-S1. The product consists of 'occurrence', 'seasonality', 'recurrence', and 'transitions' dataset for global surface water derived from collections of optical images. The DSWx-S1-SAS may use 'occurrence' or 'seasonality' for ancillary input, but the default is current 'occurrence'.

**URL:** <https://global-surface-water.appspot.com/download>

## **ASF Global Height Above Nearest Drainage (HAND)**

**Name:** Height Above Nearest Drainage (HAND)

**Description:** The DSWx-S1-SAS uses the Height Above Nearest Drainage (HAND) for processing DSWx-S1 workflow and masking WTR, and BWTR layers. The HAND has a 30-m spacing. The data is prepared from ASF and publicly available through the S3 bucket.

**URL:** <https://www.earthdata.nasa.gov/learn/tutorials/global-30-m-hand>

## **GLAD Classification Map**

**Name:** Global Land Cover and Land Use Change (GLCLU 2020)

**Description:** The GLAD Land Cover product contains comprehensive information about the vegetation with 30-m spatial resolution in near-global areas. It covers global regions excluding Antarctica and Greenland.

**URL:** <https://storage.googleapis.com/earthenginepartners-hansen/GLCLU2000-2020/v2/download.html>

## **Algorithm Parameters**

**Name:** Algorithm Parameters

**Description:** The SAS uses a YAML file to read the algorithm parameters to run DSWx-S1 algorithm.

**URL:** [https://github.com/nasa/opera-sds-pcm/blob/develop/conf/AlgoParams.yaml.L3\\_DSWx\\_S1.jinja2.tmpl](https://github.com/nasa/opera-sds-pcm/blob/develop/conf/AlgoParams.yaml.L3_DSWx_S1.jinja2.tmpl) (template)

## **MGRS Tile/Tile Collection Databases)**

**Name:** MGRS Tile/Tile Collection Databases

**Description:** The MGRS tile database defines a fixed output grid for each DSWX-S1 product, and the MGRS tile collection database contains the definition of each grouping of MGRS tiles. These static ancillary inputs are required for OPERA SDS operations so that all output grids will be consistent over time.

**URL (OneDrive):**     [MGRS\\_tile\\_collection\\_v0.3.sqlite](#)     [MGRS\\_tile\\_v0.3.sqlite](#)