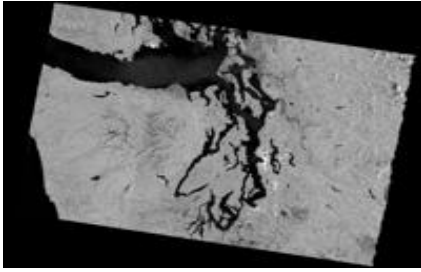


S1A_IW_20220720T142149_DVP_RTC30_G_gauned_A1A2_VV.tif



Tags Alaska Satellite Facility, ASF, Synthetic Aperture Radar, SAR, Radiometric Terrain Correction, RTC, Sentinel-1

Summary

This file is a Radiometric Terrain Corrected (RTC) granule of GRD SAR data from the Sentinel-1 mission, processed using GAMMA software. Cell values indicate VV gamma-0 amplitude, and pixel spacing is 30 m.

Description

This Radiometric Terrain Corrected (RTC) product is derived from a Ground Range Detected (GRD) granule of Synthetic Aperture Radar data from the Copernicus Sentinel-1 mission (European Space Agency), processed by ASF DAAC HyP3 2023 using the hyp3_gamma plugin version 6.1.0 running GAMMA release 20220630. It is provided in WGS 84 / UTM zone 10N coordinates and is corrected for terrain using a Digital Elevation Model (DEM). The DEM used to generate this product is GLO-30, which has a native pixel spacing of 1 arc second (about 30 meters).

Processing Date/Time: 2023-04-22T08:31:35+00:00

In the filename, VV or HH indicates the co-polarized dataset, while VH or HV indicates cross-polarization. To learn more about polarimetry, refer to <https://sentinel.esa.int/web/sentinel/user-guides/sentinel-1-sar/product-overview/polarimetry>.

The name of the granule used to generate this TIFF file is:

S1A_IW_GRDH_1SDV_20220720T142149_20220720T142214_044185_05461C_FBDA. For a detailed description of the Sentinel-1 file naming convention, refer to https://asf.alaska.edu/data-sets/sar-data-sets/sentinel-1/sentinel-1-data-and-imagery/#Naming_Convention.

The side-looking geometry of SAR imagery leads to geometric and radiometric distortions, causing foreshortening, layover, shadowing, and radiometric variations due to terrain slope. Radiometric terrain correction converts unprocessed SAR data into geocoded tiff images with values directly relating to physical properties, alleviating the inherent SAR distortions. The process improves backscatter estimates and provides geolocation information, so images can be used as input for applications such as the monitoring of deforestation, land-cover classification, and delineation of wet snow-covered areas.

Cell values indicate VV gamma-0 amplitude, and pixel spacing is 30 m. Because of the range of data values, the images may appear very dark when first displayed. This will be more pronounced when the image is in power scale than when it is in amplitude or decibel scale. Consider setting the layer symbology to Stretched - Standard Deviations (choose a number (n) that works best for your particular dataset; the ArcGIS default of n: 2.5 will improve the display, but other values may give a better visualization).

This product was processed using 6 look(s). Multi-looking is the process of coherently averaging together pixels of an image. The overall effect of multi-looking is to reduce the noise level, thus reducing speckle, at the cost of decreased resolution. Multi-looking is not applied for 10-m products.

No speckle filter has been applied to this image. The default is to not apply a speckle filter, but the user can choose to apply a filter when ordering the RTC imagery. When the filtering option is selected, an Enhanced Lee filter is applied during RTC processing to remove speckle while preserving edges. When applied, the filter is set to a dampening factor of 1, with a box size of 7x7 pixels and 180 looks.

You may wish to explore the filtering options available in ArcGIS rather than ordering imagery with a filter already applied. There are many options for different speckle filter functions to be applied on the fly (including the filter settings listed above) using the Image Analysis window. To learn more about speckle filtering options, refer to <http://desktop.arcgis.com/en/arcmap/latest/manage-data/raster-and-images/speckle-function.htm>, and to learn how apply a function (such as a speckle filter) to a raster, refer to <http://desktop.arcgis.com/en/arcmap/latest/manage-data/raster-and-images/editing-functions-on-a-raster-dataset.htm>.

For areas where there is not a publicly-available digital elevation model (i.e. sea ice), geocoded products without terrain correction are also available from <http://hyp3.asf.alaska.edu>.

Refer to ASF's [RTC Product Guide](#) for more information about On Demand RTC products.

The Sentinel-1 mission is designed to be a two-satellite constellation. Sentinel-1A was launched April 3, 2014, and remains active. Sentinel-1B was launched April 25, 2016, and was active until December 23, 2021. The satellites each have a 12-day repeat cycle and use the same orbit pattern, but are offset 180 degrees to allow repeat passes every 6 days while both are active.

Since the mission ended for S1B, there are some significant gaps in coverage. A reduced acquisition plan will be in place until Sentinel-1C is launched (expected in 2023) to replace Sentinel-1B. Visit <https://hyp3-docs.asf.alaska.edu/sentinel1> for more information.

More information about the Sentinel-1 mission is available at <https://sentinels.copernicus.eu/web/sentinel/missions/sentinel-1>.

Additional information about Sentinel-1 data, imagery, tools and applications is available at <https://asf.alaska.edu/data-sets/sar-data-sets/sentinel-1>.

Credits

When using this data as an image in a publication such as journal papers, articles, presentations, posters, and websites, please include the following credit with the image (portions in square brackets are optional):

[RTC product processed by]ASF DAAC HyP3 2023[using GAMMA software]. Contains modified Copernicus Sentinel data 2022, processed by ESA.

When using this data in a manuscript and/or crediting datasets used for analysis, an acknowledgement including the software versions may be appropriate:

ASF DAAC HyP3 2023 using the hyp3_gamma plugin version 6.1.0 running GAMMA release 20220630. Contains modified Copernicus Sentinel data 2022, processed by ESA.

For more information on citing the dataset, please refer to the README file distributed with this product.

Use limitations

There are no restrictions on the use of this data, but it must be acknowledged or cited as listed in the credits.

Extent

There is no extent for this item.

Scale Range

Maximum (zoomed in) 1:5,000

Minimum (zoomed out) 1:150,000,000

You are currently using the Item Description metadata style. Change your metadata style in the Options dialog box to see additional metadata content.