

# ARD Services and other User Support-related Activities at the NASA Alaska Satellite Facility DAAC

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## Abstract

These are exciting days in SAR. Recent advances in sensor technology, processing capabilities, and data availability are revolutionizing the radar remote sensing discipline. New, regularly acquired and freely available imaging radars are fueling a drastic increase and diversification of the radar data user base, creating new possibilities but also new challenges for the radar remote sensing community.

At the NASA Alaska Satellite Facility DAAC, we have been working on the development of new services that allow the growing SAR community to take full advantage of these new data streams. As part of this work, we have developed two types of processing environments that will be highlighted in this paper:

The first type of processing tools allows for the generation of Level-2 (geocoded ARD-type) data products from original Level-1-type SAR imagery. Here we will particularly discuss (1) ASF's on-demand Level-2 data processing platform HyP3 (Hybrid Pluggable Processing Pipeline; <http://hyp3.asf.alaska.edu/>). This platform enables the production of time-series of Application Ready Data (ARD) products over user- defined areas of interest. HyP3 ARDs are currently generated in GeoTIFF formats for easier integration into GIS and other scientific workflows. Beyond HyP3, we will also present on (2) the fully automatic SARVIEWS system (<http://sarviews-hazards.alaska.edu/>), a processing service that automatically generates ARDs (RTC images and interferograms) for earthquake events and volcanic eruptions. SARVIEWS data are accessible through a dedicated website for easy data discovery and download.

In addition to these Level-2 data processing platforms we will also showcase the ASF OpenSARLab (<https://opensarlab.asf.alaska.edu>), a service that can be used to generate Level-3 science data products from time series of Level-2 (ARD) data. To optimize processing performance and reduce costs, the OpenSARLab resides in the Amazon Web Services (AWS) cloud, right next to ASF's cloud-based Sentinel-1 data holdings. The lab offers prototype processing workflows as executable and expandable Jupyter Notebooks. We will describe the concepts behind the OpenSARLab and showcase some of its current capabilities.

In the final part of the presentation we will highlight some of our recent activities in SAR capacity building. In contrast to other educational activities, our work has especially focused on the many non-traditional users that have recently developed interest in SAR. We will provide information on some of our recent courses that were held in Africa, Nepal, and Colombia. We will also introduce a full-semester graduate- level SAR class that was taught at UAF in a fully online environment.

**Keywords - Analysis Ready Data**