

NOUS41 KWBC 211636  
PNSWSH

Technical Implementation Notice 12-45  
National Weather Service Headquarters Washington DC  
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-NOAA Weather Wire Service  
-Emergency Managers Weather Information Network  
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Other NWS Partners, Users and Employees

From: Timothy McClung  
Chief, Science Plans Branch  
Office of Science and Technology

Subject: Addition of Alaska Region NPP VIIRS Imagery to NOAAPORT  
Test Channel Effective October 2, 2012

On or about Tuesday, October 2, 2012, beginning approximately 1500 Coordinated Universal Time (UTC), high resolution imagery from the Suomi National Polar-Orbiting Partnership (NPP) satellite will be broadcast across the NOAAPORT satellite broadcast network. This addition will consist of a limited set of NPP Visible Infrared Imaging Radiometer Suite (VIIRS) imagery covering the Alaska region. The imagery stream will be provided by the NOAA National Environmental Satellite, Data, and Information Service (NESDIS) NPP Data Exploitation (NDE) system, based on NPP VIIRS imagery Environmental Data Records (EDRs).

The new NPP VIIRS imagery products will be transmitted across a test channel of the NOAAPORT satellite broadcast network.

-Digital Video Broadcast (DVB) packet identifier: 105  
-Multicast address: 224.0.1.5  
-Port number: 1205  
-SBN Data Stream field setting in their frame-level headers: 7

NWS anticipates this NOAAPORT channel will be populated with additional polar-orbiting satellite imagery. For clarity, this channel will be referred to as the POLARSAT.

The Alaska region NPP VIIRS imagery will, in general, be within the following latitude-longitude box:

Lower/Southern Latitude: 45 degrees North  
Upper/Northern Latitude: 75 degrees North  
Left/Western Longitude: 120 degrees East  
Right/Eastern Longitude: 120 degrees West

This initial set of imagery products will be based on three NPP

VIIRS I channels, the horizontal resolution of which, at nadir, is approximately 375 meters.

The imagery products will be formatted in netCDF4, but compressed via gzip. Like all NOAAPORT products, each file will have a plain text WMO heading at its start. These headings are listed below.

TIPB01 KNES - Imagery Channel 1 (0.64?m)  
TIPB04 KNES - Imagery Channel 4 (3.74?m)  
TIPB05 KNES - Imagery Channel 5 (11.45?m)

The "P" in the third character place of the WMO Heading distinguishes this NPP-VIIRS imagery from pre-existing NOAAPORT satellite imagery.

To access these products, users should take the following steps:

- Read beyond or strip off the WMO heading
- Decompress the resulting product, e.g., via gunzip
- Use a netCDF4 reader, e.g., a decoder that invokes the Unidata netCDF4 software package

Each product will consist of one granule of VIIRS imagery for a single channel. The VIIRS granules will cover approximately 86 seconds of data, roughly 5 degrees or 556 kilometers of along-track geographical extent.

Unlike existing NOAAPORT satellite imagery, formatted on prescribed maps, each NPP VIIRS imagery granule will be uniquely located. Geolocation information is contained in each product file. The geolocation information consists of three 1541-dimension arrays of latitude/longitude pairs that correspond to the granule edge (first column), granule centerline, and granule edge (last column), with all three arrays oriented along the satellite track.

Given the fixed resolution and gridded Ground Track Mercator representation of the VIIRS imagery, only these three columns of geographical information (latitudes and longitudes) are required to map the imagery. This reduced geolocation information can be interpreted based on the VIIRS Ground Track Mercator imagery algorithm (fine 375 meter resolution version) for accurate georeferencing. Related information (though not specific to the NOAAPORT stream of NPP VIIRS imagery) can be found in the following document: "Joint Polar Satellite System (JPSS) Operational Algorithm Description (OAD) Document for VIIRS Ground Track Mercator (GTM) Imagery Environmental Data Record (EDR) Software," Revision A, January 18, 2012, (e.g., section 2.0.4).

The NOAAPORT feed of NPP VIIRS imagery is provided across a test channel of the satellite broadcast network. This NOAAPORT channel is under test and evaluation. Product availability across this channel is nonetheless expected to approach or meet that of operational/baseline data (i.e., greater than 95% data

availability). If the experimental period is successful, NWS intends to transition this NOAAPORT stream to full operational posture in early 2013.

For questions regarding the scientific or technical content of the NOAAPORT NPP VIIRS imagery feed please contact:

ESPC Help Desk  
Suitland, Maryland 20746  
Phone: 301-817-3880  
Email: ESPCOperations@noaa.gov

For questions regarding the NOAAPORT activation or distribution of these data sets please contact:

Brian Gockel  
NOAA/NWS Office of Science and Technology  
Phone: 301-713-0304 x158  
Email: Brian.Gockel@noaa.gov

NWS Technical Implementation Notices are online at:

<http://www.nws.noaa.gov/om/notif.htm>

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