Vegetation indices from satellite instruments in polar orbits are used to monitor the environment including drought, the health of ecosystems, forest fires, crop monitoring, as well as for weather forecasting and climate research. The Visible Infrared Imaging Radiometer Suite (VIIRS) Vegetation Index (VI) Environmental Data Record (EDR) from Suomi NPP and JPSS1 will provide both: continuity with vegetation indices from NOAA Polar-Orbiting Operational Environmental Satellites (POES) and the NASA Earth Observing Satellites, specifically Aqua and Terra satellites. Suomi NPP was launched in October 2011, and JPSS1 will be launched no later than the 2nd quarter of FY 2017. The Suomi NPP VIIRS Vegetation Index operational product includes two vegetation indices: the Top of the Atmosphere (TOA) Normalized Difference Vegetation Index (NDVI) (nano-satellite VIIRS) and the Top of the Canopy (TOC) Enhanced Vegetation Index (EVI). The VI EDR was validated and released in September 2014, and it is now available to the general public through the National Centers for Environmental Information (NCEI).

## SNPP/JPSS1 VIIRS Vegetation Index EDR Product Description

The Vegetation Index EDR consists of three vegetation indices:

1. Normalized Difference Vegetation Index (NDVI) from top-of-atmosphere (TOA) reflectances
2. Enhanced Vegetation Index (EVI) from top-of-canopy (TOC) reflectances
3. Normalized Difference Vegetation Index (NDVI) from top-of-canopy (TOC) reflectances (New for JPSS1)

These indices are produced at the VIIRS image channel resolution (375 m at nadir), over land in granule style (swath form), and the file format is HDF5.

### Vegetation Index EDR Data Access

The primary source for SNPP products is via NOAA’s Comprehensive Large Array-Data Stewardship System (CLASS) web site (http://www.class.ngdc.noaa.gov/saa/products/welcome). Data delivered to CLASS from the interface Data Processing System (IDPS) has a latency of 6 hours.

### Validation Stages Maturity Definition

#### Validated Stage 1:
- Implementation of DR7039 - TOC EVI backup algorithm
- Implementation of DR7697 – Redefine Granule Level Summary QF and pro Pixel
- Validation Stage Maturity Definition
- Provisional Data Product Engineering and Services (DPES) Integrated Product Team (IPT) in early FY 2015 development at NOAA/STAR, and the algorithm change package will be delivered to the JPSS Ground Project’s Data Product Engineering and Services (DPES) Integrated Product Team (IPT) in early FY 2015 for further testing and implementation.

| Date of verstion: May 19, 2014 | Product is available for public use and has passed
| Validated Maturity Stage 1 | Preliminary Acceptance
| Product is not available for public use and has not passed
 Validated Maturity Stage
| JPSS1 TOC NDVI Algorithm Readiness Review (Mar 2015) | Validation Stages Maturity Definition

#### Validated Stage 2:
- Using a limited set of samples, the algorithm output is shown to meet the threshold performance attributes identified in the JPSS Level 1 Requirements Supplement with the exception of the S-NPP Performance Exclusions

#### Validated Stage 3:
- Using a large set of samples representing global conditions over four seasons, the algorithm output is shown to meet the threshold performance attributes identified in the JPSS Level 1 Requirements Supplement with the exception of the S-NPP Performance Exclusions

### User Precautions

- Known issues to date are described below:
  - Cloud Shadows QF is currently known to overestimate shadow affected areas. Use this flag with caution
  - Aerosol QF. Use this flag to identify the source of aerosol information and the degree of aerosol contamination in individual pixels
  - Cloud Adjacency QF. This flag can overestimate affected areas
  - Snow/Ice QF. Use this flag to screen pixels with suspicious EVI values over snow/ice-covered surfaces
  - Temporal compositing (weekly, 16-day, monthly), and spatial compositing (global)

### Acknowledgements and Disclaimer

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