## *January 2018*
Downloading VIIRS Active Fire Data

The user community will find four primary options available to download Suomi-NPP Visible/Infrared Imager/Radiometer Suite Active Fire data. The diagram below should help individuals choose their preferred method to access the data. Systematic instructions are provided in the next pages. Users are referred to the VIIRS Active Fire Science Team dedicated URL for more information involving the active fire data set: http://viirsfire.geog.umd.edu/

Please use the "Contact Us" form for submitting questions and/or comments. Questions and/or issues concerning product performance, including reporting of data anomalies should be directed to:

Dr. Evan Ellicott (ellicott@umd.edu)
Dr. Louis Giglio (giglio@hermes.geog.umd.edu)

Figure 1: **VIIRS Active Fire data access options**
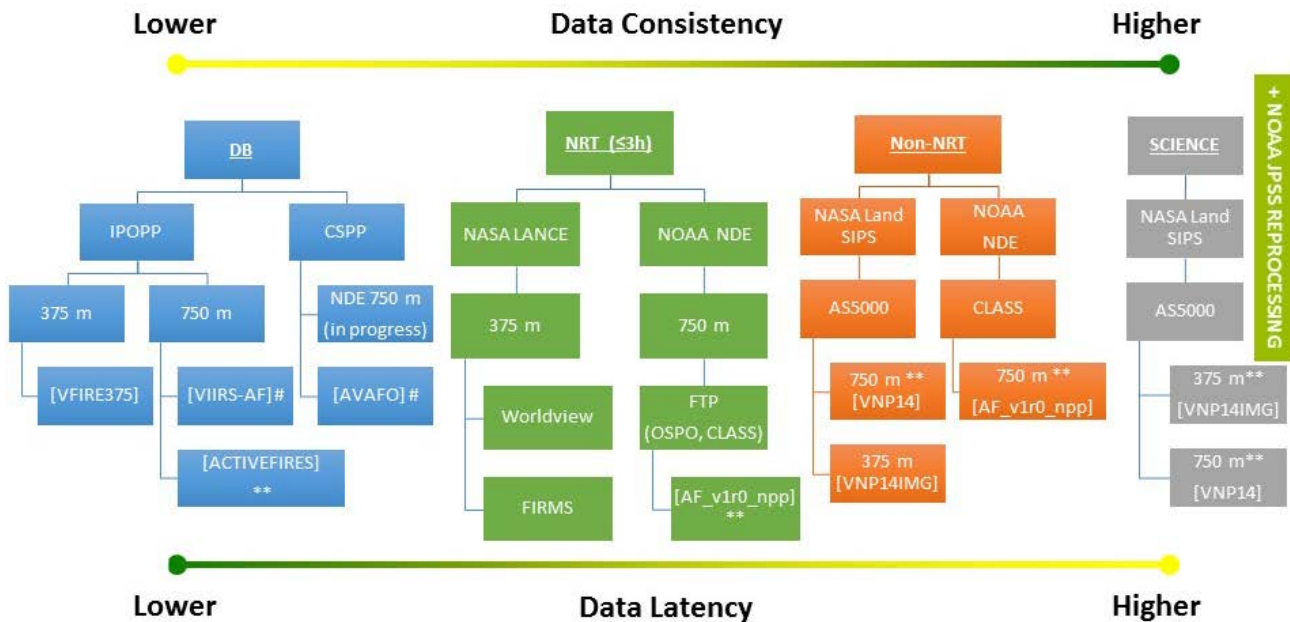
When trying to figure out what data to get and where to get it, you should first understand what your need is. Do you need near-real time data, perhaps for situational awareness, or are you looking for data consistency to conduct a long-

term examination of fires? The above chart shows that with lower latency the tradeoff is lower data consistency and vice-versa. The following diagrams and text will hopefully inform and guide you to decide what you need and where to get it. Keep in mind that the VIIRS AF product has been maturing and as such the data structure, formats, and directories for retrieval have changed. This information is current as of 31 January 2018 and will be updated as needed. An additional source of information is the NOAA STAR Calibration Center website: https://ncc.nesdis.noaa.gov/VIIRS/

VIIRS Active Fire Product

Data Consistency

Lower •————|——• Higher

Data Latency

Direct Broadcast (DB)

Direct Broadcast (DB) is the real-time transmission of satellite data to the ground. As the Earth is being observed by satellite instruments the data is formatted and transmitted to any user who have compatible ground receiving equipment and are in direct line of sight to the satellite. DB can provide end-users with VIIRS data in less than 1 hour.

The University of Wisconsin – Madison's Space Science and Engineering Center (SSEC)
ftp://ftp.ssec.wisc.edu/pub/eosdb/npp/viirs/
The Goddard Space Flight Center's Direct Readout Laboratory
http://directreadout.sci.gsfc.nasa.gov/
USDA Forest Service Remote Sensing Applications Center (RSAC)
http://activefiremaps.fs.fed.us
Geographic Information Network of Alaska (GINA)
http://www.gina.alaska.edu/data

Direct broadcast provides near-real time transmission of satellite data to the ground. As the Earth is being observed by satellite instruments the data are formatted and transmitted to any users who have compatible ground receiving equipment and are in direct line of sight to the satellite. DB can provide end-users with VIIRS data in less than 1 hour. The following links offer some of the DB sources in the U.S.

VIIRS Active Fire Product

Data Consistency

Lower ●————————————|————————————● Higher

Data Latency
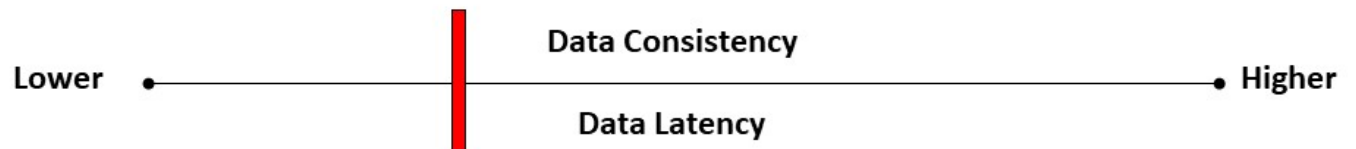
| Near real-time (NRT <3hr) | Near Real-Time (NRT) data and imagery from VIIRS instrument are available much quicker than routine processing allows. Most data products are available within 3 hours from satellite while imagery are generally available 3-5 hours after observation |

NOAA NDE – ftp: ftp://ftp-npp.class.ngdc.noaa.gov/
- Select your date of interest than mine down to the following directory: *NDE-L2/VIIRS-Active-Fire-EDR-NOAA-Enterprise-Algorithm/NPP*

NASA LANCE
https://earthdata.nasa.gov/earth-observation-data/near-real-time/download-nrt-data/viirs-nrt
- Registration is required:
    - https://urs.earthdata.nasa.gov/users/new

NASA WorldView
https://worldview.earthdata.nasa.gov/

Near Real-Time (NRT) data and imagery from VIIRS instrument are available much quicker than routine processing. Most data products are available within 3 hours from satellite while imagery are generally available 3-5 hours after observation.

VIIRS Active Fire Product

Data Consistency

Lower ●————————————————————————————● Higher

Data Latency

Non-NRT

This is the standard processing stream for NPP and VIIRS products. Latency is around 6 hours.

NOAA NDE – web: http://www.class.noaa.gov/
- Click on the drop-down bar: "Please select a product to search" and select: *JPSS VIIRS Products (Granule)(JPSS_GRAN)*

NASA LAADS – web: https://ladsweb.nascom.nasa.gov
- Click "Find Data" under the "Data Discovery" section
- Select *"VIIRS: Suomi-NPP"* under "Select Sensor"
- Then under *"Select a Collection"* select *"5000-LSIPS C1 Processing"*
  - VNP14 is the 6-minute 750-meter M-band product
  - VNP14IMG is the equivalent I-band (375m) product

NASA LAADS – ftp: ladsweb.nascom.nasa.gov
- Change directory to */allData/5000*
- *Select VNP14* (M-band) *or VNP14IMG* (I-band)

This is the standard processing stream for NPP and VIIRS products. Latency is around 6 hours.

VIIRS Active Fire Product

Data Consistency

Lower ●————————————————————————————● Higher
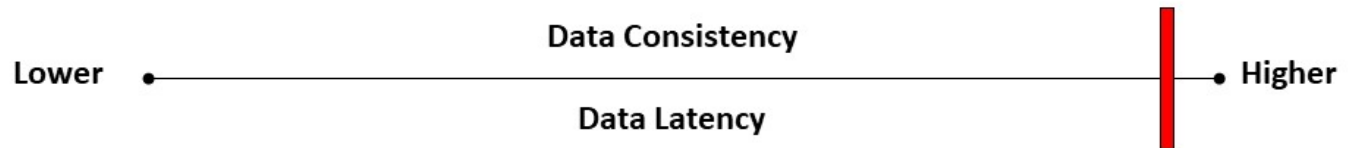
Data Latency

| Science | Science quality data has undergone quality checks before being archived. The data is periodically reprocessed to include algorithm updates. Latency is around 2 to 3 months.

The links for data access are the same as listed for non-near real-time data with the caveat being that the NDE FTP only holds day for 85 days. Available data may be reprocessed in the other archives periodically.

NOAA NDE – web: http://www.class.noaa.gov/

NASA LAADS – web: https://ladsweb.nascom.nasa.gov
NASA LAADS – ftp: ladsweb.nascom.nasa.gov

Science quality data have undergone quality checks and been scrutinized before being archived. The data are periodically reprocessed to include algorithm updates. Latency is around 2 to 3 months.

Step-by-Step instructions to locate and retrieve data follow below

Option 1: NOAA CLASS Data Archive System (Web)
This should be your preferred option when downloading spatial subsets covering specific regions and time periods and therefore requires user input.

Step-by-step procedure:

(1) Open an internet browser and go to http://www.class.noaa.gov/

(2) First, you must register (first-time users) by clicking on the "*Register*" button near the top of the page. Create a new user account then login using your account information

(3) Click on the drop-down bar labeled:
   "*Please select a product to search*" and select:
   JPSS VIIRS Products (Granule)(JPSS_GRAN) then click on: "*Go*"

(4) Choose spatial & temporal domains of interest

(5) On "Datatype", under select:
   "*VIIRS Active Fire EDR*"

(6) Click "*Search*"

(7) On the new window containing the search results in tabular format, check the boxes in the "Shopping Cart" column containing the files of interest or alternatively click the "*Select All*" button above the table, and then click the "*Update*" button also located above the table. Note that you won't be automatically redirected. In order to see your shopping cart, click on the "*Goto Cart*" button above the table.

(8) In the shopping cart window, all selected files will be listed. By clicking on "Advanced Options" you will find additional options. Note that these do not apply to the Active Fire product but you may find it useful when ordering other VIIRS data sets. Note also that the NDE active fire product is distributed through the NOAA CLASS system as a **~86sec** tiles and **NetCDF** format.

(9) Click on the "*Place Order*" button.

(10) You will be notified via email once your order has been processed and the files are ready for download

Option 2: NOAA CLASS Data Archive System (ftp)
The most recent global NPP operational products are available in daily compressed files for download. This should be your preferred option when downloading global data sets from recent acquisition dates (up to the most recent 85 days of data are available) allowing for the use of ftp scripts. Data are provided as *.tar file bundles containing several **~86sec** active fire **NetCDF** files each. Typically, two *.tar files will cover a 24h period.

Step-by-step procedure:

    (1) Connect to:
         Server: User: *anonymous*
         Password: your email address

    (2) Go to directory of your choice indicating the calendar date of interest and enter the line commands as demonstrated below:

         cd 20180101 (this directory contains data acquired on 01 January 2018)
         cd NDE-L2/ VIIRS-Active-Fire-EDR-NOAA-Enterprise-Algorithm/NPP
         bin
         prompt
         mget VIIRS.tar*
         bye

         The commands above will download the following tar files to your machine:

         NDE-L2_VIIRS-Active-Fire-EDR-NOAA-Enterprise-Algorithm_20180104_89225.tar.manifest.xml
         NDE-L2_VIIRS-Active-Fire-EDR-NOAA-Enterprise-Algorithm_20180104_89225.tar
         NDE-L2_VIIRS-Active-Fire-EDR-NOAA-Enterprise-Algorithm_20180104_41475.tar.manifest.xml
         NDE-L2_VIIRS-Active-Fire-EDR-NOAA-Enterprise-Algorithm_20180104_41475.tar
         NDE-L2_VIIRS-Active-Fire-EDR-NOAA-Enterprise-Algorithm_20180104_26614.tar.manifest.xml
         NDE-L2_VIIRS-Active-Fire-EDR-NOAA-Enterprise-Algorithm_20180104_26614.tar

         Additional data download options on next pages

Option 3: NASA LADS Data Archive System (Web) – NetCDF
This option allows you to specify the timing and extent of the fire detecions of interest (for example a particular fire event). Data are provided as individual active fire **~6min NetCDF** files.

Step-by-step procedure:

(1) Go to: https://ladsweb.modaps.eosdis.nasa.gov/
(2) Click "Find Data" under the "Data Discovery" section
(3) Select "*VIIRS: Suomi-NPP*" under "Select Sensor"
(4) Then under "*Select a Collection*" select "*5000-LSIPS C1 Processing*"
   a. VNP14 is the 6-minute 750-meter M-band product
   b. VNP14IMG is the equivalent I-band (375m) product

Additional data download options on next page

Option 4: NASA LADS Data Archive System (ftp) – NetCDF
This should be your preferred option when downloading global data sets from any acquisition date allowing for the use of ftp scripts. Data are provided as individual active fire **~6min NetCDF** files.

Step-by-step procedure:

    (1) Connect to:
        Server: *ladsweb.nascom.nasa.gov*
        User: *anonymous*
        Password: your email address

    (2) Enter the line commands as outlined below:

        cd /allData/5000/VNP14 (VNP14IMG if you're looking for the 375m product)
        Select your year and day
        cd 2018/001 (this directory contains data acquired on 01 Jan 2018 where 001 indicates day of year [0-365/366])
        bin
        prompt
        mget VNP14_d20180101.20*.nc
        bye

The commands above will download all active fire product files acquired during the 20th hour (UTC) on 01 Jan 2018 to your machine (i.e., ~20:00:00 – 20:59:59UTC).

Additional data download options on next page