

VIIRS Nightfire Data Use License

May 5, 2021

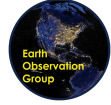
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VIIRS Nightfire: Nightly global multispectral infrared emitter detections, with temperature, source area and radiant heat calculations from data collected by Visible Infrared Imaging Radiometer Suite sensors. Herein the data product is referred to as VNF.

VNF was conceived and developed by the Earth Observation Group (EOG). VNF data are produced in near-real time at the Colorado School of Mines. Digital data are in csv format on 24-hour increments and the archive extends back to 2012. To obtain a license for accessing the csv data you must 1) review this agreement; 2) signify your acknowledgement and agreement by signing below; 3) return the signed Agreement to EOG, and 4) receive approval of the application. Applications from academic and government entities can expect quick approval. Licensing agreement for commercial entities will be negotiated through the Colorado School of Mines Technology Transfer office and an annual licensing fee is expected.

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6. Reports and publications which use VNF should cite one or more of EOG's papers, listed in the attached EXHIBIT 2.
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Licensee agrees to use its best efforts to provide EOG information on an annual basis about their utilization of VNF including a list of publications or presentations wherein VNF is used.

Correspondence with EOG on VNF:

Licensing, services and access: eog@mines.edu,

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Mines Office of Technology Transfer: Dr. William Vaughan (wvaughan@mines.edu)

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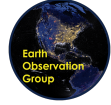


EXHIBIT 1: MARKING OF PRODUCTS

Licensee agrees to apply the following notice to all tangible forms of products, including graphs or pictorial presentations, which are produced or generated utilizing the licensed VIIRS Nightfire data, or to the packaging thereof if direct application to products is not feasible:

This product was made utilizing VIIRS Nightfire (VNF) nightly data produced by the Earth Observation Group, Payne Institute for Public Policy, Colorado School of Mines.

Large format graphical renditions made from VNF data shall carry the Earth Observation Group logo. Logos of Earth Observation Group are available at

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Source: VIIRS Nightfire, Colorado School of Mines.

EXHIBIT 2: CITATIONS

Reports and publications made using VNF data should cite one or more of the following papers:

Basic product description:

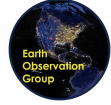
Elvidge, C.D.; Zhizhin, M.; Hsu, F.-C.; Baugh, K.E. VIIRS Nightfire: Satellite Pyrometry at Night. *Remote Sens.* **2013**, *5*, 4423-4449. <https://doi.org/10.3390/rs5094423>

Use in gas flaring analyses:

Elvidge, C.D.; Zhizhin, M.; Baugh, K.; Hsu, F.-C.; Ghosh, T. Methods for Global Survey of Natural Gas Flaring from Visible Infrared Imaging Radiometer Suite Data. *Energies* **2016**, *9*, 14. <https://doi.org/10.3390/en9010014>

VNF detection limits:

Elvidge, C.D.; Zhizhin, M.; Baugh, K.; Hsu, F.C.; Ghosh, T. Extending Nighttime Combustion Source Detection Limits with Short Wavelength VIIRS Data. *Remote Sens.* **2019**, *11*, 395. <https://doi.org/10.3390/rs11040395>



EOG VIIRS Nightfire (VNF) Data Licensing Application

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EOG Username(s) Separate with comma (,) if multiple usernames require access.	
The email or username registered on EOG Login system to access EOG products. If you do not already have an account, please visit following page to register a new account. https://eogdata.mines.edu/products/register/	
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Signature	
<input type="checkbox"/> I agree to the terms and conditions listed in the VIIRS Nightfire Data Use License.	
Date	

Please send the completed and signed document to eog@mines.edu