

VIIRS nighttime product (~ 500 m)

BioSpace25 - Biodiversity insight from Space
10 - 14 February 2025 | ESA-ESRIN | Frascati - Italy

Looking at the dark side of the Earth: why we need high res. night images


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Artificial lights have local impacts

- Local disruptions :
= negative impact in lit area
- Concentration effect :
= positive impact in lit area
- Trap effect :
= negative impact in lit and surrounding areas


 **frontiers**
in Ecology and Evolution




REVIEW
published: 08 December 2021
doi: 10.3389/lev.2021.767177




11 Pressing Research Questions on How Light Pollution Affects Biodiversity

Franz Hölker^{1}, Janine Bolliger², Thomas W. Davies³, Simone Giavi⁴, Andreas Jechow^{1,5}, Gregor Kalinka¹, Travis Longcore⁶, Kamiel Spoelstra⁷, Svenja Tidau⁸, Marcel E. Visser⁷ and Eva Knop^{4,8*}*

 **Global Change Biology**

Primary Research Article |  Open Access |  

The dark side of street lighting: impacts on moths and evidence for the disruption of nocturnal pollen transport

Callum J. Macgregor  Darren M. Evans, Richard Fox, Michael J. O. Pocock

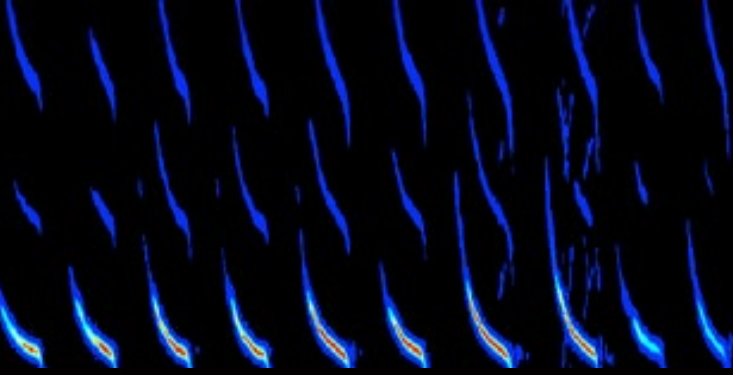
First published: 01 June 2016 | <https://doi.org/10.1111/gcb.13371> | Citations: 120

Conservation biology

Artificial night lighting inhibits feeding in moths

Frank van Langevelde¹, Roy H. A. van Grunsven^{2,3}, Elmar M. Veenendaal² and Thijs P. M. Fijen^{1,2}

Emerging automated in situ sensors

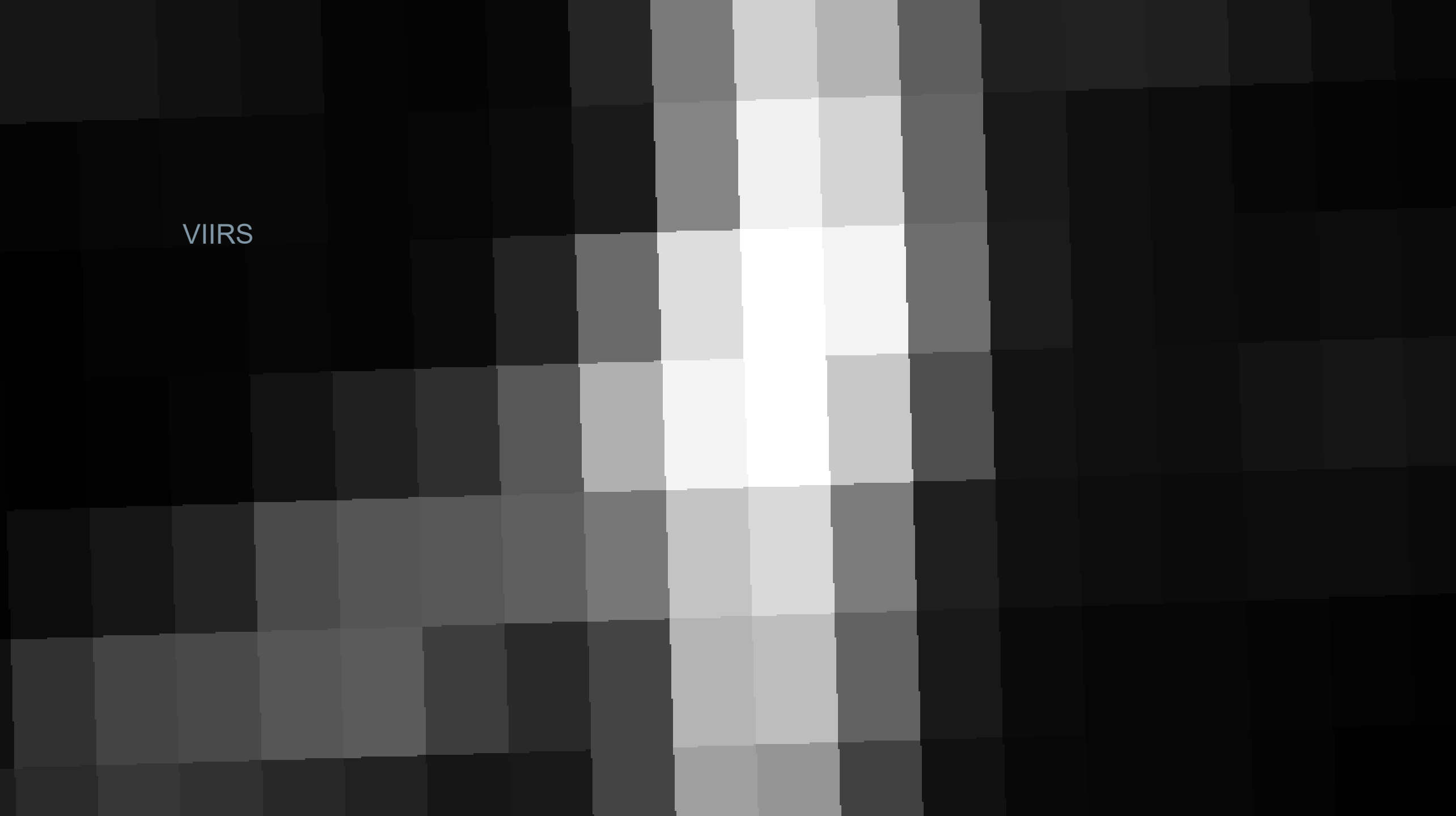


User manual for the UKCEH
Autonomous Monitoring of
Insects (AMI) System

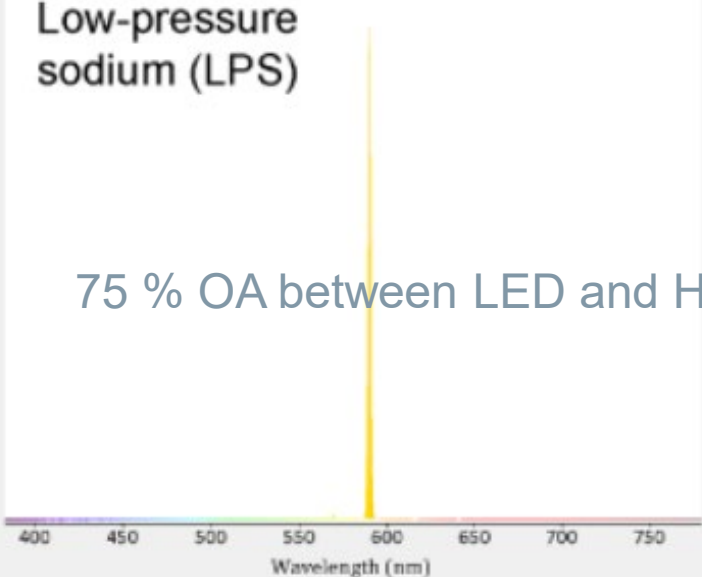
Version 4.0
02/04/2024



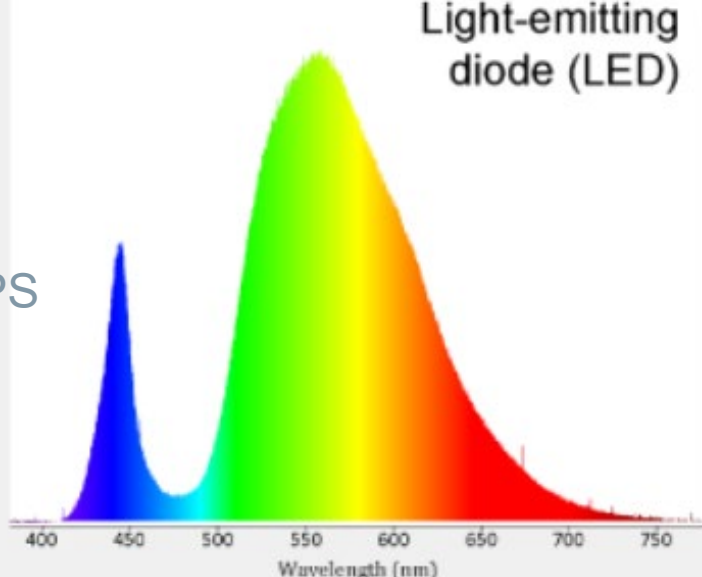
VIIRS



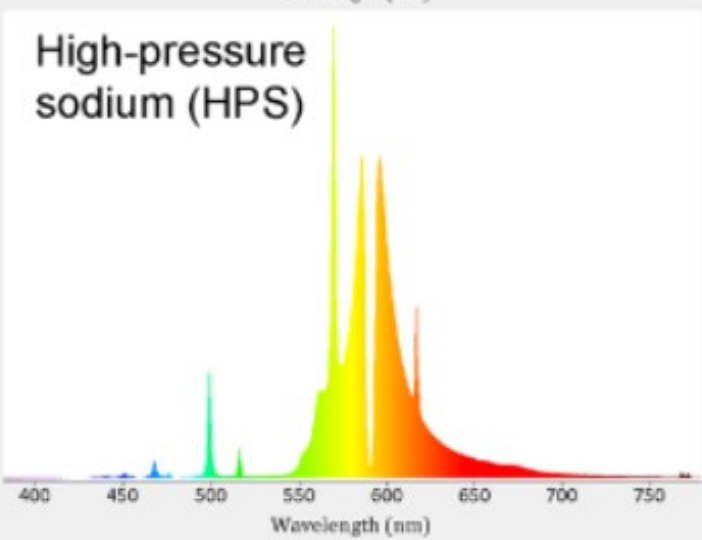
Low-pressure sodium (LPS)



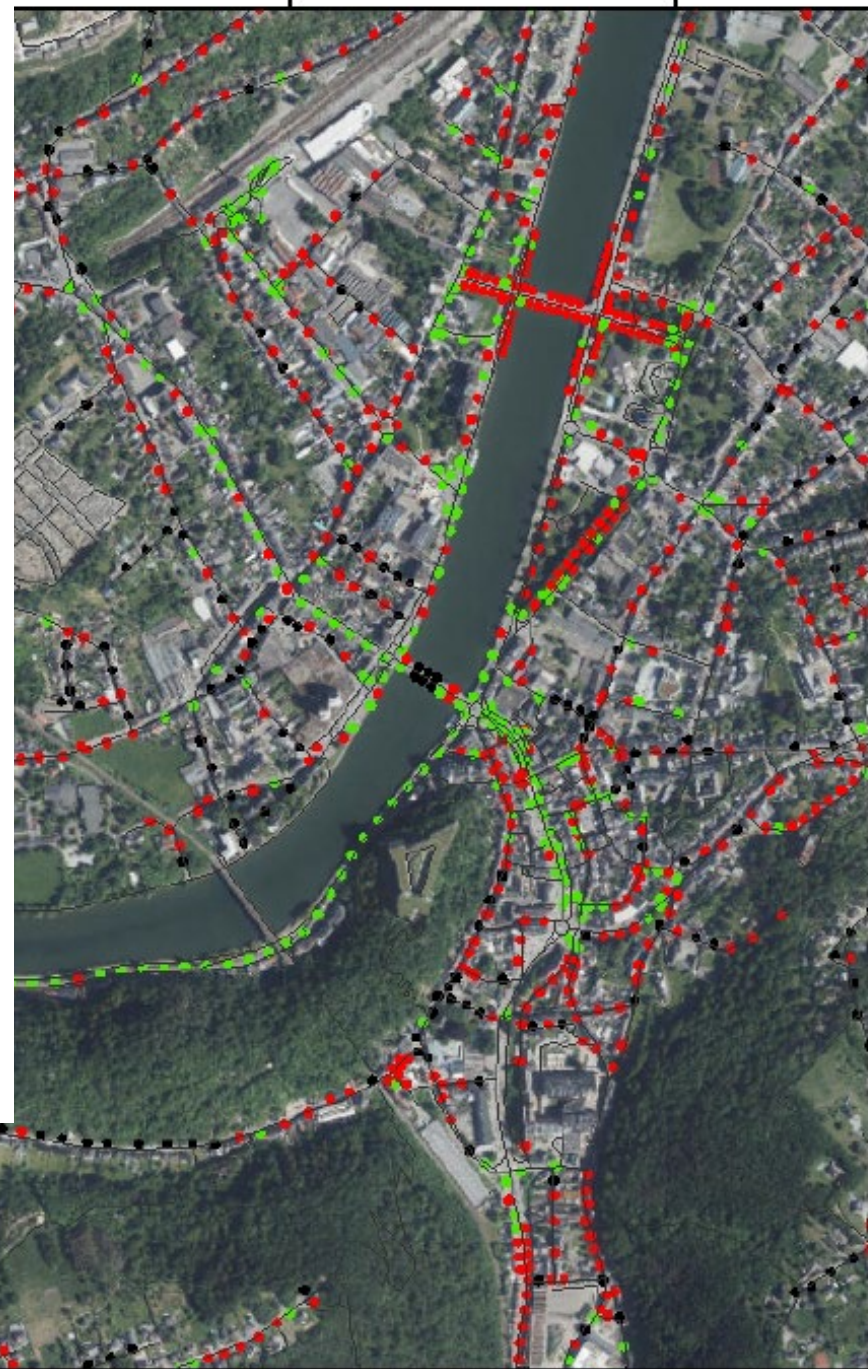
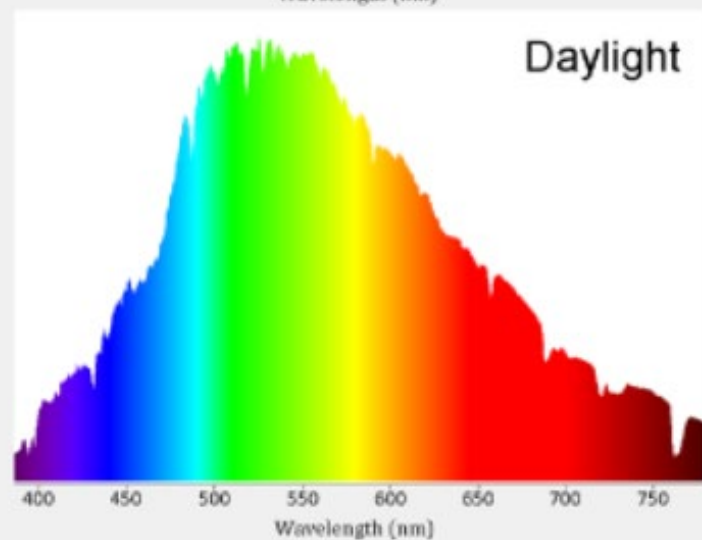
Light-emitting diode (LED)






High-pressure sodium (HPS)



Daylight



-  Undetected
-  High Pressure Sodium
-  LED

Main issues

Geometric corrections need specific data (thermal could help)

False negative are hard to confirm

- Invariant obstacles (e.g. trees)

- Variant obstacles (clouds)

- Unknown reasons (could be true negative)

70 % of animals are active at nights

Eros-B and Jilin missions approaching end of life

=> looking forward to CO3D

Multippectral night imager for wall-to-wall monitoring

→ 10 m (average footprint, get more energy)

→ Blue, green and yellow (large) bands

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7
Excellent
Dark Sky
Site

6
Dark Sky
Site

5
Rural
Sky

4
Suburban/Rural
Transition

3
Suburban
Sky

2
Bright
Suburban
Site

1
City/Suburbia
Transition

0
City/Inner
City Sky