

Luft- und Satellitenaufnahmen bei Nacht



Earth at Night from Artemis II





Existing night light satellite instruments

VIIRS DNB

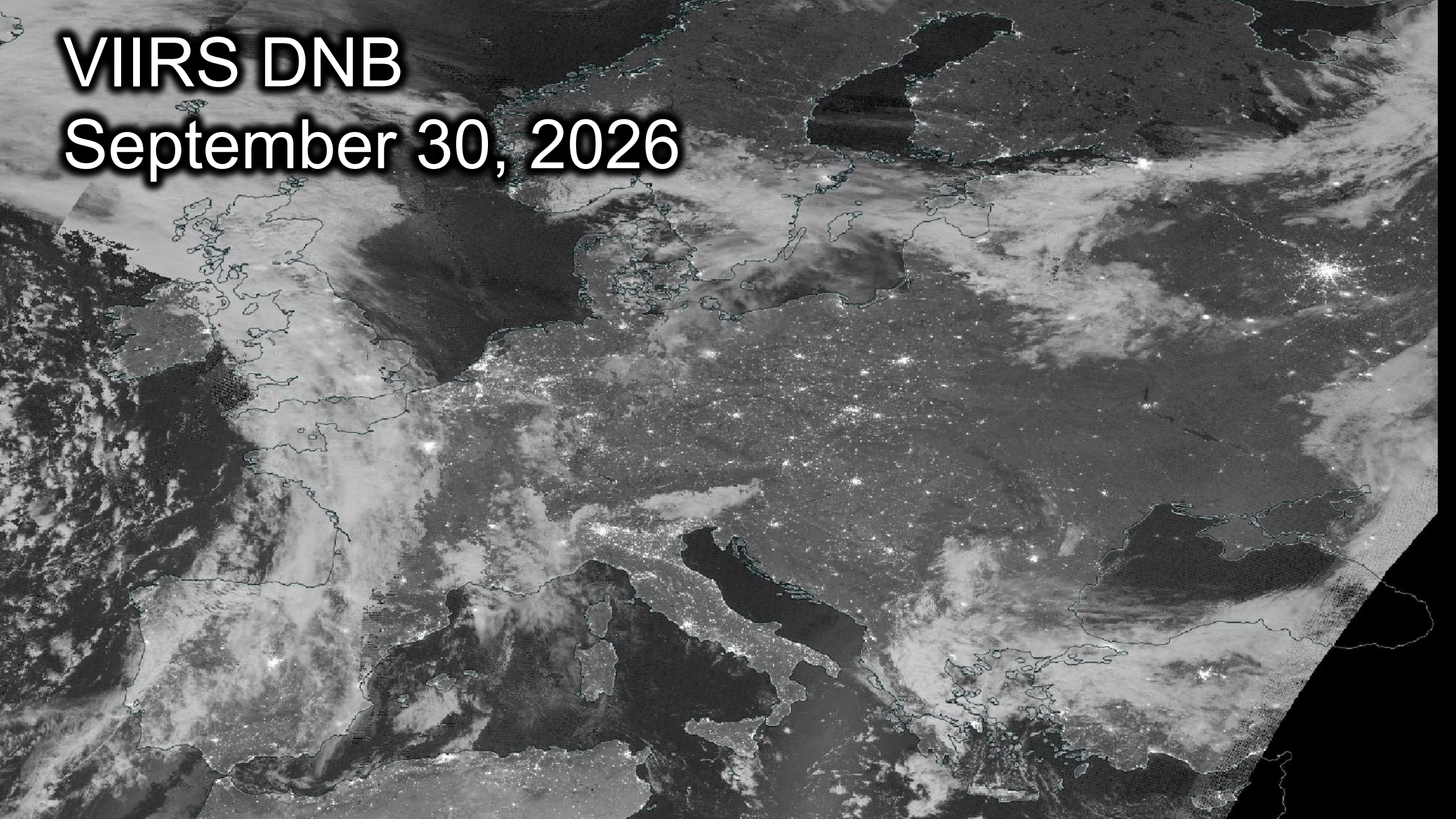
SDGSat-1

VIIRS DNB

September 14, 2026

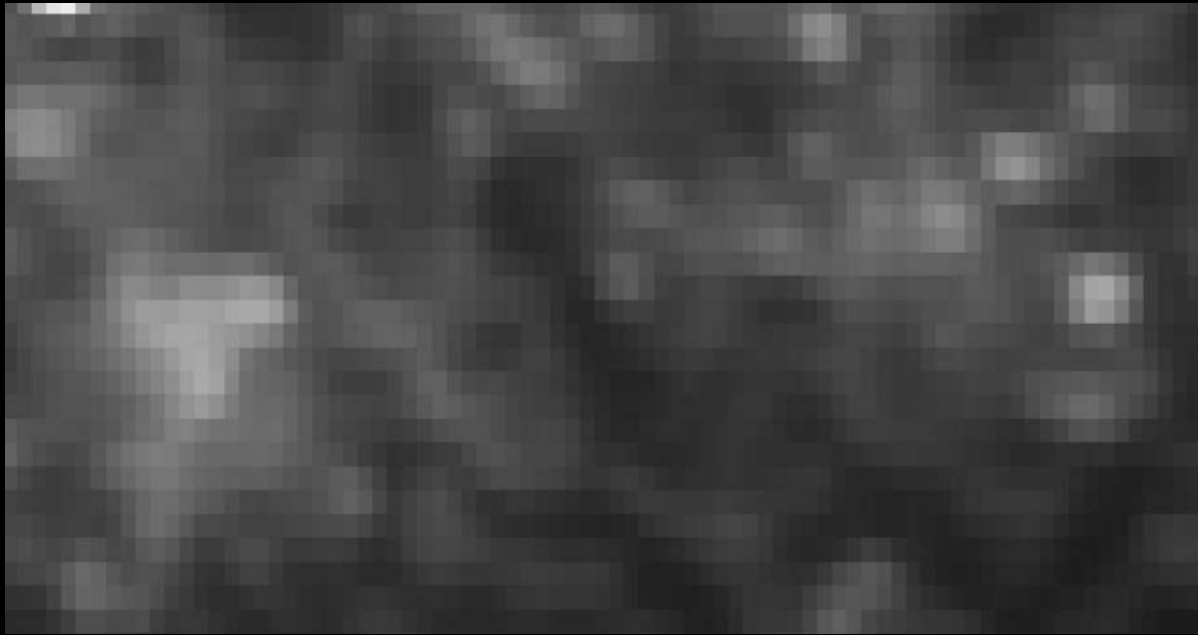


VIIRS DNB
September 30, 2026



Existing night light satellite instruments

VIIRS DNB



Essen & Bochum

SDGSat-1

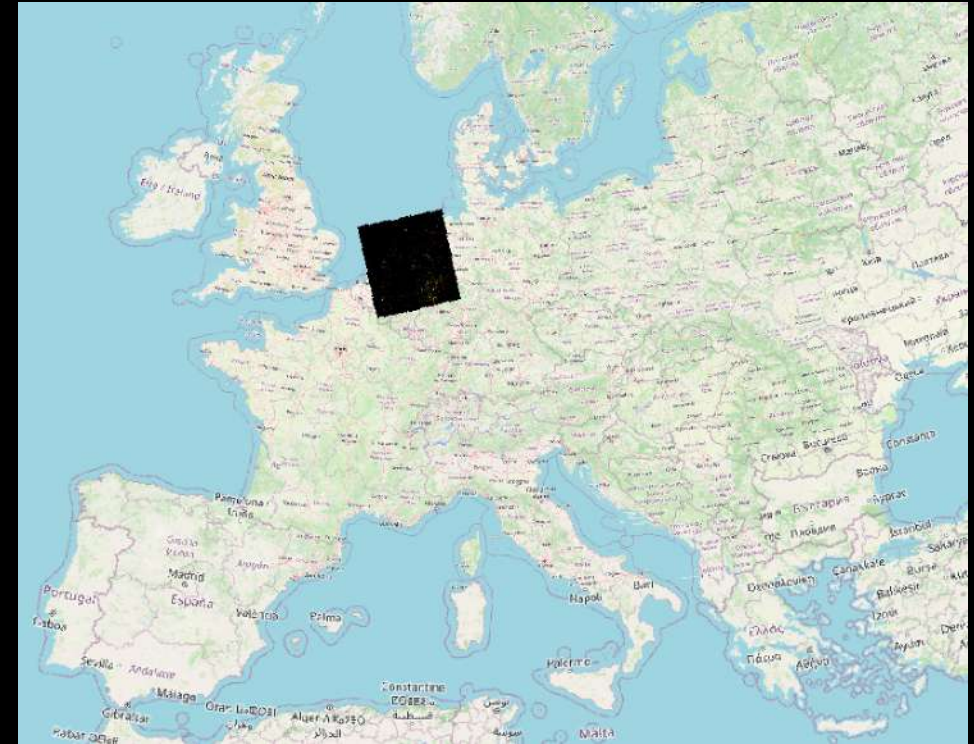


VIIRS DNB & SDGSat-1

- VIIRS DNB



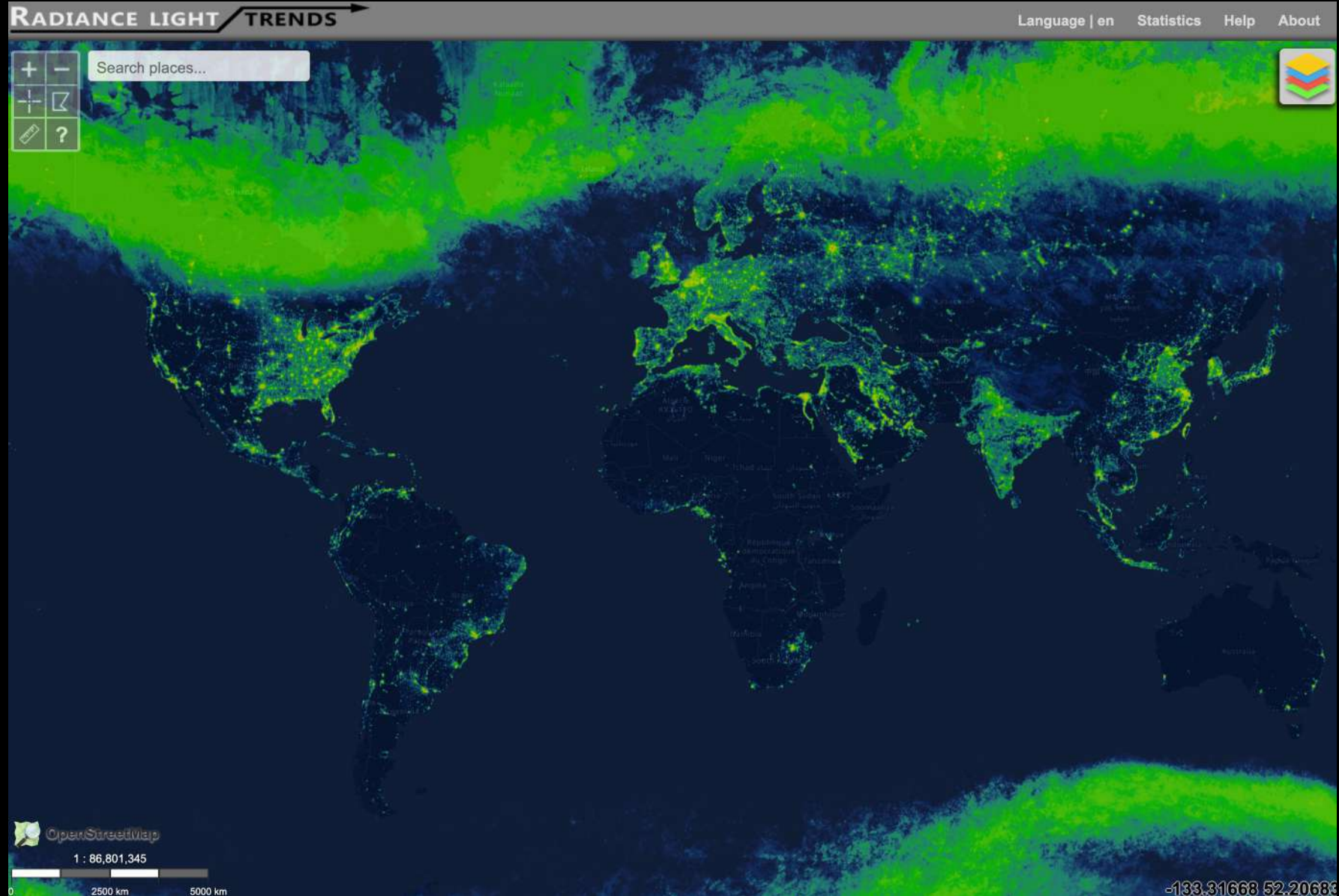
- SDGSat-1



October 2021 – October 2022 (DNB)

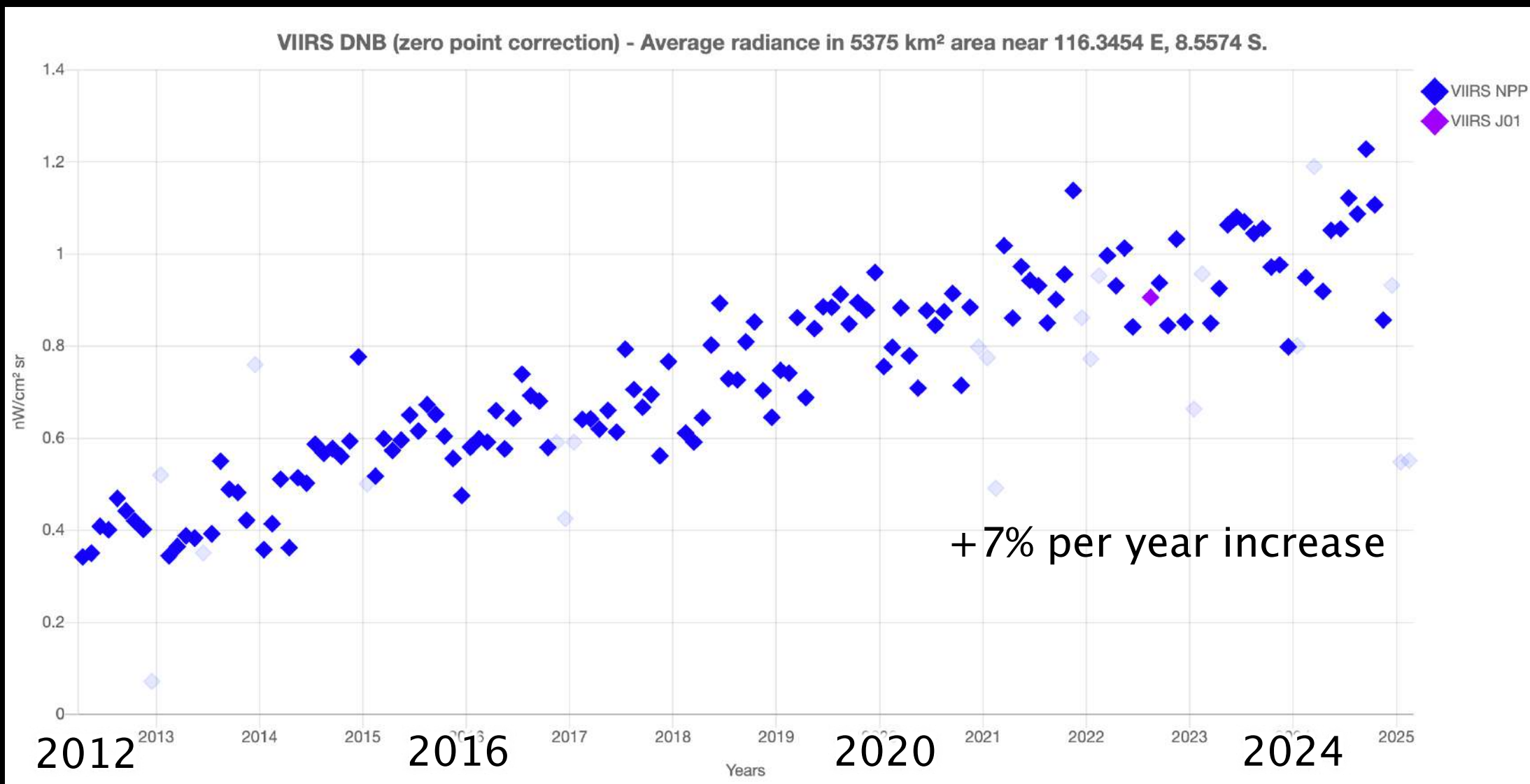


Radiance Light Trends

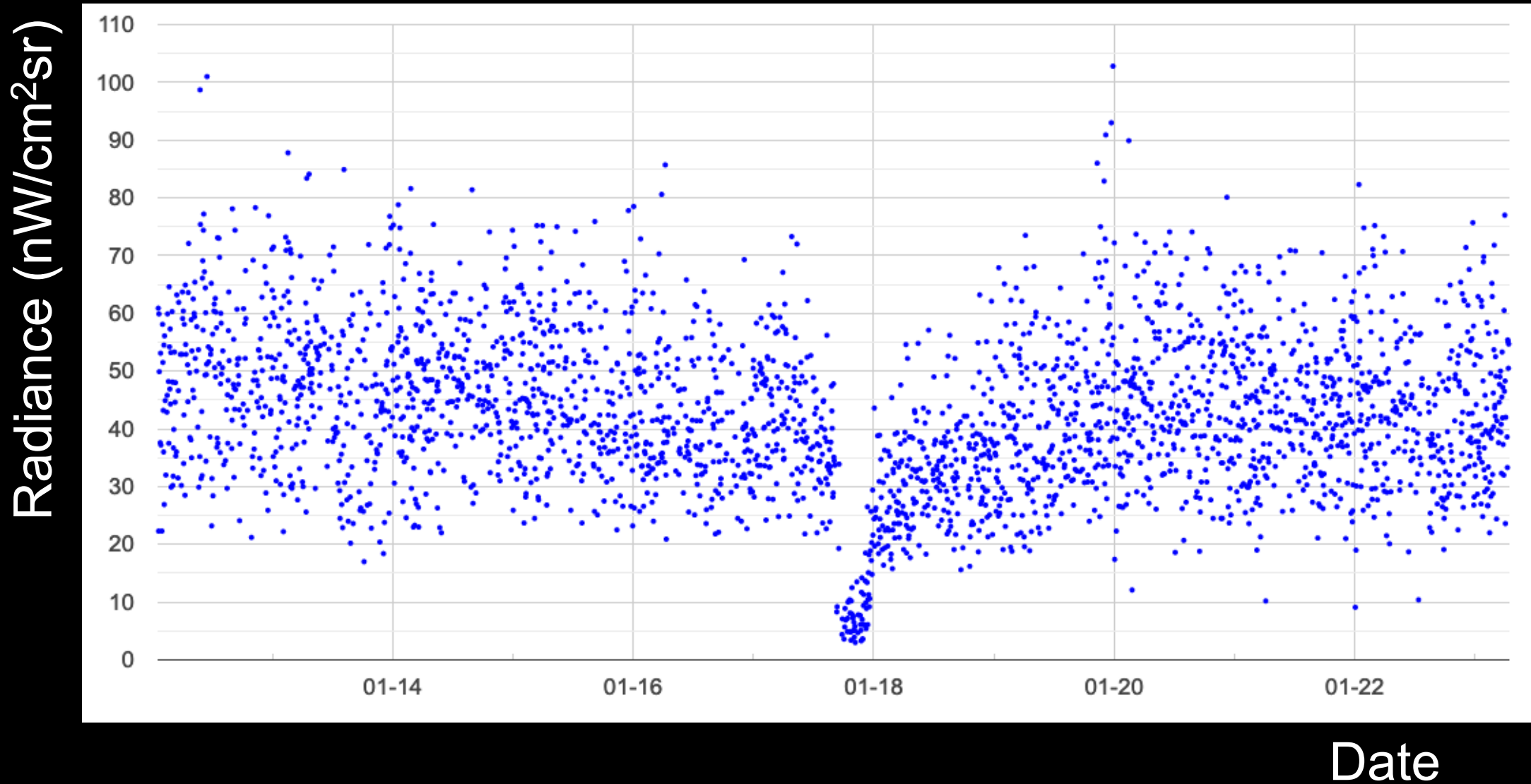


<https://lighttrends.lightpollutionmap.info>

Lombok, Indonesia (DNB)



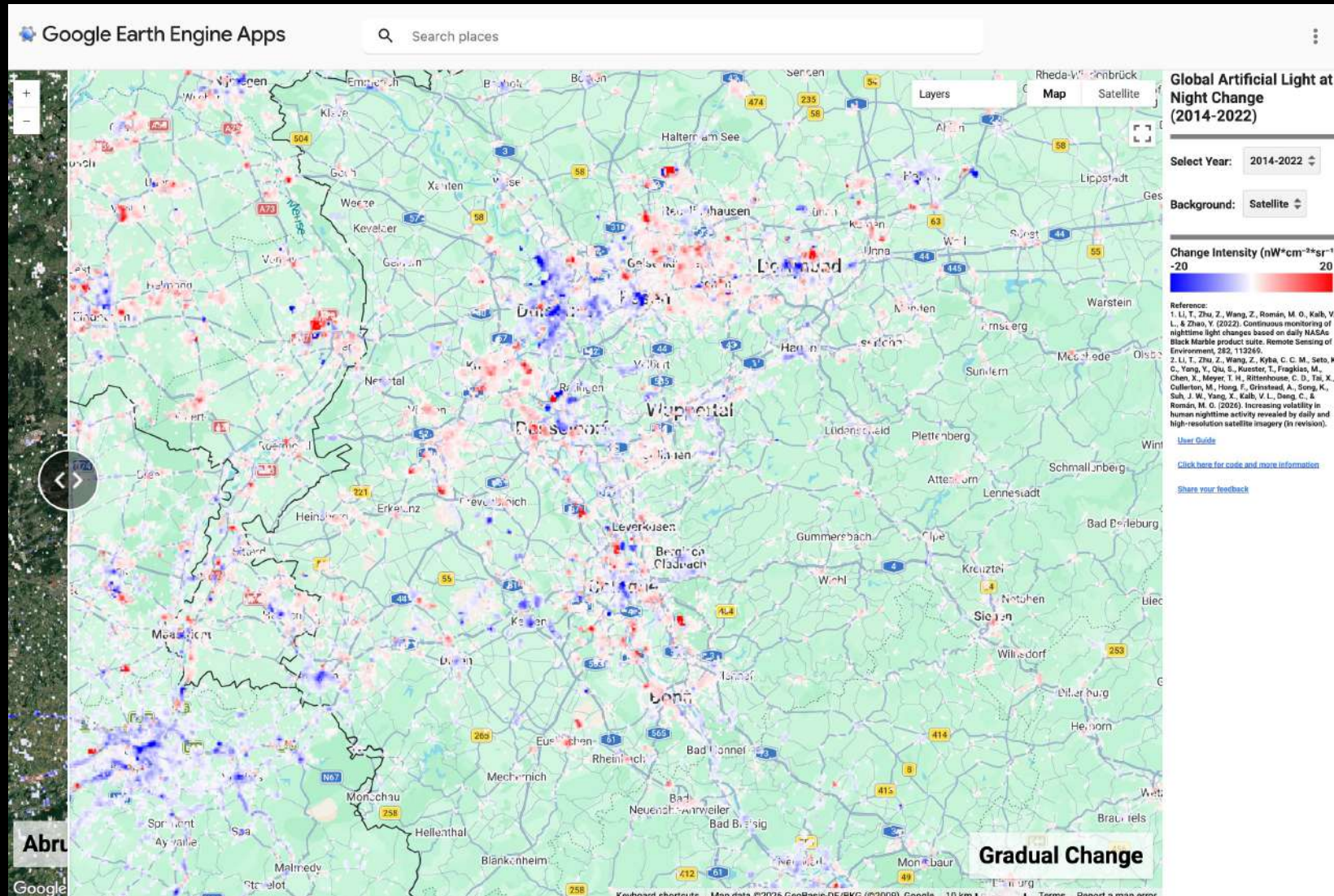
Radiance for single DNB pixel San Juan, Puerto Rico



Observation angle & radiometric stability



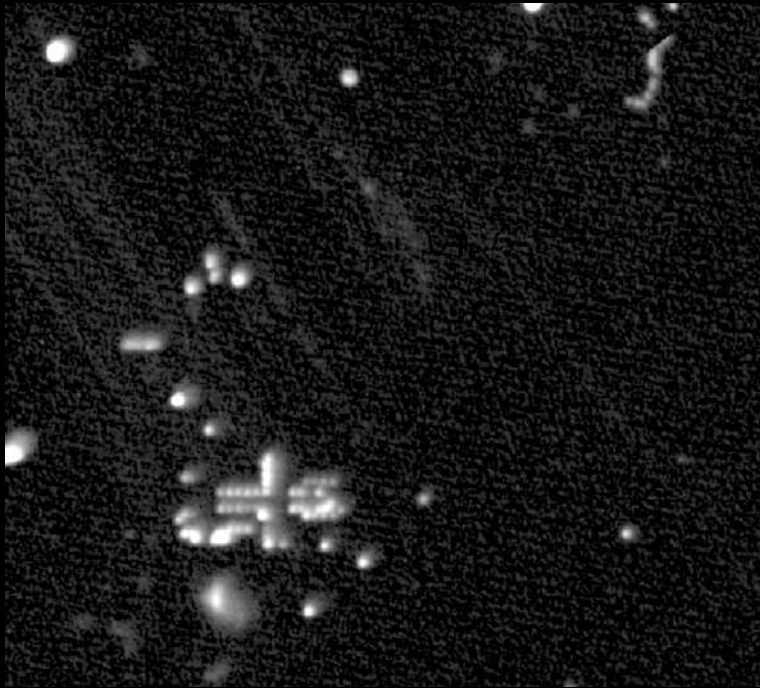
UConn DNB Change Map



<https://ee-downloading.projects.earthengine.app/view/alan-change>

Aerial imagery & spectral information

UV



Visible (RGB)



NIR



Spectral information – Vis vs. NIR



Köln – SDGSat 1



Köln – Luftbilder



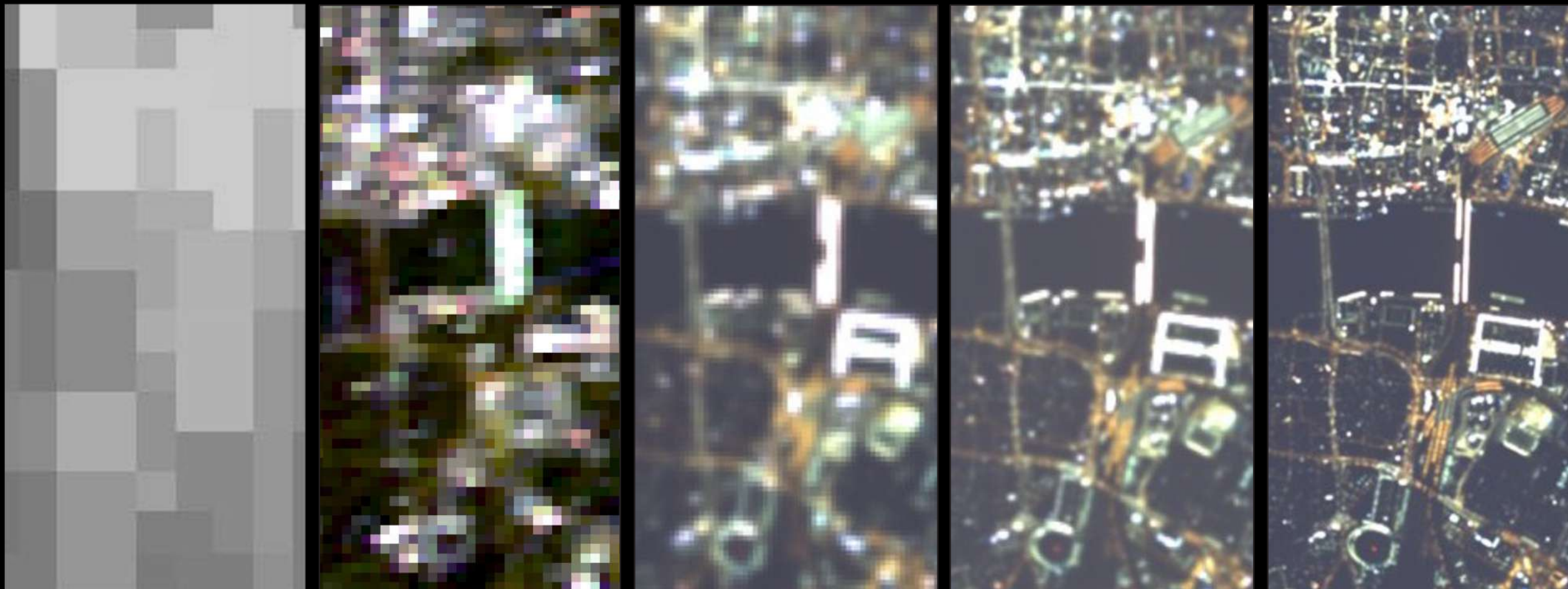
Köln – Astronautfoto



VIIRS DNB
(2022)
750 m

SDGSat-1
(2022)
40 m

Aerial observations
(2021)
20 m
10 m
5 m



0%
“Dark” Fraction

<5%

15%

25%

40%

EULE – European Urban Light Explorer



Earth Explorer 12
Proposal

EULE

Scientific Objectives & Aims

- Assessing electricity access & stability
- Measurement of the (physical) power of artificial light in the atmosphere

Observations in 5+ spectral bands

- RGB+NIR (20 m) & Pan (10 m)
- High sensitivity (microlight) mode (200 m)

Rate of change in light emissions

Looking down:
+2% / year



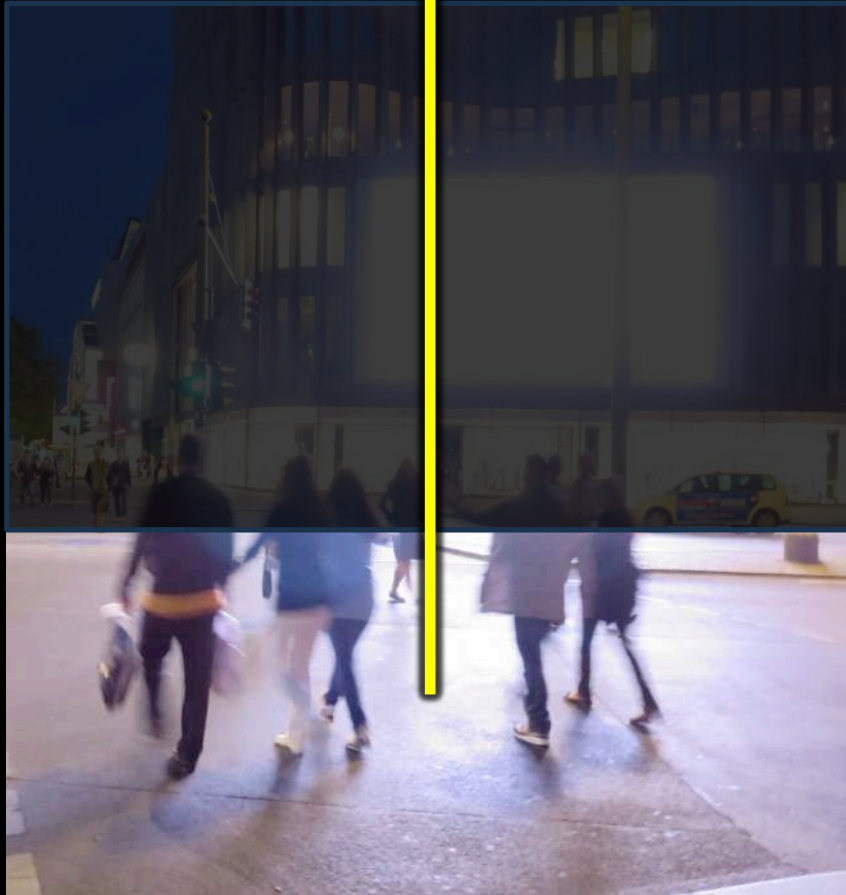
Kyba et al. Science Advances (2017)
Li et al. Nature (2026)

Looking up:
+7% to +10% / year



Kyba et al. Science (2023)

Horizontale Emissionen sind von oben nur schwer zu erkennen



Extrem großer Dynamikbereich



Welche neuen Daten sind zu erwarten?

- 
- Nachtlichter in Sentinel 2
 - Hochauflösende (1 Meter) kommerzielle Nachtlichtbilder (z. B. von CO3D)
 - Leichter zugängliche Fotos von Astronauten
 - Future EO Mission

Nighttime light remote sensing user community

- Mailing list with updates in the field
- Webinars 6–8 times per year
- Wiki with information about NLRS (coming soon...)
- Sign up here:
<https://www.listserv.dfn.de/sympa/subscribe/nlrs-users>



ESA Night Light Remote Sensing training school

- March 1–3, 2027, in Bochum, Germany
- No registration fee!
- Trainers are a mix of established and up-and-coming European night lights researchers
- Will be announced on the night lights user community mailing list:



Thanks for listening!
What could you do with nighttime lights?

