

My Sky at Night

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MYGEOSS



- European Commission project (H2020)
- Promotes bringing (open) EO data to the people
 - Especially from the GEOSS Data-CORE
- All data must be open
- All code must be released under EUPL (allows commercial use)
- 18% success rate in 1st call
- Next call March 15 2016, Due early April

“Open data isn't enough, we need to ensure discoverability, accessibility, usability, preservation, and curation.”

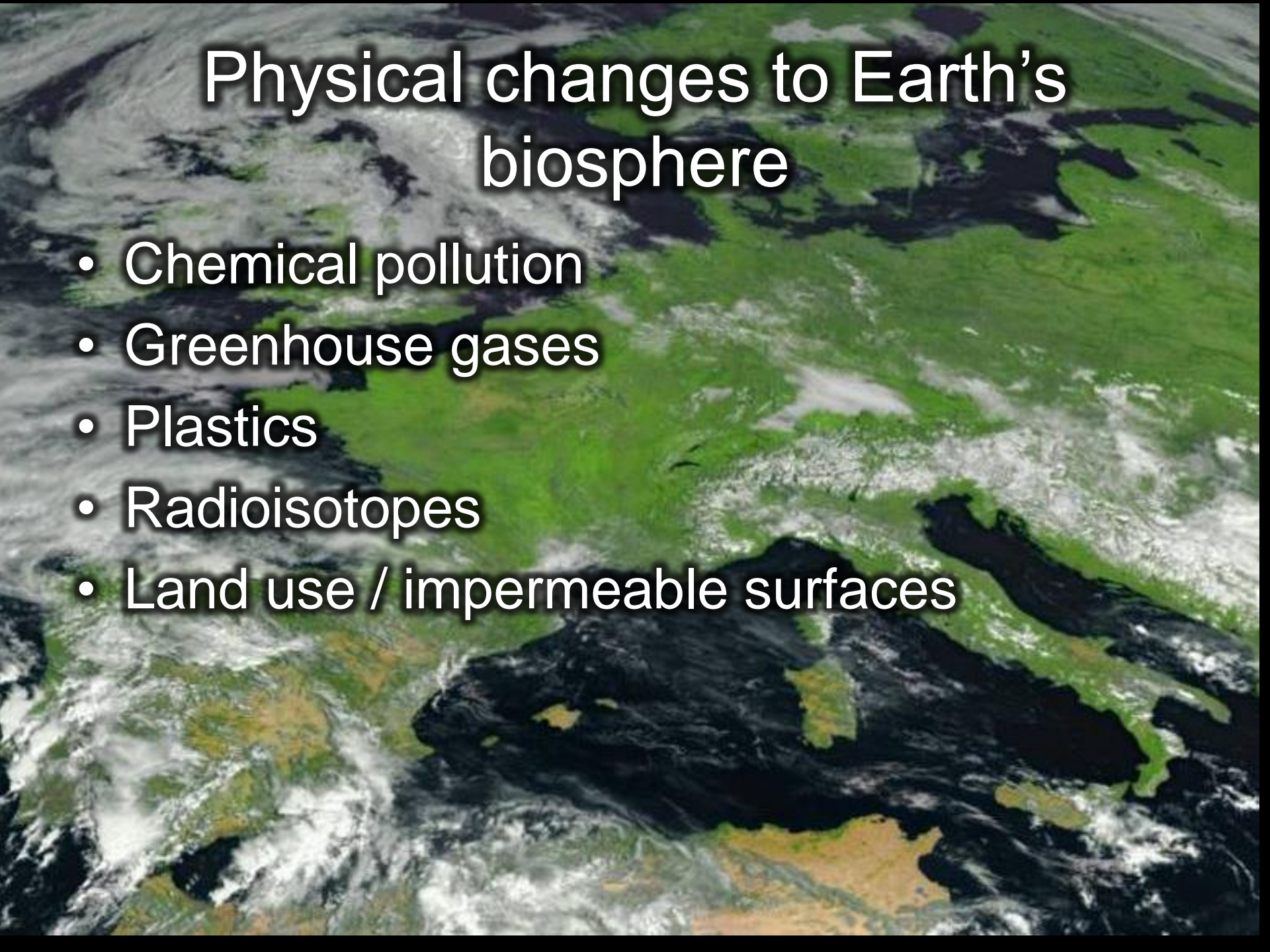
MYGEOSS – example 1st round winners



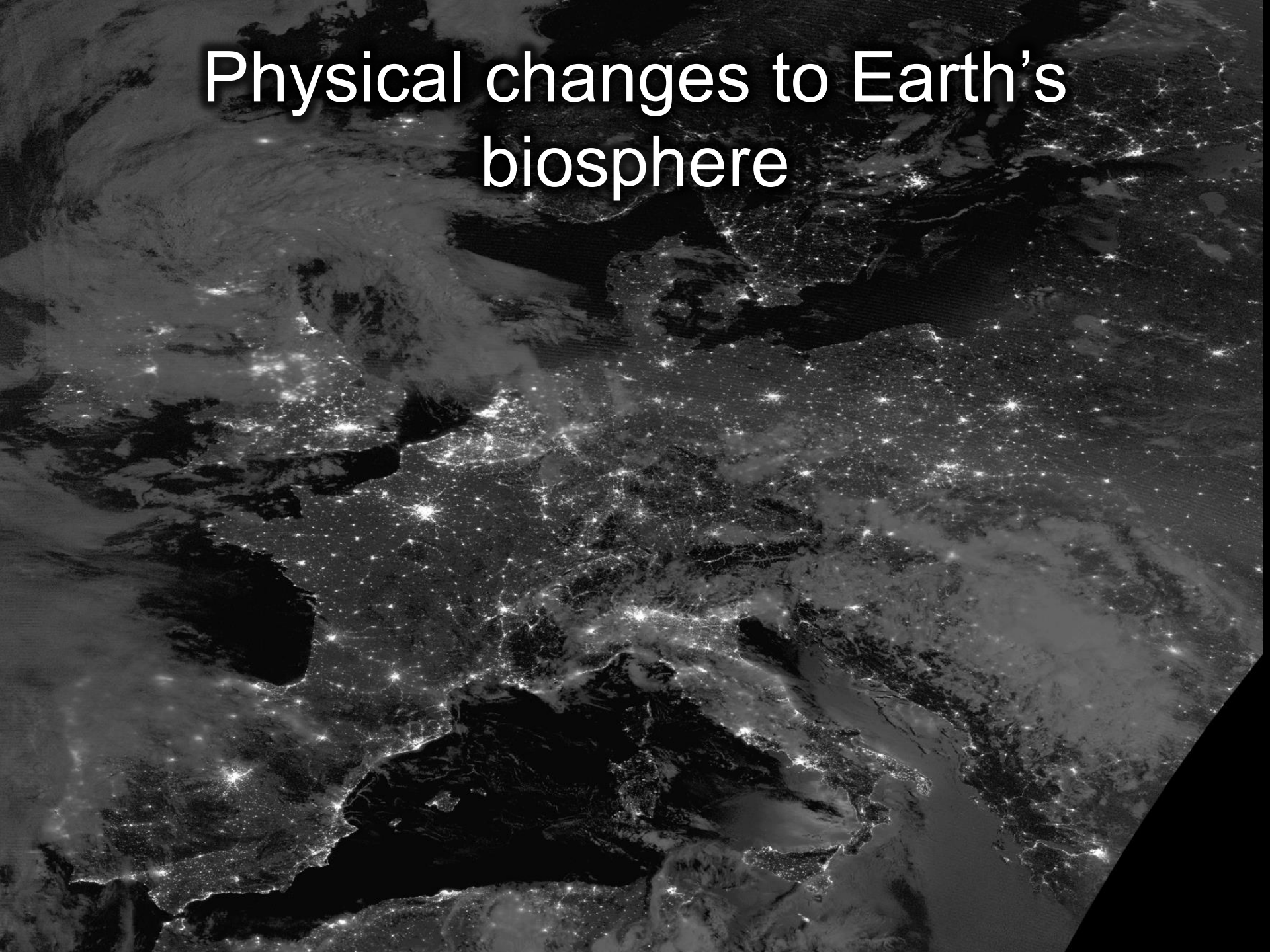
- Vegetation phenology app based on CS data
- Near real time dust storm monitoring and impact assessment
- Hazards alert app (floods, fire, etc)
- Local air quality forecast
- Invasive species tracking apps
- Game for 6-12 yo about air pollution
- Scuba diver info sharing app

Physical changes to Earth's biosphere

- Chemical pollution
- Greenhouse gases
- Plastics
- Radioisotopes
- Land use / impermeable surfaces



Physical changes to Earth's biosphere



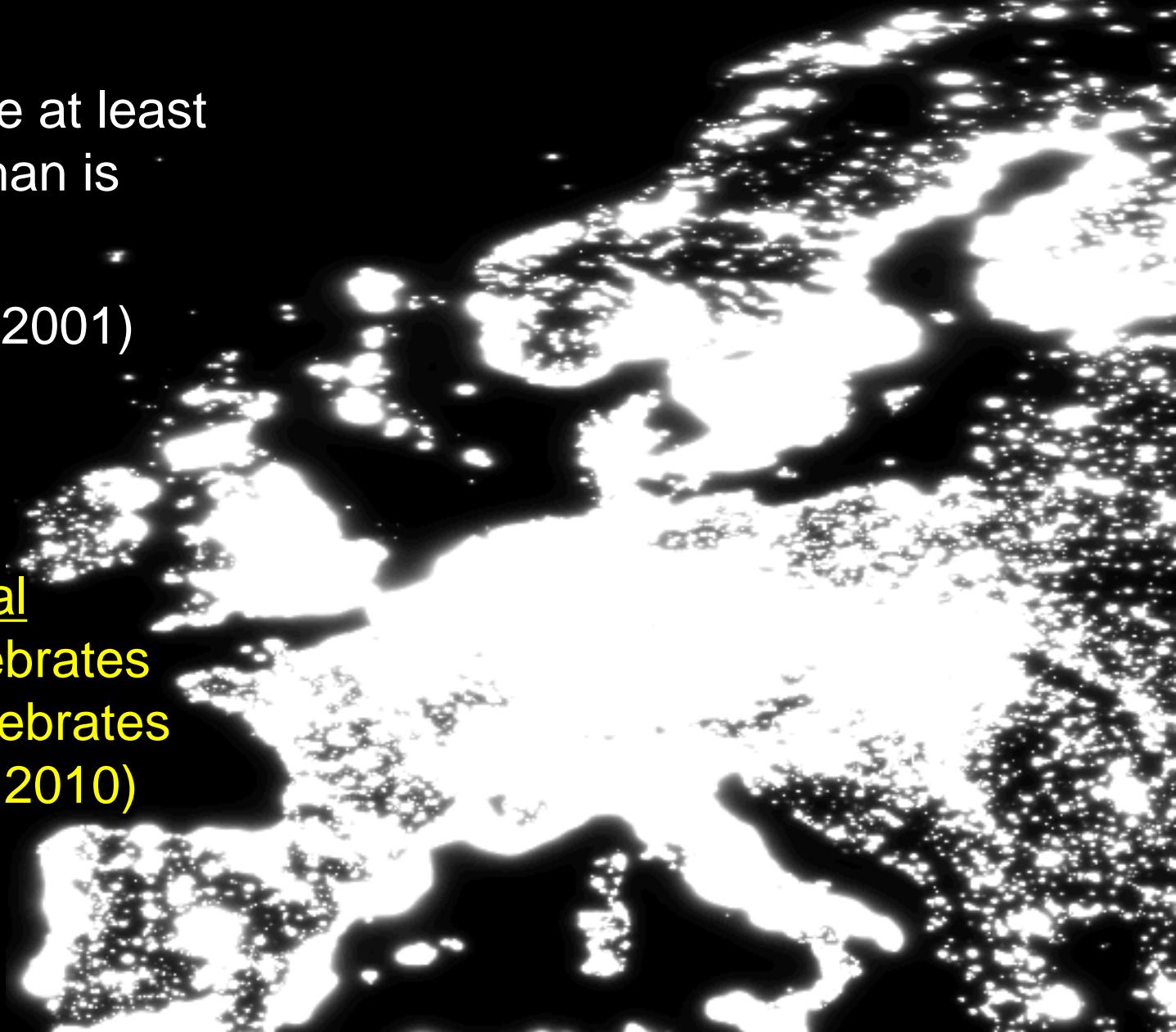
Skyglow in Europe

White areas are at least
35% brighter than is
natural

Cinzano et al (2001)

Nocturnal

~30% of vertebrates
>60% of invertebrates
(Hölker et al. 2010)



Outer space

(multiple scattering)



Clouds



Aerosols

(Mie scattering)

Molecules

(Rayleigh scattering)

Outdoor lighting is changing rapidly!

Milan 2012

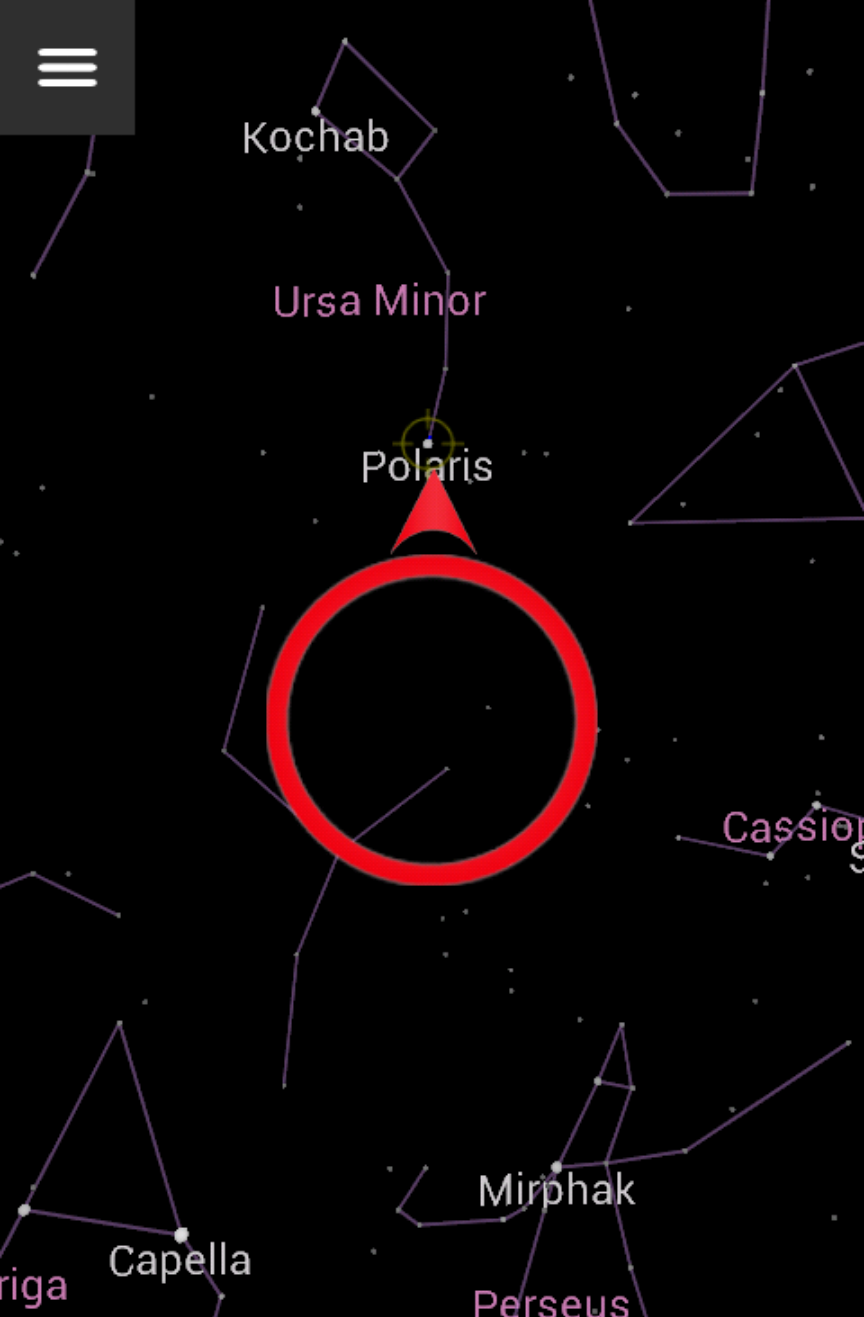


Milan 2015



Photos: ESA/Cities at night/IAU/NASA

Related work:
Kyba et al. (2015) Remote Sens



Kochab

Ursa Minor

Polaris

Cassiopeia

Mirphak

Perseus

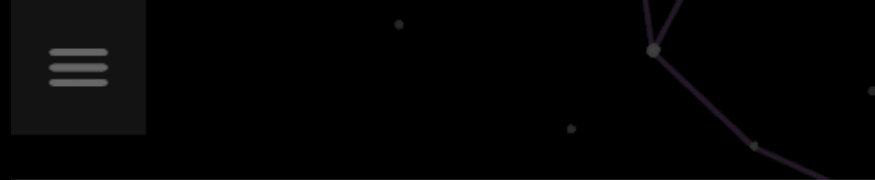
Capella

Origa

Not visible or unsure

Search again

Star is visible



STAR NOT VISIBLE

You selected the option Not visible or unsure. Please tell us more about the reasons.

- An object is in the way
- Clouds or mist block the view
- I'm not sure if it's there or not
- Visible only with averted vision
- The star is not visible

Back

Submit

Not visible or unsure

Search again

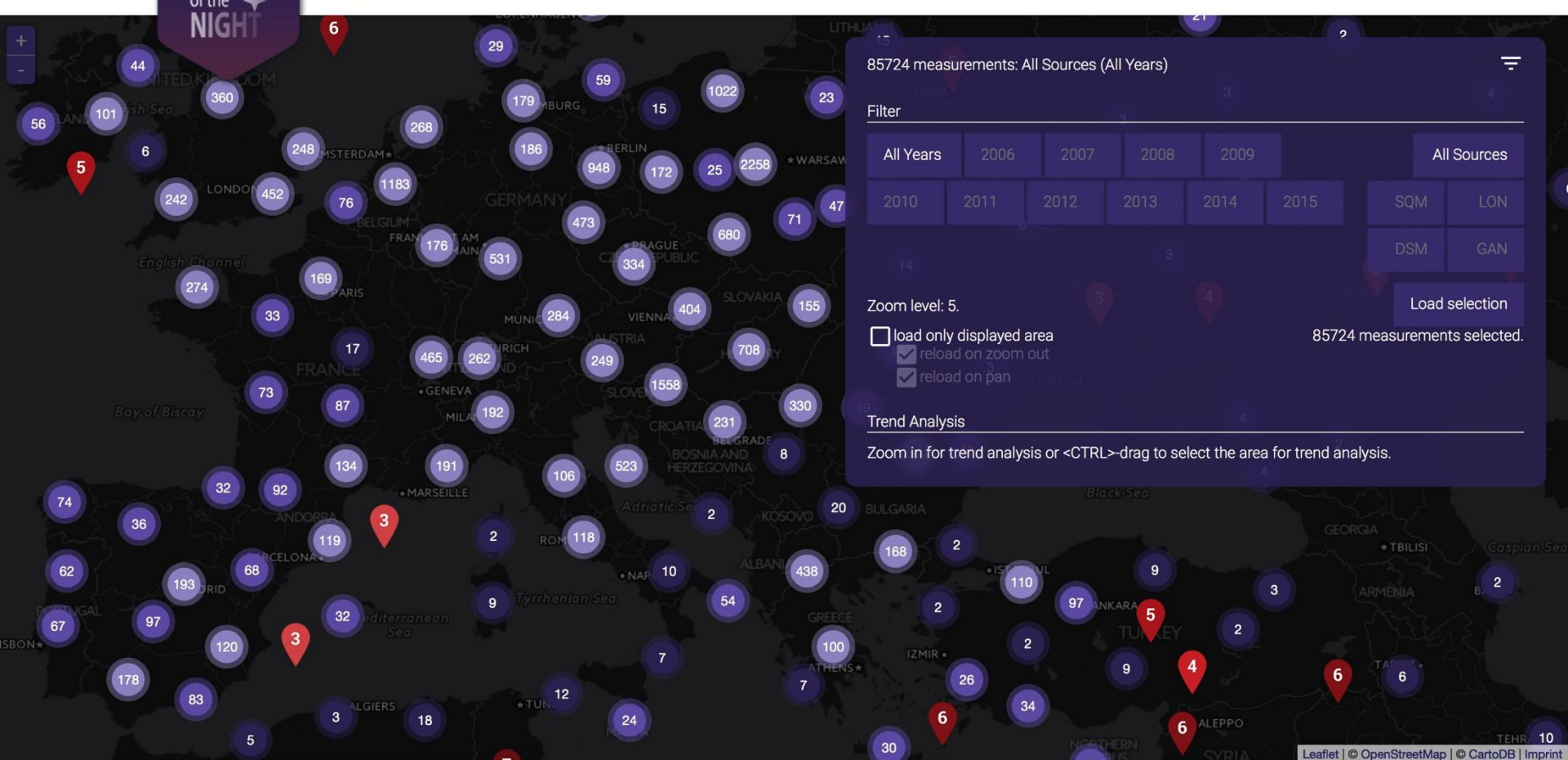
Star is visible

beta

Observation Locations

LOSS
of the
NIGHT

[Map](#) [My Measurements](#) [Blog](#) [About](#)



85724 measurements: All Sources (All Years)

Filter

All Years	2006	2007	2008	2009	All Sources	
2010	2011	2012	2013	2014	2015	SQM LON
						DSM GAN

Zoom level: 5.

load only displayed area

reload on zoom out

reload on pan

Trend Analysis

Zoom in for trend analysis or <CTRL>-drag to select the area for trend analysis.

Load selection

85724 measurements selected.

Examining data points

LOSS
of the
NIGHT

[Map](#) [My Measurements](#) [Blog](#) [About](#)

3299 measurements: LON (All Years)

(52.532, 13.338)
Limiting magnitude: 3.96 ± 0.4
Observed stars: 58

2014-08-01 01:33

(52.532, 13.338)
Limiting magnitude: 3.86 ± 0.51
Observed stars: 37

2014-07-22 00:39

(52.532, 13.338)
Limiting magnitude: 3.5 ± 0.1
Observed stars: 40

2014-03-27 21:15

(52.532, 13.338)
Limiting magnitude: 4.03 ± 1.12
Observed stars: 43

2014-02-20 21:42

(52.532, 13.338)
Limiting magnitude: 3.81 ± 0.1
Observed stars: 19

2014-01-01 19:57

(52.532, 13.338)
Limiting magnitude: 3.81 ± 0.28
Observed stars: 64

Measurement: 2014-07-22 00:39

(52.532, 13.338)

Source: Loss of the Night (14007)

Limiting magnitude: 3.5 ± 0.1
Observed stars: 40



Examining data points

2015-09-19 23:20

(37.970, 23.722)

Limiting magnitude: 3.67 ± 0.1

Observed stars: 14

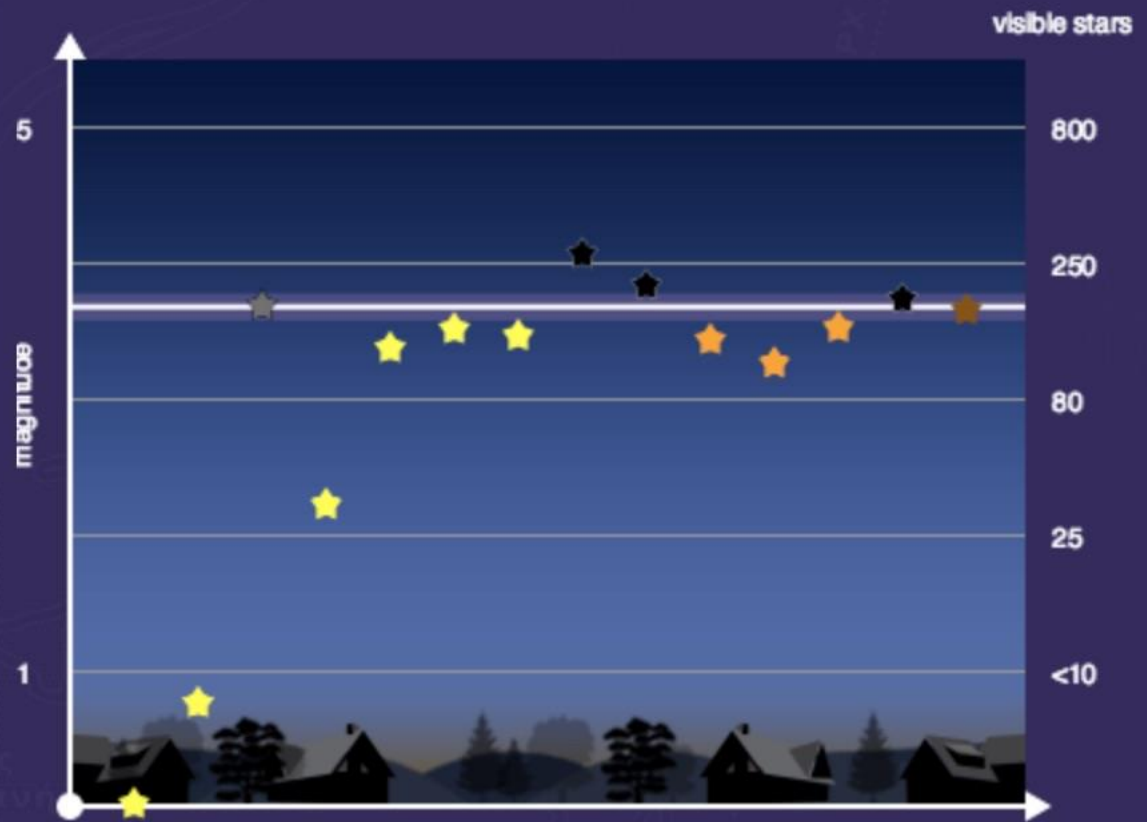
Measurement: 2015-09-19 23:20

(37.970, 23.722)

Limiting magnitude: 3.67 ± 0.1

Source: Loss of the Night (25506)

Observed stars: 14

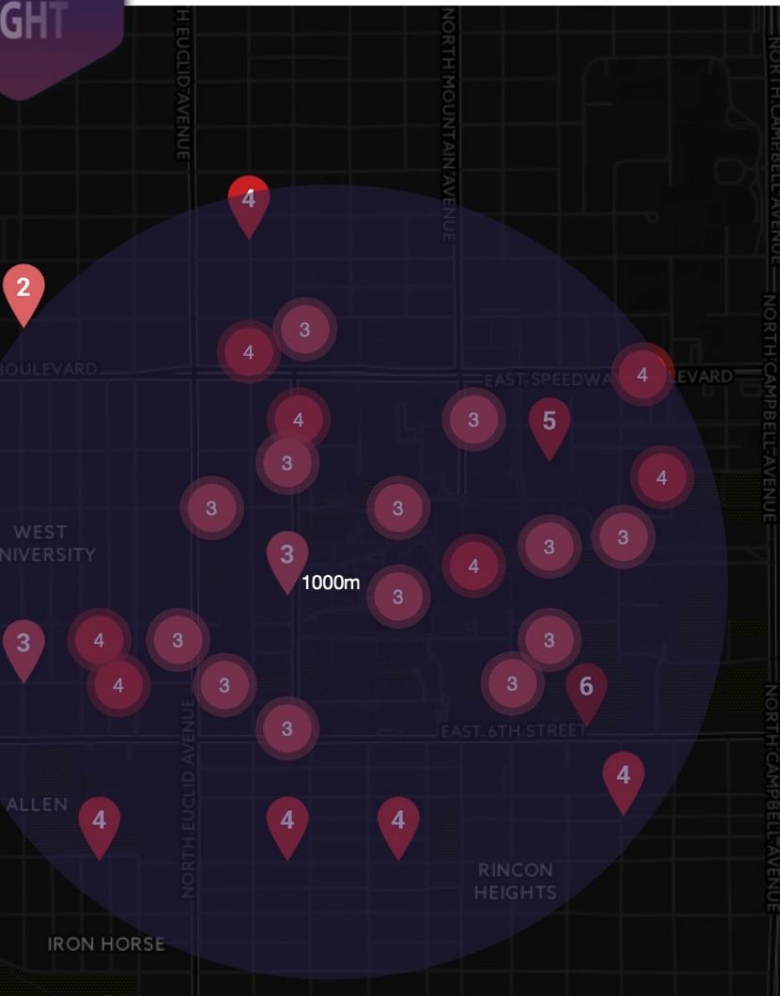


★ visible ★ barely visible ★ averted ★ unsure ★ not visible

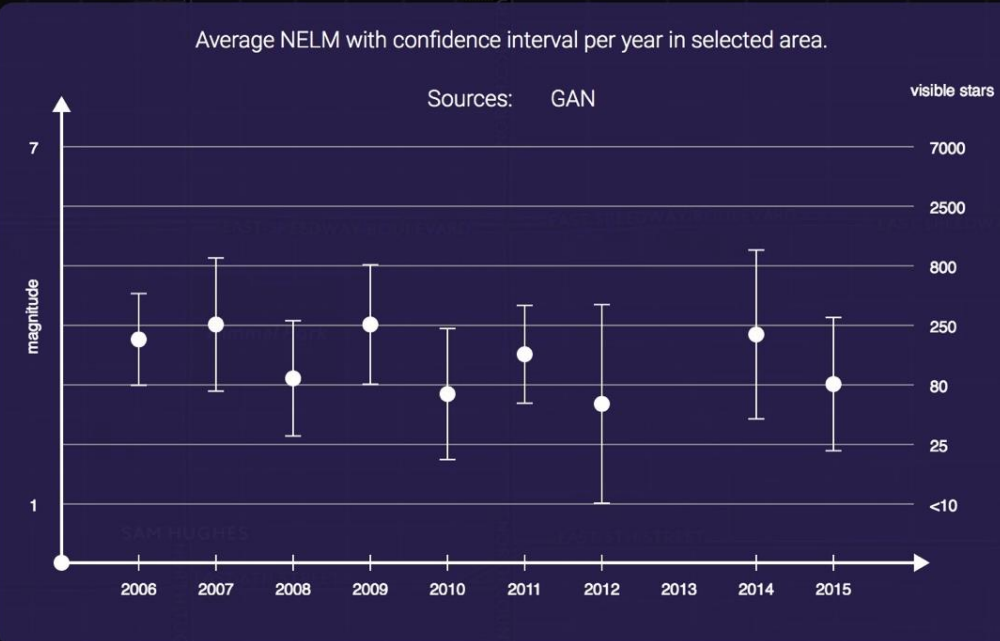
Trend Analysis



[Map](#) [My Measurements](#) [Blog](#) [About](#)



Trend Analysis: 1000m around (32.2313, -110.9558), 165 measurements. ☰



Acknowledgements



MyGEOSS, Horizon 2020

GFZ German Research Centre for Geosciences

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