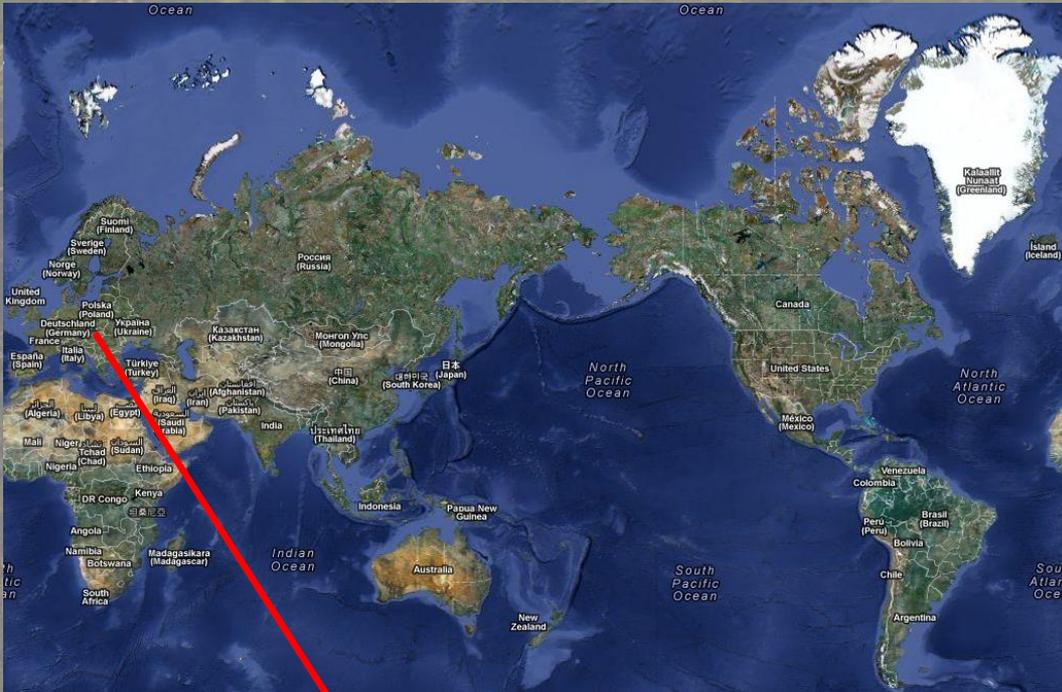


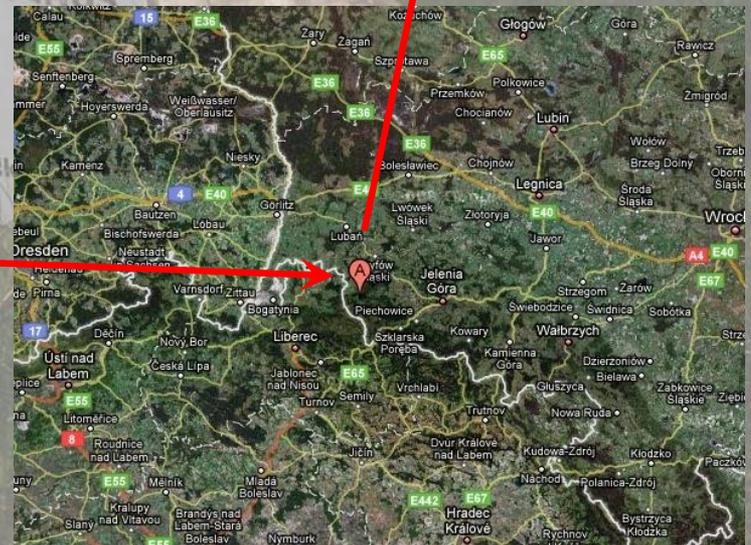
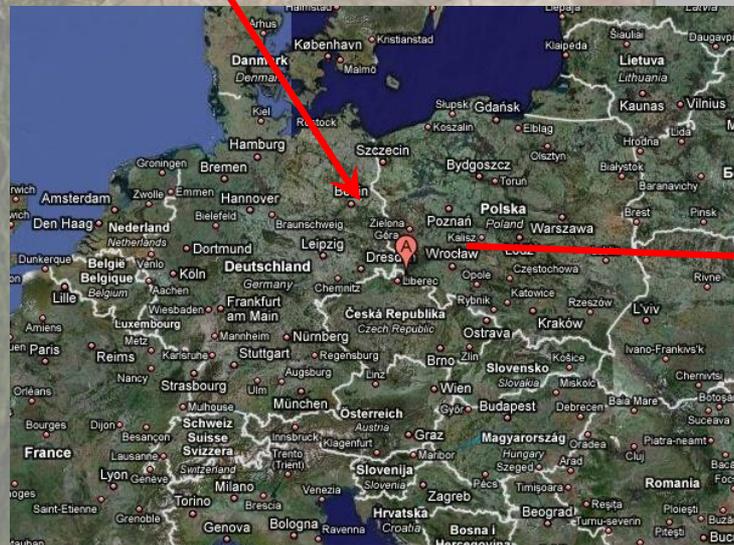
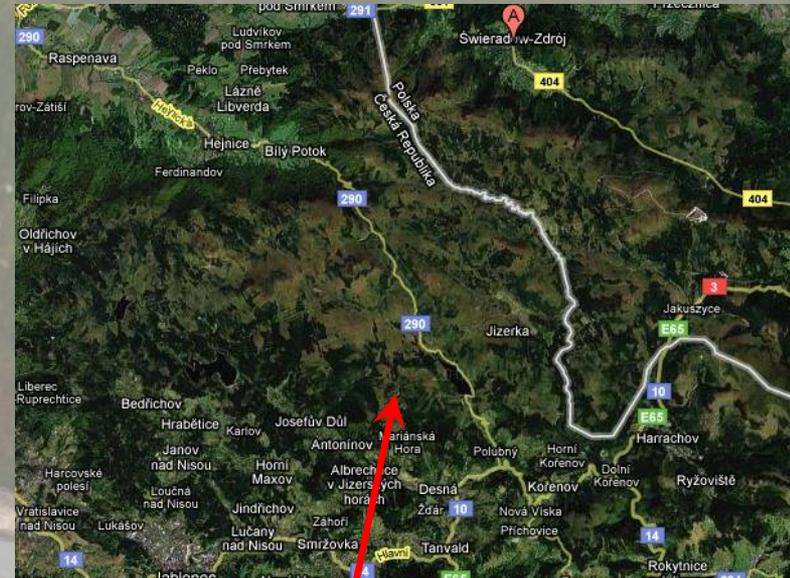
# Light Pollution & "Astro Izery" Project



# The Ižera Mountains



## Ižera Mountains, Ižera Valley





# Astronomers in the Izer Mountains



Orle Tourists Station



October 13-14, 2001 – first Astromer's hike  
May 13-14, 2006 – 10th (the Izer Mountains)

# The beginning



22-24 IX 2006 – first OSA (all-Poland Astronomical Meeting) – Zieleniec  
Following editions – the Iżera Mountains



2nd edition of OSA – the idea of School  
Workshop on Astronomy (SWA) was born

# The beginning

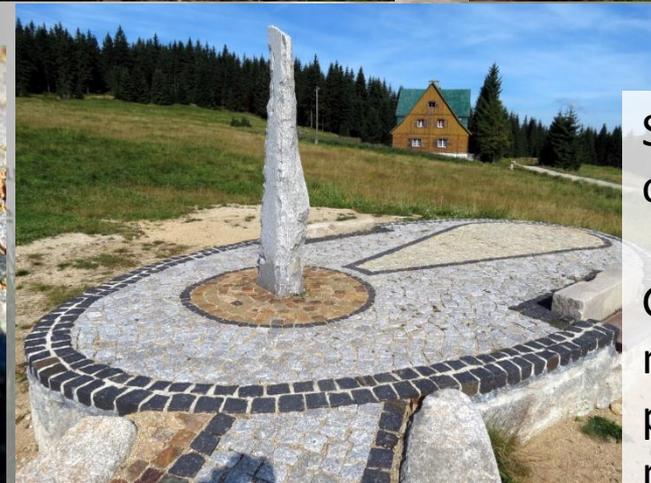
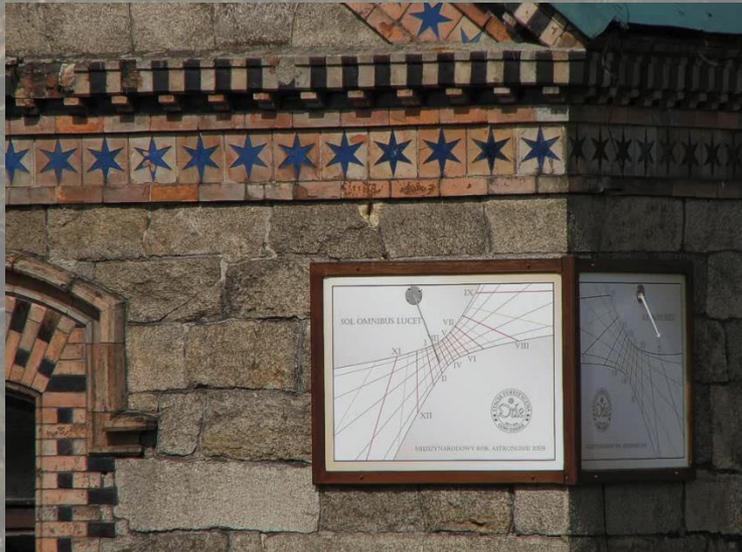
One month later – 1st edition of SWA – the idea of Astro Izery project was born



September 27-30, 2016

16th edition of SWA

# Gnomon and sundial



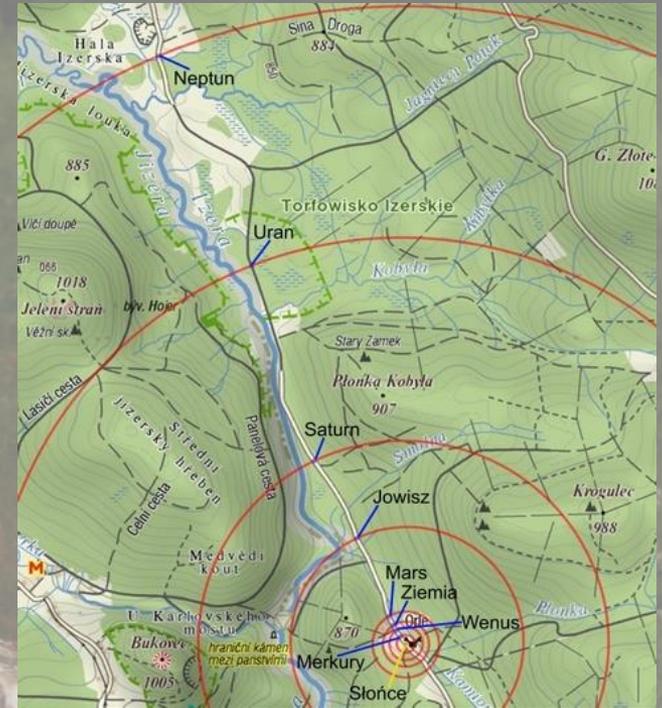
Sundial – mounted on May 9th, 2009

Gnomon with Sun model is a starting point for the scaled model of the Solar System

# Scaled model of the Solar System



From Orle Station to  
Chatka Górzystów  
Scale 1:1000000000  
approximate length 4.5 km  
planets from 0.5 cm to 14 cm



## View from Neptune



## View from Mercury



# How to get funding?



At the beginning  
(and sometimes at present)  
we „invest” our money

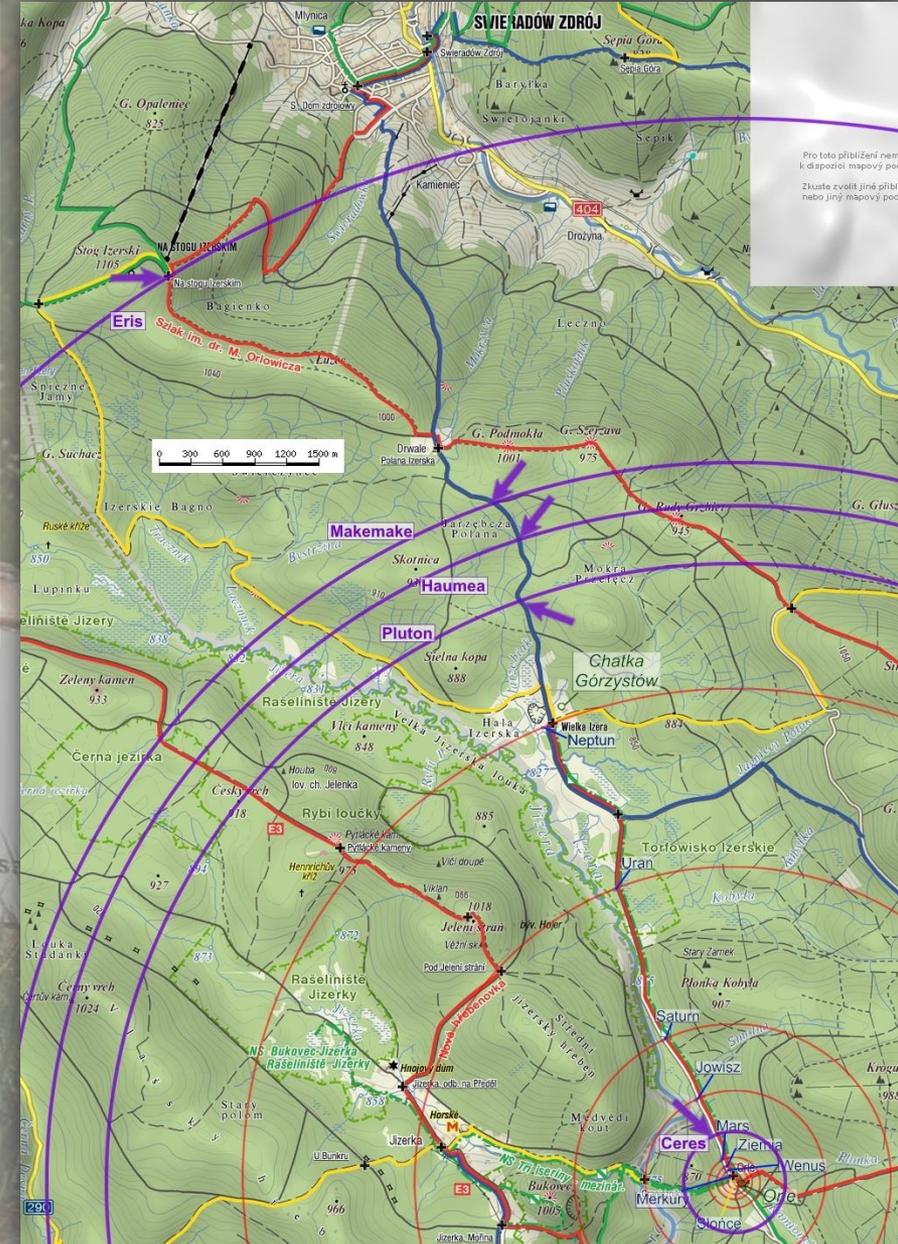
In a case of scaled model  
cost was to high.

Let's sell Solar System!

We found sponsors for each  
planet. The price was  
1000\$ per planet.

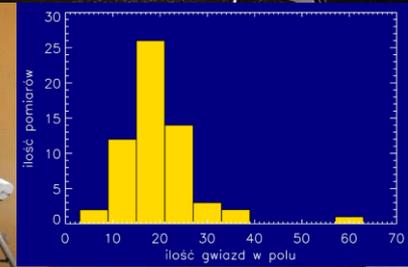


# 8th Astronomical Day – Solar System Model 2.0.



September 2013. Start of Wygasz project funded by Ministry of Science and Higher Education

Fundator:  
Marta Piotr Cs



Monitoring of sky brightness with teachers and students

*Sky brightness? Obviously, sky is dark, isn't it?*



*Sky brightness? Obviously, sky is dark, isn't it?*

*A long time ago in a galaxy far, far away....?*



*A long time ago in a galaxy far, far away....?*



*No, it was on Earth, just 100 years ago....*

*Changing a night into a day...*

**dark**



**light**

**Positive effects of illuminating a night**

**safety**

**activity**

**aesthetics**



**Negative effects of illuminating a night**

**the lack of darkness**



**dark**



**light**



*Rural and urban night sky with(out) Milky Way*



*Rural and urban night sky with(out) Milky Way*



*Rural and urban night sky with(out) Milky Way*



# *Skyglow*



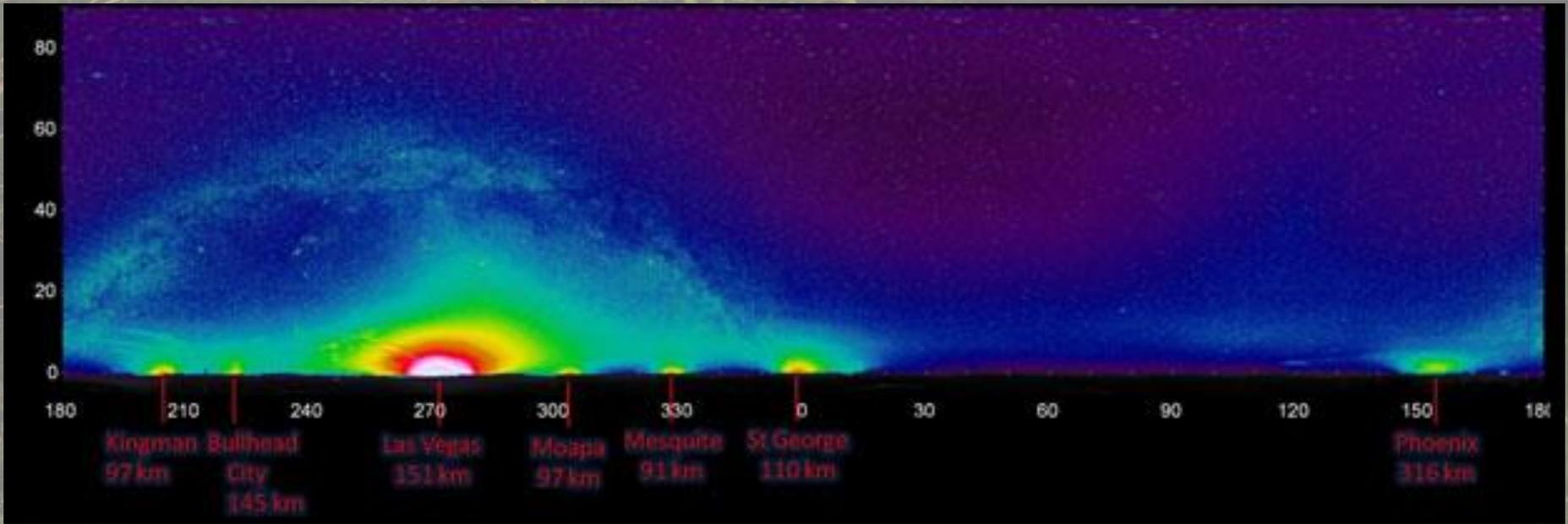
Tenerife (Canary Islands)

# Skyglow



Skyglow is not limited to cities, it is visible from large distances...

# Skyglow



Skyglow is not limited to cities, it is visible from large distances...

## *Definition*

### **Light pollution**

is an alteration of natural light levels in the night outdoor environment owing to artificial light sources



# Consequences

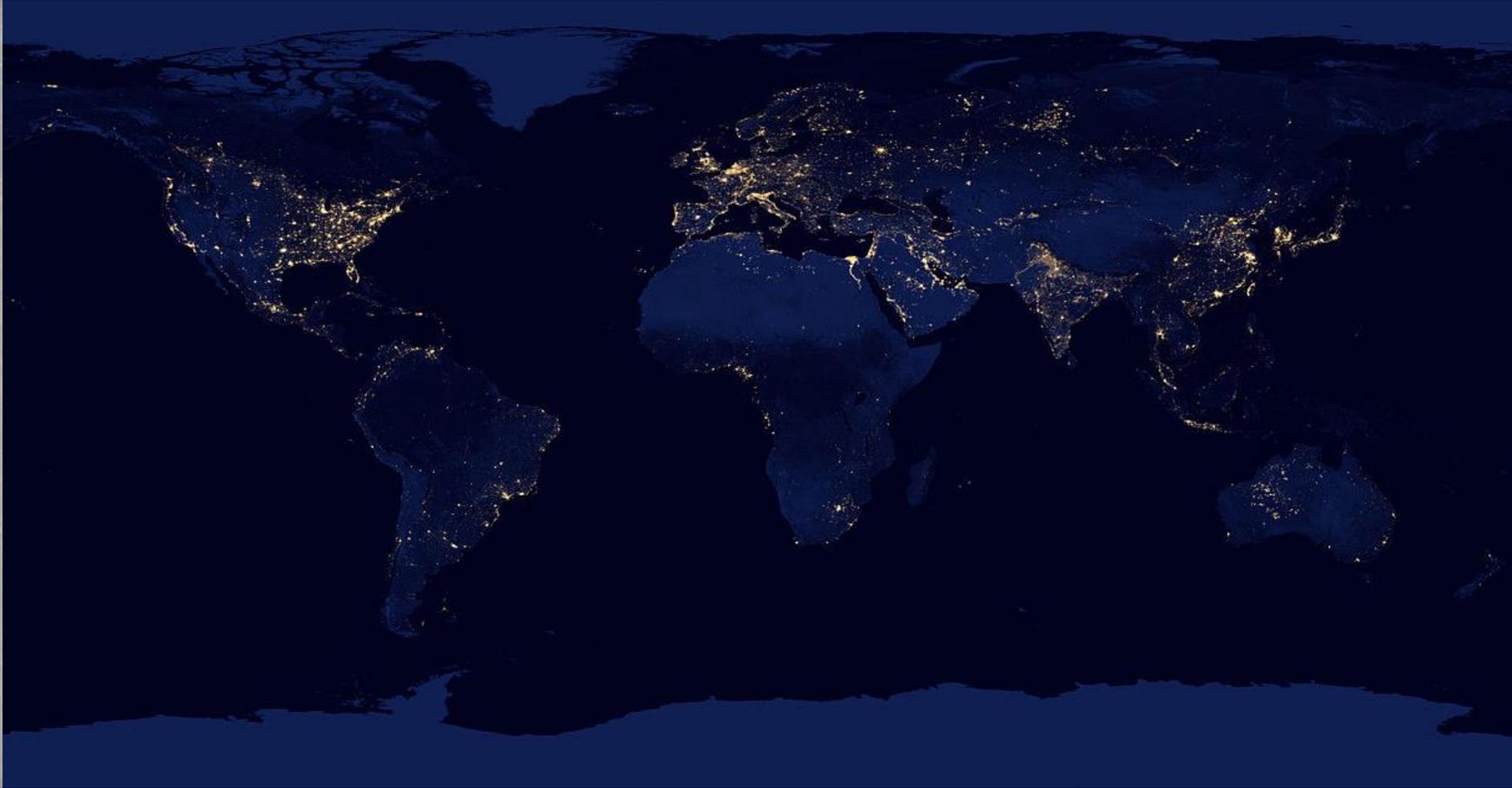


## Consequences of light pollution:

- difficulties for astronomical observations, degradation of night landscape
- disturbance of natural day-night cycle of flora and fauna (including humans)

Fundator:  
Nartał Piotr Osadkowsky

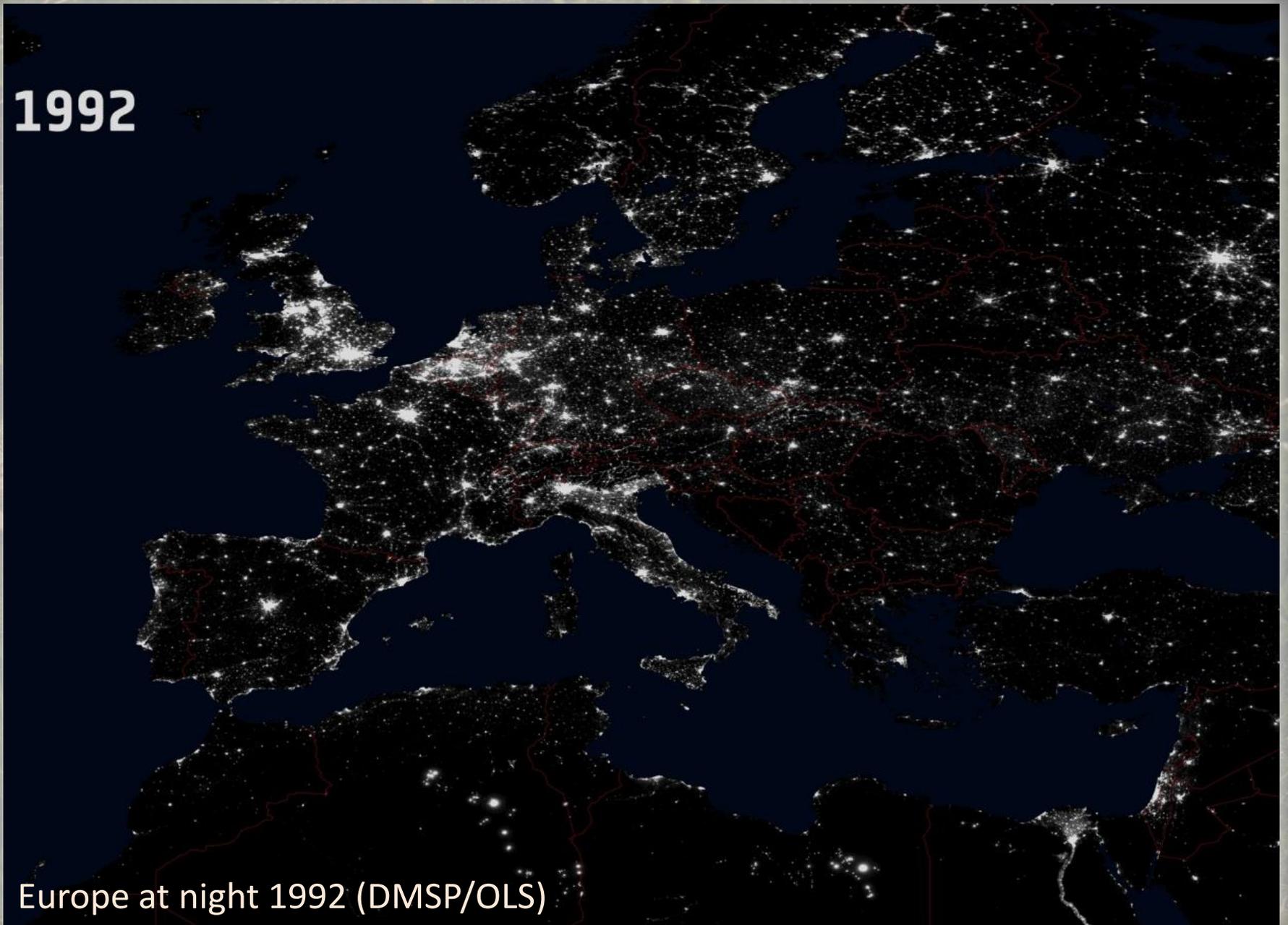
*Light pollution – a global problem*



Earth at night 2015 (Suomi NPP/VIIRS)

*Light pollution – a global problem that grows rapidly*

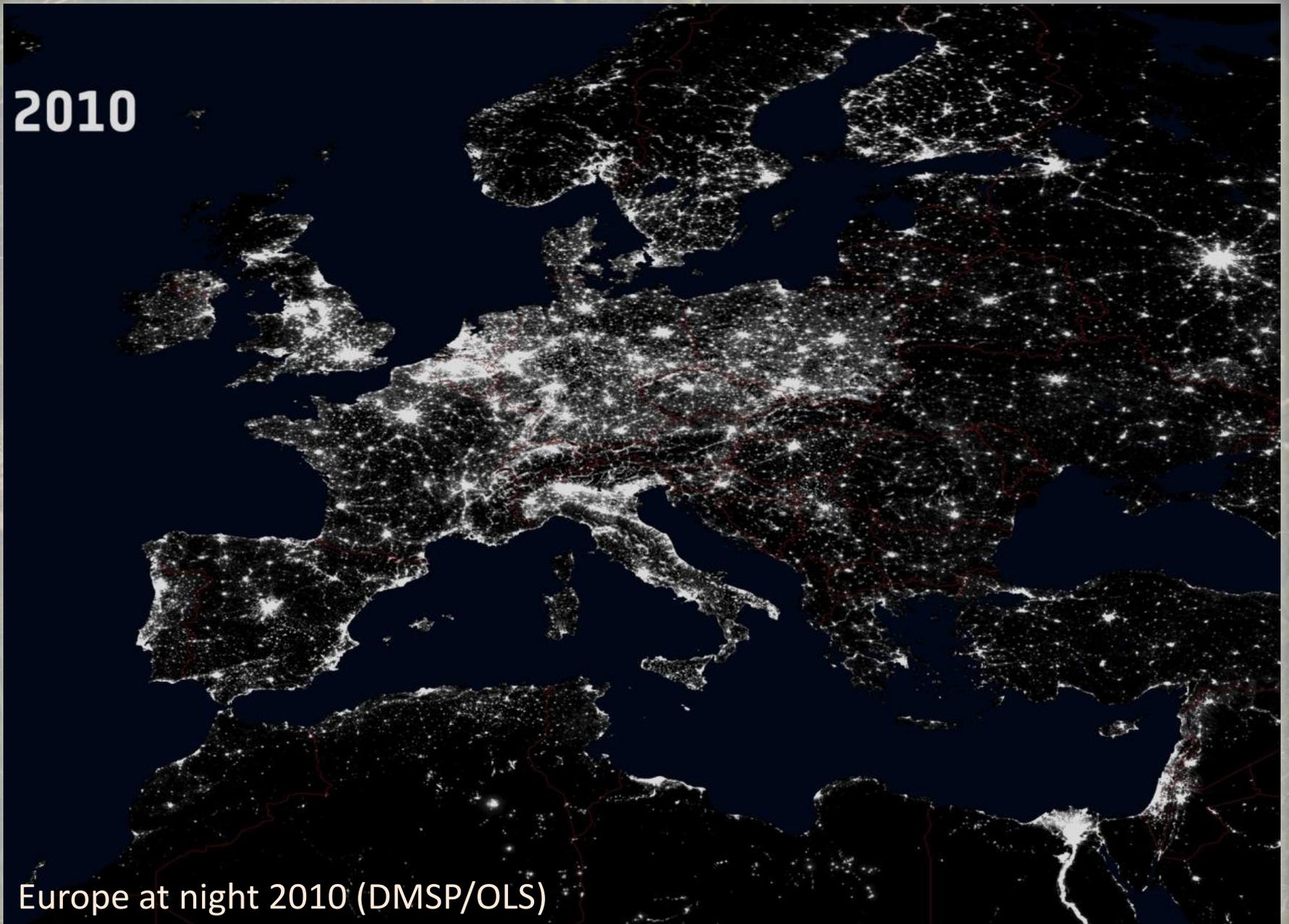
**1992**



Europe at night 1992 (DMSP/OLS)

*Light pollution – a global problem that grows rapidly*

**2010**



Europe at night 2010 (DMSP/OLS)

## *Solution?*

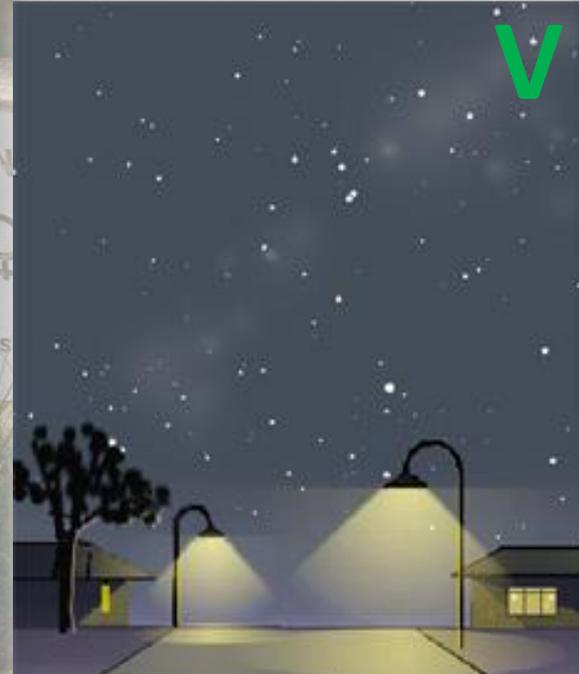
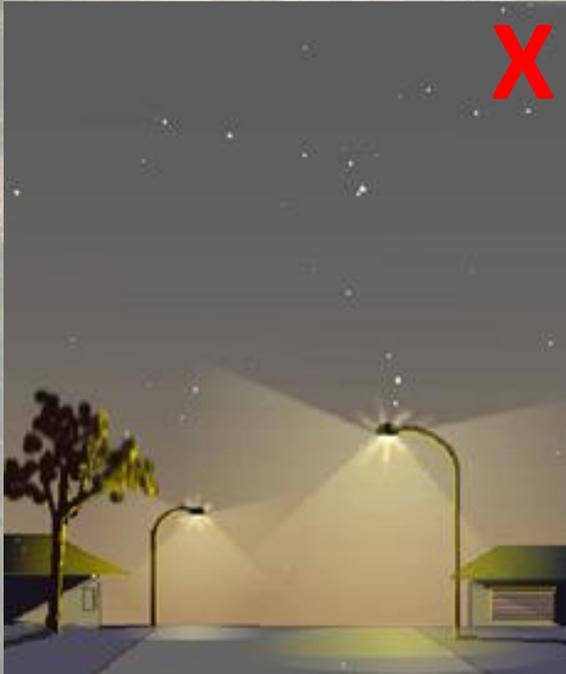


We do not want to turn off all the lights!

We want to find a balance between the light and dark sides of... light.  
Is it possible?

## *Solution means balance.*

- **Technical solutions** – wise use of artificial lighting. Street lights, not in your home.
  - DO NOT light everything around you including clouds and stars. Avoid glare: *Light only what need, point lights downwards*
  - DO NOT turn a night into day: *Use as much light as you need, but not more*
  - DO NOT waste artificial light. *Light only when need, dim or switch off lights when possible*



# Sopotnia Wielka



Good example from Poland:

Around 150 points modified in Sopotnia Wielka according to guidelines defined by International Dark-Sky Association.



# Other solutions (Astro Izery project)

- **Technical solutions** – wise use of artificial lighting
- **Conservation** – night dark is a part of nature – it should be also protected
- **Public outreach** – increase public awareness of light pollution



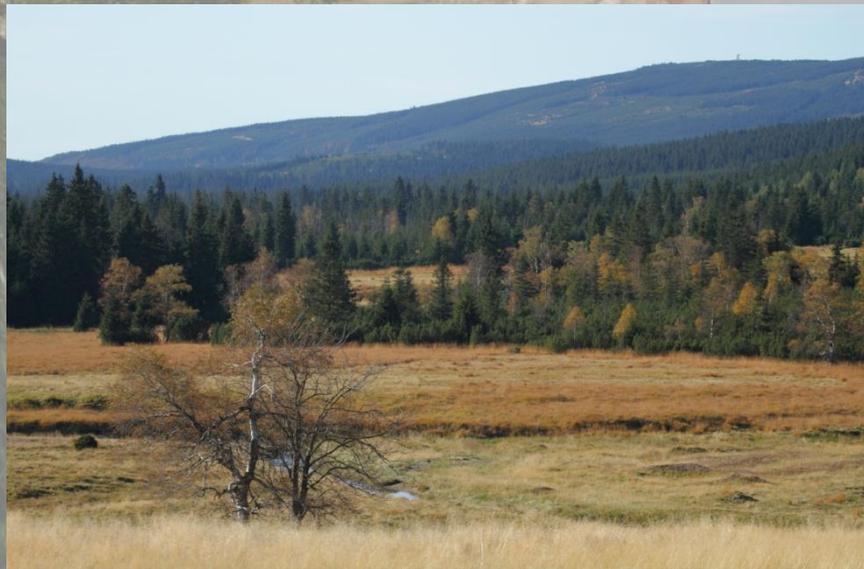
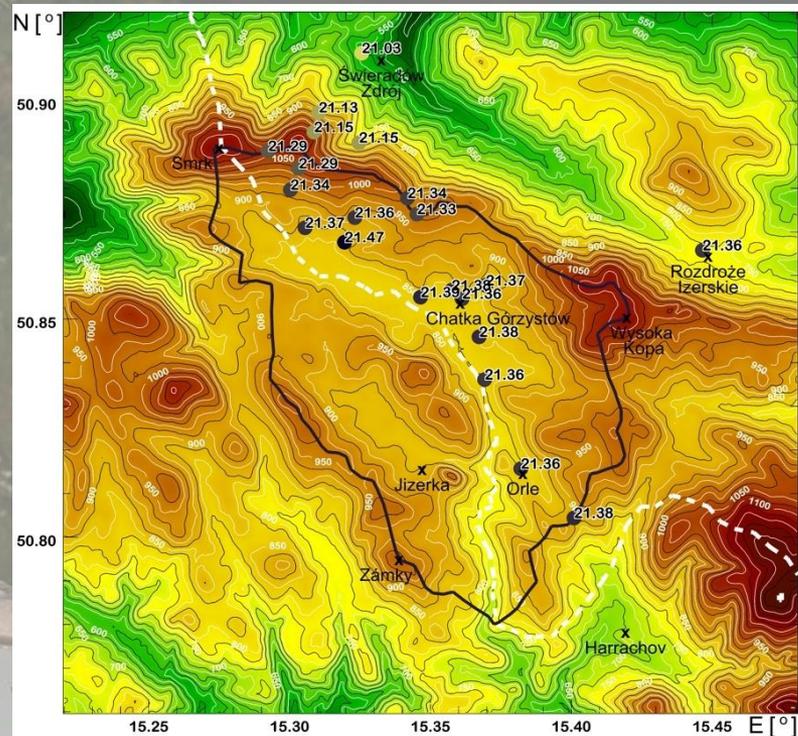
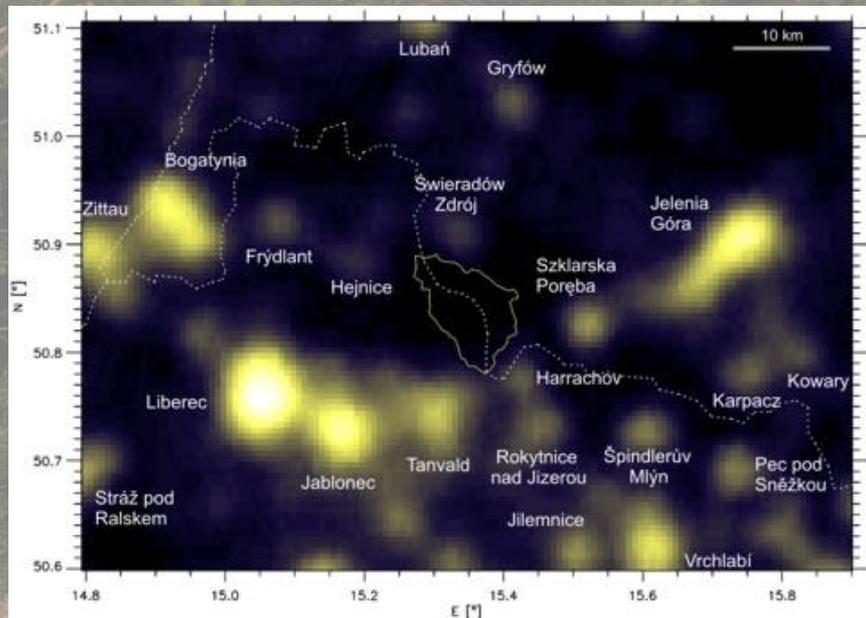
JIZERSKÁ  
OBLAST  
TMAVÉ  
OBLOHY



IZERSKI  
PARK  
CIEMNEGO  
NIEBA



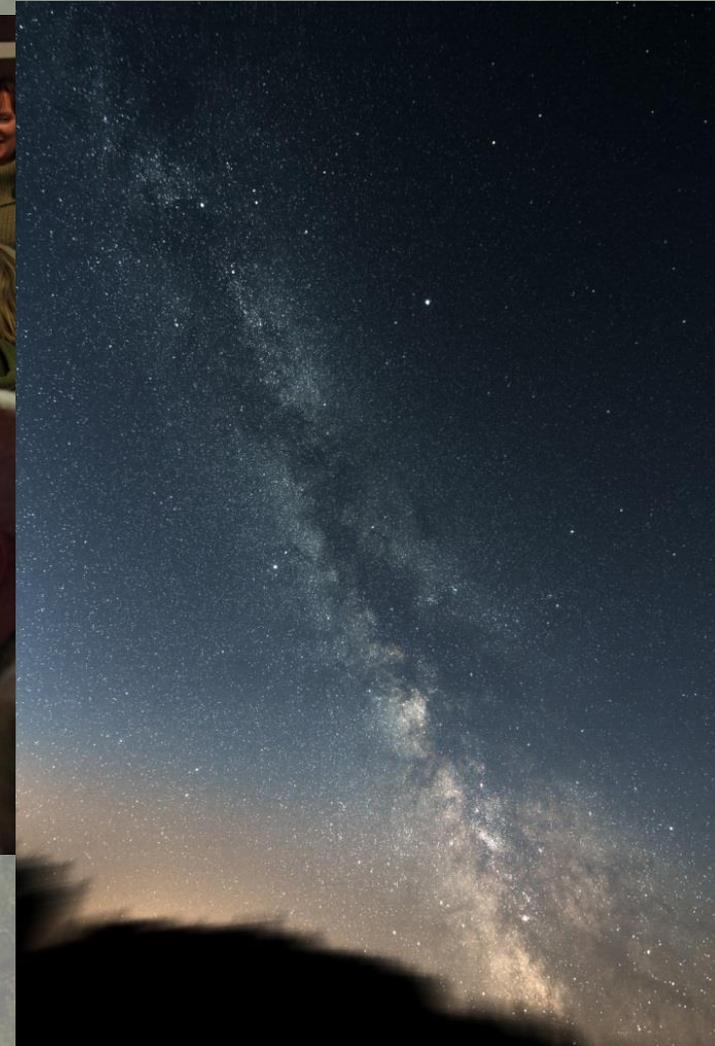
# Izera Dark Sky Park



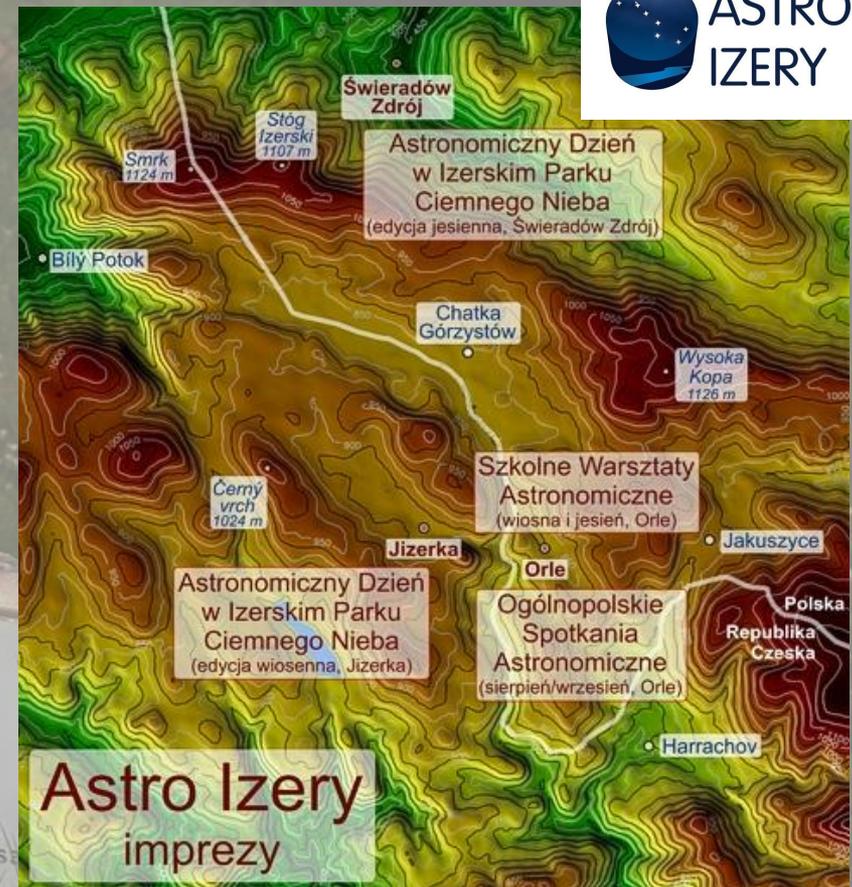
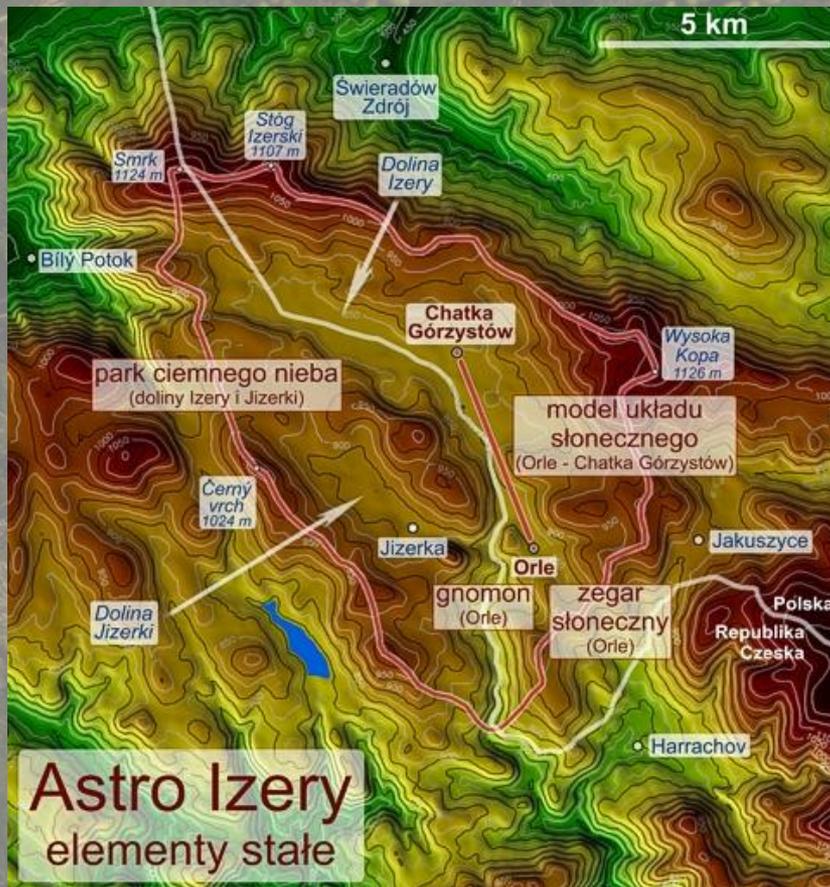
# Izera Dark Sky Park



Agreement was signed on November 4th, 2009 – first dark sky park in Europe, first cross border dark sky park in the world



# Astro Izery project in 2015



## Permanent elements:

- scaled model of the Solar System
- gnomon and sundial – tourist station ORLE
- Izera Dark-Sky Park

## Periodic activities:

- School Workshop on Astronomy
- all-Poland Astronomical Meeting
- Astronomical Day in the Izera Dark-Sky Park

## Other activities



Public observatory in  
Forestry Commission  
Świeradów headquarters

Educational Centre in  
Świeradów Zdrój (star  
ceiling)



AI  
IPCN

[www.astro.uni.wroc.pl/astroizery](http://www.astro.uni.wroc.pl/astroizery)  
[www.izera-darksky.eu](http://www.izera-darksky.eu)

