

Solar exposure analysis system

System analizy nasłonecznienia

KN Cosmo

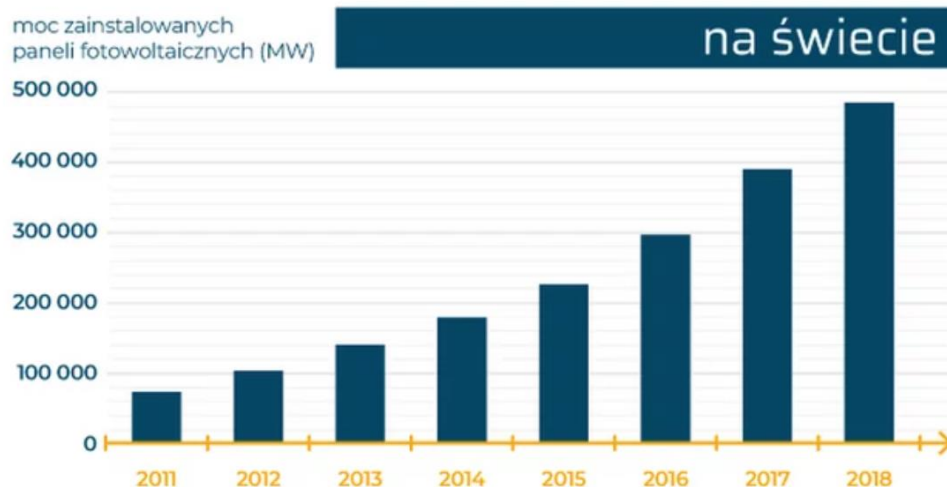


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Growing demand for solar farms in households



Energia pozyskiwana z instalacji fotowoltaicznych



The demand for ecological Energy sources



Reason for increasing interest in solar panels

- Decreasing costs of solar installations
- Increasing electricity charges

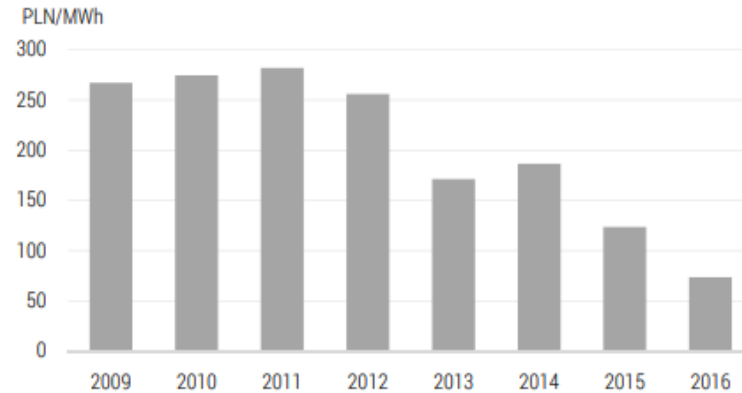


Figure 1. Average annual prices of property rights arising from certificates of origin for electricity from renewable sources ("green certificates") in Poland in 2009-2016 [PLN]

Optimal Photovoltaics

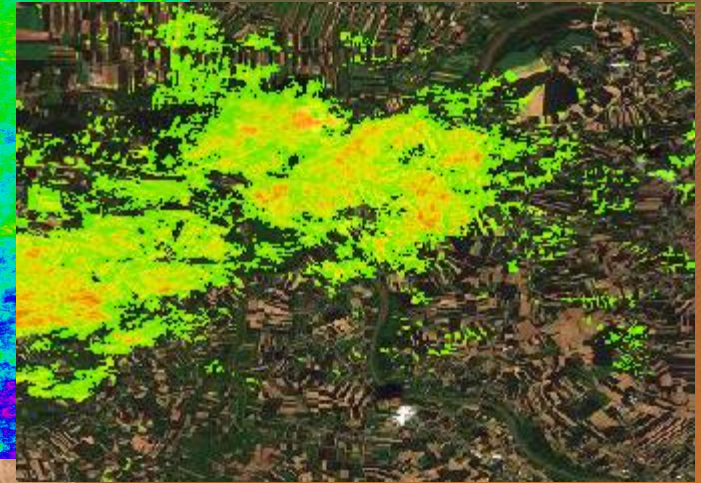
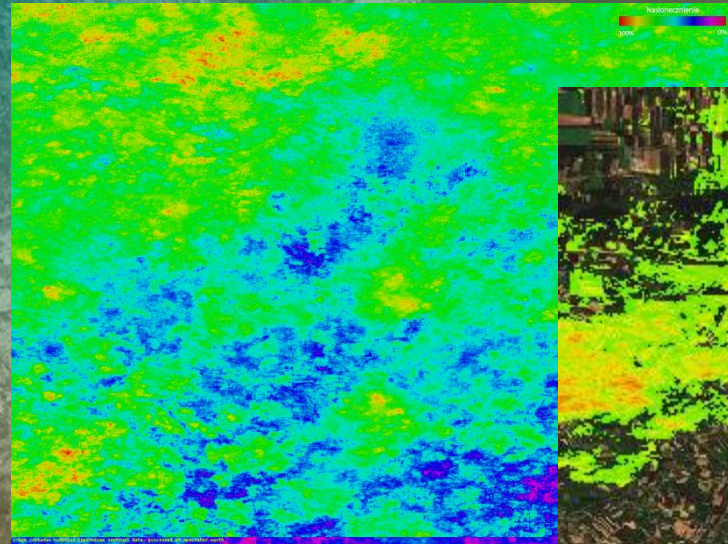
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data



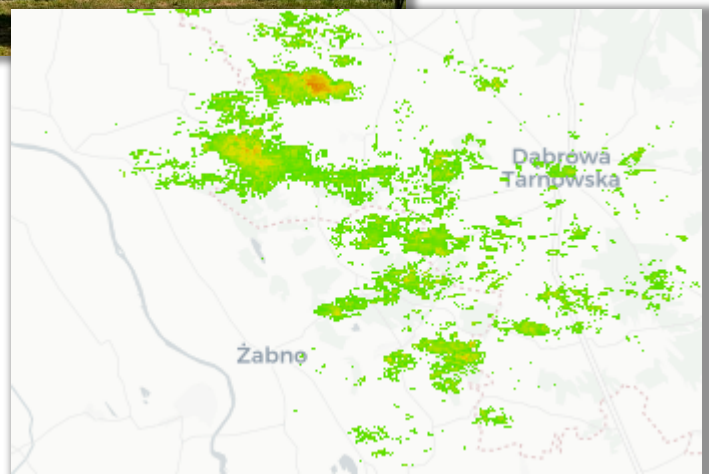
Detailed and accurate insolation analysis

Solution
from
the sky



What do we gain from this?

- The best potential places to create solar farms
- Analysis of the forecasted effectiveness of installations in a specific location
- Information about the sunshine of selected agricultural areas - a suggestion as to which plants can best be grown on a particular plot





How do we collect this informations?

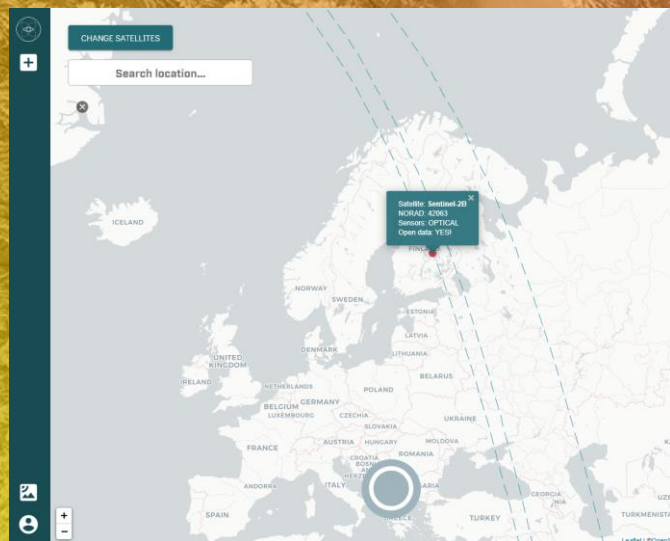
SPECTATOR EARTH



Copernicus

Europe's eyes on Earth

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Processing



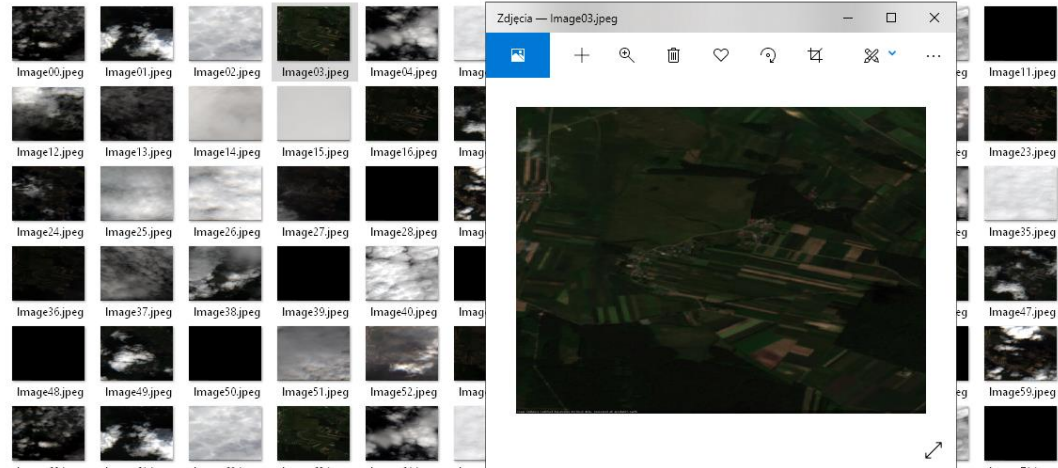
```
# Downloads only selected, cropped area
params = {}
params['api_key':
'bbox': '20.3851318359375,49.7306932722036,21.61766052246094,50.292848766619365',
'bands': '4,3,2',
'height': 1200,
'width': 1600

url_search = 'https://api.spectator.earth/imagery/?api_key={api_key}&bbox={bbox}&bands={bands}&height={height}&width={width}'

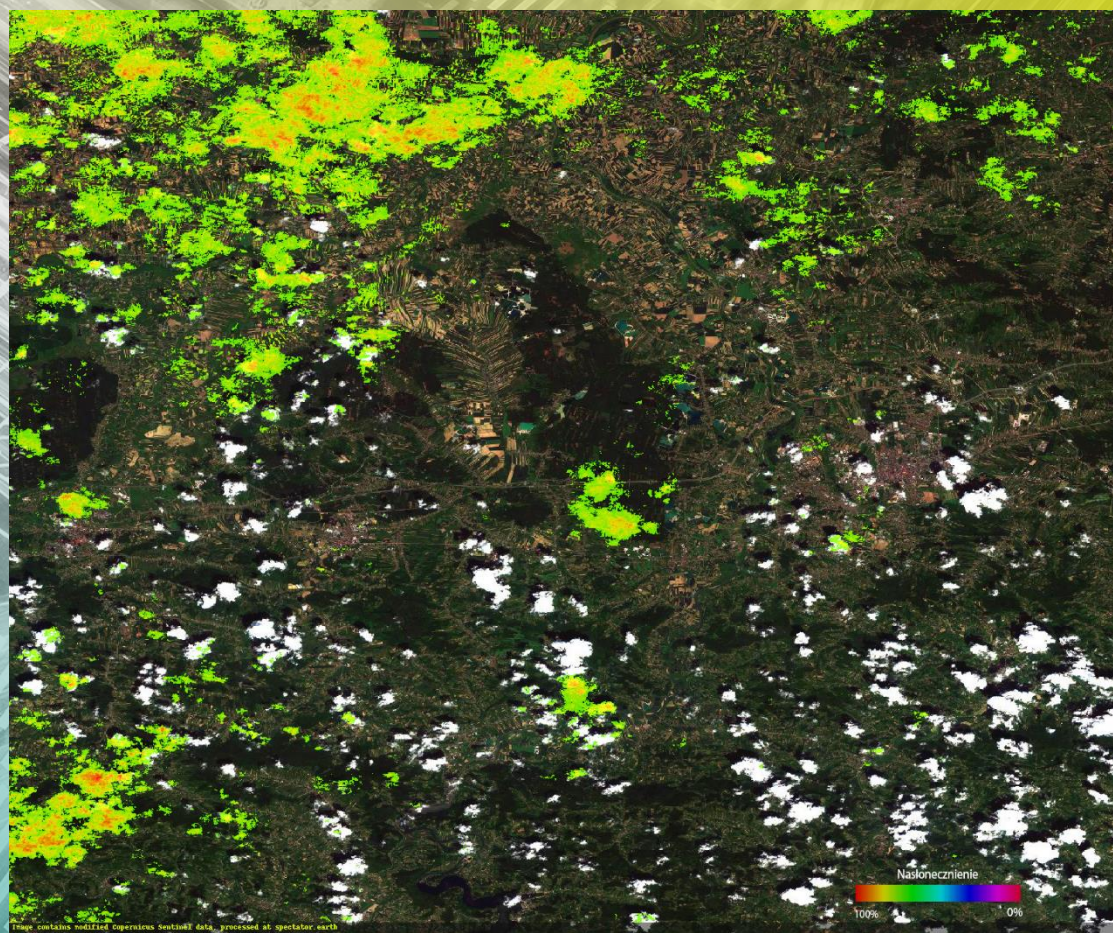
response_search = requests.get(url_search)
data_search = response_search.json()

while len(images) < 30*pages and data_search['next'] is not None:
    print("Downloading {} images".format(len(data_search['results'])))
    for i, e in enumerate(data_search['results']):
        image_url = "{}?api_key={}".format(e['download_url']).replace("{api_key}", api_key)
        image_response = requests.get(image_url, params=params)
        try:
            image_array = io.imread(BytesIO(image_response.content))
            images.append(image_array)
        except:
            print("#{} Bad file: {}".format(i + 1, e))
        else:
            print("#{} Success".format(i + 1))
            print("Going to next url")
            url_search = data_search['next']

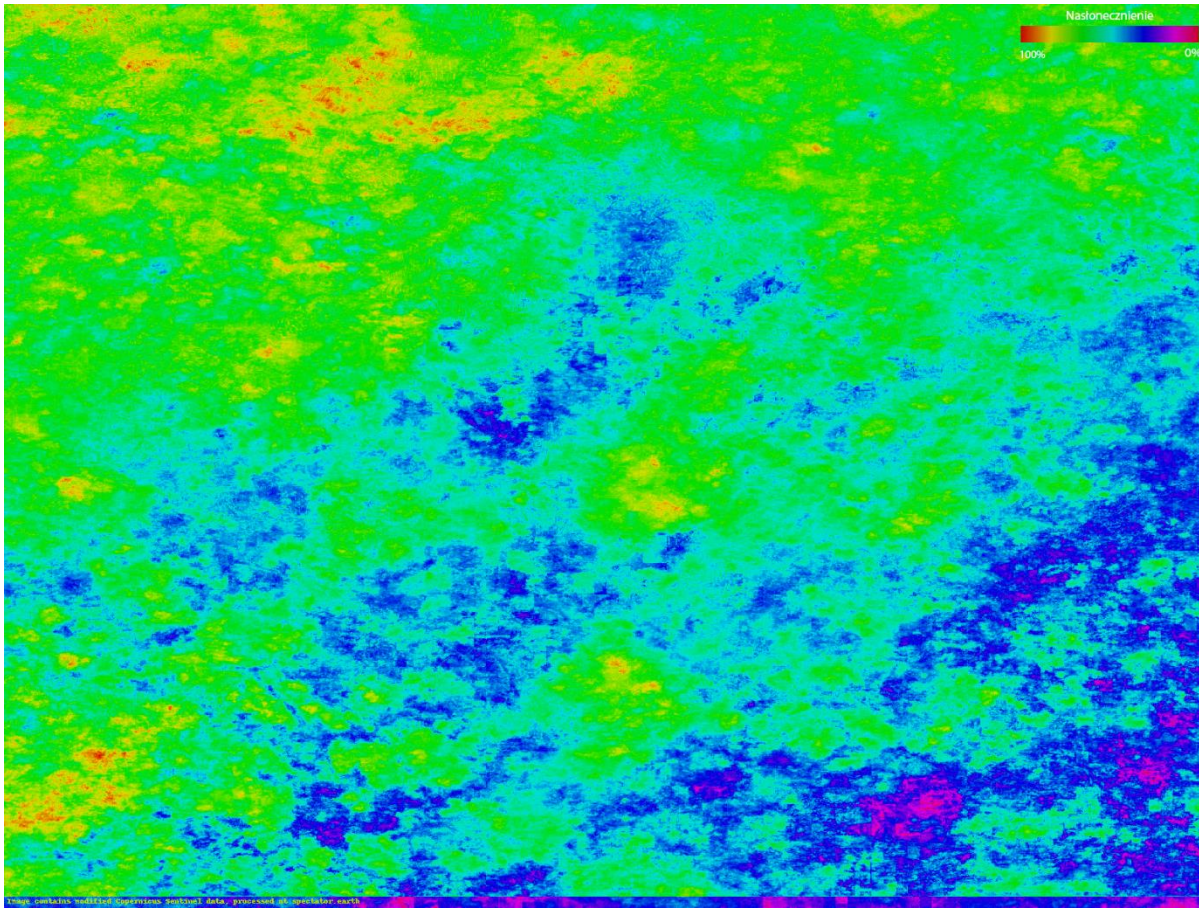
print("Got {} images".format(len(images)))
```

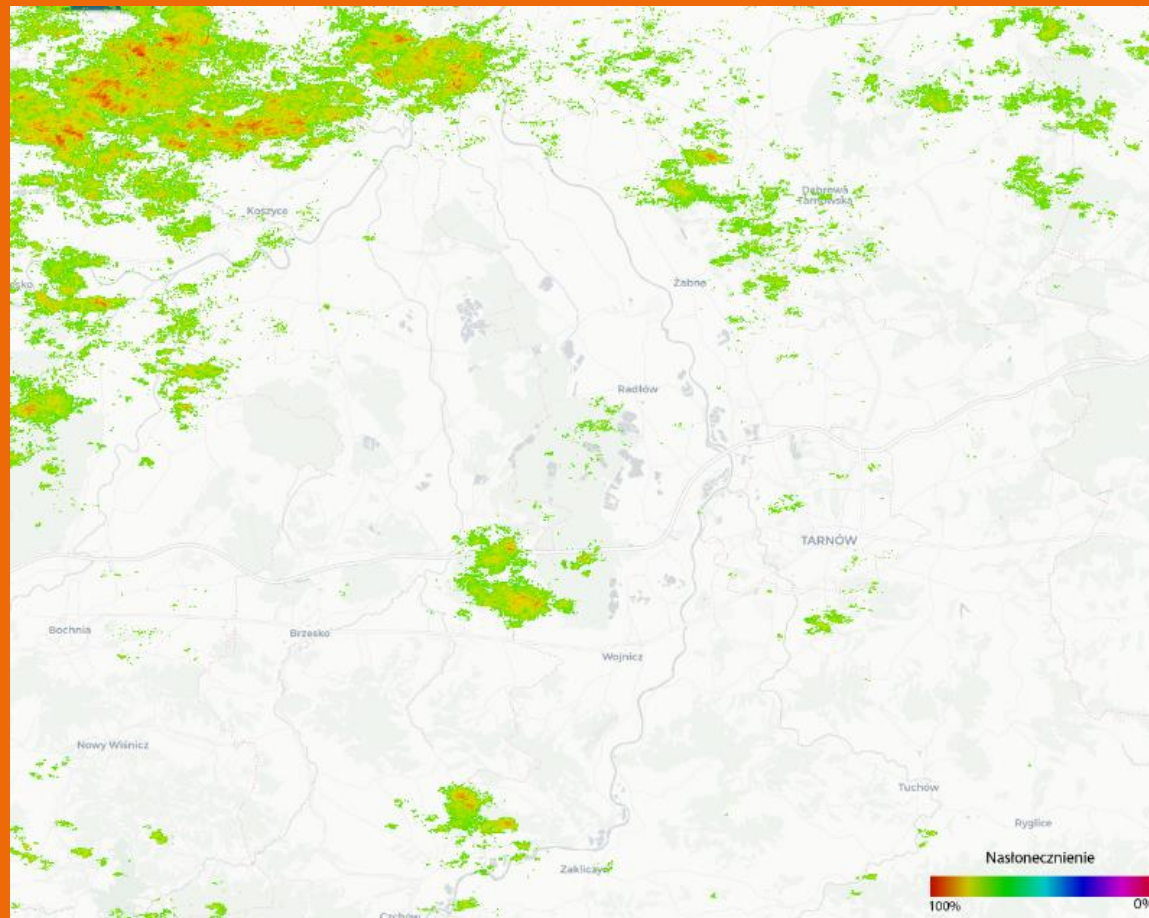


Solar heatmap



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Bibliografia

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Q & A



Thank you!

