

## INTRODUCTION

In the year 2013 Poland was visited by 15,8 million tourists. The most popular cities are Kraków, Wrocław, Gdańsk, Warsaw, Poznań, Lublin, Toruń and the historic site of Auschwitz - German Nazi concentration camp in Oświęcim.

Poland has 23 national parks which are highly popular among tourists. The best recreational destinations include Poland's Masurian Lake District, Baltic Sea coast, Tatra Mountains (the highest mountain range of Carpathians), Sudetes and Białowieża Forest.

Poland's main tourist offers consist of sightseeing within cities and out-of-town historical monuments, business trips, qualified tourism, agrotourism, mountain hiking (trekking) and climbing among others. 38 objects in Poland are included on UNESCO World Heritage List.

Poland is the 17th most visited country in the world by foreign tourists, as ranked by World Tourism Organization (UNWTO) in 2012.

There are 2 300 hotels and about 9 000 other accommodation facilities in Poland. These infrastructures had to support 15,8 million foreign tourists in 2013 which is the number of the Poland visitors in that year.

There are 12 international airports in Poland located in the biggest Polish cities. Also there are regular ferries from seaports in Łwów, Kołobrzeg and Gdańsk to Denmark, Sweden, Finland and Germany.

The road network is being developed constantly. Motorways, however, lead mostly from eastern to western border of Poland. Therefore it is especially easy for tourists from Western Europe to get to Poland by car.

Signposting is very well developed in Poland and it helps highly to get to the chosen destinations.

There is almost no destination in Poland that would not be accessible by car. In some cases of very remote places (eg. in the Bieszczady mountains) it is necessary to travel by cross country vehicle although on rather short distances. There are also a few roads (mainly in the mountains) that are impassable during the winter (or hard to pass through).

The Bieszczady Mountains are accessible by car. The busses also go there but due to the fact that the area is sparsely populated the public services are rare and not very comfortable.

Busses from Lutowiska (main village of the Bieszczady administrative area) go to Rzeszów (the main city of the region, and the only city of the region with international airport) three times a day during July and August and only once a day all year round.

There are 23 National Parks in Poland which are under strict protection. There are also a few Natura 2000 areas in the country which are also protected. In terms of astrotourism, there are two Dark Sky Parks in Poland in which artificial light pollution is restricted.

The vast majority of the Bieszczady mountains is protected by law, namely Bieszczadzki National Park, the San Valley Landscape Park, Ciżniańsko-Wetliński Landscape Park and The International Biosphere Reserve 'Eastern Carpathians' (placed on the UNESCO World Cultural and Heritage List).

Probably the most pristine part of Poland is the area of the Bieszczady Mountains in the extreme south-east corner of the country (the region of Poland included in EU Skyroute project). The vast majority of the Bieszczady mountains is protected by law, namely Bieszczadzki National Park, the San Valley Landscape Park and Ciżniałsko-Wetliński Landscape Park. When this beautiful area was discovered by international public The International Biosphere Reserve 'Eastern Carpathians' was established and placed on the UNESCO World Cultural and Heritage List. Bieszczadzki National Park itself stretches over an area of almost 300 square kilometres, covering the highest areas of the Polish part of the Bieszczady Mountains. They are not very high – the highest peak in the park, Tarnica, is 1,346 meters above sea level. Forests cover about 80% of the area of the National Park. The woods are mainly natural. Animal life is abundant with several endangered species. Among them there are bears, wolves, wildcats, wild boars, beavers, lynxes and European bison.

There is a dense network of marked routes for walkers, horse-riders and cyclists. Bieszczadzka Forest Railway (established in 19th c.) is one of the attractions of the region. The train trips are accompanied by additional attractions, such as bandits' hold-ups and many others.

In order to attract tourists and at the same time preserve the dark sky, Starry-Sky Park Bieszczady was created. It is the second largest protected area of the night sky in Europe. It has the highest quality night sky and artificial light pollution is negligible there. The accommodation offer develops quickly – it ranges from agrotourist farms to elegant inns.

## 1.- Analysis of the destination and visitor profile

In the year 2013 Poland was visited by 15,8 million tourists. The most popular cities are Kraków, Wrocław, Gdańsk, Warsaw, Poznań, Lublin, Toruń and the historic site of Auschwitz - German nazi concentration camp in Oświęcim.

Poland has 23 national parks which are highly popular among tourists. The best recreational destinations include Poland's Masurian Lake District, Baltic Sea coast, Tatra Mountains (the highest mountain range of Carpathians), Sudetes and Białowieża Forest.

Poland's main tourist offers consist of sightseeing within cities and out-of-town historical monuments, business trips, qualified tourism, agrotourism, mountain hiking (trekking) and climbing among others. 38 objects in Poland are included on UNESCO World Heritage List.

Poland is the 17th most visited country in the world by foreign tourists, as ranked by World Tourism Organization (UNWTO) in 2012.

There are 2 300 hotels and about 9 000 other accommodation facilities in Poland.

## 2.- Analysis of the tourism supply

Astrotourism offer in Poland has started to develop a few years ago and it is still in its initial stage. In majority the available offer includes planetariums and observatories which have existed for many years in Poland. In most cases considerable modernization is required in order to provide tourists with high quality offer.

However, along with potential of astrotourism being noticed, first investments have been already made. Therefore, a few interesting cases can be instanced. Among them there is Copernicus Science Centre in Warsaw with Heavens of Copernicus Planetarium. It is one of the most comprehensive and modern multimedia planetarium in the world. Besides from 2D and 3D shows Copernicus provides also evening astronomical observations under the open sky. The scope of their telescopes – even in the city – comprises nebulae, galaxies and star clusters. These types of meetings are free of charge and open for all.

Similar offer have observatories in Toruń, Chorzów or Łódź. These, however, are mostly focused on educational offer aimed at schools.

There is also very interesting project realized in Frombork. As a part of it there will be Astronomical Park created, in which tourists will have opportunity to learn about the sky with the use of astronomical devices that have been used since 16th c. up till now. For instance, two 19th c. telescopes will be available as well as 20th c. camera used for photography of the sky. Instruments used by Nicolaus Copernicus will be reconstructed along with 17th c. telescopes used for observation of sunspots. The project will be finished in Summer 2015.

The most successful projects connected to astrotourism in Poland were realized as a part of initiatives that aimed at dark sky protection. There are two parks of dark sky: Izera Dark Sky in south west part of the country and Bieszczady Starry-Sky Park in south-east part of Poland. Their offer is more and more popular among tourists.

The Park in Bieszczady is very well prepared for astrotourists and its offer is developing quickly. It aims at tourists who look for closeness to the nature. There is offer of astronomic presentations with professional equipment used. These presentations are combined with workshops conducted by professional astronomer who teaches about the sky, explains how to read the stars, how to find different constellations, how to use the telescopes, etc. Stargazing sessions often include photography workshops during which tourists are taught how to take pictures of a night sky. Demonstrations can be ordered for groups. For individuals there are open meetings organized once in a while. They are free of charge. Individuals can also use special observation decks located in Starry-Sky Park Bieszczady. These decks are equipped with information tables, maps of sky and various sundials.

There are already 12 guesthouses in the region which are called 'astrotourist friendly' which added to their offer photography workshops focused on dark sky photography. Some of them acquired their own telescopes.

There are a list of services and activities directly related to Astrotourism and it is:

- Copernicus Science Centre in Warsaw – planetarium (2D and 3D shows), astronomical observations
- Observatory on Lubomir – astronomical observations
- Observatory in Niepo miece – astronomical observations
- Observatory in Pozna – astronomical observations
- Observatory in Olsztyn – astronomical observations
- Observatory in Kraków – astronomical observations
- Observatory in Zielona Góra – astronomical observations
- Observatory and planetarium in Chorzów – astronomical observations, planetarium shows
- Observatory and planetarium in Grudzi dz – astronomical observations, planetarium shows
- Observatory and planetarium in ód – astronomical observations, planetarium shows
- Centre of Popularization of Universe – astronomical observations, planetarium shows
- Observatory and planetarium in Frombork – astronomical observations, planetarium shows, astronomical park with historical astronomy tools (since Summer 2015)
- Izera Dark Sky Park – astronomical observations, photography and astronomy workshops
- Starry-Sky Park Bieszczady – astronomical observations, photography and astronomy workshops

Each service and activity has a website or facebook where they provide information about the destination. These are:

- Copernicus Science Centre in Warsaw – [www.niebokopernika.pl](http://www.niebokopernika.pl)
- Observatory on Lubomir – [www.obserwatorium.lubomir.weglowka.pl](http://www.obserwatorium.lubomir.weglowka.pl)
- Observatory in Niepo miece – [www.moa.edu.pl](http://www.moa.edu.pl)
- Observatory in Pozna – [www.astro.amu.edu.pl](http://www.astro.amu.edu.pl)
- Observatory in Olsztyn – [www.planetarium.olsztyn.pl](http://www.planetarium.olsztyn.pl)
- Observatory in Kraków – [www.as.up.krakow.pl/main/index.php?pang=pl](http://www.as.up.krakow.pl/main/index.php?pang=pl)
- Observatory in Zielona Góra – [www.astro.ia.uz.zgora.pl](http://www.astro.ia.uz.zgora.pl)
- Observatory and planetarium in Chorzów – <http://www.planetarium.edu.pl>
- Observatory and planetarium in Grudzi dz – [www.grudzi dz.planetarium.pl](http://www.grudzi dz.planetarium.pl)
- Observatory and planetarium in ód – [www.planetarium.org.pl](http://www.planetarium.org.pl)
- Centre of Popularization of Universe – [www.orbitarium.torun.pl](http://www.orbitarium.torun.pl)
- Observatory and planetarium in Frombork – <http://www.frombork.edu.pl>
- Izera Dark Sky Park – [www.izera-darksky.eu](http://www.izera-darksky.eu)
- Bieszczady Starry-Sky Park – [www.gwiezdnebieszczady.pl](http://www.gwiezdnebieszczady.pl)
- Website on dark sky protection initiatives: [www.ciemnieniebo.pl](http://www.ciemnieniebo.pl)

Information about services is presented mainly online (on websites and social networks). Services may be arranged via e-mail, telephone or in person. There are no dedicated channel for astrotourism offer in Poland.

### 3.- Analysis of the tourist demand

The average visitors per year that perform the astrotourism are in the Bieszczady mountains about 1000 visitors and in Poland are no data available. The profile of the tourist who engage in Astrotourism-related activities are called "Discoverers" who are people who prefer active tourism, keen on sightseeing, choose off the beaten track places

Three years ago astrotourism was unknown term in Polish tourism industry. Nowadays, it is perceived as interesting and exciting. However due to insufficient availability of the offer and in some cases inadequate information it is still rather rarely chosen form of leisure.

Tourism resources of special interest for Astrotourism are:

- Observatories
- Planetariums
- Science centres (Copernicus in Warsaw)
- Astronomical park in Frombork (soon to be opened)
- Dark sky parks (observation decks, observation points, portable telescopes)

And events related with Astrotourism are:

- Astroworkshops in both dark sky parks
- Astronomical observations in Copernicus
- Festival of Dark Sky in Sopotnia Wielka (August)
- Astronomical Day in Izera Dark Sky Park (September)
- Polish National Conference on Artificial Light Pollution in Wrocław (May)

There are 5 areas in Poland included up till now in the National Dark Sky Programm