

# The Geotourism Students' Scientific Club and 18 years of its activity at AGH University of Science and Technology

18 lat działalności Koła Naukowego Geoturystyka  
na Akademii Górniczo-Hutniczej w Krakowie

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**Abstract:** *The Geotourism Students' Scientific Club (GSSC) is operating at the Department of General Geology and Geotourism of AGH University of Science and Technology (AGH UST), bringing together young enthusiasts of Earth sciences, at the Faculty of Geology, Geophysics and Environmental Protection. It has been operating continuously since 2003. The primary objective of the GSSC is to arouse interest in scientific work in the field of Earth sciences, as well as to popularise geotourism in the student community. The article reviews the most important achievements, events and activities documenting the long-term accomplishments of the GSSC. The greatest successes of the GSSC include the implementation of five rector's grants and active participation in national and international scientific conferences. It is worth noting, that the GSSC organises its own "Geotourism" conference session as a part of the Conference of Student Special Interest Groups of the Mining Division. The members of the GSSC promote geology and geodiversity, explaining it in a manner which is comprehensible to an average person. Over the last dozen or so years, they have undertaken various activities, and some of them have become a tradition. Themed evenings and meetings with experts "That's how it's done!" attract a large audience from the university and beyond. Annual domestic and foreign educational and sightseeing trips, culminating in a trip to Iceland in 2022, have become an integral part of the GSSC activities.*

**Keywords:** *students research group, geology, geodiversity, geoeducation*

**Treść:** *Koło Naukowe Geoturystyka (KNGt) istniejące przy Katedrze Geologii Ogólnej i Geoturystyki Akademii Górniczo-Hutniczej działa nieprzerwanie od 2003 roku, zrzeszając młodych pasjonatów nauk przyrodniczych Wydziału Geologii, Geofizyki i Ochrony Środowiska. Podstawowym celem Koła jest rozbudzanie zainteresowań pracą naukową w zakresie nauk o Ziemi, jak również popularyzacja geoturystyki w środowisku studenckim. W artykule dokonano przeglądu najważniejszych osiągnięć, wydarzeń i aktywności stanowiących wieloletni dorobek Koła. Do największych jego sukcesów można zaliczyć realizację pięciu grantów rektora oraz aktywny udział w krajowych i zagranicznych konferencjach naukowych. Na wyróżnienie zasługuje własna Sekcja Geoturystyki wydzielana w ramach barbórkowej Konferencji Studenckich Kół Naukowych Pionu Górniczego. Członkowie Koła promują geologię i georóżnorodność, przekładając język naukowy na zrozumiały dla przeciętnego odbiorcy. Na przestrzeni ostatnich kilkunastu lat podejmowali różne aktywności, a część z nich przerodziła się w kołowe tradycje. Wieczorki tematyczne oraz spotkania z ekspertami „Tak to się robi!” skupiają liczną widownię, wśród której dominują studenci wydziału. W działalność Koła wpisały się również coroczne krajowe i zagraniczne wyjazdy edukacyjno-krajoznawcze, których zwieńczeniem była wyprawa na Islandię w 2022 roku.*

**Słowa kluczowe:** *studenckie koło naukowe, geologia, georóżnorodność, geoedukacja*

## Introduction

Efforts to establish the Geotourism Students' Scientific Club (GSSC) began in 2003, March 3<sup>rd</sup>, the day when the first meeting in the history of the group took place in the A-0 building of the AGH University of Science and Technology (AGH UST), at 30 Mickiewicz Avenue, Krakow. 13 students with a future tutor started to set up a new students' research group at AGH UST. They struggled to establish the foundations of the GSSC, but their efforts were rewarded.

The first step was to collect all the necessary approvals and signatures from: the Rector's Plenipotentiary for Students Scientific Clubs of the Mining Division, professor Barbara Jabłońska-Firek, the Dean of the Faculty of Geology, Geophysics and Environmental Protection, professor Tadeusz Słomka and the AGH UST vice-chancellor, professor Andrzej Łędzki. Thanks to the efforts of the first supervisor of the GSSC, professor Alicja Kicińska, two third-year students – Monika Zajęc and Anna Wiślińska, and the president of the Geos Informatica Student Research Group Marcin Rejdych, on Friday, November 21<sup>st</sup>, 2003 the GSSC was formally established.

For 18 years of its history, the GSSC performed many activities worth sharing. This means 18 years of continuous work, 18 different student's boards commanding every GSSC project, dozens of students involved, and five rector's grants won. In addition, countless meetings took place and many hours were spent together on planning new activities, gaining experience and preparing presentations for the annual Conference of Student Special Interest Groups of the Mining Section (SKNPG Conference, Konferencja Studenckich Kół Naukowych Pionu Górniczego) in December.

In the face of its 18<sup>th</sup> anniversary, it would appear appropriate to collect, systematise and provide information about the GSSC including its main activities, history and present day work. Already one article was published concerning the GSSC in the "Geotourism" journal (Birówka, 2012), and its accomplishments were also presented at the 3<sup>rd</sup> Polish Geological Congress (Handzlik, 2016).

### GSSC's objectives

Members of the GSSC are students who share a passion for the Earth, seeking various ways of its exploration, understanding and explanation. Joining the GSSC

means developing interests, meeting new people, experiencing unique adventures or discovering places unknown to many people. These activities develop and enrich students' geotourism knowledge, in addition to multitude of lectures at the university. Participation in the GSSC also means setting new tasks to expand knowledge and skills necessary for professional work in tourism and geotourism. Members believe that active participation in the GSSC's undertakings provides great opportunities for personal development.

The main task of GSSC is to promote geodiversity among ordinary people and to design geotourism information (for the general scope of geotourism, see Dowling & Newsome, 2018). To achieve this, students from the GSSC explain geological knowledge, processes and scientific terminology in an interesting and accessible way. Many projects, such as rector's grants, were made with this in mind, especially the Raclawka Valley geotourism guidebooks. As research group members, they are expected to conduct research under the supervision of tutors and organise scientific conferences. They also undertake various projects among the students' community, aimed at disseminating knowledge in the field of geology, geodiversity, geotourism and tourism, increasing the employment opportunities of future graduates of the Faculty of Geology, Geophysics and Environmental Protection. Joining the GSSC also means participation in fairs, conferences, lectures, workshops and other industry events, internships, field trips in Poland and abroad. The GSSC's responsibilities also include organising lectures for high school and university students. The members have been working with other students' research groups and organisations, as well as with specialists in geology, geotourism, tourism and other fields throughout the years.

### People involved in the GSSC

The core of the organisation is the board of the research group, elected for a one-year term. Members get a tutor as a patron, who is a researcher at the university. The timeline (Fig. 1) presents the list of chairmen of the GSSC and tutors changing throughout the years.

Over the years, the number of the GSSC members has also been changing rapidly. It mainly depended on the number of active students of the Faculty of Geology, Geophysics and Environmental Protection, which is not constant. At its peak, the Club's members numbered about 40.

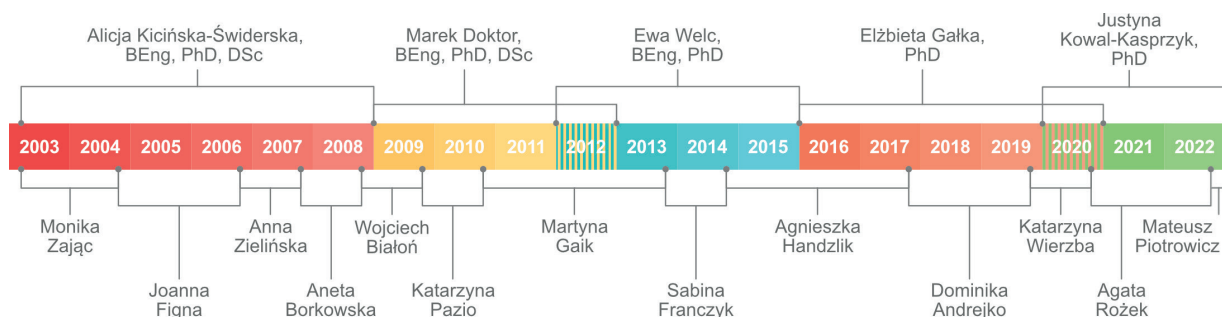


Fig. 1. Tutors and chairwomen/chairmen involved in the GSSC' activity over the period 2003–2022

Unfortunately, the number has been systematically declining over the last year, corresponding to the declining number of geotourism students at AGH UST – the main core of the GSSC. Another significant factor directly affecting the number of members was the coronavirus pandemic in 2020.

Until 2020 only students of the Faculty of Geology, Geophysics and Environmental Protection at AGH UST in Krakow could be legal members of the GSSC. Naturally, the biggest number of the members are Tourism and Recreation or Geotourism students. The second core is made by students of Applied Geology (former Mining and Geology), followed by several individuals from Environmental Engineering and Environmental Protection. In the past, there were sympathisers as non-official members who worked as hobbyists with GSSC, because they were students of another faculty or other universities. Today, thanks to some regulation changes, students from other faculties of AGH UST can also join the GSSC as official members.

## Rector's grants

The greatest, long-lasting projects producing tangible effects were those supported and financed by the rector's grants. They used to be vast topics divided into parts which

were achieved in the following years. The first one took place in the Ojców National Park in 2010–2011. The second was dedicated to the Raclawka Valley Nature Reserve and lasted three years: 2018–2020.

### *Educational panels in the Ojców National Park (2011, 2012)*

Ojców National Park (ONP, Ojcowski Park Narodowy) is an unusual geological destination with Jurassic rocks and abundant karst forms, but with no geotourism infrastructure. Members of the GSSC took the initiative to change this situation. Therefore, they started to meet with the Directorate of the ONP in autumn 2010 and following this, students submitted an application for the rector's grant from the university. The Park Management pinpointed 35 most frequently visited objects. Within the conducted works, GSSC's members made an inventory and categorization of geological objects suitable to be adapted to practise geotourism, and then presented a geotourism development plan for selected objects in the ONP. As a result of their work, 9 geotourism outdoor interpretative panels have been designed. Next year, the collaboration continued (Fig. 2A), and the GSSC once again applied for the rector's grant. The effect was the creation of the next 8 geotourist outdoor interpretative panels.



Fig. 2. Rector's grants: A – visiting Ojców National Park (2011); B – a high school students searching for an intrusion in the outcrop in the Raclawka Valley Nature Reserve; C – field trips with high school students in the Raclawka Valley Nature Reserve (2018); D – a full set of *The Raclawka Valley Geotourist Guides* developed by the GSSC members. Photos: M. Doktor (A), E. Wojtasik (B), E. Gałka (C), S. Bolek (D)

## ***The Raclawka Valley geotourism guidebook (2018, 2019, 2020)***

The Raclawka Valley Nature Reserve was a perfect place to implement the rector's grant and practice geotourism skills. It is an area with already existing educational trails and facilities, but with much potential still unused. The GSSC's aim was to improve and extend the information available on the educational panels in an accessible and understandable way. To achieve this goal, members organised numerous field trips and examined each trail precisely. On the basis of the carried out research, some scripts and educational materials were prepared. The next step was to lead several field trips for schools, universities and adult groups in order to check their understanding of the topic, discern issues that needed to be improved and see the general attitude to different ways of presenting geological knowledge (Fig. 2B, C). In 2020, there were no groups due to the pandemic. The last stage of the project included preparing texts, illustrations, descriptions, pictures and tasks, as well as editorial work, reviews and corrections.

As an effect three geotourism guidebooks have been printed (Fig. 2D). In 2018, the GSSC has been working on the general, blue trail, combining issues of biotic and abiotic nature. The year 2019 was dedicated to the geological yellow trail – the one physically most difficult to undertake (called “adventurous”). The last, red trail, consisting mostly of anthropogenic geosites (quarries), was prepared in 2020.

## **Conferences**

### ***SKNPG Conference***

All the activities held by student research groups are being summarised and shared during an event specific for AGH UST – the SKNPG Conference. It takes place annually in December (around St Barbara's Day) and gathers students of all research groups of the mining division. The presentations are divided into theme sections.

Students from the GSSC debuted at the conference in 2004, after only one year of operation. That year, they joined the group of geophysicists and for 16 presentations, only 5 were from GSSC. Despite this, one of their group was awarded best presentation. Piotr Dmytrowski won this title twice, repeating his success in 2005. From 2006, Geotourism has had its own section, and this has continued till 2019, when decreasing number of students led to combined theme sections again. For many years, students from the Stratigraphy Students' Scientific Club “Strati” (SSSC) were kindly welcomed in the Geotourism section, but we also had guests from other universities, including the Tourism and Touring Students Research Group from the University of Life Science in Lublin.

The number of presentations followed the same trend as the number of members, in the best times reaching 16 a year.

In total, over 150 topics were presented by the GSSC members in the years 2003–2020. Within the vast branch of themes, Iceland seems to be the only one winning twice. All the presentations are listed on the GSSC's website ([geoturystyka.agh.edu.pl](http://geoturystyka.agh.edu.pl)), here only the winners are presented (Tab. 1).

Year by year the geotourism section of the SKNPG Conference gathered professors and students from inside and outside the research groups, including the university's authorities (Fig. 3A, B). It was a tradition, that not only the jury (Fig. 3C), but also the audience could choose their winner. During coffee-breaks, the presented topics were widely discussed, and participants could taste geological cakes and cookies (usually connected with the presented topics), which became another GSSC's tradition (Fig. 3D). Pastries are commonly known in the group's community as a “Geocake”. GSSC also used to produce its own conference materials, including posters and invitations with a new graphic theme every year.

### ***Other conferences***

The winners of the SKNPG Conference used to participate in the International Forum of Young Researchers “Topical Issues of Rational Use of Natural Resources”, held by Gornyj Institut in Sankt Petersburg, Russia. It used to provide equal chances to all students as all the costs were covered by AGH UST. The official part, when students from all around the world could meet and share their research, ideas and experiences, was followed by sightseeing in Petersburg or Moscow and getting familiar with Russian culture. After Russian invasion of Ukraine in 2022, such cooperation was no longer possible, and there are plans to replace this by another international student conference.

After the completion of the rector's grant students are obliged to present results of carried out research at the annual convention of AGH UST student's science organisations in Bartkowa village, near Nowy Sącz. Apart from active participation in thematic science sessions, the conference is a good occasion to present new projects, makes new or renew acquaintances by taking part in integrative events such as introductory evenings, scenic flights, cruises on the Rożnowskie Lake, as well as practise sailing skills or visit nearby tourism attractions.

Conferences are also a good occasion to summarise and present to wider audiences the GSSC members' activities, as well as new undertaken group and individual projects (e.g. 3<sup>rd</sup> Polish Geological Congress in Wrocław in 2016; Nationwide Conference of Student's Science Organisations in Poznań in 2016, GAUS – Geothematic Conference in Korzecko near Chęciny in 2017). GSSC also actively takes part in conferences such as the Nationwide Forum GEO-PRODUCT or other thematically related events, some of which are organised or co-organised by the Department of General Geology and Geotourism. GSSC members help with the organisation of these, listen to lectures and participate in stationary or field workshops through visiting sites of geological heritage.

Table 1. SKNPG Conference winners in the geotourism section

| Year | Winner                            | Supervisor                | Title of presentation  |
|------|-----------------------------------|---------------------------|--|
| 2004 | Piotr Dmytrowski                  | Alicja Kicińska-Świdarska | <i>Traces of mining in the Polish Tatras... the past, present and proposals for future geotourism development</i>  |
| 2005 | Joanna Figna, Piotr Dmytrowski    | Alicja Kicińska-Świdarska | <i>Geocuriosities of Krakow</i>  |
| 2006 | Paulina Pietrzykowska             | Tomasz Pirowski           | <i>Application and presentation of panoramic photography and anaglyphs to present geotourism objects</i>   |
| 2007 | Magdalena Węgrzyn                 | Marek Doktor              | <i>A remote beauty of the wild landscape and unique culture – Iceland, West Fjords</i>   |
| 2008 | Dorota Murczyńska                 | Michał Krobicki           | <i>Second life of the cave towns – geotourism attractions of Crimea</i>  |
| 2009 | Justyna Nosal, Katarzyna Smoleń   | unknown                   | <i>Armenia – a geotourism paradise</i>   |
| 2010 | Magdalena Neisser                 | Marek Doktor              | <i>Unknown Wawel – the real story of the Dragon's Den</i>  |
| 2011 | Oskar Wolski                      | Paweł Różycki             | <i>The potential and problems of tourism development of the Krakow-Częstochowa Upland communes on the example of Mstów commune</i>   |
| 2012 | Jan Kardasiński                   | Marek Doktor              | <i>Geology as an art – the Goethetouristic trail</i>   |
| 2013 | Magdalena Neisser                 | Marek Doktor              | <i>Proposal of tourism and geotourism development of the Samaria Gorge (Crete, Greece)</i>   |
|      | Katarzyna Pazio                   | Marek Doktor              | <i>A proposal to use selected geotourism objects in education of children and youth</i>  |
| 2014 | Mateusz Rozmus                    | Jan Golonka               | <i>The geotourist paradise of Beskid Sądecki</i>   |
| 2015 | Katarzyna Turek                   | Alicja Kicińska           | <i>Proposal of information boards for the “Przełom Białki pod Krempachami” nature reserve</i>  |
|      | Dawid Mazur*                      | Michał Krobicki           | <i>Woolly mammoth remains in alluvial sediments of the Wisłoka river (Podgrodzie near Dębica)</i>  |
| 2016 | Cyryl Konstantinovski Puntos      | Marek Doktor              | <i>The ‘Kuklica’ soil pyramids as a geotourism attraction in Macedonia</i>   |
|      | Piotr Witalis                     | Monika Pilarz             | <i>Miocene formations in the excavation ‘Cegielnia Przeclaw’ (Mielec County, Carpathian Foredeep)</i>  |
| 2017 | Szymon Bolek                      | Marek Łodziński           | <i>Środkowe Nadpilicze's Sandstones – geotourism potential and its possibility of using</i>  |
|      | Anna Szreter                      | Marek Łodziński           | <i>Up and reach the places out of sight – undiscovered treasures of The Land of Extinct Volcanoes</i>  |
| 2018 | Anna Szreter                      | Marek Łodziński           | <i>Break that to which the brain can do no harm – volcanic secrets of the Mývatn region (Iceland)</i>  |
| 2019 | Katarzyna Wierzba                 | Sylwia Skoczylas          | <i>Geotourism guidebook about yellow educational path in Raclawka Valley</i>   |
| 2020 | Aleksander Pyzik, Tomasz Pachół** | Piotr Strzelecki          | <i>Verification of the accuracy of measurements of the residual parameters of geological surfaces measured with mobile applications for smartphones such as geological compass</i> |
| 2021 | Agata Rożek                       | Paweł Różycki             | <i>The Main Beskid Trail in geotouristic, social and psychological perspective</i>   |

\* SSSC “Strati”

\*\* Students' Scientific Club AZYMUT



Fig. 3. Conference of Student Special Interest Groups of the Mining Section (SKNPG Conference): A – participants, jury, audience and hosts of the SKNPG Conference (2018); B – talks behind the scenes (2017); C – jury of the SKNPG Conference (2016); D – geocake – example of the SKNPG conference geotourism section tradition (2019). Photos: D. Andrejko (A, B, D), GSSC archives (C)

## Field trips

Every year the GSSC's members visit national and foreign geological attractions by participating in one or multi-day geotourism field trips. Excursions are one of the most awaited forms of student activity and the best ways of assimilating knowledge in geology, recognising geodiversity, as well as practising organising and guiding skills. The main goals of the field trips include becoming familiar with the geology and geomorphology of explored regions and field observations. Students learn how to evaluate and adapt geological objects to the tourists' needs by implementing diverse kinds of development using geoeducational methods and tools, as well as acquired skills.

An especially effective form of management, protection and promotion of geological, biological and cultural heritage are geoparks, which play a crucial role in geoeducation and geotourism. The transborder Polish-German Muskau Arch UNESCO Global Geopark (Geopark Łuk Mużakowa) represents a post glacial and post mining geological landscape. The area was originally formed by glaciation and later transformed by mining and processing of the brown coal and

ceramic clays, currently experiencing renaturalisation (Kozma, 2017). During the trip to the Muskau Arch UNESCO Global Geopark, students visited places of geological interest within and around it. These included the Lusatian Erratic Boulders Park in Nochten, geotourism path Dawna Kopalnia Babina (Old Mine Babina), and the tower Schwersen Berg (a viewpoint on the open-cast brown coal mine "Nochten"). Cultural sites were represented by the Azalea and Rhododendron Park in Kromlau and the neo-renaissance New Castle surrounded by the 19<sup>th</sup> century Prince Pückler's Muskau Park (Park Mużakowski), integrated into the natural topography of the Lusatian Neisse (Nysa Łużycka) cut-out river valley (Fig. 4A).

The second UNESCO global geopark entirely situated within the country borders is The Holy Cross Mountains UNESCO Global Geopark (Geopark Świętokrzyski). Geological history of the geopark's area is recorded mainly in sedimentary rocks deposited in the Świętokrzyski (Holy Cross) region from the Cambrian to the Quaternary period (www1). Students visited The Geonatura – Geoeducational Centre and nature reserves "Wietrznia" and "Kadzielnia" with an underground route, all located in Kielce.

The main goal of the field trip to the Kaczawskie Mountains and Foothills was the Kraina Wygasłych Wulkanów (Land of Extinct Volcanoes). This site has had an application to be a UNESCO Global Geopark submitted since 2019, hosting three distinguished periods of volcanism and numerous spectacular outcrops, from pillow lavas to columnar jointing in volcanic necks (Fig. 4B) (Migoń, 2014).

From the geoeeducational point of view, it is very important to visit regions where geotourism is well developed

and promoted, for instance Jaworzno Geosphere in Poland or Moravian Karst in the Czech Republic (Migoń, 2011), as well as those with some geotourism potential, but still at the stage of infrastructural development, like Roztocze (Krapiec *et al.*, 2012; Brzezińska-Wójcik, 2017). Perhaps the most spectacular venue visited by the GSSC members, with greatest number of geotourist attractions and well-developed tourism based mainly on natural heritage, was Iceland.



Fig. 4. Field trips: A – visiting transborder UNESCO Muskau Arch Geopark with tourist guide (2015); B – the GSSC' students on the background of the Małe Organy Myśluborskie nature monument (2019); C – Gullfoss waterfall (Iceland), a geopoint on the proposed Walery Goetel Geotourist Trail (2022); D – presentation of handicraft in a Meissen (Germany) porcelain manufacturing (2013); E – the GSSC members visiting “Pomorzany” Zn-Pb mine (2017); F – searching for Jurassic fossils in Zalas quarry. Photos: E. Welc (A, D), A. Waśkowska (B), GSSC archives (C, F), A. Kawka (E)

Being the only place where oceanic rift can be seen and touched at the surface, it is a real laboratory of modern magmatism and volcanism, accompanied by geothermal activity and finally shaped by glacial, fluvial and seawater erosion (Thordarson & Höskuldsson, 2017). The GSSC members familiarised themselves with these features from quite a unique perspective. During the field trip in 2022, they followed in the footsteps of professor Walery Goetel, who travelled across this land 95 years earlier (Fig. 4C). To commemorate this precursor of geotourism and propagate his ideas, a geotourism trail named after him was proposed as a result of the field trip.

GSSC members also visited other geologically attractive regions such as the Tatra, Stołowe and Beskid Sądecki Mountains, Kraków Valleys Landscape Park, Slovak Paradise National Park and Saxon Switzerland in Germany. The last trip was connected with participation in Europe's largest tourism trade fairs, ITB Berlin, followed by sightseeing Berlin and other destinations, including a Meissen porcelain manufacturing plant in 2013 (Fig. 4D). During this trip, students were familiarised with various ways of creating tourism products and infrastructure (*Sprawozdanie z działalności Kola Naukowego Geoturystyka*, 2013).

The last category of geological attractions preferred by the GSSC members are underground routes and mining areas, such as the Salt Mine in Bochnia, "Pomorzany" Mine near Olkusz (Zn-Pb) (Fig. 4E), Porphyry and Diabase Zalas Mine (Fig. 4F), Bełchatów and Zabrze coal mines and quarry in Kozy (Carpathians). Being a member of the GSSC provides the opportunity to visit places commonly unavailable for individual visitors. Some of these above-mentioned mines were made available for visiting at the courtesy of the mines' management.

## Geoeducational activity

Promoting Earth sciences and geotourism could not be realised without educational activities. The GSSC has organised workshops and field trips for high school students from Lesser Poland and Silesian Voivodeship (including schools from Krakow, Kozy, Olkusz and Chorzów), as well as lectures for senior groups.

The most heavily exploited geoeducational venue was the quarry in Kozy, where field workshops for pupils from Chorzów were conducted, while stationary workshops and lectures engaged local pupils and elder people. Carpathian flysch topics from Kozy were followed by Jurassic limestones and Permian porphyry regions of Zalas and Miękinia quarries, where pupils from Chorzów participated in another workshop. Around 7 groups of pupils, students and adults had an opportunity to explore the Raclawka Valley Nature Reserve, where the GSSC members guided field trips connected with the rector's grant projects in the years 2018–2019 (Fig. 2B, C).

While preparing workshops and field trips, the GSSC students put emphasis on explaining the geological origins of forms and rocks seen by the groups, with wide use of handouts, schemes, intriguing tasks and even contests or games for participants. Wherever it is possible (i.e. outside protected areas), opportunities to work as a geologist, including collecting samples, recognising rock types, sketching, use of geologic hammers, compasses and GPS are provided for the groups.

Previously held educational activities, extended with proposals, were gathered into an "educational offer" for schools, which is constantly available on the group's website.

## Thematic events

### *Themed evenings*

One of the most successful kind of events organised by the GSSC is called the "Themed evenings" ("Wieczorki tematyczne"). On these meetings, one person or group of travellers tell the story of their expedition. During the events, the audience can learn about the culture and nature of a country or some region of the world. It is also an opportunity to "taste" the other country (Fig. 5A). Some meetings are accompanied by regional dishes and snacks. Speakers also share their experience in organising expeditions to hard-to-reach corners of the world. At some meetings, an audience which numbered more than 100 listeners, was present, making the whole room full of people. Until now, the following countries and regions were virtually visited: Argentina (Fig. 5A), Georgia, Kazakhstan, Lithuania, Russia, Spain, Portugal, Norway, South Africa (Fig. 5B), India (Fig. 5C), Indonesia, Liban, Nepal, Southern Yakutia (Fig. 5D), New Zealand, Mexico, Chile, the Main Beskid Trail and the Main Sudetes Trail.

### *"That's how it's done!"*

Another project run by the GSSC is a series of meetings with experts entitled "That's how it's done!" ("Tak to się robi!") (Tab. 2). The main aim of these events is to gain or expand students' knowledge, but also to develop some skills in the field of broadly understood tourism. Meetings are held in the form of lectures, interviews, presentations or discussions on a given topic. The guests are specialists in their fields, working in diverse organisations, management, marketing or economics etc. They share their experiences from work and talk about their domain.

## Promotional activity

Out of participation in common promotional events, including the annual Students Organisation Fairs (TOS – Targi Organizacji Studenckich; Fig. 6A, B), AGH UST Open Day or the Science Festival, the GSSC worked out a few specific areas and means of self-promotion, briefly described below.



Table 2. "That's how it's done!" – events list

| Year | Subject  | Expert(s)   |
|------|--|---|
| 2016 | <i>Krakow Airport</i>                            | Artur Staniszewski – Head of the Aviation Services Department<br>Dagmara Komperda – Head of Marketing Department  |
|      | <i>ICE Krakow</i>                                | Michał Zalewski – press secretary of the Krakow Festival Office and ICE Krakow  |
|      | <i>Med student on journey</i>                    | Aleks and Kuba – a couple of travelers, a medical student running the blog <i>Med student on journey</i> and her boyfriend programmer                                     |
| 2017 | <i>By Bus for Gold</i>                           | Tomek, Mateusz, Piotrek, Paweł, Piotrek, Kasia – "Busem po Złoto" ("By Bus for Gold") team, including sports climbers, a physiotherapist, photographers                   |
| 2018 | <i>Let's make a jurapark!</i>                    | Andrzej Boczarowski, PhD – palaeontologist, graphic designer, geologist associated with the University of Silesia, reconstruction of fossil species specialist            |
|      | <i>Back to the nature</i>                        | Dawid Bedrunka "Dave" – <i>Powrót do natury (Back to the nature)</i> vlog author, student, adventurer, street workout and urbex enthusiast                                |
|      | <i>The story of tour leader work</i>             | Mateusz Birówka – tour guide, former committee member of the Geotourism Students' Scientific Club, he was the Vice-President  |
| 2019 | <i>Geoparks – the unknown beauty of Thailand</i> | Vimoltip Singtuen – PhD student from Thailand, an exchange student of the UNESCO programme  |
| 2021 | <i>Meteorites</i>                                | Krzysztof Szopa, PhD – igneous and metamorphic rocks geologist associated with the University of Silesia  |
|      | <i>Mars</i>                                      | Mateusz Szczęch, PhD – specialist in geological mapping and satellite image analysis, and Maciej Kania, PhD – structural geologist, both from the Jagiellonian University |



Fig. 5. Themed evenings: A – the first themed evening organised by the GSSC: Argentinian Evening (2013); B – meeting with South Africa culture during themed evening (2017); C – flexible sandstone from India shown by professor Marek Doktor (2017); D – guests from Russia on Geological Tourism in Southern Yakutia evening (2019). Photos: E. Welc (A), D. Andrejko (B–D)



Fig. 6. Promotional activity: talks with secondary school graduates at Open Days at AGH UST in 2017 (A) and 2012 (B). Photos: D. Andrejko

### *Website and social media*

GSSC has been running its website [geoturystyka.agh.edu.pl](http://geoturystyka.agh.edu.pl) continuously since 2007. It has been modernised several times. The website is a collection of all GSSC's activities from the past until the present. Additionally, it showcases the GSSC's educational offer, annual activity reports, and a series of popular science articles about geotourist venues in Poland and abroad, written by the GSSC members in 2013. One of the most important ways of promoting the GSSC is through sharing contents on a Facebook fanpage ([facebook.com/GeoturystykaAGH](https://facebook.com/GeoturystykaAGH)). Publishing information about current activities, themed events and contests provides a means to get to a wider students' audience. In addition, there are also interesting facts about broadly understood geotourism. The Facebook profile has over 1,000 followers. Information about current activities of the GSSC is also published on Instagram. GSSC's account is followed by official national parks' accounts and several UNESCO geoparks' accounts. Sets of videos from excursions, student organisations' events and themed evenings are collected on the GSSC YouTube channel. A self-promoting video made in 2020 deserves special attention, due to being the first video presenting GSSC's current aims and works.

### *Geotourist on the journey*

In 2015, the "Geotourist on the journey" ("Geoturysta w Podróży") project was launched. The main goals of this project are to popularise geologically attractive objects and discover new beautiful places. Thanks to social media, everyone can take part in the project, irrespective of their place of residence. People participating in the project have to take a photo of special sticker with the project logo in a geologically or culturally interesting place around the world and then publish them with the hashtag [#geoturystawpodrozy](https://twitter.com/hashtag/geoturystawpodrozy) on Facebook or Instagram. It's a project that now reaches across four continents, including most European countries, South Africa, Nepal and the United States of America (Fig. 7). The project is

joined by current and former members of the GSSC, as well as supporters who travel to the far corners of the world with the "Geotourist on the journey" logo. Nowadays, everyone can download this logo from the GSSC's website.

### *Krakostop*

One May weekend, four GSSC members raced from Poland to Croatia, using only hitchhiking to reach their destination. Their idea seemed to work out, which is why they decided to create an event with participants racing from Krakow to a selected city in Europe travelling only by hitchhiking. This is how Krakostop, the first Krakow hitchhiking race was created back in 2013. Krakostop became one of the biggest hitchhiking races in Poland, with up to 200 hitchhikers' pairs racing to the finish line. After several successful editions, the hitchhiking race grew big enough to be separated from the GSSC and led exclusively by the newly created Krakostop Association.

### *Recent activity*

The GSSC, due to the pandemic of COVID-19 in 2020, has moved most of its activity to the Internet. Members regularly take part in virtual meetings, as well as expand and promote geotourism among people following the GSSC social media and website. An important part of this process are the thematic events.

### *Online events*

Because of restrictions during the pandemic times, audiences could not gather in a hall, and thematic events were prepared in a completely new way. The events organised as an online show were streamed live on social media. Invited guests and members of the GSSC once again presented interesting topics in the field of geology and tourism. This continued until it was possible to hold in-person events again.

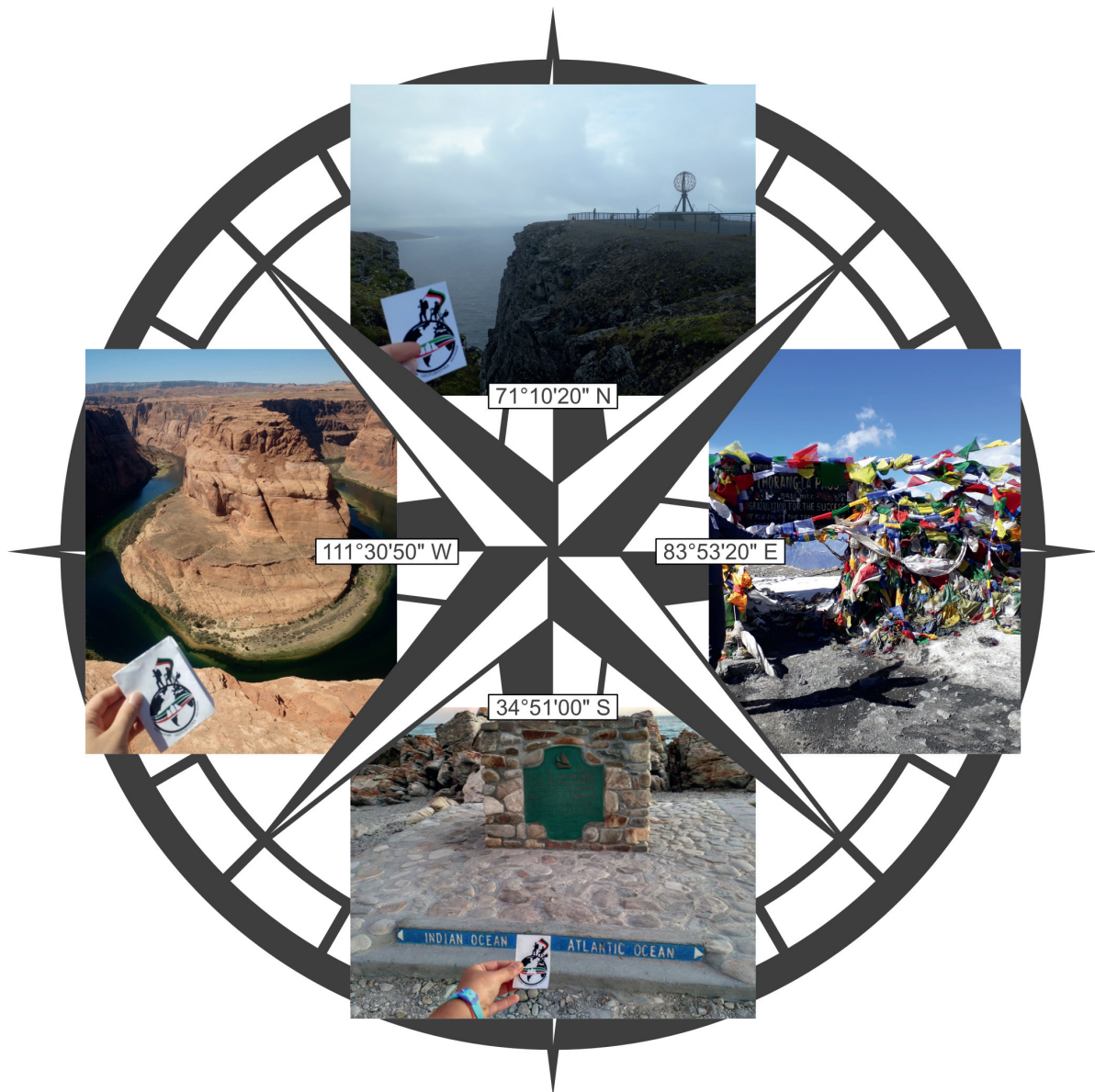


Fig. 7. Extreme points of “Geotourist on the journey” visited places. North: North Cape, Norway (photo A. Szreter); South: Cape Agulhas, South Africa (photo J. Dragon); East: Thorong La Pass, Nepal (photo A. Szreter); West: Horseshoe Bend, the United States of America (photo A. Kawka)

### Contests

Another form of GSSC current activities is represented by contests. The first one, called the “Geocake”, was related to the 61. SKNPG Conference. The task was to create confectionery inspired by geological processes occurring on Earth. The contest was very popular. The news reached 24 000 people on the Internet, and the winner was chosen by Facebook followers.

To popularise Geoparks in Poland and around the world, the GSSC prepared a second contest named “Geoparks of the World”. The contest was divided into three stages: “Geoparks of Poland”, “Geoparks of Europe” and “Geoparks of the World”. At each stage, members of the GSSC posted

information and interesting facts about the chosen geoparks on the Facebook fanpage. A quiz was organised for the final of this contest.

### Geotrips

On both the GSSC’s Instagram and Facebook pages, a series is available called “Geotrips”. In these short reels, members prepare photo reports from their trips to interesting geological spots in different parts of Poland. Each report consists of the characteristics of the object, interesting facts and information on how to get there. The point of that is to encourage followers to start organising trips by themselves.

## Summary

The Geotourism Students' Scientific Club is the only students' organisation dedicated to geotourism in Poland, with such a long history and tradition. Since 2003, it has been playing an important role in the popularisation of geotourism among adults, students and school children. Scientific, educational and promotional activities provide comprehensible geological knowledge for all those involved. The experience and skills gained by the GSSC members translates into practice through further scientific and social activity, for example

through partaking in guide services. In the fast growing global geotourism market, the AGH UST, with the GSSC community, graduates well educated and qualified staff. After finishing cooperation with the parent university, students are prepared to begin work with governmental and non-governmental institutions and organisations. Our graduates work as researchers, geopark, tourist and mountain guides, in travel offices or administrative units. Membership in the Geotourism Students' Scientific Club also provides an opportunity to develop new friendships and interpersonal skills and leaves behind unforgettable memories.

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