



**Institute of Geophysics
Polish Academy of Sciences**

BULLETIN 4/2019, SEPTEMBER 2019

Dear Friends,

Welcome to the fourth issue of the IG PAS BULLETIN. This time we will present the most popular articles from the August Issue of Acta Geophysica and publications of our scientists in prestigious magazines. In the Bulletin you will also find reports on the doctoral dissertations, a summary of the first recruitment to doctoral schools and information on the latest acquired projects, as well as a few words for a new 4-year term from the Directors. Enjoy your reading!

Latest events

Publication in prestigious journals

Diverse, current, interesting topics, prestigious journals: we encourage you to read the latest selected publications by scientists from the Institute (M. Osuch, B. Luks, M. Kusiak) - this time, we suggest reading papers on climate change, flood risk and travel to a very distant past, i.e. nano-inclusions in mylonites.

[Changing climate both increases and decreases European river floods](#)

[A long-term dataset of climatic mass balance, snow conditions, and runoff in Svalbard \(1957–2018\)](#)

[Lead oxide nanospheres in seismically deformed zircon grains](#)

New projects at Institute

Late summer brought us some good news – results of some of the calls we had taken part in came me, and we obtained funding for our initiatives:

PROM Programme (NAWA) - the goal of this program is to improve the competences of PhD students and early stage researchers from Poland and abroad, through scholarships to finance costs related to participation in international exchange (lasting from 5 to 30 days).

INTERACT III (Horizon 2020) – again, we're a part international network of INTERACT polar research stations; our Institute not only provides the infrastructure of the Polish Hornsund Polar Station, but also offers educational activities enhancing polar education and outreach.

EDU-ARCTIC.PL (Ministry of Science and Higher Education, Scientific Excellence) - positive perception of science in Polish society will be enhanced with interdisciplinary polar research as a vehicle for interest in science; we're going to reach various age groups across Poland, and there will be plenty of unique activities : webinars conducted by scientists, open lectures, lectures for seniors' and children's universities, series of videos on youtube '(Ant) Arctic WITHOUT SECRETS', field events, 3D polar mapping at the Palace in Wilanów, portal with popular science articles and "Family laboratory" resources, a mobile application, to name some of them.

INTERNATIONAL PROMOTION (NAWA) - focusing the authors' publication activity on the best high-score magazines in prestigious publications placed in the Scopus and Web of Science databases.

For current funding opportunities, please contact Project Management Department.

Doctoral schools: numerous applicants from all over the world

Over 100 applicants from several dozen countries want to start a scientific career path at the Institute. The selection of the best candidates is a big challenge, and the offer of two doctoral schools (GEOPLANET DOCTORAL SCHOOL and INTERNATIONAL ENVIRONMENTAL DOCTORAL SCHOOL) is very diverse and interesting - all the more so as doctoral studies have a very practical dimension at the Institute, and also offer a chance to work in projects from the very beginning .

Doctoral thesis defense: 2 more PhDs faced this challenge

Some start their doctoral adventure for several years, others have just closed this stage. On September 17, two doctoral dissertations were successfully held:

In his doctoral dissertation Łukasz Przyborowski analyzed the hydrodynamics of water flow, vegetation and river debris interactions on the basis of field studies conducted on the lowland rivers: Swider and Jeziorka.

The work of Piotr Klejment was devoted to the analysis of microscopic parameters of the process of fracturing of brittle materials using the Discrete Element Method.

Congratulations!

Acta Geophysica: specially recommended

As usual, we encourage you to read the entire August issue and present the most popular of them - this time in two publications from Poland and one of China you can read about the use of archival aerial photographs, gravity missions and hydraulic fracturing - the most read (downloaded) items.

[Photogrammetric reconstruction of vertical river position using archival aerial photos: case study of Czarny](#)

[Dunajec River, Polish Carpathians](#)

[Assessment of chosen GRACE related gravity models based on GOCE satellite precise science orbit](#)

[Investigation of acoustic emission response and fracture morphology of rock hydraulic fracturing under true triaxial stress](#)

Management's view

Ladies and Gentlemen,

we have just finished our first term and I am pleased to inform you that we are continuing work in the second term with the same team of Directors.

The last four years have been very intense for us. We struggled with many challenges, but also many undertakings were successful. We are closing this period with satisfaction of achieving the goals we set for ourselves at the beginning of our term in 2015. The most important goal was to introduce the Institute's development strategy that would guarantee the Institute's entry into the group of the best scientific units in Poland. We achieved this by receiving the highest category A + in the last assessment of scientific units. We are an absolute leader among Polish scientific institutions in Earth sciences in obtaining funds from the European Union under the H2020 program; we are also one of the 4 beneficiaries of the largest infrastructure project in Poland dedicated to innovation and development, worth over 60 million PLN.

For the first time a Polish scientific unit manages part of the strategic European infrastructure EPOS-ERIC: Thematic Core Services Anthropogenic Hazards.

We have effectively implemented and reported the KNOW program. We have 2 doctoral schools. We have changed the way we manage statutory topics, providing resources for topic managers. We have modernized the operation of our polar station and started the revitalization process of the second facility.

We signed an agreement with Geo-Australia as the first scientific unit in Poland, which was noted at ministerial level. We transferred our journal Acta Geophysica to the Springer platform, changing the strategy of the journal's functioning, we see an increase in the impact factor from 0.7 in 2015 to 1.0 in 2019.

We have created a new research unit - the Geophysical Imaging Department. A project management department was also created, which since 2016 has supported academic staff - a total of about 90 submitted project applications.

We have also developed commercial activities, running a number of implementation projects, in numbers: 152 applications, including 62 internationally, 3 implementations, including one foreign, for a total amount of almost PLN 2 million; we run projects for the nuclear power plant planned in Poland and seismic monitoring for the purposes of seismic hazard assessment in Poland, we cooperate with the industrial partners of Skanska and KGHM. We have modernized the infrastructure at our premises, among others we have carried out a general

renovation of 26 rooms with a total cost of 438 000 PLN, in 2019 the tender for the renovation of another 15 rooms for the amount of PLN 261 000 has been resolved. over half of the car fleet was also renewed.

We received the Human Resources Excellence in Research Logo for all activities improving the quality of work at the Institute.

There are many new challenges ahead of us in the new term. The current H2020 research and development funding program is coming to the end, and its successor, Horizon Europe, focuses on digital science, including primarily artificial intelligence, HPC, big data, partnership networks, and social challenges in climate and environmental change, an efficient economy resources and raw materials, for the synergy of policy areas, for the development of science with and for society, and for innovative activities.

here are also challenges ahead of the introduced "Constitution for science" and the new Act on the Polish Academy of Sciences being prepared, the shape of which is still unknown and will undoubtedly affect our functioning. That is why in this term we focus on increasing scientific effectiveness, because it will ensure us maintaining our high position in science. Our ambition is for our Institute to be a globally recognized scientific institution in the field of Earth sciences, in particular in the field of geophysical anthropogenic threats accompanying the exploitation of natural resources, in the field of natural hazards caused by climate change, in the assessment of climate change and the environment, actively participating in the construction economic growth and sustainable development of the country and a safe planet.

We are planning to introduce solutions that will relieve academic staff in the field of administrative, technical, popularizing and IT work; balance the division of duties in scientific units; increase flexibility in addressing broader research topics; develop skills for undertaking innovative activities; we will develop doctoral schools focusing on internationalization; we will also work on strengthening numerical competences in IG PAS, developing cooperation with the best IT partners; we will also focus on developing the competences necessary for active participation in Horizon Europe. We plan to introduce systems supporting administrative and financial management as well as management of the research infrastructure of the Institute of Geophysics of the Polish Academy of Sciences, as well as further development of the Institute's IT infrastructure.

A very important goal is the appropriation of land ownership on which our building in Warsaw is located - the activities have been going on for 2 years and we want to finish this process as soon as possible for our safe future. These are just some of the plans. These and all subsequent ones have a great chance to be implemented with your commitment! Thank you for your trust and great support.

We are counting on you in the next four years!

Prof. Beata Orlecka-Sikora