Report of the
Serbian Committee of Geodesy and Geophysics
on activities carried out between 2015 and 2018

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Contents

Introduction

In 2018 the state of Serbia re-joined IUGG under this name of the new independent country. As of 1996, our geodesists and geophysicists participated in IUGG through the state of Federal Republic of Yugoslavia which changed its name to Serbia and Montenegro in 2003.

This report of activities of scientists from Serbia participating in IUGG covers the fields of geodesy and three geophysical disciplines - aeronomy, hydrology and atmospheric science – for the period 2015-2018. Keeping in mind that we re-joined IUGG in 2018, we expect that the number of Serbian scientists involved in the IUGG activities will increase and that we will join some of other Associations in the upcoming period.

Here, I would like to point out that we wish to expand our participation in international projects and collaboration with scientists from other countries. This is very important for the further development of geodesy and geophysics in Serbia because the number of our scientists in these research fields is not large and possibilities for high level research soon become limited for different reasons. We hope that our activities within IUGG will grow in the coming years which will help the development of geodesy and geophysics in Serbia.

Aleksandra Nina,
President,
Serbian Committee of Geodesy and Geophysics

SERBIA

ADHERING ORGANIZATION

Geographical Institute “Jovan Cvijić” - Serbian Academy of Sciences and Arts
Contact: Milan RADOVANOVIĆ

NATIONAL COMMITTEE

President: Aleksandra NINA

Secretary General: Ana MILANOVIĆ PEŠIĆ

NATIONAL CORRESPONDENTS OF THE ASSOCIATIONS

IAG: Oleg ODALOVIĆ
Department of Geodesy and Geoinformatics, Faculty of Civil Engineering, University of Belgrade, Bulevar kralja Aleksandra 73, 11000 Belgrade, Serbia
Phone: +381 (0)11 3370 293
Fax: +381 (0)11 3370 223
E-mail: odalovic@grf.bg.ac.rs

IAGA: Aleksandra NINA
Institute of Physics, University of Belgrade, Pregrevica 118, 11080 Belgrade, Serbia
Phone: +381 (0)11 3713 153
Fax: +381 (0)11 3162 190
E-mail: sandrast@ipb.ac.rs

IAHS: Ana MILANOVIĆ PEŠIĆ
Geographical Institute “Jovan Cvijić” of the Serbian Academy of Sciences and Arts, Djure Jakšića 9, 11000 Belgrade, Serbia
Phone: +381 (0)11 2636 395
Fax: +381 (0)11 2637 597
E-mail: a.milanovic@gi.sanu.ac.rs

IAMAS: Milan RADOVANOVIĆ
Geographical Institute “Jovan Cvijić” of the Serbian Academy of Sciences and Arts, Djure Jakšića 9, 11000 Belgrade, Serbia
Phone: +381 (0)11 2636 276
Fax: +381 (0)11 2637 597
E-mail: m.radovanovic@gi.sanu.ac.rs

Aeronomy in Serbia for 2015–2018

Aleksandra Nina
Institute of Physics, University of Belgrade, Serbia

During the period 2015-2018, the research of Serbian scientists participating in IUGG in the field of aeronomy is based on data recorded by the Belgrade radio receiver station which consists of two very low and low frequency (VLF/LF) radio receivers located in the Institute of Physics in Belgrade with one electrical (AbsPAL – Absolute Phase and Amplitude Logger) and two magnetic loop (AWESOME – Atmospheric Weather Electromagnetic System for Observation Modeling and Education) antennas (Fig. 1). They can simultaneously register 6 and 15 signals emitted by different transmitters at fixed frequencies, respectively. The first of them has been operating since 2004, while the second one since 2008. During this period we have collected a large data base containing written information on numerous low ionospheric responses to different natural events.

Belgrade VLF receiver stations: AbsPal (left) and AWESOME (right) antennas.

Investigations within the period 2015-2018 are directed on:

- Analyses of the low ionospheric reaction to different astro and geophysical phenomena such as solar X-ray flares, gamma ray bursts, earthquakes, tropical depressions, cyclones, and solar eclipses.
- Modeling of the D-region plasma parameters such as the electron density, electron-ion recombination coefficients, ambient plasma temperature, and electron gain and loss rates.
- Studies of the D-region influence on telecommunication and satellite (GNSS and SAR) signals used for positioning and Earth observations.

The results of these studies are published in international scientific journals and presented at numerous conferences.

Our activities were carried through the following institutions and projects:

- Projects of the Ministry of Education, Science and Technological Development of the Republic of Serbia: 176001, 176002, 176004, III44002, III47007 and TR36020
- The COST projects:
  - COST Action TD1403: Big Data Era in Sky and Earth Observation (BIG-SKY-EARTH),
  - COST Action ES1401: Time dependent seismology (TIDES),
  - COST Action CA15211: Atmospheric Electricity Network: coupling with the Earth System, climate and biological systems.
- Variability of the Sun and Its Terrestrial Impact (VarSITI).

Investigations based on these observations are completely or partially included in three Ph.D. dissertations which were completed in this period (Kolarski, 2016; Todorović Drakul 2016; Bajčetić 2017).

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Hidrology in Serbia

Ana Milanović Pešić
Geographical Institute “Jovan Cvijić” - Serbian Academy of Sciences and Arts

Projects

The scientific-research work of the Institute is performed by way of engaging, individually as well as collectively, the services of all the collaborators of the Institute with a view to realising scientific projects. The results of this scientific work are published in Institute, Academy, national and international periodic and special publications. The forms of team research work are as follows: scientific conferences, expeditions and other that contribute to achieving scientific results.

Geography of Serbia

Duration: from 2011
Funded by: the Republic of Serbia, the Ministry of Science and Technological Development
Head of Project: Dr Milan Radovanović

Scientific cooperation

In the co-organization with the Faculty of Geography from Saransk (Russia), the second International scientific conference “Natural Disaster - a link between science and practice” was held (April 23–24, 2015).

Participation in editorial boards

Dr Ana Milanović Pešić was the guest editor of the special edition of thel Journal of Hydroinformatics, enamed Natural Hazards: Links between Science and Practice in 2018 (ISSN 1465-1734 (online edition); ISSN 1464-7141 (printed edition); IF: 1.797 (2017))

Dissertation

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4. Babović, S. (2016). The influence of anthropogenic factors on the intensity of erosion in Southeastern Serbia. Doctoral thesis (defended on September 19, 2016), Faculty of Forestry, University of Belgrade.
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7. Lović, S., Terzić, A., Milijašević, D. (2015). Application of the lenticular Lens method for presenting floods in the area of Obrenovac municipality in may 2014. Book of proceedings 2nd International scientific conference "Natural Hazards: links between science an practice'', April 23–24, 2015, Saransk, Russia; 04/2015, pp. 230–236.
8. Petrović, A. (2015) The Torrential Floods in Južna Morava River Basin. In Conference Proceedings of the IInd International Conference "Natural Hazards - Links between Science and Practice'', 23–24. April, 2015, Saransk, Russia, pp. 356–362, ISBN 978-5-7103-3078-4.

2016

1. Petrović, A.M, Kovačević-Majkić, J., Milošević, M.V. (2016). Application of Run-off Model as a Contribution to the Torrential Flood Risk Management in Topčiderska Reka Watershed, Serbia. *Natural Hazards, 82(3),* 1743–1753
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Atmospheric science in Serbia

Milan Radovanović
Geographical Institute “Jovan Cvijić” - Serbian Academy of Sciences and Arts

Projects

The scientific-research work of the Institute is performed by way of engaging, individually as well as collectively, the services of all the collaborators of the Institute with a view to realising scientific projects. The results of this scientific work are published in Institute, Academy, national and international periodic and special publications. The forms of team research work are as follows: scientific conferences, expeditions and other that contribute to achieving scientific results.

Geography of Serbia

Duration: from 2011

Funded by: the Republic of Serbia, the Ministry of Science and Technological Development

Head of Project: Dr Milan Radovanović

Scientific cooperation

In the co-organization with the Faculty of Geography from Saransk (Russia), the second International scientific conference “Natural Disaster - a link between science and practice’’ was held (April 23-24, 2015).

Participation in scientific, professional associations and editorial boards

Dr Milan Radovanović was the guest editor of the special edition of the journal Thermal Science in 2015 (ISSN 2334-7163 (online edition); ISSN 0354-9836 (printed edition); UDC 621; IF: 1.433 (2017))

Dr Milan Radovanović was the representative of Serbia in the Scientific Committee On Solar-Terrestrial Physics (SCOSTEP), at the Balkan, Black Sea and Caspian Sea Regional Network for Space Weather. The first generalization of this branch (VarSITI2016) was held in Albena (Bulgaria), June 06-June. After the participation and presentation of the work at this symposium, Dr. M. Radovanović included eight more scientists from Serbia in the mentioned organization.

Special editions of the Geographical Institute „Jovan Cvijić“ SASA

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2. Milovanović, B. (2017). Natural causes of climat variability in Serbia. Special edition, nb. 93, Geographical Institute “Jovan Cvijić’’ SASA (in Serbian)

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