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Chronicle

Information about Some International Scientific Events on 2019

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ABSTRACT

There is given brief information on two International scientific events, conserning environmental problems and the Black Sea. An International Conference on GeoSciences GEOLINKS 2019 was held on 26-29 March 2019 in Athens (Greece) and An International Black Sea Maritime Security Symposium-2019 - on 27-28 June 2019 in Istanbul (Turkey).

Key words: conference, Black Sea, environment, security.

1. On 26-29 March 2019 **first International Conference on GeoSciences GEOLINKS 2019** was held in Athens (Greece) which aimed at giving a focus on the most important topics in the field of Geo Sciences (www.geolinks.info). Organizers and scientific partners of GEOLINKS-2019 were mainly Academies of Sciences in Eastern Europe, in particular, Slovak Academy of Sciences, Czech Academy of Sciences, National Academy of Sciences of Ukraine, Bulgarian Academy of Sciences, Polish Academy of Sciences, Academy of Sciences of Hungary, Serbian Academy of Sciences, Academy of Sciences of Moldova, Latvia Academy of Sciences. Among the organizers and scientific partners were alsoTurkish Academy of Sciences and Islamic World Academy of Sciences.

The specificity of the conference was that it was not focused on one area and its topic was very broad covering almost all areas related to the natural environment including Geology, exploration and mining, Soil Sciences, green architecture, air pollution and climate change, Ecology and Environmental Studies, Water Resources, *etc.*

There were 3 forms of participation in the conference: oral presentations, poster presentations, and virtual participation. A virtual conference participant could send an article for publication with the appropriate fee payment without going to the conference.

The conference was not numerous. In total about 75 reports were submitted. They included 18 oral presentations, 20 poster, and the other were virtual reports. The speakers were from the Czech Republic, Georgia, Kazakhstan, Kosovo, Latvia, Poland, Portugal, Romania, Russia, Slovakia, *etc.*

The presentations presented at the conference are published in three books, electronic versions of which are available on the Internet (https://issuu.com/geolinks5/docs/20190311_book_g1, https://issuu.com/geolinks5/docs/20190311_book_g2, https://issuu.com/geolinks5/docs/20190311_book_g3).

Among these presentations, some of them can be distinguished. The presentation "*Chronological analysis of contamination of the Russian territory by long-lived radionuclides*" by

authors E. Artyomov, E. Imshennik, A. Nakhutin from Yu. A. Izrael Institute of Global Climate and Ecology (Russian Federation) was devoted to the chronological categorization of the dry land contamination of the Russian territory with biologically significant long-lived radionuclides Cs^{137} and Sr^{90} based on the previously published scientific data [1]. The sources of radioactive contamination of the dry land territory were surface, underground and atmospheric tests of nuclear weapons, underground peaceful nuclear explosions, regular and accidental releases from nuclear industry objects and nuclear power plants, accidents with military equipment. Chronological analysis allowed identifying 5 main stages of contamination:

1. 1949-1953. From the start of operation of the nuclear industry and the first Soviet nuclear test to the beginning of global radioactive fallout.
2. 1953-1963. Until the end of the Soviet and American nuclear tests in the atmosphere.
3. 1963-1986. Period between the Moscow Treaty Banning Nuclear Weapon Tests in the Atmosphere,
   in Outer Space and Under Water and the Chernobyl accident.
4. 1986. The accident at the Chernobyl Nuclear Power Plant (NPP).
5. 1987 - present. The period after Chernobyl, post-Chernobyl small accidents.

The accident of April 26, 1986 at the Chernobyl NPP resulted in release into the environment of radionuclides, which far exceeded all radionuclides releases from previous accidents of atomic reactors. According to some estimations, the total release of radioactivity from the reactor by may 6, 1986 was about 50 MCi. Radioactive contamination after the Chernobyl accident affected vast territories. In addition to Belarus, Ukraine and Russia, significant contamination was observed in many European countries.

During the period after 1987 there were no events resulting in significant radioactive contamination of territories. The exception is the accident of April 6, 1993 at the Siberian Chemical Combine (Tomsk-7), which caused local contamination. At present, in the absence of major radiation accidents and other events, the density of contamination decreases at a rate approximately equal to the rate of radioactive decay, i. e. decreases twice in about 30 years for both Cs^{137} and Sr^{90}.

The goal of the presentation "*Numerical simulation of heat transfer in soil layer during forest fire in comparison with experimental data*" by N. Baranovsky, V. Maksimov, A. Razva, A. Bazarov from Tomsk Polytechnic University and Institute of Physical Material Science SB RAS (Russian Federation) was numerical simulation of heat transfer in the near-surface layer of the soil in case of forest fire [2]. It is well known that forest fires affect vegetation, atmosphere, living organisms and soils. In the last decades, forest fires have become a catastrophic phenomenon. An example of this is catastrophic fires in Siberian forests in Summer 2019 that covered several million hectares. Therefore, an important problem that needs to be solved is the development of mathematical models for assessing the effect of thermal conditions of forest fires on soil. The purpose of the study is a numerical investigation of the inert heat effect on the soil layer, taking into account experimental data, on the basis the simplest one-dimensional mathematical model. The solution area is represented by four layer: clay, organic layer, forest fuel layer and air above the forest fuel layer. The process of heat propagation in soil is described by a system of heat conduction equations with corresponding initial and boundary conditions. The verification of the mathematical model was carried out using experimental data obtained at a heater of 130^0C. Satisfied agreement was obtained between experimental data and numerical results for some scenarios.

The presentation "*High-resolving modeling and forecast of regional dynamic and transport processes in the easternmost Black Sea basin*" by D. Demetrashvili and V. Kukhalashvili from M.

Nodia Institute of Geophysics of I. Javakhishvili Tbilisi State University (Georgia) was devoted to the simulation and short-range forecast of the current, temperature and salinity fields as well as contamination distribution processes in the easternmost part of the Black Sea covering the Georgian Black Sea coastal zone and surrounding water area [3]. These studies are carried out on the basis of the coupled high-resolution Black Sea regional dynamics and transport models which are components of the regional forecasting system. By-turn this regional system is one of the parts of the Black Sea basin-scale Nowcasting/Forecasting System. All input data – the initial and prognostic hydrophysical (on the open boundary) and meteorological fields (at the sea surface) are provided from Marine Hydrophysical Institute (Sevastopol) in the near-operational mode. In the presentation some results of 3 days forecast of hydrophysical fields – the current, temperature and salinity with 1 km resolution for the easternmost part of the Black Sea are presented when forecasting period was 00:00 GMT, 25-28 August 2018. Comparison of predicted surface current field with the geostrophic current reconstructed with use of satellite altimeter data showed good agreement between these fields. In addition, in the presentation the sea surface temperature (SST) on 27 August 2018 and satellite SST derived from NOAA satellite for the same time moment are presented showing good agreement with each other. Nonstationary forecasted current field derived from the regional model of the Black Sea dynamics is used to simulate spatial-temporal distribution of polluting substances.

The aim of the presentation "*Assessment of the complex effects of hazardous waste components in aquatic ecosystems*" by S. Kvaterniuk, V. Pohrebennyk, R. Petruk, V. Petruk and A. Kochanek from Vinnytsia National Technical University (Ukraine), Lviv Polytechnic National University (Ukraine) and State Higher Technical School in Nowy Sacz (Poland) was to ensure environmental safety in the field of hazardous waste management and improve the efficiency of assessing their integrated impact on water bodies using methods and means of multispectral environmental monitoring [4]. The developed methods and tools were used for multispectral environmental measurement monitoring of the toxicity of hazardous components of solid household waste, which made it possible to increase the effectiveness of environmental monitoring of the environmental impact of landfills and waste-processing complexes.

In the presentation "*Arsenic accumulation, stress responses and tolerance in Agrostic castellana: phytoremediation potential of native flora* " by P. J. C. Favas from MARE-Marine and Environmental Science Centre, Faculty of Sciences and Technology of University of Coimbra (Portugal) the arsenic (As) contamination, stress responses, tolerance and phytoremediation potential of native flora of As-contaminated tailings in an abandoned mine (Northern Portugal) is evaluated [5].

Some presentations were devoted to investigation of some peculiarities of variability of geomagnetic field. In the presentation "*Statistical and spectral tools for analyzing of disturbance of geomagnetic field"* by Natalia-Silvia Asimopolos, A. A. Asimopolos and L. Asimopolos from Geological Institute of Bucharest and University POLITECHNICA of Bucharest (Romania) the wavelet and statistical analysis for the geomagnetic data recorded in the Geomagnetic Surlari Observatory with acquisition periodicity of 0,5 second to 1 minute are performed [6]. There are selected several recording periods in the cases of solar quiet day variations, solar disturbance daily variation and geomagnetic storm periods. The rapid sampling rate allowed authors to highlight micro pulsations and pulsations with periods of time between 2 seconds and 10 minutes. Also,

authors highlighted the continuous pulsations from classes Pc2, Pc3 and Pc4, as well as irregular pulsations from classes Pi1 and Pi2.

In the presentation "*Characterization of the geomagnetic field by analyzing the data recorded at the Surlari Geomagnetic Observatory*" by Natalia-Silvia Asimopolos, L. Asimopolos, B. Balea and A. A. Asimopolos from the same Institutions as in previous presentation the authors have described the steps to analyze the geomagnetic field's morphology. Based on data processing the gradients of each components are calculated, as well as, spectral, statistical and correlation analyzes [7]. All of these parameters are part of the geomagnetic database.

The presentation "*New industrialization's innovational impact on climate change*" by A. Agumbayeva and A. Yergalym from Saken Seifullin Kazakh agrotechnical University (Kazakhstan) and Collegium Civitas (Poland) discusses the role of the developing world in ensuring global environmental security, the links between industrialization and climate change are examined [8].

In the presentation "*GHG emission reduction in the agriculture of Latvia: the reality and opportunities* " by P. Rivza, D. Popluga, K. Naglis-Liepa, A. Lenerts and D. Kreismane from Latvia University of Life Sciences and Technologies (Latvia) is noted that at present in Latvia, agriculture is the second largest source of greenhouse gas (GHG) emissions, accounting for 24,2% of the total amount of GHG emissions in the country [9]. The presentation analyses 17 measures having GHG emission reduction potential by employing Marginal Abatement Cost Curves (MACC). The research resulted in constructing MACCs for five the most typical groups (clusters) of agricultural holdings.

The 2-nd GEOLINKS Conference will be held on March, 2020 in Plovdiv (Bulgaria).

2. On 27-28 June 2019 **first International Black Sea Maritime security Symposium-2019** (www.marseccoe.tsk.tr) was held in Istanbul (Turkey), which was organised by Multinational Maritime Security Centre of Excellence (MARSEC COE). The Symposium was held under the theme "*Maritime Security and Cooperation in the Black Sea***"**, which aimed to bring different stakeholders from academicians to military together and to cover general maritime issues free from regional disputes. Presentations covered the following main topics:

1. The Black Sea from Historical Perspective
2. Montreux Convention and Sea of Peace: "The Black Sea"
3. Overview of the Black Sea Economy
4. The Black Sea Energy Routes and their Effects over Maritime Transport
5. Climate Change and Maritime Trade Relationship: It's Effect over the Black Sea
6. Oceanography of the Black Sea
7. Fighting Against Maritime Pollution in the Black Sea
8. Analysis of Maritime Accidents in the Black Sea and Search & Rescue.

About 15 people were invited to participate in the symposium as a guest speakers, most of them were from Turkish Institutions, and other were from Bulgaria, Georgia, Netherlands, Russia. In addition, it should be noted that the highest military representatives of the Turkish naval forces participated in the Symposium. We will give a brief overview of some of the presentations.

The presentation "*Montreux Convention and Sea of Peace: "The Black Sea" (Turkish Perspective)*" by M. Celikpala (Turkey) concerned political aspects connected to 1936 Montreux Convention, which regulates the transit of warships through the Turkish Straits and guarantees the freedom of passage of civilian vessels in times of peace and war [10]. The Convention gives Turkey

full control over the Turkish Straits, guarantees the free passage of civilian vessels in peacetime. The Convention makes a clear differentiation between the Black Sea littorals, i. e. Turkey, Bulgaria, Romania, Ukraine, Russia and Georgia and non-littorals. From Ankara's perspective, the Convention is understood as one of the most important achievement in Turkey's recent political history and playd a major role in keeping the Black Sea region out of the NATO-Warsaw Pact confrontation throughout the Cold War era.

The presentation "*NATO Strategic Communication on the Access to the Black Sea*" by M. Meijer (Turkey) describes how NATO strategic communication exploits the Montreux Convention as a good practice of international law [11]. It also describes the good practice of management of incidents at sea in order to prevent international conflicts. It is concluded that international law, like the Montreux Convention, does prevent escalation of maritime incidents into international conflicts. Therefore it is recommended to create similar conventions to safeguard free access to the Black Sea for merchant shipping and naval vessels coming from the Sea of Azov via the Kerch Strait.

In the presentation "*Overview of the Black Sea Economy*" by H. I. Karabiyik (Turkey) is noted that The Black Sea has a strategic location connecting Balkans, Europe, Anatolia, and the Caucasus region with the contribution of maritime and energy crossroads [12]. In addition, it holds one of the world's largest known reserves of gas and oil and about 16 million people inhabit the coastal area. The Black Sea has over 20 big commercial ports, of which half of them can handle large commercial vessels. Huge investment projects are ongoing such as Anaklia in Georgia and Marmara region. New opened Baku Tiflis Kars railway, Marmaray which is undergoing the Istanbul strait and 3 bridge railway sections are increasing the potential usage of multimodal transport and inland surface connections of the Black Sea. .

In the presentation "*Operational forecasting hydrodynamic processes and pollutant transport in the easternmost part of the Black Sea*" by D. Demetrashvili (Georgia) some results of simulation and forecast of dynamic fields and propagation of polluting substances in the Georgian coastal zone and surrounding area were demonstrated on the basis of the Black Sea regional forecasting system, which is one of the parts of the Black Sea basin-scale Nowcasting/ Forecasting System [13]. It is noted that through the Black Sea (including Georgian sector of the sea) passes an international transport corridor TRACECA (Transport corridor Europe-Caucasus-Asia) and in the coming years more intensive shipping is expected. It is obvious that in conditions of growing intensity of shipping and, accordingly, more significant anthropogenic load on the marine environment, operation of the Black Sea forecasting system providing forecast of main hydrophysical parameters is very relevant and important for environmental and navigation security.

The presentation "*Black Sea Commission: Fighting against Maritime Pollution in the Black Sea*" by Ir. Makarenko (Black Sea Commission's Permanent Secretariat, Istanbul/Turkey) was devoted to international efforts and activities to protect the Black Sea from pollution [14]. Nowadays, the Convection on the Protection of the Black Sea Against Pollution, also known as Bucharest Convention, is one of the most known Regional Sea Conventions and instruments of the International Environmental Law, which was signed and ratified in 1992 and 1994, accordingly, and provided the legal ground for combating pollution from land-based sources and maritime transport, achieving sustainable management of marine living resources and sustainable human development in the Black Sea region. The Black Sea Commission's activities and exercise program is an integral part of the regional preparedness framework and enables countries around the Black Sea to cooperate and coordinate efforts in case of major oil pollution incidents.

The presentation "*Oceanography of the Black Sea*" by S. Besiktepe (Turkey) gives a brief overview of development of the Black Sea Oceanography [15]. It is noted that studies to understand the oceanography of the Black Sea started in the beginning of the 1900s and carried out through the efforts in the former USSR and other countries. In the beginning of the 1990s, increased international cooperation among the riparian countries allowed carrying out more systematic basin wide surveys. The basin-wide surveys, HydroBlack91 and CoMSBlack92, were completed by several ships in about one month. These collaborations were started within the context of the NATO TU-Fisheries program and then continued through the CoMSBlack international program, NATO-TU Black Sea project and NATO-ODBMS project, respectively. These studies provide an initial coherent description of the basin and sub-basin circulation and its variability and proved the schematic circulation.

Symposium proceedings book will be published. The second Black Sea Maritime Security Symposium will be held in 2020 in Istanbul.

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ინფორმაცია 2019 წ. ზოგიერთი საერთაშორისო სამეცნიერო ღონისძიებების შესახებ

დ. დემეტრაშვილი

რეზიუმე

მოცემულია მოკლე ინფორმაცია ორი საერთაშორისო სამეცნიერო ღონისძიების შესახებ, რომლებიც შეეხება გარემოს ეკოლოგიის საკითხებსა და შავ ზღვას. საერთაშორისო კონფერენცია გეო - მეცნიერებათა შესახებ (GEOLINKS-2019) გაიმართა 2019 წლის 26-29 მარტს ქ. ათენში (საბერძნეთი), ხოლო შავი ზღვის საზღვაო უსაფრთხოების სიმპოზიუმი - ქ. სტამბულში (თურქეთი) 2019 წლის 27-28 ივნისს.

Информация о некоторых международных научных мероприятиях в 2019 г.

Д. И. Деметрашвили

Резюме

Дается краткая информация о двух международных научных мероприятиях, посвященных проблемам окружающей среды и Черного моря. Международная конференция по Геонаукам GEOLINKS 2019 состоялась 26-29 марта 2019 года в Афинах (Греция), а Международный симпозиум по морской безопасности Черного моря - 27-28 июня 2019 года в Стамбуле (Турция).