

Conference reports

Days of Geotechnics, Saint-Petersburg State University

At the end of April 2018, two important events dedicated to geotechnics took place at Saint-Petersburg State University of Architecture and Civil Engineering (SPSUACE). On April 25-26, 2018, the Russian-Japan-Kazakhstan scientific and technical seminar on topical issues of geotechnics and the solemn awarding ceremony of conferment the title of "Honorary doctor of SPSUACE" to Professor Yoshinori Iwasaki were held within the Academic Council Session (Fig. 1). The International Geotechnical Seminar was held under the auspices of the Scientific and Technical Council of the Russian Academy of Architecture and Civil Engineering Sciences (RAACES) for Geotechnics of under the guidance of Corresponding Member of RAACES, Head of the Department of Geotechnics of the SPSUACE, Doctor of Technical Sciences, Professor Rashid Mangushev; under the auspices of Japan Geotechnical Association, under the guidance of the Chairman of the Asian Technical Committee 19 ISSMGE on "Geo Engineering for Conservation of Heritage Monuments and Historical Sites", General Director of the Geo-Research Institute (Osaka, Japan), Dr.Eng., Professor Yoshinori Iwasaki; under the auspices of President of Kazakhstan Geotechnical Society, Head of the Department "Design of buildings and structures" L.N.Gumilyov ENU, academician of National Engineering Academy of the Republic of Kazakhstan, Doctor of Technical Sciences, Professor Askar Zhussupbekov.



Figure 1. Group photo after Awarding Ceremony

(from left to right: Prof. Askar Zhussupbekov - President of KGS (Kazakhstan), Veronika Artemeva - Head of Department of international education and cooperation SPSUACE, Irina Lugovskaia - First Vice Rector SPSUACE, Honorary doctor of SPSUACE, Prof. Yoshinori Iwasaki - General Director of Geo-Research Institute (Japan), Prof. Rashid Mangushev - Head of Department of Geotechnical Engineering SPSUACE, Prof. Akitoshi Mochizuki - Emeritus Professor of Tokushima University, invited Professor of L.N. Gumilyov Eurasian National University, Prof. Aleksandr Panin - Dean of the Faculty of Civil Engineering SPSUACE, Elena Selezneva - Deputy head of Department of international education and cooperation SPSUACE)

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The participants of the seminar were about 100 Students and Professors from the Department of Geotechnics, as well as members of the North-West Branch of the Russian Society for Soil Mechanics, Geotechnics and Foundation Engineering. It should be noted that the international geotechnical seminar was held in English at the request of the Students of the Department of Geotechnical Engineering, which indicates that students are fluent in this international language.

The following lectures were heard:

- "Authenticity of Foundations of Heritage Structures". Invited Lecturer - Prof. Yoshinori IWASAKI (Geo-Research Institute, Osaka, Japan)
- "What we learn from the Centrifuge Model tests?". Invited Lecturer - Prof. Akitoshi MOCHIZUKI (Tokushima University, Japan and L.N.Gumilyov Eurasian National University, Astana, Kazakhstan)
- "The research of Damb in SPB". Lecturer - Prof. Rashid MANGUSHEV (Saint-Petersburg State University of Architecture and Civil Engineering, Russia)
- "Geotechnical Construction and Testing of Piles of Megastructures on problematical soil ground of Kazakhstan". Invited Lecturer - Prof. Askar ZHUSSUPBEKOV (L.N. Gumilyov Eurasian National University, Astana, Kazakhstan).

Professor Yoshinori Iwasaki showed in his lecture that the foundation of the heritage structure has been ignored for preservation. The foundation is to be studied if any special characteristic is found as the authenticity to be preserved. It refers to the preservation of not only the upper structures, but also the ground foundations of historic buildings. This is evidenced by the study of the high rise stone masonry Tower of Angkor Wat based upon shallow direct stone on thick manmade filled mound, whose secret has not yet been fully disclosed.

Of particular interest were the scientific developments obtained in the centrifuge. Japanese Professor Akitoshi Mochizuki specifically noted that the centrifuge was created for the first time in the USSR by Russian scientists G.I. Pokrovsky and I.S. Fedorov (1936). However, later, due to various reasons, this design did not develop in Russia. In the developed countries of the world, such as Japan, the United States, Singapore, Hong Kong, South Korea, England, and other countries, intensive scientific research has been being carried out in this direction.

Professor Rashid Mangushev also noted that the construction of new facilities and the reconstruction of buildings and structures near historical sites in Saint-Petersburg should be conducted exclusively with the scientific support of scientists-geotechnicians.

Professor Askar Zhussupbekov in his presentation reflected advanced and quick methods for testing pile foundations in difficult engineering and geological conditions in Kazakhstan, and also showed modern geotechnologies for the construction of foundations in special ground conditions in the West Kazakhstan (Caspian Sea coast).

After the lectures Professor Rashid Mangushev showed the geotechnical laboratory of the technical research center "Geotechnology" to foreign scientists from Japan and Kazakhstan, organized a geotechnical tour to the hydraulic structure (dam), which protects the city of Saint-Petersburg from floods, as well as historical monuments of architecture: St. Nicholas Cathedral of the Sea (Kronshtadt) and Saint Isaac's Cathedral (Saint-Petersburg) with a demonstration of settlement foundations, caused by the consolidation of weak soils depending on the time. Foreign guests were acquainted with other historical objects of Saint-Petersburg during the technical tour (Kazan Cathedral, Rostral Columns).

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Professor Anna Shidlovskaya organized a technical tour to Saint-Petersburg Mining University, where she showed foreign visitors a museum of geominerals, as well as modern equipment of the geotechnical and geological laboratories and a program of work on these instruments in the study of soft soils in Saint-Petersburg.

Professor Aleksey Shashkin (General Director of Design institute "Geo-Reconstruction" Ltd) told international participants of the seminar about the experience of his design institute in developing projects for the reconstruction of historical monuments of architecture and numerical modeling of the new high-rise structure "Lakhta Center" on soft soil grounds in the city of Saint-Petersburg.

Foreign scholars noted that the city of Saint-Petersburg has a very beautiful architecture and unique historical buildings and structures, behind which it is necessary to constantly conduct geomonitoring (not only of the upper structure, but also the underground part) of these historical objects of cultural heritage.

On April 26, 2018 the solemn awarding ceremony of conferring the title of "Honorary doctor of SPSUACE" to Prof. Yoshinori Iwasaki was held within the Academic Council Session at Saint-Petersburg State University of Architecture and Civil Engineering.

Y. Iwasaki graduated from Kyoto University in 1964 (Bachelor of Geophysics). In 1969 he received a master's degree in Geotechnical Engineering at the University of California at Berkeley (USA). In 2001 he received the degree of PhD in Geotechnical Engineering at Karaganda Industrial University in Temirtau (Republic of Kazakhstan). In 2002 he defended his Dr.Eng. dissertation at the University of Kyoto (Japan), from 2005 to the present he works as a visiting professor at L.N.Gumilyov ENU on the special schedule of stay in Astana.

The scientific interests of Professor Yoshinori Iwasaki are the geotechnical aspects of historical monuments of architecture, the study of the influence of earthquakes on the foundations of buildings and structures, the development of the geoinformational database of the new capital of the Republic of Kazakhstan in Astana, as well as Yekaterinburg, Yuzhno-Sakhalinsk, the study of the historical monument of architecture Angkor Wat (Cambodia), which is under the protection of UNESCO.

More than 10 Russian, Kazakh and Japanese PhDs in the scientific field of Geotechnical Engineering successfully defended their theses under scientific guidance and scientific advice of Professor Yoshinori Iwasaki. Professor Yoshinori Iwasaki has the following awards:

- Award for contribution to the study of geophysics in Japan (2002);
- Award "International Geotechnical Medal of Academician T.Zh.Zhunusov " (2010);
- International Geotechnical Medal of Academician Sh.M. Aitalyev (2013);
- Medal "Honorary builder of Kazakhstan" (2015);
- Medal of N.M. Gersevanov, Russian Society for Soil Mechanics, Geotechnics and Foundation Engineering, Moscow, Russia (2016);
- Medal of the Ministry of Transport and Communications of the Republic of Kazakhstan (2016);
- Medal of Kultegin, L.N. Gumilyov ENU (2017).

Professor Yoshinori Iwasaki is a member of the Japan Geotechnical Society; a member of the American Society for Civil Engineering; the head of the geotechnical group of the Government of Japan on the problems of Angkor (Cambodia) with the support of UNESCO, the chairman of the ATC-19 ISSMGE on "Geo Engineering for Conservation of Heritage Monuments and Historical Sites", as well as a participant in other organizations and societies.

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Together with other scientists, including the head of the Department of Geotechnical Engineering SPSUACE Professor Rashid Mangushev, Japanese Professor Yoshinori Iwasaki organizes and conducts international seminars. The Japanese scientist consists in the editorial board of the international peer-reviewed scientific journal "Architecture and Civil Engineering", which is published in SPSUACE. His article "Dismantling and Reconstruction of Prasat Suor Prat, Angkor Tom, Cambodia" was published in this journal. In the field of scientific interests of Professor Y. Iwasaki includes the study of the foundations of historical monuments of Saint-Petersburg, as well as scientific research in geotechnical engineering, infrastructure in Astana, Yekaterinburg, Yuzhno-Sakhalinsk, and other cities.

In his speech at the Academic Council on his scientific and pedagogical activities, the new Honorary Doctor of the SPSUACE Yoshinori Iwasaki noted: "Saint-Petersburg is a unique city of Russia, the historical part of which is protected by UNESCO and we, scientists-geotechnics, should do everything to preserve the authenticity of the ground foundations of the unique historical objects of Saint-Petersburg...".

The scientific activities of Professor Yoshinori Iwasaki makes a significant contribution to geotechnical engineering and the protection of historical monuments of architecture.

Currently, Dr. Yoshinori Iwasaki together with the Department of Geotechnical Engineering of SPSUACE intensively preparing an international geotechnical conference on the geotechnical infrastructure for mega cities and new capitals, which will be held in February 2019 in Saint-Petersburg at SPSUACE.

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