



FACULTY OF MINING AND GEOLOGY
DEPARTMENT FOR HYDROGEOLOGY

CENTRE FOR KARST HYDROGEOLOGY

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**VISIT CENTRE OF KARST HYDROGEOLOGY MEMBERS TO THE IRCK
15. 10. do 31. 10. 2014**

In the period from 15. 10. to 31. 10. 2014 year, members of the Center for Karst Hydrogeology, Dr. Sasa Milanovic and Ljiljana Vasic, BSc. geol. were guests of IRCK in Guilin, China, where they took a part in 6th IRCKs *“International training course in karst ecosystem and geomicrobiology”*, as well as in the international Symposium "Sustainable utilization of water resources in developing countries" Guilin 2014. During visit, Dr Sasa Milanovic was called by Academician Yuan Daoxian to give a lecture at Southwest University in Chongqing with topic *“Modeling of karst aquifers - physical setting from conceptualization to application”*.



International Research Center on Karst, UNESCO
China University of Geosciences
Institute of Karst Geology, CAGS
15. October – 28. October 2014.

In the training course total of 18th lecturers took part in lecturing, of which 14 were from China, two lecturers from Slovenia and per one from the United States and Serbia.



Member of Center for karst hydrogeology Dr. Sasa Milanovic, due to the invitation from Academician Yuan Daoxian and executive director of IRCK, Dr Cao Jinhua, gave a lecture in a course with topic “*Karst engineering (water dam) to support the ecology and human survival*”.





International course was attended by 22 participants from Thailand, China, Cambodia, the Philippines, Hungary, Laos, Malaysia, Mongolia, Zimbabwe, Myanmar, Russia, Serbia, Slovakia, South Africa and Tanzania. The Course participant from Serbia was Ljiljana Vasic BSc geol. student of doctoral studies and a member of the Center for Karst Hydrogeology, Department of Hydrogeology, Faculty of Mining & Geology, University of Belgrade, Serbia.



The course was generally divided into four parts: the lectures that took place in the meeting room of IRCK, visit to the laboratory, field work and at the end final exam that consists of presentations of participants and verbal discussion with lecturers.

The topics of lecturers presentations, which were held as part of the course were:

- Lecture-Karst dynamics and Karst Ecosystem in China and its practice (Yuan DX)
- Lecture-Some cases on Karst Ecosystem and rocky desertification control (JiangZC)
- Lecture-Concept, function and methods on geomicrobiology in karst area (Wang HM)
- Lecture-Aquatic vegetation in karst water (Li W)
- Lecture-The photosynthesis of aquatic vegetation increasing the stability of DIC transport (Zhang C)
- Lecture-Soil microbe biomass carbon and nitrogen and features between karst and non-karst (Li NQ)
- Lecture-Carbon cycle monitoring methods in karst ecosystem (Cao JH)
- Lecture-Biological or microbe activities (subterranean ecology or cave animal?) in Karst from Slovenia (Janez Mulec)
- Lecture- Vulnerability assessment of Karst ground water (Natasa Ravbar)
- Lecture-Karst engineering (water dam) to support the ecology and human survival (Sasa Milanovic)
- Lecture-Some cases of geomicrobiology in karst area (Anet S. Engel)

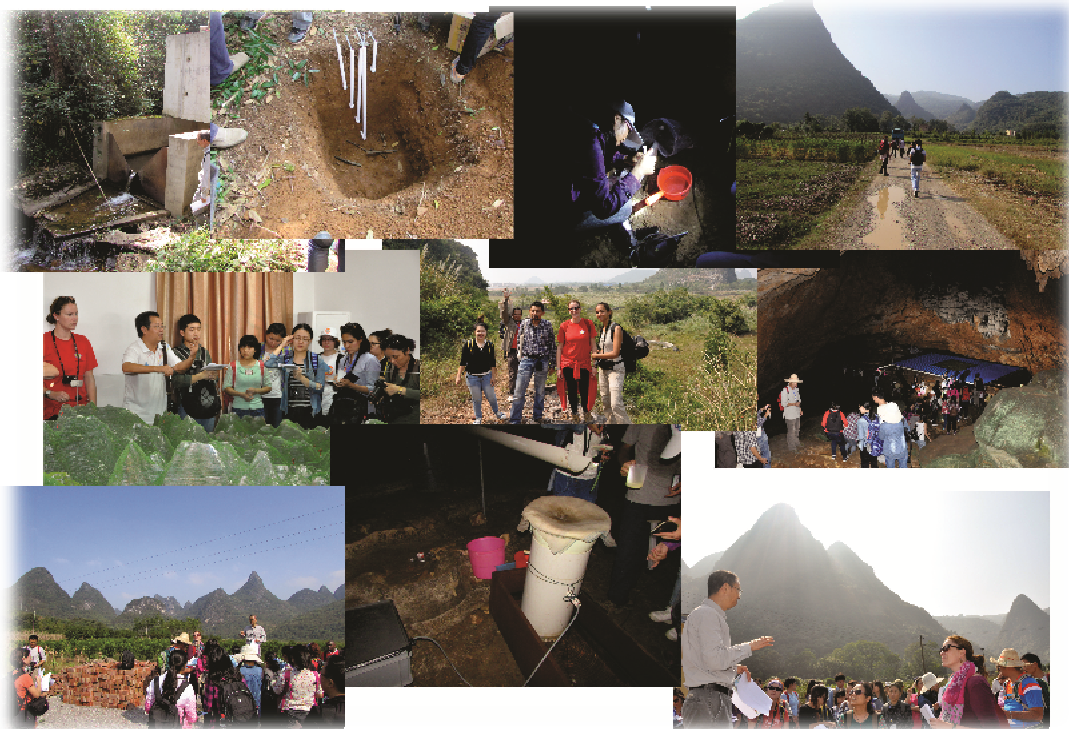


During the course a few visits to the labs. were carried out: Laboratories for microbiological analysis and Laboratories for hydrochemical investigations, which, in addition to a large number of equipment and instruments for determining the hydrochemical and physical parameters of water, also has equipment for performing of isotopic analysis (^{13}C , Tritium,

^{18}O , ^2H). Also, many laboratories have the tools to other research methods in karst (soil, rock, air, etc.).



Experts of IRCK also took participants to the field work on their experimental test sites (one day trip), where they showed their field research on current projects. On this occasion, course participants visited the Yaji and Haid site on the first field day, while during the second field day tour students visited karst area Maocun, test area whose hydrogeological and meteorological data will be correlated with data from Serbia (Beljanica) karst observation field surveyed by CKH during a joint project.



On the last day of the course, all participants had the task to present a presentation of the karst from their country as well as to present data connected with the topic of the training course. Their exposure was evaluated by the five-member committee composed of lecturers: Yuan Daoxian, Janez Mulec, Annette Engel, Zhang Cheng and Saša Milanović.



On the closing ceremony all participants of the course received Certificate for completed 6th IRCK course, as well as declared a five best presentations among whom was Ljiljana Vasic, a member of the Center for Karst Hydrogeology, FMG. Closing ceremony of the sixth international course on karst was chaired by Academician Yuan Daoxian, Jiang Yuchi Director of IRCK, Hans Thulstrup representative from UNESCO and Dong Shuwen.



Awarded participants for best presentation during 6th IRCK course on karst



Some of the participants during common dinner



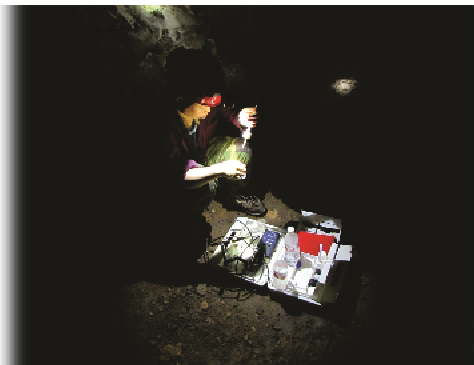



After completion of the course, all participants were participate on Symposium “*Sustainable use of water resources in developing countries*”, where Dr Sasa Milanovic was invited to give a lecture (Keynote speaker) with the topic “*Water Resources potential (hydro power and water supply) and deep karst of south-eastern Dinarides*”. The lecture went very notable among the participants, where also a number scientists expressed a desire to cooperate with CKH. Part of the Symposium was held in the meeting rooms and halls of the Guilin University, where the participants on the course, as well as the participants of the Symposium, had opportunity to visit extraordinary laboratories for almost all kinds of tests concerning water, rock and soil.





After Symposium, members of the Center for Karst Hydrogeology spent another several days in laboratories and on the field trips together with members IRCK's, where they participated, as the part of scientific programs of IRCK, in the movie made by Chinese national television. During the research work on the famous karst area around Guilin, were introduced with their main test areas where IRCK staff continuous monitoring of all parameters for defining circulation CO_2 in karst systems. One of the research locations were a cave lab. that accompany almost all parameters that can be monitored in a karst system. During these visits, Serbian's and China's scientists defined the common idea to form similar observation network in Serbia and to compare results with the results from the test area of Maocun.





At the end, members of the Center for Karst Hydrogeology, Faculty of Mining and Geology, University of Belgrade would like express deepest gratitude to colleagues from IRCK for scientific ideas, wonderful time during visit to China and Guilin, for visit of vary interesting karst areas as well as for the trust of international cooperation. Also, we would like to thank them for equipment that was donated to the CKH that has already been used on the karst field in Serbia, in order to monitor CO₂ cycle in karst terrain. Special thanks are certainly indebted to the individuals:

*Academician Yuan Daoxian, Dr Jiang Yuchi director of IRCK,
Dr Cao Jinhua executive director of IRCK*

as well as to Luo Qukan, Bai Bing and Yang Lichao

СКН (DHG-FMG)