



Characterization and Engineering of Karst Aquifers

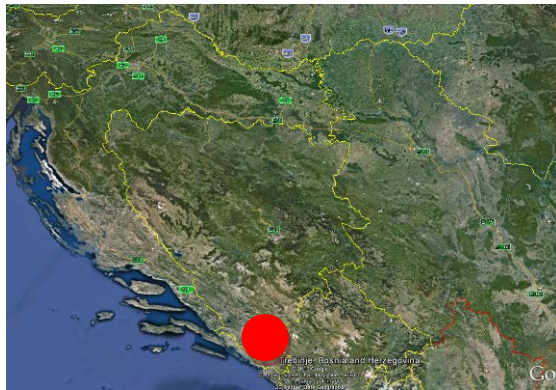
International Course and Field seminar
Trebinje, Bosnia & Herzegovina, 3-10 June, 2014



Place & Venue

The international course and field seminar Characterization and Engineering of Karst Aquifers organized by the Department of Hydrogeology and Centre for Karst Hydrogeology of the University of Belgrade, the Faculty of Mining & Geology and the Geological Survey of the Republic of Srpska, Zvornik will take place in Trebinje, Bosnia & Herzegovina, between 3-10 June, 2014 prior to the International Conference Karst Without Boundaries also taking place in Trebinje (11-15 June, 2014 <http://diktas.iwlearn.org/conference>.)

The sessions will be held at the halls of the HET (Hydro-Electro System Trebisnjica River) in Trebinje, Obala Luke Vukalovica 2. During the course a half-day and a full-day field trips will take place. Participants of the course will also have an opportunity to participate in several excursions which will be offered as part of the International Conference including visits to Dubrovnik, Croatia and Boka Kotorska Bay, Montenegro. The organizers will also provide logistical support to those interested in visiting other tourist or cultural sites in the region.



Course Organization and Schedule

All participants will receive printed lecture notes and other course materials upon arrival, as well as a DVD

with additional presentations upon completion of the course.



The lectures will emphasize practical aspects of the karst hydrogeology concepts and engineering solutions. Some experience in karst hydrogeology will be helpful but not necessary as the course will introduce basic principles before dealing with more advanced topics.

The class will meet daily from 8:30 A.M. to 12:30 A.M. and from 2:00 P.M. to 5:30 P.M. Half-hour breaks are at 10:00 A.M. and 3:30 P.M. Due to the extensive amount of material, additional early evening sessions would be held last several days.

The final exam will be conducted at the end of course. It consists of written test and oral discussion. All attendants who complete the course will receive a Certificate of Attendance, and those that pass the exam will, receive the final grade and credits issued by the University of Belgrade – Faculty of Mining & Geology.

Enrollment will be limited and applications will be accepted in the order they are received. Please, mail the attached preliminary application form. Confirmed participants will receive an acknowledgement letter. All participants have to bring with them laptop and calculator.

Tentative program:

3 June – Arrival, Registration (4 P.M. – 7 P.M.), Welcoming Reception

4 June – Opening ceremony (9-9.30 A.M.); 9.30 – 12.30 A.M.: Introductory note, Historical development of karstology and karst hydrogeology. Worldwide karst distribution. Dinaric karst; 2:00 P.M. - 5:30 P.M.: Carbonate and non-carbonate karst. Karstification process and its features. Permeability of karstic rocks. Groundwater circulation in karst: recharge, flow types and directions, discharge. Relationship with other aquifer systems and surface waters.

5 June - 9.30 – 12.30 A.M.: Research methods in karst hydrogeology; 2:00 P.M. - 5:30 P.M.: Characterization of karst aquifers. Groundwater budget and catchment delineation. Specific regime of karstic groundwater (quantity, quality); Extended evening session: Water extraction in karst. Aquifer control in discharge zones and drainage areas.

6 June - 9.30 – 12.30 A.M.: Problems related to construction of dams, reservoirs and other structures and buildings in karst. 2:00 P.M. - 6:30 P.M.: Presentation on the HE system Trebišnjica (PPS, movie), Half-day field trip to Grančarevo and Gorica dams, and intake for water supply of Trebinje (“Oko” spring).

7 June – 9.30 – 12.30 A.M.: Safe yield and sustainable exploitation of karst waters. Conflicts and risks in karst water management. Vulnerability assessment and pollution of karst aquifers. 2:00 P.M. - 5:30 P.M.: Sanitary protection zones, waters. Surface and subsurface karst features and landforms, dependent eco-systems, endemic species, geo-heritage sites. Sanitary protection zones, preventive and remediation measures for karst sources and waters. Surface and subsurface karst features and landforms, dependent eco-systems, endemic species, geo-heritage sites.

8 June – from 8.30 A.M.: One day field trip and seminar (classical karst features, phenomena, engineering structures): Popovo polje – Vjetrenica cave – Vrelo Bune (the largest karst spring in Dinaric karst) – spring Vrelo Bregave – Dabarsko polje (water structures) – Fatničko polje (estavelle Obod) – Bilečko Lake (submerged source of Trebišnjica River) – Trebinje

9 June – 9.30 – 12.30 A.M.: Modeling of karst aquifers. Forecasting effects of karst waters utilization. 2:00 P.M. - 4:00 P.M.: Groundwater monitoring in karst. Feasibility studies and engineering design.

10 June – Exam (9.30 – 12.30 A.M.), Results of the exam, Certificates delivery, Closing ceremony (2:00 P.M. - 4:00 P.M.), Farewell party (from 8:00 P.M.)

Lecturers (preliminary list) :

Prof. Dr Zoran Stevanovic, University of Belgrade, Serbia
Dr Neven Kresic, Hydrogeol. Practice Leader, AMEC, USA
Dr Petar Milanovic, Ret. Assoc. Prof., Univ. of Mostar, B&H
Dr Ognjen Bonacci, Prof. Emer. University of Split, Croatia
Dr Neno Kukuric, Head UN-IGRAC, Delft, the Netherlands
Dr Sasa Milanovic, University of Belgrade, Serbia
Dr Vesna Ristic Vakanjac, University of Belgrade, Serbia



Course Fee

There is no course fee for university students with the exception of 85 Euros charged for operating cost of field trips, refreshments, preparation of tutorials and printing. Working professionals will be charged 150 Euros. The organizers will make an effort to reduce this cost by searching for sponsorship and participants will be informed accordingly in due time. The attendants are responsible for covering travel and accommodation cost which is very affordable in comparison with nearby tourist centers.

Accommodation

A block of 2-bed and 3-bed rooms has been reserved at a substantially reduced rate in **Hotel VIV in Trebinje** (11 Dusanova Str. Trebinje 89000 Bosnia and Herzegovina) with an approximate cost of around 20 euro/person (breakfast and dinner included). However, it is advisable to make reservation at least 2 months before the course. Those planning to stay longer for the conference should indicate so in the application form (a slightly increased price is likely during the conference time). For information and reservation please contact directly hotel at hotelviv@gmail.com or by telephone at **+387.59.273500** (please use reference “seminar before conference”)



Contact (for sending application form):

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