



International Course and Field Seminar
Characterization and Engineering of Karst Aquifers



United Nations
 Educational, Scientific and
 Cultural Organization



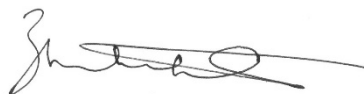
International
 Hydrological
 Programme

Provisional program Belgrade, 26 May-1 June, 2019:

Day	Time (h)	Topic/Activity	Lecturer
(26 May)		Arrival to Belgrade	
Day 1 (27 May)	9–9.30AM	Opening ceremony (FMG)	
	9.30 – 10.45 AM	Introductory note, program; Historical development of karstology and karst hydrogeology; Importance of karst and karst distribution worldwide; Geo-heritage sites; Dinaric karst	Z. Stevanović
	11 AM – 12.15	Carbonate and non-carbonate rocks: mineralogy, depositional environments, classifications	D. Milovanović
	12.15-1 PM	Chemical factors of karstification; Role of tectonics	D. Milovanović
	2–2.45 PM	Porosity and permeability of karstic rocks; Karstification process and its features: Surface and subsurface karst landforms	Z. Stevanović
	3 – 4.30 PM	Groundwater circulation in karst: recharge, flow types and directions, discharge	Z. Stevanović
	4.30-5.15 PM	<i>Karst and Karst of Montenegro</i> (movies)	
Day 2 (28 May)	9 – 10.20 AM	Methods in karst hydrogeology – an overview; geology, remote sensing, geophysics, water points inventory, groundwater tapping, hydrogeological properties and field tests	Z. Stevanović
	10.20 – 12 AM	Methods in karst hydrogeology – climate, hydrology, springs hydrograph analysis and stochastic models (exercise)	V. Ristić Vakanjac
	12.15 AM – 1.45 PM	Methods in karst hydrogeology – geomorphology, speleology, speleo diving, exploratory drilling, hydrogeology maps, GIS modeling, database	S. Milanović
	2.30-4.30 PM	Problems related to construction of dams, reservoirs and other structures in karst; Investigation, design, corrective measures.	P. Milanović
	4.30-5.30 PM	<i>Case study: Leakage from reservoirs, specific research methods and remedial measures</i>	S. Milanović
	5.30-6.45 PM	<i>DVD movie “Trebišnjica”. Protecting the nature: “Forgotten species” (movie by S. Milanović)</i>	
Day 3 (29 May)	9-10.30 AM	Modelling karst hydrogeological systems: Challenges and solutions	I. Jemcov
	10.30 – 12.00 AM	Characterization of karst aquifers; Groundwater budget; Specific regime of karstic groundwater (quantity, quality); Safe yield; Aquifer control and sustainability	Z. Stevanović
	12.15-1.30 PM	Karst aquifer vulnerability – assessment and visualization; Sanitary protection zones and measures	V. Živanović
	2.30–3.45 PM	<i>Professional practice: Quality dynamics at karst-springs. A challenge for drinking water supplies.</i>	Lj Vasić

		Isotopic methods in karst, GW ageing – Kučaj-Beljanica (Serbia) case	
	3.45–4.45 PM	<i>Junior expert class:</i> Anthropogenic impact and hazards; Karst Disturbance Index	B. Petrović
	4.45-5.45 PM	<i>Junior expert class:</i> Groundwater management and transboundary aquifers in karst: problems and solutions	V. Marinović
Day 4 (30 May) Field trip Carpathian karst		<i>Field trip and seminar:</i> Bogovina Regional Water Supply System for Timok Region; Researches and engineering solutions; Exercises and practical work; Bogovina Cave visit and survey; Historical monument Felix Romuliana, Bor (overnight)	guided by Z. Stevanović S. Milanović Lj. Vasić B. Petrović V. Marinović
Day 5 (31 May) Field trip, Carpathian karst		<i>Field trip and seminar :</i> Zlot - Lazarev deep canyon and cave; Intakes for City of Bor; Brestovačka Spa; Mlava vaclusian type of spring- the largest in Serbian Carpathians; Krupaja karst spring, thermal spring and deep borehole; Ždrelo karstic thermal spa	
Day 6 (1 June)	9.30 – 11.30 AM	Concluding remarks; Scheduling and organizing exam (written test and verbal discussion for students), Issuing of Certificates, Closing workshop	Z. Stevanović, S. Milanović

Coordinator CEKA 2019



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