



International Course and Field Seminar
Characterization and Engineering of Karst Aquifers
 Trebinje, Bosnia & Herzegovina

Tentative program - 2016:

Day	Time (h)	Topic/Activity	Lecturer	
Day 1 (30May)	10 AM -	Arrival, Registration		
	7.30 PM -	Welcoming reception		
Day 2 (31May)	9 – 9.30 AM -	Opening ceremony	Z.Stevanović	
	9.30 – 11 AM	Introductory note; Historical development of karstology and karst hydrogeology; Importance of karst and karst distribution worldwide; Geo-heritage sites; Dinaric karst		
	11.15 AM – 12.45	Carbonate and non-carbonate rocks: mineralogy, depositional environments, classifications		D.Milovanović
	2 – 2.45 PM	Chemical factors of karstification; Role of tectonics		D.Milovanović
	3 – 4 PM	Porosity and permeability of karstic rocks; Karstification process and its features: Surface and subsurface karst landforms		Z.Stevanović
	4-5.30 PM	Groundwater circulation in karst: recharge, flow types and directions, discharge	Z.Stevanović	
Day 3 (1June)	9 – 10.45 AM	Methods in karst hydrogeology – an overview; Geology, mapping, geomorphology, speleology, remote sensing, geophysics, tracing tests, water occurrences inventory, GIS and database	Z.Stevanović	
	10.45 – 11.30 AM	Methods in karst hydrogeology – climate, hydrology, water chemistry, statistics	V. Ristić Vakanjac	
	11.45 AM – 12.45	Methods in karst hydrogeology – exploratory drilling, groundwater tapping, hydrogeological properties and field tests	Z.Stevanović	
	2- 3.30 PM	Spring hydrology: catchment delineation, inventory, assess, manage springs ecosystems	A. Springer	
	4.15 – 5.30 PM	Spring inventory – Work and demonstration in the field (visit of Ušac or Tučevac spring)	A. Springer	
Day 4 (2June)	9-10.45 AM	Problems related to construction of dams, reservoirs and other structures and buildings in karst; Investigation, design, corrective measures, case studies.	P. Milanović	
	10.45-3.15 PM	Half-day field trip to Grančarevo and Gorica dams, and intake for water supply of Trebinje (“Oko” spring)	guided by P. Milanović and other lecturers	
	4.15-5.30 PM	Presentation on the HE system Trebišnjica; DVD movie “Trebišnjica” waters. Other case studies, Discussion		

Day 5 (3June)		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 engineering structures) – Fatničko polje (estavelle Obod) – Bilečko Lake (submerged source of Trebišnjica River) – Trebinje	guided by P. Milanović and other lecturers
Day 6 (4June)	9.00 – 10.45 AM	Characterization of karst aquifers; Groundwater budget; Specific regime of karstic groundwater (quantity, quality); Safe yield; Aquifer control and sustainability	Z.Stevanović
	11.00 - 12.45	Water resources cycle in karst; Surface-groundwater interaction; Feasibility studies and engineering design; Environmental impact assessment; Case studies	O. Bonacci
	2- 3.45 PM	Karst aquifer vulnerability; Anthropogenic impact and hazards; Karst Disturbance Index; Sustainable management of karst environment and features; Case studies	M. Parise
	4 – 5 PM	Transboundary aquifers in karst: problems, solutions and experiences	N. Kukurić
Day 7 (5June)	9.00 – 11 AM	Modeling of karst aquifers – conceptualization for numeric models, software, EPM, CFP, case studies	N. Krešić
	11.15-12.30	Modeling of karst aquifer – Springs hydrograph analysis and stochastic models	V. Ristić Vakanjac
	2 - 3 PM	Karst aquifer sustainability; Aquifer restoration (groundwater remediation); case studies	N. Krešić
	3.15 – 4.45 PM	Quality dynamics at karst-springs. A challenge for drinking water supplies. Automated microbial sampling at event-scale.	H. Stadler
	4.45 – 5.15 PM	Protecting the nature: “Forgotten species” (movie by S. Milanovic)	
	5.15 – 5.30 PM	Concluding remarks	Z.Stevanović
Day 8 (6 June)	9.30 – 12.30 AM	Exam: Written test and verbal discussion	Z.Stevanović, V. Ristić Vakanjac
	5.30 PM	Results of the exam, Certificates, Closing ceremony	
	6.00 PM -	Farewell party: Local winery; Dinner in national restaurant	