

September **Room A5205**

	8 Monday	9 Tuesday	10 Wednesday	11 Thursday	12 Friday	13 Saturday
8:00-9:00						
9:00-10:00						
10:00-11:00	3	2	1	2	5	
11:00-12:00	5		4			
12:00-13:00						
13:00-14:00	1	The application of radar-based rainfall observations and forecast in Early				
14:00-15:00	2	Debris Flow and Flash Flood. Risk				
15:00-16:00	3	Coastal Impacts, conflicts and risks				
16:00-17:00	4	Flood and Drought Management.				
	5	Fluvial Morphodynamics				

		September					Room A5205
		Week 1					
	14	15	16	17	18	19	20
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00-9:00							
9:00-10:00							
10:00-11:00		Wave prediction at the coast. A factor of risk - I. Prof. A. Sánchez-Arcilla	1. PRELIMINARIES. 1.1 Introduction V. Medina	Introduction. M. Berenguer / D. Sempere	1.2 BarcelonaTech approach to risk assessment and mitigation (2/2) V.Medina	Characteristics of a river, The energy equation. A. Bateman	
11:00-12:00		The river, Sediment characteristics, Grain size distribution. A. Bateman	1.2 BarcelonaTech approach to risk assessment and mitigation (1/2). V. Medina	Introduction. The Drought. (A. Bateman)	2. DEBRIS FLOW. 2.1 Debris flow specific risks management concepts V.Medina	Flow resistance equations. (1) A. Bateman	
12:00-13:00							
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14:00-15:00							
15:00-16:00							
16:00-17:00							

		September				Room A5205	
		Week 2					
21	22	23	24	25	26	27	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
8:00-9:00							
9:00-10:00							
10:00-11:00	River Mouth Processes. A Factor of Risk. Prof. A. Bateman		Observation of precipitation by radar. I: Introduction. M. Berenguer / D. Sempere				
11:00-12:00	Flow resistance equations. (2) A. Bateman	2.2 DF Initiation process A. Bateman	Hydrological Drought. A. Bateman	APPLICATION CASE Introduction V. Medina	Back water curves. The step method for back water curves, excel application. A. Bateman		
12:00-13:00	Momentum equation, the bed stress. The hydraulic jump. A. Bateman		Drought Indexes. MAM, FDC, Etc.				
13:00-14:00							
14:00-15:00							
15:00-16:00							
16:00-17:00							

	September		October		Room A5205		
	Week 3						
	28	29	30	1	2	3	4
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00-9:00							
9:00-10:00							
10:00-11:00		Impacts and Conflicts. Course Work.Prof. A. Sánchez-Arcilla		Observation of precipitation by radar. II: Main sources of error (1) M. Berenguer/D. Sempere			
11:00-12:00		Back water curves. The step method for back water curves, excel application. A. Bateman	2.3 DF. Propagation (1/2) A. Bateman	The "R" applied to hydrological Indexes I. A. Diaz (INF.)	APPLICATION CASE (INF.) DF Initiation F. Bregoli	Hec Ras. How to use Hec Ras, modelling a river. V. Medina	
12:00-13:00		Hec Ras. How to use Hec Ras, modelling a river. V. Medina					
13:00-14:00							
14:00-15:00							
15:00-16:00							
16:00-17:00							

		October				Room A5205	
		Week 4					
	5	6	7	8	9	10	11
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00-9:00							
9:00-10:00		Transport and Circulation at the coast. A factor of risk - I. Prof. J.P. Sierra	2.3 DF Propagation (2/2) A. Bateman	Observation of precipitation by radar. II: Main sources of error (2) M. Berenguer/D. Sempere	APPLICATION CASE (INF.) DF Propagation (1/3) F. Bregoli	Shields diagram. Bed and bank stability. A. Bateman	
10:00-11:00							
11:00-12:00		Hec Ras. How to use Hec Ras, modelling a river. V. Medina		The "R" applied to hydrological Indexes II. A. Diaz (INF.)			
12:00-13:00							
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		October				Room A5205		
		Week 5						
		12	13	14	15	16	17	18
		Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00-9:00								
9:00-10:00					Radar-based rainfall estimation at surface level. I: Vertical Profile			
10:00-11:00		Coastal Dynamics. Erosion Risks. Prof. A. J.A. Jiménez		2.4 DF Hazard V. Medina		APPLICATION CASE (INF.) DF Propagation (2/3) V. Medina	QGIS and GisWater for Hec Ras. Planning a model	
11:00-12:00		QGIS and GisWater for Hec Ras. Planning a model			Meteorological Drought. A. Bateman			
12:00-13:00								
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15:00-16:00								
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		October					Room A5205
		Week 6					
19	20	21	22	23	24	25	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
8:00-9:00							
9:00-10:00							
10:00-11:00	Transport and Circulation at the coast. A factor of risk - II. Prof. M. Mestres	APPLICATION CASE (INF.) DF Propagation (3/3) V. Medina	Radar-based rainfall estimation at surface level. I: Reflectivity – rain rate conversion M.Berenguer/D.Sempere	Fires XAVIER Úbeda	Dynamic equilibrium. Sediment transport formulations. A. Bateman		
11:00-12:00	Advanced flow resistance Bed form flow resistance. Vegetation flow resistance. A. Bateman		Climate Change. Examples of evaluation. Marc Velasco (IMPRINTS)				
12:00-13:00							
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		October				Room A5205	
		Week 7					
26	27	28	29	30	31	1	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
8:00-9:00							
9:00-10:00							
10:00-11:00	Impacts and Conflicts. Course Work. Prof. A. Sánchez-Arcilla	2.5 DF Vulnerability and exposure V. Medina [A1-103]	Other uses of weather radar. Dual-polarization radars, satellite-borne radars. M.Berenguer/D.Sempere [A1-206]		Sediment transport. Hec Ras and Excel applications . A Bateman		
11:00-12:00	Dynamic equilibrium. Sediment transport formulations. A. Bateman		Risk BRIDGE SCOUR J.P Martin-Vide [A1-204]	APPLICATION CASE (INF.) DF Risk map. F. Bregoli [A2-S110]			
12:00-13:00	Sediment transport Excel Application. A. Bateman						
13:00-14:00							
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November		Room A5205					
	Week 8						
2	3	4	5	6	7	8	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
8:00-9:00							
9:00-10:00							
10:00-11:00	Oil Spill Risks. Prof. M. Espino	2.6 DF Mitigation A. Bateman [A1-103]	Visit to the CLABSA Control Centre and to a urban flood retention tank in the city of Barcelona. M.Berenguer/D.Sem pere	Experiments in the Morphodynamic Laboratory. A. Bateman	Erosion, sedimentation process and 1D morphodynamics. The exner equation. Examples A. Bateman		
11:00-12:00	Erosion, sedimentation process and 1D morphodynamics. The exner equation. Examples. A. Bateman		Examples of assesment of Drought Hazard. V.Medina [A1-206]				
12:00-13:00							
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		November				Room A5205	
		Week 9					
9	10	11	12	13	14	15	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
8:00-9:00							
9:00-10:00							
10:00-11:00	Precipitation and Flooding Risks. Prof. D. Sempere	3.1 Flash Flood (FF) Hydrology particularities A. Bateman [A1-103]	Blending of radar rain rate estimates with rain gauge observations. M.Berenguer/D.Sempere	3.2 FF Review of hazard analysis V. Medina	Local scour at bridge piers and abutments, local scour at contractions. A. Bateman		
11:00-12:00	Local scour at bridge piers and abutments, local scour at contractions. A. Bateman		The "R" applied to hydrological Indexes III. A. Diaz (INF.)				
12:00-13:00							
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		November					Room A5205
		Week 10					
	16	17	18	19	20	21	22
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8:00-9:00							
9:00-10:00							
10:00-11:00		Wave prediction at the coast. A factor of risk - II. Prof. A. S.-Arcilla and E. Pallarés	APPLICATION CASE (INF.) FF Hydrology & Hydraulics FF Hydrology & Hydraulics. A. Diaz	Short-range forecasting of the rainfall field based on radar observations M.Berenguer/D. Sempere [A1-206]	3.3 FF Mitigation. A. Diaz 4.1 Uncertainty in risk assessment 4.2 Error propagation in computations V. Medina [A1-103]	Bifurcation and union of Rivers. The patia River, The Dique channel. A. Bateman	
11:00-12:00		Other structures. Spur dikes, Sills, Odgaard vanes, Scour control systems. A. Bateman		Exposure. V.Medina [A1-206]			
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		November					Room A5205
		Week 11					
23	24	25	26	27	28	29	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
8:00-9:00							
9:00-10:00							
10:00-11:00	Flooding Risks. Prof. J.A. Jiménez		Hydrological applications of weather radar. The use of weather radar in hydrological modeling M.Berenguer/D.Sempere [A1-206]				
11:00-12:00	Bank erosion and bend scour. A. Bateman	APPLICATION CASE (INF.) FF Risk. A. Diaz	APPLICATION CASE (INF.) Vulnerability. A complete example of Drought analysis. A. Diaz [?]	4.3 How to elaborate risk maps including uncertainty. 5.1 Resilience definitions. 5.2 Resilience Evaluation (A. Bateman, V. Medina)	A complete model. Qgis, Hec Ras and morphodynamic analysis. A. Bateman V. Medina		
12:00-13:00							
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16:00-17:00							

		December					Room A5205	
		Week 12						
30	1	2	3	4	5	6	7	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	
8:00-9:00							8:00-9:00	
9:00-10:00	Final Review. Oral Presentations. Prof. A. Sánchez-Arcilla	Final Exam	Hydrological Applications of weather radar. Early Warning Systems. M.Berenguer/D.Sempere [A1-206]	Final Exam	A complete model. Qgis, Hec Ras and morphodynamic analysis. V. Medina		9:00-10:00	
10:00-11:00							10:00-11:00	
11:00-12:00	A complete model. Qgis, Hec Ras and morphodynamic analysis. V. Medina	Final Exam	Marc Velasco CORFU Cetaqua [A1-206]	Final Exam	A complete model. Qgis, Hec Ras and morphodynamic analysis. V. Medina		11:00-12:00	
12:00-13:00							12:00-13:00	
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14:00-15:00							14:00-15:00	
15:00-16:00							15:00-16:00	
16:00-17:00						16:00-17:00		