

Course: Drought analysis, forecasting and risk assessment

Lecturer: Brunella Bonaccorso

Date: 28/05/2018 – 01/06/2018

Classroom: TBD @ IUSS

Course schedule

Week	Date	Lecture hours	Tutorial hours	Subject	Tot h
		From 09:30 To 12:30	From 13:30 To 16:30		
1	28/05/2018	3	3	DROUGHT DEFINITIONS, IDENTIFICATION AND CHARACTERIZATION	6
	29/05/2018	3	3	DROUGHT MONITORING TOOLS	6
	30/05/2018	3	3	PROBABILISTIC DROUGHT CHARACTERIZATION	6
	31/05/2018	3	3	DROUGHT FORECASTING	6
	01/06/2018	3	3	DROUGHT RISK ASSESSMENT AND MANAGEMENT	6

CONTENT OF THE COURSE

The lack of effective drought monitoring and forecasting transfers, as well as the difficulties in transferring drought risk assessment methodologies to water managers and in defining simple and objective criteria to properly select and implement mitigation measures, represent the main challenges to an appropriate drought management policy. This course will provide theory and methods to address these critical issues, with special reference to advanced methodologies for drought risk assessment, including the implementation of drought indicators meaningful to water managers, policy makers and other stakeholders. In particular, probabilistic methods and stochastic approaches relevant to drought risk management will be presented in details, also by illustrating the results from location-based studies.

The course mainly addresses PhD students in the fields of hydrology, water resources and risk management, interested in monitoring, modelling and forecasting drought and in analysing interrelationships with water scarcity. The course will include applications to real-world case studies in regions subject to significant drought losses, where the importance of drought warning, supported through state-of-the-art monitoring and forecasting of water resources availability is likely to become more important in the future.

SPECIFIC TOPICS

- Drought definition and identification
- Drought monitoring tools
- Characterization of at-site and regional droughts
- Drought forecasting
- Drought risk assessment
- Drought mitigation measures
- Open source data and software packages for drought analysis