

IAG Webinar Malta - Portugal - Spain - Italy

2 March 2022, 10:00 – 13:00 CET

Coordinators: Irene Bollati, Adélia Nunes, Laura del Río, Ritienne Gauci, Francisco Gutiérrez

INTERNATIONAL GEOMORPHOLOGY WEEK 2022



10:15 – 10:35

Monitoring of coastal erosion using remote images; comparison between physically and remotely acquired data on a limestone coast

Joanna Causon Deguara, University of Malta, Malta

Boulder detachment by waves is one type of erosional process that affects rocky coasts. Quantifying this process by physically measuring boulders can be very laborious and time consuming, and can be facilitated by using high resolution aerial photographs. This study compares physically obtained boulder data with those derived from aerial images captured by UAV.



10:35 – 10:55

Geomorphic evidence of liquefaction processes. Methodologies and results from case studies onshore and offshore

Monica Giona Bucci, University of Malta, Malta

The surface manifestation of liquefaction features is used onshore as a paleoseismic marker for the occurrence of past earthquakes. This is particularly true on specific geomorphic features such as point bars or coastal dunes that are susceptible to this process. In the subaquatic setting liquefaction is often related to landsliding processes but its significance as a paleoseismic marker warrants further investigations.



10:55 – 11:15

Rainfall thresholds for landslide activity based on long-term Portuguese stations

Teresa Vaz, University of Lisbon, Portugal

Rainfall is the most important physical process for landslide triggering in Portugal. In this research the occurrence of landslides triggered by rainfall was investigated through the assessment of rainfall thresholds. An historical landslide inventory was used, associated with daily precipitation databases from long-term meteorological stations. The thresholds were defined and compared for three Portuguese regions, using an empirical approach based on antecedent rainfall.



11:15 – 11:35

Evaluation of the endokarst potential in the northern sector of the Santo António Plateau (Estremadura Limestone Massif, Central Portugal)

Luís Conceição Reis, University of Coimbra, Portugal

In a carbonate massif, the occurrence of karst caves depends on several conditioning factors (lithology, geological structure, topography, land cover, etc.). In the main karstified massif of Portugal, these factors were weighted using analytic hierarchy process and integrated in a GIS. The results seem promising, as the entrances of the known caves are mainly located in areas classified as having high to very high "endokarst potential".



11:35 – 11:55

Coastal geomorphic changes induced by high-energy storms

Emilia Guisado, University of Seville, Spain

Low-frequency, high-magnitude storm events can significantly alter dune-fringed coastlines, changing the geomorphological configuration of coastal landforms and shoreline position. However, the coastal response to these events has shown to be non-linear in nature. In this presentation, the medium to short-term geomorphological response of shorelines and related dune systems is analyzed using a combination of *in situ* measuring techniques (terrestrial laser scanning, fixed-point photography, DGPS surveys and wave nearshore modelling).



11:55 – 12:15

Inferring geomorphic processes and sediment budget in badland areas by means of repeated high-resolution topography

Manel Llana, University of Lleida, Spain

Badlands landscapes show high erosion rates and represent the main source of fine sediments in some catchments. High-resolution topography data sets have improved the spatial and temporal scales at which we are able to infer the geomorphic processes and estimate the sediment budget of these areas through the analysis of landform signatures and the computation of topographic changes.



12:15 – 12:35

How geomorphic processes conditioned the evolution of the Greek-Roman city of Tyndaris (Messina Province, Northern Sicily, Italy)

Mauro Bonasera, University of Turin, Italy

According to Pliny the Elder, ancient Tyndaris, one of the most important Greek-Roman colonies overlooking the southern Tyrrhenian Sea, rapidly declined in the First Century AD because of natural disasters. A geomorphological survey aims to shed light on the occurred phenomena, flanked by UAV flights and photogrammetry. The results show why the geomorphology weighed upon Tyndaris urban features.



12:35 – 12:55

Soils as a tool for reconstructing geomorphic dynamics in mountain environments

Anna Masseroli, Università degli Studi di Milano, Italy

In mountain environments, soil genesis, development, and preservation are largely controlled by topography and geomorphological dynamics. An exhaustive investigation of soils and paleosols in such environments can help to reconstruct past environmental conditions and to infer bio-rhexistasy phases. We focus on the role of the soil as a useful archive for retracing the geomorphological processes responsible for the landscape evolution during the Late Holocene, analyzing different study cases, from both the Italian Alps and Apennines.