



IAG Webinar Iberia



Date: 1st March 2021 at 12:00 – 16:30 CET

Coordinators: Dr. Gloria Desir and Dr. Adélia Nunes



Dr. Davinia Moreno
García.
CENIEH Burgos, Spain

12:00 – 12:30

“On the potential of ESR dating in Geomorphology”

Abstract: Electron Spin Resonance (ESR) is one of the so-called trapped-charge dating methods along with Optically Stimulated Luminescence (OSL) and Thermoluminescence (TL). ESR dating exceeds both of these in utility due to longer time range (from ~10 ka to 3 Ma) and greater variety of suitable sample types (fossil teeth, stalagmites, quartz...). Since the first published paper in 1985, the method has been applied to very diverse archaeological settings and depositional environments. Although not yet a widely used technique, this method shows a huge potential in geomorphological studies to understand long-term landscape evolution or to assess the seismogenic potential of a fault, among others applications.

Keywords: *GEOCRONOLOGY, ESR and ESR/U DATING*

"Application of Trenching techniques to investigation of gravitational processes"

Abstract: The Trenching technique allows the study of surface deformation by the analysis of the stratigraphic and structural relationships exposed in artificial excavations. Its use is widely extended in paleo-seismological investigations to evaluate the seismogenic potential of active faults. However, its application to the investigation of gravitational deformation phenomena has been very limited and it is especially scarce when dealing with structures related to the dissolution of evaporites. Trenching may provide a great deal of practical information upon which to base our decisions regarding the hazard management of gravitational structures (landslides, sinkholes, gravitational faults) including precise limits, failure mechanisms, chronology, displacement regime (continuous or episodic) and long-term slip rate.

Keywords: *TRENCHING, GPR, ERT*



Dr. Domingo Carbonel
Portero
Earth Sciences Department,
University of Zaragoza, Spain

12:30 – 13:00



Dr. Lara Talavera
Madrigal
University of Algarve, Faro,
Portugal.

13:00 – 13:30

“The use of drones in coastal geomorphology”

Abstract: Drones have become a potential methodology for monitoring the coast. They allow the acquisition of highly precise and cost-effective topographic data at spatial and temporal scales not previously achievable by traditional remote-sensing techniques. The photogrammetric products derived from drone imagery (e.g. 3D point clouds, Digital Elevation Models, and mosaics) are useful for the detection of detailed coastal features and geomorphic changes associated to different coastal processes. However, the quality of the data is strongly dependent not only on a meticulous plan of both the flight and camera parameters, but also on additional factors that will be discussed in this webinar.

Keywords: *DRONES, COASTAL PROCESSES*

“Geomorphic restoration for reestablishment of landform stability. Examples in Spain”

Abstract: Human earth movement activities, such as mining or civil engineering, usually modify the landscapes and their ecosystems. As a consequence, severe environmental impacts occur, such as vegetation and landforms degradation (on-site effects), or downstream hydrological effects (off-site effects). Those impacts can be reversed with ecological restoration practices, for which, when earth movement is involved, the first step is to create new functional and steady-state landforms, as the foundation of new healthy ecosystem. In this context, Geomorphic Restoration arises as a novel discipline, based mostly on reconstructing fluvial channels and related hillslopes that mimic natural landscapes. Spain is a leading country in this respect, with dozens of built and designed examples.

Keywords: *GEOMORPHIC RECLAMATION*



Dr. Ignacio Zapico
Alonso
Complutense University,
Madrid, Spain

13:30 – 14:00



Raquel Melo
IGOT – University of Lisbon,
Portugal

14:30 – 15:00

Identifying buildings at risk and pedestrian travel times to safety areas in a debris flow worst-case scenario

Abstract: Mountainous areas are prone to the occurrence of fast-moving landslides, thus the human development in such areas increase the exposure of people and properties leading to extensive human losses and socioeconomic impacts. In this study, we performed a debris flow run-out simulation, using a dynamic model, in a Portuguese mountainous area where debris flows have occurred in the past. Furthermore, a methodology for pedestrian evacuation modelling, based on an anisotropic approach, was developed allowing the identification of buildings at risk and pedestrian travel times to safety areas.

Landscape changes through fire: topics on soil erosion

Abstract: Soil erosion promoted by rainfall constitutes a major land degradation process. The occurrence of heavy, often localized, precipitation can cause severe erosion and increase the risk of flash flooding and debris flow. However, its occurrence in very specific situations, such as in areas affected by forest fires, changes significantly the behavior of the different factors and processes, as well as the conditions related with erodibility, contributing for an increasing erosion risk. In fact, forest fires produce a major impact on soil, being considered the major cause of soil degradation and desertification, and promoting significant changes on landscape features and landforms.



António Vieira
University of Minho, Portugal

15:00 – 15:30



Alberto Gomes
Faculdade de Letras da
Universidade do PortoA

15:30 – 16:00

Alluvial fans on volcanic islands: insights from the Cape Verde Archipelago

Abstract: Alluvial fans are common landforms on Cape Verde volcanic islands. These landforms possess significant large spatial and long temporal potential to inform on climate change sensitive drylands, namely the African Humid Periods. Using São Vicente island, it was investigated the distribution, morphology, and development of volcanic island alluvial fans. Focusing on the coalescent coastal alluvial fans developed on Santo Antão island, results of an ongoing research suggest the fan surface is a composite Late Pleistocene feature formed by spatially and temporally distinct lobes between: 1) 80-90ka; 2) 50-60ka and 3) 10-20ka; a chronology coincident with the onset of AHP events.

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