

# INTERNATIONAL ASSOCIATION OF GEOMORPHOLOGISTS (IAG)

## IAG Webinar South and West Asia

Date: 1 March 2021 at 13:00 – 17:00 IST (8.30-12.30 CET)

Coordinators: Prof. Suman Kumar Das (North Eastern Hill University, India), Prof. Adel Sepehr (Persian University of Mashhad, Iran)

**“On the potential of ESR dating in geomorphology”**  
Dr. Omer Dincer and Dr. Adnan Nurettin

**“Application of Trenching Techniques to Investigation of gravitational processes”**  
Dr. Omer Dincer

**“The use of drones in coastal geomorphology”**  
Dr. Omer Dincer

**“Geomorphic restoration for reestablishment of landform stability. Examples in Spain”**  
Dr. Omer Dincer

**“Earthquake-driven coastal change”**  
Dr. Omer Dincer

**“Perpetuation of earth surface processes by geomorphological and meteorological processes in the Nepal Himalayas”**  
Dr. Omer Dincer

**“Palaeoseismicity with reference to Cretaceous dominions in the Chongqing Shengyan Valley, Sichuan Himalayas”**  
Dr. Omer Dincer

**“Geomorphological features analysis by means of UAV-derived high-resolution DEMs for selecting tsunami vertical evacuation routes and planning”**  
Dr. Omer Dincer

**“Applicability of geomorphological change detection and photogrammetry for geomorphological change detection and recognition”**  
Dr. Omer Dincer

**“Message from coordinators/chairpersons”**  
Dr. Omer Dincer

## IAG Webinar East & Southeast Asia

March 6 (Sat), 2021, 15:00-18:20 UTC+9 / 14:00-17:20 UTC+8 / 6:00-9:20 UTC

**Mountain building process of the frontal mountain belt through an earthquake cycle**  
In central Taiwan

**Dam failure and a catastrophic flood in the Mekong basin (Bhutan plateau), southern Laos, 2018**  
A reservoir dam failure in Laos on July 23, 2018 caused catastrophic flooding that resulted in many fatalities and displaced thousands of individuals. Our analysis shows that the dam collapsed as the reservoir was 10% below its full capacity. Inspection of photographs of failed dams confirms that the failure was structural. Analysis of imagery and field observations reveals that the flooding inundated 100 km<sup>2</sup> of village dwellings. Through 2D hydrological modeling, we calculate a peak flood discharge of ~8300 m<sup>3</sup>/sec. The dam failure and catastrophic losses are consistent with common weaknesses in the region in assessing potential risks.

## IAG Webinar North America & Costa Rica

Date: 4 March 2021 at 18:00 – 21:30 CET / 09:00 – 13:30 PST / 12:00 – 16:30 EST

Coordinators: Alan James, North America; Special thanks to Susan Conway, IAG VP; Allan James, Mauro Soldati, Susan Conway; Maria C. Palacios, Technical support for Zoom

**Welcome and introduction**  
Allan James, Mauro Soldati, Susan Conway

**Morphodynamics of a bedrock-confined estuary along active continental margins**  
Eva Koval, University of British Columbia, Canada

**Periglacial and cryo-concentric considerations for polar desert slopes**  
Michal Jaqueite, Montreal Permafrost Info Network, Quebec, Canada

**Disentangling the Holocene Sotolago during the African Humid Period**  
Ben-Pai P. McCool, Sepagroup University, Indiana, U.S.A.

**Dunes on Earth and Mars: Morphological and stratigraphic similarities across planets**  
Makoto Date, University of California, California, U.S.A.

**Low-cost UAV applications in tropical geomorphology**  
Selatun Granados-Romero, University of Costa Rica, Costa Rica

**Geomorphological effects of tropical cyclones in Costa Rica**  
Adolfo Rosales-Romero, University of Costa Rica, Costa Rica

**Chute Cuts, Neck Cuts, and why the Difference Might Not Matter**  
Quinn Lewis, University of Waterloo, Ontario, Canada

**Neck cutoff on meandering rivers and the importance of channel curvature**  
Kory Koser, LSU Coastal Studies Institute, Louisiana, U.S.A.

**High-resolution geomorphic change detection in fluvial environments**  
Janice Dietrich, University of Northern Iowa, Iowa, U.S.A.

**Biogeomorphic controls on wood and organic matter loads in floodplains**  
Katherine B. Linger, University of Colorado-Boulder, Colorado, U.S.A.

**The Big Horn River: Loss of geomorphic diversity and adaptive management opportunities**  
Melissa Foster, Bureau of Reclamation-Denver, Colorado, U.S.A.

## IAG Webinar Central & Western Europe

1<sup>st</sup> March, 15:00 – 17:00 CET

Coordinators: Emmanuel Reynard (UNIL, Switzerland)

**Fire shapes the Earth surface**  
Fire is a component of the Earth surface since the Shale, when plants have emerged. Across the globe, fire is shaping vegetation-covered land surfaces in ways in excess of the growing regime. Rather than on volcanic systems of sediment trapped in reservoirs, great fire dynamics and measurements of landscape change, this study demonstrates that over the last century, fire has been a significant driver of landscape change, and the challenge in the Nigerian research, information used in the presentation is based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**The impact of old abandoned wells on sediment longitudinal connectivity**  
This is a lack of knowledge concerning the effects of wells on sediment longitudinal connectivity. This issue is addressed through the multi-scale analysis of the impact of old abandoned wells on sediment connectivity. Based on volumetric analysis of sediment trapped in reservoirs, great fire dynamics and measurements of landscape change, this study demonstrates that over the last century, fire has been a significant driver of landscape change, and the challenge in the Nigerian research, information used in the presentation is based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**Post-glacial dynamics and ground ice evolution in Little Ice Age glacier forefields (western Swiss Alps)**  
Permafrost environments, mountain peaks and frozen-dune landscapes have coexisted since the last glacial period. The Little Ice Age (LIA) is a period of the last glacial period and has contributed to the present-day geomorphology and landscape evolution of glacier forefields. This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**On slope stability and sediment transfer in a high alpine environment using close-range remote sensing**  
Recent research has demonstrated the importance of close-range remote sensing in the study of slope stability and sediment transfer. This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**Climate change effects on mountain geomorphological evolution of the routes in the Mont Blanc massif**  
High mountain environments are particularly sensitive to climate change, which leads to glacial retreat and permafrost warming. As a result, mountainous routes and their climbing parameters (technical, equipment and safety) are subject to significant change. This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**Anticipating the rock fall response to deglacialing potential**  
Predicting and modeling the future development of potential permafrost is a key requirement for anticipating the response of rock fall hazards in a changing climate. This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**Landscapes changing face: fire topics on soil erosion**  
Recent research has demonstrated the importance of close-range remote sensing in the study of slope stability and sediment transfer. This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**Alfaroan fans on volcanic islands: insights from the Cape Verde Archipelago**  
Alfaroan fans are common landforms in Cape Verde volcanic islands. These landforms provide a unique record of volcanic activity and climate change. This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

## IAG Webinar Central & Eastern Europe

Thursday, March 4, 2021, 14:00-18:35 CET

Coordinators: Piotr Migon, Konstantinos Voulvaldis, Mihai Micu

**Geomorphology of the old and abandoned underground state mines (Nagy Jánosfalva, Czechia)**  
This presentation brings the results of some geomorphological investigations of underground abandoned state mines. It provides an overview of the respective geomorphological forms, both from the context of geomorphological processes, and outlines their origin and evolution from a spatial and temporal point of view. For this study, the case of the Nagy Jánosfalva mine in Czechia was chosen for the presentation and natural character of the mine.

**Tectonic geomorphology as a tool in seismic hazard assessment: study of deformations in karst caves of East Serbian Karst-Balkanians**  
Methods to determine seismic hazard in a region which can be regarded as one of two main groups: one based on probabilistic methods, and another, which is based on data related to the faulting process and deformation of actively active faults. Here, we present evidence about the younger and recent tectonic activity in the region of Karst-Balkanians in Serbia, based on tectonic geomorphological data from karst caves. Results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Geomorphological and geological factors of natural hazards in the Ukrainian Carpathians**  
The consideration is given to geological and geomorphological factors of natural hazards in the Ukrainian Carpathians. These processes have great impact on people's lives and infrastructure. The impact of rock fall, landslides, and debris flows is particularly significant. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Intensity of chemical denudation by limestone pyrites experiment (case study Slovak karst)**  
Over 4 years, we observed changes at two sites at three different depths, for a total of 18 plates at each site. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Landslides in the East-Western Carpathians, Czechia**  
This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**Recent development of a windy glacial marginal zone and maritime periglacial (South Shetland Islands, Antarctica)**  
The study of this study was to identify and map glacial and periglacial landforms developed in front of Windy Glacier (King George Island, South Shetland Islands), which recently turned from being glacial to landward. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Palaeohydrological evidence of the river valley of the central part of the East European Plain in the Late Pleistocene**  
The results of large-scale palaeohydrological investigations, with wide time frame, have been used to reconstruct the Late Pleistocene hydrological regime in the East European Plain. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

18:35  
Concluding remarks: Piotr MIGON (University of Wrocław, Poland), Konstantinos VOULVALDIS (Aristotle University of Thessaloniki, Greece), Mihai MICU (Romanian Academy, Romania)

## IAG Webinar Africa

2 March 2021 at 09:00 – 13:00 CET

Coordinator: Ghislain ZANGMO TEFODJOM

**Tracers and Hydro-Geomorphological Researches in Insected Aquifers**  
The use of chemical and isotopic tracers for dating and delineating flow paths in hydro-geomorphological researches is proven, globally, to provide insights in present aquifer hydrodynamics. Review of literature on the Nigerian landscape, however, reveals that insected aquifers are essentially rudimentary, even as many research hypotheses remain undiscovered. This presentation is aimed at providing information about the capacity of tracers for hydro-geomorphological studies and the challenges in the Nigerian research, information used in the presentation is based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**The Wouri Estuary in Cameroon: An Eroding Coastline in the Gulf of Guinea**  
In Cameroon, coastal erosion is a concern in the Wouri estuary with the Cameroonian as a hot spot, there are serious coastal problems at large scale and at local scale. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**The Performance of Different CNN Architectures on Barrenly Aridification Classification**  
Convolutional Neural Networks (CNNs) promise to be a useful tool for automating the image interpretation and classification of satellite imagery. This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**The geomorphic mapping of Unroofed Cave of Crystal Mountain Area, Bahariya - Farafra Depression, Western Desert of Egypt**  
Unroofed cave systems are recognized between the Bahariya and Farafra depressions. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Earth Systems Modelling in Changing Tropical Environment – Southwestern Nigeria**  
Africa landscapes have shown deep effects of geomorphic processes driven largely by climate change and expressed in field patterns. The combined role of geomorphic change modeling and developments in geospatial analysis especially in improving knowledge of basin-scale landscape form and function are understood. This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**Riparian Vegetation and Health of a Typical Humid Tropical River**  
Riparian vegetation is a buffer between the river and the adjacent lands. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Discussion about the IGW2021 and Perspectives**  
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Coordinator: Ghislain ZANGMO TEFODJOM

**Geochronological Sites Assessment for Geospatial Purposes in Ase Mountains, Saudi Arabia**  
The geochronological sites assessment and processes playing a key role in the understanding the history of earth and having a strong relationship with the geomorphological and landscape changes. This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**The Residual Sismic Landscapes of the Igil-Igildir Peninsula (North Cameroon)**  
Penetration surfaces play an important role in the geomorphological evolution of an area. The extension of the Igil-Igildir peninsula in northern Cameroon is a good example of a residual seismic landscape. This study addresses the geomorphological evolution of the LIA in the western Swiss Alps, based on the results of the 1<sup>st</sup> IAG Webinar on fire shapes the Earth surface.

**Combination of Remote Sensing and GIS in the Study of the Spatial-Temporal Dynamics of Desertification in the Boumahout Watershed: The Effect of the Topographic Factor**  
Desertification is a global problem that affects the environment and the economy. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Flash Flood Modeling and Monitoring of Groundwater Recharge in Alluvial Aquifers**  
The present study, using Wadi Akhik catchment as a test site, integrates remote sensing datasets with field and geospatial measurements to assess flash flood hazards, suggest mitigation measures, and examine recharge to alluvial aquifers. Estimated peak discharge of 13 March 2020 flood event was 97 m<sup>3</sup>/s, which exceeded the capacity of the culverts (60 m<sup>3</sup>/s), and a new dam was suggested, where 75% of the catchment could be controlled. The monitoring of water infiltration into the alluvial aquifer using time-lapse electrical resistivity tomography (ERT) and geophysics showed a limited connection between the wetland sediments and the water table.

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## IAG Webinar Central & Eastern Europe

Thursday, March 4, 2021, 14:00-18:35 CET

Coordinators: Piotr Migon, Konstantinos Voulvaldis, Mihai Micu

**Present, present and future: how variations in sea level are reflected on the coastline**  
Shoreline behaviour is indicative of the trends which the coastal system is subject to, understanding the latest geomorphological processes is essential to evaluate the coastal geomorphology. In this talk, it will be presented the results of an investigation carried out along the Sicilian coastline, examining the level, were, morphology data and satellite imagery.

**Planetary geomorphology brings worlds closer together through comparative geomorphology**  
Geomorphology as a discipline has extended its horizons reaching other celestial bodies. Planets, dwarf planets, moons and planetary satellites have been studied using comparative geomorphology. Through indirect interplanetary surfaces can be interpreted in a comparative way. In this talk, the different worlds will be explored, revealing the characteristic landforms of each of them and how comparative study enhances this discipline.

**Deciphering the responses of Pánuí megafan to postglacial paleoenvironmental changes: lessons from the Pantanal plain, Brazil**  
The evolution of megafans is closely related to tectonic and climatic factors at various space-time scales. In this lecture, I will focus on how new megafans respond to environmental changes during the last Quaternary. I will present our methodological approach and the main research results.

**Morphodynamics of dune fields and water interactions of dune fields influenced river mouths**  
Abstract At the mouth of river delta fields form massive systems of sediments, both riverine and large scale, which are the most prominent geomorphological features in the world. These systems are shaped by a variety of factors, including the influence of tectonic and climatic factors. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Geomorphological characteristics of dune fields and valley systems: insights from studies on valley networks in desertic tablelands**  
Sandstone plateaus form some of the world's most spectacular and distinctive relief, often protected by natural Parks or nature reserves. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

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## IAG Webinar Africa

2 March 2021 at 09:00 – 13:00 CET

Coordinator: Ghislain ZANGMO TEFODJOM

**Geochronological Sites Assessment for Geospatial Purposes in Ase Mountains, Saudi Arabia**  
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## IAG Webinar W. Europe & British Isles

Tuesday 2<sup>nd</sup> March 2021 14:00-18:30 CET

Coordinators: Susan Conway & Mauro Soldati

**High mountain landforms evolution along recently deglaciated areas of Turkey**  
High mountain landforms are one of the most dynamic landscapes on Earth and are sensitive to climate change. The effects of climatic forcing are especially critical in high-altitude mountain ranges, such as those in the Eastern Mediterranean region. We focus on recently deglaciated areas of Turkey with the evolution of landforms forced by the rapid structural and climatic settings. We considered two areas with different structural and climatic settings: the Akdağ and the Ağrı and the Çukurova. The evolution of landforms along the recently deglaciated areas can explain the different landscape evolution patterns in the region.

**Recent advances in rock wall geomorphology pointing to understand bedrock failure**  
A recent increase in the rate of failure in periglacial rock walls has been attributed to permafrost degradation. To validate this hypothesis we applied a simple transient thermal model to hundreds of observed rockfalls in the Akdağ range and determined the critical relationship between rock wall temperature dynamics and failure occurrence. This is a first step towards prediction of rockfall probability. To improve our understanding of the processes leading to failure, we made a first attempt to couple thermal and hydrological models. The role of water flowing through bedrock fractures enhances the rate of permafrost degradation and affects the periglacial failure distribution.

**Understanding the resistance of UK sea marsh subsoils to erosion**  
UK salt marshes provide habitats and are a sink to atmospheric methane. In many habitats, subsoils are retreating from the seaward edge. This talk combines measurements of substrate composition, pore water chemistry, and pore water flow to understand the resistance of UK sea marsh subsoils to erosion. This talk will be presented by a team of researchers from the University of Southampton, UK.

**Landslide susceptibility modeling and mapping: applications to hurricane-driven scenarios in ciders slopes (Cabo de Sagres, El Salvador)**  
Landslide susceptibility is the probability of a landslide in a specific area based on its local characteristics and assumes that the past is the best predictor of the future. Climate change weakens the resistance of slopes to erosion. This talk will be presented by a team of researchers from the University of Southampton, UK.

**Studies of the 'fill' reservoir and 'coastal flooding' hazards (France, Greece, Canada)**  
This talk will be presented by a team of researchers from the University of Southampton, UK.

## IAG Webinar Australia & New Zealand

4th March 2020-10:00 UTC+8 (15:00-17:00 UTC+13)

Coordinators: Susan Conway & Ian Rutherford

**Reconstructing Holocene climate change using New Zealand mountain glaciers**  
Understanding the Holocene or natural climate variability provides an important context for assessing the impact of anthropogenic climate change. Mountain glaciers are natural archives of climate change. This talk will be presented by a team of researchers from the University of Southampton, UK.

**Geomorphology of beaches geologically controlled by reefs, plateaus and headlands**  
Beaches that are geologically controlled by rock and coral formations are the rare, not the exception. In this talk, we explore the many ways through which geology influences beach morphology and geomorphology, including by accommodation, sediment supply, and gradients in wave energy along the coastline. This talk will be presented by a team of researchers from the University of Southampton, UK.

**Gully Erosion and the Great Barrier Reef**  
Gully erosion is globally significant land degradation problem. In tropical north Queensland, Australia, gullies are a major source of sediment and particulate nutrients delivered to the Great Barrier Reef World Heritage Area. High sediment and nutrient loads from gullies are detrimental to the health of this spectacular natural landscape. This talk will be presented by a team of researchers from the University of Southampton, UK.

**Deciphering the responses of Pánuí megafan to postglacial paleoenvironmental changes: lessons from the Pantanal plain, Brazil**  
The evolution of megafans is closely related to tectonic and climatic factors at various space-time scales. In this lecture, I will focus on how new megafans respond to environmental changes during the last Quaternary. I will present our methodological approach and the main research results.

**Morphodynamics of dune fields and water interactions of dune fields influenced river mouths**  
Abstract At the mouth of river delta fields form massive systems of sediments, both riverine and large scale, which are the most prominent geomorphological features in the world. These systems are shaped by a variety of factors, including the influence of tectonic and climatic factors. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Geomorphological characteristics of dune fields and valley systems: insights from studies on valley networks in desertic tablelands**  
Sandstone plateaus form some of the world's most spectacular and distinctive relief, often protected by natural Parks or nature reserves. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Recent development of a windy glacial marginal zone and maritime periglacial (South Shetland Islands, Antarctica)**  
The study of this study was to identify and map glacial and periglacial landforms developed in front of Windy Glacier (King George Island, South Shetland Islands), which recently turned from being glacial to landward. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

**Palaeohydrological evidence of the river valley of the central part of the East European Plain in the Late Pleistocene**  
The results of large-scale palaeohydrological investigations, with wide time frame, have been used to reconstruct the Late Pleistocene hydrological regime in the East European Plain. The study is based on images obtained during a UAV flight of the study area. The results show that the area is characterized by strike-slip tectonics, mostly resulting from the faulting process generated by the collision of the Adriatic orogenic belt, the Balkan orogenic belt and the tectonic units in between.

## IAG Webinar Northern Europe

Date: 3 March 2021 at 13:00 – 17:00 CET

Coordinators: Dr. Katja Lauer and Dr. Achim A. Beylich

**Geomorphic evidence for paleo-ice streams in NE-Sweden**  
Ice-core streams in Iceland have been previously proposed on the basis of the configuration of fjords and valleys, stratigraphic, glaciological, and geomorphological evidence. This talk will be presented by a team of researchers from the University of Southampton, UK.

**Bedrock weathering in formerly glaciated landscapes**  
Norway is riddled with bedrock landscapes with limited soil development, and frequent preservation of glacial indicators such as striae and chatter marks. This shows that bedrock weathering rates were often negligible during the LIA since the last remnants of the Scandinavian ice sheet vanished. Weathered landscapes existing within the same regions are therefore often considered to have formed heavily cold-based ice. Using cosmogenic nuclide chronometry to assess the recent erosional history of weathered bedrock, this talk from the Norwegian coast, we find that weathering rates can be both significant and not necessarily related to ice sheet retreat.

**What can surface-processes tell us about rock-slope failure activity in Norway?**  
Norway's characteristic landscape of steeply incised fjords and fjord valleys is the result of a long history of glacial erosion and glacial indicators such as striae and chatter marks. This shows that bedrock weathering rates were often negligible during the LIA since the last remnants of the Scandinavian ice sheet vanished. Weathered landscapes existing within the same regions are therefore often considered to have formed heavily cold-based ice. Using cosmogenic nuclide chronometry to assess the recent erosional history of weathered bedrock, this talk from the Norwegian coast, we find that weathering rates can be both significant and not necessarily related to ice sheet retreat.

**Coastal barrier-chain response to Holocene environmental change**  
Global climate change and sea-level rise are among the great societal challenges in the 21st century with consequences for more than half of the world's population living in the coastal zone. Holocene coastal barrier chains complex record of climate environmental changes such as changes in sea level, sediment supply and storminess. In this talk, the results of a study deciphering the evolution of the coastal barrier chains barrier chain is presented. It shows how sea level changes, changes in sediment supply, a catastrophic erosion along with large-scale erosion of the coastal barrier chains the evolution of the barrier chain.

**Impacts of permafrost erosion and its possible future changes on the hydro- and morphodynamics of northern rivers**  
There is a knowledge gap concerning how the future erosion of permafrost and its possible future changes affect the northern rivers. This talk will be presented by a team of researchers from the University of Southampton, UK.

**To Mars, via Svalbard and Antarctica**  
On Mars, ample evidence exists for water, ice, and permafrost. This talk will be presented by a team of researchers from the University of Southampton, UK.

18:35  
Concluding remarks: Piotr MIGON (University of Wrocław, Poland), Konstantinos VOULVALDIS (Aristotle University of Thessaloniki, Greece), Mihai MICU (Romanian Academy, Romania)

## IAG Webinar W. Europe & British Isles

Tuesday 2<sup>nd</sup> March 2021 14:00-18:30 CET

Coordinators: Susan Conway & Mauro Soldati

**Reconstructing the quaternary evolution of the Ardèche river through karst-river relationships and multi-method dating**  
The Ardèche river (Ardèche, France), is famous for its deep karstic gorges and represent one of the most recent karstic rivers in the area. It is also a central topic of the IGW2021. This talk will be presented by a team of researchers from the University of Southampton, UK.

**Surface modification factors on Mars impact to a climate that was radically different in the past**  
However, climate models have difficulty simulating the Earth's atmosphere at the surface, suggesting that the surface modification factors on Mars are different from those on Earth. This talk will be presented by a team of researchers from the University of Southampton, UK.

**Integrating terrestrial and marine geo-environmental datasets: geomorphological applications and technological advances**  
Integrating terrestrial and marine geo-environmental datasets is a challenge. This talk will be presented by a team of researchers from the University of Southampton, UK.

**Seismic geomorphology and history of the northwest Greenland Ice Sheet**  
Trough moraine fans are a common sedimentary feature on glaciated margins and contain a record of ice sheet advance and retreat across the continental shelf. This work uses 2D and 3D seismic reflection data across the northern Baffin Sea, offshore northwest Greenland, to document the stratigraphic architecture and geomorphology of the fan. These results document glacial landforms buried in the subsurface and provide new details on large-scale glacial and marine depositional processes during the repeated fluctuations of the northwest Greenland Ice Sheet since the last glacial period (~22 ka).

**Tectonic implications of raised Late-Quaternary paleo-shorelines along the Tyrrhenian coast of Southern Apennines, Italy**  
An impressive flight of marine terraces along the Tyrrhenian coast of Southern Apennines, Italy, from the Tyrrhenian Sea to the Tyrrhenian Sea, shows a clear record of sea level rise. This talk will be presented by a team of researchers from the University of Southampton, UK.

**Quantifying rates of ice-sheet landform evolution in the high-Arctic**  
Ice-core moraines are commonly found at the margins of retreating high-Arctic glaciers. Advances in our ability to detect and monitor surface change using high-resolution multi-temporal digital elevation models provide an opportunity to investigate ice-sheet dynamics and to constrain the rates of ice-sheet landform evolution. This talk will be presented by a team of researchers from the University of Southampton, UK.

## IAG Webinar Northern Europe

Date: 3 March 2021 at 13:00 – 17:00 CET

Coordinators: Dr. Katja Lauer and Dr. Achim A. Beylich

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