



IAG Webinar E/SE Asia & Oceania

March 2 (Wed), 2022, 1:00-4:00 CET (9-12 JST, 11-14 AEDT)

Coordinators: Ian Rutherford, Noellyna Ramos & Takashi Oguchi

INTERNATIONAL GEOMORPHOLOGY WEEK 2022

Reading the story of climate change from fluvial sediment loads: the case of High Mountain Asia

Dr. Dongfeng Li, National University of Singapore, Singapore

Rivers originating in High Mountain Asia (HMA) are crucial lifelines for one-third of the world's population. These fragile headwater rivers are now experiencing amplified climate change, glacier melt, and permafrost thaw. The rapid climate change and melting and thawing of the cryosphere are not only affecting the water cycle but also influencing the sediment erosion and transport. Here, we show that a warmer and wetter climate has driven the substantial increases in the fluvial sediment loads in the glacier and permafrost landscapes of HMA. The increasing fluvial sediment loads could negatively affect water quality and hydropower in the region and beyond.

01:00 – 01:20



Cretaceous to Cenozoic controls on the genesis of the shelf-incising Perth Canyon; insights from a two-part geomorphology mapping approach

Dr Rachel Nanson, Geoscience Australia

Geoscience Australia has been working with equivalent organisations in the United Kingdom, Norway and Ireland to develop a standardised marine geomorphology mapping scheme. This talk will demonstrate the utility of this approach for capturing the diversity of geomorphic forms in one of Australia's largest marine canyons, and will demonstrate the links between shallower geomorphology and deeper geological controls on the evolution of this ancient feature.

01:20 – 01:40



Environment changes of the lower Ayeyarwady River, Myanmar, related with flooding history

Dr. Kay Thwe Hlaing, Rector, Yangon University of Education, Myanmar

The long record of fluvial environmental change along the lower Ayeyarwady River after the last glacial period is clarified by using terrestrial environmental records. Three methods were applied in this study: (1) Geomorphological land-classification mapping by using aerial photos, digital elevation models and satellite images linked to geographic information systems; (2) description and interpretation of a stratigraphic column using a sediment core drilled at Nyaungdon on February 17, 2010; and (3) analysis of core samples for grain size distribution, EC, pH, and ¹⁴C ages.

01:40 – 02:00



Tourism impacts to karst environment in the Philippines: A case study of two contrasting geomorphic terrains

Ms. Liza Socorro J. Manzano, Mines and Geosciences Bureau, Philippines

Degradation of tropical karst in the Philippines is influenced by both natural and anthropogenic factors. Due to limited legislative and policy support, the appropriate management of karst in line with sustainable development remain to be a challenge. A three-way approach using geological, geomorphological, and hydrogeological assessment was done in key tourism sites of El Nido, Northern Palawan and Siargao Island, Surigao del Norte. Land use classification and geological information are evaluated to determine the anthropogenic-driven changes in karst landscape and groundwater resources.

02:00 – 02:20



How Geomorphology controls biodiversity (especially lizards) in the Australian deserts

Dr Mitzy Pepper, Division of Ecology & Evolution, Australian National University

The distribution of lizards in arid Australia is an example of the complex influence of geology and geomorphological processes in shaping contemporary genetic patterns. My talk will focus on the exciting synthesis of biology and geomorphology in understanding the evolution of both the biodiversity, and the landscapes of the Australian deserts.

02:20 – 02:40



Sediment transport processes and landform changes during flood events in Japanese mountainous river basins

Dr. Naoko Nagumo, International Centre for Water Hazard and Risk Management, Japan

In recent years, floods with a large volume of sediment have occurred often in Japan, causing serious channel changes and bed deformation and producing tremendous damage in mountainous river basins. Investigating sediment transport processes as well as extent and depth of floods are important for understanding fluvial landform development and detecting areas at high risk of inundation and active landform deformation. This presentation will demonstrate characteristics of recent sediment-related flood cases by focusing on sediment transport capacity of river channels as an indicator to explain the processes of sediment transport and deposition.

02:40 – 03:00





03:00 – 03:20

A method for measuring the integrated effects of hydrodynamic and eco-geomorphic controls on river channel adjustment*Prof. He Qing Huang, Institute of Geographic Sciences and Natural Resources Research, CAS, China*

Alluvial rivers commonly are subject to the integrated effects of hydrodynamic and eco-geomorphologic controls and there has been a lack of suitable methods to measure the effects. In light of the advances in equilibrium theory governing alluvial channel flow, our recent study provides a theoretical reasoning for using a non-dimensional number H reflecting the equilibrium state of alluvial channel flow to determine if hydrodynamic control is maximal. By taking the alluvial reach of the Yellow River over the Yinchuan Plain as a suitable example, our study demonstrates that the H number is a good discriminator of river channel patterns.



03:20 – 03:40

Beyond the 'right river': rethinking fluvial condition in Aotearoa New Zealand*Dr Brendon Blue, Victoria University of Wellington, New Zealand,*

In Aotearoa New Zealand, Indigenous-led initiatives are challenging predominant thinking about how rivers could and should be. Here I will present recent scholarship regarding Te Mana o te Wai and legal personhood for the Whanganui River, reflecting on what these developments might mean for the practice of geomorphology.

3:40-4:00 General Discussion