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Unlocking deeper time perspectives on rivers and their contribution to landscape change

Abstract: This talk will examine the relative role of rivers in driving landscape change over million year and longer time-scales. We will begin by examining how we can best achieve this using a combination of selective environments and landforms. We will focus on reading the geomorphology and sedimentology of some of the oldest landscapes in the world whilst journeying through predominantly arid environments using the field research of the author in key field sites in Spain, Morocco and Chile. These examples will provide opportunity to examine the factors that shape Quaternary and Miocene landscapes in the near absence of (macro) vegetation. We will explore the geomorphological and sedimentological signature stored within landforms such as alluvial fans and river terraces and adjacent environments such as slopes and lakes. These examples will enable us to consider how our understanding has developed in terms of the way fluvial landscapes respond to external environmental changes such as rapid base-level change and modification of sediment and water inputs.

Biography: Professor Anne Mather began her geoscience education in NZ through exposure to amazing geomorphology as a small child. This sowed the seed that lead to the study of a Joint Honours degree in Geography and Geology at the university of Hull, followed by a PhD in Geology at the University of Liverpool (after a brief excursion into the petroleum Industry). This dual geomorphology and geology perspective has driven her research focus, combining geology and geomorphology in the study of landscape processes over long time-scales. After her PhD she lectured at Worcester University for two years before joining the School of Geography, Earth and Environmental Sciences at the University of Plymouth in 1992. She joined University of Plymouth as a Lecturer and progressed to Professor in 2016. Her research has applied the tools of sedimentology and geomorphology to a range of geoscience challenges addressing Quaternary landscape change in predominantly dryland and tectonically active environments. A particular focus is how we can better quantify palaeoevents (eg flood magnitude; rates of catchment change, drainage reorganisation) using a combination of field and remote approaches to landscape analysis.