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GLACIERS and CLIMATE CHANGE: THE LONG- and SHORT-TERM PERSPECTIVES

Friday 5 September 2025 08:30 (40 minutes)

Speaker: Prof. Matteo Spagnolo is a glaciologist at the University of Aberdeen and the director of the Scottish Alliance for Geoscience, Environment and Society (SAGES). He obtained a BSc in Natural Sciences at the University of Pisa (Italy), an MSc in GIS and Remote Sensing at the IAO in Firenze (Italy), a Geology PhD at the University of Genova (Italy), before moving to the UK in 2007. Matteo applies various field, Geographic Information System and remote sensing techniques to the study of glacial landforms and glacier response to climate and other forcing (e.g. volcanism). He has worked in alpine and subglacial environments, from the Andes to the Arctic, looking at land surface, subsurface and seabed evidence of past and present-day glacier dynamics. His current research includes the history of glaciations, the interaction between volcanoes and glaciers, the recent evolution of glaciers in the Himalayas in response to climate, and glaciers as water resources under current/future scenarios of global warming.

Abstract: Climate represents the main driver controlling the growth and demise of Earth's ice masses, which in turn play a major role in many physical and biological processes, including sea level, ocean currents, ecosystems, and climate itself, not to mention human activities. Thus, it is no surprise that shrinking and disappearing glaciers are often referred to as amongst the most dramatic evidence of recent, increased warming. Climate, and hence glaciers, have changed often in historical and geological times. The past evolution of glaciers, and history of glaciations, can therefore be used as a way to decipher past climate changes, essential to contextualise current climatic trends and scenarios, and to refine future predictions. In this talk, Prof. Matteo Spagnolo will use evidence of past glaciations (landforms and sediments), ice cores and other geological climate proxies to present a fascinating "recent"(hundred years timescale) and geological (million years timescale) overview of what we know about the Earth's climate history.

Presenter: SPAGNOLO, Matteo (University of Aberdeen)

Session Classification: THE APPLIED PHYSICS DAY: RENEWABLE ENERGIES, THE NUCLEAR ENERGY CASE