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I WEBINAR DEL GIOVEDÌ



Elevation-dependent warming and climate change in mountain areas: strengths and uncertainties

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<https://www.univaq.it/live>

ABSTRACT

This talk will address key aspects of climate change in the mountains. Special attention will be given to elevation-dependent warming (EDW) and to changes in precipitation and its extremes as key components of the hydrological cycle in mountain areas. Some examples of studies assessing the characteristics of EDW in different mountain ranges of the world and particularly looking at the EDW driving mechanisms and key climate feedbacks involved will be provided. These studies mainly rely on the use of CMIP5 global climate models (GCMs), of one specific GCM, EC-Earth, run in specific experiments at very high spatial resolution, and of CORDEX regional models, and the study areas are the main mountain regions in the northern hemisphere mid-latitudes and the tropical and subtropical Andes. The talk will also discuss some results on precipitation, a very challenging variable both to measure and to model in mountain areas, and on its projected changes particularly looking at the Himalayan region where different climatic regimes and circulation patterns lead to different precipitation climatologies in the westernmost and easternmost portions of the area, with different implications for the cryosphere system. Both the EDW and precipitation studies which will be presented reveal the need to improve our knowledge of the drivers of cryosphere changes in the mountains, through improvements in both observational capabilities and in model simulations.

BIOGRAFIA

Elisa Palazzi received the Laurea degree in Physics in 2003 and the PhD in Atmospheric Physics with a focus on Physical Modelling for the Environmental Protection in 2008. Since 2011, she is a Researcher at the Institute of Atmospheric Sciences and Climate of the Italian National Research Council (CNR-ISAC) in Turin. She works on the study of the climate system and Earth-System processes, with a focus on the current and future evolution of the water cycle in mountain regions. Her research interests include the study of precipitation, snow, water resources and elevation-dependent warming in the high-altitude regions of the world. Her activities are performed in collaboration with hydrological, impact and assessment modellers, and within several national and international initiatives, including EU projects under the H2020 programme. She is co-coordinator of the Collaborative Programme "Changes in the Hydrological Cycle" of the European Climate Research Alliance (ECRA) since 2015 and co-lead of the Group on Earth Observations Global Network for Observations and Information in Mountain Environments (GEO-GNOME). She has a long-lasting experience on science popularization addressed to students and to the generic public through laboratory activities, seminars and public conferences.