



First considerations and meteorological control in polycyclic aromatic hydrocarbons (PAH) and heavy metals deposition over alpine glaciers.

Arianna Peron (1,2,3), Carlo Barbante (2,4), Giovanni Bonafè (5), Jacopo Gabrieli (4), Francesco Montanari (5), Elisabetta Pizzul (1), Marco Vecchiato (2), and Renato R. Colucci (6)

(1) University of Trieste, Department of Life Sciences, Italy, (2) Ca' Foscari University of Venice, Department of Environmental Science, Informatics and Statistics, Italy, (4) Institute for the Dynamics of Environmental Processes -CNR-IDPA, Venice, Italy, (5) Regional Agency for Environmental Protection of Friuli Venezia Giulia Region, ARPA FVG, Italy, (6) Department of Earth System Sciences and Environmental Technologies, ISMAR-CNR Trieste, Italy, (3) Unione Meteorologica del Friuli Venezia Giulia - NPO, Udine, Italy

In two areas of the Alps several analyses aiming to verify the presence of PAH and heavy metals deposition have been performed during the ablation season 2016. In relation to the different precipitation regime, exposition and elevation we selected three alpine glaciers owing their peculiar conditions: the Gran Pilastro glacier-Gliderferner, located on the southern side of Mount Gran Pilastro-Hochfeiler (3510 m), and the Western Montasio and Eastern Canin glaciers, located in the southeastern Alps on the northern side of Mount Montasio (2754 m) and Mount Canin (2587 m) respectively. Ice, firn and snow were collected during two different field campaigns in early summer and at the end of the ablation season.

Results have been compared with the calculated back trajectories representing the dynamical main path of hypothetical air volume moving in a three-dimensional wind field, as well as model data of concentration and surface depositions of crustal aerosol and particulate matter. Precipitation occurring at Gran Pilastro glacier-Gliderferner are mostly driven by zonal circulation and frontal passages, while in the Julian Prealps orographic blocking (Stau) in the lower troposphere is able to concentrate large precipitation during prefrontal phases associated with intense southerly winds. Preliminary results highlight the role of topography and different air masses interesting each of the sites in driving pollutants from the potential sources to the monitored glaciers.