EMS Annual Meeting Abstracts
Vol. 14, EMS2017-172, 2017

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

Arianna Peron (1), Carlo Barbante (1,2), Jacopo Gabrieli (2), Marco Vecchiato (1), and Renato R. Colucci (3)

(1) Cà Foscari University, Venice, Italy, (2) Institute for the Dynamics of Environmental Processes -CNR-IDPA, Venice, Italy, (3) Department of Earth System Sciences and Environmental Technologies, ISMAR-CNR

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. Three glaciers were selected, the Gran Pilastro glacier-Gliderferner, located on the southern side of Mount Gran Pilastro-Hochfeiler (3510 m), and the Montasio and Eastern Canin glaciers, located in the southeastern Alps on the northern side of Mount Montasio (2754 m) and Mount Canin (2587 m). Both firn/snow chuncks and water ablation from outlet streams were collected during two different field campaigns in early summer and at the end of the ablation season. In the latter case the water sampling were continuously made over a 24 hours period with intervals of 3 hours and 6 hours for heavy metals and PAH, respectively. This approach allowed to estimate possible changes in the chemical load dependent on daily temperature cycles. Preliminary results highlight the role of topography in driving pollutants from potential sources to the monitored glaciers that have been selected owing their peculiar conditions. Precipitation occurring at Gran Pilastro glacier-Gliderferner are in-fact 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. Results of possible main sources of selected PAH and heavy metals recovered over glacier surfaces are presented for both the studied areas.