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# Meteorological and topographical control in polycyclic aromatic hydrocarbons and heavy metals deposition over alpine glaciers

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In two areas of the Alps several analyses aiming to verify the presence of polycyclic aromatic hydrocarbons 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 the peak of Mount Gran Pilastro-Hochfeiler (3510 m) in the Aurine Alps (Italy); the Western Montasio glacier, located in the southeastern Alps on the northern side of Mount Montasio (2754 m); the Eastern Canin glacier, located in the southeastern Alps on the northern side of Mount Canin-Kanin (2587 m). Ice, firn and snow were collected during two different field campaigns in early summer and at the end of the 2016 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 in the clouds 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 of selected polycyclic aromatic hydrocarbons and heavy metals recovered over the monitored glaciers surfaces.