



Aeolian transport of Icelandic dust: a look from Space

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Iceland represents a unique type of Arctic environment where glaciers capture the precipitation, consequently forming large deserts on the leeward side. Deserts are subject to strong winds and dust is reported to be suspended at least 135 days a year. Icelandic dust has seven major dust sources in extensive deserts, consisting mainly of volcanic glass. In this paper, we address a new approach to the question of the island's contribution to atmospheric dust transport in the North Atlantic and Arctic Oceans. We explore the strengths and limitations of satellite imagery for the study of high altitude dust storm phenomenon, and more specifically the potential of freely available set of tools for remote sensing and spatial data analysis, the Earth Engine provided by Google. This cloud-based geospatial processing platform requires only a web browser on the side of a user, and it allows writing powerful and versatile algorithms for scientific analysis of spatial data. We demonstrate how this approach can be applied to mapping of Icelandic dust sources and studying the wind erosion and transport of particles in the atmosphere in high latitudes.