



Atmospheric and environmental impacts of volcanic ash particle emissions

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Globally, at any one time, there may be 20 volcanoes erupting that collectively emit a constant flux of gases and aerosol, including silicate particles (tephra), to the atmosphere which influences processes including cloud microphysics, heterogeneous chemistry and radiative balance. The nature and impact of atmospheric volcanic particle fluxes depend on total mass erupted, emission rate, emission source location, physical and chemical properties of the particles, and the location and residence time of the particles in the atmosphere. Removal of ash particles from the atmosphere through sedimentation is strongly influenced by particle aggregation through hydrometeor formation, and convective instabilities such as mammatus.

I will address the following questions: What are the atmospheric impacts of volcanic ash emissions? What controls the residence time of volcanic particles in the atmosphere? What affects particle accumulation at the surface? And what are the human and environmental impacts of ash fallout?