Towards a Volcanic Climate Index

Volcanic eruptions can, and have, had major and sporadic impacts on the climate system, but the magnitude of this impact varies widely between eruptions.

In 1982 Newhall and Self introduced the Volcanic Explosivity Index (VEI) to help evaluate records of past volcanic eruptions.

Based largely on the volume of tephra emitted by the eruption, VEI has been calculated for most modern and many of the larger past eruptions, making for a long term and up-to-date database for comparison.

In the climate community, this metric is often used as a proxy to indicate eruptions with marked impact on global temperatures.

However, the correlation between climate variables such as temperature and VEI are poor, as it does not incorporate the sulfur emissions or residence time in the stratosphere.

Although the climate impact of volcanic eruptions is

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