eVolv2k: A new ice core-based volcanic forcing reconstruction for the past 2000 years

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Radiative forcing resulting from stratospheric aerosols produced by major volcanic eruptions is a dominant driver of climate variability in the Earth's past. The ability of climate model simulations to accurately recreate past climate is tied directly to the accuracy of the volcanic forcing timeseries used in the simulations. We present here a new volcanic forcing reconstruction, based on newly updated ice core composites from Antarctica and Greenland. Ice core records are translated into stratospheric aerosol properties for use in climate models through the Easy Volcanic Aerosol (EVA) module, which provides an analytic representation of volcanic stratospheric aerosol forcing based on available observations and aerosol model results, prescribing the aerosol's radiative properties and primary modes of spatial and temporal variability. The evolv2k volcanic forcing dataset covers the past 2000 years, and has been provided for use in the Paleo-Modeling Intercomparison Project (PMIP), and VolMIP experiments within CMIP6. Here, we describe the construction of the eVolv2k data set, compare with prior forcing sets, and show initial simulation results.