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Consequences of explosive supereruptions in Human history

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Sulphate aerosol fallout in the Greenland GISP2 ice core seemed to confirm rough petrologically-based estimates of a very high sulfur yield for the Younger Toba Tuff and consideration of atmospheric chemical kinetics led to suppose that the climate forcing of the YTT event would have been prolonged because of the very high sulfur loading and slowed oxidation due to limited stratospheric OH. These arguments for major climatic consequences were later seen as part of a bigger picture of environmental catastrophe that was linked causally by some to genetic evidence for a severe bottleneck in the population of anatomically modern humans. Here some critical re-evaluation will be given of more recent findings of the effects of such super eruptions, including new simulation results with Earth System Models that include, besides the radiative effects of volcanic stratospheric aerosols, also vegetation, ocean and global carbon cycle calculations. Very recent findings even question the time sequencing of the Toba eruption and consideration of the eruption style (co-ignimbrite instead of Plinian) may also change injection heights to much lower altitudes with consequences for the life time of stratospheric aerosols. These findings put a big question mark to the suggested catastrophic climate disruptions and their effects on human evolution.