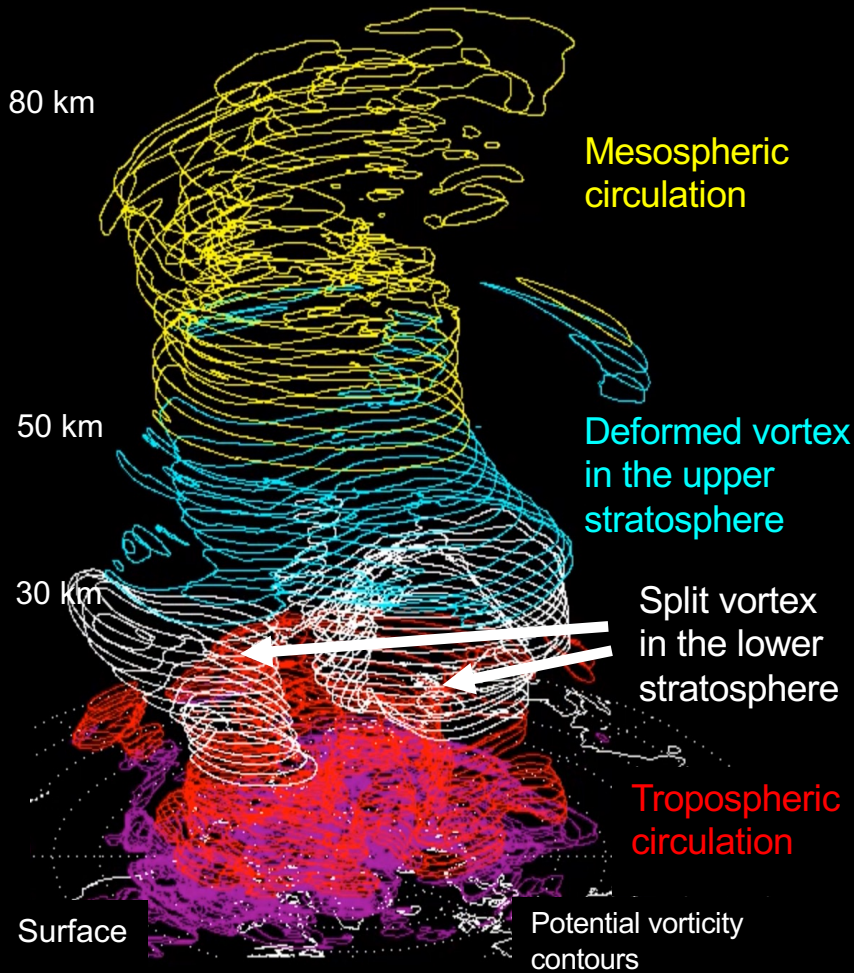


# The 2024 Sudden Stratospheric Warming in GEOS Systems



Polar vortex on January 17<sup>th</sup>, three-day forecast



Two consecutive warming events occurred in the northern polar stratosphere in early and mid-January 2024, leading to an initial temperature increase of about 40 K at 10 hPa (about 30 km above the surface), distortion and partial split of the polar vortex and a brief reversal of the zonal mean zonal wind on 17 January. The GEOS Forward Processing forecast system accurately predicted the evolution of mid-stratospheric temperatures at five-day lead times. 10-day forecasts slightly overpredicted the early January warming but performed well otherwise.

