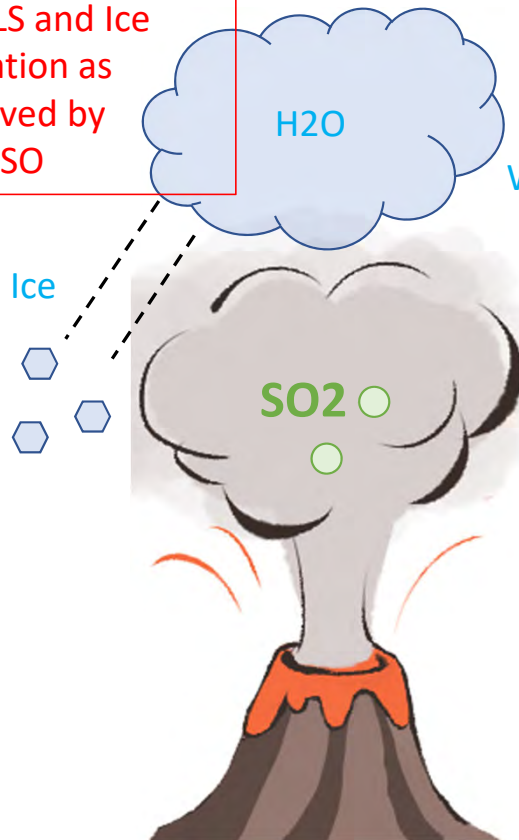


# Yunqian Zhu: Stratospheric aerosol and chemistry evolution inside the volcanic plume shortly after the 2022 Hunga Tonga eruption

Simulated water vapor as observed by MLS and Ice formation as observed by CALIPSO



Chlorine species  
HCl or ClO

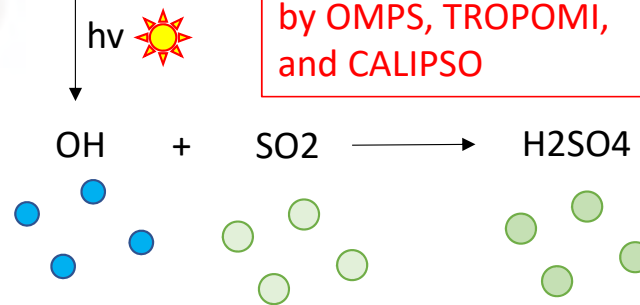
Enhanced HOx-ClOx cycles

Enhanced heterogeneous chemistry  
 $\text{HOCl} + \text{HCl} \rightarrow \text{Cl}_2 + \text{H}_2\text{O}$

Simulated In-plume ozone depletion as observed by MLS during the first week

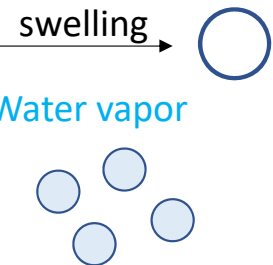
Water vapor

Simulated fast conversion as observed by OMPS, TROPOMI, and CALIPSO



Nucleation  
Coagulation

**Sulfate aerosol**



Minor