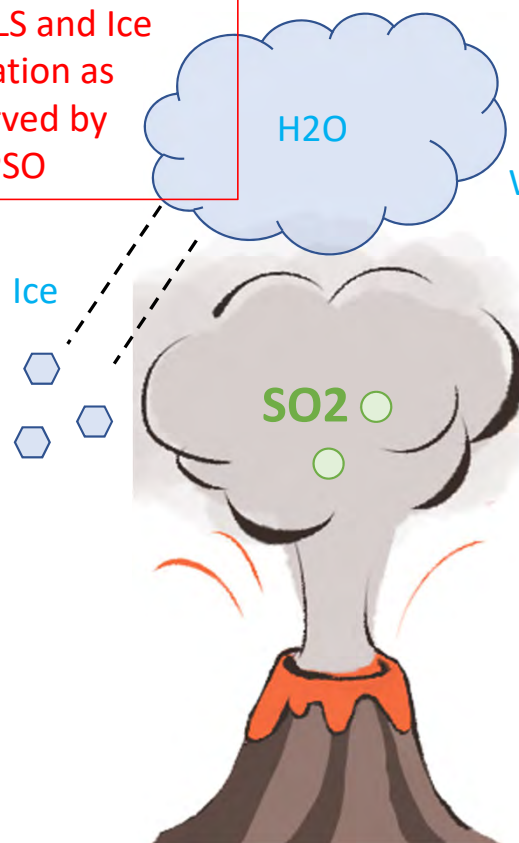


Yunqian Zhu: Stratospheric aerosol and chemistry evolution inside the volcanic plume shortly after the 2022 Hunga Tonga eruption

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



Chlorine species
HCl or ClO

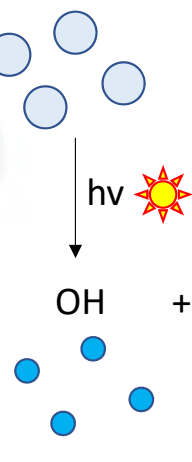
Enhanced HOx-ClOx
cycles

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

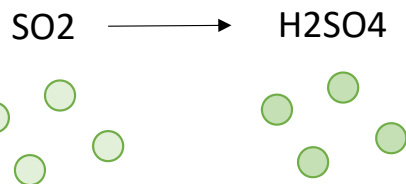
Simulated In-plume
ozone depletion
as observed by MLS
during the first week

Water vapor

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



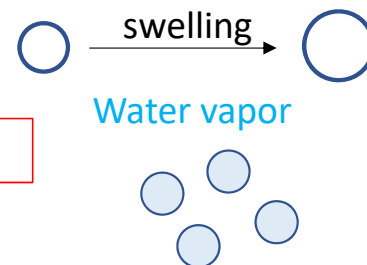
SO2



H2SO4

Nucleation
Coagulation

Sulfate aerosol



Minor