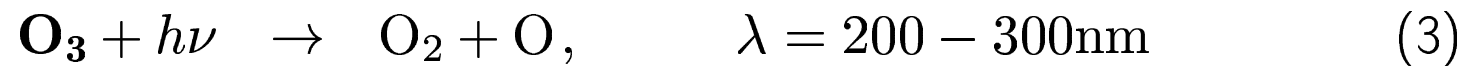
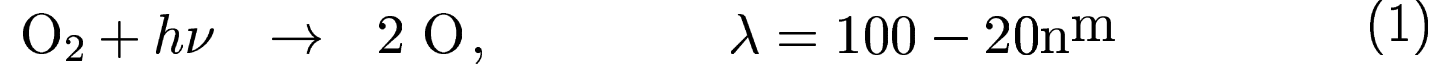


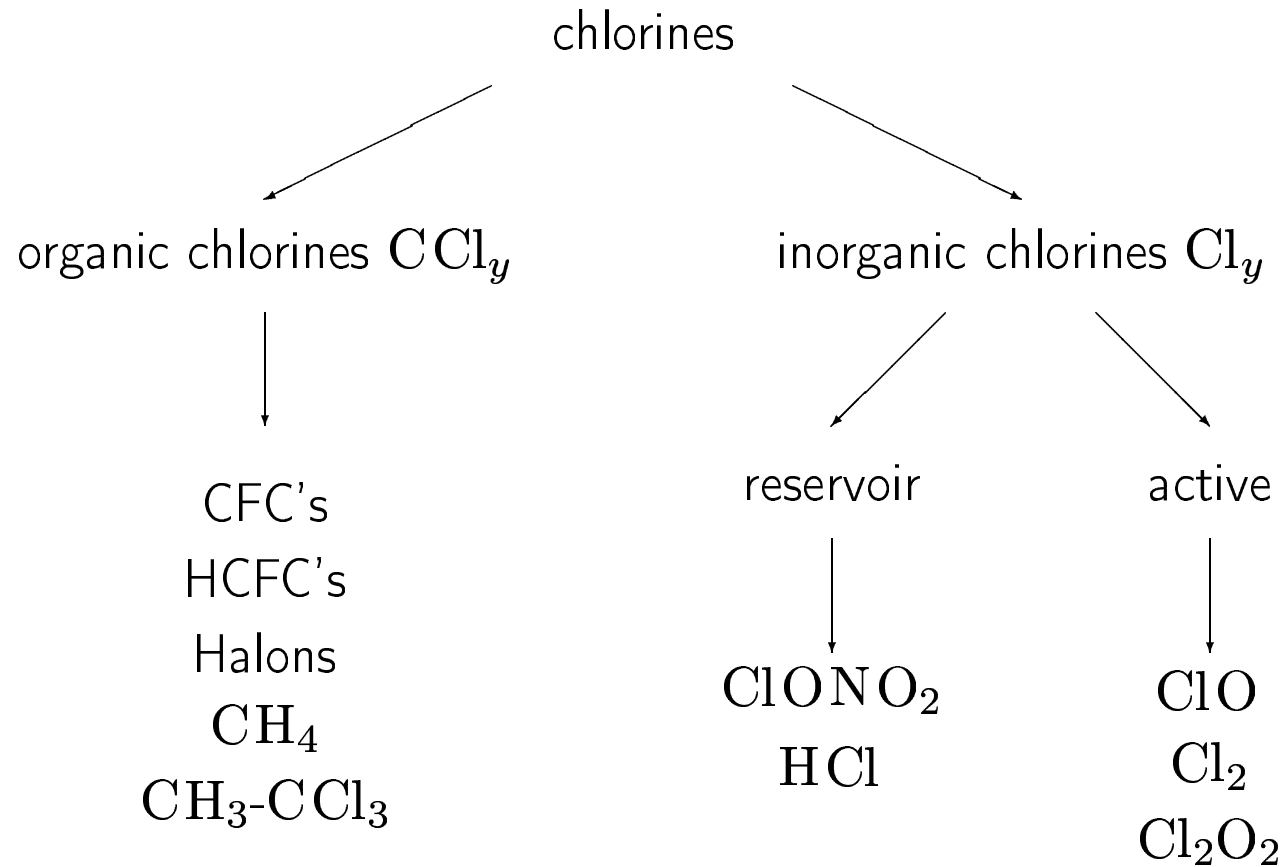
What does a single number say about a winters ozone depletion?

- Introduction
- Background
 - natural reactions
 - clorines in stratosphere
 - recipe for O₃ loss
- Observations and models
- Spring 2000

Chapman reactions



Chlorines in the stratosphere



Recipe for ozone destruction

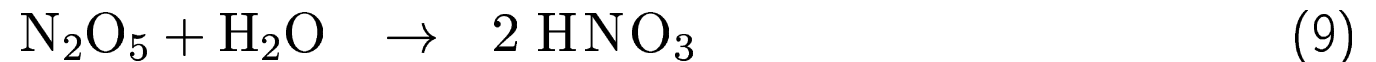
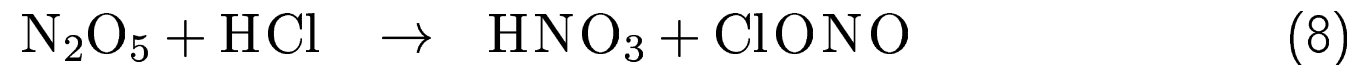
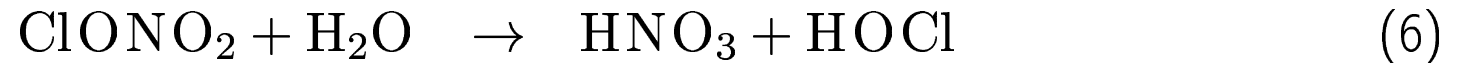
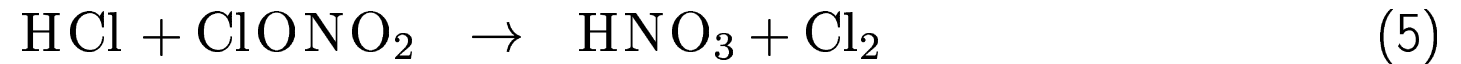
Vortex formation cold isolated air circulating the pole.

PSC formation while sufficient low temperatures.

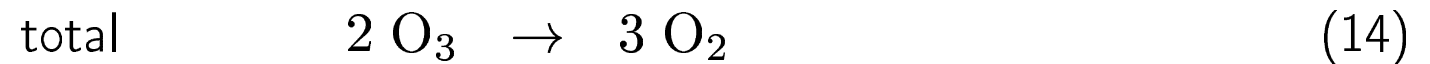
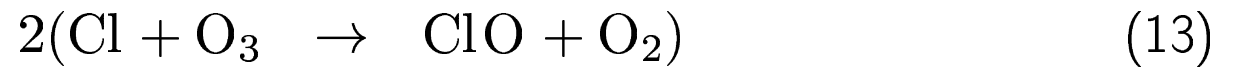
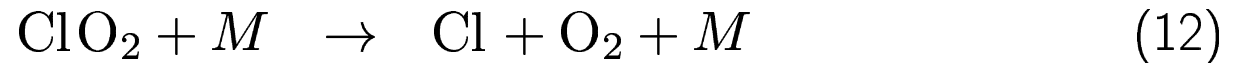
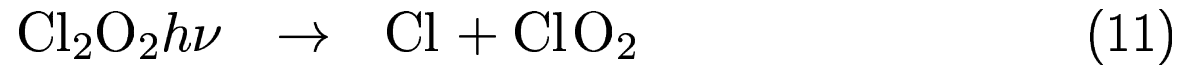
Chlorine activation heterogeneous reactions on PSC particles.

Sunlight catalytic destruction with mainly ClO and BrO.

Chlorine activation



Ozone depletion



Ozone measurements

Ground based lidar, doas

Balloons ozone sondes, doas, insitu

Aircrafts doas, lidar

Satellites doas