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## **Twenty-two years of Arctic ozone depletion observations and simulations. Is there a trend?**

Florence Goutail, Franck Lefèvre, Andrea Pazmino, Jean-Pierre Pommereau, M. Chipperfield, W. Feng, Michel van Roozendaël, P. Eriksen, K. Stebel, R. Kivi, et al.

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### Objectives and Method

Quantification of chemical total ozone loss inside polar vortex by comparison between modeled passive ozone and measurements

**MODELS- 3D CTM**  
 REPROBUS and SLIMCAT  
 Both models use ECMWF operational analysis: 1000 - 0.01 hPa (80 km)  
 2 runs: a) Passive ozone, initialized on December 1, each winter  
 REPROBUS from ECMWF ozone operational analysis  
 SLIMCAT from the output of a long-term simulation  
 Full chemistry

**MEASUREMENTS**  
 Total ozone => SAOZ/NDACC UV-Visible network  
 Twice daily at twilight

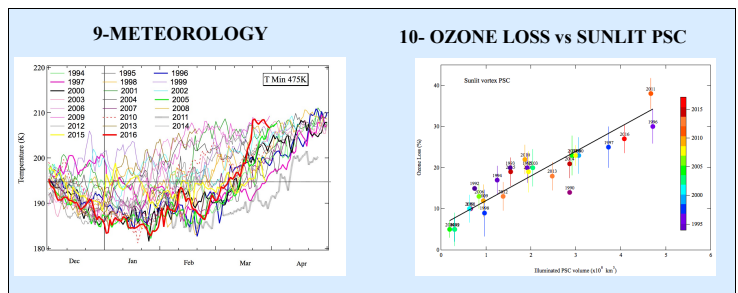
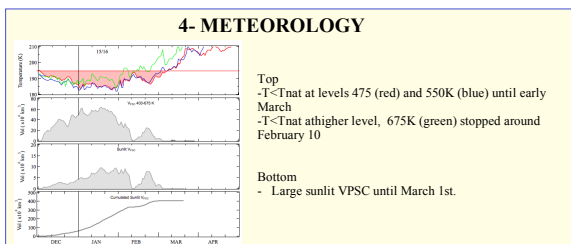
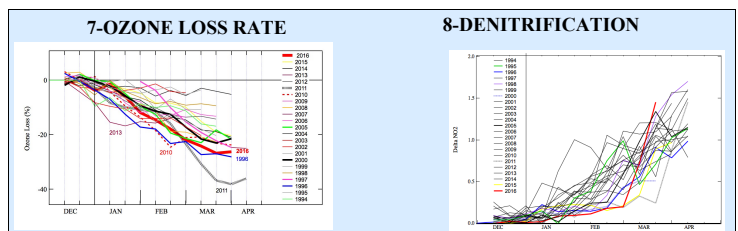
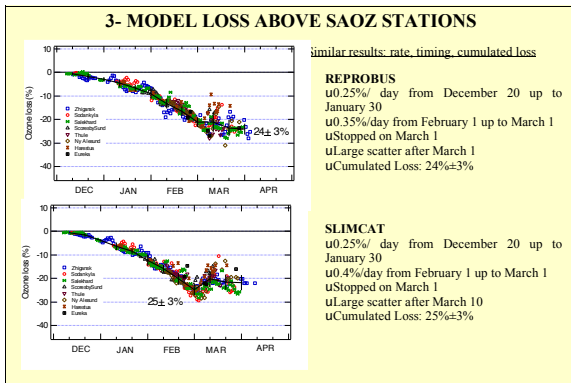
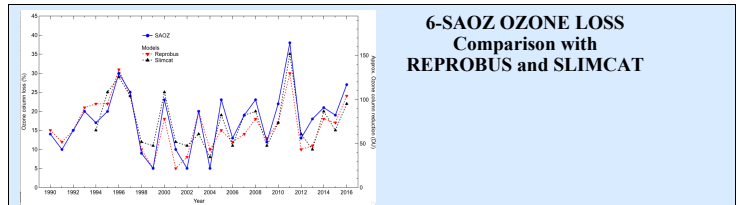
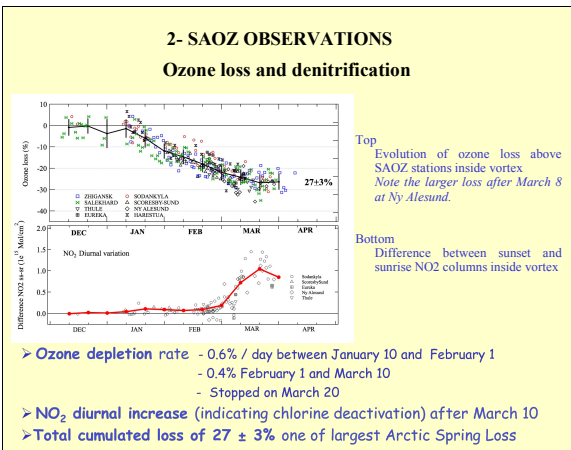
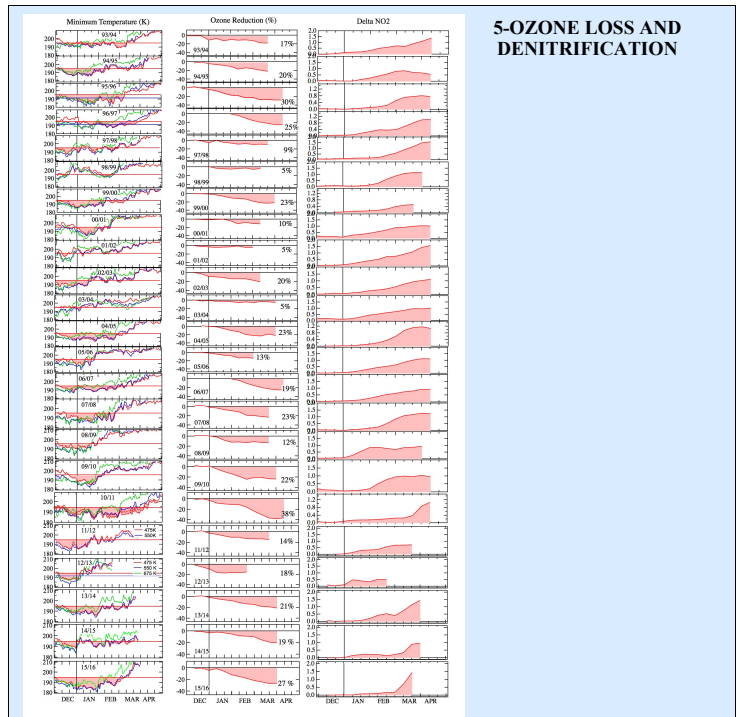
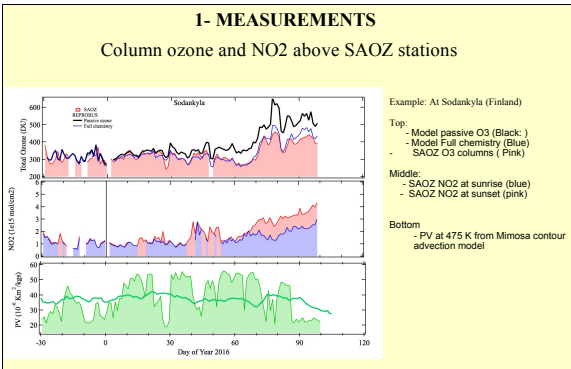
### UV-Visible SAOZ

- Zenith sky UV-visible spectrometer
- Differential Optical Absorption Spectroscopy
- Ozone: Chappuis bands (450-550 nm)
- Consistency between stations: 3% (NDACC)
- PSC days removed using a color index

### UV-Visible SAOZ network

## Winter 2016

## Comparison of all winters since 1994



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### CONCLUSIONS

- Large ozone loss interannual variability, dependent on vortex duration
- Good agreement between measurements and recent version of CTM models: SLIMCAT and REPROBUS
- No indication of ozone loss amplitude reduction