A little history:
1975 Barnett et al first suggest that chemical time constant can be determined from ozone-temperature correlations

1985-6 Douglass, Rood show that ozone temperature correlations are also affected by dynamical perturbations that affect both ozone and temperature. They pointed out that time delays of the perturbations that affect both ozone and temperature can impact correlations. They looked for meteorologically stable conditions as optimum for detecting chemical sensitivities and suggested that changing chlorine would impact the sensitivity.

The chemical sensitivity of ozone to temperature change is a strong function of altitude, as well as chemical composition

We will express the temperature sensitivity in exponential format: \( \text{O}_3 = \text{O}_3 \exp (\text{slope}/T) \)

A few words on chemistry:
Loss terms have long-term variations and seasonal variations that complicate chemical interpretation

Temperature coefficient exhibits strong altitude and latitude dependence as shown in CCM and data

Conclusions
Ozone temperature correlations can be used to see the impact of chlorine on upper stratospheric ozone

The method has many difficulties:
- Sensitivity is a function of altitude, latitude, and season
- Deduced sensitivity depends on time scale of variations
- Transport affects both ozone and temperature

It is critical to use measurements of ozone an temperature that are contemporaneous and have good vertical resolution