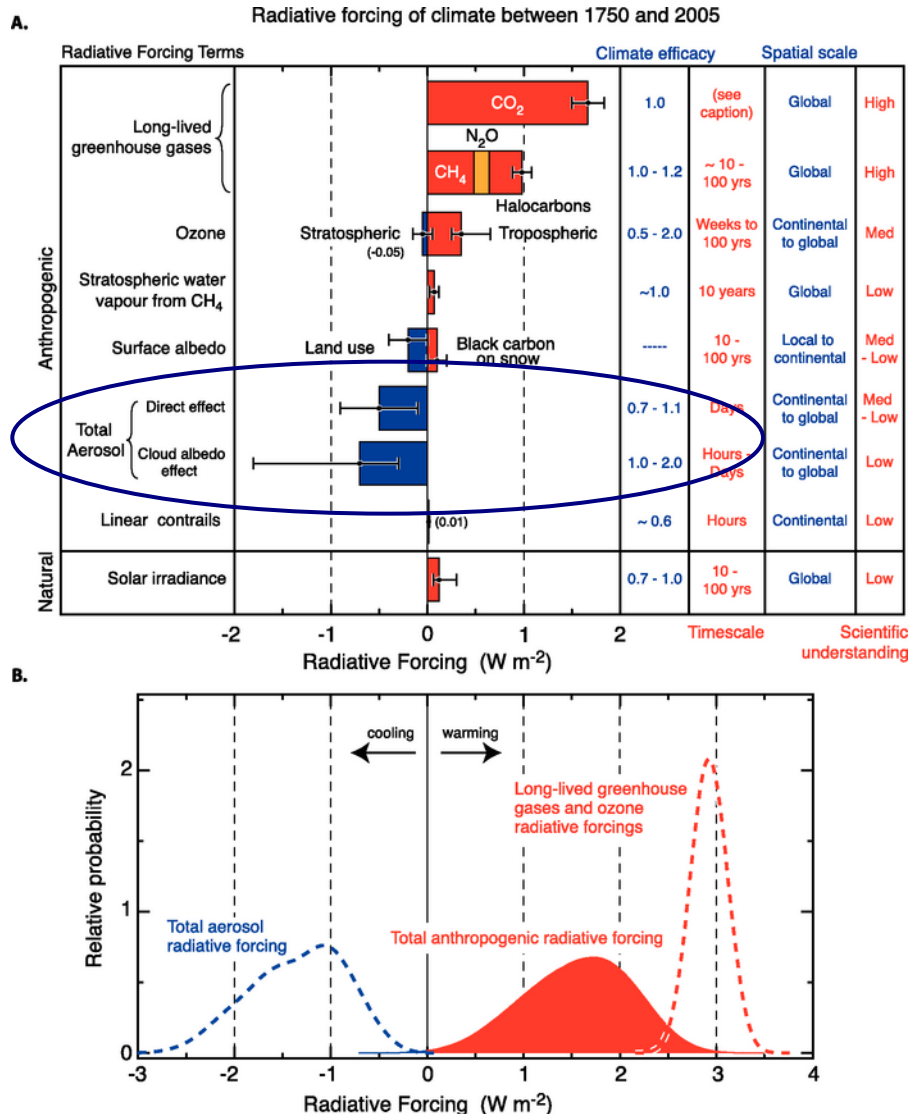


# AEROSOL OBSERVATIONS



**Radiative Forcing**

⇒ **DIRECT**

⇒ **INDIRECT**

- Large uncertainties

- Natural and anthropogenic contribution

**Strong need for long term aerosol observations**

**Aerosols are very difficult to handle in models**

**Aerosols are produced by many different processes, some sources are localized, others are distributed over large volumes**

**Aerosols interact dynamically in a nonlinear way (nucleation, condensation, coagulation, deposition)**

**Aerosols can be transported over large distances**

**Measurements are needed to assess and improve understanding of aerosol processes and their treatment in models!**

- in situ measurements**
- Ground based remote sensing measurements**
- Aircraft measurements**
- Satellite measurements**

**Strong need for an integrated approach for characterizing aerosol climate impacts and environmental interactions**

# Integrated Global Aerosol Observing System

## Global Products

