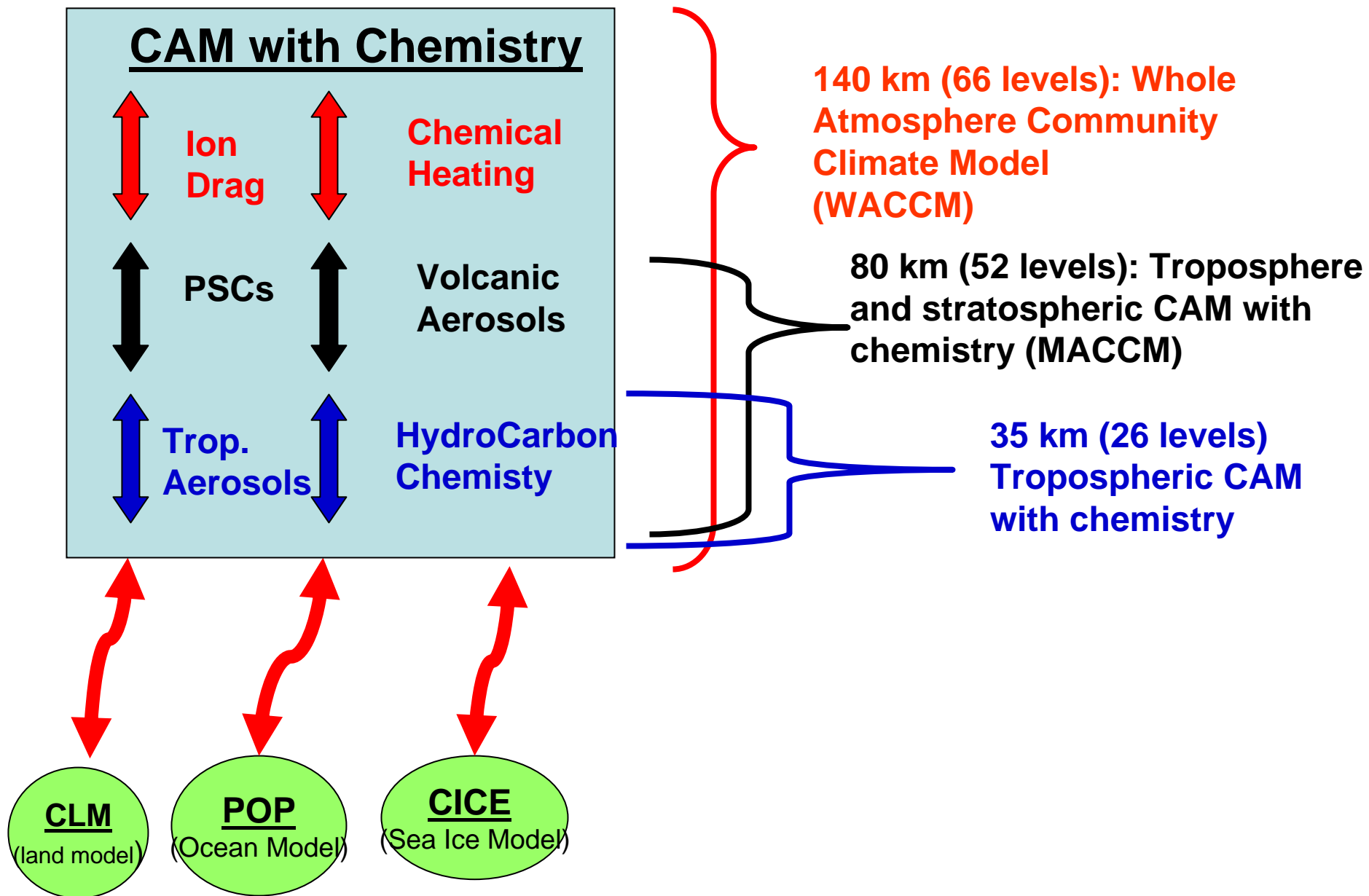


Welcome:  
Chemistry-Climate Working Group  
(Breckenridge 2007)

Co-Chair: Peter Hess

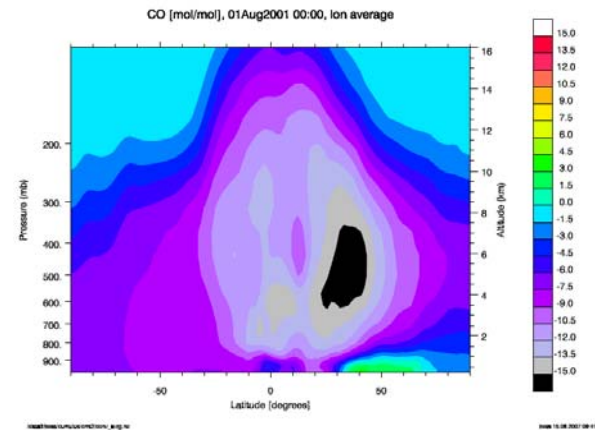
# CCSM with Chemistry



# Chemistry model in CCSM

- Incorporates newest CAM parameterizations
- Online/Offline capability
- Coupling between radiation and constituent species
- Data assimilation capabilities
  - Ensemble Kalman Filter
  - Meteorological/Chemical data assimilation
- Coupling to CLM / Ocean models / Snow Albedo / Ice Models
  - Nitrogen coupling to the C cycle through CLM
  - Biomass burning algorithm
  - Biogenic Emissions

## CO: NR – CAM3



# Chemistry model in CCSM

- **MOZART4 Incorporated into CCSM**
- **Chemical Mechanism**
  - MZ4 mechanism in place.
  - Simple input of fixed chemical oxidants
  - Query functions so chemical mechanism easy to change
- **Dry deposition**
  - Wesley deposition in CLM (MZ4)
- **Photolysis**
  - Fast TUV in place
- **Emissions**
  - MEGAN emissions algorithm for isoprene/monoterpene in CLM
  - Lightning based on Price and Rind
- **Washout (gas)**
  - Giorgi and Chameides (both large-scale and convective)
- **Washout (aerosol)**
  - Updated to Rasch scheme
- **Aerosols**
  - MOZART4 bulk aerosol scheme w/  $\text{NH}_4\text{NO}_3$
  - Interactive Sea-salt and Dust (Mahowald)
  - Aerosol-Radiation coupling
  - Ability to use sulfate scheme with input oxidants

We encourage you to make  
use of this model

# Meeting Goals

- To provide a quick update as to plans or results in CAM with chemistry.
- To build a roadmap and a recommendation for the implementation of aerosols in CCSM4.