Implementing a Dynamic Dry Deposition Scheme for Gaseous and Aerosol Species

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- Modeling shop affiliated with NOAA and Princeton
- Develops and uses computer simulations
  - Climate change
  - Hurricane research and forecasting
  - Predictability of weather
- Major contributor to IPCC and U.S. Climate Change Program
Atmospheric Dust

- Important but relatively poorly understood
  - Radiative forcing
  - Contributes to algae bloom, cloud seeding
  - Transport of pollution

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Motivation

- Modeling lets us see what is going on between observations
  - Where is the dust coming from?
  - Where is it going?
My Project

- The GCM is a huge, complicated piece of software
  - Made up of component models
  - “Coupled” together
  - Runs on a supercomputer
  - Developers generally work on a specific part
My Project

- Adapted and implemented a popular deposition scheme (M.L. Wesely, 1988)
- “Dynamic” resistances computed in land model
- Old parametrization had fixed values for deposition velocity

Parameterization of surface resistances to gaseous dry deposition in regional-scale numerical models, M.L. Wesely, 1988
Future Work

- Still needs to be tested against previous parametrization
- Will eventually be used to model changes in surface optical properties
- Can be verified with satellite data
Experience ...