MAP – Modeling, Analysis and Prediction program

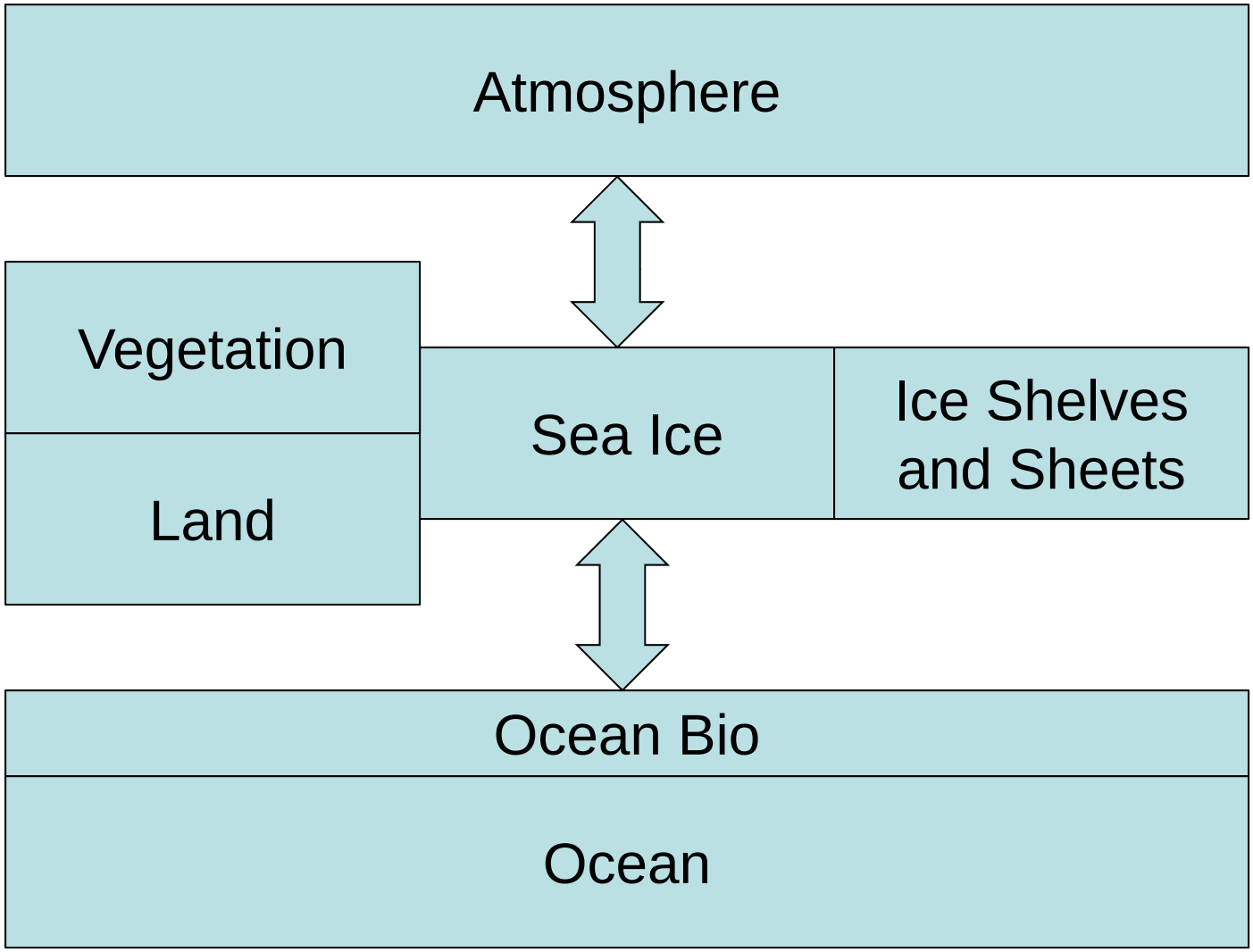
Goals and strategic direction of MAP program remain the same as when Don Anderson was Program Manager

- Seeks an understanding of the Earth as a complete, dynamic system
- Emphasis on climate and weather (yes, but …)
- Key questions include:
  - How is the Earth system changing?
  - What are the forcing mechanisms driving observed changes?
  - How does the Earth system respond to natural and human-induced changes?
  - What are the consequences of Earth system change to society?
  - What further changes can be anticipated, and what can be done to improve our ability to predict such changes through improved remote sensing, data assimilation, and modeling?

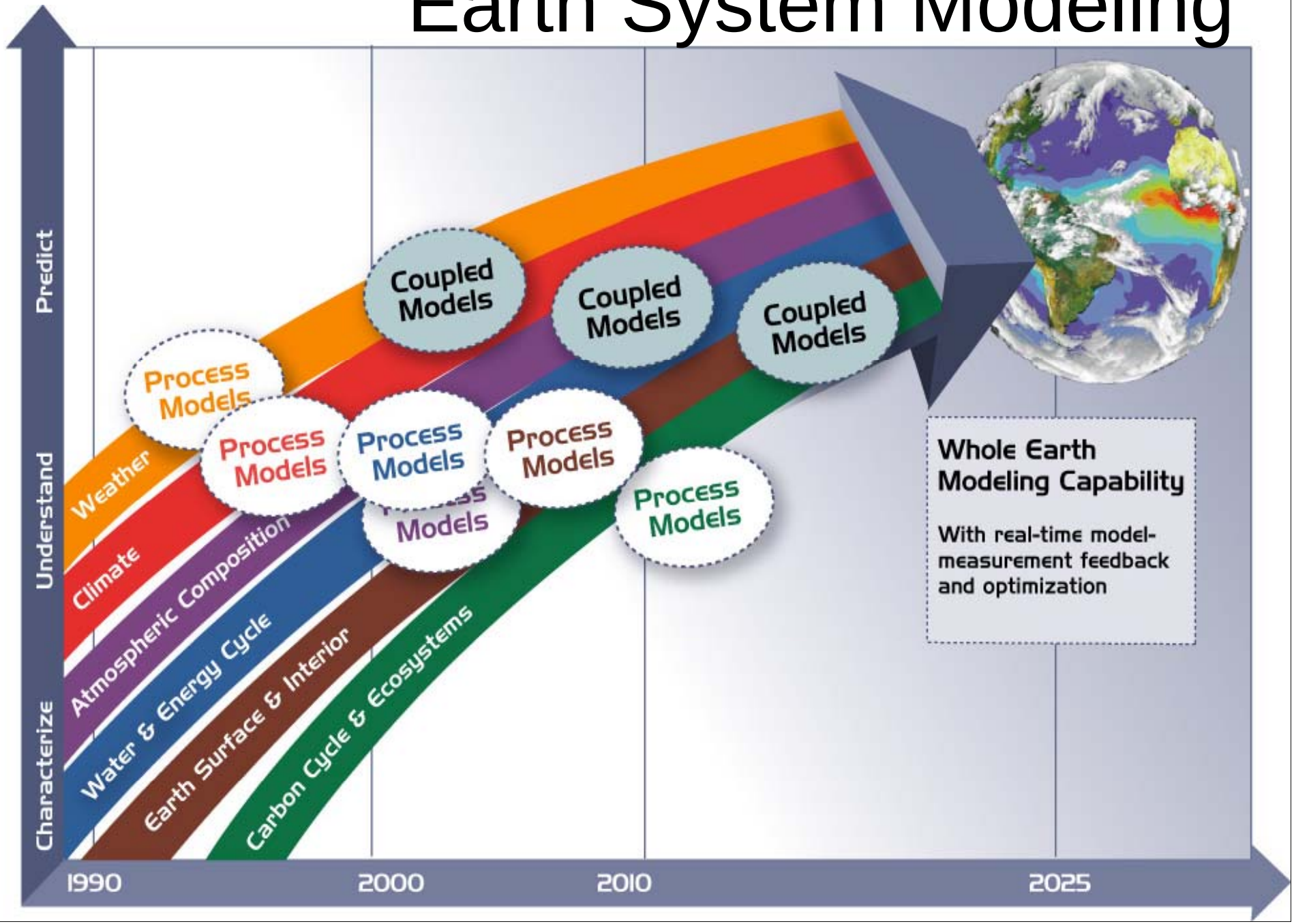
The MAP program supports *observation-driven modeling* that integrates the research activities in NASA's Earth Science Program

- How do the various pieces of the Earth system couple to each other and interact?

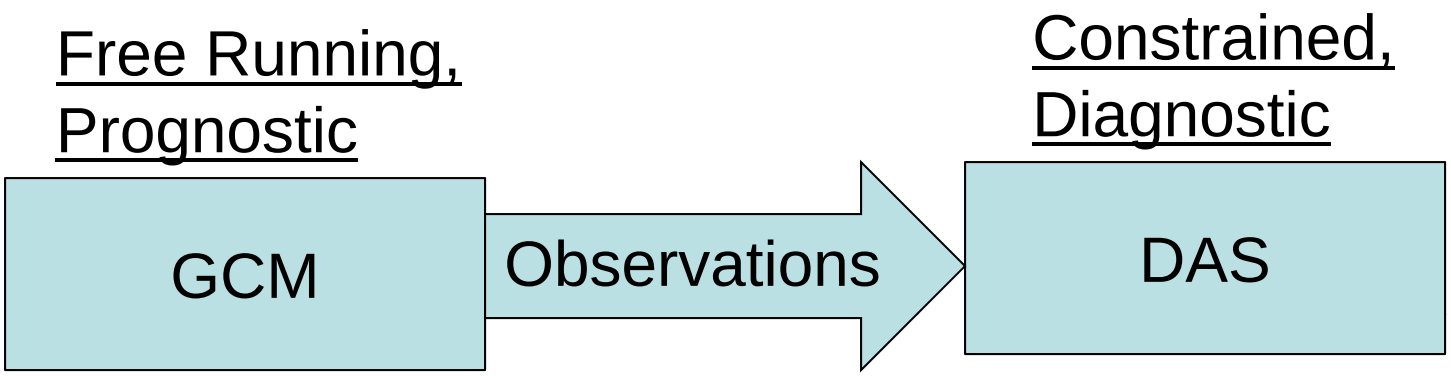
Interacting Components of the Earth System



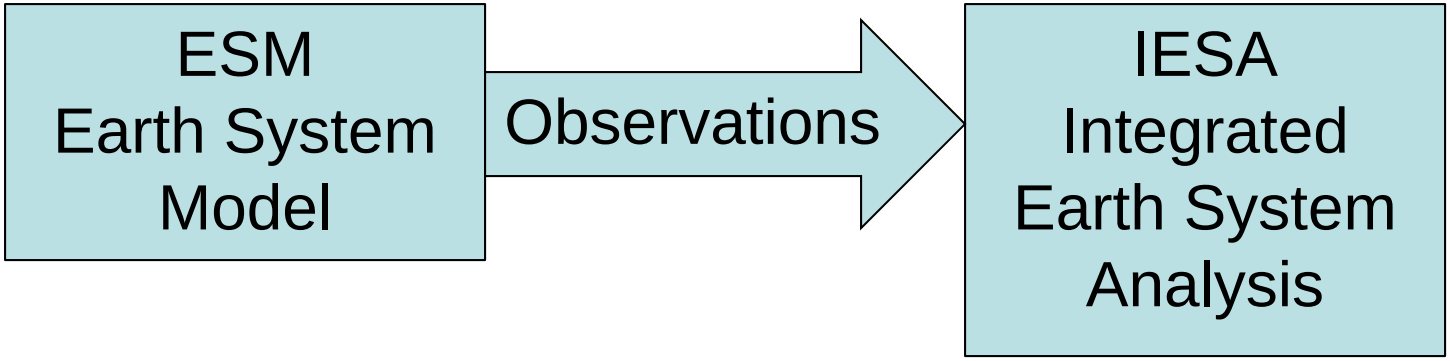
Earth System Modeling



Focus of MAP Moving Toward Earth System Modeling and Integrated Earth System Analysis

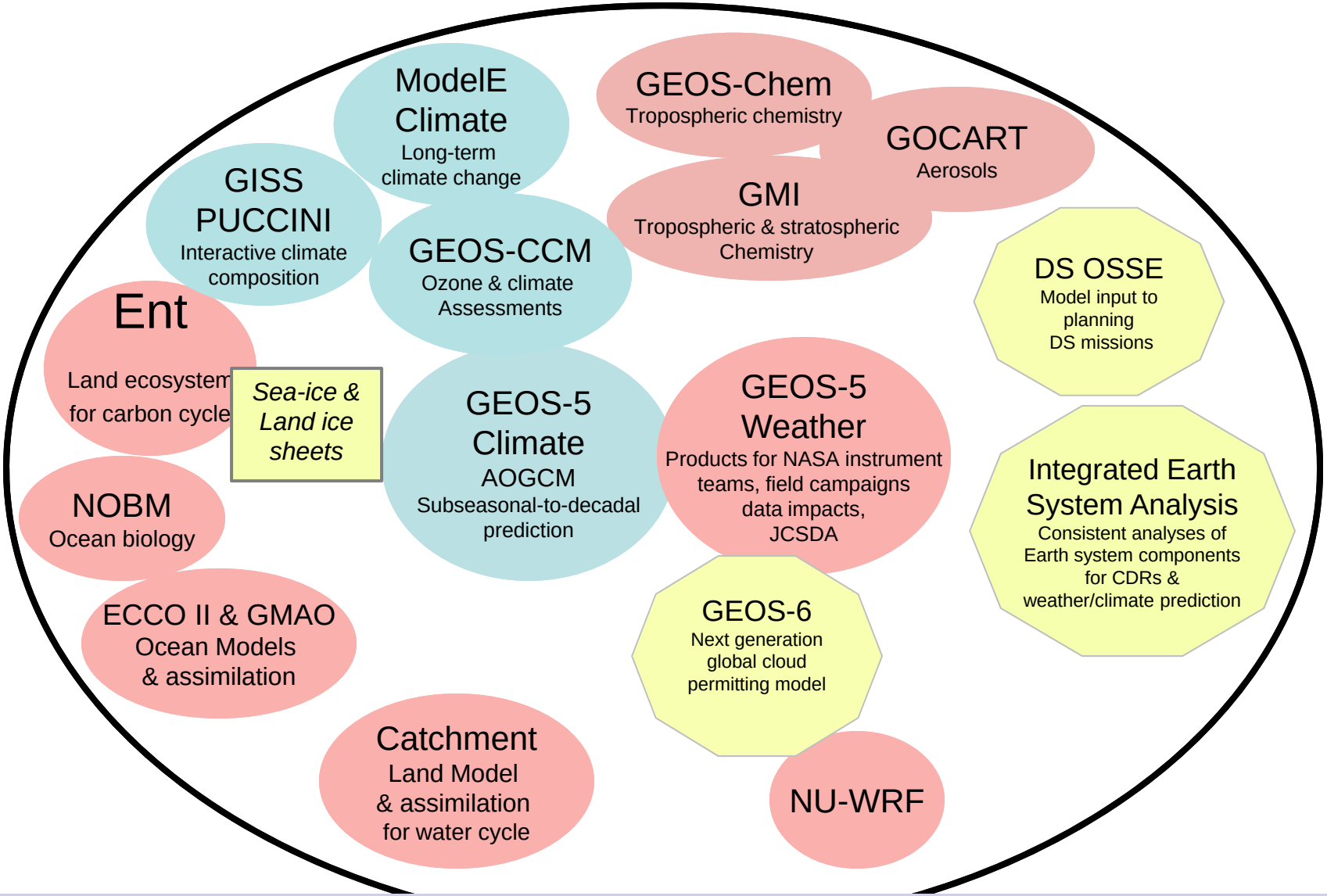


Traditional Focus



Developing Focus

Earth Modeling Capabilities in MAP Modeling Environment



ESMF, Modeling Guru, Workflow Tools, Code Repository, Software Engineering Support, Software as a Service, High End Computing Services

Role of GMI Within MAP

- GMI straddles interests of MAP & ACMAP programs
  - CTM lacks interactivity of components
  - Focus on analysis of data rather than data analysis
- Of Interest to MAP:
  - Testbed for different met fields, emissions, chemical mechanisms, deposition schemes, etc.
  - Evaluating and constraining uncertainties
  - Sensitivity studies
  - Helping to bring composition and composition-based testing into MAP program

Role of GMI Within MAP (cont.)

- MAP support for GMI:

  o Software integration, documentation, and maintenance;
  o Execution of routine experiments;
  o Data management and reformatting;
  o Software modernization (e.g. componentization); and
  o Continued development and implementation of a workflow management tool, including training others to use the tool.

- GMI as a standalone CTM:

  - Vision was to eliminate standalone in preference to capability built in to GEOS5/GEOS5 CCM
  - Is this feasible? Is replay adequate? Is it like attaching a sink to the outside of a car?

The Situation at HQ

- MAP PM position is being competed
  - Jack wants a permanent HQ employee in position
  - Jack follows the rules scrupulously
  - Time frame: maybe a couple of months
- Transition to Unified Labor
  - Agency took $300M away from SMD to pay a $270M dollar bill
  - Centers have provided info on CS $$ in research budgets
  - Reconcilliation process may be messy
  - Goal is to prevent universities, etc. from being affected
- Program managers do not know top-line FY11 numbers yet
- Other HQ stuff:
  - “Modeling Summit?”
  - National Climate Assessment
  - OSTP/OMB have requested review of NASA Climate Modeling (mostly GISS)
    - Issue: what is NASA doing that is unique? How much overlap between NASA and other agency efforts?