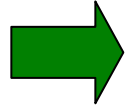


# HPC in the Geosciences Workshop

## PM Breakout Group 2



Group 2 started and finished at question #2:

**How can the economy of scale for a Geosciences high performance computing (HPC) enterprise best be demonstrated?**

- **First: extracted important aspects of discussion**
  - *Economies of scale (What are they?)*
  - *Cyberinfrastructure services to be deployed*
  - *Communication and planning*
  - *Address interdisciplinary and grand-challenge problems*
  - *Metrics*
- **Now: Summarized in terms of tangible factors**
  - *Monetary Costs*
  - *Science*
  - *Resources*

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## PM Breakout Group 2

- **Monetary Cost**

- *Savings are likely because of leveraged hardware and consolidation; but savings requires knowledge of current costs*
- *NSF puts “all money into one pot”: is this good for everyone?*
- *NSF have adequate funds for ongoing (year-to-year) support?*
- *Does collaboratory concept “motivate” vendors?*

- **Science**

- *Identify new science which we’re not doing now; what transformative science can we do with this? (Might be self-evident from past experience: transformative science will be done!)*
- *Collaboratory will enable new cross-discipline relations – track new problems*
- *While pursuing one problem, others might benefit (aka, accelerate discovery)*
  - *Example: future water availability -- climate, hydrology, ground water*
- *Will collaborations occur, unforced? Mechanisms for collaboration should be developed (workshops, etc.).....show where it does work now (CCSM)*

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## PM Breakout Group 2

- **Resources** (maximize productivity for Geosciences)
  - *While “big science” important, middleware support and development is scaled....facility would allow creation of new set of persistent critical tools....replication minimized*
    - the 80/20 grad student workload is reduced, bringing students to problems more rapidly
  - *“Experts” can be leveraged (ex: code porting experts)*
  - *On-demand computing more readily available to greater numbers.*
  - *Existing discipline centers can be a model for resource deployment, lesson learned, etc.*
  - *Want a system which fosters collaboration*
  - **Data** – *opportunity to promote and foster interoperability: formats, standards, management*
- **Metrics** (of success in providing desired economy of scale)
  - *Measure enhanced productivity (numbers of papers?)*
  - *New tool development*
  - *Data access counts*
  - *Hardware utility....types of use (ex: more on-demand satisfaction)*
  - *Operation costs of facilities, compared to old facilities*