S5: Information Technology For Science Missions

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MD: SMD
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NOTE: All presentations will undergo a review by the MDL and then by ITAR/EAR.
Topic Overview

• Simulation
  — high-end computing

• Data
  — Observational, model, and/or simulation data
  — Transform into useful science, societal benefits

• Missions
  — Modeling for mission design
  — Decision support

• Generally: Information Technology to let humans spend more time doing science, less time doing “grunt work.”
NASA Needs (1)

- Increase “bang-for-the-buck” in NASA’s supercomputing investment through novel hardware and software technologies
  - Decrease the barriers to entry for prospective supercomputing users.
  - Minimize time-to-solution, cost for given level of supercomputing performance on NASA applications, increase efficiency

- Decision Support Tools to increase utilization and societal benefits of Earth science data
  - Component framework that can be used to build multiple remote sensing driven DSTs

- Science Data Processing, Discovery, and Analysis
  - Improvements needed for parallelization of analysis tools, improvement data management and file systems, and others.
• Integrated Science Mission Modeling
  — Improved modeling of the science mission targets and engineered systems to facilitate human mission design teams’ work

• Fault Management (FM) Technologies
  — Technologies to allow better estimation and control of FM complexity and development costs, improved FM designs, and accelerated advancement of FM tools and techniques
Role of Small Businesses

• Information Technology is widely used and developed
  — Universities
  — Small businesses
  — Large businesses
  — Research labs

• Many developments can be used for multiple problems, problem areas

• Desire for increased collaboration between government and businesses in “innovation space.”

• Science data and information have minimal sharing restrictions
Resources

- NASA Earth Exchange: [https://nex.nasa.gov/nex/](https://nex.nasa.gov/nex/)
The End

THANK YOU FOR YOUR PARTICIPATION!

NOTE: This presentation will be accessible through the Industry Day website.