

A photograph taken from the International Space Station (ISS) showing the Earth's horizon. The aurora borealis is visible as a vibrant green and purple glow along the horizon. Below the horizon, the Earth's surface is visible, with city lights appearing as small yellow and white dots. The sky is dark with many stars.

NASA Technical Fellow for Space Environments

Joseph Minow

NASA Technical Fellow for Space Environments

7th NASA Space Weather and Robotic Mission Operations Workshop

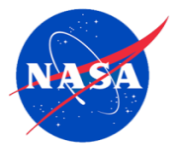
NASA GSFC , 29-30 September 2015

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Outline

- NASA Engineering and Safety Center
- Technical Fellow program
- Space Environments status and activities
- Benefits and opportunities for robotic missions
- How to contact NESC



NASA Engineering and Science Center (NESC)

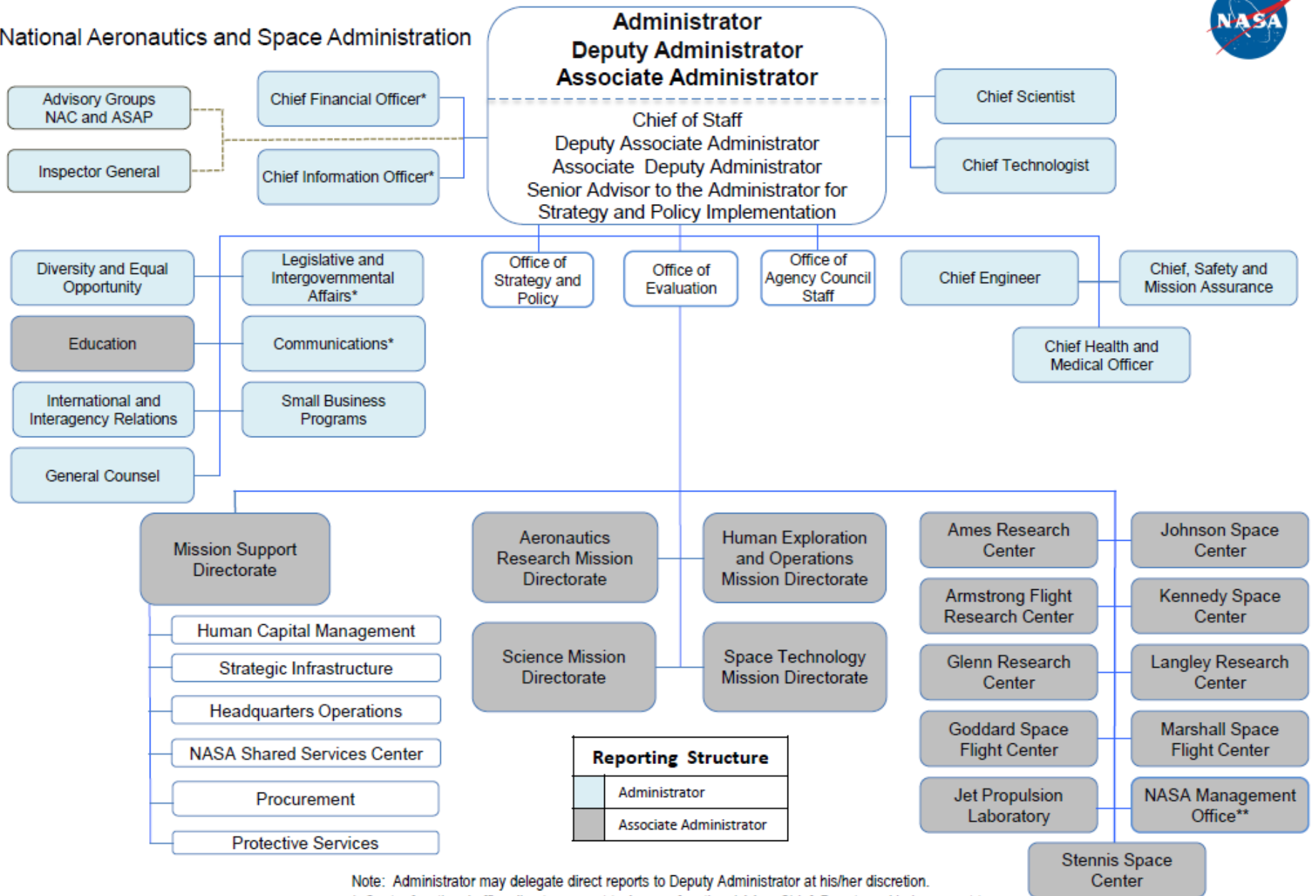
- NESC was established in July 2003 in response to the STS-107 (Columbia) accident
 - Independently funded technical authority reporting to Office of Chief Engineer
 - Institutionalized “tiger team” approach to solving problems
- NESC mission is to perform value-added independent testing, analysis, and assessments for NASA’s programs and projects
- NESC is a resource for NASA and is meant to benefit the programs and organizations within the Agency, Centers, and the personnel who support the programs



<http://www.nesc.nasa.gov>



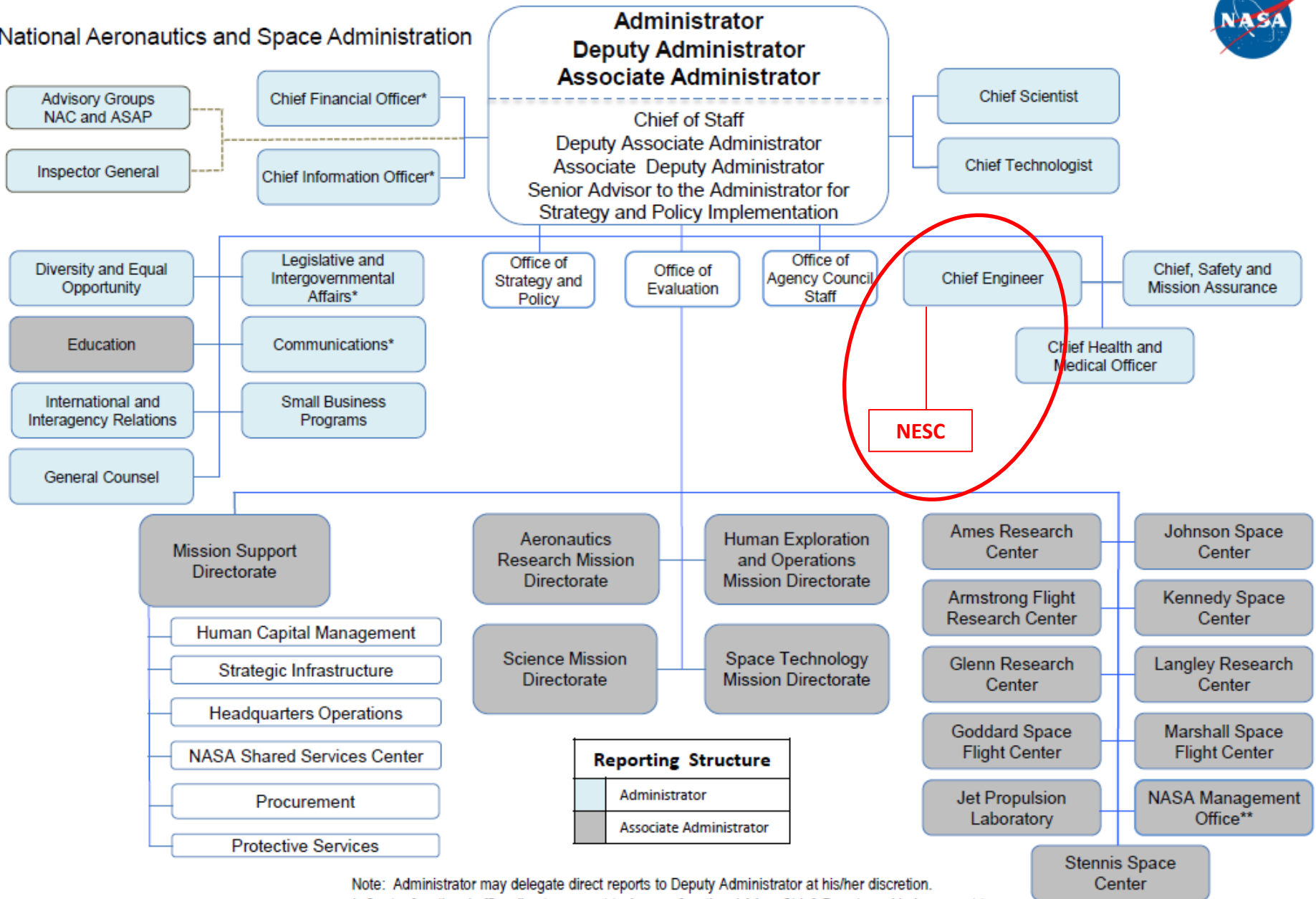
National Aeronautics and Space Administration



Note: Administrator may delegate direct reports to Deputy Administrator at his/her discretion.
 * Center functional office directors report to Agency functional AA or Chief. Deputy and below report to Center leadership.
 ** NMO oversees the Jet Propulsion Laboratory and other Federally Funded Research and Development Center work



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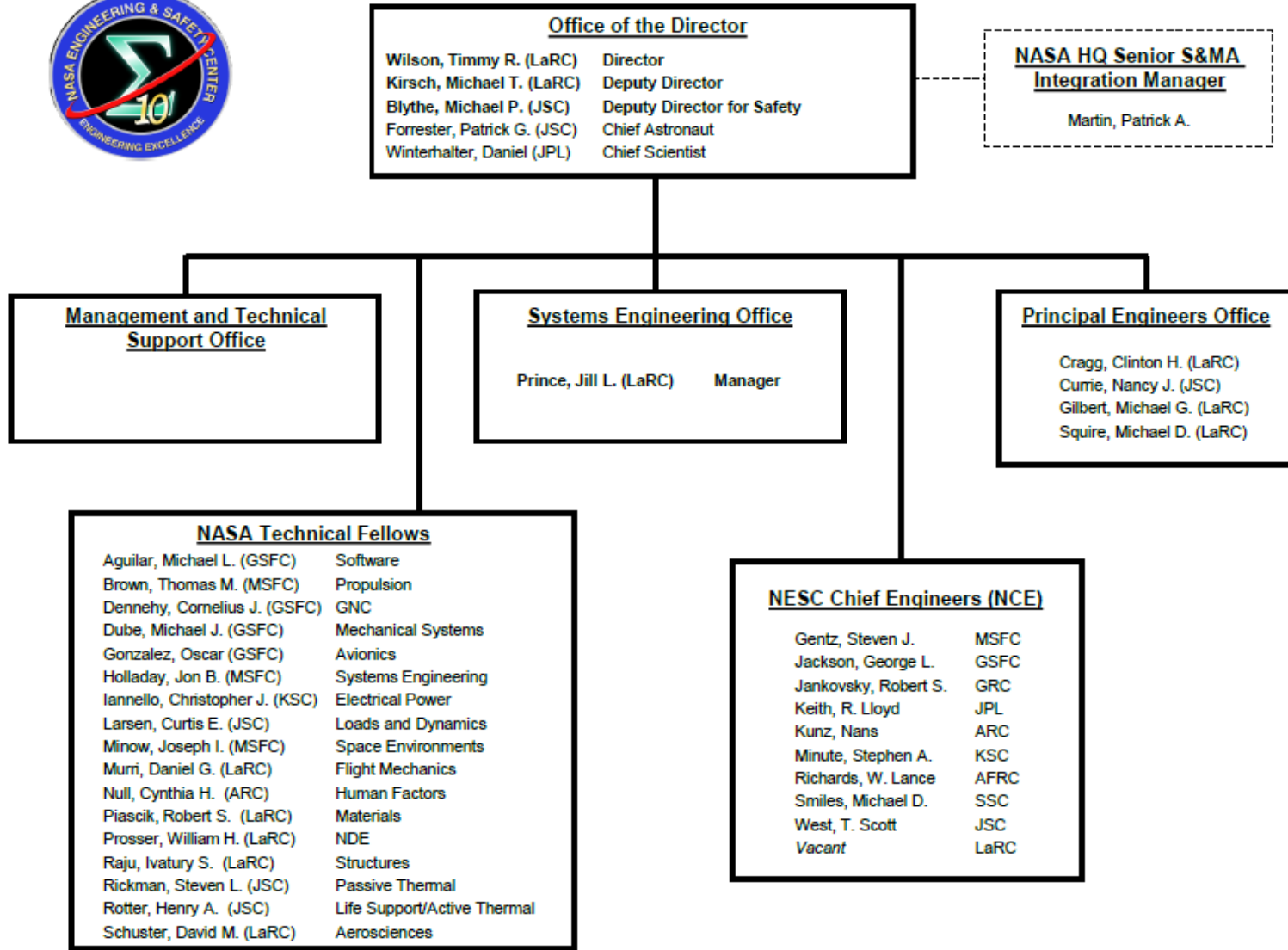
Reporting Structure	
	Administrator
	Associate Administrator

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NESC Organization

*NESC Leadership Team

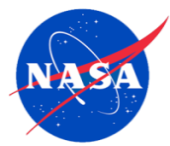


*Also NESC Review Board (NRB) Members



Technical Fellows

- Outstanding senior-level engineers and scientists with distinguished and sustained records of technical achievement
 - Agency's leading experts in their respective technical disciplines
 - Build and maintain the health of the discipline
- Lead NESC Technical Discipline Teams (TDT) of ready experts and provide NESC with expertise from NASA, other federal agencies, academia, and private industry
 - Conduct workshops and conferences to enhance discipline awareness
 - Sponsor and support Agency-level standards and specifications
 - Ensure lessons learned are identified and incorporated in processes
 - Foster NASA participation in engineering academies
- Discipline capability leadership
 - Conduct discipline specific gap analyses to identify areas that require strategic investment to develop fundamental engineering science
 - Lead in-depth investigation of the state of the discipline and provide recommendations to senior NASA management on investment, divestment, and consolidation of assets
 - Provide input to Agency level strategic planning and roadmap activities



Typical NESC Activities

- Provide real-time problem solving for programs and projects in operations or flight phase
- Conduct independent testing and analysis for the next generation of launch vehicles and spacecraft
- Support the development of critical robotic spacecraft and aeronautics missions
- Improve system performance and increase system safety
- Investigate alternate design concepts to inform program baseline designs
- Share best practices and lessons learned with commercial new partners
- NESC technical expertise is specifically called out in the Commercial Crew Program Insight Plan
- Revolve critical Agency cross-cutting technical challenges
- Develop engineering guidelines and recommend best practices
- Provide technical support to investigations outside of the Agency



Current Space Environments Activities

- Assembling the Space Environments Technical Discipline Team to support NESC and Technical Fellow activities
- A Capabilities Leadership Team will be assembled this fall to conduct an in-depth investigation of the state of the space environments discipline in NASA and its readiness to support current and future NASA missions
- Space Environments Community of Practice
 - NASA Safety Center Knowledge Now Web site for coordinating Space Environments TDT and general space environments community activities
 - URL: <https://nen.nasa.gov/web/nen/community/technical>
- Space Environments Test Facility review
 - NASA Space Environments Test Capability Leadership Team completed a review of space environment test facilities and developed recommendations for investments, divestment, and consolidation
 - Space Environments community review and assessment of the recommendations have been deferred until Space Environments discipline baseline review has been completed



Benefits to Robotic Missions

- We can help you!! NESC expertise is available for conducting risk reducing activities and technical support for NASA programs
 - Independent technical assessments
 - NESC technical support
 - Technical Fellow support

Support is funded independent of program (no cost to program) or costs can be leveraged with program funding
- Support can include NESC staff and/or expertise drawn from NASA, other federal agencies, academia, and private industry



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NESC Technical Priorities

- 1) Technical support of projects in the flight phase
- 2) Technical support of projects in the design phase
- 3) Known problems not being addressed by any project
- 4) Work to avoid potential future problems
- 5) Work to improve a system (and discipline enhancements)



How Do I Contact NESC?

- Submit anonymous technical requests to NESC by mail:

NESC
NASA Langley Research Center
Mail Stop 118
Hampton, VA 23681

- Submit technical requests on line:
 - http://www.nasa.gov/offices/nesc/contacts/contact_us.html
- Contact the NESC Chief Engineer at your Center:
 - <http://www.nasa.gov/offices/nesc/contacts/index.html>
- Contact Technical Fellow for Space Environments for space environment specific issues:
 - joseph.minow@nasa.gov
 - (256) 544-2850