

JAIME ESPER

Chief Engineer, Space Geodesy Project



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Curriculum Vitae

BIOGRAPHICAL INFORMATION

Dr. Esper has many years of combined leadership experience in areas covering mission systems engineering, advanced space missions and system concepts, spacecraft systems and technologies, instrumentation, spacecraft design, space mission processing and operations, launch vehicle Range operations, and planetary mission and entry probe design, analysis, and technology development. Dr. Esper's practical background covering all phases of a Space Mission Life Cycle, and encompassing both space and ground segments makes him highly skilled in any NASA Mission Engineering activity. Dr. Esper has worked on numerous Space and Earth Science and Technology flight projects in capacities ranging from Spacecraft Controller to Project Manager. Past responsibilities have included but are not limited to: NASA Goddard Space Flight Center (GSFC) Project Manager and Chief Engineer for the Small Rocket/Spacecraft Technology (SMART) Micro-Satellite research prototype flight demonstration; Technical Project Manager for GSFC's Operationally Responsive Space; GSFC Small Explorer Program Mission Systems Engineer for Formulation; NASA Chief Engineer for the TacSat-2 Minotaur 1 launch from the Wallops Flight Facility; Deputy Chief Engineer for the Robotic Lunar Lander Project at the Marshall Space Flight Center; Mission Systems Engineer for the Space Technology 5 micro-satellite constellation; Lead Flight Systems Engineer for the Hubble Space Telescope Fine Guidance System Replacement. For over 10 years he was the Principal Investigator and Research Project Manager for modular and reconfigurable systems technology at NASA GSFC. Past fellow of the GSFC Technology Management Office's Distinguished Technology Fellows Program detailed to the Air Force Research Laboratory (Kirtland AFB), and GSFC Liaison to the DOD Space Test Program. He is a Program Committee member organizing symposia/conferences for the International Academy of Astronautics (IAA), and the International Astronautical Federation (IAF), and Corresponding Member of the International Academy of Astronautics. Dr. Esper has received numerous awards, including the NASA Medal for Exceptional Service for technology development and mission formulation, and the Robert H. Goddard Award for Engineering Excellence. Dr. Esper holds a B.S. degree in Physics and M.S. degree in Astronomy from the University of Florida, an M.S. degree in Mechanical (Aerospace) Engineering from The George Washington University, and a Dr. – Eng. degree from the University of Stuttgart, in Germany.

EDUCATION

University of Stuttgart, Germany	
Dr. – Eng. In Aerospace Engineering	2012
Dissertation: "Mission Design and Technology for a Titan Aerobot Balloon System (TABS)"	
Honors: Suma cum Laude	
The George Washington University	
M.S. In Mechanical (Aerospace) Engineering	2000
Thesis: "The Neptune / Triton Explorer Mission: A Concept Feasibility Study"	
University of Florida	
M.S. In Astronomy	1987
Thesis: "Thermal Design and Modeling of the South Pole Optical Telescope"	
University of Florida	
B.S. In Physics	1984

HONORS AND AWARDS

- Individual Act Award, for the successful flight of the Small Rocket/Spacecraft Technology (SMART) Platform on-board a Terrier improved-Orion suborbital rocket, September, 2012.
- Robert H. Goddard Award, NASA Goddard Space Flight Center, "Exceptional Achievement Award for Engineering", August 2010.
- AETD "Win New Work Award", August 2010.
- Exceptional Achievement Award, NASA Goddard Space Flight Center, GREAT Project, "For outstanding engineering of a remotely-controlled, autonomous robotic vehicle for testing flight avionics, by a team of college and Goddard engineers", December 2007.
- Performance Award, NASA Goddard Space Flight Center, "In recognition and appreciation for exceptional service in the performance of official duties", July 2007.
- Group Achievement Award, NASA, Space Technology 5 Team, "For outstanding accomplishment in building, testing, launching, and operating the Space Technology 5 mission, enabling future NASA science missions", May 2007.
- Team time Off Award, NASA Goddard Space Flight Center, "TacSat-2 Time-Off Award", December 2006.
- Performance Award, NASA Goddard Space Flight Center, "In recognition and appreciation of exceptional service in the performance of official Duties," March 2005.
- Performance Award, NASA Goddard Space Flight Center, "In recognition and appreciation of exceptional service in the performance of official Duties," April 2004.
- NASA Medal for Exceptional Service, "In recognition of your outstanding dedication to the development of new Earth Science technologies and mission formulation," August 2003.
- Special Act Award, NASA Goddard Space Flight Center, Sun Earth Connection Roadmap Missions Definition Team, September 2002.
- Special Act Award, NASA Goddard Space Flight Center, "In recognition of services in the area of Advanced Concepts," July 2002.
- NASA Engineering Excellence Group Award, Hubble Space Telescope Second Servicing Mission, Systems Engineering Group, March 1999.
- NASA Recognition, "In appreciation of your outstanding contributions to the Hubble Space Telescope Project Second Servicing Mission," February 1997.
- NASA Group Achievement Award, Comet Shoemaker-Levy Jupiter Impact Observation Team, May 30, 1996.
- NASA/Goddard Space Flight Center, Group Achievement Award, Hubble Space Telescope First Servicing Mission, Observatory Verification Team, June 3 1994.
- NASA Group Achievement Award, Hubble Space Telescope First Servicing Mission, Contingency Development Team, June 3 1994.
- NASA/Goddard Space Flight Center, Group Achievement Award, Hubble Space Telescope Mission Operations, Flight Systems Engineering Team, June 3 1994.
- NASA/Goddard Space Flight Center, Group Achievement Award, Hubble Space Telescope Mission Operations, Systems Engineering Group, April 30 1992.
- NASA/Goddard Space Flight Center, Certificate of Recognition, Hubble Space Telescope Program, November 1 1991.
- NASA Group Achievement Award, Hubble Space Telescope Mission Operations Team, March 26 1991.

PROFESSIONAL EXPERIENCE

- *Chief Engineer, NASA Space Geodesy Project (2013 - : NASA)*
- *Research Project Manager & Principal Investigator (2002 – 2012: NASA)*
- *Chief Systems Engineer, Minotaur Launch, NASA Wallops Flight Facility (2006: NASA)*
- *Deputy Chief Engineer, Robotic Lunar Exploration Program Lander (2005 – 2006: NASA)*
- *Distinguished Technology Fellow (2004: NASA)*
- *Associate Head, Earth Science Missions Branch, Systems Engineering and Advanced Concepts Division (2002 –2004: NASA).*
- *Space Technology 5 Micro-Satellite Constellation Mission Systems Engineer (MSE) (1998 –2001: Swales Aerospace)*
- *Geostationary Operational Environmental Satellite (GOES-10), Image Navigation and Registration Engineer (1997 – 1998: Swales Aerospace)*
- *Flight Systems Engineering Lead for the Fine Guidance System (FGS) replacement during the 1997 Hubble Space Telescope (HST) Second Servicing Mission (1997: Swales Aerospace)*
- *Flight Systems Engineering Lead for HST's Optical Telescope Assembly (1990 – 1997: AlliedSignal Aerospace)*
- *Pointing Control System Engineer, HST (1989 – 1990: AlliedSignal Aerospace)*
- *International Ultraviolet Explorer (IUE) spacecraft controller (1988 – 1989: Computer Sciences Corporation)*

PUBLICATIONS AND PAPERS

1. "Space Systems Cross-Compatibility", 9th International Academy of Astronautics, Symposium on Small Satellites for Earth Observation, Berlin, Germany, April 2013. With Lesley J. Smith, Marco D'Errico, Linda Herrell, Chisato Kobayashi, Peter Mendham, Elena Razzano, and Edward Birrane.
2. "The use of NASA GSFC Modular, Reconfigurable, Rapid (MR²) Small Satellite for the Measurement of Greenhouse Gases", 9th International Academy of Astronautics, Symposium on Small Satellites for Earth Observation, Berlin, Germany, April 2013. With Marco D'Errico, Linda Herrell, Chisato Kobayashi, Peter Mendham, Elena Razzano, and Edward Birrane.
3. "Overcoming Design Challenges for a Radiation-Tolerant, Radiation-Hardened Fast Ethernet Interface", IEEE Aerospace Conference, Big Sky, Montana, March 2013. With Jeanette Arrigo and Darryl Lakins.
4. "MIRKA2: Small Re-Entry Demonstrator for Advanced Miniaturized Sensors", International Workshop on Instrumentation for Planetary Missions (IPM-2012), Greenbelt, Maryland, October 2012. With Georg Herdrich, Jean-Pierre Baumann, Peter Geissler, Ramin Geshnizjani, Bartomeu Massuti, Philip Ortwein, Daniel Winter, Benedikt Wirth, Alexander Zach, Arianit Preci, Bastian Olberts, Karl Keller, Christian Pilz, and Monika Auweter-Kurtz.
5. "Small Rocket/Spacecraft Technology (SMART) Platform", Small Satellite Conference, Logan Utah, August 2011.

6. "Resin Impregnated Carbon Ablator (RICA): A new Thermal Protection System Material for High-Speed Planetary Entry Vehicles", 8th Annual International Planetary Probe Workshop, Portsmouth VA, June, 2011. With Hans-Peter Roeser and Georg Herdrich.
7. "In-Situ Exploration of Planetary Atmospheres with Balloons", Annual Meeting of the German Physics Society, Bonn, Germany, March 2010. With Michael Danielides, Georg Herdrich, Klaus Bayler, Hannes Griebel and Jürgen Herholz.
8. "Linking and Combining Distributed Operations Facilities Using NASA's GMSEC System Architecture", SpaceOps 2008 Conference, Heidelberg, Germany, May 2008. With D. Smith, T. Grubb.
9. "Outcomes and Visions of the International Study on Cost-Effective Earth Observation Missions", 57th International Astronautical Congress, Valencia, Spain, October 2006. With R. Sandau, L. Paxton.
10. "Modular, Adaptive, Reconfigurable Systems: Technology for Sustainable, Reliable, Effective, and Affordable Space Exploration," Proceedings of the Space Technology and Applications International Forum, American Institute of Physics, 2005.
11. "Modular, Reconfigurable, and Rapid Response Space Systems: the remote sensing advanced technology microsatellite," AIAA 2nd Responsive Space Conference, El Segundo CA, April 2004. With Jim Andary, John Oberright, Maria So, Peter Wegner, Alok Das, Joe Hauser.
12. "The Neptune / Triton Explorer Mission: A Concept Feasibility Study," Proceedings of the 5th IAA International Conference on Low-Cost Planetary Missions, ESTEC, Noordwijk, The Netherlands, 24-26 September 2003, ESA SP-542, November 2003.
13. "Spectral Considerations for the Measurement of Carbon in the Visible and Near Infrared," ASPRS Annual Conference, Anchorage, May 2003. With Janette C. Gervin, Robert W. Knox, Charles R. McClain, Forrest G. Hall.
14. "Low Density Biomass & Coastal Ocean: A Carbon Cycle Mission," 4th International Academy of Astronautics, Symposium on Small Satellites for Earth Observation, Berlin, Germany, April 2003. With Jan Gervin, Frank Kirchman, Betsy Middleton, Robert Knox, Charles McClain, Forrest Hall.
15. "Technology for Earth Science Missions: the Next Generation Small Spacecraft," 52nd International Astronautical Congress, Toulouse, France, October 2001. With S. Neeck.
16. "Nano/Micro Satellite Constellations for Earth and Space Science," 3rd International Academy of Astronautics, Symposium on Small Satellites for Earth Observation, Berlin, Germany, April 2001. With S. Neeck, James A. Slavin, Jesse Leitner, W. Wiscombe, Frank Bauer.
17. "Leonardo-BRDF: A New Generation Satellite Constellation," 51st International Astronautical Congress, Rio de Janeiro, Brazil, October 2000. With W. Wiscombe, S. Neeck, S. Hughes, Si-Chee Tsay, M. Ryschkewitsch.
18. "NASA-GSFC Nano-Satellite Technology for Earth Science Missions," Acta Astronautica Vol. 46, Nos. 2-6, pp. 287-296, 2000. With P. Panetta, M. Ryschkewitsch, W. Wiscombe, S. Neeck.
19. "VOLCAN: A Mission to Explore Jupiter's Volcanic Moon Io," 4th IAF Conference on Low Cost Planetary Missions, Columbia, MD April 2000. With P. Panetta, M. Concha, P. Coronado, S. Scott, J. Soldner.
20. "Advanced Geosynchronous Studies Imager: Scanning Star Detection," The International Symposium on Optical Science, Engineering, and Instrumentation, SPIE July 1999, Denver, Colorado. With D. Chu, J. Carr, J. Bremer, R. Kindsfather.
21. "Advanced Geosynchronous Studies Imager (AGSI): Image Navigation and Registration (INR) System," The International Symposium on Optical Science, Engineering, and Instrumentation, SPIE July 1999, Denver, Colorado. With J. Le Moigne, J. Carr, D. Chu.
22. "Opportunities for the Application of New Millennium Concepts and Technologies," IAF Specialists Symposium on Novel Concepts for Cheaper, Faster, Better Space Missions, Redondo Beach CA, April 1999. With M. Cully, M. Perry.
23. "Enabling Technologies for Nano-satellite Constellations," IAF Specialists Symposium on Novel Concepts for Cheaper, Faster, Better Space Missions, Redondo Beach CA, April 1999. With P. Panetta.
24. "New GOES Landmark Selection and Measurement Methods for Improved On-Orbit Image Navigation and Registration Performance," European Symposium on Remote Sensing, Barcelona, Spain, September 1998. With W. Bryant, J. Carr, and J. Harris.
25. "Space Telescope Fine Guidance Sensor Bearing Anomaly," 30th Aerospace Mechanism Symposium, NASA Langley Research Center, May 15-17, 1996. With S. Loewenthal, J. Pan, and J. Decker.
26. "Optimum Focusing Conditions for the International Ultraviolet Explorer (IUE) Spectral Cameras at Low Resolution," Report 3 Agency Meeting, NASA Goddard Space Flight Center, November 1989. With M. R. Perez, and L. F. Huber.
27. "An Automated South Pole Stellar Telescope," Proceedings of the 118th symposium of the International Astronomical Union, Christchurch, New Zealand, December 1985. With K-Y. Chen, J. D. McNeill, J. P. Oliver, G. Schneider, and F. B. Wood.

LANGUAGES

Spanish and English - Native Languages
 French: - speak, read, and write with basic competence

MEMBERSHIPS

International Academy of Astronautics