Logistics, Scope, Goals

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April 10, 2012
Welcome to the 2012 NASA Spacecraft Fault Management Workshop!

• ~100 attendees
• 34 organizations from government, industry, academia
• 4 NESC Technical Fellows
• Media
  – Video capture
  – Photos
  – Webcast
• Now, a word from our Sponsor, Lindley Johnson, NASA SMD/PSD Program Executive
# Agenda

**Day 1 - April 10, 2012**

- **7:00 AM**: Registration
- **8:00 AM**: Welcome - Lindley Johnson
- **8:15 AM**: Agenda, Logistics, FM Handbook Status - Brian Muihead
- **9:00 AM**: JHU/APL - Kris Fritz, "Recent progress in FM"
- **10:00 AM**: NASA/MSFC - Jon Patterson, "Analytical Approaches to Ground Space Launch System FM Development"
- **10:45 AM**: NASA/JSC - Carls Garcia-Galan, "FM for Crewed Entry"
- **11:15 AM**: Aerospace Corp - Paul Schmidt, "Independent Assessment of NASA Fault Management System Architectures"
- **11:45 AM**: AFRL/W-P - Mark Derribo, "State Awareness and Decision-Making Architecture"
- **12:15 PM**: Lunch - Invited Speaker: Michael Aguilar
- **1:15 PM**: Focus Area: "Assessing FM architectures" [Resp #8]
- **1:30 PM**: NASA/ARC - Mark Schwabacher, "Human Spaceflight ISHM Technology Development"
- **2:00 PM**: NASA/JSC - Robert Mah, "System-Wide Safety Assurance Technologies"
- **2:30 PM**: JPL-Caltech - Mitch Ingham, "No more Band-Aid: Integrating FM into the Onboard Execution Architecture"
- **3:00 PM**: JPL-Caltech - Dan Donnell, "Goal-Based FM"
- **3:30 PM**: NASA/JSC - Lui Wang, "Modeling Failure Modes with SysML"
- **4:00 PM**: Break
- **4:15 PM**: NASA/MSFC, UCCS/Buehler - Stephen Johnson, "FM Technical Performance Metrics"
- **4:45 PM**: AFRL/W-P - Mark Derribo, "AFRL’s ISHM Journey and Future Plans"
- **5:15 PM**: Break
- **5:30 PM**: Reception - Baronne and Baronne Rooms - Second Floor
- **8:00 PM**: Early Departure

**Day 2 - April 11, 2012**

- **8:00 AM**: Invited Speaker: Dr. Werner Dahm
  - Director, Security and Defense Systems Initiative, ASU
  - "ISM: Applications and Challenges on the Horizon"
- **8:45 AM**: JPL-Caltech - Steve Jenkins, "FM Ontology"
- **9:15 AM**: NASA/ARC - Peter Robinson, "FM as a Control System"
- **9:45 AM**: NASA/OSMA - Frank Green, "FM in an Objectives-Based/Role-Informed View of Safety and Mission Success"
- **10:00 AM**: Break
- **10:15 AM**: Architecture Evaluation Session Overview - John Day, Session Chair (JPL) and David Garlan (CMU)
- **10:30 AM**: Break
- **12:00 PM**: Lunch
- **1:00 PM**: Architecture Evaluation Report & Discussion - US Persons only
  - John Day (JPL) and David Garlan (CMU)
- **2:00 PM**: Break
- **2:45 PM**: Capabilities Roadmap Session - US Persons only
  - Breakout Session
- **3:00 PM**: Breakout Session
- **3:30 PM**: Closing Remarks
- **5:00 PM**: Steering Committee Meeting

**Day 3 - April 12, 2012**

- **8:00 AM**: Invited Speaker: Dr. Algirdas Avižienis
  - Distinguished UCLA Emeritus Professor
  - "Termination Issues in Dependable Computing"
- **8:45 AM**: JPL-Caltech - Steve Jenkins, "FM Ontology"
- **9:15 AM**: NASA/ARC - Peter Robinson, "FM as a Control System"
- **9:45 AM**: NASA/OSMA - Frank Green, "FM in an Objectives-Based/Role-Informed View of Safety and Mission Success"
- **10:00 AM**: Break
- **10:15 AM**: Breakout Sessions: Logistics
Logistics

• Agenda is color-coded to indicate locations
• Every day, start in Queen Anne Ballroom
• Day 1 schedule is tight – I will be holding speakers to their allotted time.
• Day 1 presentations prepare us for Day 2 activities
• Day 2 plan: Split into 2 parallel Breakout Sessions
  – Go to one Session and stay there for the day. Discourage traveling
  – Introductions to each Session will be provided on Day 2
• Day 3 focuses on FM Handbook issues
2012 Scope

- FM, ISHM, FP, IVHM, SHM, FDIR, RM, HUM
- HSM and OSMA focus this year
- Aeronautics, GS, MS next on the list
Goals

• Bring FM LL and BP alive to benefit future missions
• Establish a vision for FM technology development
• Expose the different views/roles of FM on current missions
• Work toward consensus on key issues
• Plans for the next 3 days
  – Collect and Assess past FM Architectures
  – Develop a FM Capabilities Roadmap
  – Discuss via a panel the role of FM on a Mission
  – Mature the contents of the NASA FM Handbook
Day 3: Handbook Issues

• Terminology!
• What is the “science” that lies beneath FM?
• Confusion about FM vs OSMA responsibilities
• How does FM fit within a mission?
  – Part of SE’s responsibilities?
  – Separate subsystem like power, ACS and thermal?
  – Additional duty for subsystem engineers?