



**SPACECRAFT ANOMALIES & FAILURES WORKSHOP**  
 "Creating a Community Solution for Anomaly Attribution"

Co-Sponsored by NRO and NASA  
**MARCH 29-30, 2023**

**Locations:**  
 DAY 1 (UNCLASSIFIED): NASA Goddard Space Flight Center  
 DAY 2 (CLASSIFIED): NRO HQ Westfields

Presentations run from **9:00 AM to 4:00 PM EDT.**  
 Check-In begins at **8:00 AM**

**AGENDA TOPICS:**

- Spacecraft Anomalies, Failures, and Operations.
- Space Environmental Effects and Debris.
- Anomaly Recovery Operations and Anomaly Investigations.

**OBJECTIVES:**

- Review & share lessons learned from spacecraft anomalies & failures.
- Improve tradecraft for anomaly attribution & root cause determination.
- Reinforce relationships in the Space Community that do not regularly interact.

NRO POC: Dong Ryu, ryudong@nro.mil, 703-460-3697  
 NASA POC: Joseph Minow, joseph.minow@nasa.gov, 256-544-2850

## Spacecraft Anomalies and Failures 2023 Workshop

### Agenda

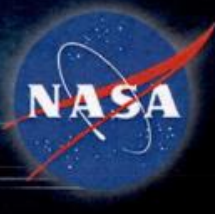
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## Logistics

### Workshop website:

<https://www.nasa.gov/nase/conferences/SCAF2023>

### Workshop Contacts

Day 1: [joseph.minow@nasa.gov](mailto:joseph.minow@nasa.gov)

Day 2: [ryudong@nro.mil](mailto:ryudong@nro.mil)

### Day 1

In-person: NASA, Goddard Space Flight Center, Greenbelt, MD

Remote: Teleconference link to be provided to registered participants

NASA civil service and contractor personnel please request NASA Conference Tracking System (NCTS) approval using **NCTS # 47810-23**.

### Day 2

In-person: NRO Headquarters Westfields, Chantilly, VA

Remote: Teleconference link to be provided to registered participants



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[Note: Times are US Eastern Standard Time, UTC – 5 hours]

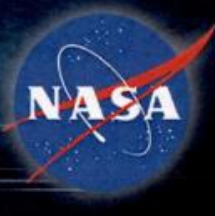
Wednesday, 29 March 2023  
Unclassified Day, NASA GSFC and Virtual

|               |  |   |
|---------------|--|---|
| 08:00 – 09:00 | Check-in   |   |
| 09:00         | GSFC Welcome   | Antti Pulkkinen<br>NASA GSFC  |
| 09:00 – 09:30 | NASA SCAF 2023 Welcome and Introductory Comments   | Joseph Minow<br>NASA MSFC   |
| 09:30 – 10:00 | Double Asteroid Redirection Test (DART) Lessons Learned                                    | Elena Adams<br>Applied Physics Laboratory<br>Johns Hopkins University |
| 10:00 – 10:30 | Investigation of Shuttle and Orion Reentry Temperature Anomalies                           | Mike Squire<br>NASA LaRC  |
| 10:30 – 11:00 | <b>Break</b>   |   |
| 11:00 – 11:30 | JWST Meteoroid Impacts   | Mike Menzel<br>NASA GSFC  |
| 11:30 – 12:00 | Risks from Decreasing Ground Support for Human Spaceflight Missions Beyond Low Earth Orbit | Alonso Vera<br>NASA ARC   |
| 12:00 – 12:30 | <del>Space Environments – an Ops Perspective</del> <b>Cancelled</b>                        | Chris Kilzer<br>The Aerospace Corporation                             |
| 12:30 – 13:00 | <b>Lunch Break</b>   |   |
| 13:30 – 14:00 | Moon to Mars Space Weather Analysis Office Anomaly Support                                 | Yari Collado-Vega<br>NASA GSFC  |
| 14:00 – 14:30 | Long-term Environmental Anomaly Forecast (LEAF) Tool                                       | T.P. O'Brien, Alex Boyd<br>The Aerospace Corporation                  |
| 14:30 – 15:00 | Models and Applications for Assessing Space Weather Hazards from Earth to the Moon         | Janet Green<br>Space Hazards Applications, LLC                        |
| 15:00 – 15:30 | <b>Break</b>   |   |
| 15:30 – 16:00 | NASA Small Spacecraft Anomaly Reporting Process: Overview and Next Steps                   | Craig Burkhard<br>NASA ARC  |
| 16:00 – 16:30 | Closing Remarks  | Joseph Minow<br>NASA MSFC   |



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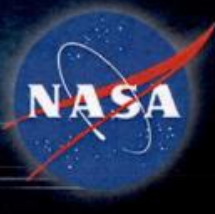
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Thursday, 30 March 2023  
Clearance Required, NRO HQ Westfields and Virtual

|               |  |  |
|---------------|--|--|
| 08:00 – 09:00 | Check-in (JD Hill Atrium)                              |  |
| 09:00 – 09:10 | Introductions – Administrative                         | Dong Ryu<br>NRO  |
| 09:10 – 09:15 | Introductions – Welcome                                | Darwyn Banks<br>NRO  |
| 09:15 – 09:45 | Uncontrolled Reentries of the CZ-5B Core Stages        | Ted Muelhaupt<br>The Aerospace Corporation                           |
| 09:45 – 10:15 | Diagnosis of Internal Charging with Van Allen Probes   | Mike Kelly<br>Applied Physics Laboratory<br>Johns Hopkins University |
| 10:15 – 10:30 | <b>Break</b>   |  |
| 10:30 – 11:00 | Space Safety Institute                                 | Josef Koller<br>The Aerospace Corporation                            |
| 11:00 – 11:30 | SCP Toggle Due to Asynchronous Process at RTI Rollover | Doug Blackmer<br>Boeing  |
| 11:30 – 12:30 | <b>Lunch Break</b>                                     |  |
| 12:30 – 01:00 | Anomaly Resolution                                     | Ray Martin, Brittney Riley<br>NRO                                    |
| 01:00 – 01:30 | Platform Disturbance Anomaly                           | Alicia Woods<br>NRO  |
| 01:30 – 01:45 | <b>Break</b>   |  |
| 01:45 – 02:15 | Space Risk Update                                      | Chris Kunstader<br>AXA XL  |
| 02:15 – 02:45 | Ongoing NRO Satellite Anomaly                          | Michael Braun<br>NRO   |
| 02:45 – 03:00 | <b>Break</b>   |  |
| 03:00 – 03:30 | NRO Satellite Program Anomaly                          | Megan Frechette<br>NRO   |
| 03:30 – 04:00 | ADF-SW Collection Managers' Brief                      | Sarah Cameli, Dana<br>Wojculewicz<br>NRO                             |



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**04:00 – 04:05**

Closing Remarks

Dong Ryu  
NRO

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