



*Recent activities specific to the Elements include:*

### First Stage (FS)

- Deceleration Subsystem (DSS)***  
***Ares I-X Main Parachute***  
***Investigation Status:*** The DSS team has established a Fault Tree and has populated the various teams for investigation of the first main parachute anomaly on Ares I-X. Aerial and onboard video along with post-flight hardware inspection indicate that a structural failure occurred in the main canopy suspension system at a Salt Water Activated Release (SWAR). Further evidence indicates that the failed chute bypassed its first reef stage during deployment, which may have produced an overload on the SWAR causing the structural failure. Therefore, the primary focus of the investigation is on the SWAR failure, early disreef, or premature reefing line cutter initiation, and other causes of excessive parachute loads. Material and Processing (M&P) test plans have been developed to perform non-destructive evaluation (NDE) and metallography on the SWARs and reefing line cutters to identify their chemical composition and check for material defects. SWARs will be pull tested to failure to establish their ultimate strength and the reefing line cutters will be disassembled for inspection of their pyrotechnic delay trains. Packing, installation, and pack restraint procedures and methods will also be evaluated to analyze the effects of Ares I-X flight dynamics on the potential of early reefing line cutter initiation. When the developmental flight instrumentation (DFI) data is received, it will be used to determine the loads seen by the parachutes, helping to verify the failure causes exhibited by the physical evidence.





## Project Integration (PI)

- **NASA Education EXPRESS Message:** The Ares Projects outreach team worked with the MSFC Academic Affairs Office to have an EXPRESS message about Ares social media outlets sent December 1 to Academic Affairs' roughly 18,000 subscribers. These outlets will give educators several ways to learn about the latest Ares developments, as well as interact with the Ares team.
- **Ares Education Outreach:** The Ares Projects outreach team worked with the Shuttle Propulsion Office to speak to students at Brent Elementary School near Tuscaloosa, Alabama, and students at Moulton Middle School. They discussed the Shuttle Program, its planned retirement, and the transition to the Constellation Program and its future. The 1:100 Ares I and Ares V model set and 1:100 Ares I-X models were displayed. The Tuscaloosa News and Centreville press published articles on the Brent Elementary visit. The transition period between Shuttle and Constellation is an opportunity to put both the Shuttle and Ares Programs in perspective as they relate to human exploration.
- **Ares Digital Learning Network (DLN) Presentation:** The Ares Projects outreach team participated in a DLN presentation to 15 schools around the country on how the Saturn V and history have influenced the Ares rocket designs. The webcast could also be viewed by other educators not formally registered for the event. This presentation provided an engineering context for why the Ares vehicles and Constellation architecture are designed as they are.

