

# ***Ground System Architectures Workshop***

## ***Stronger Together: Improving Interoperability for Users and Operations***

February 22–March 2, 2023 | The Aerospace Corporation | El Segundo | California

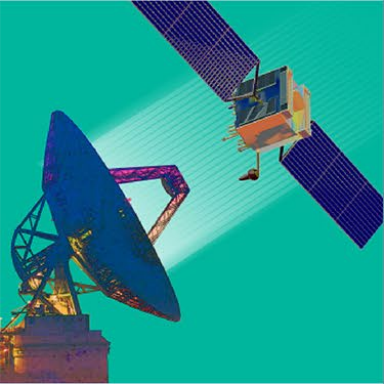
***Enabling Interoperability by  
Enterprise Formation***

***Donald Sather, The Aerospace Corporation***

A satellite in orbit with solar panels and a ground station antenna on the left. The background is a teal gradient with a faint circular graphic on the right.

## Session Goals

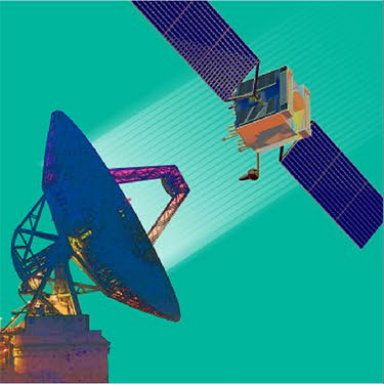
- Inform the participants of the progress and challenges being made by different organizations using different approaches to enterprise formation and interoperability
  - *ESA*
  - *USSF*
  - *Commercial*
- Offer participants an opportunity to ask questions and offer suggestions to address the challenges cited



# *Presenters/Panelists*

*Thanks to all the Panelists!!*

- Anthony Walsh, Operations Data Systems Manager, ESA
- Lt Col Nathan Terrazone, Enterprise Ground Services DevSecOps and Mission Integration Branch Chief , USSF
- Gerry Simon, Chief Architect, Parsons Mission Solutions
- Don Sather, Technical Fellow, The Aerospace Corporation



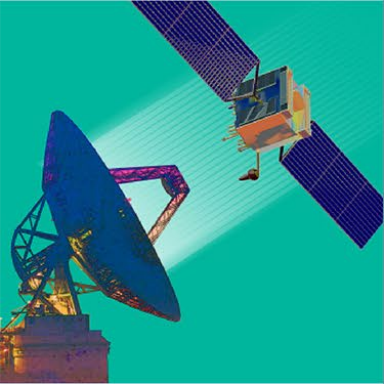
# Key Points

*Significant challenges exist*

- Key challenges are similar for all groups even though the approaches taken to formation have many differences
- Challenges:
  - *Breaking down cultural barriers*
    - “My program is different.... And it’s mine....” Getting programs to focus on enterprise as part of their mission
  - *Managing complexity and Scale*
    - How do we develop an infrastructure and processes that can manage several dozen assets today which could be several thousand in a few years?
  - *Funding (or the lack thereof)*
  - *Application of the **right** standards in the right way*
    - Need for standards that scale
    - Support the end user/mission – developing & understanding requirements

*Working Group D*





# Conclusions

*The task is daunting but not impossible*

- Recognize and act like the enterprise is an essential part of each mission as opposed to a separate “add-on”
- Cultural Challenge (includes Funding and Standards Challenges)
  - *Have an organizational structure and personnel that actively supports an enterprise as opposed to just missions*
  - *Structure funding processes and allocations to foster enterprise as part of the missions – may involve changing the way we appropriate funding*
    - Funding can drive behavior – especially on the short term
  - *Entity/Organization required to recognize and enable synergy between programs that can't talk to each other due to classification differences*
  - *Use and enforcement of well documented standards/interfaces in contracts to help guide Contractor behavior*
  - *Consider dictating the journey as opposed to the destination – especially if the exact destination is uncertain*
  - **Constant & consistent** leadership pressure required to re-steer mission-centric (enterprise-phobic) thinking
- Complexity and Scale Challenge
  - *Automate where prudent – drive out touch labor where possible*
  - *Re-examine trade off allocations between S/C and ground functions to enable better use of ground resources*
  - *Re-examine ground CONOPS*
  - *Partition the problem into manageable pieces*
    - “Don't bite off more than you can chew” , “Don't try to eat the elephant all at once”

*Working Group D*