

# ***Ground System Architectures Workshop***

Leaping into New Space:  
How to Leverage and Integrate  
with Traditional Aerospace

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February 26–29, 2024  
Renaissance Los Angeles Airport Hotel  
Classified Session—February 29, 2024



***Working Group E Outbrief***

***Leaping into the Future: How Innovations  
and Technological Advances will Enable  
Economically sustainable Next Generation  
Ground and Flight System Architectures***

***Dr. Ra'ad Saleh, NOAA and  
Dr. Ruma Das, NASA***

***February 29, 2024***





## Session Goals

- To examine current state of operational ground (and space) systems

*Emphasis on performance limitations of the current ground segments face with new satellite systems and expanding data streams from Earth Observing satellites.*

- To discuss Next Generation Ground Systems

*Emphasis on cost-efficient, sustainable, enterprise architecture based on innovations and disruptive technological changes.*

- To discuss the promise of innovations in technology



## ***Presenters/Panelists***



- Dennis Paul, Sr. Project Leader, Space Enterprise Evolution Directorate, Aerospace Corporation
- Isaac Passmore , Satellite Systems Solutions Architect, ASRC Federal Data Networks
- Joe Baun, SATCOM Systems Engineer, Space Development Agency, USSF
- Grant Williams, Senior Engineer Specialist, Economic & Market Analysis Center, Aerospace Corporation
- Hamid Akbarian, Ground Systems Manager, NASA
- Alex Ford, Technical Fellow, Northrop Grumman
- Justin Brooks, Sr Program Manager here at Ball Aerospace

*Working Group E*



## *Key Points*

- Public/Private partnership. Shared Risk or Transfer of Risk Model
- Demand and Supply triggers for infrastructure solution in new frontiers such as Cislunar ecosystem. Business of Living and working in space
- For new contractor, check Business certainty and stability. Example, company financials helps to understand it's pressures and motivations/incentives .
- Government sharing Technical Roadmap, ahead of time as it does mission development provides demand signals to the industry
- Ideas to drive down cost : usage of commercial commoditized products, Purchasing at scale, standards and Interoperability, Economies of scale
- Understanding Cloud Financial Operations( Cloud FinOps) critical to avoid misuse of cloud flexibility
- Promise of Innovation: SatOps AI/ML & Fault Detection , Optical Communications, Delay Tolerant Networking, Fog/Edge-Based ground architecture of the future, Intelligent Cross-Calibration of Space Sensing System.



# Conclusions

- Private –Public partnership for economically sustainable next generation ground and flight system architectures
- New Technology New Risks, Hidden Cost. Instituting a mechanism to continuously evaluate all Requirements to ensure they remain relevant and effective with rapid technological advances
- New paradigm emerging such as Cloud FinOps as an essential part of Operations