

# GSAW 2015

## Session 11F: Ground System Enablers and Future Small Sat Development

Ms. Catherine Venturini  
Mr. Steve Mazuk  
Developmental Planning & Projects  
The Aerospace Corporation

4 March 2015

# Welcome

- Reminder!
  - *This working group will be at the unclassified/public release level*
  - *Foreign nationals may be present*
- Goals of the working group
  - *Understand the needs of future Small Sat missions*
  - *Identify state of the art in ground system support*
  - *Prioritize areas where changes to ground system services will enable new space capabilities*

## Panelists

- Mr. Erik Eliassen, Universal Space Network
- Dr. Meagan Hubbell, NRO CubeSat Office
- Mr. Kyle Kemble, Air Force Research Laboratory
- Mr. Austin Mroczek, NAVY SPAWAR West
- Dr. Marco Villa, Tyvak Nano-Satellite Systems Inc.

## Working Group Focusing Questions

- What mission(s), regardless of size, can you NOT do today because you lack the ground services to support the mission(s)?
- What ground services do you need and when do you need them?
- How is your constituency working toward developing these ground services?

# Summary

- Collect discussion comments to identify needed ground services
- Assess services
  - *Near-term versus far-term*
  - *Evolutionary versus Revolutionary*
- Who can effect change to enable these ground services
- Next steps
  - *Outbrief Thursday morning*
  - *Final report to be published on GSAW website*

# Backup

## Optional Open Group Discussion Topics

- How will ground systems need to change in order to support various topologies? For example, swarms/constellations, mother ship with Small Sat extensions, store and forward relaying
- How can we best take advantage of the ground stations available from a variety of providers? Subtopics could include: scheduling and management of contacts, cyber security, high data-rate communications, and spacecraft power impacts
- What other standards might improve interoperability and reuse? Are existing standards groups such as CCSDS working these issues?
- How secure do Small Sat demonstration missions need to be to achieve demonstration results that can be transferred to operational systems?