ERAU Overview

- World's oldest and largest Aerospace/Aviation focused university
  - Recently established BS in Commercial Space Operations
- Applied for Affiliate Status of the COE CST under NMSU as host
- Some potential research areas:
  - ADS-B for CST applications (previous AST funding)
  - Rocket Plume Analysis related to Electrical Fields and Triggered Lightening Strikes (previous AST funding)
  - NextGen integration / coordination
  - Human factors issues (from situational displays to space suit design)

ERAU ADS-B Prototype for Suborbital Reusable Launch Vehicles

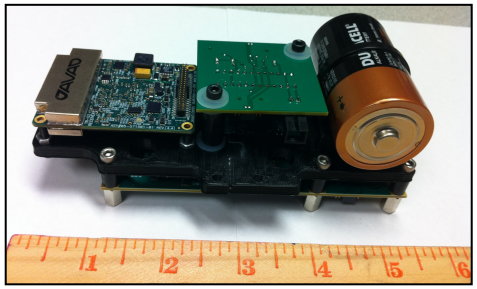
- **PROJECT AT-A-GLANCE**
- AST POC: Nick Demidovich
- UNIVERSITY: Embry-Riddle Aeronautical University
- PRINCIPAL INVESTIGATOR: Dr. Richard S. Stansbury
- STUDENT RESEARCHER: Dominic Tournour

RELEVANCE TO COMMERCIAL SPACE INDUSTRY

- ADS-B technology provides a means of tracking suborbital reusable launch vehicles both during the ascent and descent providing details including: position, altitude (geodetic and pressure), and velocity. It reduces the footprint of airspace sanitization required for commercial space operations.

STATEMENT OF WORK

- Develop a prototype ADS-B receiver based upon the MITRE UBR-TX capable of supporting space velocities, accelerations, and altitudes (COMPLETED)
- Verification and demonstration of prototype onboard high altitude balloon (COMPLETED)
- Verification, validation, and demonstration of prototype onboard sounding rocket to reach TRL 7 or higher (INPROGRESS).



STATUS

- Prototype design completed
- Demonstration on two Near Space Corporation Nano Balloon System Flights (59kft and near 100kft), February 2013
- Demonstration on Near Space Corporation High Altitude Shuttle System (105kft), July 2013

FUTURE WORK

- Demonstration onboard Up Aerospace SpaceLoft-8 and SpaceLoft-9
- Develop research plan to expand capabilities of ADS-B for CST including refining UAT and 1090ES message set to accommodate space altitudes and velocities