ARM Aerial Instrumentation Update and Discussion
Conveners: Fan Mei, Dari Dexheimer, Beat Schmid

• Beat Schmid: Challenger 850 and ArcticShark update
  • Workshop Summary:
    • 42 white paper submissions
    • 45 presentations: AAF current capability presentations, white paper presentations and motivating presentations by invited experts.
  • Challenger 850 Timeline:
    • CY2022 Science and Engineering Test Flights
    • CY 2023 First Science Mission
    • For a CY2024 mission, restrict possible deployment locations to continental US (including Alaska)
    • For CY2025 allow international locations
  • ArcticShark Status
    • Acceptance test flights with repaired/modified ArcticShark in June 2021
    • Working on flights on TigerShark platforms operated by partners (MSU, NAVAIR)
    • 1st Science Mission: Clear air flight over SGP (COV approved Summer, 2019 for 2 years)
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• Jason Tomlinson: Challenger 850 modifications (everything presented is notional and subject to change)
  • Cabin modification: ease of access, durable, safety, rapid integration and modularity, functional capability (vacuum source, exhaust, compressed air)
  • Research power and distribution
  • Wing pylons (3 attach points under each wing)
  • Fuselage mounting aperture (Zenith and Nadir, 20.5” circular aperture)
  • Fuselage mounting feature (RHS galley service door and two window plates)
  • Pathway to global operations

• Polling results (49 participants)
  • LiDAR
  • Dropsonde unit and chute
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- Fan Mei: Instruments for Challenger 850 aircraft
  - Short term implementation options (< 3 years)
    - Commercially available
    - Have reliable deployment history
    - Potential facility instruments
  - Mid/Long term implementation options
    - Concept with a strong science driver
    - Require significant funding to support
    - Commercially available, but require major aircraft modification
- Polling results (49 participants)
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• Dari Dexheimer/Fan Mei: Instruments (existing and proposed) for TBS and UAS