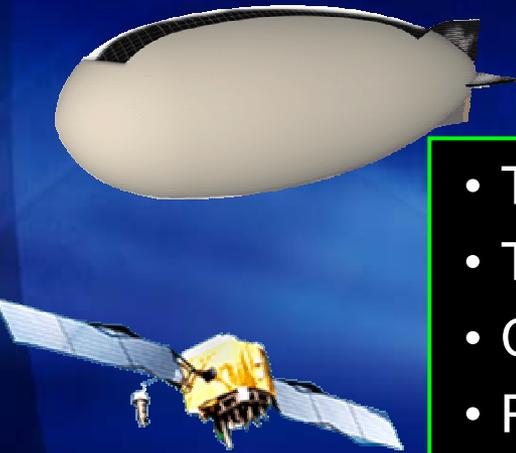


Tailored Tactical Surveillance

Dr. Larry Corey



Tailored Tactical Surveillance



Locate, target
pop-up C² sites



- Track and target air vehicles
- Track and target dismounted troops
- Comms Skyhook
- Passive RF tags (Friendly/Foe?)

Track and target moving ground vehicles

Phases of Conflict

I&W



IPB



Combat



SASO

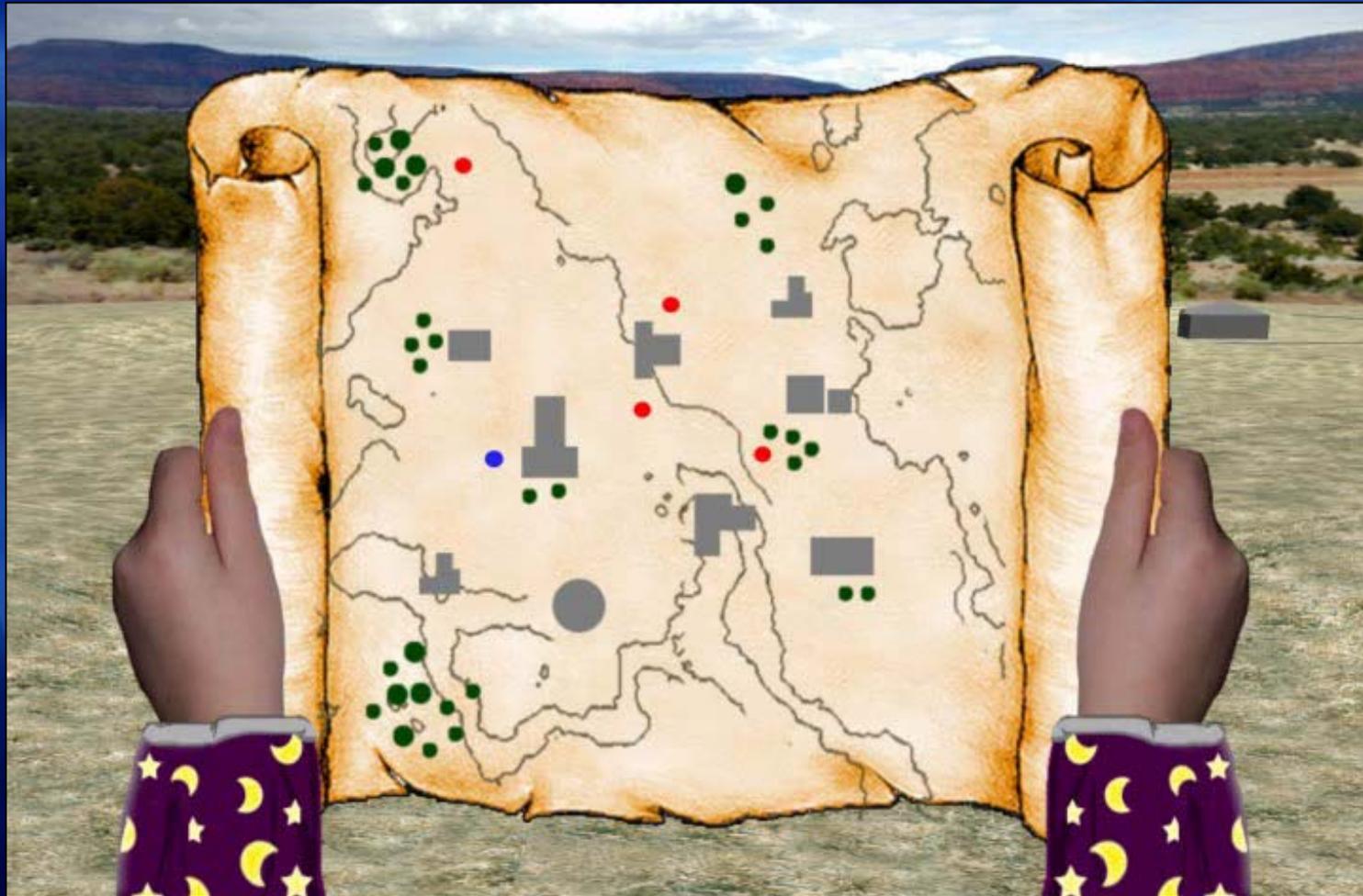


Integrated System Is Structure



ING
PA
THE GAP

Dynamic Map



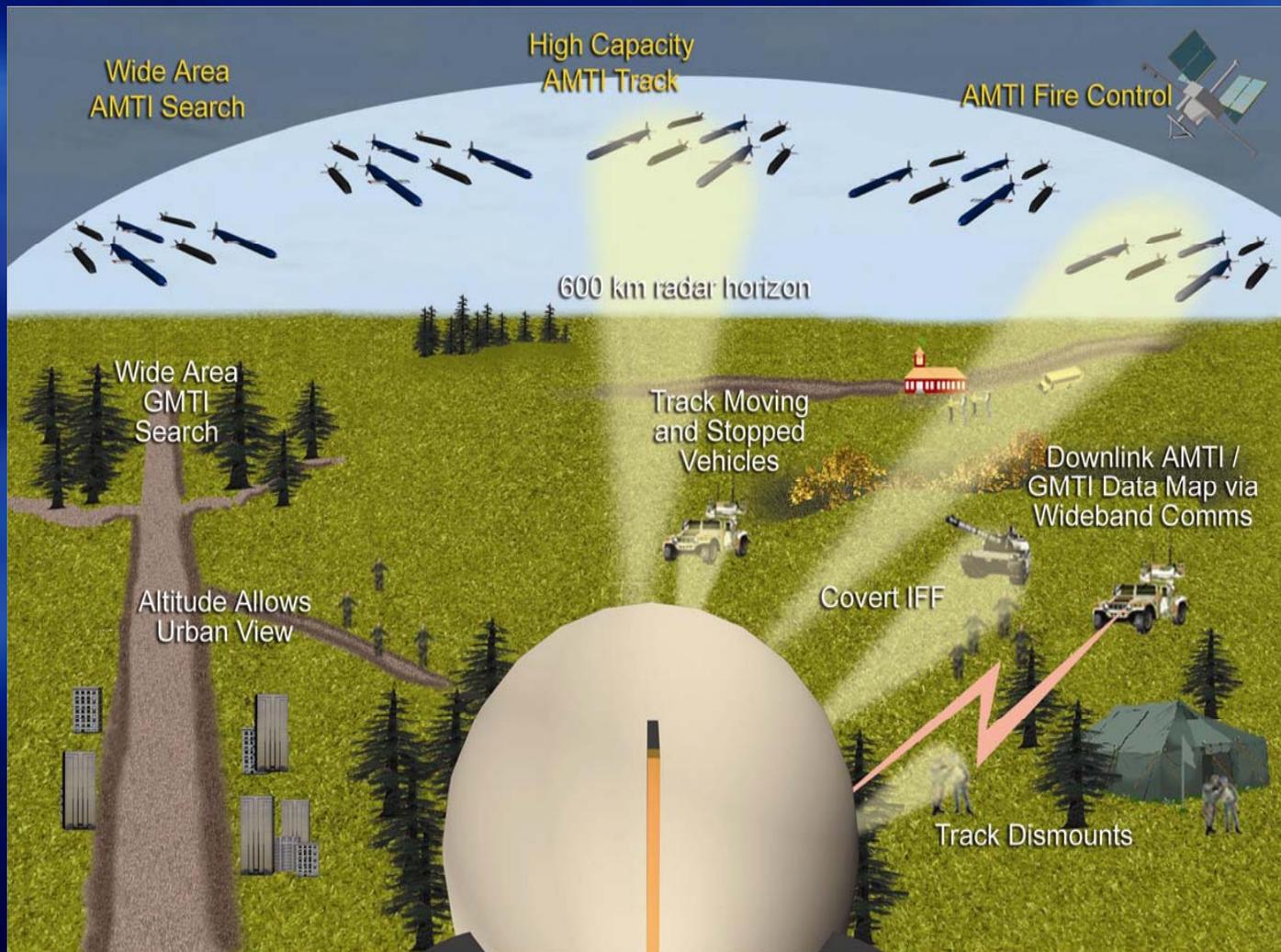
Air Defense Map



Sensor Data Link



ISIS Vision



ISIS Airship

- Stationary
- 70,000 foot altitude
- One year persistent surveillance
- No local logistics support



Logistical Support



Tailored Data Downlink

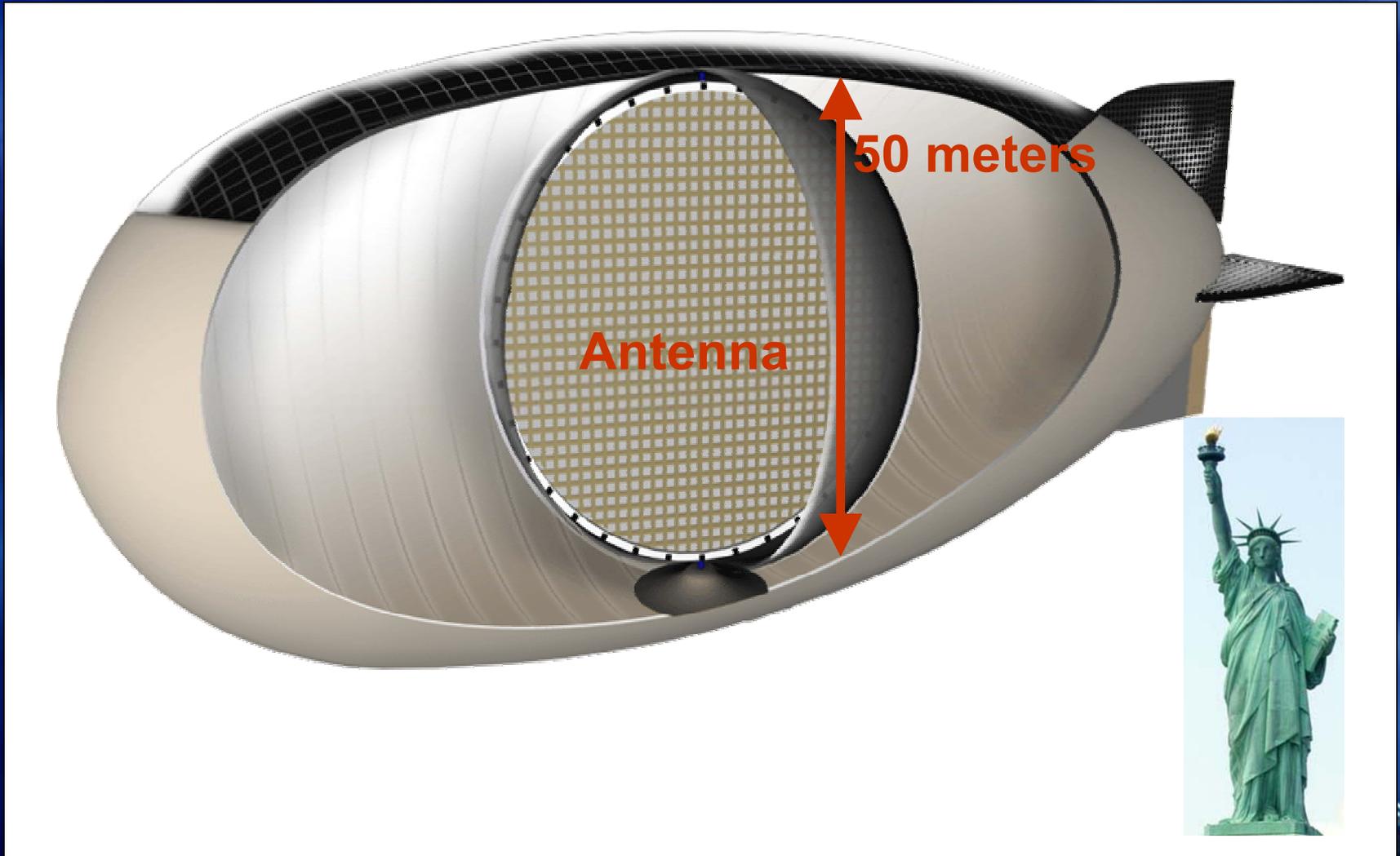
- Local
- Wide Area
- Ground
- Air



PAVE PAWS



Enormous Antenna



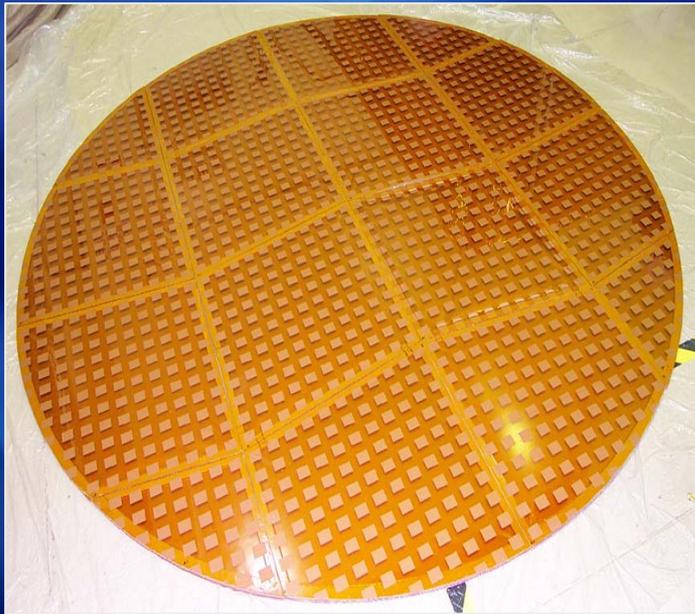
THE GAP

Lightweight Antenna Technology

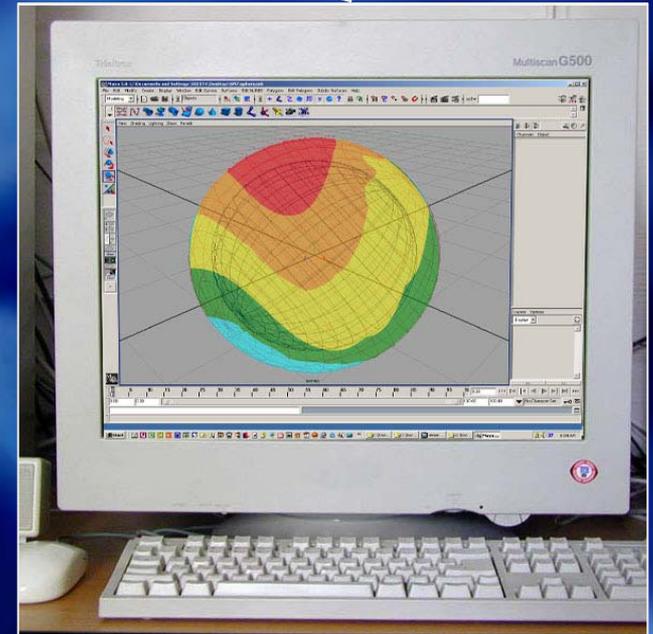


Dynamic Antenna Calibration

Electrical Compensation



Point Measurements

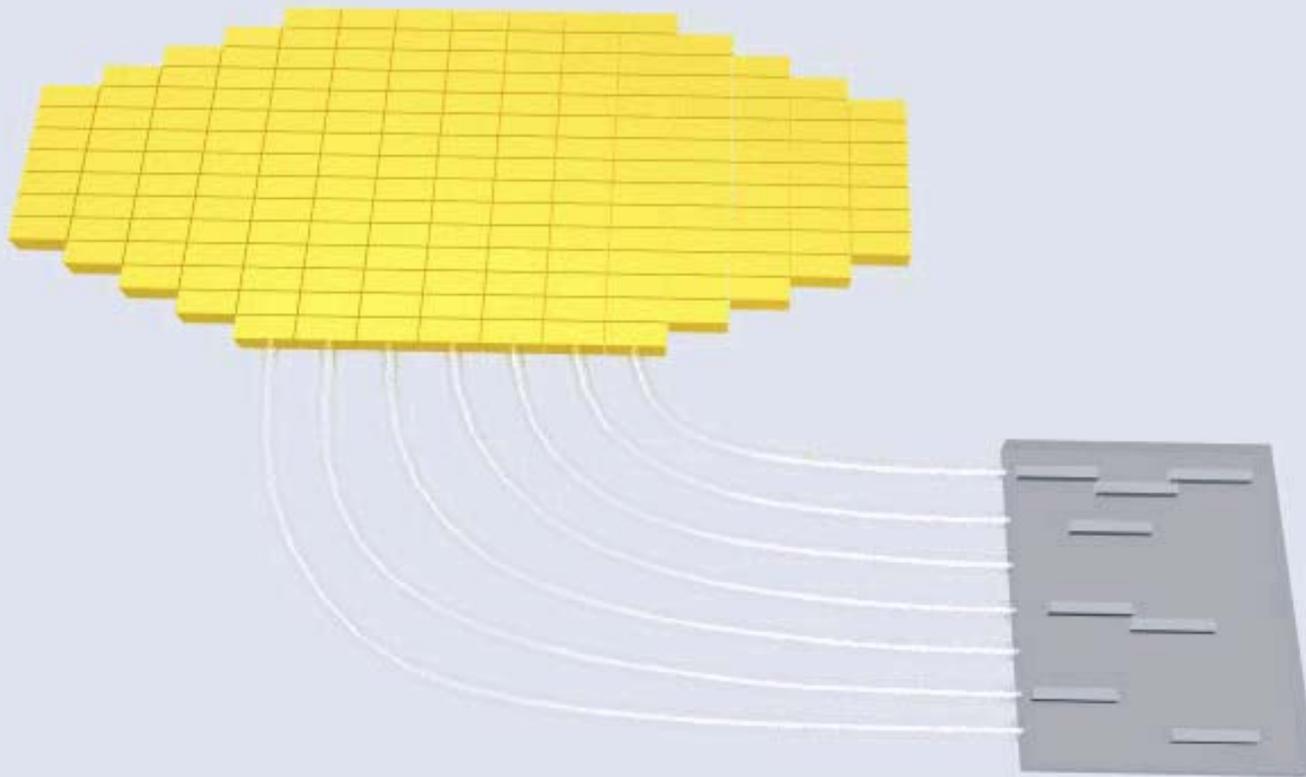


Full Distortion Model



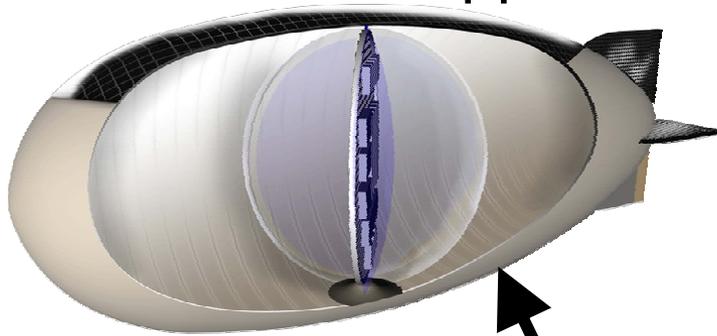
Switching Beamformer

Thousands of Subarrays

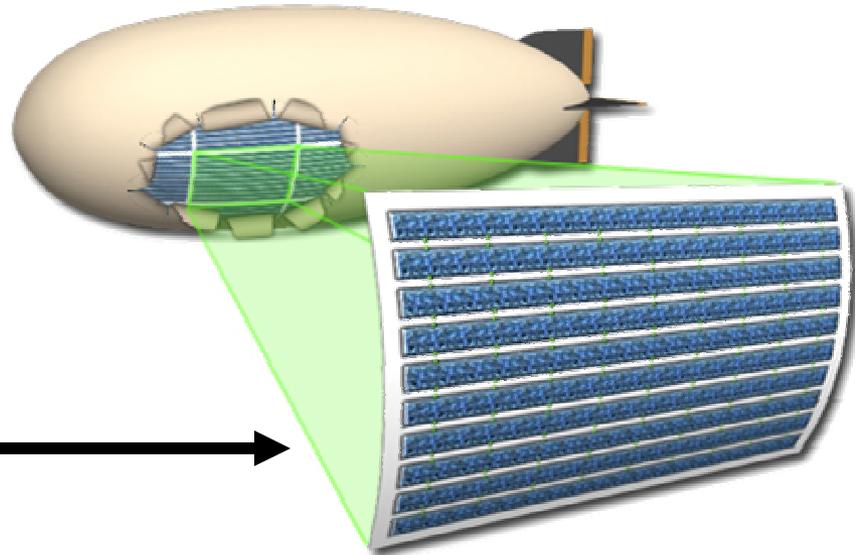


Integration Concepts

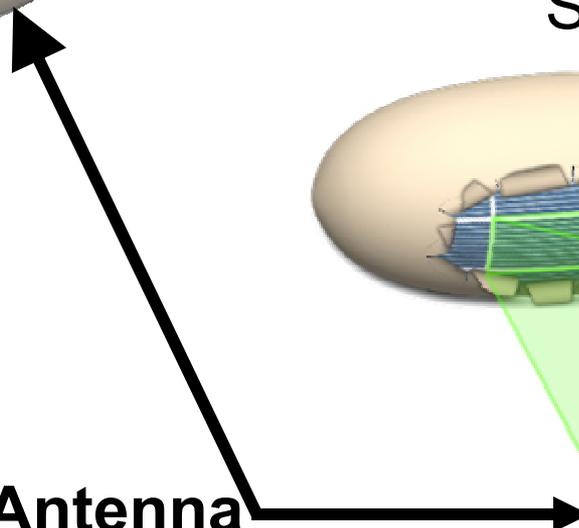
Internal Approach



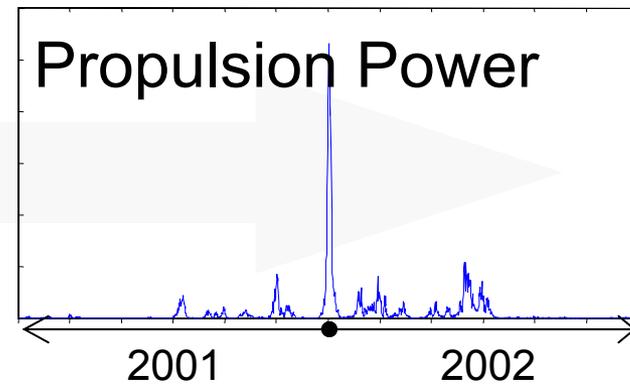
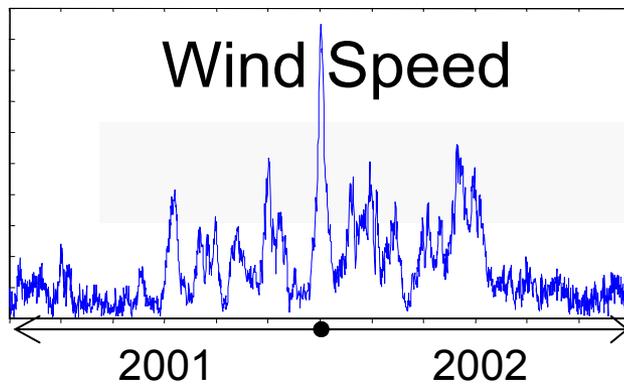
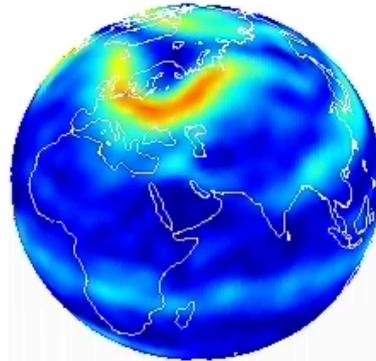
Surface Approach



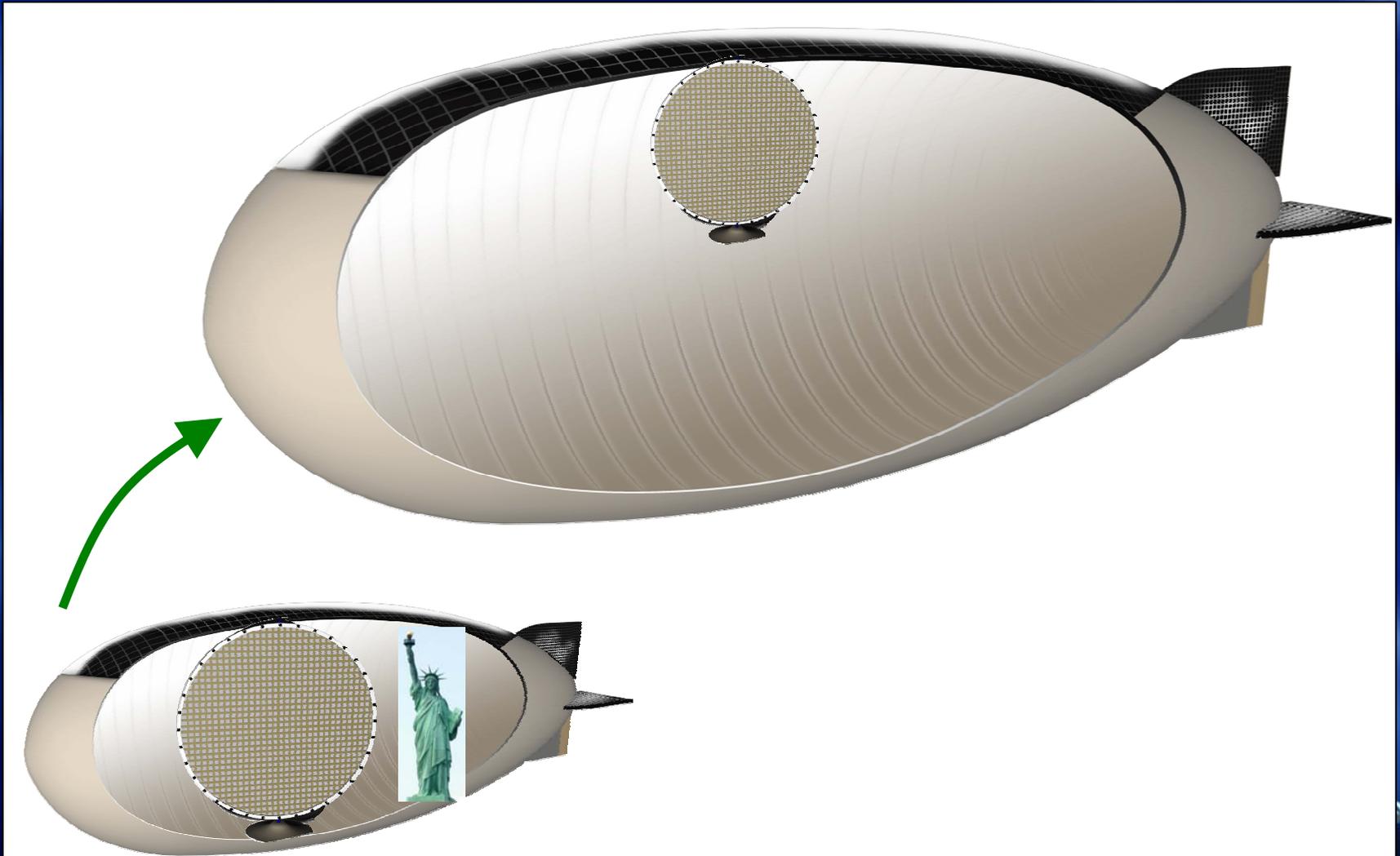
Antenna



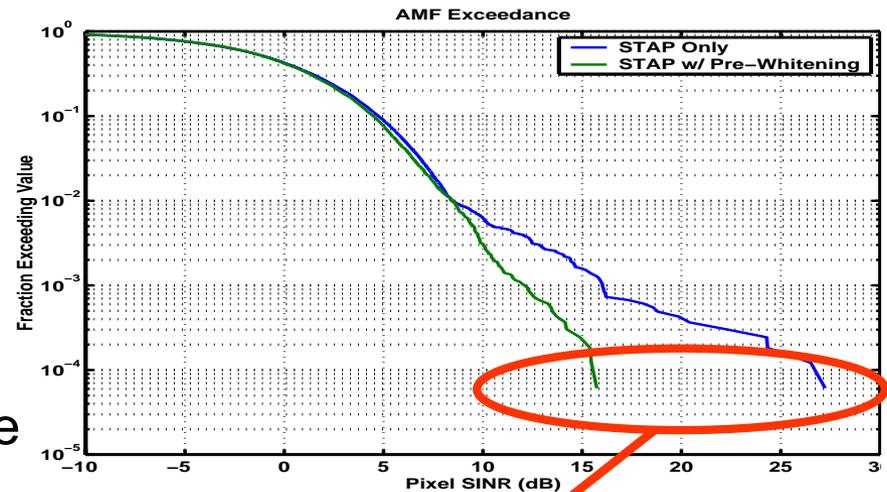
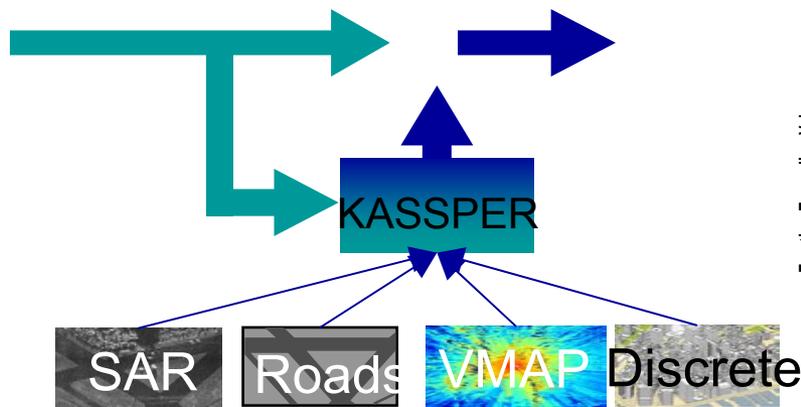
Station Keeping



Larger Airships



Clutter Mitigation Techniques



~12dB improvement in
False Target Detects!



ISIS Schedule

- Feasibility Study begins 3QFY04
- ISIS Workshop to be held 1QFY05
 - <https://dtsn.darpa.mil/isis>
- Phase II BAA 2QFY05
 - Technology Development and Objective System Design

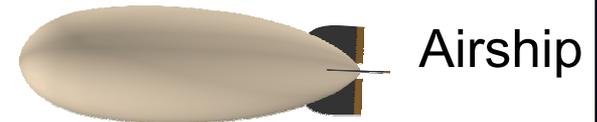
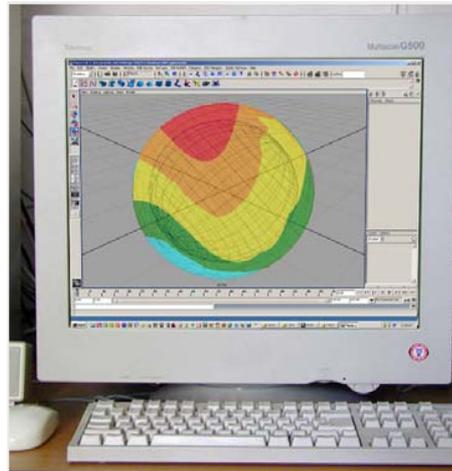


ISIS Challenges

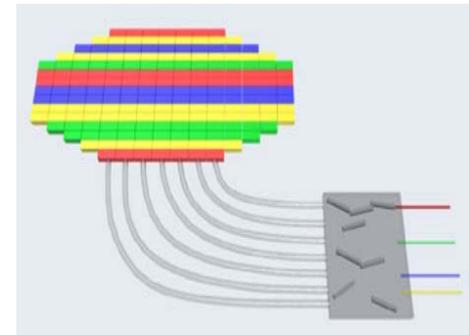
Lightweight Antennas



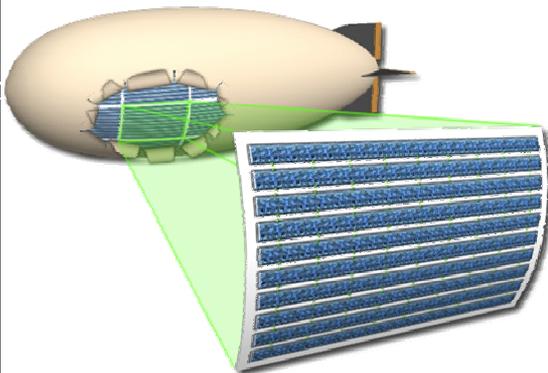
Calibration



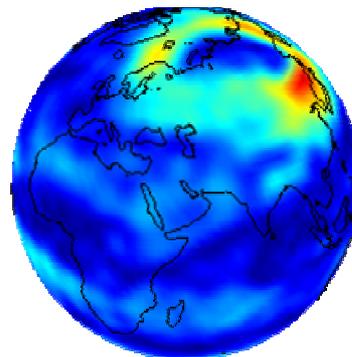
Beamformers



Integration



Power

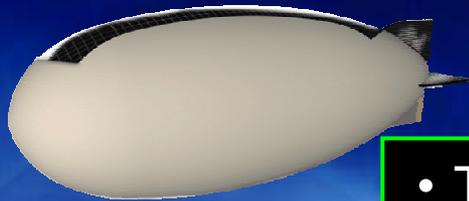


Applications



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