

Airships: A New Horizon for Science **April 30 - May 3, 2013**

Worldwide Aeros Corp.
Montebello, California

Presented by:

Mr. Fred Edworthy
V.P. Business Development

www.AEROSCRAFT.com

25 YEARS INNOVATION, SPEED, AGILITY

FAA Type Certificate
Airship Model:
Aeros 40D "Sky Dragon"



FAA
Production Certificate



FAA Supplemental
Type Certificate



LBA
Type Certificate



CAAC
Type Certificate



FAA Type Certificate
Airship Model: Aeros 40B



AEROS AIRSHIPS

Aeros 40D-MSN19



Aeros 40D-MSN20



Aeros 40D-MSN21



Aeros 40D-COSH



Aeros 40X



Aeros 40B-MSN16



Aeros 40B-MSN17



Aeros 40B-MSN18



Aeros 40A



Aeros 50



AEROS AEROSTATS

Aeros 1170



Aeros 25M



Aeros 21M



Aeros 18M



Aeros ELASS



AEROS UNMANNED SYSTEMS

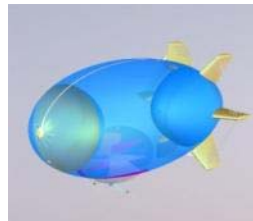
Long Dwell Airship



Mid Altitude Airship



G2R



AEROSCRAFT

ML-60T



ML8XX-Pelican



AEROS

Aeros has excelled in designing and manufacturing Airships and Aerostat products, as well as research and development , and rapid prototyping.

Aeros Airships and Aerostat products service commercial and military customers around the world.

Track record for producing high quality products, and we operate under an FAA (Federal Aviation Administration) Production Certificate.

Development of Aeroscraft 66-ton started in 2009.

75% of workforce with high level engineering degrees .

Nearly 100,000sf state-of-the-art engineering and manufacturing facility, assembly and flight test base in South California location.



HQ, engineering and manufacturing facility
Los Angeles, CA



Assembly and flight test base
Tustin, CA



AEROS 40D “SKY DRAGON”



Configuration	1 Pilot / 4 Passenger
Type Certificate	FAA TC No. S00007LA Europe & China Validated
Volume	100,032 ft ³ / 2,833 m ³
Length	152 feet / 42.6 m.
Operation	Single Pilot; VFR; IFR
Propulsion	2x 125 HP; Continental IO240B
Fuel	100LL Av Fuel - 70.5 gal / 266.8 l
Flight Management	Digital, Full Flight and Pressure Control Authority
Payload	Up to 1000 lb

- Can Operate Over Populated Areas
- Stable Platform for Payloads
- Land and Take Off with Ease
- Traverse Areas for Earth Science Missions
- Hover to 50 m.p.h. Speed Range

Advanced Technology Integrator Airship Model: Aeros 40D “Sky Dragon” FAA Type Certified

TETHERED AEROSTAT SYSTEMS



AEROSTATS (Stationary Unmanned Airships) = PERSISTENCE

Designed for Mission Payload and Altitude

Altitude Range 0 – 5000 meters

Payloads 300 – 400 kg.

Location Monitoring over Selected Altitudes

Ability to collect Air Samples at Varying Altitudes along the Tether

Power and Data through the Tether

Flight Permission Controlled per Part 101 B Moored Balloons

Regional Observations



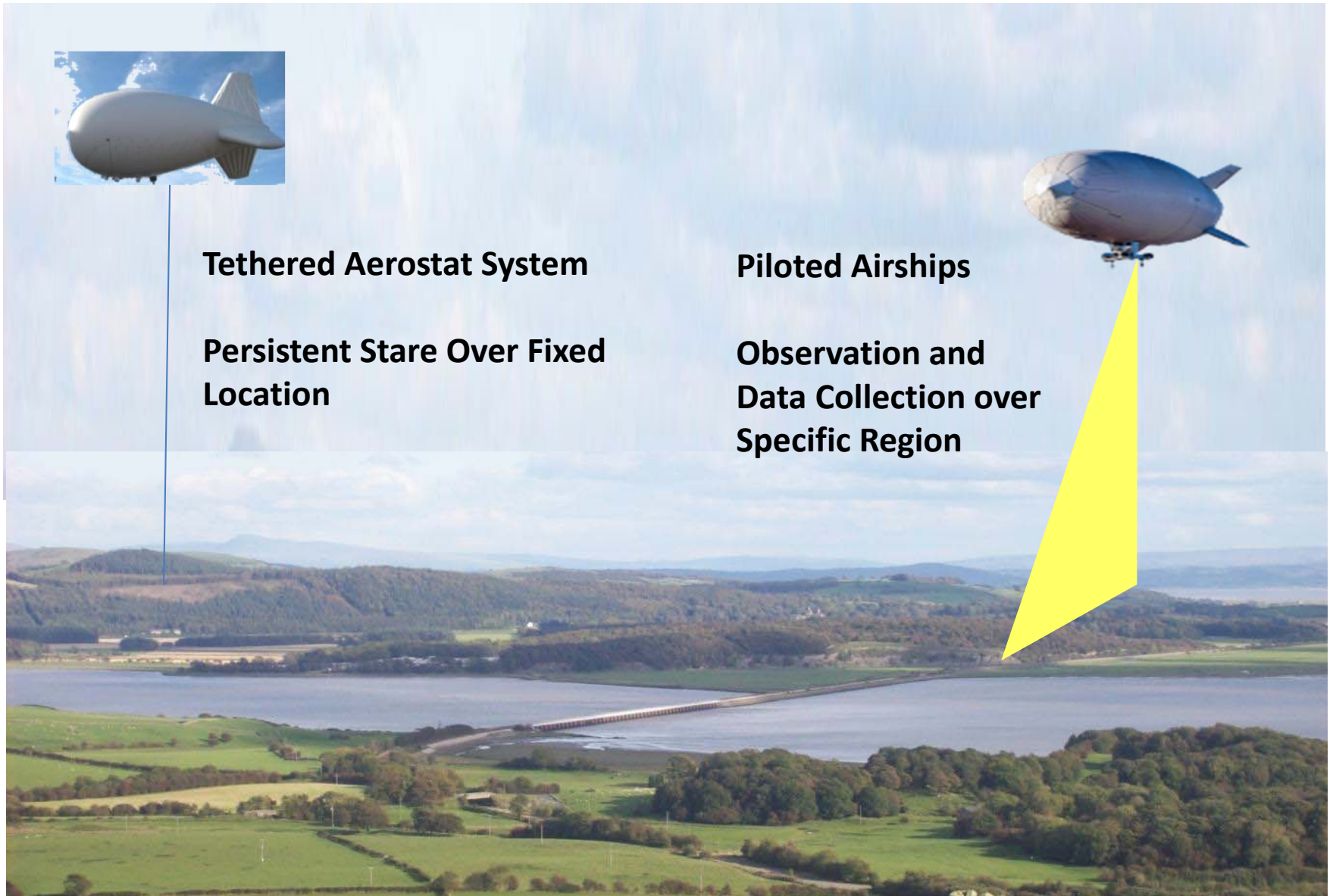
Tethered Aerostat System

Persistent Stare Over Fixed Location



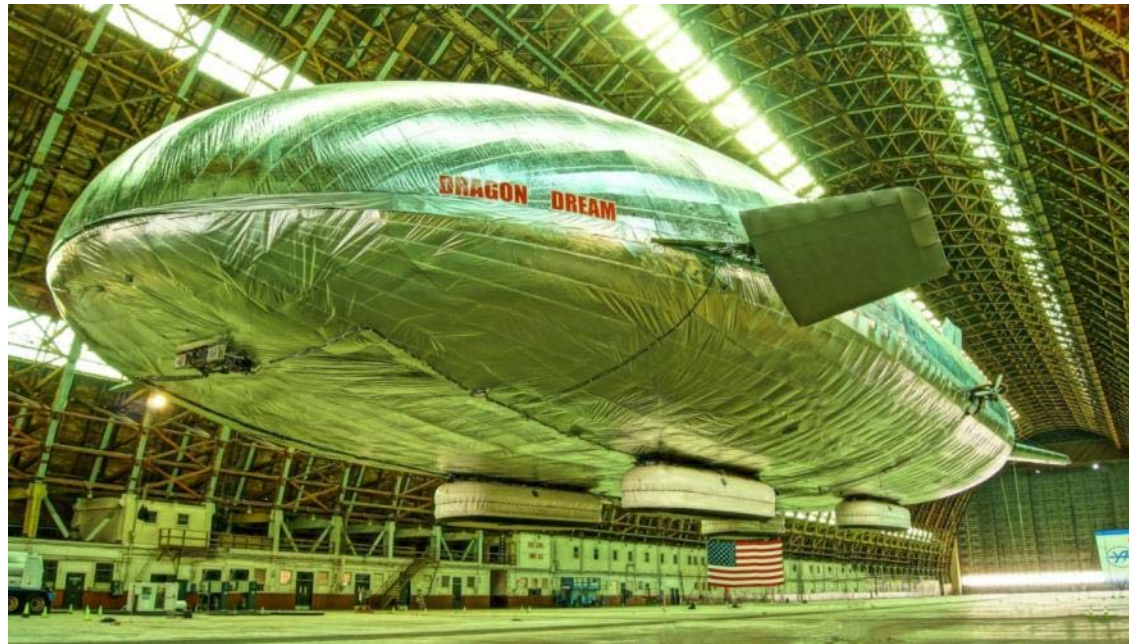
Piloted Airships

Observation and Data Collection over Specific Region



Stable Economical Platform for Low Altitude Earth Observations

AEROSCRAFT – THE LATEST AIRSHIP TECHNOLOGY ABILITY to CONTROL BOUYANCY



Aerocraft

Range and Speed

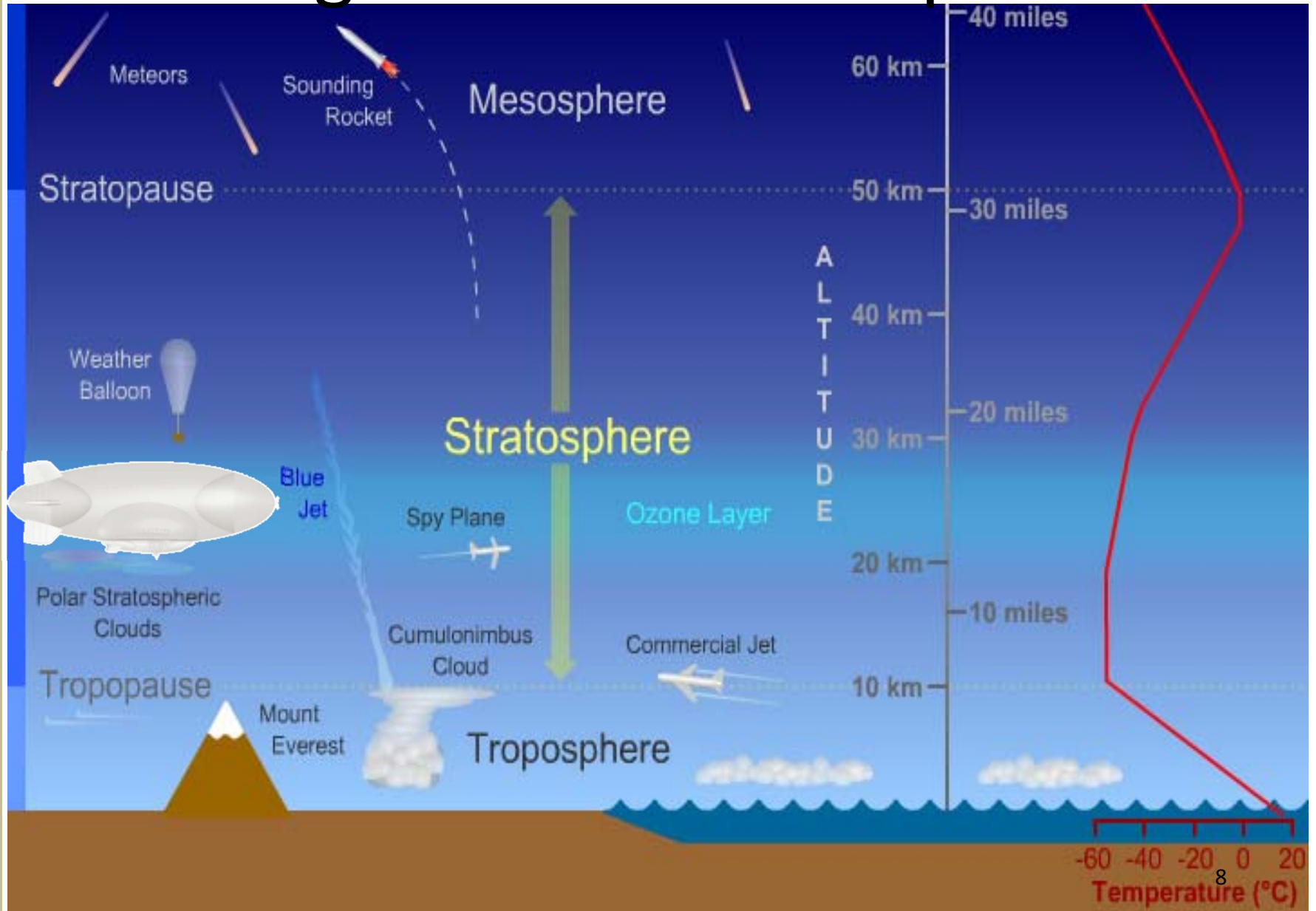
VTOL craft with 66 Ton Payload

3100 nm / 110 knots

Allow Accessibility to Areas of the World Without Infrastructure

**Set up and Sustainment of Earth Science Missions Bases Beyond What
Is Possible Today**

High Altitude Airship





High Altitude Airship (HAA) Industry Day Briefing Program Objectives October - 2002

- Minimum payload capacity – 4,000 lbs.
- Minimum power to the payload - 15kW.
- Autonomously sustain station-keeping for one continuous month in the Continental US during any part of the year within the following parameters:
 - 2 km CEP lateral excursion, maximum 100 km 3-sigma (due to high-wind events)
 - Nominal cruise operating altitude of 70,000 ft MSL
 - Airship stability and control parameters consistent with communications, EO/IR, and radar operating limitations

CRITICAL ISSUES AND CHALLENGES

STRATOSPHERIC ENVIRONMENT

- Very Low Temperature
- High UV Radiation
- Ozone Concentration
- Electrical Discharge
- Expectation of Lightning Activities
- High Solar Radiation

CRITICAL ISSUES AND CHALLENGES

AIRSHIP STRUCTURES AND DYNAMICS:

- Aerodynamics Critical
- Cannot Simply Scale From Small Prototypes
- Behavior Of Large Semi-rigid Structures
- Thermodynamic Behavior Of Large Gas Volumes

POWERPLANT:

- Propeller for Low Density Air & Low Speed
- Electrical Motor (Duty Cycle & Cooling)

POWER:

- Fuel Cells/Battery Packs (will determine replenishment time)
- Solar power (Problem in extreme latitudes)

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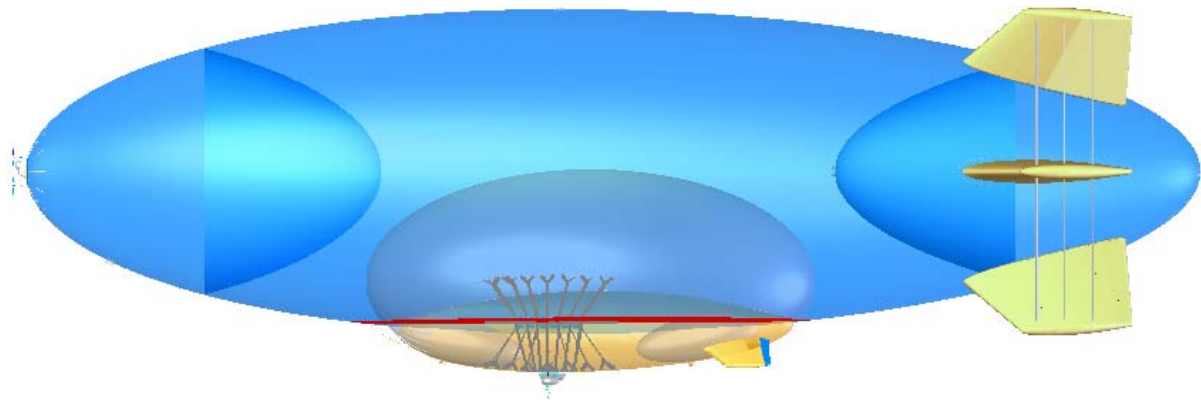
OPERATIONAL:

- Launch and Recovery
- Safety
- FAA Regulations

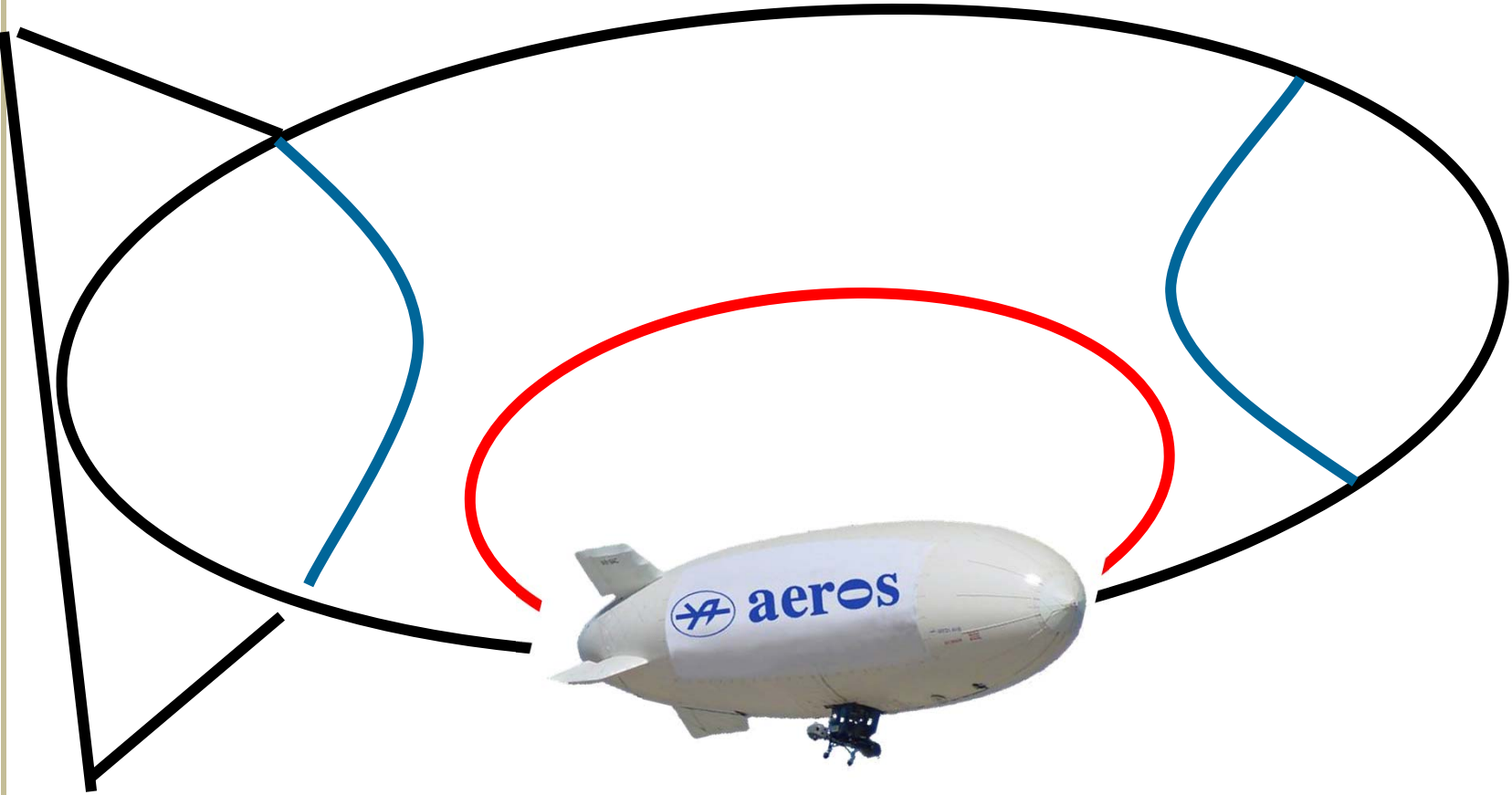
Global Rapid Re-deployable (G2R) High Altitude Airship

G2R is an Unmanned, Un Tethered , Lighter Than Air (Gas Filled) Stratospheric Platform, Capable of Hangar-less Operations Around The World.

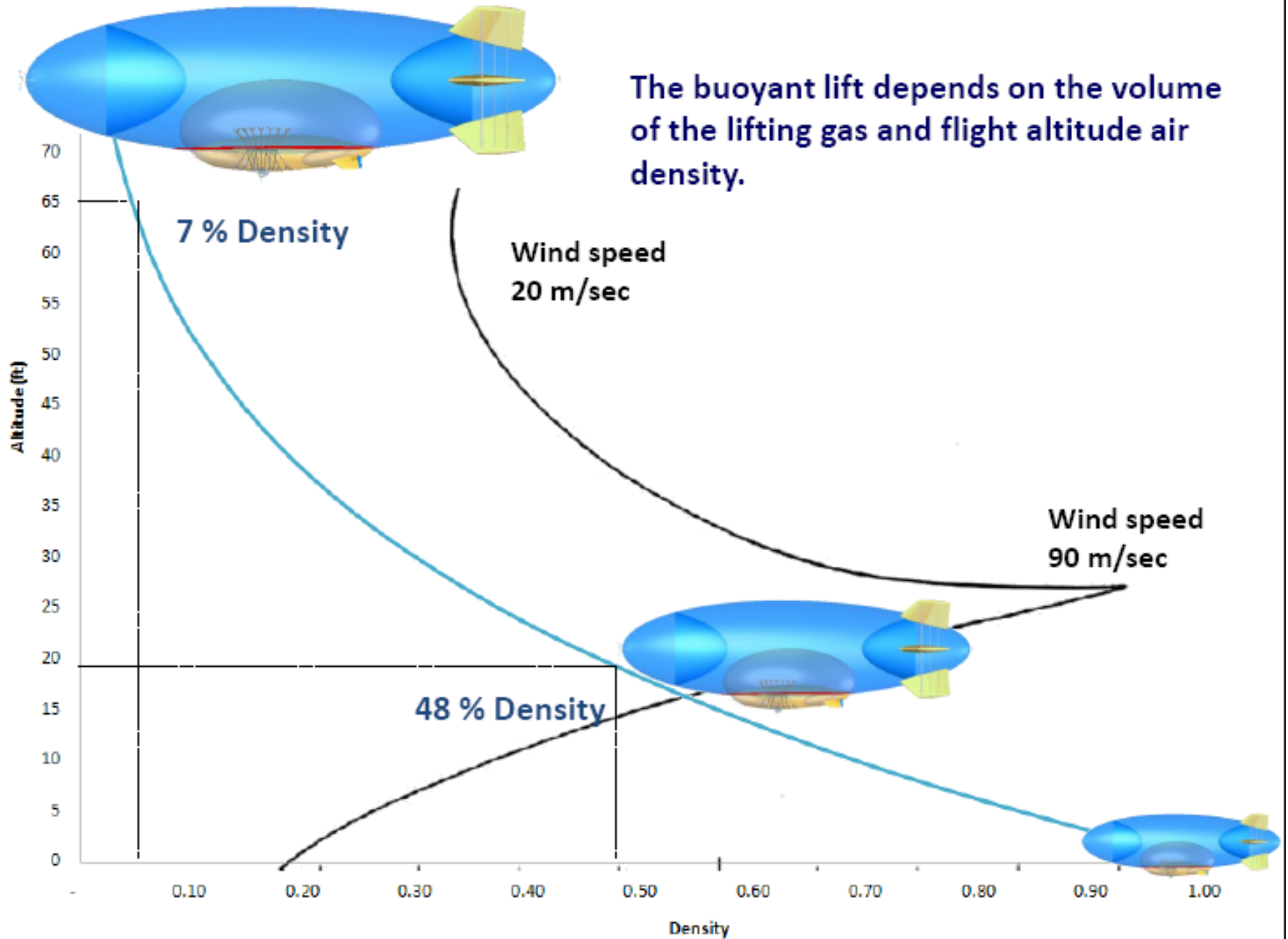
- 21 Days on Station
- Limited ground logistics
- Cruise – 30knts – Dash 47 knots
- Payload 1000 kg.
- Deployment and Re-Deployment – 4-6 hours



Walk Before We Run Concept



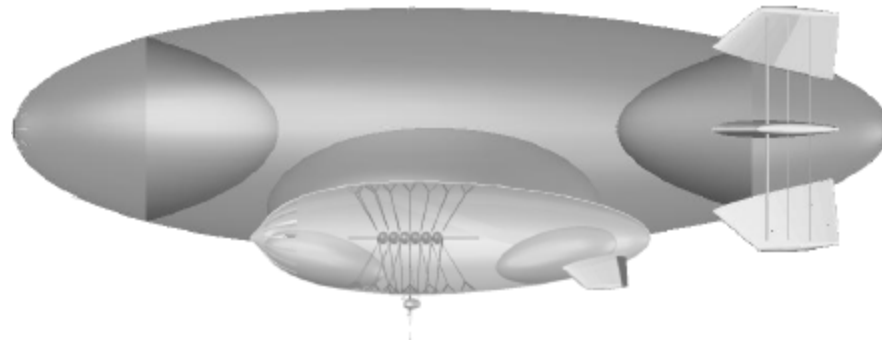
WHY SO BIG?



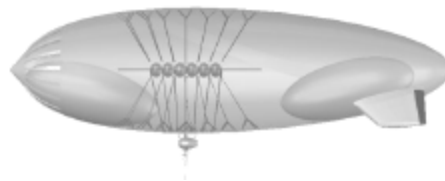
What is Available and What is Possible

G2R Main Components:

- 1) Super Envelope
- 2) Aeros 40D Airship Module



Configuration at Altitude



Configuration at Launch & Recovery

Conclusion

Airships: A New Horizon for Science

Low / Mid / High Altitude Airship Hold
Terrific Promise for Use in Scientific Observations and
Monitoring

Projects Must be Planned and Carried Out with Realism

Let Do It Right This Time



CONTACT

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