

# STRATOBUST™



**European Higher Airspace  
Operation Symposium**

Brussels 02/04/2019

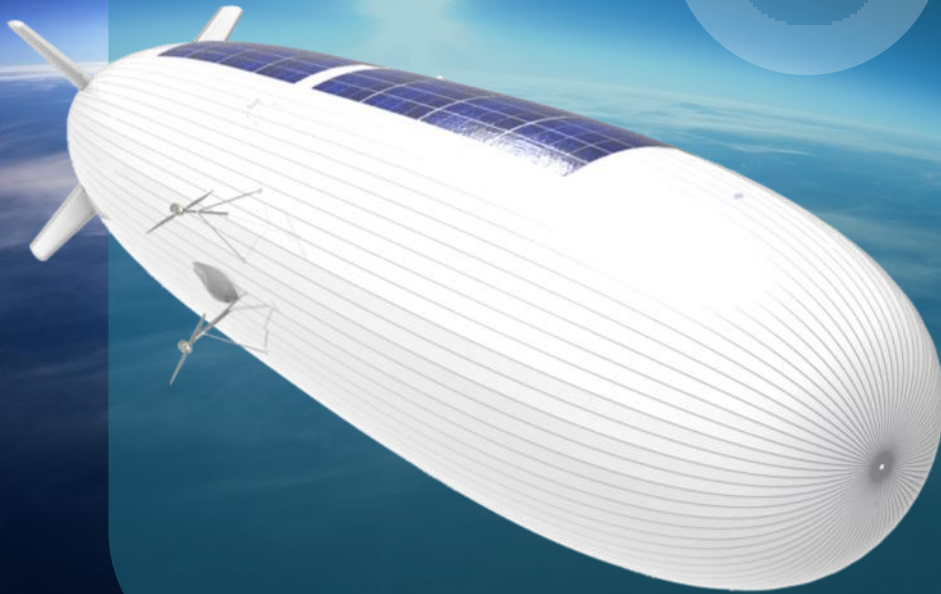
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**ThalesAlenia  
Space**  
*a Thales / Leonardo company*

# Stratobus™ vehicle

An innovative HAPS

Stratobus™ is an airship powered by solar energy



## Operation

- 1 year continuous operation
- Geostationary operation
- Operation around FL660

## Unmanned Vehicle

- Ground Control Segment
- On Board Highly automated
- Failure Detection Isolation & Recovery ("classical" in our heritage of Space application)

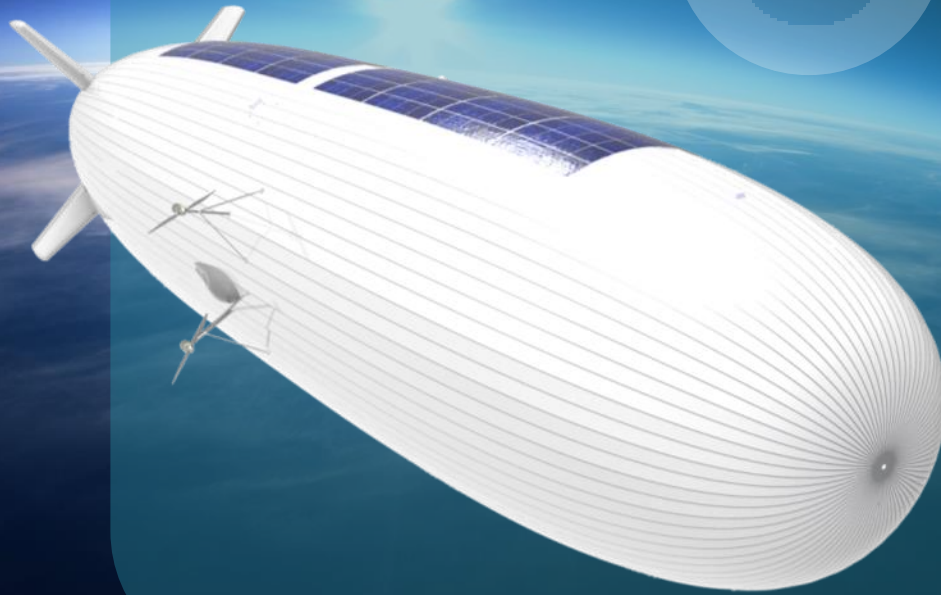
## Several Stratobus™ flying together

- Operation in the same local area
- Typical mission of telecommunication

# Stratobus™ vehicle

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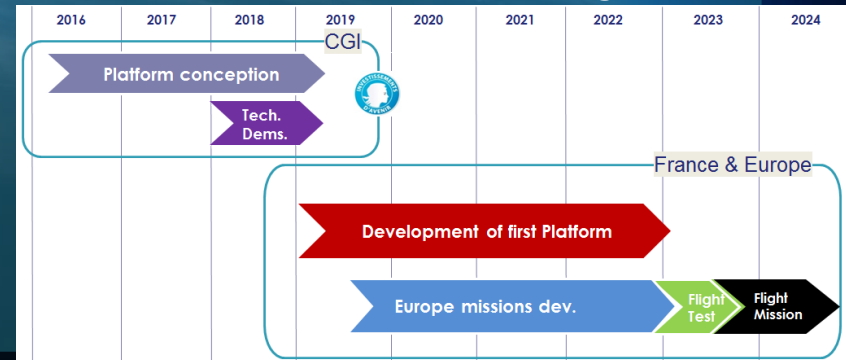


## Large vehicle

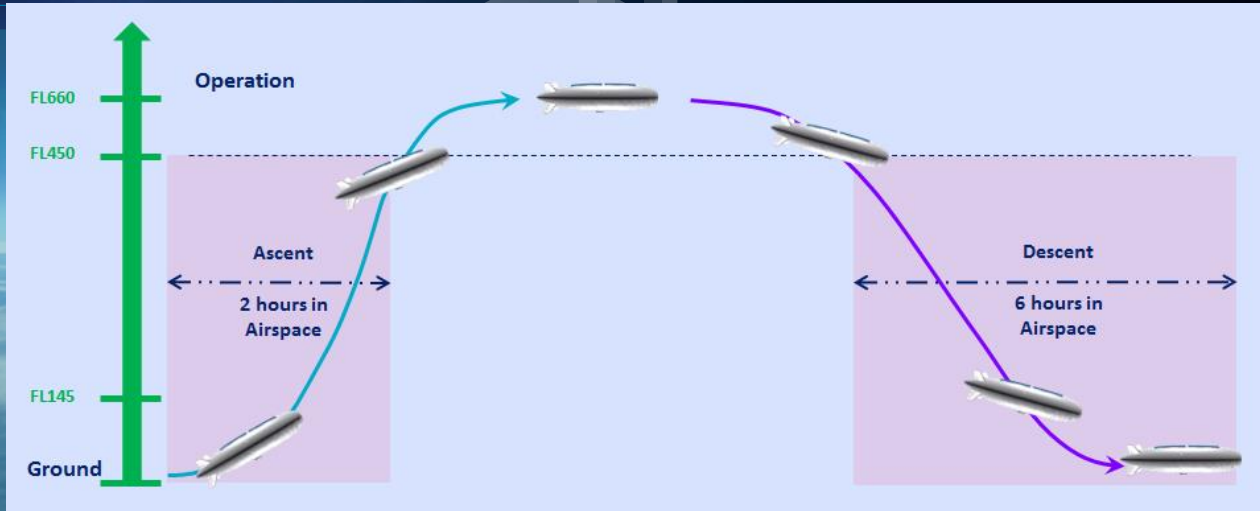
- 140m length / 30m diameter
- Volume = 85 000m<sup>3</sup>

## Localization accuracy

- Station keeping: Cylinder 3km diameter 0.5km height
- Transfer between way point: typical box 10km width & 0.5km height



# Safe Integration in Airspace < FL660



**Availability of a segregated Airspace to cross the traffic will be an asset**

- Seems difficult to afford such constraints above Continental Europe

**Activities on going with French DGAC to study transitory part of the flight Through existing ATM controlled Airspace**

- Abide by existing ATM rules – Safety being top priority
- Full RPAS ATM rules applicability to be assessed for Stratobus™



# Operation in Higher Airspace > FL660

**Business of main declared project above FL660 includes geostationary position and cities coverage → Main vehicles will be in the same area**

- Segregated Airspace for each vehicle does not seem affordable

**Trajectory Based Operation (TBO) in a collaborative environment is promoted**

- HATM will take benefit of existing UTM and ATM activities on TBO
- HATM could be a full scale test for TBO before implementation in ATM
- Progressive approach based on existing and future ATM rules

- Low vehicle density environment
- Minimum HATM complexity
- Low constraints

**Early Stage**

*Progressive Approach*

**End-State**

- High density, expanded operations
- Highly automated HATM

# Operation in Higher Airspace > FL660

A vision for Higher Altitude Traffic Management could be synthesized as

- Fair & equitable access of vehicles to airspace
- Separation, Deconfliction and Prioritization
- Situational Awareness
- Uniform rules
- Respect states sovereignty
- Fair & equitable access of ATM solution providers to market of HATM solution