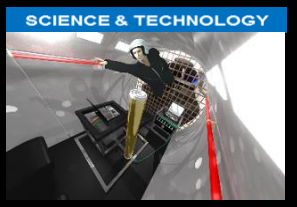
SpacePlane project

by Chris Chavagnac

Project Manager & Chief Engineer

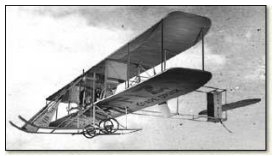


ICAO-UNOOSA SPACE 2016

Abu Dhabi (UAE) - March, 15th 2016

AIRBUS DEFENCE & SPACE

The future of AeroSPACE



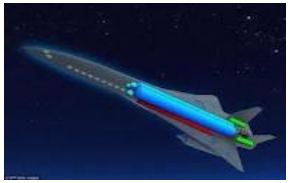


1903 | 1920s | 1950s | 1960s | 1970s

1957 | 1961 | 1969 | 1981 | 1997 | 2020+

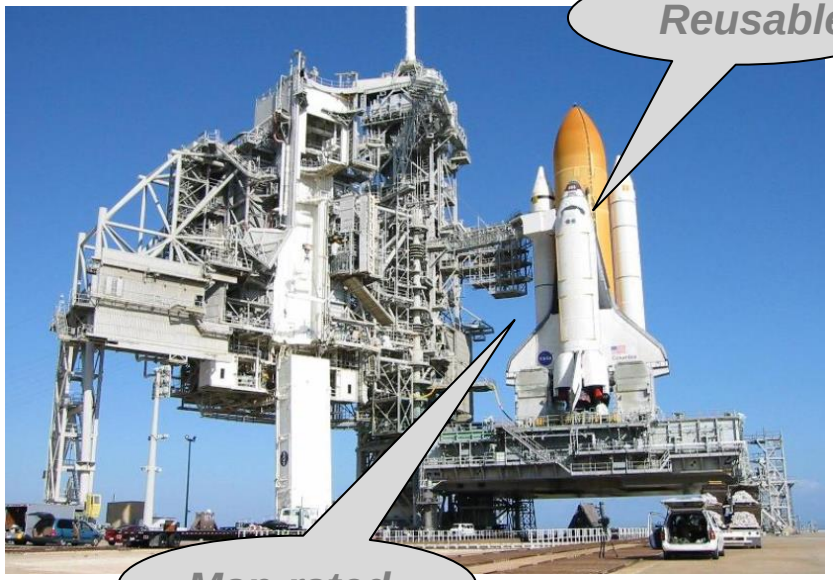


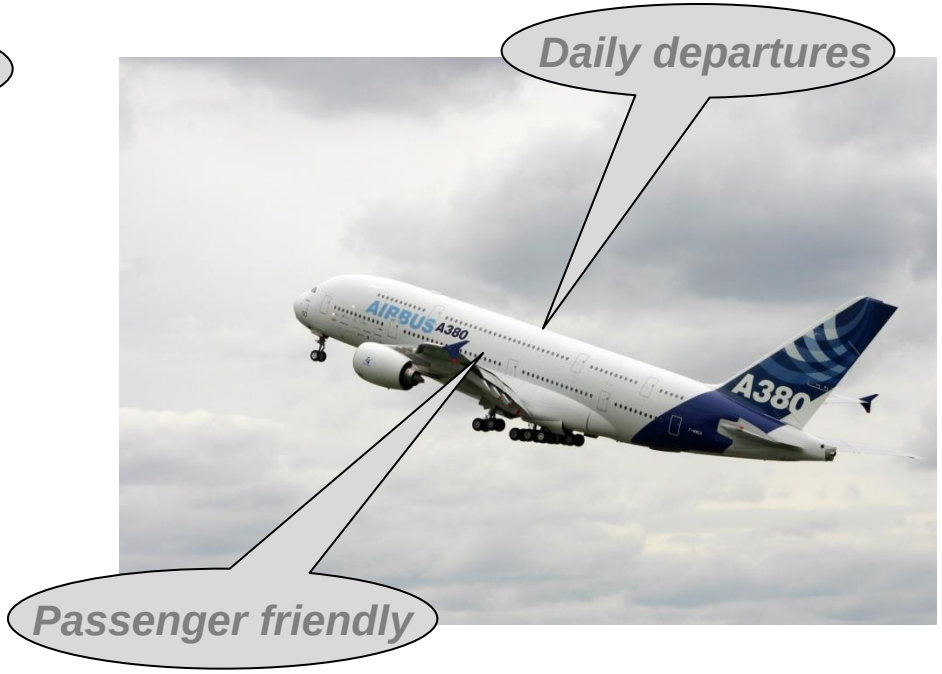


Road to High speed transport

Aeronautics & Space : same trend, but not same time scale



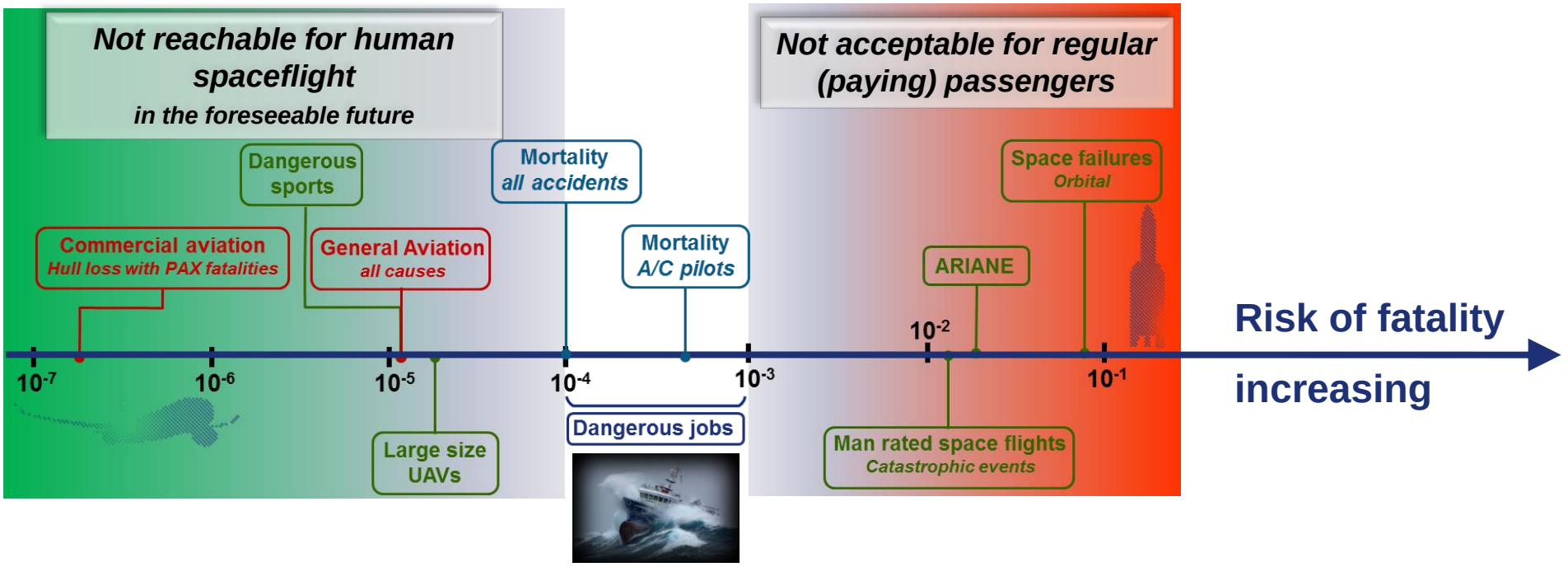


Design & Ops are Performance (payload) driven first

Design & Ops are Safety driven first

…. SpacePlane project of Airbus…

Safety of flight : various data



Major safety gap «aero vs. space» stems from propulsion

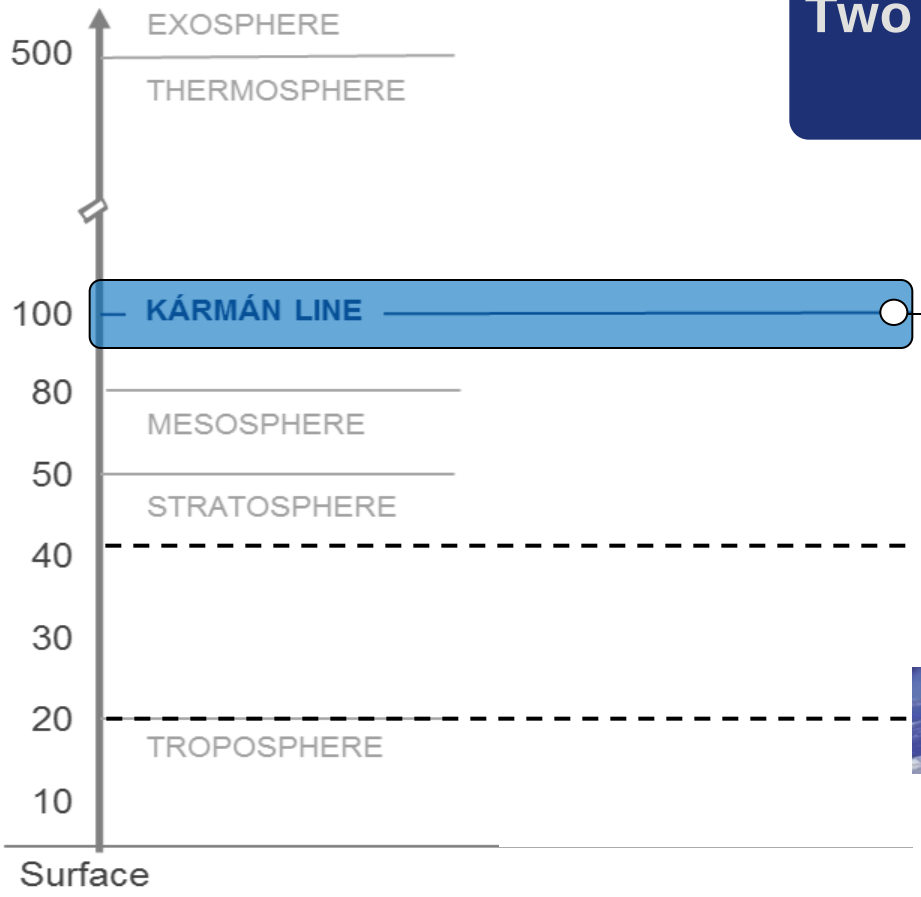
…. SpacePlane project of Airbus…

S.O. Trident
French prototype in the 1950's

Mirage III C/E/S
1960-2000

Ultra high performance Aircraft combining aeronautic and rocket technologies exist for decades including in France

Altitude



Two markets : Human spaceflight
Science & Technology

…. SpacePlane project of Airbus…

AIRBUS DEFENCE & SPACE

Flight path of SpacePlane

Space phase culminating at 100 km

Space leg of the mission
(in between two red dots)
- Altitude: between 30.000 ft and 100 km

Rocket boost & reaching 60 km alt.

Descent & aerobraking in atmosphere

Easy integration with existing airports & local air traffic
- Powered flight (turbofans)
- Go-around capability

Aircraft like descent & landing back at home runway

Take off & climb to 30 kft altitude

SpacePlane interacts friendly with local air traffic most time of its flight

Flight deck design fitting business jets state-of-the-art

Twin turbofans for aeronautic phases *(compliant with EASA CS-E / CS-34 / CS-36)*

Rocket propulsion used only for acceleration to 100 km

Straight wing : good handling characteristics at low speed

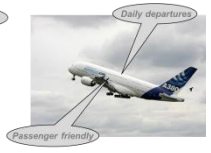
Design of most items based on aeronautic state-of-the-art *(EASA CS-23 / CS-25)*

SpacePlane blending best of Aeronautics & Space

SpacePlane : a Plane for reaching the edge of Space

At the crossroads of aeronautics & space

Design & Ops are Performance (payload) driven first



Design & Ops are Safety driven first

Design & Ops matching set of aeronautic regulations

- ➔ Flight Safety
- ➔ Sustainability : emissions & noise

SpacePlane blending best of Aeronautics & Space

Heritage back to the fifties

Airbus Group is an active member of the Task Force «Suborbital Aircraft» led by French DGAC, CNES & GIFAS