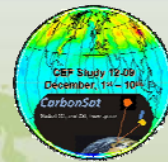


CarbonSat/C



Low-Cost Satellite Mission Designed at CEF for Greenhouse Gas Detection

COSPAR A11-0110-10

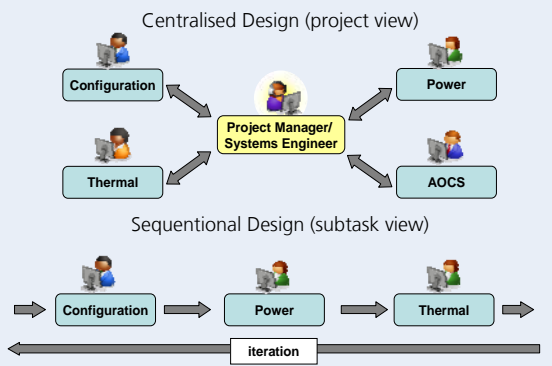
Waldemar Bauer, DLR Bremen, Institute of Space Systems, System Analysis Space Segment, Germany, Waldemar.Bauer@dlr.de

Mission Objectives

- Global atmospheric Methane measurements for CH₄ source detection
- Hot-spot CO₂ monitoring (e.g. volcanoes, large coal-fired power plants)

Design based on Concurrent Engineering Process

Conventional Design Process

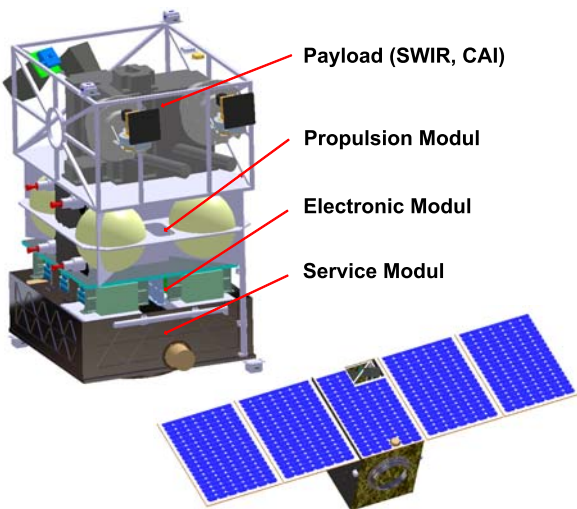
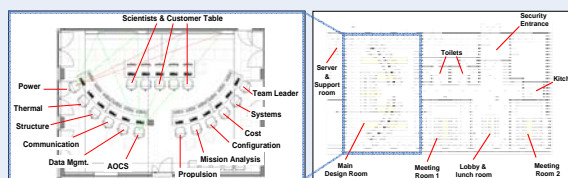
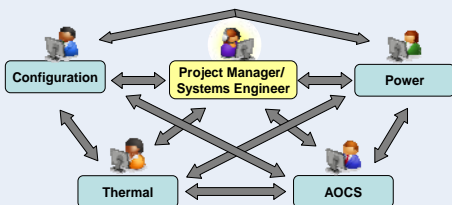


Concurrent Engineering Design Process

The project team uses the Concurrent Engineering Facility (CEF) of DLR to establish the conceptual design of the satellite.



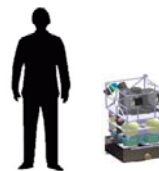
Concurrent Engineering Design Process „everyone with everyone“



Low-Cost and Short Development Time

CarbonSat/C (compact) is much smaller than conventional Earth observation satellites. This fact in combination with the design based on the DLR Standard Satellite Bus allows a low-cost mission with short development time.

Size of CarbonSat/C



Satellite Mass	150 to 200 kg
Satellite Size	0,9 x 0,6 x 0,6 m ³ (in undeployed state)
Daily datavolume	10 to 100 Gbyte of images
Design heritage	Based on the Standard Satellite Bus developed by DLR
Launch	Piggy-back launch into Sun-synchronous orbit in 2014



Waldemar Bauer, Dominik Quantius, Andy Braukhane, Oliver Romberg, Etienne Dumont (DLR, Institut of Space Systems); Heinrich Bovensmann, Michael Buchwitz (IUP, University of Bremen Institute for Environmental Physics); Daniel Bindel, Ananth Kumanduri (ZARM, Center of Applied Space Technology and Microgravity); Matthias Wieser (OHB-System AG); Valery Mogulsky (Kayser Threde)