Large Deployable Technologies for Space

DeployTech

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www.deploytech.eu

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SEVENTH FRAMEWORK PROGRAMME

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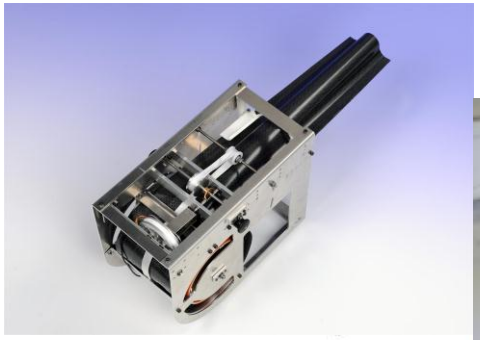
Solar Sails: GOSSAMER 2

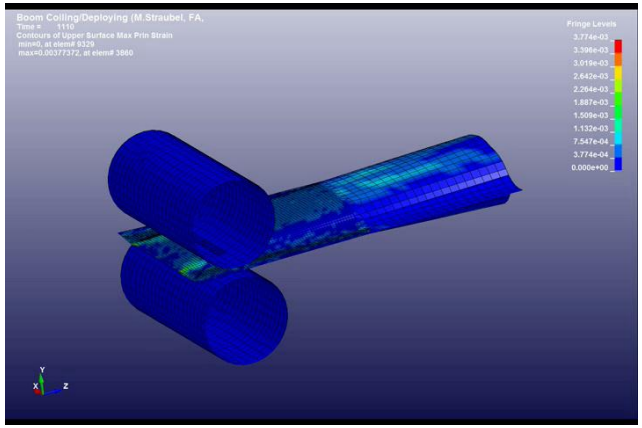
DeployTech will assist in the 2nd stage of DLR's solar sailing roadmap

Left: GOSSAMER sail artist's impression



Left: Deployment mechanism
Bottom-left: GOSSAMER sail concept
Below: Detail of 'lenticular' boom section

GOSSAMER 2 is a 20x20m solar sail with 14m long deployable booms



Above: FE analysis of boom rolling/unrolling

DeployTech aims to raise the TRL of these booms to 8, employing a thorough testing & qualification program

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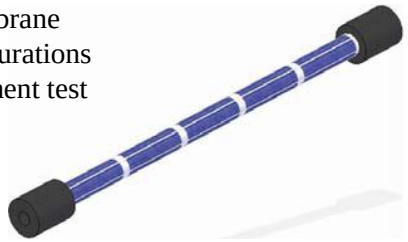
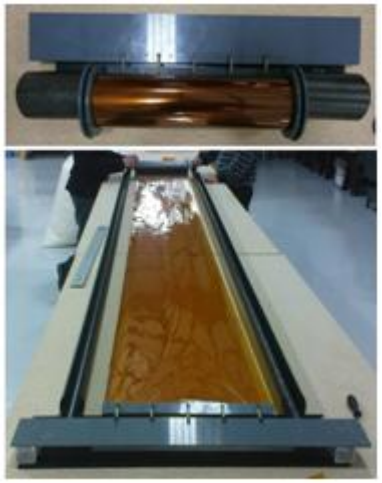
Deployable Solar Arrays

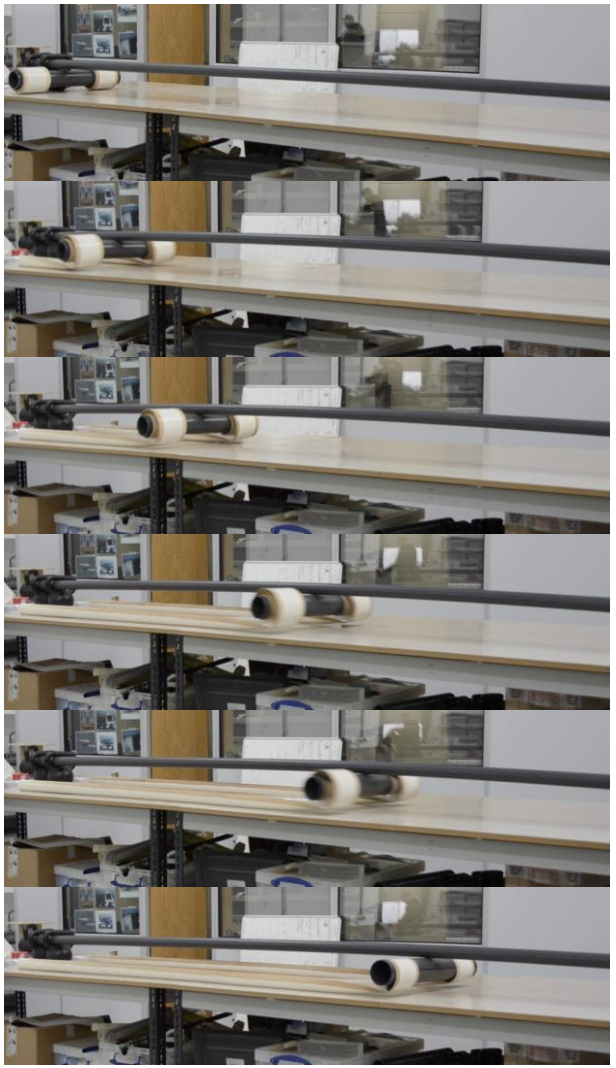
DeployTech aims to demonstrate the effectiveness of Bi-stable Reeled Composite (BRC) booms as supports for a flexible solar array

Below: Mock-up with Kapton membrane
Right: Stowed and deployed configurations
Far-right: Inflation-driven deployment test



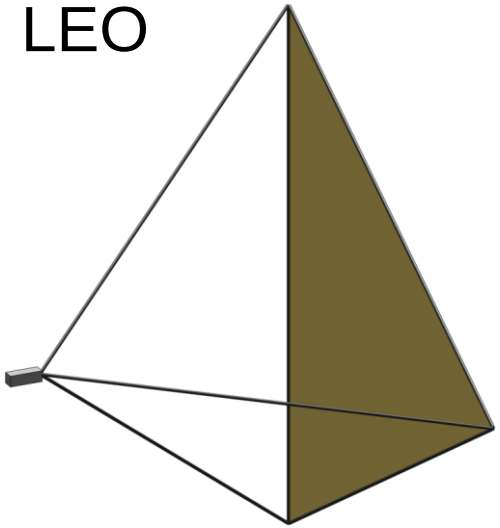


Our tests have shown that inflation-driven deployment is reliable, simple, and light-weight



InflateSail

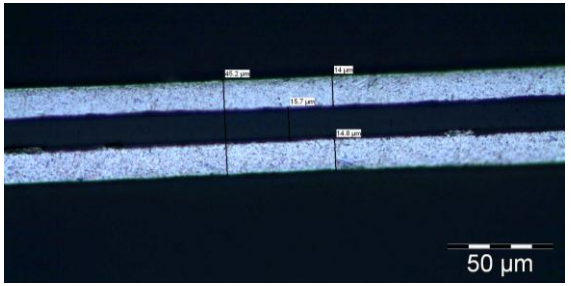
InflateSail is an inflatable, rigidizable drag device for de-orbiting satellites in LEO



Its inflation is driven by Cool Gas Generators: low mass, ultra-long lifespan

Above: Deployed tetrahedral sail truss
Right: Two nitrogen CGGs

Metal-polymer laminate skin is strain-rigidized



Above: Microscope image of metal laminate skin

InflateSail is a flagship QB50 mission. Aim to be **first non-US space inflatable**.

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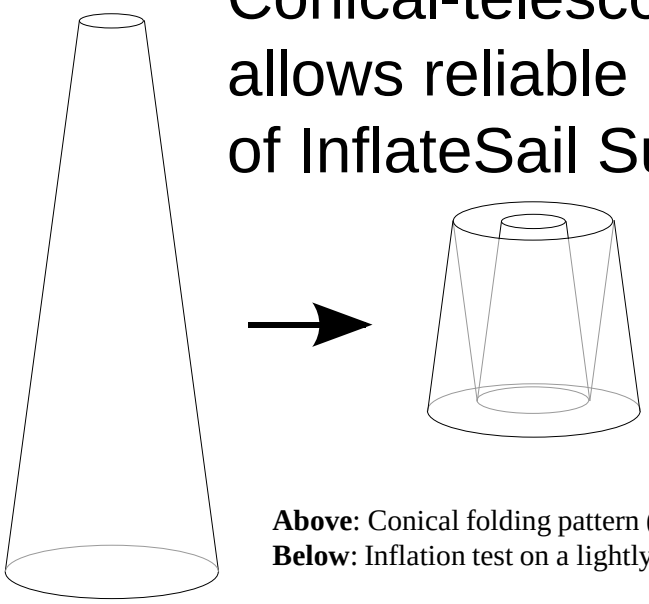
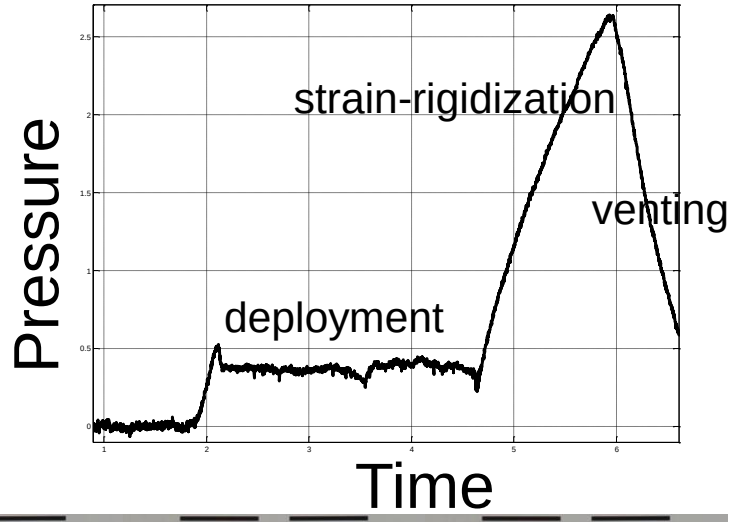
InflateSail Boom Deployment

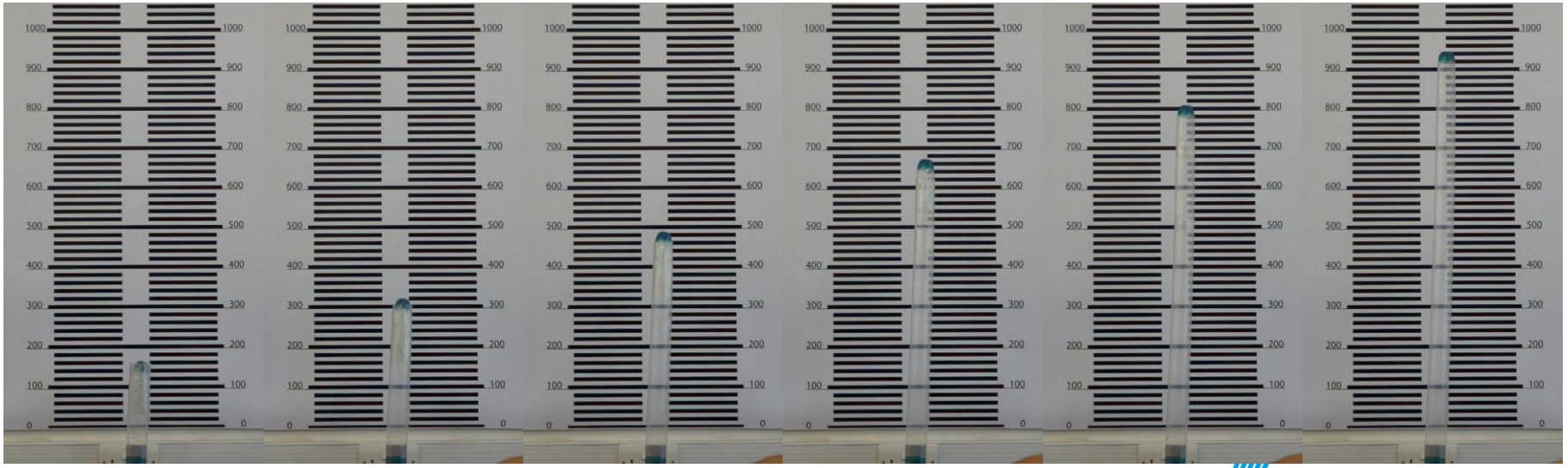
Conical-telescopic folding allows reliable linear deployment of InflateSail Support Booms



Above: Conical folding pattern (exaggerated taper)
Below: Inflation test on a lightly tapered polymer boom

Below: Typical deployment-rigidization pressure curve





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