

**Large Deployable Technologies for Space**

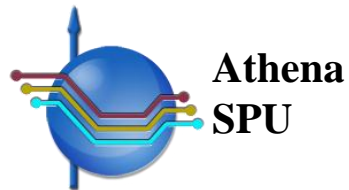
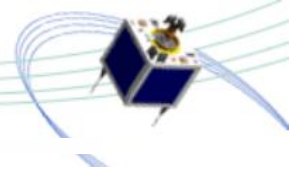
# DeployTech

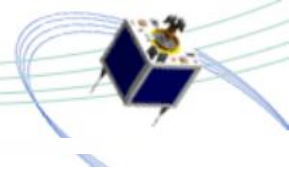
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**2nd FP7 Space  
Research Conference**

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[www.deploytech.eu](http://www.deploytech.eu)





DeployTech will assist in the 2<sup>nd</sup> stage of DLR's solar sailing roadmap

Left: GOSSAMER sail artist's impression

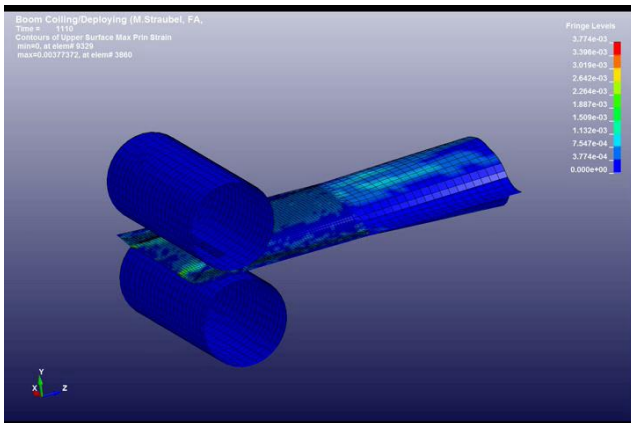
GOSSAMER 2 is a 20x20m solar sail with 14m long deployable booms



Left: Deployment mechanism

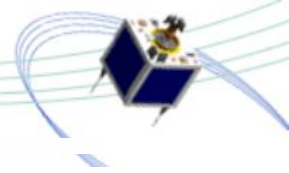
Bottom-left: GOSSAMER sail concept

Below: Detail of 'lenticular' boom section



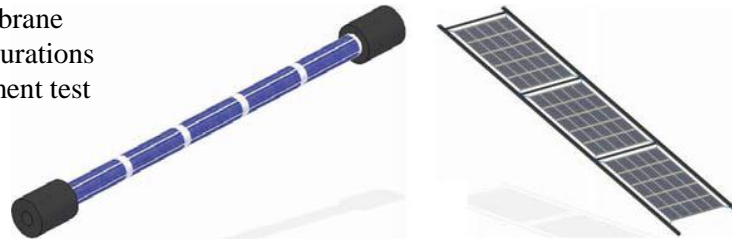
Above: FE analysis of boom rolling/unrolling

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

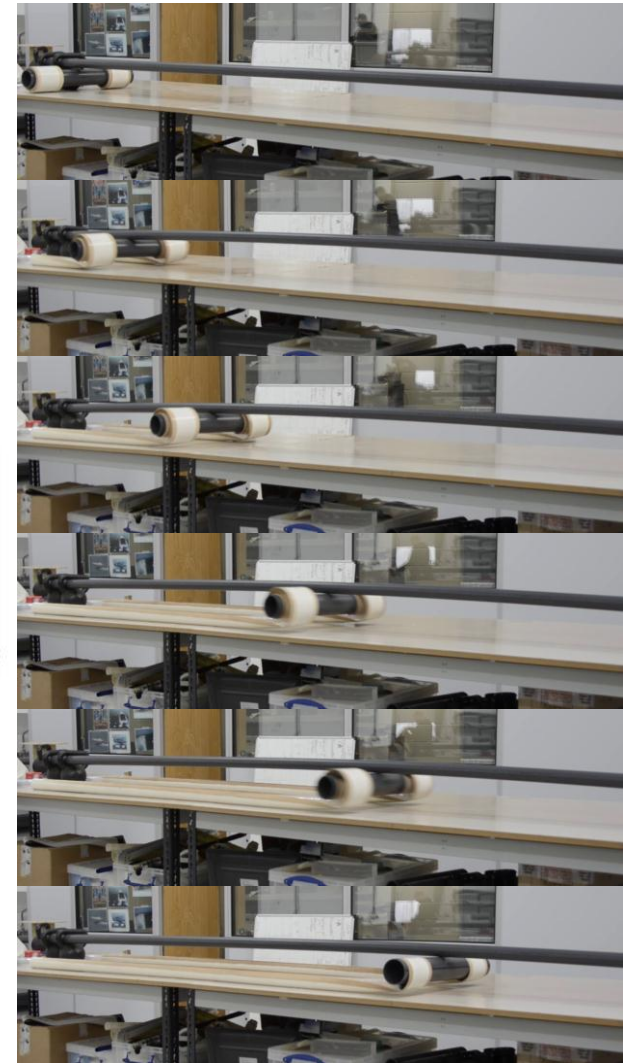


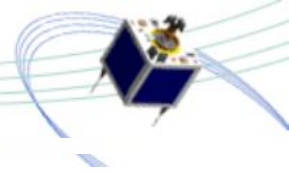
DeployTech aims to demonstrate the effectiveness of Bi-stable Reeled Composite (BRC) booms as supports for a flexible solar array

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

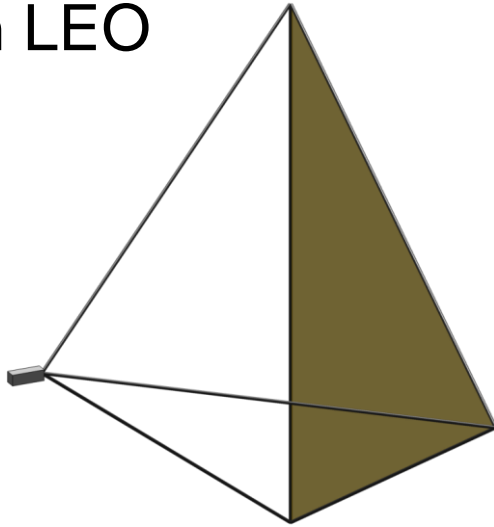


Our tests have shown that inflation-driven deployment is reliable, simple, and light-weight





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

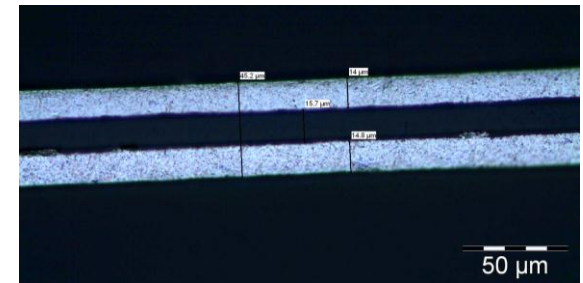


Its inflation is driven by Cool Gas Generators: low mass, ultra-long lifespan



Above: Deployed tetrahedral sail truss  
Right: Two nitrogen CGGs

Metal-polymer laminate skin is strain-rigidized

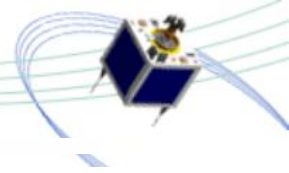


Above: Microscope image of metal laminate skin

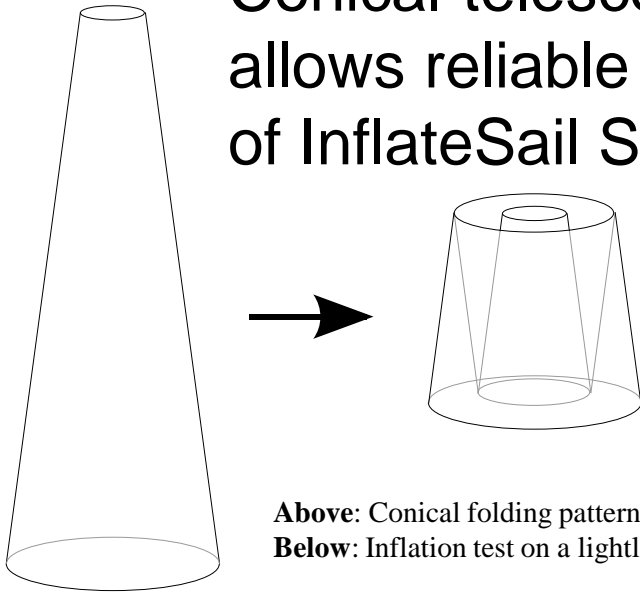


InflateSail is a flagship QB50 mission. Aim to be **first European space inflatable.**



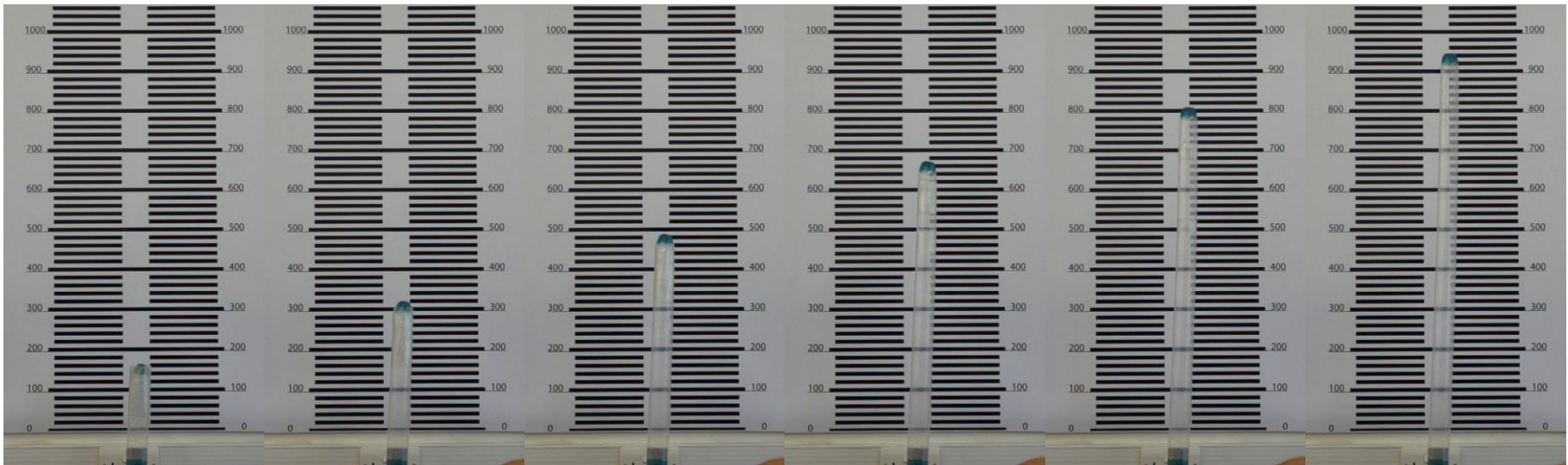
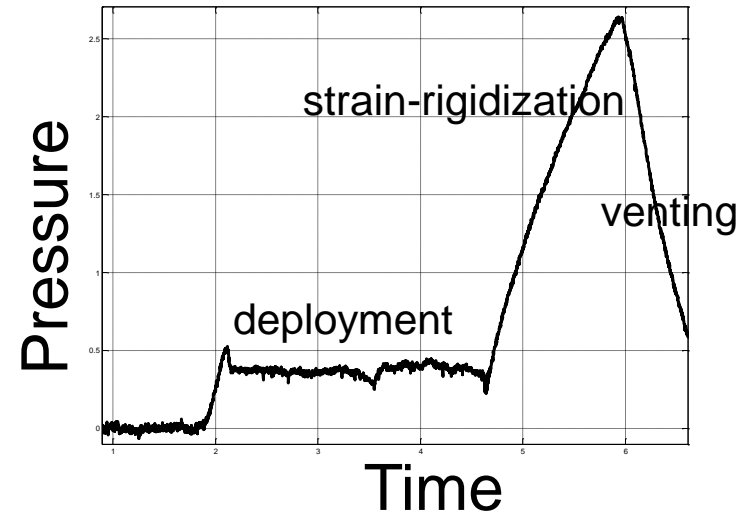


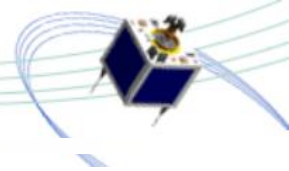
Conical-telescopic folding allows reliable linear deployment of InflateSail Support Booms



**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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