

**Keywords:** Creeping, Thermal dependency, Experimental characterisation

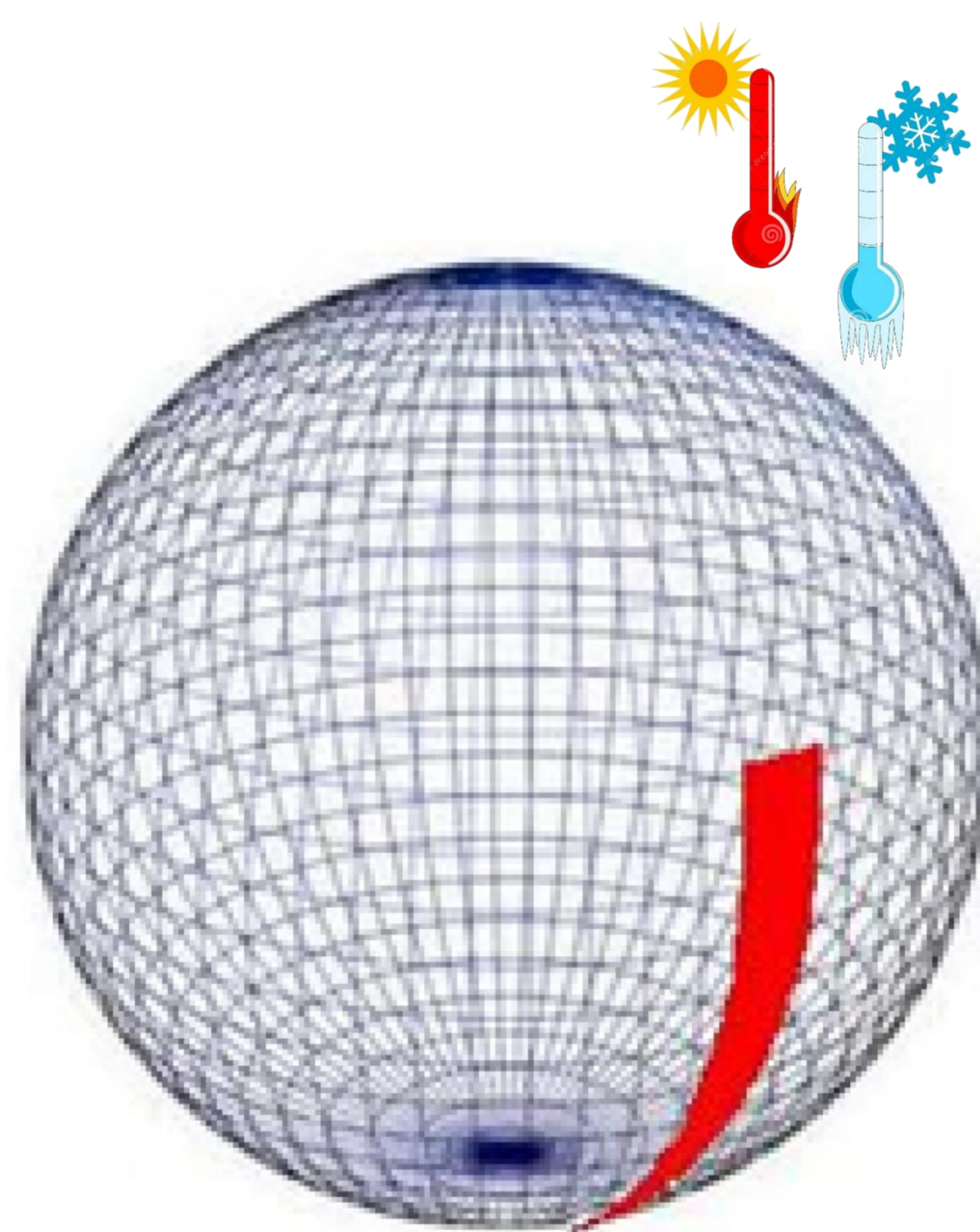
## Contact

### ○ Ass. Pr. Emmanuel Rodriguez

- emmanuel.rodriguez@icam.fr
- Clément Ader Institute (ICA), Research laboratory on structures, systems and mechanical processes - FRE CNRS 3687
- [www.researchgate.net/profile/Emmanuel\\_Rodriguez8](http://www.researchgate.net/profile/Emmanuel_Rodriguez8)



*Pressurised Balloon © CNES*



*Spherical Pressurised Balloon and its model*

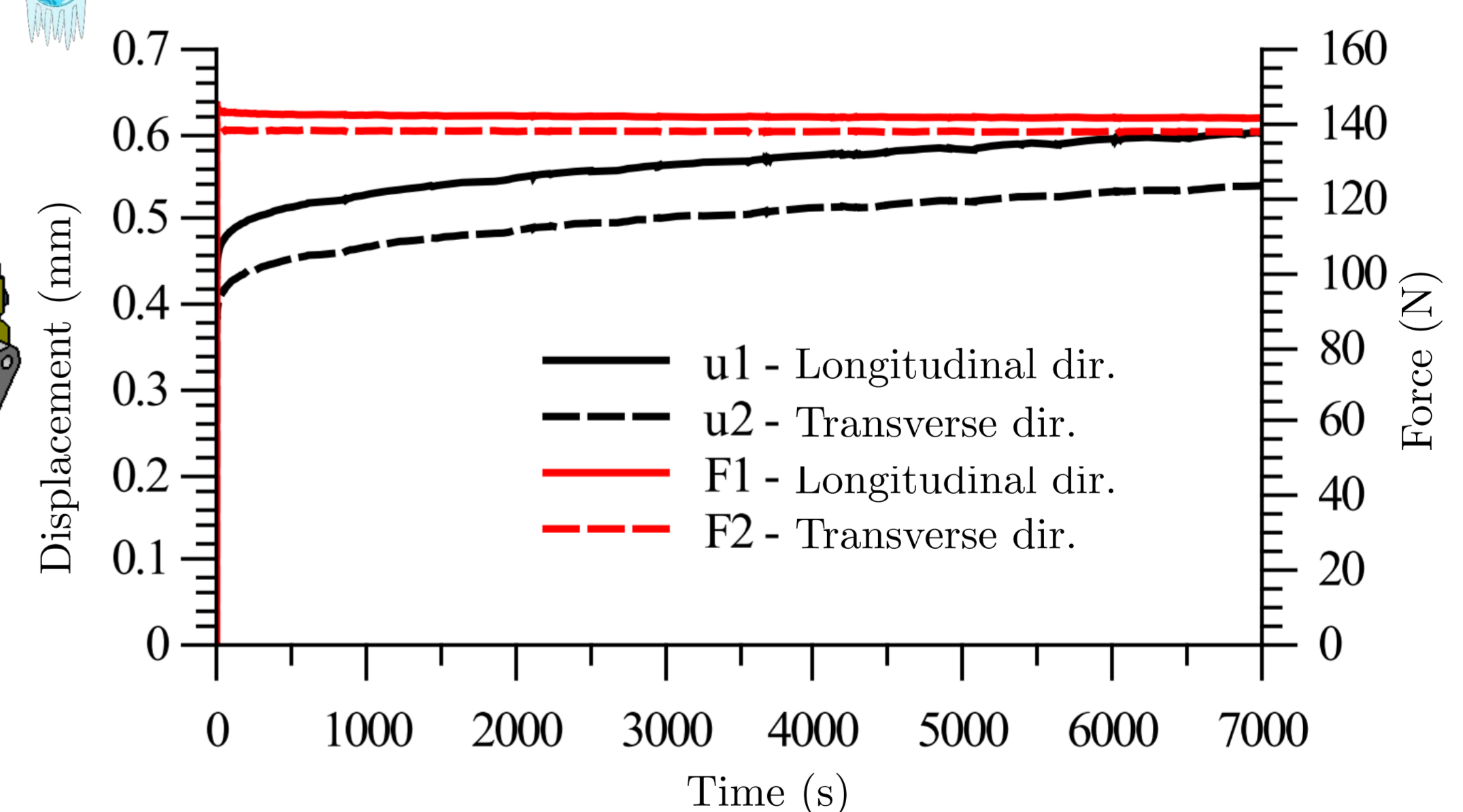
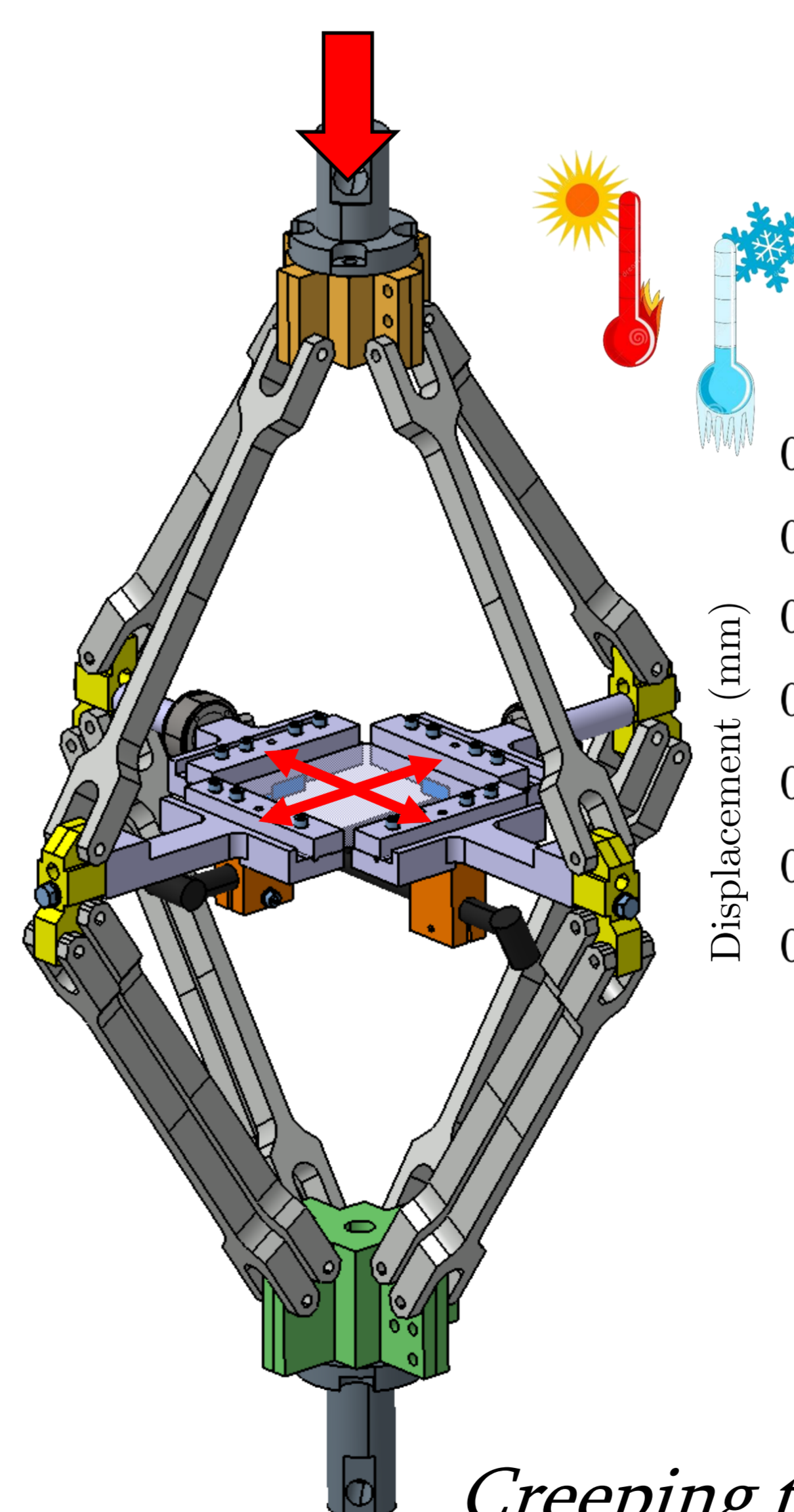
## Applied Research purpose

Numerical and analytical modelling of Stratospherical Balloons, for the justification of their Safety and Flight conditions, considering:

- Thin materials (soft membranes, multi-layer films)
- Non-isotropic materials
- Thermal change of environment
- Creeping effects

## Skills applied

- Mechanical tests on orthotropic 3-layer polymer films
- Elastic & Creeping bi-directional characterisation
- Test benches for 1-direction & 2-direction specimen
- Thermal test benches in Tensile machine
- Visco-elastic laws for numerical models



*Creeping test on 2-direction film specimen*