Atmospheric Measurements Tower Part IV: Test in extreme conditions.

The goal of this project is to add new types of connectors to the tower and to evaluate these in extreme conditions.

Laboratory:	**CCLAB**
Number of students:	**2 (Semester project)**
Section:	**GC, SIE, GM, EL, MX, PH, CGC**
Status:	**Available (Fall 2022)**

Description of the project

The first space settlements will be scientific. As a result, it is critical to develop capabilities in establishing scientific outposts on celestial bodies, which may have similarities with some extreme environments on the Earth. One of the key experiments conducted within Asclepios consists in carrying out atmospheric measurements using a tower installed by the analogue astronauts.

During the previous semesters some students worked on the design and the manufacturing of the meteorological tower for the Asclepios mission. The idea was based on the use of a new type of connectors for tubular structures that have been developed by CCLab.

The connectors are 3D printed from PA 12 (Polyamide) and although there are several research reports about the performance and the durability of PA, the performance of PA 12 components derived from additive manufacturing has not been thoroughly investigated, especially under long term loading at extreme environmental conditions.
The aim of this project will be to investigate the performance of these connections under long-term loads at extreme conditions.

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