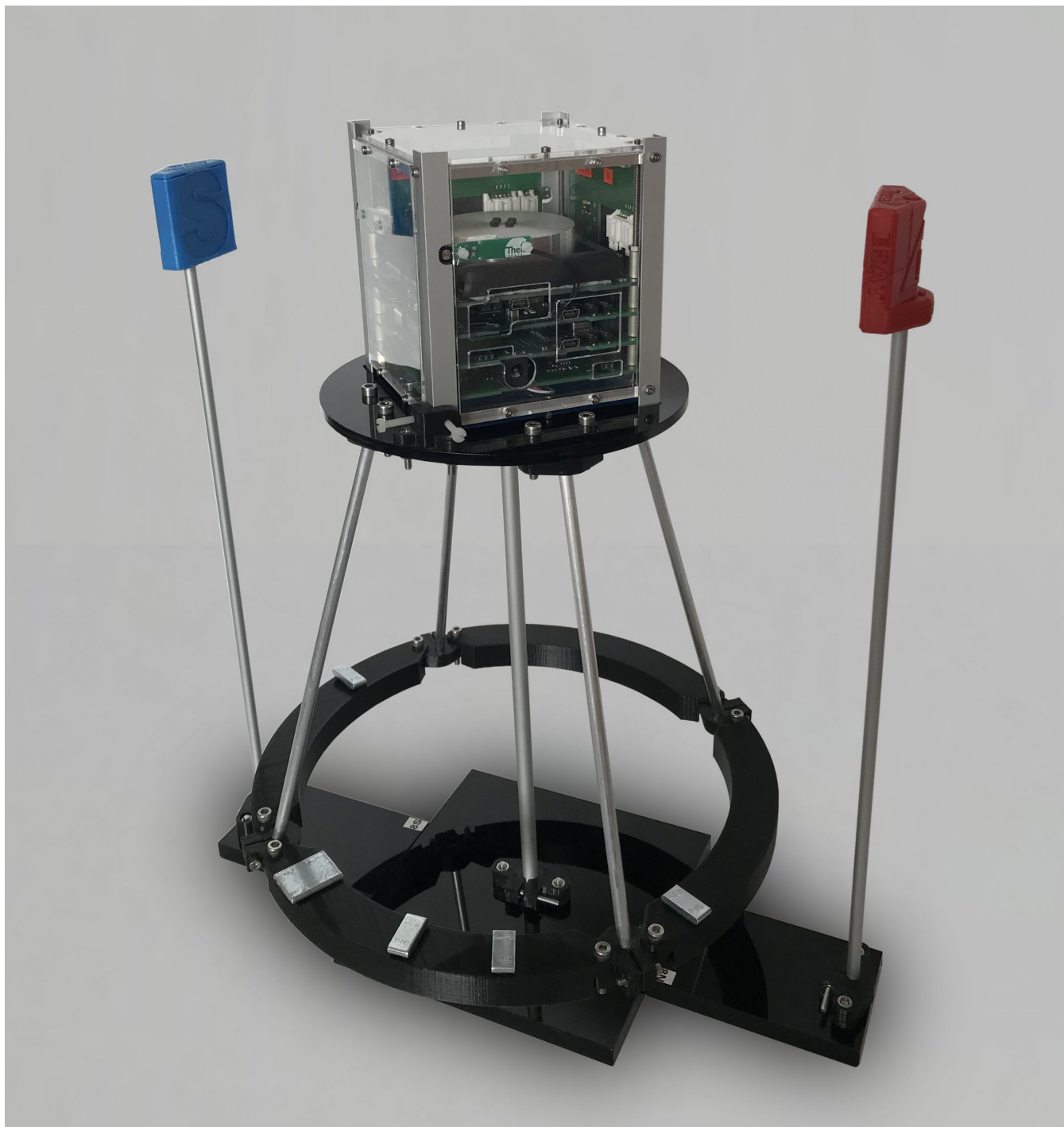


# Ground support for nanosatellite laboratory models

The support equipment includes a solar simulator, rotary table and magnetic simulator



## Contact information

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## Technological Offers type

Technological scientific services

### Research and innovation areas

- [Science For Engineering and Architecture](#)
- [Space and Earth Observation](#)

### ODS



**Available from:** 2017

### Where?

[Aerospace Sciences and Operations Computer Simulation Research Centre](#)

Keywords: | [CubeSat](#) | [GSE](#) | [nanosatellite](#)

## Scientific and technology services

### Ground support for nanosatellite laboratory models

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#### Description of the services offered

The ground support team enables the user to simulate particular conditions in orbit and get a complete experience when using ESAT.

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#### Applications

- Teaching: The ESAT and its GSE are an ideal tool for doing practicals in university and business environments where it is necessary to be familiar with the design and function of a CubeSAT.
  - Research: Enables students and developers to design and test prototypes for software and hardware sub-systems easily, in a controlled environment recognised on the ground.
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#### Differential skills

- The on-board software is developed in the Arduino environment, with easy integration and personalisation into other examples and programs developed in this environment being possible.
- Both ESAT and its ground-based segment are developed using open, free code, which enables the user to make any modifications and personalisations they wish, or consider suitable.
- The ground support team makes it possible to simulate different conditions in space, such as the freedom of Z-axis rotation, the magnetic field or solar light.

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## Where it is

**E-USOC ( Spanish Operations and User Support Centre )** is a centre at the [Universidad Politécnica de Madrid \( UPM \)](#) specialising in Research and Development work ( [R&D](#) ) in the fields of space science and technology. In the name of the European Space Agency,  
<sup>[1]</sup>

the centre offers the assistance needed to prepare, execute, and post-flight analysis of space experiments relating to the [Fluid Sciences Laboratory](#) on board the [International Space Station](#) .

E-USOC is the point of contact for teams of Spanish users developing experiments that require a microgravity environment, such as the [International Space Station](#) , missions [on the space shuttle](#) , and parabolic flights, etc.

Another aim of E-USOC is to provide information and promote activities in the field of space and fluid mechanics sciences, giving technical and operational support to researchers and research groups who want to carry out experiments in microgravity or related space science environments.

The headquarters is on the Montegancedo campus, a technology and research park at the [Universidad Politécnica de Madrid \(UPM\)](#). The building is on the outskirts of the west of Madrid, in the Pozuelo de Alarcón area.