

AGENCY

AcubeSAT team travel to ESA ESEC for intense Environmental Test Campaign

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AcubeSAT is a team participating in the third edition of Fly Your Satellite!, an ESA programme that supports university students to design, build, launch, and even operate their own satellites. AcubeSAT is a SpaceDot project, run by a multidisciplinary team of students primarily from the Aristotle University of Thessaloniki, but also with members from various Greek and European universities.

The miniature satellite aims to boost space biology research by investigating the effects of radiation and microgravity on eukaryotic cells' behaviour, and testing microfluidic chips as modular devices for multi-parallel biotechnological experiments in orbit.

— AcubeSat students inspecting the board carefully under UV light

Five members of the team recently travelled from Thessaloniki to the CubeSat Support Facility in ESA ESEC, Belgium. Their objective was to put AcubeSAT's On-Board Computer/Attitude Determination & Control

System (OBC/ADCS) board through its paces. This vital component was designed by the students themselves, which is an impressive feat and provided a wealth of hands-on experience, but warrants the most rigorous testing regime to ensure correct functioning, and ultimately a successful mission. Any problems must be spotted and fixed prior to launch!

It was decided that the best approach would be an Environmental Test Campaign. The first part of this was a Vibration Test, which saw the OBC/ADCS board shaken intensely, simulating the conditions it will experience when launched into orbit. Then came the Thermal Vacuum Chamber, which saw the board endure the harsh conditions of space.

Unexpected events required the students to step up and troubleshoot under time pressure. They conducted themselves admirably, and gained invaluable insight into how their system would perform in orbit, as well as challenges they may face.

— AcubeSAT student preparing the OBC/ADCS board for the TVAC campaign

The team are now back Thessaloniki, where their work continues at pace. Next on the agenda is debugging and investing issues to ensure AcubeSAT will be ready for qualification at the CubeSat Support Facility in the near future!

- To stay up-to-date with AcubeSAT and other Fly Your Satellite! teams, please visit https://www.esa.int/Education/CubeSats_-_Fly_Your_Satellite/