

51st IAF STUDENT CONFERENCE (E2)
Student Team Competition (3-GTS.4)

Author: Ms. Miriam Abreu Neves
University of Coimbra, Portugal, miriam.abreuneves9@gmail.com

Mr. André Fadiga
University of Coimbra, Portugal, uc2018283760@student.uc.pt
Mr. Manuel Mansilha
University of Coimbra, Portugal, manuelfilipemansilha@gmail.com
Ms. Ana Henriques
University of Coimbra, Portugal, sofiaamh2@hotmail.com
Mr. David Ferreira
University of Coimbra, Portugal, davidferreira1002@gmail.com
Ms. Júlia Rodrigues
University of Coimbra, Portugal, rodriguesjulia08@gmail.com

THE ROLE OF UNIVERSITY STUDENTS TO THE DEVELOPMENT AND GROWTH OF SPACE
BUSINESS: THESTIAS, THE CASE STUDY**Abstract**

The role of space exploration is more clear than ever. To understand our problems on Earth, we need to see it from a different perspective, and leave the ground. Stratospheric balloons can be the solution, because they are released into the stratosphere, and go to the region where it is too low for satellites but too high for aircraft. They can be used to validate and test new technologies and scientific experiments. In this, comes Thestias.

The university student based project launched, at the end of 2022, to the Stratosphere at more than 28 kilometers of altitude-Thestias, a balloon with a payload. Launched from Coimbra, Portugal, the balloon contained sensors to measure different variables, such as temperature, pressure, altitude and velocity, and also, a parachute and gondola to assemble and provide shock and thermal protection. It also had an antenna that was the source of communication during the flight, but unfortunately a day early, it crashed. The major goal with this project was to prove that Thestias can make low budget flights with huge scientific projections, and create its own annual balloon launch campaign to test scientific experiments.

With more than 3 hours of flight, one can say that the flight was a huge success. Thestias' team was made up only of university students from the University of Coimbra, Portugal, coming from different backgrounds as Mechanical, Electrical and Physics Engineering, Law, Journalism. It collected all the data that was desired, and is currently under analysis to understand how different factors had an influence in the flight dynamics of the balloon. The goal is to continue this mission, and make it an annual launch with payloads from different companies to test new technologies of their own or scientific based, such as neutron detectors, meteorological studies and technology testing, for example. In that way, the point is to make it more affordable and easy for science to be tested and leave earth to go to high altitude.

This paper analyzes Thestias' management, data analysis and engineering development deeply, from the work performed, the processes used and mission statement, in comparison to what was accomplished.