**Overview and Results of the Inaugural ESA Concurrent Engineering Workshop Dedicated to CubeSats and the Subsequent Applications and Implementation for a University CubeSat Design Project**

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CubeSats are growing area of spacecraft design that allows for rapid design and testing of new technology for companies and space agencies, while also acting as a feasible hands-on entrance to satellite design at the University level. This paper serves to highlight two areas that bring together CubeSats and the Concurrent Engineering Design Process:

1. A formal outline and summary of ESA’s Inaugural Systems and Concurrent Engineering Workshop dedicated to CubeSats
2. The application and implementation of the Concurrent Design Tool to CuSAT-1, a 3U forest fire detection CubeSat being designed and built at Carleton University

From January 16 to 19, the ESA Academy held hosted the Inaugural Systems and Concurrent Engineering Workshop dedicated to CubeSats. Held at the Academy Training & Learning Centre, situated within the ground of the Redu Ground Station in Belgium, the workshop brought together 22 students representing their own CubeSat projects from several ESA member states. Unknown to the group, the mission they were tasked with designing had a similar payload and design requirements to that of an already flown CubeSat. The philosophy behind this design choice by the organizers allowed for the students in attendance to directly compare their design results and decisions reached after only 5 design sessions with that of a completed and flown design.

The CuSAT-1 CubeSat from Carleton University in Ottawa, Canada is a 3U CubeSat with a mission objective to use an infrared camera to detect forest fires within the Boreal Forest region of Canada. Each year, a group of 30 undergraduate students works on the project from September through to April as part of their 4th Year Capstone Design Project. The annual turnover of students causes a loss of institutional knowledge, lessons learned, and design information that was not properly documented. The introduction of the Concurrent Design Tool into a project already at the Phase C level of design, serves to bridge the gap in knowledge lose, while also increasing productivity and inter-subsystem communication thanks to a centralized documentation and integration tool. Future application of the Concurrent Design Tool in this project will serve to have smaller groups of students work through the Phase A and B designs of potential new missions in parallel when trying to develop the preliminary design of CuSAT-2.