31st IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
Access to Space for Small Satellite Missions (5)

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FRAMSAT-1: THE FIRST NORWEGIAN SATELLITE FROM NORWEGIAN SOIL

Abstract

In 2024, the first orbital launch from Andøya Spaceport is scheduled. This will open for new launch providers and an expected increased access-to-space capacity, especially from the European mainland. Hopefully, this also increase the capacity and opportunities for cheap access to space for university space projects. For many university projects, the launch cost is on the same order – or larger – than the monetary cost of a satellite, which often consist of "self made" parts. National and international programs and competitions like NASA ELaNa and ESA "Fly your satellite" has made the dream of reaching space come true for many young students for more than 15 years. We hope that the new launch sites – both at Andøya and at other locations – as well as the new families of launchers will lead to even more successful student and university projects being flown. In this paper, we describe the precursor mission, FramSat-1, that slated to be onboard this first launch attempt. The idea of "the first satellite from Norwegian soil" is decades old, and now the satellite is finally built and launched/awaiting launch. FramSat-1 was officially started right after the Norwegian Government first secured the first financing of the Spaceport. The satellite is built by students from the Norwegian University of Science and Technology (NTNU), through a joint effort between NTNU, the student organization Orbit NTNU, Norwegian industry and with support from the Norwegian Space Agency. FramSat-1 is the manifestation of many projects and ideas, into what was intended to be a simple and small satellite. FramSat-1 was started during the finalization of the first satellite from Orbit NTNU, the SelfieSat, which was launched in 2022. It was intended to be a "scaled-down" copy, a decision that saw unpredicted challenges that lead to a change of scope and ambition several times. In this paper we describe the project's progress and challenges from the idea creation, the consolidation of a consortium and up to finalizing with hardware and software

integration and the environmental test campaign (as well as the launch and early operations). Emphasis will be put on how the project has been maintained through changing teams and a dynamic timeline.