

30th IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
24th Workshop on Small Satellite Programmes at the Service of Developing Countries (1)

Author: Dr. Mutugi Kiruki
University of Nairobi, Kenya, rkiruki@uonbi.ac.ke

Prof. Mwangi Mbutia
Kenya, jmbuthia@uonbi.ac.ke

ENTRENCHING NANOSATELLITE DEVELOPMENT CAPACITY AT THE UNIVERSITY OF
NAIROBI, KENYA: THE ROLE AND IMPACT OF LOCAL AND INTERNATIONAL
COLLABORATIONS

Abstract

In the recent past, nanosatellite development has been a key avenue for developing countries not only to participate in the space field but to ultimately access space. This has been true for Kenya, which had its first satellite deployed on 11th May 2018. This 1U Cubesat, 1KUNS, was a joint collaboration between the University of Nairobi and the University of Rome, Sapienza. The 1KUNS was the first beneficiary/awardee of the UNOOSA/Japan Cooperation on Cubesat Deployment from ISS Japanese Experiment Module "KiboCUBE".

These initial collaborations cemented nanosatellite capacity building activities at the University of Nairobi. Since then, the institution has engaged with other collaborators both locally and internationally. This paper will present the various collaborations over the years that have continued to entrench nanosatellite development at the institution. The various projects that have been carried out as a result of local and international collaborations will be presented and discussed.

Based on such collaborations, the University of Nairobi has been the inaugural 2023 awardee of the UNOOSA-Avio CubeSat Launch opportunity. Through this program, the university has an opportunity to launch, free of charge, a 3U nanosatellite using the Vega-C launcher. This is a testimony to the steady growth of nanosatellite development capacity at the institution. This paper will present practical steps and actions that can help promote this growth in other developing countries or universities.

The authors, who have been actively involved in these projects, will present the impact of the collaborations. We will discuss the roles and impact of such collaborations, lessons learnt and the future roadmap to fully harness the benefits of space through nanosatellite platform. The paper will also present the technical benefits of projects under such collaborations, especially to student training. The paper will also present the natural growth of local capacity and how such pathways can be replicated by other developing countries.