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THE ROLE OF SMALL SATELLITES IN THE SPACE POSTURE OF EMERGING SPACE NATIONS
IN AFRICA

Abstract

Small satellites (usually under 500kg) play a particularly important role in supporting the development of African countries. They have enabled a ‘democratisation’ of access to space due to their lower entry barriers and cost (including launch cost due to standardisation), while still offering powerful capabilities. As such, Africa’s focus has overwhelmingly been placed on small satellites to unlock the potentials of space data, applications, and activities to support the continent’s development goals. This paper will be a follow-up to a study presented in 2019 on the primary needs approach to African space activities, which also investigated the African international space ecosystem, national space infrastructure, activities, and capabilities, as well as the continent’s emerging space middle powers. The focus will thus be placed here on Africa’s preference for small satellites (including an overview of all African small satellites launched or planned), and international agreements focusing on collaborations on small satellite projects and related training pertaining to Africa (such as the Joint Global Multi-Nation Birds Satellite project, the HyperFarm hyperspectral nano-satellite constellation, and the long-standing efforts to advance the African Resource Management Satellite Constellation). Following this, and based on the preceding study, case studies will be presented on four emerging African space nations at different levels of satellite usage and development (namely Algeria, Morocco, Tunisia, and Zimbabwe), with an emphasis on their individual space postures, cooperation agreements, and the relationship in these countries between small satellites and development goals and priorities. The paper will conclude by reviewing lessons learned from these experiences, relevant both for other African countries and developing countries around the world.