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IMPROVING RESILIENCE IN LOCAL AND INDIGENOUS COMMUNITIES TO FACE HYDROMETEOROLOGICAL DISASTERS IN CENTRAL AMERICA THROUGH SMALL SATELLITES

Abstract

Morazán represents a project for the integration of the Central American Nations through the collaboration in outer space. This project seeks to develop a CubeSat led by the Autonomous National University of Honduras (UNAH), in collaboration with the University of Costa Rica (UCR) and the University of San Carlos in Guatemala (USAC). This project is supported by the Central American Integration System (SICA) which represents the institutional framework for Regional Integration in Central America. As a region with high exposure to hydrometeorological extreme events over the last three decades, more than twenty occurred yearly in Central America, resulting in tens of thousands of deaths. In many of these disasters, many infrastructural facilities and communication services were severely damaged. This is especially true and severe in indigenous territories and communities, typically places that are very difficult to access and outside government policies that cause strong situations of inequality and exclusion in rights as fundamental as health or education. This is aggravated by the lack of road or electrical infrastructure, making projects that try to solve this situation have a high cost. These are some of the reasons that lead the project to explore the geospatial technology developing the first -proof of concept- early warning system for the mitigation of floods and landslides, which can occur in remote areas with little to no access to terrestrial communications. Additionally, the use of the satellite in conjunction with the amateur radio system will be tested for reliable post-emergency communications. The satellite monitoring process and the early warning systems will operate at the river basin level in order to transcend the political-administrative boundaries. Three basins (one in each country: Honduras, Guatemala and Costa Rica) will be selected based on a risk analysis which accounts for both exposures to hydrometeorological events and vulnerability which in turn accounts for societal factors such as susceptibility of the population and lack of coping and adapting capacities. In its core, this project aims to develop the first collaborative satellite of the region, where three countries are cooperating and joining efforts expecting to be the first step in a paradigm shift between responding to disasters versus preventing them through space technology.