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STRENGTHENING CLIMATE RESILIENCE THROUGH EARTH OBSERVATION: PRELIMINARY FINDINGS FROM THE MALDIVES SPACE RESEARCH ORGANISATION'S (MSRO) GOIDHOO EARTH OBSERVATION PILOT (GEOP)

Abstract

The Maldives Space Research Organisation's (MSRO) Goidhoo Earth Observation Pilot (GEOP) is using Earth observation (EO) technologies to help build climate resilience in the Maldives. To accomplish this task, MSRO is leading a consortium of local and international entities to investigate a number of environmental issues affecting the Goidhoo Atoll using EO methods. The pilot's first round of fieldwork took place from 25th February to 2nd March 2023. After a period of consultation, the study focussed on better understanding five issues affecting the community: seagrass trends, inconsistent agricultural yield, coastal erosion, coral reef health, and changes to mangrove ecosystems.

Data was collected using a combination of methods, including on-site expert observations, citizen science ground truthing, bathymetric surveys, imaging from unmanned aerial vehicles (UAVs) equipped with hyperspectral and RGB cameras, as well as high resolution electro-optical satellite imagery. These measurements have generated theories concerning the complex impact of local agricultural fertiliser use, infrastructure development, and the systemic effects of climate change on beach replenishment rates and the poorly-understood changes in seagrass, mangrove, and coral reef population trends.

GEOP seeks to understand these complex climate and anthropogenic entanglements in the Goidhoo Atoll. This paper will discuss MSRO's preliminary findings, which hold relevance for the Maldives and the wider international community as we all seek to better understand the role EO technologies can play in strengthening the resilience of some of the most climate vulnerable places in the world.