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Developing future sea level services for Small Island Developing States

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The Caribbean islands encompass some of the most vulnerable coastlines in terms of sea level rise, exposure to tropical cyclones, changes in waves and storm surges. Climate in the Caribbean is already changing and sea level rise impacts are already being felt. Considerable local and regional variations in the rate, magnitude, and direction of sea-level change can be expected as a result of thermal expansion, tectonic movements, and changes in ocean circulation. Governments in the Caribbean recognise that climate change and sea level rise are serious threats to the sustainable development and economic growth of the Caribbean islands and urgent actions are required to increase the resilience and make decisions about how to adapt to future climate change (Caribbean Marine Climate Change Report Card 2017; IPCC 2014).

As part of the UK Commonwealth Marine Economies (CME) Programme and through collaboration with local stakeholders in St Vincent, we have identified particular areas at risk from changing water level and wave conditions. The Caribbean Sea, particularly the Lesser Antilles, suffers from limited observational data due to a lack of coastal monitoring, making numerical models even more important to fill this gap. The current projects brings together improved access to tide gauge observations, as well as global, regional and local water level and wave modelling to provide useful tools for coastal planners.

We present our initial design of a coastal data hub with sea level information for stakeholder access in St. Vincent and Grenadines, Grenada and St Lucia, with potential development of the hub for the Caribbean region. The work presented here is a contribution to the wide range of ongoing activities under the Commonwealth Marine Economies (CME) Programme in the Caribbean, falling within the work package “Development of a coastal data hub for stakeholder access in the Caribbean region”, under the NOC led projects “Climate Change Impact Assessment: Ocean Modelling and Monitoring for the Caribbean CME states”.