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NASA ROSES Research Project

High Resolution Assessment of Carbon Dynamics in Seagrass and Coral Reef Biomes

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Bulletized Executive Summary

- There has been much discussion about the possibility that climate conditions on the planet Earth may be changing significantly in our lifetimes.
- The current trend of increased melting of glaciers at both high altitudes and high latitudes is suggestive of global warming.
- The consequence of ice melting is rising sea level. In this framework of global climate change, there is considerable interest in how the organisms living in shallow water along coastlines will be affected. Coastal organisms may soon find themselves having to migrate away from the deeper water.
- Our NASA ROSES Research Project will involve using two low-flying long-duration Unmanned Aircraft Systems (UAS) equipped with complementary sensors. These sensors will be used to monitor the daily and seasonal activity of shallow water organisms from an airborne perspective.
- Two study sites will be examined: (1) one site in the Gulf of Mexico along the coast of Florida; and (2) the other site in the Caribbean Sea along the coast of Tobago.
- While the airborne datasets are acquired, in-water measurements and sample collections will be made by a team of well-equipped field researchers.
- The goal is to develop an airborne tool that can be used for acquiring data in remote areas of the world where fieldwork is difficult. The Research Project will be serve as a guide for designing future satellite-based sensors capable of long-term monitoring of coastal environments vulnerable to sea level change.