

FCC Exhibits

“Government Contract and Project Description”

Agency and Contract Number

Contract agreement between Great Lakes Observing System (GLOS) and Michigan Technological University

ISSUED UNDER DEPARTMENT OF COMMERCE, NATIONAL OCEANIC AND ATMOSPHERIC

ADMINISTRATION GRANT AWARD NA16NOS0120025 CFDA 11.012

Project Summary

As the first operational laminographic high-frequency (HF) radar deployment in the Great Lakes, this project will assist with:

1. Search & rescue
2. Water quality monitoring
3. Marine navigation and monitoring
4. Rip current prediction
5. Harmful algal bloom forecasts
6. Fisheries and ecosystem management
7. Oil spill response
8. Hydrodynamic modeling
9. Ice detection and monitoring

I. Introduction

This project addresses the challenge associated with management of natural resources in the Straits of Mackinac, the narrow channel connecting Lakes Michigan and Huron in the Great Lakes. While HF radar has been employed extensively on the ocean coasts of the United States, it has been largely overlooked as a tool for freshwater observation and science. This is largely due to its limited propagation ranges over freshwater. However, a recent study of HF over freshwater shows significant potential in the use of HF to produce reliable current measurements within 25 km of shore, covering a broad expanse of many freshwater systems. This project supports GLOS and its constituency in the region through (a) the acquisition of a key data resource and integration of that resource’s data throughout the network (Data Management and Integration) and (b) timely, reliable, and sustained observations of a key region of economic and environmental importance (Observations). This project also provides a unique resource by providing routine real-time access to current maps and hard-target movements across the straits.

This proposed effort includes funding to complete the steps necessary to identify deployment sites (including identifying necessary permits and easements), develop site-specific requirements for the HF radar system to be deployed (including power and internet, in addition to radar sensing requirements) in the Straits of Mackinac, and acquire the specified customized system for freshwater operational deployment.

II. Project Description

As the first operational HF radar deployment in the Great Lakes, the development of this system will require a thorough evaluation of site-specific requirements including site location evaluations to meet freshwater HF requirements (e.g., close to water surface), system housing requirements (the Straits is a relatively remote site), and HF parameters (e.g., frequency). Through a pre-deployment field inspection

and data collection exercise in Fall 2018, we were able to identify deployment sites, map transmit antennae patterns at various radar transmit conditions, and determine system requirements. This evaluation was completed with collaboration from manufacturer CODAR Ocean Sensors' personnel. Upon completion of the field analysis, two SeaSonde® Remote Unit base models tuned specifically for the selected sites were acquired and prepared for deployment. At the time of this application, "right of way" approval for station siting is in progress and follow-on funding for final setup costs have been approved. The data will be provided to the national network used by NOAA and the U.S. Coast Guard for the purposes described above.

The manufacturer, CODAR Ocean Sensors has contracted with UL Verification Services that is both an FCC accredited TCB and Test laboratory and is currently in the process of being certified.

III. Goal

The goal of this license is to operate the equipment in the bands designated for oceanographic radars in CFR Part 90 to be in compliance with FCC Order 17-33.