

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT MP1904-CM-T

Sarigan Island, Northern Mariana Islands

Introduction

Coastal Mapping Program (CMP) Project MP1904-CM-T provides accurate digital shoreline data for Sarigan Island, an island in the Northern Marianas. The Geographic Cell (GC) may be used in support of the NOAA Nautical Charting Program (NCP) as well as geographic information systems (GIS) for coastal zone management applications.

Project Design

Project MP1904-CM-T was designed in response to a request from Marine Chart Division (MCD) of NOAA's Office of Coast Survey for GIS data to update NOAA nautical charts in the Northern Mariana Islands. Based on an analysis of project requirements and results of a source data search, it was determined that CMP procedures for multiple source projects would apply for this project. Available source data deemed adequate for successful completion of this project included sources acquired in October/December 2016 and August 2019.

Field Operations

Routine CMP field operations did not apply for this project based on the origin of the project source data, which was obtained from external sources.

Aerotriangulation

The aerotriangulation (AT) phase of this project was accomplished by RSD personnel in October 2019. AT procedures were completed on a Digital Photogrammetric Workstation (DPW) using the Multi-Sensor Triangulation (MST) software module of SOCET SET (ver. 5.6). The Interactive Point Measurement tool within MST was used to collect tie points and a simultaneous solve adjustment was then performed. Upon successful completion of this process, the triangulation software provided the standard deviations for each AT ground point, which were used to compute a predicted horizontal circular error of 0.45 meters based on a 95% confidence level. Positional data is referenced to the North American Datum of 1983 (NAD83).

Compilation

The compilation phase was accomplished by RSD personnel in November 2019. The digital mapping was performed using a DPW in conjunction with the SOCET SET Feature Extraction software module. Feature attribution was assigned in compliance with the Coastal Cartographic Object Attribute Source Table (C-COAST), which provides the definition and attribution scheme for the full range of cartographic features pertinent to the CMP. Selected features were further modified with additional descriptive information to refine general classification.

Spatial data accuracies for project MP1904-CM-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 0.9 meters at the 95% confidence level.

Verified water levels were obtained from the NOS tide station at Apra Harbor, Guam (1630000), with time/height offsets applied to the tidal substation at Pagan Island (TPT2621). Pagan Island is the closest tide gauge to Sarigan Island (~ 150km). The water level at Pagan Island, at the time of source acquisition, was approximately 0.62 and 0.57 meters above Mean Lower Low Water (MLLW) for the Oct/Dec 2016 data and 0.31 for the 2019 data. The elevation of the Mean High Water (MHW) tidal datum at Pagan Island is approximately 0.64 meters above the MLLW datum.

Quality Control / Final Review

Quality control tasks were conducted upon project completion in November 2019. The review process included an assessment of the AT results and the identification and attribution of digital feature data within the GC according to image analysis and criteria defined in C-COAST. The quality control process concluded with an inspection of topological connectivity within the GC using ArcGIS (ver. 10.7) software. All project data was evaluated for compliance to CMP requirements. A Chart Evaluation File (CEF) resulted from comparison of the project imagery with the largest scale NOAA nautical chart covering the project:

- Chart 81086, Plans in the Mariana Islands, 8th Ed., May 2014

End Products and Deliverables

The following specifies the location and identification of end products generated during the completion of this project:

Remote Sensing Division Electronic Data Library

- GC11574 in shapefile format
- Project Completion Report (PCR)
- CEF in shapefile format

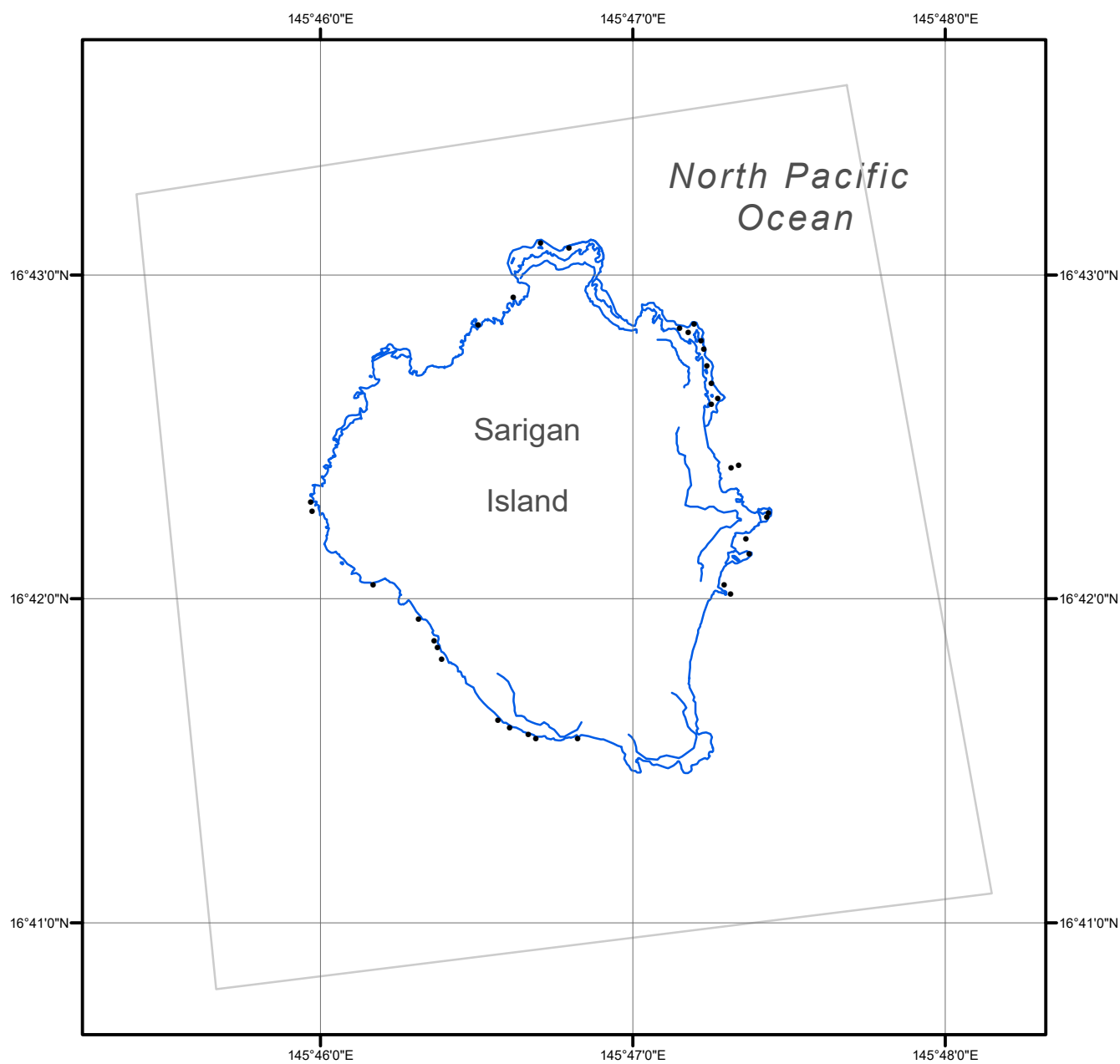
NOAA Shoreline Data Explorer

- GC11574 in shapefile format
- Metadata file for GC11574
- PCR in Adobe PDF format

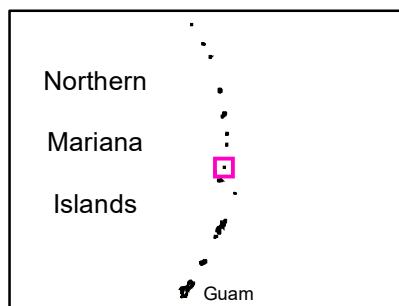
End of Report

SARIGAN ISLAND

NORTHERN MARIANA ISLANDS



Overview



MP1904-CM-T

GC11574