

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT UM1801-CM-T

Wake Island, U.S. Pacific Islands

Introduction

NOAA Coastal Mapping Program (CMP) Project UM1801-CM-T provides accurate digital shoreline data for Wake Island, a Minor Outlying Island of the United States, located in the Pacific Ocean approximately 2,000 miles west of Hawaii. The Geographic Cell (GC) may be used in support of the NOAA Nautical Charting Program (NCP) as well as geographic information systems (GIS) for a variety of coastal zone management applications.

Project Design

Project UM1801-CM-T was designed in response to a request from the Marine Chart Division (MCD) of the Office of Coast Survey. Based on 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 completion of this project included two GeoEye-1 panchromatic commercial satellite images obtained from DigitalGlobe Inc. through the NextView government contract.

Field Operations

Routine CMP field operations did not apply for this project based on the origin of the project imagery.

Aerotriangulation

Softcopy aerotriangulation methods were completed by personnel of the Applications Branch (AB) of the Remote Sensing Division (RSD) in April of 2018 utilizing a Windows-based stereo-enabled workstation. The GeoEye-1 satellite images were measured and adjusted with tie points using BAE Systems' Multi-Sensor Triangulation (MST) module within SOCET SET (ver. 5.6) photogrammetric software. Upon successful completion of the aerotriangulation process, the MST software provided the standard deviations for each aerotriangulated tie point which was used to compute a predicted horizontal circular error of 6.6 meters for the model based on a 95% confidence level. An Aerotriangulation Report was written and is on file with other project data within the RSD Electronic Data Library.

Compilation

Data compilation was accomplished by AB personnel in April 2018. Feature data was compiled stereoscopically using the Feature Extraction module within SOCET SET. 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.

Spatial data accuracies for UM1801-CM-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 9.6 meters at the 95% confidence level. The table below provides further details on the imagery used to complete this project:

Image Source	Resolution	Source ID	Acquisition Date/Time	Tide Level*
GeoEye-1	0.5 m	16JUN23232737-P1BS-057775477010_01_P001.tif	2016-06-23/23:28	0.1 m
GeoEye-1	0.5 m	16JUN23232840-P1BS-057775477010_01_P001.tif	2016-06-23/23:29	0.1 m

* Tide levels are given in meters above MLLW and are based on actual observations recorded at the time of image acquisition by the NOS gauge at Wake Island. The elevation of MHW at the tidal station is approximately 0.65 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted upon project completion by senior CMP personnel in May 2018. The review process included an assessment of 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 Esri's ArcGIS (ver. 10.5) software. The entire suite of project products was evaluated for compliance to CMP requirements. A Chart Evaluation File (CEF) was created by comparing project imagery with the following nautical chart:

- 81664 Wake Island, 7th 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

- Project database
- Aerotriangulation Report
- GC11418 in shapefile format
- Project Completion Report (PCR)
- CEF in shapefile format

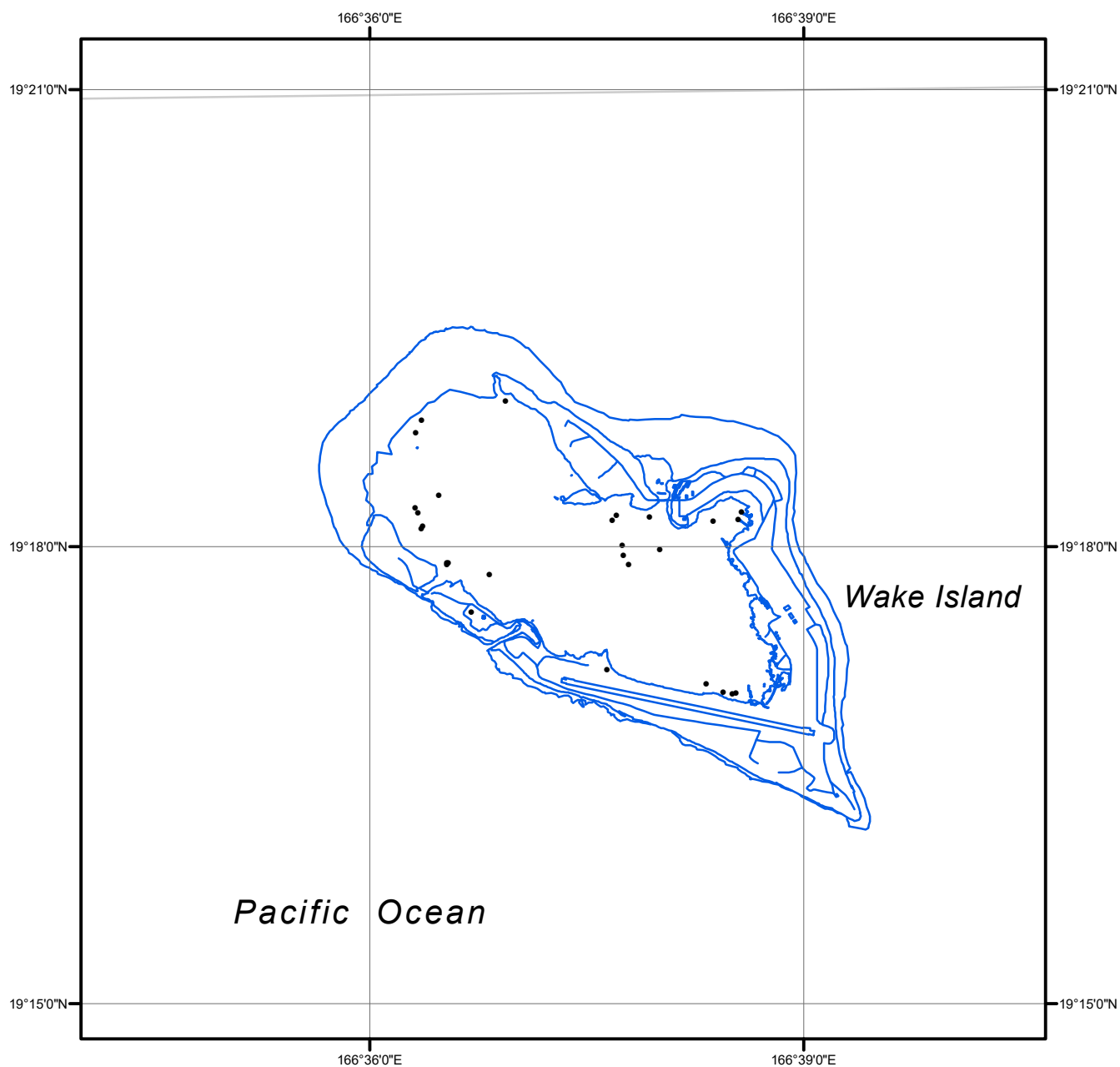
NOAA Shoreline Data Explorer

- GC11418 in shapefile format
- Metadata file for GC11418
- PCR in Adobe (PDF) format

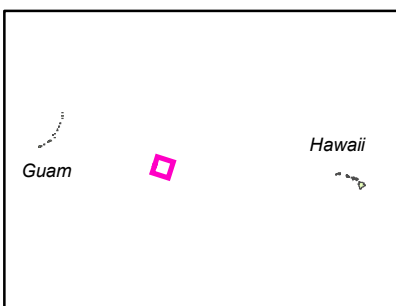
End of Report

WAKE ISLAND

U.S. PACIFIC ISLANDS



Overview



UM1801-CM-T

GC11418