

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT MP0505

Pagan Island, Northern Mariana Islands

Introduction

NOAA Coastal Mapping Program (CMP) Project MP0505 provides digital shoreline data for Agrihan Island in the Northern Mariana Islands. The Geographic Cell (GC) may be used to compliment the Nautical Charting Program (NCP) as well as geographic information systems (GIS) for a variety of coastal zone management applications.

Project Design

Project MP0505 was designed per a request from the Marine Charting Division (MCD) of the Office of Coast Survey, NOAA, for cartographic data in support of MCD operations, specifically to aid in updating the shoreline data on chart 81092. Based on an analysis of project requirements and as a result 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 December of 2004.

Field Operations

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

Aerotriangulation

The aerotriangulation task was initiated by a member of the Applications Branch (AB) of the Remote Sensing Division (RSD) in September 2006 utilizing a Digital Photogrammetric Workstation (DPW), which is a configuration of computer hardware, modular software components and other associated peripheral devices. The image files were imported into SOCET SET (version 5.2) using the DataThruWay (version 5.2) software extension. The import process converted the stored compressed files to the National Imagery Transmission Format (NITF 2.0) with headers and metadata.

Aerotriangulation procedures were accomplished using the Multi-Sensor Triangulation (MST) module of SOCET SET. The Interactive Point Measurement (IPM) tool within MST was used to collect several tie points and a simultaneous solve adjustment was then performed, forecasting an average predicted horizontal circular error for all well defined points of 12 meters at the 95% confidence level. Positional data for this project is referenced to WGS 84.

Compilation

Digital feature data compilation for this project was accomplished by AB personnel in March of 2007. 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 cartographic features were further modified with additional descriptive information to refine general classification.

Cartographic features were compiled to meet a horizontal accuracy of 18 meters at the 95% confidence level. Tidal information was unavailable for the project area.

Quality Control / Final Review

Quality control tasks were conducted during all phases of project completion by senior CMP personnel of RSD. The final QC review was completed in March of 2007. The review process included an analysis of aerotriangulation results and the assessment of the identification and attribution of cartographic features 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 9.1 software. All project data was evaluated for compliance to CMP requirements.

Comparisons of the largest scale NOAA nautical charts with source imagery and compiled project data resulted in creation of the Chart Evaluation File (CEF). The following nautical chart was used in the comparison process:

81092, Pagan Island, 1:25,475 scale, 3rd ed., Jul. 2002

End Products and Deliverables

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

RSD Applications Branch Archive

- Hardcopy of the Project Completion Report (PCR)
- Page size graphic plot of GC10622 file contents, attached to PCR

Remote Sensing Division Electronic Data Library

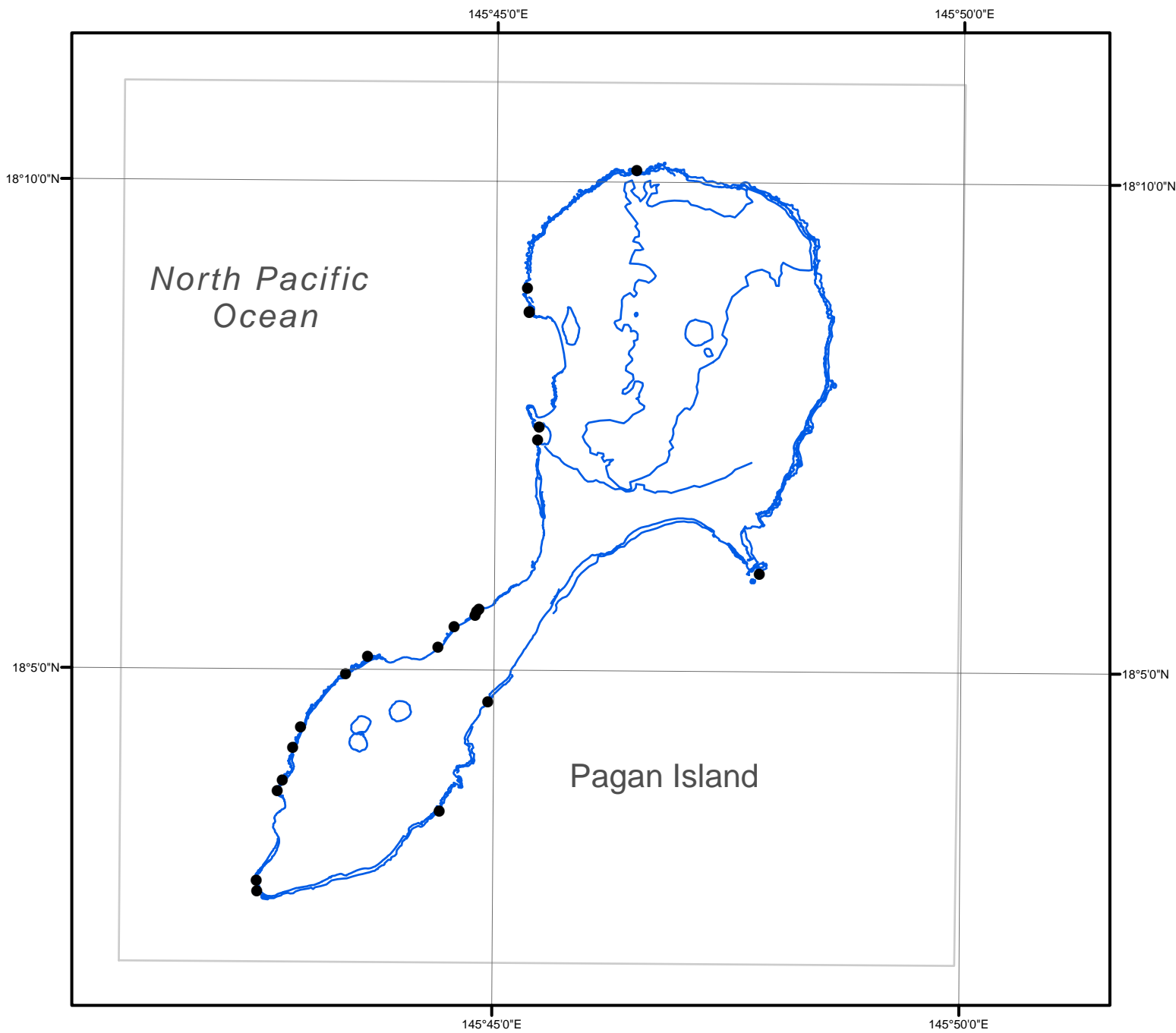
- Project database
- GC10622 in shapefile format
- Digital copy of the PCR in Adobe PDF format
- CEF in shapefile format

NOAA Shoreline Data Explorer

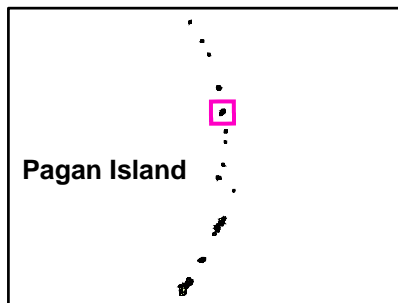
- GC10622
- Metadata file for GC10622
- Digital copy of the PCR in Adobe PDF format

End of Report

PAGAN ISLAND NORTHERN MARIANA ISLANDS



Overview



MP0505
GC10622