NOAA COASTAL MAPPING PROGRAM
PROJECT COMPLETION REPORT

PROJECT AK1502-CM-T

Skagway Harbor, Alaska

Introduction

Coastal Mapping Program (CMP) Project AK1502-CM-T provides highly accurate digital shoreline data for Skagway Harbor, Alaska. 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 AK1502-CM-T was designed in response to a request for new shoreline data originating from the Marine Chart Division (MCD) of the Office of Coast Survey, NOAA. 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 successful completion of this project consisted of commercial satellite imagery obtained through the National Geospatial-Intelligence Agency (NGA). Six orthorectified, pan-sharpened natural color WorldView images were obtained, and stereo coverage was provided for the entire project area.

Field Operations

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

Aerotriangulation

Routine softcopy aerotriangulation methods were applied to establish the network of precise camera positions and other control for mapping, and to provide model parameters and orientation elements required for digital compilation. This work was completed by RSD Applications Branch (AB) personnel in September 2015. The images were measured and adjusted as a block using BAE Systems' SOCET SET® (ver. 5.6) on a photogrammetric workstation consisting of a high-end Dell Precision™ Workstation with stereo viewing capability. Within SOCET SET, the Interactive Point Measurement tool was used in the Multi-Sensor Triangulation (MST) module to collect tie points. The simultaneous solve adjustment forecasted an average predicted horizontal circular error for all well-defined points in the project area of 2.8 meters at the 95% confidence level. The published coordinates of independently measured control points were compared to their locations in the imagery in order to verify this accuracy. Positional data for this project is referenced to the North American Datum of 1983 (NAD 83).

Note that all six images were included in the aerotriangulation block adjustment, but only two of these images were used for feature compilation.

Compilation

Digital feature data compilation for this project was accomplished by AB personnel in October 2015 using the Feature Extraction module of SOCET SET. All feature data was compiled from the aerotriangulated pan sharpened natural color stereo imagery. 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 AK1502-CM-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 5.6 meters at the 95% confidence level. The table below provides detailed information on the imagery used in the feature compilation phase:

Source	Resolution	Source ID	Acquisition Date/Time	Tide Level*
WorldView-2	0.5 m	15MAY13201444-P1BS-500267693100_01_P001.ntf	2015-05-13 / 20:15 GMT	2.9 m
WorldView-2	0.5 m	15MAY13201330-P1BS-500267693100_01_P001.ntf	2015-05-13 / 20:13 GMT	2.9 m

* Tide levels are given in meters above MLLW and are based on actual observations recorded by the NOS reference gage at Skagway Harbor, AK. The height of the MHW tidal datum in the project area is approximately 4.8 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted upon project completion by senior CMP personnel in October 2015. 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 ArcGIS 10.3.1. The entire suite of project products 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:

- 17317, Lynn Canal, Pt Sherman to Skagway, 1:80,000 scale, 21st Ed. May/15
  (Inset: Skagway and Nahku Bay, 1:10,000 scale)

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 Completion Report (PCR)
- Project database
- GC11172 in shapefile format
- Chart Evaluation File in shapefile format

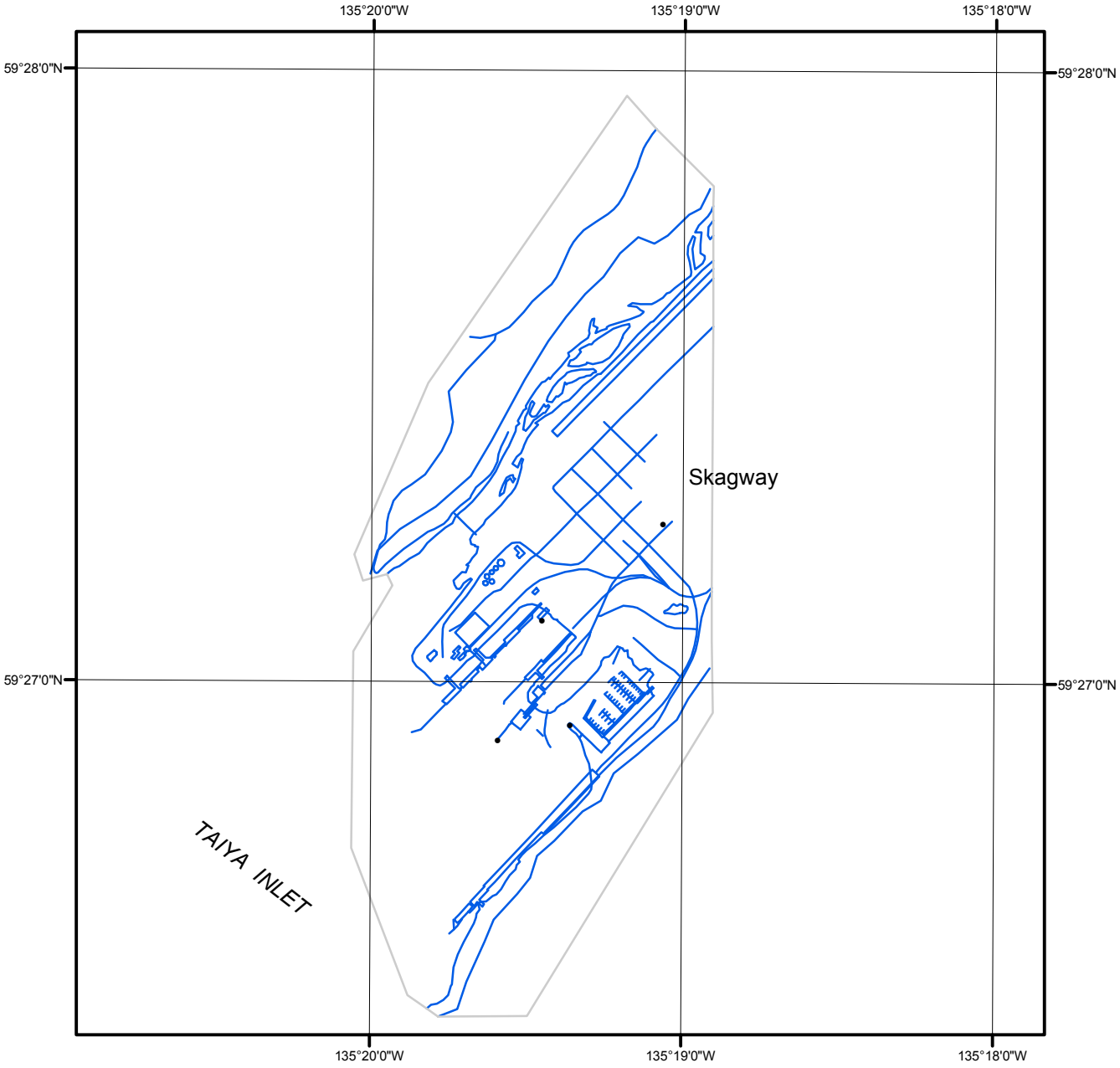
NOAA Shoreline Data Explorer

- GC11172 in shapefile format
- Metadata file for GC11172
- Digital copy of the PCR

End of Report

SKAGWAY HARBOR

ALASKA



Overview

AK1502-CM-T

GC11172