

NOAA COASTAL MAPPING PROGRAM PROJECT COMPLETION REPORT

PROJECT AK1803-CM-T

Tracy Arm at Sawyer and South Sawyer Glaciers, Alaska

Introduction

NOAA Coastal Mapping Program (CMP) Project AK1803-CM-T provides accurate digital shoreline data for Tracy Arm at Sawyer and South Sawyer Glaciers, in 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 AK1803-CM-T was designed in response to a request from the Navigation Services Division (NSD) 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 this project included two WorldView-3 satellite images acquired on December 7, 2017, composing one stereo model; and two WorldView-1 satellite images acquired on April 22, 2015, composing a second stereo model. All imagery was 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, which was obtained from external sources.

Aerotriangulation

Softcopy aerotriangulation methods were completed by personnel of the Applications Branch (AB), Remote Sensing Division (RSD) in June 2018 utilizing a Windows-based stereo-enabled workstation. The WorldView satellite images were measured and adjusted using several tie points and elevation control points to ensure even distribution for the two stereo models 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 RMS of the standard deviations of the residuals for each aerotriangulated point, which was used to compute a predicted horizontal circular error of 3.5 meters for both models based on a 95% confidence level. This accuracy was checked using a National Geodetic Survey (NGS) third order station "Sawyer". 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 June 2018. Feature data was compiled 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 AK1803-CM-T were determined according to standard Federal Geographic Data Committee (FGDC) practices. Cartographic features were compiled to meet a horizontal accuracy of 6.5 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*
WorldView-1	0.5 m	22APR15WV011500015APR22212629-P1BS_R1C1-500247632030_01_P001	2015-04-22 / 21:26 GMT	1.5 m
WorldView-1	0.5 m	22APR15WV011500015APR22212716-P1BS_R1C1-500247632030_01_P001	2015-04-22 / 21:27 GMT	1.5 m
WorldView-3	0.3 m	07DEC17WV031500017DEC07205136-P1BS_R1C1-501176718100_03_P001	2017-12-07 / 20:51 GMT	2.1 m
WorldView-3	0.3 m	07DEC17WV031500017DEC07205227-P1BS_R1C1-501176718100_03_P001	2017-12-07 / 20:52 GMT	2.1 m

* Tide levels are given in meters above MLLW and are based on verified observations recorded at the time of image acquisition by the NOS gauge at Juneau, AK, with time/height offsets applied to the Sawyer Island, Tracy Arm substation (Station ID: 9452022). The elevation of MHW at Sawyer Island, is approximately 4.7 meters above MLLW.

Quality Control / Final Review

Quality control tasks were conducted upon project completion by senior CMP personnel in June 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 ArcGIS 10.5. 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:

- 17311 Holkham Bay And Tracy Arm - Stephens Passage, AK, 2nd Ed., Feb. 2012

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
- GC11400 in shapefile format
- Project Completion Report (PCR)
- CEF in shapefile format

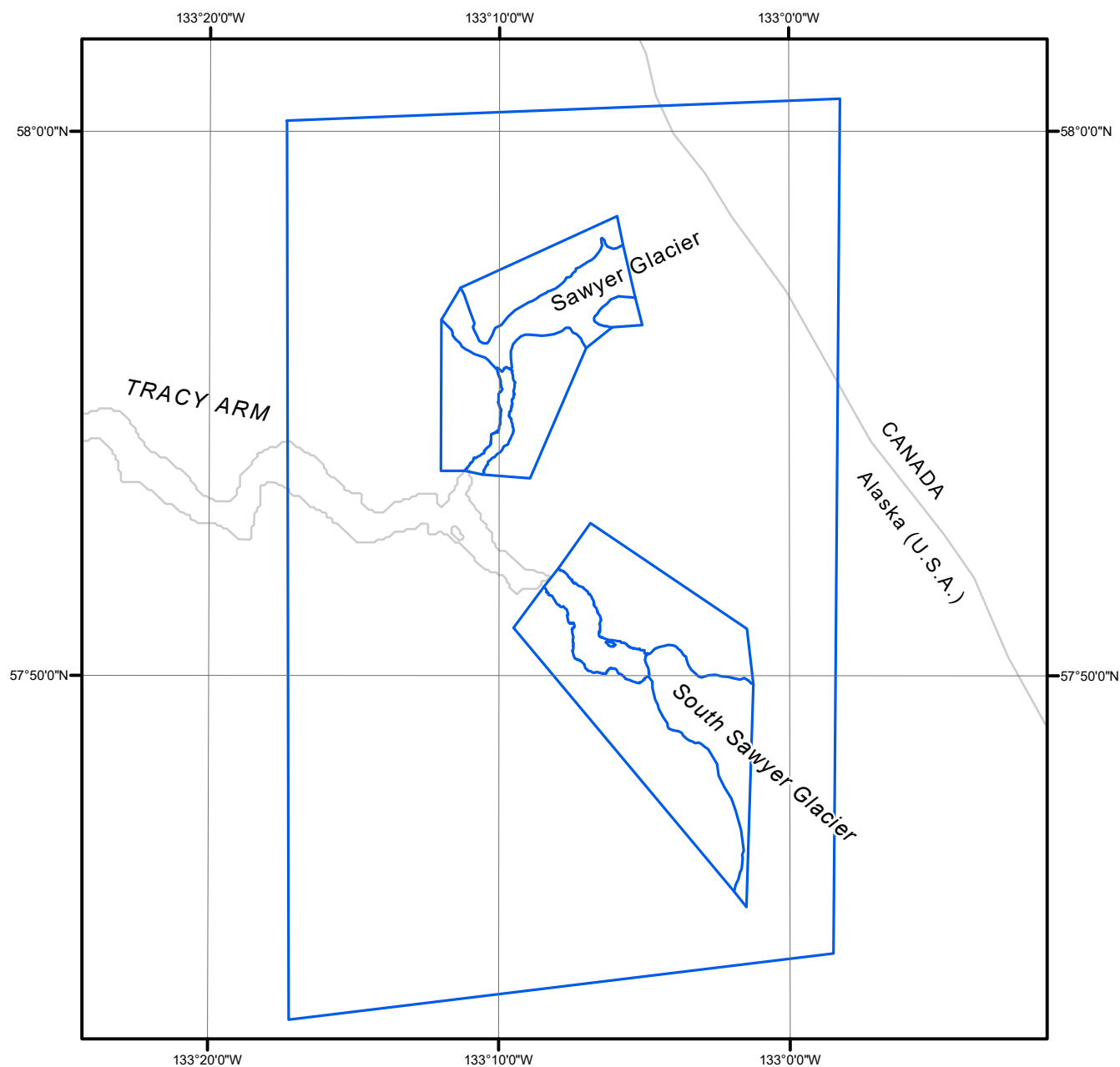
NOAA Shoreline Data Explorer

- GC11400 in shapefile format
- Metadata file for GC11400
- PCR in Adobe PDF format

End of Report

TRACY ARM AT SAWYER AND SOUTH SAWYER GLACIERS

ALASKA



Overview



AK1803-CM-T

GC11400