

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

Horizontal and Vertical Control Report

Type of Survey Hydrographic
Project OPR-R390-KR-23
Contract No 1305M220DNCNJ0053
Task Order No 1305M223FNCNJ0115
Time Frame May 2023 - August 2023

State Alaska
General Locality Norton Sound
2023
CHIEF OF PARTY
David R. Neff, C.H.

LIBRARY & ARCHIVES

Date _____

HYDROGRAPHIC TITLE SHEET

H13693	H13701
H13694	H13702
H13695	H13740
H13696	H13741
H13697	H13742
H13698	H13743
H13699	H13744
H13700	H13745

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the office.

FIELD No

eTrac
(a Woolpert Company)

State Alaska

General Locality Norton Sound

Project Name Approaches to Nome, AK

Scale 1:10,000 ; 1:40,000 **Date of Survey** June 2023 - September 2023

Instructions Dated March 1, 2023 **Project No.** OPR-R390-KR-23

Vessel R/V Thunder, R/V Norseman II, ASV Quimby, ASV Inez

Chief of Party David Neff

Surveyed by eTrac, a Woolpert Company

Soundings by echo sounder R2Sonic 2024, R2Sonic 2022

Graphic record scaled by N/A

Graphic record checked by N/A **Automated Plot** N/A

Verification by Pacific Hydrographic Branch

Soundings in Meters at Mean Lower Low Water

REMARKS: NAD 83 (2011), UTM Zone 3N

Times are in UTC

The purpose of this contract is to provide NOAA with modern, accurate hydrographic survey data with which to update the nautical charts of the assigned area.

SUBCONSULTANTS: Support Vessels of Alaska Inc. 3441 East End Rd., Homer, AK 99603

DoC Mapping LLC. 805 Distributors Row, New Orleans, LA 70123

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A. Vertical Control

Per the project instructions, survey data for OPR-R390-KR-23 were vertically referenced to the ellipsoid. A time dependant, 7 parameter transformation from ITRF-2014 to NAD83_2011 was performed in QPS Qinsy. A vertical separation model was provided by NOAA to transform the ellipsoidally referenced data from NAD83_2011 to MLLW. The transformation and the separation model were applied in QPS Qinsy on the vessels in real-time to achieve MLLW in the field. Achieving MLLW in the field was extremely efficient for field operations as the NALL was easily identified in real-time. The separation model was carried through the processing pipeline maintaining MLLW throughout all processing efforts.

All Vessels received GNSS satellite corrections on the Applanix POS MV OceanMaster, Applanix POS MV WaveMaster, or R2Sonic I2NS, utilizing G2+ or G4+ carrier signal from the Marinestar Global Correction System maintained by Fugro. The Marinestar system is a global real-time GNSS broadcast system that delivers corrections from a network of base stations around the world via geo-stationary satellites. The Marinestar corrections system was utilized for both vertical and horizontal positioning. Accuracies in the 10-15cm range were observed throughout the project.

For OPR-R390-KR-23, Applanix POSpac MMS was utilized for all survey data to post-process real-time positioning data utilizing Trimble’s PP-RTX implementation of Trimble CenterPoint RTX. The Trimble CenterPoint RTX correction service is delivered via internet connection and integrated into Applanix POSpac MMS 8, to aid in post processed trajectories. Improved accuracies in the 4 – 6cm range were observed in the PP-RTX results. A Smoothed Best Estimate of Trajectory (SBET) is provided by POSpac MMS and applied to survey data in QPS Qimera.

B. Horizontal Control

Survey data for OPR-R390-KR-23 were collected in NAD83_2011 UTM Zone 3N Projection.

Horizontal positioning was achieved using the same equipment and methods as described in the Vertical Control section of this document.

C. Approval Sheet



OPR-R390-KR-23

Registry Nos.

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Horizontal and Vertical Control Report

This report and the accompanying data are respectfully submitted.

Field operations contributing to the accomplishment of OPR-R390-KR-23 were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report and associated data have been closely reviewed and are considered complete and adequate as per the Statement of Work.

David R. Neff, C.H. | eTrac, a Woolpert Company | Chief of Party | November 29, 2023

eTrac, a Woolpert Company
November 2023