National Park Service

Glacier Bay Natural Resources

Statement of Work
for the
Development of GNSS-IR Real-Time Water Level Dashboard for NPS Sites with Established GNSS (NTRIP) Stations

3/31/2026

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Statement of Work (SOW)

1.0 General

1.1 Background

The mission of the National Park Service is to preserve unimpaired the natural and cultural resources and values of the National Park System for the enjoyment, education, and inspiration of this and future generations. To support this mission, reliable and real-time water level data is needed to understand changing coastal conditions and associated impacts, as well as trend information, to inform planning and management decisions. This service acquisition will provide near real-time water level measurements using Global Navigation Satellite Systems interferometric reflectometry (GNSS-IR) data for sites that have established GNSS (NTRIP) stations situated in view of the water. The data will be displayed in a publicly viewable and user-friendly dashboard for easy access and interpretation. The on-site water level data for each site will also be correlated to the nearest or most appropriate established traditional water level recording station for comparison to confirm data quality and to serve as a backup data source. GNSS-IR data generated from these NTRIP stations can be readily downloaded and ingested for post-processing and output creation.

1.2 Objective

The objective of this service contract is to ingest NPS generated GNSS Interferometric Reflectometry (GNSS-IR) data, filter/analyze, and display in a publicly viewable dashboard showing near real-time water levels (via GNSS IR calculations) for five sites that have a fixed GNSS station in appropriate view of the water. Correlate GNSS-IR data with nearest or most appropriate traditional water level recording station by determining the water level datum offset.

1.3 Scope of Work

Contractor shall download GNSS-IR files (RINEX 3 format) hosted by NPS for five sites for the time period dating back three years or to when the NTRIP station was established. Sites to be included in this contract scope of work are: Assateague Island National Seashore (MD), Cape Lookout National Seashore (NC), Fort Raleigh National Historical Site (NC), Everglades National Park (FL), and a partner site in Kotzebue, AK. Data shall be filtered and processed using GNSS IR calculations/algorithm(s) developed by the contractor or provided by NPS. A dashboard for each site shall be created that provides access to near-real time water level measurements, as well as past measurements. The dashboard shall also include water level measurements from the nearest or most appropriate traditional water level recording station for comparison. The GNSS and tidal station data shall be compared to determine the accuracy of the GNSS reflectometry

information relative to known tidal heights, and the water level datum offset shall be reported. NPS staff will review the dashboard and provide feedback to ensure contract objectives are met and dashboard can inform park management needs. The contractor shall revise/update the dashboard, as feasible, based on NPS review. The dashboard shall be hosted by the contractor for a period of one year.

This scope of work requires that the contractor provide personnel, expertise, equipment, supplies, tools, materials, and other non-personal services necessary to carry out the objective. No travel is required as part of this contract.

1.4 Period of Performance

The period of performance is estimated 9/1/2026 – 5/1/2028.

1.5 Place of Performance

This service work can be completed virtually, e.g., at the Contractor's office. No travel is required.

2.0 Specific Requirements/Tasks

In order to successfully execute this SOW, the Contractor shall:

The contractor shall coordinate with the primary point of contact (Monique LaFrance Bartley, Monique_LaFranceBartley@nps.gov) and the Contract Officer Representative (Lisa Docken, Lisa_Docken@nps.gov).

Furnish all equipment, tools, materials, and supplies necessary to perform the tasks specified in this SOW.

Conduct work at five sites that have established NTRIP stations in view of the water:

- Assateague Island National Seashore, MD
- Cape Lookout National Seashore, NC
- Fort Raleigh National Historical Site, NC
- Everglades National Park, FL
- Kotzebue, AK

Be responsive to questions and feedback from NPS staff as dashboards are created and used by parks. Provide timely support, as required, to trouble-shoot and resolve any

issues that may arise during contract period, prioritizing making sure the dashboard is active.

Provide brief quarterly progress reports and a final report.

To the extent the Contractor relies on subcontractors in executing this work, the Contractor shall have sole responsibility for ensuring the subcontractors are qualified, appropriately trained and outfitted, and that the subcontractors comply with all applicable contract terms and conditions to include but not limited to safety and health standards and regulations.

3.0 Delivery or Deliverables

1. a. Upon start of contract, post-award coordination meeting with NPS staff to review the five sites that have a fixed NTRIP station in appropriate view of the water.

    - Assateague Island National Seashore, MD
    - Cape Lookout National Seashore, NC
    - Fort Raleigh National Historical Site, NC
    - Everglades National Park, FL
    - Kotzebue, AK

    b. Cape Lookout National Seashore in North Carolina will be the initial focus of the contract work. For this first site, download GNSS-IR data from NPS and for the time period dating back three years or to when the NTRIP station was established. Data shall be filtered and processed using GNSS IR calculations / algorithm(s) developed by the contractor or provided by NPS. Create dashboard for this site that provides access to near-real time water level measurements, as well as past measurements. The dashboard shall also include water level measurements from the nearest or most appropriate traditional water level recording station for comparison. The GNSS and tidal station data shall be compared to determine the accuracy of the GNSS reflectometry information relative to known tidal heights, and the water level datum offset shall be reported.

    Payment of 30% of the contract cost provided upon completion of data processing and dashboard creation for one site.

2. NPS staff will review the dashboard and provide feedback to ensure contract objectives are met and dashboard can inform park management needs. The contractor shall revise/update the dashboard, as feasible, based on NPS review.

    Payment of 10% of the contract cost provided upon completion of updated version of dashboard for one site.

3. Repeat process (data download, post-processing, and dashboard creation and revision) for subsequent four sites.

   Payment of 40% of the contract cost provided upon completion of updated version of dashboard for remaining four sites.

4. Dashboard showing near real-time water level measurements (and correlated to water level measurements from the nearest or most appropriate traditional water level recording station for comparison) for all sites shall be hosted by the contractor and be made publicly available for a period of one year upon completion of Tasks 1 through 3.

   Payment of 10% of the contract cost provided at end of contract period.

5. The contractor is required to submit a brief report focused on the assessment and analysis of reflectometry of the GNSS-IR data for each site. The report shall include an assessment of the calculated water levels from the NTRIP station relative to the measured water levels from the traditional water level recording station. The report shall at a minimum include the average differences, graphical representations, and an appropriate assessment of the variances associated with the two measurements over at least a 1 year time period. The report may include any other information that the contractor, using their professional judgement, determines may be relevant in helping to understand the utility of using reflectometry as a measurement of water level at each site.

   Included within or separate from the report, the contractor shall also provide quote(s) for each site included in this contract to continue the dashboard as an annual service after close of this contract performance period.

   Payment of 10% of the contract cost provided upon delivery of the Report.

Notice to contractors:

All information and data related to this project that the contractor gathers or obtains shall be both protected from unauthorized release and considered the property of the government. The contracting officer will be the sole authorized official to release verbally or in writing, any data, the draft deliverables, the final deliverables, or any other written or printed materials pertaining to this contract. Press releases, marketing material, or any other printed or electronic documentation related to this project, must not be publicized without the written approval of the contracting officer.

Task/Deliverable	Due Date	Authorized Invoice Amount
1a. Post-Award Coordination Meeting	NLT 15 days after contract awarded	30%
1b. Download and process GNSS IR data, compare with existing water level data, create dashboard for NPS staff review for one site	NLT 120 days after contract awarded	
1c. Deliverable check in meeting to ensure completion	Within timeframe of Task 1b	
2a. Revise dashboard based on NPS staff review	NLT 30 days after Task 1 complete	10%
2b. Deliverable check in meeting to ensure completion	Within timeframe of Task 2a	
3a. Repeat task 1b for remaining four sites.	NLT 90 days after Task 2 complete	40%
3b. Deliverable check in meeting to ensure completion	Within timeframe of Task 3a	
4. Host publicly accessible dashboard with near real-time water level measurements for all sites for one year	Duration of 365 days after Task 3 complete	10%
5a. Final report and cost estimate for annual dashboard service	NLT 45 days after Task 3 complete	10%
5b. Deliverable check in meeting to ensure completion	Within timeframe of Task 5a	

4.0 Meetings

4.1. *Post-Award Coordination Meeting*

Within 15 business days of contract award, the Government will conduct a virtual post-award kickoff meeting (specific date and time to be mutually agreed upon).

4.2. *Other Meetings*

Additional meetings may be necessary to discuss questions or relay feedback (e.g. on the dashboard). No other meetings are anticipated; however, at the contractors request additional meetings may be established to address issues or concerns that may arise in relation to the contract.

5.0 Required Travel and Other Direct Costs (ODCs)

No travel is expected.

6.0 Government Furnished Property/Equipment/Information

No government furnished property is anticipated as needed for this project. If government furnished property becomes necessary to complete these tasks, a meeting with the COR may be required.

7.0 Special Instructions

No special instructions are required for this contract.

8.0 Glossary of Abbreviations and Acronyms

CO – Contracting Officer
COR – Contracting Officer Representative
GNSS – Global Navigation Satellite System
GNSS-IR - Global Navigation Satellite System Interferometric Reflectometry
NPS – National Park Service