Opportunity Title: Ocean Tides and Ocean Tide Loading Parameters
Opportunity Reference Code: ICPD-2023-06

Organization	Office of the Director of National Intelligence (ODNI)
Reference Code	ICPD-2023-06
How to Apply	**Create and release your Profile on Zintellect** – Postdoctoral applicants must create an account and complete a profile in the on-line application system. **Please note: your resume/CV may not exceed 2 pages.** **Complete your application** – Enter the rest of the information required for the IC Postdoc Program Research Opportunity. The application itself contains detailed instructions for each one of these components: availability, citizenship, transcripts, dissertation abstract, publication and presentation plan, and information about your Research Advisor co-applicant. Additional information about the IC Postdoctoral Research Fellowship Program is available on the program website located at: https://orise.orau.gov/icpostdoc/index.html. If you have questions, send an email to ICPostdoc@orau.org. Please include the reference code for this opportunity in your email.
Application Deadline	2/28/2023 6:00:00 PM Eastern Time Zone
Description	**Research Topic Description, including Problem Statement:** Ocean tides and ocean tide loading parameters are calculated from models of solid Earth and ocean tides. While the solid Earth tides vary rather predictably, ocean tides are more complicated mainly due to the irregular boundary (coastlines) and shape (bathymetry) of the world's oceans. That is, ocean tides remain less accurate in the coastal and polar oceans, marginal seas and estuaries primarily due to limited observations with adequate spatial and temporal resolution, scarcity of tide gauge and satellite altimetry data, tidal mixing, and non-linear hydrodynamics induced by the seafloor configuration. Despite advances in tidal modeling over the last decades, comprehensive modeling of tides with high spatial resolution in these regions remains elusive, and errors continue to propagate in many geodetic systems observables that are used for the realization of DoD/IC products such as the Earth Gravitational Model (EGM) and the World Geodetic System 1984 (WGS-84). Therefore, research in this area will focus on assessing current approaches and developing new methods to improve ocean tides and ocean tide loading, with an emphasis on techniques well suited for water bodies in close proximity to land and in high latitudes. **Example Approaches:** Research for this topic may include a variety of methods to improve ocean tide and ocean tide loading over several challenging regions including the polar and coastal oceans, marginal seas and estuaries. If successful, newly estimated parameters will be complementary to ongoing research efforts on tidal modeling over these challenging regions to support DoD/IC operational capabilities. For example, empirical approaches using Synthetic Aperture Radar (SAR) or Interferometric SAR (InSAR), are already showing considerable promise in the extraction of major tidal constituents over data-deprived challenging regions such as estuaries. With NASA's Surface Water and Ocean Topography mission launch pending in December 2022, proposals on techniques for tidal extraction from this mission will be prioritized. **Relevance to the Intelligence Community (IC):** Advances in this topic are essential for DoD/ IC's multi-domain operational superiority. Ocean tides and ocean tide loading parameters are critical for marine navigation and the removal of ocean tide loading effects causing crustal deformation on terrestrial geodetic systems. Improvements in such quantities are also important for the understanding of other geophysical signals, sea-level change, gravity, Earth rotation, ocean circulation and Earth orientation parameters.

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Key Words: #Ocean Tides; #Ocean Tide Loading; #Satellite Geodesy; #Geophysics; #Geodetic Remote Sensing

Qualifications

Postdoc Eligibility

- U.S. citizens only
- Ph.D. in a relevant field must be completed before beginning the appointment and within five years of the application deadline
- Proposal must be associated with an accredited U.S. university, college, or U.S. government laboratory
- Eligible candidates may only receive one award from the IC Postdoctoral Research Fellowship Program

Research Advisor Eligibility

- Must be an employee of an accredited U.S. university, college or U.S. government laboratory
- Are not required to be U.S. citizens

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree.
- **Discipline(s):**
  - **Communications and Graphics Design** (6 👁)
  - **Computer, Information, and Data Sciences** (17 👁)
  - **Earth and Geosciences** (21 👁)
  - **Engineering** (27 👁)
  - **Environmental and Marine Sciences** (14 👁)
  - **Life Health and Medical Sciences** (48 👁)
  - **Mathematics and Statistics** (11 👁)
  - **Other Non-S&E** (2 👁)
  - **Other Physical Sciences** (12 👁)
  - **Other S&E-Related** (1 👁)
  - **Physics** (16 👁)
  - **Social and Behavioral Sciences** (29 👁)