DUNEX: During Nearshore Event Experiment

What is DUNEX?

DUNEX is a multi-agency, academic, and non-governmental organization collaborative community experiment to study nearshore coastal processes during one or more coastal storms. The community identified a multi-phase experiment plan beginning with a pilot study in fall 2019, followed by focused storm measurements extending from fall 2020 into winter 2021 as desired by participating science teams. In addition, the community identified the northern Outer Banks, North Carolina, (extending from the Cape Hatteras National Seashore north to the Virginia border) as the region of focus, due to the prevalence of coastal storms that impact the area annually.

Background

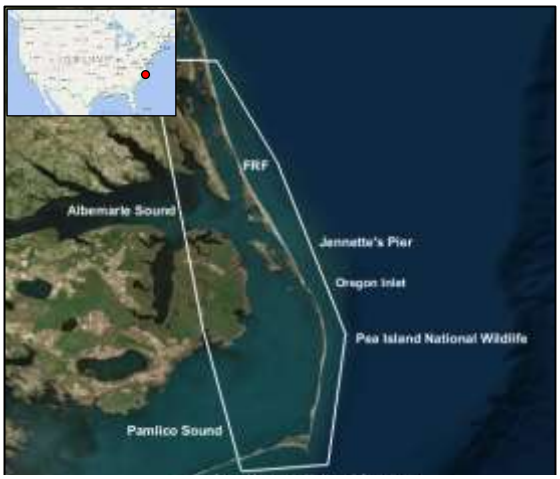
The nearshore coastal community identified three primary research needs, as documented in *The Future of Nearshore Processes Research* (2015), which included an improved understanding of:

- Long-term coastal evolution due to natural and anthropogenic processes.
- Extreme events: Flooding, erosion, and the subsequent recovery.
- The physical, biological and chemical processes impacting human and ecosystem health.

DUNEX will improve basic understanding and predictive technologies for extreme coastal storm impacts.

Community DUNEX Goals:

- Improve prediction of storm processes and impacts;
- Estimate and validate numerical model accuracy for storm processes;
- Identify and reduce sources of error for storm processes;
- Improve strategies for short- and long-term coastal resilience; and
- Develop more effective communication methods for coastal communities impacted by storms.



DUNEX is planned for several storm landfall locations along the Outer Banks, NC, with continual measurements at the USACE's Field Research Facility (FRF) in Duck, NC

The proposed schedule for DUNEX is as follows:

- August-October 2019: DUNEX pilot project to test methods, equipment, and logistics.
- August 2020 – January 2021: DUNEX measurements prior to, during, and following one or more storms.

U.S. Coastal Research Program (USCRP) Support

The USCRP fully supports DUNEX and is helping to organize and facilitate the execution of this experiment by:

- Providing a community website for information, discussion, data sharing and access
- Organizing agency support data collection efforts (e.g. bathymetry, airborne & terrestrial lidar, UAS flights etc.)
- Coordinating logistical support and facilitating the development of a logistics team made up of science Principal Investigators (PIs) in collaboration with an NSF-funded Convergence-RAISE grant (OCE-1848650**)**.
- Assisting in coordinating with local stakeholders
- Helping promote DUNEX to a multi-disciplinary audience to ensure diverse data collection
- Coordinating training classes and student volunteers to further the career development of U.S coastal researchers

Logistics Support: Experiment logistics will be coordinated from the FRF. Participants will be asked to pay a fee ranging from $500 to $4500/week depending on their support needs. Please contact Patrick Dickhudt (Patrick.J.Dickhudt@usace.army.mil) and Kate Brodie (Katherine.L.Brodie@usace.army.mil) for more information.

Updates and additional DUNEX details will be posted to the USCRP website: https://uscoastalresearch.org/ .