



# DUNEX

## The 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 coastal storms. The multi-phase experiment, taking place on the Outer Banks of North Carolina, began with a Fall 2019 pilot study and now is being followed by the full experiment, primarily taking place from Fall 2021 through that winter. By leveraging research efforts from different groups, **DUNEX will improve basic understanding, predictive capabilities, and observational technologies for extreme coastal storm impacts.**

**Background** The nearshore coastal community identified three primary research needs, as documented in *The Future of Nearshore Processes Research* (2015), including extreme event processes and impacts. DUNEX aims to address this need, including flooding, erosion, and the post-event recovery, by collecting a shared data set quantifying impacts and processes during an extreme storm. The experiment also addresses the USCRP goal of improving communication between scientists and the coastal community in order to facilitate the translation of scientific research into use.

### DUNEX Goals:

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

The majority of the main experiment's activities will run from approximately August 2021 – March 2022, consisting of measurements prior to, during, and following coastal storms. This work builds upon the experiment's pilot stage, which took place during the Fall of 2019 and tested data collection methods, equipment, and logistics.

### U.S. Coastal Research Program (USCRP) Support

The USCRP is helping organize and facilitate the execution of DUNEX through a variety of activities including:

- Providing forums for information, project planning, and collaborative discussions as well as a community website which will provide details on ongoing experiments and access to data.
- 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 PIs in collaboration with an NSF-funded Convergence-RAISE grant (OCE-1848650).
- Assisting in coordination with local stakeholders
- Helping to 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 out of the FRF. Please contact Patrick Dickhudt ([Patrick.J.Dickhudt@usace.army.mil](mailto:Patrick.J.Dickhudt@usace.army.mil)) for logistics information.

**More DUNEX details** are available online on the USCRP website: <https://uscoastalresearch.org/>. You can also contact [Alexander.D.Renaud@usace.army.mil](mailto:Alexander.D.Renaud@usace.army.mil) for more information.

Landfall-specific observations are planned for several locations along the Outer Banks, NC, with continual measurements at the USACE's Field Research Facility (FRF) in Duck, NC

