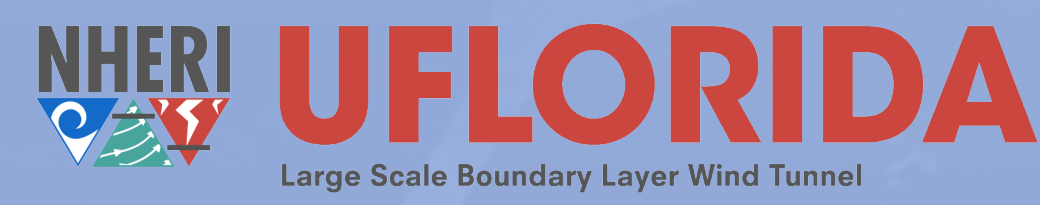




Project Sentinel: A Rapidly Deployable Platform to Study Wind, Hydrodynamic, and Biochemical Conditions on the Beach During Extreme Storms



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SENTINEL VISION

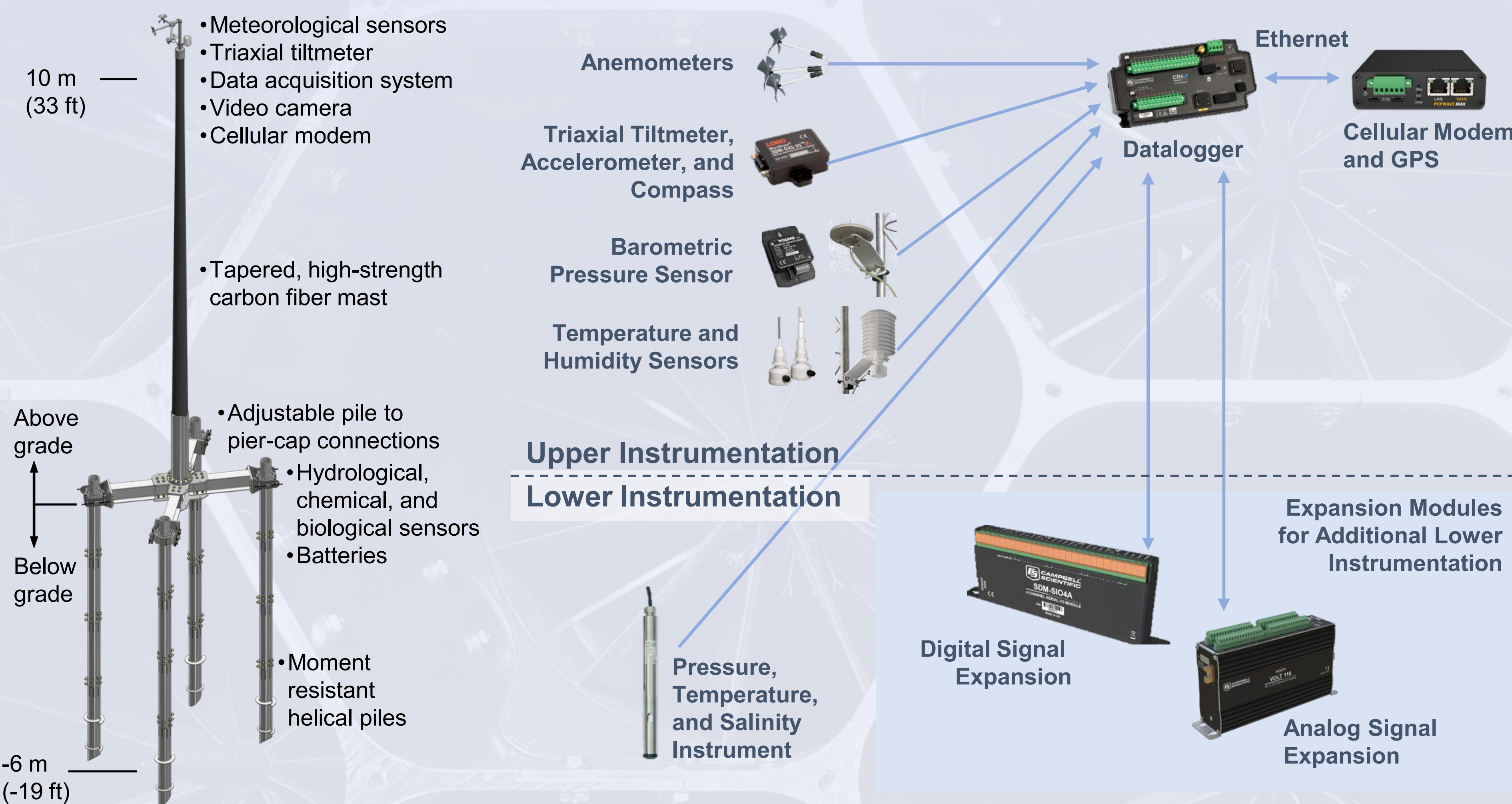
Sentinels fill an observational gap along the beach, providing collocated and synchronized measurements in areas where coastal storms severely damage civil and coastal infrastructure.

- Sentinels are intended for **temporary installation** on the beach between the mean tidal datum and the sand dunes and are engineered to **operate in and measure extreme wind, storm surge, wave, and hazardous water quality** conditions.
- Sentinels are envisioned as a **shared-use resource**, i.e., a hardened IoT platform set up in the right place at the right time to study wind and wave loads, coastal erosion and morphology changes, water quality, and other processes during extreme coastal storms.

RESEARCH ACTIVITIES ENABLED

- Characterizing wind, storm surge, and wave impacts to civil and coastal infrastructure
- Predicting impacts to the nearshore water-land system
- Water quality monitoring during tropical cyclones and severe storms
- Improving surface wind intensity estimates (numerical weather prediction, remote sensing)

MARK I DESIGN



MARK I INSTALLED



FIELD INSTALLATION



(a) GPR survey, (b) helical pile installation, (c) pier cap installation, (d) securing the 10-m mast, (e) inserting the instrumentation package, and (f) standing up the mast