Towards Implementing the Operational Use of HFR Wave and Wind Extraction

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High frequency radar (HFR) provides the unique ability to extract wave information from the secondary energy return on a spatial scale specific to the operating frequency. The unique, heterogeneous wave climate associated with the Puerto Rico coastline offers motivation for future operational use of HFR-derived significant wave height.

HFR Spectrum and Wave Derivation

Release 8 Software

Before Hurricane Maria made landfall, CODAR's Release 8 software was installed on HFR site MABO. The upgrade implements an "outlier" algorithm and computes the mean $H_s$ from all range cells. Preliminary comparisons with buoy point-measurements are above.

HFR – Wind Measurements

Depending on the radar transmit frequency, wave periods below $L/2$ cannot be resolved (top right). However, a huge advantage of these systems is the ability to provide wave measurements on a spatial scale.

HFR – Waverider Comparisons