

Wave-breaking detection in the coastal region: insights from the combination of remote sensors

The present work is based on the analysis of the data collected by remote sensors installed nearby a sandy beach of the Adriatic Sea (Italian side), specifically a video-camera system and an X-band radar.

The first aims are the reconstruction of the seabed depth in the nearshore area and the retrieval of the main wave characteristics. Then, the use of video images (and the relevant pixel intensity gradient) enables one to separate and distinguish breaking from non-breaking waves, together with features like crest height and celerity.

Such results are useful to get further insights on the identification of breaking waves also from radar signals, which ensures longer and continuous recording times, as well as the possibility to calibrate numerical models for the nearshore environments.