

SHELTERING EFFECT OF ISLANDS ON THE PACIFIC SWELL.

J. Humeniuk¹, S. Ponce de León², N. Violante-Carvalho¹, L. M. de Carvalho³, C. Guedes Soares²

Paper topic: Coastal waves

The sheltering effect of islands on swell in the Pacific Ocean is studied in the present work. We retrieved wave spectra from ERS-2 SAR (European *Remote Sensing* Satellite 2, Synthetic Aperture Radar) measurements in the shadow zone of the islands to investigate the swell evolution in the lee side. We inter-compared the swell spectra retrieved in the sheltered and non-sheltered zones from SAR and wave buoys from the National Data Buoy Center, moored nearby. Partitioning techniques were employed to isolate the long, swell waves detectable by SAR from the shorter, wind sea waves that are not discernible. Several SAR images were selected from the European Space Agency (ESA) data base that satisfied a threshold minimum wind speed and particular wave propagation directions for the area. Attention was also focused on the effects of the islands on the directional spreading. Additionally, the altimetry data was used to assess the islands effect at large distances (of the order of 1000 Km) which are a matter not yet well understood. Information from a third generation wave model was used to compare the directional wave spectra with the remote sensing data employed.

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¹ Federal University of Rio de Janeiro, PEnO COPPE UFRJ, Brazil n_violante@oceanica.ufrj.br

² Centre for Marine Technology and Engineering (CENTEC), Instituto Superior Técnico (IST), Technical University of Lisbon (UTL), Portugal soniaponcedeleon@mar.ist.utl.pt

³ Rio de Janeiro State University (UERJ), Brazil luizmc@gmail.com

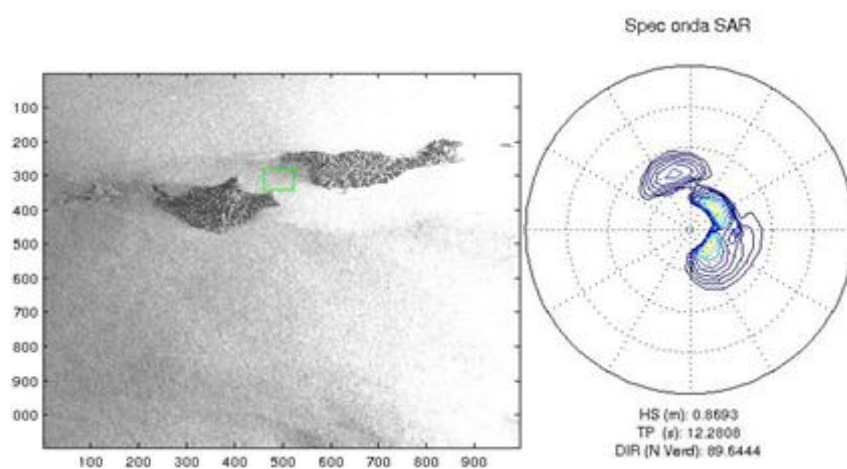


Figure 1. SAR image (left) and the directional wave spectrum in the sheltered zone of the islands (right) for 2nd December 2007 at 18:39 UTC.