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The Response of Wave Directions to Changing Wind Directions

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ABSTRACT

From the premise that the net growth of wave energy induced by wind is centered around the wind direction, a relaxation model for the response of the main wave direction to changes in the wind direction for young sea states is derived. The time scale of this relaxation model is found to be equal to the time scale of the wave energy growth. A quantitative version of the model, based on universal growth rates of the waves under the local wind is found to be consistent with observations obtained in this study and with a published dataset.

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