

Abstract Submitted
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Identifying features of Kelvin ship wakes via spectrogram analysis¹ SCOTT MCCUE, RAVINDRA PETHIYAGODA, TIMOTHY MORONEY, Queensland University of Technology — A method for observing and measuring ship wakes is to employ an echo sounder to record the surface elevation over time as a ship passes nearby. The resulting output signal corresponds to the cross-section of the ship wake taken in the direction of travel. The surface elevation at the echo sounder can be visualised as a spectrogram through the use of many short-time discrete Fourier transforms. In this study, we identify and explain features of spectrograms of ship wakes, concentrating on the differing effects that linearity and nonlinearity have on the wave time-frequency signal. These results have the potential to contribute to practical scenarios in which spectrograms are used to calculate the energy contained within a given ship wake and the effect that the propagating wake wash will have when it interacts with the coastal zone.

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