

Abstract Submitted
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Acoustic Franz Wave Scattering From Circular Cylinders ANTHONY SMITH, Washington State University — Previous acoustic research on backscattering from cylinders partially-exposed at an air/water interface revealed a scattering feature at low exposures and grazing angles that did not correspond to either specular (direct) reflection or any other previously-studied acoustic scattering feature. Franz waves, which have speed less than the speed of sound in water, and which can follow the curved surface of the cylinder, were identified as the likely source of this feature. An exact solution available for a half-exposed cylinder, when converted from the frequency to the time domain for different grazing angles, shows three features that have the expected timing of Franz waves. These three different features correspond to three different Franz paths, which differ in the number of times they reflect off the air/water interface. Further experiments showed Franz scattering features at various exposures and grazing angles, at both air/water and sand/water interfaces.

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