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Quantifying the Influence of Sea Ice on Ocean Microseism in Alaska

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Microseism is potentially affected by all processes that alter ocean wave heights. Because strong sea ice prevents large ocean waves from forming, sea ice can therefore significantly affect microseism amplitudes. Here we show that this link between sea ice and microseism is not only a robust one but can be quantified. In particular, we show that 75-90% of the variability in microseism power in the Bering Sea can be predicted using a fairly crude model of microseism damping by sea ice. The success of this simple parameterization suggests that an even stronger link can be established between the mechanical strength of sea ice and microseism power, and that microseism can eventually be used to monitor the strength of sea ice, a quantity that is not as easily observed through other means.