

## **Acoustic gravity waves**

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### **Abstract**

Acoustic—gravity waves are compression—type of waves propagating, at near sound speed in water, with amplitudes governed by the restoring force of gravity. They are generated, among others, by wind—wave interactions, surface waves interactions, and movements of the tectonic lithosphere plates. Studying acoustic-gravity waves is important as they explain various natural phenomena, and can be applied for improving technical solutions in water, environmental and coastal sciences.

In this lecture we discuss the generation of acoustic—gravity waves by underwater earthquakes; knowledge of their behaviour with water depth can be applied for the early detection of tsunamis. We also discuss their generation by interaction of surface gravity waves, which explains the major role acoustic gravity waves play in transforming energy from the ocean to the crust, as part of the microseisms phenomenon; and their contribution to the mixing of deep oceans.