

Observations of estuarine circulation and solitary internal waves in a highly energetic tidal channel.

At the ocean surface there are waves (the waves that crash on the beach), that are between two fluids (water and air) with a different density. Interestingly, the ocean itself is made up of different layers of water, that have different densities. Just like the waves at the surface, there are waves between these layers. These waves are called internal waves. Internal waves are very important for the ocean, because they can break, transport material up and down the ocean and as a result also be a source of food for fish. Sometimes, when the conditions are right, these internal waves can be generated just due to a random perturbation. These are called, resonantly generated internal waves.

This study provides, perhaps the first, observation of resonantly generated internal waves. They are observed in the Marsdiep Tidal inlet (Netherlands), which is a shallow estuary with very strong tidal currents and is subject to freshwater outflow from Lake IJssel.