



## **Gravity waves from an extratropical cyclone hitting Iceland**

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During the Holuhraun volcanic eruption in 2014, atmospheric waves of various frequencies were observed with high accuracy.

On 1 October 2014, gravity waves with a period of 200-300 seconds with a velocity between 4.5 and 10 m/s were detected.

The waves travel from WSW to ENE and appear to emanate from an exceptionally deep extratropical cyclone to the SW of Iceland and an associated windstorm impinging SW-Iceland. The atmosphere is conditionally unstable and with no clear inversions below the tropopause which is located at about 430 hPa. The vertical wind profile is relatively uniform, featuring southerly winds of about 50 m/s reaching from mid-tropospheric levels and into the stratosphere. Thus, the atmospheric conditions are relatively close to conditions prescribed for the propagation of linear gravity waves.