

# **Assessment of Modal Characteristics of Building by Means of Ground Based Radar and Ambient Vibration Measurements**

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## **ABSTRACT:**

Vulnerability of structures exposed to dynamic actions is a very active domain research for the last years. Seismic background noise measurement networks should improve our knowledge on the dynamic behaviour of structures. In order to determine the modal characteristics (eigenfrequencies, vibration eigenmodes, and damping) of a building in reinforced concrete (located in Font Romeu, France), ambient vibration measurements were carried out based on two different techniques. A set of measurements was carried out using Güralp equipment designed to record seismic background noise in network. 8 stations with 10 seconds seismometers and WIFI links were located in the structure according to two different configurations: the first on the roof the second in a vertical profile. Each configuration was measured 15 minutes. On the other hand, ground based radar interferometric measurements were carried out. The instrument emits micro-wave signals that are backscattered by elements on the front of the building. The sensor measures phase variations that can be interpreted as displacements of the targets according to the line of sight with a sampling rate of 100 Hz. 8 data sets corresponding to different positions of the instrument were acquired. This poster describes the experiment and the resulting measurements. A discussion based on the comparison of both techniques is carried out.