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## Overview of observed seismic signals on Mars

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InSight landed on Mars in late November 2018, and the SEIS package, which consists of one short period and one very broadband sensor, was deployed on the surface shortly after. The data returned by the InSight is monitored in a timely manner by the Marsquake Service (MQS), a ground segment support group of InSight that has been set up to establish and maintain the seismicity catalogue. The MQS has at least one member on duty who routinely checks the data for any type of seismic signals. All suspicious signals are then communicated to the InSight team after evaluation.

To date, MQS has identified more than 365 events which are classified into two general families as high and low frequency, with each family having unique features in terms of their energy content. The most distinct quakes detected so far belong to the low frequency family that occurred on Sol 173 and 235, and have clear P and S-wave arrivals that reveal a distance around 30 degrees east of the lander, pointing the region in the vicinity of Cerberus Fossae. In addition to the signals of seismic origin, the SEIS data contain features that originate from other sources such as atmospheric effects or electronics. Part of these non-seismic observations may resemble quakes which may lead to wrong interpretations, and therefore require careful analysis.

Here, we show examples of signals of both seismic and non-seismic origins. We describe the characteristics of these observations in time and frequency domains in order to give an overview of martian data content.