INSIGHT SEIS data and dataless dynamic production.

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Seismologist are used to handle seismometer dataless in addition to the raw data generated by the instruments, and for classical seismometer, the dataless is fixed and provided with the instrument. No change in the sampling rate is also made.

As Insight Seismometer evolve in a very demanding environment, both the sampling rate and instrument configuration might change, especially due to possible limitation in the transmission bandwidth. The instrument configuration varies also on several level. Primary acquisition may vary, according to the operational needs of scientist or the engineering team. According to the external environment used fir filters may be changed, especially during HP3 hammering sessions and calibrations. Each time, we need the to set a specific FIR filter on the acquisition electronics and return back to a classical one just after the hammering or calibration session ends. The datalogger processing varies depending on the way some channels combination has to be made. Insight dataless provides also the possibility to detect a variation of the instrument transfer function during the mission and set it on a established date and time.

Insight dataless has to take into account all the configuration changes and report it into the dataless which may required to be updated for every telemetry.

Data processing is based on flight software configuration files which describes the data flow from the acquisition electronics to the continuous telemetry waveform, including used FIR filters or channels combination if needed. This also determines the continuous data sampling rate.

The link between the channel and its environment is described in CFCT files containing the channel starting and ending date and the used software configuration file during this period. This period determines the fir filters used by the acquisition electronics, or transfer function if they change.

All these needs have been satisfied using a python based program which fetches in arborescent directories whom names are related to the utilisation date and time and contain the needed information and its expiration date for the acquisition electronics part for the first part of the channels dataless. This program also reads the flight software configuration files to provide the second part of the dataless until the continuous or the event waveform.

All the above process is checked every week by the team, which also check for gaps and any off-nominal operations. Gaps, mostly due to transmission issues, can be later filled by specific event request, in addition to those associated to Mars Quake Service detected events At the end, all SEIS data, including their datales, are available through requests made to the Mars SEIS data service (https://www.seis-insight.eu/en/science/science-summary), IRIS-DMC and PDS.

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Keywords: Insight, Dataless, Software

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