



## **Yet another monitoring tool (yam) using correlations of ambient noise – Showing velocity variations due to thermal and tidal forcing in Northern Chile**

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The yam software (yet another monitoring tool using correlations of ambient noise) allows to apply the whole established processing workflow, i.e. time and frequency domain normalization techniques, parallel computation of cross-correlation functions and determination of velocity variations with time-domain stretching. Using only standard Python packages, ObsPy, HDF5 file format and a simple-formatted, but powerful configuration file, yam was designed to provide users a quick start. Still, it allows advanced users to tune different aspects and process the same data with different options (e.g. in different frequency bands). Correlations and stretching results are stored inside HDF5 files. Correlations can be read with ObsPy's internal read function or can be converted to different file formats for alternative processing.

The software is used to expose periodic seismic velocity changes due to thermal and tidal forcing at station PATCX, Northern Chile. Material near this station showed a high sensitivity to shaking and thermal stressing in previous studies. In this study, data in the frequency band 1 to 10 Hz is auto-correlated in one hour segments. The series of estimated velocity variations is analyzed in frequency domain. Formerly found velocity variations with a periodicity of 1 day due to temperature fluctuations can be confirmed. Additionally, seismic velocity variations are found to be affected by tidal stressing. At least, one principal tidal component at 12.42 hours is identified.