Parametric time series –video sincronization tool

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In recent years, the development of experimental methodologies and techniques have facilitated the study of volcano-conduit dynamics through high-sensitive laboratory experiments; in which parametric time series and high-resolution videos have been analyzed separately. We present a computational tool that synchronizes parametric time series with high-resolution videos in cases where the experimental setup allows the physical phenomena to be filmed. The open-access program has been writen in Python using ObsPy (time series processing) and OpenCV3.0 (image processing) libraries and runs in different operating systems. It scales parametric time series and video frames in order to run both at same time and correlate characteristics of interest. In addition, the program can display multiple-parameter time series in one frame to study and interpret them together. We present some examples where elastic signals were sincronized with high-resolution videos in experiments that aim to understand elasto-dynamic behavior of conduits and the fluid-rock interaction. Our results display good correlation between the elastic characteristics shown in signals and the physical phenomena observed in the video. This program is an alternative tool for processing experimental data of parametric time series correlated with video frames. The program will be available under request to the main author's email.

