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SismoVi: a pre-/post-processing tool for seismic wave modelling analysis

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Seismic wave modelling analysis in complex geological structures is based on three crucial phases: data pre-processing, numerical simulation and data post-processing. In order to be effective, numerical simulation studies need to use efficient computational algorithms and pre- and post-processing tools based on computer aided modules. The ultimate goal of these tools is to facilitate the preparation of the geological models and to speed up the related definition process of the input data needed by the wave simulation codes. Moreover, they must help in the final analysis of the results obtained from the numerical experiments. SismoVi has been developed having in mind these needs and the specific constraints which are typical in geophysics and geology. It is an interactive tool based on the Python scripting language and on the wxPython graphic library for the GUI interface. It has been developed with a strong emphasis on portability and flexibility. Being based on open source libraries, it is in fact portable on Unix/MacOSX/Linux and Windows computer systems. The full power of the Python language is available to the end user who can easily interact with the data on the fly, making transformations of them and viewing the results. The available scripting syntax, which is very similar to that of FORTRAN 90, Matlab and Mathematica, allows for very efficient evaluations.