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ObsPy: A Python Toolbox for Seismology/Seismological Observatories

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Python enables the user to combine the advantages of a fully grown programming language with the flexibility of an interactive scripting language. Its extensive standard library and many freely available high quality scientific modules enable rapid development.

ObsPy (http://www.obspy.org) extends Python's capabilities and offers various tools for seismological tasks. It provides the ability to read and write many common waveform file formats (e.g. MiniSEED, SAC, GSE2, SEISAN, ...) as well as many often needed routines for filtering, picking, triggering, instrument correction, plotting, array analysis, ... It is also able to retrieve data from ArcLink (http://www.webdc.eu), Fissures (http://www.iris.edu/dhi) and SeisHub (http://www.seishub.org).

Metadata can be read from SEED as well as XML-SEED files and conversion between both formats is possible. XML-SEED is a XML representation of SEED which results in a greatly enhanced readability.

The goal of the ObsPy project is to facilitate rapid application development for seismology which so far resulted in several programs for different uses.

Furthermore NumPy (http://numpy.scipy.org) and SciPy (http://scipy.org) offer a wide variety of numerical multidimensional array programming methods. Together with IPython (http://ipython.scipy.org) and Matplotlib (http://matplotlib.sourceforge.net) ObsPy offers a powerful, text-based and easy to learn interactive environment consisting entirely of free software packages.

ObsPy has a modular architecture which aims at minimizing the dependencies and is available under the GPL/LGPLv3 licences.