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# Collections

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## Seismological softwares or packages

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### 1.1 General

1. ObsPy <http://docs.obspy.org/>

ObsPy is an open-source project dedicated to provide a Python framework for processing seismological data. It provides parsers for common file formats and seismological signal processing routines which allow the manipulation of seismological time series.

### 1.2 Simulations

1. AxiSEM <https://geodynamics.org/cig/software/axisem/>

AxiSEM AxiSEM is a parallel spectral-element method for 3D (an-)elastic, anisotropic and acoustic wave propagation in spherical domains. It requires axisymmetric background models and runs within a 2D computational domain, thereby reaching all desired highest observable frequencies (up to ...

2. SpecFEM2d <https://geodynamics.org/cig/software/specfem2d>

SPECFEM2D simulates forward and adjoint seismic wave propagation in two-dimensional acoustic, (an)elastic, poroelastic or coupled acoustic-(an)elastic-poroelastic media, with Convolution PML absorbing conditions.

3. SpecFEM3d <https://geodynamics.org/cig/software/specfem3d>

SPECFEM3D Cartesian simulates acoustic (fluid), elastic (solid), coupled acoustic/elastic, poroelastic or seismic wave propagation in any type of conforming mesh of hexahedra (structured or not.) It can, for instance, model seismic waves propagating in sedimentary basins or any other regional geological model following earthquakes.

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## 1.3 Phase picker

1. Generalized Seismic Phase Detection with Deep Learning

<https://github.com/interseismic/generalized-phase-detection>

This is a simple implementation of the Generalized Phase Detection (GPD) framework for seismic phase detection with deep learning. GPD uses deep convolutional networks to learn generalized representations of millions of P-wave, S-wave, and noise seismograms that can be used for phase detection and picking.

2. PhasePApy <https://github.com/austinholland/PhasePApy>

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## CHAPTER 2

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### Indices and tables

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