

# Seismogram picking tool user guide



Tool for picking phases or points on seismograms contained in a SEED file. The picks are saved into a [QuakeML](#) file and can be used later in other applications (e.g. [Source Parameter Estimation applications](#)).

open in IS-EPOS PLATFORM

**CATEGORY** Seismogram Analysis Tools

**KEYWORDS** Waveform viewing, Picking on waveform, Format conversion

**CITATION** Please acknowledge use of this application in your work: IS-EPOS. (2019). *Data Handling Applications* [Web applications]. Retrieved from <https://tcs.ah-epos.eu/>

## Step by Step

Thanks to the Seismogram picking tool, the User may observe, interact and elaborate waveforms corresponding to signals recorded by seismic stations and perform various actions such as phase determination and point picking. These pickings are saved by the system and can be further used in waveform-based applications such as 'Spectral Analysis', 'Source Localization' and 'Moment Tensor Inversion'. The application takes as input seed files and enables picking on any number of contained traces. The main part of the application interface is displayed in [Figure 1](#) (additional options appear when clicking on the miniature of the waveform) and described below:

1. The user selects the component(s) that he/she wishes to be displayed in the screen. East-West, North-South, Vertical.
2. Horizontal zooming in-out.
3. Vertical zooming in-out.
4. Undo all zooming.
5. Select between phase (start and end point) picking and single point picking.
6. Only P-wave is enabled in this Application (In other Applications, selection between P-wave and S-wave picking are possible, see "Waveform viewer guide" in "Visualization" chapter).
7. Undo picking.
8. Horizontal zooming tool. The User may alternatively zoom in-out the waveform by clicking on this small vertical bar and move the mouse left-right. The User may also click and drag the selected (shaded) part of the waveform left and right.
9. Collapse the details of the waveform.
10. Move the selected (zoomed) part of the waveform left-right.

Note that Displacement, Velocity or Acceleration can be selected as response unit for the waveforms (see '*Seed Response Calculation*' section in Data Handling applications chapter).

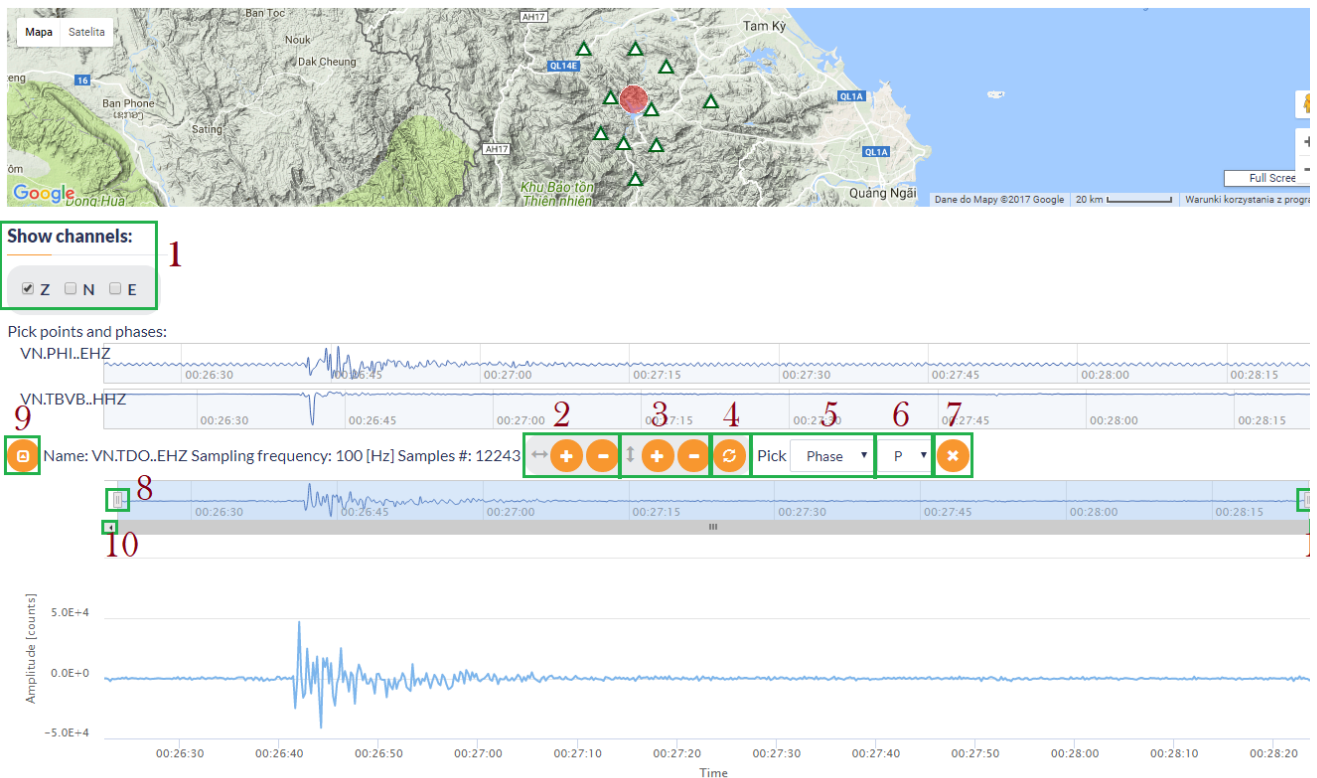


Figure 1. Snapshot from the use of the "Seismogram picking tool" application.

## Picking Phases

The User has to pick a starting and an ending point from the Vertical component of a station (\*\*Z channel - see Figure 2). Then, he/she has to repeat this picking for the other stations.



**Figure 2. Phase picking demonstration for S (upper frame) and P (lower frame) waves.**

The number of picked phases are counted by the system. Once the picks have been chosen, the User may proceed to further analysis by clicking the green "Run".

The output of the application is an XML file ('picks.xml') in **QuakeML format**, and which can be used for any Waveform-based application (i.e. 'Moment Tensor Inversion', 'Earthquake Spectra', 'Source Location').

As an optional action, the user can select the seismic events from the seismic catalog as second input to visualize it along with the stations taken from SEED file on the map presented in [Figure 1](#).

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