



## **The *geodeZYX toolbox* : a versatile Python 3 toolbox for geodetic-oriented purposes**

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Operations such as time and coordinate conversions and data cleaning are routine tasks in geodesy and geophysics. Nevertheless, simple and efficient high-level functions to help those kinds of jobs are barely available, and are developed, again and again, by each student, engineer for each new project, and even by senior scientists.

On another hand, Python became little by little within the last decade a well-used programming language in the academic world. Despite the fact that countless toolboxes already exist in Python for scientific purposes, none really exists for geodetic-oriented purposes.

The *geodeZYX toolbox* aims to fill this gap. The objective of this toolbox, written in Python 3, is to provide a simple but useful, simple but efficient set of functions to help geodesists and geophysicists to spend less time on the pre-processing steps and therefore gain in efficiency to focus faster on their research, according to the KISS Principle.

Our presentation will introduce major functionalities of the *geodeZYX toolbox*. It includes basic coordinates, angle and time conversion functions for various cases and versatile usages. It also includes a module for a quick import of coordinate sets determined by various GNSS geodetic software (EPOS, GAMIT/TRACK, GINS, GIPSY ...) The time series can be easily cleaned using simple but efficient outlier detection methods, based for instance on a threshold criterion or the Median absolute deviation approach. They can also be exported in a batch mode as uniformed plots or to several file text formats, including formats of the trend estimation software HECTOR [Bos et al., 2013] and MIDAS [Blewitt et al., 2016].

The toolbox is a free and open source software, and can be easily downloaded from an online git repository.