

Beo

Elco Luijendijk, elco.luijendijk@geo.uni-goettingen.de

Table of contents

1. Introduction
2. Installing & running
3. Required modules
4. Model input & output
5. Making figures
6. Model Background
7. Explanation of model parameters

Introduction

Installing & running

Required modules

Model input & output

Input:

Multiple model runs

Output

Making figures

Model Background

Explanation of input csv files

Required input files:

Optional input files:

Apatite fission track data

file: `aft_samples.csv`

- columns:
 - `well` : well name
 - `sample` : sample name
 - `depth`

- n_grains
- AFT_age
- AFT_age_stderr_plus
- AFT_age_stderr_min
- kinetic_parameter
- kinetic_param_min
- kinetic_param_max
- length_mean
- length_std
- data_type

Explanation of model parameters

The parameters that control Beo are stored in a python file called `model_parameters.py` in the class `ModelParams`. The following section describes each of the model parameters.

Data types

The parameters can be several python data types:

- boolean: this is a variable that can either be True or False. Used to control model options, such as `create_mesh_fig = True`
- numbers: numbers can be either float (2.3) or integers (2).
- strings: text that is bracketed by " or ", like this: "this is a string".
- lists: a list of numbers, strings (text) or a mixture of these. Example: `phi0 = [0.45, 0.65, 0.45]`
- numpy arrays: arrays containing numbers. Similar to lists, but can only contain numbers. Arrays can either look like this: `example_array = np.array([1, 2, 3])`, which means an array of three numbers 1, 2 and 3. Other options are creating a range of numbers: `Ls = np.arange(2500, 52500, 2500)`, which creates an array called `Ls` that contains a range of numbers from 2500 to 52500, with steps of 2500. See the numpy documentation (<https://docs.scipy.org/doc/numpy/user/basics.creation.html#arrays-creation> and <https://docs.scipy.org/doc/numpy/reference/routines.array-creation.html#routines-array-creation>) for more options to create arrays.

General parameters

- `output_folder`: string. directory to store model output
- `output_fn_adj`: string, name to add to output files generated by Beo = 'beowawe'