

Instructions on running the calculations to reproduce the results presented in the paper:

“ODFTEX: A continuum model for texture evolution with dynamic recrystallization”

by Neil Ribe, Manuele Faccenda, Brandon Paul VanderBeek

The codes are available with the software package [ECOMAN3.0-geodynamics-Beta](#).

Single aggregate texture

The pole figures presented in Fig. 3 and 5 can be reproduced with the software included in the folder ODFTEX, which contains:

- the code `odftex.f90`
- the input file `odftex.inp`
- compiling instructions in `odftex.mak`
- the MATLAB script `plotODFTEX.m`

The input file is set to run a simple shear experiment up to 140% of strain, and with recrystallization ($\lambda = 3$).

The pole figures can be generated by installing the MATLAB-based software [MTEx](#) (version 5.10 or higher), and then running the MATLAB script `plotODFTEX.m`.

Multiple aggregate texture in the two-dimensional kinematic steady flow model

The results presented in Fig. 6 can be reproduced with the software included in the folder D-REX_M, which computes the upper mantle textures for the 2D kinematically prescribed steady flow contained in `cookbooks/2Dcartesian_convection/vtp0001.h5` with the following steps:

- load the intel and hdf5 modules
- compile the code D-REX_M.f90 by executing the file `bash_compile` (`chmod +x bash_compile; ./bash_compile`)
- submit the job as shown in `pbs_drex_m` (i.e., `mpirun -np 2 ./drex_m ../cookbooks/2Dcartesian_convection/drexm_input.dat`)

In the input file `../cookbooks/2Dcartesian_convection/drexm_input.dat` define the parameter:

- `texmod = 0` to compute upper mantle textures with D-REX_M (Fig. 6b)
- `texmod = 1` to compute upper mantle textures with ODFTEX (Fig. 6c).

Multiple aggregate texture in the three-dimensional subduction zone model

The results presented in Figs. 7 and 8 are based on the time-dependent evolution of the model and require the velocity, pressure and temperature (V-T-P) fields of the large-scale geodynamic model store in 190 output files. The files amount to ~21 GB of data, and will be provided upon request to Manuele Faccenda (manuele.faccenda@unipd.it)