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, 4 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 ($\lambda = 3$) as shown in Fig. 4b.

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. 7 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 exectuing 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. 7b)
- texmod = 1 to compute upper mantle textures with ODFTEX (Fig. 7c).

Multiple aggregate texture in the three-dimensional subduction zone model

The results presented in Figs. 8 and 9 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)