Towards ready-to-use open source automated geodynamic diagnostics and fair representation of numerical models

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Advances in numerical modelling of geological processes are based upon, and driven by, diagnosing models. Such model diagnostics are often performed by hand, by eye, or else, by individually written routines that are neither tested or testable, nor reproducible.

Collecting geodynamic diagnostics, automating them in a robust manner to be applied to the multitude of different geodynamic models and codes, and providing them back to the community can foster additional progress within the modelling community.

In this presentation, I introduce the latest version of StagLab (Crameri 2018; www.fabiocrameri.ch/StagLab; currently version 5.0), which is a growing resource of geodynamic diagnostics, openly available, and easy to use. StagLab works seamlessly with StagYY (Tackley 2008) and can be made compatible with any other mantle convection code, if the respective developers start to provide machine-readable and documented output. Moreover, StagLab represents model data fairly to its users and to the readers of their papers. StagLab allows its users, whether professional or beginner, to produce state-of-the-art post-processing of geodynamic models, and publication-ready figures and movies, in a blink of an eye; all fully tested, testable and reproducible.

*Crameri (2018), Geodynamic diagnostics, scientific visualisation and StagLab 3.0, Geosci. Model Dev., http://dx.doi.org/10.5194/gmd-11-2541-2018*