



Surveying the users of the SAFE toolbox: what happens after an open-source software gets downloaded?

Francesca Pianosi, Thorsten Wagener, Fanny Sarrazin, and Valentina Noacco

University of Bristol, Department of Civil Engineering, Bristol, United Kingdom (francesca.pianosi@bristol.ac.uk)

In 2015 we released an open-source toolbox called SAFE (Sensitivity Analysis For Everybody) that implements a range of state-of-the-art methods for global sensitivity analysis (GSA) of mathematical models. The toolbox has gained a lot of interest and currently has been downloaded by >1300 researchers from >50 countries. Given the generic nature of GSA, which can be used to investigate the propagation of uncertainty in any type of mathematical model independently of the model characteristics and domain of application, SAFE has been used by researchers active in very different disciplines, including a variety of earth system sciences.

SAFE was designed according to several principles that, in our opinion, should have facilitated its use as well as helped the uptake of “good practices” in GSA. These included: a modular structure so to facilitate interactions with other computing environments and enable multi-method GSA; a set of functions to assess the robustness and convergence of sensitivity indices; several visualization tools to investigate and communicate GSA results; lots of comments in the code and workflow examples to get started (instead of a GUI or a user manual).

After 3 years from the first release, we carried out a survey of SAFE users to assess whether our design choices proved helpful for users and contributed to the uptake of good practices. In this talk we present the survey results and reflect on what worked well and what worked less well in our approach to open-source software design and distribution, and we discuss pathways for future improvement.