# Supporting Information for "Skill of large-scale seasonal drought impact forecasts "

Samuel J. Sutanto[1,*)], Melati van der Weert[1)], Veit Blauhut[2)], and Henny A. J. Van Lanen[1)]

[1)]Hydrology and Quantitative Water Management Group, Environmental Sciences Department, Wageningen University and Research, Droevendaalsesteeg 3a, 6708PB, Wageningen, the Netherlands
[2)]Hydrological Environmental Systems, University of Freiburg, Fahnenbergplatz, D-79098, Freiburg, Germany

*Corresponding author: Samuel Jonson Sutanto, Hydrology and Quantitative Water Management, Wageningen University and Research, the Netherlands, email: Samuel.sutanto@wur.nl.

The study area is Germany, which is divided into the German NUTS-1 regions that corresponds with the federal states. The NUTS regions are geo-coded standard regions introduced by the European Union. The German NUTS-1 regions and their acronyms are shown in Figure S1.



**Figure S1.** Germany divided into NUTS-1 regions, including their acronyms.

The importance of each predictor in the developed drought impact forecasting functions is presented in Figure S2 using both machine learning approaches, LG and RF, for different impact groups.
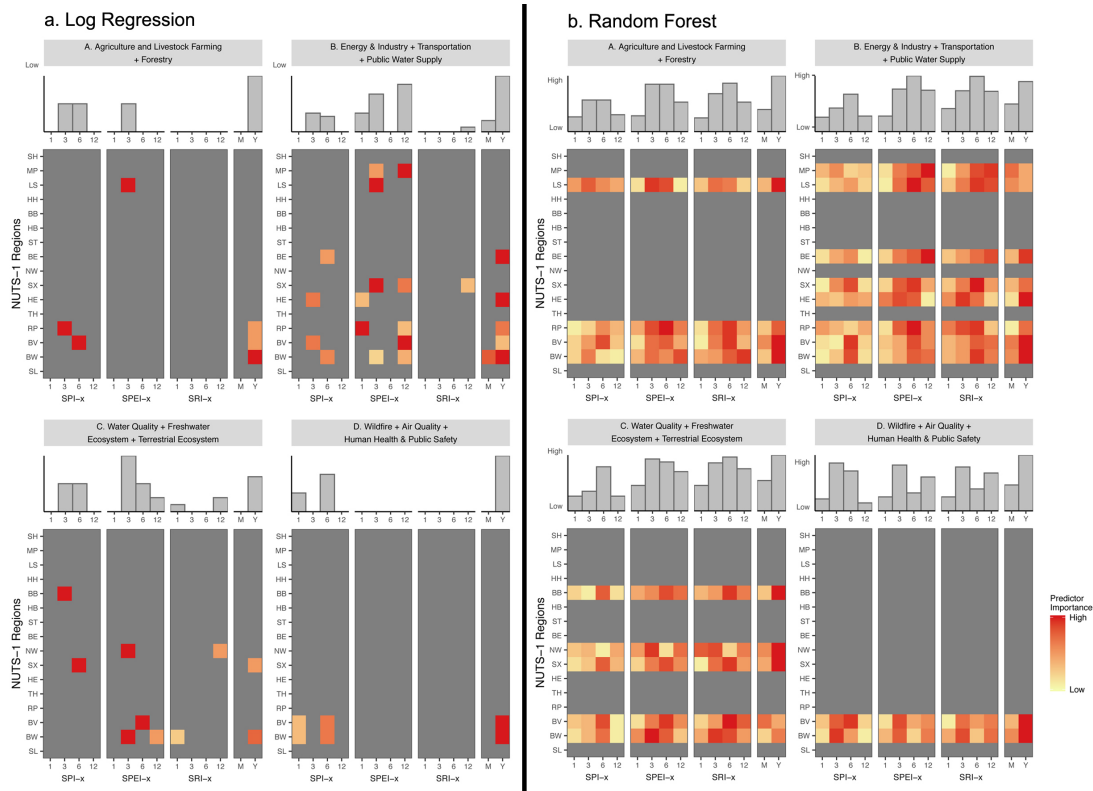


**Figure S2.** a) Predictor importance in developed drought impact forecasting functions using Log Regression for impact Group 1 (A), Group 2 (B), Group 3 (C), and Group 4 (D). b) Same as a) but for Random Forest. The colored boxes show the predictor importance for each NUTS-1 region in Germany. Red colors indicate highly-related predictors and yellow colors indicate less-related predictors to the selected drought impacts. A summary is given as histograms at top of each figure. For the acronym of NUTS-1 regions in Germany, see Fig. S1.

Figure S3 shows the number of reported impacts, i.e. months with impact occurrence, as these are stored in the EDII for each German NUTS-1 region for the period 1990 to 2017.
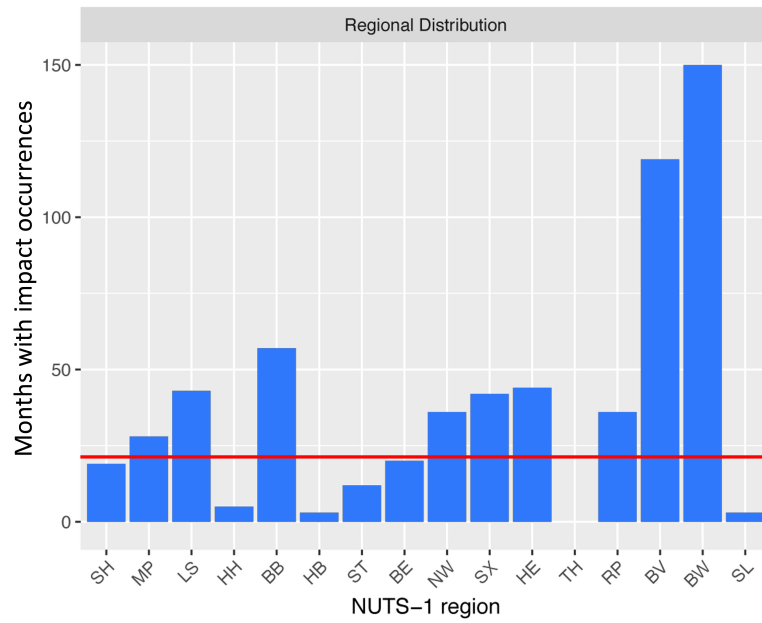
**Figure S3.** Number of reported impacts in months with an impact occurrence for each German NUTS-1 region in the period from 1990 to 2017 obtained from the EDII. For the acronym of NUTS-1 regions in Germany, see Fig. S1.