**Natural Hazards
and Earth System
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Supplement of

A new approach for drought index adjustment to clay-shrinkage-induced subsidence over France: advantages of the interactive leaf area index

Sophie Barthelemy et al.

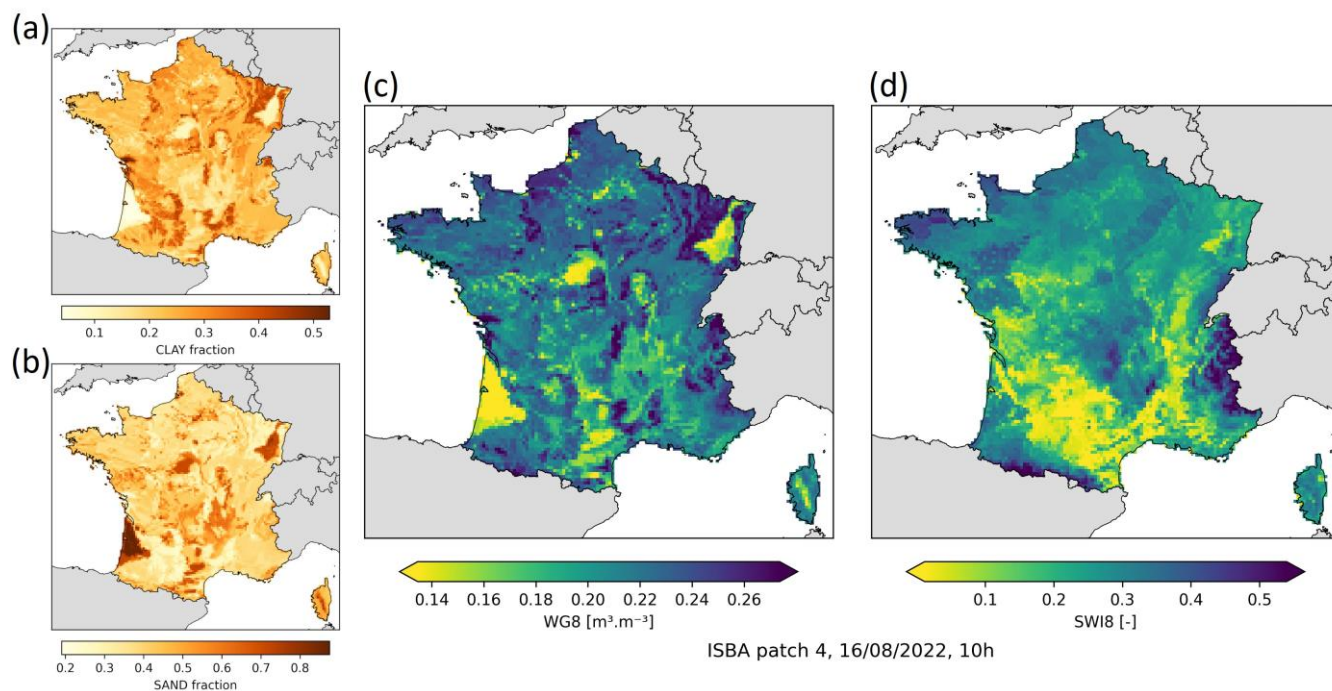*Correspondence to:* Jean-Christophe Calvet (jean-christophe.calvet@meteo.fr)

Supplement

Figure S1 – Unitless Soil Wetness Index (SWI) vs. volumetric soil moisture (WG) expressed in m^3 m^{-3}. Example of values simulated by the ISBA model for August 16, 2022 at 10:00 UTC for deciduous trees and 0.8-1.0 m soil layer: (c) WG, (d) SWI, and static (a) clay and (b) sand maps. For each grid cell, SWI results from the rescaling of WG between field capacity (Wfc) and wilting point (Wwilt) values derived from texture-dependent pedotransfer functions: SWI = (WG-Wwilt)/(Wfc-Wwilt).
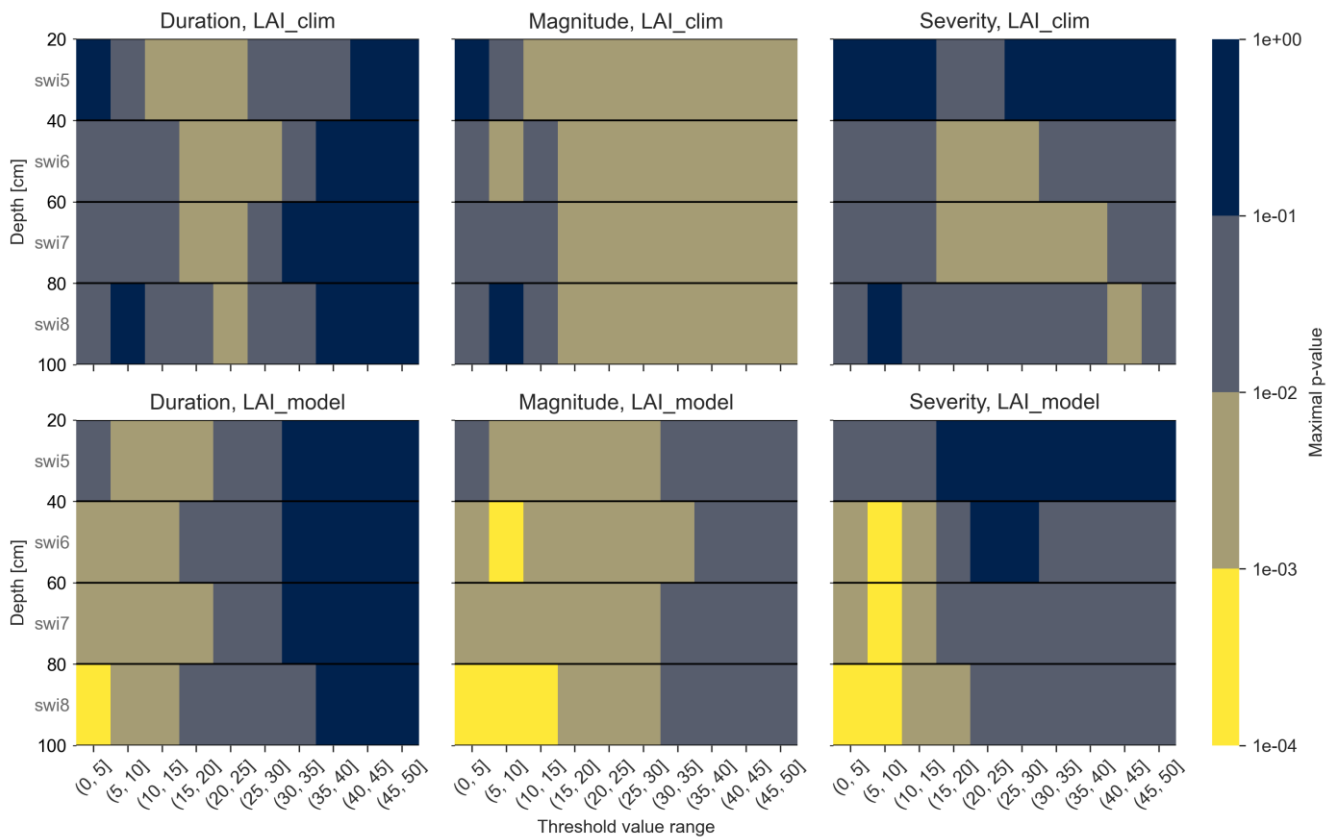
Figure S2 – Maximum p-values obtained per group, computing the rank correlation between drought index and normalized number of claims, for all calibration subsets, separating duration, magnitude, severity index types (left to right), LAI_clim (top) and LAI_model (bottom) model simulation, SWI5 to SWI8 model layers (top to bottom), and threshold value range from 1 to 50 in groups of five (left to right).
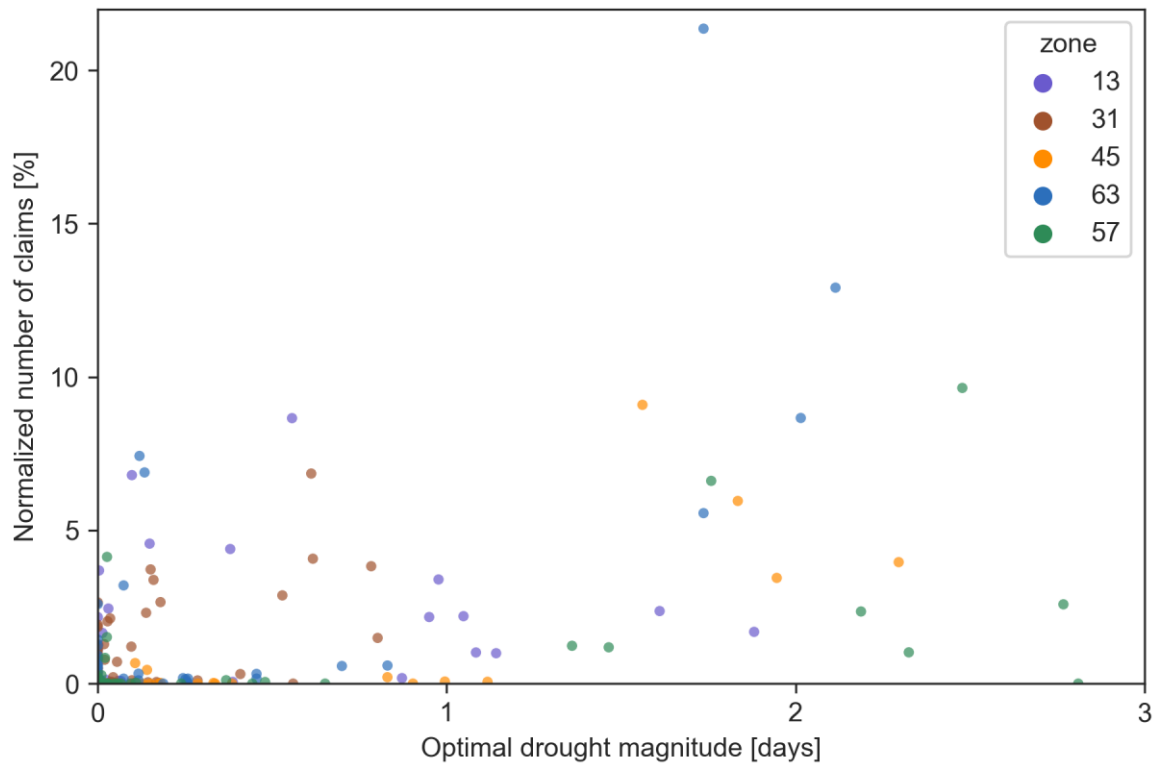
Figure S3 – Normalized number of claims versus optimal drought magnitude, for the calibration set. The colors correspond to the five regional subsets.
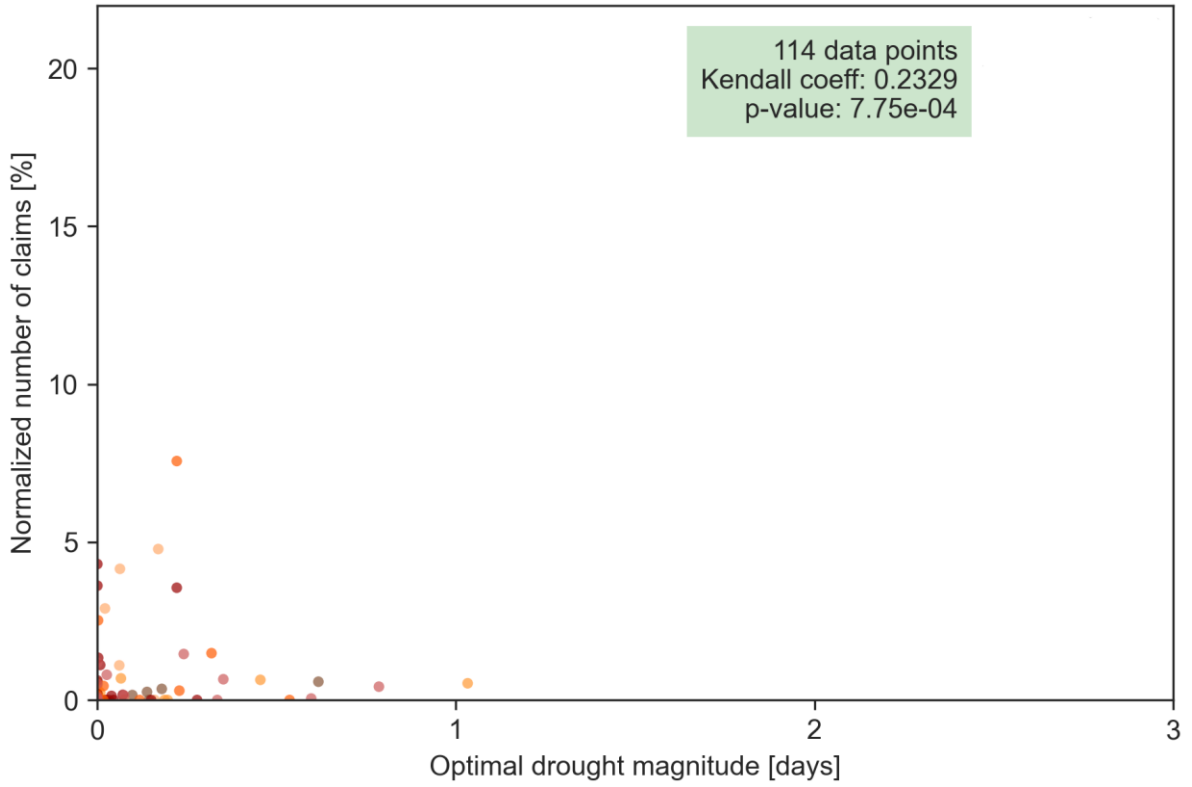
Figure S4 – Normalized number of claims versus optimal drought magnitude, for the validation set. The colors correspond to the six different municipalities.