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Mechanistic Approach for estimating pollen emissions in France

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Understanding Human response to Allergenic pollen is very complex and needs knowledge about spatial distribution of airborne pollen. However, nowadays in France information about airborne pollen relies on a National network with 60 sampling stations. A mechanistic model for estimation of pollen emissions over France is under development it relies on sampling stations of RNSA (Reseau national de surveillance aerobiologique) and a new approach to obtain detailed density map of Birch over France based on Corine Land Cover and over 10000 sampling plots of IFN (Inventaire Forestier National).
We used a phonological model defined by Chuine et al, 1999 to determine Start pic and end of flowering season as function of cumulative temperature. For model calibration, we used the RNSA database. This database contains for about 60 stations located in main cities of Franc with an hourly count of pollen grains for about 30 species (including birch) The best response in the phenological model was obtained from 1 phase model, this kind of model consider what happens during the quiescence phase only (after dormancy break).
The detailed density map of birch was used to select the nearest RNSA stations to emission areas for calibration of the phenological model, and also to map pollen emissions over France.
We will present first results of pollen emission maps, and it's inter-annual variability over the last decade as well as variability sensitivity analysis of model parameters.