Geophysical Research Abstracts
Vol. 20, EGU2018-19115, 2018
EGU General Assembly 2018

Five years of the Phenological Network of Catalonia

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The Phenological network of Catalonia (Fenocat) was stablished on the World Meteorological Day (23^{rd} March) of 2013 due to the lack of phenological data records in Catalonia (several historical phenological series were recorded in the country during the 20^{th} century, but most of them were finally interrupted dramatically). The purpose of the network is to assure continuity of phenological representative observations in Catalonia and to assess the impact of climate change in phenology. A large number of volunteers joined the Meteorological Service of Catalonia (www.meteo.cat) initiative, creating a network all over the territory based on citizen science, carried out with the support of the Catalan Institution of Natural History.

Plants, birds and butterflies are examples of organisms sensitive to climate change since they do not remain indifferent against the changes that are undergoing its surroundings. Phenological observations allow to study the evolution of the response of these organisms over time, so volunteers at Fenocat observe 25 species of plants (targeting on wild plants and cultivated plants as well), 14 species of birds (targeting mainly on winter and summer migrant birds) and 6 species of butterflies (targeting on common species and migrant day butterflies).

Since the beginning, phenological observations are made following very specific guidelines based on recurrent observation (2 or 3 times per week) to capture the start of the phenophase and its duration. The observation of plant species is carried out following the BBCH code (*Biologische Bundesanstalt, Bundessortenamnt und Chemische Industrie*) in order to identify with accuracy the phenological development stages of the plants species targeted. In the case of birds and day butterflies it is recorded their sighting (or listening in the case of birds).

More than 600.000 records have been collected within the 2013-2017 period. Quality control of recorded data is performed monthly and annually following the European standards and a summary is sent to the collaborators on a regular basis. Phenological records (once validated) are sent to the *Pan-European Phenological Database* as well to make the data available to anyone interested.

The most important challenges for 2018 are the increase of observers to achieve a better territorial coverage, the improvement of the metadata of each observation point and the start-up of the new database.