Spring 2018 Assessment

Find all of our data and results on our website http://phenoclim.org (in French)

Winter 2018 was characterized by heavier than normal precipitation and temperatures within the range of recent averages. In response to these climatic conditions, phenological events observed in vegetation and coal tit populations also fell largely within the averages established over the last few years, however, phenological events among frog populations were significantly later than average. The following report presents an assessment of the spring 2018 season, which demonstrated how different species respond differently when faced by the same environmental conditions.

**Spring Index 2018**

Low elevation: **+3.2 day's**
High elevation: **+2.0 days**
*Values compared to Phenoclim averages for 2006-2018*

Average temperatures: **+1.1° C** in spring compared with 1900-2008
*Data sources: MétéoFrance - CNRS, CNRM / CEN*

**Spring Index**

The spring index allows for a global estimation of the phenological reaction of vegetation to climate variations. It is calculated using all of the budburst data for the species monitored in the Phenoclim project.

This year, budburst was slightly later than the 2006-2018 average, with a greater shift seen at lower elevations (+3.2 days) than higher ones (+2 days). This slight delay in vegetation could be due to relatively cold winter temperatures in Alps and Pyrenees, where a vast majority of Phenoclim observations are made.
Spring index from 2006 to present for Phenoclim observation sites below 1,000 meters (light green) and above 1,000 meters (dark green) of elevation © CREA Mont-Blanc

Climate

As CREA Mont-Blanc collaborator Geoffrey Klein explained in his blog article, *Snow and precipitation in Chamonix: reporting on an exceptional winter season*, winter 2018 was characterized by particularly heavy precipitation levels: 45% more than in previous years. In Chamonix, 2018 winter temperatures were within seasonal averages, while in the eastern part of the French Alps, the Pyrenees and the Massif Central, temperatures were slightly below average (source *Météo France*).

It was a hot spring in Chamonix—an observation consistent with conditions in the rest of France. Across the country, temperatures were more than 1.1° C higher than normal, making 2018 the 5th warmest spring recorded during the period between 1959 and 2018 (source Météo-France).
The difference between the sum of the degree days each year and the average recorded between 2007-2018, during winter (on the left) and spring (on the right), as observed at the Chamonix temperature station (1,045 meters). On the left, the six years seen on the same horizontal plane all had a null sum of degree days (without any daily temperatures above 5°C during the winter) © CREA Mont-Blanc
**Spring fauna index**

**Coal tit** (*Periparus ater*)

As illustrated in the graph below, laying dates for the coal tit fell within the averages established in previous years (+2.4 days in Vallorcine as compared to the 2011-2018 period, and -2.4 days at Loriaz). Contrary to what was anticipated, high spring temperatures in 2018 did not lead to particularly early laying dates. However, the very small number of occupied nests at Loriaz in 2018 (only six), significantly limits our ability to draw conclusions from the results obtained this year.

To learn more: [http://www.atlasmontblanc.org/fr/reproduction-des-mesanges](http://www.atlasmontblanc.org/fr/reproduction-des-mesanges) (in French)
**Common frog** (*Rana temporaria*)

While 2018 coal tit laying dates fell within the averages observed in previous years, the trend was markedly different for the common frog. The first frogspawn was observed in Vallorcine at the end of March (9 days later than the 2010-2018 average) and early June at Loriaz (21 days later than the 2010-2018 average). This delay can be attributed to the fact that the common frog’s reproduction is highly dependent on the snowmelt date (see the Mont-Blanc Atlas resource page on the common frog; resource in French). The winter’s above average precipitation and deep snowpack led to a later than normal snowmelt date, in spite of the warm spring.

Participation

Phenoclim participation for spring 2018 remained relatively similar to recent years (we should note that a large number of observations had not yet been entered at the time of this assessment). A total of 2,103 observations at 117 sites were collected.

Hazelnut was the most observed species (422 observations), followed by ash (389 observations), birch (330 observations) and finally larch (306 observations).

Left: Evolution of the number of spring observations made in each mountain range since 2005. Right: Distribution of the number of sites per observer category in spring © CREA Mont-Blanc

Citizen participation is key for increasing the number of data points observed and ensuring valid scientific results. To participate, sign up at http://phenoclim.org