



Informing about climate change evidence to society: the Annual Bulletin of Climate Indicators in Catalonia (Meteorological Service of Catalonia)

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It's common to hear comments about the perceived gap between science (and scientists) and society (and citizens), or about the distinct language used by scientists and by citizens. Trying to avoid these comments, particularly concerning climate change, the Meteorological Service of Catalonia (SMC) publishes every year the Annual Bulletin of Climate Indicators (BAIC, from its name in Catalan) in Catalonia, with updated information on the observed evolution of various climate variables and climate change indices since 1950.

The primary goal of this annual bulletin is to provide in-depth analysis of the evolution of recent climate in Catalonia and to highlight evidence and impacts of climate change across different sectors such as forests, agriculture, or maritime activities, among others. Given the significant acceleration of global warming due to human activities in recent decades, there is pressing need for an objective assessment of this phenomenon to carry out effective mitigation and adaptation measures at regional and local scales, and BAIC meets this need.

This bulletin is structured into several chapters, most of which focus on monitored climate variables or systems: an introduction, air temperature (including maximum, minimum and mean temperatures for 27 climate series), precipitation (data for 72 climate series), extreme climate indices (following ETCCDI definitions), secular observatories (providing information from specific observatories in Catalonia with more than 100 years of daily data), maritime variables (such as sea temperature at different depths, mean sea level, sea storms) and phenology (information from the Phenological Network of Catalonia). Additionally, there are plans to increase the number of chapters in the future, potentially covering topics such as changes in synoptic circulation over Catalonia (or northwestern Mediterranean area). After completion of the bulletin, an Executive Summary is always written to summarise the key points of the main bulletin. Both reports, BAIC and its executive summary, can be consulted (and downloaded) on the SMC website (<https://www.meteo.cat/wpweb/climatologia/butlletins-i-episodis-meteorologics/butlleti-anual-dindicadors-climatic/>).

In this work, we will show the main results of the latest bulletin and provide examples of various types of figures (such as graphics and charts) used to convey these results to the end-users. We

always strive to show the information in the clearest and most accessible manner possible, while also maintaining scientific rigor (ensuring clarity, conciseness, and robustness). The key findings of the bulletin include:

- An increase of 1.9 °C in annual mean temperature since 1950.
- A statistically significant reduction of 17 % in annual precipitation since 1950.
- All extreme climate indices related to high temperature values show a significant increase, while those associated with low temperature values exhibit a notable decrease.
- Finally, the territory is currently experiencing the most severe drought since 1916 (instrumental period).