



Multispecies dendroclimatic reconstruction of drought index (SPI) in the eastern Iberian Range (Spain)

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Nowadays there is a high consensus on the possible increase of the average temperature of the planet in the upcoming decades. However, this consensus is not so evident regarding the precipitation signal. A probable decline and an increase in the frequency and magnitude of droughts have been largely described for the Mediterranean basin. Although there are several works concerning droughts over the last decades in Spain, there is, in fact, a lack of droughts data of the last centuries. Besides, droughts reconstructions may have an important role for the validation of climate models.

In this communication, we present the first results obtained for the potential reconstruction of drought indexes along the eastern sector of the Iberian Cordillera with a broad set of multi-species dendrochronological series. In the framework of the projects 'CGL2011-28255' and 'CGL2012-31668' 294 new cores from 10 locations were extracted. In addition, 126 series available in the ITRDB and 84 series available from the project 'CLI96-1862' project were added as well to this database. Therefore, we generate the greatest dendrochronological database for the Iberian Range.

We developed a 314 long tree-ring width chronology for the eastern Iberian range which presents a high significant correlation with the SPI series calculated from a regional series in the period of calibration: 0.634 with the August SPI4, 0.629 with the July SPI3 and 0,60 with the July SPI12. The multi-species chronologies developed with samples obtained between 1400 - 1600 meters above sea level present a correlation with the August SPI12 of 0,729. Nevertheless, the chronology developed with trees located at lower altitude, presents greater sensitivity with the SPI between 2 and 4 months.

These results emphasize the need to improve the instrumental climatic database in height, as long as improvement in the standardization of growth series in order to develop the first SPI reconstruction of the Iberian Peninsula and the Mediterranean basin.