Geophysical Research Abstracts, Vol. 9, 02612, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-02612

The year without summer in Iberia: Climate and Socio-economic assessments

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It is known that the year 1816 was characterised by unusual weather on a global scale, in particular by a cold and wet summer season on both European and North American continents. The catastrophic eruption of Tambora on the Island of Sumbaya (Indonesia) in April 1815 has been identified has the main driving force for the strong 1816 climatic anomaly (Bradley and Jones, 1995). The unusual weather at mid-latitudes in 1816 and 1817 had major socio-economic impacts, particularly in terms of poor yields of agriculture production, malnutrition and consequentially an increased potential for diseases and epidemics. The Iberian Peninsula was also affected (albeit less intensively than central Europe) and we have collected sufficient information to characterise the most relevant socio-economic impacts in the Iberian Peninsula, particularly those related with agriculture production yields. Standardised meteorological observations had just become a routine procedure at the end of the 18th century, particularly over central Europe, Scandinavia and the United Kingdom, allowing for the characterizations of seasonal anomalies for these regions. However, the inexistence of comparable data for the two Iberian countries (Portugal and Spain) hampered the possibility of extending such characterization to the Iberian Peninsula. This context highlights the relevance of using recently recovered meteorological observed data from 1816 onwards for three stations located in Portugal (Lisbon, Coimbra and Oporto) and also for a longer period for the Spanish stations of Madrid, Barcelona and San Fernando-Cadiz (near Gibraltar). Finally we compare seasonal anomalies computed for these stations with reconstructed fields of precipitation (Pauling et al., 2006) and

temperature (Briffa et al, 2004, Luterbacher et al., 2004).

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