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The 2010–2015 megadrought in central Chile: impacts on regional hydroclimate and vegetation

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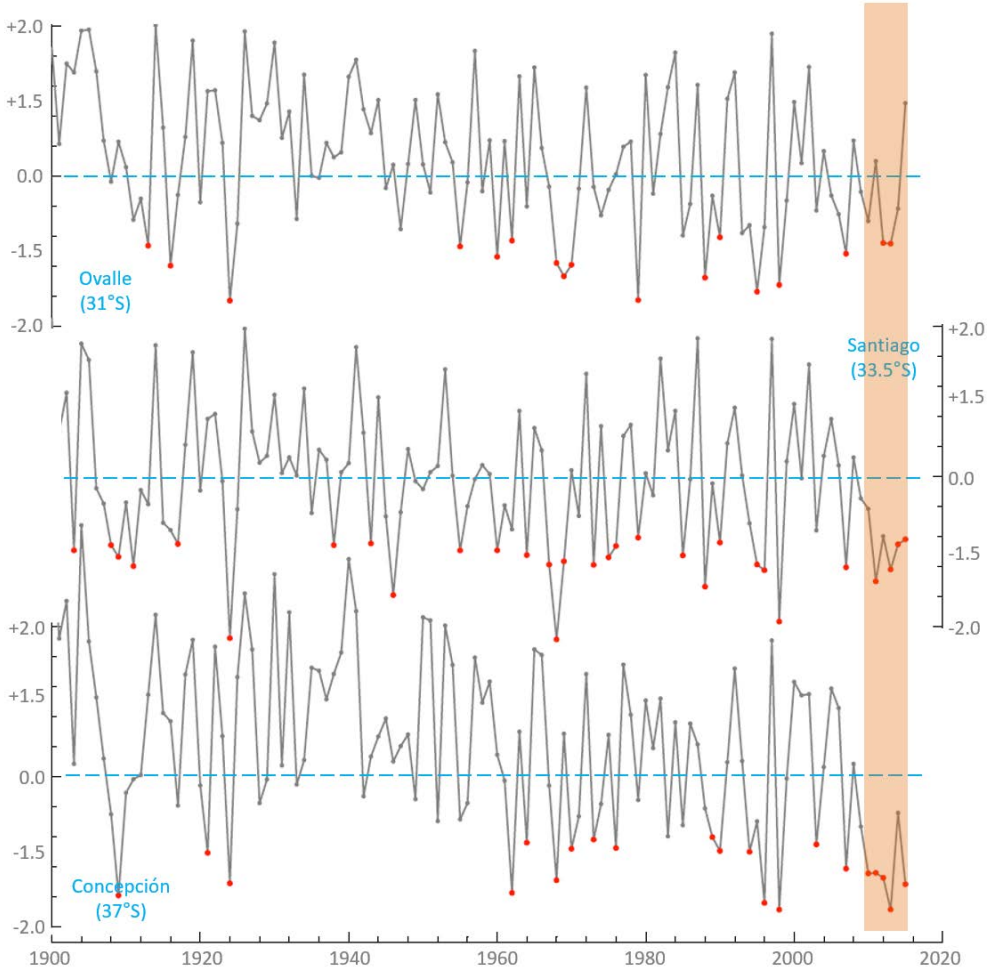

Figure S1. Standardized Precipitation Index (SPI) with 12-month time scale evaluated in December of each year for stations Ovalle, Santiago and Concepción. The MD period is indicated.

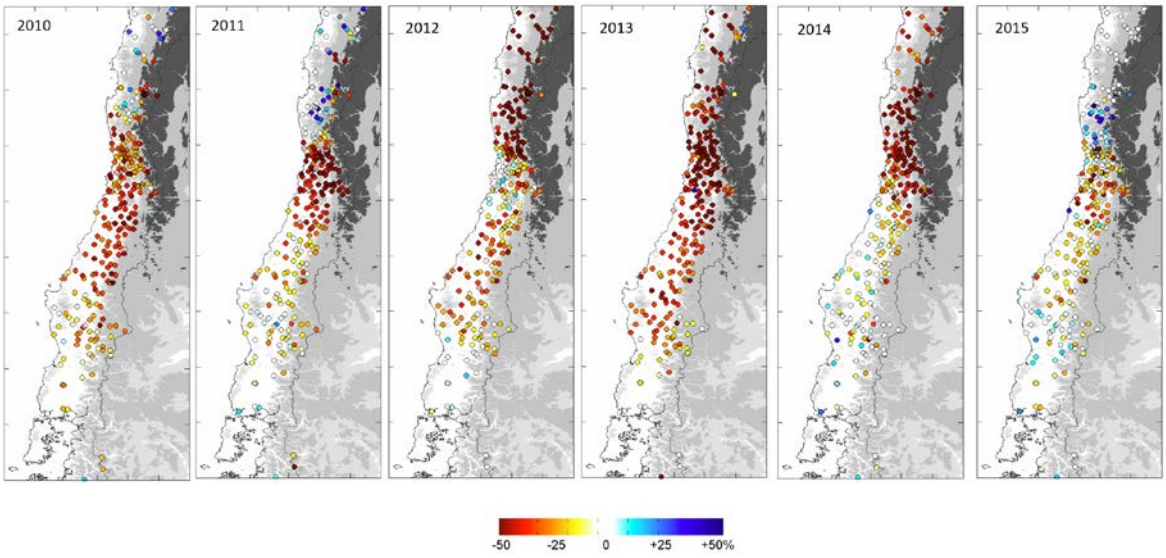

Figure S2. Annual rainfall anomalies (relative to the 1980-2010) for each year within the MD.

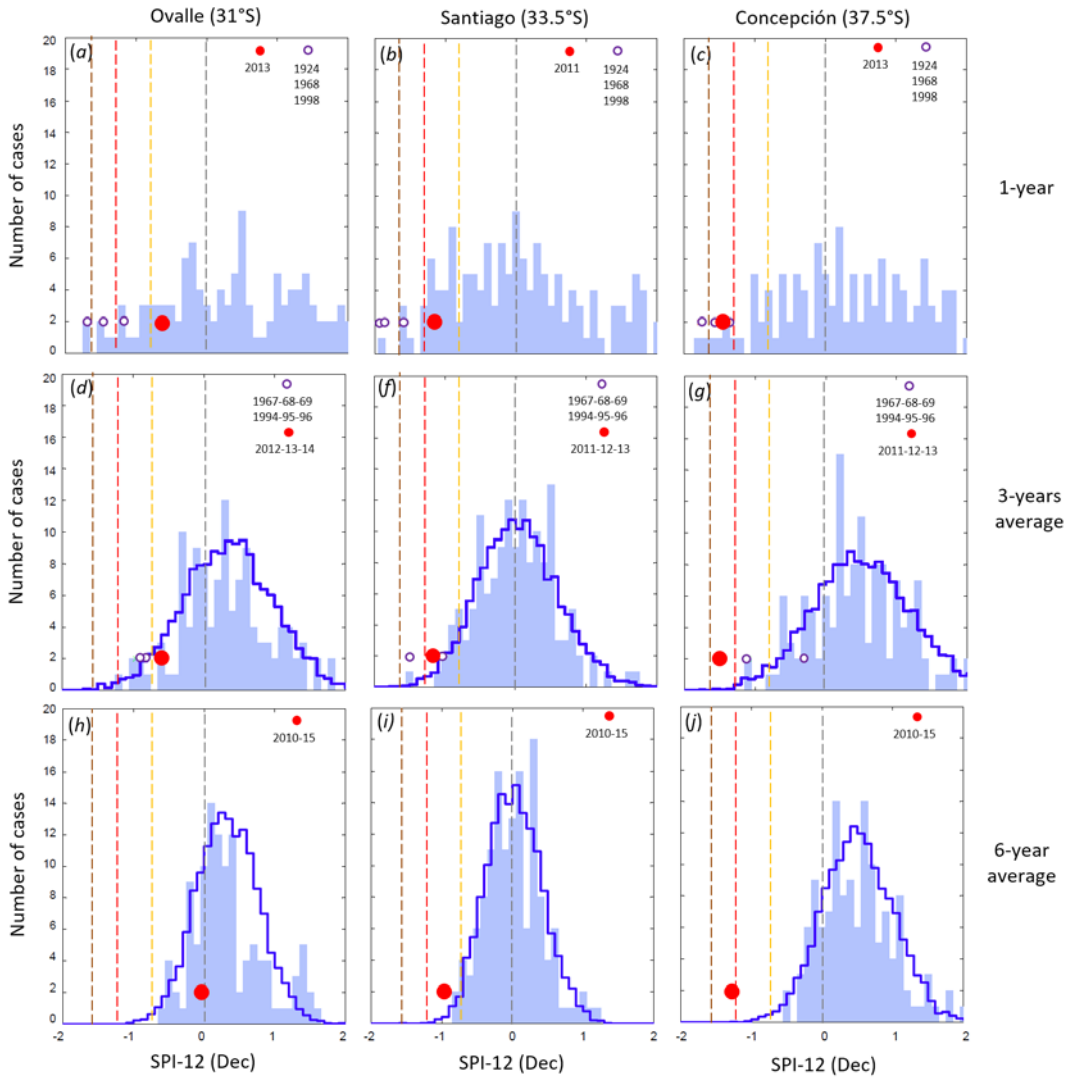

Figure S3. Upper panels: Histograms of the historical SPI-12D values (light blue bars; 1915-2009) for stations Ovalle, Santiago and Concepción. The red circle indicates the worst year during the MD, the smaller purple circles indicate the values in contemporaneous droughts. Middle and lower panels: as before but for 3-years and 6-years average, respectively. The blue thick line is the distribution obtained from 5000 three-year periods formed by randomly selecting three/six years in the historical period.

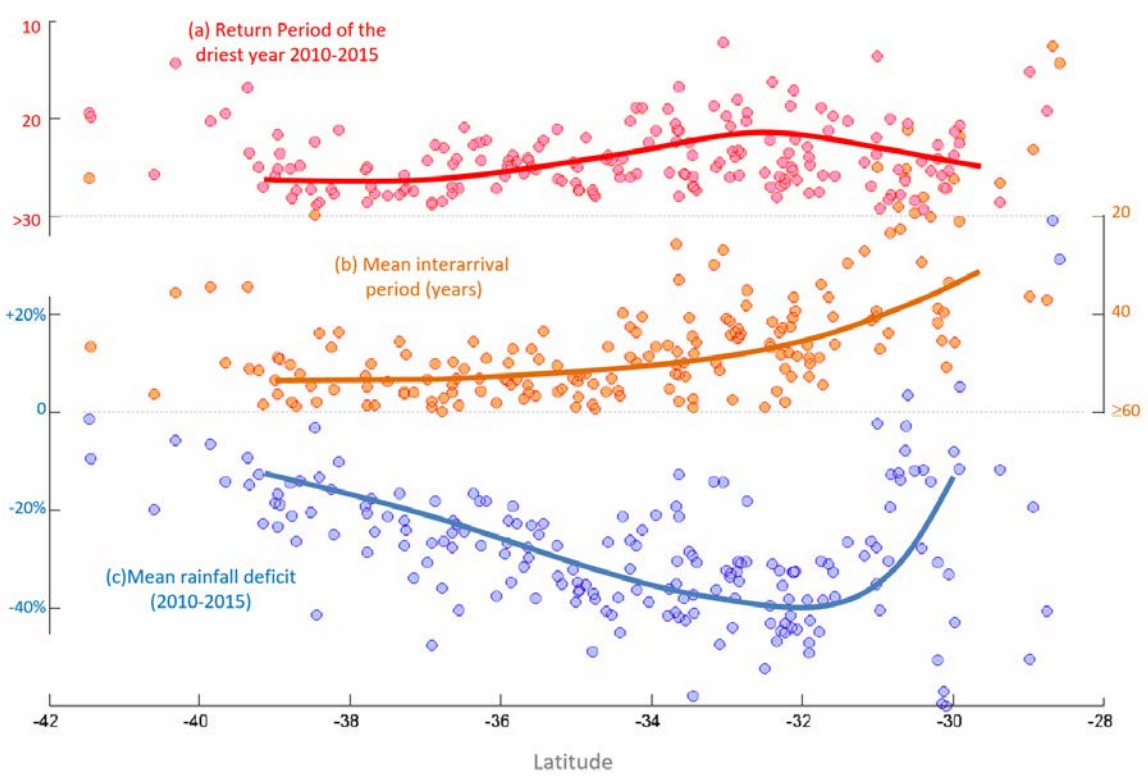

Figure S4. (a) Return period of the driest year within the MD (2010-2015) calculated as the average recurrence interval within the historical period (1960-2009) in each station. (b) Mean interarrival period (in years) of a dry spell (sequence of years with rainfall deficit > 25%) equal or longer than the current MD in each station. (c) Mean rainfall deficit during the MD (Jan. 2010 to Dec. 2015). The horizontal axis is the station latitude.

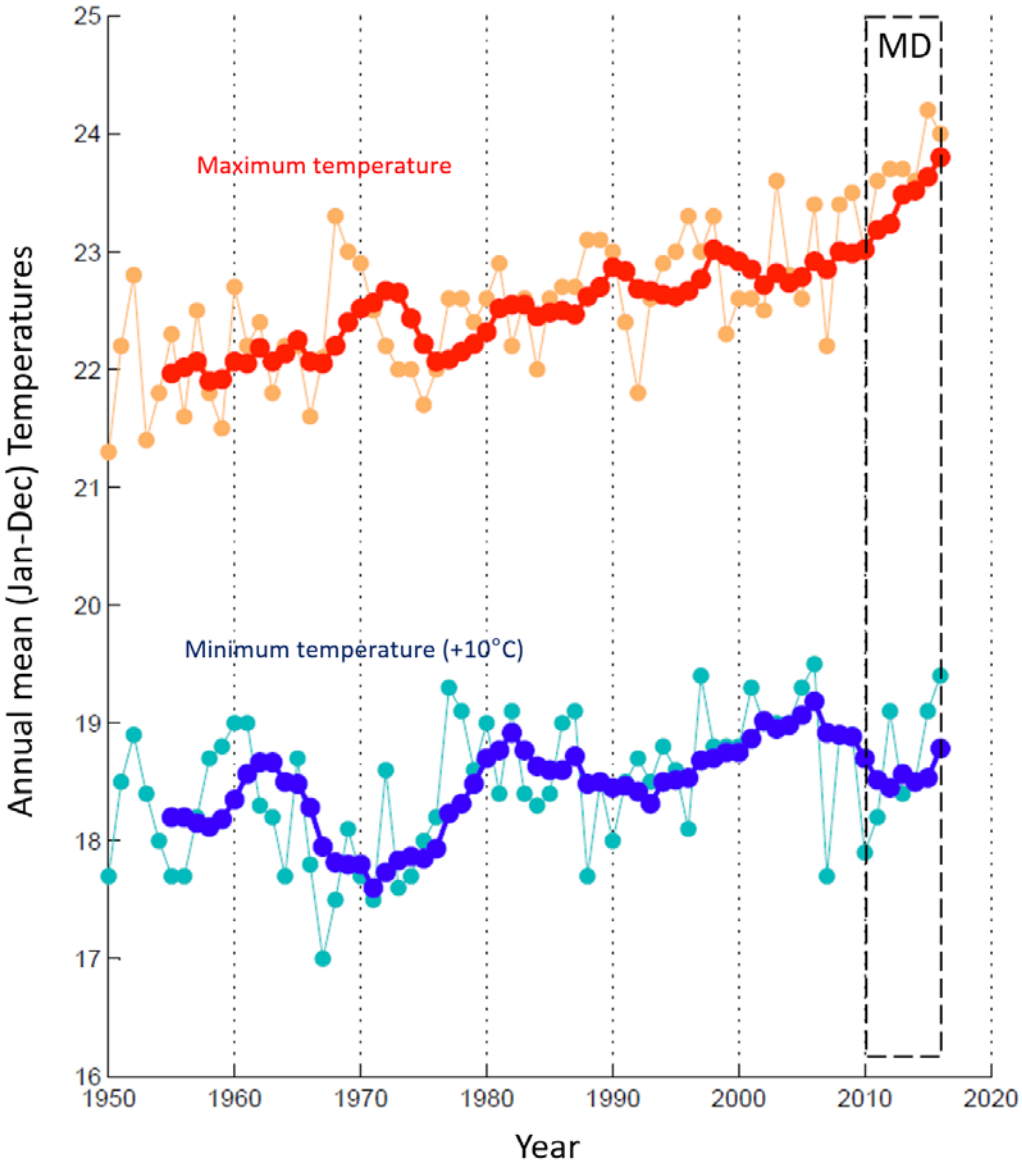

Figure S5. Annual mean (Jan-Dec) maximum (red and orange curves) and minimum (blue and cyan curves) temperatures in station Quinta Normal (Santiago; 33.5°S, 70.4°W, 525 m ASL). The thin lines are annual values. The thick lines are the average of the last 6 years (the last data point is the average 2011-2016). The MD period is indicated.

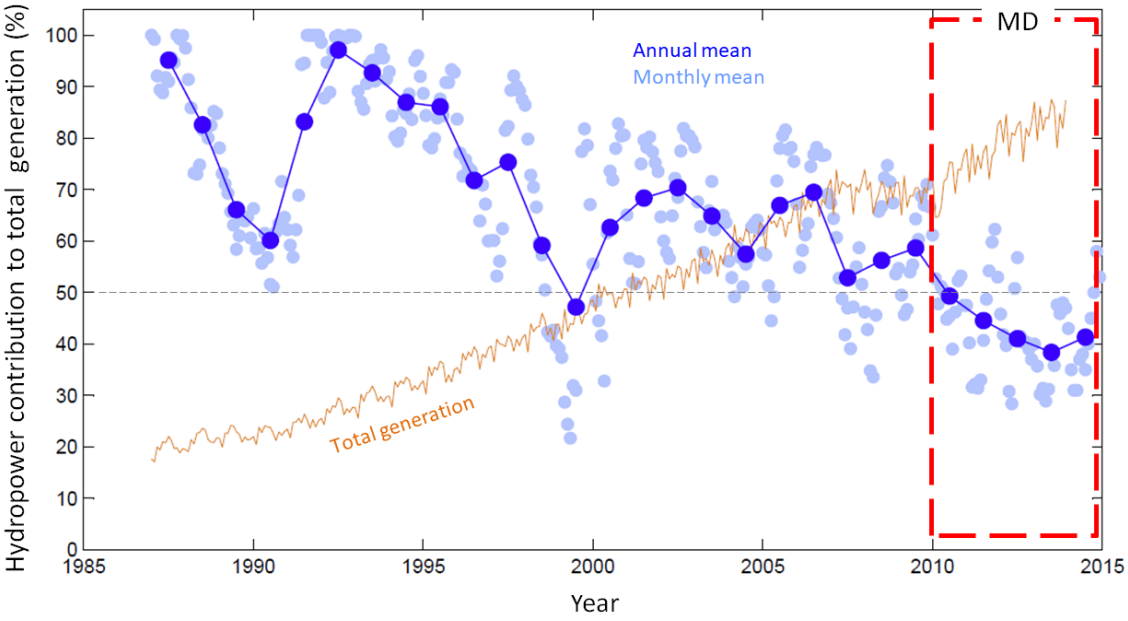

Figure S6. Fraction of the electrical energy in central Chile generated by hydropower stations (blue lines and circles). For reference, it is also indicated the monthly mean electrical energy generated in central Chile (orange line, 100% represents 60.000 GWh).