



## **Drought impacts on water quality for agricultural requirements in the Maipo River Basin, Chile**

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Hydrological droughts can have serious implications for the quantity and quality of water needed for irrigated agriculture. The Metropolitan region of Chile is a relevant producer of cash crops, has a Mediterranean climate and is prone to droughts. Standardized Drought Indices were used to characterize meteorological and hydrological droughts for the period 1985-2015. To understand the relationship between droughts and water quality, we studied correlations between daily discharge and surface water quality parameters. The threshold level method was used to compare physicochemical parameters during hydrological drought periods with the Chilean water quality thresholds for agricultural uses. A negative trend for meteorological and hydrological droughts and a significant ( $p < 0.05$ ) negative relationship between discharge and electrical conductivity and major ions were found in most of the basin. Hydrological stations located in irrigation districts exceeded official thresholds for these parameters during hydrological drought periods seriously threatening irrigated agriculture of the region.

**Keywords:** Mediterranean climate; climate change; meteorological drought; hydrological drought; standardized index; irrigated agriculture; water quality