

# Large-scale atmospheric dynamics of the wet winter 2009–2010 and its impact on hydrology in Portugal

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## Supplement

### Supplement 1. Circulation weather type statistics for Portugal 1949–2009

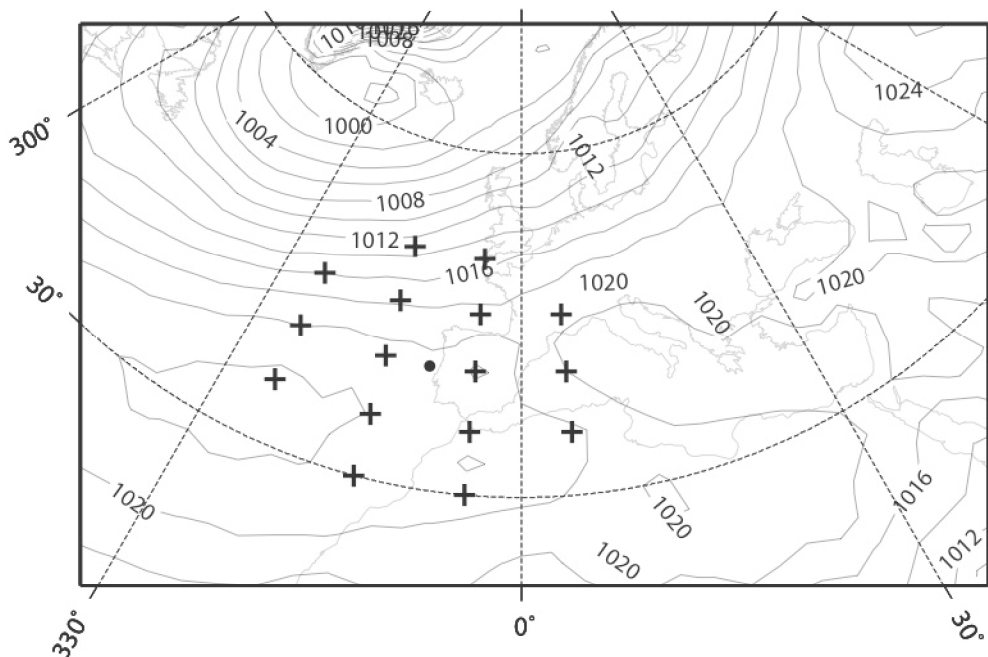


Fig. S1. Grid used for circulation weather type calculation and long-term mean sea level pressure field in 1949–2009

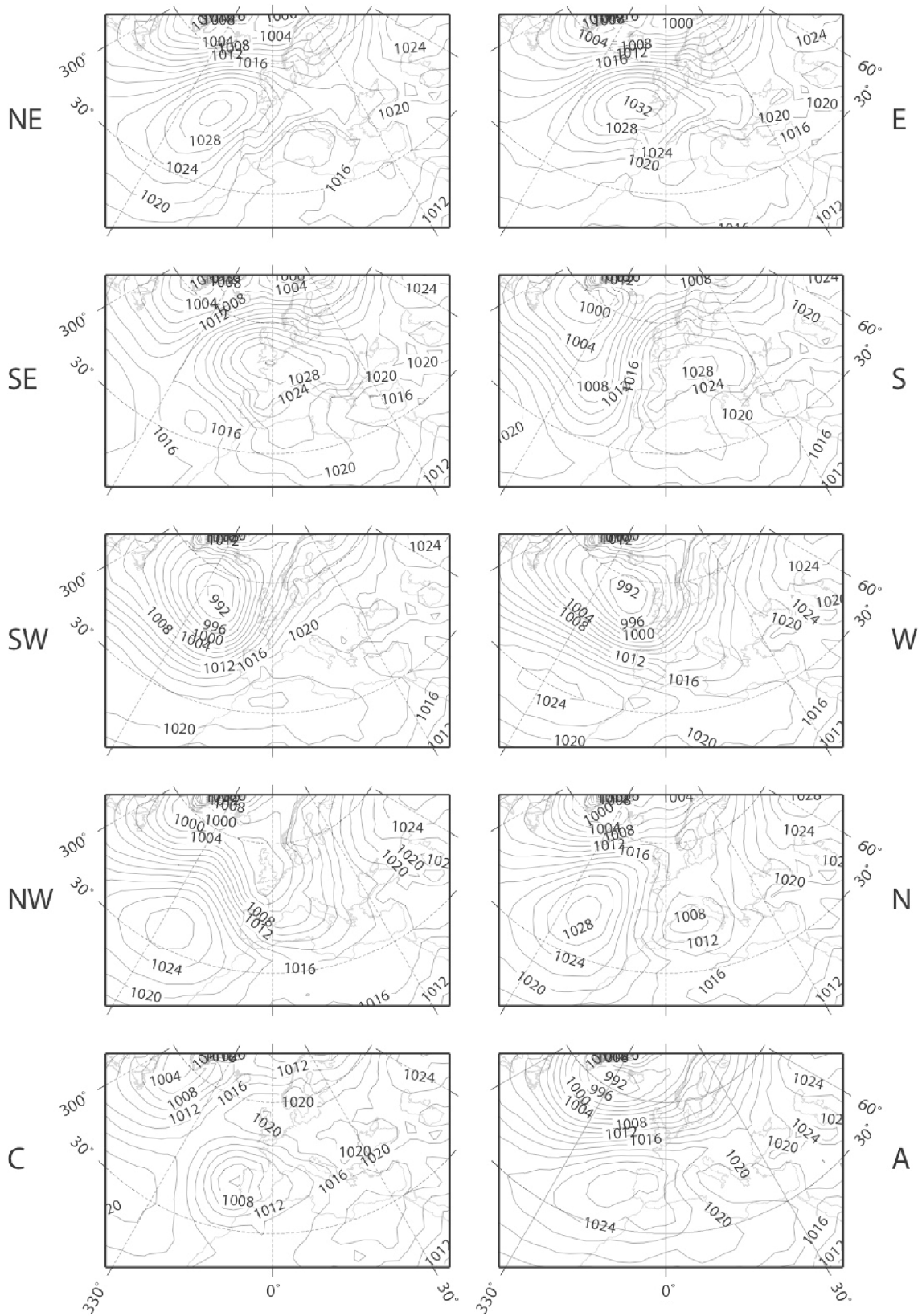


Fig. S2. Mean sea level pressure composite fields for the 10 outlined circulation weather types (C: Cyclonic; A: Anti-cyclonic; and the 8 directional types, NE – N). Contour interval of 4 hPa

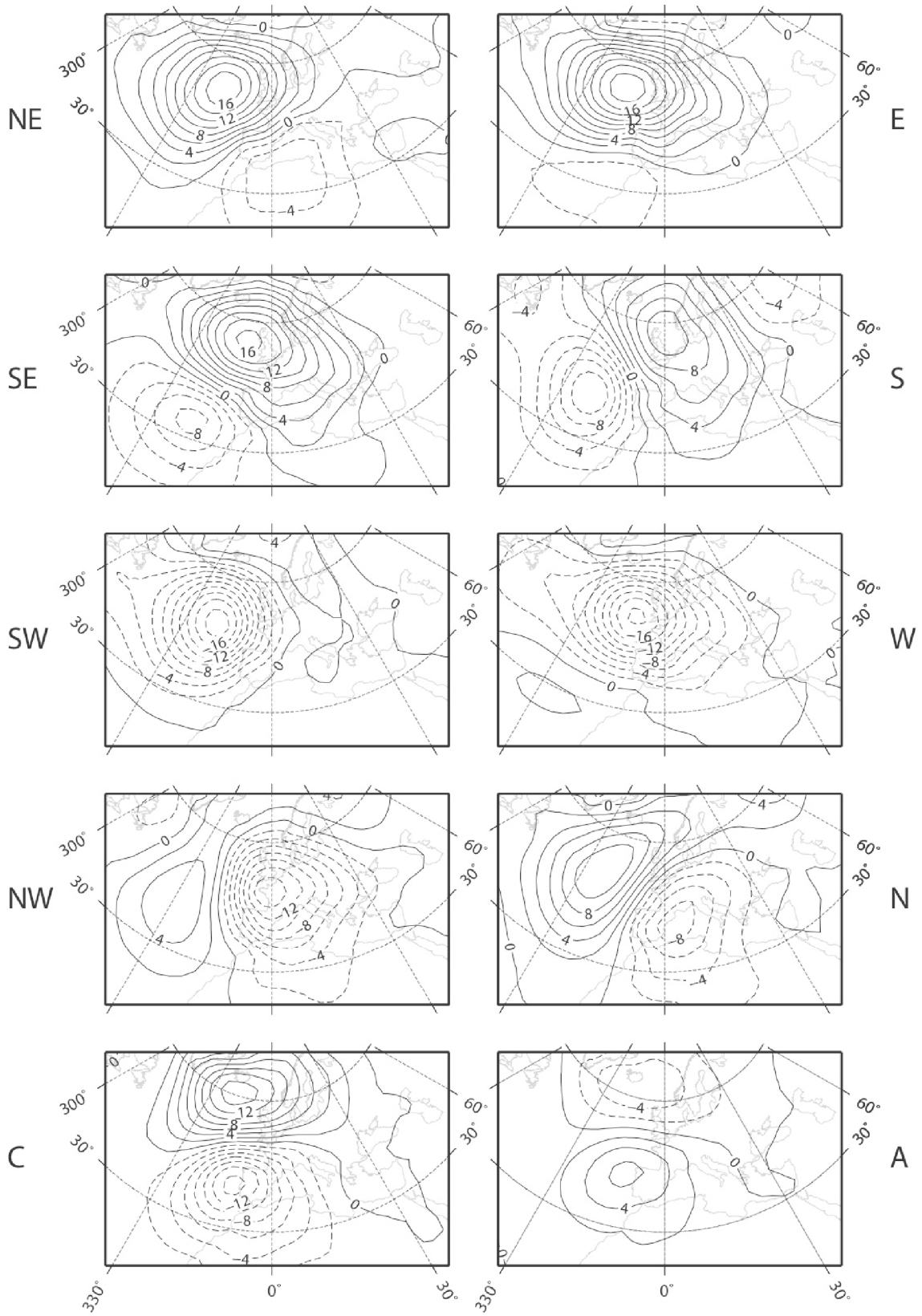


Fig. S3. As in Fig. S2, but for the mean sea level pressure anomaly. Contour interval of 2 hPa

**Supplement 2. Johnson-SB distribution parameters**

Table S1. Johnson-SB distribution parameters (see Section 3.1 in main article for details) for the winter (DJF) precipitation totals recorded at the outlined meteorological stations

Station	Parameters
Porto	$\gamma= 1.9452, \delta= 1.5167,$ $\lambda= 8.8491, \zeta= -2.0872$
Lisboa	$\gamma= 1.2978, \delta= 1.5208,$ $\lambda= 7.5816, \zeta= -2.3842$
Beja	$\gamma= 1.26, \delta= 1.3763,$ $\lambda= 7.057, \zeta= -2.1548$