

Sea breeze effect on cloudiness in the southeast of the Iberian Peninsula (Alicante, Spain)

C. Azorin-Molina (1,2), **A. Sanchez-Lorenzo** (2), J. Calbó (3)

(1) Laboratory of Climatology, University Institute of Geography, University of Alicante, Spain, (2) Group of Climatology, University of Barcelona, Catalonia, Spain, (3) Group of Environmental Physics, University of Girona, Catalonia, Spain (cesar.azorin@ua.es / Fax: +34 96-5909485 / Phone: +34 96-5909455 Ext. 9455)

The sea breeze blows under meteorological situations linked to anticyclonic weather type; weak surface pressure gradient; intense solar radiation, and low-cloudiness. Generally, total cloud cover (TCC) must be less than 4/8 to cause a thermal and pressure difference between land and sea air which allows the development of this local wind circulation. TCC on the sea breeze days is always lower than TCC on days when this local wind circulation does not develop. However, several empirical studies have checked the development of cloudiness associated to sea breeze and other local winds. The aim of this study has been to analyze statistically the sea breeze impact on both TCC and cloud types in the southeast of the Iberian Peninsula (Alicante, Spain) during the period 2000-2005. The results confirm the hypothesis that the effect of sea breeze on cloudiness is to increase the relative frequency of low stratiform (St) and convective (Cu and Cb) clouds. The monthly and diurnal evolution analyses (based on three observations at 07, 13 and 18 h UTC) of TCC and cloud genera have allowed to show the time of the day and in the year when the sea breeze impact is more important in both of them.