



Mid-summer gap winds and their relationship with the subtropical Atlantic high

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High-resolution wind data from the QuikSCAT scatterometer allow the identification of a low-level easterly circulation during July, and also but less intense in August, over the northeast tropical Pacific (NETP), which is mainly induced by the winds crossing the low-elevation gaps at the Isthmus of Tehuantepec and the lowlands of central Nicaragua. QuikSCAT data show that these gap winds are very intense during boreal winter and they diminish toward the summer. However, there is a slight strengthening of the gap winds during July-August that is induced by the mid-summer westward displacement and intensification of the Azores-Bermuda high. The July-August enhancement of the gap winds and the associated easterly flow over the NETP are a consequence of a large-scale phenomenon characterized by a positive pressure anomaly that extends from the northeastern Atlantic to the far-eastern tropical Pacific and that is observed not just at the lower layers of the atmosphere but also in the upper levels. This mid-summer pattern has important implications regarding the moisture transport from the ocean to the continent, which may partially explain the precipitation decrease during this period in southern Mexico and Central America, by keeping convergence areas over the NETP away from the coasts and by confining the ITCZ to the south of the wind jets.