

Southern hemisphere low level wind circulation statistics from the Seasat scatterometer

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Abstract. Analyses of remotely sensed low-level wind vector data over the Southern Ocean are performed. Five-day averages and monthly means are created and the month-to-month variability during the winter (July-September) of 1978 is investigated. The remotely sensed winds are compared to the Australian Bureau of Meteorology (ABM) and the National Meteorological Center (NMC) surface analyses. In southern latitudes the remotely sensed winds are stronger than what the weather services' analyses suggest, indicating underestimation by ABM and NMC in these regions. The evolution of the low-level jet and the major stormtracks during the season are studied and different flow regimes are identified. The large-scale variability of the meridional flow is studied with the aid of empirical orthogonal function (EOF) analysis. The dominance of quasi-stationary wave numbers 3, 4, and 5 in the winter flow is evident in both the EOF analysis and the mean flow. The signature of an exceptionally strong blocking situation is evident in July and the special conditions leading to it are discussed. A very large intraseasonal variability with different flow regimes at different months is documented.

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