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Seasonal Zonal Asymmetries in the Southern Annular Mode

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The structure of the Southern Annular Mode (SAM) in the mean and during the strongest events in both positive and negative phases for all seasons is examined. Results indicate that the zonal symmetry commonly attributed to the SAM is only observed during austral summer. In other seasons, marked asymmetries in the midlatitudes, most prevalent over the Indian and Atlantic Oceans, are observed. The meridional pressure gradient in these regions for many cases can also be weak or of the wrong sign during the leading SAM events. As such, the SAM impacts on temperature, pressure, and precipitation across the Southern Hemisphere are more asymmetric than previously realized.