

## **On the relationships between Southern Hemisphere climate modes and cyclones**

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Southern Hemisphere cyclone tracks data were analyzed along with climate indexes for the Pacific South America pattern (PSA), Stationary Wave-3 pattern, Southern Annular Mode (SAM), and Semi-Annual Oscillation (SAO) to look for any connections. Analysis was done by using a low-pass Butterworth filter on monthly anomaly data and using a covariance function to determine the degree of correlation. Different length scales of cyclones, different oceans, and different characteristics of cyclones were all analyzed. While the PSA and Wave3 have fairly consistent impacts on all cyclones in all seas, on the whole the cyclones in the Pacific Ocean respond less strongly to the climate modes than the cyclones in the Atlantic or Indian Oceans. Additionally, the climate modes impact cyclones' strength and size but not the number of cyclones.