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Global moisture transport and the role of major teleconnection patterns

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The teleconnection patterns are an important feature influencing the variability of moisture transport toward the continent. This work analyses the influence of the Arctic Oscillation, Antarctic Oscillation, Pacific North America, and ENSO on the moisture transport from major oceanic and continental moisture sources in the month of higher precipitation. The Pacific North America higher influence is observed over North America with an increased contribution to the western region from the Pacific and lower over the eastern region from the Atlantic in the positive phase. The moisture transport during Arctic Oscillation events seems to be modulated by the Mediterranean Sea and North Atlantic, increasing from the Mediterranean in the positive phase and decreasing from the Atlantic. The Antarctic Oscillation shows its most relevant influence over Australia and Eastern Africa, with increased moisture contribution from eastern regions on the positive phase. Finally, ENSO events show influence in moisture transport over different areas in the world. El Niño events are associated with increased transport from the Atlantic region over western Europe and from the Pacific over North America. In South and Central America, the moisture contribution decreased over the regions closer to the equator, while the opposite occurs over southern South America. Over eastern Africa and Southern Asia, moisture inflow from the Indian Ocean seems to be affected by the pattern. The result suggests the influence of the moisture contribution on the precipitation pattern in association with main teleconnection patterns.