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The role of the Sun in Atmosphere-Ocean Coupling

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An overview of the processes involved in determining the Sun's influence on climate is presented in the form of a flow chart. Evidence and hypotheses concerning the combined influences of the El Niño-Southern Oscillation, the Quasi-Biennial Oscillation and the Solar Cycle on the Hadley and Walker circulations are discussed in the context of atmosphere-ocean coupling, focussing on the Pacific region. It is shown that the Sun plays a crucial role in ocean-atmosphere coupling but that this coupling appears to be disturbed during the latter half of the 20th century, probably related to climate change. The identification of a solar influence can lead not only to improved skill in prediction but also to better inform communities to address/ mitigate some of the crucial issues that are associated with climate change.