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## A study on changes of Hadley circulation under global warming

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Tropical atmospheric circulation in zonal average is characterized by Hadley cells that varie with seasons for both intensity and latitudinal position. Atmosphere-ocean fully coupled simulations using the recent version of the IPSL model are analysed. A reduction of the intensity and a polarward extention of the Hadley circulation are obtained when the atmospheric carbone dioxyde concentration is doubled. Furthermore, the atmospheric general circulation model used in the fully coupled runs is also coupled to a slab oceanic representation. This is to facilitate numerical simulations and helps to understand changes in the large scale tropical circulation. Additional simulations with prescribed SSTs are also performed, using the zonal mean component of the SST change or its latitudinal varying structure to test the impact on both zonal and monsoon circulations. This constitues a first diagnostic of the dynamical feedbacks which may affect climate change, and modulate also the importance of other radiative feedbacks, such as the one originating from water vapour.