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Observed and modeled MOC related flow into the Caribbean

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The warm inflow into the Caribbean Sea is in large quantities of southern hemispheric origin and thus represents an important part of the meridional overturning circulation (MOC). Total transports and inflow from South Atlantic Water (SAW) into the Caribbean through the Lesser Antilles Passages are calculated from CTD and ADCP data and compared to results of the 1/12° FLAME model. The model and the observations show consistency in the strength of the total inflow and its range of variability. The model represents the warm and intermediate water masses and the distribution of SAW well. The annual mean SAW transport into the Caribbean was found to be 8.6 Sv in FLAME, which was remarkably close to the observations (9.3 Sv). In the model the Caribbean inflow is the main pathway for warm water from the South Atlantic (63%), while for the intermediate water the Atlantic route dominates the transport (59%). The remaining Atlantic pathway of the warm MOC flow is discussed shortly.