



## **Effects of land water storage on the global mean sea level over the last half century**

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The output of the ORCHIDEE Land Surface Model, driven by a 53 year (1948-2000) atmospheric forcing data set, is used to estimate the effects of land water storage on the global mean sea level fluctuations. Over the last half century, no significant trend is detected but there is a strong low frequency variability contributed by the land water storage. The low frequency variability originates principally from the tropical zone. In the northern tropic, the continents lost water to the benefit of the oceans during the last half century. The land water storage variations are dominated by the precipitation.

The contribution of land water to sea level, simulated by ORCHIDEE, is highly anti-correlated with the thermal expansion of the oceans, obtained via global ocean temperature data set. This result indicates that a warming of the oceans accelerates the water cycle and thus contributes to a reduction in the sea-level partly compensating the thermal expansion.