



Monsoon response to changes in Earth's orbital parameters : comparisons between simulations of the Eemian and of the Holocene.

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Monsoon is the major manifestation of the seasonal cycle in the tropical regions. It is very sensitive to climate change and there is a wide range of evidence from marine and terrestrial data that monsoon characteristics is affected by changes in the Earth's orbital parameters. We consider 3 periods in the Eemian and in the Holocene that present some analogy in the orbital configuration in terms of obliquity and precession. Simulations with the IPSL_CM4 ocean-atmosphere coupled model allow us to discuss the response of the Indian and African monsoon in terms of amplitude and response to the insolation forcing. Results show that precession plays a large role in shaping the seasonal timing of the monsoon system. Differences are found in the response of the two sub-systems. They results from the phase relationship between the insolation forcing and the characteristics of each sub-system. Also the response of the Indian ocean is very different in terms of temperature and salinity when the change in insolation occurs at the summer solstice or later in the year. Monsoon has a large contribution to the heat and water transport. An analysis of the changes in these transports and the role of monsoon will be considered.