



Simulated changes of precipitation episodes in south-eastern Africa in a future climate

A. Rocha (1,2), C. Marques (1,2), J. Ferreira (2), J. Castanheira (1,2) and P. Melo-Gonçalves (1,2)

(1) Centro de Estudos de Ambiente e Mar (CESAM), Aveiro, Portugal, (2) Department of Physics, University of Aveiro, Aveiro, Portugal (arocha@fis.ua.pt / Fax: +351 234 424 695 / Phone: +351 234 370 820)

This study evaluates differences of high frequency precipitation episodes characteristics over south-eastern Africa simulated by two climate models under present (1961-90) and future (2071-2100) conditions, as a result of greenhouse gases anthropogenic forcing. Precipitation in the models is previously compared to precipitation data obtained from the ERA-40 reanalyses. A precipitation episode is defined here as a period with a minimum number of consecutive days with daily precipitation above a threshold amount.

We consider a great range of episodes according to the preset threshold number of days (1 to 15 days) and daily precipitation amount (1 to 15 mm/day). For both climates, the number of episodes, their average duration and intensity is compared. The analysis is performed for both models. The results clearly show a tendency for a decrease in the number of episodes in the region due to anthropogenic climate change. Changes in the duration of the episodes are somewhat ambiguous, being negative or positive depending on the episode type. The intensity of all episode categories is increased over practically the whole region. The spatial structure of these changes and its distribution according to the episode category are documented in this study.