

Impact of precession on the climate, vegetation and fire activity in southern Africa during MIS4 (Supplementary material)

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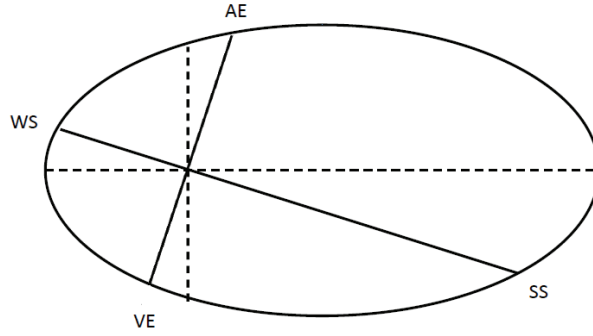
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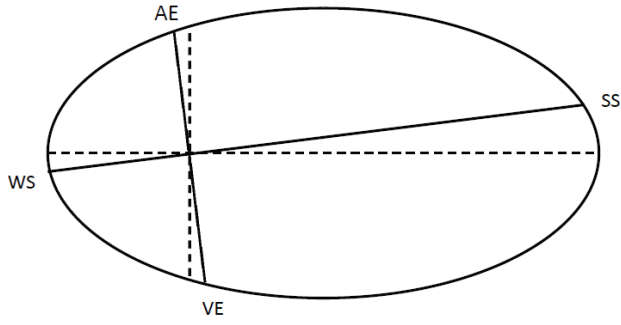
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a) Present



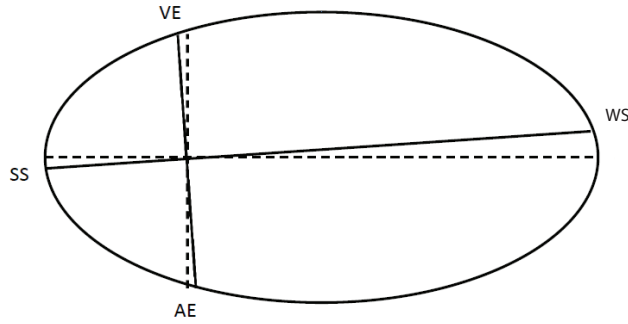
$$\begin{aligned} e &= 0.01672 \\ \epsilon &= 23.446 \\ \omega - 180 &= 102.04 \end{aligned}$$

b) MIS4_max, 72 kyr BP



$$\begin{aligned} e &= 0.02434 \\ \epsilon &= 22.3907 \\ \omega - 180 &= 80.09 \end{aligned}$$

c) MIS4_min, 60 kyr BP



$$\begin{aligned} e &= 0.01846 \\ \epsilon &= 23.2329 \\ \omega - 180 &= 266.65 \end{aligned}$$

Fig. 1. Earth's orbital configuration for a) present-day, b) MIS4_max, 72 kyr BP, c) MIS4_min, 60 kyr BP, where e is the eccentricity, ϵ is the obliquity and ω is the longitude of the perihelion. WS stands for winter solstice, VE for vernal equinox, SS for summer solstice and AE for autumnal equinox (for the northern hemisphere).

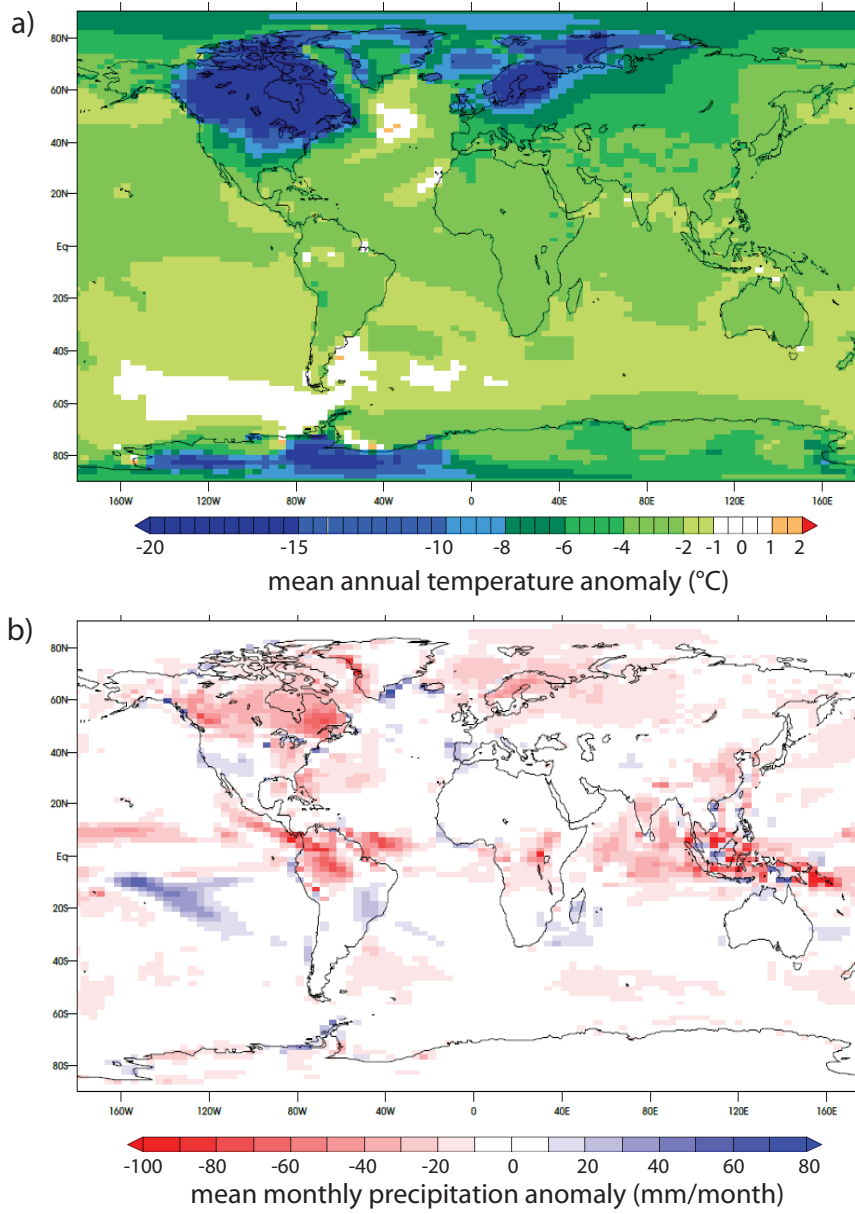


Fig. 2. a) Mean air temperature anomaly and b) mean monthly precipitation anomaly simulated by IPSL_CM5A in MIS4_max compared to a present day simulation (MIS4_max - present).