Résumés Abstracts

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Quaternary climatic changes and the formation of the eastern Sahara.
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The Nile valley forms the eastern boundary of the largest hyperarid expanse on Earth. In this part of the eastern Sahara the solar radiation received is capable of evaporating 200 times the amount of received precipitation. In the Western Desert of Egypt, which covers 681,000 km² or the combined total area of France and England, a homogeneous eolian landscape predominates with no integrated drainage patterns. A few sinuous channels at the base of high escarpments are the only remnants of former pluvial periods. Earth-orbital photographs show the grand scale of alignment between erosional remnants, inselbergs and yardang fields, and that of depositional features, parallel belts of dunes and dune bundles. In the south-central part of the desert an incredibly flat area of 100,000 km² is slightly depressed and covered by sand sheets. The features of this desert are ascribed to two million years of alternating hyperarid, subarid and semiarid paleoclimates; periods of red soil development remain enigmatic. During the Late Quaternary alone, it is estimated that at least four major pluvial episodes separated periods of complete dessication and intense eolian activity. Sites of prehistoric human habitation in this desert, particularly in the southwestern part, attest to wetter conditions in the geological past. Today, in the Gif Kebir/Uweinat Mountain region, the landscape is reminiscent of the wind-scorched and lifeless surface of Mars.