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The Chaîne des Mongos- a newly discovered Precambrian fold belt in Central African Republic and South Sudan

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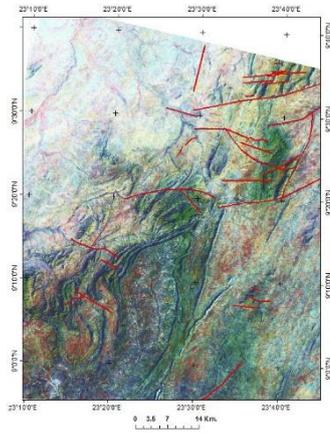
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The geology of eastern Central African Republic (CAR), and adjacent parts of South Sudan, is very poorly known, and on current geological maps the pre-Cretaceous basement is undifferentiated [1]. The Central African Shear Zone (CASZ) extends from Cameroon through northern CAR [2], where it forms a major gravity anomaly [3] and bounds the Cretaceous petroleum-bearing Doba Basin of S Chad. ENE-trending parallel dextral faults related to the CASZ cut through the Chaîne des Mongos, a newly-defined fold belt in NE CAR (in the Massif des Bongos, on the border between Vakaga and Haute-Kotto provinces) and S. Sudan (recognised from Landsat TM and SRTM-derived DEM imagery). The faults continue towards the Hofrat en Nahas (HEN) region of S. Sudan, where Cu mineralization is present in quartz-carbonate veins related to intrusive granites crosscutting the mylonitic foliation of the CASZ [4]. Magmatic zircons from the undeformed intrusive granites at HEN have a SHRIMP U-Pb age of c. 660 Ma. This gives a minimum age for the mylonitic shear zones of the CASZ, which themselves cut the Chaîne des Mongos, which thus is a Precambrian fold belt older than c. 660 Ma. The CASZ continues further to the NE, to the N Bayuda region of Sudan, where it controls the linear, SW-trending portion of the great bend in the Nile River between Abu Hamed and Merowe, and the NE trend of Wadi Melik, a Nile tributary. The CASZ may splay into several subparallel shears through central Bayuda, with dextral shear sense compared to the Zalingei fold belt of NW Sudan [5].

The Chaîne des Mongos, (Fig. 1) is a fold belt made up mainly of rugged quartzite hills (Fig. 2), which stand out in stark relief, with elevations reaching 1368m. The main deformation in this belt produced moderately tight to open upright ductile folds with NNW-SSE axial traces, which were sigmoidally refolded by a second deformation event, and then cut by *en echelon* ENE brittle dextral strike-slip faults of the CASZ. Although the age of the Chaîne des Mongos is constrained to be >660 Ma, the depositional age of the quartzites is unknown. The quartzites are probably part of a passive margin sequence, which was deformed and metamorphosed during a Precambrian orogenic event.



These rocks, which are situated on the northern margin of the Congo Craton, were probably deformed by the Neoproterozoic collision between the Congo and East Saharan cratons, which farther west produced the Oubangide fold-thrust belt, affecting Neoproterozoic supracrustal sequences in western CAR, Cameroon and Pernambuco, NE Brazil.



Figure 1: The Chaîne des Mongos, cut by dextral faults of the >660 Ma CASZ.

Figure 2: Quartzite hill near Birao, NE CAR

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