



Inconsistent magnetic polarities from Upper Messinian greigite-bearing sediments from Adana Basin (Southern Turkey)

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A paleomagnetic study has been carried out, in the framework of the VAMP (Vertical Anatolian Movement Project) project, in 2 stratigraphic sections from the Adana basin in the southern margin of the Anatolian Plateau. 303 standard cylindrical samples have been collected for paleomagnetic analysis and integrated with stratigraphic investigations. Stratigraphic analyses show that both the sections have been deposited in the upper Messinian “lago-mare” post-evaporitic event, which occurred in the Mediterranean basin, during the Chron C3r. Paleomagnetic results show that the two sections are characterized by an inconsistent magnetic polarity record, showing both normal and reverse polarities. Fold and reversal tests demonstrate that normal polarity samples have been subjected to a pervasive remagnetization overprint and acquired their magnetization after bedding tilting, whereas samples with a reverse polarity have acquired their magnetization before bedding tilting. Standard magnetic mineralogy investigations, integrated with SEM analyses and FORC diagrams, show that magnetite and authigenic iron sulphides (greigite) are the main magnetic carriers in both normal and reverse polarity samples, suggesting multiple stages of growth of magnetite and greigite minerals, during the evolutionary history of the Adana basin sedimentary deposits.