

Occurrence of Short-Lived Geomagnetic Features Through Time: the Late Miocene-Pliocene gap?

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The recording of reversal excursions or subchrons smaller than the resolution of the marine magnetic anomalies ('cryptochrons' or tiny wiggles), especially during the Brunhes and Matuyama Chrons, have revolutionized our understanding of the geomagnetic field. Remarkably, however, such ubiquitous short-lived reversals are not found in the Pliocene and late Miocene (Messinian), despite the presence of many high-resolution paleomagnetic records. In contrast again, many tiny wiggles have been recorded in middle Miocene successions. In this contribution, we will present new detailed records from middle Miocene sequences, from both continental and marine environment, which confirm many of the earlier reported wiggles, but also show that some new ones may have been recorded. In addition, this poses the intriguing question if specific periods in time really exist during which short-lived geomagnetic features do not occur. In other words: is there a 'true' late Miocene-Pliocene gap? If correct, than it does not seem to support the hypothesis of Gubbins (1999) that short-lived geomagnetic features are an inherent property of the geodynamo.

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