

## MAGNETIC MINERALOGY OF SANDS FROM TAKLIMAKAN DESERT, WESTERN CHINA: IMPLICATION FOR SOURCE OF CHINESE LOESS

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[http://www.big.ous.ac.jp/big\\_html/torii.html](http://www.big.ous.ac.jp/big_html/torii.html)

We studied magnetic property of sands from the Taklimakan Desert as a source of the Chinese loess.

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Surface sand samples collected across the Taklimakan Desert in the Tarim Basin, Xinjiang Uygur Autonomous Region, western China were examined with a rock magnetic method to elucidate magnetic mineralogy. We collected 19 samples along a route spanning about 1200 km in 1997. Magnetic mineralogy was determined based on high-temperature and low-temperature magnetic phase transitions. All samples clearly show the Verwey transition. The Curie temperature of 580 C is also observed without exception. Some samples show minor Curie temperature at about 300 C. Combined with the low-temperature analysis, we suggest coexistence of minor amount of titanomagnetite together with stoichiometric magnetite. Magnetic grain size suggested by the hysteresis parameters ranges from PSD to MD.

It is now well-established that the magnetic minerals in the Chinese loess/paleosol are either magnetite or maghemite. And even in the pristine loess, magnetite is oxidized to maghemite to some extent. However the magnetic mineral of the Taklimakan Desert samples shows the distinctive Verwey transition with relatively larger grain size. These lines of evidence suggest that either the desert sands of Taklimakan was not major source of the Chinese loess, or the magnetic minerals in the loess were substantially changed from its aeolian origin even in the pristine loess.