



## **Long term changes of the geomagnetic field and solar activity**

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The long-term solar activity has been recently reconstructed on the multi-millennium time scale (Solanki et al., *Nature*, 431, 384, 2004) from the measured concentration of radiocarbon  $^{14}\text{C}$  in tree rings. The exact level of the reconstructed solar activity depends, however, on independently evaluated data of the geomagnetic dipole strength variations. Recently, a new series of the palaeomagnetic dipole moment reconstruction for the last 7000 years has been presented by Korte and Constable (*Earth Plan. Sci. Lett.*, 236, 348, 2005), on the basis of a thorough complex analysis of global samples. The new palaeomagnetic series yields systematically lower dipole moment in the past, comparing to the earlier geomagnetic reconstructions. This may result in a slightly higher level of the reconstructed sunspot activity. We have revised the earlier sunspot activity reconstruction since 5000 BC, using the new geomagnetic data, and found that it is consistent with the previous results during most of the period. Solar activity was found to be higher than previously estimated during 2200 - 1500 BC, which can be due to a period of low geomagnetic dipole moment in the new paleomagnetic reconstruction. We stress that the finding on the unusual level of the contemporary solar activity is confirmed for the last millennia even with the new palaeomagnetic series. The Sun spends in the high activity state, similar to the modern episode, only 2-3 % of the time, implying that the modern high activity level is very unusual during the last 7000 years. The new reconstructions allows for a comparative study of the solar-terrestrial relations in the multi-millennium time scale.