Usoskin *et al.* Reply: The main concern of Raisbeck and Yiou (RY) [1] is related to the Antarctic ^{10}Be data for the period after 1900, which were not included in our study [2]. According to RY, there is no indication of exceptionally high solar activity after 1940 in these data, contrary to the results obtained in [2]. We did not include the Antarctic ^{10}Be data after 1900 in our sunspot number reconstruction following the line of Bard *et al.* [3], who also have restricted their comparison of the Antarctic ^{10}Be series with ^{14}C to the time before 1900. As the Comment by RY now clarifies, Bard *et al.* limited their analysis to this period because of the increasing anthropogenic effect on the Δ^{14}C series, which does not affect ^{10}Be. Anyway, as we show below, inclusion of the Antarctic ^{10}Be data after 1900 does not change the results presented in [2].

The Antarctic ^{10}Be data (Fig. 1 in RY) show a steep decrease between 1900 and the 1960s, which is in accordance with the Greenland (Dye-3) ^{10}Be data [4]. In contrast with the Greenland data, however, in the Antarctic data this decrease is interrupted in the 1970s, with the last two data points being higher. We have used both series to reconstruct the sunspot numbers and compare the results with the directly measured values [5] in Fig. 1. The three series agree fairly well, except for the period from about 1970 on, during which the values obtained from the Antarctic ^{10}Be series differ greatly from the actual values while the sunspot numbers obtained from the Greenland Dye-3 series still lie close to the directly measured values. This strongly suggests that the Antarctic series has been influenced by a nonsolar effect since 1970. We stress, however, that the discrepancy between the two ^{10}Be data sets is secondary when compared with the overall good agreement between the directly observed and reconstructed sunspot numbers.

Figure 1 also shows a comparison of the sunspot number reconstruction from the full Antarctic data set including all points after 1900 (''new'' series) with the reconstruction from the Antarctic data limited to the period prior to 1900 ([2], ''old'' series). A calibration factor has to be redetermined when using the complete Antarctic series, which leads to slightly modified values of the reconstructed sunspot numbers. The numerical difference between the two series lies between -3 and 5.5 with a rms of 2.1 and thus is within the range of model uncertainties [6]. The two highest peaks during the medieval maximum are 55 (49) around 950 and 54 (50) around 1200 in the new (old) series, which is still significantly lower than the currently observed level of sunspot activity. However, the reconstruction based upon the full Antarctica data set decreases to the very low value of about 20 in the 1980s, contrary to the directly measured values as well as to the sunspot number reconstructed from the Greenland ^{10}Be data.

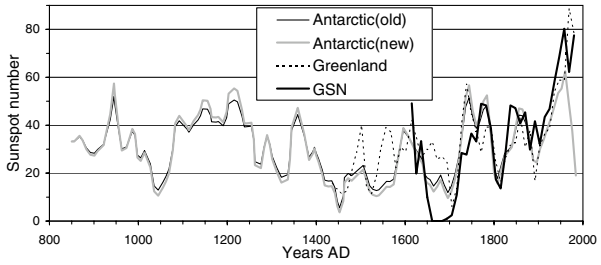

FIG. 1. Comparison of directly measured 11-year averaged sunspot numbers (GSN [5]) with reconstructions from ^{10}Be data.

In summary, our conclusion that the present high level of sunspot activity is unprecedented during the last millennium remains unchanged.

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