

## ***Interactive comment on “Historical $K$ index data collection of Soviet magnetic observatories, 1957–1992” by Natalia Sergeyeva et al.***

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We would like to thank the Referee for the comments. They helped us to improve the manuscript.

Lines 80–81 and Figure 2 The text describes 22 and 26 observatories, although Figure 2 shows locations of 41 geomagnetic observatories that may correspond to Table 1. Please indicate locations of the 22 and 26 observatories in Figure 2 or move the statement of “(Fig. 2)” to Line 87. We agree with the reviewer. The 22 and 26 observatories mentioned in the text are not marked among 41 observatories in Figure 2. Therefore, we move the reference to the Figure 2 to Line 89

Lines 99–101 and Figure 3 (a) This line is too simple to understand Figure 3. Needs

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more detailed statements. We have made reference here only to the images of historical analogue magnetograms (Fig. 3a, 3b). Figure 3c was given separately under number 4. The link to (Fig. 4) was moved to line 110, where the process of manually determining the index is described. We have made a more detailed caption to fig. 4. (b) Figures 3a and 3b are too small to read labels or necessary information. Please enlarge. In figure caption, “b)” is missed. We enlarged copies of magnetograms (Fig. 3a, 3b) and inserted b). (c) In Figure 3c, the purple bars are drawn only for the second trace (probably the H component), but why? The K index should be determined from both the H and D components (Lines 105–106). The Figure 4 (formerly 3ÑA) shows only example, how the amplitudes on one component are determined. This is indicated in the figure caption. (d) What is the date of the magnetograms in Figure 3c? This is just an example. The date doesn’t matter. Table 2 Scales 3 and 7 are not adopted to the 41 geomagnetic observatories shown in Table 1. Are these scales needed in this table? We agree that scales 3 and 7 are not needed to describe of observatories considered in this article, and we have removed lines 3 and 7 from Table 2. âĀĀ Line 145–146 and Figure 5 In Figure 5, there seems no indication of K9 limit. We replaced Figure 6 (formerly 5) with another one with indication of K9 limit.

Lines 163–164 The long-term data are very important. The referee suggests showing plots of the long-term (34–36 year) K index from a few representative observatories. Such plots will interest readers to access the data collection. We plotted K index daily mean values for the period 1958–1992 for three observatories: Heiss Island (HIS), Irkutsk (IRT), and Vostok (VOS). These observatories were selected to include high (HIS) and middle latitudes (IRT) for the northern hemisphere and Antarctica (VOS). This plot is added as figure 8.

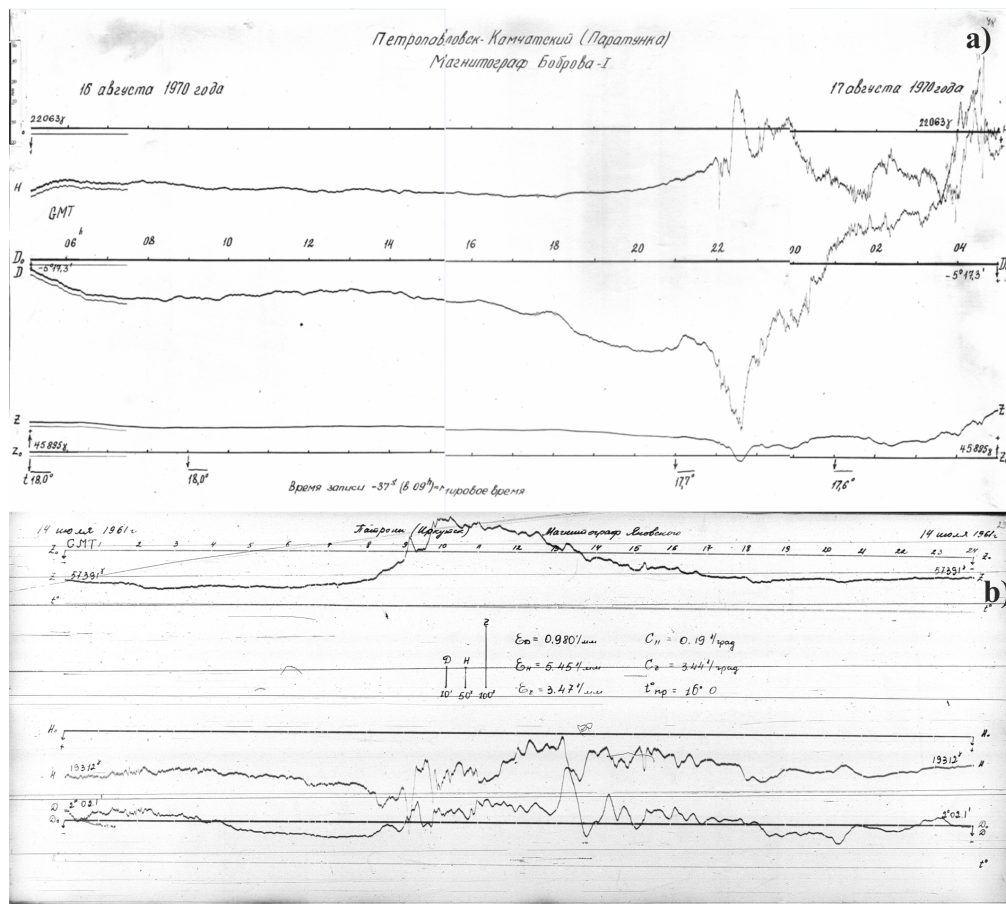
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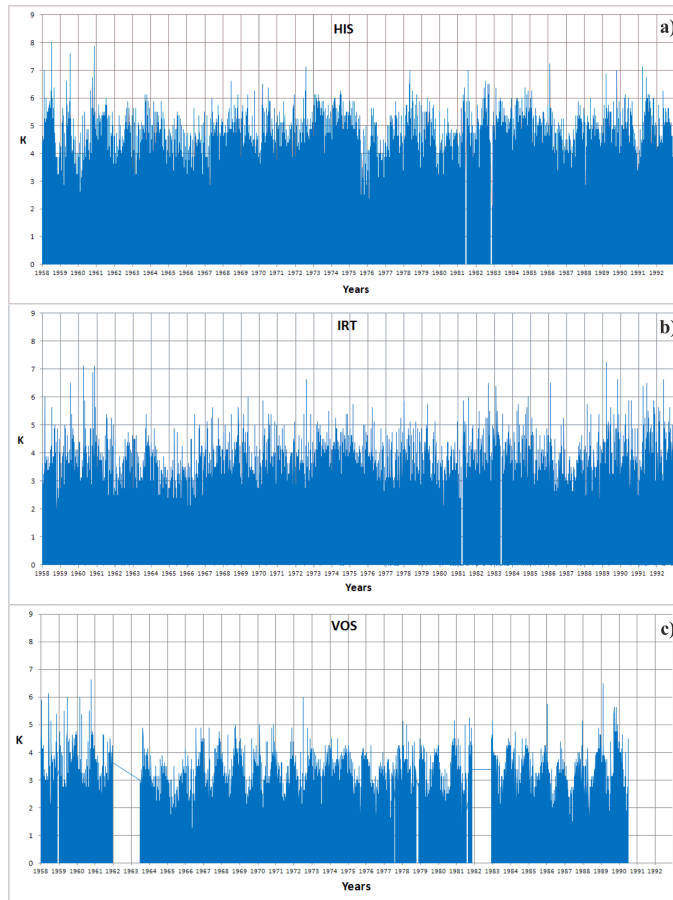
**Fig. 1.** Figure 3: Photocopies of analogue magnetograms: a) Petropavlovsk (Paratunka) observatory, 16–17.08.1970, Bobrov variometer; b) Irkutsk (Patrony), 14.07.1960, Yanovsky variometer.

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**Fig. 3.** Figure 8: K index daily mean values for the period 1958–1992 for three observatories: a) Heiss Island (HIS); b) Irkutsk (IRT); c) Vostok (VOS).