

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

### **Anonymous Referee #2**

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Referee’s report on “Historical K index data collection of Soviet magnetic observatories, 1957–1992” by Sergeyeva et al. (#Eessd-2020-270)

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This manuscript describes the history of Soviet geomagnetic observatories and data centers, general introduction of the K index, and historical K index data collection that are digitized from paper datasheets. The historical K index data collection is implemented as it follows the FAIR principles. The referee thinks that the manuscript is well-written and the data collection is very important. The manuscript is worth publishing in “Earth System Science Data” after the authors make minor revision according to the following comments.

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1. 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.
2. Lines 99–101 and Figure 3 (a) This line is too simple to understand Figure 3. Needs more detailed statements. (b) Figures 3a and 3b are too small to read labels or necessary information. Please enlarge. In figure caption, “b)” is missed. (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). (d) What is the date of the magnetograms in Figure 3c?
3. 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?
4. Line 145–146 and Figure 5 In Figure 5, there seems no indication of K9 limit.
5. 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.

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