

Interactive comment on “Early Soviet satellite magnetic field measurements over 1964 and 1970” by Roman Krasnoperov et al.

Anonymous Referee #1

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The submitted paper describes the Earth’s magnetic field satellite data from two early Russian satellite mission, Kosmos-321 and Kosmos-49. These data have are archived on microfiche and tables, and their digitization and publication are a valuable and important contribution to the accessibility of satellite magnetic field data. Therefore, I strongly encourage publication of this data set in digital form.

The paper describes the main aspects of the data and the underlying satellite mission. Still, the description of the dataset and its format could profit from more details and some more figures. Particularly, I have the following suggestions to make:

- Include scatter plots similar to Fig. 4, but for all data, and showing field magnitude and orbit altitude using colors, for each of the two missions (four plots in total)

C1

- Show a plot of orbit altitude vs. time, in order to better understand the altitude evolution of the satellites

- P.4, L85: Add information on decaying apogee with time during the mission (decaying from 487km to 472 km)

- The description of the dataset columns should be visualized as table (see p. 7, L127, and following lines)

- Are data of Kosmos-26 and Kosmos-356 missions also available somewhere?

- P.5, L95: If available, some information on occurrence rate and type of technical failures would be interesting

- P.6 , L108: 600000 measurements: Is this the total number of data created including all type of instruments? Where does this number come from?

- P.6, L108: "94% coverage": Plotting the data in a lon-lat-coordinate system, longitudinal data gaps are obvious. How did you derive this number - i.e. what area bin size did you use to define spatial data coverage?

- P.6, L109: Also here, please mention evolution of apogee, decaying from ~500 to ~300 km

- P.6, L110: In the data, 20s sampling rate is reported. Was the data decimated or is it a typo?

- P.6, L114: Is there more information on the applied correction available?

Concerning the dataset itself:

- Time should also be included in a more convenient format, e.g. JD2000 / UTC

- Columns in datasets for Kosmos-321 and Kosmis-49 mission should be consistent

- The 'Device' column is unnecessary as the dataset is split anyway

C2

- The 'Orbit number' column is missing for some data
- The header of Kosmos-49 data says '55162 data points', but there are only 8888 data points in the table. Similar error exists for Kosmos-321 data.
- The data time range on the DOI landing page is wrong for Kosmos-321 (whole year 1970)
- Can the orbits / data points be better visualized on PANGEA landing page?

Technical comments:

- Dolginov, 1965 is missing in the bibliography

Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2019-218>, 2019.