Reply on RC2 of 24 Jul 2025

We would like to sincerely thank you for your constructive and generally positive review of our manuscript. We greatly appreciate the time and effort you invested in providing detailed feedback, including the valuable annotations made directly in the reviewed manuscript file.

In some cases, we were not entirely sure how to interpret certain highlights or markings in the annotated file, as they were not always accompanied by specific comments. Nevertheless, wherever your intention was clear for us, we have made the appropriate revisions.

Below is a list of the changes we have made in response to your comments.

Referee note, line 44:

What do you mean by 'relevant'? Be more specific.

Reply:

The revised sentence with the word "relevant" now reads: „They are particularly relevant for the Swarm satellite mission (Macmillan and Olsen, 2013), as QD data are almost as accurate as Definitive Data but are available much earlier."

Referee note, line 98:

The following link is much more pertinent: https://intermagnet.org/structure.html#data-checking-task-team.

Reply:

has been corrected

Referee note, line 100:

Data Checking Team -> DCTT

Reply:

has been corrected

Referee note, line 104:

Add descriptions to X, Y, Z and G. Particularly, G isn't familiar to non-experts of Intermagnet

Reply:

The revised sentence is the following: "Twelve final 1.minute binary data files (*.bin), oriented XYZG where: X (north), Y (east), Z (vertical), and G is the difference between vector and scalar observations"

Referee note, line 110:

Add an explanation for IAF format or make a link to the relevant page of your latest Technical Manual v5.2.

Reply:

The revised sentence is the following: "Most are binary files, in INTERMAGNET Archive Format (IAF), as described in the Technical Manual (St-Louis et al., 2020), containing 1-minute data series of the XYZG geomagnetic field or K local magnetic activity index, along with essential metadata, such as:"

Referee note, lines 111, 116:

Explanation for what is K9-limit as well as K values themselves.

Reply:

A citation of the following work has been added: Menvielle, M., & Berthelier, A. (1991). The K-derived planetary indices: Description and availability. Reviews of Geophysics, 29(3), 415–432. https://doi.org/10.1029/91RG00994

Referee note, lines 126:

What do you mean by this sentence? If you are to say that there're still problems in Intermagnet metadata, describe them in detail.

Reply:

It would be difficult to include all possible inconsistencies in the article. However, we have expanded on the idea presented in that sentence:

An important aspect of quality control for geomagnetic data provided by INTERMAGNET observatories is the detection of inconsistencies within the dataset. This is particularly relevant because certain metadata, such as geographic coordinates, appear in several files of the dataset. One common issue is a discrepancy between 1-minute time series data and the annual averages contained in the yearmean file. Inconsistencies may also occur within the yearmean file itself - for example, between the X (north), Y (east), and H (horizontal) components. Many other types of discrepancies are also possible.

Referee note, line 129:

This should be a squared sum of X, Y and Z. Be consistent in your notation throughout your manuscript.

Reply:

has been corrected

Referee note, line 156:

Give pertinet links to IMFV and DKA in Technical Manual. If not, give explanations for each here.

Reply:

A sentence with a citation to the INTERMAGNET Technical Reference Manual was added here. This part of the text now looks as follows:

A Java application for converting between various geomagnetic data formats: WDC, IMFV, IAGA2002, ImagCDF, and INTERMAGNET-DKA. Definitions of these formats, particularly those used by INTERMAGNET, can be found in the INTERMAGNET Technical Reference Manual (St-Louis et al., 2020). The application can operate in both graphical and command-line modes.

Referee note, line 173:

Add description to DF.

Reply:

Now the figure caption is as follows. Fig. 2. MagPy. Graphical visualization of XYZ for one month (here for Conrad Observatory WIC, DF=F-S).

Referee note, line 185:

This is good. However, it may lead to many DOIs that rob transparency for data users. Do you have any routines that convert multiple DOIs to a single anuual DOI?

Reply:

The idea is to have a single DOI. New data will continue to be added under this DOI over time. Simply put, the same DOI will cover all INTERMAGNET Definitive Data data from 1991 up to the most recently submitted and accepted data.

Referee note, line 190:

Data Checking

Reply:

It was corrected by using the abbreviation DCTT that was introduced earlier.