

Response to comments from Reviewer 1

We greatly appreciate Reviewer 1's comments and support to our work. We basically agree his/her suggestions and applied corrections pointed out. Our responses are given below.

1. Page 3, lines 7-8:

The field notes by Tadataka Ino describes the direction of the target (mountain etc.) measured by his compass without the knowledge on the existence of declination. We can estimate (recover) the declination at that time from his measurement with current geographical information, and hence, his notes themselves are not the record of geomagnetic field. So, the description should be modified. For example, '... can be estimated ...' etc.

The sentence is modified as '... can be known ...'.

2. Page 3, line 9:

Kato (1983) is not listed in References.

The reference is as follows.

Kato, A.: The magnetic compass of Masamune Date and secular variations of the declination around Japan, in Centennial history of geomagnetic observations in Japan, Ed. by Kakioka Magnetic Observatory, 101-108, 1983

3. Page 3, Lines 23-24:

(Hydrographic Bureau, 1983) and (Geological Survey of Japan, 1884, 1885, 1886) are not in References.

The references are added with some changes. Hydrographic Bureau (1983) should be Hydrographic Bureau (1883) as follows.

Hydrographic Bureau: Report of the Naval Observatory, 76pp.,1883 (in Japanese).

We could not access the original references (Geological Survey of Japan in Report of Minister of Agriculture and Commerce, 1884, 1885, 1886), therefore we refer to a work which refers to them as follows.

Supporting Group for Centennial Anniversary of Geological Survey of Japan: Centennial history of

Geological Survey of Japan, Ed. by Editorial Committee of Centennial History of Geological Survey of Japan, Tsukuba, 162pp., 1983 (in Japanese).

4. Page 3, line 34:

The Geographical Bureau (1886) is not in References.

The name of the bureau was mistakenly written as 'Geophysical' in References. It was corrected.

5. Page 4, line 2:

'Kkitanomaru' should read 'Kitanomaru'.

Actually, we realized this should be 'Honmaru' not 'Kitanomaru'. Mistakes were corrected.

6. Page 10, Figure caption:

(b) Wild-Edelmann theodolite and Wild-Edelmann earth inducer---Which is theodolite and which is earth inducer?

The figure caption of Fig.5 was changed to specify two equipments as '... (b) Wild-Edelmann theodolite (right) and Edelmann earth inductor (center)'.

7. Page 12 and page 14:

If possible, the year when these photos were taken should be given.

The photo of Fig. 7 was taken in 1927. It was added in the figure caption. As for Fig.6, the year it was taken is unknown.

8. Page 29, line 17:

Japan Society for the Promotion of Science (1951)

--Which is correct, 1951 or 1950? In the References, it is 1950.

Year 1950 is correct. The year in the text was corrected.

9. Page 40, Line 34:

'International Magnetosphere Study' should be 'International Magnetospheric Study'.

The spelling of the word was corrected.

10. Page 43, line 11:

The URL where we can read 'Gijyutsu Houkoku' or 'Memoir of Kakioka Magnetic Observatory' should be indicated.

The URL for Memoir of Kakioka Magnetic Observatory was added to Page 29 where the journal is firstly mentioned. Unfortunately, Gijyutsu Houkoku is available only off-line and a sentence was added to explain it in Page 43. The URL for Technical Report of Kakioka Magnetic Observatory is also added in Page 59.

11. Page 45, line 7:

Kuwashima, 2012 is not listed in References.

The reference is added as follows.

Kuwashima, M.; Obituary of Dr. Kazuo Yanagihara, Transactions of Society of Geomagnetism and Earth, Planetary and Space Sciences, 212, 15-16, 2012 (in Japanese).

12. Page 45, line 7:

'was determined' should be 'decided'?

Descriptions by many his colleagues give us the impression that Dr. Yanagihara was a determined person and that was a driving force to develop KASSMER. Therefore, we made no change in this part.

13. Page 53, line 14:

The derivation of the Dst index at WDC for Geomagnetism, Kyoto started in 1986 (not 1973).

Thank you for pointing out this mistake. It was corrected.

14. Page 54, line 11:

The former English name of SGEPS is 'Society of Terrestrial Magnetism and Geoelectricity of Japan'.

It was corrected.

15. Page 56, line 9:

(Wakabayashi, 2019) is not in References.

The reference is added as follows.

Wakabayashi, Y.: Study of operational meteorology in Japan, University of Tokyo Press, Tokyo, 384pp., 2019 (in Japanese).

16. Page 59, line 16:

(Okada et al., 2005) is not in References.

The reference is as follows.

Okada, M., Toya, T., Koike, K., Owada, T., Nakajima, S., Shigeno, N., Muromatsu, F., Ookawa, T., Tokumoto, T., Imaizumi, T., Tanaka, T., Sawada, M., Iwase, Y., Ikoma, Y., Kaito, M., Koike, T., Akutagawa, M., Kumasaka, N., Kameya, A., Uesugi, T., Akashi, T., Takahashi, H., Hasegawa, H., Ishida, N., Yokoyama, M., Yamagishi, K., Akita, Y., Kumagaya, N., Iwakata, H., Ose, M., Koide, T., Ishii, Y., and Fujii, I.: Reports on the XIth IAGA Workshop on Geomagnetic Observatory Instruments, Data Acquisition and Processing held at Kakioka/Tsukuba, Japan, in 2004, Tec. Rep. Kakioka Mag. Obs., 3, 1-62, 2005.

17. page 67, line 23-24:

The Geophysical Breau .. is not referred in the text. Or is this 'Geographical Bureau'?

‘Geographical Bureau’ is correct. The correction was made.

18. Page 68, line 3:

Wadati and Kuwano, 1938 is nor referred in the text.

That reference is removed. In addition, ‘Wadati’ was missing when Wadati (1927) was referred in Page 22, so ‘Wadati’ was added there.

19 Page 64-69, References:

At the end of many references, ',last accessed 18, April 2022' is written. These should be removed.

When an URL is shown to access to a reference, we add the date we accessed it as following HGSS’s web page reference format. We accessed many references again just before our submission to make sure the URLs are active, so the same date repeatedly appears in References. The format of the date was modified so that it follows HGSS’s format precisely.

Most of URLs in References are for web pages KMO opens their publications through their home

page. Those publications are not tied to the DOI system yet, therefore giving URL might be useful to readers. However, we understand those descriptions may be removed or modified in the HGSS's checking process before publishment.