

Hist. Geo Space. Sci. Discuss., community comment CC1  
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## Comment on hgss-2022-9

Gwyn Griffiths

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Community comment on "Understanding the drift of Shackleton's *Endurance* during its last days before it sank in November 1915, using meteorological reanalysis data" by Marc de Vos et al., Hist. Geo Space. Sci. Discuss., <https://doi.org/10.5194/hgss-2022-9-CC1>, 2022

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This paper presents an interesting new reanalysis of meteorological data that augments and complements previous studies on the drift of the *Endurance* prior to the vessel's sinking.

The following are relatively minor comments:

Line 34: "low frequency" - for posterity, as I cannot find the detail elsewhere, please include the type and actual frequencies of the sidescan sonar. While its frequency may be considered "low frequency" on the radio frequency spectrum, for underwater acoustics it is likely to be either medium or high frequency, that is, above 20 kHz.

Line 52: "local time" - it is only near the end of the paper than the reader finds the longitude and so is able to interpret local time. The nuances between Zone Time (integer hour offset from GMT (UTC)) and Ship's Time, and the relationship of Ship's Time to Local Apparent Noon on the *Endurance* are discussed in Bergman and Stuart (2019). This paper also gives insights into the accuracy of navigational sights during earlier parts of the voyage.

Line 53: There is no attempt to quantify what is meant by accurate. Perhaps a reading of, and reference to, Bergman and Stuart may help. Also affecting accuracy may be the reanalysis using modern lunar ephemerides and catalogues of star positions in the unpublished paper by Bergman et al. available at <http://fer3.com/arc/imgx/OccultationCEPreprint.pdf>

Line 136: Multiplying the 24-hour error range of 4 km to 10 km by four for the 4 day period is too simplistic. It would be a fair approximation if and only if there was no change in direction for the drift over the 4 days. The error per day should be treated as a vector and not a scalar and the 4-day vector error estimated.

Bergman, L. and Stuart, R.G., 2019. Navigation on Shackleton's voyage to Antarctica'. *Records of the Canterbury Museum*, 33, pp.5-22