Natural Hazards and Earth System Sciences Discussions

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC2
https://doi.org/10.5194/nhess-2021-15-RC2, 2021

Comment on nhess-2021-15

Anonymous Referee #2

Referee comment on "A harmonised instrumental earthquake catalogue for Iceland and the northern Mid-Atlantic Ridge" by Kristján Jónasson et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-15-RC2, 2021

This submission describes the work to compile an update instrumental earthquake catalogue (since 1904) for Iceland (ICEL) and surrounding areas, including a large part of the North Mid-Oceanic Atlantic ocean (NMAR region). The authors combine several sources, both from local and international providers. For what regards location parameters, the authors main focus has been to find the best source for different time periods, and validating cases using, when available, local information and their judgement, given the knowledge of the area. Note that for the early part of last century this approach can introduce in the catalogue mislocated events (many entries in the early years are rounded to the nearest degree) and, at times, spurious entries, as pointed out, for example, by Di Giacomo and Dewey (2020).

Most of the focus of the work, however, is to harmonize the magnitude composition of the catalogue in terms of Mw. When available from GCMT, the authors use it as golden standard, otherwise a proxy value is computed. The authors, therefore, derive conversion relationships for the area using MS and mb, preferably from ISC, or a mix of available values. Whilst this approach is sound, the uncertainties of the proxy values found in the catalogue seem somewhat optimistic, particularly for those entries where the authors use MS from different sources.

The work in general is well presented and the text requires only minor adjustments. However, (possibly) some inconsistencies in the catalogue files have been found and some questions on the authors approach are raised. Please see the comments, concerns and queries in the annotated PDF here attached.

Please also note the supplement to this comment:
https://nhess.copernicus.org/preprints/nhess-2021-15/nhess-2021-15-RC2-supplement.pdf