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.

We thank the referee for his kind words, and even more for his very careful reading of the manuscript and meticulous checking of the accompanying data files.

Regarding the uncertainties provided for the proxy values, they are simply statistical estimates, computed with the statistical methods described in the manuscript, using as input uncertainty estimates from the cited literature as well as properties of the data themselves. Thus they are aleatoric and no attempt is made to guess or estimate the epistemic part of the uncertainty (cf. the Wikipedia article on “Uncertainty quantification”). Nevertheless we can admit that the uncertainties may be somewhat optimistic, especially for the mb regression. We shall thus change 0.30 to 0.35 on line 332 (mb error before 1965).

We have copied the annotations from the PDF file, and they are listed below with our replies after each one.

L7: First occurrence of Mw, add its full name here and use Mw in place of "moment magnitude" at line 11
OK

L8: I suggest to use 7.0 instead of 7.01 in the text
Shall be done

L8: Consider replacing "melting" with "merging"
Yes, we replace it

L12: the surface wave magnitude MS, but exceptionally on the short-period body-wave magnitude mb
We shall put in surface-wave and body-wave but exclude short-period, to not lengthen the abstract. We also put the definition (i.e. MS, mb in brackets) in the Introduction and not here for the same reason.

L31: With the the first occurrence of "harmonized earthquake catalogue" in the text, it would be appropriate to define what "harmonized" means here. Recent literature on this topic often uses "harmonized" as "homogenized". Hence the reader may expect that the authors harmonize (homogeneise) the catalogue both in location and magnitude. However, the authors harmonize only in terms of magnitude, and the locations are compiled from several different source
We shall add the suggested definition of harmonised, and also emphasize that it are only the

magnitudes which are harmanized. We plan to state: "**...construct a catalogue with harmonised magnitudes (which are comparable in both time and space) and reassessed locations**"

L39: Please use the citations given at https://www.globalcmt.org/CMTcite.html
We do provide those citations further down where the GCMT is discussed under its own heading. Here there is only a reference to the GCMT website. Similarly, proper citations to ISC wait for the section about ISC. We are trying to make the Introduction more readable. Hope that is OK.

L47: Delete "Opposite to magnitudes"
This paragraph has been (completely) rewritten in response to critique by Referee 1 (including dropping "Opposite to magnitudes"), see our reply marked "lines 47–48" above.

L48: Is this intended for the entire catalogue? It would help if the authors specify in which time period "local information" is crucial to improve the locations
The rewritten paragraph now clearly states that it is intended for the entire catalogue (see rewritten paragraph marked "lines 47–48" above)

Fig 2: [*Pencil around largish earthquake south of Ireland*] I suggest to filter out from the NMAR region all earthquakes that are not part of the mid-oceanic ridge. Indeed, there is no need to include in this catalogue earthquakes that occurred in UK and France, and also the event along lat=45N and east of longitude -20. In addition, did the author check the reliability of event 0674 in the catalogue file (orange circle south the coast of Ireland, highlighted in the map by a hand-drwan green marker)? It seems that the authors picked from the ISC Bulletin a NAO solution (hence not clear why loc-src and time-src in the catalogue file are set equal to ISC, they should be ISCother), which is unreviewed and probably should have been grouped with the explosion at 08:33:46, see http://isc-mirror.iris.washington.edu/cgi-bin/web-db-v4?request=COMPREHENSIVE&out_format=ISF&searchshape=RECT&bot_lat=&top_lat=&left_lon=&right_lon=&ctr_lat=&ctr_lon=&radius=&max_dist_units=deg&srn=&grn=&start_year=1971&start_month=7&start_day=20&start_time=08%3A00%3A00&end_year=1971&end_month=7&end_day=20&end_time=09%3A00%3A00&min_dep=&max_dep=&min_mag=&max_mag=&req_mag_type=&req_mag_agcy=&min_def=&max_def=&include_magnitudes=on&include_links=on&include_headers=on&include_comments=on
All events outside the ICEL region are taken verbatim from the ISC catalog, and no reliability check is made (as we state in the manuscript). This includes event 0674. The ISC catalog (downloaded from the ISC website cited on line 97 on 23 Nov. 2020), contains codes for each magnitude on whether it is reviewed or not, but no such information is provided for the origin time and epicenter. This explains why sometimes a magnitude source is given as "ISCother" and sometimes as "ISC", but all times and epicenters from ISC are simply coded as ISC. Section 2.1.1 in the manuscript explains how the ISC catalogue is organized. We shall reorganized and improved the explanations in the supporting info file and say:

> **For each event the ISC catalog [12] has one location and time but multiple magnitudes. Some of the magnitudes are marked ISC, and these have been reviewed by the ISC. Magnitudes marked CTBTO, PAS, Sykes, ZUR-RMT and most of the USGS-ones also come from the ISC-catlog, and so do those marked ISCother, which covers all remaining non-reviewd ISC magnitude sources.**
>
> **Locations and times taken from the ISC catalogue are, however, all marked ISC.**

Regarding the suggestion to filter out events outside the NMAR, we are hesitant. Firstly, it would have a very marginal effect on our regression models to exclude these events, as they are few and none of them big. In addition, the map in Figure 2, and the corresponding data in our catalogue, simply state what is in the ISC catalogue, without any judgement, and we think it may be informative to some readers.

L68: The ISC Bulletin contains the local solutions (under agency REY), and local station readings since its beginning in 1964. As such, the ISC Bulletin combined local and global solutions, see events from http://isc-mirror.iris.washington.edu/cgi-bin/web-db-v4?request=COMPREHENSIVE&out_format=ISF&searchshape=RECT&bot_lat=62&top_lat=68&left_lon=-26&right_lon=-12&ctr_lat=&ctr_lon=&radius=&max_dist_units=deg&srn=&grn=&start_year=1964&start_month=1&start_day=01&start_time=00%3A00%3A00&end_year=1999&end_month=1&end_day=01&end_time=00%3A00%3A00&min_dep=&max_dep=&min_mag=3.8&max_mag=&req_mag_type=&req_mag_agcy=&min_def=&max_def=&include_magnitudes=on&include_links=on&include_headers=on
That is correct (but there are only 14 events given a REY location, in 2018–2019). However after staring at our statement we decided to remove it (it does for example not specify Iceland).

L75: magnitude units
OK "**magnitude units**"

L82: 1904
Absolutely right

L82: replace with "Global Instrumental Earthquake Catalogue"
OK. We shall spell everything out in full.

L83: Note that version 7 of the ISC-GEM catalogue was released in April 2020. It may be that the authors used version 6 (released in 2019) at the time of writing this work / preparing the catalogue. If this is the case please specify it in the text. Otherwise update the text with the latest version 7 of the ISC-GEM catalogue.
We were in fact using the most recent version (v. 7) in our comparison, but had not updated the manuscript text. We shall do that, saying "**with version 7 being released in 2020 (Storchak et al., 2013; Di Giacomo et al., 2015)**".

L84: Those were the cut-off magnitude adopted for the first relaese in 2013 (as explained in Storchak et al., 2013; Di Giacomo et al., 2015). However, those cut-off magnitudes were lowered during the extention of the catalogue (see Di Giacomo et al., 2018, doi:10.5194/essd-10-1877-2018). Delete the sentence
Shall be deleted.

L88: This is an abrupt end of the Introduction. There is no clue what the ISC-GEM and Panzera catalogues mentioned here are relevant for in this work. Did the authors use in any way any of them? If not then please clarify why. As it is the text does not give the reader a meaning for last two paragraphs.
We used the former and not the latter. To explain we shall add: "**It is not used as a source for the new catalogue but instead for quality check and comparison**" after the ICS-GEM discussion and "**Unfortunately the IMO magnitudes are very inaccurate, at least when MW ≥ 4 (Fig. 4), and thus this catalogue has not been used directly in the current work**" after the Panzera discussion

In addition, the Introduction should end with a glimpse of what the next sections will cover.
That is correct, a summary was missing. We shall add: "**The next section discusses the primary sources used to compile the new catalogue. This is followed by a two sections describing how epicenters and magnitudes in the catalogue are determined. The final section contains details of the catlogue, including how to retrieve it, as well as a discussion of completeness magnitude, comparison with ISC-GEM, and comparison with the total moment of a simple plate motion model.**"

L98: This sounds a bit measleading. It is true that for one origin time there could from 0 to N magnitudes associated with that origin, but for most of the events M4+ the ISC

Bulletin has multiple origin times (with N magnitudes associated to each origin time). Each event has a prime location (= ISC if the event is relocated by the ISC)
We have looked carefully at the catalogue downloaded from the ISC website cited on line 97 on 23 Nov. 2020, with all available MS, mb and MW values for the NATL region. The shortest time difference for subsequent events in similar location (within 200 km) is 14 seconds, which we deem to represent two different events. We say "For each earthquake a single origin time (UTC) and location **but** multiple magnitude values are provided". We shall change "with" to "but" and hope it maybe less misleading??

L99: It should be explained why the authors do not consider the local magnitude, especially for ICEL region. Their catalogue goes down to M4, and the teleseismic computation of Mw, mb and MS may not provide the best magnitude available for smaller earthquakes (say below 5 or 4.5).
We simply decided that ML is not very standardized... Moreover, the ISC-GEM project does not use ML and we are following their methodology to some extent. In addition many of the ML values are from the REY (Reykjavik) agency, which we are excluding as explained in the manuscript (see also our reply to the L88 comment). We think that these reasons need not be mentioned in the manuscript.

L112: Again, there are 653 GCMT solutions in the ICEL-NMAR region at the time of writing, but we all know very well GCMT now it would have more solutions. Therefore, it would be good to specify when this was done (time of preparing the paper? of the catalogue?).
We shall add the download date (25 Nov. 2020) to the GCMT entry in the reference list cited on line 110. We shall do the same for the ISC and USGS entries.

L113–14: I suggest the authors to review this practice when compiling the catalog. Quoted from the GCMT website (https://www.globalcmt.org/CMTsearch.html):

"The moment magnitude is calculated by this software using the formula of Kanamori (1977), MW = (2/3)*(log M0 - 16.1), where M0 is given in units of dyne-cm. Prior to February 1, 2006, the quantity (2/3)*16.1 was rounded to the value 10.73. For a small number of earthquakes, searches conducted after 2006/02/01 will give values for MW that differ by 0.1 magnitude unit from values given by searches prior to 2006/02/01."

The ISC Bulletin uses the seismic moment from the GCMT solution to obtain Mw to avoid rounding effects, so it may be advisable to stick to the GCMT Mw values listed in the ISC Bulletin.
Currently we say „There are 653 events in the NMAR region in this catalogue, and all but 9 of them are also in the ISC catalogue, marked as originating from GCMT. In 482 cases the MW match but in 171 cases there is a mismatch of 0.1 magnitude, and the average is used here". Unfortunately some of this information is incorrect, it was written before we downloaded the latest versions of the catalogs. We plan to say: „**There are 663 events in the NMAR region in this catalogue, and all but 7 of them are also in the ISC catalogue. The GCMT catalog gives MW with two decimal places, while ISC gives only one, but apart from that most of the values match between the catalogs.**"

Moreover we stopped taking the average and chose instead to use the GCMT value directly, as it provides more decimal places. But that information doesn't belong here, but in section 4, where we say that GCMT MW-values are used verbatim when available.

L113: If I am not mistaken, in the file icel-nmar.txt there are 7 (not 9) GCMT solutions that apparently are not in the ISC catalog:

1226	NMAR	1982-05-02T07:12:44	43.61	-28.94	5.64	0.09	nan	nan	nan	nan	GCMT	-	-	USGS	GCMT
1266	NMAR	1983-01-15T06:43:58	73.17	5.72	5.27	0.09	nan	nan	nan	nan	GCMT	-	-	USGS	GCMT
1830	NMAR	1990-12-04T09:12:51	43.76	-28.87	5.51	0.09	nan	nan	nan	nan	GCMT	-	-	USGS	GCMT
2604	NMAR	1999-06-07T16:35:47	73.08	5.45	5.49	0.09	nan	nan	nan	nan	GCMT	-	-	USGS	GCMT
6543	NMAR	2018-05-30T10:30:43	76.28	-1.86	5.25	0.09	nan	nan	nan	nan	GCMT	-	-	USGS	GCMT
6569	NMAR	2018-08-09T08:30:32	54.25	-35.25	4.78	0.09	nan	nan	nan	nan	GCMT	-	-	USGS	GCMT
6589	NMAR	2018-08-31T15:37:41	69.07	-11.00	4.71	0.09	nan	nan	nan	nan	GCMT	-	-	USGS	GCMT

However, for all of these events the ISC Bulletin lists the ISC location and ISC magnitudes and includes the GCMT solution, e.g.: http://isc-mirror.iris.washington.edu/cgi-bin/web-db-v4?event_id=598169&out_format=IMS1.0&request=COMPREHENSIVE

We shall correct the 9 to 7; see reply to previous comment. The reviewer is correct that the ISC bullettin does provide the tensor solution when looking up the individual events, but these are not really needed for our catalog, as the GCMT web site provides them in more easily accessible format.

L115: It is indeed a pity that the Ambraseys and Sigbjörnsson catalogue is not available online. It would be good to cross-check the solutions from Ambraseys and Sigbjörnsson with the locations from the ISC-GEM Catalogue. The latter used modern location techiniques and, most likely, a more comprehensive set of stations to recompute locations

We have checked the locations in the ISC-GEM against those in the new catalog within 20 km from the shore of Iceland. We judge our locations to be the most accurate available, with errors of a few kilometers after 1975, and before that the error is unlikely to be more than 10–15 km, at least for large earthquakes as are in the ISC-GEM. There are 18 events after 1975 and the median, 3rd quartile and maximum location difference are 13, 17 and 63 km. Until 1975 there are 15 events with median, 3rd q. and max distance of 22, 53 and 210 km. This difference must be attributed to inaccuracy of the ISC-GEM locations. We have thought about whether to include this information in the manuscript and didn't really find a suitable place to put it, so we plan to leave it out.

L121: please add the reference (BAAS 1913-1917)

> BAAS: British Association for the Advancement of Science, Seismological Committee, quarterly issues, 1913–1917.

We shall add this reference

L126: this is not strictly correct, as the USGS lists a preferred magnitude value (often Mww in recent years), but many other magnitudes are also available, e.g.: https://earthquake.usgs.gov/earthquakes/eventpage/us6000afgh/origin/magnitude

We have already addressed this issue and proposed a change in our reply to the comment on line 126 by referee1.

L128: The USGS (reporting under agency NEIC in the ISC Bulletin) is one of the main contributors of the ISC Bulletin. Hence, there is not so much surprise that the "USGS-labeled value" is the same in the ISC Bulletin. However, after the NEIC bulletin is included in the ISC Bulletin, the ISC locations benefits from additional reports and further analyst review. That the ISC and NEIC location differ even of a tens ok km is well-known. What is missing in the sub-section is what use the authors have of the USGS and what matters for this work that USGS locations can differ from ISC locations

The reason that we discuss the USGS catalogue is primarily that we considered it to be the most important international catalogue apart from ISC and GCMT. It it true that it has few magnitudes that are not in ISC, but it is a separate downloadable catalog with independent locations from those of ISC, and the location difference is discussed again and made use of both in section 3.2 and 3.3.

Section 2 discusses all our sources without details of how they are used, and thus we do not see need to add such details for USGS.

L187: please review the use of commas
Two commas will be dropped.

L188–190: this is a risky practice. Particularly in the early part of last century mislocations can be larger than 100 km (and comsidering that many location listed in the catalogue are rounded to the nearest degree), and without station data one may not group origins when necesary and, therefore, create phantom events.
We checked our procedure, and discovered that the referee's concern is valid. We have rerun our earthquake pairing procedure with several combinations of time and distance windows. With 15 s and 300 km we discovered 4 phantom events which we had introduced when combining USGS and ISC: On 1986-06-26 (11 s, 132 km), 1997-12-26 (12 s, 129 km), 2006-06-14 (8 s, 284 km) and 2007-12-10 (4 s, 122 km). In all cases we discovered that the ISC review procedure had decided that these were not separate events. With the same window, when combining GCMT and ISC, 1 phantom event arose, on 2018-08-31 (13 s, 202 km). Finally, when combining AmbSig and ISC we needed to raise the distance window slightly and discovered 1 phantom event on 1964-02-26 (4s, 310 km). If we raised the windows to 25 s and 1000 km (90 s in the AmbSig case) no further misidentified pairings were discovered. We shal change the description in the article and say "**Jones et al. (2000) and several later publications propose that two records that differ by less than 16 s and 100 km refer to the same earthquake. We have discovered that this is too strict, and use windows of 16 s and 320 km. Increasing the window to 25 s and 1000 km gave identical event pairings.**". We shall also change the catalog itself accordingly.

When doing the review of the catalogue we discovered that when available, SIL locations had been selected for all events, even those far offshore Iceland. As these locations become increasingly inaccurate when moving off Iceland, we changed this procedure, and now shall use ISC locations instead for events outside 63°–67°N and 13°–25°W. We shall change and simplify the relevant paragraph on lines 236–242. We remove from "whereas" to the end of the section and insert "**The SIL-locations are however accurate to a few km inside the station network, and they are judged to be more accurate than the teleseismic locations in the region 63°N–67°N and 13°W–25°W**"

After making these changes we have redone the classification of location sources reported in section 3.1, and added similar classification for the period after 1990 at the end of section 3.2. We also redid the counting of events according to magnitude source in section 4.1. All these counts are now done using data available in the final catalogue, instead of the preliminary data file (cf. Section 2.3), and therefore could be verified by the reader. We shall add an explanation of the procedure at the end of section 2.3: "**It** [the data file] **contains some smaller earthquakes that are absent from the final catalogue, as explained at the beginning of Section 4 below. The counts of events according to period, region, location source, and magnitude source, in Sections 3.1, 3.2 and 4.1, are however all made using the catlogue, instead of this data file, as we deem that information to be more relevant for the reader.**"

L194: It seems that the Section regards only ICEL region. Therefore it would be appropriate to specify that in the Section title
We agree and change the title to "**Earthquake locations in the ICEL region**"

L210: more than a relocation this sounds more like fixing the location based on local information
We shall say "and **adjusted the location** of 6 events"

L243: I suggest to rename this sub-section as "Variability of earthquake locations" or simply "Location differences", as to give a measure of location accuracy one should compare earthquake locations with ground-truth locations (hence, I suggest to refrain from using

"accuracy" in the text when referring to earthquake location). Nevertheless, the statistics included in this brief sub-section do not give, strictly speaking, measures of location accuracy but rather statistics on location differences, which, in turn, can be considered as a proxy of the precision of the locations.
We shall rename the section "**Uncertainty of earthquake locations"** and add an explanation at the beginning of the section and say: "**To get some indication of the uncertainty in event locations in the international catalogues we have looked at the variability between diffent catalogs, which can be considered as a proxy of the precision of the locations.** We have also recomputed all the differences and statistics and now include 90th percentiles in addition to medians and maximum.

In addition, it is a bit confusing that the last sentence specifies ISC-USGS comparisons in the ICEL region when ISC-USGS comparison was already mentioned in the previous sentence. Does that refer to the whole ICEL-NMAR then? Please clarify
We are also confused. We shall remove the last comparison.

L252–254: In line with previous comments, I suggest to remove this sentences and start the section with sentence at line 255
We are hesitant to remove the whole sentence, as it explains the methodology underlying the whole project, but we intend to rewrite it and say: "**Contrary to earthquake locations, where local information is crucial, estimating the size of larger earthquakes with teleseismic data is often easier and more reliable than using regional and local data. The dominant periods at teleseismic distances are longer and the structure is smoother due to attenuation of the higher frequencies**"

L256: please review the use of the comma here
OK

L259: [Delete "thus killing two birds with one stone"]
The phrase has already been killed at the request of referee 1 :)

L274: It seems that only 2 Mw are from USGS in the catalogue file:

```
4868  NMAR   2012-05-24T22:47:47   72.96   5.68   6.10 0.11    nan  nan    nan  nan   USGS    -        -        USGS     USGS
6801  NMAR   2019-06-21T06:50:58   47.12  -0.41   4.00  nan   3.85 0.20   4.08 0.24   USGS    CTBTO    Average  ISC      ISC
```

Yes this is correct there are only 2 Mw, and the recounting described at the end of our reply to L188–190 shows that. It will be corrected.

and for event 4868 the GCMT solution is available:

> http://isc-mirror.iris.washington.edu/cgi-bin/web-db-v4?event_id=601033410&out_format=IMS1.0&request=COMPREHENSIVE

whereas for event 6801 it is true that Mw comes only from USGS, but one wonders if an event in France should be included in the NMAR region, see also comment for Figure 2
Event 4868 is exactly on the border of the NMAR region, in the primary ISC catalog (not the COMPREHENSIVE) its location is on 73.03°N but in the USGS catalog it is on 72.96°N. This explains the missing GCMT solution. This could of course be corrected by downloading a larger area and make the restriction to the NMAR-region in the final stage. We consider this discrepancy to be not so important to warrant this extra work.

L279: Here the authors may wish to cite a very similar result found by Gasperini et al. (2012), doi:10.1111/j.1365-246X.2012.05575.x
The citation shall be added.

L354: Is there a reason why Mw-sd = nan for 3015 entries in the file icel-nmar.txt ?
These, now 3012, are events with (proxy or modelled) MW < 4.5. All but 52 are modelled,

and one can see from the graphs in Figure 3 that the regression standard error is not well determined in this lower range of the magnitudes. We shall say on line 427 that "**uncertainty was not computed for MW < 4.5 because the regression accuracy is reduced at the lower magnitudes**".

L363: This regression model was first introduced by Di Giacomo et al. (2015), doi:10.1016/j.pepi.2014.06.005
We shall add a reference to Di Giacomo et al.

L367–368: the histogram equaliztion was suggested by Di Giacomo et al. (2015), doi:10.1016/j.pepi.2014.06.005
We shall add a reference to Di Giacomo et al. also here

L398: Looking at the proxy Mw values in the catalogue file, one soon notices that the proxy Mw-sd is <= than the sd of its basis, when that is MS. Although this make the proxy uncertainty look good, one would expect that the Mw proxy uncertainty is greater than the uncertainty of its basis. Please clarify why the proxy uncertinaty is smaller than that of its basis
The slope of the MS–MW curve in Figure 3 (top left) is < 1, for MS=4.5 it is 0.64 and for MS=6 it is 0.79. With the chi-square model this slope is a good indicator for the ratio between the sd-estimates for the two magnitude types. We have computed the average sigma-Ms in the final catalogue for (a) 4 < MS < 5, giving 0.204 and (b) for 5.5 < MS < 6.5 giving 0.236. Plugging these values into formula (7) using sigma(Mw) = 0.09 gives for the smaller slope:

$$\text{sigma-proxy} = \text{sqrt}(0.64^2 \times 0.204^2 + 0.09^2) = 0.159$$

and for the larger slope:

$$\text{sigma-proxy} = \text{sqrt}(0.79^2 \times 0.236^2 + 0.09^2) = 0.207$$

We also computed the average sigma-Mw for (a) and (b) giving 0.157 and 0.202, so everything fits very well.

We shall add a small explanation: "**Note that because f '(MS) < 1 then sigma-proxy will be smaller than sigma-MS**"

In addition, it appears that in the catalogue file the mb-sd = 0.3 is often listed also for mb = nan, e.g.:

```
0003  ICEL   1905-01-28T06:18:30   63.95 -22.00   5.81 0.21   5.60 0.25    nan  nan   proxy   ISCother -       AmbSig   AmbSig
```

Is that on purpose or a feature in writing out the catalogue file?
This was a mistake in the program, which has been corrected.

L406: Please detail what is MLW or provide a reference for it
The relevant citation shall be added.

L422: Please make sure that all src fields are correct. For example, the first event (0001) lists MS-src=ISCother, but the event is not in the ISC at all, hence one wonders where ISCother comes from in this case.
We thank the referee for spotting this. This was another mistake in the program which has also been corrected.

Furthermore, for event 0020 the loc-src and time-src are both listed as ISC, but the event does not have an ISC location. In line with the magnitude source nomenclature, the authors should list, in such cases , loc-src and time-src = ISCother
As explained in our reply to the Fig 2 comment the version of the ISC-catalogue that we use contains only one time and location but multiple magnitudes (including the mag source). When we enter ISC as the location source and time source, we are simply reporting where from we obtain the time and location.

L422: please make sure the references are properly associated in this file. For example, the file reads

> AmbSig The catalog of Ambraseys and Sigbjornsson [9]

but then in the REFERENCES one finds:

> [9] International Seismological Centre, 2020. ISC On-line Bulletin. Retrieved 2020-03-31, from http://www.isc.ac.uk/iscbulletin/search/

Also, reference 14 reads:

> "[14] Kristján Jónasson, Bjarni Bessason, Ásdís Helgadóttir, Páll Einarsson, Gunnar B. Gudmundsson, Bryndís Brandsdóttir, Kristín S. Vogfjörd, and Kristín Jónsdóttir. A Harmonized Instrumental Earthquake Catalog for Iceland and the Northern Mid-Atlantic Ridge (the accompanying article). Submitted for publication in Journal of Geophysical Research: Solid Earth in December 2020."

The authors may need to update the journal in [14]
We shall correct these, and try our best to make sure that all associations are correct.

L426: The authors sometimes use a different source for origin time and location. No explanation about this approach is given. Normally catalogues list an origin time and location from the same source. Mixing origin time and location this way is at least unusual and requires an explanation.
This is a very good remark and we have changed our methodology, and shall now report IMO times when IMO locations are used. The IMO times (if available) will also also used for events with locations taken from published reports, articles and the AmbSig catalog (which rounds times to the nearest minute), as well as events relocated by us. Other times will be taken from the international catalogs. The detailed procedure will be explained just before the references in the supporting info file:

> **The origin time in the catalog is determined with the following rules:**
> **1. If an event is in the Icelandic Meteorological Office (IMO) catalog and its epicenter is not taken from ISC or USGS, then the IMO time is used.**
> **2. Otherwise if the event is in the ISC catalog the ISC time is used**
> **3. Otherwise if the event is in the USGS cataolgue that time is used**
> **4. Otherwise if the event is in the GCMT catalog that time is used**
> **5. Otherwise the event must be in the Ambraseys and Sigbjörnsson catalog and the time is taken from there.**
>
> **The IMO times are probably the most accurate ones, especially after 1990. For completeness, the accomanying file "origin-time.txt" contains all available origin times for each event.**

L427–428: True that depth is the focal paraamter less well constrained in any catalogue, but the studied area has, as the authors point out, quite a well-defined seismogenic thickness. Hence, a field for depth could be added. If no (or not reliable) depth information is available, nan could be used. This should be the case especially for earthquakes in the early part of last century, but in recent years we have a much better idea of the depth of the earthquakes in the study area. Furthermore, for seismic hazard studies depth is relevant.
The main reason for not including hypocentral depth is that the largest earthquakes that are most important for hazard studies rupture the whole seismogenic thickness of the crust, and also, for a large part of the catalogue, the resolution for the depth is low. If we were to include depth it would probably just give the users of the catalogue misleading information.

Note also that there are several references to the hypocentral depth in the comments of referee 1 and our replies to these (lines 31–37, lines 427–429, and supporting info file)