Revision of the manuscript "History and ac7vi7es of the European-Mediterranean Seismological Centre"

The authors would like to thank Alberto Michelini, Johannes Schweitzer, Galasso Carmine (editor) and 2 anonymous reviewers for their constructive comments. Below are answers to the reviewers' comments and explanations of the changes made.

A note to the editor: There has been an additional correction following discussion with B. Presgrave (retired from NEIC) and Dmitry Storchak (ISC) about data exchanges during the Cold War. Contrary to what was mentioned in the manuscript, there was some data exchange between the USSR and NEIC (as a World Data Centre). The sentence was then changed to "Direct exchanges from some of the Soviet bloc countries to the USA were restricted".

Reviewer C:

- Line 16: EFHER -> EFEHR: Done
- Line 80: "ORFEUS is that of IRIS": actually just IRIS DMC, and now EarthScope: Done
- Line 105: International Seismological Centre (not Center): Done
- Line 286: "It has already been implemented at the ISC" -> "it has originally been developed at the ISC": Done
- Active Members:
    - "Autstria"->Austria: Done
    - Moldova: Institute of Geology and Seismology (not the Academy itself): Done
    - Sweden: "networc"->"network": Done
    - UAE: "Dubai Municipality"-> "Dubai Municipality Seismic Network": Done
    - Members by right: ISC: "center"-> "Centre"; Done
    - For ESC, ORFEUS and ISC, no country is indicated to distinguish them from national organisations.
- Fig.4 caption needs clarification: Caption has been extended

Reviewer D:

- Lines 35-44: BCIS is not going back to 1903. The bulletins produced in Strasbourg before WW 1 can be addressed as forerunners of today's ISC bulletins (https://doi.org/10.1016/S0074-6142(03)80300-5), After WW 1, the Seismology Section of IUGG (today IASPEI) decided that the final bulleting production should be the ISS produced in Oxford. The authors can take a look in the attached proceedings of the discussions in Rome in 2022 (http://download.iaspei.org/meetings/1922-1929/IUGG1922.pdf) and the IASPEI history paper (https://doi.org/10.5194/hgss-10-173-2019) . If one reads the Secretary Report today, for me it's clear that one can call the BCIS starting in 1923 (one can emphasize that this is now 100 years ago) some type of pre-runner for fast earthquake information. All this agrees with what Rothé wrote in 1981.

  After direct discussion with reviewer D, we agree with the following sentence:

- Line 45+: I think it is worth to mention the different SGs of EMSC during the almost 50 years.

  This was indeed considered during the preparation of the manuscript. We concluded that if the list of SGs was to be included, the list of Presidents should also appear. We decided not to include it in order to focus on the EMSC itself and its activities. However, we will work to recover this information and make it available on the EMSC website as soon as possible.

- Line 46-53: please exchange the phrase 'Soviet bloc' with 'Warsaw Pact member'. Modified to "Warsaw Pact countries"
- Line 54: you can remove 'the' > 'usually sent to NEIC': Done
- Line 56+: I think it is worth to mention that the EMSC was for decades collecting many parametric data from agencies, which were not reporting to ISC. So, by forwarding all these data, EMSC was (at least during the first decades) also important for the global coverage of the ISC data collection. It is mentioned in the paragraph "EMSC services" in the section relating to the Euro-Med Bulletin.
- Line 59: which '8 countries'?: List added
- Line 60: which '4 other countries'?: list added
- Line 63: 'south shores' -> 'southern shores' : Done
- The reports / proceedings of the ESC in the 1980s contain more information about EMSC business. See e.g., Bonnin's report from 1986 in the Kiel Assembly proceedings (all to find at https://bit.ly/3cwzzMh). The disagreement was over the start date of BCIS activities. In agreement with the reviewer, the sentence now reads"… which began publishing an instrumental catalogue in early 1900's and ceased to exist in 1975 in the Euro-Mediterranean region (Adams, 2002)."
- Line 78: is there any citation for EFEHR? Haslinger et al 2022 has been added
- Line 80: IRIS is now Earthscope : Modified
- Line 91: 'adding several' -> 'adding readings from several': Done

- Line 95: since when has EMSC Key Nodal Members? As I remember, there was a principle change of the EMSC structure when it moved to LDG. The reasons & outcome should be mentioned/documented. We have now explained that this type of membership was introduced in 1994

- Line 105: 'Center' -> 'Centre': Done

- Line 131: please add CMTs to the list of parametric data: Done

- Line 191: 'seismologist performing' -> 'seismologist on duty performing': During working hours, there is no seismologist on duty.

- Line 219: should one change Twitter to X? The change of name is now mentioned

- Line 326: 'from European' -> 'from numerous European': Done

- Table 1: International Seismological Center -> International Seismological Centre : Done

- Table 1 & 2: Please don't use 'Norwegian Seismic Array', this is the name of just one of the arrays. As written / mentioned earlier, the institute's name is correct 'Stiftelsen NORSAR' or shortly NORSAR.: Done

Reviewer F:

- The reviewer considers that "the main objective of providing earthquake parameters has not received as much attention in recent years as the felt reports".

  Over the last 3 years, the entire seismic data processing system has been rebuilt, with a new location algorithm (iLoc), a new and unique service for fast and reliable location of felt earthquakes (CsLoc), a new website, a new data model and a new web service for parameter distribution. This is a huge effort for the -small- EMSC team. However, it is true that felt reports have been the subject of more scientific articles recently, simply because the earthquake parameter service is a more mature topic compared to the more innovative use of felt reports for rapid impact assessment.

- The reviewer asks for more details about the products and the difference between the portal and the website. We have now added a sentence to explain the difference between the portal and the website ("*The main website serves multiple audiences (the public, scientists…) and provides rapid earthquake information. It is more suitable for exploring individual events and recent activity, while the seismic portal is aimed at researchers and provides access to larger datasets via web services. Hosting the web services separately from the website limits the risk of slowdowns due to high traffic on the main site after widely felt earthquakes*") and an additional image showing products related to the recent Morocco earthquake.

- The reviewer misses a more comprehensive presentation of products or the analysis of a significant earthquake. An additional figure (Figure 5) has been added showing an abbreviated timeline -relative to origin time- of the main EMSC product releases and updates as well as their distribution channels for the 8 September 2023 M 6.8 Morocco earthquake.

- The reviewer considers that there is too much emphasis on 'service development' as it is not yet operational. With approximately 50 lines of a 340 line (15%) manuscript (not including acknowledgements or references), the emphasis seems relative. Furthermore, this section has been updated to reflect the fact that the new seismic data processing system is now in operation. Finally, the presentation of developments "in the pipeline" will prevent this article - the first to deal with the history and services of the EMSC - from quickly becoming outdated.

- Possible extension of the historical section. The historical section was a challenge to write, simply because none of the authors were professionally active in the early stages of the EMSC. It is therefore based on the archives available at the EMSC, in particular the minutes of all General Assemblies (available to members in the members' area of the EMSC website), and discussions with Chris Browitt, Michel Cara (present at the founding assembly in 1982) and Bruce Presgrave, who were involved in the early stages of the EMSC. In addition, the manuscript was circulated to all EMSC members for comments. This led to further discussions and some second order corrections which have now been implemented (see manuscript). We have no material to extend this section. All available documents and discussions with the above mentioned actors indicate that the founding assembly took place in 1982 and that the EMSC was legally established in 1983 (including the "Journal officiel" of the French State). No document has been found describing possible arrangements for the payment of subscriptions before this date. An extract of the minutes of the 1982 founding Assembly is included at the

end of this document. At the suggestion of the reviewer, the list of countries attending the inaugural meeting in 1982 has been added.

- L21-22: Soften the sentence. To complete the sentence, and avoid comparisons with national institutes it is added that EMSC is one of the most important "global" earthquake information centres. The role of the EMSC is the reason for this paper and it is therefore essential to mention it.

- L79: The sentence reads *"**Schematically, although operations, roles and responsibilities are different, in terms of services**, EMSC is the European-Mediterranean version of NEIC (Masse and Needham, 1989; Hayes et al., 2011), while ORFEUS is that of IRIS (Incorporated Research Institutions for Seismology; Smith, 1987; Hutko et al., 2017*". This sentence is particularly soft and cannot be considered an exaggeration. It limits the comparison to the services provided by the EMSC and the NEIC, which both cover rapid information on earthquakes and their effects. The reviewer would also have noticed that a similar comparison was made between ORFEUS and IRIS.
- L132 merging Tables 1 and 2: Merging the two tables into one is technically possible by adding a column for membership and type of membership. However, this would not improve readability and having two tables emphasises the key nodal members as well as the members by right, which are essential for the EMSC.
- A zoom in on the Euro-Mediterranean region has been added to Figure 2. (NB: the number of earthquakes reported in 2022 has increased by 7 due to the arrival of new data since the submission of this manuscript)
- As noted by the reviewer, a review is not the place to change earthquake location procedures, as these procedures have been adopted by the General Assembly. However, it is important to provide answers to the questions raised regarding the location of the 2023/10/28 15:29:23 UTC earthquake. The procedures in place are described in the https://gfzpublic.gfz-potsdam.de/rest/items/item_43346_4/component/file_56125/content (also available in the references), which provides more details on how to define a reliable and reproducible location. It should also be noted that iLoc has been in operation since the end of June 2023 and has been used for this location. Regarding this specific event, the INGV location was received 13 minutes after the earthquake. It contained 4 stations that are not in our station book and therefore cannot be used (IT02A, VALS, PSL, IT08A). Without them, the location did not meet the criteria described in the procedures, i.e. a primary gap of less than 110° at 250km and the $\Delta U<0.35$ at 150km (it was of 0.36). It is highly likely that the criteria would have been met with the 4 unused stations and the INGV location would have been reported without modification. The final location was determined using iLoc and only the stations available within 250km. It differs by 2km from the INGV location. Please note that the Gap, Ndef, Nsta are currently calculated using all associated stations and not the stations used for the seismic location. This error will be corrected soon, thanks for pointing this out.
- Line 187-188: "often" has been added as suggested
- Line 194: Contributors do no need to be members (see tables)
- Line 205: reference added
- Line 205-208: reference added
- Line 219: Reference to the figure deleted
- Line 226: The new name of Twitter has been added

- Line 229: Question about the factors influencing the crowdsourded detection delays The main parameter influencing the delay of crowdsourced detection is the level of adoption of the specific tool (Twitter, app, website) at the time of detection, which in turn depends on the rate of felt earthquakes. It can vary within a few hours in a given region. Some short delays are observed in some rural and poor regions (e.g. Pakistan, part of Afghanistan). For more details see Bossu, R., Steed, R., Roussel, F., Landès, M., Fuenzalida, A., Matrullo, E., ... & Fallou, L. (2019). App earthquake detection and automatic mapping of felt area. Seismological Research Letters, 90(1), 305-312.
- Line 239: Comparison between EMSC felt report and DYFI data. For completeness, the sentence has been changed to explicitly mention the correction. Quitoriano and Wald (2020), mentioned in the text, also show agreement between EMSC felt reports and USGS DYFI and the following references shows agreement with various macroseismic datasets.
- Line 252: the "seismologist only" section is available: https://www.emsc-csem.org/Earthquake_data/
- Line 257: corrected to accesses

- Line 257-258: Explicit reference to EMSC preferred location. The point here is to distinguish between the "seismologists only" page, which contains all reported locations, and the public page, which contains a single location Also, the term "EMSC preferred location" is not mentioned in the article and could cause confusion.

- Line 258: Add "In the EMSC procedure" added

- Line 289-292: Nothing to do with conspiracy theory. A third digit is now available in the system available since 27 June 2023, and the link to conspiracy theories is described in the reference Fallou et al. 2022. The reviewer is invited to read it for more details.

- Line 315: link added

- Line 318: 2022 added

- Line 326: Debatable statement on the complementary of EMSC services. EMSC services are indeed complementary to national services, otherwise the EMSC would probably not have been created and supported by the Euro-Mediterranean network operators themselves.

Commission Séismologique Européenne

CENTRE SEISMOLOGIQUE EUROPEO-MEDITERRANEEN
C.S.E.M.

EUROPEAN MEDITERRANEAN SEISMOLOGICAL CENTRE
E.M.S.C.

Tel. (88) 61 48 20
Telex 890 826
Télégrammes: CSEM 890 826 F
Banque Populaire, Strasbourg N° 06.19.3731618

5, Rue René Descartes
F 67084 STRASBOURG CEDEX

Strasbourg, le 24 January, 1983

SUMMARIZED REPORT OF THE FOUNDING ASSEMBLY
16 - 17 DECEMBER 1982
STRASBOURG

Participants

J.M. VAN GILS (B)
D. MAYER ROSA (CH)
H. AICHELE (D)
S. MUELLER (EMSC, CH)
E. PETERSCHMITT (EMSC, F)
H. STILLER (ESC, DD)
G. AUBERT (F, INAG)
J.-C. ROSSIGNOL (F, INAG)
J. BONNIN (F, IPGS)
M. CARA (F, IPGS)
H. HAESSLER (F, IPGS)
R. SCHLICH (F, IPGS)
P.W. BURTON (GB)
A. SHAPIRA (IL)
Mrs M.L. BORGES DE ARAUJO (representing L. MENDES VICTOR) (P)
M. KORHONEN (SF)

On 16 December 1982, at 10.00 a.m. R. SCHLICH, Director of IPS, opens the session, welcomes the participants, and proposes S. MUELLER, president of the former EMSC, as chairman of the present Assembly. This is agreed.

S. MUELLER takes the chair and thanks the participants for attending this meeting, specially H. STILLER, president of the ESC. The latter expresses the continued interest of the ESC in the work done by the EMSC in the past and hopes that this work will continue in the future. The chairman suggests that the discussion on the proposed statutes be engaged immediately. The main points of the discussion are as follows :

- as the statutes shall be submitted to the Court in Strasbourg, the authentic text is the French version ;

- the suggestion is made that the annual meeting of the EMSC be combined with one of the scientific European meetings. A good compromise would be that the Assembly's meetings take place alternatively in Strasbourg and elsewhere ;