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On behalf of the IESDB team

REBUTTAL LETTER

IESDB – The Iberian Evaporite Structure Database

Eloi González-Esvertit, Juan Alcalde, Enrique Gomez-Rivas

Dear Kirsten,

Thank you for handling this manuscript and organizing the reviews. We have found the comments and suggestions from the two reviewers and, as well as the published community comment, very positive and helpful for improving the quality and relevance of the IESDB Database in future updates.

In this document we provide a complete record of all the reviewer comments and our replies. As suggested by the referees, we have modified a sentence of the original manuscript and we will consider their insightful comments related to the functionality of the website in the next updates of the IESDB. We have also included one additional reference (Duffy et al., 2023 – Line 65) and modified the acknowledgement section.

Given the recommendation of the two referees to accept the manuscript as it is, we hope that after this peer-review round our data description manuscript is ready for publication in Earth System Science Data.

Yours sincerely, on behalf the authors,

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Preliminary clarification for the correct reading and understanding of this rebuttal letter:

C*n* (Reviewer *X*): Corresponds to the *n* comments, listed according to their order of appearance, of Referee *X*.

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R*n* (Authors): Corresponds to the *n* authors' responses, listed in order of appearance, to the comments of the Referee *X*.

Referee #1 (Anonymous)

General Comment (R#1): The IESDB - The Iberian Evaporite Structure Database - is an excellent, comprehensive collection of valuable information and data on the salt structures of the Iberian Peninsula. As the authors suggest, this database is a valuable resource for teaching, research and industry applications. The website format used, which is browser independent, ensures easy review and access to the stored data.

The database is delivered along with a brief overview in a well-structured manuscript that covers the main research questions and industrial applications and is written in such a way that it is easy to understand and read even for users from different fields of interest, which I like since many literature sources are also provided for targeted reading.

Since the data comes from different sources and application backgrounds, the quality cannot be systematically assessed. However, the way these data are presented is systematic, thorough, accessible, useful, and complete.

I think the IESDB – The Iberian Evaporite Structure Database is an outstanding contribution to use in the “salt community”, and it would be welcome if more data bases were set up from worldwide salt regions following this exceptional example.

I think the IESDB - The Iberian Evaporite Structure Database - is an excellent contribution to use in the "salt community", and it would be welcome if other databases from worldwide salt regions were established following this exceptional example.

Author reply:

We gratefully acknowledge the positive feedback on the manuscript, interactive webpage, and datasets. We are delighted to read that the reviewer considers the IESDB as a valuable resource for teaching, research, and industry applications, which was the original aim of this project.

We fully agree with all the minor comments, which are addressed below.

C1 (R#1): I could not find the link from https://digital.csic.es/handle/10261/266163 to https://iesdb.eu/.

R1 (Authors): The link to https://iesdb.eu has been included in the data repository (https://doi.org/10.20350/digitalCSIC/14586).

C2 (R#1): Line 369: I don’t think that there a many active nuclear waste repository in rock salt formations. Please consider rephrasing the sentence.

R2 (Authors): The original sentence was:

Salt caverns are widely used as seasonal and long-lasting reservoirs for hydrocarbon products (e.g. oil crude and natural gas) and nuclear waste repositories (e.g., Ozarslan, 2012; Wang et al., 2017; Warren, 2017)

This has been rephrased as (lines 375-376 of the revised manuscript):

Salt caverns are widely used as seasonal and long-lasting reservoirs for hydrocarbon products (e.g. oil crude and natural gas), and in some cases have been considered as potential repositories for nuclear waste (e.g., Ozarslan, 2012; Wang et al., 2017; Warren, 2017)

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Referee #2 (Dan Mircea Tamas):

General Comment (R#2): Please find below my review of your manuscript 'IESDB – The Iberian Evaporite Structure Database'. This work focuses on a topic of high relevance to the geoscience community and is a good fit for the journal, especially now, with a renewed interest in salt tectonics. I found the paper to overall well written and the database to be well-designed, and organized. The resources compiled and provided here will represent not only a resource for education, research and industry trainings but also set an example that should be followed for other salt regions of the world. As the manuscript is well written and explained, easy to go through and follow, I am listing below some of the comments related mainly to the functionality of the website (at least in my case), using a Google Chrome web browser, but also related to the structure of the database.

I fully support this manuscript for publication and am sure that the authors will improve this database, in time, and also try to include all work that has been published in the area and meets the database criteria.

Author reply:

We gratefully acknowledge the positive evaluation of the manuscript and the insightful and constructive comments on the IESDB webpage and database structure. Thank you for supporting the publication of this manuscript. The suggestions and comments are addressed below.

C1 (R#2): The map is sometimes unresponsive, at least in my case. Also, it would be nice to add some satellite imagery maps and geological maps as extra layers. This would make the database even easier to use for people who are not familiar with the area.

R1 (Authors): We have tried to maximize the responsivity of the interactive map. Our tests in Chrome, MS Edge, Mozilla Firefox, and Opera web browsers seem to work properly now. Regarding the possibility of adding extra base maps (satellite imagery or geological maps), they are commonly subject to copyright statements or CC licenses that do not allow their complete reproduction in the IESDB webpage. We will consider requesting permission to the rightsholders to add the Global Lithological Map (GLIM, Universität Hamburg; Hartmann and Moosdorf, 2012) and satellite imagery in the next update of the IESDB website.

Hartmann, J., & Moosdorf, N. (2012). The new global lithological map database GLiM: A representation of rock properties at the Earth surface. Geochemistry, Geophysics, Geosystems, 13(12).

C2 (R#2): Add a link/comment/suggestion box where people can suggest new entries of other salt structures/work to be included in your database. I saw your UPDATES section, but you can design a form where people can add all the details needed to include new salt structures in the database.

R2 (Authors): The internal structure of the IESDB Database is complex and it would be very difficult to include a way for the users to add data to each file, or new sites. We prefer to keep the UPDATES section as it is, since the new salt structures suggested by the community must fulfil the indexation criteria specified in the manuscript and webpage. We do, however, encourage users the submission of new or revised information via the CONTACT section of the website, and have explicitly mentioned this in the revised version of the manuscript. In this way we can incorporate to the database data and improvements proposed by the community, but in an organised manner and after moderation by the database managers:

Original sentence:

The IESDB aims to be a dynamic project open to collaboration and with constant improvement and expansion.

Revised as (lines 208-210 of the revised manuscript):

The IESDB aims to be a dynamic project open to collaboration and with constant improvement and expansion. We encourage users to contact the database managers and submit new information or suggest corrections to expand and improve the database.

C3 (R#2): In the seismic database – Can you provide links directly to the lines themselves and not only to the repository? I tried searching for two random lines and struggled to find the data.

R3 (Authors): The seismic lines are normally included in the SIGEOF Data Catalogue (©Instituto Geológico y Minero de España; IGME), and most of them are only available under specific request and as part of a survey pack (i.e., not available individually). This means that a direct link to the seismic lines themselves cannot be generally included. However, all the information related to each seismic line, as well as the link to the request form, can be found at the IESDB webpage and at the interactive search engine provided by IGME (https://info.igme.es/SIGEOF/).

C4 (R#2): It would be nice if you would consider adding a Digital Outcrop Model database as well within the structure of your datasets. If there are not many such resources available, this might spur some researchers to create them.

R4 (Authors): We find this suggestion an excellent idea. However, not all structures are present in outcrops and, for those that are, adding Digital Outcrop Models (DOMs) would require a major update of the database structure and webpage, as well as reasonable time for photogrammetric data acquisition in the field prior to the creation of the DOMs. We will consider this suggestion for the next planned IESDB update (4Q 2023) and, if viable, carry out pilot Digital Outcrop Modelling in some outcropping evaporite structures. Additionally, we will link existing DOMs published in open-access repositories (e.g., V3Geo, eRock).