

Interactive comment on “A geological model for the management of subsurface data in the urban environment of Barcelona city” by Enric Vázquez-Suñé et al.

Anonymous Referee #2

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General Comments

The article deals with an interesting issue as the geological knowledge in urban areas and its influence in groundwater resources management. Now a days, this is an important problems worldwide and novel approaches need to be found. The proposed methodology and the key point of including the administrative bodies highlight the advances proposed for this article.

However, the article does not follow a clear structure and seeming some time that your are reading another article when you change the section. In order to improve its impact, there are some major and minor points that need to be discussed/improved before its publication. The most important issues are the following:

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- It is necessary an interrelation between the different sections of the article, being the most important linking properly the discussion with the previous sections. This is particularly relevant for the discussion.

- An improvement of the state of the art is needed as there many papers dealing with urban geology not mentioned in this article. It is necessary emphasize what is improving this study compared with many available.

- It is necessary to clarify the objectives and follow them along the text. From my point fo view there are three clear key points: 1) integrate the information to construct a robust geological model in a urban area and 2) use this information to improve aquifer management and 3) show the importance of collaborating with the government/administration. However, along the text some sections refer more to point 1) and others to 2) and 3). The explanation should be clearer in this way.

- The proposed model is based in many reports of previous studies and the administration. It is necessary to explain in more detail what is the information contained in these reports and how it has been integrated into the geological model.

Other minor issues that should be addressed are the following:

Page 1

Line 22: What you mean for logistic difficulties? Scattered information? Little surface information/exploration available? Explain clearly to emphasize the importance of your work. Line 23-25: This part of the abstract should be modified as groundwater is not an example but the main application of the proposed work. Something like “The most important application of the proposed methodology has been applied to...” would be more realistic.

Page 2

Line 15: explain in more detail what are the different solutions and ideas proposed in the literature. A quick search in scopus with the terms “groundwater”, “management”

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and “urban areas” gave me more 1200 articles. I think that a better “state of the art” can be done. Line 31: According the structure of the introduction and the importance that author give to groundwater management, I would divide the objective in three points as follows: (1) to develop a method for integrating geologic, hydrogeological, and geophysical data from an urban environment into a standardized, accessible database using effective data management tools and (2) to demonstrate how this challenge was met in the city of Barcelona (3) to show how the geology was modelled helping to improve aquifer management.

Page 4

Line 19-22. Could you explain what means MAGNA, IGME and ICGC.

Page 5

Line 1-4: The information included in the 714+1463 survey should be explained in more detail as the authors do in “Previous data and historical studies”. It is necessary explain the kind of document compiled (i.e. technical report, year-book, etc.) and the geological information contained in these works (borehole description, maps, outcrops, etc). If the authors do not explain the type of data they are integrating in the proposed database, the proposed methodology can not be applied in other areas and the significance of the proposed work is completely not clear. Line 8: A few sentences should be added here explaining the basics about what is shown in Figure 2.

Section 4, page 4-7

The geology of the study site is very well explained with a lot of detail. However, this information is not used in the discussion. Then, I am not clear about what is the objective of adding this very well detailed geology.

Page 8

Discussion: as mention before, Discussion section should be rewritten following the objectives of the paper. Line 10: Discussion should be point 5. Line 11-15: This

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information is repeating what has been explained before.

Page 9

Line 11-19: Despite there are different papers explaining the different tools attached to the proposed model/software, a more detailed explanation of each tool should be included. This information would allow the readers understand the potential of the proposed model/software.

Page 10.

Line 1-2: This sentence does not highlight the most important issue and/or most relevant information of the presented paper.

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