

Interactive comment on “Classification of thermal waters based on their inorganic fingerprint and hydrogeothermal modelling” by I. Delgado-Outeiriño et al.

Anonymous Referee #2

Received and published: 7 July 2011

The subject of the paper is very interesting. The article is generally well written and will serve as a valuable resource for the characterization of thermal waters. The manuscript contains interesting information about the classification of 15 thermal waters in Galicia (Spain) based on their organic fingerprint and hydrogeothermal modelling. The results of the hydrogeochemistry analysis showed one main water family of bicarbonate type sodium waters, typical in the post-orogenic basins of Galicia. Statistical analysis (principal component analysis and partial least squared) were carried out to explain all the collected data. In this way the 15 sampling waters were classified into two groups because of their different residence time and water-rock interaction. This classification

C2635

agreed with the results obtained by the use of geothermometers and the hydrogeochemical modelling. The authors are quite right when using also silica geothermometers and hydrogeochemical modelling to explain what is happening in the reservoir. I suggest going ahead in a future in such a research line focusing on the use of geothermometers and hydrogeochemical modelling in thermal waters for such a purpose, together with their chemical composition.

The science presented is of a high quality with plenty of detail. I do express my positive opinion on the acceptance of the article to be published by Hydrology and Earth System Sciences Discussions after minor revision.

Specific comments Abstract - Please locate Galicia. - Please replace "partial lest squared" for "partial least squared". - Please, consider re-phrasing the last paragraph.

Results and discussion - I guess there is a mistake in this section. In the section 3 "Results and discussion" should be included: 3.1. Chemical composition of waters and ionic ratios. 3.2. Geothermometer results. 3.3. Hydrogeochemical modelling. I think it makes no sense the present form of this section. - Page 4566, in the last paragraph the authors comment that samples of cluster I were the youngest ones. Could the authors explain it?

References Under the references, some journal titles were abbreviated while others were not. The authors should be consistent.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 4559, 2011.

C2636