



# ***Interactive comment on “Application of unsupervised pattern recognition approaches for exploration of rare earth elements in Se-Chahun iron ore, central Iran” by Mohammadali Sarparandeh and Ardeshir Hezarkhani***

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Dear author The paper has provided valuable results and information that have made this research remarkable. Practicality and efficiency of the discussed methods with combination of the geological studies are the strengths of this article. In addition, a good discrimination based on lithology which was attained just by using REEs is noticeable. The English language is well-understandable, and is written clearly, so has

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the merit of a scientific publication. However, I have some comments as follows: 1- It is better to define the abbreviations: SEM, XRD, and ICP-MS in abstract, before using them. 2- The word "and" at the end of line 19 should be omitted. 3- I think that figure 3 is not necessary. 4- There are good examples of the samples in figure 8. I suggest to add some explanation about them in the section 3 (mineralogy and lithology). Best regards

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