# Cover letter to the Editor

Manuscript title: Evaluating Different Clustering Algorithms for Prediction of Rock Types and Permeability

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Type of Manuscript: Full Length Article

This manuscript is appropriate for *Geoenergy Science and Engineering* as we will demonstrate in our work how we have reviewed large quantities of core data from the UK North Sea, utilized 5 different unsupervised machine learning methods for rock typing/clustering appropriate for permeability prediction, and show that when contrasted against a conventional rock typing method, that some methods perform better than others. Based on our review of existing literature, there is very little work done in this domain and we think that our results and approach is fairly novel.

As practicing energy professionals, we are interested in sharing our expertise and knowledge as we seek to combine oil and gas domain knowledge with novel methods from machine learning and data science to tackle energy related challenges. In particular, we were interested in simply the complex and tedious task of manual rock type classification, using computational methods that allow one to arrive at comparable results.

We have realized, through this work, that having a holistic understanding of the pros and cons of each method is key in forming a complete understanding of how such challenging data sets should be tackled, and how workflows should be designed around the available data. This makes our work important and the journal the appropriate avenue to publish it.

The manuscript has been checked by a native English speaker with expertise in the field of energy. In this author’s opinion, this work would appeal to both a popular audience and scientific audience.

The manuscript has not been previously rejected by *Geoenergy Science and Engineering* or any other Elsevier journal. The manuscript, or its contents in some other form, has not been published previously by the author and is not under consideration for publication in another journal at the time of submission. The manuscript does not have any supporting information and/or Review-Only Material.

Yours sincerely,

Munish Kumar

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