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Synthetic NMR well logs using supervised machine learning algorithms

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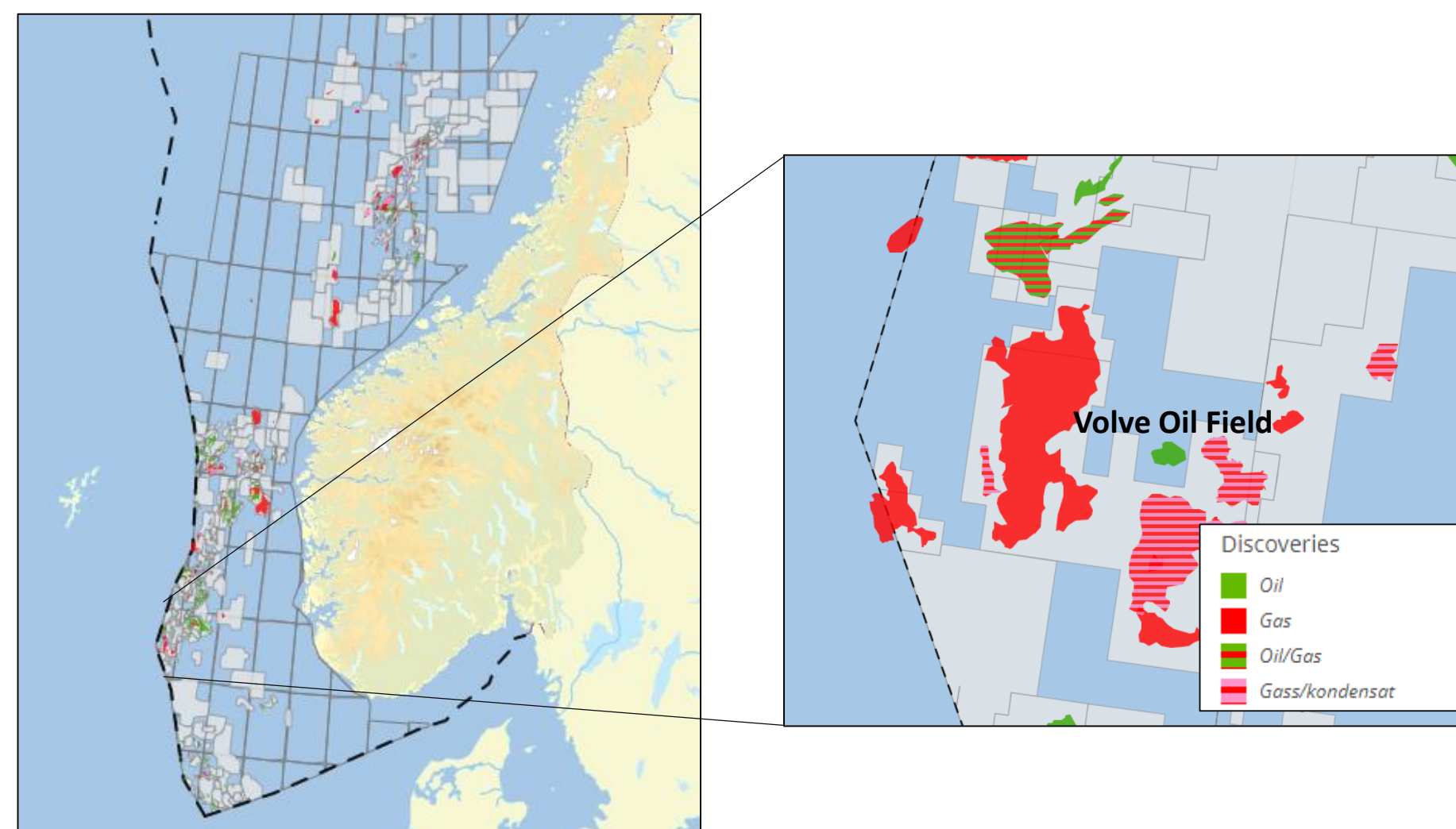
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INTRODUCTION

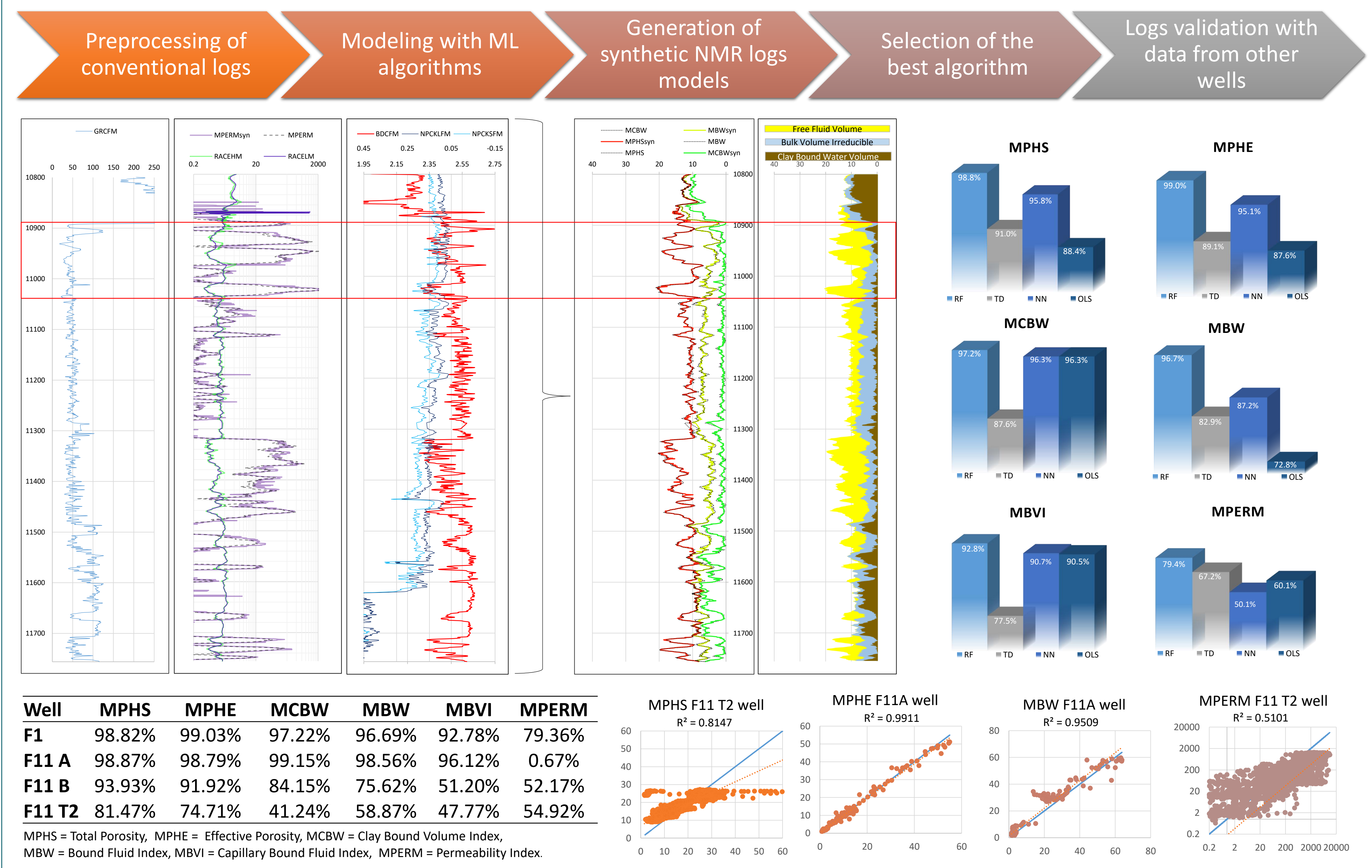
In this study is presented the methodology to generate synthetic nuclear magnetic resonance (NMR) logs for wells on the Volve field located in the central part of the North Sea. Implementation of this approach aims to reduce costs to companies.

METHODS

Using four selected algorithms (OLS, Tree decision, random forest and neural networks), synthetic NMR logs were developed based on data obtained from conventional logs.



RESULTS



CONCLUSIONS

- Synthetic NMR logs can help to analyze the reservoir where the logs are absent or incomplete, using four machine learning tools in conjunction with data obtained from conventional logs.
- The random forest algorithm and neuronal networks have shown the best accuracy to create and train the synthetic NMR logs.