Generation of a software for static and dynamic reservoir data integration in reservoir

The ever-changing nature of the conditions in an oil and gas reservoir can only be understood when all the relevant data is collectively viewed in a common medium. Only then can the interactions between various discrete data types be studied and the reservoir as a whole described. A more accurate reservoir description reduces risk, reduces time to make decisions, and therefore improves field management efficiencies. However, one of the greatest challenges in achieving this goal is the integration of both static and dynamic reservoir data.

Consider several examples of the variety of static and dynamic datasets that individually quantify one or more characteristics of a reservoir:

- Static data: seismic surveys

- Dynamic data: well tests

- Static data: geologic models

- Dynamic data: fluid levels

- Static data: petro-physical data

- Dynamic data: production history

- Static data: reservoir simulation models

- Dynamic data: tracer data

- Static data: well logs

- Dynamic data: geomechanical models

These and many other types of subsurface data are generated or acquired by a variety of software applications from vendors such as schlumberger and halliburton. These applications are the de facto tools of geologists, geophysicists, reservoir engineers, well planners, drilling engineers, and operations personnel. With software applications, individual team members explore, model, and analyze their discipline-specific data to gain a better understanding of the reservoir. The maximum value of these data is only realized when they are integrated to create a more detailed reservoir model, which may present a formidable data management challenge.

To develop a data registry that can solve the problem of integrating relevant static and dynamic reservoir datasets that individually characterize reservoir attributes, a data registry should provide:

- A means for individuals in the reservoir team to easily load and access their data (this may be done via drag and drop to the data registry).

- Automatically imports and translates the various dataset and file types into a format that allows the data to be integrated, visualized, and analyzed.

- Allows reservoir teams to access datasets generated by the discipline-specific software applications without needing to know how to use or run the additional software.

Once the relevant static and dynamic reservoir data have been registered, reservoir management teams can then use the developed software-visualization and analytic software package to further improve the understanding of their reservoir.

The meeting was led by George Bassey and focused on clarifying comments on proposals. Participants were instructed to update their proposals based on the comments received and submit them for review. Prof. M.T. Olowokere led a detailed discussion on updating the research proposal to encompass all eight fields within oml30 and align the objectives with each field.

The conversation delved into the dynamic aspect of reservoir characterization, emphasizing the importance of understanding the properties and nature of the reservoir for mobility and producibility. Additionally, there was a comprehensive overview of the expected deliverables and outcomes of the project, including activities and output for both static and dynamic reservoir properties. the team also discussed the implementation of artificial intelligence and machine learning in research projects, particularly focusing on reservoir modeling and simulation.

Prof. M.T. Olowokere and George Bassey also discussed the project scope, particularly focusing on the characterization of numerous reservoirs within each field.