

Drilling Ops Monitor - Well Integrity

Business Challenges

- Remote visibility and monitoring to measure and control of well parameters, specifically, mud properties, pump pressure, casing pressure and gains & losses is critical
- Managing voluminous data visualization and data integration with G&G and drilling systems is a challenge.
- Requirement of analytics at the edge or at a local network is required for sub-surface drilling operations.
- Support should be for Private/Public cloud deployment

Business Objective

- Should enable "think down-hole" approach in an era of data overload.
- Support a flexible implementation framework to perform advanced drilling data
- Should allow combined data-to-insights process managing WITS, WITSML data sources
- System should help to perform 2D/3D visualizations and analytics to understand current downhole conditions through valuable information rather than raw data as needed for effective collaboration
- Allows real-time, micro-batch as well batch wise visualization as well as analytics – from a time + depth perspective.

Solution

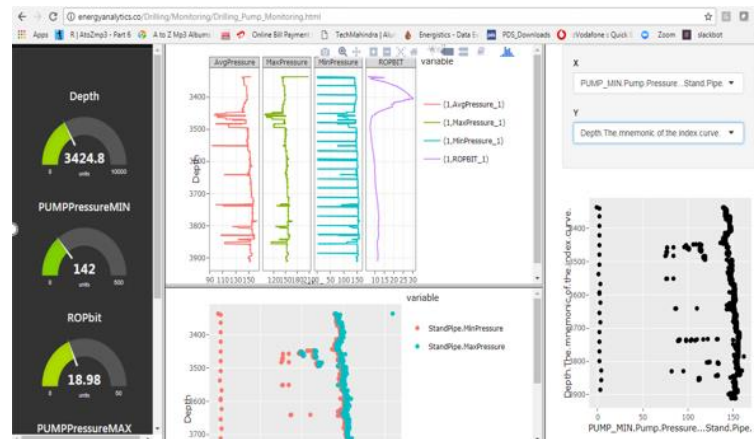
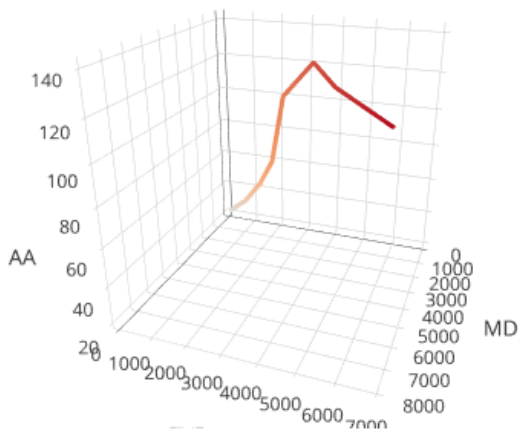
- Enables real-time visibility through a driller's dashboard
- Provides real-time 2D/3D visualization
- Enables visibility to real-time measurement of well parameters, such as mud properties, pump pressure, casing pressure and gains & losses.
- Ability to visualize and predict current or possible NPT conditions
- Supports to export Models as a Service
- Supports in Lithology Prediction

Business Value

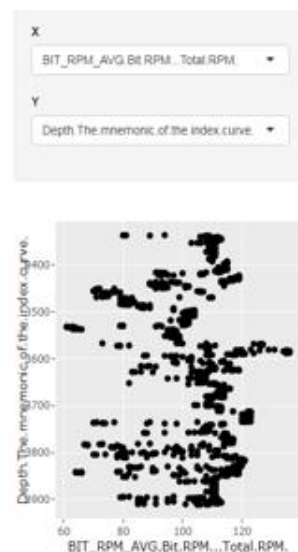
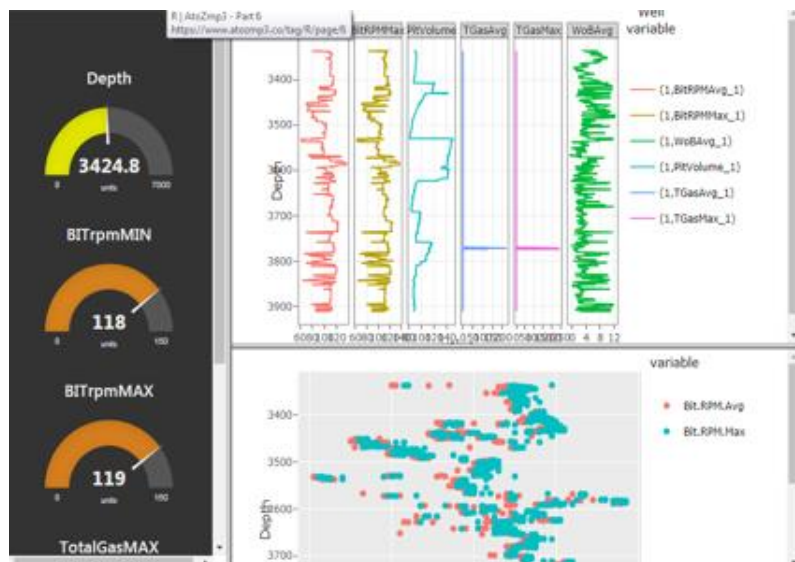
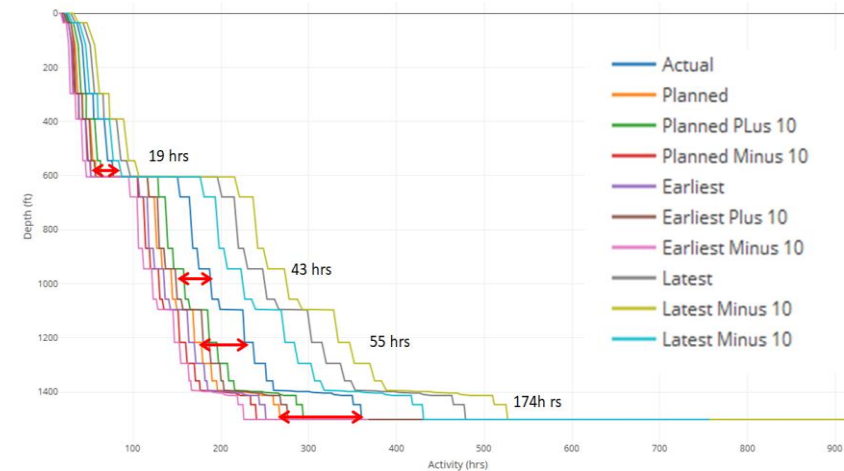
- Real time data usage for drilling decisions
- Better Data QC & improving the quality of real time data through seamless data sharing
- Better operational collaboration in operations related to drilling, well planning, design & construction
- Increased efficiencies in drilling data analytics
- 25-30% savings on processing cost
- 30-35% improvements in Drilling NPT

The client is an Indian government-owned crude oil and natural gas corporation

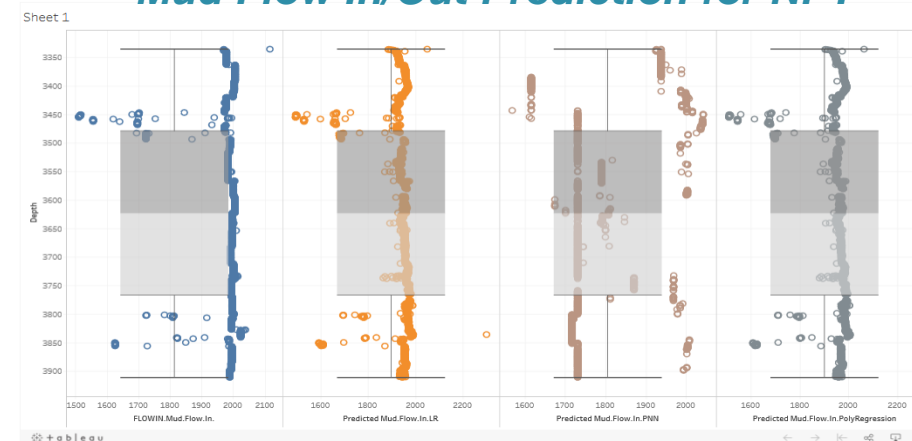
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Drilling Performance Optimization

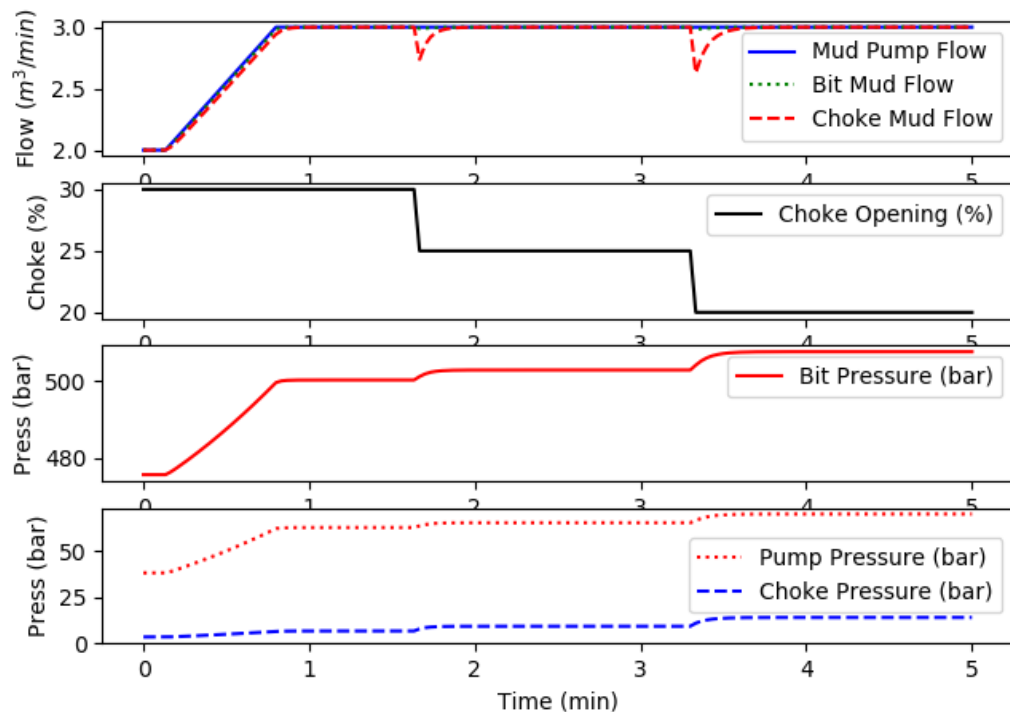


Mud Flow In/Out Prediction for NPT

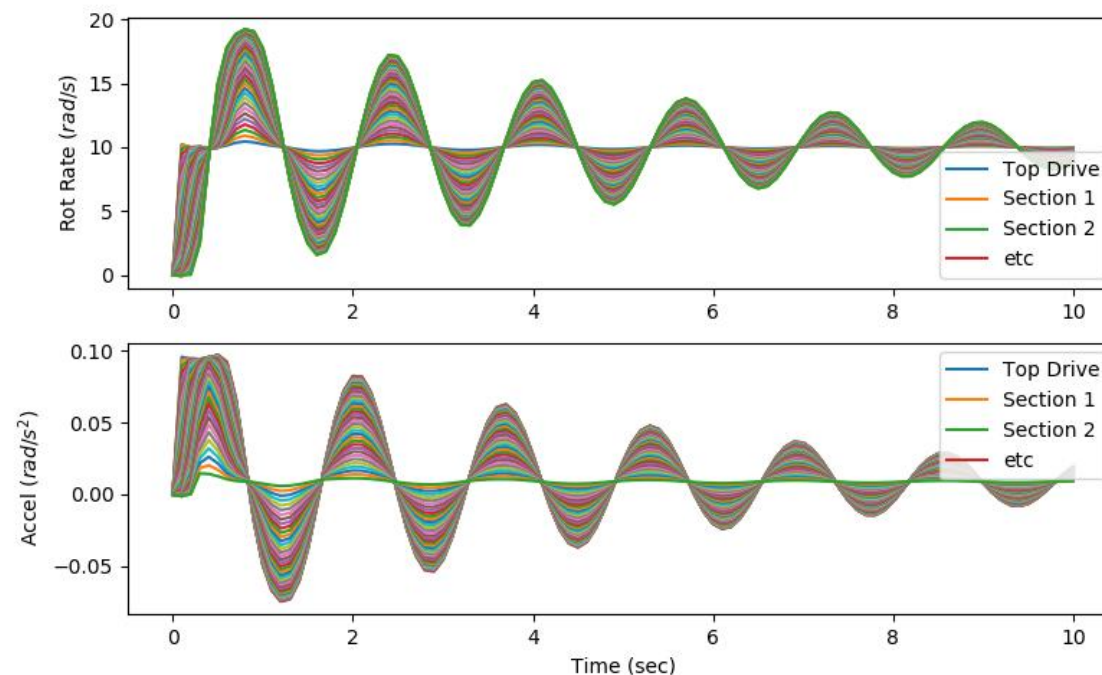


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“Models as a Service” for Oilfield Drilling



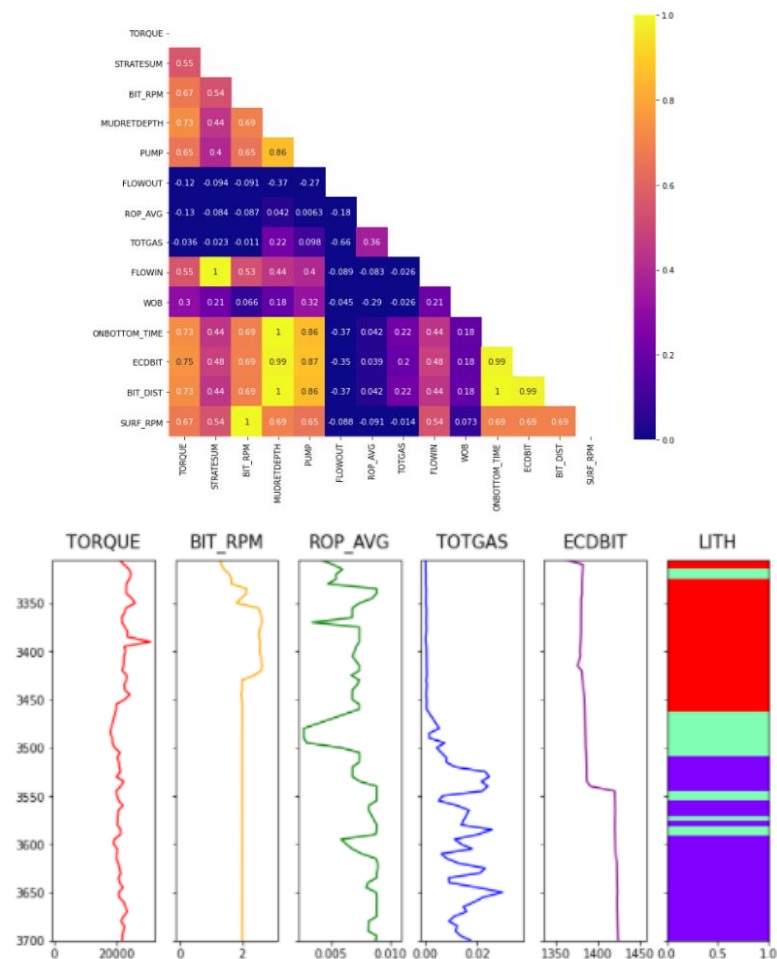
Managed Pressure Drilling (MPD) Hydraulic Model predicts pressure and mud flow at the bit and choke with changes in density, mud pump flow, and choke valve position.



Rotational Vibration Dynamics are predicted with a **Soft String Model** that is broken into individual string segments that include rotational inertia, frictional, and spring effects and to predict rotational vibration.

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Lithology Prediction from Drilling Data



Actuals vis-à-vis Pre-Drill Models

