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## **Integrated reservoir monitoring and production analysis**

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Abstract: This paper introduces an engineered process of monitoring and managing reservoirs. Better understanding of reservoir performance can be accomplished through the integration of monitoring and production analysis. A recent advance in data acquisition has enabled engineers to access large amount of data and the best use of the data is essential. The integrated reservoir monitoring and production analysis outlined in this paper utilizes acquired data, performs production analysis and contributes to proactive action for optimizing the reservoir management. It has different time scale in the scope of an application, ranging from on-the-fly alarming to longer term production optimization. It provides supplemental control over a development planning by reservoir simulation. Four case studies demonstrated in this paper are: well performance monitoring with specialized parameters, potential failure detection and preemptive alarming, visualized analysis for screening infill well location, and well rate estimate. These case studies have shown how this integrated process optimizes production in the life of field.

**Key words:** reservoir monitoring, data mining, heterogeneity index, self organizing map, neural networks, bubble map

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