

---

## Reservoir Characterization And 3D Modeling Of Hassi R'Mel South Field HRS (Algeria) Using Petrel Workflow Tools

---

**Zohra Nennouche**, Hassi R'Mel Departement, Petroleum and Engineering Devlopment SONATRACH Algeria, 8 chemin du reservoir, hydra, Algiers, 16000, Algeria, phone: 0021370515592, nennouchez@yahoo.fr, Fayçal Ben Amor, schlumberger, algiers, Algeria, and Fadila Benrabah, sonatrach, Algiers, Algeria.

### ABSTRACT

The subjects are the Triassic sands known as the TAGS (reservoir "A") of the HRS field, located onshore in the north-central of Algeria. The "A" main reservoir of HRS field shows medium to bad quality. This is due either to its fine granulometry and to the fact that the pore volume in the "A" sandy reservoir is filled with evaporitic cement. The "A" is affected by NNW-SE normal faults, with big throws. Producing testing and pressure data indicate that HRS is not in communication with Hassi R'Mel field. The objectives are: to rebuild the structural model; to map the 3D evaporites distribution, to explain the geological nature of the facies heterogeneity and to characterize channel bodies within the Triassic "A"; and to come out with an optimized field development plan. To build an accurate geological model, we managed to integrate: The seismic reinterpretation. Characterized with a facies complexity in one hand and the lack of appropriate measurements in the other hand, the core description for the 35 wells was revealed the solution to detailed facies classification and subdivision of "A" into 19 layers. The GOC and WOC have been defined using RFT and MDT tests. These data combined with the major faults have permitted to subdivide the HRS model into 12 blocks. This compartmentalization helped the calculation, by block, of hydrocarbon volume in place. The estimation of petrophysical properties was performed using Elan Plus software. Whereas the permeability was determined from cross plotting the K and PHIE core data. 3-D numerical models of effective PHIE, K, SW and facies distribution were built. As conclusion, new additions to the field structure such as the existence of other small barriers; a clear effect of the NW-SE major faults on the evaporites distribution. These faults act as well as a guide for channels stacking within a paleovalley of same direction. The reservoir part, delimited by this channels concentration, shows the best PHIE and K quality.

---

---