



AAPG Carbonate Reservoirs of the Middle East GTW

Fractured Reservoirs Characterization, Jabal Hafit, Al Ain, UAE

Date: January 30th, 2020

Time: 8am – 3pm

Start / Return Point: Abu Dhabi

Equipment required: We cannot stress enough the importance of good sturdy field boots. If you are buying new boots, spend a few days “breaking in” the boots before coming to field.

Good solid hiking or work boots (leather) (no long heels for field work)

Clothing for both hot and cold weather

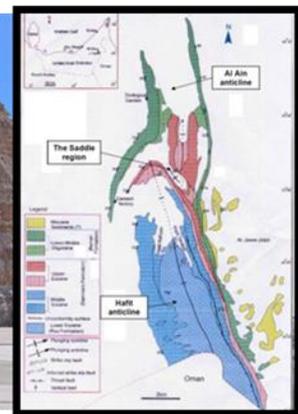
Personal hygiene items.

Rain gear (waterproof, breathable) (in case)

Field Trip Leaders: Dr. Abdelwahab Noufal and Ismail Al Hosani

The one day field trip to Jabal Hafit is tailored to offer participants the opportunity to study the structural style and fracturing of carbonate rocks analogous to reservoir units of the globally important UAE oil province. The clear exposure of these carbonate rocks in this tectonically complicated area provides a significant opportunity to study and explain the structural style and deformation history of the region, with emphasis to study fractures pattern and fracturing mechanism with relation to the paleostress and in-situ stresses, and the link to fractures hydraulic conductivity.

The proposed locations to be visited on this fieldtrip will demonstrate the stratigraphic relationship of the various rock units and their fracture systems that have been developed during long geological deformation. There are significant similarities between these exposed rocks and those units seen in the Abu Dhabi oil fields by means of depositional characteristics and fracture system and fracture related diagenesis (cementation/host rock alteration) with its impact on sealing potential.





List of the observation stops made over Jabal Hafit with their GPS record, lithology and structures:

Stop	Location	Lithology	Structures to recognize
1	Top of Jabal Hafit N 24°03.353' E 055°46.403'	Rus Formation – Lower Eocene: highly fractured limestones	To see from the top of Jabal Hafit: 1. Two limbs on both sides 2. Fracture fillings along fault plane 3. Dragging due to flexure folding 4. A negative flower structure
2	At the crest of Hafit anticline: N 24°04.435' E 055°46.432'	At the crest of Hafit anticline: Rus Formation	1. En echelon normal faults 2. Moderately dipping normal fault 3. Fractures linked to faults.
3	Parking place close to Mercure Hotel N 24°05.034' E 055°45.838'	Rus, Dammam and Asmari Formations	To look northward from top: Al-Ain and Jabal Hafit anticlines form an en-echelon structure. Features like kink bands are found.
4	N 24°05.034' E 055°45.838'	Rus formation	1. Intensive fracturing (fracture zone). 2. Brecciated fault zone. En-echelon faults dipping 56°N. Dip 50° dip direction 346°. 3. 50 m down hill from point 2, horst and graben structures: normal faults dipping 60°S and 68°N respectively.
5	Central part of Jabal Hafit, N 24° 06.92' E 055° 45.544'	Rus Formation –Lower Eocene: limestone with chert nodules	A major possible dextral strike-slip fault with oblique slip component. Riedle faults are also associated with the master fault.
6	N 24° 06.125' E 055° 45.428'	Rus and Dammam Formations	Angular unconformity between Rus and Dammam Formations