FITSIMM

Expand Capacities
Making Sense
Finding Ways
Fitting Solutions

POP – 1st Step

FITSIMM offers numerical and reservoir solutions to issues raised by fractured reservoirs (conventional and non-conventional).

A "proof of pertinence" study aims to compare a-priori ideas about the configuration of the fracturing process, the field characterization results and the production/injection scheme, to more complex fracture geometries within the same reservoir setting.

Bench-marking the modeling complexity issues is the first step toward controlling stimulation, therefore field development. The POP study (stage scale) leads to the well - PAD and then field scale

GOALS of a POP STUDY (one stage scale)

Evaluate (diagnosis) and augment your own workflow working with your specific data

- ✓ *Understand potential mechanisms creating fracture complexity*
- ✓ *Confront modeling options and assess equivalent history match results by different models*
- ✓ *Unveil main drivers due to the possibility to study various fracture geometries*
- ✓ *Quantify uncertainty limits*
- ✓ *Relate stimulation design parameters to complex fracture geometries*
- ✓ *Understand where proppant might be found in relation to a potential complex geometry and therefore being able to predict long term effects*
- ✓ *Understand the "back-bone" - main fracture path development - and therefore improve re-fracturing design*
- ✓ *Assess better exchange areas (matrix - fracture) for EOR purposes*
- ✓ *When changing scale (well & PAD) understand "parent-child " interactions - lowering costs*
- ✓ *Establish predictive methodology for field development design*

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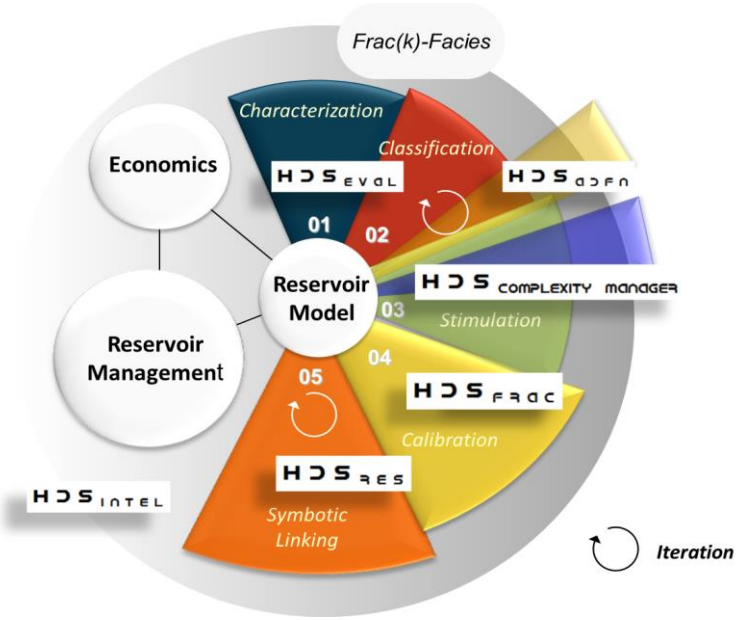

"The observations from mine back data and hydraulically fractured vertical wells indicate that simple bi-wing fractures are not the norm in nature" - "Models themselves remain largely non-calibrated by direct observations of fracture density and far field spatial pressure response to drainage" - Fracture deflection, offset and branching at bedding surfaces and other naturally occurring heterogeneities appears to significantly influence fracture complexity"

Raterman et al. , URTeC 2670034

OPERATIONAL CONDITIONS

- ✓ *Input Data:*
  - *Natural Fracture model (Geological Model) up to 100.000 per stage*
  - *Logs (including FMI/FMS & MEM if available)*
  - *Microseismic Record (if available)*
  - *Operational Stimulation Data*
  - *Prior simulation (B-Wing?) (if available) - can be used as a starting point to our augmented method.*
- ✓ *Output:*
  - *Multi parameter History Match (BHP and Microseimic Cloud, DAS/DTS, LOT/XLOT, Water Hammer) coming from different sources @ different scales*
  - *Total area created*
  - *BackBone (effective SRV)*
  - *Probabilistic proppant placement*
  - *Sensitivity (if desired)*
- ✓ *Duration*
  - *1 to 1.5 months (depending on the initial data processing needed)*

THE OFFER

We will be operational in March 2020

- ✓ ***New Code available (in-house and pre-sale)***

Results based on prior prototype available

- ✓ *We can organize conference calls presenting the methodology*
- ✓ *Some features of the software*
- ✓ *the data needs and results demonstrating the worth of the method*

Cost

- ✓ *Being a young start-up, we cannot afford making this offer free.*
- ✓ *We can provide this study at cost*
- ✓ *If you continue at the well stage you have a 20 - 30% discount of the well study*
- ✓ *You get:*
  - *The simulation results*
  - *An analysis report including recommendations*
  - *A discount on future studies at other scales (generalization)*
  - *A discount on joining future JIP we plan (in conjunction with US universities)*

(For details contact us)