Discrete Fracture Modeling Technique Using TOUGH2

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Why/ Why not use Discrete Fracture Approach?

USE IT

• Can accurately represent field fracture distribution.
• Can not be simulated using other conceptual approaches.
• For numerical experiments.

NOT USE IT

• Need fracture distribution and fracture property data
• Difficulty in discretization of fractured rock into model gridblocks
• Require intensive computational effort
Construct a fracture using field measure data:
* Fracture density
* Orientation
* Trace length

For both 2D, 3D Fracture Networks.
TOUGH2 advantages
In fracture network
Discretization:

1. Gridblocks can be any Shape.

2. Coordinates are not Required.
Matrix-fracture interaction:

The simulation domain is treated as a medium of the superposition of fracture network on porous matrix.

Simulation tricks:

1. Use Constant volume
2. Neglect Gravitation terms
3. Use Parallel computing
infiltration=50mm/y
Questions?