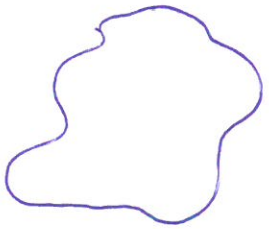
ANDREI

1. Setup

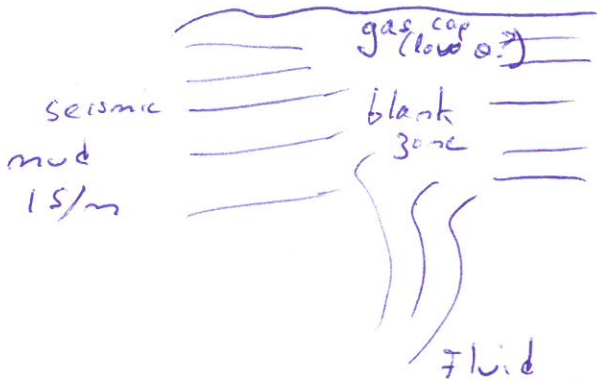
- state the problem. draw a picture.

Mud volcano imaging offshore



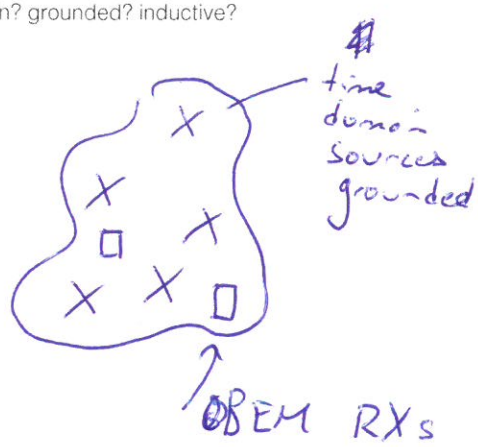
2. Properties

- what are the diagnostic physical property contrasts?



3. Survey

- where are the sources? receivers? time domain? frequency domain? grounded? inductive?



7. Synthesis

- how do we combine our interpretation with other knowledge about the problem and make a decision?

- combine with seismic
- temperature and heat probe data

6. Interpretation

- what do the results tell us in terms of the geological or geotechnical objectives?

location of gas + water

→ salinity

→ temperature

5. Processing

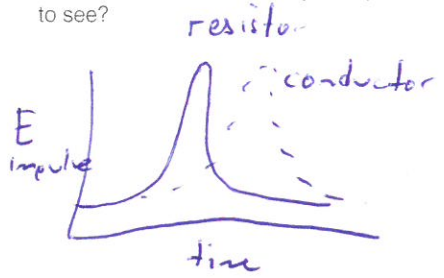
- what steps should be taken prior to obtaining an interpretable image?

convert travel times to apparent resistivity

plot in map view

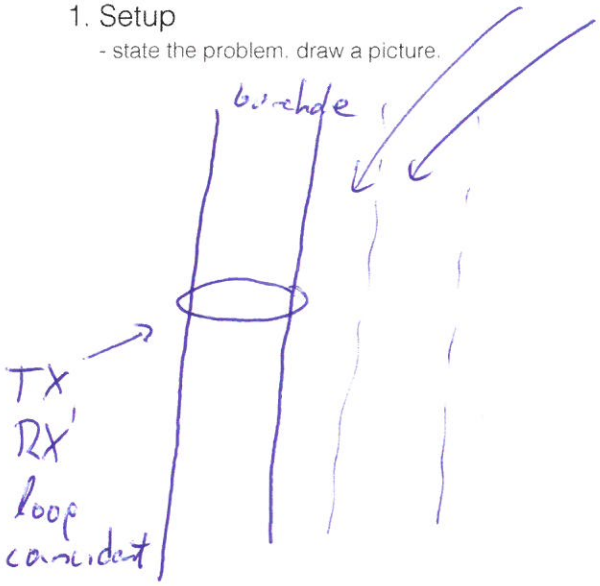
4. Data

- what are the data? what do you expect to see?



ANDREI

1. Setup
- state the problem. draw a picture.



2. Properties
- what are the diagnostic physical property contrasts?

radial variation in conductivity (including casings?)

3. Survey
- where are the sources? receivers? time domain? frequency domain? grounded? inductive?

coincident TX RX borehole induction tool LWD or wireline

7. Synthesis
- how do we combine our interpretation with other knowledge about the problem and make a decision?

compare with results from standard freq. domain induction tool

6. Interpretation
- what do the results tell us in terms of the geological or geotechnical objectives?

degree of invasion

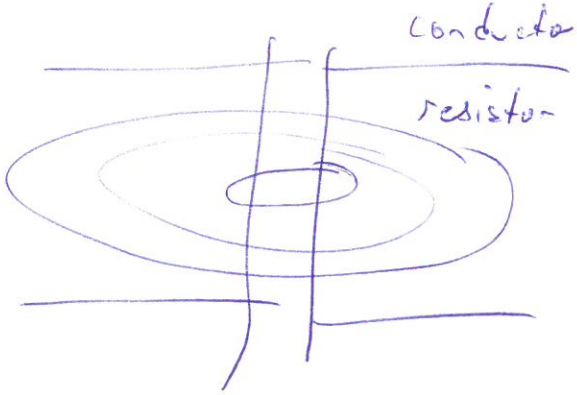
presence of fluid

5. Processing
- what steps should be taken prior to obtaining an interpretable image?

convert coincident loop voltage to apparent resistivity

4. Data
- what are the data? what do you expect to see?

smoke rings blowing out from TX



MAX Like the GPR problem

ANDREI

1. Setup
   - state the problem. draw a picture.

rock

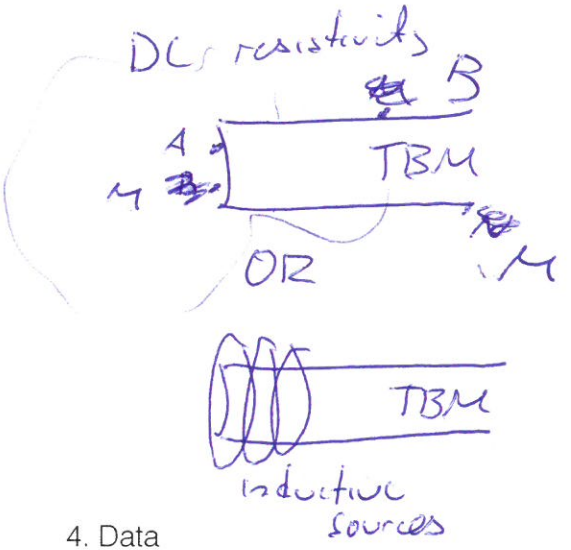
need to look ahead for fractures

tunnel boring machine (TBM)

2. Properties
   - what are the diagnostic physical property contrasts?

Fractures with water will be conductive

3. Survey
   - where are the sources? receivers? time domain? frequency domain? grounded? inductive?



4. Data
   - what are the data? what do you expect to see?

voltages at MN or coincident with induction loop source

5. Processing
   - what steps should be taken prior to obtaining an interpretable image?

need to 3D invert for conductivity model

6. Interpretation
   - what do the results tell us in terms of the geological or geotechnical objectives?

are there fractures or voids?

7. Synthesis
   - how do we combine our interpretation with other knowledge about the problem and make a decision?

pump in grout and wait for it to harden