1. **Mean stress solution**

   a) Atmospheric pressure

   Water table

   Aquitard

   Aquifer

   Aquiclude

2. **Field datasets**

   b) Field measurements

   Raw signal from observation bores at Baro Cashew, Australia

   GW Level vs. Time

   Deviated data points

   Barometric

   Time

   c) Earth tidal strain

   Synthetic Earth tidal signal computed with PyGTide

   Time frame + Spatial coordinates

3. **Signal processing**

   d) Signal de-trend

   GW level vs. Time

   Barometric vs. Time

   Strain vs. Time

   e) HALS

   Hydraulic head

   Negative phase shift

   Positive phase shift

   Amplitude

   \(-0.5\pi\)

   \(0\)

   \(0.5\pi\)

   Time

4. **Passive Subsurface Characterization (PSC)**

   g) Earth tidal analysis

   Analytical solution

   (Wang et al., 2018)

   Objective function, equation 21

   Nonlinear search

   \(ka, S_e, k_l\)

   \(n\)

   h) Atmospheric tidal analysis

   Mean stress solution

   Objective function, equation 23

   Nonlinear search

   \(ka, S_e, k_l, K, S_s, G\)

   \(S_0, n\)