General conceptual model and project roadmap

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USGS
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General Conceptual Model

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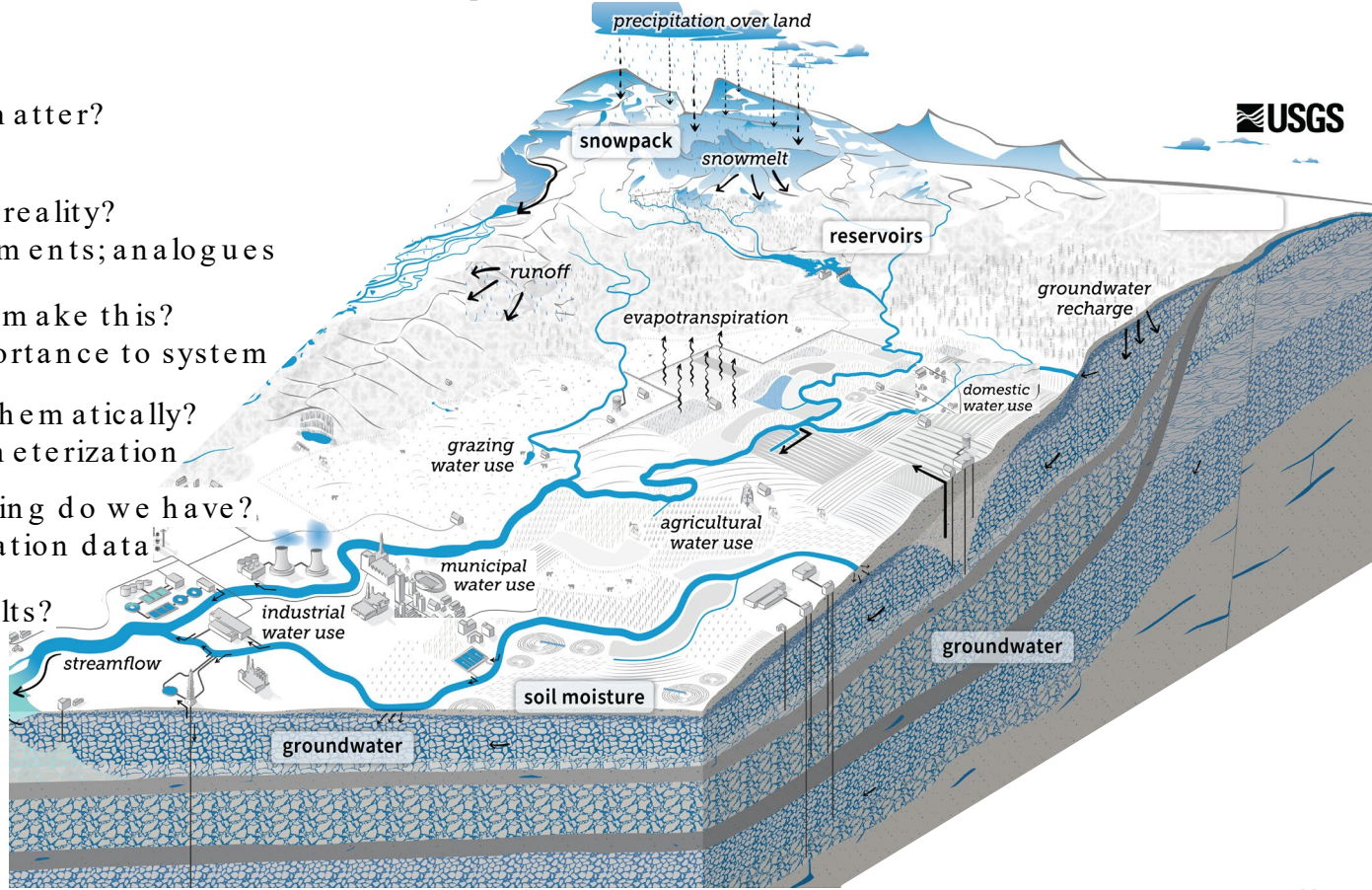
General Conceptual Model

Decisions to Make

- Which parts of the system matter?
  - Objectives help decide
- How do we think it works in reality?
  - Previous studies; measurements; analogues
- How realistic do we need to make this?
  - Objectives; perceived importance to system
- How do we represent it mathematically?
  - MODFLOW options; parameterization
- What degree of understanding do we have?
  - Range of behavior; observation data
- How do we process the results?



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Project Roadmap

Decisions to Make

- Which parts of the system matter?
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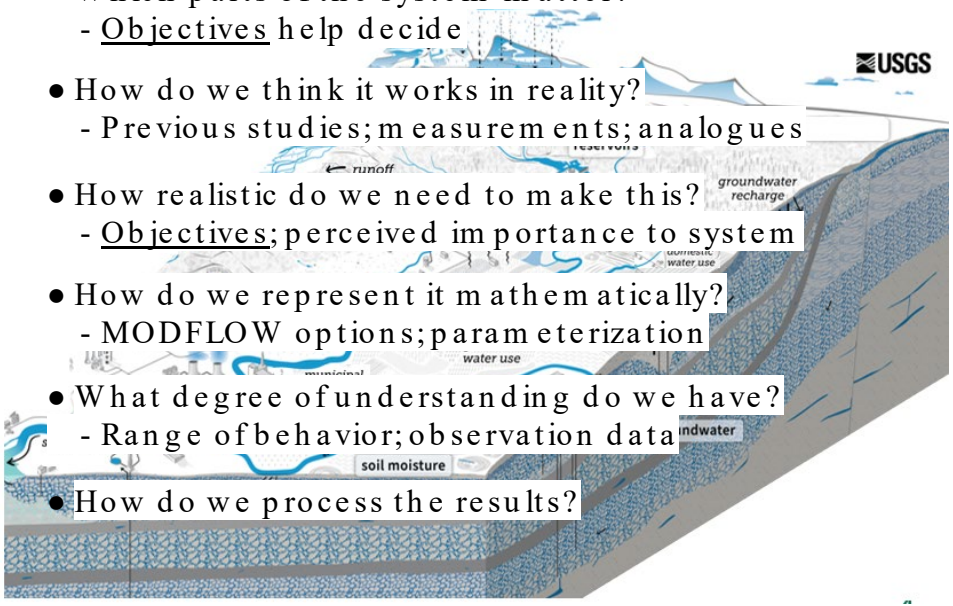

Parts (probably incomplete)

- Historic time period
- Discretization
- Study area
- Hydrogeology
- Subsurface Inflow (tributaries)
- Subsurface outflow (ESPA)
- Pumping
- River
  - Inflow, outflow, flow within, seepage
- Riparian zone
  - Flood plain, phreatophytes, drainage
- Irrigation system
  - Demands, supplies, diversions, drains, etc..
- Consumptive use / ET
- Consumptive use / ET
- Farm recharge
- Precipitation recharge
- Municipal, industrial, domestic use and recharge
- Mackay reservoir
- Soil moisture
- Unsaturated flow
- Weather variability (droughts, floods)
- Other management logic (reservoir, rule 50..)

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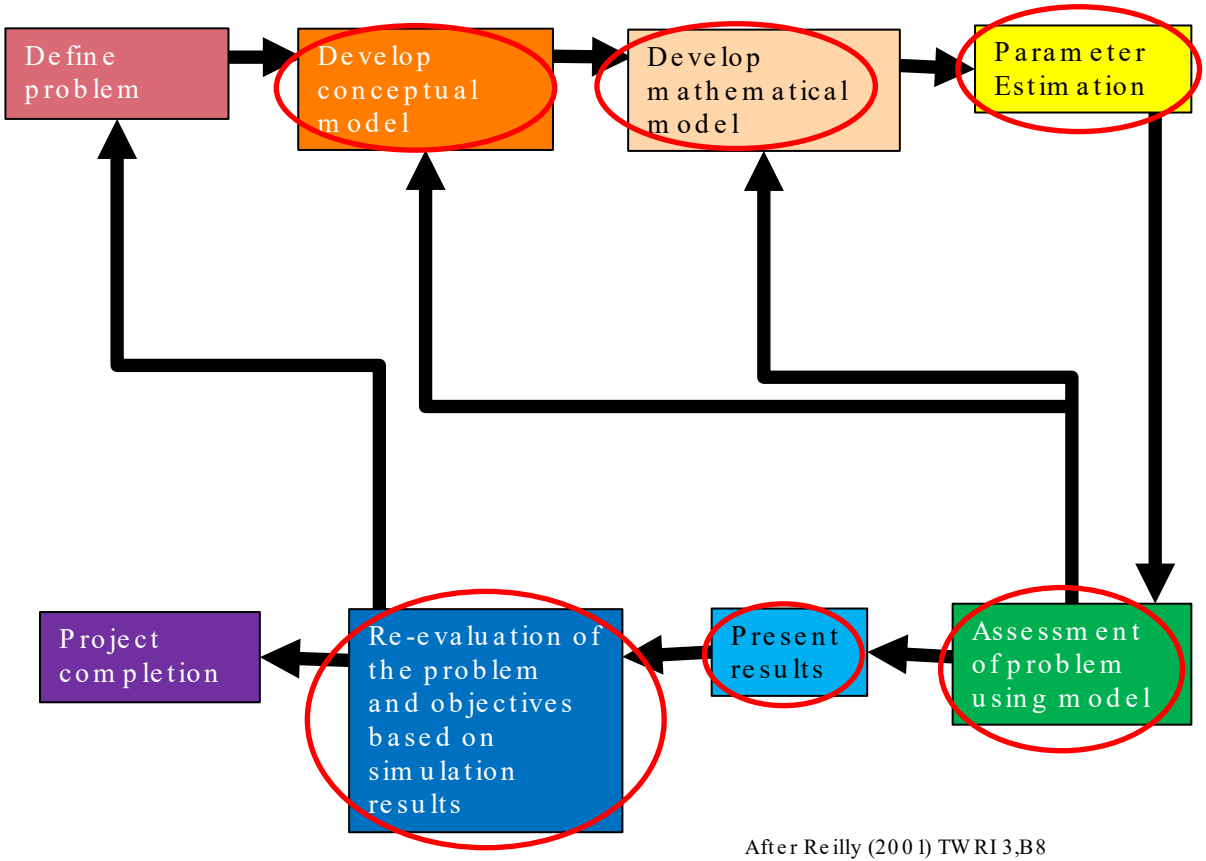
Maintain 'working' model, add pieces and complexity



After Reilly (2001) TWRI 3,B8

Thanks!

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