ALEXI
- ❑ Solves for the full energy balance using land surface temperature
- ❑ Land surface temperature used as proxy for soil moisture condition
- ❑ Spatial resolution on order of km's
- ❑ Temporal resolution daily

MOD16
- ❑ Directly estimates evapotranspiration without solving energy balance
- ❑ Does not use land surface temperature nor soil moisture information
- ❑ Spatial resolution 1 km
- ❑ Temporal resolution eight days

SSEB
- ❑ Estimates evapotranspiration from scaled land surface temperature without solving energy balance
- ❑ Uses land surface temperature
- ❑ Spatial resolution 30 m
- ❑ Temporal resolution daily

FAO-56 water balance model
- ❑ Estimates evapotranspiration from water balance and respects energy balance
- ❑ Does not use land surface temperature
- ❑ Spatial resolution 30 m
- ❑ Temporal resolution daily

For groundwater recharge assessment we need high spatial and temporal resolution as provided by SSEB and FAO-56 water balance model.

Preliminary evaluation of SSEB shows ET over-prediction in rain fed areas and under-prediction in irrigated lands. Its potential for groundwater recharge assessment seems limited.

$$y = 0.81x + 659.52$$
$$R^2 = 0.75$$
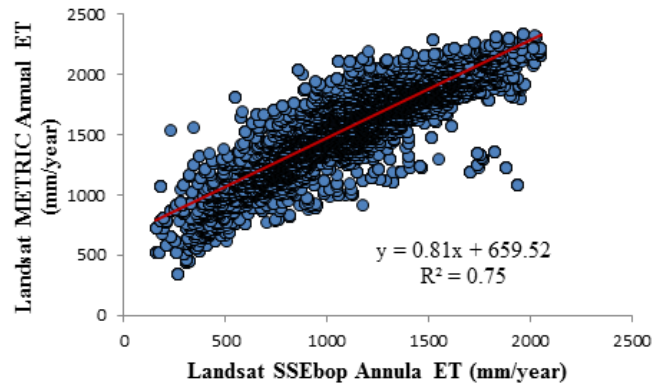
Comparison of annual ET values determined with SSEB and METRIC in the irrigated lands of the Phoenix Water Management District in 2010.
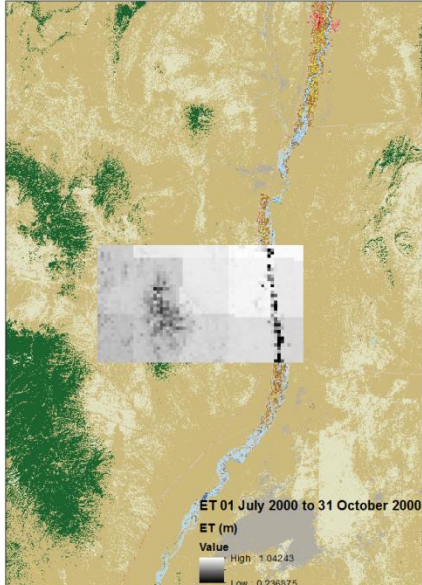
A first ARCPython implementation of the FAO-56 water balance model is being tested for the year 2000 using the MODIS NDVI product at 250 m spatial resolution and daily forcing variables of precipitation and reference ET for tall crop. This model will respect water balance for rain fed lands and energy balance through its use of reference ET.

Expected Progress by June 30
❑ Evaluation report of precipitation products for New Mexico
❑ Evaluation report of ET products for New Mexico
❑ Prototype ET and groundwater recharge maps for 2000