Landsat/MODIS/ GOES ET Data Fusion: Daily Water Use at Field Scale

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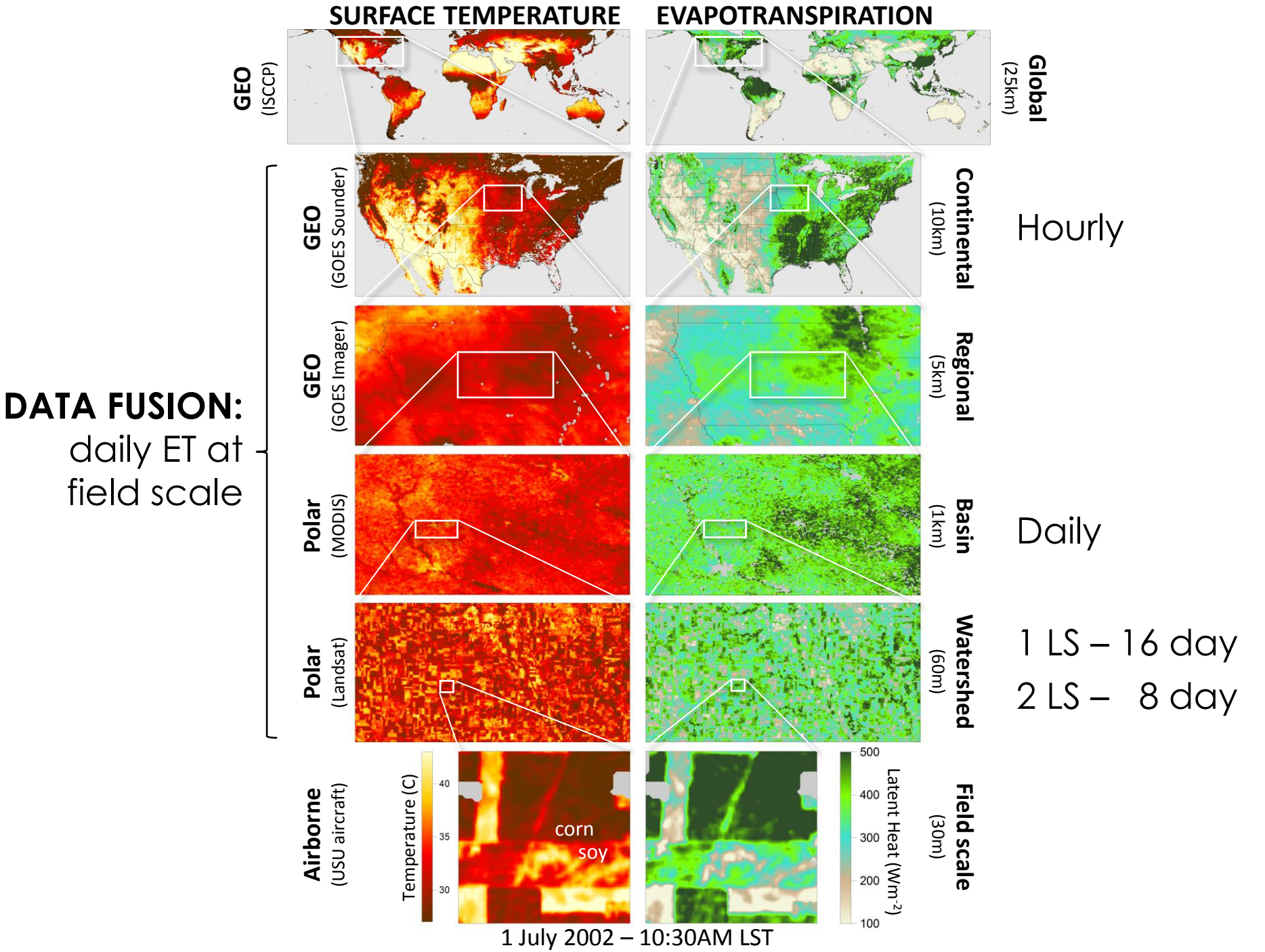
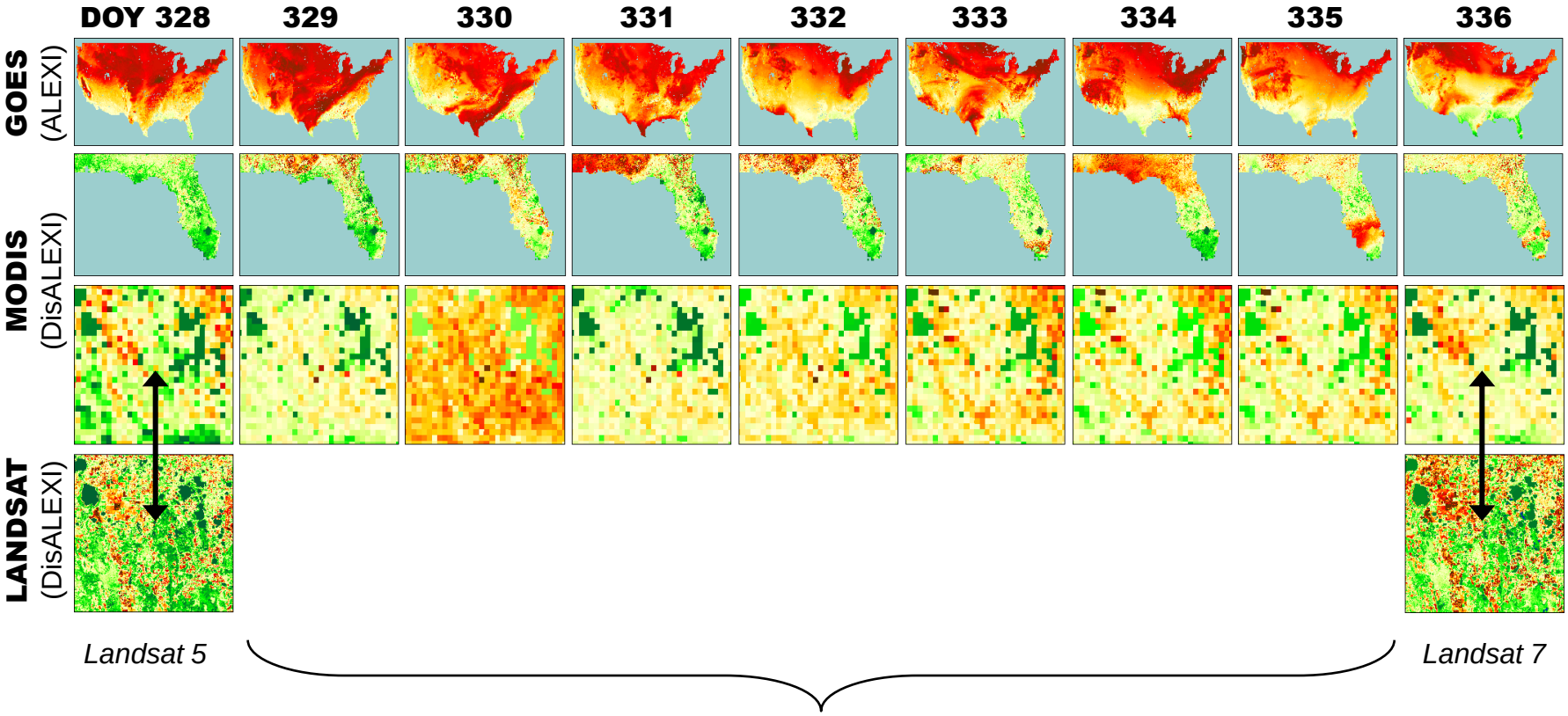

SURFACE TEMPERATURE
EVAPOTRANSPIRATION
GEO (ISCCP)
Global (25km)
GEO (GOES Sounder)
Continental (10km)
Hourly
GEO (GOES Imager)
Regional (5km)
DATA FUSION:
daily ET at field scale
Polar (MODIS)
Basin (1km)
Daily
Polar (Landsat)
Watershed (60m)
1 LS – 16 day
2 LS – 8 day
Airborne (USU aircraft)
Temperature (C)
40
35
30
corn
soy
Latent Heat (Wm-2)
500
400
300
200
100
Field scale (30m)
1 July 2002 – 10:30AM LST

GOES/MODIS/Landsat FUSION

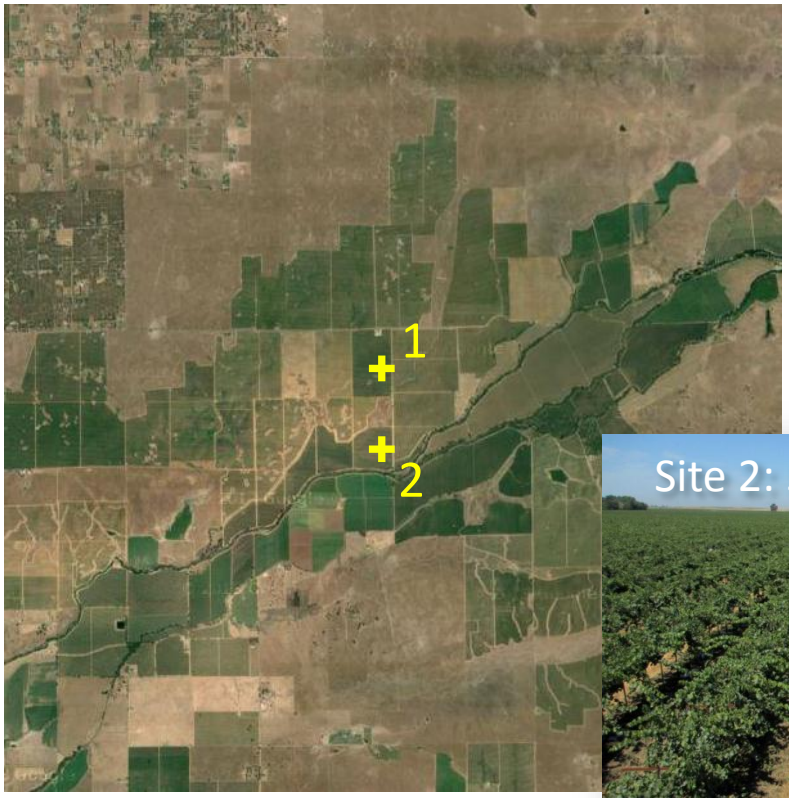
Daily Evapotranspiration – Orlando, FL, 2002



Spatial Temporal Adaptive Reflectance Fusion Model (STARFM) *(Gao et al, 2006)*

Water use dynamics

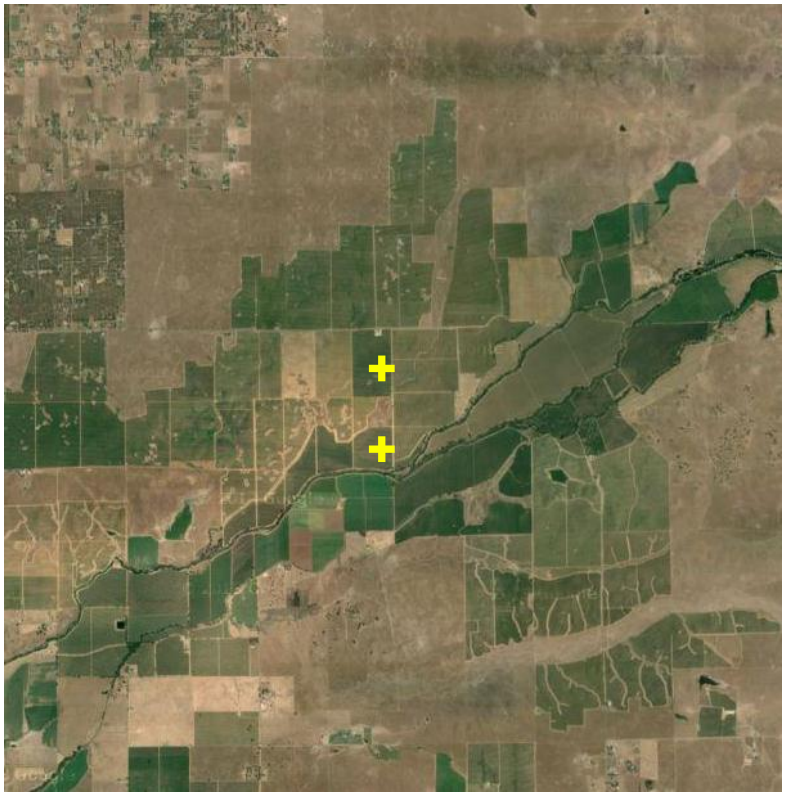
Gallo Vineyards, Lodi CA

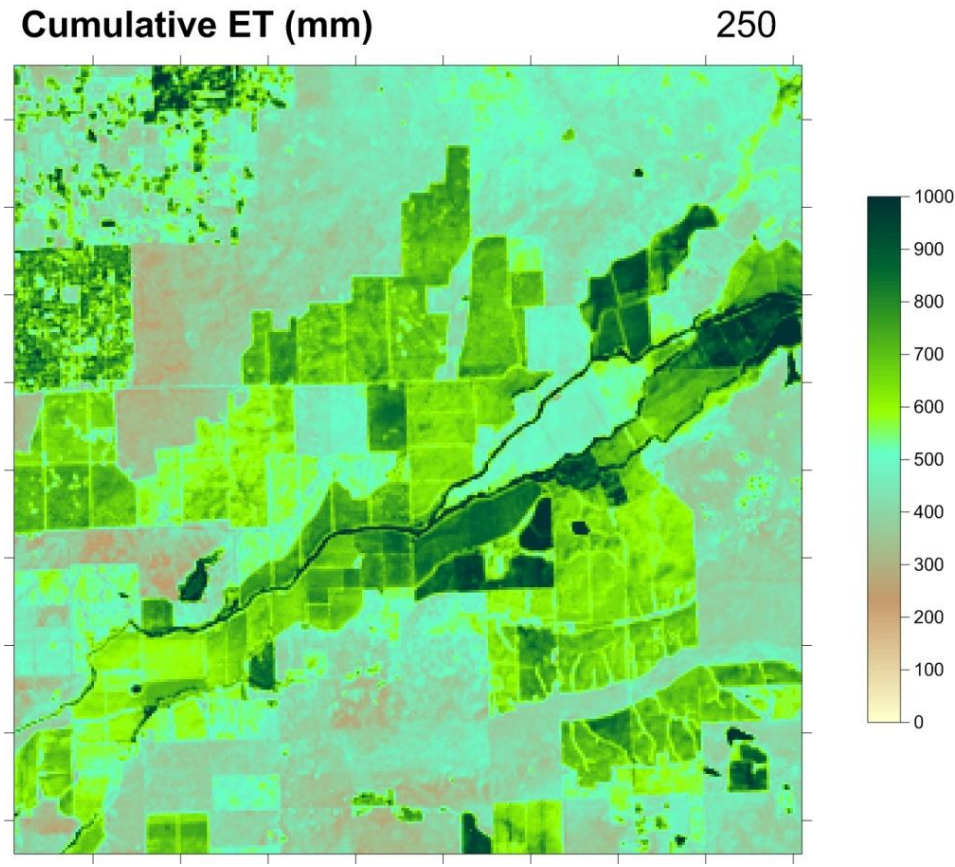


GRAPEX2013, 14

Water use dynamics

Gallo Vineyards, Lodi CA





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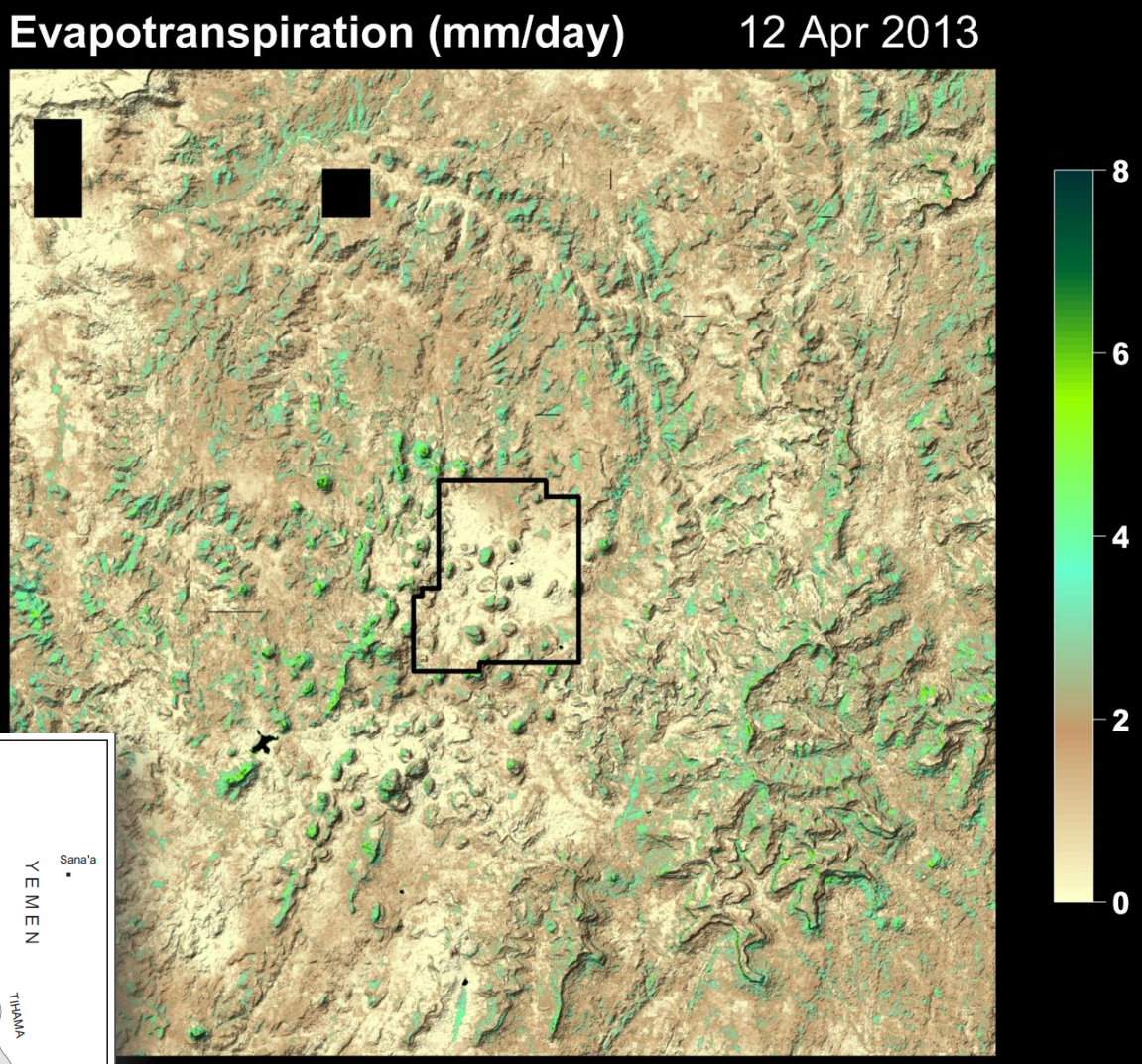
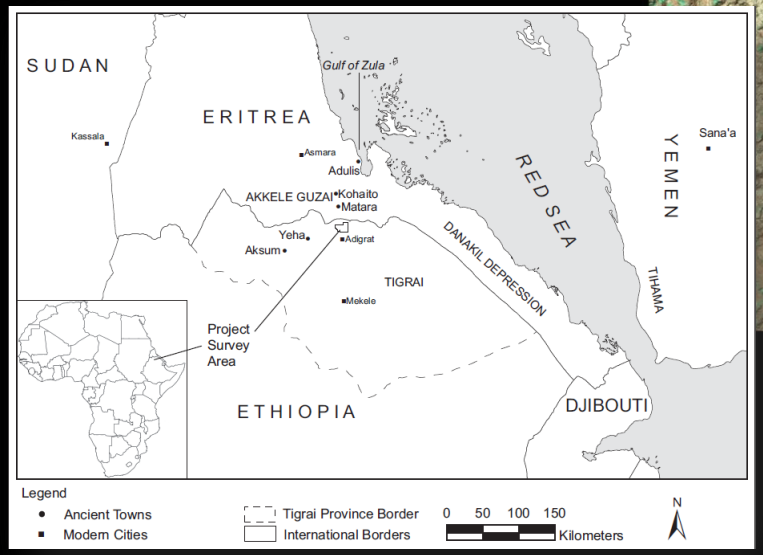
Satellite Remote Sensing of Ancient Water Availability and Irrigation:

A comparative study of the complex societies of Oman and Ethiopia

NASA ROSES 2011
SPACE ARCHAEOLOGY
PI: M. Harrower, JHU

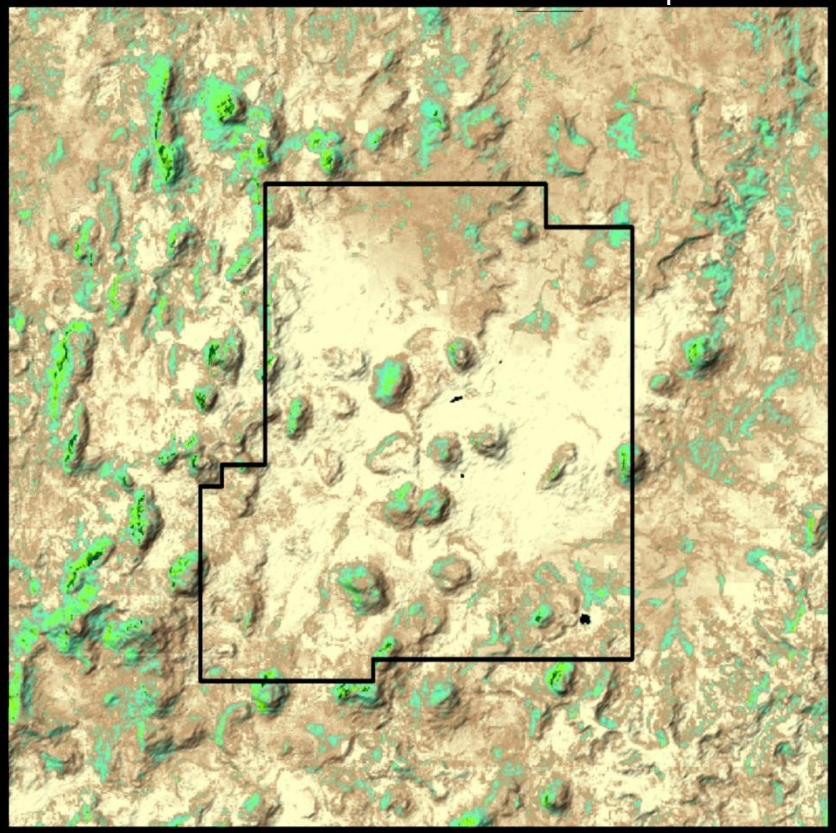




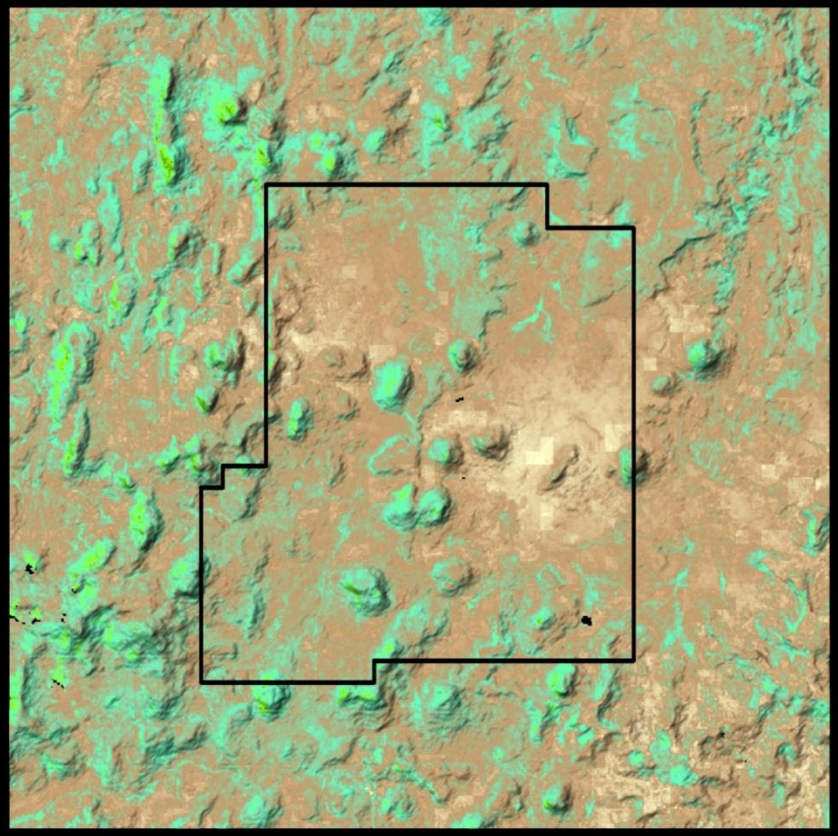
Near Aksum, Ethiopia

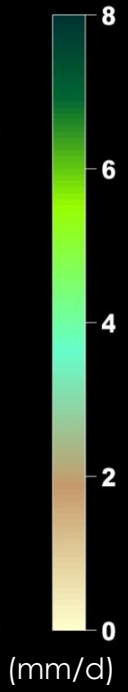
DAILY EVAPOTRANSPIRATION

12 April 2013



30 May 2013

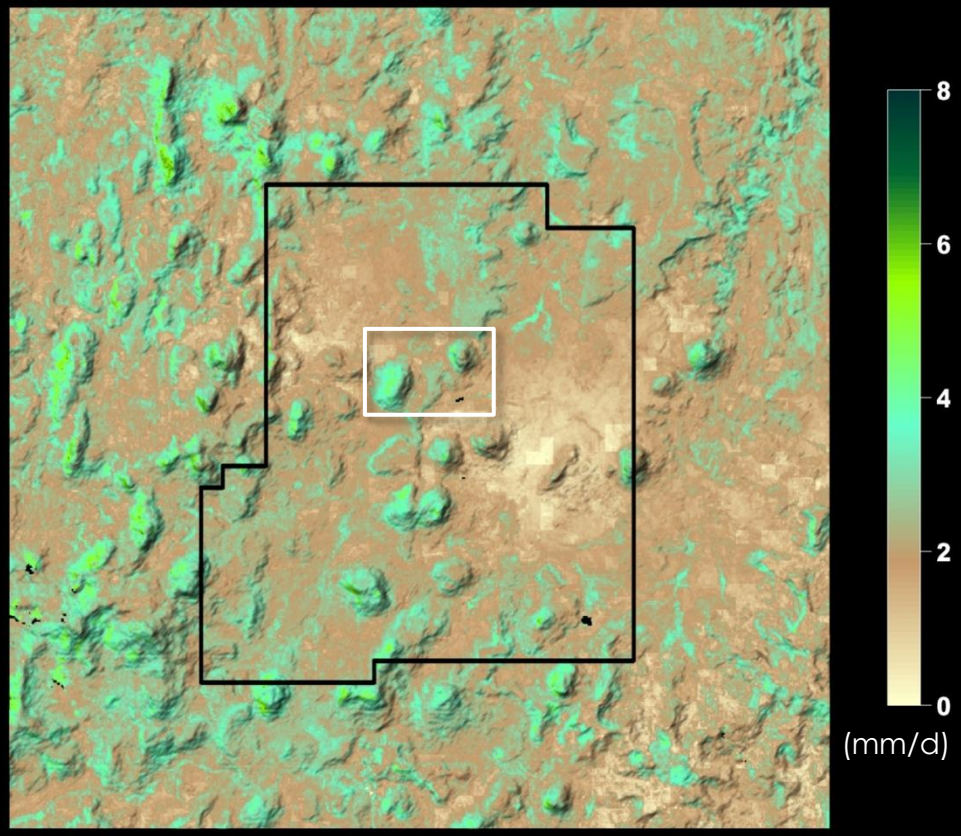




Near Aksum, Ethiopia

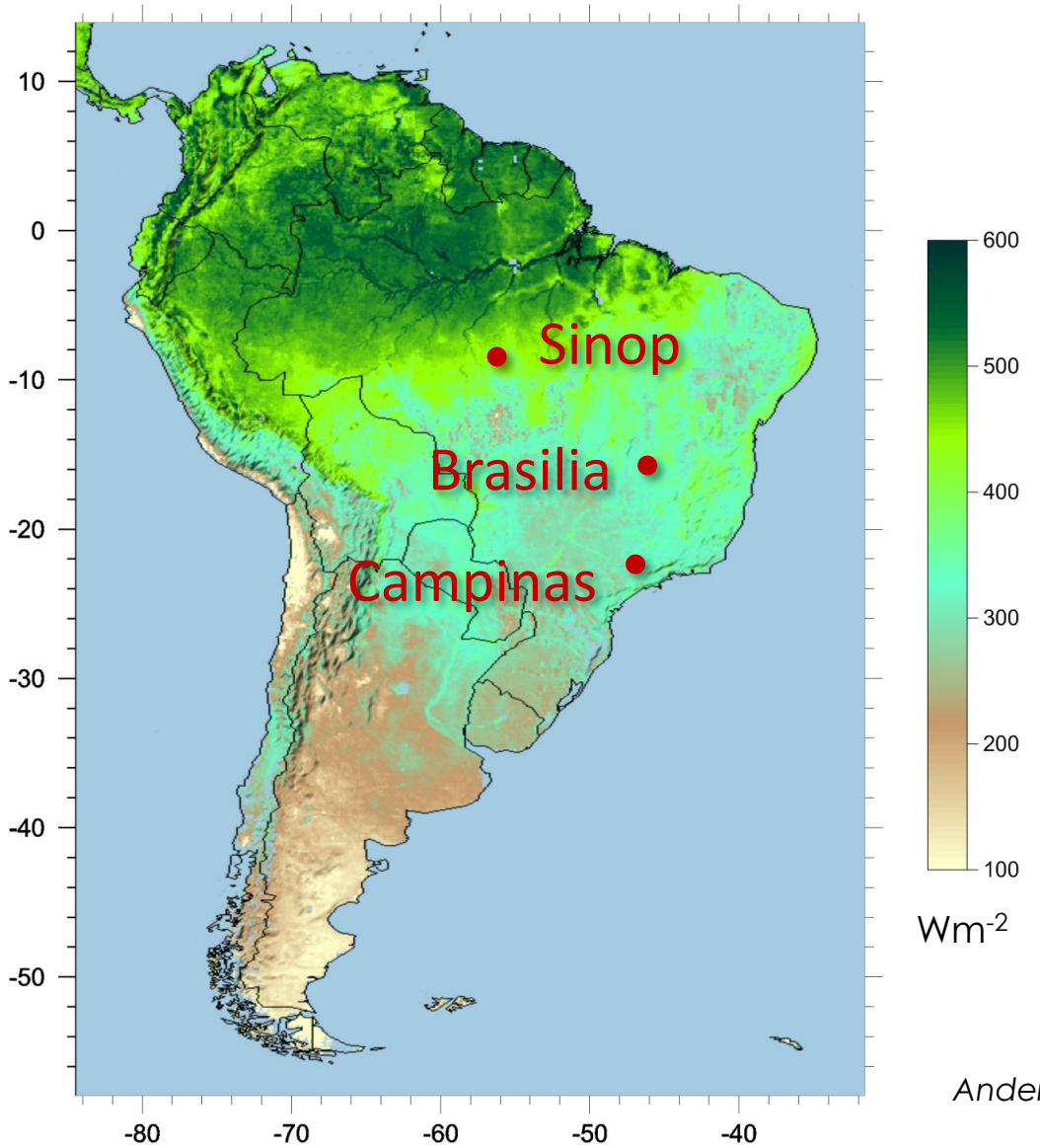
DAILY EVAPOTRANSPIRATION

30 May 2013



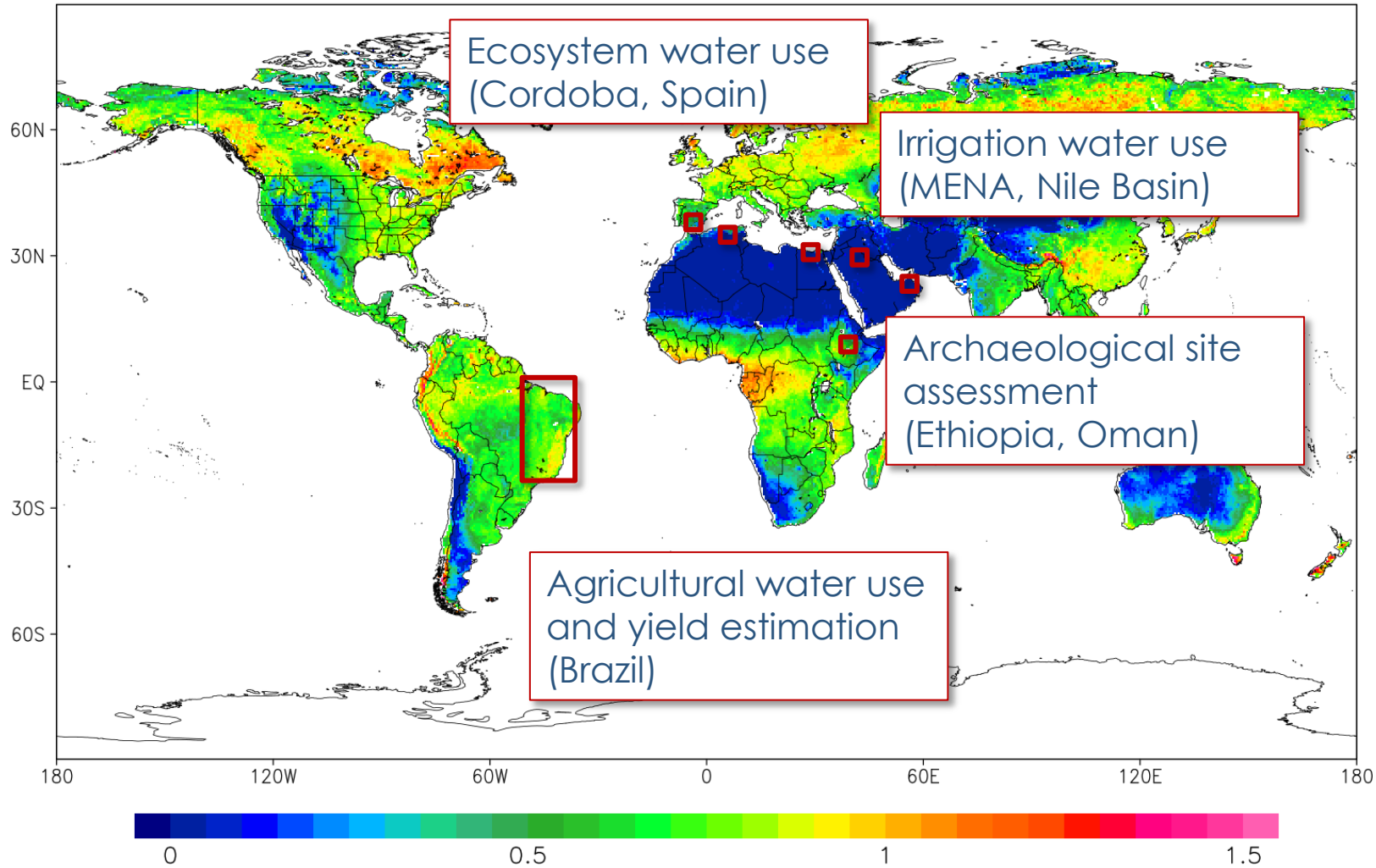
Near Aksum, Ethiopia

August-October composite of clear-sky midday latent heat flux for 2013.



Anderson, et al. (2014)

Global MODIS LST-based ALEXI ET/Drought products

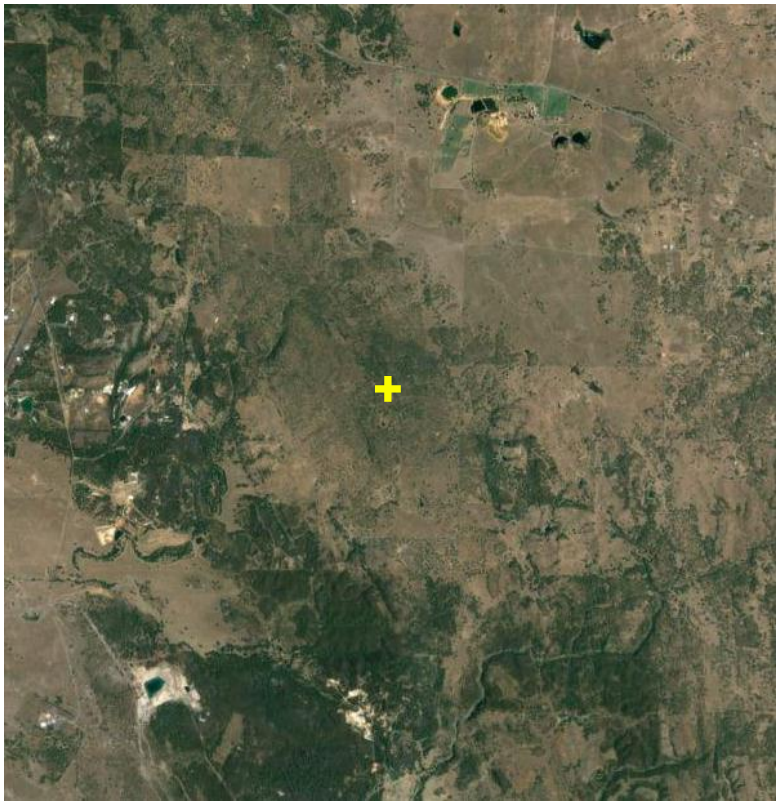


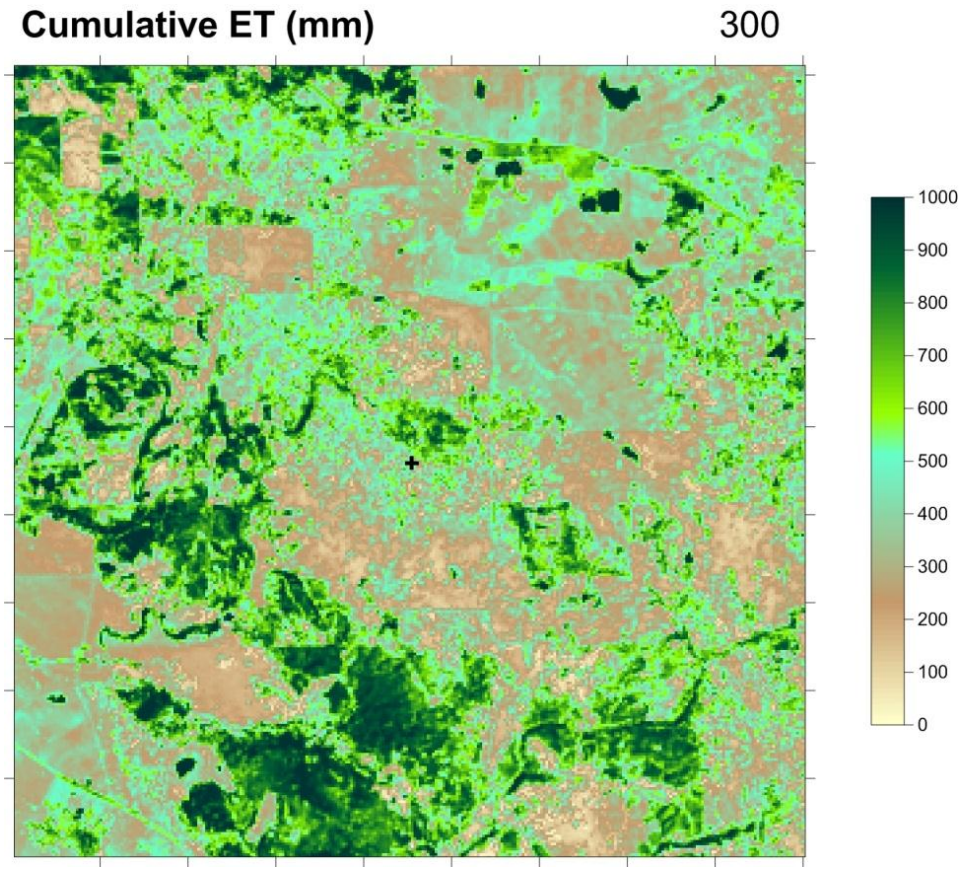
Annual average ET/PET (2004)

Hain, et al. (2014)

Water use dynamics

Tonzi Ameriflux site, CA





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