DETAW Model

Towards Improving Modeling the Delta: Pilot Study at Fabian Tract

California Water and Environmental Modeling Forum

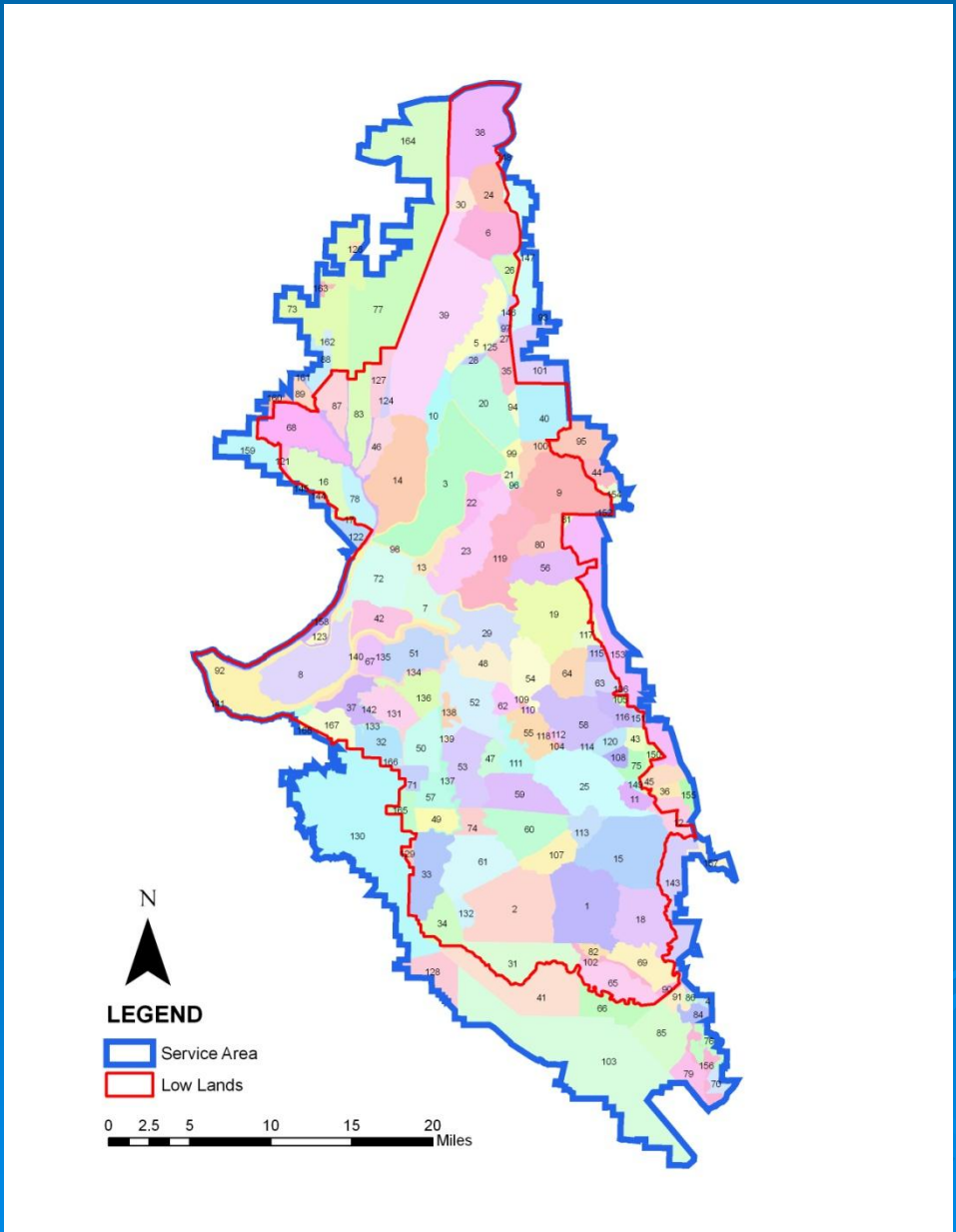
University of California at Davis, August 10, 2012

Tariq Kadir (CA DWR)

DETAW model

- DETAW is a new model for estimating Delta water requirements at higher resolution both spatially and temporally compared to previous models (CU, DICU, DAYFLOW)
- Data input to DETAW more reliable and computational approach more defensible
- Once DETAW is finalized (evaluation continuing) the results could be used to provide consistency between different models and other uses for estimated Delta water requirements at both historical and projected levels of land use development
- CalSim-II (future simulations) and CalSim-3 have an enhanced representation of the Delta

168 Subareas



Bay-Delta Office, Department of Water Resources

Update Data Files | Calculate | Output Files | Statistics | User Guide | Help | Help About

DETAW

Delta Evapotranspition of Applied Water

Bay-Delta Office, Department of Water Resources

- Update Input Data Files
- Calculate Water Balance
- Calculate H. LL/UL Sum
- Calculate P. LL/UL Sum
- Calculate D. Water Balance
- View Weather Output
- View Water Balance Output

Developed by California Land and Water Use, Department of Water Resources

And

Department of Land, Air and Water Resources, University of California, Davis

California Land and Water Use
Department of Water Resources

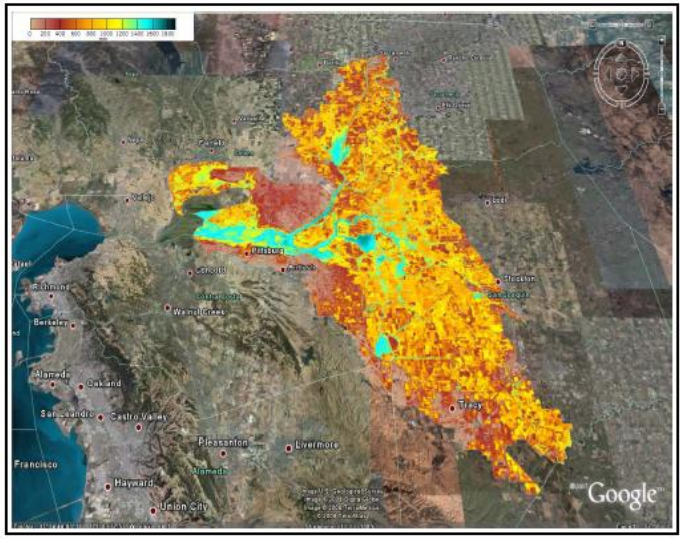
Land, Air and Water Resources
Department of Water Resources

How will DETAW be implemented in Delta Modeling?

- Use remote sensing to adjust crop coefficients for the Delta environment (adjustment coefficients)
- Use current irrigation efficiencies
- Use current allocation of diversions and drainage to DSM2 nodes

Completed SEBAL (remote sensing) Work

Spatial Mapping of ET in the Sacramento-San Joaquin River Delta of California Using SEBAL®

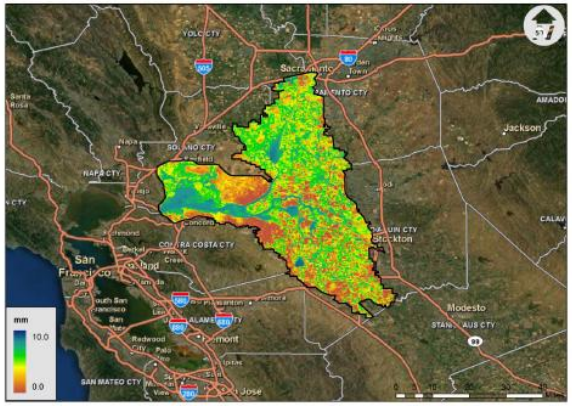


Google Earth Overlay of Spatially Distributed Actual Evapotranspiration for the Delta Region

December 2008

SEBAL North America, Inc.
1772 Picasso Avenue, Suite E
Davis, CA - 95618
PH: (530) 757 - 9200
Fax: (530) 757 - 9204
www.sebal.us

Spatial Mapping of ET in the Sacramento-San Joaquin River Delta of California Using SEBAL® for March – September 2009



Spatially Distributed Actual Evapotranspiration on June 8th, 2009

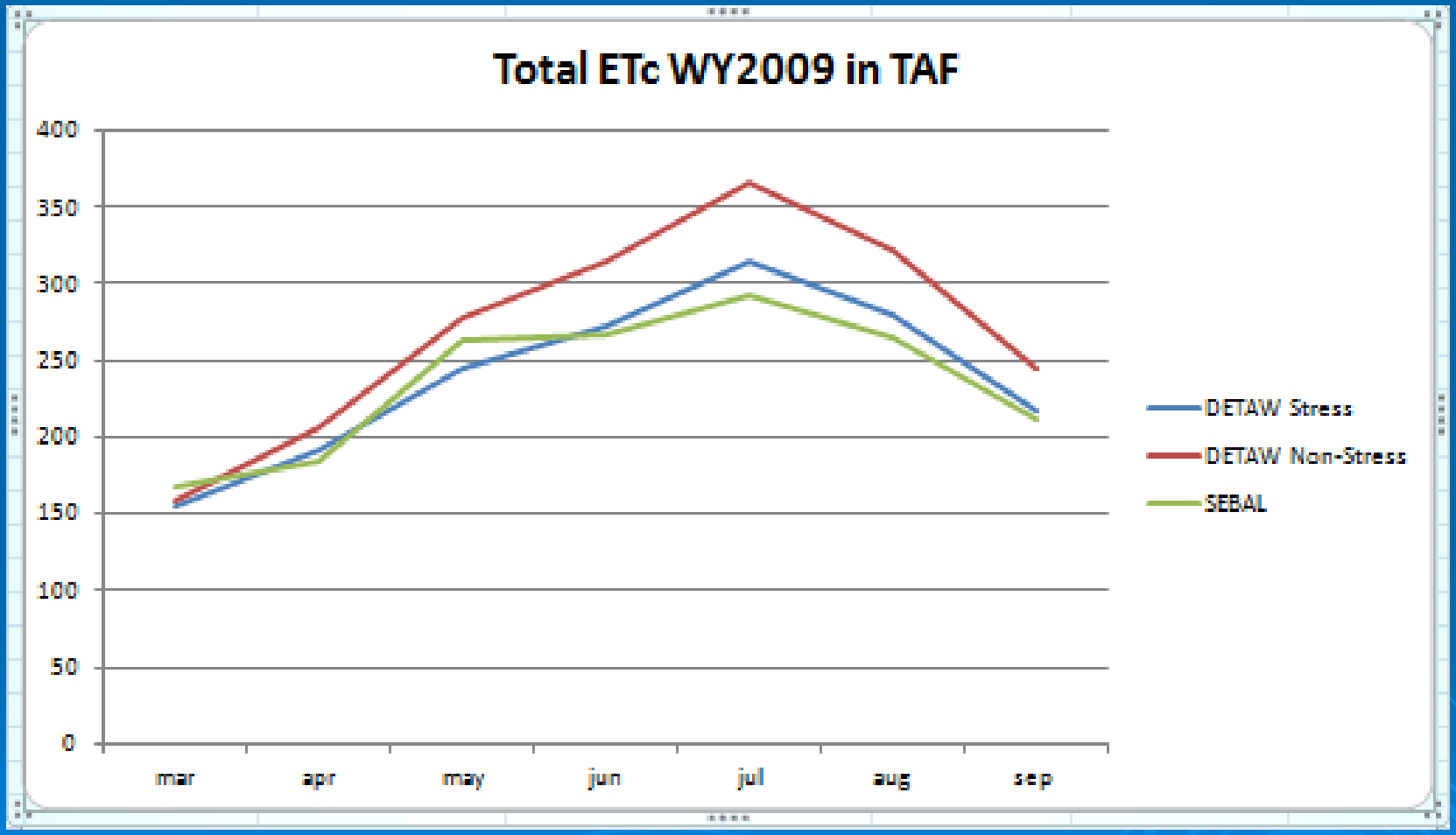
January 2012

SEBAL North America, Inc.
1772 Picasso Avenue, Suite E
Davis, CA 95618
(530) 757-9200
www.sebal.us

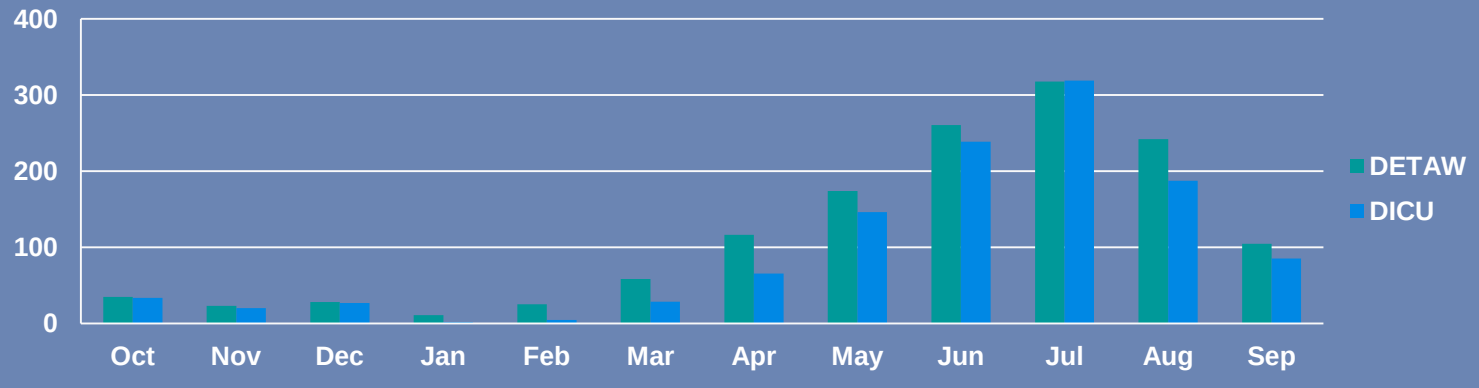
Actual ET (ET_a)

- Computed from Energy Balance
- Inherently accounts for effects of:
  - Salinity,
  - Deficit irrigation,
  - Disease,
  - Poor plant stands, and
  - Other stress factors

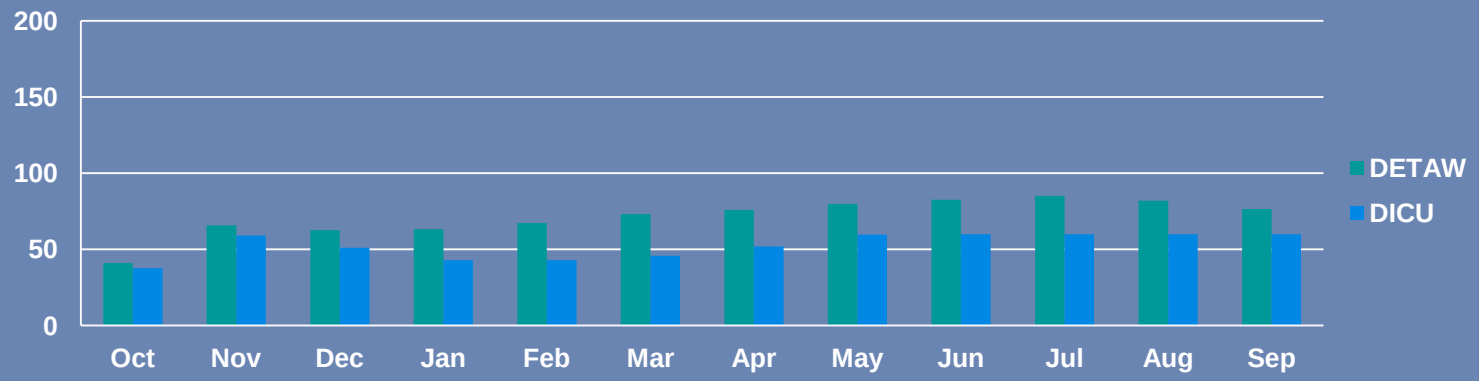
DETAW vs. SEBAL for WY2009



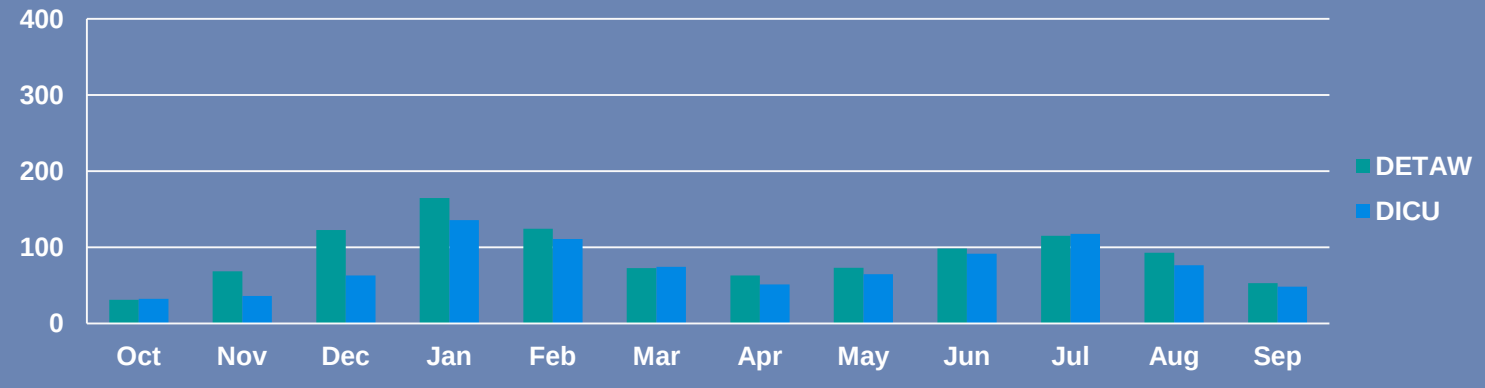
Long term averages of Delta channel diversions to islands (1922 - 2011 , TAF)



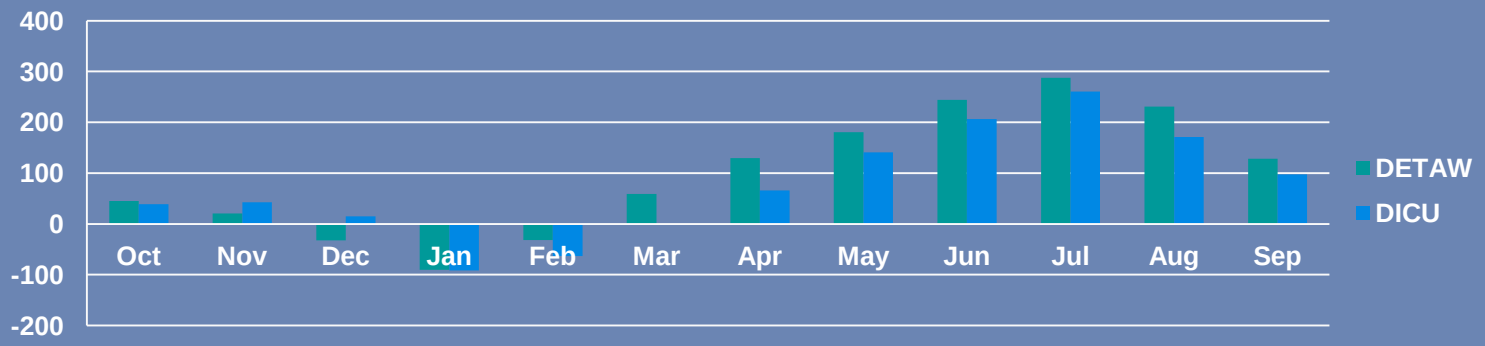
Long term averages of Delta channel seepages to islands (1922 - 2011 , TAF)



Long term averages of Delta island drainages to channels (1922 - 2011 , TAF)



Long term averages of Delta net channel depletions (1922 - 2011 , TAF)



Current and Future Work

- Complete report that:
  - Documents comparison of consumptive water demands from the different models (CU, DICU, DETAW, DAYFLOW)
  - Documents how DETAW changes Delta outflow estimates
  - Documents how implementing DETAW in DSM2 changes simulated EC
  - Document DSM2 simulation results' sensitivity to features of implementing DETAW

- Public workshop

Thank You