**ET Research and Science Team Tag-Up Meeting Notes**

TSSC Task-109

Monday 11 AM, recurring weekly

To join the meeting: [https://hangouts.google.com/hangouts/\_/doi.gov/mschauer](https://hangouts.google.com/hangouts/_/doi.gov/mschauer?hceid=bXNjaGF1ZXJAY29udHJhY3Rvci51c2dzLmdvdg.7h1gu5u8el7pb7dgmehbqqphp3)

**Meeting Dates (click on date to access quick-link)**

June 17, 2019

[June 10, 2019](#fx75txsmg52x)

[June 3, 2019](#hpxhel9podb9)

[May 27, 2019 (holiday)](#82mc3zthfy9i)

[May 20, 2019](#tojqkxdwx0na)

[May13, 2019](#olac0f24wfk7)

[May 6, 2019](#j8ychfu6rcnk)

[April 29, 2019](#1nvae6vr4cmj)

[April 22, 2019](#5p5yvnpiw0j8)

[April 15, 2019](#sja5p2yj5hyo)

[April 8, 2019](#qfisahdu8o2m)

[April 4, 2019](#mt096z14ppl)

[March 25, 2019](#w1mo1u741gg)

June 17, 2019

Attendees: Mac, Matt, Stef, Manohar, Gabriel

Stef:

* Helpdesk will be available for a brown bag / personal training regarding VDI setup and use. Maybe Friday 6/21 am? - TBD
* URGB paper: Converted and shared PDF review to Microsoft Word, for S. Cooper.

Gabriel:

* Shared manuscript review comments. Walked through author responses with team.
* Needs to be submitted to journal Wed, 26th.

Manohar:

* Mann Kendall Trends updates. Slope & p-value computed basin-wide on test VDI in <24 hrs.

**What goes on Science Base → ~~Figures?,~~ Raster Datasets only!**

**Confirmed**: Matt Rigge can do data review.

ACTION: Create IPDS entry for data release, request peer review

ACTION: Create XML Metadata files (p-value rasters (x1), Slope rasters (x1), Anomaly rasters (x6) <https://www1.usgs.gov/csas/ome/> → Share with M. Rigge along with PDF Checklists (x2).

ACTION: Get a data and metadata internal review from M. Rigge

ACTION: Upload rasters with XML to Science Base

1. ~~Certain Figures only:~~ 
   1. ~~Figure 2 (include table data)~~
   2. ~~Figure 3 (include table data)~~
   3. ~~Figure 10 (include MK geotiff data)~~
   4. ~~Figure 11 (include~~
2. ~~All of the MK~~

Does SB require an XML- metadata entry for data in each figure?

SB landing page: <https://www.sciencebase.gov/catalog/item/5bd86bc2e4b0b3fc5ce9f87e>

Data Release Instructions: <https://www.usgs.gov/products/data-and-tools/data-management/data-release#dmp>

Matt:

* Continuing LCRB work
* Working on URGB review comments and DMP file

Mac:

* Working on URGB Data release (IPDS, SB)
* Completing UCRB project tasks: processing updates for EC stations - daily ET outputs.

June 10, 2019

Attendees: Matt, Mac, Stef, Manohar

Stef: VDI *still* not ready yet. CPU specs undetermined.

Manohar:

Matt:

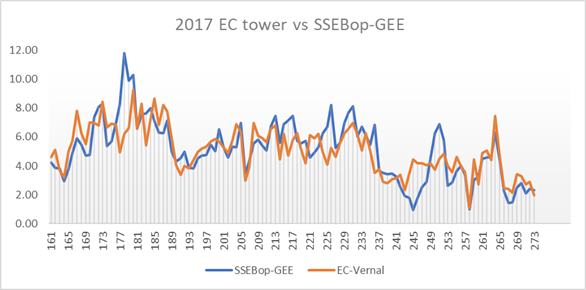
* LCRB SSEBop deliverables - HUC, croplands summaries. Gridded products.

NDVI-ET for MSS years

* Met with Wu regarding NDVI saturation impacts on ET, bias differences between L5/7/8 spectral? Related to HLS work for Sentinel-SSEBop research.

Mac

* UCRB daily ET over flux towers (2018). (Delivering this week)
  + Compared 2017 results. Vernal, UT irrigation EC station:



* LST and dT intercomparisons in CA. Investigation using GEE. (ongoing)
* FEWS support - regional shapefiles request. (ongoing)

June 3, 2019

Attendees: Mac, Matt, Stef, Manohar

(TSSC Task Order 109 complete, TO 139 effective June 1st.)

Matt:

* Both LWB papers submitted (1. URGB 2. Central Valley ET - both to RS Journal)

ScienceBase & DOI Q&A with Manohar:

MV: SB not required if no data release, DOI for paper generated by journal

MS: Will do a data release for CV paper, so need SB entry for that paper.

* HLS paper meeting with XIE(?) this week at EROS
* Processing the last 2 years of Klamath ET (2017/18), per request. Water years.

Manohar: Working on the Klamath ET paper (deadline 30-June). Needs a section to reference the SSEBop model changes/improvements from the 2013 model. Cite papers since then (2016, 2017, 2018).

2016: Landsat implementation (L8 initially)

* (began GEE testing behind the scenes)

2017: Dynamic Tcorr

2018: new avg-sky dT inputs

2019: GEE implementation finalized

Mac/Matt Action: complete text summary and share with Manohar

Stef: Stress-testing VDI hardware capabilities (MK processing scripts, etc.)

Mac/Matt Action: Double check VS123 D: (local) drive for anything that needs to be copied or backed up before server goes down in June to be replaced by VDI.

Mac:

* Completed remaining tasks from TO 109 last week.
  + UCRB basin ET 2018
  + VegET initial comparisons
* Currently running the daily ET for 4 EC sites in UCRB (apr-oct 2018). Due next week.
* Supporting FEWS regional shapefiles task, ongoing.
* OpenET updates: CA dT investigation, Realtime Tcorr in GEE
  + Manohar Action: Ask Lei Ji to share his dT comparison paper

May 27, 2019

No meeting (holiday)

May 20, 2019

Attendees: Mac, Matt, Stef

Stef: Starting to test the finalized VDI (Virtual Desktop Infrastructure) systems. Making sure operational SSEBop MODIS ET (CONUS) Python code is running properly with correct script packages, etc. Accessing the new NetApp network drive project folder (30 TB for WaterSMART)

Matt:

* Completed FEWS backup processing support request for Rowland (CHIRPS).
* Finalized figures and text for URGB manuscript - submitting to RS journal by 31-May.
* Also working on separate LWB manuscript before end of PoP.

Mac: Task 109 deliverables activities in progress by 31-May

* CONUS 2015 Monthly and Annual ET product
* UCRB SSEBop ET products: basin monthly, EC tower daily
  + Including graphics and analysis charts
* VegET initial comparisons

May 13, 2019

Attendees: Gabriel, Mac, Matt, Manohar, Stef

RSE URGRB Manuscript Updates

-Reviewed paper revision with added MPI analysis and literature review, etc.

Next Steps:

* Finalize new body and charts additions, conclusion, abstract (Matt, GS, Mac)
* Go through and check again for last minute text edits (all)
* Submit to RS journal end of this week or next (GS or Manohar)

May 6, 2019

Attendees: Matt, Mac, Stefanie

Matt: URGB paper updates -

* New Remote Sensing submission by May 31. “Remote Sensing: 10th Anniversary”

<https://www.mdpi.com/journal/remotesensing/special_issues/10th>

* Paper additions: MPI eval, basic model comparisons (Lit Review mostly), etc… TBD.
* EWW approved for May 2019.

Mac:

* Water Census subsets to Caldwell team, 2015 monthly ET processing in GEE.
* This week: UCRB model processing with 2018 ETr

Stef: Continue global MODIS ET v5 implementation.

MENA product - 30 years database

April 29, 2019

Attendees: Gabriel, Mac, Matt, Manohar, Stef

RSE URGB Manuscript Roundtable

-Received Editor and Reviewer responses from initial journal submission.

Next Steps:

* Do an MPI data trend analysis and evaluation for basin. (Matt)
* Next paper meeting: Wed May 8 @ 2pm CT
* Plan to make some revisions based on reviewer comments. (all)
* Submit to another RSE journal or Scientific Report. (all)

April 22, 2019

Attendees: Limited attendance, therefore meeting postponed for next week.

Mac

* Submitted attendance application for [Geo for Good 2019 Summit](https://sites.google.com/earthoutreach.org/geoforgood19/).
* SSEBop-GEE code updates for UCRB development branch → fixed end\_date bug for date filter (plan to push to Master branch eventually).
  + Testing 2017 daily and monthly exports functionality. Still waiting for basin-wide 2018 RefET data from project partners…
* Water Census → In progress processing 2015 monthly ETa/ETf/ETr/Count for CONUS.
  + Processing and sharing AZ data subset: Annual 2015 ETa with WSC partners (A. Read) this week.
* VegET task following up with Stefanie this week for next steps.
* OpenET work → 1) CA use case data deliverable (ETa/ETf/QA) this week, 2) Need to keep shaping metadata template for model groups, 3) any additional website v2 design comments (GS, MF) should be submitted this week.

April 15, 2019

Attendees: Mac, Matt, Manohar, Gabriel, Stefanie

**Matt**

* San Joaquin 2018 aoi: Sentinel-2 work with Landsat. Starting with work on NDVI relationships. Examining March 2019 RSE paper on S2 LST estimation.
* Article Link: <https://www.sciencedirect.com/science/article/pii/S1161030119300231?via%3Dihub>
* Central Valley Manuscript

**Gabriel**

* TSSC and SSSC staff additions upcoming.
* CSU and NPS work with VegET code. Expanding to GEE platform possibilities.
  + Inputs/outputs: water holding capacity, rainfall, weather (air temp, PET, etc.), ndvi, soil moisture
  + NPS: interest in forecast and water budget simulations w/ soil moisture.

**Stefanie**

* VDI updates: Delayed according to helpdesk. New timeline TBD (Curtis Powell)
* V4 MODIS ET operational code: working on Python 3, ArcPro updates for latest mapping module changes.
* Out of Office Apr 17-24.

**Manohar**

* Global ET bias correction (k grid w/MPI) in progress → Version 5
* Klamath paper in progress
  + Amanda (WSC?) has monthly flux tower ET.
* Continue providing support on MENA project

**Mac**

* OpenET link: <https://github.com/Open-ET>
* OpenET SSEBop Landsat ET data submitting to CA user group this week or next.
* SSEBop-GEE CONUS Landsat ET Annual 2015 & 2012 completed. Monthly 2015 Asset generation in progress.
  + Plan to be sharing state subset of Annual 2015 ETa with AZ WSC this week.
* Upper Colorado basin ET 2018 product - waiting for RefET from DRI.

April 8, 2019

Attendees: Matt, Mac

**Matt**

* Estimated upcoming FEWS allocation (for Ron Risty) at 6 hrs/month = ~2/wk
  + Mac has about the same
* 3 Flux towers in San Joaquin → script identifying matching overpass dates for Sentinel2/Landsat: <https://philippgaertner.github.io/2018/07/landsat-meets-sentinels/>
* Lit review on NDVI bands/calculations for S2 when comparing with Landsat 7/8.
  + Also see Ramesh paper
  + Harmonized Landsat and Sentinel Data: <https://hls.gsfc.nasa.gov/>
* Submitted Central Valley Manuscript to Gabriel on Wed 4/3 for May Deliverable
  + Plan is to finalize the draft by the end of April
  + Submitting it to special issue of Remote Sensing in May
* Continued investigation of LCRB ndvi-derived ET vs SSEBop ET
  + Deliverable being pushed off until end of June

**Mac**

* Updating to Anaconda 3 python working environments, testing fresh install of script tool packages including earthengine-api for Python3. Working so far.
* Starting processing this week the 2015 annual ET for Arizona WSC for Amy Read. Deliver this week hopefully.
* Working on UCRB 2017 ET SSEBop-GEE exports for daily timestep at EC station locations. Really should find out timeline for 2018 ETr data availability from DRI.
* Need to send the CA monthly ET data to OpenET working group partners (feat. CIMIS ETr). Will export Assets to Google Drive. TBD.

April 4, 2019

Attendees: Gabriel, Matt, Mac

@EROS - Discussion of existing task progress and work overview.

March 25, 2019

Attendees: Matt, Stefanie, Mac, Gabriel

**Stef (FEWS)**

* Today is the first day in a new position with ASRC. Transitioning from TSSC/KBR.
* Version 4 operational ET scripts are now managed by Claudia Young (FEWS).
* Working on MODIS ET Version 5 operational scripts, nearing completion. Python code to be implemented by CY and FEWS team (TBD)
  + Manuscript is in progress.
  + Working with Manohar on MPI bias-correction to ETa

**Matt (Landsat Water Balance)**

* Finishing up the Harney Basin project: Reprocessed ET using GEE v 0.1.2 and more years (1991, 2005, 2015-2018).
  + Using K=1.0 with yearly Gridmet, after comparing ETr with Agrimet.
  + Delivered to WSC partners.
* USBR work in Lower CRB ongoing. 1975-2015 years.
  + NDVI/ET relationship for MSS data years 1975, 1980.
  + Every 5 years of data 1985-2015 using GEE, monthly ETa.
  + Looked at applied monthly “effective precip” coefficients from PRISM.
  + Delivered preliminary data last week. Completed deliverable is due end of May.
* Gabriel: It would be ideal to leverage WS or LWB project to make this into a manuscript → 2019/20 timeframe.

**Mac (WaterSMART)**

* Task 109 deliverable - model input data (Thermal, NDVI and Hydro-Met) 2018 for UCRB
  + Example NDVI: <https://mof1452.users.earthengine.app/view/ucrb-2018-season-ndvi>
* Working on code improvements for GEE end\_date issues in ET export scripts.

Reminder: GEE sign up link with gmail only <https://signup.earthengine.google.com/#!/>

* SSEBop-GEE processing 2015, 2012 Annual ET for CONUS (ARD Tiles Asset Exports) for National Water Census using Median Gridmet. Ongoing.
* Following up with OpenET: processing test ETa data in support of Use case partners data request (Sacramento, CA). Monthly ET last 3 years, using CIMIS ETR.

**Gabriel**

* ***Next GOOD Meeting with ET R&S team on Thurs @ 3:30pm CT at EROS***
* Upcoming Focus Reminders:
  + Daily MODIS ET (CONUS), Landsat Monthly HUC-12 crop summaries, and VegET / NetET (CONUS)
  + Landsat & Sentinel-2 harmonization ET work (Matt, Ramesh, others)

TODO: We should look into Landsat Albedo functions to finalize improvements for LST (white sands issues): <https://code.earthengine.google.com/1b344cf19bfad674a4be002f58049630>

* Can we test this in Western U.S. first at scale to identify impacts on Landsat LST?
* Hope to apply this for CONUS and global LST (ET) eventually.
* SSEBop-GEE v0.1.2 presently uses a MODIS LC binary mask.