**Snow and VCAP Processing for FEWS website:**

**~~NOHRSC~~ SWE:**

Run manually until i am back from PTO.

Script is under D:\FEWS\DataPortal\bin\allregions\_daily\_swe.py. If its for todays date, run without arguments otherwise if running it for a previous day enter the date as shown below. Also,make sure you run it from the bin folder, otherwise it will not work. 

The data is all saved under D:\Stornext\fewspsnfs2\FEWS\DataPortal\data\Asia\CentralAsia\Daily\SWE\geotiff\2017. Not locally on D drive anymore.

~~For the year change I added the things needed for 2017 already.~~

~~In case there are issues manually add the swe values to the table in the excel sheet.~~

* ~~Open excel sheet for the region (example Afghanistan) D:\FEWS\DataPortal\data\CentralAsia\Afghanistan\Daily\NOHRSC\_SWE\table\..xlsx.~~
* ~~Drag the .dbf file for the day needed from D:\FEWS\DataPortal\data\CentralAsia\Afghanistan\Daily\NOHRSC\_SWE\table\SnowTables\afgbsn\2016 to Excel and copy/paste the values in the SWE2016 tab.~~
* ~~Update the #\_Cross tabs with the new value by marking the 1. Cell in the last column and dragging it down, because the cells have a reference and it just needs to be updated. It takes the value from the SWE2016 tab.~~

---> EXCEL PART OF THE PROCESS (CREATING THE CHARTS) is now done in GeoEngine, starting in the new year.

Possible issues with the process:

* ~~When opening excel sheets (D:\FEWS\DataPortal\data\Asia\CentralAsia\Afghanistan\Daily\SWE\table) the graphics are showing only with 10%, not at 100% or 90%. Then default printer is not defined anymore. Excel needs a printer defined to export the png files created at the end of the script. If that happens go to Computer → Devices and Printers → assign Sned To OneNote as default printer.~~
* Missing to process a day for some reason…

Run script manually for that day.

Website where data is staged <https://portal.nccs.nasa.gov/lisdata_pub/FEWSNET/Asia_LIS7_2018/>

Contact person in case something is wrong with the input data is Jossy P. Jacob, E-mail:

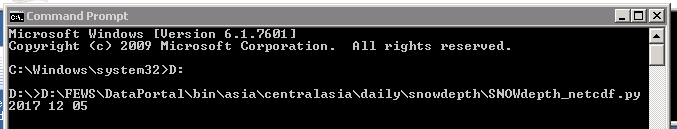
[Jossy.Jacob@nasa.gov](mailto:Jossy.Jacob@nasa.gov). The process is on scheduled task and runs usually very regular.

**Snow Depth:**

Snow Depth input data is in the same netcdf file that is downloaded for Snow Water Equivalent data.

The process is on a scheduled task and runs usually very regularly. In case 1 day is missed run script manually, script location: D:\FEWS\DataPortal\bin\asia\centralasia\daily\snowdepth\SNOWdepth\_netcdf.py.

On VS117 In command prompt run as:



For Snow processing i dont have any specific issues with the process/script. So far it was running ok, the only thing is if the input data is not available or Stornext issues.

**VCAP Malaria for Africa:**

processing from VS101 - scheduled task (not to worry about)

**Run from Pythonwin 32bit** otherwise i am getting issues sometimes when running from CMD or the scheduled task.

**D:\FEWS\DataPortal\bin\africa\8day\vcap\africa\_8day\_vcap.py**

In case it needs to be rerun go to D:\FEWS\DataPortal\data\Africa\8day\VCAP\LST\YEAR and delete the LST for that 8day period that needs to be rerun. Also, from the D:\FEWS\DataPortal\data\Africa\8day\VCAP\grids sub-folders delete every file with the date you want to rerun. To avoid overwrite errors.

**For processing starting in 2017, period 1:**

* On 01/09-12/2017, assuming source data is available, change in config file D:\FEWS\DataPortal\bin\africa\8day\vcap\vcap\_config.py line 51, 55, 79 from MODIS V5 to V6 (added lines already, just uncomment V6 code)
* Add 2017 folders under D:\FEWS\DataPortal\data\Africa\8day\VCAP\**grids**

Create a 2016 folder and place all current folders in there and recreate the same folders

to use for 2017

Same for graphics: rename graphcis to graphics2016 and add a graphics folder for 2017

Graphics.

* Run manually the process to verify is working properly.

**ET processing for website distribution:**

**8day USA ET V4 processing**

processing from VS117

estimated dates to run:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Period | 345 | 353 |  |  |  |  |
| ProcessDate | 12/21/17 | 12/29/17 |  |  |  |  |

**Process Notes:**

* **12/22/16** US ET V4 processing (period 345). SSL Authentication (HTTPS) problem - Data not downloading. **FIXED (Thanks, CY!) US ET v4 Script now uses WGET version 1.18 which is better with HTTPS.**
* **01/06/17** US ET V4 processing completed for period 361 V005 (2016), but SnowCoverExtent data not yet staged/available for same period! Check again later. **DONE.**
* **01/17/17 (update 1/20)** US ET V4 processing completed for period 001 V006 (2017), HTTPS version of snow cover script (using WGET) not yet tested.**DONE.**
* **01/24/17** US ET V4 processing completed for period 009, but SnowCoverExtent data not yet processed. HTTPS version of snow cover script (using WGET) not yet tested.**DONE.**
* **01/25/17** HTTPS version of snow cover script is tested and operational! (Using ignore robots)**DONE.**
* **01/30/17** US ET V4 processing completed for period 017 V006 (2017), but SnowCoverExtent HTTPS website is down/unavailable. Check again later. **DONE.**

Input data source:

<http://e4ftl01.cr.usgs.gov/MOLT/MOD11A2.005/>

<https://e4ftl01.cr.usgs.gov/MOLT/MOD11A2.006/> (2017 processing)

This script has two parts:

1) download the LST input from LP DAAC and 2) create ET and graphics.

From CMD run

1) D:\Stornext\fewspsnfs2\WaterSmart\Users\Stefanie\operational\US\_operational\USA\

Version4\operational\Scripts\_op\**LST\_download.py** (3-4 mins)

2) D:\Stornext\fewspsnfs2\WaterSmart\Users\Stefanie\operational\US\_operational\USA\

Version4\operational\Scripts\_op\**ETa\_calculationALLV4.py** (5-10 mins)

**DONE - For the new year** - in the LST\_download.py script command out line 103 (productdir = 'MOD11A2.005') and uncomment line 104 for using now the V6 LST data, instead of V5 LST.

The season for ET in USA is April 01 - Oct 31. From November to March only the ETa is created to be able to create monthly and annual ET.

Monthly Is created in script, but not annual. To create annual ET for 2016 for website:

* (Copy all missing 8-day aetJJJ files are from ) D:\Stornext\fewspsnfs2\WaterSmart\Users\Stefanie\operational\US\_operational\USA\Version4\operational\8day\ETa\grids\2016 to **After all 2016 8-day is completed….COPY to this folder:** D:\Stornext\fewspsnfs2\WaterSmart\Users\Stefanie\o
* perational\US\_operational\USA\Version4\Raster\8day\_ETa\2016 **DONE.**
* Run on VS117
* 1. Run script for actual ET - **DONE.** D:\Stornext\fewspsnfs2\WaterSmart\Users\Stefanie\operational\US\_operational\USA\Version4\Scripts\2\_ETa\_ProductsHistUSA.py (input: productNo=3 for annual). Annual is based on monthly, so all monthly files should be in D:\Stornext\fewspsnfs2\WaterSmart\Users\Stefanie\operational\US\_operational\USA\Version4\Raster\monthly\_ETa\2016. If not, copy like 8day data.
* 2. Run script for anomaly ET - **DONE.**

D:\Stornext\fewspsnfs2\WaterSmart\Users\Stefanie\operational\US\_operational\USA\Version4\Scripts\4\_ETa\_AnomalyHistUSA.py (input: productNo=3 for annual).

* Run again to create monthly anomaly data for rest of 2016? **No..?**
* **Monthly Nov & Dec 2016, Jan & Feb 2017 should not be posted (but they are posted in real-time)**
  + **i.e. - out of season monthly anomaly graphics/data are automatically staged on website (but not thumbnails), but the dropdown selection only has May-Oct months (which is correct)**
* Run script for annual graphics - **DONE.**

D:\Stornext\fewspsnfs2\WaterSmart\Users\Stefanie\operational\US\_operational\USA\Version4\Scripts\5\_CreateMap\_batchETaUSA.py (raw input: 1)

* Check <http://earlywarning.usgs.gov/useta> if the annual data is posted, meaning it made it to Stornext under. D:\Stornext\scienceweb1\shared\uswem\web\conus\yearly\eta.**DONE.**

-Manually staged the geotiffs and graphics for yearly 2016. (2/22/17) **DONE.**

- What about the GeoPortal? Y:\WaterSmart\Users\Stefanie\operational\US\_operational\USA\Version4\ET\_GeoPortal

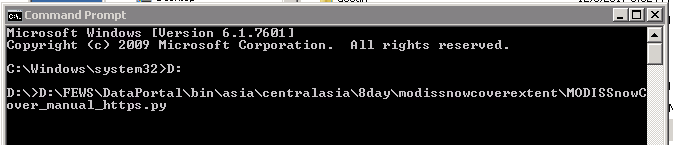
Also, please verify at the beginning of the new year that the first period ran correctly. Maybe you need to create 2017 folder manually. So in case the script breaks for some reason it is very likely that that is the reason.**DONE.**

**8day MODIS snow processing**

processing from VS117

Run this script after you have ran the 8day USA ET. Uses the same periods as in the table above. [n5eil01u.ecs.nsidc.org](http://n5eil01u.ecs.nsidc.org) <https://n5eil01u.ecs.nsidc.org/MOST/MOD10A2.006/> 8Daymodis

To run use CMD: **Run This: MODISSnowCover\_manual\_https.py**



That script has 3 parts - needs to be run 3 times: Enter when prompted:

1, year (YYYY), 8day period (JJJ);

2, year (YYYY), 8day period (JJJ);

3, year (YYYY), 8day period (JJJ)

**~~For processing starting in 2017, period 1: DONE.~~**

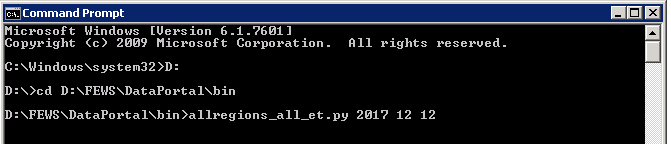
* ~~In script \\FEWS\DataPortal\bin\centralasia\8day\modissnowcoverextent\MODISSnowCover\_manual.py Line 130, comment out MOD10A2.005 and uncomment the next line to change over from V5 LST to V6. That is the only spot in the script that needs to be changed for that.~~
* ~~I updated the Excel sheets that create the tables already for 2017 and added all folder needed for 2017, but could be i missed one!~~

**Global ET processing (Version 4)**

Scripts are under VS117 - D:\FEWS\DataPortal\bin\....

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Period | 121(34) | 122(35) |  |  |  |  |  |
| ProcessDate | 12/12/17 | 12/22/17 |  |  |  |  |  |

Run script from command prompt as follows:



Script takes about 1.0 - 1.5 hours usually. If you see a Yemen map then the process is done. So far it was running smoothly with no issues.

~~\*Try reboot VS117 first if getting ‘will not save raster’ error.~~

~~\*Make sure there’s enough free space on D drive (15-20GB at least).~~

~~\*be aware of possible corrupt median file. Fix by recreating median for that year:~~

~~(stats\_manual should not be affected by any corruption issues)~~

1. ~~D:\Stornext\fewspsnfs2\FEWS\DataPortal\data\Global\Dekadal\ETa\grids → Raw dekadal inputs for median season anomalies~~
2. ~~Y:\FEWS\Users\Stefanie\operational\Global\_operational\3\_ETa\_Median.py~~
3. ~~Reprocess for designated month. Define Line 903 (D:\FEWS\DataPortal\bin\global\dekadal\eta\Global\_ETa\_operational\_may.py)~~
4. ~~Delete the last ETf and ETa (D:\FEWS\DataPortal\data\Global\Dekadal\ETa\grids\ETf or ETa) and the latest season ( ie for May: D:\FEWS\DataPortal\data\Global\Dekadal\ETa\grids\051\_123 → delete last grid (for period)).~~
5. ~~Delete the LST for reprocessing. D:\FEWS\DataPortal\data\Global\Data\Temperature\Global\_LST~~

**~~- In case you need to rerun the same dekad when if stopped/broke in the middle, delete all the files that were created for that dekad during that run that broke (ETf, ETa,..), especially the accumulated seasonal products (011\_123, etc folders) for the grids and grids\_anomaly folders. (The graphics and geotiffs will be overwritten, so no need to delete those.)~~**

**~~- And most important the newest LST file in D:\FEWS\DataPortal\data\Global\Data\Temperature\Global\_LST\2016 or 2017. The script checks what was the last dekad ran based on the last LST file that is available in that folder.~~**

**End of Year task (for archiving) - Need to Finish**

At the end of the year copy all the ET data from the D drive (VS117) (D:\FEWS\DataPortal\data\Global\Dekadal\ETa) to StorNext for “archiving” (D:\Stornext\fewspsnfs2\FEWS\DataPortal\data\Global\Dekadal\ETa).

I already copied data there throughout the year, so not the whole year is required to copy. Copy for all the different regions (global, Africa, etc.) and time steps (monthly,etc).

Global>grids - Done.

Global>geotiff - Need to Do

Global>grids anomaly - Need to Do

More?

-----------------------------------------------------------

For historical processing:

Scripts are in folder **D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\Scripts\_op**

Scripts are numbered in running order. I updated the scripts as best as I could. But please feel free to make changes as needed (especially to path/directories).

**If you have any questions please email me at** [**stefkagone@gmail.com**](mailto:stefkagone@gmail.com) **or call me on my cell: 605-376-5725.**

First things first...

**Tcorr (c factor) DONE.**

For tcorr grid process use script: **MODIS\_DynamicCfactor\_medianC.py** under D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\Scripts\_op

The last major change in the t corr calculation was:

**Major change on the minimum c factor of 0.970**. After looking at the attached c factor spreadsheet (ctcorr Tdiff-20 sheet), I realized that 0.97 will demolish all the effort we did. So, the most reasonable thing to do is to pre-calculate the min and max c factor for each "MODIS sub-tile". I think **mean +/ - 1 STD** can form a safe **max and min** c factor for each tile-zone, respectively. Because you can see some of them could go as low as 0.95, and it appears to be real value. This depends on the WorldClim air temperature we use for the location. This will avoid a blanket minimum for the world…and no more 3 Neighbor checking.

Newest steps for processing c factor:

**Run1a: COMPLETED**

1) calculate the c factor (MEAN-2\*STD) - new c zone shapefile is created with the Fishnet tool based on the MODIS tile grid, but smaller tile size. There are now 90 rows and 180 columns of tiles (1 MODIS tile is split into 5x5 tiles). The shapefile for that is located under **D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\shapefiles\czones\_global\_5x5s\_wgs84.shp**

2) then set all c factor values to 0 when there are less then 30 pixels meeting the NDVI >0.7 condition. That is now incorporated in the script. The output cfactor tif file to use for the median stuff is e.g. for 2015 **D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\cfactor\run1\_2015** with file name **cZones15011.tif** for dekad 1, and so on.

→ to create the median: run the script until here and then create median grids for “filling”

**1/4/2017 Update  
(DONE) Reprocess all of Cfactor Run 1 with these changes:**

* **Tdiff range down to -10 and 5 (instead of -20 to 5)**
* **Only use Lapse-Corrected-Tmax for ETf calculation → NOT Cfactor.**

Median data directory and file description:

All the data used to create the median datasets are under **steps and data for median c factor calculation** in D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\cfactor.

After run 1 for all years from **2003 to 2015:**

1. Smoothing each dekad with FocalStats tool using cell at 220x220 (this step is in script already)
   1. Sampled US and Africa points (9) and GS approved to continue processing!
2. Create median for each smoothed dekad from **2003-2015**
   1. Output is here: D:\FEWS\DataPortal\data\Global\Data\Tcorr\Global\_Tcorr\ctorr\_dek\_median
   2. Script: D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\Scripts\_op\5\_ETa\_Median.py

3) the “annual” median for the median smoothed dekads (1 grid) (orange/red map below)

Copied to: D:\Stornext\fewspsnfs2\WaterSmart\Data\Tcorr\Global\_Tcorr

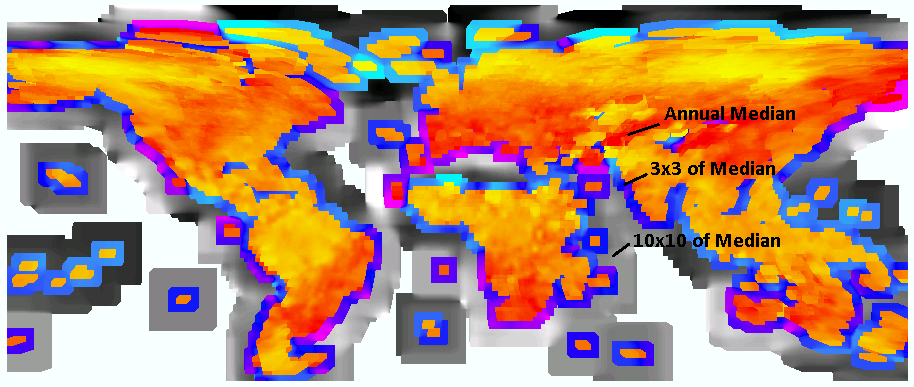
4) the Focal Stats for 3x3 block (cell, 660x660) of the annual median (1 grid) (purple/blue)

Copied to: D:\Stornext\fewspsnfs2\WaterSmart\Data\Tcorr\Global\_Tcorr

5) the FocalStats for 10x10 block (cell, 2200x2200) of the annual median (1 grid) (gray)

Copied to: D:\Stornext\fewspsnfs2\WaterSmart\Data\Tcorr\Global\_Tcorr

1. Did a 10x10 block (cell, 2200x2200) of the annual median, instead of a single 5x5 - in order to ensure fill remaining gap in Sahara desert - **GS request.**



→ the annual median and Focal Stats grids are the “fill” grids in case the median for 1 dekad is

not having a cfactor

**The +/- 1 STD limit is taken out of the model.**

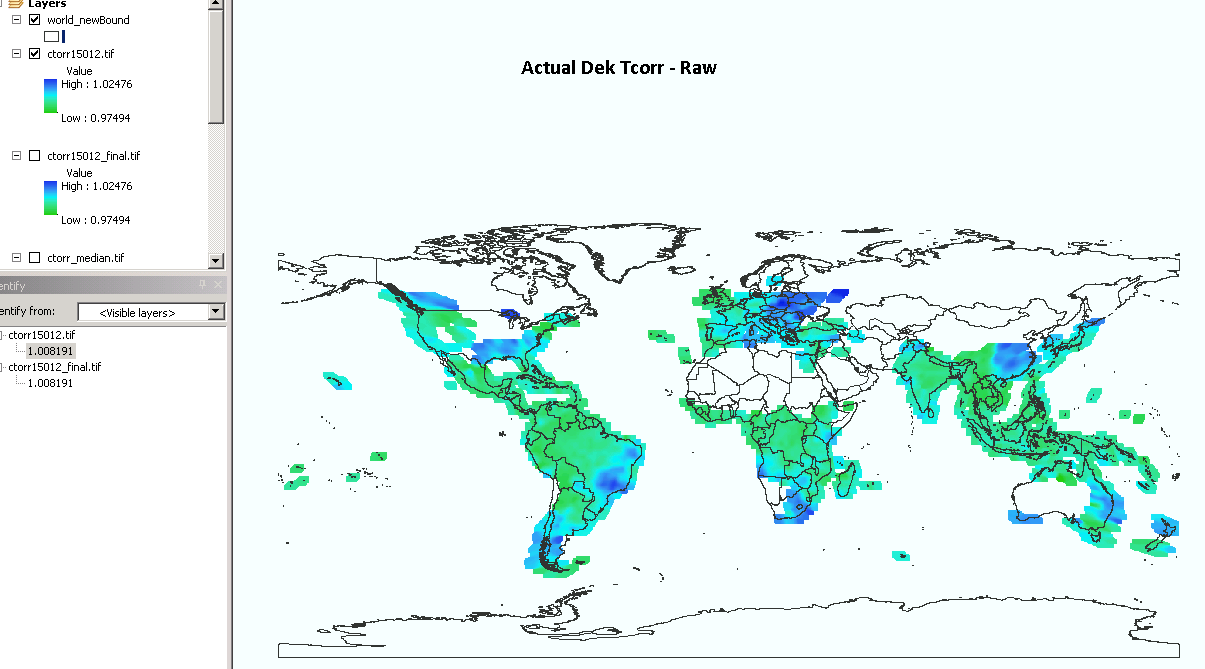
→ final smoothed c factor grid for dekad is staged at

Not Here: D:\FEWS\DataPortal\data\Global\Data\Temperature\Tcorr\Global\_Tcorr\YYYY

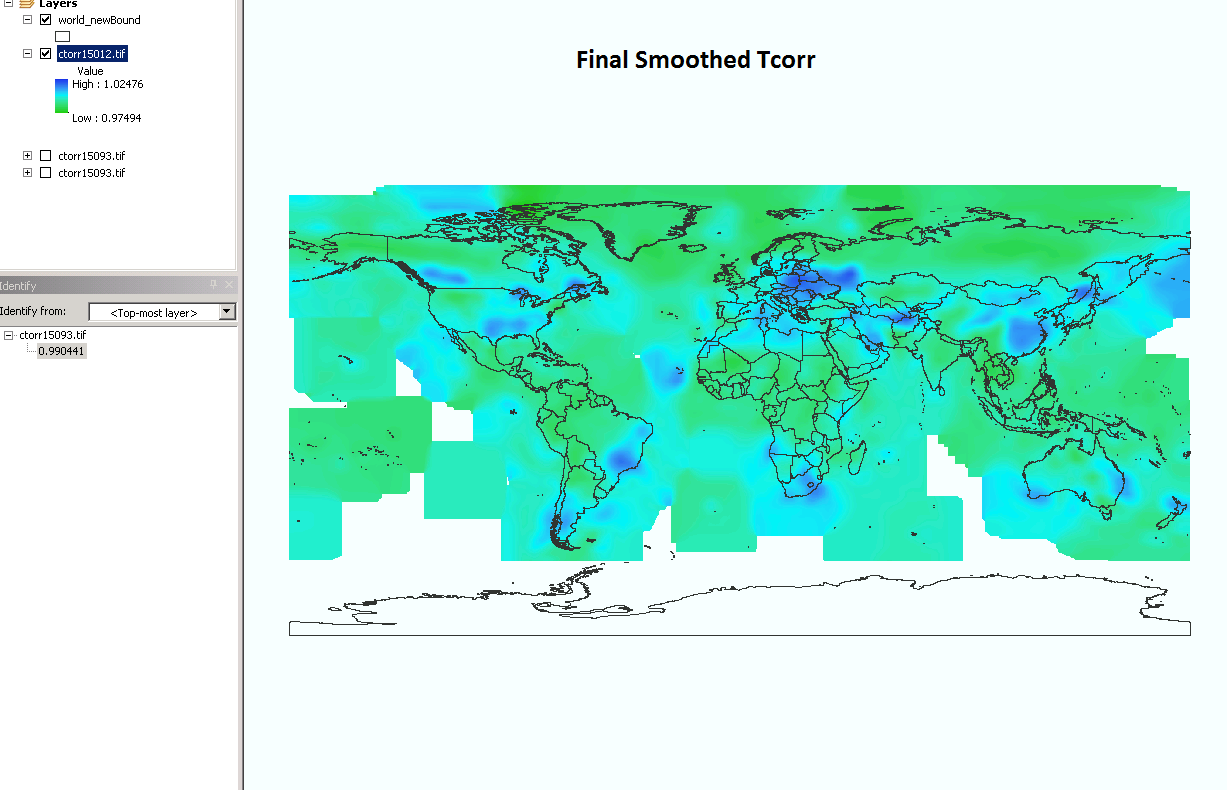
**D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\cfactor\Global\_Tcorr**

**(Had to place it on Stornext due to space, for now).**

**BEFORE (after run 1):**

****

**AFTER (after run 2):**

****

**Run2: COMPLETED**

**Mf- set up batch to run all dekads in multiple years (add sys. Argv for year) (Y:\FEWS\Users\Stefanie\operational\GlobalET\Version4\Scripts\_op\input.bat)**

**\***Change r = 2 (for Run 2) DONE.

\*Check the file paths are correct for the above medians, and smoothed dekads. DONE.

MF Q?: Line 211 - Do we need to keep the focal stats (600x600) operation in the script, since we smoothed after Run 1? (I kept it in there after looking at the final product with and without this smoothing.)

**When Cfactor is ready**

Run each script for all years (**2003-2016**) Just 2003-2015 for now..

DONE. **1\_Global\_ETf.py**

**OUTPUT locations:** D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\Dekadal\ETf\etfxxxx (year)

Creates ETf files. Run this script for all years (2003-2016) 2003-2015

Script notes:

Manual input of year (feel free to change it)

Line 73: update to most current c factor grids if needed DONE.

Data for ET calculation is coming from D:\Stornext\fewspsnfs2\**WaterSmart\Data** folder for historical run because all the years dont fit on the local D drive.

* Check to make sure max ndvi directory is Y:\WaterSmart\Data\NDVI\Global\_NDVI\V006\MaxAnnual DONE.

**Can we delete this scrap folder (571 GB)? Here: (Yes, Deleted)**

**D:\Stornext\fewspsnfs2\WaterSmart\Data\NDVI\Global\_NDVI\V006\scrap**

**MF NOTE:** I had to create a MaxAnnual for 2003...The dekads NDVI 082-092 (4 dekads) are mostly bad data, missing extents, etc. so I simply ignored those in the Max calculation for 2003. **Side Note #1:** I do not think the Tcorr dekads were impacted by this bad (missing) NDVI data, since the fill processes (median, 3x3, etc.) took care of the final Tcorr. **Side Note #2:** The ETf calculation requiring NDVI is only looking at the range 0-2500 for the low end LSTe calculation, anyways.

* Check to make sure tmax directory is

using Lapse-Corrected-Tmax for ETf calculation DONE.

**2\_CloudMask\_function.py (Run twice)**

General process: Applies the “PAPA” algorithm to ETf to eliminate cloud contamination in ETf from LST. PAPA = check previous ETf, next ETf grid, pre-previous ETf grid, over-next ETf grid. If pixel is not filled use median ETf (2003-15) and if that is not resulting in a valid value use 0.75.

There is a QA raster output that shows with what value the pixel was replaced. Classes are 1 to 7. 1=no change, 2= previous, 3=next, 4=pre-previous, 5=over-next, 6= median, 7= 0.75.

Script notes:

Manual input of year (feel free to change it)

Line 61: run=2, that is the “real” run to create corrected ETf when the median is established

Once you have all the ETf processed for all years you need to **process first the**

**median** with the output from run=1.DONE.

Order of scripts:

DONE. **2a\_CloudMask\_function.py** - run =1 for 2003-2015 to create median corrected etf. OUTPUT locations: D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\Dekadal\ETf\xxxx (year) (to be deleted, including QA rasters from run 1→ /Run1Copy\_deletelater\_mf)

DONE. **3\_ETa\_Median.py** - (**Run only once for ETf)**. this script is used for all the median calculations done in the whole ET calculation process...so modify script output path so it saves the medianETf for each dekad under D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\Global\_operational\Median\_InputDATA\MedianETfV4DONE.

DONE. **2b\_CloudMask\_function.py** - run=2 using the created median for filling

-------------

HERE: Run ETa with k=1 (for MPI analysis) DONE.

HERE: Run ETa for 2015 all the way through for a check. DONE.

**3\_Create\_ETa\_function.py (takes ~5 mins/dek)**

(See MF edits in code)

In short its PET\*ETf = ETa calculation using a k factor of 1.2.

One extra step in there is reducing ET of all waterbodies by 30% (line 114).

FYI: the “new” naming convention for FEWS products includes 2digit year + dekad (YYddd)..make sure the ETa has that (aetYYddd).

**MF Action:**

1. **Make the ETa outputs use 16 bit int type rather than 32 bit float? DONE.**

**Problem:** dekad ETa and ETa products are 32 bit float → too big!

**Solution:** force 16 bit depth when creating dekad ETa.

**What actually happens:** The dekad ETa grids default to 8 bit INT because they do not exceed 0-255 range in a ‘dekad’. When the monthly/season/yearly products are calculated, the outputs use 16 bit signed INT type by default then = disk space and time savings!

1. **Verify the correct global extents→ 2010 goes to 80 deg N, 2011-15 goes to 60 N**
   1. **Is a result of V006 NDVI inputs I am pretty sure! :/** 
      1. **Probably Max NDVI rasters for each year (based on dekads)**
      2. **Look into 2014 & 15 dekads → big file size compared to others.**
      3. **2007-2010 NDVI dekads look normal? (80 N extents)**
   2. **\*\*We can fix this by recreating Max NDVI for each year, forcing the extents.\*\*....then rerunning ETf for those bad years.**

**4\_ETa\_ProductsGlobal.py**

**Run all years for each product 2-11 in order**

This script creates all the different seasonal accumulation of monthly, yearly, accumulative ETa starting in January, March, April, May, June, August, October, November.

I create them globally and then later clip out the region that is needed for any one particular season.

Input into script:

productNo = (choose from list what season to create)

Year = (year to process)

For cross year products it will ask you for 2 years incl in the cross year

Also, if you run the different seasonal accumulations doublecheck the output folders and stuff, to make sure its going to the right directories, i might have missed some or didnt had a chance to change it yet. Monthly and Annual are good, since i ran them for testing a lot.

**5\_ETa\_Median.py**

**Run one time for each product for 2003-2015**

This script creates the Median for each season for creating Anomalies.

The anomalies are created from 2003-2015.

Script input:

ProductFolder = e.g. Median\_monthly\_ETa\_Apr, those folders go to following location: D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\Global\_operational\Median\_AnomalyDATA\Version4. The existing folders are for the current operational run and shouldnt be replaced.

Data folder = folder with ETa for that season (by year)

**6\_ETa\_AnomalyGlobal.py**

**Run all years for each product 2-11**

**Double check output folders - don’t overwrite any Version 3**

**Also, dont save to web folders for now.**

This script creates the Anomalies as grids and geotiffs (zip folders for FEWS website download). The structure is the same as the product script with the product numbers. In addition here you have the regions since you create the geotiffs/zip folders for the website.

Input into script:

productNo = (choose from list what season to create)

Year = (year to process)

Again, make sure all the output directories are correct..i didnt run any anomalies with the new version yet. In case you need example of the folder structure, look that the US ET V4 folder under Watersmart/Users/Stefanie or the D:\Stornext\scienceweb1\shared\fews\web folders wherever you find ET.

**7\_ETa\_GraphicsGlobal.py**

**Run one time for each product for 2003-2015**

Stef needs to update, not mac.

**Before creating graphics update ArcMap files** with new color ramps for anomaly (layer\_file = 'anomalies\_orange.lyr' ..is more orange, no more of the really red color) and actual ET.

**Operational ET processing of V4**

The updated operational script is under

D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\Scripts\_op\Global\_ETa\_operational\_V4.py

It should work in case you need to do operational stuff once the historical processing is done..but you should have too..hopefully.

If you run it make sure you move the Version 3 stuff that is currently there all to a different folder, so its not overwritten by accident.

The FEWS structure script version is under D:\FEWS\DataPortal\bin\global\dekadal\eta\global\_dekadal\_eta.py and D:\FEWS\DataPortal\lib\eta\_processes.py, but they need to updated and debugged still...

Evaluation of most recent ETa with PPT

All the data for the sampling are in D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\Dekadal\PPT\_Evaluation

The sampled values are in **sample\_all.xlsx.** This needs to be still completed and make more presentable. I use the script D:\Stornext\fewspsnfs2\WaterSmart\Users\Stefanie\operational\Scripts10\Sample\_batch.py to do all the sampling. In the script change the outTable name and the env.workspace a couple lines down.

I am running the ETa again, so all the ETf, ETf\_corrected, etc needs to be sampled.

Under tab Point0 you will see the missing ones. Here are the folders of the missing ET data:

D:\Stornext\fewspsnfs2\FEWS\Users\Stefanie\operational\GlobalET\Version4\Dekadal\ETf\ 1) **etf2015** 2) **2015** 3) **ETa** 4) **QAraster**

PPT:

D:\Stornext\fewspsnfs2\WaterSmart\Data\Precipitation\Global\_CHIRPS\**2015**..its monthly, but you can just divide the values by 3 for this test and so fill up the dekads in the spreadsheet.

Data for Water Census project

All the data for the project is on the Harddrive under ***US\_IrrigationProjectbyState***

Input data and shapefiles for each state that provided irrigation data is in its own folder (e.g. AZ state).

The ***data*** folder includes the ETa data used for the analysis, which is the Version 4 SSEBop ET for the US (folder ***SSEBop\_V4\_yearlytemp***). Original location of 8-day ET data is ***D:\Stornext\fewspsnfs2\WaterSmart\Users\Stefanie\operational\US\_operational\USA\Version4\Raster\_Watercensus.***

The steps for creating the by state irrigation results are:

* Using Jess irrigation mask for 5 % and 50% clip out the year2015.tif (input) to just show irrigated areas
* Then do zonal mean for each county
* Calculate Volume (ET \* area), area used is provided by 1) USDA and 2) the states themselves (The documentation document has the description for each column in the shapefile)
* Besides ET we did the Net ET, that is the ET - VegET(rainred ET)

The ***results*** folder includes all the final files and graphics, such as the documentation, graphics, and data distributed to Rod, etc.

**Material for Outreach, Workshops and Conferences**

All the stuff i did so far for Outreach projects, Workshops, etc is on the harddrive in the folder ***Outreach\_Conferences.*** Feel free to use whatever you need.

**DONE. ET data for colleague in Ethiopia:**

His name is Getachew A. Mussa - gmussa@fews.net

And he works in Addis at the FEWS office. I post for him the dekadal actual ET data for East Africa every couple months. Please post for him in the new year when all periods for 2016 are done the dekads from November and December (6 dekads) clipped to the East Africa extent. Use the Extract by mask tool and run the tool from VS117 using the edcftp output location as output folder.

Input data location: D:\FEWS\DataPortal\data\Global\Dekadal\ETa\grids\ETa\2016

Extent file for (Extract by mask tool): D:\GetachewAbate\aet16073.modisSSEBopET.tif

Output location: D:\Stornext\edcftp\outgoing\edcuser\sbohms\Getachew\eta\_easternAfrica

Output file name: for example - aet16073.modisSSEBopET.tif

Sent dekad ETa for Nov, Dec (2016) and Jan - Feb dek 1 (2017). Emailed 2/15/17.