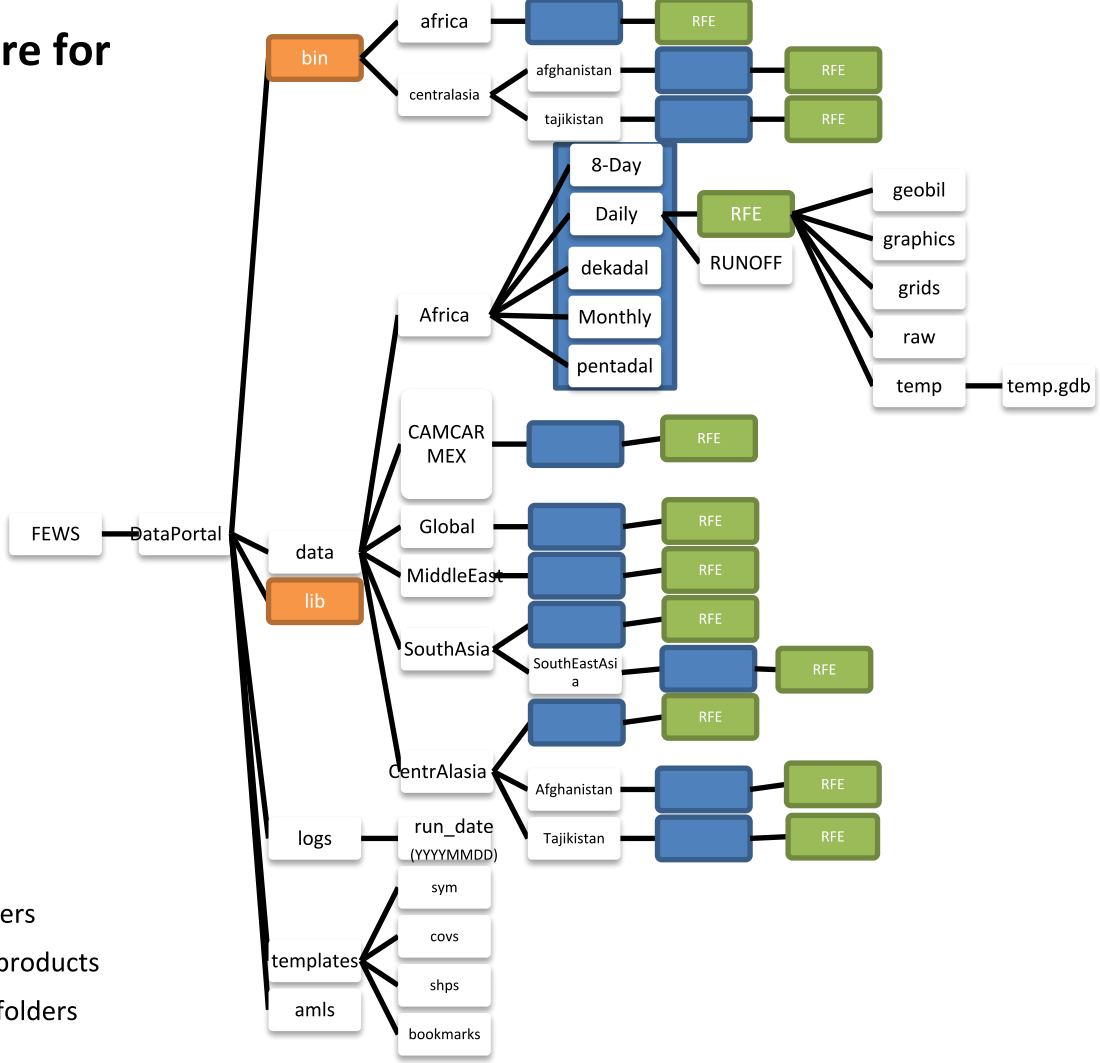
Introduction to PPG

Python Product Generation

Python Product Generation (PPG)

- The PPG is a system with python scripts set to be as executable scripts and library scripts to be used by the different FEWS NET regions.
- For operational PPG runs, we use the Windows Task Scheduler to set up scheduled task will use the system date as input argument for the python scripts.
- Some of the PPG python scripts includes a extra argument to run the process by steps.
- The PPG documentation includes information about how to run the scripts along with the scripts and folder structure used for each process by dataset type (e.g. RFE, SnowDepth_SWE, GFS Prec, or GFS ClimPars.

PPG structure for FEWS NET



Periodicity folders

Dataset types/products

Python scripts folders

Product Search | Early Warning a

earlywarning.usgs.gov/fews/search

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Product Search

Geography

- Pakistan 10
- Tajikistan 11

Middle East

- Iraq Tigris-Euphrates 11
- Yemen 10
- South Asia 1
- South Central Asia 12
- Southwest Asia 2

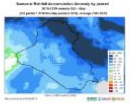
Product Types

- Agricultural Products 1
- Ecological Zones 1
- eMODIS NDVI C6 17
- Evapotranspiration (ET) 37
- Evapotranspiration (ETa) 4
- Forest Cover 1
- Inter-Tropical Front (ITF) Position 1
- Irrigated Areas 2

11 Search Results | Grid | List | Clear Presets

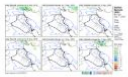
Iraq Tigris-Euphrates x

CHIRPS Seasonal Rainfall Accumulation - Oct-May



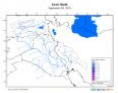
Iraq Tigris-Euphrates Compare

Daily NOAA RFE and GFS Forecast



Iraq Tigris-Euphrates Compare

Daily Snow Depth

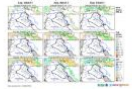


Iraq Tigris-Euphrates Compare

Daily Snow Depth Anomaly

Iraq Tigris-Euphrates Compare

Dekadal RFE (Rainfall Estimate) & Anomaly



Iraq Tigris-Euphrates Compare

MODIS 8-day Snow Cover Extent - Curr vs Avg Period

Iraq Tigris-Euphrates Compare

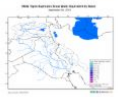
MODIS 8-day Snow Cover Extent - Curr vs Prev Period

Iraq Tigris-Euphrates Compare

MODIS 8-day Snow Cover Extent - Curr vs Prev Year

Iraq Tigris-Euphrates Compare

Snow Water Equivalent

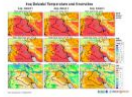


Iraq Tigris-Euphrates Compare

Snow Water Equivalent Anomaly

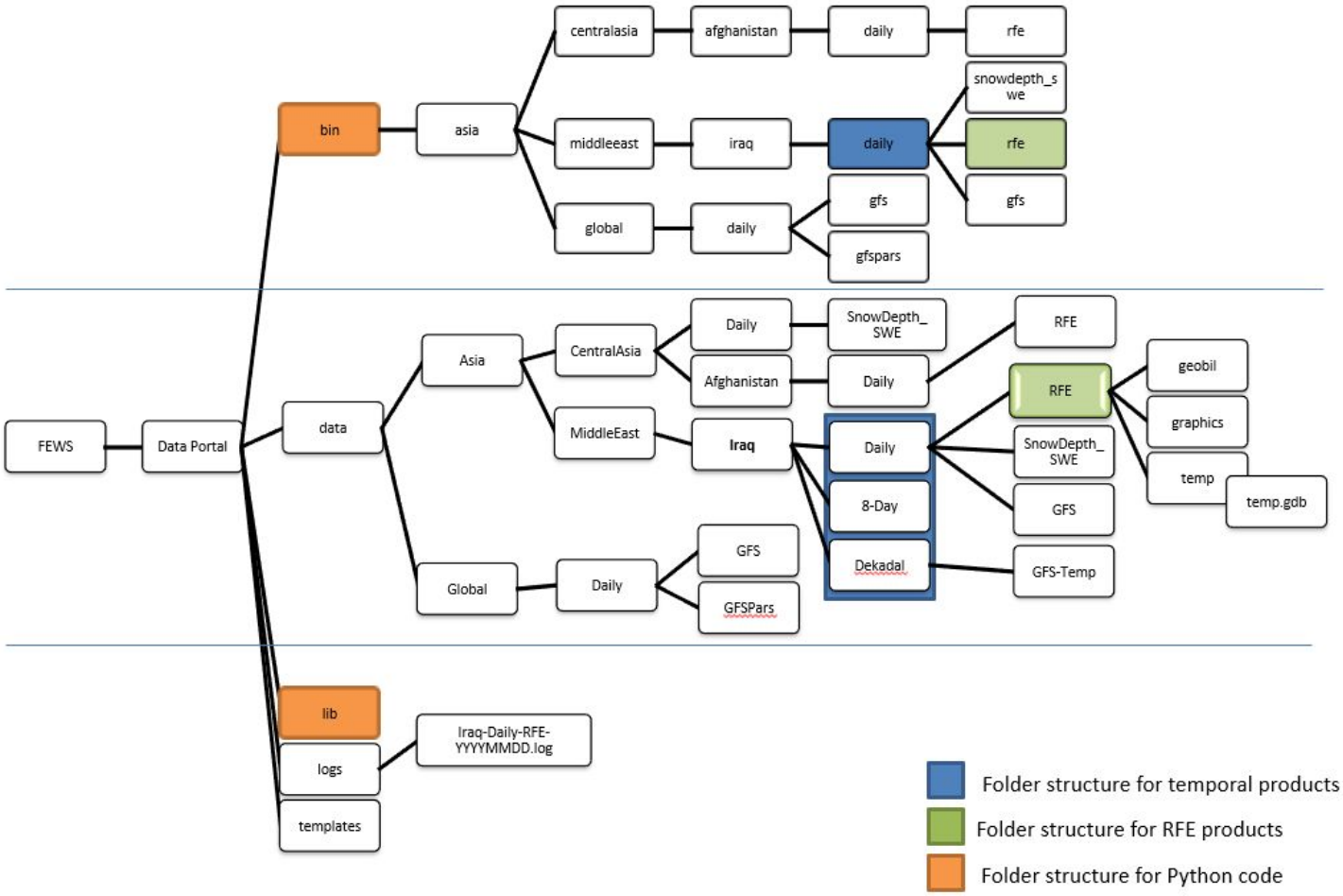
Iraq Tigris-Euphrates Compare

Temperature Products



Iraq Tigris-Euphrates Compare

PPG structure for Iraq



PGP structure description

- **bin** → contains the main and configuration scripts following a folder structure by region, periodicity, product, subproduct. The main scripts are called from windows scheduler tasks to run daily, by dekad end date period to create final products. Also, a main_config.py script is define to define master settings will be used by all the PPG processes.
- **data** → contains the source data, some intermediate data, and final products
- **email_lists** → contains the CSV file(s) used to send emails from the python processes.
- **lib** → contains scripts with the main functions of the products by periodicity, so these functions can be re-use by bin scripts.
- **logs** → contains the log files with information about the processes.
- **templates** → contains files which are used in the processes (e.g. shapefiles, symbology layer files, logos, ArcMap templates, etc.).
- **utilities** → contains external tools used in the PPG processes (e.g. wget).

Email notification

- Emails with log file information about the processes ran to create the products.
  Email filters were created to define labels showing for complete and incomplete processes.
  COMPLETE

  INCOMPLETE

Iraq PPG setup - part 1

- Download Iraq PPG zip files from https://edcftp.cr.usgs.gov/?dir=project/fews/iraq_training
- Unzip file on the trainees system
- Set up a email account to send the PPG emails (could be a gmail account, mail server: `smtp.gmail.com`)
  a. Turn on "Less secure app access" at gmail account: https://myaccount.google.com/security
- Set up the `email_list` emails to receive the PPG emails
- Navigate through the bin folder to see the executable and config scripts
- Open `master_config_example.py` from bin folder, save it as `master_config.py` and set up the information needed
- Navigate through the lib folder to see the python library script will be called from the executable scripts
- Navigate through the utilities folder to explain what external tools will be used in the PPG processes.

Iraq PPG setup - part 2

- Check if curl is available on the trainees system. To check it:
  a. Open a windows command prompt
  b. Type curl and click Enter.

  If the utility is not found, install git for windows on the trainees system to use the curl utility to download the GFS data: https://gitforwindows.org/ - When done the path will need to be added in the `master_config.py`

- Check if python is available from the windows command prompt. To check it:
  a. Open a windows command prompt
  b. Type python, and click Enter.

  If not found we'll need to add python 64-bit executable path in the PATH system environment variable (requires admin privileges).

Iraq PPG setup - part 3

- To add python to run from command prompt:
  - Right click on “This PC”
  - Go to “More” and click on “Properties”
  - Click on “Advanced System Settings”
  - Click on Environment Variables
  - Under System Variables, find and Select “Path”, click on “Edit”
  - Add the ArcGIS Python-64 path
  - Click OK until all 3 windows opened for it are closed
  - To verify changes are working, open a Windows command prompt, type python and click Enter.

- For next section, 8day MODIS SCE PPG process, verify the account to download the source data is working (requested via email to set up before the training).
- Iraq PPG document (new)

Iraq PPG setup - part 4

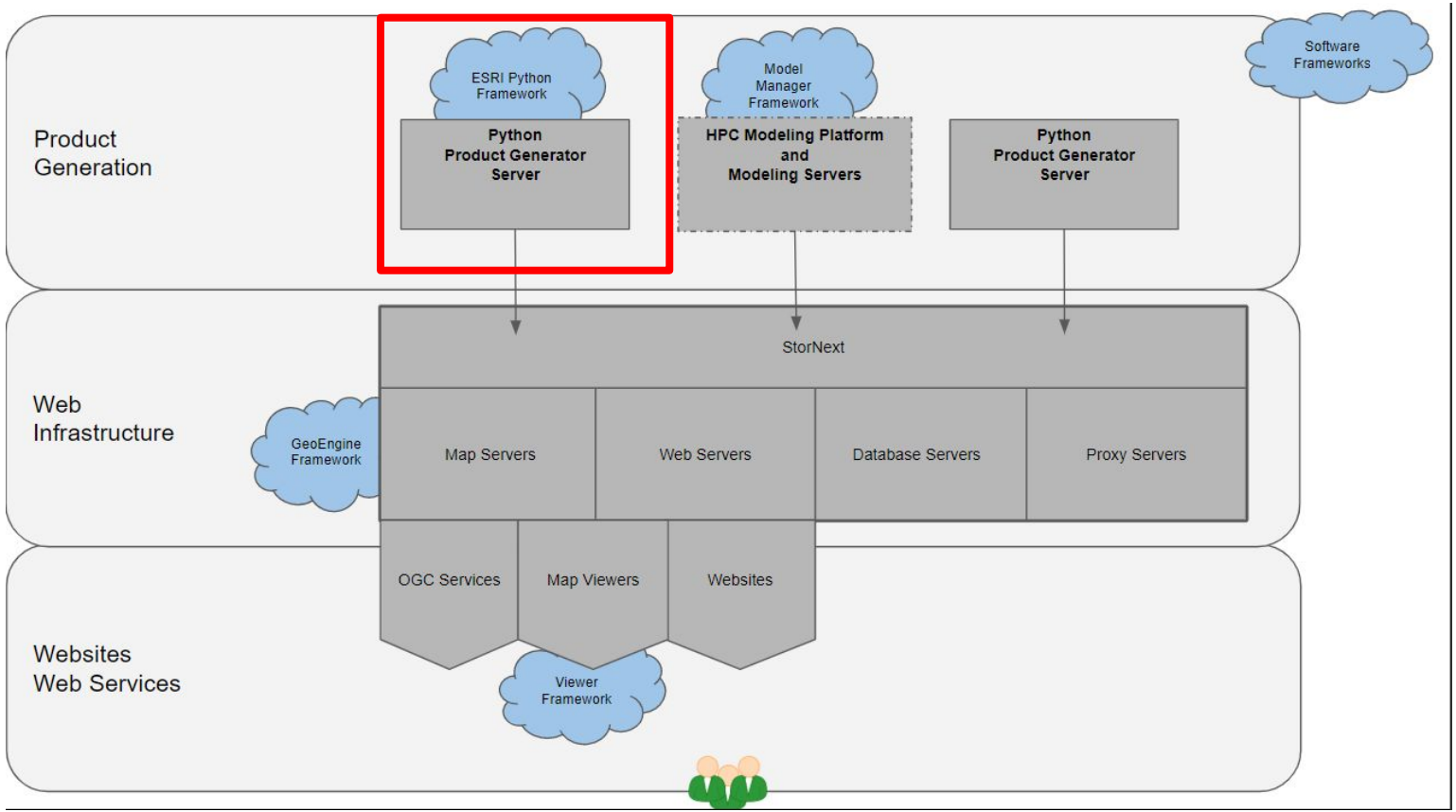
- Update PPG code
  - Download the update DataPortal_iraq.zip
  - Uncompress it
  - Go to the folder structure showing the bin, email_lists, etc foldes
  - Copy all the content
  - Paste it under “DataPortal_iraq” folder created in the trainee system
  - Apply to Update all the files.
- Update the master_config.py based on updated master_config_example.py
  - Option 1: Using PyCharm - open both python files and display side by side to delete the lines not needed anymore in master_config.py using master_config_example.py as reference.
- Review master_config.py to make sure we have everything set up in the file for the PPG processes.

Future of PPG

- ArcGIS Pro with Python 3 - code changes required for Python 3 and ArcGIS Pro mapping module.

Questions or Comments?

FEWS PPG in EROS Science Web Infrastructe (SWI)



Reference: 2016 TSSC Science Capabilities