How to use Jupyter Python Notebooks - for Tanzania

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The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live Python code, equations, visualizations and narrative text. These notebooks contain the core application algorithms of the Open Data Cube and allow customization of any application.

- When you arrive at the website, you will find a list of Python Notebooks under the "Files" tab.
- To open any notebook, just click on the filename from the initial screen. You can make a new copy of the notebook (File > Make a Copy), make a new notebook, etc. You will also see a number of common editing features on the menus (e.g. cell editing, viewing).
- You will find two types of "cells" in the Data Cube notebooks. These can be found under the "Cell > Cell Type" menu. A cell used for text or comment is called "Markdown" format. A cell used for Python code is called "Code" format. When you want to add a new cell in the notebook, be sure you use the correct cell type.
- There are several ways to "run" the notebook code. To run the entire script (starting from the top), you can select "Kernel > Restart & Run All". Once the code has been executed (top to bottom) you can change individual cell content and rerun portions of the code by going to any cell and hitting "Shift - Enter". You will notice this approach will renumber the code blocks starting with the last number that was executed. So, it may be confusing. To reset the numbering (1 to xxx), just run the entire script, as suggested above.
- When the code is "running" you will notice the cell blocks will look like "In [*]". The "star" means the code is executing. When the cell is done executing the "star" will turn into a sequential number, starting with the last executed block number. You will see that some blocks run very fast, and others take some time. If you run the entire stack, you can scroll to the top and see the code execute along the way as it creates output as it moves along the blocks.
- Most of the code blocks have comment blocks directly above the code blocks. By clicking on any cell, it will allow you to edit the cell. To rerun the code changes, just click "Shift - Enter". You will notice that the "#" symbol is used to make any line a comment and it is not executed.
- If you want to stop the execution at any time, just select "Kernel > Interrupt".
- If your code gets "hung up" and does not appear to be executing you can go back to the main Jupyter Notebook page and select the "Running" tab to view which notebooks are being "executed". In some cases these notebooks are actually running, but in other cases they are just "open" and sitting in the memory and ready for editing or running. You can "Shutdown" any notebook from this screen.
- It should be noted that most of the notebook algorithms are integrated into the online user interface tool. The advantage of using notebooks is that you can view the code and have more flexibility in creating your own products.

TANZANIA team .... your two notebooks (Spectral Products and Land Change) contain sections with the heading "CHANGE HERE >>>>>>". This is the only place where you will need to make changes to adjust your analysis cases. Looks for these sections. If you have any questions or run into problems, contact the NASA team for help.