

SENTINEL-2 PROCESSING IN SNAP

Data: Sentinel-2A Level 1C:

- S2A_OPER_MTD_SAFL1C_PDMC_20160325T153413_R022_V20150813T101657_20150813T101657.xml

1. Open file (resampled to 10m)
 - 1.1. File / Open Product
 - 1.2. Browse to
S2A_OPER_MTD_SAFL1C_PDMC_20160325T153413_R022_V20150813T101657_20150813T101657.xml
 - 1.3. Select "Resampled at 10m resolution"
2. View metadata
 - 2.1. Select plus icons [MAC = triangle icons] by filenames in "Product Explorer", expand "Metadata / Level-1C_User_Product / General_Info" folder and double click on "Product_Info". Here you can see the basic product information such as acquisition date, processing level and processing baseline (indicates quality of preprocessing)
 - 2.2. Double click on "Product_Image_Characteristics". Here you can see the solar irradiance per band and correction factors necessary to convert from Top of Atmosphere Reflectance to Top of Atmosphere Radiance.
3. View world map
 - 3.1. View / Tool Windows / World Map
 - 3.2. Select magnifying glass icon to zoom to image footprint
 - 3.3. Use mouse wheel and left click to zoom and pan respectively
4. View image single bands
 - 4.1. Select "Bands" folder in "Product Explorer" window and view each band by double clicking on band name.
5. View multiple viewers
 - 5.1. Close metadata views, leaving only viewers with bands
 - 5.2. Synchronise views by selecting the relevant icons in the "Navigation" tab
 - 5.3. Select: Window / Tile Horizontally
6. View RGB image view
 - 6.1. Close all viewers
 - 6.2. Select image name in "Product Explorer" window
 - 6.3. Select: Window / Open RGB Image Window
 - 6.4. Leave default natural colour combination and select OK
7. Crop
 - 7.1. Zoom into Beijing
 - 7.2. Raster / Subset... and select OK
8. Save the newly created subset image
 - 8.1. Select image in "Product Explorer"
 - 8.2. Select: File / Save Product As...
 - 8.3. Select "Yes" to convert to BEAM DIMAP format (SNAP native file format)
 - 8.4. Select an output filename and location, and select "Save"
 - 8.5. In order to view the saved file with the filename you specified, close the cropped image and reopen it
9. Spectral analysis
 - 9.1. Open a false colour RGB of the cropped image: Red = B8, Green = B4, Blue = B3



- 9.2. View / Tool Windows / Pin Manager
 - 9.3. Select the “Pin Placing Tool” (icon on top toolbar)
 - 9.4. Click to place a pin on an area of water in the image
 - 9.5. In the “Pin Manager” window, double click in the “Label” field to rename the pin “Water”
 - 9.6. Click in the colour field to change the colour to blue
 - 9.7. Repeat the steps above to create 3 other pins, one each over an area of vegetation (shown as red on false colour image), buildings (shown as cyan) and cloud (shown as white), giving each a unique colour and label.
 - 9.8. Select the Filter icon and select bands 1 to 12
 - 9.9. Export the pins to both XML and TXT using the relevant icons in the “Pin Manager” window
 - 9.10. Select: Optical / Spectrum View
 - 9.11. View spectral signature of all pins
 - 9.12. Deselect “Show spectra for all pins” and select “Show spectrum at cursor position”
 - 9.13. Move mouse cursor over image to view spectra of different pixels.
 - 9.14. Now close the Spectrum View and delete all pins in Pin Manager window: select pins, then select “remove selected pin” icon. Then close also the Pin Manager window.
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10. NDVI (Normalised Difference Vegetation Index)
 - 10.1. Raster / Band Maths
 - 10.2. Change name to NDVI
 - 10.3. Deselect “Virtual”
 - 10.4. Select “Edit Expression...”
 - 10.5. Type in the following expression in the “Expression” field: $(B8 - B4)/(B8 + B4)$ then select OK and OK.
 - 10.6. View the newly created NDVI band
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11. Change Projection
 - 11.1. Raster / Geometric Operations / Reprojection
 - 11.2. In “Reprojection Parameters” leave default projection “Geographic Lat/Lon (WGS84)” and select “Run”
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12. Export to Google Earth
 - 12.1. Open the NDVI band of the reprojected S2 image subset.
 - 12.2. File / Export / Other / View as Google Earth KMZ
 - 12.3. Double click on the newly created KMZ file to open it in Google Earth