**Jason 2 and SARAL/AltiKa Time Series**

This algorithm was developed to automate the process of generating Jason 2 and SARAL/AltiKa altimetry time series plot directly from the raw netCDF file.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*To run this program, you need the following matlab file functions in your directory

Required matlab files:

* altika\_gdr\_info.m & jason2\_gdr\_info.m
* altimetryoutlier.m
* uncertainty.m
* iqrange.m
* netcdf\_read.m (This should be copied in each of the cycle folders)
* mjd2gre.m
* gre2mjd.m
* copyNETCDF.m
* dirwalk.m

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The software developer is not responsible for any liability or damages arising from the use of this algorithm. The use of all or any part of this algorithm is prohibited without the express reference to the developer/paper below:

Automated Generation of Lakes and Reservoir Water Elevation Changes From Satellite Radar Altimetry.  
Selected Topics in Applied Earth Observations and Remote Sensing, IEEE Journal (Submitted)

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Read the Licence.txt file.

**Jason-2 Time Series**

**Step 1:**

* Copy the netCDF\_read.m file into each downloaded cycle folder by running the copyNETCDF.m file.
* Run the **jason2\_extract.m** file. Ensure you change the input arguments of the **jason2\_gdr\_info** in Line 9 of jason2\_extract.m file. You can extract multiple record by duplicating line 9 and changing the arguments.

To use the function**; jason2\_gdr\_info (In\_Pass, lat\_range, File\_Suffix\_name)**. Where the input arguments are:

* In\_Pass: The pass number
* lat\_range: [MINlatitude, MAXlatitude]
* File\_Suffix\_name: you may use any name to output the txt result.

E.g. jason2\_gdr\_info (135, [10.5, 10.7], ‘Kainji\_Dam’)

NB: In the case of this folder, we have already extracted the **j2\_gdr\_p135\_Kainji\_Dam\_info.txt.**  We can skip step 1.

**Step 2:**

* Run the file, **Kainji\_J2\_Pass135.m** to generate the time series plot of the study area.

NB: A dialogue box will appear, select the txt file generated from **step 1.** To customize to your study area, change the lat\_range input to the latitude range of the satellite track overlap extent.

**SARAL/AltiKa**

**Step 1:**

* Copy the netCDF\_read.m file into each downloaded cycle folder by running the copyNETCDF.m file.
* Run the **altika\_extract.m** file. Ensure you change the input arguments of the **altika\_gdr\_info** in Line 9 of jason2\_extract.m file. You can extract multiple record by duplicating line 9 and changing the arguments.
* To use the function**; altika\_gdr\_info (In\_Pass, lat\_range, File\_Suffix\_name)**. Where the input arguments are:
* In\_Pass: The pass number (As String)
* lat\_range: [MINlatitude, MAXlatitude]
* File\_Suffix\_name: you may use any name to output the txt result.

E.g. altika\_gdr\_info ('0549', [-21.0695771177,-20.6337422718], 'Furnas'); see Data\_Extraction\_Altika.m file.

NB: In the case of this folder, we have already extracted the **altika\_gdrT\_p0549\_Furnas .txt.**  We can skip step 1.

**Step 2:**

* Run the file, **Furnas\_Altika.m** to generate the time series plot of the study area.

NB: A dialogue box will appear, select the txt file generated from **step 1.** To customize to your study area, change the lat\_range input to the latitude range of the satellite track overlap extent.