

1. Requirements and Installation:

Requirements

- Users can run SA_Tool with “SSH_PCA.m” under any operating system with MATLAB software installed. When MATLAB has been installed on the computer, there is no need for other toolboxes.
- For reading satellite altimetry data (.nc), it is necessary to prepare a file, such as ‘SSH-region.xlsx’, containing the latitude and longitude of the area to be calculated.

Installation

- Download the SA_Tool toolbox installation package
- Add all the sub-folders of package to the current path of MATLAB
- Select the file "SSH_PCA.m" to run, or enter "SSH_PCA" on the command line to run the main interface of the software

2. Description:

SSH_PCA is a software package that can be used to process sea surface height time series, and denoise with principal component analysis (PCA).

- Outlier Elimination: Eliminate gross errors of SSH time series, using $n \times \text{IQR}$;
- TS Interpolation: To maintain time series with consistent length and complete data sets, Users are required to process interpolation;
- Detrend Processing: Removing linear trends;
- PCA Filtering: Noise reduction method (PCA).

3. How to cite:

If you find the SA_Tool toolbox is useful, please cite it in your work.

4. Contact information:

If you have any comments or questions on SA_Tool toolbox, please don't hesitate to contact Dr. He (xxh@jxust.edu.cn) or Ms. Huang (hjh@mail.jxust.edu.cn), Thanks for your attention.