

# Yori:

## A New, Highly Customizable Tool for Level-3 Data Production

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NASA defines Level-3 products as "Variables mapped on uniform space-time grid scales, usually with some completeness and consistency."

This requires ingesting variables, typically from satellite measurements (see fig. a2), resample them and provide statistics at a given spatial resolution (fig. b) and finally aggregate them over a desired spatiotemporal domain (fig. c).

This software package allows users to easily and efficiently derive these Level-3 quantities from virtually any geolocated variable. Yori's behavior is driven by a YAML file that the user compiles to suit their needs. A wide variety of options are available from changing spatial resolution and projection to defining which statistics will be computed and what variable attributes to write in the output file.

We tried to keep the input file requirements as minimal as possible. If needed, users can preprocess their input data with a language of their choosing, with the only requirement that the preprocessed variables are written into a netcdf4 file with a predefined format described in the documentation. Yori then reads input and YAML file, aggregates the variables into a user selectable grid resolution and saves them in a CF-compliant netcdf4 file.

We imagine the typical user running Yori both on a local machine to perform tests and tune their parameters and on HPC systems for data production; our answer is a lightweight software that can also be run efficiently in a distributed computing framework.

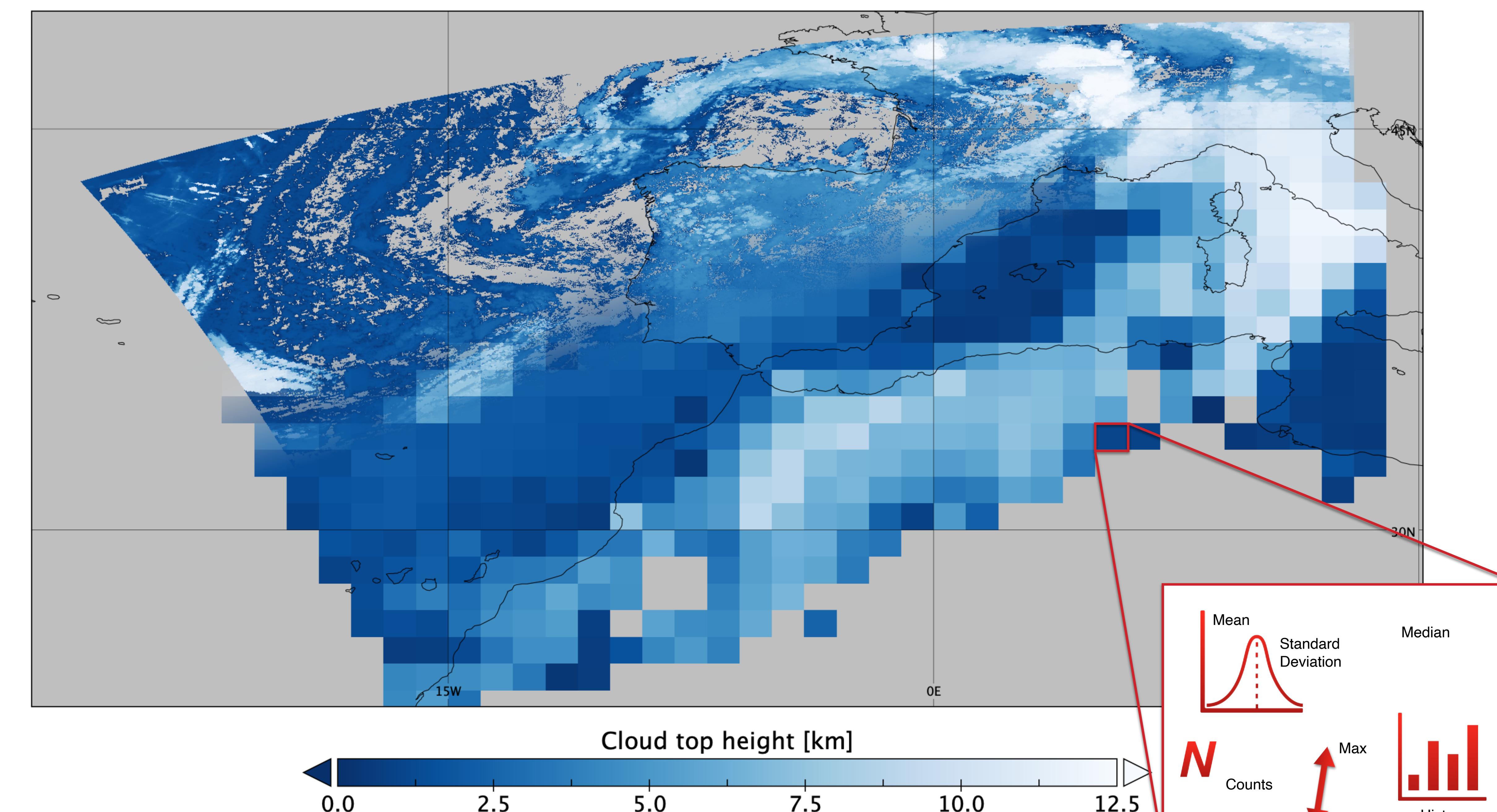


The code is open source and Yori is available on PyPI.

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# We developed a toolkit to condense years of geophysical data in a user-friendly structure that makes large satellite data sets easy to analyze



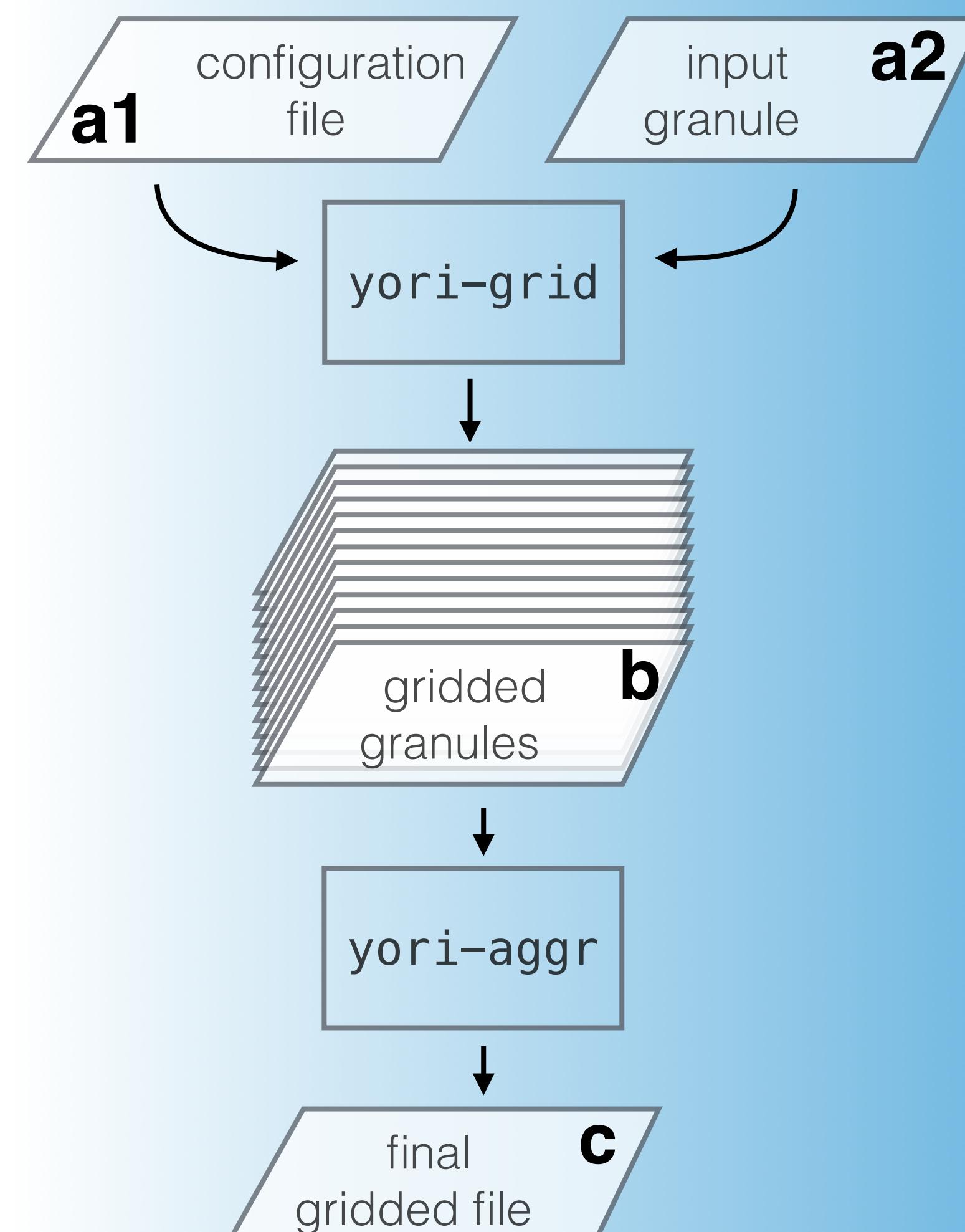
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### How Yori Works

The gridding workflow with Yori is structured in three steps:

- the user prepares the configuration and input files
- the granules are gridded according to the user's instructions by `yori-grid`
- the gridded granules are aggregated into the Level-3 products for the desired time period using `yori-aggr`.



### Main Features

- highly customizable by the user
- Ability to derive statistics such as mean, standard deviation, 1- and 2-D histograms, median, min, max...
- easy data filtering using "masks"
- aggregation can be used recursively (e.g. from daily to monthly)
- sensor agnostic
- output files are cf-compliant, so they can be easily visualized in tools such as Panoply

