

Making Datasets QGreenland-Compatible

While QGreenland provides a curated base package of data on a variety of topics, the options for adding additional data are nearly unlimited. We offer different guidelines for data compatibility depending on what your goals are:

1. Guidelines for publishing previously unpublished data so it is compatible with QGreenland:

To ensure that your own original research datasets will be easy to work with in QGreenland, either in your own individual QGreenland project or as an addition to the public QGreenland data package, please note the following:

- Make sure your data are produced in a standard format with appropriate spatial metadata. For example, your dataset should have clearly defined projection metadata (as an EPSG code, proj4 params, OGC-compliant well-known-text, etc.) and should be formatted in a way that gdal/ogr tools can read and understand. Double check that your data can be opened in QGIS and appropriately geolocated.
- If your data are not already in the QGreenland project coordinate reference system (EPSG:3413), that's OK. The QGreenland project includes all the tooling necessary to reproject your data, as long as the data meet the metadata requirements. A contributor to the QGreenland open source project can take it from here to ensure consistent and compatible results (see section 2 below).
- Make sure your data are accompanied by metadata that describe the methods used for producing the data (e.g., scientific paper, document that describes the algorithm/data collection procedures used, etc.).

2. Guidelines for contributing datasets to QGreenland via GitHub for inclusion in future releases:

Follow the instructions found in our contributing guidelines on GitHub (<https://github.com/nsidc/qgreenland/blob/main/doc/CONTRIBUTING.md>). The QGreenland source code (<https://github.com/nsidc/qgreenland/tree/main/qgreenland>) defines "processing pipelines", which, when executed on a server or a user's computer, fetch data from its original source location, transform it (reproject, reformat, subset, resample, etc.) as needed, and finally compile these data into a zipped QGreenland QGIS project. Contributors may customize, re-use, or add to our processing pipelines to support their new layer, and when their changes are ready, submit a Pull Request (<https://docs.github.com/en/github/collaborating-with-issues-and-pull-requests/about-pull-requests>) to contribute valuable changes back to the QGreenland project.

We strive to support extensive customization of the QGreenland processing pipelines without any coding knowledge. As of QGreenland v1.0.0, we support editing of dataset metadata, QGIS styles, and various processing parameters (such as X and Y resolution) via configuration in the YAML configuration language (<https://en.wikipedia.org/wiki/YAML>), which is simple to learn.



- Ensure that all outputs of QGreenland processing pipelines are in EPSG:3413 coordinate reference system.
- Ensure that all outputs of the QGreenland processing pipelines are in the correct format. We expect one GeoPackage per vector layer and one GeoTIFF per raster layer.
- Fill out all metadata as configuration. This includes abstract, citation, layer description and title, etc. The QGreenland processing pipelines will automatically format this information and add it to the correct interfaces (metadata tab) in QGIS. Read more in our contributing guidelines on GitHub (<https://github.com/nsidc/qgreenland/blob/main/doc/CONTRIBUTING.md>).

3. Guidelines for adding datasets to your QGreenland project for personal use only:

- Refer to the QGreenland User Guide **Section 6: Adding New Datasets to QGreenland** for instructions on how to add new data layers to your QGreenland project (go to <https://qgreenland.org/learn-and-teach> to download the User Guide directly or locate it in the QGreenland download package).
- Note that the QGreenland data package is in the EPSG:3413 coordinate reference system and all pre-loaded layers are either GeoTIFF (raster) or GeoPackage (vector) files.

If you have additional questions or comments about creating data layers that are compatible with QGreenland, email us at qgreenland.info@gmail.com.

