

Tools

Data access

1. **Data portal**
The simplest way how to get rather smaller ad hoc data samples (approximately up-to 20 000 retrieved fields per request)
2. **Batch access**
The ECMWF access in batch should be used for most common types of work (big data samples retrievals).

In order to retrieve data efficiently users should follow the instructions about [S2S reforecasts retrieval efficiency](#). Find [here](#) examples of efficient retrieval scripts for different S2S datasets via [ECMWF Web API](#)

3. **CMA data portal**
The 2nd official S2S data portal where all data from all partners can be downloaded.

Data monitoring

- **History page**
The data gaps caused by any kind of problems can be checked via the so-called S2S history web page.

GRIB2 and NETCDF conversion

- **ecCodes**
ecCodes is an evolution of ECMWF's **GRIB-API**. It is designed to provide the user with a simple set of functions to access data from several formats with a key/value approach.. All TIGGE fields in GRIB2 format could be explored and manipulated using ecCodes.
- **grib2_to_netcdf**
grib2_to_netcdf is an NCAR conversion utility built on the ECMWF GRIB_API and Unidata NetCDF libraries. The utility converts regular lat/lon gridded S2S data from GRIB-2 to NetCDF format.

Other External tools

- **S2S Museum**
The museum includes a set of scripts to download TIGGE data, and plot it (using GrADS) in file TIGGE_sample.tar.gz - available directly from [here](#).