The progress of CMA S2S data center

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National Meteorological Information Center

Contents

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Background

- Since 2015, CMA has established cooperation with ECMWF
  - CMA provides ECMWF with real-time prediction results of BCC model in S2S time-scale
  - CMA receives S2S data from 10 others product center, except CMA, from ECMWF
  - Check data format, processing, archive and management, and establish a portal for global service

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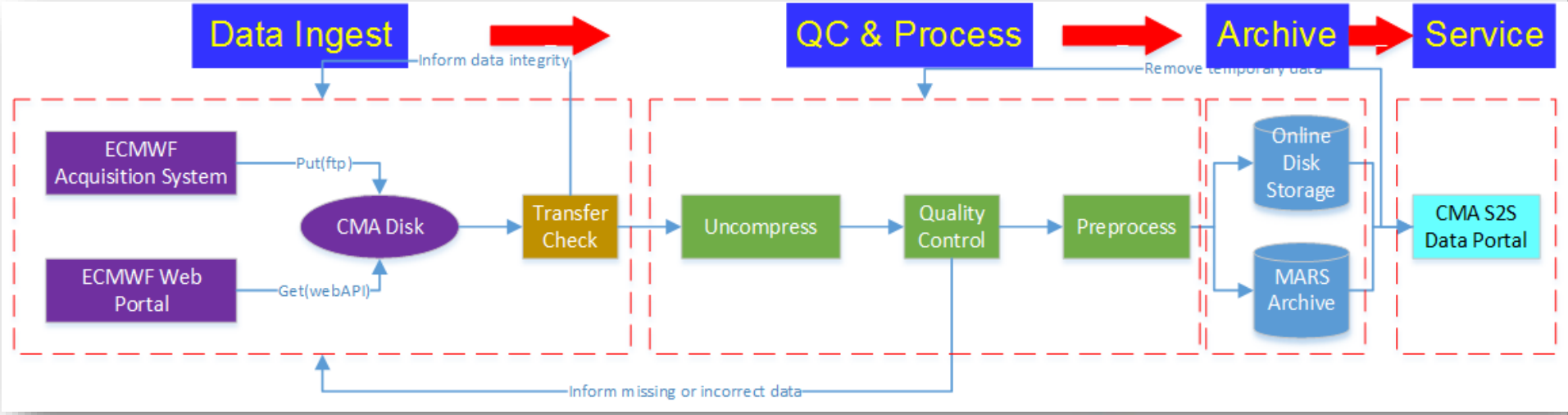
Construction of CMA S2S archiving center

- CMA S2S Data Archiving Center
  - Collection
  - Data extraction
  - Data storage
  - Data service portal



Data Collection

- S2S data collection
  - ECMWF collects all S2S center products
  - CMA obtains all data except CMA from ECMWF Archive Center
  - ECMWF pushes directly to the CMA FTP site

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Data check

- Check items
  - Number of files
  - Data size
  - file format（tar.gz/tar/GRIB）
  - Make sure data timeliness and accuracy synchronize with ECMWF

Data extraction

- Receive data each time → Merge into a big GRIB file
- Big GRIB file→Split into multiple files
  - Rule： s2s_[centre]_{yearOfCycle}_[dataDate]_{shortName}.grib
- Transfer to an online disk
  - $DIR/[centre]/{yearOfCycle}/[year]/[month]/[day]

Data storage management

- Online disk storage
  - Metadata: Index
  - Data: Large capacity disk(200TB)
  - Directory Structure←→File name mapping
    - Catalog： $DIR/[centre]/{yearOfCycle}/[year]/[month]/[day]
    - File name: (s2s_[centre]_{yearOfCycle}_[dataDate]_{shortName}.grib)
      - Realtime forecasts： {yearOfCyle} = [year]
      - Hindcasts：
        - » Fixed model： {yearOfCycle} = 2015 or 2016
        - » Fly model： {yearOfCycle} = The year of the model version
- Other storage methods
  - Tape archiving

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The amount of data

- The amount of data is about 75TB, and the data storage method is NAS online.
- Storage based on the CMA's Cloud platform
  - Easy to dynamically expand

Contents

1. Data Synchronization

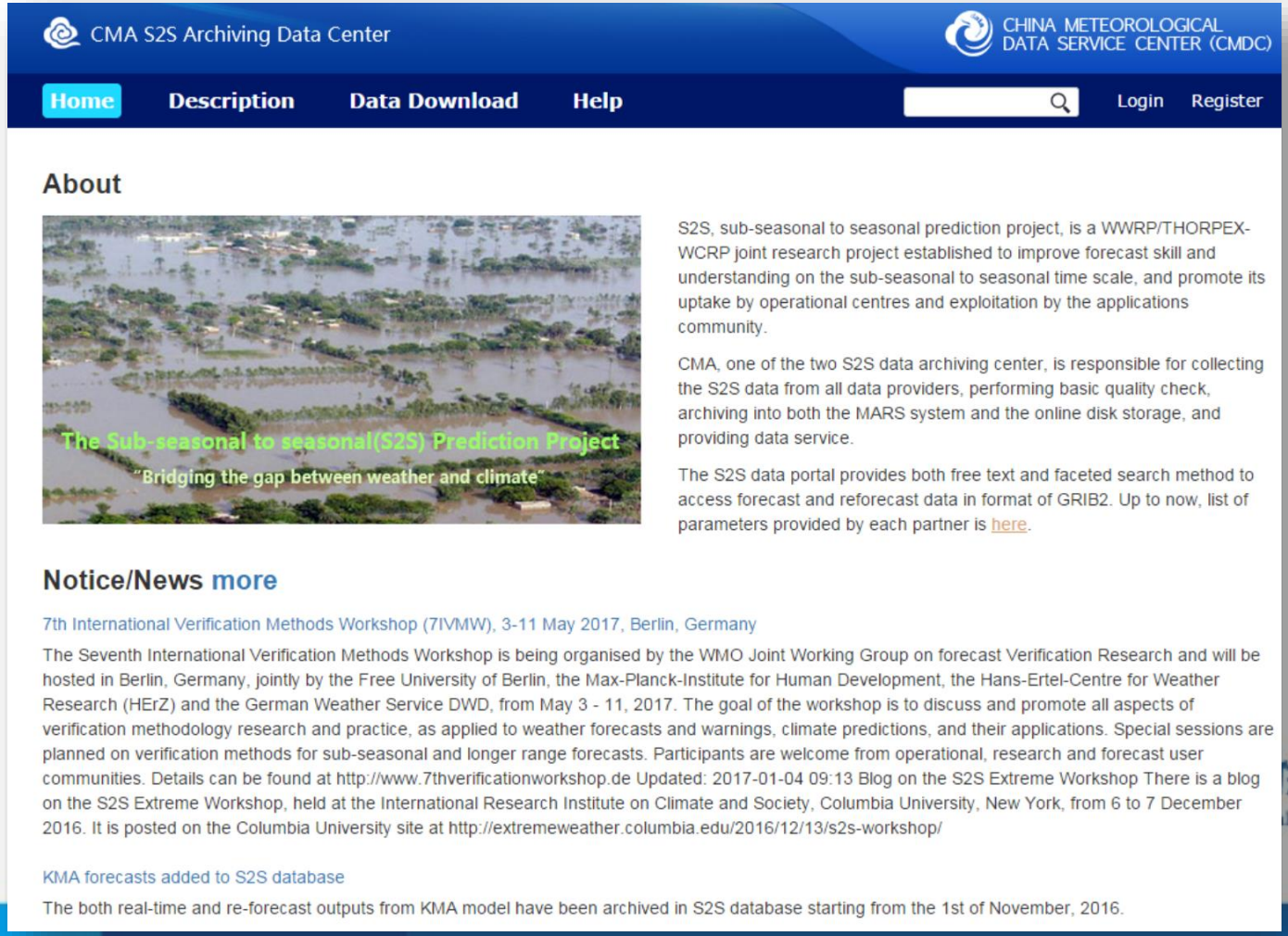
2. CMA S2S services

3. Service statistics

CMA S2S data service portal

CMA S2S portal launched on November 16, 2015.

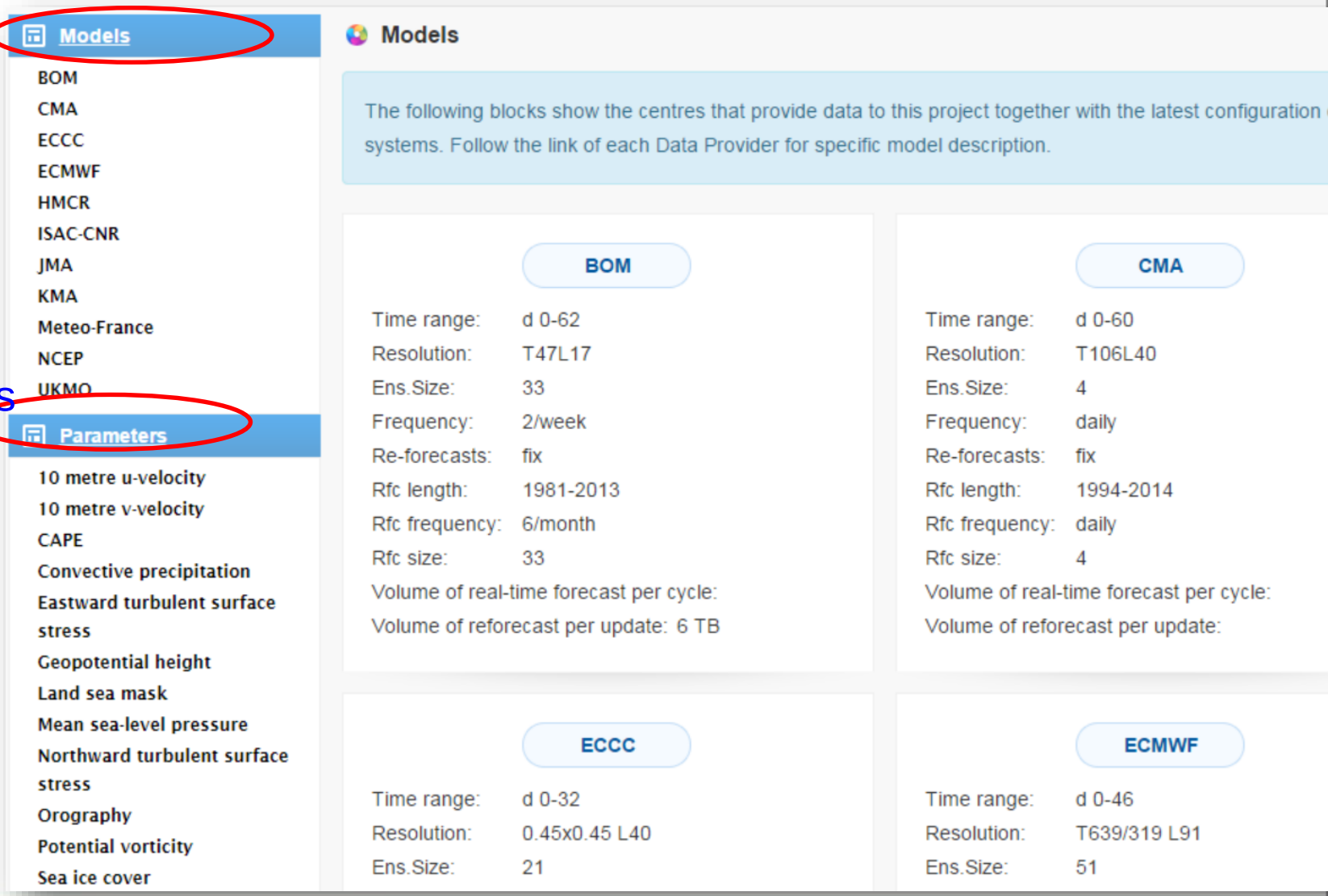
http://s2s.cma.cn



Data description

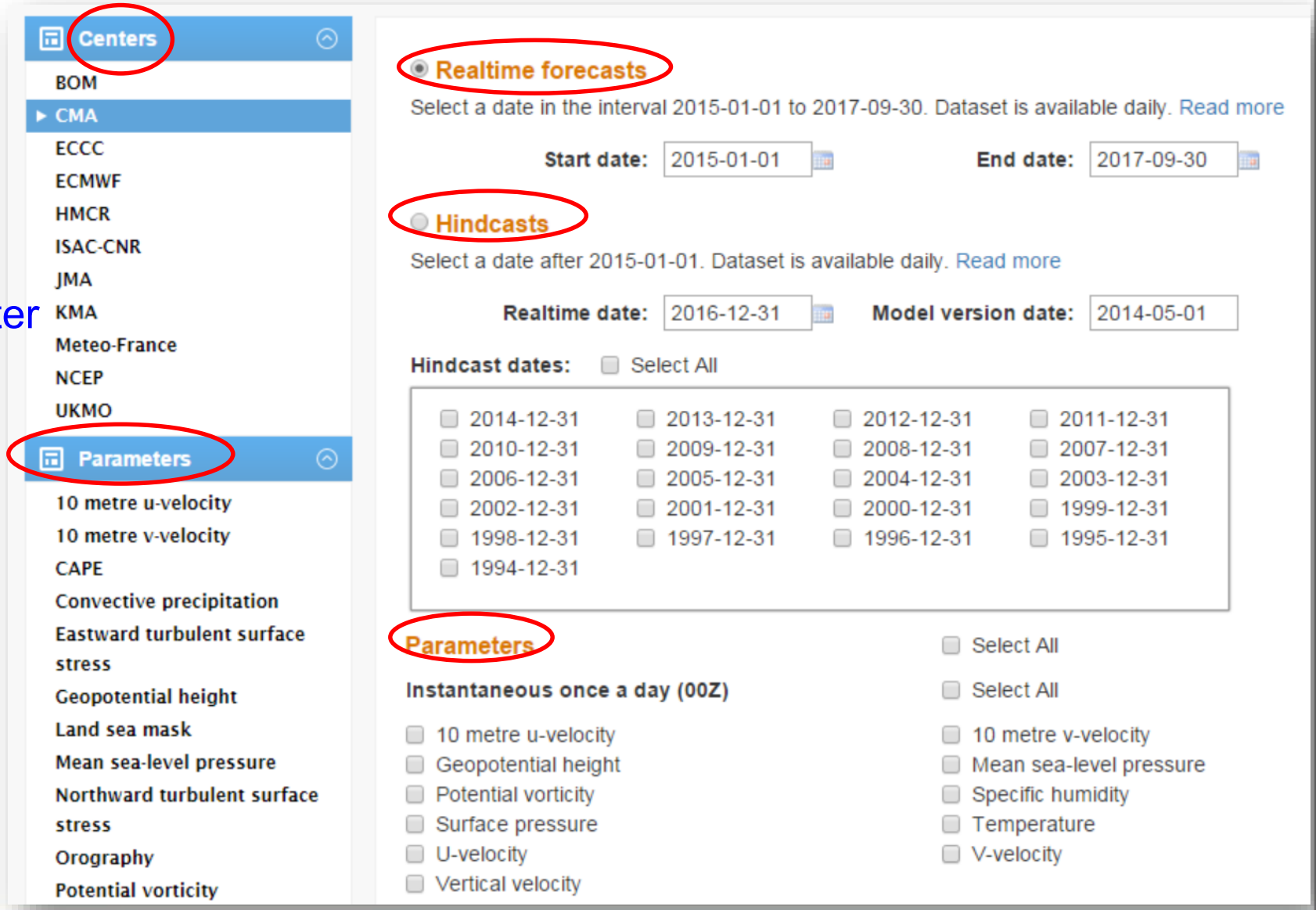
models

parameters



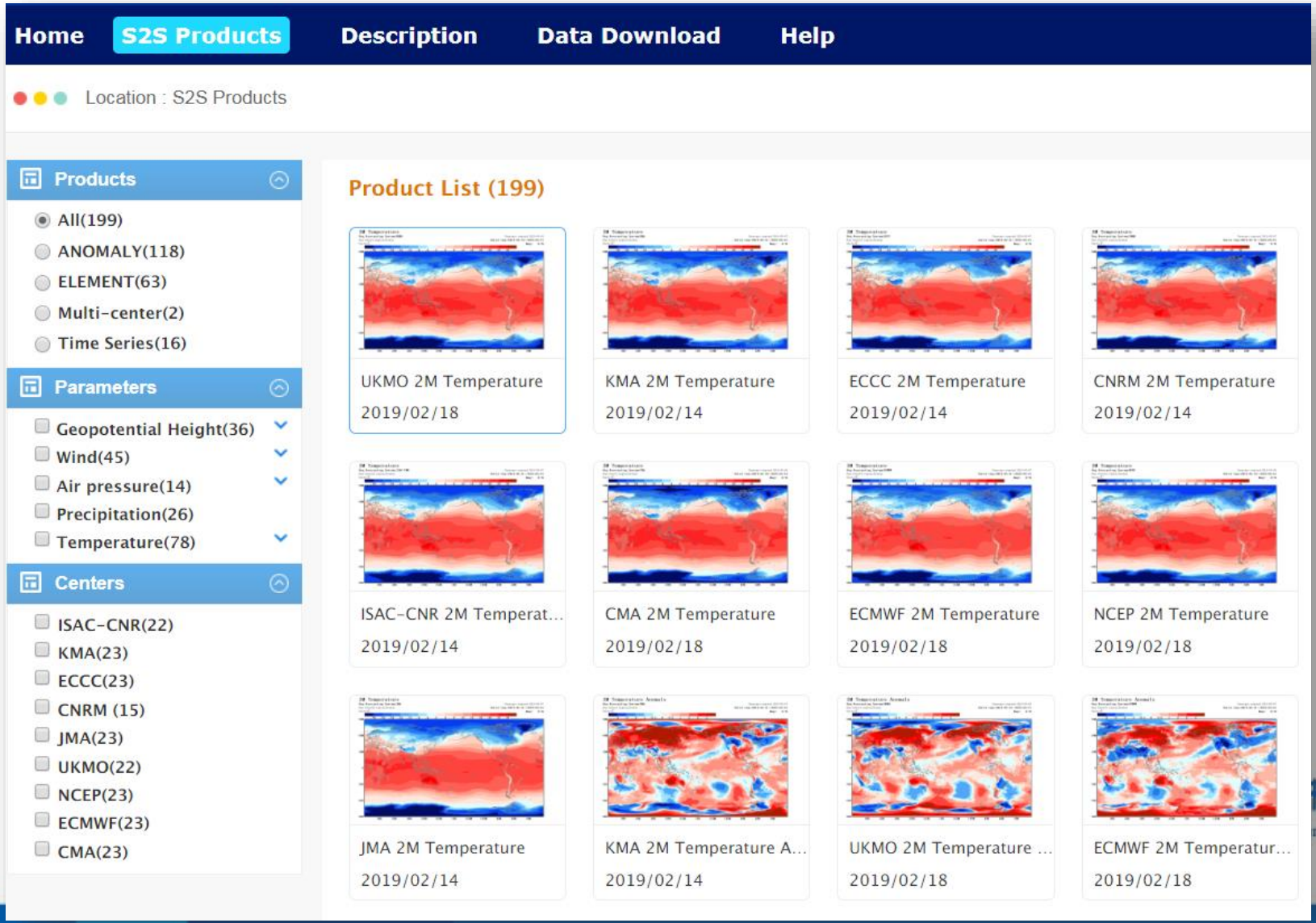
Data Access and download

Subset
- parameter
- time
- center



Progress

S2S data view



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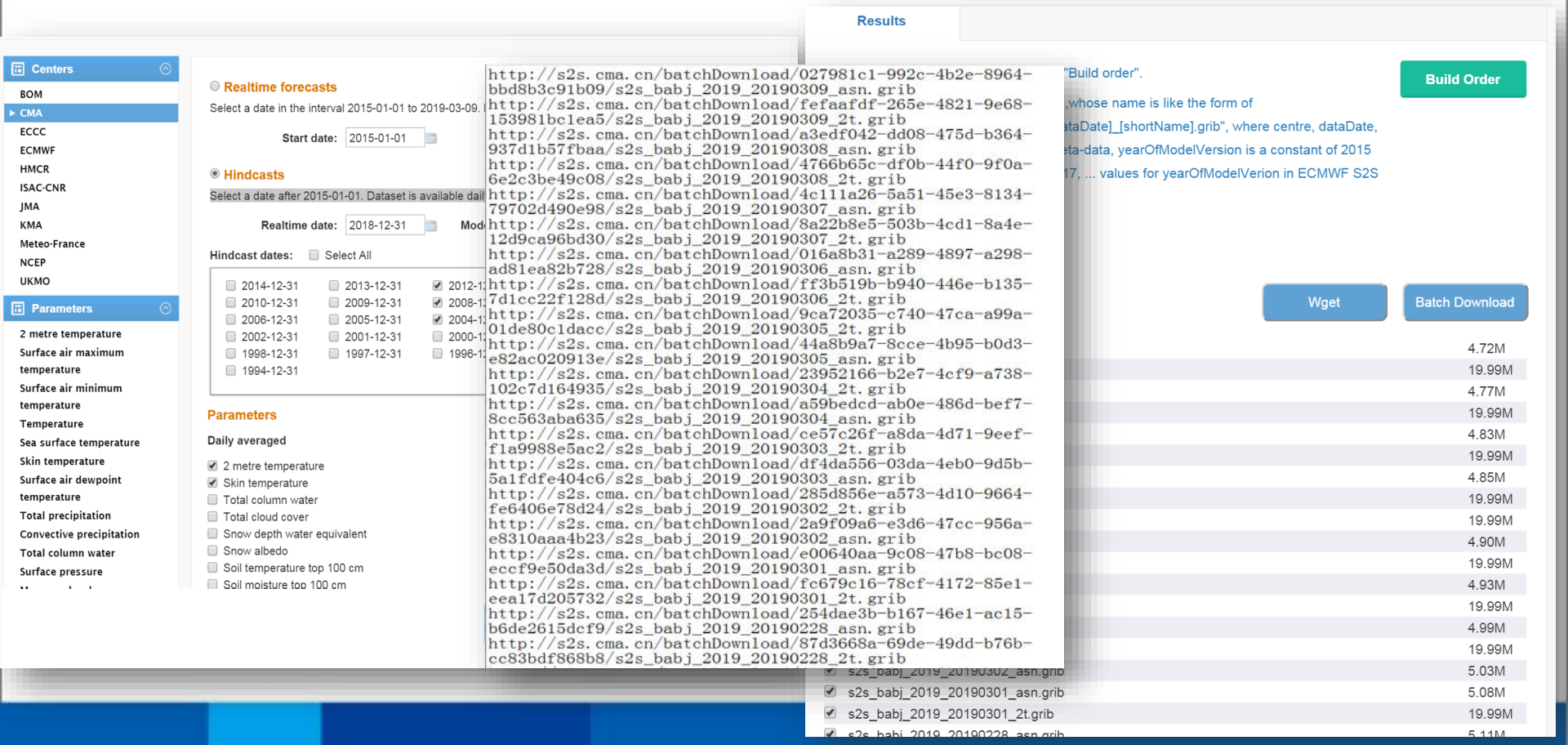
Method 1: Batch download

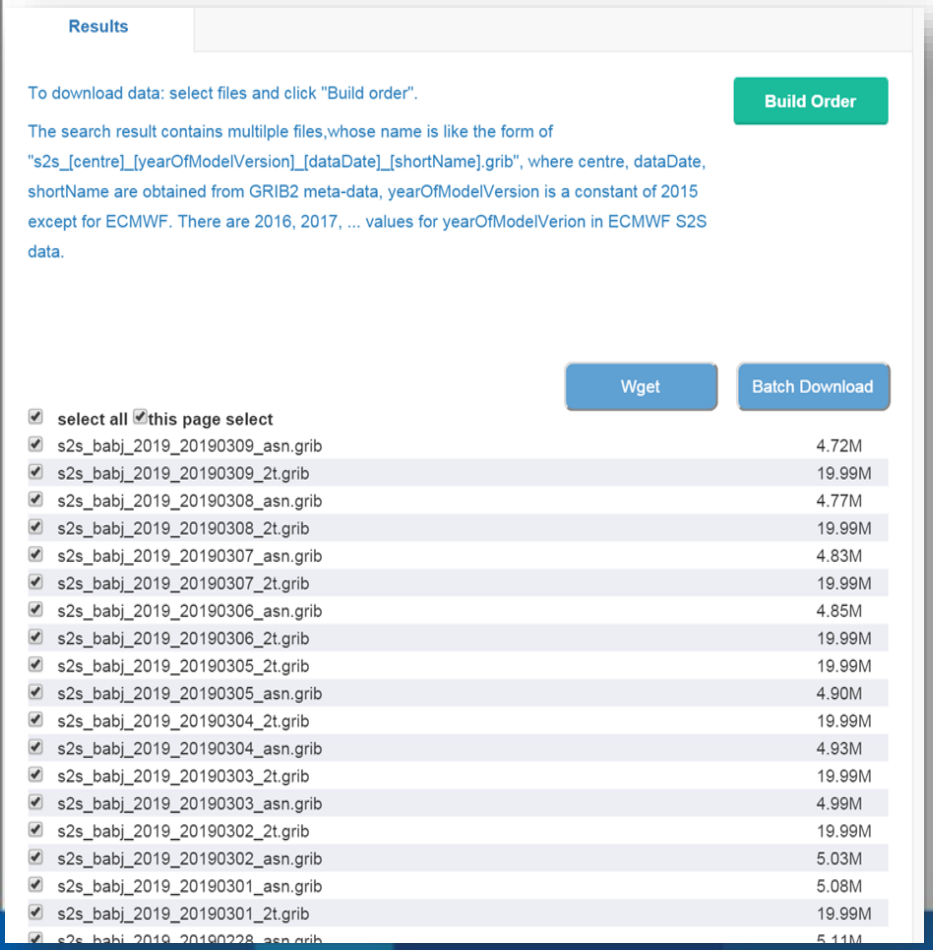
- Step 1. Choose center, parameter, realtime forecasts or hindcasts, then click “submit”;
- Step 2. In file list page, click “Batch Download ” to get a batch list file.
- Step 3. Download tools can bulk download data files in the list.

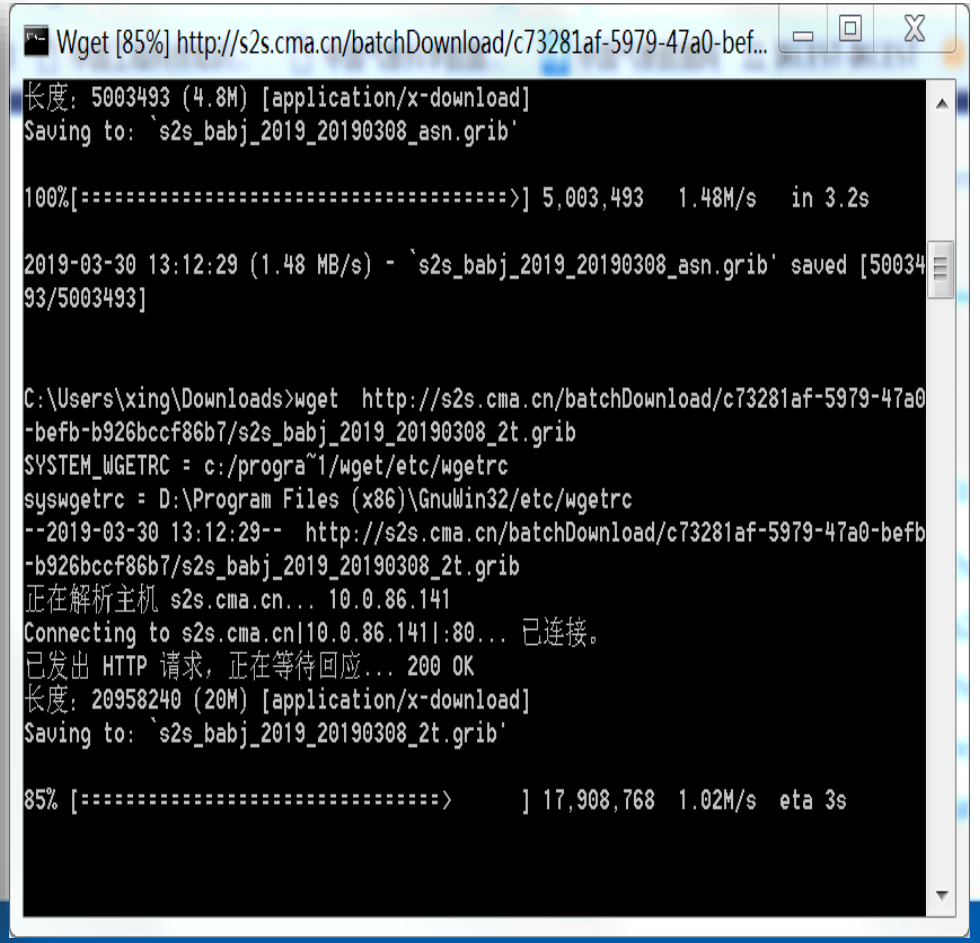


Progress

Method 2: Wget

- Step 1. After the choose page, click “wget” , the files extension name could be changed to cmd or sh in windows or linux OS system.
- Step 2. For windows, you need to install wget software. Then run it.





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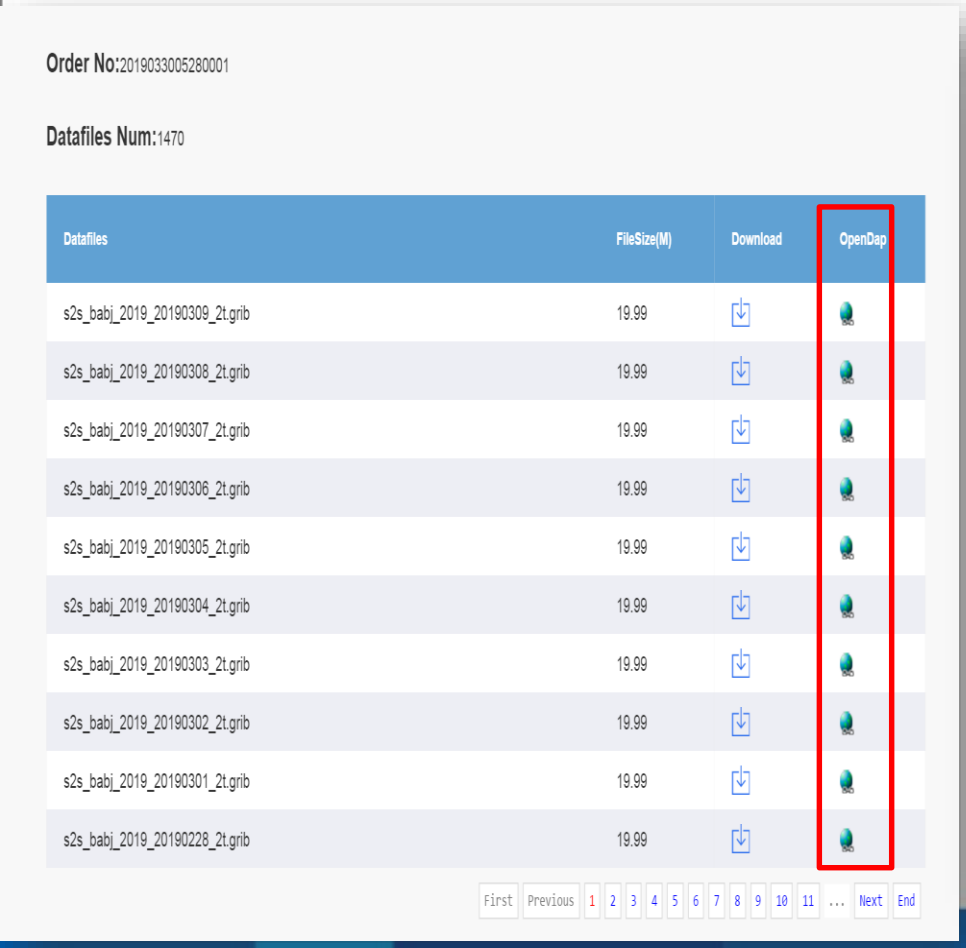
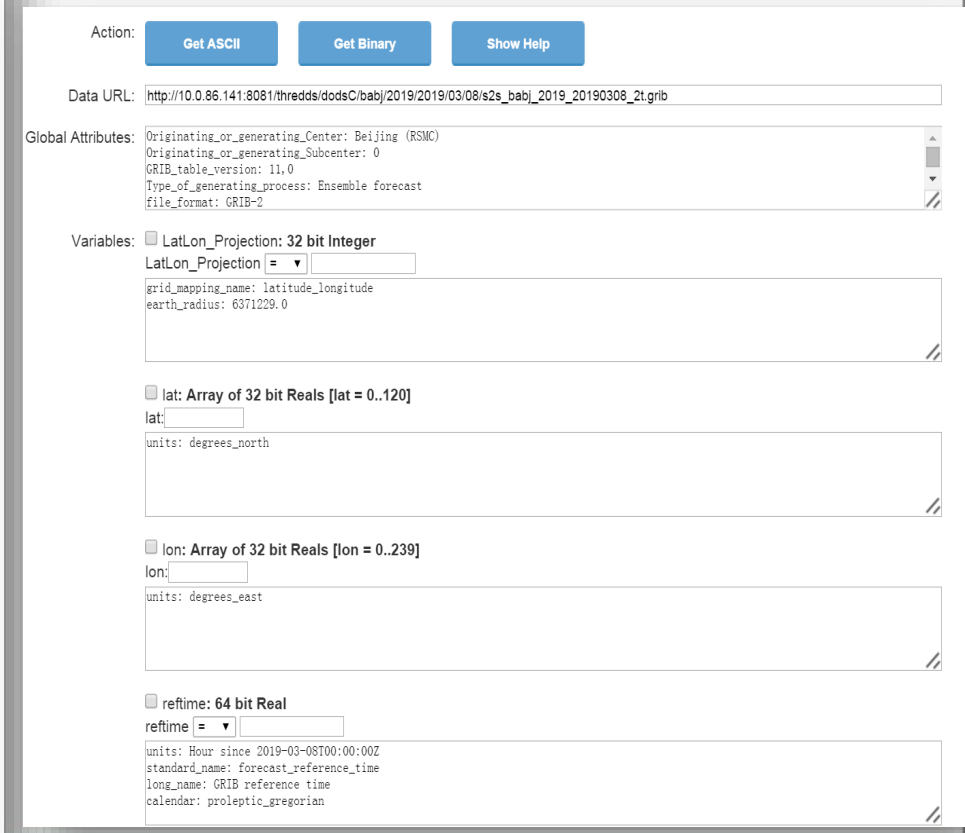
➢ Method 3: OPeNDAP

– Step 1. After the choose page, click “Build order” , OPeNDAP is on the right.

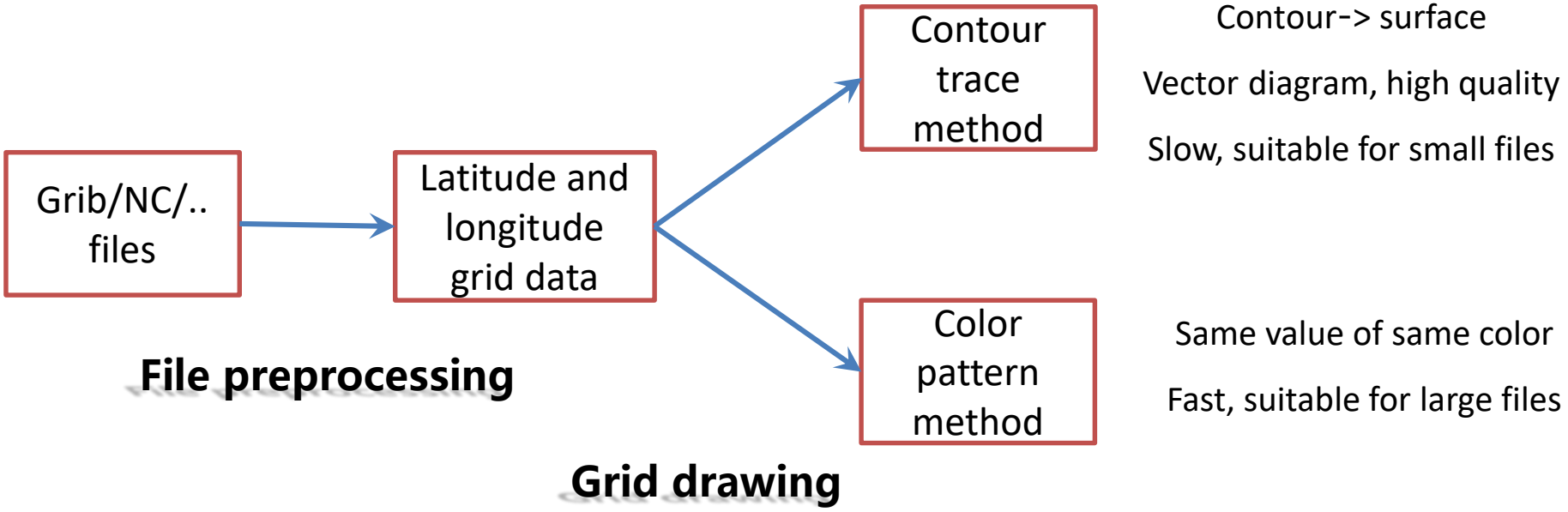
– Step 2. Click the button,and choose access OPeNDAP to view and fetch data.





S2S data visualize

S2S Visualization components



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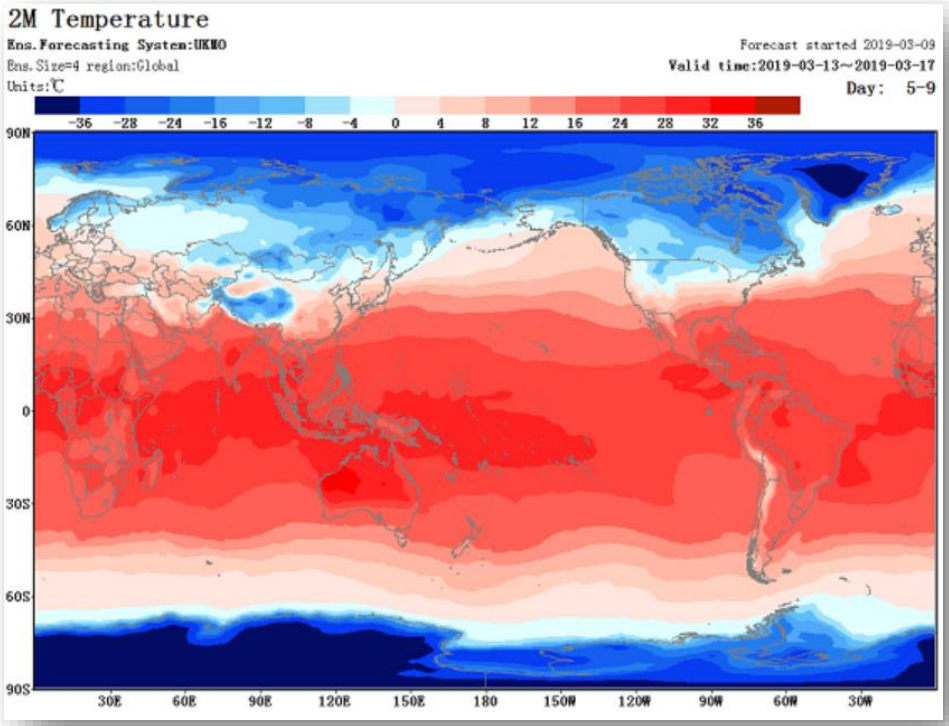
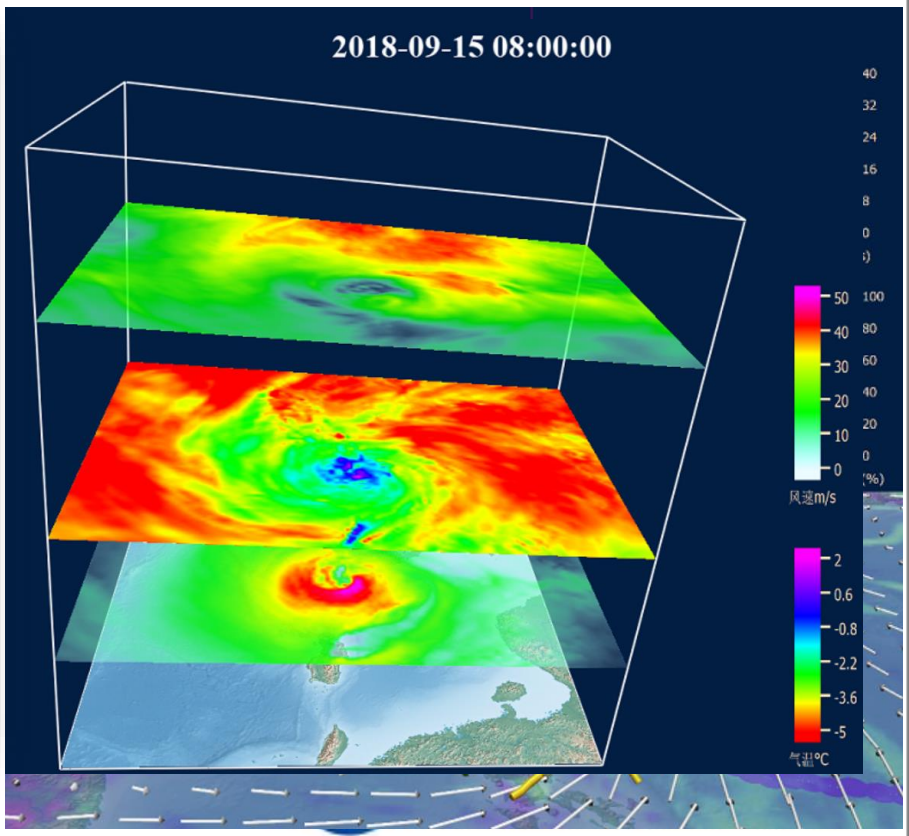
- **S2S data view** (2D and 3D)





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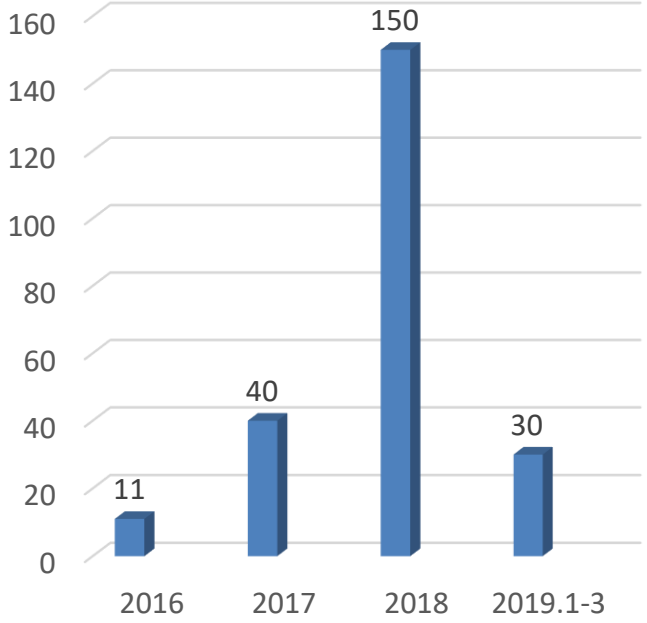
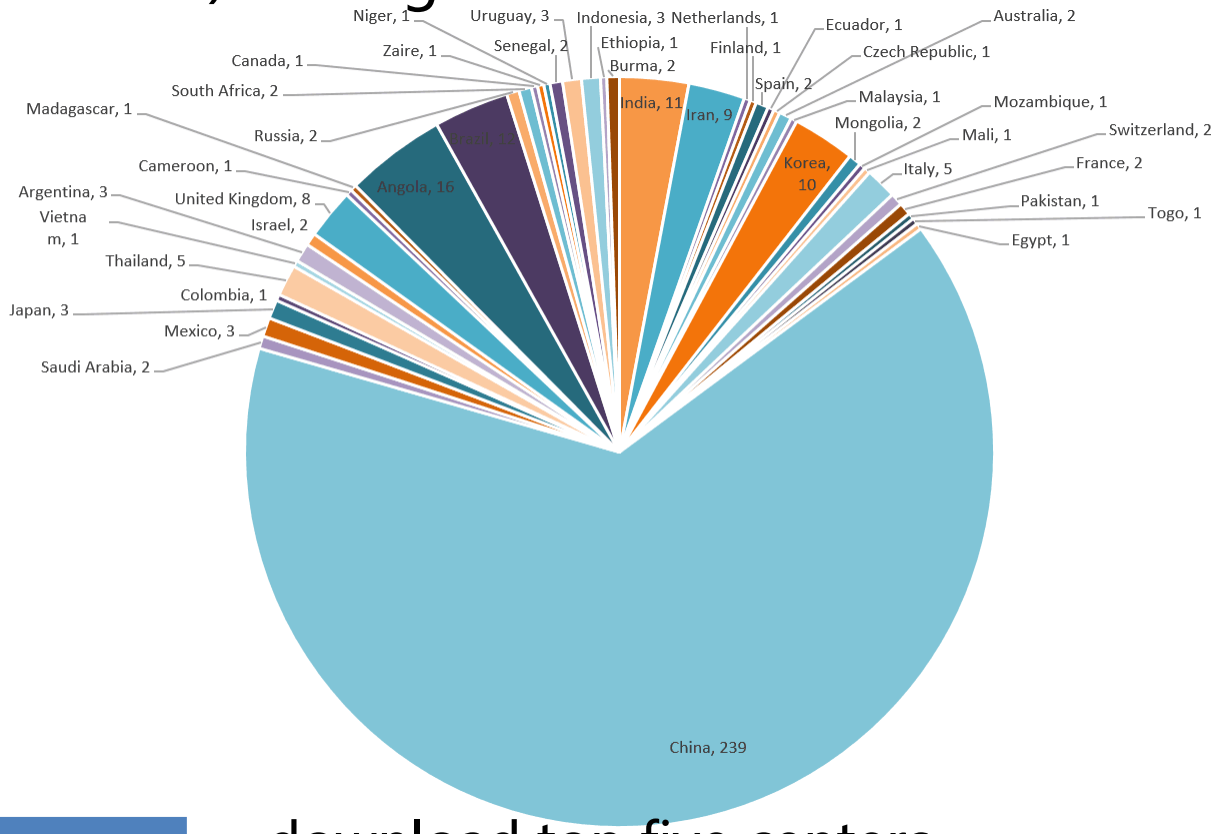
Service statistics

Visited increased(ten thousands)



Registered user distribution



Data download (TB)

year	amount of data
2016	1.9
2017	3.1
2018	3.2
2019.1-3	20.7

download top five centers

ECMWF, CMA,BOM,UKMO, NCEP

download top five parameters

t, u,v, mx2t6, gh

Progress of CMA S2S data center

- Hope we can provide
  - More convenient data acquisition
  - More visualization products
  - Better user experience

Thank You!

http://s2s.cma.cn