

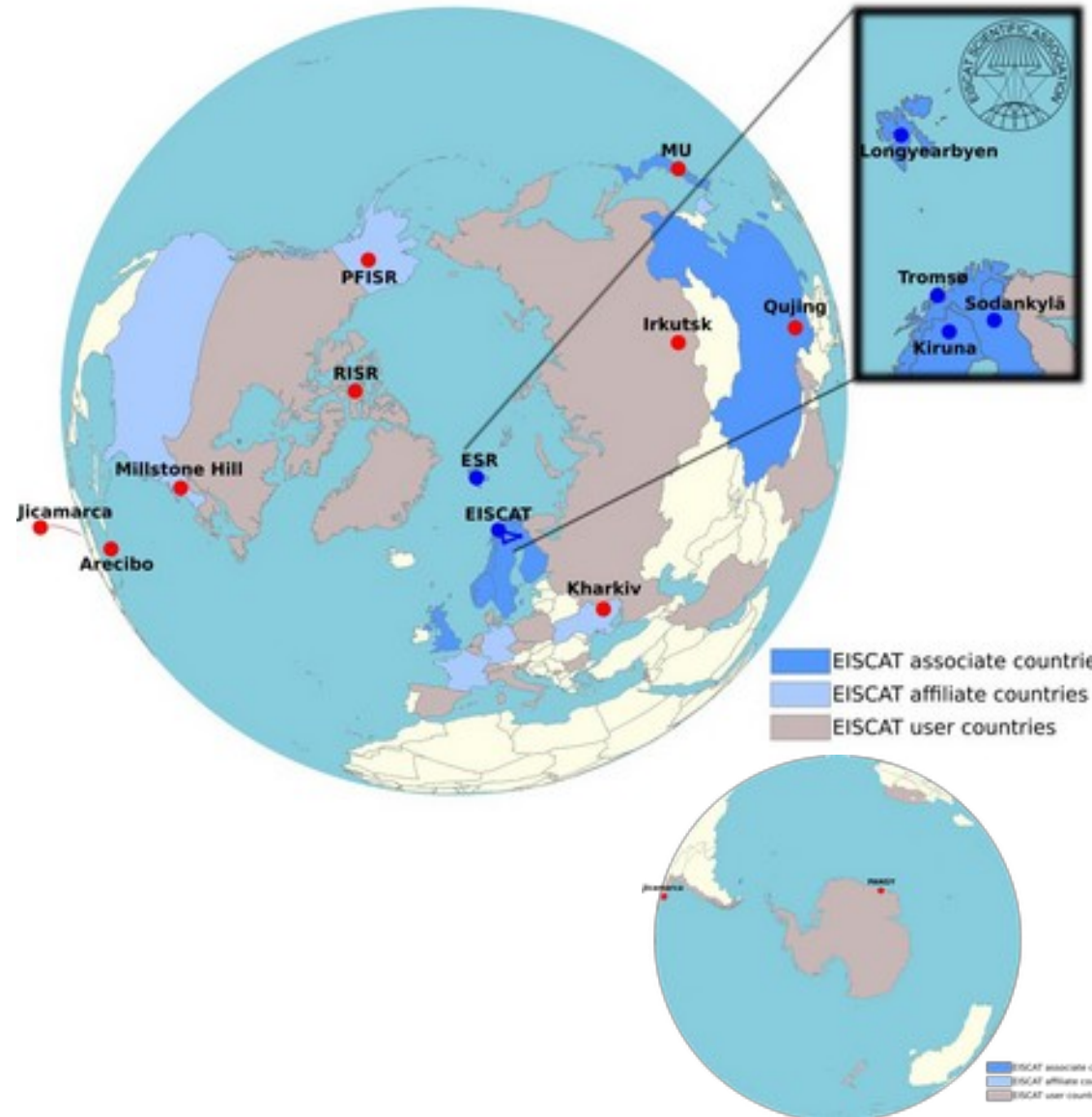
# IRN EISCAT



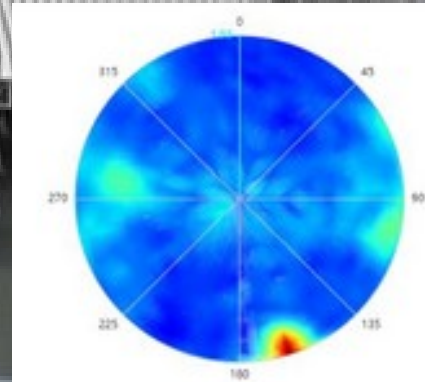
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# Global EISCAT

- Radars
  - Northern Europe
- Members
  - Associates
    - Research Councils
    - SE,FI,NO,UK,JP,CN
  - Affiliates
    - Universities/Institutes
    - FR,DE,KR\*2,UA,US (RU)
- Users
  - Global



EISCAT 3D, the new research radar for atmosphere, ionosphere and near Earth space - ESFRI Landmark since 2018



EISCAT\_3D, Stage 1



EISCAT\_3D Skibotn

EISCAT\_3D Karesuvanto

EISCAT\_3D Kaiseniemi

E45

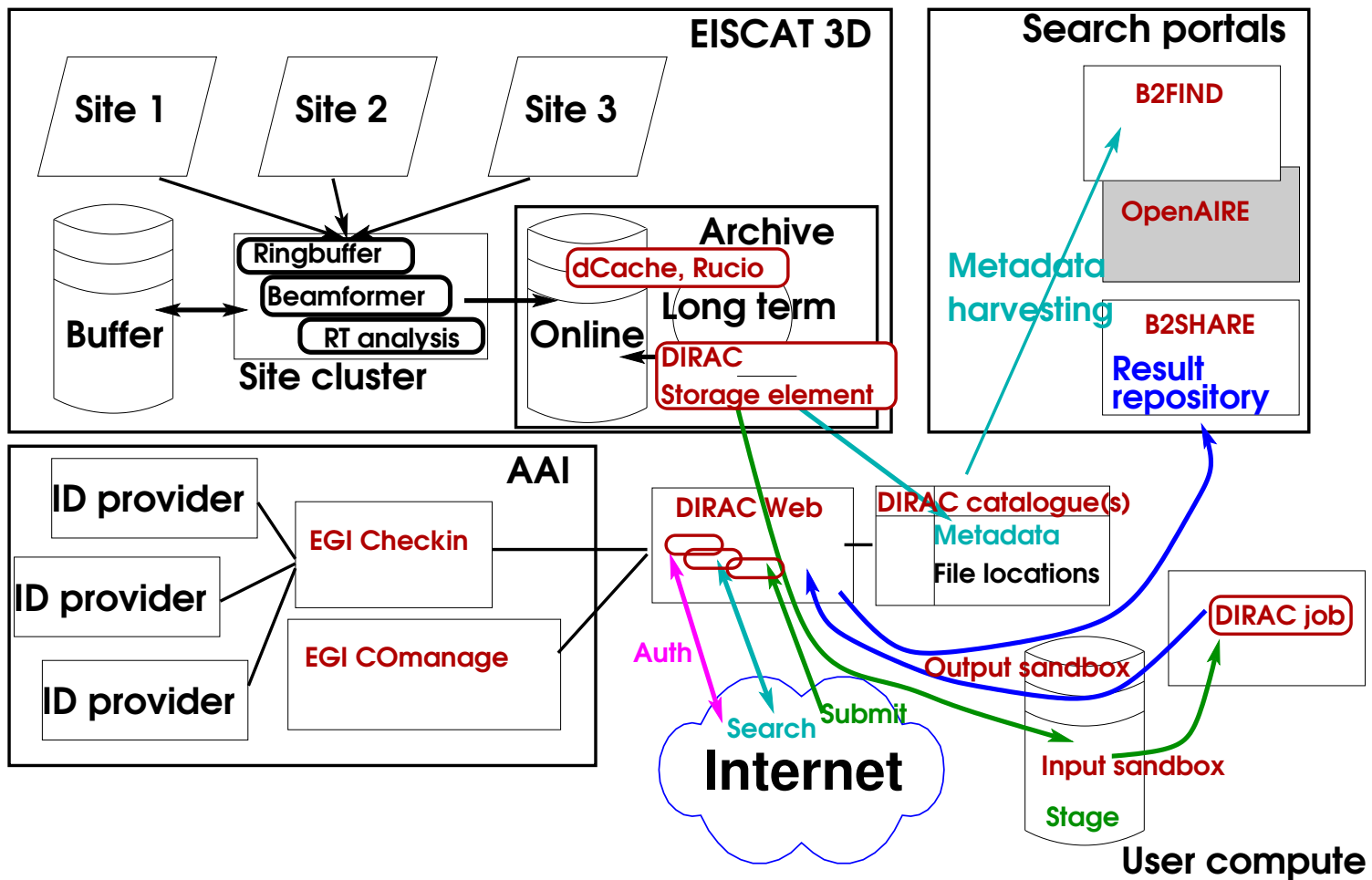
E8



# EISCAT provisions to users

- EISCAT 3D system will have large compute and storage resources
  - Full capacity needed in High Power mode (10% of the time)
    - >100 Tflop/s
    - >20 PB
  - Upscaled every ~5 years
  - Open for EISCAT users during Low Power / Off periods
  - Secures sustainability
    - Application platform for analysis software
    - Co-location platform for sophisticated searches
    - Notebooks for user development
- Integration to federation(s)
  - Mirror Storage's & Applications
  - Storage platform for continuous data transfer (eg Rucio + dCache)
  - Third-party for far east (e.g. China, Japan, S Korea)

# EISCAT\_3D dataflow



# Data workflow

- Dirac file catalogue (L1+L2)
- B2share entries (L3)
- EGI Checkin
  - Authenticate EISCAT 3D users
  - Authorize for accessing embargoed data
  - Id providers
    - University, Social
  - Managed in Perun
    - Groups - Members
- Job submission
  - Docker containers
  - Existing EISCAT user software (Octave, C)
    - GUISDAP General analysis L1/L2 → L3
    - RTG General tool for display of L2 data (L3)

## Job definition file

```
[  
    Executable = "run_rtg_docker.sh";  
    Arguments = "";  
    JobName = "my_job_name";  
    Site = "Cloud.CSC.fi";  
    CPUtime = 86400;  
    InputSandbox = {  
        "run_rtg_docker.sh",  
        "LFN:/eiscat.se/archive/2016/..."  
    }  
    OutputSandbox = {"output/*"};  
]
```

# Madrigal

- Distributed database
  - Worldwide
    - Started as a US/EISCAT venture
  - Level 3 and 4)
    - Searches
      - Physical parameters
      - Combined parameters
    - Data downloads
    - Plots
  - EISCAT hosting Quing radar data





# EGI-ACE EISCAT/CAS use case

- EISCAT\_3D/SYISR radar data
  - Similar hardware
    - Multistatic phased array radars
  - Separate repositories
    - Metadata federation
      - Search portal(s) accessing both repos metadata
  - Federation processing
    - Launch jobs in EGI/CNIC clouds
  - On demand data movement
    - For processing in either cloud