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From SKAO data to you: the SKA Regional Center Network

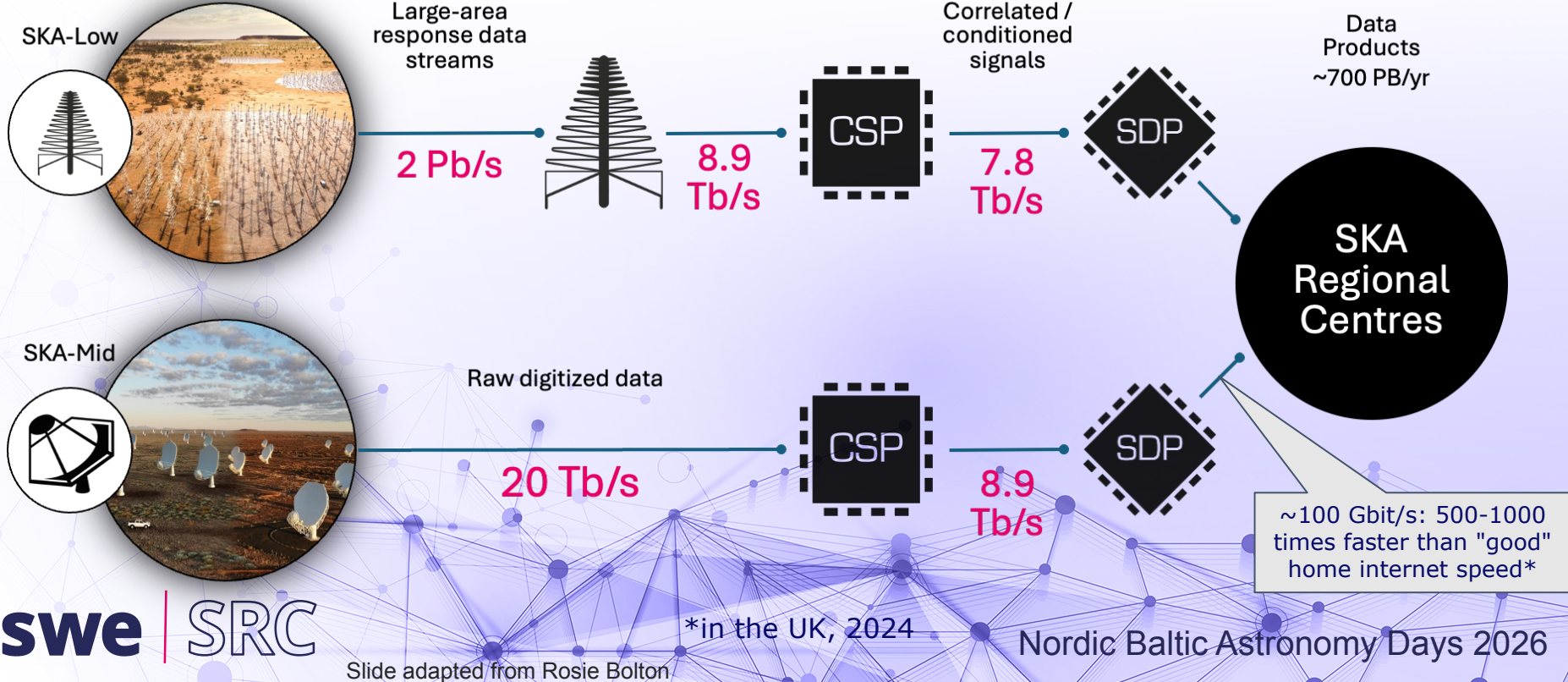
Kelley M. Hess, *Senior Forskare* | Onsala Space Observatory | 26 May 2026
Lead of the Sweden SKA Regional Center

swe | SRC

Nordic Baltic Astronomy Days 2026

What are the SKA Regional Centers?

There are several stages of amazing, cutting edge data processing within the observatory... but **NO USER ACCESS...**





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What are the SKA Regional Centers (SRCs)?



SKA Regional Centres

Common Authentication

Science Gateway

Computing And Storage

Analysis Interfaces

Visualisation Tools (local)

Python Client

IVOA TAP
IVOA SODA

Data Discovery

Data Access

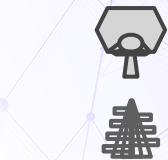
Ingestion Service Prototype

Data

Single authentication system to the **Science Gateway**, giving access to **science enabling tools and applications** running on federated compute and storage.

Enabling users to discover data in the **global SKA archive**, develop workflows, perform analyses, and collaborate.

Network for centers to address the "orders of magnitude" data problem.

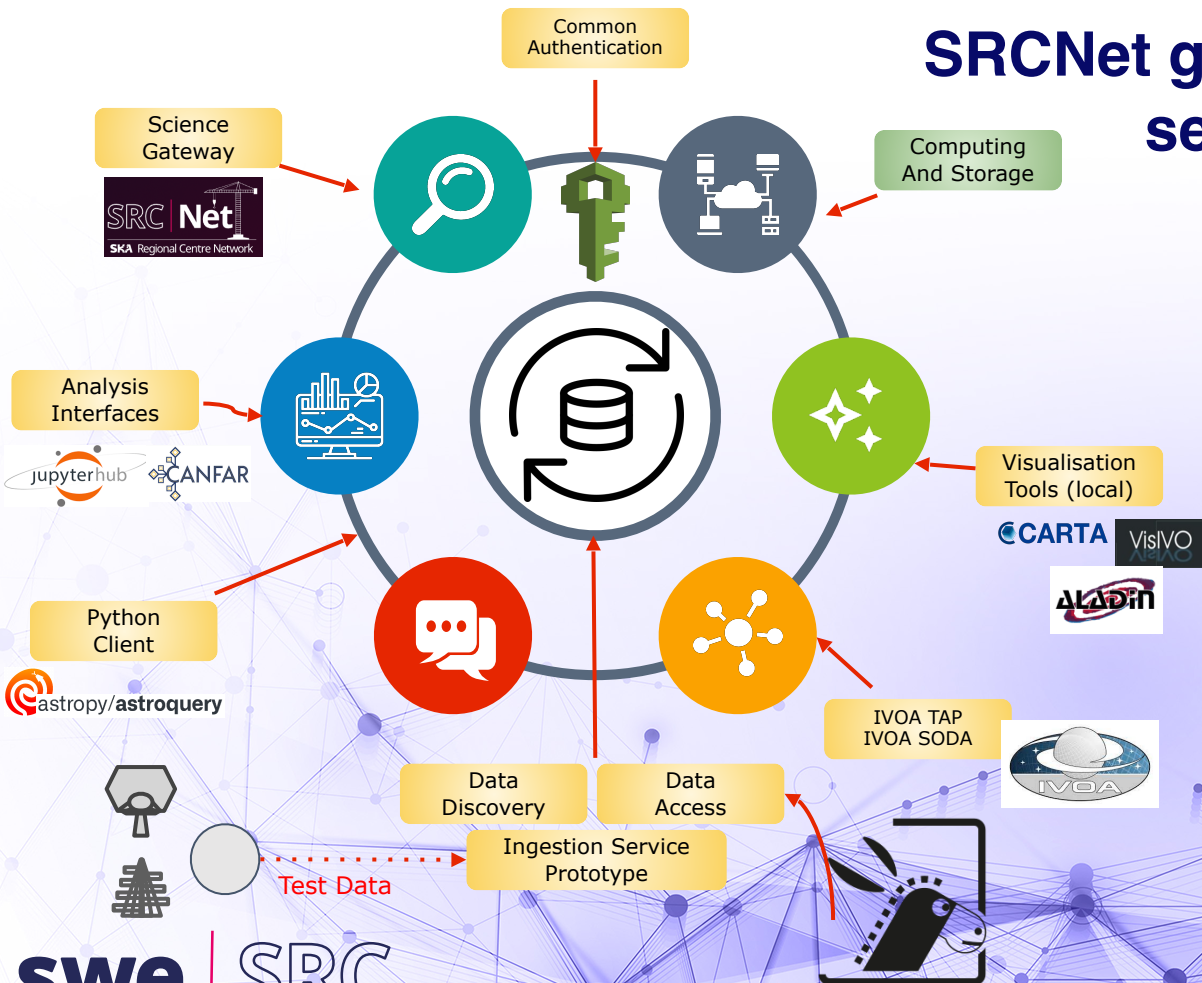


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Slide adapted from Rosie Bolton

Nordic Baltic Astronomy Days 2026

SRCNet global & local services (v0.1)



- Common Authentication
 - IAM
- Visualization Tools (local)
- IVOA Protocols
 - TAP, SODA
- Data Discovery, Data Access, Data Staging from Data Lake
- Ingestion Service Prototype
- Python Client
 - Astroquery Module
- User Interface
 - Science Gateway
 - <https://gateway.srcnet.skao.int/>
- Analysis Interfaces
 - JupyterHub
 - CANFAR Science Platform
- Operational tooling
 - Dashboard
 - Documentation

New search

Query builder ADQL search

Source name:

ngc 2997 Resolve

RESOLVED BY SIMBAD: NGC 2997, OBJECT TYPE: GIG

Filter by position

RA [degrees]: 146.41147593 Dec [degrees]: -31.19092939

Radius [degrees]: 0.6879066613816675

Filter by metadata

Add filter

Data-product type:

Select data-product type

Re-run query:

Query

Search

Filter projects: Project

User guide

View logs



Results 0 Selected items 0

position: '5.0000 degrees from NGC 2997 (RA 146.411476, DEC -31.190929)'

Filter results by type: All [0 result(s)] Results per page: 10

<input type="checkbox"/>	Actions	angular_separation	obs_publisher_did	target_name	obs_id	dataprodu
<input type="checkbox"/>		1.5750818699547635	ivo://cadc.nrc.ca/RACS?RACS-DR1_0952-31A/RACS-DR1_0952-31A		RACS-DR1_0952-31A	image
<input type="checkbox"/>		4.474728949776107	ivo://cadc.nrc.ca/RACS?RACS-DR1_0924-31A/RACS-DR1_0924-31A		RACS-DR1_0924-31A	image

Showing results 0 to 0 of 0

New search <<

Node:

SWESRC

Site:

All

Description:

Description

Hardware capabilities:

GPU Large scratch

High memory Fast scratch

Hardware type:

Select hardware type

Availability type:

Select availability type

Service type:

Select service type

Filter projects:

Project

User guide

View logs ¹⁷



Description:

Location:

57.6901921 ° N, 11.9755092 ° E

Hardware type:

Hardware capabilities:

SWESRC

NO ISSUES REPORTED

Canfar Software Platform

AVAILABLE

expires: /

NO ISSUES REPORTED

? Development

AVAILABLE

expires: /

NO ISSUES REPORTED

? Development

AVAILABLE

expires: /

NO ISSUES REPORTED

? Development

AVAILABLE

expires: /

DISABLED

Development

UNAVAILABLE

expires: /

DISABLED

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NO ISSUES REPORTED

? Production

AVAILABLE

NO ISSUES REPORTED

Production

AVAILABLE

NO ISSUES REPORTED

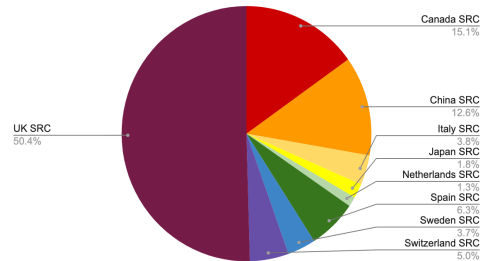
? Production

AVAILABLE

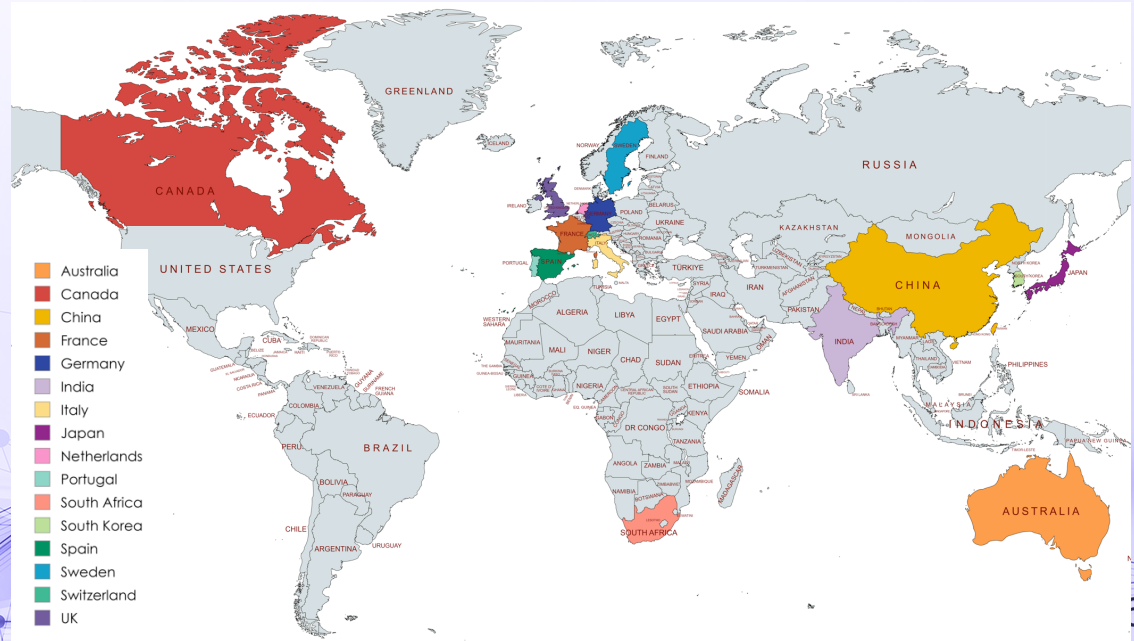
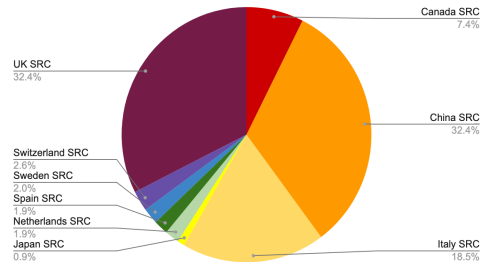
SKA Regional Center Network (SRCNet)

- 110 active people contributing about 55 FTE
- 16 countries are part of the SRCNet project
- 9 nodes currently up and running; more on the horizon!

Storage fraction for SRCNet0.1



Compute fraction for SRCNet0.1



SRCNet Timeline



SRCNet 0.1 2025

Milestone passed!

9 nodes: ESP, CH, SKAO, SWE, UK, CN, CA, JP, IT

Test campaigns already taking place

Data movement between sites centrally managed

Data ingestion at SDP location in Perth

Internal version, testing architecture

SRCNet 0.2 Mid 2026

Workflow portability

Federated Execution

Data Access controls

Integration with SKAO user ID proven

Realistic data ingestion and dissemination

Testing SV user workflows at scale

Prove ability to support SV use cases at scale

AA2 Science Verification!

SRCNet 0.3 2027

Public version, as an integral part of SV.

SRCNet part of the end to end SKAO system

Access granted to limited number of users, depending on resource availability.

MoUs to govern data and resource sharing

System ready to support SV users

SRCNet 1.0 2028

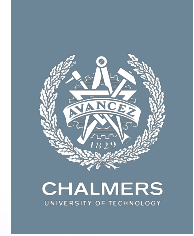
Full version of SRCNet software

Hardware scale continuing to develop as SKAO science data volumes grow

Access fully integrated with SKAO Proposal System, hand-in-hand with successful proposals.

Full public SRCNet release

Science Delivery in Practice on SRCNet

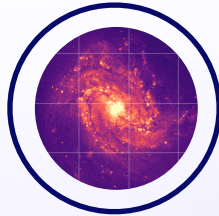


- How do we know that we are building something sensible?



Project Scientists

Project scientists covering a broad range of science areas have been developing typical science cases.



Detailed Science Cases

~30 science use cases, covering a range of science and capabilities/modes.



Workflows

~ 50 derived from the detailed science cases. They describe what is needed by the users to assess, analyze and publish SKA data.



Technical development

The detailed science cases and workflows then flow down into SRCNet system requirements, bridging the gap between science users and technical development.

Focussing on SV for now

A document describing the identified detailed science cases will be shared with the community for feedback.

Access to SRCNet

As a future SRCNet User, how will I get access?



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You are part of a successful SKA proposal team

Estimation of resources includes expected SRCNet needs and **approval subject to technical feasibility**

Data discovery

Without an allocation, use data discovery tools to use archival data to write another great proposal, or to **find that the data you need already exists**

Analysis complete!

When you are done - Advanced Data Products can be added to SKA Science Archive
User storage deleted
Access to compute services revoked

Your SKAO Project is executed

Data Products are delivered into SRCNet
Your project's allocation goes live!
Only your collaborators can see the data products and use your allocation

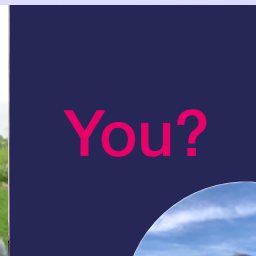
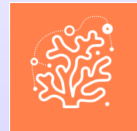
Perform your data analysis!

Work you do in SRCNet as part of your project group uses the credit allocation of that group
Collaborators can share intermediate data products and workflows

Sweden SKA Regional Center (sweSRC)

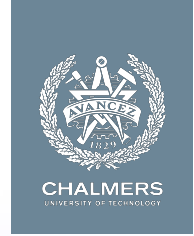


- Onsala Space Observatory is the national radio astronomy infrastructure for Sweden (VLBI; LOFAR; 25m; 20m; Onsala Twin Telescopes; Geodetic VLBI; Nordic ARC)
- Partnership with Chalmers e-Commons HPC center to provide compute, data storage, and domain expertise; developing in-house expertise in cloud computing systems
- SRCNet development, operations, and prototyping efforts in Coral Team & Science Delivery
- **SKA precursor/pathfinder/science data challenges support: proposal preparation, data management, data reduction & pipeline support**





Onsala Space Observatory User Support



- Onsala Space Observatory is the national radio astronomy infrastructure for Sweden
- Host instruments contributing to international consortia and supporting regional scientists including VLBI, LOFAR, 25 m, 20 m, Onsala Twin Telescopes, Geodetic VLBI
- Compute Infrastructure at Onsala for Radio Astronomy (CIORA) provides compute and storage resources for radio astronomy research including SKA pathfinders and ALMA
- Nordic ALMA Regional Center supports Nordic and Baltic users of ALMA
- Sweden SKA Regional Center will support global users of the SKAO
- **Want to talk about radio/submm astronomy: come see our table!**
- www.swesrc.org
- SKA Low AA2 Science Verification starts in 2027!

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