



# THE GREN AND THE SQUARE KILOMETRE ARRAY

LHCOPN Meeting #54 – April 9<sup>th</sup> 2024, Catania

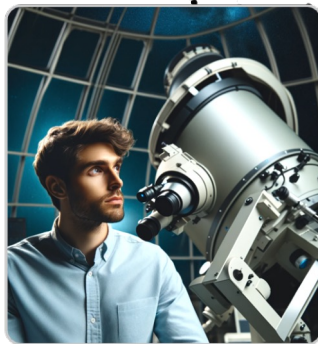
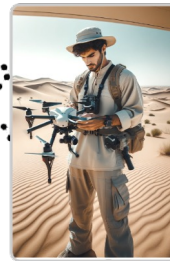
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Nordic Gateway for Research & Education

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# NREN MISSION





# EVERYWHERE, ALWAYS, ANYONE

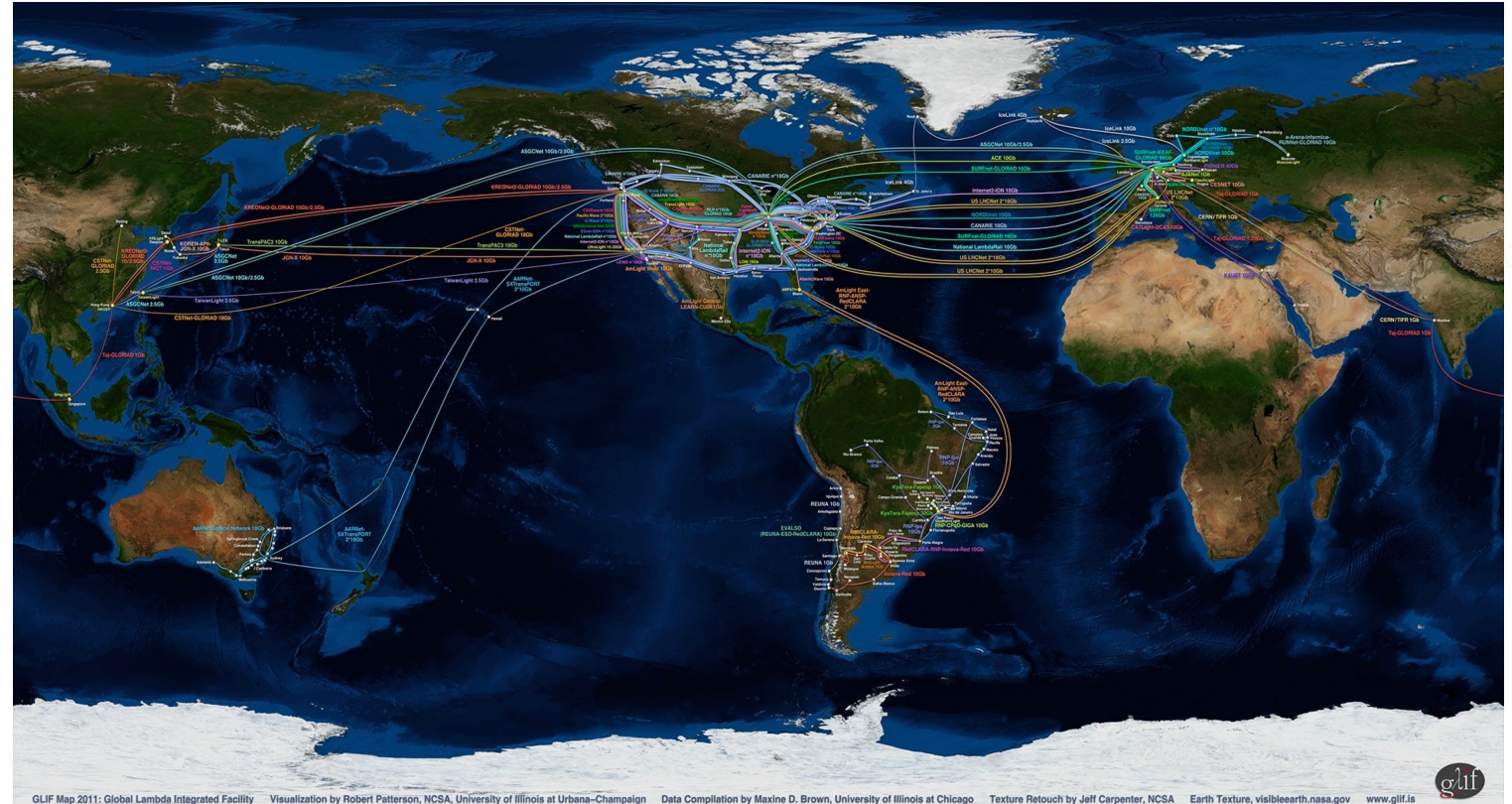


- Science is global.
- National Research depending on facilities and instruments deployed world-wide.
- Infrastructure needs to be accessible, compatible and globally available.
- To lower barriers, NRENs collaborate on delivering a 'Global Research & Education Network'.
- This GREN is offers more than the sum of its parts.



# BACK IN 2011: OCEANS AS BARRIERS

- GLIF map is impressive, but...
- National networks and continental backbones
- Fragmented inter-continental connectivity
- Intercontinental capacity orders of magnitude lower than terrestrial

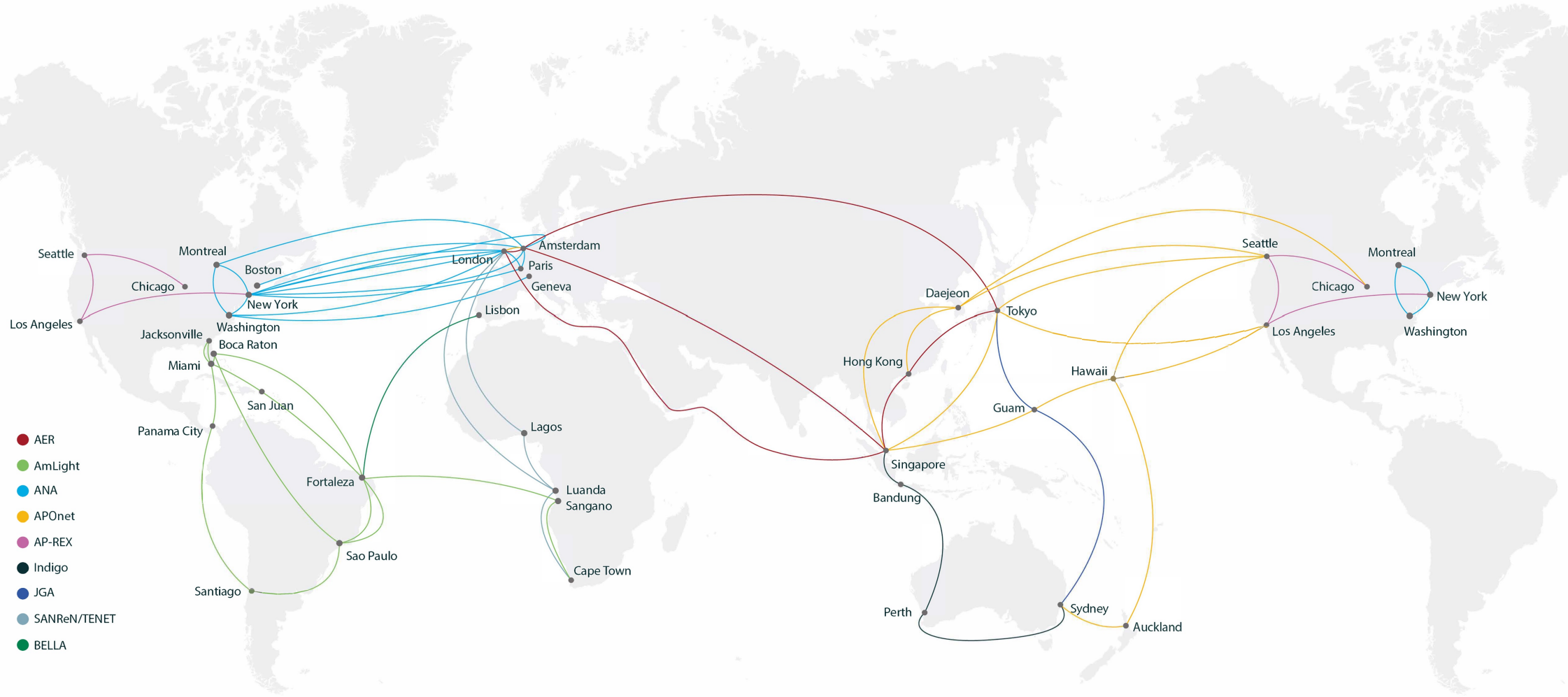


GLIF Map 2011: Global Lambda Integrated Facility Visualization by Robert Patterson, NCSA, University of Illinois at Urbana-Champaign Data Compilation by Maxine D. Brown, University of Illinois at Chicago Texture Retouch by Jeff Carpenter, NCSA Earth Texture, visiblearth.nasa.gov www.glif.is





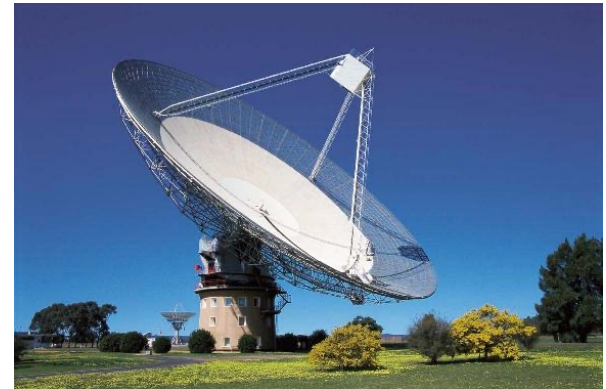
# THE GREN – BRINING THE PARTS TOGETHER





# OUR MISSION: LOWERING BARRIERS

- The role of NRENs
  - Network where it's needed, when it's needed
- For that we jointly:
  - Organize ourselves to act quickly and appropriately
  - Orchestrate network resources into a global facility for research and education
    - It's not just transport
    - Data Centre and Compute Facilities
  - Outlook, planning, testing -> Being ahead
  - Lower technology and capacity barriers for research and education



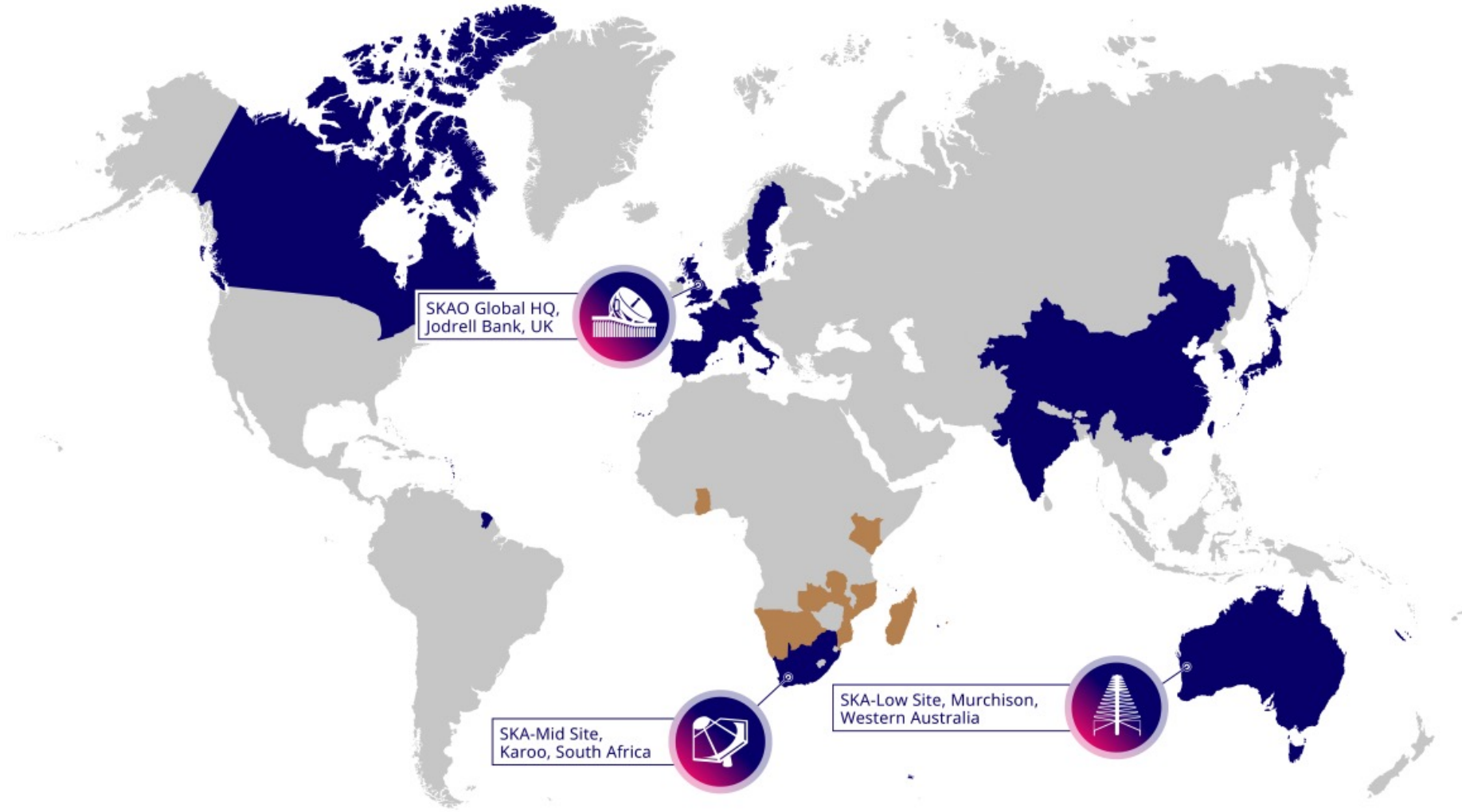


# SQUARE KILOMETRE ARRAY





# SQUARE KILOMETRE ARRAY



SKAO Partnership - includes SKAO Member States\* and SKAO Observers (as of July 2023)



African Partner Countries







# PROPOSED WAY FORWARD

- SKA requirements appear well aligned with the GREN
  - Preparations already done to ensure a match.
- Gaps to fill in
  - Requirements, workflows and data movement must be better understood, and a network architecture developed in response
- Starting the dialog between GREN Community – SKAO
  - Requirements and scientific ambitions from SKAO
  - Status-Quo and long-term evolution plans from GREN
- Use LHCOPN experience where appropriate
- Position the GREN as the enabling partner for SKA

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# Driving innovation together

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