Choosing a k8s PostgreSQL operator for the Square Kilometre array Observatory

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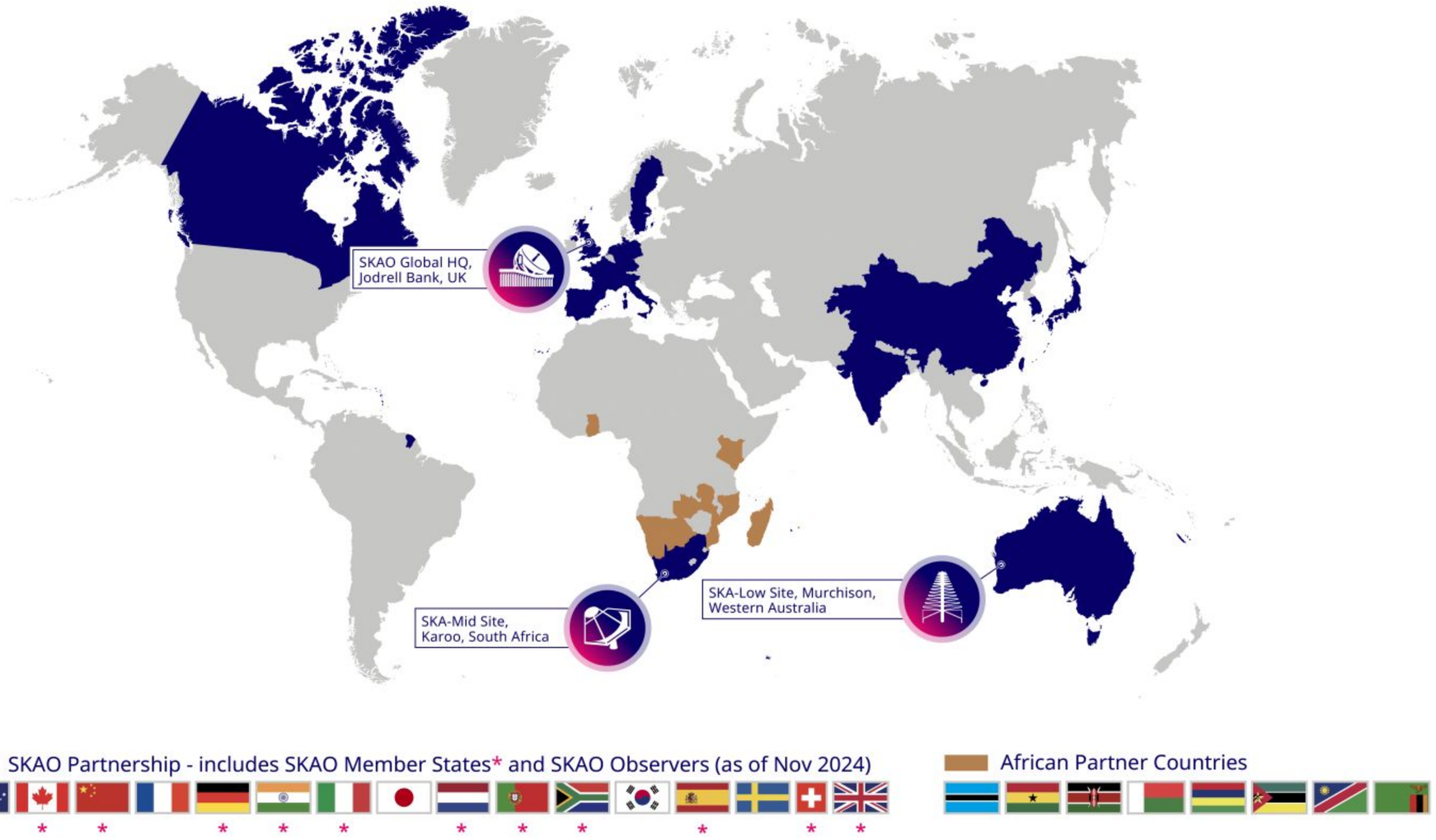
SKA Observatory

Building the two largest telescope arrays in the world, located in South Africa and Australia, made possible through a global collaboration.

The SKAO


SKAO Global HQ,
Jodrell Bank, UK
SKA-Mid Site,
Karoo, South Africa
SKA-Low Site, Murchison,
Western Australia
SKAO Partnership - includes SKAO Member States* and SKAO Observers (as of Nov 2024)
African Partner Countries

Definitions

- Three sites:
  - UK: HQ - Jodrell Bank
  - ZA: MID telescope - Karoo
    - Cape Town
  - AU: LOW telescope - Murchinson
    - Perth
- Dev stuff
  - Tango controls framework - cpp, python
  - SAFE Agile framework

DB Environment:

- Vanilla K8s
- PostgreSQL 16.x

100%OpenSource

PostgreSQL@SKAO

- Monitoring via the tango HDB++ archiver on timescale:
  - Helm chart, not maintained any more by Timescale
  - Patroni based
  - Called Engineering Data Archive (EDA)

- Relational databases:
  - EMS: Engineering/telescope performance
  - OSO -> ODA Observation metadata
  - DLM: Observatory Lifecycle management
  - Data reduction

Stackgres Vs CNPG

- Good documentation
- +100 extensions: Timescale
- We know patroni works on k8s and we like it

Errare humanum est:

- We take our backup and import it on CNPG.

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SKAO Database Engineer

Many thanks!

We recognise and acknowledge the Indigenous peoples and cultures that have traditionally lived on the lands on which our facilities are located.

SKAO

www.skao.int