



SOUTH AFRICAN RADIO ASTRONOMY OBSERVATORY DISCUSSION DOCUMENT ON DIGITAL SOUND BROADCASTING

Mr. Busang Sethole
Spectrum & Telecoms Engineer
South African Radio Astronomy Observatory



Table of Contents

1. Introduction
2. A brief overview of the SKA
3. Legislative and Regulatory Framework for the SKA telescope and Radio Astronomy
4. Protection of the SKA
5. The Impact of DSB on radio astronomy
 - 5.1. Protection of radio astronomy activities in the Karoo Central Astronomy Advantage Areas
 - 5.2. Protection of the ITU-R Radio Astronomy bands
6. Conclusion

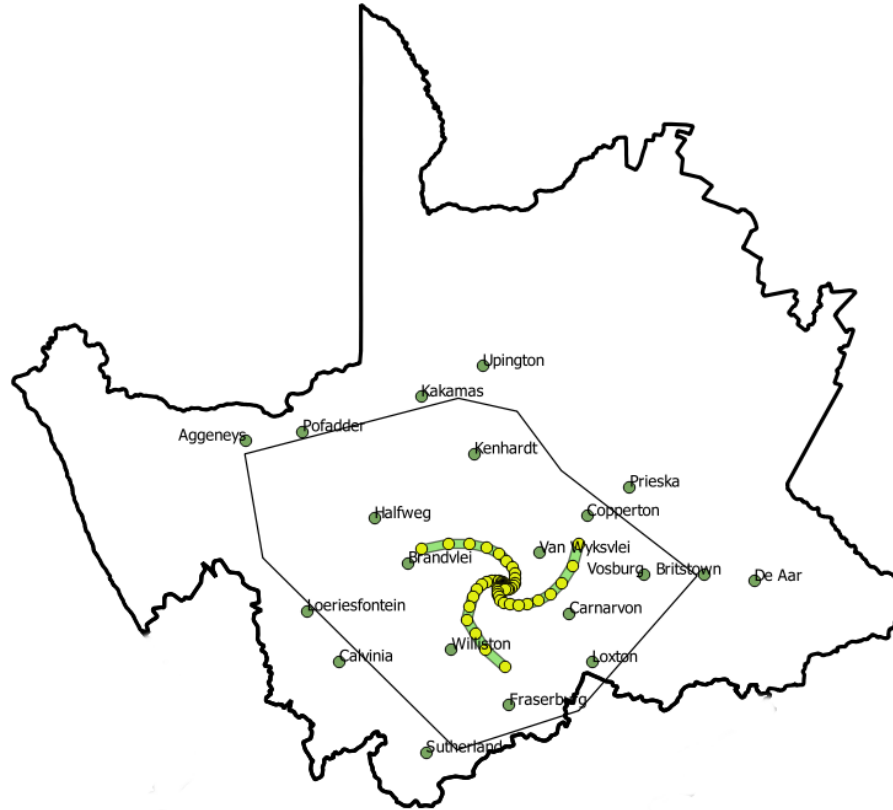
1. Introduction

- The National Research Foundation
- Square Kilometre Array
- MeerKAT and KAT-7
- Hartebeesthoek Radio Astronomy Observatory
- African Very Long Baseline Interferometry

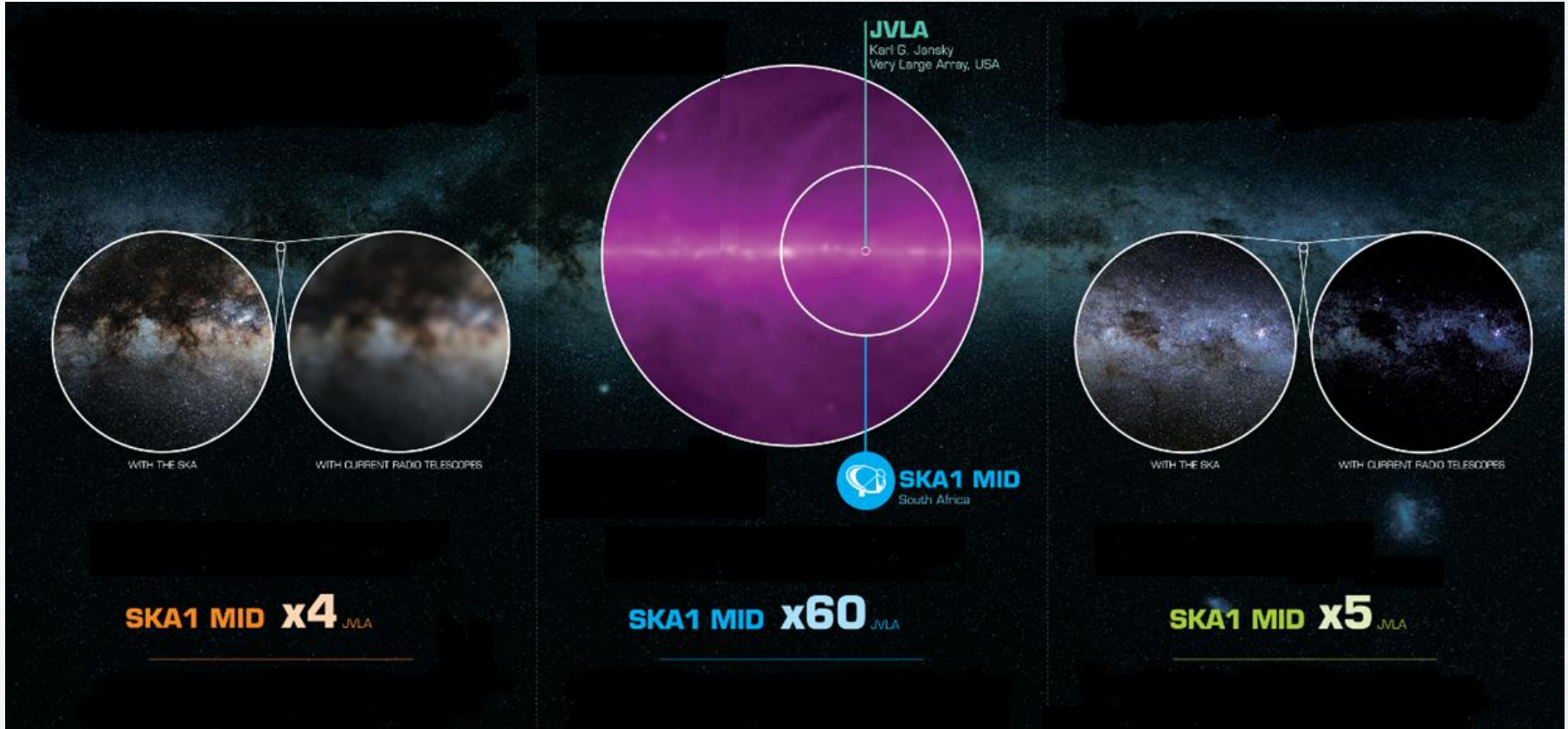
2. A brief Overview of Square Kilometre Array



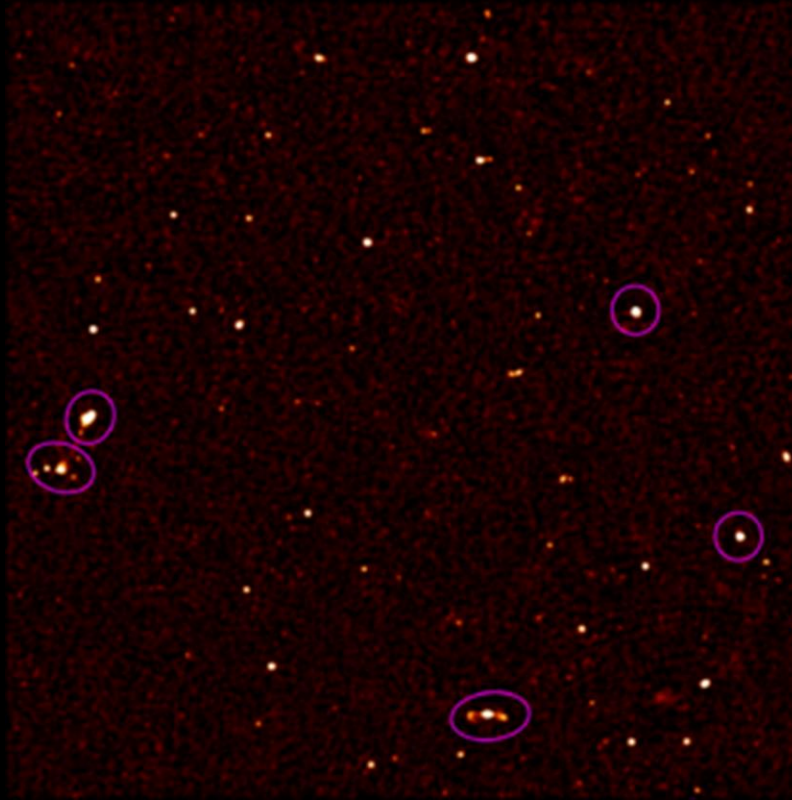
2. A brief Overview of Square Kilometre Array (continued)



2. A brief Overview of Square Kilometre Array (continued)



2. A brief Overview of Square Kilometre Array (continued)



3. Legislative and Regulatory Framework for the SKA telescope and Radio Astronomy

1. Astronomy Geographic Advantage Act.
2. Declaration of the Core Astronomy Advantage Area.
3. Regulations to prohibit or restrict certain activities in the Core AAA
4. Declaration of the Karoo Central Astronomy Advantage Area.
5. South African Radio Astronomy Protection Levels.
6. Relevant ITU-R Footnotes.
7. The Regulations for the Protection of the Karoo Central Astronomy Advantage Area.

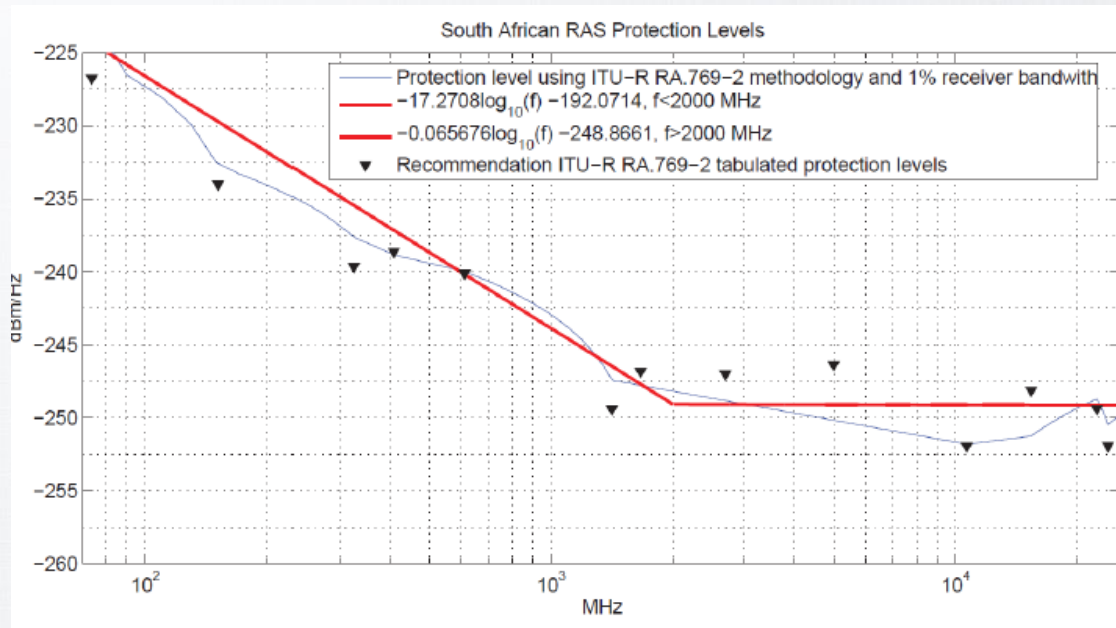
4. Protection of the SKA

4.1 Prohibition and restriction on spectrum usage and transmission

- No licensee or licence exempt operator shall use or continue to use the band from 100 MHz to 25.5 GHz, unless :
 - a) The band being used has been included in the list of bands that are exempted from the prohibition above; and
 - b) The Management Authority has considered the impact of the transmission on the SKA and has issued the licensee or licence exempt operator with a Permit

4. Protection of the SKA and Radio Astronomy (continued)

- The transmission shall not exceed the saturation level within the protection corridors in the KCAAA; and
- The transmission shall not exceed the protection levels prescribed in the Protection Levels Regulations 2012 as applied at the SKA Virtual Centre.



5. Impact of DSB on the SKA

1. Provincial SFN Allocation of DAB frequencies in the Northern Cape.

NO	PROVINCE	FREQ (MHZ)	FREQUENCY BLOCK BANDWIDTH (MHZ)	CH	SFN
15	NORTHERN CAPE	222.064	221.296 - 222.832	11D	DAB15
16	NORTHERN CAPE	229.072	228.304 - 229.840	12D	DAB16

5. Impact of DSB on the SKA (continued)

2. DSB below 100 MHz.

RAS Allocation (MHz)	RAS Status	Comments
13.36 – 13.41	PRIMARY.	No adjacent BS allocation.
25.55 – 25.67	PRIMARY.	Any Broadcasting Services in the adjacent band (25.67 – 26.1 MHz) should consider 5.149 of the RR and ensure that RAS services are protected.
37.5 – 38.25	secondary.	No adjacent BS allocation.
73.0 – 74.6	secondary.	No adjacent BS allocation.

5. Conclusions

- We congratulate the Authority in its effort to develop digital sound broadcasting. With terrestrial sound broadcasting reaching even the utmost of marginalised communities, SRAO supports the efforts as we believe they will help bridge the continuously widening digital divide.
- SRAO also believes that there are many options available that may allow both DSB and Radio Astronomy to co-exist.

Thank You



science
& technology

Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA



National
Research
Foundation



SKA South Africa, a Business Unit of the National Research Foundation.

We are building the Square Kilometre Array radio telescope (SKA), located in South Africa and eight other African countries, with part in Australia. The SKA will be the largest radio telescope ever built and will produce science that changes our understanding of the universe

Contact information

Busang Sethole

ANALYST: SPECTRUM AND TELECOMS

Email: bsethole@ska.ac.za