



NEWSLETTER – AUGUST 2012

The radio astronomy focus group at the Durban University of Technology now has four radio telescopes at various stages of completion. It therefore seems fitting to change the name to reflect what we do rather than the name of one of the telescopes. Hence the name change to the Radio Astronomy Technology (RAT) Centre. Coincidentally the Durban University of Technology has also changed its corporate logo. These changes are reflected above. We are also working on a new website which will launch soon.

In this newsletter we give an update on the activities and students working within the RAT Centre.

1. The Indlebe Radio Telescope (IRT):

This is the first of our telescopes and it is fully operational. We continue to send data to Prof Charles McGruder at Western Kentucky University in the USA. A typical 24 hour data chart (22 July 2012) is shown in **Figure 1** with the telescope antenna pointed at the centre of the Milky Way (Sagittarius A).

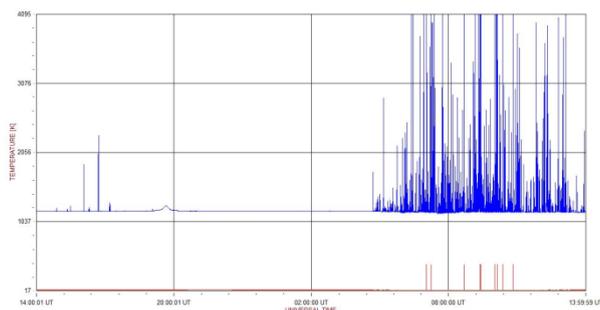


Figure 1

The flat section of the trace is the recording through the night time hours with the high amplitude spikes being mobile phone interference during the daytime. The transit of Sagittarius A across the beam of the telescope is clearly seen shortly before 20:00. By truncating the data we can get the plot of Figure 2.

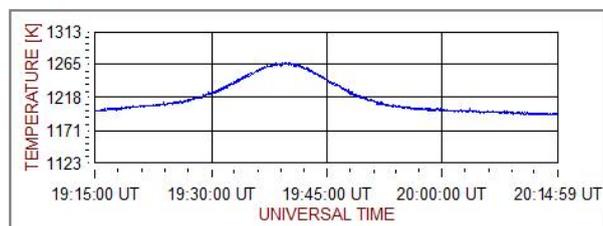


Figure 2

2. Indlebe Enkulu Radio Telescope:

This telescope is now in the final stages of construction. **Figure 3** shows a set of four antennas undergoing final testing before assembly onto their booms for positioning on the tower. Our plan is to have construction completed by the end of 2012.



Figure 3

3. Phased Experimental Demonstrator 2 (PED2):

After much deliberation we decided to completely refurbish the two parabolic reflectors and mounts. This is currently underway.

3. Multifrequency Interferometer Telescope for Radio Astronomy (MITRA):

The new antenna design has now been fully tested and assembly is underway. Master's student, Dominique Ingala, is working on this project with several BTech students working under him. **Figure 4** shows Dominique with two of the sixteen antennas in the communications laboratory.

Figure 5 shows a frequency synthesiser being tested in the laboratory. This will be used in both the MITRA and Indlebe Enkulu radio telescopes to generate the local oscillator in the receiver. The synthesiser was designed and constructed by Peter Morris for his BTech project.



Figure 4



Figure 5

If you have any comments or questions please feel free to contact me by return email. Should you wish to be removed from the mailing list, please send me an email with the words 'remove me'. Please feel free to pass this newsletter on to anyone not receiving it.

Gary J van Vuuren