



## NEWSLETTER – AUGUST 2014

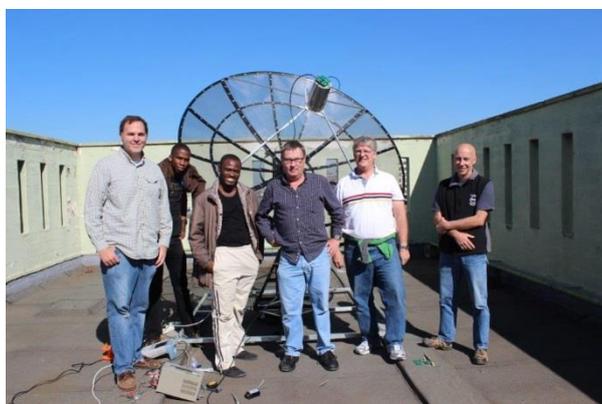
It is hard to believe that more than a year has passed since the last newsletter. We had a very busy 2013 and this newsletter will highlight some of the events as well as the latest RAT Centre news.

During 2013 we hosted a range of visitors from around the world, most notably Anthony Readhead, Robinson Professor of Astronomy, Caltech, and Director of the Owens Valley Radio Observatory.

Two papers were presented at the IEEE Africon 2013 conference in Mauritius during September. While in Mauritius we also participated in a workshop with Prof Girish Beeharry and his team. The topic of discussion was the MITRA telescope.

### Phased Experimental Demonstrator 2 (PED2):

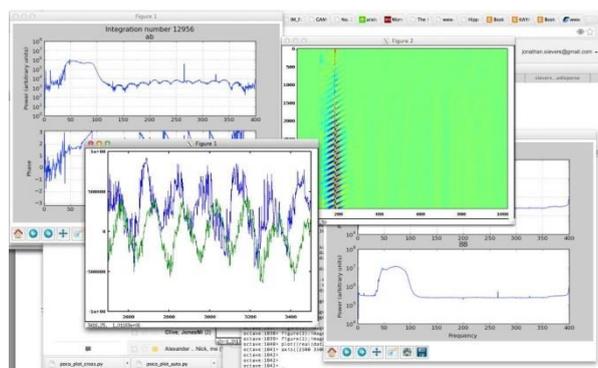
During the week 7<sup>th</sup> to 11<sup>th</sup> July 2014 we collaborated with the UKZN Astrophysics and Cosmology Research Unit (ACRU) to conduct a radio frequency interferometry experiment. We installed the two PED dishes that were donated to us by SKA SA, on the roofs of the S7 and S9 tower blocks at DUT. The antennas were coupled as an interferometer with a baseline distance of approximately 50 m. The correlation was implemented using a ROACH 1 correlator on loan from SKA SA.



**Figure 1**

**Figure 1** shows (L to R) Dr Jon Sievers (UKZN ACRU), two UKZN ACRU students, Stuart MacPherson (DUT), Prof Jeffrey Peterson (Carnegie Mellon University, USA) and Gary van Vuuren (DUT). The picture was taken by Dr Cynthia Chiang (UKZN ACRU).

**Figure 2** shows the first results of the experiment obtained on Friday 11th July when fringes were successfully detected off the Sun. These are shown in the plot with the green background. The fringes result from the interference pattern generated when the signals from the two antennas are multiplied together in the correlator.



**Figure 2**

This is the **first successful radio interferometry experiment** conducted on the DUT campus.

### Multifrequency Interferometer Telescope for Radio Astronomy (MITRA):

The MITRA array at DUT is now complete while the array at the UOM in Mauritius is also nearing completion. **Figure 3** shows the array at DUT with the two banks of eight antennas. In the centre are two solar panels and housings for electronics.



**FIGURE 3**

Some more big news is that we have been donated two 4,6m Andrew parabolic dish antennas and we plan to set them up as a two element interferometer at some future date. **Figure 4** shows one of the new parabolic reflectors.



**Figure 4**

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