



### NEWSLETTER - JANUARY 2010

As this is our first newsletter I thought it important to give a little background as to what the Indlebe Radio Telescope is all about.

The idea to build a radio telescope was born in 2006 and is the brainchild of Stuart MacPherson. Timed to be operational by the IYA (2009) the telescope saw first light on 28 July 2008 and since then has undergone many improvements. It is now a fully operational, calibrated transit radio telescope operating at 1420 MHz.

It was never the intention for the telescope to do primary research but rather one that can achieve reasonable results while providing opportunities for both undergraduate and postgraduate students to do project work. Even before construction began many potential problems were identified most of which are due to the location of the telescope.

All work to date has been done by students with several undergraduate projects completed and 4 masters' projects currently underway. Two of these are due for completion during 2010. Projects cover all aspects of the telescope, from the design and construction of low noise amplifiers to the position control of the telescope. We invite any students interested in doing project work to contact us.

We have had very good cooperation from other engineering departments within the Durban University of Technology. For example, the Department of Mechanical Engineering was responsible for the mechanical design and construction and we are particularly proud of the composite structure of the primary reflector

(dish). It is composed of eight petals bolted together and mounted on a galvanized steel support frame. The Department of Surveying assisted in the calibration of the elevation position of the dish.

#### Ongoing work:

- At present the primary reflector is locked at the zenith position while the drive motor is being replaced. The new positioning system will incorporate a 100:1 gearbox allowing for a better pointing accuracy to be achieved.
- The CANBus based in-house designed positioning system is being replaced by an ADROIT supervisory control and data acquisition (SCADA) package controlling an OMRON programmable logic controller (PLC).
- A weather station is being installed and it is planned to make the data available on the website.
- A new front end for the receiver is being installed.
- A webcam is also going to be installed.

In the next newsletter I look forward to telling you about **INDLEBE ENKULU**.

For more details please visit the Indlebe website: <http://indlebe.dut.ac.za/>

If you have any comments or questions please feel free to contact me by return email.

Gary J van Vuuren