



Communication and Marketing Department
Isebe loThungelwano neNtengiso
Kommunikasie en Bemerkingsdepartement

Private Bag X3, Rondebosch 7701, South Africa
Welgelegen House, Chapel Road Extension, Rosebank, Cape Town
Tel: +27 (0) 21 650 5427/5428/5674 Fax: +27 (0) 21 650 5628

www.uct.ac.za

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UCT led consortium to build first regional data node of national cyberinfrastructure

The Department of Science and Technology (DST) announced on Tuesday that it has approved a proposal by a Western Cape consortia of institutions, led by the University of Cape Town, to establish a Western Cape Data Intensive Research Facility (DIRF), as part of DST's National Integrated Cyberinfrastructure System (NICIS).

The consortium includes the University of the Western Cape, the Cape Peninsula University of Technology, Stellenbosch University, the Square Kilometre Array (SKA) South Africa project, and the new Sol Plaatjie University in the Northern Cape, close to the location of the MeerKAT telescope and the site for the SKA.

This consortium will establish and operate a data-centric high-performance computing facility for data intensive research focused primarily on the high priority research challenges of astronomy (with particular focus on the SKA project) and bioinformatics and related clinical research.

"This Data Intensive Research Facility will be a platform for developing innovative approaches to research with big data that will enable South African researchers in astronomy and bioinformatics to compete with the best in the world," says project lead Professor Russ Taylor, who is an SKA Research Chair at two of the Consortium Universities (UCT and UWC) and Director of the new Inter-University Institute for Data Intensive Astronomy.

This facility will serve as a tier 2 node (regional) of the greater cyberinfrastructure system which will include national infrastructure (tier 1), regional infrastructure (tier 2) and institutional infrastructure (tier 3). All three tiers are proposed to be integrated to develop national capacity for the management of big data in major scientific projects.

"The Western Cape Data Intensive Research Facility is the first regional data node in the national integrated cyberinfrastructure proposed by the Department of Science and Technology," says Dr Dale Peters, interim director of UCT *eResearch.

“The award will leverage the considerable investment made by UCT in data centre capacity and eResearch expertise towards the establishment of a regional consortium that will drive the transition of research practice and develop support services for data intensive research.”

The Consortium will – in collaboration with South African academic, government and private sector and international collaborators and partners – undertake technical research and development programmes for:

- Development of precursor global SKA SA regional science and data centres;
- Development of a prototype African Data Intensive Research Cloud technologies;
- Portals and software platforms and tools for research and analytics on big data;
- Systems and solutions for research data management and open access; and
- Federation of the tier 2 facility with tier 3 infrastructures at collaborating institutions and with tier 1 national services and infrastructure within the Data Intensive Research Initiative of South Africa (DIRISA).

“The University of Cape Town is an international leader in the field of astronomy and bioinformatics. However, both fields are severely challenged by an onslaught of data from new sensor technologies,” says Professor Danie Visser, Deputy Vice Chancellor for Research and Internationalisation at UCT.

He adds: “During the course of this year, the MeerKAT telescope will begin to produce data sets that must be processed and mined for science. In bioinformatics, the growth of data from rapidly advancing gene-sequencing technologies drives a similar data problem. A data intensive research facility designed and operated by a team of researchers and eResearch specialists is essential to enable discovery in this new era of research.”

Currently, NICIS consists of the Centre for High Performance Computing, the South African National Research Network and the Data Intensive Research Initiative of South Africa (DIRISA). These are all managed by the CSIR Meraka Institute.

*Note for journalists: eResearch is the combination of support services that work with researchers to provide advanced computing solutions and high performance computing resources to research in the age of big data.

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Issued by: UCT Communication and Marketing Department

Elijah Moholola

Head: Media Liaison
Communication and Marketing Department
University of Cape Town
Rondebosch
Tel: (021) 650 5674
Fax: (021) 650 3780
Cell: (083) 981 7770
Email: elijah.moholola@uct.ac.za
Website: www.uct.ac.za

