Monday Paper

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High-performance computing centre on the cards for SA

South Africa's first high-performance computing centre is on the cards and destined for the Western Cape.

Initially set up as a partnership between UCT and the Council for Scientific and Industrial Research (CSIR), the project now includes other higher education institutions like the University of the Western Cape (UWC).

Known, as "deep computing", high-performance computing has enormous value for scientific and technological innovation, and has a global impact on industries and economies. It is a technology that can also be used to address problems of the developing world.

Last week, computational scientists from across South Africa met at the Breakwater Lodge, V&A Waterfront, to discuss the proposed project. International experts from the UK's HPCx centre and Canada's HPCVL addressed local scientists, along with the international experts from major IT companies such as IBM, HP, INTEL, AMD and APPLE.

The proposed multi-million rand Centre for High-Performance Computing (CHPC) will be used to meet scientific and technological challenges facing South Africa by providing cutting-edge, high-performance computational tools relevant to national research goals.

The centre will house state-of-the-art high-performance computing equipment as well as high-level scientific computing expertise in a vibrant intellectual atmosphere that should also attract and retain excellent scientists and innovators in the country.

It is anticipated that the centre will also serve a range of social interests from health to environmental sustainability, climate analysis, disaster forecasting, behaviour modelling for social integration, as well as the development of small and medium business enterprises.

Among the scientific mega-projects it will be able to support are the National Biotechnology Network (NBN), the proposed Square Kilometre Array (SKA) as well as Global Earth Observation (GEO) initiatives.

The technical resources and expertise in the CHPC will be available to academic researchers across the country, including the new Department of Science and Technology's Centres of Excellence, government departments and local industries.

UCT's Associate Professor Kevin Naidoo, UCT, chair of the CHPC Interim Steering Committee, commented: "In this millennium we will see the use of computers become critical in designing pharmaceuticals, to solve problems such as malaria and AIDS, through to predicting drought and preventing crop failures. High-performance computing is now being positioned at the centre of innovative technologies. The impact of design through scientific computing on economies driven by innovation will be immeasurable.

"We have already seen advances in computer-aided design resulting in the complete design and initial testing of a

complicated aircraft such as the Boeing 777, done soley on computer. The considerable existing strengths in scientific computing at various research institutes in South Africa form a large pool of expertise on which we will base the establishment of a viable centre of expertise in high-performance computing.

He concluded: "The creation of a national Centre for High Performance Computing will permit South African scientists to be active at the cutting edge of their respective research disciplines, within a vibrant intellectual atmosphere. The CHPC's linking research and innovation will be felt not only in the university laboratories but in the wider South African economy."

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