

New Frontiers in Polar Ice Core Research

Dr Ross Edwards

7:00 pm, Monday 21st March 2011, Bankwest Lecture Theatre, Building 200A
Curtin University, Bentley

This lecture is in honour of Em Prof John de Laeter, Curtin University who passed away recently. Prof de Laeter made many notable contributions to science, both internationally and in WA. He was instrumental in the establishment of Technology Park Bentley, the renowned Science and Mathematics Centre at Curtin University, Scitech Discovery Centre, and the Gravity Centre at Gingin. His scientific achievements included measuring the atomic weight of twelve elements, mapping the geological ages of many regions of Western Australia and demonstrating the potential of an African rock outcrop to contain radioactive material and hence store nuclear waste.

Studies of impurities preserved in the polar ice caps have revolutionized the understanding of Quaternary climate variability and associated changes in atmospheric composition. These records have also revealed the extent of human impacts on the atmosphere and elemental cycles during the past 200 years, "the Anthropocene". Recent developments in analytical methods have fundamentally altered this research, with previously unimaginable detection limits and automation resulting in a new wave of data. Here, Ross presents the latest developments in ice-core research and global efforts to understand the past and future of the earth system.

Ross Edwards is a Senior Research Fellow who joined Curtin's Imaging and Applied Physics department from the United States Desert Research Institute in 2010. Ross is an ultra-trace environmental chemist whose research focuses on the input of ultra-trace chemical species and nanoparticles to the environment. His expertise ranges from the analysis of polar icecores by inductively coupled plasma mass spectrometry to the ultra-trace analysis of black carbon nanoparticles (soot). As an inventor, he has pioneered new analytical methods and created equipment that has allowed the continuous analysis of ice cores at the parts per quadrillion level and the routine ultratrace analysis of soot in water.