Dr Lindsay Pender

The inaugural awardee of this prestigious prize was Dr Lindsay Pender, who was awarded at the AMSA2009 conference in July 2009 in Adelaide.

Submitted Nomination for Lindsay for this Award

We would like to nominate Lindsay Pender for this award. Lindsay has BSc (with honours) and a PhD, both in physics and from Monash University. After university he completed a postdoctoral fellowship in Canada and then took up a post at ANU. He joined CSIRO in 1985 and has since worked tirelessly to improve our capacity to extract information from the ocean. His list of contributions is impressive but it does not tell the whole story. Lindsay Pender has *really* made a difference. The quality and depth of his commitment has ensured that many researchers have brought back the data they need from many research voyages. We understand much more about our oceans thanks to Lindsay.

Lindsay Pender has contributed to many, many aspects of our research over the years. From his understanding of the data needs of the research community and by designing and building the instrument packages, their interfaces and writing the software he has constructed the right tools for us to use. Of particular note has been his been his involvement with the development of innovative methods to extract more data from our research cruises. Based upon a simple but commercially available package (SeaSoar from Chelsea Instruments) he has developed Australia's considerable capacity for obtaining oceanographic data using a towed vehicle. This capability has revolutionized our ability to measure the ocean's properties at appropriate spatial scales.

Developing towed vehicles (bunyips) at CSIRO

During the development phase (1985-1988) Lindsay produced a graphical user interface for the control of the experimental towed vehicles, their flight and status information and the scientific data. He interfaced the display and control computer systems to the deck unit and then interfaced the various analogue channels originating from deck sensors (e.g. for cable tension) and developed a digital servo system for the stable control of the SeaSoar vehicle. As part of the system he developed a unique bottom avoidance system. He designed and developed an efficient storage of the very large data sets originating from Seasoar and wrote many of various communication, electronics and software manuals. He assisted in the design of analogue electronics to interface to Bunyip sensors. Lindsay had a senior role in the sea trials of the Bunyip/SeaSoar system and the first scientific use of the Bunyip/SeaSoar system during RV *Franklin* cruise in 1987.

During the period from 1988-1993 Lindsay wrote and rewrote code during the transition across a huge range of platforms (from DEC PDP-11 to Sun SPARC station to PC) and languages (FORTRAN to C++ and JAVA). He developed better data analysis and visualisation software, software for: the detection of bad data, automatic pressure calibration, to transfer the SeaSoar data to NetCDF and Matlab formats. He designed a micro-processor based electric motor controller and developed software to drive the SeaSoar wings. In his capacity as voyage manager or electronic

support Lindsay continues to participate in voyages using SeaSoar. His commitment to the successful use of this instrument is legend.

From 1996 to 2001 Lindsay lead a team developing and implementing new software for research vessel data acquisition and processing. He also worked in the Divisional Data Centre as a scientific programmer and software development team leader, and continued his involvement with numerical modelling. As the Divisional Data Manager Lindsay oversaw the development of centralized custodianship of all CMAR data and which made these data available to CSIRO staff, other registered users and the public across Australia and around the world through a range of web based and custom build data management tools.

From 2003 to present Lindsay has managed and programmed for the Marine National Facility Data Acquisition and Processing Group. Simultaneously he managed the CMAR Ocean Engineering Group responsible for instrument design, mooring design and construction. In this role he has been pivotal in the development of IMOS moorings around Australia and experimental moorings deep in the Southern Ocean. Lindsay designed moorings that were much lighter than traditional systems, an innovative approach that has enabled deployments from vessels far too small for conventional moorings. This has enabled mooring programs in areas that would otherwise still be data free. Lindsay is a respected figure within the Australian marine research community allowing him to act as an *honest broker* in the development of the data delivery system for IMOS and the Australian National Mooring Network.

At times Lindsay has been visionary, developing capability where no one has gone before (e.g. Southern Ocean PULSE mooring). While Lindsay is characteristically self effacing he has been pivotal, technically, in our quest to understand our nation's unique ocean environment.
*Peter Thompson, Simon Allen, Tom Trull, Anya Waite, Mark Baird, Iain Suther*sor theoreticians.