Lighthouse Delta 2013

24 - 29 November, KIAMA, Australia



Shining through the fog

The 9th Delta Conference of teaching and learning of undergraduate mathematics and statistics

Proceedings

Editors: Deborah King, Birgit Loch, Leanne Rylands

LIGHTHOUSE DELTA 2013 CONFERENCE

Proceedings of the 9th DELTA conference on the teaching and learning of undergraduate mathematics and statistics

Conference held on the 24-29 November 2013, in Kiama (New South Wales, Australia), Conference Chair: Cristina Varsavsky Editors: Deborah King, Birgit Loch, Leanne Rylands Production Editor: Nancy Van Nieuwenhove

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FOREWORD

The first of the Delta series of conferences on the teaching and learning of undergraduate mathematics and statistics was held in Brisbane, Australia, in 1997. A Delta conference has been held every second year since then. All are held in the southern hemisphere and so far they have been held in South Africa, New Zealand, Argentina and Australia.

Lighthouse Delta is the ninth conference in the Delta series, held from the 24th to the 29th of November 2013 at the Pavilion, in Kiama, a small coastal town with a population of approximately 13,000 located 120km from Sydney.

The conference theme, "Shining through the fog" encapsulates the challenges faced by those with responsibilities for building the mathematics and statistics capacity needed for the 21st century. Indeed, it is a challenge. In some countries, including Australia, secondary school students are turning away from mathematics in their final years, yet we must do our best to prepare them for a technological world in which science, technology, mathematics and engineering are ever more important.

How do we make our way through the fog created by the many possibilities for teaching and engagement? The variety of technologies available to us, the many types of assessment, what to do online and what not, the use of e-resources, the many different approaches to teaching; all these provide many possibilities and hence there are many important decisions for those of us teaching mathematics. The passion, enthusiasm and expertise of the many *Lighthouse Delta* presenters can only help to improve our knowledge, to assist us to make good decisions and to improve tertiary mathematics teaching in the southern hemisphere and beyond.

The presentations at *Lighthouse Delta* include those from the authors of the papers in these proceedings, those whose papers appear in the Special Delta Issue of the *International Journal* of *Mathematical Education* in *Science* and *Technology* and many who chose just to give an oral presentation or a poster presentation. The *Lighthouse Delta* presenters came from more than a dozen countries.

These proceedings contain papers presented at *Lighthouse Delta*. Each submission was double blind reviewed by a minimum of two reviewers.

One of the organising committee members is working on a permanent web presence for Delta and it is hoped to have the previous Delta proceedings available on this site as well as these proceedings.

We give our heartfelt thanks to the various committees who made *Lighthouse Delta* happen, to our administrative support, the reviewers and to Cristina Varsavsky, who oversaw and coordinated it all. We also thank the International Steering committee for keeping Delta going.

We hope that you find *Lighthouse Delta* enjoyable and stimulating, and that you also have some time to enjoy the lovely Kiama surroundings.

Lighthouse Delta Proceedings Editorial Team Deborah King, Birgit Loch and Leanne Rylands,



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