

Professor Patrick Hesp

Distinguished NewZealand Geographer Award and Medal 2017

Nominated and cited by Associate Professor Michael Hilton, Otago Branch

Citation

Patrick Hesp has played a major international role in his dedication to publishing in geography, administrative roles, and public education outreach in New Zealand. – He received his BA and MA in Geography at Massey University, and his PhD from The University of Sydney in Geography and Geomorphology. At the University of Sydney he was awarded the first, and only PhD scholarship ever provided to a student by the Soil Conservation Service of NSW to fund a portion of his PhD research. Professor Hesp is currently the Strategic Professor of Coastal Studies at Flinders University, and formerly the Chair (and now Emeritus Professor) of the Department of Geography and Anthropology at Louisiana State University.

He has an international reputation in geomorphology and physical geography, and is recognised as one of the world leaders in coastal dune dynamics and geomorphology. His current publication record stands at 260 (220 refereed) publications including 6 books, 29 chapters in books, 115 refereed journal articles, and 10 edited volumes, and continues unabated to the present day

In terms of impact in the international literature and in his discipline, Patrick has several of the most cited papers in the Web of Science in the subject areas of coastal dunes, incipient and established foredunes, blowouts, and transgressive dunefields to name some. The surfzone-beach dune interactions model he produced in his PhD is the most widely cited beach-dune interactions model in the coastal literature; it is the first most cited paper in “beach-dune interactions” in the Web of Science and has been for many years, and the model is widely used in coastal textbooks. In the past 30 years, occasionally with colleagues, he has written *the* seminal review papers and chapters on coastal dune systems, geomorphology and morphodynamics, including a comparison of dunes in tropical versus temperate regions, disturbance in coastal dune systems, global reviews of dune coasts and dunes of the world, a review of airflow over dunes, and a review of coherent flow structures in aeolian geomorphology. Much of this work utilises research and/or examples from NZ. With Dr Sergio Dillenburg he edited the first book on the Holocene geology and geomorphology of the entire coastal barrier systems of Brazil. Patrick holds the belief that if possible, and when appropriate, the use of humour to educate is an essential ingredient in teaching and, occasionally, publishing. His review of edge waves is quite possibly the shortest article ever published in a refereed journal (one and half pages including references!) and also one of the only fully referenced poems published in an academic journal.

His H-index continues to rise rapidly and currently stands at 40. He has 13 articles with over 100 citations, and 2 articles with over 400 cites, a significant number for a small sub-disciplinary area with few practitioners. His ResearchGate score is currently 36.2 which is 95% higher than all ResearchGate members. In 2013 he was awarded a DSc. from Massey University. The DSc. award is designed to give formal public recognition to eminent scholars who have made substantial, original, sustained and distinguished contributions to scientific knowledge **beyond** that required for a Ph.D., and Patrick clearly has made an outstanding contribution to science and geography.

In recognition of his research status, Patrick was awarded the Richard J. Russell award by the American Association of Geographers “in recognition of [his] contributions to coastal geography”, the first non-north American to receive the award. He was awarded a named professorship (the R.J. Russell Professorship) at LSU in 2007, the Louisiana State University Alumni Association Faculty Excellence Award in 2008, and “Rainmaker” status (one of the top 100 researchers at LSU) twice (2008, 2009). In 2011 he was awarded the LSU Distinguished Faculty Award, one of only five faculty at LSU to receive the award for “a sustained record of excellence in teaching, research and service”. In 2011 he received a Fulbright Fellowship, and also the Secretary’s Partners in Conservation Award from the Obama Government for his research on submerged palaeo Indian sites in the Gulf of Mexico. Most recently in 2017, he was appointed a China Academy of Science (CAS) Presidents International Fellowship Initiative (PIFI) Visiting Scholar. He has also been requested to provide multiple keynote addresses at international conferences including the International Coastal Dunes Symposium in Brazil, the International Conference on Management and Restoration of Coastal Dunes in Spain, the NSW Coastal Conference, the Netherlands Centre for Coastal Research National NCK Days conference, and the Australian Earth Sciences Convention.

Patrick has a superb research funding record and has been awarded \$6.5 million in funds to date. He has conducted research all over the world, and been awarded several visiting fellowships including ones to Israel, South Africa, Namibia, France, China, Brazil, Mexico, Italy, and Holland.

In terms of his contributions to geography and geomorphology, and science in general, he has made multiple discoveries in his career to date including: (i) the relation between shadow dune morphometrics and plant morphology; (ii) surfzone-beach-dune interactions and a model of these interactions and dunefield evolution; (iii) jet flows and dynamics in trough blowouts, including the nature of topographic flow steering in such blowouts; (iv) trough blowout morphometrics; (v) linear dunes can migrate laterally, (vi) the relationships between faunal abundance and species richness and nekton size and plant species type; (vii) the nature of speed-down and speed-up within vegetation on foredunes; (viii) advancing studies on flow steering and jet flow over foredunes including the first computational fluid dynamics (CFD) modelling of topographic steering and jet flow over dunes; (ix) the dunes on Saturn’s moon, Titan, may be linear (rather than transverse) due to the ‘sticky’ nature of the sediments (*detailed in a paper in Nature*), and (x) the existence and species of phytoplankton in South Australian surfzones.

Professor Patrick Hesp is highly regarded for his teaching abilities, and has graduated 4 Honours students, 17 Masters students and 6 PhD students in his career to date. Several of these graduated under his supervision while he held posts at Massey University. He has also made significant contributions to the community and to public education. He produced a booklet on coastal dunes and co-wrote with Dr. Karen Bryan (University of Waikato) a CD on NZ sandy coasts. Copies of the booklet and CD went to every High School in NZ. He also edited and wrote articles for the NZ (and Australian) edition(s) of the Geographica Atlas.

In terms of his contribution to NZ geography, Professor Hesp has spent several years teaching in NZ and fostering students, published multiple articles on NZ coasts and coastal geomorphology, has made major educational contributions to NZ High School geography (the Coastal Dunes Bulletin; a CD on coasts), and has throughout his career continued to pursue collaborations with New Zealand geographers. He continues to collaborate with New Zealand academics and participate in fieldwork in New Zealand.

From this evidence above, and his sustained and large number of publications in the coastal (and some desert) dunes field, Patrick can claim to be one of the foremost coastal dune experts in the world. Moreover, his support for emerging researchers and for post-graduate students has been exceptional. He is enthusiastic about Geography and his science and has always been keen and willing to share that enthusiasm.