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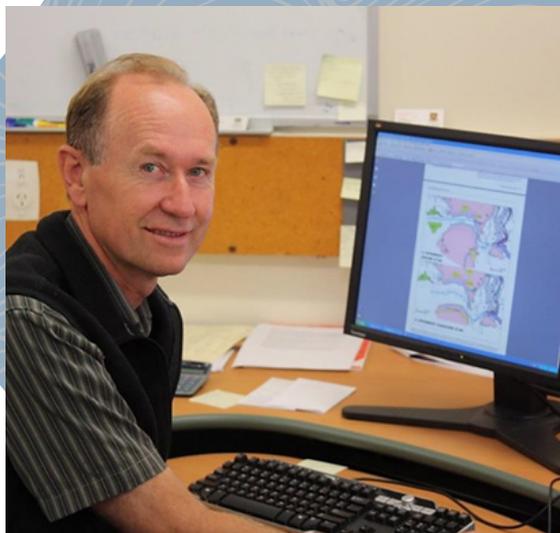
Retirement of Professor Peter Kamp

University of Waikato

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Petrus Johannes Jozef Kamp, or simply Peter Kamp to his many friends and colleagues, retired on 30 June 2020 after 43 years on the Earth Sciences academic staff in the School of Science at the University of Waikato. Out of Edmund Rice College high school in Rotorua, Peter came to Waikato University in 1972 to undertake a BSc degree in Earth Sciences, and followed this up in 1975 with MSc research on the stratigraphy, sedimentology and paleoenvironments of the Pleistocene conglomerates and associated tuffaceous and fossiliferous mudstone deposits spectacularly exposed along the Kidnapper's cliff section on the south coast of Hawke Bay between Clifton and Black Reef (Kamp 1978). After being made a Junior Lecturer in Earth Sciences in 1977, he completed his MSc degree and soon after embarked on a novel PhD study for the day, soon after the 'birth' of plate tectonic theory, of attempting to unravel the Cenozoic tectonic development of New Zealand in the southwest Pacific region (Kamp 1984). During his PhD, in 1980, Peter applied for and won a tenured Lectureship in Earth Sciences, and thereafter over the years he rose quickly through the academic ranks to become a full Professor in Earth Sciences in 1999.

Peter's teaching role over more than four decades covered mainly the fields of stratigraphy, sedimentology, structure/tectonics, sedimentary basin analysis and petroleum geology at second and third year undergraduate (BSc) and post-graduate (MSc) levels. His extremely wide personal knowledge of New Zealand geology enabled him to bring these topics alive through his many own field and research experiences, with well-illustrated examples in lectures and 'real-world' New Zealand practical exercises in laboratory classes. Perhaps Peter's most persuasive teaching contribution was during the many dozens of field trips and field courses that he was associated with or led to places like the Port Waikato, North Taranaki, Hawke's Bay and Whanganui regions. He always emphasised the need for both appreciating and documenting in detail the nature, context and relationships of rock units in the field, before returning to the analytical 'black boxes' back in the laboratory. For many students it was Peter's field tuition that provided the catalyst for cementing their interest to pursue geolog-



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ical science as a profession and for going on into MSc and/or PhD research programmes. He was Chief Supervisor of 57 completed MSc theses and 11 PhD theses, and a second supervisor in numerous other completed theses in Earth Sciences.

Peter's standout contribution in the School of Science over at least the past 25 years or so has undoubtedly been in establishing and leading very substantial research groups and in attracting very significant funding to support them. In this time, through extremely hard work, discipline, will power, and his strong ability to develop and convey ideas effectively in writing and orally, he has attracted about \$25 million of research funding from both contestable government (e.g. FRST, MBIE, MSI) and private sources, a record for any academic at the University of Waikato. The funding allowed Peter to supervise numerous post-graduate students and early-career researchers, to mentor them and employ some, and to provide opportunities for them to advance their careers and ultimately take up positions in academia, geological surveys and geo-resource industries, both in New Zealand and overseas.

Peter established and led two contrasting research groups at Waikato. The first, 'The Sedimentary and Petroleum Geology Research Group', was established in 1994 and encompassed his personal principal geological research interests of understanding the exhumation history in orogenic belts, and the thermal history and stratigraphic architecture and fill of sedimentary basins. It involved projects in the fields of geochronology, low-temperature thermochronology by U-Pb, fission track and U-Th/He dating methods, stratigraphy (including sequence stratigraphy), sedimentary geology (including basin analysis) and tectonics, many of which were of particular relevance to petroleum exploration companies active in New Zealand with whom Peter had longstanding interaction. To achieve innovative goals in these fields, Peter developed new research facilities and instrumentation at Waikato, including a laboratory for fission-track dating and for U-Th/Helium dating, one of only ten globally that produce credible results. This work led to strong links and active research interaction and joint projects with collaborators in leading overseas geoscience groups and institutions, notably in China, but also in USA (Penn State), Germany (Tubingen, Bremen Universities) and UK (Durham University).

Peter's second research group, 'The Industrial Energy Efficiency Research Group', was established in 2003 and led by him until 2017. While the theme was outside his immediate research area of expertise, the effort demonstrates his willingness to take research risk, to have the confidence to step into a different discipline area (engineering), to apply sound science leadership skills, and to work with and motivate emerging researchers. The initiative helped the development and research recognition within the School of Engineering at Waikato in the area of industrial energy efficiency, ensuring that it achieved impact for the New Zealand industry processing sector, particularly in dairy processing capacity, energy efficiency and greenhouse gas emissions reduction. Notably, apart from a few instances, Peter did not add his name to the many publications arising from the Energy Efficiency Group because he was 'not an engineer'.

To date, Peter has authored or co-authored 125 refereed journal articles and book chapters, including papers in *Nature* (e.g. his very first publication was in 1980 during his PhD research; *Nature* 288:659-664), *Science*, *PNAS*, and *JGR*, 28 refereed conference proceedings papers, and 19 substantive technical reports. Since about 2006, most of the latter have been published as New Zealand Petroleum Reports (PRs) with the Ministry of Economic Development (Crown Minerals) in order to make the vast amount of information and data arising from his 'sedimentary' research group available to others in a timely manner. For example, the Kamp et al. (2015) Petroleum Report PR4885 (<http://hdl.handle.net/10289/9286>), 335 pages long, presents a robust model of the Cenozoic evolution of the modern plate boundary system through New Zealand, accompanied by paleogeographic maps depicting the changing topography and basin development in the New Zealand region in 1 million year steps for the last 65 million years. It is also noteworthy that Peter has been a co-author on two of the excellent QMAP geological bulletins (Taranaki, Hawke's Bay) published by GNS Science. Incredibly, Peter is currently seeing through to final publication no fewer than 26 geological maps at a scale of 1:50,000 from the pioneering and very detailed stratigraphic studies and mapping he and his students have undertaken in the Whanganui, Taranaki, King Country, and Hawke's Bay basins.

Outside of Earth Sciences at Waikato, Peter has made substantial contributions to a number of University of Waikato committees, including the Academic Board, the Honours Committee of the University Council, the University Research Committee, and the Library Committee. In these administrative roles Peter was always extremely well prepared, articulate, and supportive, carrying with him an unwavering ethos of respect for the people around him, but at the same time being unafraid to speak out when he felt that was needed. He served as Deputy Dean in the Faculty of Science and Engineering from 2001–2007, and was for 15 years (1992 - 2007) Associate Dean (Research) in the Faculty. In this capacity he had the onerous task of running the first two rounds of PBRF assessment for the Faculty. Wider afield, Peter has a record of service on competitive research funding panels both in New Zealand (e.g. Marsden, FRST, Energy and Minerals Advisory group, National Energy Research Institute) and abroad (e.g. European Science Foundation), and in journal editorial roles (e.g. *NZJGG*, *Island Arc* journal). He has held Visiting Fellow/Professor positions for short periods at each of the University of Melbourne (1986/7 and 1992/3), Kyoto University (1993), the Free University of Amsterdam (1997), and Utrecht University (2015). He is an active member of the Geoscience (formerly Geological) Society of New Zealand (including having convened national conferences in 1988 and 2019, and led numerous conference field trips), the New Zealand Society of Soil Science, the Australasian Quaternary Research Association, the Geological Society of America, and the American Geophysical Union. Over the years Peter has received a number of awards, including (with Mark Tippett) 'Best Paper of the Year' in the journal *Earth Surface Processes and Landforms* (1995),

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a University of Waikato Staff Merit Award (1996), the prestigious McKay Hammer Award of the Geological Society of New Zealand (2002), and in 2017 Lifetime Achievement Awards from the Hamilton Science Excellence Awards Trust (Kudos) and the University of Waikato. Most recently, in the global citation analysis scheme developed by Ioannidis et al. (2019, <https://doi.org/10.1371/journal.pbio.3000384>), Peter was very highly ranked as lying within the top 1% of all researchers (almost 7 million) globally across all research fields, providing clear evidence of the major international impact his research has made in the geological sciences discipline.

A retirement function for Peter, attended by many present and past colleagues and research students, was held in the School of Science on Friday 26 June, a few days before his official retirement date. The accompanying photo shows the Dean of Science, Margaret Barbour, presenting Peter with a couple of farewell gifts: she holds a framed retirement certificate in which are embedded two large crystals of zircon and apatite, acknowledging Peter's research career interest in fission-track dating, while Peter holds a packaged drone he will use for capturing outcrop images in those otherwise inaccessible cliff rock exposures.



Having taken time to build and set up a brand-new office at home, it is very clear that Peter will continue to involve himself in his geological activities over the coming years. He has so much field and laboratory data tucked away in largely unpublished reports and in 'bottom drawers' that many more papers will be written 'part-time in retirement'. Also, at least until the end of 2020, he will continue to oversee the activities of remaining staff attached to his 'sedimentary group', and to assist with student supervision projects where applicable. Regrettably, at this stage it appears there is no planned replacement position for Peter, potentially leaving a huge gap in what has otherwise been a long-term and an extremely successful venture in Earth sciences at Waikato. On a brighter note, we can report that in late July the University of Waikato awarded Peter the honorary title of Emeritus Professor, a most thoroughly deserved accolade.

Selected publications

A selection only of six significant publications (with dois) involving Peter Kamp from within each of the four decades he has been on staff at the University of Waikato follows:

2019-2010 (selected six only)

- Lang K, Ehlers TA, Kamp PJJ, Ring U. 2018. Sediment storage in the Southern Alps of New Zealand: New observations from tracer thermochronology, *Earth and Planetary Science Letters*. 493:140-149.
<https://doi.org/10.1016/j.epsl.2018.04.016>
- van de Lagemaat SHA, van Hinsbergen DJJ, Boschman LM, Kamp PJJ, Spakman W. 2018. Southwest Pacific absolute plate kinematic reconstruction reveals major Cenozoic Tonga-Kermadec slab dragging. *Tectonics*. 37:2647–2674. <https://doi.org/10.1029/2017TC004901>.
- Lindow J, Kamp PJJ, Mukasa SB, Kleber M, Lisker F, Gohl K, Kuhn G, Spiegel C. 2016. Exhumation history of the Amundsen Sea coast, West Antarctica, revealed by low-temperature thermochronology. *Tectonics*. 35:2239-2257.
<https://doi.org/10.1002/2016TC004236>
- Kamp PJJ, Tripathi ARP, Nelson CS. 2014. Paleogeography of Late Eocene to earliest Miocene Te Kuiti Group, central-western North Island, New Zealand. *New Zealand Journal of Geology and Geophysics*. 57:128-148.
<https://doi.org/10.1080/00288.306.2014.904384>.
- Furlong K P, Kamp PJJ. 2013. Changes in plate boundary kinematics: Punctuated or smoothly varying – Evidence from the Mid-Cenozoic transition from lithospheric extension to shortening in New Zealand. *Tectonophysics*. 608:1328-1342. <https://doi.org/10.1016/j.tecto.2013.06.008>.
- Wang E, Kirby E, Furlong KP, van Soest M, Xu G, Shi X, Kamp PJJ, Hodges KV 2012. Two-phase growth of high topography in eastern Tibet during the Cenozoic. *Nature Geoscience*. 5:640-645. <https://doi.org/10.1038/ngeo1538>

2009-2000 (selected six only)

- Furlong KP, Kamp PJJ. 2009. The lithospheric geodynamics of plate boundary transpression in New Zealand: Initiating and emplacing subduction along the Hikurangi margin, and the tectonic evolution of the Alpine Fault system. *Tectonophysics*. 474:449-462. <https://doi.org/10.1016/j.tecto.2009.04.023>
- Kamp PJJ, Vonk AJ, Bland KJ, Hansen RJ, Hendy AJW, McIntyre AP, Ngatai M, Cartwright SJ, Hayton S, Nelson CS. 2004. Neogene stratigraphic architecture and tectonic evolution of Wanganui, King Country, and eastern Taranaki Basins, New Zealand. *New Zealand Journal of Geology and Geophysics*. 47:625-644. <https://doi.org/10.1080/00288306.2004.9515080>
- Garver JI, Kamp PJJ. 2002. Integration of zircon colour and zircon fission-track zonation patterns in orogenic belts: application to the Southern Alps, New Zealand. *Tectonophysics*. 349:203-219.
[https://doi.org/10.1016/S0040-1951\(02\)00054-9](https://doi.org/10.1016/S0040-1951(02)00054-9)

- Kamp PJJ. 2000. Thermochronology of the Torlesse accretionary complex, Wellington, New Zealand. *Journal of Geophysical Research*. 105:19253- 19272. <https://doi.org/10.1029/2000JB900163>
- Kamp PJJ, Liddell IJ. 2000. Thermochronology of northern Murihiku Terrane, New Zealand, derived from apatite FT analysis. *Journal of the Geological Society*, London. 157:345-354. <https://doi.org/10.1144/jgs.157.2.345>
- Xu G, Kamp PJJ. 2000. Tectonics and denudation adjacent to the Xianshuihe Fault, eastern Tibetan Plateau: Constraints from fission track thermochronology. *Journal of Geophysical Research*. 105:19231-19251. <https://doi.org/10.1029/2000JB900159>
- 1999-1990** (selected six only)
- Kamp PJJ. 1999. Tracking crustal processes by FT thermochronology in a forearc high (Hikurangi margin, New Zealand) involving Cretaceous subduction termination and mid-Cenozoic subduction initiation. *Tectonophysics*. 307:313-343. [https://doi.org/10.1016/S0040-1951\(99\)00102-X](https://doi.org/10.1016/S0040-1951(99)00102-X)
- Naish TR, Kamp PJJ. 1997. Sequence stratigraphy of 6th order (41 ka) Pliocene-Pleistocene cyclothems, Wanganui Basin, New Zealand: A case for the regressive systems tract. *Bulletin of the Geological Society of America*. 109:978-999.
- Tippett JM, Kamp PJJ. 1995. Quantitative relationships between uplift and relief parameters for the Southern Alps, New Zealand, as determined by fission track analysis. *Earth Surface Processes and Landforms*. 20:153-176. <https://doi.org/10.1002/esp.3290200206>
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- Kamp PJJ, Green PF, Tippett J M. 1992. Tectonic architecture of the mountain front-foreland basin transition, South Island, New Zealand, assessed by fission track analysis. *Tectonics*. 11:98- 113. <https://doi.org/10.1029/91TC02362>
- Kamp PJJ, Turner GM. 1990. Pleistocene unconformity-bounded shelf sequences (Wanganui Basin, New Zealand) correlated with global isotope record. *Sedimentary Geology*. 68:155-161. [https://doi.org/10.1016/0037-0738\(90\)90125-D](https://doi.org/10.1016/0037-0738(90)90125-D)

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1989-1980 (selected six only)

- Kamp PJJ, Green PF, White SH. 1989. Fission track analysis reveals character of collisional tectonics in New Zealand. *Tectonics*. 8:169-195.
<https://doi.org/10.1029/TC008i002p00169>
- Kamp PJJ. 1987. Age and origin of the New Zealand Orocline in relation to Alpine Fault movement. *Journal of the Geological Society, London*. 144:641- 652.
<https://doi.org/10.1144/gsjgs.144.4.0641>
- Kamp PJJ, Nelson CS. 1987. Tectonic and sea-level controls on nontropical Neogene limestones in New Zealand. *Geology*. 15:610-613.
[https://doi.org/10.1130/0091-7613\(1987\)15<610:TASCON>2.0.CO;2](https://doi.org/10.1130/0091-7613(1987)15<610:TASCON>2.0.CO;2)
- Kamp PJJ. 1986. The mid-Cenozoic Challenger Rift System of western New Zealand and its implications for the age of Alpine Fault inception. *Geological Society of America Bulletin*. 97:255-281.
[https://doi.org/10.1130/0016-7606\(1986\)97<255:TMCRSO>2.0.CO;2](https://doi.org/10.1130/0016-7606(1986)97<255:TMCRSO>2.0.CO;2)
- Kamp PJJ. 1986. Late Cretaceous-Cenozoic tectonic development of the southwest Pacific region. *Tectonophysics*. 121:225-251.
[https://doi.org/10.1016/0040-1951\(86\)90045-4](https://doi.org/10.1016/0040-1951(86)90045-4)
- Kamp PJJ. 1984. Neogene and Quaternary extent and geometry of the subducted Pacific Plate beneath North Island, New Zealand: Implications for Kaikoura tectonics. *Tectonophysics*. 108:241-266.
[https://doi.org/10.1016/0040-1951\(84\)90238-5](https://doi.org/10.1016/0040-1951(84)90238-5)

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- Kamp PJJ 1978. Stratigraphy and sedimentology of conglomerates in the Kidnappers Group, Hawke's Bay. Unpublished MSc thesis, University of Waikato, Hamilton, New Zealand.
- Kamp PJJ 1984. Towards a model of the Cenozoic tectonic development of New Zealand. Unpublished PhD thesis, University of Waikato, Hamilton, New Zealand.