

























Dear Maxine,...
A Tribute to Maxine Pfannkuch
Recipient of the 2023 George Cobb
Lifetime Achievement Award
from the
Statistics Education Community

# **USCOTS 2023**

**COMMUNICATING** 

with about

DATA

#### To the Review Committee, 2023 George Cobb Lifetime Achievement Award in Statistics Education

It is our honour and privilege to nominate *Maxine Pfannkuch*, for the 2023 George Cobb Lifetime Achievement Award in statistics education. The criteria, "an individual who, over an extended period of time, has made lasting contributions with broad impact to the field of statistics education especially, but not limited to, the teaching and learning of college-level statistics", fits Maxine perfectly. We hope that this nomination letter and the attached messages of support will demonstrate how much people value the contribution that Maxine has made to statistics education, not just in New Zealand but in the US and around the world. Her impact has been truly international. Some committee members will also know Maxine. We hope that you will agree that 2023 would be an excellent year to be the first time that this Award recognised an individual from outside the USA and that Maxine would be ideal as the first such recipient. Her contributions have been deeply fundamental and have underpinned so much of current thinking in statistics education.

Giant that he was, George's impact on statistics education was truly global. George also valued Maxine – visiting her, for example, for a week in 2014. Internationally, Maxine has been a highly-influential statistics-education researcher. She was the lead writer for a path-breaking national schools-curriculum-framework of international significance. And she has developed a generation of statistics-teacher leaders in NZ through attracting and supervising a stream of graduate students (almost all practicing teachers), her long-standing graduate-course in statistics education, her generous mentorship and her many teacher-development workshops. Maxine is an award-winning university teacher whose pioneering statistical literacy course has been replicated elsewhere. As Editor of the *Statistics Education Research Journal* (SERJ) and similar capacities there is no one who has worked harder in a more hands-on way than Maxine to improve other peoples' papers and develop other researchers so that they too can have a more far reaching and beneficial impact on teachers and students in classrooms at all educational levels.

Maxine began her career at one of New Zealand's largest high schools (Avondale College), quickly rising to become a very successful Head of the Mathematics Department before going on to a role as a Secondary Mathematics Advisor for the Ministry of Education (teacher-development), and then a teacher-educator (Senior Lecturer at the Auckland College of Education) before embarking on her a career as an academic at the University of Auckland in 1994 and simultaneously starting her PhD (see the opening paragraphs of "Statistical Thinking in Empirical Enquiry").

Maxine's comprehensive end-to-end experience and knowledge of education has enabled her to connect dots and make contributions no one else could make. It has grounded all of her research in the desire to make a real difference for real teachers and real students in real classrooms. It is no accident that when searching for a first role model for educational research, in any area, that benefits teaching practice, the NZ Council of Educational Research chose Maxine Pfannkuch. The result was a 43-page 2014 paper by Rose Hipkins entitled "Doing research that matters: A success story from statistics education".

Before further describing Maxine's contributions to statistics education research we will talk about her national curriculum-framework development contributions. This will also put her research into perspective because Maxine's service to statistics education and its people, her personal teaching practice and her research, have always been synergistic with each acting to drive the other two forward.

Maxine's role in national school-curriculum-framework development goes back to her leading role in the writing group for what became the 1992 NZ Mathematics Curriculum, the statistical elements of which were themselves internationally acknowledged as ground-breaking reform; for example in keynotes at ICOTS 2002. But her most important contribution began when she was given the opportunity to be lead writer for the statistics strand of the new 2007 New Zealand Mathematics and Statistics Curriculum (Year-levels 1-13) and was the driving force behind everything done in it. To scope and flesh out a new curriculum under a very compressed time scale, Maxine assembled (of her own volition) a large support and brain-storming team of volunteers that included statistics-researcher academics, professional statisticians, teacher educators and developers, and leading

teachers. This was done under the auspices of the NZ Statistical Association and facilitated by Statistics NZ. The choice the group faced was between pushing reforms then and there, or waiting for another opportunity that might be 15 or 20 years down the track. The team decided to reform and there was then no looking back. Holes in the research base for how to do many innovative things well called for rapid research responses including the development of free, intuitive, visual and accessible software. So some of the research Maxine led was reactive, caused by immediate practical needs (followed by teacher development to spread the new practices widely). But particularly more recently, it has been forward looking to prepare for the next reform opportunities (coincidentally, a new curriculum round has just kicked off). The curriculum-framework Maxine led was a forward-looking statistics curriculum for K-12 students — a curriculum that emphasized statistical thinking, conceptual understanding, the heavy use of technology at senior levels and writing about findings at the expense of mechanical skills. Another feature was the teaching of resampling-inference to the large majority of all NZ high-school students from about 2013, the first large-scale implementations at this level following the national teacher-development "road trip" she initiated and led in 2012.

The NZ statistics curriculum has been recognised as world-leading. Renowned Cambridge University statistician (and "Professor of the Public Communication of Risk"(!)) Sir David Spiegelhalter said in a 2019 interview on NZ public radio: "New Zealand is the world leader for statistics education. In my book, I give full credit for stealing from New Zealand's way of teaching statistics in schools. It's quite extraordinary the progress that's made. .... And so I am full of praise and try to emulate many of the ways in which statistics education has been developed in New Zealand, which we are trying to get into much more [for] the UK system – based on real practical problems, problem-solving all the time; not just theoretical and abstract ideas.... And that down-to-earth approach is extraordinarily powerful..." There are similar statements, if a tad more measured, in his book "The Art of Statistics: Learning from Data" and by others, for example the 2013 official response by the Royal Statistical Society to the UK government's consultation on "Reform of the National Curriculum in England".

The New Zealand initiatives complement, very well, a lot of wonderful work done in the US. This is why Chris Franklin devoted 6 months to her Fulbright Fellowship project in NZ in 2014/15 "Comparing Practices in New Zealand and the United States" with the express purpose of "an important timely collaboration between the United States and New Zealand, countries prioritizing K-12 statistics curricula in their national standards, to advance the goal of 'statistical literacy for all'." She also talked about "immersion in the statistics education research being conducted in N.Z. at K-12 in areas of curriculum implementation, student learning, and assessment. The NZ model has global impact for other teacher preparation institutions in the U.S. and internationally."

But when they are talking about "New Zealand" in these ways, what they are really talking about is the fruits of Maxine's drive and leadership. Many have helped her, but that is how real leadership works. This work is never done. NZ is now engaged in yet another curriculum refresh with Maxine heavily engaged.

In the last quarter century Maxine has become an international leader in statistics education research. Locally she has led, supervised research-students on, or collaborated on, virtually all important statistics-education research to come out of New Zealand. Her 1999 International Statistical Review paper, "Statistical Thinking in Empirical Enquiry", largely emerged from Maxine's PhD research and has become a (perhaps the) touchstone paper for statistics-education researchers, scholars and reformers. With over 2,250 citations on Google Scholar it is almost certainly the most cited paper in Statistics Education. A follow-up chapter she wrote has over 330 citations. Her 2010 paper in the Journal of Statistics Education won the Journal's inaugural Best Paper Award. She has 80 research outputs on ResearchGate for which about 20 have more than 40 citations and 26 have more than 30. A presentation of 2010's "Towards more accessible conceptions of statistical inference", a RSS discussion paper in JRSSA, was the centrepiece for the Royal Statistical Society's celebration of the first ever World Statistics Day (20/10/2010) at the RSS headquarters – that together with the launch of their getstats site. The research she leads is primarily qualitative, the only way forward for uncovering the intricacies of how people are thinking. Research is driven by curricular and teaching needs. Curriculum and teacher development follows from research. Many of

the most important projects have involved teachers as collaborating researchers, providing an important platform for building respectful and productive partnerships with teachers.

Maxine has had many high-profile conference and workshop invitations in many countries around the world. In 2015 she received the Campbell Award, the premier award of the NZ Statistical Association. She is also: an Elected Member of the ISI, was Chief Editor of the *Statistics Education Research Journal* (SERJ) from 2014 – 2018 after serving as an Associate editor for most of its life, Managing Editor and co-founder (in 2019) with Anna Fergusson of *Statistics and Data Science Educator* under the auspices of the NZSA specialising in peer-reviewed lesson plans for teachers at all levels, and Education Director for the CensusAtSchool New Zealand project team since 2003. She has been a leading member of the International Collaboration for Research on Statistical Reasoning, Thinking, and Literacy (SRTL), notable for their biennial research forums and special issues in books and journals, since its inception. She has had a big influence on their research directions and as a mentor of its members, known for her deep and penetrating questions and always bringing people back to fundamentals.

Maxine's impact on the practice of statistics education in the US has been pervasive, predominantly through the work of American statistics-education leaders who have been receptive to the experiences from the statisticseducation reforms Maxine led in New Zealand and her research and thinking, further developed it for American settings, and implemented it in fostering widespread advances – leaders like Mike Shaughnessy, Cliff Konold, Chris Franklin, Hollylynne Lee, and Joan Garfield and the Minnesota group. "Statistical thinking in empirical enquiry" was foundational to the Pre-K-12 GAISE first released in 2005 (revised in 2007) and, we have been told, has been the guiding document for statistics standards at K-12 in the US ever since its release. Chris Franklin sought, and was awarded, a Fulbright to spend 6 months in NZ working with Maxine. During that time she also learned a lot from Maxine about how to influence policymakers for the common good of statistics education at the school level as well as advancing the appropriate curriculum and standards – knowledge that has subsequently applied in the US. Maxine gave generously of her time to helping improve the draft of the Statistical Education of Teachers (SET) which together with Pre-K-12 GAISE has been instrumental in the preparation of teachers in the US. On Chris's return, the NZSA Education Committee on K-12 and the ASA-NCTM K-12 Joint Committee formed a collaboration where we attend each other's meeting to report and most importantly, carry out collaborations. Maxine serves as the NZ liaison. In Michelle Wilkerson's experience in policy-level conversations in the U.S. around K-12 statistics and data science education at the National Academies, the National Science Foundation, etc., she saw the effect of Maxine's work everywhere.

A new wave of Maxine-impact in the US is emerging through her PhD students, particularly Pip Arnold and Anna Fergusson. Pip was a major contributor to the Pre-K-12 GAISE 2 (2020) book with her dissertation work on questioning with Maxine playing a large role. Pip continues to collaborate with the other writers of GAISE 2 with articles, presentations at conferences, and professional development. Anna Fergusson recently finished her dissertation focused on data science with Maxine and has collaborated with US colleagues to present professional development for teachers and at US conferences. Both Pip and Anna have influenced curriculum and standards in the US.

It would be hard to find anyone anywhere in the world who has contributed so much to, and had so much impact on, the world of statistics education as Maxine Pfannkuch. She is a truly inspirational and distinguished leader in the field. We highly commend her nomination to the committee and hope you will agree with us that her dedication and commitment to statistics education is worthy of recognition by this award.

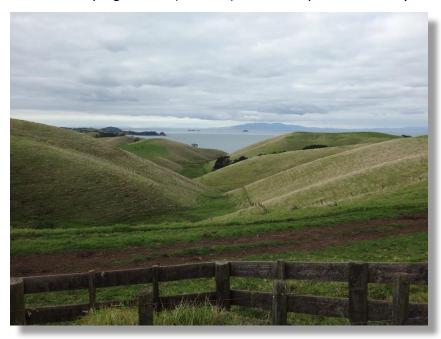
Professor Chris Wild Department of Statistics University of Auckland c.wild@auckland.ac.nz Assoc. Prof. Professor Ilze Ziedins Department of Statistics University of Auckland i.ziedins@auckland.ac.nz Assoc. Prof. Stephanie Budgett Department of Statistics University of Auckland s.budgett@auckland.ac.nz

My tribute is a photo story of some of our many adventures/trips we have shared. I cherish all our times together – it was difficult selecting only a few photos.

Hiking to viewpoint on Piha Beach for breathtaking view of the 'Lion Rock' and black sand beach



Tramping 9 miles (14.5 km) on Motutapu Island – May 2015



Visiting Dale and I in Green Mountain, NC – September 2016



Marching together for climate in Auckland, NZ – September 2019



# Our road trip for a week in your mini cooper to the northland of NZ – September 2019

Central Hotel in Dargaville – the saloon/gaming hotel where we had rooms our first night



Enjoying a flat white coffee on the side of the road in Kokukoku



The spectacular Harbour Koutu Boulder walk in Opinion



You enjoying the beauty of the beach at Tawharanui near the end of our trip.



Return trip to Green Mountain, hiking back to the rock boulders - May 2023



I treasure all our adventures together and look forward to more. The road trip in September 2019 was especially special as we were able to spend a week together before the covid pandemic hit us in March 2020. When you read this, after almost 4 years, we will have experienced another trip together for you to receive the much deserved Cobb USCOTS Lifetime Achievement Award – you are an amazing ambassador for what this award represents!

**GA Chris** 

You first came into my life in the early 1990s when, still working for the then Auckland College of Education, you joined our first-year introductory statistics teaching team. From the very beginning you were always driven to get to the heart of the matter. You also had the annoying habit of reading things I had written, seizing on overly sweeping statements and asking, "When you say ..., why ...?" or "wouldn't that mean that ...?" I could seldom answer these questions so they went on the back burner, sometimes for many years. (I knew you would never let them rest.) We started to work together closely when your PhD supervisor Constance left for another career and I was asked to take over. The big problem was that I hadn't a clue how to do statistics education research, let alone supervise it, so we had to learn together with you taking the lead on the educational side and me on the statistical meanings side. Though you've never admitted it, you must know we were never really supervisor and student – just two curious people trying to get to the bottom of things together. I think why things have worked for us over the years is our differing knowledge bases and each being continually pushed to explain to the other aspects of their other world. It's in the to-and-fro of that questioning that pennies dropped and new thinking happened.

I'm so glad you dragged me into your stat-ed world almost 30 years ago because I've had so much fun and fulfillment with you there. I have valued your deep knowledge, your perceptiveness, your relentless working from fundamental principles and never letting things go. This hasn't just benefitted your research and teaching innovations but made possible all the fruits of your leadership in the NZ national school's curriculum for statistics. Over 30 years of effort, your constant bringing things back to core principles, and your questions that get under the skin, have got through to so many of the stakeholders you have had to persuade. There would have been very little progress without it. I have also witnessed your superb development and mentorship of a generation of great young statistics educators who will lead us into the future.

Here are some memories, not because they're the best things we've been involved in together, but because they are ones where I have photos!

Maxine (center right) with the Auckland Intro stats team at the national tertiary teaching awards at Parliament in 2004



Same group with the Prime Minister (Helen Clarke) at center



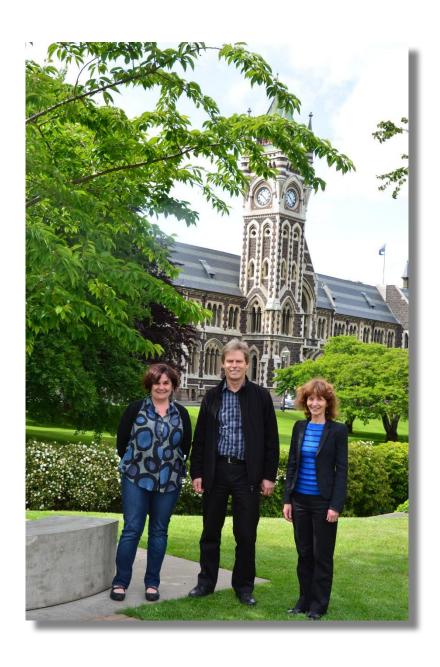
Dinner in London with Auckland and Royal Statistical Society Centre for Statistical Education friends following the RSS's 20/10/2010 World Statistics Day event at their headquarters in London



Next evening at pub at Paddington Station London waiting to catch the train to Plymouth



My only photo with you on the 2012 "Road Tour" you organised taking teacher development workshops around the country to introduce teachers to new-to-the-curriculum content. This at Otago University, Dunedin with Jeanette Chapman at left.



In full flight during the 2012 Road Tour



With the Auckland contingent at ICOTS 10 in Kyoto, Japan, 2018



# With the SRTL 11 participants, UCLA 2019



I'm so happy that this Award is giving you some of the recognition that you so richly deserve for your lifetime of achievements right across the statistics education spectrum. Your thinking has been deep, your contributions fundamental and your impact unsurpassed.

All the best and thanks for taking me along for some of the ride - NZ Chris

# Dear Maxine,

It has been a wonderful experience to have you as a guide whilst the teaching of statistics and probability has been transformed in this country. Your research and your support for the sector has been instrumental in ensuring that our recent generations of school leavers are statistically literate.

It was a privilege to work alongside as the transformation unfolded. Your work changed my own teaching practice so much and for the better.

Enjoy your retirement, journey well, enjoy a rich and productive life.

Neil

Thank you for being such an inspirational leader in statistics education; I greatly appreciate your expertise and guidance that have contributed so much to my (and so many others') educational journey. Seeing the impact of your research, realising where my high school statistics classes had originated from, and being there in your lectures motivated me to delve into the world of statistics education. From undergraduate classes through to PhD, thank you for being there for me. Congratulations on this wonderful achievement!

With warmest wishes,

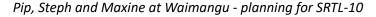
Amy

#### Ngā mihi manahau Maxine,

Wow, I cannot think of a more deserving person to receive this award. Your influence internationally is more than worthy of recognition, but I want to acknowledge your influence from a personal perspective. As my PhD supervisor you helped to shape the statistics educator I am, as a friend you continue to encourage me to keep advocating and supporting changes in school level statistics. I appreciate that you are always happy to answer questions, clarify concepts and always know where to point me to find what I need. You have been a wonderful mentor for many across the world in statistics education, thank you for being you and for all that you do for statistics education.

Nā tō pononga

Pip 🙂





Rob Gould's shot: Maxine, Pip's mother, Pip Arnold and Chris & Eileen Wild with Dave and Steph Budgett, 2023



In 20 years of my time on the NZSA Education Committee your commitment to statistics education in New Zealand has been a source of inspiration. At the start of that time you were contracted to rewrite the curriculum document for senior statistics and what struck me immediately was the way you embraced a collegial approach to the task, looking back it must have been very difficult to balance the views of a disparate group with your own strongly held convictions but you managed with style and humour.

Since those days statistics education in New Zealand has constantly been under change but you have stuck to the principles laid down in that earlier work, along with insights gained from more recent research, to guide our thinking and keep statistics at the forefront of "mathematics" education.

Your impact on statistics education has been felt in many areas. You are clearly a mentor and a strong influence for many educators. You have embraced the international community and through you introduced the Education committee to a number of overseas researchers who give to New Zealand time and expertise which is invaluable, they are involved because they see that statistics education in New Zealand is world leading and that is partly down to your involvement.

#### Alasdair

I have such great memories of our ICOTS adventures. You were so well known and respected at these conferences that I always felt like I was traveling with a movie star!

Congratulations on your award

Love Joss

Joss and Maxine at NZ Parliament, 2004



Aucklanders Ross Parsonage, Joss Cumming, Chris Miller, Steph Budgett and Maxine, ICOTS 8, 2010, Ljubljana, Slovenia

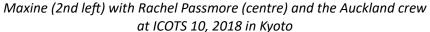


literacy and I have benefitted from your guidance ever since. I have been honoured to receive your support throughout many years of part time study and when I decided to begin to journey there was only one supervisor on the supervisor of the supervisor on the supervisor on the supervisor of the supe consider myself extremely fortunate to have had you by my side throughout my postgraduate study and without reservation, I can truly say you changed my life.

Many congratulations on this award, we are all so proud of you. I cannot think of a more deserving recipient.

Love

Rachel





I've always regarded you as a true leader in research for Statistics Education. You're adept with big, transformative ideas, carefully framed, diligently studied, that lead to conclusions and frameworks that reverberate in the literature for decades. In my view, your contributions to the body of work on statistical thinking as well as the extraordinarily progressive approach to statistics education in NZ has truly set the standard for what's possible in statistics education, especially for learners in gradeschool, and has no doubt helped reshape the role and posture of statistics in K12 curricula around the world.

I remember reading your work as a graduate student and admiring you as one of the truly elite super-researchers in Statistics Education. I remember feeling star-struck at our first interaction when I submitted my first paper to SERJ and received a personal reply from you as editor on the other side of the world. That paper required heavy and arduous revisions, which could have been daunting, but I was so grateful for your generous time, attention, and gentle encouragement from you along the way (not to mention the vast improvement of the paper!). Even as an unproven and unknown researcher, I sincerely felt as if you (as editor) treated me with the kindness and wisdom of a mentor, personally invested in my success.

You are so very deserving of this award as an educator, researcher, mentor, and collaborator. Our field is still quite young, but we are incredibly fortunate and far better off because you decided to take an interest, ask big questions, carefully search for answers, and elevate everyone fortunate enough to brush next to you along the way.

All the best,

Matt

Maxine (2nd row, far right) with SRTL-10 participants in 2017, Rotorua, New Zealand (Matt is middle back row)



Best friend, mentor and colleague,

With deep appreciation and love,

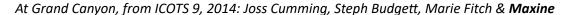
Dani Ben-Zvi

All together at SRTL-8



I'm over-the-moon that you are being honoured with the George Cobb Lifetime Achievement Award. Were it not for you, I would not have embarked on my statistics education research journey. You have been an incredible mentor to me and, more importantly, a valued friend.

Best, Steph xx





#### Dear Maxine,

Congratulations on your well-deserved Lifetime Achievement Award. As the model of deep, careful and creative thinking, your contributions have framed and enriched our understanding and our teaching of statistics. Your characterisation of statistical thinking, for example, has widespread application – from setting a research agenda to helping students understand the landscape of applied statistics they find themselves lost in. Thanks for stimulating and challenging us!

Sue

Sue Finch (AU)

I will always appreciate the powerful idea of "transnumeration", and have always been a little sad that it has never caught on as much as it should. It is a profound and important idea in statistics. I believe the term comes from the seminal 1999 paper by you and Chris Wild, and highlights the key concept that statistics involves changing the representation of data (by taking a mean, or plotting a graph, and so on), in such a way that the story of the data is revealed. I am proud of the paper we wrote paper with Jane Watson that highlighted the sort of transnumerative thinking that school-aged students could undertake, and how simple transnumerative actions like ordering and grouping data—as well as graphing and calculating summary statistics—can help us to use data in significant ways to get answers to statistical questions. I love the power of the word "transnumeration": it really captures the "processes" part of statistical activity. More people need to know this idea! Chris tells me it was you who conjured the term, although because of that paper we wrote together, I was always going to associate it with you anyway! I think I need to shout the idea from the rooftops a little more, particularly to teachers, because it's a critical concept that can help teachers know what they are trying to help their students learn in statistics.

Cheers

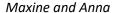
Helen

Maxine, Helen Chick and Jane Watson near the top of kunanyi/Mt Wellington when Maxine was a visiting scholar at the University of Tasmania



Where does one start with writing about how profound an impact someone else has had on their life? I wish I had some sort of poignant story about the first time we met or could vividly describe one moment with you that changed my life. Instead, all I can think of are the countless times you have "sorted me out" when I have got behind on tasks or overwhelmed by life in general. But perhaps these are some of the important things that explain why you have had so much impact on statistics education? It's not just about the exceptional quality research and curriculum work you have produced, but also about how many statistics educators and researchers you have supported in their own growth and development — an output that can't be captured by the number of article citations. Everything you have done to support, promote and shape statistics education, firmly focused on how to help statistics teachers to engage students with statistical concepts, is rightly recognised by this award. I have learned so much from you about change, perseverance, focus and discipline - even if it doesn't always look like I have acted on your advice! I am so grateful that you have been part of my life and know how fortunate I am that I get to call you a mentor, friend, and collaborator.

Anna





Maxine, Anna and Chris Franklin, on the occasion of Anna's Masters graduation 2017



Anna, Dani Ben-Zvi and Maxine, ICOTS 10, Kyoto, 2018



I've always valued your wisdom and supportiveness ever since I arrived in Auckland. But it was when you decided one day to take in hand the arrangements for the new Capstone that I realised you were not just quietly efficient but actually magic. In the twinkling of an eye, once you were on the case we not only landed the perfect teaching team, but also the resourcing needed to develop and pilot the course. I still can't quite get over the way you made that happen. To me it seemed like nothing short of a miracle, but you seemed to think it was perfectly normal! I do honestly think it was only because of you that we were able to make the course into something really worthwhile. There was no personal benefit to yourself - in characteristic style you just saw what was needed and quietly made it happen.

I can't imagine how many more miracles you've worked, big and small, visible and invisible, and always simply and uncomplicatedly for the good of others. I'm absolutely delighted you've won this award: what a wonderful recognition of everything you've achieved. Congratulations and thank you!

Rachel

#### Dear Maxine,

Congratulations on your George Cobb Lifetime Achievement Award – very well deserved! You have made massive contributions to statistics education, and have changed the lives of a great number of people. Your most obvious contributions are writings and all the editing you have done - but (I think for many people) at least as important has been your engagement with the stats ed community, where your enthusiasm and warmth have been a source of inspiration. I have fond memories of conversations and dinners in Auckland and (of course) at conferences- with more to come, I hope! May you continue to blossom!

Jim

#### Maxine,

Thank you for all your input and difference you have made in secondary classrooms over the decades in New Zealand. I first engaged with your work and research shortly after arriving in New Zealand early in 2005. My lesson planning and delivery was stronger and more effective as a result. Throughout my career in New Zealand you have also shown kindness and an unconditional willingness to share. It is appreciated hugely. The rigour, engagement and innovation you have shared has helped make the statistics side of our curriculum the envy of the world. Thank you for all you have done.

Mark

I first met you in person in 2004 when I gained a Teachers' Study award to begin postgraduate study at the University of Auckland. This program and in particular statistical education challenged me to continue on to do my Masters' qualification over the following two years.

You became my supervisor and were an inspirational mentor during these years. You were always helpful, available, supportive and able to critique my work in the most encouraging of ways.

I always enjoyed our meetings together to shape my thesis. Your thoroughly up-to-date knowledge of global statistical thinking and educational practice really enabled me to challenge my own teaching practice. You opened my eyes to the exciting future of statistical literacy education in our rapidly changing world.

Thank you too, Maxine, for encouraging me to present my thesis findings at the ICOTS conference in Brazil- it was a great experience. Your wonderful mentorship will never be forgotten.

Thank you so much and congratulations on this amazing very well-deserved award.

Lynda Merriman



Maxine and Lynda Merriman, 2006

Heartiest and warmest congratulations for gaining this thoroughly deserved lifetime achievement award.

Your commitment, hard work and total dedication have been instrumental in raising the profile of statistical thinking and statistics education in general throughout the international statistical education community.

You have been at the forefront of statistics education in Aotearoa New Zealand for most of the past three decades. Your acquired knowledge, foresight and efforts have shaped the current NZ national school statistics curriculum.

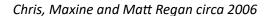
It looks like you are the first recipient of this award from outside the USA and I think that is a clear indication of the very high level of respect you hold within the international community.

You have been truly inspirational at home and abroad.

Thank you for all your hard work and, more importantly, thank you very much for your friendship over the years.

Very best wishes,

Matt





Maxine, congratulations on being this year's recipient of the George Cobb Lifetime Achievement Award in Statistics Education! I cannot think of anyone who is more deserving. You have done so much for the field of statistics education by developing frameworks for statistical investigation and statistical thinking, as well as developing and researching pedagogy and curriculum for developing statistical thinking and understanding in students across a broad range of levels. You have also served as a mentor to several graduate students who are now making their own notable contributions to the field. And you have shaped and guided the research programs of many others through research collaborations, active participation, engagement and presentations at research conferences, and numerous scholarly publications. In particular, I want to thank you for your mentoring when I took over as Editor of the Statistics Education Research Journal - there was so much I learned from both your excellent example and the advice you offered. Thank you for being both a friend and a colleague, and I wish you all the best as you continue to enjoy your retirement.

Bob





It is a great privilege to write to congratulate you on being awarded the 2023 George Cobb Lifetime Achievement Award in Statistics Education.

I first became aware of your inspirational ideas in your PhD work and 1999 paper with Chris. Subsequently, I met you at ICOTS conferences and made a point of attending your presentations where they were always second to none in their innovative approaches to statistical literacy, thinking and teaching. Indeed, from a teaching, learning and assessing point of view your work and contribution to the 2007 NZ school mathematics and statistics curriculum was, and still is, world leading.

Ever since I first read the 2007 curriculum documents, I made it my business to make policy makers and educators in the UK aware of the NZ approach to teaching statistics at all levels in schools. Unfortunately, UK policy makers, and others, in school education have not recognised the importance of statistics and the approach to teaching it that you have espoused over many years – I wish that you could have spent time in the UK showing the way of New Zealand!

It was a great pleasure to host you, Chris, Eileen, Matt and Nick at Plymouth following your seminal jointly read paper Towards More Accessible Conceptions of Statistical Inference at the Royal Statistical Society on that unforgettable day in October 2010 (20 10 2010). You should be very proud of the accolades awarded to you and your co-writers – some very famous statisticians contributed to the discussion of the paper both in person and later in writing. Thank you for the wonderful series of lectures and seminars you delivered to teachers from the Plymouth region. I have dug out a group photograph of us!

Wendy and I were delighted to spend time with you when I visited the department for a short time in 2013 – 2014. Attending your university course 'Lies damned Lies and Statistics' was inspirational and convinced me that this way of teaching statistics was needed in the UK to spark interest in undergraduates and show them the importance and usefulness of the discipline. In fact, your subsequent excellent presentations at Cardiff University prompted them to develop a similar course, which is very popular and still being delivered there.

Since retiring, I have tried to keep up to date with developments and new approaches to teaching, learning and assessing 'the New Zealand way'. Your papers continue to show the way it is always a privilege to read them – thank you, Maxine, for continuing to be as inspirational as ever!

Very best wishes

#### Neville

PS: It was a great pleasure to host you, Chris, Eileen, Matt and Nick at Plymouth following your seminal jointly read paper Towards More Accessible Conceptions of Statistical Inference at the Royal Statistical Society on that unforgettable day in October 2010 (20 10 2010). You should be very proud of the accolades awarded to you and your co-writers – some very famous statisticians contributed to the discussion of the paper both in person and later in writing. Thank you for the wonderful series of lectures and seminars you delivered to teachers from the Plymouth region. I have dug out a group photograph of us!

Nicholas Horton (US)

# Back row: Chris and Eileen Wild, Nick Horton, Mary Townsend, John Marriott Front row: Maxine, Neville Davies, Julia Riseman, Matt Regan, Stan Yip



Maxine, congrats on your well-deserved receipt of the Cobb Lifetime Achievement Award. I can't think of a more deserving recipient. The community has benefited tremendously from your work over the past decades: statistics education as a discipline has grown in enormous leaps due to your seminal and transformational work. Your contributions range from the individual mentoring of teachers and students, service to the profession, teaching of workshops, and to the establishment and the ubiquitous use of the PPDAC cycle to foster understanding of statistical analysis in the broader world. We are grateful for all that you have shared so generously.

Warmly,

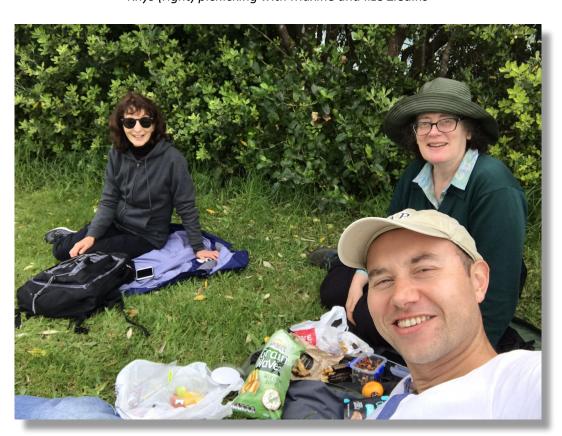
Nick

When we met back in the spring (Welsh standard time ) of 2014 in Cardiff, I had no idea I would end up moving over to Auckland to work in one of the best departments in the world! Your advice and guidance really helped me to make one of the biggest and impactful decisions in my life, to move over and work with you, and others, at the University of Auckland. When I first moved over, I knew very few people, and you were so kind and generous with your time, meeting up for dinner and going on day trips to show me some of the sights around Auckland. It also really touched me that you gave me your Lord of the Rings guidebook, that you gave as a present to a loved one, and then passed on to me to use, which was very useful and insightful. Thank you so much for helping me feel at home and welcome in NZ, Auckland, and within the statistics community at the University of Auckland.

Best wishes,

Rhys

(former Teaching Fellow at the Department of Statistics, University of Auckland, 2017-2021).



Rhys (right) picnicking with Maxine and Ilze Ziedins

I'm extremely pleased that you're the recipient of the George Cobb Lifetime Achievement Award this year.

The word 'lifetime' acknowledges your long-term determined commitment to statistical education. Your commitment includes insisting on the importance of research and evidence as the basis for sound progress.

The word 'achievement' acknowledges that your work has resulted in achievements and getting things done, as in the C in PPDAC. The Conclusion for your efforts, so far, is better documents, better equipped teachers, and hence more relevant learning for students.

In the years leading to the 2007 curriculum, you were in a key position as writer and as link with the NZSA Committee. And you had a full day job as well. I thought 'I hope we never need to do this level of work again'. But in the last three years we did, and this time it was often urgent, last-minute, rushed, and done under wraps! I've been really impressed by your massive inputs under these difficult conditions.

I've very much enjoyed working with you for the last three decades, and I hope this is ongoing. I've learnt plenty from you, and appreciate you common sense views as well as your research-based knowledge. I've very much appreciated recognition from you at many times.

I also appreciate your ability at finding and fixing my typos!

By improving the functioning of statistical education in Aotearoa NZ and the world, you've improved the ability of people everywhere to do evidence-based analysis and to reach evidence-based conclusions. As you know, that's vitally important these days.

Nga mihi and best wishes for the future.

Mike

#### Dear Maxine,

What a joy to celebrate your incredible achievements! I wanted to take a moment to reflect on but a few of the many points of impact you've had on the world by looking at where almost two decades of my own statistics experiences clearly have your fingerprints. In high school, my NCEA statistics classes were based on your curriculum work. My first-year university stats courses were based on your research, leadership, and vision. My first experiences teaching statistics were also in a course touched by your work, and this has continued to be a core influence on my pedagogy. Zooming out to see the further extent of your impact, some of my most influential mentors are themselves beneficiaries of your wisdom and support. My own life, and the wider statistics education landscape in Aotearoa New Zealand and beyond, would look so different without your important and impactful work. Thank you and congratulations!

Ngā mihi maioha (thank you with appreciation),

Liza

I would like to extend my heartfelt congratulations to you on being awarded the 2023 George Cobb Lifetime Achievement Award in Statistics Education. This recognition is a testament to your outstanding contributions to the field of statistics education and your unwavering dedication to improving the quality of statistics education worldwide. I have had the privilege of witnessing firsthand the impact of your research on statistics education in Japan. Your work has been instrumental in shaping the way statistics is taught in Japan, and your insights have contributed greatly to the advancement of statistical literacy. I would also like to express my gratitude for the invaluable guidance and support you provided during my visit to New Zealand. I will never forget the generous way in which you shared your expertise and insights with me, and the time and effort you took to introduce me to colleagues and educators in your network. Finally, I would like to thank you for the warm hospitality you extended to me during my stay in New Zealand. Once again, I congratulate you on this recognition.

Shunya

# Maxine and Shunya



Congratulations on this very significant award.

I am sending you my greatest admiration.

You were one of the external examiners of my Ph.D. thesis and gave me numerous guidance.

My life as a researcher would not be complete without you.

I want to take this opportunity to thank you. Thank you very much.

Due to the spread of COVID-19, I have not been able to see you for the last few years, but I hope to see you again.

I would like to thank you for your continued support and guidance and congratulate you on this occasion.

Hiroto

Kyoto in Japan (ICOTS10 in 2018), Hiroto Fukuda at front left



The occasion of this Award is a great opportunity to reflect on what you meant and mean to me as a person and statistics educator. On my first steps as an educational researcher, your work was inspiring. I must have cited your 1999 statistical framework tens of times, but also your thoughts on sampling proved important. At SRTL it was obvious that everyone listened carefully if you contributed something! I noticed that several scholars in our field called you a rock star!!

As a young scholar one can get the impression that one needs to be strong and bold to be successful. However, you showed me that a somewhat shy personality, sometimes fragile health, or a not that easy home situation need not be in the way of making a meaningful contribution to the field.

Thanks so much for your nuance and dedication to statistics education, and being who you are!

Hug, Arthur

Congratulations Maxine on being the recipient of the 2023 George Cobb Lifetime Achievement Award in Statistics Education, you are most deserving of this wonderful award.

It was a great pleasure to meet you at ICOTS-5 in Singapore in 1998 where you presented a paper titled "What is statistical thinking?" Since you completed your Ph.D. researching the characteristics of statistical thinking, you have become a leading thinker and researcher internationally in statistical thinking. Your ground-breaking 1999 International Statistical Review paper, with Chris Wild, has been the 'go-to' reference for many researchers in this area. You have worked tirelessly over many years to improve the quality of statistics education both at the school and tertiary levels. You have developed revolutionary courses in statistical literacy, often based on media reports, and have been a major presenter at many conferences including IASE satellites, ISI and ISI Round Tables, ICME and ICMI and all ICOTS meetings since 1994. In addition, you found time to be an outstanding editor of several publications including co-editing SERJ for a number of years and a joint editor for an OZCOTS conference. You have also been a wonderful mentor to your colleagues, encouraging many of them to get involved in statistics education research. Your dedication to statistics education is guite exceptional. Even now in retirement you continue to make significant contributions to the discipline including being the managing editor for the New Zealand Statistics and Data Science Educator. This award is a terrific recognition for all your endeavours in statistics education, especially in statistical thinking research. The statistics education community is lucky you made the improvement of the teaching and learning of statistics and curriculum development your life's work.

Brian

I have a vivid memory of the first time I met you at ICME-10 (Topic Study Group 11: "Research and development in the teaching and learning of probability and statistics") in Copenhagen in 2004. At the time, I was in the initial stages of developing my PhD research in statistics education and attending my first international conference without the presence of my PhD supervisor. You were very welcoming, helpful in making me feel comfortable in the group, and encouraging for my work.

Since then, our paths have crossed repeatedly over the years through other international conferences in statistics education, such as ICOTS (2006-2018) and SRTL (2007-2019), and even in Exeter, UK during your visit. Throughout this time, I have felt very privileged to have many formal and informal interactions with you on teaching and learning of statistics and probability at school level. Your support and guidance have been invaluable to me when I needed in various research projects.

Heartfelt thanks for your generous support and significant contributions to statistics education. Congratulations, Maxine, on receiving this well-deserved award!

With love from Türkiye,

Sibel

Sibel taking a selfie with SRTL 10 participants in 2017, Rotorua, NZ. Maxine in the middle



A lifetime of achievement indeed! You have made invaluable contributions through your writings, your presentations, your teaching, your mentoring, your advocacy and, most personally, conversations in which you shared perspectives and insights about both work and life. I am particularly grateful for understanding of the important role technologies such as Fathom and CODAP plays in developing students' conceptual understanding of how to do things with data. You have incorporated technology into your groundbreaking research on student reasoning about variation, research that has greatly improved the way statistics is taught.

Bill

Bill Finzer (next to Maxine) with some of the Auckland group at ICOTS 9 in Flagstaff, 2014



Chris Miller (NZ)

Your work has always served as a guidepost for me (and all of us, I'm sure) as I try to figure out good ways to learn more about data and the stories data tell. Thank you SO much! And I will always remember your careful criticism of a paper I wrote for a meeting in Cebu, and treasure the walk we got to take together during SRTL-10 somewhere near Rotorua in 2017.

Best wishes,

Tim

Dear Maxine, As a graduate student, your seminal works like "Statistical Thinking in Empirical Enquiry" helped lay the foundation for my understanding of statistics education, so I was honored to have opportunities to work with you later on. Whether you're offering constructive feedback on how to publish peer-reviewed lesson plans or leading UGA preservice teachers in rich statistical tasks, you are as brilliant in person as you are on the page. I count myself as one of the MANY who has benefited from your generous contributions to our field. Congratulations on this well-deserved honor!

Catherine

Dear Maxine,

Congratulations on receiving the 2023 George Cobb Lifetime Achievement Award in Statistics Education. Your commitment to your vocation is truly inspiring, and it is no surprise that you have received such well-deserved recognition.

But there is more to you than your professional achievements. You are also someone who knows how to have fun and seek adventure. I recall the time we spent circumnavigating Lake Bled, and in particular where you kept guard while some of us got ready to swim. Thanks to you no one was embarrassed!

So once again, well done you.

Chris M. J

# Paul Murrell, Maxine, Rachel Cunliffe, Joss Cumming, Ross Parsonage & Chris Miller, Awards Ceremony, NZ Parliament 2004



#### Dear Maxine

Congratulations on your George Cobb Lifetime Achievement Award in Statistics Education. This is richly-deserved recognition for your substantial contribution to Statistics Education.

One of your outstanding contributions was the influence you had on the development of the Statistics component of the New Zealand Mathematics and Statistics Curriculum. This was crucial to it becoming such a progressive document. Statistics teaching and learning in New Zealand has benefitted as a result.

You have been a valued colleague whose approach to teaching, learning and research has always been insightful. When I think of you the following come to mind: team player, collaborative, thoughtful, perceptive, knowledgeable, exemplary preparation, social conscience.

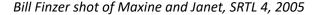
I respect the mentoring and support you have given me over the years and you have done the same for many other colleagues. We have been fortunate to have had such a mentor.

But there is another side to you: your love of dance, opera, the arts in general, and an occasional glass of red wine (usually Cabernet Sauvignon dominant). Nothing but the best for one of the best.

Congratulations again Ross

Many congratulations on receiving this award which is so well deserved. Although we have never worked directly together, it was aways such a joy to be with you at SRTL meetings. I always appreciated your thoughtful and detailed presentations of your research, your empathy for the demands placed on teachers, and the quiet authority with which you contributed to discussions.

With love and best wishes, Janet





### Dear Maxine

I welcome this opportunity to tell you how grateful I am to you for being instrumental in opening up my calculus hardened brain to the necessity of statistics and how to teach it meaningfully at the lower secondary levels. I was lucky to catch you towards the end of my teaching career and to participate in a small way with Pip's and Anne's research.

It is satisfying to be able to now confidently express my opinion to all and sundry that it is essential for everyone to understand what is being done with their data!

I value your friendship and look forward to many more Auckland Girls' Grammar staff Sunday lunches.

Thank you, Maxine,

With very best wishes from Annie

I think one of the most important things I learned in the graduate program in statistics education at University of Minnesota was how to spell Pfannkuch!!!! We were always citing articles and basing our work and our studies on things that you had done, and so papers with literature reviews and synthesis of the work that has been done, your name kept coming up again and again! I appreciate the important work you have contributed to our discipline. On a personal side, I appreciate so much the kindness you showed my husband and I when we took a risk in coming to SRTL Rotorura while I was still nursing our baby. I remember hiking alongside you and riding a gondola with you all with our little one in tow. You were welcoming and kind.

Congratulations on this well-deserved award!

Warmly,

Nicola Justice

#### Maxine

You are one of the most influential statistics educators who has helped shape our discipline!! Your contributions in statistics education have been incredibly influential on the development of statistics teacher education materials serving both preservice teacher education students at the university level, and practicing teachers through continued professional learning. Your work from 3 decades ago (in the 1990's!!) originating from interviews with statisticians led to dissemination of what statistics thinking looked like and how it was multidimensional in nature. This radically shaped the field! So many collaborative efforts led by you in New Zealand helped establish New Zealand as THE place to look to for advanced pedagogy and research in statistics education. I am not sure if you know this, but materials developed through two of my recent teacher education curriculum projects contain many references to your work and examples from your research papers. For example, that 2010 article in JSE on "Telling data stories: Essential dialogues for comparative reasoning" was highly influential in the design of lessons for teachers on how to develop statistical thinking through comparing groups. Many K-12 teachers in the US have thus been taught using curriculum materials that build from and cite YOUR work. Your leadership as an editor for SERJ helped many statistics education researchers have an outlet for disseminating their scholarship about teaching and learning statistics in college and K-12. It was under your editorship that SERJ rose to more prominent status and helped establish statistics education research as a recognized discipline. I loved working with you as an Associate Editor with SERJ as well co-authoring that 2018 book chapter for the Handbook. You are brilliant, passionate, and kind - qualities that make everyone adore you! Your reach and influence in statistics education is definitely world-wide and I am so happy to see you honored with the Lifetime Achievement Award.

**Many Smiles** 

Hollylynne

Congratulations on this well-deserved award! I am pleased to see your contributions to the statistics education community being recognized. Your seminal paper with Chris Wild was instrumental in my development as a scholar and I have always been impressed with your work on the New Zealand curriculum and the tireless energy you put into SERJ. Your work on SERJ increased both the quality and quantity of submissions and publications and raised the international stature of the journal. More personally, thank you for your unwavering support of my career: inviting me to present at WSC in Hong Kong and then nominating me as your successor at SERJ. Having you "in my corner" helped me flourish in all aspects of my career. Finally, thank you for being such a gracious host on my visit to NZ. Among other things, learning that storing bananas in the refrigerator lengthens their life expectancy has been a complete game-changer for me.

Many thanks for all you have done, for statistics education and for me.

Regards, Jennifer

On left, Steph Budgett, Maxine, Jennifer Kaplan and Chris Franklin. On right, farewell dinner from Jennifer's visit to Maxine and Chris Franklin during Chris' Fulbright in Auckland



When I first began my studies in statistics education research I read so much of your work. Your writing has been incredibly influential to me not only because of the depth of ideas you have raised around the teaching and learning of statistics, but because of how accessible your writing is for new researchers. It has been a great honor to get to know you through the SRTL community. Not only are you an excellent researcher, but an incredible human who has always been willing to chat with and welcome new researchers into the field.

Jen

SRTL 11 group, 2019 at UCLA: Maxine at left, Rob Gould centre, Jennifer just visible 10th from left



#### Dear Maxine

Thank you for your wonderful contributions to statistics education. Your in-the-trenches research and your insight have had immediate impact. I always look forward to reading and learning from your articles!

Beth

How great that the CAUSE people have realised that non-US people can make fantastic contributions to Statistics Education! Greg and I were so pleased to support your nomination. Of course it has caused me to think back over the time we have known each other. With my fading memory this hasn't been trivial. Did we meet at ICOTS5 in Singapore in 1998? I was in New Zealand in Dunedin and Wellington in 1999, but I don't remember much about that time. But I'm sure we met at SRTL2 in Armidale in 2001! See the evidence of us with Rolf from a photo by Mike.



In 2002, you were so generous to offer Gerald and me accommodation in the house you and Kurt owned in Auckland! We had a lovely holiday up North and I remember a dinner we had with you and Kurt in a restaurant in an area of Auckland that reminded me of Salamanca Place here in Hobart. I remember being pleased that Kurt seemed to enjoy himself and have some good chats with Gerald. And that was about the time we both had papers in that special issue of the *New England Mathematics Journal*! Also we, mostly you, wrote a chapter for the MERGA 4-year review book, and we worked with Helen on a paper about transnumeration, your great invention!

Then in 2005, I was invited to a Numeracy Facilitators Conference in Auckland and to consult with a committee about the NZ school curriculum (at the airport?!). You were there and I think I said they should just listen to you (at least this was what I was thinking!). That time I remember having dinner with you and Kurt in your penthouse. I think maybe his speech was more difficult, but we seemed to get along fine! And later that year of course was SRTL4, which you organised so wonderfully, leading to a Special Issue of SERJ on Distribution, and the excursions to Waiheke Island, Titirangi, and Piha, even with live TV coverage of a Rugby Union match! I still often wear the cream-coloured Māori carving necklace you gave us on our conference bags. Often people ask about it.

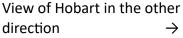
Then there have been all of the ICOTS conferences, except last year in Brazil (did you go in person?). At ICOTS10 in Kyoto in 2018, was when Gail got us together to form the SERJ Advisory Board, including you as the current Editor of SERJ. That has been an interesting experience, hasn't it, especially since Ayse became President of IASE. But I remember the great contribution you made to the selection of the Special Issue Editor, and of course the fantastic job you did as Editor of SERJ. You may be relieved to be retired from the Board, as I will be next year. I hope SERJ can continue to have the strong research focus. SERJ papers seem to be well cited in the literature, thanks to you and the earlier Editors.

Of course, a very exciting time was when you visited Tasmania to work with Greg in Launceston and give that brilliant Plenary address at our Mathematical Association of Tasmania conference in 2018. It was only a short visit to Hobart but at least Helen and I managed to get you to the top of Mt. Wellington, our famous icon, and you and I visited MONA, our famous Museum of Old and

New Art. Here are a few reminders of how chilly it was on the mountain and of the ZERO exhibition!

direction

Top of Mt. Wellington ↓

















I'm sure you will enjoy your time with Chris in Georgia and in State College, PA. I had never been to State College until 2019 (perhaps my final trip to the US), and I thoroughly enjoyed USCOTS, catching up with many colleagues from the US. The huge poster session was amazing, and each talk I went to, I learned something. You will have a wonderful time.

Again, congratulations on your Lifetime Achievement Award.

And a big hug from Australia, Jane

(SD)

Susan Peters

#### Dear Maxine

I first remember meeting you when I was a secondary school Maths teacher. You were conducting some research (algebra I think) that my HoD had volunteered us to be part of. Around the same time I remember hearing you talk at an NZAMT conference. These two things were my first exposure to Maths and Stats education research and sparked my interest.

In recent years as a colleague, I have appreciated your encouragement and the generous way in which you share your knowledge.

**Thanks** 

Marie

#### Dear Maxine

Congratulations on this fantastic achievement! You are a gift from above and to human kind. I am so proud and honoured to be your student, and will be forever grateful for your contribution to statistics education but most of all towards my study. You are an inspiration and a family to me! Hang in there until I'm done. God bless.

Malia

Congratulations on this well-deserved award, Maxine! You have contributed immeasurably to statistics education through your prolific body of work, your dedicated service to the field, and your mentoring of junior scholars. The quality of your work sets a bar to which all can aspire. Your influence is far-reaching, and there is no doubt that you have improved statistics education around the world. I can't think of anyone more deserving as the first international recipient of this prestigious award.

**Sue Peters** 

Maxine -- congratulations on this very well-deserved recognition! It's quite fitting to have you win right after Bob delMas since you also were his immediate successor as SERJ Editor. And your term overlapped with the last 2/3 of my term as the SERJ Assistant Editor, and so I can attest first-hand to your thoughtfulness, expertise, vision, and collegiality. I also have been inspired by your work as a scholar, which I most recently cited in my 2023 JSDSE paper.

Thank you for your lifetime of high-quality contributions and leadership to our field, Larry

When you first meet Maxine, you might underestimate her. She is quiet and unassuming, shies away from photos, and prefers solitude to boisterous group activities. This is one reason I like her. Another reason is that this quiet and reticent persona is a bit of an illusion. She knows everyone, introduces people, forges connections, and establishes collaborations. She is formidable when defending her always well-founded and thought-through opinions, and deeply dedicated to her graduate students. Many of my fondest memories of my sabbatical in Auckland involve Maxine, who introduced me to the local art scene, taught me a bit about Maori culture and its intersection with the West, and kept me current on the state of New Zealand politics. She made sure I met people whose interests intersected with mine, and that I go to the restaurants and bars I wanted to go to.

We went on some beautiful hikes through the city, and I learned that, when it comes to scaling volcanos, Maxine is fearless. One of my deepest regrets is that I did not get a photo of her on the top of Mt. Eden at the moment when Maxine decided that the "trail closed" sign was not for us, and skipped around the fence. We found ourselves on a very steep and slippery slope of wet grass, and Maxine quickly sat down and scuttled on her butt across the grass and looked back to see what was keeping me. On that same trip, after climbing 300 steep steps, I paused to catch my breath, and said, looking at my Apple Watch, "Let's just wait until my heart is back down to 100bpm". She looked at her Apple Watch and said "100? Mine's only at 70." Maxine is a true champion of diversity in statistics education, and has recruited many young researchers into the IASE from countries that don't have strong representation in our international meetings and collaborations. I'm very excited to see her win this award which is truly deserved and a long time coming.



Bill Finzer's shot of Rob Gould, Maxine and Michael Bulmer, SRTL-4,in Auckland, 2005

We are very pleased that you're the recipient of the George Cobb Lifetime Achievement Award

You have taken a key role in many ground-breaking events in the progress of statistical education in Aotearoa New Zealand.

The New Zealand Curriculum (2007) contains a progressive and innovative section on 'Statistics and Probability', and you had major inputs into this. Central to the strand is statistical thinking in the context of statistical investigation and reporting. The ideas in here originated in your PhD, and in your seminal paper with Chris Wild: Statistical Thinking in Empirical Enquiry (1999).

When the 2007 Curriculum was being written, we were fortunate that you were employed as one of the writers. You worked on the text with the rest of the committee, ensuring that this section of the curriculum is statistically and pedagogically sound. The resulting content on statistics has worked well for this country, and has been used as a resource overseas.

Aotearoa New Zealand is held in high regard internationally for being a leader in terms of its innovative school curriculum in statistics, for its implementation, and for research here in statistical education. You've had a major and ongoing hand in all that.

A major innovation in the 2007 curriculum is the introduction of resampling methods for inference. Its Level 8, for the last year of schooling, contains this objective:

Make inferences from surveys and experiments ...

using methods such as resampling or randomisation to assess the strength of evidence.

Your involvement in the international research community meant that you and colleagues were able to persuade us all that this approach to inference would be an advance. It could be made intuitive and visual. Subsequent work by you and colleagues on reasoning and software systems made it just that.

Together with colleagues, you produced a flow of research papers on new conceptual pathways to inferential reasoning and dynamic visualisations that support this.

After the release of the curriculum document, the country produced downstream guides for teachers, with details and progressions. Also the country reviewed its senior secondary school Achievement Standards. You contributed your insights, either directly to the Ministry or via the NZSA Education Committee, to all these.

Over the last two or three years, you have again contributed massive amounts of time and expertise. In this round, it has been in work on the curriculum, the assessment system, the numeracy standard, and the pedagogy proposal. It has often had to be with urgency.

The other side of successful statistical education is having a knowledgeable and capable teaching workforce. You have made a major contribution to this through university Masters and PhD programmes, the Statistics Teachers' Days run annually by the University of Auckland, and many

presentations to teacher groups.. You have an empathy with teachers, based on your own experience as a classroom teacher. Whenever any change is proposed, you raise the issue of how teachers will be supported in effecting the change.

You are well-known internationally for your research in the teaching of statistics in school classrooms. You are always careful to show that proposals are evidence-based in appropriate research. Some of your research projects have been collaborations with classroom teachers, and this brings benefits to the teachers and their students.

In the last four years, you and colleagues have set up the online journal *Statistics and Data Science Educator* (SDSE), with peer-reviewed lesson plans for teachers and by teachers, at all levels, from early childhood to graduate. It is a professional growth opportunity for both its readers and its writers.

As members of the NZSA Education Committee, we really enjoy and appreciate your contributions. We've done that for over 20 years, and we hope to continue. You are dedicated to statistical education, and you can be depended on to get jobs done. Statistical education is facing some new issues: new data types and the data deluge, data ethics, equity in education, indigenous data sovereignty, new data visualisation methods, and more. You are always ready to raise these, examine them, and look for solutions.

You have a lifetime of achievements in statistical education, and we hope that you remain very active in this vital area.

Nga mihi nui

Alasdair Noble, Mike Camden,

on behalf of the Education Committee of the New Zealand Statistics Association.



Congratulations on receiving the 2023 George Cobb Lifetime Achievement Award in Statistics Education.

Reflecting on the time that we have known each other has underlined the important role that you have had in the development of me as a teacher and therefore my life of work.

At each key turning point you were there with kind, well timed and persuasive suggestions.

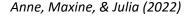
From when you were my lecturer at Auckland College of Education at the beginning of my learning to be a teacher, suggesting I start my Masters of Education, challenging my thinking and statistics teaching practice while you visited my class every day for a month. Your endless and tireless support of New Zealand teachers to grow our knowledge and skills. Even more recently, encouraging me to apply for a role at the University of Auckland to shift me into the next phase of engaging with teacher professional development. You have nudged me and many others along so that we keep developing.

Thank you for all your work and commitment to the statistics education community.

You are an inspiration.

Julia Crawford

Maxine and friends







I still remember meeting you years ago when you were researching at AGGS. The enthusiasm you inspired has seen several of us from that mathematics department continue on to gain masters and doctoral degrees. Quite significant achievements for us all which would never have happened without your example and mentorship. In addition, as I embarked on my further education journey, your quiet and always supportive encouragement helped me have the confidence to keep going. Thank you for your inspiration and gentle encouragement.

I'm glad we continue to connect at the wide ranging (Auckland Central, Zoom and occasionally Waiheke) ex-AGGS teacher get-togethers. Such a well-deserved award. Congratulations Maxine.

Robyn

#### Dear Maxine

So very wonderful to hear you are being honoured by the 2023 CAUSE/USCOTS Lifetime Achievement Award in Statistics Education. Your impact and mastery in statistics education over many years and in so many ways are as rich as they are deep. You have led the way and supported many, and your influence across the world and at home will last for many years. You brought to both research and practice in statistics education strong intellect, clarity of thinking and incisive research capabilities. Combining these with passionate commitment to student and teacher learning, and outstanding collaborative talent, you have initiated and facilitated meaningful major developments which have progressed, and continue to progress, real learning of real statistics and statistical thinking beyond previously known boundaries.

Your ability and commitment in potent collaborations, and in mentoring and fostering growth in research by others, especially early career researchers, earns you great respect and affection. Since I first heard you speak and read your papers I have been in awe of your intellect, research and thinking, but I have also always been deeply appreciative of the great respect you have always demonstrated for the discipline and science of statistics and data – you have never trivialised any aspect of our profound, multi-faceted but authentically fundamental discipline. Although I wish I could talk with you endlessly about our common passions in statistics education, I remember with much pleasure certain times of fun and relaxation, including at the IASE Roundtable in 2004 (especially the dinner full of laughter), and my visits to Auckland, including a dinner we shared.

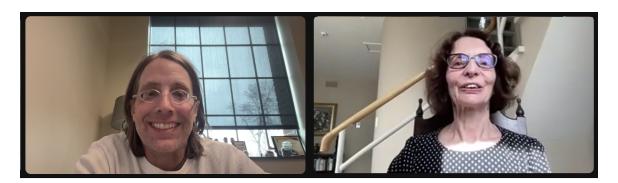
It is a privilege to join with so many to give you the honour you so richly deserve for all you have achieved and all you have given. Ngā mihi nui.

Helen

Congratulations on receiving the 2023 George Cobb Lifetime Achievement Award in Statistics Education! You really deserve this! Your work has been so inspiring to me personally and so important to the field writ large. I love seeing you at SRTL and the conversations we have had over the years have impacted so much of how I have thought about statistics education research. I hope you enjoy your upcoming retirement with the joy it deserves.

Andy

## Andy and Maxine at the end of Anna's successful PhD defense, 2023



Dear Maxine,

Thank you for all you have done for Statistics Education in New Zealand and the world!

Thanks to you, among other warriors, I'm going to New Zealand to research in the land of Statistical Education!

Thank you for everything!

Mauren

Mauren Porciúncula (BR)

In the fall of 2016, you came as a guest lecturer to Christine Franklin's Statistics for Teachers course at the University of Georgia as part of your Fulbright exchange. Prior to your arrival, I saw some advertisements for your lecture about an Eikosogram and Pachinkogram. I was intrigued as I always understood things more deeply if I could "see" them, like in the book Proofs Without Words: Exercises in Visual Thinking. I was taking a probability class at the time and thought most students in the class (both undergraduate and graduate students) would understand better with these visuals, so, I brought the advertisement for your upcoming lecture to the class and the math department.

Chris introduced you to our class by highlighting some of your experiences in New Zealand with some beautiful pictures like the one I am including. We learned about the efforts in New Zealand to infuse more data investigations in the Pre–K-12 years and you shared an activity that allowed younger students to work with their own multivariable data. It was a wonderful class and a treat to learn about international statistics education efforts.

You kindly stayed and talked with graduate students after class. I took a picture of a trio of Fulbrighters with respect and admiration. I remember having a discussion with you about Howard Gardner's work and his Multiple Intelligences (MI) theory. Whereas I heard other researchers brazenly refute his work by only citing that it is a neuromyth, you impressed me with your thoughtful critique as we explored how it might be often misapplied and how important it is for all learners to use visualizations.

Unfortunately, I could not attend your lecture, but I feel like I got to know you through your work, as well as through Chris and Pip. As I continued learning about statistics education, I began to realize the depth and breadth of your work. From empirical enquiry to student thinking, from asking questions to telling stories, from interpreting static box plots to considering dynamic displays, your work is consistently thoughtful and appropriate. Thank you!

I relied on much of your work, especially with Eikosograms, as I conducted my dissertation study with middle and high school students reasoning about (in)dependence with and without a mosaic plot. Mosaic plots have a beautiful connection with geometry, they are now included in the AP Statistics course and some middle grades curriculum, and we included one in the Pre-K–12 GAISE II report.

You have had a great influence on my work and many others here in the United States. I look forward to getting to know you better as we travel together from Georgia to Penn State where you will rightfully be honored with the Cobb USCOTS Lifetime Award.

Congratulations Maxine!

With much thoughtful appreciation for you and your work - kindest regards, Sheri



Sheri Johnson is center, just below Maxine who is on the screen

Being from far away countries, we have met very infrequently in person over the years, at odd conferences and seminars. I got to know you and your inventive mind much better through reading your many papers and chapters (and being on several Zoom calls as part of the SERJ Advisory Board helped!). Your scholarly work and emphasis on connecting theoretical ideas to teachable moments and teaching/learning issue has given me much food for thought - I thank you for that. I was thus delighted when I heard that you will be receiving the George Cobb Lifetime Achievement Award.

Let's face it – statistics education is a demanding arena. It is not easy to understand what is going on through a student's mind, and how to help understanding in this regard. Doing good research about it, that informs teaching and helps teachers become aware of foundational issues to address, is an ongoing challenge. The breadth of your work in this regard is inspiring. And oh, not to forget, your serving as a great editor for SERJ for 4+ years, and dealing with the ongoing struggle to improve 'the system' – editors do a mostly thankless job, and you've been doing all this with your usual quiet and assured style. So, I want to make sure to mention this editorial work, which often goes unnoticed.

I thank you for all that and wish you the best with the next stage in life.

Cordially,

Iddo

Dear Maxine,

Congratulations on your well-deserved George Cobb Lifetime Achievement Award from USCOTS! You have had an immense impact on teaching and research in Statistics Education throughout the world, but most particularly on all of us who are members of USCOTS involved with Statistics Education in the States. I particularly thank you once again for hosting me at Uni Auckland all those years ago for part of my sabbatical leave. What a great experience we had together developing that graduate class on teaching and research in statistics education. That has been one of the most cherished experiences of my professional career. And then a few years later you were able to visit me in the states, and we wrote our "Old Faithful" paper together, one of the best things we created while developing the Auckland course.

Thank you for your many years of work and commitment to Statistics Education, for your editorship of SERJ, for your continued involvement with SRTL, IASE, and your mentorship and encouragement for so many youngsters who have pursued a career themselves in statistics education.

All the best, Mike

I am so happy and excited about this fantastic news that you are honored with the 2023 George Cobb Lifetime Achievement Award in Statistics Education. You have deserved this award so much and I am so happy for you!

I want to thank you so much for all your commitment and your fantastic work in the field of statistics, statistics education, and beyond.

I still remember when we first met SRTL-7 at Texel Island in 2011, I was nervous to meet you because you were and are such an outstanding researcher in statistics education and you have been so warm, polite, and constructive .... I have enjoyed this meeting and so many other of our next meetings at ICOTS in Flagstaff, at SRTL-8 in Two Harbours, and at SRTL-9 in Paderborn - to name just a few.

You have greatly influenced my work and the process of my Ph.D. theses, I have read so much of your work on the interpretation of boxplots from the years 2004, 2006, and 2007, and especially this paper from 2007

Pfannkuch, M. (2007). Year 11 Students' Informal Inferential Reasoning: A Case Study About the Interpretation of Box Plots. International Elec. Journal of Mathematics Education, 2(3), 149-167.

This paper was my fundamental theoretical background for the coding system which I have used in my Ph.D. studies. And of course, the landmark paper you published with Chris Wild in 1999 has immensely influenced the design of my teaching experiments and lesson studies in primary and secondary school classrooms in statistics education.

Wild, C. J., & Pfannkuch, M. (1999). Statistical Thinking in Empirical Enquiry. International Statistical Review, 67(3), 223-265.

You have provided me with fruitful and very valuable feedback in your position as SERJ editor on my SERJ submissions and I feel very proud and excited that I recently got the opportunity to

write a paper together with you (and Rolf and Rob) within the frame of the Handbook of Digital Resources in Mathematics Education.

Maxine, I wish you from my heart the very very best! and I am looking very much forward to our next meeting!!!

Warm regards, Daniel

Daniel's shot of Maxine.

Must have been a great story!



Kia ora Maxine,

What a privilege it is to be able to write something for such a wonderful occasion, and such a totally deserved honour. I don't know how far back others writing in this book go, but I feel from both an educational, collegial, and friendship perspective that I may have known you longer than most, going back to our first days from 1984 to 1987 at Avondale College in Auckland. As my first Head of Department, I can say without any doubt that your inspiration in those early years of my teaching was the cornerstone of a career which has led to a lifetime friendship. We often joke about your forbearance with my naïve, and sometimes frustrating approach which included you almost always having to chase me for reports, and marking, a trait which continues to this day. However, there is no doubt that the leadership you demonstrated then, most particularly in terms of modelling professional development for staff, and in sharing the implementation of the world leading NZ Statistics Curriculum, were instrumental in the paths we both took which led to us meeting again several years later, when we joined the Mathematics Education Unit (MEU) in the Department of Mathematics (and latterly the Department of Statistics), at the University of Auckland from 1993.

Who could forget some of the stories from our Avondale College years, which included your teaching not only mathematics, but dance (how many people know about this other illustrious side of your career?); sharing the leadership of camps in the school's outdoor education program at Taurewa (in the middle of the Tongariro National Park); and the infamous Year 13 Statistics Projects marking and moderation, where Andrew Stafford and I told you we had marked them by pushing all the projects down the stairs and then marking them according to where they landed, with one might say amazing correlation between this approach, and the real marks we assigned from formal marking? We also shared many occasions with colleagues in the department, as we git to know you and Kurt socially with some wonderful parties.



Maxine telling a funny anecdote at my farewell, MEU, University of Auckland June 2016, I think it was the story about me falling asleep in the staff sickbay when we were at Avondale College, and Maxine was tasked with finding me because my class was running riot? You had a tough job as

HOD Maxine 🙄



MEU lunch at Old Government House, June 2014 (Greg 2nd from right).

Our years together at Auckland University in the MEU were very special, as I once again witnessed, and got to share in your passion and drive for statistics education, leading the way with the development of the NZ curriculum, and professional development for teachers, for example in the annual workshops hosted in conjunction with the Auckland Association of Mathematics Teachers. I was also privileged to have you lead us all as the Head of the MEU for several years, and your support of me during that time was again such a big influence on my growth and career. The culmination of my work with you in the MEU came with my proud

opportunity to introduce your keynote address at the 2015 Delta conference on the teaching and learning of undergraduate mathematics and statistics, where you presented the Judy Paterson memorial lecture entitled "Visualizing chance in introductory probability".

My most recent involvement with you came after I left the Auckland University to move to the University of Tasmania (UTAS), during which period we maintained both our friendship, and our collegial connections, partly through my new associations with your close statistics colleagues Jane Watson and Rosemary Callingham here at UTAS, with whom, because of your connections, I have been involved in some fascinating research examining statistical reasoning in the middle school years. This led to one of my proudest moments, when I applied for, and was able to host you as a University of Tasmania Visiting Scholar in August 2018.

Your activities here as part of that scholarship received considerable public interest and feedback from teachers, including an interview with the national radio broadcaster ABC, here in Launceston, after your public lecture (Making Sense of Data-based Information in Society: What should students learn?); and multiple requests from teachers asking to access your resources and your presentation slides after your Mathematics Association of Tasmania (MAT) 2018 Conference keynote address (Revealing statistical ideas through visualizations), and early career teachers' workshops.

I was so proud and happy to have the opportunity to both share your expertise, and entertain you in our new Tasmanian home, as recognition of all the support and the significant contribution you have made to my career. In addition to all the work-related activities, we also had a lot of fun touring around beautiful Tasmania, and meeting colleagues and teachers. A few photos from this are shown below, including one from the freezing trip to the beautiful Dove Lake at Cradle Mountain, and the bridge over the estuary at Scamander Beach of the East Coast.



Jane Watson introducing Maxine at her 2018 MAT conference keynote address.



Maxine's interview with ABC Radio (Tasmania), after her public lecture in August 2018.





Scamander Beach, East Coast Tasmania.

Dove Lake, Cradle Mountain, central Tasmania.

Huge congratulations on your lifetime achievement award, such a wonderful and well-deserved honour for which I am proud to have had the opportunity to share in your journey, have a great time during the trip.

Kia kaha, arohanui, and hugs from Tasmania

Greg and Daniel

Thank you so much for your leadership in statistics education research, and in particular, the collaboration you have done with US educators such as Chris Franklin who have indeed made an impact on US statistics education. Your work has guided much of my own work. Your dedication to quality research located SERJ in a premier position in the academic world, including encouraging me as IASE President to move the publication process to an online platform and to establish the SERJ Advisory Board. Our recent collaboration has been a delight, your depth of knowledge and ability to express ideas are outstanding, and your patience and clarity of focus in working through the development of an idea has informed my thinking in so many ways. You are more than deserving of this honor.

Gail

Dear Maxine,

Congratulations on your Life Time Achievement Award for your contributions to statistics education.

I have known you for a long time, starting with some email exchanges about the paper you prepared with Chris on statistical thinking, then in 2000 when you spent some time with us in our house in Kassel, and a year later when I stayed with you in Auckland in August and September 2001.

Since then we have met regularly at international conferences. I always enjoyed talking to you about statistics education and the rest of the world. Reading your scientific papers enriched my knowledge about statistics education and inspired my own research..

It was a great pleasure for me that we recently co-authored a paper (together with Rob Gould and Daniel Frischemeier) on Impacts of Digitalization on Statistics Education Content and Goals, which will be published in the Handbook of Digital Resources in Mathematics Education.

With my best regards, liebe Grüße

Rolf

Congratulations Maxine! You have been a super star in the statistics education research world.

Your research has helped countless statistics teachers rethink their goals for students and how to better focus on the goal of developing students' statistical reasoning.

You have also been a major contributor to the SRTL community. Thanks for all you have done, and enjoy this well deserved reward!

Joan Garfield

oan Garfield (US

Congratulations on receiving the George Cobb Lifetime Award! You have been a leading light in transforming Stats education at home and overseas. You have done the hard mahi over many years, making sure Stats Ed is up to date and fit for purpose.

The last forty years certainly have been a rollercoaster ride, with all the new technology and new ways of modelling, testing, and learning from data. Your research and deep understanding of the peculiarities of learning from data have been so valuable.

You have been the rock teachers have relied on and needed while navigating the sometimes choppy seas of change.

Thank you for all your sage advice and insight, both personal and professional, that you have given me. It has been a real privilege to have you by my side, guiding me through my master's and Ph.D. journeys.

Speaking as a secondary school teacher, we have a lot to thank you for. Your leadership and vision have been inspirational and have meant Aotearoa is at the cutting edge of stats education.

I know some teachers find it a bit uncomfortable being on the cutting edge, but not me! And that was because I could always turn to you for advice and (research-informed) discussion. Lucky me!

I have learned so much working with you, and I'm so pleased you attended "just one more" conference!

You are a worthy recipient of this prestigious award. Thank you again for all your mahi and dedication to Stats Education and to me.

Nga mihi nui

Arohanui

Anne





Warmest congratulations! What a deserving recipient of this award. Your work, your thinking and your kindness has had such an enormous impact on me. The fondest of my academic memories include you. Meeting you for the first time in 2001 at SRTL in Armidale when I was a PhD student, I remember trying to keep you from catching me fan-girling. I wish I could find those pictures now. I remember walking with you a few years ago along the Auckland docks and through the university; your wisdom about transitioning into retirement was so thoughtful. I see many years later you are still in transition and I'm so grateful that you've not disappeared.

Your many works have shaped my thinking and will impact the field for decades. From the beginning, I was fascinated by your 1996 JSE paper with the NZ map question on variability and of course the classic ISR paper with Chris. I consult that one at least twice a year and it feels even more relevant today. The more recent work on predictive modeling and your handbook chapter on curriculum reform were well ahead of their time.

We feel fortunate that you've given us Pip and Anna to continue the SRTL tradition. Your wisdom for over two decades continues to echo through the group – we miss you terribly.

Fondly, Katie



SRTL 4 Auckland, 2005, Maxine at bottom left, Katie at bottom center

#### Tēnā koe Maxine

He mihi whakanui (a huge congratulations)! On behalf of Aotearoa New Zealand Statistics teachers, I extend my heartfelt appreciation for the tremendous contributions you have made throughout your career in researching and developing learning trajectories and resources. Your efforts have played a pivotal role in supporting, inspiring, and empowering us to deliver a world-class Statistics curriculum, ultimately bringing the wonders of statistics to our students. We appreciate your unwavering commitment to upholding the mana of what we do in the classroom and recognising the value that we, as classroom teachers, bring to statistics education.

On a personal note, I consider myself fortunate to count you as a friend. Your consistent acts of generosity, warm hospitality, genuine care, and engaging conversations have left a lasting impression on me. From our initial meeting back in 2010, when I bravely went up to one of the esteemed figures in New Zealand's statistics education community to ask if I could be involved in your TLRI project, to the delightful moments of hosting you and Chris at Heartfield Homestead, not to mention the unparalleled penthouse accommodations you graciously offer (at incredibly competitive rates), the journey of getting to know you has been an absolute delight.

Ngā mihi nunui, Michelle



Michelle, Maxine and Pip

SRTL 7 Utrecht University, Texel Island The Netherlands, 2011



Congratulations on receiving the 2023 George Cobb Lifetime Achievement Award in Statistics Education. Well deserved. You possess a unique ability to inspire and empower those around you with your dedication to excellence and your passion for development in statistical education.

Your guidance, expertise, and unwavering support have been instrumental in my academic journey and personal growth. You have been an incredible mentor, always made yourself available to provide feedback and offer invaluable advice. I am forever grateful to have had the privilege of working with someone as exceptional as you.

With deepest appreciation,

Marina

Pictures from IASE Roundtable Conference in Lund, Sweden, 2004







I can see from all of the above tributes how much the people who know you, love you as a friend, colleague, and mentor, and how they all admire your work. Well I want to testify that, for every one above who knows you personally, there are a hundred more statistics educators like myself who applaud your work and recognize your huge influence on statistics education. And, for every one of us, there are ten thousand more students who have benefited from all you have done.

This global community applauds you.

Dennis





The George Cobb Lifetime Achievement Award in Statistics Education is presented by CAUSE at the U.S. Conference On Teaching Statistics (USCOTS) to an individual who, over an extended period of time, has made lasting contributions with broad impact to the field of statistics education.

The award committee is made up of the Director of CAUSE, the Chair of the CAUSE Board of Directors, the eCOTS and USCOTS Program Chairs and selected past winners. The 2023 committee (Dennis Pearl, Bob delMas, Megan Mocko, Kelly McConville, Danny Kaplan, Ann Watkins, and Chris Franklin) presented the award to Maxine Pfannkuch on Friday June 2nd, 2023 at the USCOTS Banquet in State College, Pennsylvania.