December 2023

Tēnā koutou

As we bid farewell to 2023, we wanted to reflect on the milestones and accomplishments we've achieved at MSL. This past year has been marked by significant progress and growth, and there's much to celebrate.

We've successfully transitioned into our new building, and the recommissioning of our measurement scales is now complete. We have new equipment in place such as a replacement 100 g mass comparator and a vector network analyser enhancing our capabilities and extending our capacitance calibration range up to 2 MHz.

Our ability to maintain our accreditation is a testament to the high standards we continue to uphold, and we're proud to have issued over 150 calibration reports to our valued customers, ensuring accuracy and quality at the forefront.

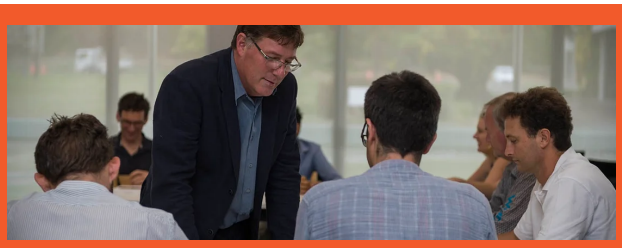
But, we know there's still more to do. We're figuring out how to balance researching for the future with keeping our current scales ready to go. We want to be quick with our services, but we also know that being super accurate, like a national metrology institute should be, takes careful work.

Where do we find the confidence to make these improvements? Well, it's in our quality system – the unsung hero that helps us do well and make the changes we need. It's worked hard this year, and we're expecting more of the same next year.

So at the end of 2023, I will raise my glass to quality systems and continuous improvement!

Kei te harikoa ngā hararei ~ Have a happy holiday

Annette Koo
Director and Chief Metrologist



Training Courses March 2024 – Register Now!

MSL training courses are a great opportunity to support your laboratory's accreditation and to further the professional development of employees. Registration is now open for the following courses which will be offered at Gracefield Innovation Quarter, Lower Hutt:

- Measurement, Uncertainty and Calibration – Tuesday 12 March 2024
- Temperature Measurement and Calibration – Wednesday 13 March 2024

The regular schedule of courses will also run in Auckland in August 2024.

Early bird discounts end on 21 January 2024. A link to the registration portal is here.

Find out more

One of the strategic themes from our Plan involves contributing to the evolution of metrology by taking a leading role nationally and internationally in developing new measurement techniques, and applying metrology principles to new areas. It requires us to stay aware of and respond quickly to the country's needs, as well as keeping pace with international advancements and changes in metrology.

Through our conversations across Aotearoa New Zealand and internationally, we have identified three priority areas for focus and investment consideration.

Quantum Metrology
Quantum Metrology has two components. We need to take advantage of quantum technologies to improve measurement and its dissemination, and we need to prepare to provide measurement services to an emerging quantum technology sector.

Quantum technologies are emerging technologies based on subtle quantum effects, such as superposition and entanglement. They are expected to revolutionise computing, communications, sensing, finance, aerospace, and other industries. Similarly they will impact metrology, with the potential to flatten the calibration chain, providing primary references directly to end users at fit for purpose accuracy levels.

The highly disruptive potential of these technologies has been realised by governments and companies around the world, with a number of quantum national initiatives launched in recent years. New Zealand has followed suit, introducing the Quantum Technologies Aotearoa Programme to support the growth of this sector. MSL is on the steering committee for this programme, and is looking forward to contributing to its work, and developing relationships with metrology institutes internationally to collaborate in developments to benefit New Zealand.

Chemical and Biological Metrology
Chemical and Biological Metrology primary facilities could underpin the security of our primary sector exports, food safety, and the quality of medical diagnosis and care.

These sectors are served very well by a network of testing and calibration laboratories across the country. Reference materials, proficiency testing, and metrology training can be largely sourced from overseas thanks to New Zealand's participation in the (CIPM MRA). The long term quality of the measurements required in these fields could be supported by a New Zealand-based metrology capability.

MSL has built relationships with international laboratories carrying out these roles in their economies, and is in discussion with potential partners in New Zealand to see what options there would be to establish and deliver this service.

Terrestrial Time
Terrestrial time dissemination will improve the resilience of our infrastructure.

Reliable, accurate time is an essential part of critical infrastructure in areas such as electricity power grids, telecommunications networks, cybersecurity, financial trading, transport networks, and others.

Like many countries, New Zealand is highly dependent on time synchronisation provided by Global Navigation Satellite Systems (GNSS), e.g. the Global Positioning System (GPS) operated by the US Space Force. Recognition of GNSS vulnerability, for example in the USA, has prompted international research into delivery of accurate time from national time standards (atomic clocks like those at MSL) over optical fibre to provide an alternative resilient time architecture.

MSL has recognised the opportunity we have to provide such a service and is considering the operating model for this investment that will best suit our national long term interests.

If you have interests in these areas, or would like to know more, please select find out more, and we'll put you in touch with a team lead.

Find out more

Introducing Intern Lisa Bergemann

Lisa joined MSL on 20 November for an internship toward her degree in B.Sc. Mechanical Engineering at the Technical University of Braunschweig, Germany. She completed part of her basics in manufacturing pre-internship in 2021 at Physikalisch-Technische Bundesanstalt (PTB), the National Metrology Institute of Germany, and last year completed an exchange semester to Finland. She passed her exams in August and to finish her degree, needed to complete a 10-week Engineering Internship so she jumped at the opportunity and applied to New Zealand's National Metrology Institute, MSL!

Lisa actually arrived in September and was lucky enough to do a road trip with her parents. She says "New Zealand is truly unique – you can find glaciers, palm trees, beautiful beaches, flora and fauna, and a combination of landscapes like green hilly grassland with sheep!" While here, Lisa will be working closely with Yin Hsien Fung in the Mass and Related Quantities Team on the automation of a hydrostatic weighing facility. At the moment, the system requires manual positioning. After the automation, the positioning system will be more accurate and the hydrostatic weighing measurement will be more efficient and precise.

Why metrology? "After my Internship at PTB, I began working there in 2022 as a Student Assistant in the working group Layer Thickness and Crystalline Standards (Surface Metrology) and wish to do my thesis there. The reason why I enjoy practical work in research and especially in metrology is the fact that the longer you work on a project and the more contexts you understand, the more fascinating and interesting the project is for me. Metrology is a super fundamental science and many people do not realise or underestimate how essential it is and the impact it has on our daily lives."

Your future? "I will specialise more in Medical Systems Engineering in my Master's Degree, but would like to do a combination of both, for example, there's a division at PTB that specialises in measurement in medicine."

Lisa departs for home on 23 February 2024 and says "I will miss New Zealand people who are incredibly nice, helpful and attentive. I felt at home at MSL right from the start and was very well integrated into the group. I really appreciate that!"

Applications Open for the MSA Emerging Metrologist 2024 Award

The New Zealand Branch of the Metrology Society of Australasia (MSA) wants to recognise and celebrate excellence in our measurement community. In May 2024 we will be awarding the Emerging Metrologist Award on World Metrology Day at Gracefield Innovation Quarter. Do you have someone in your laboratory who is doing a great job and fits the criteria? We're seeking nominations for an individual who has been in a metrology related industry for less than five years and who stands out amongst others with respect to technical knowledge, quality focus, client focus and their own learning and development. Please email the secretary@metrology.asn.au to get your nomination started before 28 February 2024.

Festive Close-down Dates

MSL and our Inwards/Outwards Goods Store will be closed from midday on Friday 22 December and reopen on Wednesday 10 January 2024. We look forward to assisting you then – happy holidays!

www.measurement.govt.nz

info@measurement.govt.nz

MSL's Strategic Plan

Tell us what sort of information you would like to receive in future updates from us by emailing info@measurement.govt.nz

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