elaborate

Measurement Standards Laboratory of New Zealand

September 2024

Kia ora e hoa mā | Hello friends!

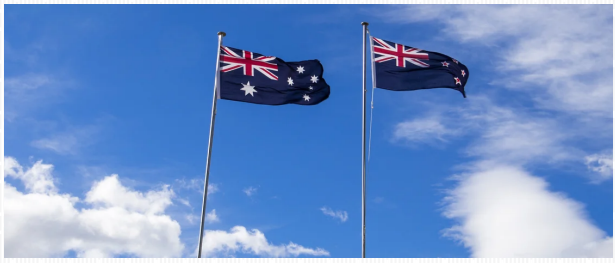
I was recently looking at how the Measurement Standards Laboratory of New Zealand (MSL) stacks up against some international benchmarks. Many different factors influence the investment that different countries make in metrology, and the particular range of services that they select to maintain. These include meeting specific legal requirements, protecting important economic sectors, monitoring of natural resources and environment, or supporting a highly regulated market. Taking this broad look helped me identify how we've come to the particular scope of capability that we have, and also note some gaps where New Zealand may need to develop for the future (as always, keen to hear if you have any thoughts on this).

Some of the specific choices we make may vary between countries but we share the fundamental reason for investing in metrology institutes – the benefits are huge! A 2023 study by the New Zealand Institute of Economic Research found that good measurement adds $7.3 billion to the New Zealand economy – that's a return of $47 for every dollar spent on metrology across the economy. This is because quality measurements reduce technical barriers to trade, raise the efficiency of the market and lower transaction costs, improve productivity, enable regulation, and support health and safety... I could go on!

MSL is very proud to be part of the national measurement system alongside all the commercial calibration laboratories, delivering that value to our country.

And to acknowledge Māori Language Week in September, I'll sign off with, Kia kaha te reo Māori, ake ake ake! | Stay strong, a forever language!

Annette
Director and Chief Metrologist



New Zealand and Australia confirm cooperative metrology relationship

New Zealand's Measurement Standards Laboratory (MSL) and Australia's National Measurement Institute (NMI) continue their commitment to working together.

An Arrangement recently signed by MSL and NMI follows previous MOUs signed in 2007 and 2017 and reflects an ongoing intention to cooperate to build metrology capability. The areas of mutual interest identified in the Arrangement are:

- Technical and scientific exchange through virtual teams, joint projects, and facility access arrangements.
- Cooperation to engage with the Pacific and Indo-Pacific regions.
- Collaboration to support the indigenous interests in our respective countries.

The Arrangement provides a framework to bring together the wealth of experience and expertise that the two institutes hold. Dr Annette Koo, Chief Metrologist at MSL says that, "This increased resilience secures the benefits that good measurements bring to New Zealand – in trade, innovation, and looking after our people and resources."

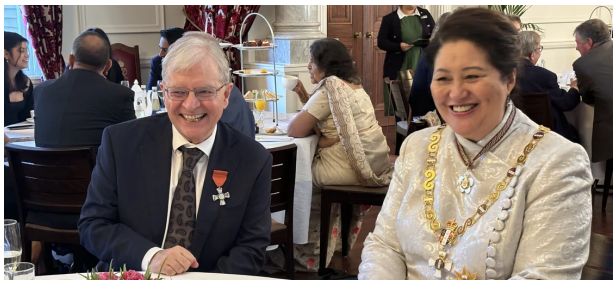
China's National Institute of Metrology visits MSL

The Measurement Standards Laboratory hosted a delegation of six people from the National Institute of Metrology (NIM) China, in June, including their Vice Director, Dr Xinhua Dai. We exchanged information on our respective strategies and technical priorities and discussed opportunities to collaborate. Several opportunities in digital transformation, measurement support for quantum technologies, and the future for mass and electrical measurements were identified. We look forward to building a deeper relationship with NIM.

Staff Spotlight

Our very own Greg Reid represented New Zealand at the Paris Paralympic Games 2024. Greg's speciality is shooting para sport, and while he did not return with a medal, we're sure you can agree that it takes a lot of commitment to coaching and practice to even make it to the Paralympics. Well done, Greg, on this fantastic accomplishment!

Greg is a Research Technician within the Mass and Pressure team. Some of his areas of expertise include the calibration of standard masses, volume measures, and density artefacts, including hydrometers. Greg is also an instructor for MSL's Balances and Weighing workshop.



Distinguished Scientist recognised in King's Birthday Honours

On 10 September Keith Jones received his insignia as a Member of the New Zealand Order of Merit for services to metrology from, Dame Cindy Kiro. What a wonderful event, celebrating a lifetime of service.

Read more

Updated Technical Guides

Calibrating Piston Pipettes

Mass and Pressure - Technical Guide 30

This technical guide describes a method for calibrating both fixed volume and variable volume piston pipettes with volumes from below 1 µL to above 10 mL. The guide covers the necessary equipment, the method and how it relates to ISO Standards for piston pipettes, the necessary calculations and the measurement uncertainties. It also addresses the method uncertainty associated with calibrating pipettes to ISO 8655.

Spatial Surveys of Dry-Block Calibrators and Calibration Baths

Temperature and Humidity - Technical Guide 42

Previously titled: Calibration of Dry-Block Calibrators.

Dry-block calibrators and liquid calibration baths are widely used in second-tier calibration laboratories and throughout industry as calibration media for temperature measurement and control systems.

Table 1. Example calculation of u_{meas} using two calibrated probes with the certificate corrections applied.

Probe A depth (mm):					150
Probe A certificate correction (°C):					0.008
Probe B certificate correction (°C):					0.012
Probe A raw reading (°C)	Probe A corrected reading (°C)	Probe B depth (mm)	Probe B raw reading (°C)	Probe B corrected reading (°C)	Difference in corrected readings (°C)
50.002	50.010	150	50.045	50.057	−0.047
50.003	50.011	140	50.039	50.051	−0.040
50.005	50.013	130	50.034	50.046	−0.033
50.002	50.010	120	50.035	50.047	−0.037
50.004	50.012	110	50.032	50.044	−0.032
50.004	50.012	100	50.033	50.045	−0.033
				u_{meas} = STDEV(last column):	0.006

The purpose of this technical guide is to provide users with a simple method for surveying both dry-block calibrators and liquid baths and assessing their accuracy as calibration media to be used with either an external reference thermometer or a calibrated indicator.

We highly value your feedback

We have updated the website with a new form for customer feedback.

Your feedback helps us improve the range and quality of our services – we always appreciate your opinions and the sharing of your thoughts.

Find out more

Adjustments to MSL Fees

Adjustments have been made to MSL's professional and calibration service fees, and in most instances, these were increased from 17 September 2024. Click below to find out more on our calibration service fees for a wide range of instruments and artefacts.

Thank you in advance for your continued support.

Find out more

Science Roadshow – MSL supports MSA outreach

Taking opportunities to support science education initiatives is important to MSL. The Science Roadshow is a mobile science discovery centre that tours schools throughout New Zealand with live shows and hands-on exhibits. The Metrology Society of Australasia (MSA) are sponsors of one of the demonstration exhibits on the Science Roadshow, where students are asked to bung up a hole in their rocket ship. They are provided with various tools to measure the hole in the rocket and the diameter of the bungs and need to make a decision based on the results of their measurements. We thought we would check it out!

Lenice Evergreen (MSA Committee Member), Ellie Molloy, and Peter McDowall

jumped at a lunchtime opportunity to catch the Science Roadshow at the local Hutt Intermediate School.

Find out more

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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