



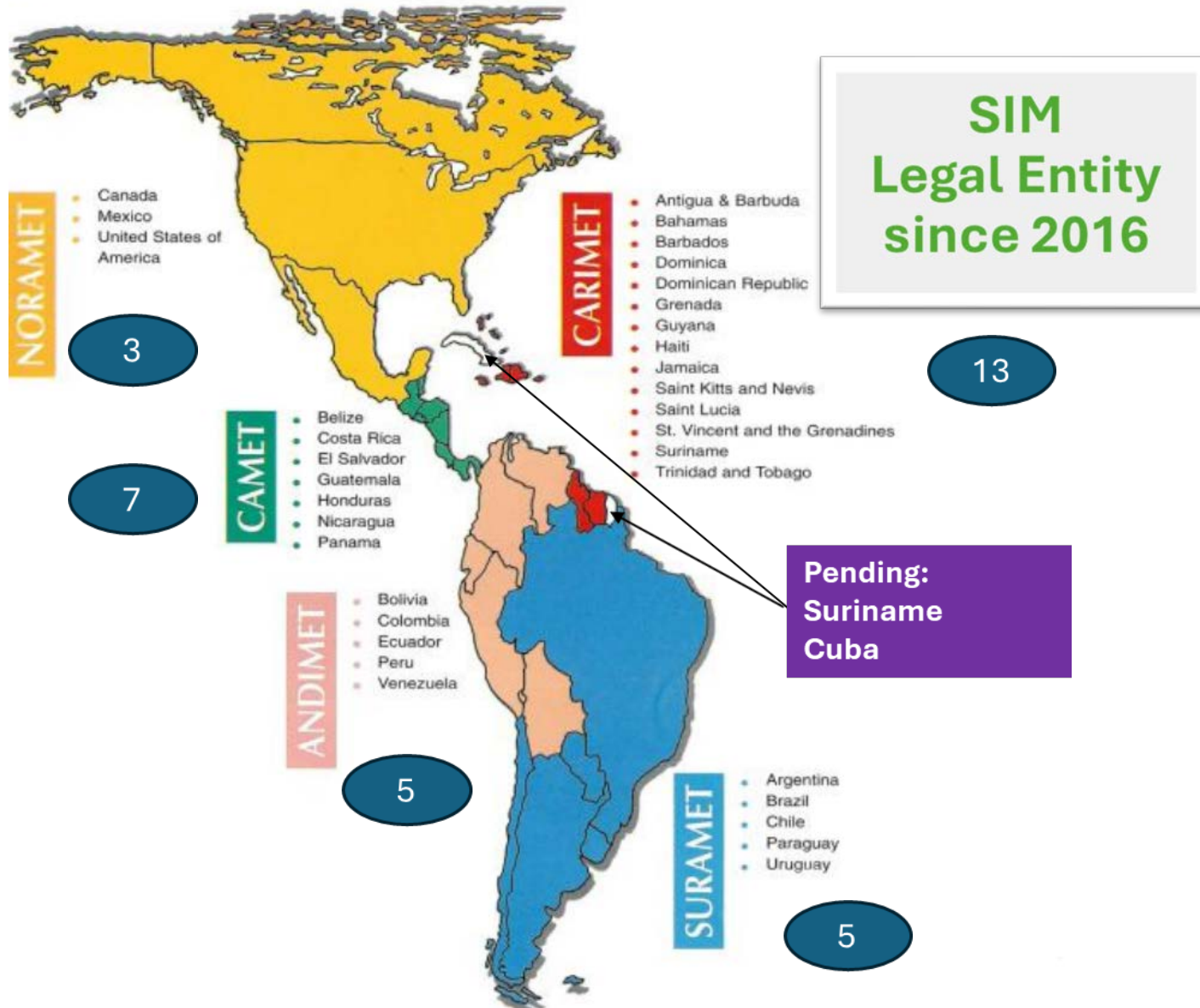
Report of SIM TC-M

Sheila Preste

CCM, 26 and 27 June 2025



Structure



	Region	Country	NMI/Active member	DI/ Associate member
1	NORAMET	Canada	NRC	TCC
2		Mexico	CENAM	IECC, ININ
3		USA	NIST	NUWC-USRD, IAEA
4	CARIMET	Antigua and Barbuda	ABBS	
5		Bahamas	BBSQ	
6		Barbados	BNSI	
7		Dominica	DBS	
8		Dominican Republic	INDOCAL	
9		Grenada	GDBS	
10		Guyana	GNBS	
11		Haiti	BHN	
12		Jamaica	BSI	
13		St. Lucia	SLBS	NADF
14		St. Kitts and Nevis	SKNBS	
15		St. Vincent and Grenadines	SVGBS	
16		Trinidad and Tobago	TTBS	
17	CAMET	Belize	BBS	
18		Costa Rica	LACOMET	LAMETRO-ICE, ICE LMVA, RECOPE, LanammeUCR, NEW
19		El Salvador	CIM	
20		Guatemala	CENAME	
21		Honduras	CEHM	
22		Nicaragua	LANAMET	
23		Panamá	CENAMEP	
24	ANDIMET	Bolivia	IBMETRO	
25		Colombia	INM	CALAIRE
26		Ecuador	INEN	NEW
27		Peru	INACAL	
28		Venezuela	SENCAMER	
29	SURAMET	Argentina	INTI	CNEA
30		Brazil	INMETRO	LNMRI/IRD, ON/DSHO
31		Chile	INN	
32		Paraguay	INTN	
33		Uruguay	LATU	UTE

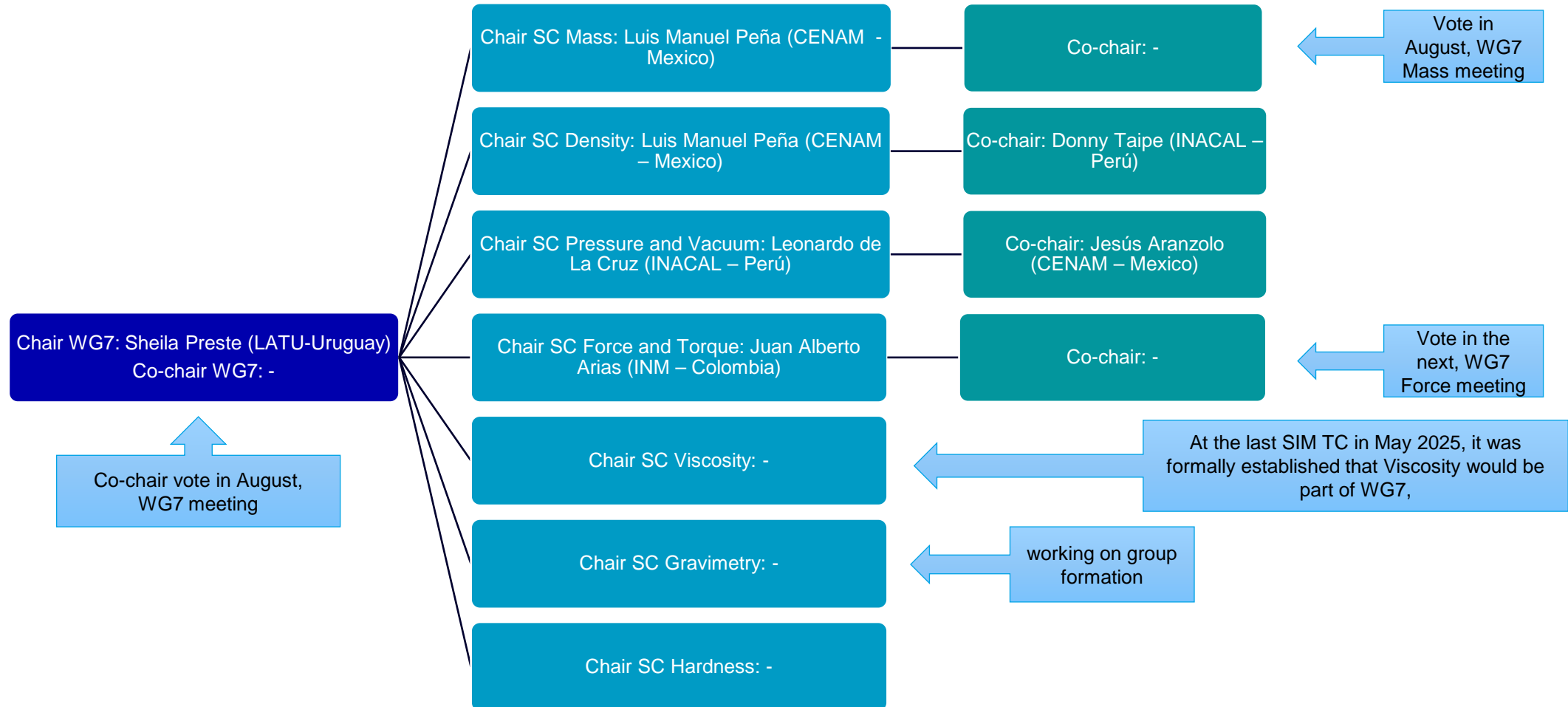
COPANT, IAAC, CROSQ, AEM MS

54 Members since 2016: 33 active members (NMIs), 17 associate members (Dis+), 4 affiliate members

MWGs Coordinating with the Consultative Committees

MWG 1: Electricity and Magnetism	MWG 2: Photometry and Radiometry
MWG 3: Thermometry	MWG 4: Length
MWG 5: Time and Frequency	MWG 6: Ionizing Radiation and Radioactivity
MWG 7: Mass & Related Quantities	MWG 8: Chemistry and Biology
MWG 9: Acoustics, Ultrasound and Vibration	MWG 10: Flow and Volume
MWG 11: Legal Metrology	MWG 12: Quality System
MWG 13: Statistics and Uncertainty	MWG 14: Metrology for Digital Transformation

Structure MWG 7 of SIM



Meetings



- Training in calibration and verification of static uniaxial testing machines according to the ISO 7500 standard, and Training of peer evaluators in the **Force and Torsional Torque** magnitude. 1 week in October 2023 - IDIC (Chile)
- TC meeting during mid term SIM week in Costa Rica (May 2024)
- TC meeting during mid term SIM week in Colombia (May 2025)
- Meeting in Viscosity, 2024 in CENAM (Mexico)



Future Meetings



Meeting: Calibration of weighing instruments: automatic instruments and microbalances

Place: INM Colombia

Dates: from August 11 to 15, 2025

Participant: 30 of 19 different NMIs have been confirmed so far

Agenda

Introduction to the document "SIM Guide for the Calibration of Non-Automatic Weighing Instruments with a Resolution Less than 0.010 mg"

Method Development

Laboratory Practice

Analysis of Results and Measurement

Calibration of Automatic Weighing Instruments

Presentation of the document "Guidelines on the Calibration of Automatic Catchweighing Instruments" published by EURAMET

Development of the method

Adaptation of the document to the SIM region

KCDB 2.0. Writing and reviewing CMCs. For all WG7

Meeting of WG7 Chairs and Representatives

Mass Group Meeting SIM – MWG7

Projects



NIST GRANT



Support technical activities prioritized by our TC,
some examples:

- **SIM Internship program (MAR – JUN 2024)**
- **SIM School (AUG 2024) in INM Colombia**
- **1 week - 70 students / 20 Speakers**



CIPM MRA: KCs - Mass



Comparison Identifier	Description	Participants	Measurement period	Pilot institute	Status
SIM.M.M-K4	Comparison of mass standards, a 1 kg stainless steel standard	7 participants	2009 - 2013	INTI	Approved for equivalence
SIM.M.M-K4.1	Comparison of mass standards, a 1 kg stainless steel standard	2 participants	2022	LATU	Report in progress, draft A
SIM.M.M-K5	Comparison of mass standards, Mass: 200 mg, 1 g, 50 g, 200 g and 2 kg	7 participants	2009 - 2013	INTI	Approved for equivalence
SIM.M.M-K6	Comparison of mass standards, Mass: 50 kg	8 participants (7 NIM and 1 ID)	2015 - 2017	CENAM	Report in progress, draft B

The requested modifications are being made. The final report is expected to be published in a few months.

CIPM MRA: Supplementary Comparisons - Mass



SIM.M.M-S18	Comparison of mass standards, mass of 20 kg		2 participants	2018	CENAM	Approved – May 2025
	Description	Parameters	Participants	Measurement period	Pilot institute	Status
SIM.M.M-S19	Comparison of mass standards of accuracy E2, mass 10 mg, 500 mg, 10 g, 100 g, 1 kg, 2 kg		3 participants	2019	CENAM	Report in progress, draft B
SIM.M.M-S20	Comparison of mass standards, 200 mg , 1 g , 50 g , 200 g, 1 kg, 2 kg and 10 kg	Temperature and relative humidity according to OIML R111-1 Table C1 for F1 weights	2 participants	2022	INACAL	Measurements in progress
SIM.M.M-S21	Comparison of mass standards, 200 mg, 50 g, 200 g, 1 kg, 2 kg, and 5 kg		5 participants	2023 - 2025	BSJ	Measurements in progress

SIM.M.M-S19 : At the end of April 2025, Draft B with the requested modifications is sent for approval and subsequent publication of the Final Report. A response is pending.



CIPM MRA: KCs & SCs - Viscosity



Comparison Identifier	Metrology Area	Sub-field	Description	Parameters	Measurement period	Pilot institute	Status
SIM.M.V-S2	Mass and related quantities	Viscosity	Viscosity measurements of standard liquids	Temperatures at 20 °C, 25 °C and 40 °C	2025	CENAM	Measurements completed

CIPM MRA: KCs & SCs - PRESSURE AND VACUUM

Comparison Identifier	Metrology Area	Sub-field	Description	Parameters	Measurement period	Pilot institute	Status
SIM.M.P-S13	Mass and related quantities	Pressure	Pneumatic absolute pressure	Absolute pressure	2025	LACOMET	Protocol complete
SIM.M.P-K7	Mass and related quantities	Pressure	Pressure measurements in oil (gauge mode)	Pressure: 10 MPa to 100 MPa	2024 - 2025	ENAER	Measurements in progress

CIPM MRA: KCs & SCs – Force and Torque



Comparison Identifier	Metrology Area	Sub-field	Description	Parameters	Measurement period	Pilot institute	Status
SIM.M.F-K3.a	Mass and related quantities	Force	High force measurements		2023 - 2024	INM (CO)	Measurements in progress
SIM.M.F-S2	Mass and related quantities	Force	Calibration of a force testing machine in compression		2012	IDIC	Report in progress, draft A
SIM.M.F-S6	Mass and related quantities	Force	Force from 10 kN to 100 kN		2017	IDIC	Report in progress, draft A
SIM.M.F-S7	Mass and related quantities	Force	Force from 500 kN to 1000 kN	Temperature 21 °C ± 1 °C	2018 - 2019	IDIC	Measurements completed
SIM.M.F-S8	Mass and related quantities	Force	Calibration of a force testing machine (FTM) in tension and compression modes	Temperature 20 °C ± 2 °C	2018	IDIC	Measurements completed
SIM.M.F-S9	Mass and related quantities	Force	Force calibration	Temperature average: 21.0 °C +/- 2 °C	2019	IDIC	Planned
SIM.M.F-S10	Mass and related quantities	Force	Comparison of force calibration machine in compression	Temperature average: 21.0 °C ± 2 °C	2020	IDIC	Report in progress, draft A
SIM.M.F-S11	Mass and related quantities	Force	Low force measurement	Force steps in compression	2021 - 2022	INTI	Report in progress, draft A
SIM.M.F-S12	Mass and related quantities	Force	Calibration of force testing machines in compression		2023 - 2024	INM (CO)	Report in progress, draft A
SIM.M.F-S13	Mass and related quantities	Force	High force measurement	Force steps in compression	2023 - 2024	INTI	Measurements in progress

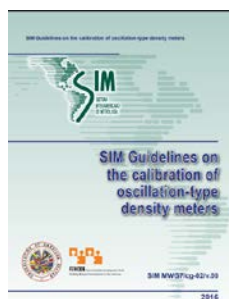
- **SIM.M.F-K3.a - SIM.M.F-S13** - The equipment is currently leaving Buenos Aires (Argentina). There were customs issues that prevented it from leaving the country on schedule. Measurements are now 60% complete, with measurements still to be taken in Costa Rica, Ecuador, Brazil, and the NIST reference.
- **SIM.M.F-S12** - Draft A was sent in January 2025. There were some comments regarding this that are being resolved. Draft B is expected to be sent next July.
- **SIM.M.F-S2, SIM.M.F-S6, SIM.M.F-S8, SIM.M.F-S10** – Draft B send for approval as a final report, it is estimated that in 2025 the final reports of the 4 comparisons will be approved.



SIM Guidelines on the calibration of non-automatic weighing instruments

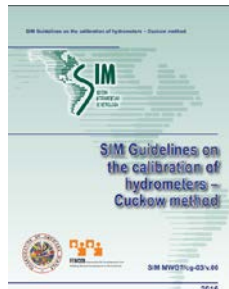
SIM MWG7/cg-01/v.00 2009 / Identical to the original EURAMET/cg-18/v.02

The translation of the new version of EURAMET/cg-18/v.04 has been completed and work is being done with Euramet to adjust it for publication of version 1 of the SIM



SIM Guidelines on the calibration of oscillation-type density meters

SIM MWG7/cg-02/v.00 2016



SIM Guidelines on the calibration of hydrometers – Cuckow method

SIM MWG7/cg-03/v.00 2016



SIM Guidelines on the calibration of non-automatic weighing instruments with resolution less than 0.010 mg

SIM MWG7/cg-04/v.00 2025

What's next?



- **Meeting:** Development of Technical Capabilities in Force and Torque Metrology in CENAMEP Panama. Project presented to the Perez Guerrero funds in April 2025. Activity scheduled 2025 – 2026
- **Meeting:** Intensive course in pressure and vacuum metrology, training course for peer reviewers in the magnitude of Pressure and in parallel an international comparison in measurement of barometer in CENAMEP Panama 2025 – 2026.
- Hydrometer calibration training in 2026-2027.
- Workshop on viscosity and density 2026-2027.
- Formation of the viscosity working group 2025-2026.
- Formation of the gravimetry working group



What's next?



Measurement Comparisons



SIM.M.M-K4.xxx

Comparison of mass standards (1 kg)

- **Pilot: CENAM (Mexico)**
- **Status: Planned for 2026 / Technical Protocol in progress / 3 comparisons in parallel / Weights provided by SIM and INM (Colombia)**
- **Last comparison: SIM.M.M-K4, final report in 2014**

What's next?



Measurement Comparisons



SIM.M.M-K7.xxx

Comparison of mass standards (500 mg, 5 g, 10 g, 100 g and 5 kg)

- **Pilot: CENAM (Mexico)**
- **Status: Planned for 2026 / Technical Protocol in progress / 3 comparisons in parallel / Weights provided by SIM and INM (Colombia)**
- **Last comparison: SIM.M.M-K5, final report in 2014**

What's next?

Measurement Comparisons



SIM.M.D-K3.xxx

Density measurements of stainless-steel weights (20 g to 1 kg)

- **Pilot: CENAM (Mexico)**
- **Status: Planned for 2026 / Technical Protocol in progress / 3 comparisons in parallel / Weights provided by SIM and CESMEC (Chile)**
- **Last comparison: SIM.M.D-K3, 2009 -2012**

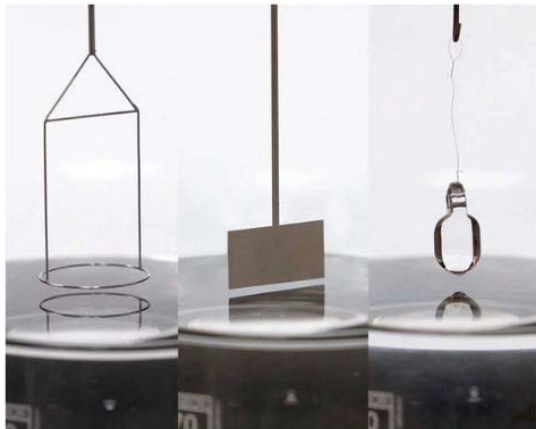
What's next?



Pilot Study

Pilot study on Surface tension of liquids

- Pilot: CENAM (Mexico)
- Participants: LATU (Uruguay), INM (Colombia), others
- Status: Planned for 2026-2027 / New questionnaire will be distributed



Thank you.

spreste@latu.org.uy

