

Report on Regional Flow Technical Committees

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NIST Fluid Metrology Group
February 22, 2013

Report of APMP/TCFF

Yoshiya Terao (NMIJ Fluid Flow Div.)

APMP/TCFF Chair



CCM/WGFF meeting

June 19, 2012, Colorado Springs

APMP/TCFF meetings in 2011

- APMP/TCFF annual meeting on Dec. 5 and 6, 2011 at Kobe, Japan.
 - 14 attendees from 11 NMIs.
 - Topics
 - NMI reports
 - KC reports & New round of APMP KCs
 - CMC review issues
 - WGFF resolutions
 - APMP Executive Committee
 - APMP TC Chairs meeting
 - Recent Activities by Member NMIs

APMP/TCFF Workshop and Technical Tour

- Technical Tour on Dec. 2
 - Water Flow Calibration Facility (Shimadzu System Solutions Co. Ltd.)
 - Suntory Yamazaki Distillery



APMP/TCFF Workshop and Technical Tour

- Workshop on Liquid Flow Calibration Facilities (Dec. 3)

Presentations on NMIJ liquid flow facilities

NMIJ Water Flow Facility (Dr. Furuichi, NMIJ/AIST)

NMIJ Hydrocarbon Flow Facility (Dr. Shimada, NMIJ/AIST)

Presentations from accredited calibration labs in Japan

Yamatake Corporation (Mr. Sugiyama)

Endress+Hauser Japan Co., Ltd. (Mr. Izumi)

Shimadzu System Solutions Co. Ltd. (Mr. Yoshimura)

21 people attended


Invited talk

Calibration and Measurement of Micro Liquid Flow
(Dr. Chun-Min Su, CMS/ITRI)



CMCs in KCDB

CCM/
WGViscosity

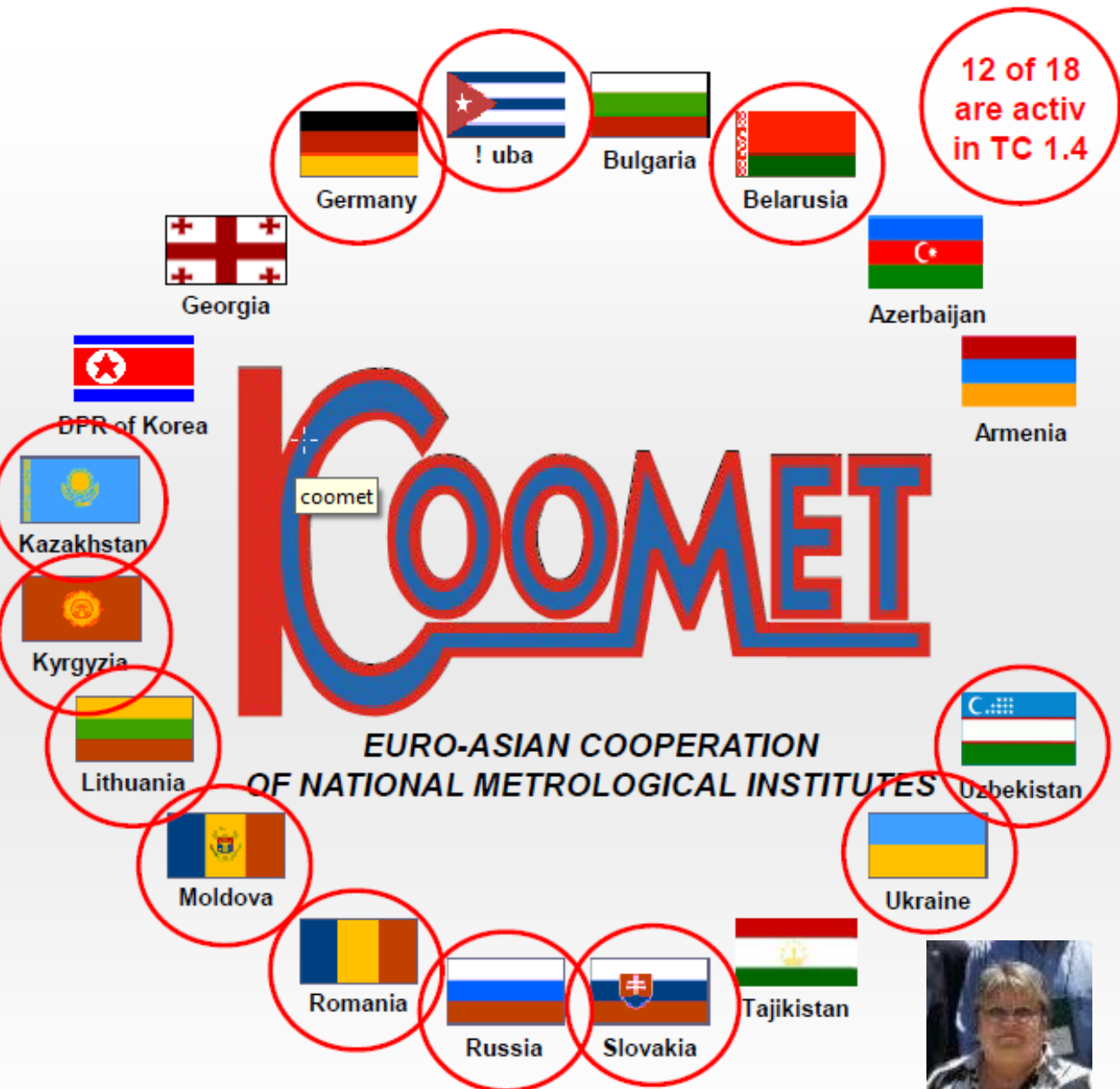


Economy	NMI	Number of entries	
		Fluid Flow	Viscosity
Singapore	A*STAR	2	0
Chinese Taipei	CMS	21	0
Korea	KRISS	14	0
China	NIM	0	15
Japan	NMIJ	39	28
Vietnam	VMI	4	0

APMP/TCFF Key Comparisons

Comparison ID	Measurand	Pilot	Participants	Current status
APMP.M.FF-K1	Water Flow	KRISS	NMIJ, CMS, VMI, NIM, VNIIM, KRISS	published in KCDB on Jan. 21, 2011
APMP.M.FF-K2	Hydrocarbon Flow	CMS	CMS, VMI	published in KCDB on Mar 30, 2012
APMP.M.FF-K3	Air Speed	NMIJ	CMS, NIST, KRISS, VNIIM, A*Star, NMIJ	published in KCDB on July 30th, 2010
APMP.M.FF-K4	Liquid Volume	NMIA	CENAM, SCL, KRISS, NIM, NMISA, NMIT, NMIJ, NPSL, VMI, MUSSD, NMIA	published in KCDB on Jan. 18, 2011
APMP.M.FF-K5	High Pressure Gas Flow	KRISS	KRISS, CMS	Combined APMP & CCM.FF-K5b, Approved for equivalence and published
APMP.M.FF-K6	Low Pressure Gas Flow	NMIJ	KRISS, NIM, CMS, A-Star, NIMT, NMIA, VMI, NMIJ	published in KCDB on Jan. 17, 2011
APMP.M.FF-K2a	Hydrocarbon Flow	NMIJ	CMS, NMIA, NMIJ	Planned

All of the published comparisons have been linked to the relevant CCM KC except APMP.M.FF-K2.



TC 1.4
Flow measurement

NSC
*„Institute of Metrology“
Kharkov/Ukraine*

Prof. Bolshakov

SubTC 1.4.1
*Gas flow measurement
(BelGIM Minsk, Belarusia)*

SubTC 1.4.2
*Oil and oil product
measurement
(VNIIR Kazan, Russia)*

SubTC 1.4.3
*Liquefied natural gas (LNG)
measurement
(KazInMetr, Astana,
Kazakhstan)*

Main topics

- Comparisons
- Scientific research
- Harmonization of standards and normative documents



Gudrun Wendt, PTB

Meetings

8th meeting	23 – 26 October 2011, Ivano Frankovsk, Ukraine
9th meeting	23 – 25 October 2012, PTB Braunschweig, Germany 22 October 2012, Workshop COOMET.M.FF-S2

Comparisons (in progress)

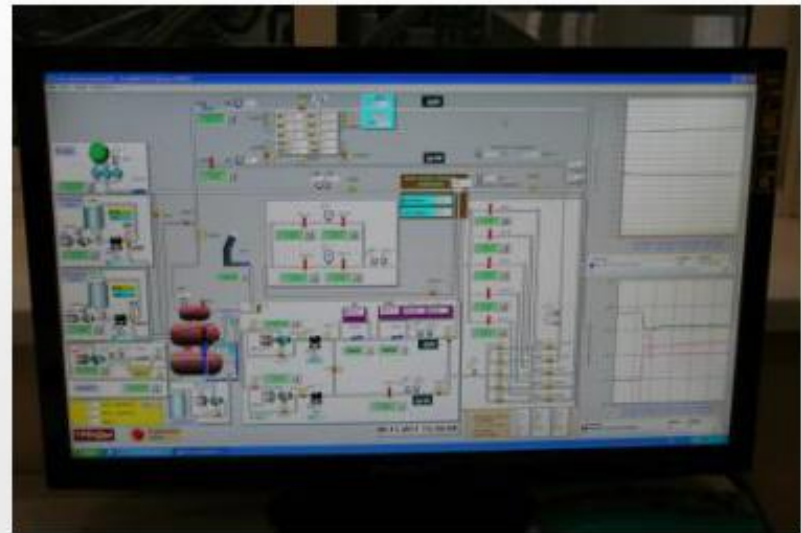
COOMET.M.FF-S2	Measurement of liquid flowrate 2009 – 2012 (0.01 ... 100 m³/h) <i>Status: measurements completed, report (Draft A) in progress</i>
COOMET.M.FF-S3	Comparison of ref. test rigs for gas flow meters 2009 – 2012 (4 ... 160 m³/h) <i>Status: measurements completed, report (Draft B) in progress</i>
COOMET.M.FF-S4	Comparison of water flow calibration 2009 – 2012 (3 ... 20 m³/h) <i>Status: measurements completed, report (Draft B) in progress</i>

Comparisons (proposed)

532/UA/11	Comparison of mass and volumetric flowrate of hot water, 1 – 150 m³/h, 75 – 85 °C
543/UA/11	Comparison of standards for natural gas, 25 – 5 000 m³/h, 5 – 10 bar

New situation in Russia – VNIIR Kazan

New facilities for water, hydrocarbons and multiphase flowrate measurements



Harmonization of standards & normative documents and research projects

Project 191/RU-a/99

Metrological base of the COOMET participants in the field of gas flowrate and quantity measurement

Status: *completed, approved and closed*

Project 433/BY/08

The harmonization of normative base on metrological maintenance of turbine gas meters (Translation of EN 12261 "Turbine gas meters. General requirements and test methods")

Status: *completed, approved and closed*

Project 499/BY/10

Development of harmonized procedures for natural gas measuring by means of gas meters (rotary, turbine and ultrasonic gas meters).

Status: *proposed*

COOMET PRESIDENT



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EURAMET TC – F

Report 2012

Elsa Batista
TC-F Chair



Instituto Português da **Q**ualidade



GOVERNO DE
PORTUGAL

MINISTÉRIO DA ECONOMIA
E DO EMPREGO



TC-F STRUCTURE and MEMBERSHIP

- 31 Contact persons
- 57 Flow experts
- Three sub groups
 - Gas Flow – Convenor - Bodo Mickan from PTB
 - Liquid Flow - Convenor - Petra Milota from BEV
 - Volume - Convenor - Zoe Metaxiotou from EIM





Meeting 2012

- Last meeting 13th from 15th of March 2012: Vienna, Austria hosted by BEV
- 25 Countries: 53 Delegates
- Three day meetings
- CMC, EMRP, DUT uncertainty, roadmaps, new facilities and comparisons results discussed



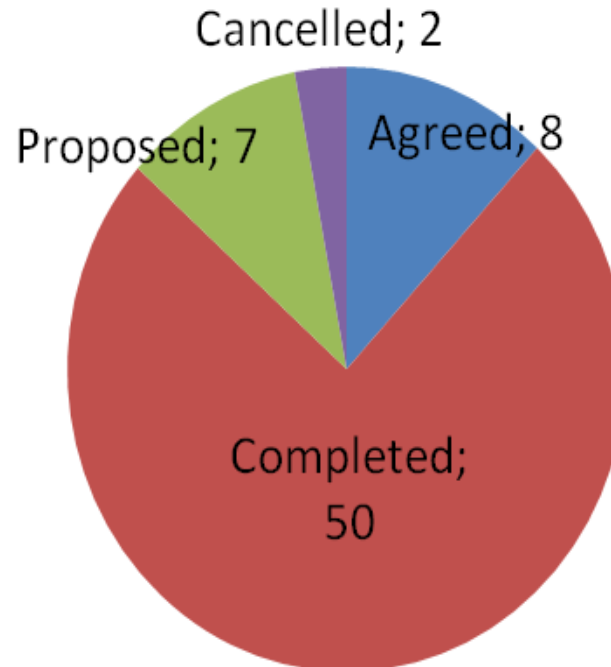
The next TC-F meeting will be in Delft, Netherlands from 12th to 14th of March 2013 and will be hosted by VSL



EURAMET PROJECTS

EURAMET Project Status

- Total 67
- Gas flow – 29
- Liquid flow – 24
- Volume – 14



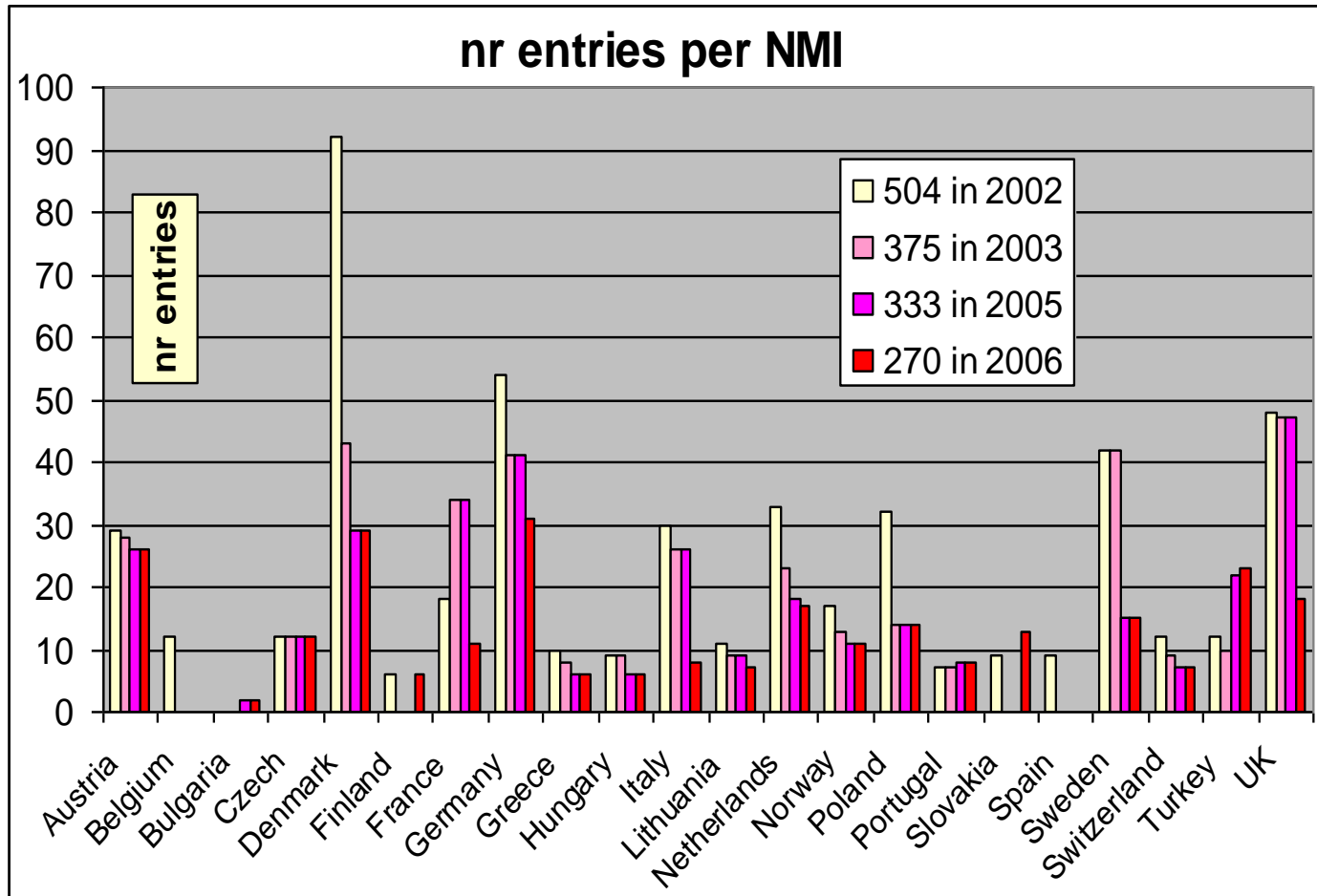


EURAMET PROJECTS

- Proposed in 2011/2012
 - 1201 - Evaluation of a comparison between PTB and NEL in water flow rates from 30 m³/h to 220 m³/h
 - 1225 - Comparison of very low air speed standard facilities (0,05-1)m/s
 - 1224 - Comparison VSL - PTB Volume flow for Natural Gas under High Pressure

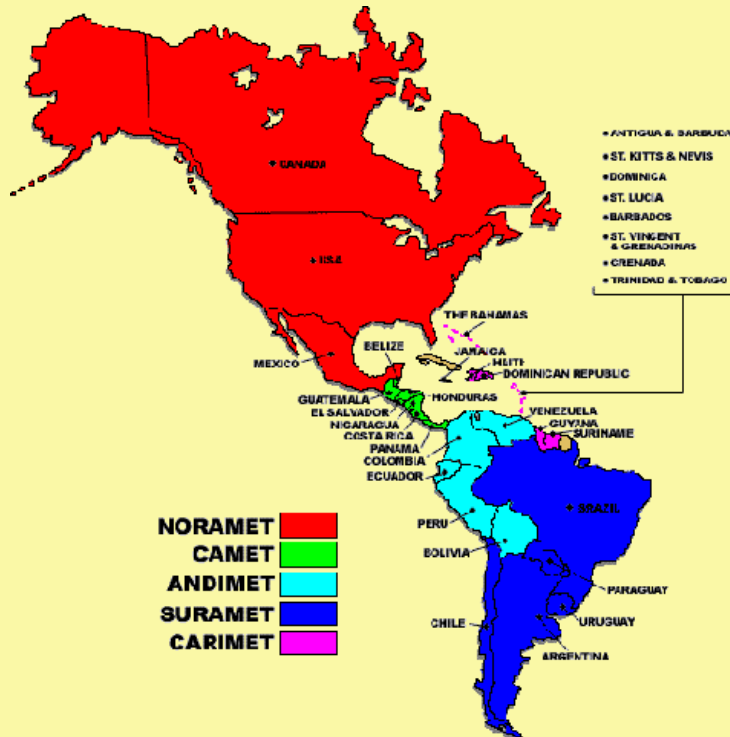


CMCs



SIM WG10

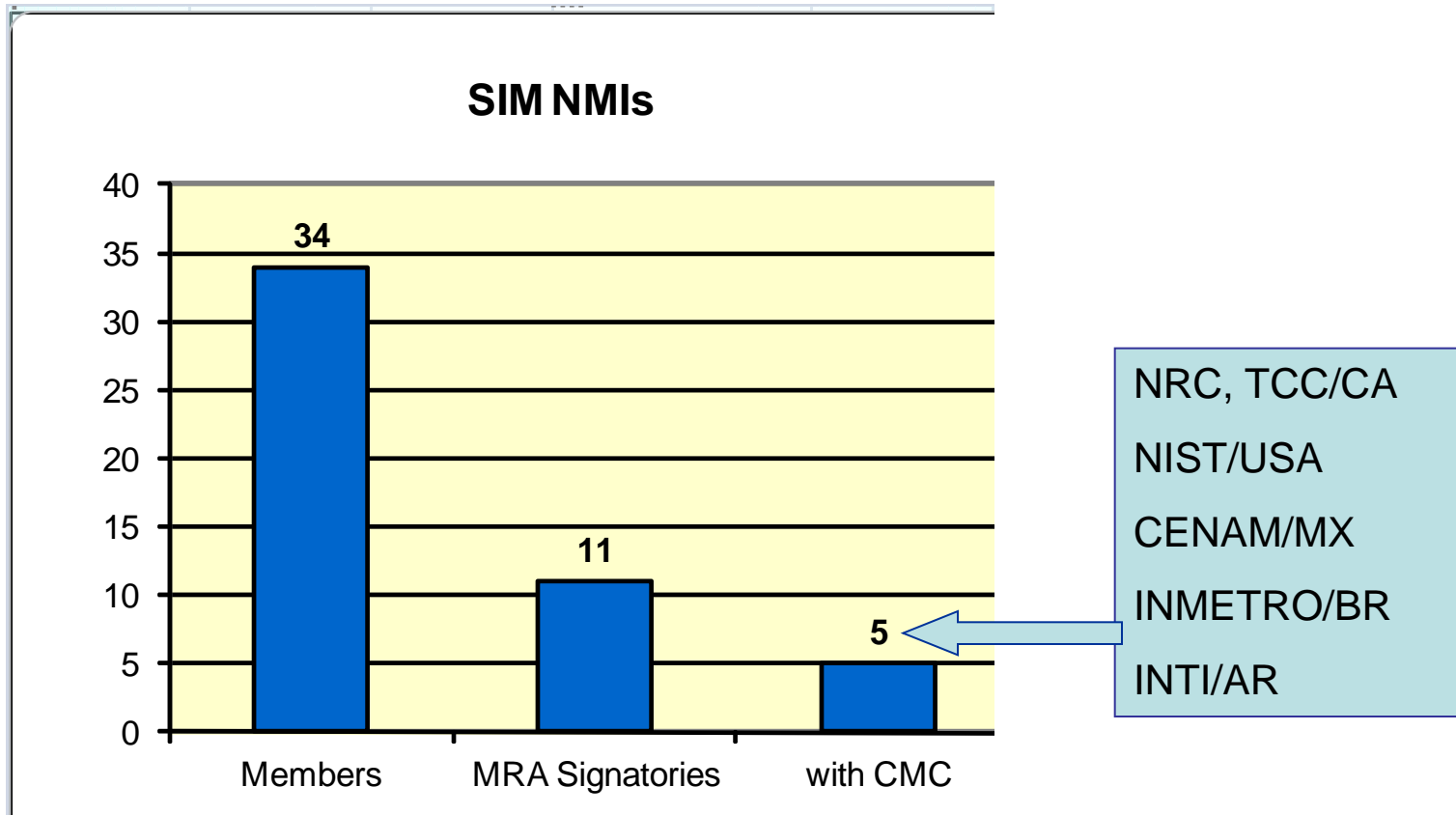
brief report of activities



Chairman: Roberto Arias
rarias@cenam.mx



members



SIM WGFF meeting

October 8th, 2012

Querétaro, Mexico

Before the "Simposio de Metrología 2012"

List of attendees	NMI/DI
Andrea Sica	LATU
Fernando Kornblit	INTI
Martín Calvo	CENAM
Abed Morales	INDECOPI
Emmanuel Ríos	CENAM
Juan Carlos Gervacio	CENAM
Tweedsmuir Mitchell	BSJ
Tanisha Wallace	BSJ
Esteban Castillo	RECOPE
Gilberto Arce	RECOPE
Manuel Maldonado	CENAM
Sonia Trujillo	CENAM
Valter Y Aibe	INMETRO
Dalni Malta	INMETRO
Alejandro Loza	CENAM
John Wright	NIST
Roberto Arias	CENAM

Current CMCs

NMI	Volume	Liquid Flow	Gas Flow	Air speed	Cryogenic Flow	Viscosity
NRC	1					
TCC			2			
NIST	3	6	8	1	1	
CENAM	8	4	4			11
INMETRO	4					22
INTI	4					
	20	10	14	1	1	33

Comparisons

SIM.M.FF-K4

Volume of liquids at 20 L and 100 mL
NIST, CENAM, LACOMET, JBS, CENAMEP,
INDECOPI, IBMETRO, LATU, INMETRO, INTI
Final Report at BIPM-KCDB

SIM.M.FF-S4

Volume of Liquids at 50 mL
CENAM, INTI, INDECOPI, INTN, INMETRO
**Complete, Final Report submitted for
publication at KCDB**

SIM.M.FF-S6

Volume of Liquids at 20 L and 100 mL
Mexico, Costa Rica, Panamá, Honduras, El
Salvador, Nicaragua
Tests completed, Draft A in progress

Pilot studies

In progress

Gas Flow/Low Pressure

(100 – 2000) L/min

ARGENTINA, INDECOPI, COLOMBIA, MEXICO

Using 50 mm rotary meter (Actaris S-flow)

Current phase: TS being tested at CENAM

Water Flow

(10 – 1000) L/min

MEXICO, PERU

Using: Electromagnetic meter

planning

Overview

- The RMO TC-Flow meetings are valuable training and communication opportunities
- Large geographic separations and travel expense hamper SIM and AFRIMETS activities
- Gudrun Wendt and PTB are important bridge to COOMET

Added or Updated CMCs

- 115 CMCs in 2011
- 106 CMCs in 2012
- Korea, Vietnam, Japan, Denmark, Portugal, Spain, Greece, Argentina, Cuba, Serbia, USA, Slovenia, Austria, France, Germany, Hungary, Switzerland, Czech Republic, Finland, Lithuania, Slovakia, Sweden, Netherlands
- CMC review process normally > 1 year and a large demand on RMO time, drafting “Review Protocol for Fluid Flow CMCs”