

RMO TC Flow Report

John Wright on behalf of:

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Victor Fafurin

CCM Meeting

May 19, 2017

RMO Flow Comparison Reports Posted to KCDB

<u>Comparison</u>	<u>Measurand</u>	<u>Date Published</u>
APMP.M.FF-K2.a	Liquid Hydrocarbon Flow	2017
EURAMET.M.FF-K6 2015	Low Pressure Gas Flow	2015
EURAMET.M.FF-K4.2.2014	Volume (100 μ L)	2017
SIM.M.FF-S7	Volume (100 μ L & 100 mL)	2016

RMO Flow Comparisons Reviewed by WGFF, But Not Approved for KCDB

<u>Comparison</u>	<u>Measurand</u>
COOMET.M.FF-S2	Water flow
EURAMET.M.FF.S7	Liquid micro-flow
EURAMET 1050	Air Speed

RMO Flow Comparisons Planned or In Process

<u>Comparison</u>	<u>Measurand</u>
AFRIMETS	Water Flow
APMP.M.FF-K4.2P	Volume (100 μ L)
APMP.M.FF-K6P	Low Pressure Gas Flow
EURAMET.M.FF-K4.1.2016	Volume
EURAMET.M.FF-K5.a	High Pressure Gas Flow
EURAMET.M.FF-S8	Volume
SIM.M.FF-S9	Water Flow
SIM.M.FF-K4.1.2017	Volume
SIM.M.FF-S10	High Pressure Gas Flow

News from AFRIMETS



- TC Flow Chair: Deona Jonker (South Africa/NMISA) has attended last 2 WGFF meetings
- Dominic Ondoro (Kenya/KEBS) is a regular WGFF attendee

News from COOMET TC 1.4 Flow



- Chairperson: Dr. Victor Fafurin, VNIIR, Russia
- WGFF Vice Chair Bodo Mickan attended a COOMET flow meeting in Kazan, Russia in 9/2016 (6 participants)
- Konstantin Popov (VNIIM) has attended last 2 WGFF meetings



APMP TC Flow



Yong Moon Choi
KRISS/Korea

Takashi Shimada
NMIJ/Japan



APMP 2015 Beijing meeting and NIM lab Tour



- 22 organizations from 21 economies

Venue	Beijing China	Da Nang Vietnam
Year	2015	2016
Date	Nov. 2 to 3	Nov. 14 to 15
Participants	16	
Economies	11	

2015 Workshop: Calibration of 3D Pitot Tubes and Flow Measurements of Greenhouse Gas Emissions

2016 Workshop: Fluid Flow Measurement in the Smoke Stack



Chair: Elsa Batista -> Petra Milota

- 28 contact persons
- 89 flow experts
- 28 countries

- 34 EURAMET member organizations:
 - 4 DI
 - 24 NMI



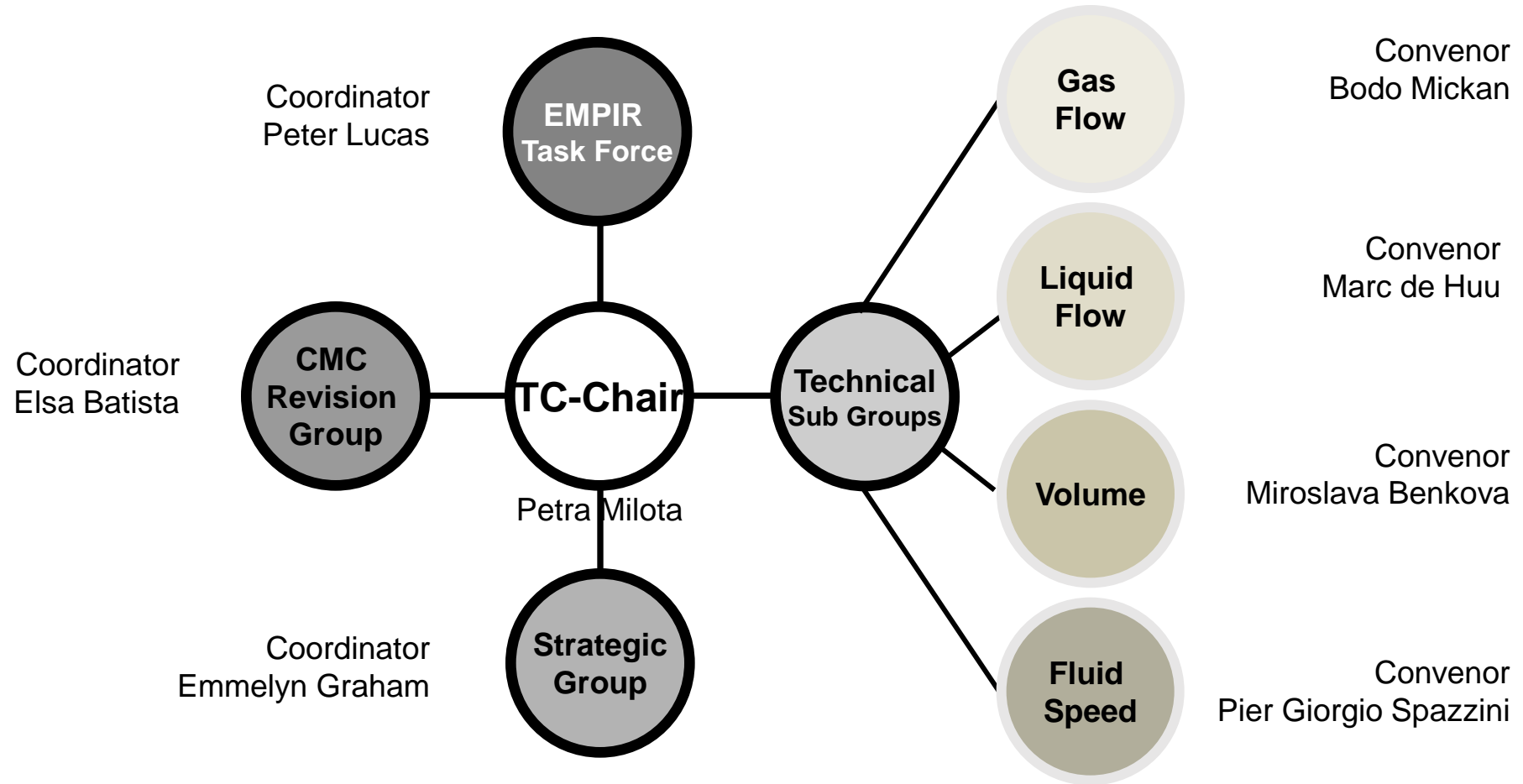
2016 EURAMET TC-F Meeting

- Meeting from 19th to 21st of April 2016:
Belgrade, Serbia, hosted by DMDM,
26 Countries, 56 Delegates
- **Three day meeting, CMCs, EMRP/EMPIR, new facilities**
- **and comparisons results discussed**
- **Mentoring Program**



Meeting from 4th to 6th of April 2017 in Warsaw/Poland

EURAMET TC-F Structure

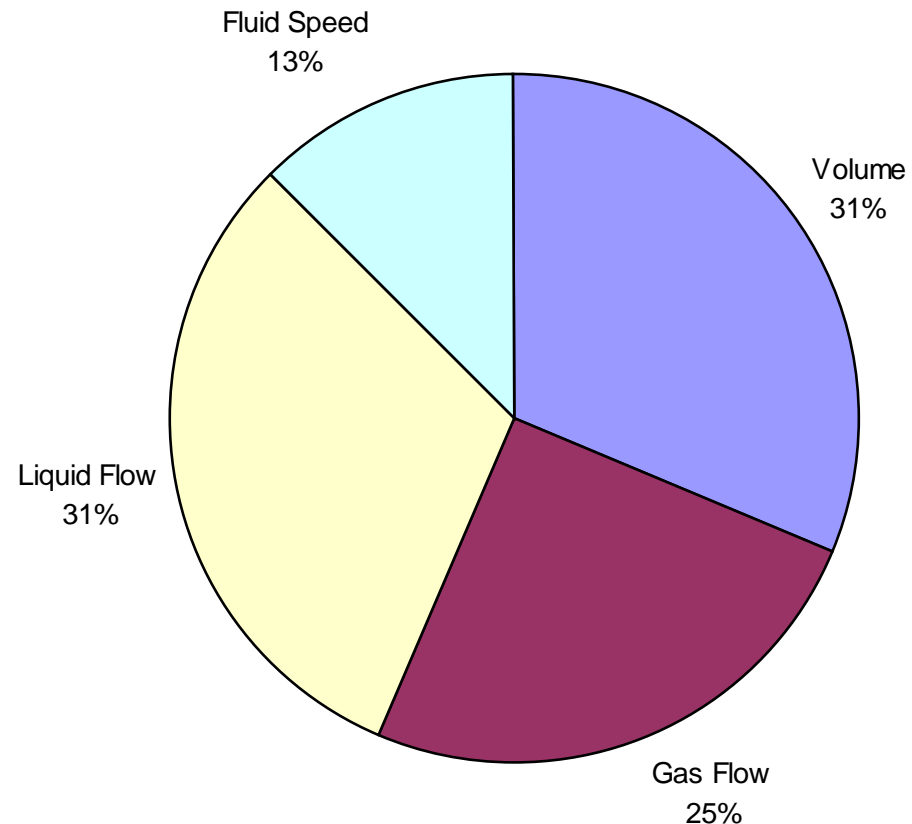


EURAMET Projects

Total 16

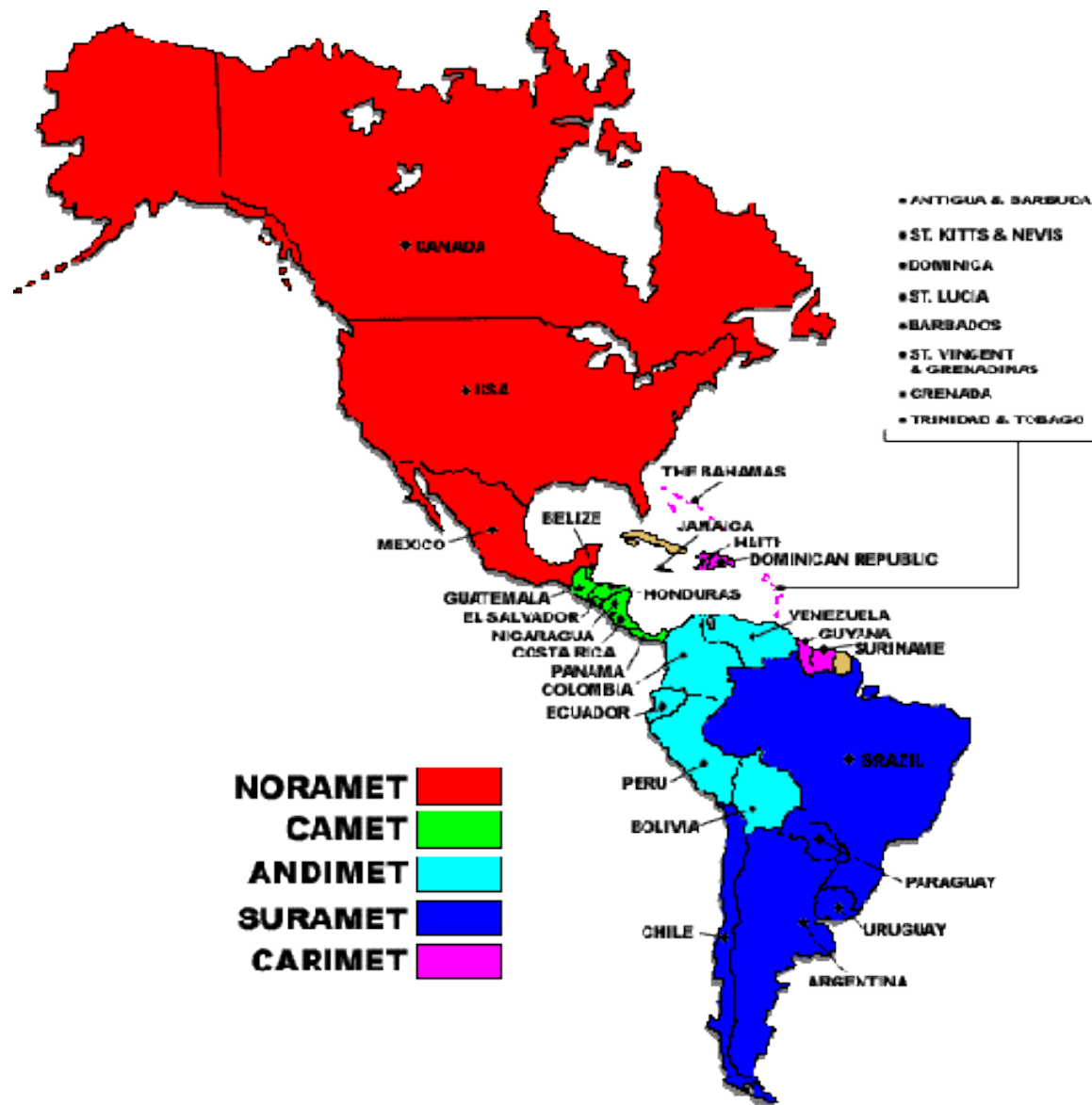
- Gas flow – 4
- Liquid flow – 5
- Volume – 5
- Fluid speed – 2

Field of Application 2015



EURAMET guides under development

- Guide on air speed calibration of solid anemometers
- Guide on the calibration, operation and handling of micropipettes, with the cooperation of several manufacturers
- Guide on harmonization of the uncertainty budgets and calibration methods for liquid flow standards



SIM WG10

Roberto Arias

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Last meeting: at ISFFM April 12, 2015, Washington D.C.



Next meeting: ISFFM, Queretaro, Mexico, March 2018

SIM Metrology School NIST Gaithersburg April 25 to 27, 2017



Subjects: flow metrology and uncertainty

Instructors: Wright, Johnson, Kline, Possolo

Students: Carlos Ochoa Diaz (CENAM, Mexico), Jeny Angel (CISA/Chile), Rubén Chacaltana (INACAL/Peru), Juan Pablo Crivari (INTI/Argentina), Fábio Costa (INMETRO/Brazil), Romaine Annakie (BSJ/Jamaica), Cesar Cortese (INTN/Paraguay), Dalton Eloi (DBOS/Dominica), Nathan Murnaghan (NRC/Canada)