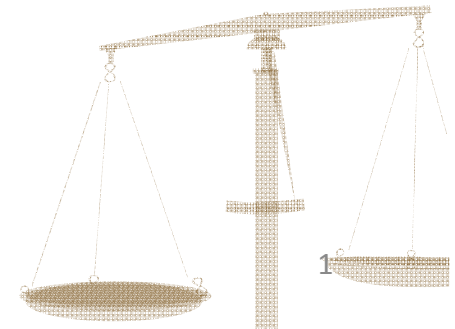
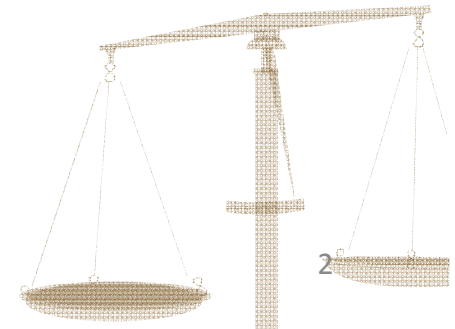


TC-M
Mass and Related Quantities
8th AFRIMETS GA, ADDIS ABABA

Alaaeldin A. Eltawil



- Presentation of work program of the TCL 2013
- Review of AFRIMETS TCM comparisons
- Research activity within AFRIMETS
- Reports of attending BIPM meeting and other RMOs
- CMC review process
- Review of the chair, vice chairs and sub working groups chairs
- Required support
- Visit of National Metrology Institute of Ethiopia





AFRIMETS
Intra-Africa Metrology System
Système Intra-Africain de Métrologie

Progress in comparisons



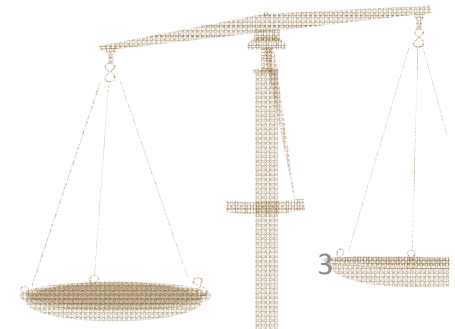
Review for all comparisons either registered or suggested on the base of the following requirements

Wither the comparison is needed or not

Existing of pilot lab

Availability of artefacts

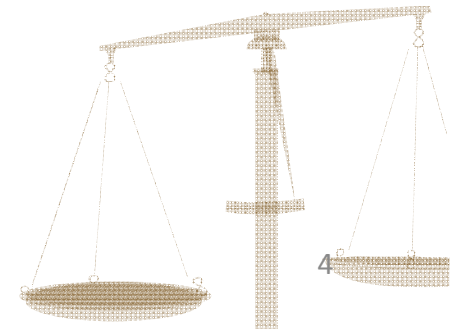
Linking laboratories



Out of all the planned or required comparisons some issues have been observed.

Comparison that is not required in the near future.

Comparison that does not have a pilot laboratory capable to handle it would be cancelled or postponed until there is a pilot lab



Running Comparisons (currently operated)

<u>No.</u>	<u>Comparison</u>	<u>Status</u>	<u>No of Participants</u>	<u>Pilot lab</u>	<u>Artifact provider</u>	<u>Linking laborites</u>	<u>Who is in charge</u>	<u>Status/Next action</u>	<u>Proposed date for next action</u>
1	AFRIMETS.M.FF-S4 Volume comparisons	Draft A report available. Draft B report in progress	8 AFRIMETS	KEBS	NMISA	NMISA	Vida	Draft A to participants. Awaiting comments	Mid July to get info on workshop to be held
2	AFRIMETS.M.P.-K2 Pressure, (10 to 110) kPa absolute,	In progress	6 AFRIMETS 1 EURAMET	NMISA	PTB	INRIM, NIS	Brian	Stuck in Tunisia. Release from Tunisia customs	Months
3	AFRIMETS.M.M-S6 Weights at OIML F1 level	Planned (Currently finalizing the protocol)	11 AFRIMETS	NMISA	PTB	NMISA	Thomas	In circulation To be completed by Sep	To be registered on KCDB, 2 weeks after meeting
4	AFRIMETS.M.M-S3 OIML Masses	Measurement completed	3 A frimets	NIS	NIS	NIS	Eltawil	Draft A	4 weeks
5	AFRIMETS.M.P-S1 Oil pressure	Inprogress	3 A frimets	NIS	NIS	NIS	Eltawil	Ghana to carry out measurements	4 months



Table (2) planned comparisons to be start 2014/2015.

<u>No.</u>	<u>Comparison</u>	<u>Status</u>	<u>No of Participants</u>	<u>Pilot lab</u>	<u>Artifact provider</u>	<u>Linking laborites</u>	<u>Who is in charge</u>	<u>Next action</u>	<u>Proposed date for next action</u>
1	Micropipette Artifacts 100 μL	Planned	7 Labs	NIS	NIS/CCM comparison	KEBS & NMISA	NIS	Send invitation. Needs to be Key comp.	2 weeks after meeting
2	20 L prover calibration	Planned	To be defined	KEBS	KEBS	To be defined	Dominic	Registration process by Pilot lab and TCM chair	4 weeks
3	Liquid Density using oscillation technique (800 - 1300kg/m³) at 20°C	Planned	Only Kenya & Zambia at moment	KEBS	KEBS	KEBS	To be defined	Registration process by Pilot lab and TCM chair	4 weeks
4	force comparison (tension, compression) up to 500 kN or 1MN	Planned	To be defined	NIS	NIS	NIS and maybe NMISA	To be defined	Registration process by Pilot lab and TCM chair	4 weeks

Table (3) the potential comparisons of interest.

<u>No.</u>	<u>Comparison</u>	<u>Status</u>	<u>Status/Next action</u>	<u>Proposed date for next action</u>
1	E class Mass comparison from 100 mg to 5 kg	Planned	Change to be linked with CCM.M.K7	On Hold till next TCM WG
2	Calibration of hydrometer	Planned		On Hold till next TCM WG

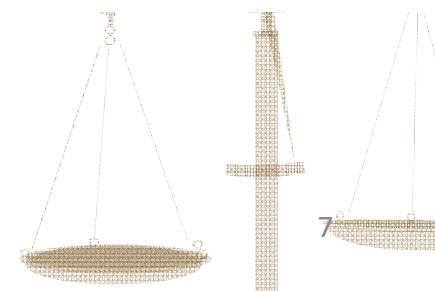




Table (4) List of cancelled comparisons

<u>No.</u>	<u>Comparison</u>	<u>Status</u>	<u>No of Participan ts</u>	<u>Pilot lab</u>	<u>Who is in charge</u>	<u>Status/Next action</u>	<u>Proposed date for next action</u>
1	AFRIMETS.M.M-S2 100 mg, 2 g, 20 g, 500 g and 1 kg	Finalized , Draft A report available	3 AFRIMET S 3 Gulf state NMIs	?	TCM chair and chair of Sub working group of mass standards	Draft A completed/ Cancel comparison from KCDB website	2 weeks
2	AFRIMETS.M.M- K2.1 100 mg to 10 kg	Planned	8 AFRIMET S	?	TCM chair and chair of Sub working group of mass standards	Cancel Remove from record of AFRIMETS and TCM	2 weeks
3	Hydraulic up to 100 MPa	Planned		?	TCM chair and chair of Sub working group of mass standards	Cancel Remove from record of AFRIMETS and TCM	2 weeks

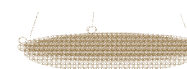
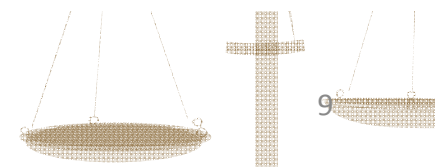


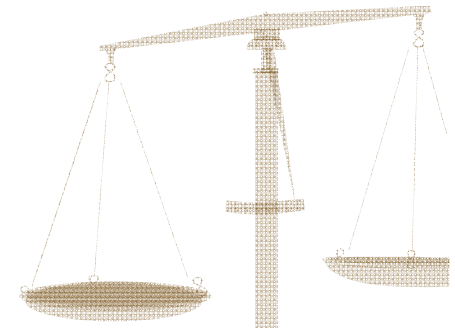
Table (5) planned comparisons to be change to PT

<u>No.</u>	<u>Comparison</u>	<u>Status</u>	<u>No of Participants</u>	<u>Pilot lab</u>	<u>Artifact provider</u>	<u>Linking laborites</u>	<u>Who is in charge</u>	<u>Next action</u>	<u>Proposed date for next action</u>
1	AFRIMETS M.M-S6.1 100mg - 5kg (F1, F2) (100mg, 100g, 500g, 1kg and 5kg) (north and central Africa)	Planned	MAGMET/	Morocco	PTB			Change to PT	
2	10 mL pipette	Planned						Change to PT	On Hold till next TCM WG
3	Calibration of testing machine (tension, compression) start and final report	Planned	5 labs	Tunisia				Change to PT	On Hold till 2016



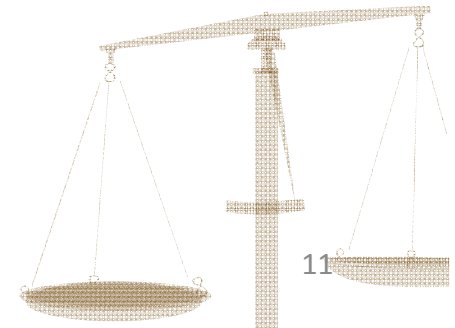
Technical work and research within group

- Solid density measurement using hydrostatic method.
- Primary method for hydrometer calibration
- *Force balance piston gauge*
- Realization of mass scale from 1 mg to 50 kg using matrix method.



Feedback for attending of meetings BIPM and/or other RMOs meetings

- CCM high pressure / low pressure working group
- TCM meeting of gulfmet working group



Chair, vice-chairs and sub-working groups chairs

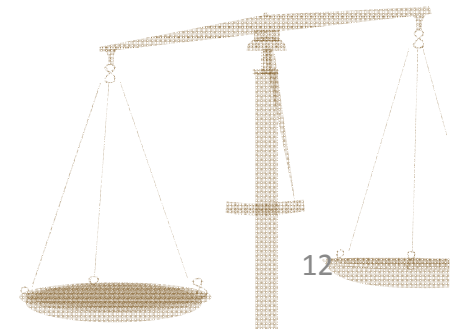
Study of the situation of chair, vice-chairs and sub-working groups chairs in the view of the changing in the members of the working group. Certain positions becomes empty so review of all the working group member was carried out. Changes were only in the empty positions.

The final situation for the chair, vice-chairs and sub-working groups chairs:

TC-M chair: **Alaaeldin A. Eltawil**

1st Vice chair : **Dominic O.Ondoro**

2nd Vice chair : **Thomas MAUTJANA**





Sub-WG: Mass

1st Sub-WG chair : **David Tonui**

2nd Sub-WG chair : **Thomas MAUTJANA**

Sub-WG: Volume and Flow

1st Sub-WG chair : **Dominic O.Ondoro**

2nd Sub-WG chair : **Given KALONGA**

Sub-WG: Density and Viscosity

1st Sub-WG chair : **Mostafa Mekawy (viscosity)**

2nd Sub-WG chair : **Thomas MAUTJANA (density)**

Sub-WG: Pressure and vacuum

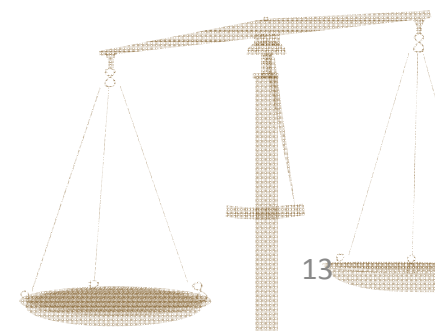
1st Sub-WG chair : **Brian Yashi**

2nd Sub-WG chair : **Prince N.Y Tawiah**

Sub-WG: Force, Torque and Hardness

1st Sub-WG chair : **Gouda M. Mahmoud**

2nd Sub-WG chair : **Josephat BANGI**

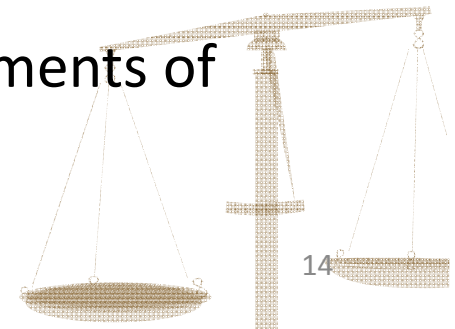


TCM notice that the review process through the review panel that was organized 2 years ago is not effective

It was decided that on each CMC under review the TCM chair, vice chairs and the chairs of the sub working group are responsible to review all the CMC.

TCM chair will collect any concern from the persons on charge then only one report will be finalized by the TCM chair after discussion of all the concerns of the persons in charge of this process.

A training need on the review process and the requirements of BIPM was observed.

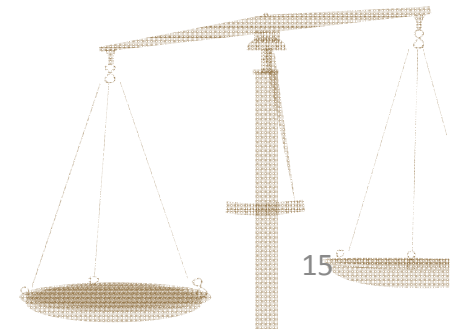


Required support

In TCM meetings we observe the needs for the following activity however the resources are limited so the following support are required

Comparisons in the following fields

- *Hydraulic up to 100MPa (A_{eff} calculation)*
- *Force calibration*



Training workshops

Calibration of E1 mass and dissemination of unit

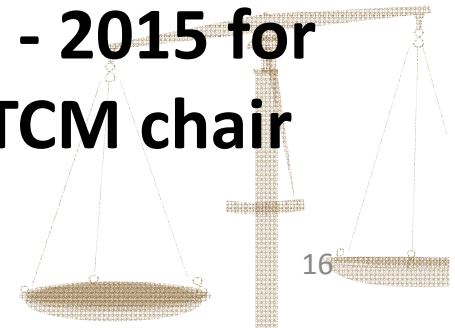
Calibration of large volume

Measurements of the magnetic properties and density of masses.

Calibration of vacuum and very low pressures

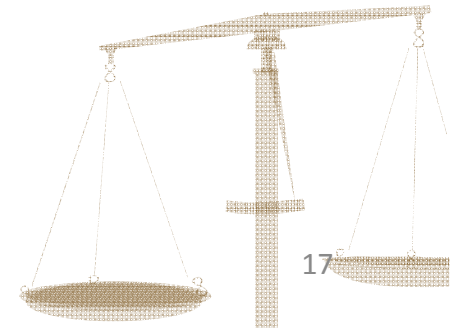
Primary system for density of liquids and solids

Attending the upcoming CCM meeting in Feb - 2015 for mass and related quantities at BIPM for the TCM chair and vice chairs



Required supports

- Costs of the artifacts
- Costs of the travel (as hand carry) or shipment of the artifact
- Costs of two workshops to adopt the protocol (would be consider as a training workshop) and to study the results of each comparison.
- Costs of attending the upcoming CCM 2015 for mass and related quantities at BIPM for the TCM chair and vice chairs
- Costs of training





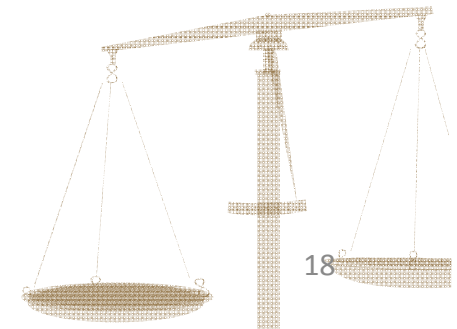
Thank you

Merci

شكرا



8th TCM Meeting



18