

Members and Associates *(March 2021)*



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- 63 Member States* and
- 39 Associates of the CGPM
(States and Economies)

** The official term is "States Parties to the Metre Convention"; the term "Member States" is its synonym and used for easy reference.*

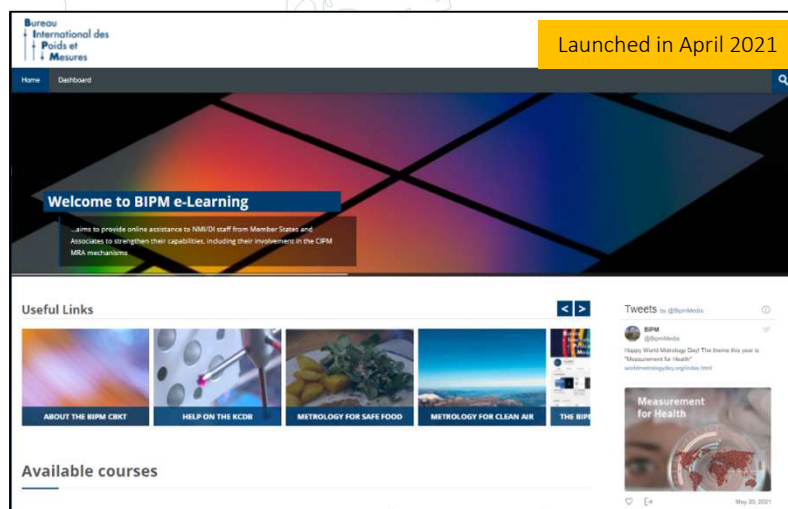
260 Institutes participating in the CIPM MRA

- 102 National Metrology Institutes
 - 63 Member States
 - 39 Associates
- 4 International organizations
(ESA, IAEA, JRC, WMO)
- 154 Designated Institutes = 152 (national) + 2 (IO)

1 710 comparisons
1082 KCs, 628 SCs

25 728 CMCs
Peer-reviewed declarations

e-Learning



320 Users in the platform

www.bipm.org



CIPM MRA

This course is made up of 6 modules and is intended to give an overall understanding of the CIPM MRA processes. For formal guidance see: <https://www.bipm.org/en/cipm-mra/cipm-mra-documents>

Course co-ordinator: Chingis KUANBAYEV

[Click to enter this course](#)



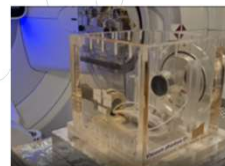
Non Structure-Related Impurity Content in Organic Pure Materials

The course is intended for NMI scientists working in organic analysis and wishing to further their theoretical and practical knowledge of the use of techniques including Karl Fischer Titration, Thermogravimetric Analysis, Sorption Analysis, Elemental Analysis and techniques based on GC- and NMR-methods to obtain an accurate, traceable quantification of the non related-structure impurity content present in a high purity organic material. The ability to undertake this assessment is a key element in the "mass balance" method for organic purity assignment. For more information on the six modules that make up the course follow the "Click to enter the course" link below.

NMIs and Dis from Member States and Associates are able to access the online course material after completing the registration form.

Course co-ordinator: Steven Westwood

[Click to enter this course](#)



How to enter a CMC claim for ionizing radiation metrology

The aim of this course is to help you enter the information needed on the KCDB for claiming a CMC for radiation dosimetry, radioactivity or neutron metrology. Here you will find the CCRI rules setting out the information required by reviewers: there are also step-by-step presentations that can be downloaded and translated.

Course co-ordinator: Sibusiso Jozela

[Click to enter this course](#)

e-Learning –



CIPM MRA

This course is made up 6 modules and intended to give an overall understanding of the CIPM MRA processes. For formal guidance see: <https://www.bipm.org/en/cipm-mra/cipm-mra-documents>

Course co-ordinator: Chingis KUANBAYEV

[Click to enter this course](#)

Module 1: What is the CIPM MRA, and to whom is it relevant?

01

Objectives

This module is based on the CIPM MRA and related policy documents. The module provides an introduction and overview of the CIPM MRA.

Modules 2 to 6 address the CIPM MRA in detail.

Module 2: Comparisons in the CIPM MRA

02

Objectives

This module is based on CIPM MRA G-11 and will enable you to understand the comparison processes within the context of the CIPM MRA.

Full details of the process including the detailed steps that need to be followed can be found in the guidance document on comparisons – CIPM MRA G-11, which may be also supplemented by guidance issued by your RMO or relevant Consultative Committee.

A thumbnail image of the CIPM MRA G-11 document, titled "Measurement comparisons in the CIPM MRA".

Module 3: Quality management system in the CIPM MRA

03

Objectives

This module is based on the CIPM MRA G-12 and will enable you to understand the CIPM MRA requirements on the quality management system (QMS).

Full details of the process including the detailed steps that need to be followed can be found in the guidance document on quality management systems – CIPM MRA G-12, supplemented by guidance issued by your RMO.

A thumbnail image of the CIPM MRA G-12 document, titled "Quality management systems in the CIPM MRA".

Module 4: Calibration and measurement capabilities (CMCs)

04

Objectives

This module is based on the CIPM MRA G-13 and will enable you to understand the concept of CMCs and criteria for their international acceptance within the CIPM MRA.

It is complemented by Module 5, which addresses the CMC review process.

Full details of the process including the detailed steps that need to be followed can be found in the guidance document on CMCs – CIPM MRA G-13, which may be also supplemented by guidance issued by your RMO or relevant Consultative Committee.

A thumbnail image of the CIPM MRA G-13 document, titled "Calibration and measurement capabilities in the context of the CIPM MRA".

Module 5: Peer-review of CMCs

05

Objectives

This module is based on the CIPM MRA G-13 and will enable you to understand the CMC review process.

It is complementary to Module 4, which describes the CMCs.

Full details of the process including the detailed steps that need to be followed can be found in the guidance document on CMCs – CIPM MRA G-13, which may be also supplemented by guidance issued by your RMO or relevant Consultative Committee.

A thumbnail image of the CIPM MRA G-13 document, titled "Calibration and measurement capabilities in the context of the CIPM MRA".

Module 6: Metrological traceability

06

Objectives

This module describes the CIPM MRA requirements for metrological traceability.

It is complementary to Modules 4 and 5, which describe the CMCs and their review process.

BIPM Laboratory knowledge transfer

Launch of on-line programs

Metrology for Safe Food:

- **Mycotoxin Standards**
- **Pesticides and Residues (2021)**

Visit: <https://www.bipm.org/en/cbkt/safe-food.html>

Metrology for Clean Air:

- **FTIR operation for accurate gas analysis**
- **Dynamic gas standard generation (2022)**

Visit: <https://www.bipm.org/en/cbkt/clean-air.html>

Metrology for Laboratory Medicine:

- **Peptide standards (2023)**

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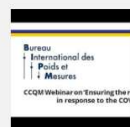
CCT - 29th Meeting

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CCQM Webinar Series

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World Metrology Day

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KCDB

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CCQM Workshop on Advances in Metrology in Chemistry and...

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26th CGPM Meeting

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Working together to promote and advance the global
comparability of measurements



ABOUT US

COORDINATION

LIAISON

TECHNICAL/SCIENTIFIC

PUBLICATIONS & EVENTS



The BIPM is...

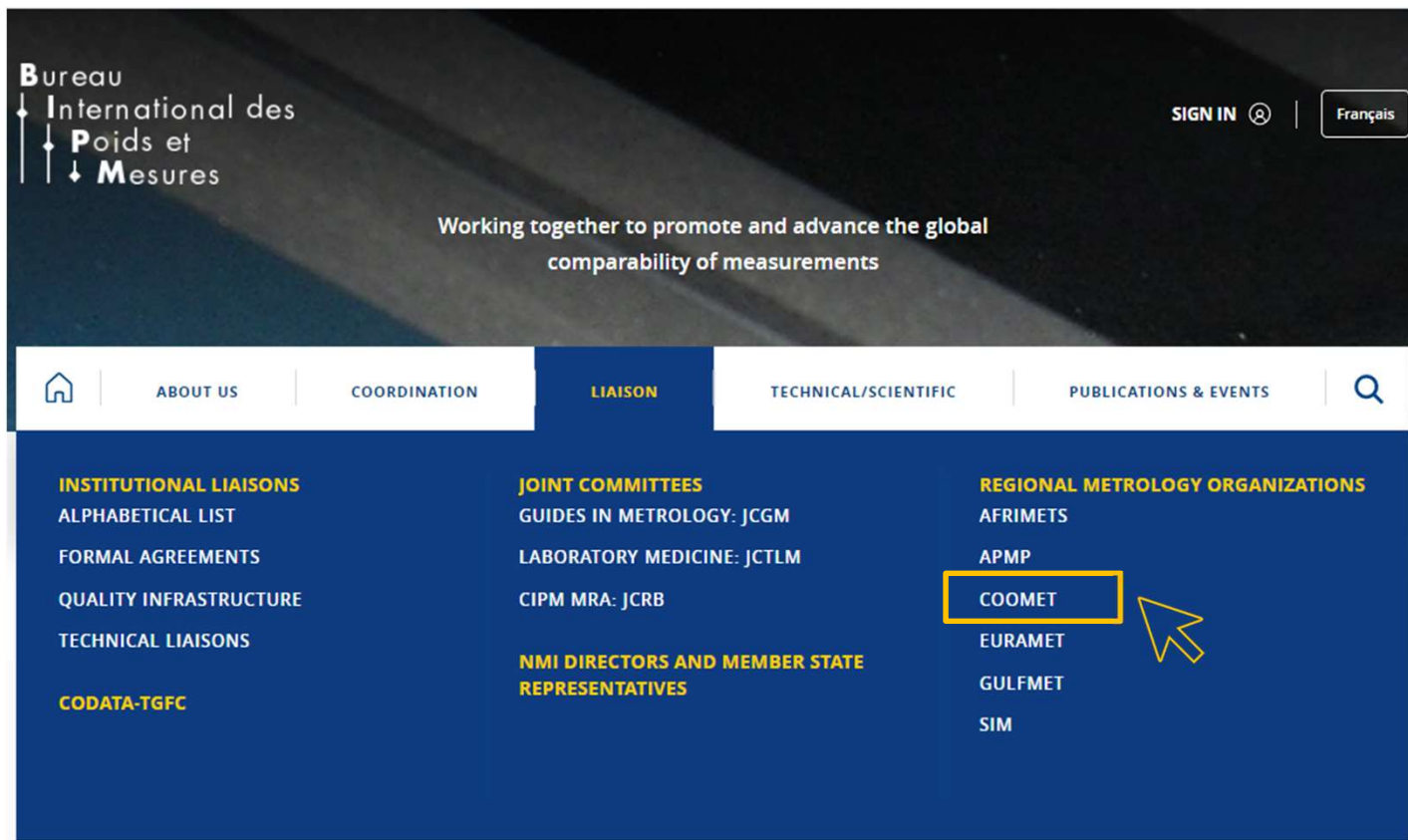
- the **international organization established by the Metre Convention**, through which Member States act together on matters related to measurement science and measurement standards
- the home of the **International System of Units (SI)** and the **international reference time scale (UTC)**.

Monday 17 May 2021



UTC 17:21:22

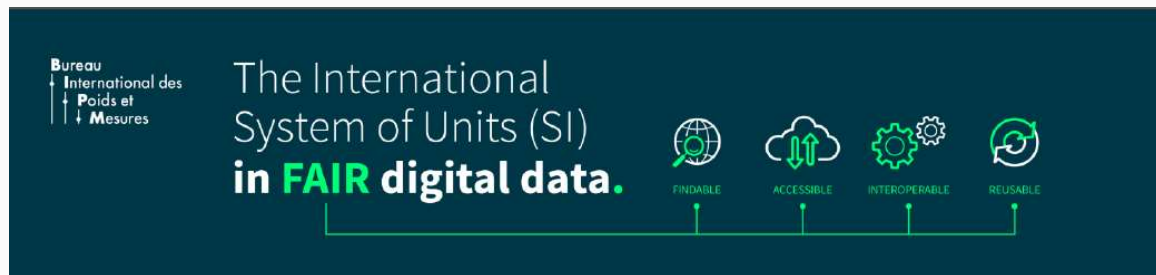
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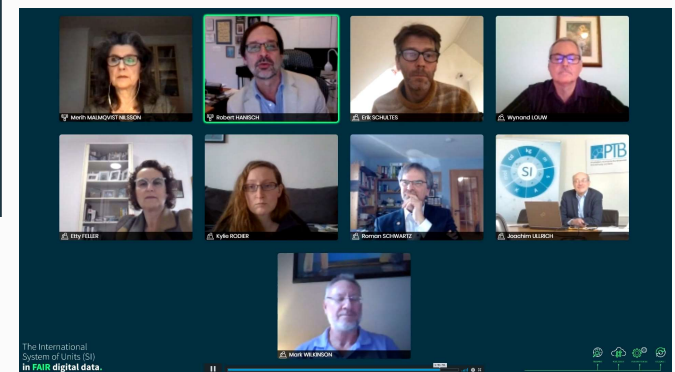
CIPM initiative to provide a Digital SI Framework

The CIPM has launched a **Task Group on the “Digital SI Framework”**

- ◆ To enable SI-based digital communication in industry
- ◆ To support the digital science and open-science paradigms
- ◆ To get metrological services ready for artificial intelligence



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The Key Comparison Database (KCDB)

260 Institutes (March 2021)

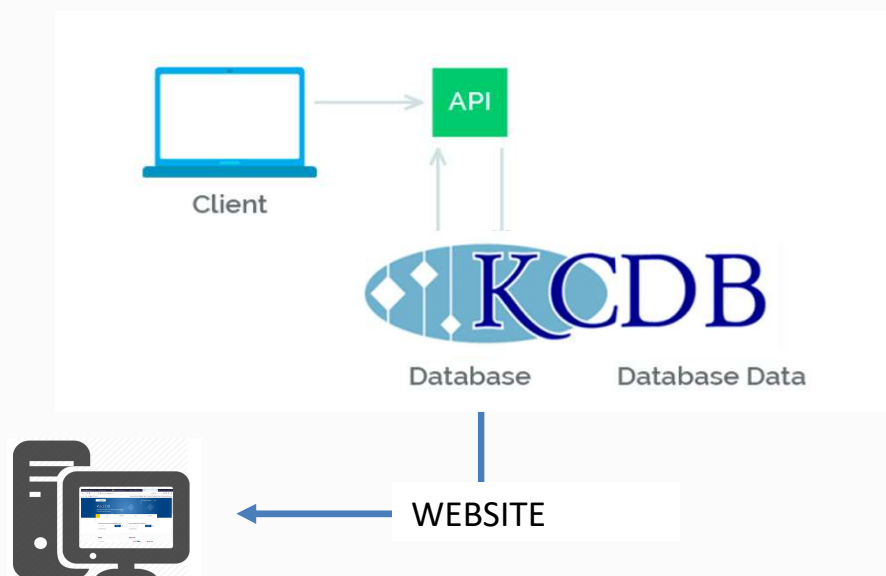
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(ESA, IAEA, JRC, WMO)
- 154 Designated Institutes = 152
(national) + 2 (IO)

6 RMOs

Playing an important role to support mutual confidence in the validity of calibration and measurement certificates issued by participating institutes

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Machine readable access to the KCDB



1 710 comparisons

1082 key, 628 supplementary
comparisons

25 728 CMCs

regionally and internationally peer-
reviewed CMC declarations

Work in progress - machine-readable products

Approved by the CIPM. Work in progress.

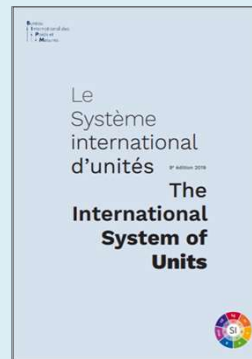


+ Time Dept database



API access

Real-time **validation of traceability and scope of recognition** for digital calibration certificates.



+ The annotated VIM

xml versions

The authoritative reference data defining the SI and how to use it.



Future work

Findable and Accessible data submitted to support key comparisons and publications



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World Metrology Day

- The theme of World Metrology Day in 2021 is ***“Measurement for Health”***
- Partner RMO is GULFMET

<https://www.worldmetrologyday.org/index.html>

