



Bureau International des Poids et Mesures



Report of the BIPM

Prof M. Kühne
Designated Director of the BIPM



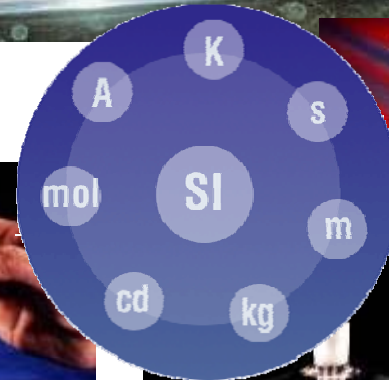
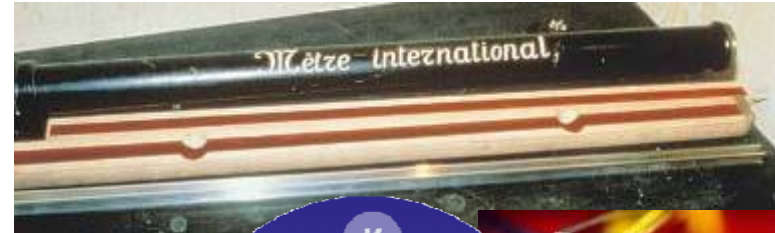


THE METRE CONVENTION AND THE SI

Brief history of the Metre Convention and the SI

The Metre Convention and the SI

- ✦ **20 May 1875** - The Metre Convention was signed in Paris by 17 nations. It established the BIPM which is a permanent organizational structure for member governments to act in common accord on all matters relating to units of measurement.
- ✦ **1889** - the international prototypes for the metre and the kilogram, together with the astronomical second as unit of time, create the first international system of units.
- ✦ **1954** - the ampere, kelvin and candela are added as base units.
- ✦ **1960** - the unit system is named as the International System of Units (SI)
- ✦ **1971** - the mole is added as the unit for amount of substance, bringing the total number of base units to seven.



Bureau International des Poids et Mesures

BIPM

Headquartered in Paris, France and financed by supporting governments.

Maintains scientific laboratories in areas of: mass, time, electricity, ionizing radiation, and chemistry.



CIPM

Made up of eighteen individuals, from Member State.

Meets annually to promote worldwide uniformity in units of measurement.

Is the management board for the BIPM

CGPM

Made up of representatives from Member States.

Meets in Paris every four years to discuss the status of international metrology.



Bureau International des Poids et Mesures

The BIPM

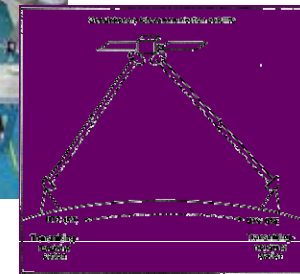
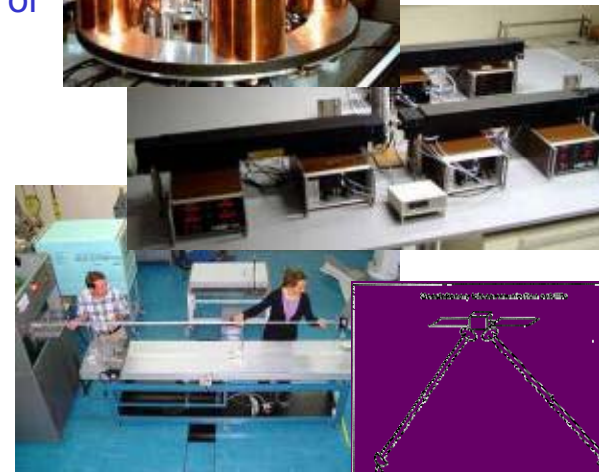
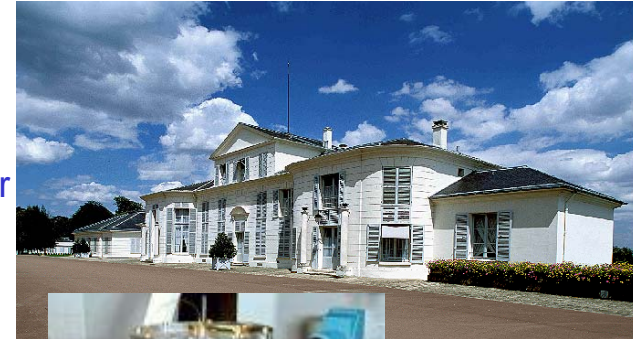
It has **headquarters** near Paris, France. It is **financed** jointly by the Member States and Associates, and operates under the exclusive **supervision** of the CIPM.

Its **mandate** is to provide the basis for a single, coherent system of measurements throughout the world, traceable to the International System of Units (SI). This task takes many forms, from **direct dissemination** of units (as in the case of mass and time) to coordination through **international comparisons** of national measurement standards (as in length, electricity and ionizing radiation).

It maintains **laboratories** in areas of: mass, time, frequency and gravimetry, electricity, ionizing radiation, and chemistry.

It has an international **staff** of over 70 .

Its **budget** for 2010 is over eleven million euros.



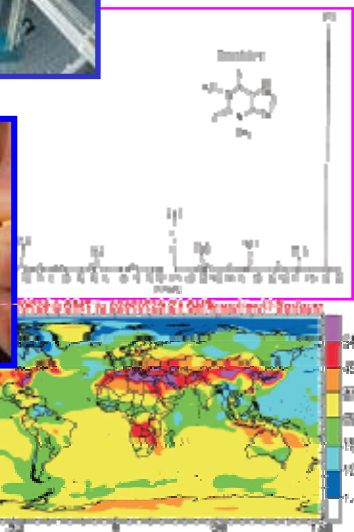
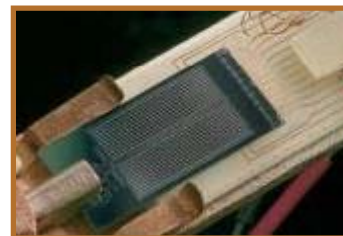
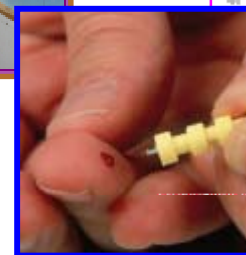
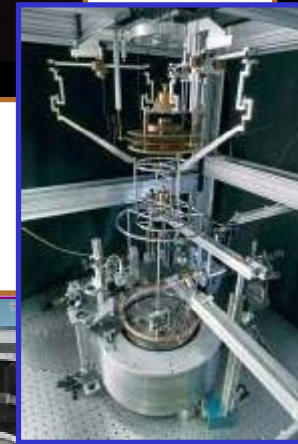
BIPM Scientific Program

⊕ The **role of the BIPM** scientific programme is:

- promote **worldwide compatibility of measurements traceable to the SI** by providing calibrations and facilitating comparisons of measurement standards
- perform **measurement science** research directed at updating the SI **as per the needs of society**.

⊕ **Current BIPM scientific programmes:**

- **Mass**
- **Time, Frequency and Gravimetry**
- **Electricity**
- **Ionizing Radiation**
- **Chemistry**





BIPM's main technical roles

Maintains the kilogram in the near future until replaced, probably by Watt Balances.

Creates and disseminates Coordinated Universal Time (UTC) based on weighted averages of ~ 200 clocks from over 50 National Metrology Institutes worldwide.

Maintains unique world reference facilities e.g., SIR (ionizing radiation and isotopes), ozone spectrophotometers.

Maintains travelling standards to compare fixed national references e.g., Josephson Junctions for the volt, Quantum Hall devices for the ohm, etc.

Coordinates international comparisons and networks e.g., organic chemistry reference materials for laboratory medicine.

Promotes traceable, accurate measurement for physical, engineering, chemical and medical quantities worldwide.

Member and associate categories

Member State

Benefits:

- ✦ **Voting rights** in the CGPM
- ✦ NMIs may be **members** of the CCs if they meet the criteria
- ✦ NMIs may be signatories of the MRA; may take part in **CC and RMO key comparisons** and contribute to the KCRV
- ✦ May take part in BIPM Key Comparisons
- ✦ Entitled to a Pt-Ir kilogram at cost
- ✦ Free BIPM calibrations
- ✦ Staff may be guest workers at the BIPM
- ✦ May attend Directors' Meetings

54 States are Members.

Associate of the CGPM

Benefits:

- ✦ May attend the CGPM as an **observer**
- ✦ NMIs may be **guests** of the CCs if invited
- ✦ NMIs may be signatories of the MRA and may take part **only in RMO** key and supplementary **comparisons**
- ✦ Staff may be guest workers at the BIPM
- ✦ May attend Directors' Meetings

27 States and **1 Economy** (including 11 States) are Associates.



Current status of the CIPM MRA

2009 Membership

BIPM Members 54

 Argentina	 France	 Mexico	 Thailand
 Australia	 Germany	 The Netherlands	 Turkey
 Austria	 Greece	 New Zealand	 UK
 Belgium	 Hungary	 Norway	 USA
 Brazil	 India	 Pakistan	 Uruguay
 Bulgaria	 Indonesia	 Poland	 Venezuela
 Cameroon	 Iran, Islamic Republic of	 Portugal	
 Canada	 Ireland	 Romania	
 Chile	 Israel	 Russian Federation	
 China	 Italy	 Serbia	
 Croatia	 Japan	 Singapore	
 Czech Republic	 Kazakhstan	 Slovakia	
 Denmark	 Kenya	 South Africa	
 Dominican Republic	 Korea, DPR of	 Spain	
 Egypt	 Korea Republic of	 Sweden	
 Finland	 Malaysia	 Switzerland	

Associates to the CGPM 28

 Albania	 Lithuania
 Bangladesh	 Macedonia, the FYR of
 Belarus	 Malta
 Bolivia	 Moldova, Republic of
 Chinese Taipei	 Panama
 Costa Rica	 Paraguay
 Cuba	 Peru
 Ecuador	 Philippines
 Estonia	 Slovenia
 Hong Kong (China)	 Sri Lanka
 Ghana	 Tunisia
 Georgia	 Ukraine
 Jamaica	 Vietnam
 Latvia	 CARICOM

2009

2010

CIPM MRA Participation

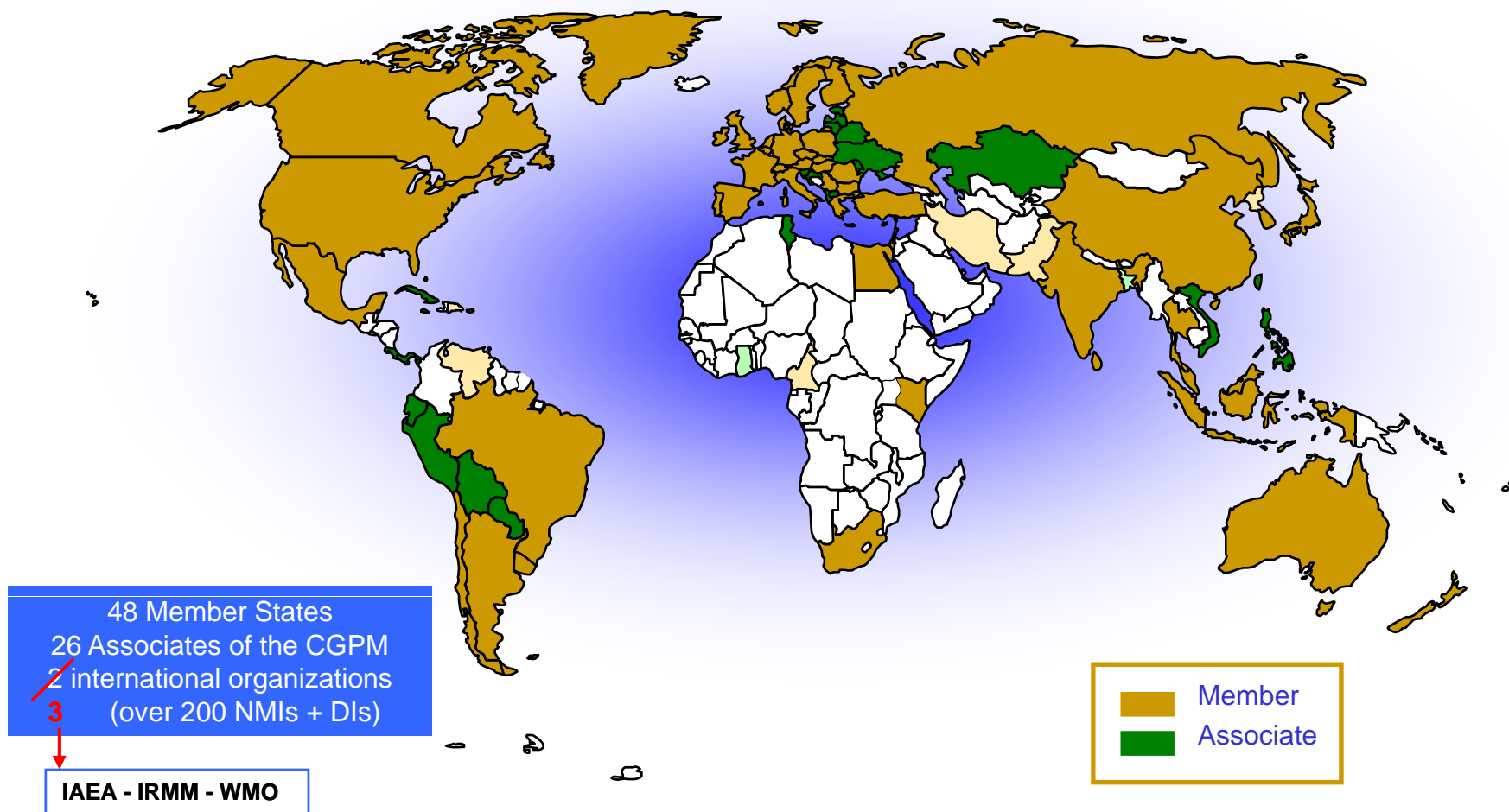
BIPM Members 48

	Argentina		France		Mexico		Thailand
	Australia		Germany		The Netherlands		Turkey
	Austria		Greece		New Zealand		UK
	Belgium		Hungary		Norway		USA
	Brazil		India		Pakistan		Uruguay
	Bulgaria		Indonesia		Poland		Venezuela
	Cameroon		Iran, Islamic Republic of		Portugal		
	Canada		Ireland		Romania		
	Chile		Israel		Russian Federation		
	China		Italy		Serbia		
	Croatia		Japan		Singapore		
	Czech Republic		Kazakhstan		Slovakia		
	Denmark		Kenya		South Africa		
	Dominican Republic		Korea, DPR of		Spain		
	Egypt		Korea Republic of		Sweden		
	Finland		Malaysia		Switzerland		

Associates to the CGPM 26

	Albania		Lithuania
	Bangladesh		Macedonia, the FYR of
	Belarus		Malta
	Bolivia		Moldova, Republic of
	Chinese Taipei		Panama
	Costa Rica		Paraguay
	Cuba		Peru
	Ecuador		Philippines
	Estonia		Slovenia
	Hong Kong (China)		Sri Lanka
	Ghana		Tunisia
	Georgia		Ukraine
	Jamaica		Vietnam
	Latvia		CARICOM

Participation in the CIPM MRA



General Assembly
COOMET - 2010



BIPM Personnel and Secondees

Changes in BIPM Personnel

Mr. Bruno Coelho has been hired as responsible for quality, health and safety in September 2009, for a two year term.

Dr. Michael Bradley from the University of Saskatchewan, research fellow for two years to work in the cryogenic magnet for the watt balance.

Mr. Andy Henson has been hired as International Liasson Officer, starting on April 1st 2010.



SECONDEES 2009 - 2011

Name	Country	Institute	Dates		BIPM Section
Pedro Espina	USA	NIST	05/04/2005	22/12/2009	JCRB International Liaison
Luis Mussio	Uruguay	LATU	10/03/2008	09/03/2011	JCRB
Beatrice Parker	USA	MIT	June – July 2009	2 months	Chemistry
Claus Andersen	Denmark	DTU	August 2009	1 month	Ionizing Radiation
Zakithi Msimang	South Africa	NMISA	September 2009	1 month	Ionizing Radiation
Sara Prins	South Africa	NMISA	October – Diciembre 2009	2 month	Director's office
John R Fiander	Australia	NMI	29/03/2010	28/05/2010	Electricity (Calculable Capacitor)



2009 – 2010 Events and activities

2009 – 2010 EVENTS

⊕ **2009 Director's Meeting - 10 years of the CIPM MRA**

7 October 2009 – BIPM

⊕ **“Conference to celebrate the 10 year anniversary of the CIPM MRA”.**

8-9 October 2009 – BIPM

⊕ **Workshop on Physiological Quantities and SI units**

From 16 to 17 November 2009 – BIPM

⊕ **Workshop on Metrology at the Nanoscale**

18-19 February 2010 - BIPM

⊕ **Meeting of the bureau of the CIPM**

8 to 9 March 2010

⊕ **BIPM-ILAC-ISO-OIML meeting**

10 March 2010

⊕ **BIPM-OIML meeting**

10 March 2010

⊕ **BIPM/ILAC meeting** (Joint Task Group on Review Assessment Process)

12 March 2010

⊕ **24th meeting of the JCRB**

16 – 17 March 2010

2010 – 2011 EVENTS

Measurement Challenges for Global Observation Systems and Climate Change Monitoring

March 29 – April 2
2010 – WMO, Geneva (CH)



- ✦ **Meeting of the bureau of the CIPM**
1 June 2010

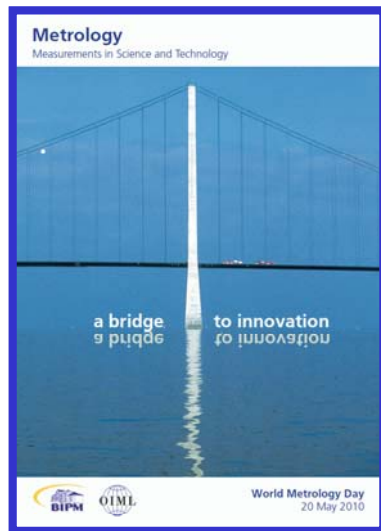
- ✦ **Meeting of NMI Directors**
2 to 3 June 2010
- ✦ **Meeting of the bureau of the CIPM**
3 June 2010
- ✦ **25th meeting of the JCRB**
21 – 22 september 2010
- ✦ **99th meeting of the CIPM**
11 to 15 October 2010

2011

- ✦ **100th meeting of the CIPM**
10 to 14 October 2011
- ✦ **24th General Conference on Weights and Measures**
17 to 21 October 2011

WORLD METROLOGY DAY 2010

Measurements in Science and Technology



Metrology: a bridge to innovation

Products:

- Poster (only in English, French, Spanish and Portuguese, and each NMI can do as they wish on their own)
- Website (<http://www.worldmetrologyday.org/>, in English only)
- BIPM Director's message (to the metrology community, in English only)
- Press release (in English only)

Partners:

BIPM
PTB

Supporters:

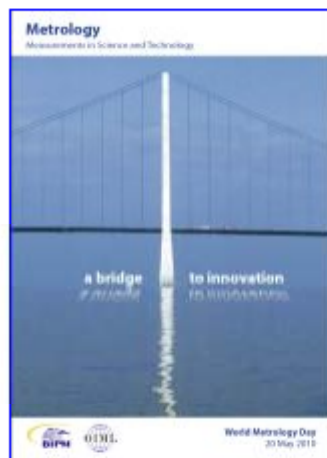
AFRIMETS	EURAMET
APMP	SIM
COOMET	NCSLI

General Assembly
COOMET - 2010

WORLD METROLOGY DAY 2010

Posters and other promotional products

World Metrology Day – 20 May 2010



Poster
(click on the poster to
download a sample in pdf format)



Press Release



Message from the
Director of the BIPM
Prof. A. J. Wallard

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Thank you for your attention

Prof M. Kühne
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General Assembly
COOMET - 2010