

Highlights of achievements by the BIPM

Report to the 26th meeting of the CGPM

by the BIPM Director

Tuesday 13th Nov

Bureau
| **I**nternational des
| **P**oids et
| **M**esures



The work of the BIPM

72 staff



- 25 PhD
- plus 13 full time equivalent secondees

10 CCs



- CIPM Consultative Committees
- Plus 67 WGs etc.

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3 databases



- KCDB
- JCTLM
- IMRR

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2300 visitors



participations
in meetings
each year

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3 databases



- KCDB
- JCTLM
- IMRR

526 NMI/DI



participations in the BIPM comparisons and calibrations

10 CCs



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2300 visitors



participations in meetings each year

16 CBKT



projects:

- 12 completed
- 4 ongoing

Capacity building and knowledge transfer (CBKT)



“that supports the efficient operation of the CIPM MRA and are recognized as important and valuable by the full-range of Member States”



Over 75 % of Member States and Associates involved

- ◆ 308 people from 83 countries
- ◆ 56 invited lecturers from 27 countries

Supported by eight NMIs and in collaboration with all six RMOs.

MEASURABLE OUTCOMES

Balancing the load

- **14 new** RMO TC/WG Chairs
- **12 existing** RMO TC/WG Chairs benefited from the CBKT programme

Accelerating integration

- “Right first time” CMC publication in the KCDB by **5 Associates that joined after 2010**

Increasing efficiency

- **10 % increase** in CMC review performance

Metrology for Safe Food and Feed

- ✓ *Enables NMIs to provide mycotoxin calibrant and matrix reference materials and proficiency test materials to support mycotoxin testing laboratories within their countries.*



Metrology for Clean Air

- ✓ *Allows NMIs to strengthen their gas standard capabilities and further develop their national metrology infrastructure in support of their air quality and emissions measurement communities.*



Laboratory-based capacity building

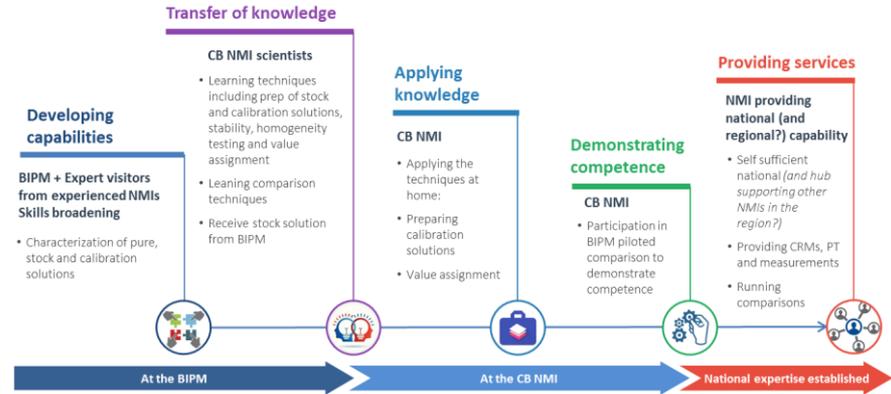
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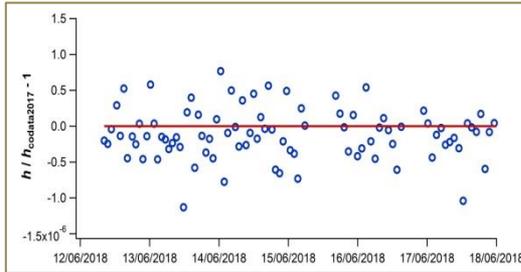
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Financial Support from:

- NIM, China
- NPL, United Kingdom
- PTB, Germany
- TÜBİTAK UME, Turkey
- NMISA, South Africa

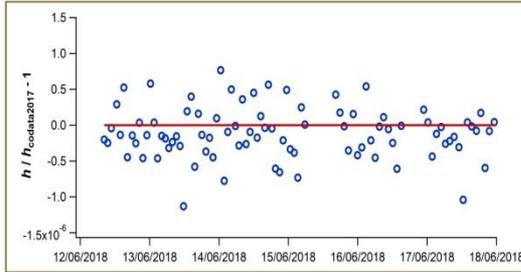
Laboratory highlights



Operation of the BIPM Kibble balance reliably under vacuum

- uncertainty of parts in 10^7
- further improvements planned,

Laboratory highlights



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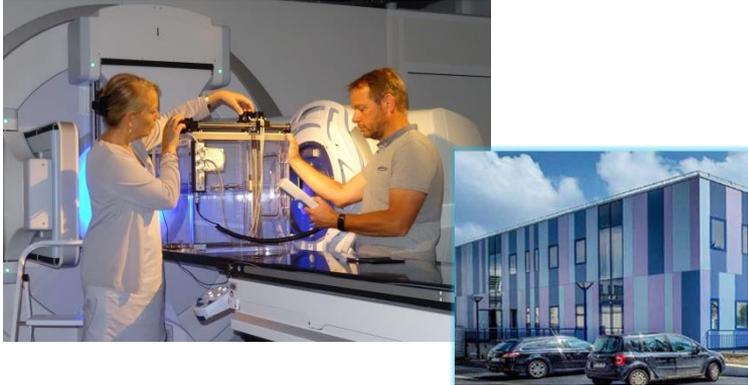
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First comparisons of primary peptide reference materials completed

- now contributing to the harmonization of C-peptide measurements and diabetes care world-wide.



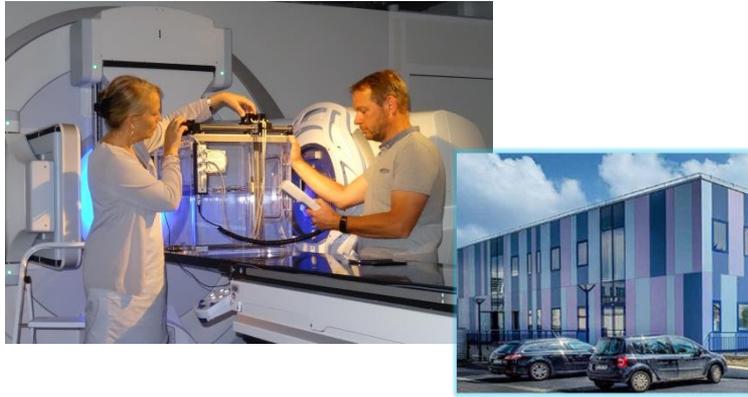
Laboratory highlights



Launch of two new services:

- the first comparisons of ^{11}C and ^{64}Cu isotope standards used for medical imaging,
- a new comparison for dosimetry established using the DOSEO facility.

Laboratory highlights

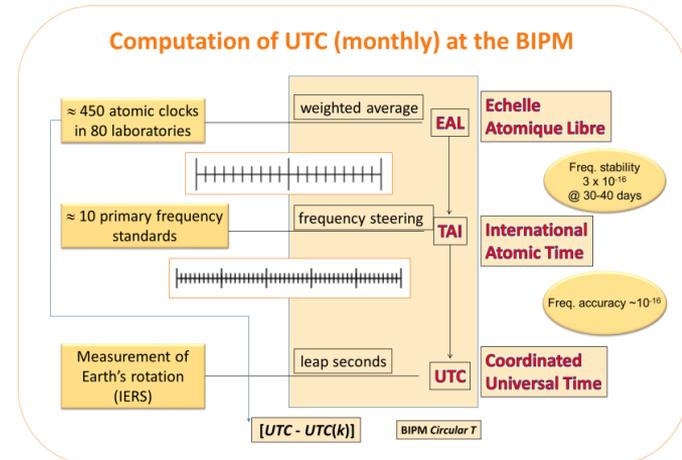


Improved stability of UTC through the introduction of NMI Software-Defined Radio (SDR)

- reducing diurnal fluctuations to less than a nanosecond.

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Finance and operations

Finance

- ◆ Operating expenses have been controlled carefully and are below the level of 2013.
- ◆ The cost of secondees has increased as a result of the strategic intent to increase participation by NMI staff in the work of the BIPM.
- ◆ Adapted to reduced income after the agreed reduction in subscriptions.

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Operations

- ◆ Renovation of the Observatoire building complete

An average of 2300 people per year have participated in meetings at the BIPM between 2014 and 2017.



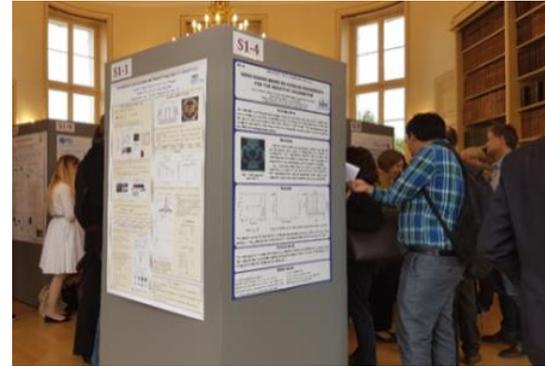
Knowledge transfer workshops

at BIPM

- Global to urban scale carbon measurement (2015).
- Quantum metrology (2017)
- World Anti-Doping Agency (WADA) joint meeting (2016)
- Time symposium (2017)

worldwide

- Protein and peptide therapeutics (2017)



Liaison with organisations in France

Centre international d'études pédagogiques

- In Sevres
- Provides meeting rooms and accommodation



International liaison



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- ❖ Contributed significantly to the revision of ISO/IEC 17025



- ❖ Agreed a joint definition of Quality Infrastructure with the ten International Organizations in the International Network on Quality Infrastructure (INetQI).

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- ❖ Promoted the role of measurement in international regulation with 50 other International Organizations



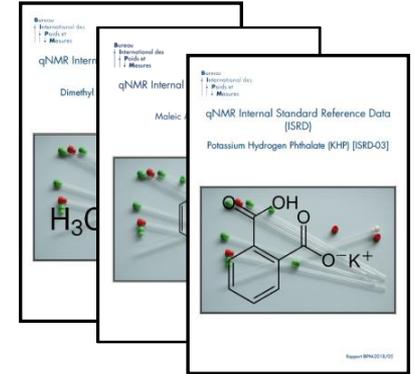
- ❖ Explained the role of metrology in supporting the Sustainable Development Goals defined by the United Nations.

New approaches to how we deliver

- ◆ NMI sponsorship of laboratory facilities

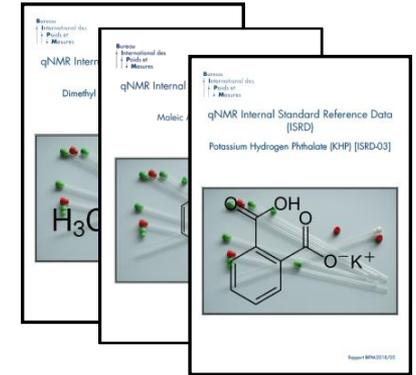


National Institute of Advanced Industrial Science and Technology
National Metrology Institute of Japan

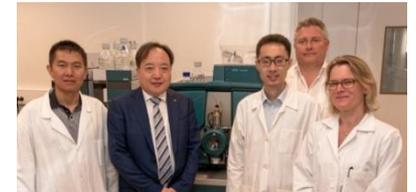


New approaches to how we deliver

- ◆ NMI sponsorship of laboratory facilities



- ◆ 85 secondees from 26 countries have worked at BIPM since 2014
- ◆ Including 13 full-time equivalent each year for the delivery of the work programme.



In summary, since 2014, the BIPM staff have:

Launched new
initiatives in capacity building
and knowledge transfer

Progressed with
laboratory projects

- Kibble balance
- qNMR...

Coordinated the
processes that will underpin the
expected re-definitions of the
base units of the SI

Expanded the impact
of BIPM's role in international
liaison

Worked to improve the
efficiency of BIPM's global
mutual recognition
arrangements

Achieved efficiency
improvements and cost-savings
in the operations

Thank you - *merci*