The theme for World Metrology Day 2014 was the wide-ranging topic of "Measurements and the global energy challenge". The day was very successful with official events in more than 30 countries including Azerbaijan, Cuba, Ethiopia, Gambia and Mongolia. In addition, the International Measurement Confederation published a special issue of Acta IMEKO which was dedicated to World Metrology Day 2014. The 2014 poster was designed by KRIS, Republic of Korea, and translated into 23 languages in addition to the English and French originals.

The 2015 World Metrology Day celebrations will be built around the UNESCO International Year of Light and Light-based Technologies (IYL 2015).

World Metrology Day celebrates the anniversary of the signing of the Metre Convention on 20 May 1875 and is organized jointly by the BIPM and the OIML. It will be supported in 2015 by the NMISA, South Africa.

The Republic of Iraq became a Member State on 20 August 2013.

The Grand Duchy of Luxembourg became an Associate of the CGPM on 29 January 2014.

The Republic of Brazil became a Member State on 12 November 2013.

The Republic of the Sudan became an Associate of the CGPM on 26 June 2014.
Session I of the 103rd meeting of the CIPM

Session I of the 103rd meeting of the International Committee for Weights and Measures (CIPM) was held at the BIPM on 12-13 March 2014. The main points of the meeting were:

New member of the CIPM
Dr Dae-Im Kang, President, KRISS, Republic of Korea, was provisionally elected to the CIPM following the resignation of Dr K.H. Chung. He took his seat at Session I of the 103rd meeting.

New CIPM election process
The CIPM unanimously supported the text of a 'collective resignation letter' that is required to initiate the new election process. The CIPM Secretary will re-contact Member State Representatives and NMI Directors to obtain details of additional candidates for CIPM membership.

BIPM Work Programme 2016-2019
The CIPM reviewed the proposed BIPM Work Programme 2016-2019 which is currently open for comment with the Member States.

CIPM MRA news

News from the 32nd meeting of the JCRB
The 32nd Meeting of the Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB) was held at the BIPM on 26-27 March 2014.

KCDB questionnaire
The JCRB commissioned an on-line survey of usage of the key comparison database (KCDB). This database receives some 11 000 visits (viewing some 90 000 web pages) each month. Of particular interest is the one-third or so of non-NMI users. The distribution of non-NMI users is shown below.

Inter-regional review of CMCs
The JCRB reviewed the impact of the 2013 workshop 'Best Practices in CMC Reviews' and the resulting series of JCRB actions. A reduction in the time taken for inter-regional review of CMCs had been a specific target outcome of the workshop. The analysis, which was presented one year after the workshop, clearly demonstrated that significant improvements had been achieved; the time taken for the review being cut by more than 50 % to an average of 2.5 months.

New signatory of the CIPM MRA: SSMO Sudan
The Director General of the Sudanese Standards and Metrology Organization (SSMO), Mr Abdalla Hassan Eisa (seated right) signed the CIPM MRA on 26 June 2014 in the presence of Dr Martin Milton, Director of the BIPM (seated left).
KCDB update

As of 17 June 2014, the BIPM key comparison database (KCDB) included a total of 24,700 Calibration and Measurement Capabilities (CMCs), with about 400 new CMCs published over the last year. Of the total number of published CMCs, 23% cover the field of electricity/magnetism, 22% chemistry, and 16% ionizing radiation. On the same date, the database covered a total of 880 key comparisons and 397 supplementary comparisons. A total of 65% of the comparisons registered in the KCDB are complete and have had their final reports posted in the database; this percentage has been stable for several years. Nearly 2,200 graphs of equivalence covering all fields of metrology are currently posted in the KCDB.

Between 24 January and 20 March 2014 questionnaires were made available on the ‘Key and supplementary comparisons’ and ‘Calibration and Measurement Capabilities – CMCs’ home pages of the KCDB to obtain information about visitors to the database. It was found from the information collected that the section on CMCs is visited twice as often as the section on comparisons, and that the two sections of the KCDB website are visited mainly by NMIs and DI's. However, the proportion of visits from accreditation bodies, calibration and testing laboratories, and industrial companies are far from negligible. In particular, calibration and testing laboratories account for 15% of the total.

Science at the BIPM

Support from NMIJ for the BIPM Comparison Programme on Pure Organic Calibrators

On 9 June 2014, the BIPM Director, Dr Martin Milton and the Director of the NMIJ, Dr Yukinobu Miki, signed a collaborative agreement between the NMIJ/AIST and the BIPM related to the development and application of quantitative NMR (qNMR) for organic primary calibrator comparisons. This collaborative agreement will support the BIPM’s activity in coordinating key comparisons and lead to improved qNMR analytical methods and procedures being made available to all Member States and Associates of the CGPM. qNMR is a potential primary measurement technique for quantifying the main component within a chemical material, and its use is becoming more widespread amongst NMIs. The current focus of the programme is to improve qNMR methodology so that international comparability at levels of parts in the 10⁻³ can be achieved for a broad range of compounds.

The BIPM and the NMIJ have already delivered the first two items of collaborative work which required an assessment of the influence of field strength on the accuracy of qNMR results, and identified potential donors to secure additional voluntary financial support for the installation of NMR equipment at the BIPM. As a result, JEOL France has agreed to donate a 400 MHz NMR* instrument to the BIPM, that will enable the establishment of a qNMR facility at the BIPM, with installation of the NMR planned for October 2014.

The NMIJ is providing further support through the visiting scientist programme, with Dr Norbert Stoppacher (BIPM) currently undertaking a two-month secondment at the NMIJ’s qNMR facilities. The BIPM is expecting to announce a call for interest for visiting scientists to its own qNMR facilities in 2015. The BIPM is actively interested in working with NMIs developing and applying qNMR methodology. Ms Tiphaine Choteau (BIPM) will undertake a training course with the qNMR group at NRC Canada in September 2014.

The programme is expected to contribute to international guidelines for the application of ‘Methods for the SI Value Assignment of the Purity of Organic Compounds’, currently being developed under an IUPAC project chaired by the BIPM with active participation from eleven NMIs (BAM, LGC, LNE, NIM, NIST, NMIA, NMIJ, NRC, PTB, VSL, UME) and two international organizations (IAEA and IRMM).

The next pure organic comparisons to be coordinated by the BIPM are C-peptide, CCQM-K115 (2014), and Folic acid, CCQM-K55.d (2015).

(*the instrument is donated by JEOL France, this acknowledgement does not constitute an endorsement of the instrument)
Updates to the SI brochure (8th edition)

The Consultative Committee for Units (CCU) recently produced a supplement to the current edition of the SI brochure, which lists the most significant changes to be made to the 8th edition, published in 2006. The changes result from recommendations made by the CCU at its 19th (2009), 20th (2010) and 21st (2013) meetings and which were approved by the CIPM at its 103rd meeting in March 2014.

The intention was not to comprehensively review the full text of the brochure; instead, the most significant items were updated to bring them into line with the recent recommendations and at the same time references to other documents were updated. The supplement includes the new definition of the astronomical unit for length adopted by the XXVIII General Assembly of the International Astronomical Union (IAU) in 2012.

The updates listed in ‘Supplement 2014’ have been included in the HTML version of the SI brochure (8th edition) which is available on the BIPM website, and an insert will be included in the remaining printed copies of the brochure.

Other news

Five seecondees at the BIPM

The following scientists are currently on secondment to the BIPM:

- Mrs Céline Pascale, METAS (Switzerland) in the Chemistry Department from 3 March to 31 July 2014. She is working on development of the BIPM’s dynamic facility for NO$_2$ and HNO$_3$ standards in support of key comparisons for air quality standard gases.
- Dr Andrei Antohe, INFIN-HH (Romania), in the Ionizing Radiation Department from 5 May to 31 July 2014. He is working on calibration of a HPGe detector for use during international comparisons BIPM.RI(II)-K1 (SIR) and BIPM.RI(II)-K2, within the framework of the gamma-ray spectrometry project.
- Dr Dewei Song, NIM (China), in the Chemistry Department from 2 June 2014 to 30 November 2014. He is working on the characterization of C-peptide material for the CCQM key comparison CCQM-K115.
- Dr Wu Wenjun, CAS (China), in the Time Department from 3 June 2014 to 2 June 2015. He is participating in the project related to the improvement of the time link calibration for the generation of UTC.
- Dr Stuart Davidson, NPL (UK), is on secondment in the Mass Department for a three-month period which started on 16 June 2014.

The BIPM thanks METAS, INFIN-HH, NIM, CAS and NPL for making these secondments possible.

David Burns appointed Chairman of the Fundamental Quantities and Units Committee of the ICRU

Dr David Burns FInstP, principal research physicist in the Ionizing Radiation Department, has been appointed Chairman of the Fundamental Quantities and Units Committee of the International Commission on Radiation Units and Measurements (ICRU).

The Fundamental Quantities and Units Committee is responsible for the series of reports on the definitions of radiation quantities that are widely referenced in the radiation community. Dr Burns became a member in 2005, following a period as consultant to the committee.

Conferences and workshops

25th meeting of the General Conference on Weights and Measures

The 25th meeting of the General Conference on Weights and Measures (CGPM) will be held at the Palais des Congrès de Versailles, France, on 18-20 November 2014. An informal preparatory meeting will be held at the BIPM on 17 November 2014 to prepare for the formal discussions on the BIPM Work Programme and corresponding Dotation.

The CGPM is made up of delegates of the governments of the Member States with observers from the Associates of the CGPM. For further details, please see the dedicated page on the BIPM website.

CCRI workshop on international traceability for accelerator dosimetry planned for 2015

A CCRI workshop on international traceability for accelerator dosimetry will be held at the BIPM on 20 March 2015. The workshop will gather and disseminate the experience gained from BIPM.RI(II)-K6, and discuss how sustainable traceability in accelerator-based dosimetry can be established and maintained world-wide. The role of the BIPM and CCRI in providing a service to Member States and other signatories to the CIPM MRA in the operation of accelerator-based radiotherapy with adequate accuracy will also be discussed.

For further information or to register for the workshop please contact: Mr José María Los Arcos, Director of the BIPM Ionizing Radiation Department and CCRI Executive Secretary: jm.losarcos@bipm.org