



Statistics on the KCDB

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BIPM

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



Outline of lecture

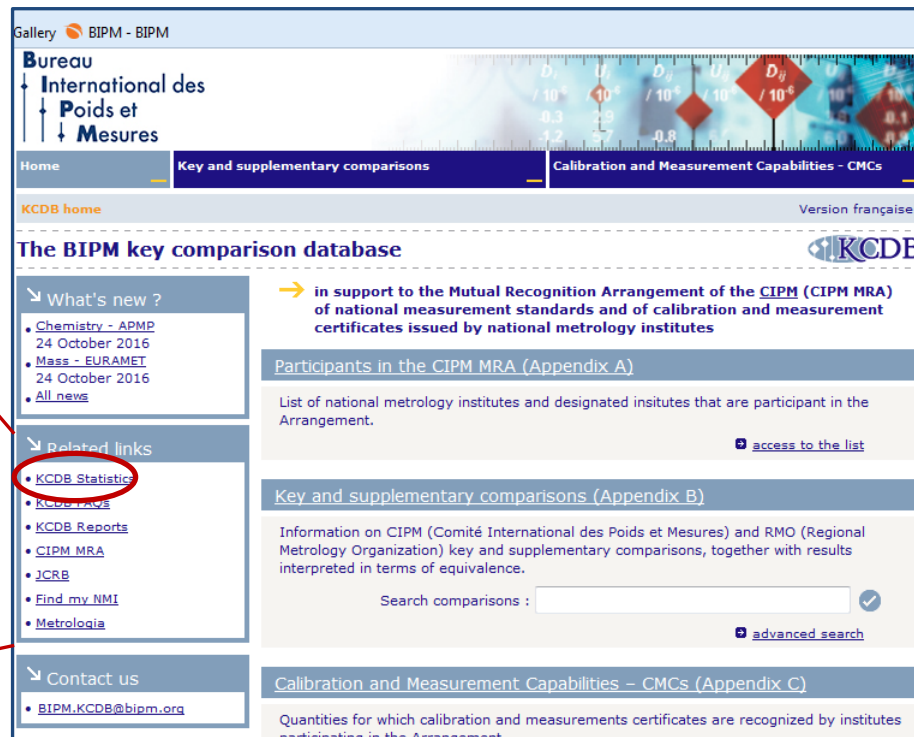
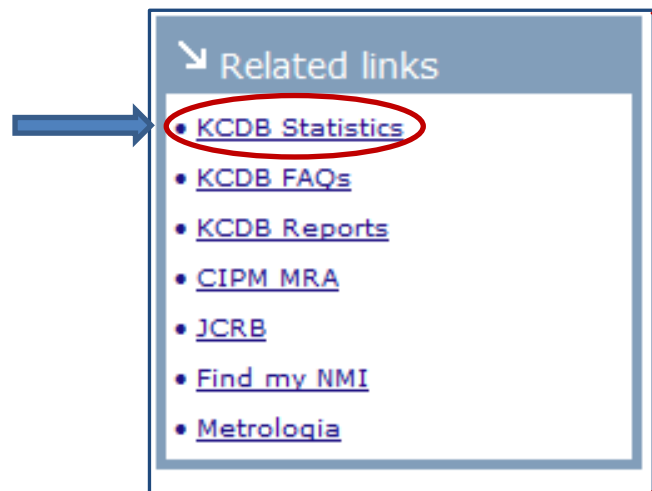
- Where can I get statistics?
- What do the statistics show?
 - NMI, regional, and metrology area variations
 - Changes over time
- Statistics on the review process
- Information on JCRB outcomes

Sources of statistics

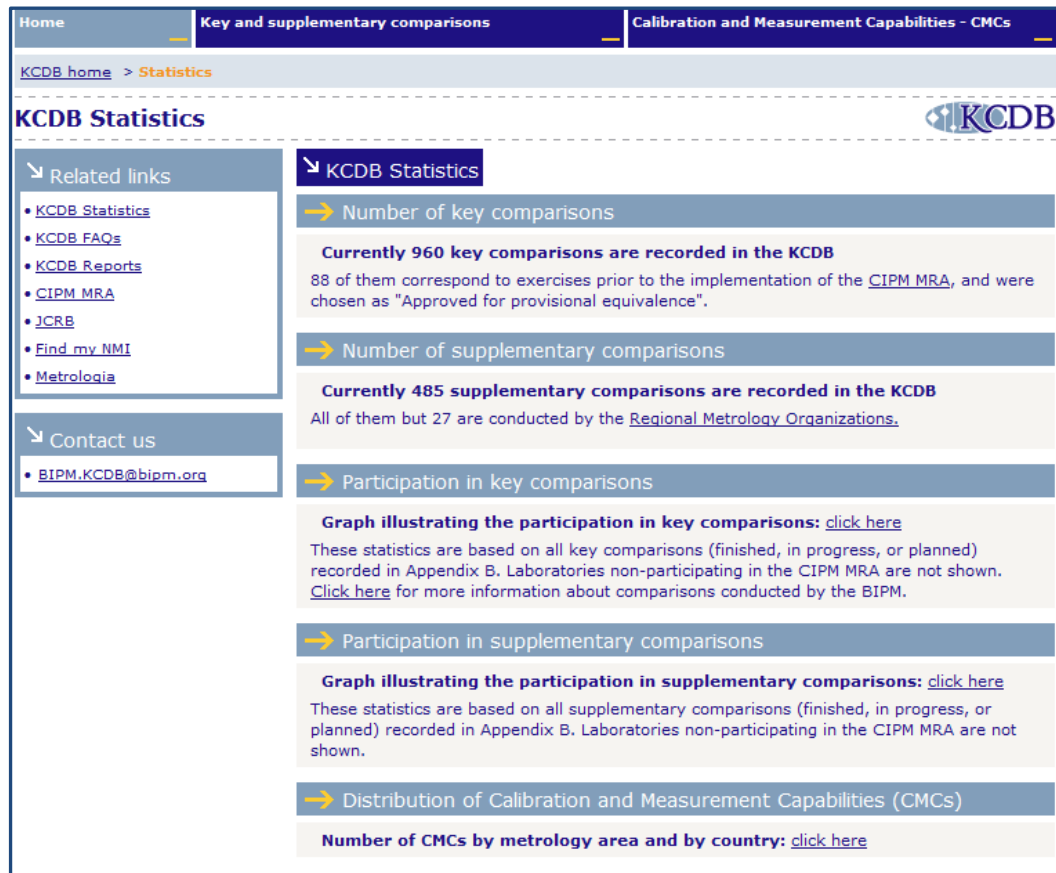
- BIPM website (unrestricted access)
 - KCDB statistics link
 - KCDB reports
- JCRB CMC Website (restricted access)
- Contact KCDB coordinator or JCRB executive secretary
 - Bipm.kcdb@bipm.org; jcrb_es@bipm.org

BIPM website, KCDB statistics link

- <http://kcdb.bipm.org/>



The KCDB Statistics page



The screenshot shows the KCDB Statistics page with a dark blue header containing 'Home', 'Key and supplementary comparisons', and 'Calibration and Measurement Capabilities - CMCs'. Below the header, a breadcrumb trail reads 'KCDB home > Statistics'. The main content area is titled 'KCDB Statistics' and features a left sidebar with 'Related links' (including KCDB Statistics, FAQ, Reports, CIPM MRA, JCRB, Find my NMI, and Metrologia) and 'Contact us' (BIPM.KCDB@bipm.org). The main content is organized into sections: 'KCDB Statistics' (with a link to 'Number of key comparisons'), 'Number of key comparisons' (stating 960 key comparisons are recorded, with 88 prior to CIPM MRA implementation), 'Number of supplementary comparisons' (stating 485 supplementary comparisons are recorded, with 27 conducted by Regional Metrology Organizations), 'Participation in key comparisons' (with a link to a graph and explanatory text), 'Participation in supplementary comparisons' (with a link to a graph and explanatory text), and 'Distribution of Calibration and Measurement Capabilities (CMCs)' (with a link to a table showing CMCs by metrology area and country).

Home | Key and supplementary comparisons | Calibration and Measurement Capabilities - CMCs

KCDB home > Statistics

KCDB Statistics

Related links

- [KCDB Statistics](#)
- [KCDB FAQ](#)
- [KCDB Reports](#)
- [CIPM MRA](#)
- [JCRB](#)
- [Find my NMI](#)
- [Metrologia](#)

Contact us

- BIPM.KCDB@bipm.org

KCDB Statistics

→ Number of key comparisons

Currently 960 key comparisons are recorded in the KCDB

88 of them correspond to exercises prior to the implementation of the [CIPM MRA](#), and were chosen as "Approved for provisional equivalence".

→ Number of supplementary comparisons

Currently 485 supplementary comparisons are recorded in the KCDB

All of them but 27 are conducted by the [Regional Metrology Organizations](#).

→ Participation in key comparisons

Graph illustrating the participation in key comparisons: [click here](#)

These statistics are based on all key comparisons (finished, in progress, or planned) recorded in Appendix B. Laboratories non-participating in the CIPM MRA are not shown. [Click here](#) for more information about comparisons conducted by the BIPM.

→ Participation in supplementary comparisons

Graph illustrating the participation in supplementary comparisons: [click here](#)

These statistics are based on all supplementary comparisons (finished, in progress, or planned) recorded in Appendix B. Laboratories non-participating in the CIPM MRA are not shown.

→ Distribution of Calibration and Measurement Capabilities (CMCs)

Number of CMCs by metrology area and by country: [click here](#)

- Numbers of key (KC) and supplementary comparisons (SC)
- Link to charts showing KC participation by country / organization, noting pilot status
- Link to charts showing SC participation by country / organization, noting pilot status
- Link to table showing CMC numbers by metrology area and country
- **Note: charts and tables are pdf format, not excel**

KCDB Statistics page: Chart of KCs

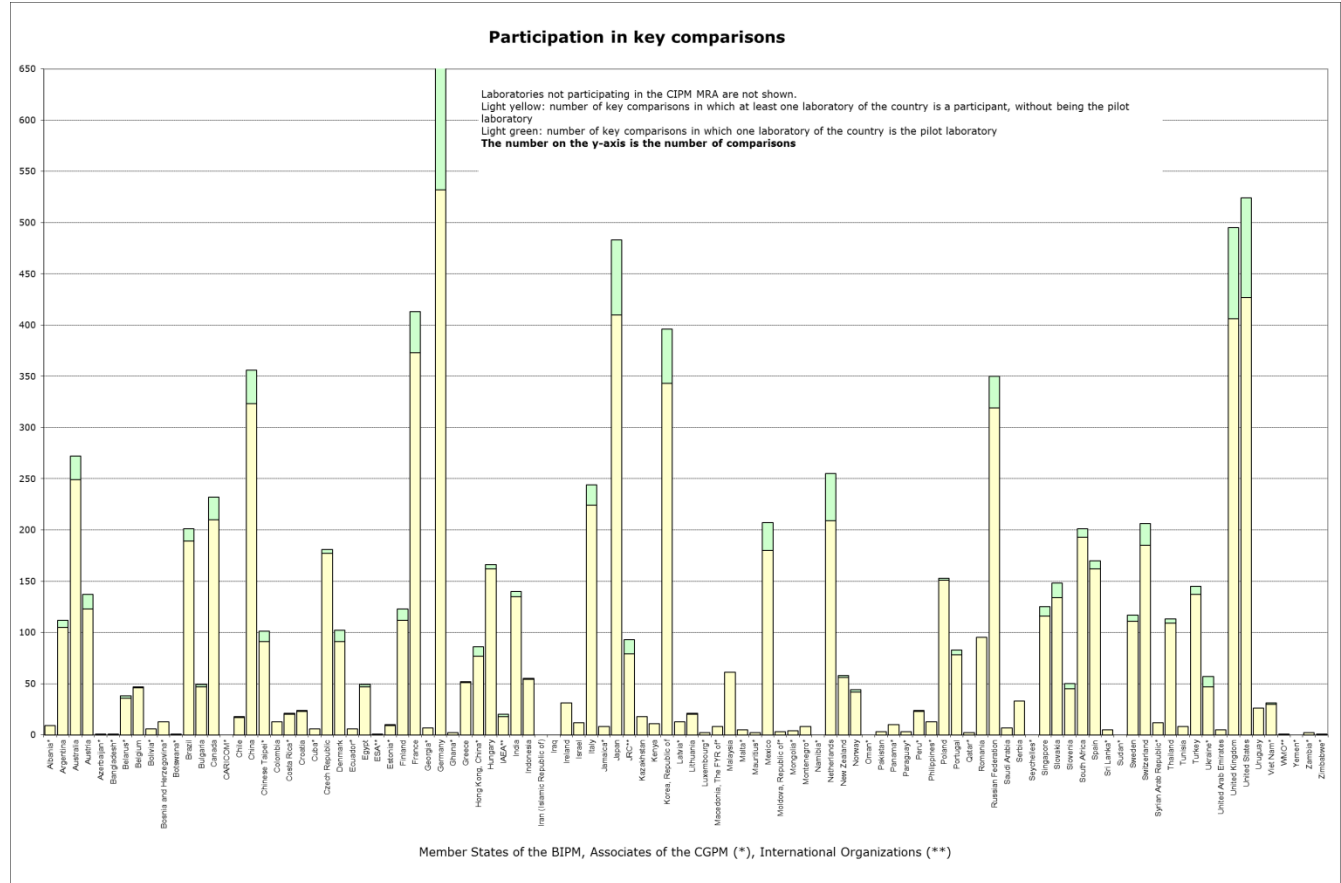
25 August 2017

Number of KCs

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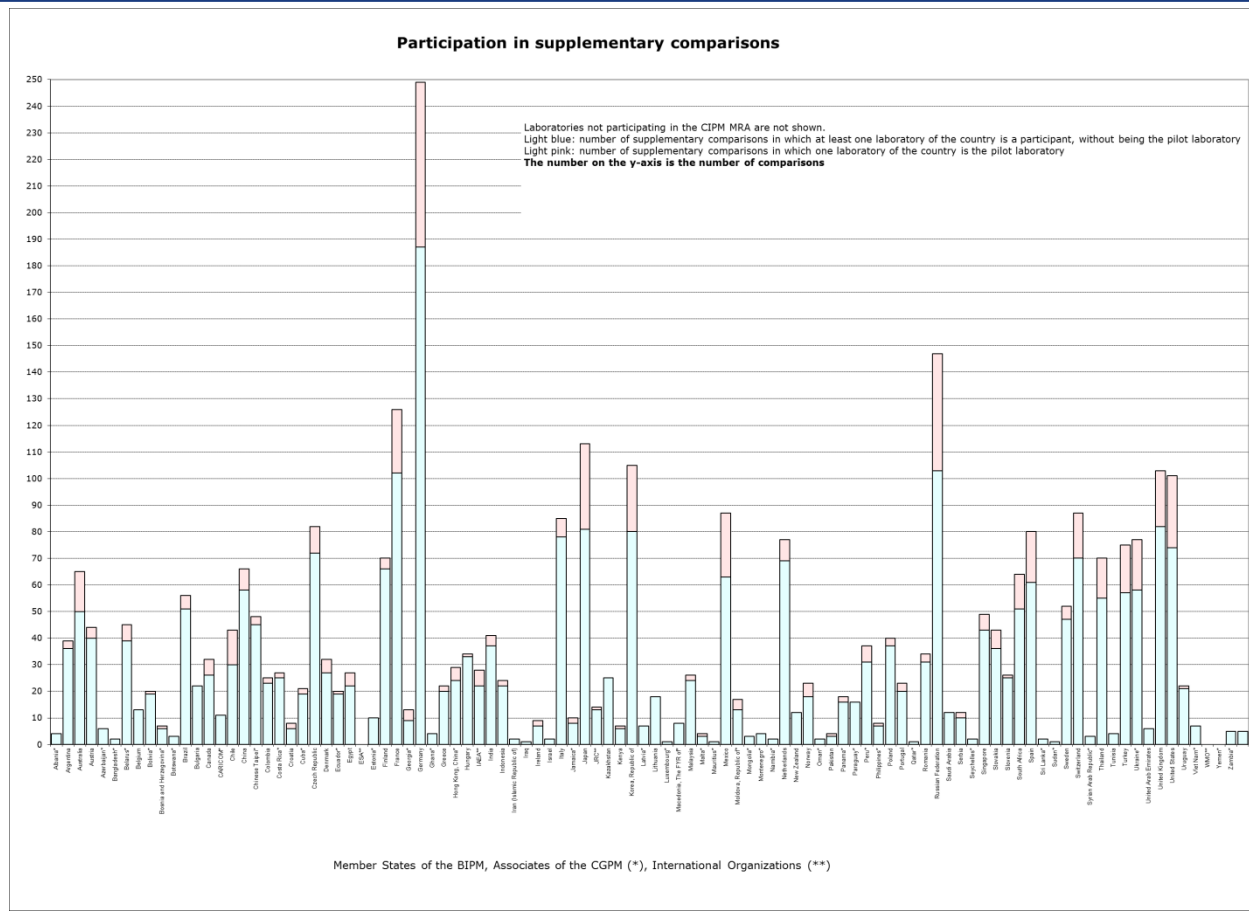
KCDB Statistics: Chart of SCs

25 August 2017

Number of SCs

Signatory of the CIPM MRA

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Poids et
Mesures

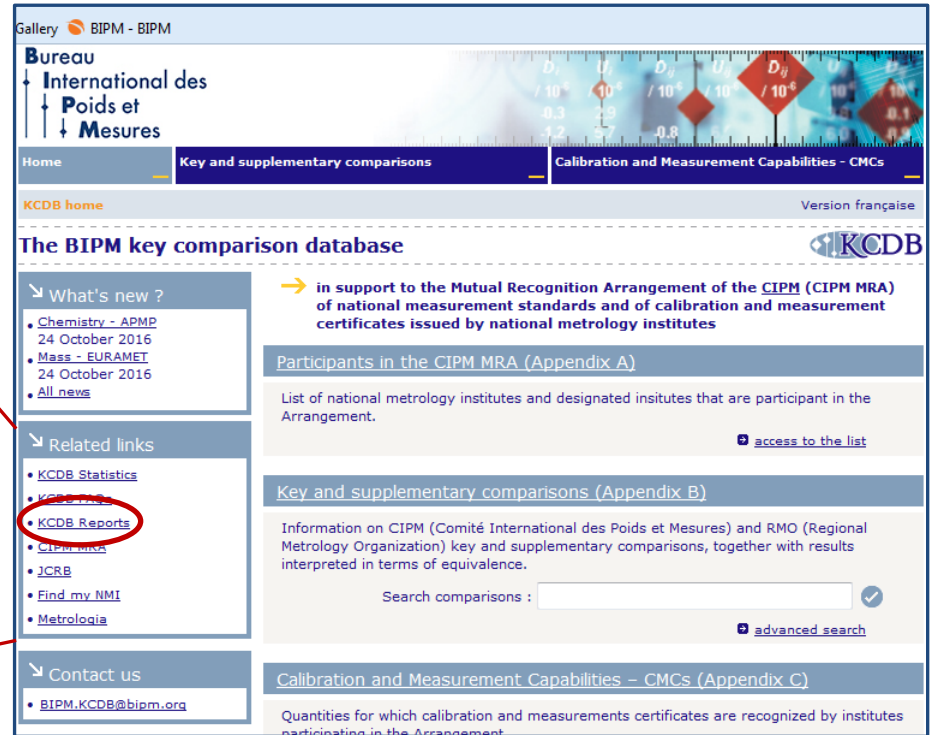
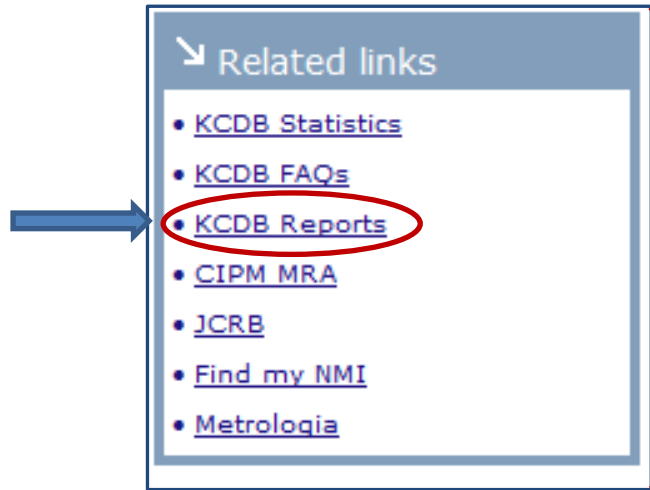


KCDB Statistics page: distribution of CMCs

Member State	State as on 2 November 2017															cells modified from September to December 2017											
Associate of the CGPM	Acronyms are listed in the last page of this document.															update of CMCs, but no change in number											
International organization																											
Country	AUV				Mass and Related Quantities										Length			PR	T	TF	EM		Ionizing Radiation				QM
	A	W	V	Total	Mass 1	Dens 2	Pres 3	F 4	Torq 5	Visc 6	H 7	Grav 8	FF 9	Total	Laser	Dim Met	Total	Total	Total	Total	Matrices	RI(I) 1	RI(II) 2	RI(III) 3	Total	QM 1	
Albania					7									7													
Azerbaijan																											
Argentina	5		4	9	29	16	13	11					4	73	1	11	12	4	17	9	78	21		48		48	
Australia	13		10	23	18	2	4	5						29		6	6	17	26	21	80	27	15	32	2	49	68
Austria	17		6	23	9	2	7	4		7	4	1	25	59	5	24	29	4	23	17	36	10	52	100		152	
Bangladesh																											
Belarus	25			25	6		1			2	1			10	2	14	16	11	37	31	41	6	21	30		51	
Belgium					10		2	0						12	3	11	14		20	4	7	3					
Bolivia					17									17													
Bosnia and Herzegovina					8									8					9	15	26	23					
Botswana																											
Brazil	57		31	88	27	15	14	5	1	22			4	88	8	19	27	11	11	13	66	29	8	96	15	119	7
Bulgaria	12		18	30	8		15			1				24	3	16	19	7	44	16	58	33	7	16		23	
Canada	20	3	9	32	32	8	9						3	52	10	9	19	71	64	7	73	22	10		1	11	27
CARICOM																											
Chile					24			9						33		1	1		10		26	13					
China	22	3	31	56	10	4	8	3	1	15	14		12	67	2	76	78	27	50	28	180	81	17	176	2	195	230
Chinese Taipei	21		18	39	9		12	4			3		21	49	3	55	58	45	27	9	49	20	7	78	4	89	
Colombia						1								1					37	13							
Costa Rica					24								8	32					8	11	16	14					
Croatia							10							10	3	19	22		32		21	12	2			2	
Cuba													12	12					8		17		13	63		76	
Czech Republic	4		4	8	10		11	4	1				20	46	15	66	81	40	73	17	87	58	7	104	12	123	
Denmark	29		2	31	7		14	4					36	61		14	14	8	28		54	8	7			7	
Ecuador					20									20													
Egypt										5				22													
El Salvador																											
Equatorial Guinea																											
Estonia																											
Ethiopia																											
Fiji																											
Finland																											
France																											
Germany																											
Ghana																											
Greece																											
Guatemala																											
Honduras																											
Hungary																											
India																											
Indonesia																											
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Ireland																											
Israel																											
Italy																											
Jamaica																											
Japan																											
Jordan																											
Kazakhstan																											
Kenya																											
Korea																											
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Latvia																											
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Nicaragua																											
Niger																											
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North Macedonia																											
Oman																											
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Panama																											
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Peru																											
Philippines																											
Poland																											
Portugal																											
Romania																											
Russia																											
Rwanda																											
Saudi Arabia																											
Senegal																											
Serbia																											
Singapore																											
Slovakia																											

BIPM website, KCDB reports

- <http://kcdb.bipm.org/>





BIPM website, KCDB reports


Reports on the KCDB

[KCDB reports](#)[JCRB outcomes](#)[CIPM MRA documents](#)[CIPM MRA participants](#)[KCDB](#)


→ The KCDB Office prepares biannual reports on the KCDB, and readers are encouraged to consult these for details concerning publication of key and supplementary comparisons and of approved sets of CMCs.

→ **Download KCDB report for:** September 2017 ▾ See report

- Click here to download a presentation on the KCDB 
- Who visits the KCDB?  (inquiry dated March 2014)



KCDB

- Direct access 
- KCDB Reports
- KCDB Statistics
- KCDB FAQs

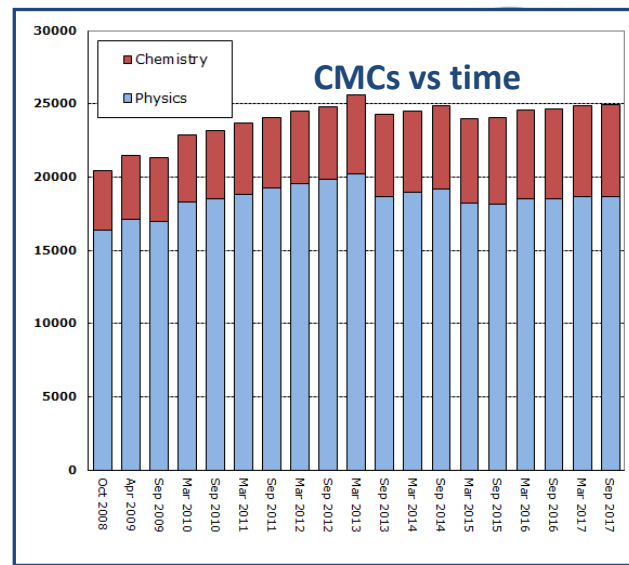
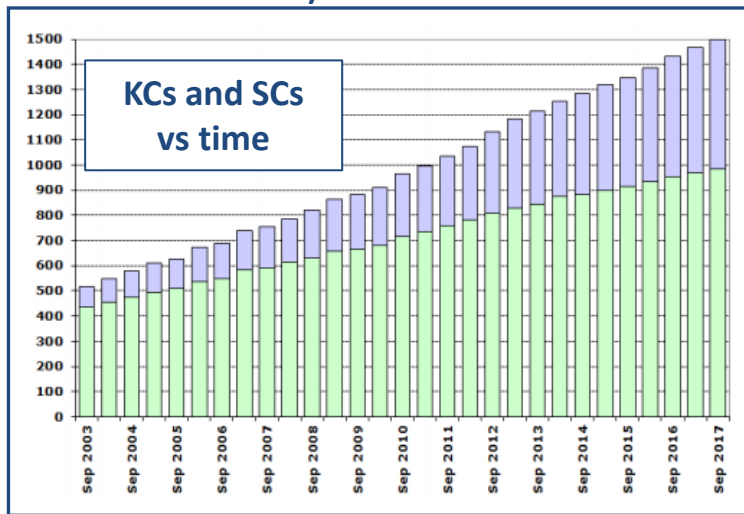
CIPM MRA documents

- Policy documents
- Guidance on CMCs
- Guidance on comparisons
- Complementary info.
- See also: [JCRB](#)

<http://www.bipm.org/jsp/en/ViewKCDBReport.jsp>

KCDB Reports

- Statistics within written text
- Charts on CMCs, comparisons vs time
- Lists of new CMCs, grey-out CMCs, new comparisons, published comparisons, CIPM MRA activity of associates



the CIPM MRA, is presented in Section 4.

1. CIPM MRA Appendix C : Calibration and Measurement Capabilities

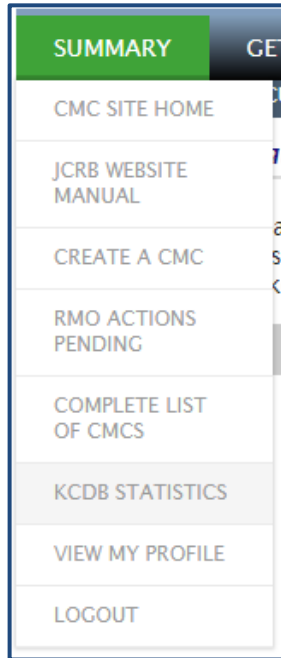
1.1. Status of the KCDB CMC database

End of February 2017, the KCDB included a total of 24 974 CMCs:

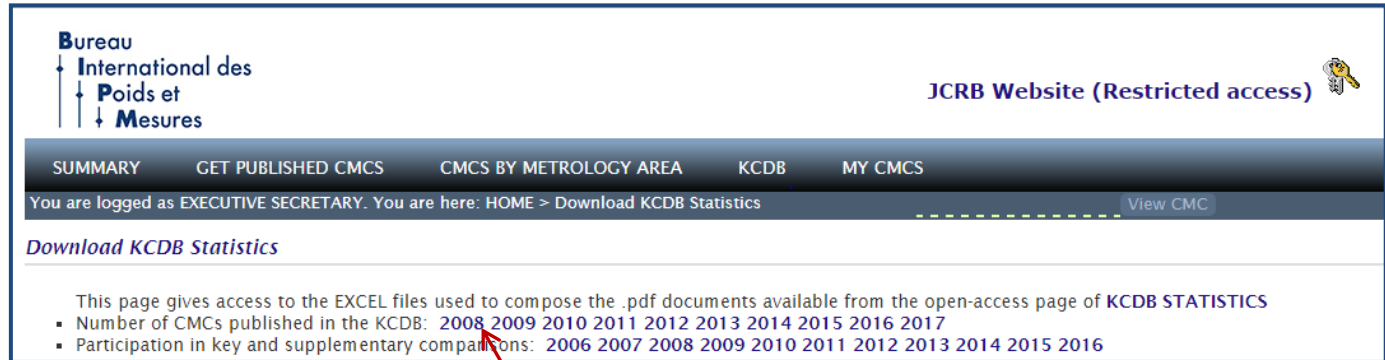
- 18 693 in Physics,
- 6 281 in Chemistry.

Over the last six months 34 countries published CMCs. The total number of CMCs increased by 319 over the last 12 months, corresponding to a relative increase of 1 %.

JCRB CMC review website

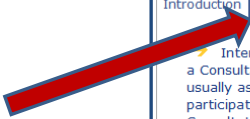


- Select summary, KCDB Statistics
 - <http://www.bipm.org/JCRBCMCs/KcdbStatistics.jsp>
- Same information as from open-access KCDB statistics, but in excel files
- CMC files from 2008 onward
- Comparison files from 2006 onward



Statistics on services provided by the BIPM

<http://www.bipm.org/en/bipm-services/comparisons/>



The screenshot displays the BIPM website's 'Comparisons' section. The left sidebar contains a navigation menu with 'Comparisons' highlighted. The main content area is titled 'Comparisons' and features a tabbed interface with 'Chemistry' selected. It lists various international comparisons, categorized into 'Gases', 'CCQM Pilot Studies [Organics]', and 'Organics'. Each entry includes a comparison ID, description, and status. The right sidebar contains sections for 'Traceability to the SI through the BIPM', 'Summary charts: Technical services per Member State', and 'Related articles'.

Bureau International des Poids et Mesures

ABOUT US

> You are here: BIPM > Comparisons

Comparisons

Introduction

International comparisons are usually as participatory as possible. Consultative comparisons are also possible.

For the comparison, the BIPM provides a number of services, such as:

- national comparisons
- international comparisons
- comparisons with other laboratories
- comparisons with other countries
- comparisons with other organizations
- comparisons with other BIPM members
- comparisons with other BIPM participants
- comparisons with other BIPM observers
- comparisons with other BIPM guests
- comparisons with other BIPM visitors
- comparisons with other BIPM members
- comparisons with other BIPM participants
- comparisons with other BIPM observers
- comparisons with other BIPM guests
- comparisons with other BIPM visitors

Introduction

Chemistry

Ionizing Radiation

Physical Metrology

Time

Gases

- BIPM-QM-K1: Ozone at ambient level (2007 -) [Ongoing, approved for equivalence]
- CCQM-K68.2019: Nitrous oxide in synthetic air (2019) [Planned]
- CCQM-K74: Nitrogen dioxide (NO₂) in Nitrogen (N₂) (2009 - 2010) [Approved for equivalence]
- CCQM-K74.2017: Nitrogen dioxide (NO₂) in Nitrogen (N₂) (2017) [Planned]
- CCQM-K82: Methane in air : preparative comparison (2012) [Approved for equivalence]
- CCQM-K90: Formaldehyde in Nitrogen (2015 - 2016) [Approved for equivalence]
- CCQM-K120: Ambient CO₂ (2016) [Planned]
- CCQM-K137: NO in Nitrogen (2017 - 2018) [Protocol complete]

CCQM Pilot Studies [Organics]

- CCQM-P20.e: Purity analysis series – Theophylline (2006) [Approved and published]
- CCQM-P20.f: Purity analysis series – Digoxin (2007) [Approved and published]

Organics

- CCQM-K55.a: Purity assessment of high purity organic materials: 17beta-Estradiol (2008 - 2009) [Approved for equivalence]
- CCQM-K55.b: Purity assessment of high purity organic materials: aldrin (2010 - 2011) [Approved for equivalence]
- CCQM-K55.c: Purity assessment of high purity organic materials: L-(+)-Valine (2012) [Approved for equivalence]
- CCQM-K55.d: Mass fraction assignment of Folic acid in a high purity material (2015 [Report in progress, Draft A]) [In progress]
- CCQM-K78.a: Mass fraction assignment of organic analytes in a multi-component aqueous calibration solution (2016 - 2017) [In progress]
- CCQM-K148.a: Mass fraction assignment of Bisphenol-A high purity material (2018) [Planned]
- CCQM-K115: Peptide purity determination - synthetic human C peptide (HCP) (2014) [In progress]

Traceability to the SI through the BIPM

Subject area:

What is traceability?

BIPM policy on stating uncertainties

Summary charts: Technical services per Member State

- Chemistry
- Electricity
- Ionizing Radiation
- Mass
- Time

Related articles:

- BIPM calibration and measurement services
- BIPM work programme
- Joint BIPM, OIML, ILAC and ISO declaration on metrological traceability

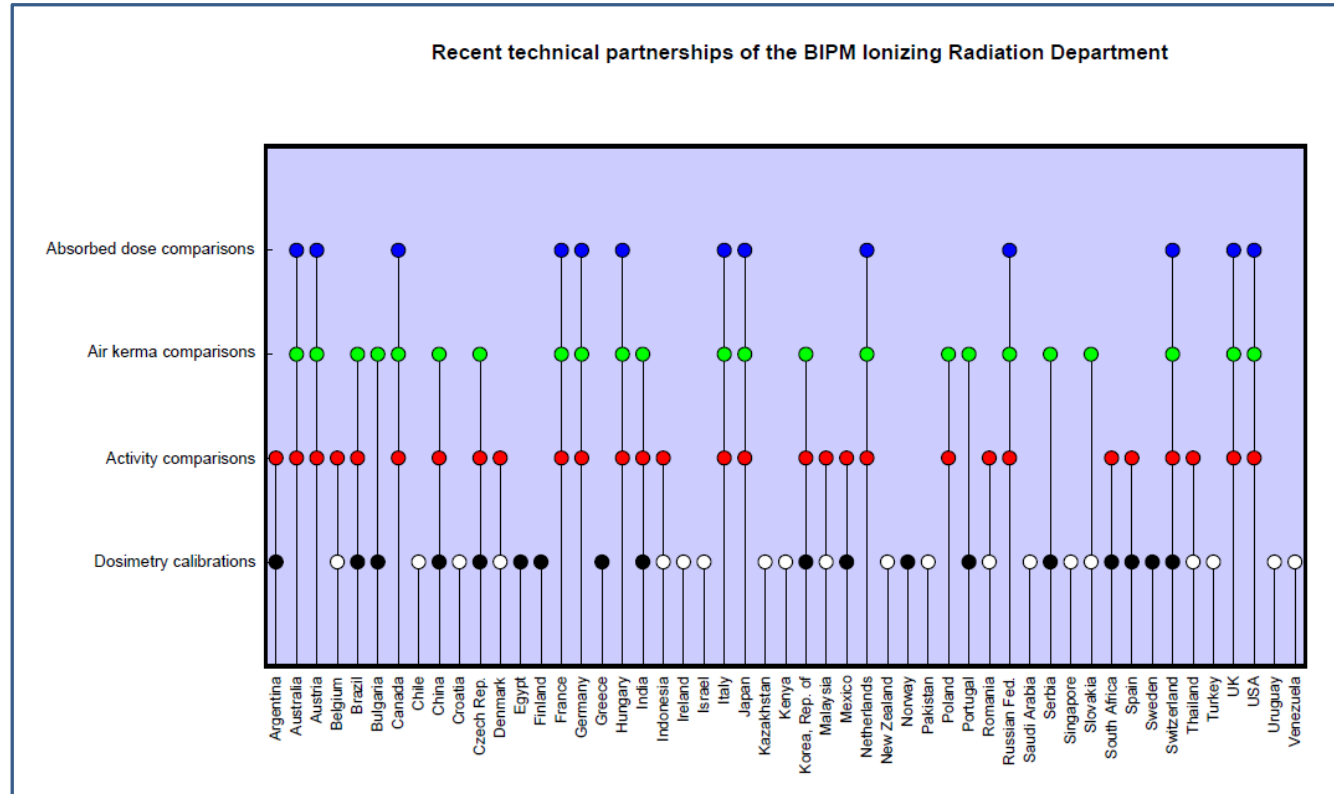
This section lists the international comparisons piloted by the BIPM – mainly of the first type – many of which are ongoing BIPM key comparisons.

BIPM calibration and measurement services

BIPM work programme

Statistics on services provided by the BIPM

<http://www.bipm.org/en/bipm-services/comparisons/>



Outline of lecture

- Where can I get statistics?
- **What do the statistics show?**
 - NMI, regional, and metrology area variations
 - Changes over time
- Statistics on the review process
- Information on JCRB outcomes

25 August 2017

Signatory of the CIPM MRA

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Number of KCs



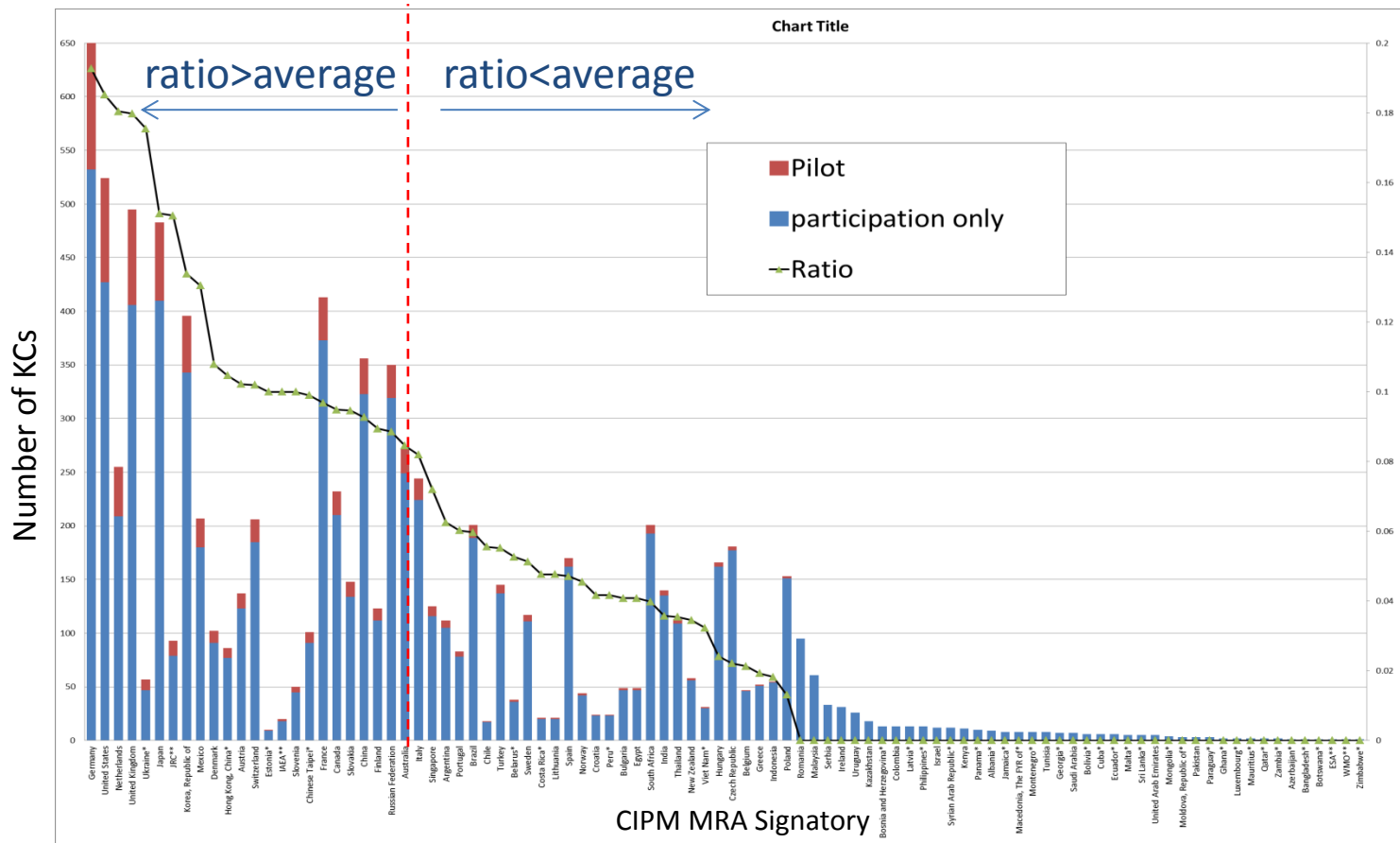
Top 10 in total KCs: Germany, USA, UK, Japan, France, Korea, China, Russia, Australia, Netherlands

8 signatories have no Key Comparisons

Only one Associate with more than 100 KCs (Chinese Taipei)

Note: chemistry uses the term “coordinating lab” instead of pilot lab, as “pilot” refers to a pilot study. The present analysis uses “pilot” to mean “coordinating” when applied to chemistry KCs.

KC participation, ordered by ratio: KC piloted to KC total



Top 10 in ratio are Germany, USA, Netherlands, UK, Ukraine*, Japan, JRC, Korea, Mexico, Denmark

Note some significant changes in ordering since spring 2017:

Into top 10: Denmark

Out of top 10: Estonia

Average ratio:** 0.08

*Associate

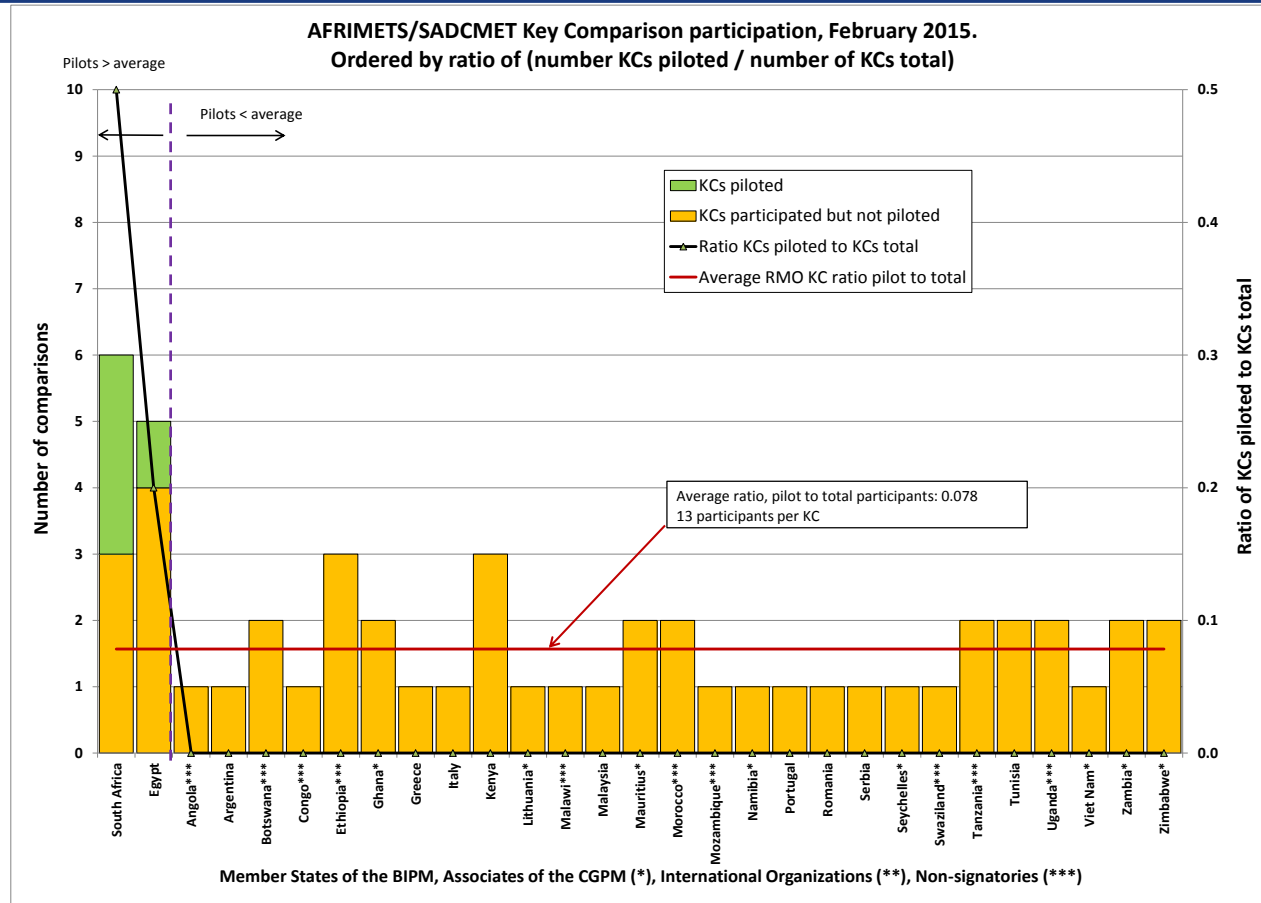
**For signatories with at least one participation as pilot

What KC and SC participation can show

- Load sharing: piloting a comparison uses more resources than participation
 - Can indicate impact of CBKT training
- 95 signatories have participated in one or more KCs
 - 99 signatories have participated in one or more SCs
- 52 signatories have piloted a KC
 - 64 signatories have piloted a SC
- *Recall CIPM KCs have strict rules for participation and piloting*

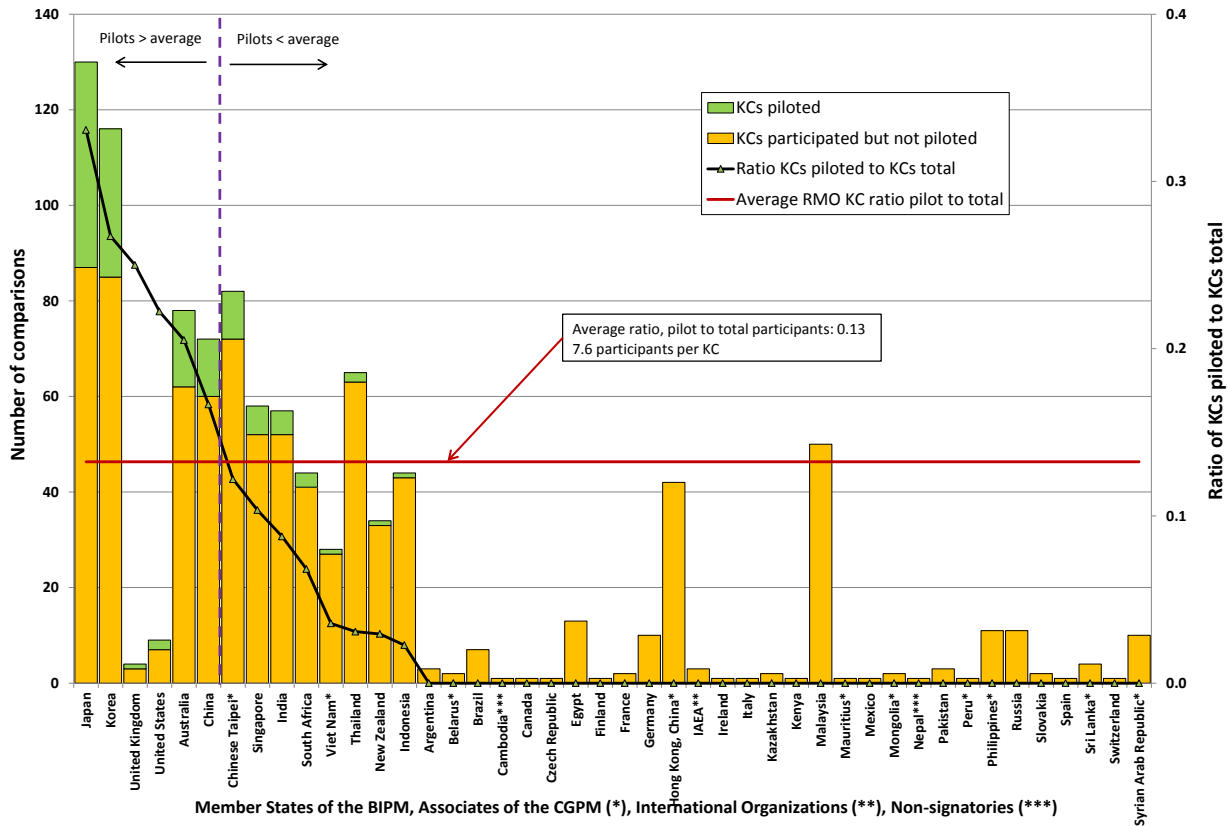
Participation in RMO KCs: AFRIMETS

Only South Africa
and Egypt have
piloted KCs



Participation in RMO KCs: APMP

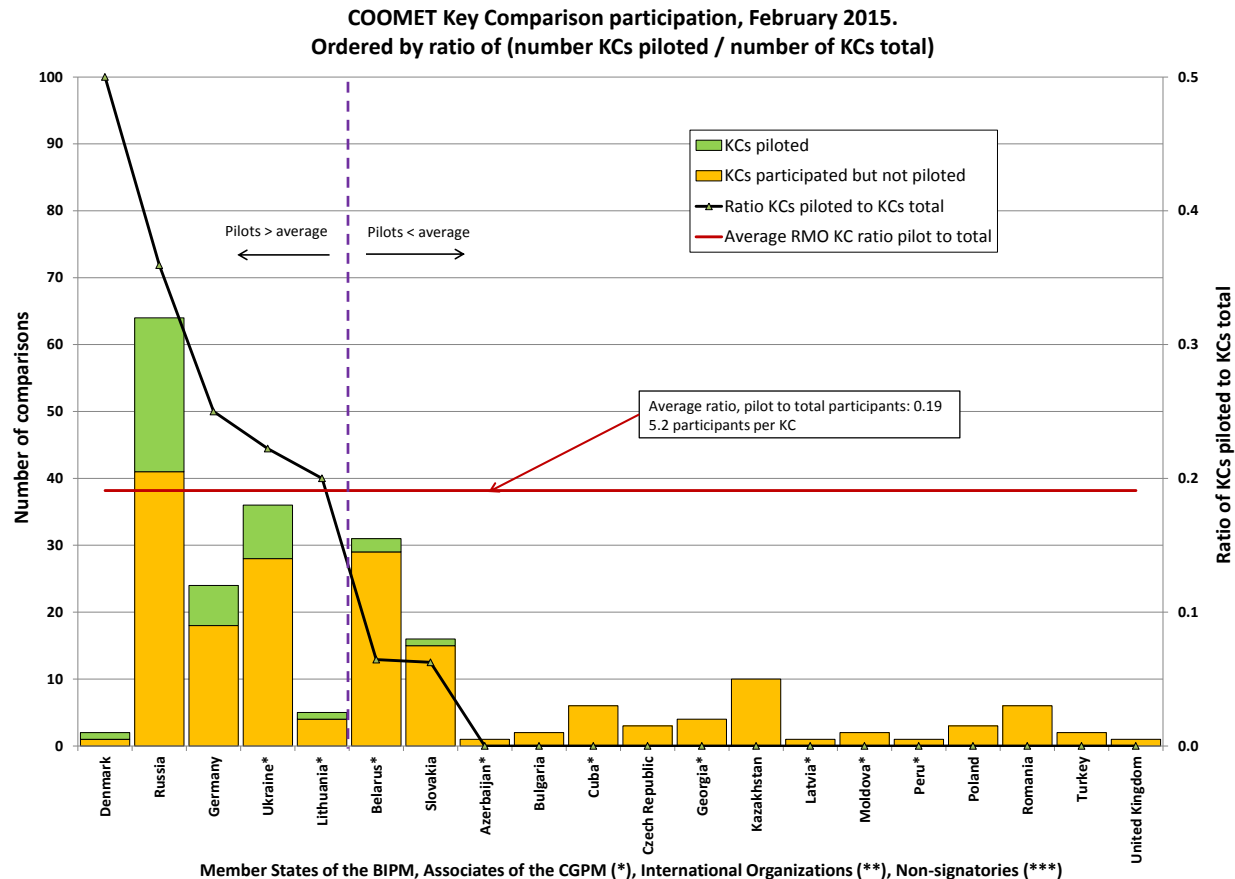
APMP Key Comparison participation, February 2015.
Ordered by ratio of (number KCs piloted / number of KCs total)



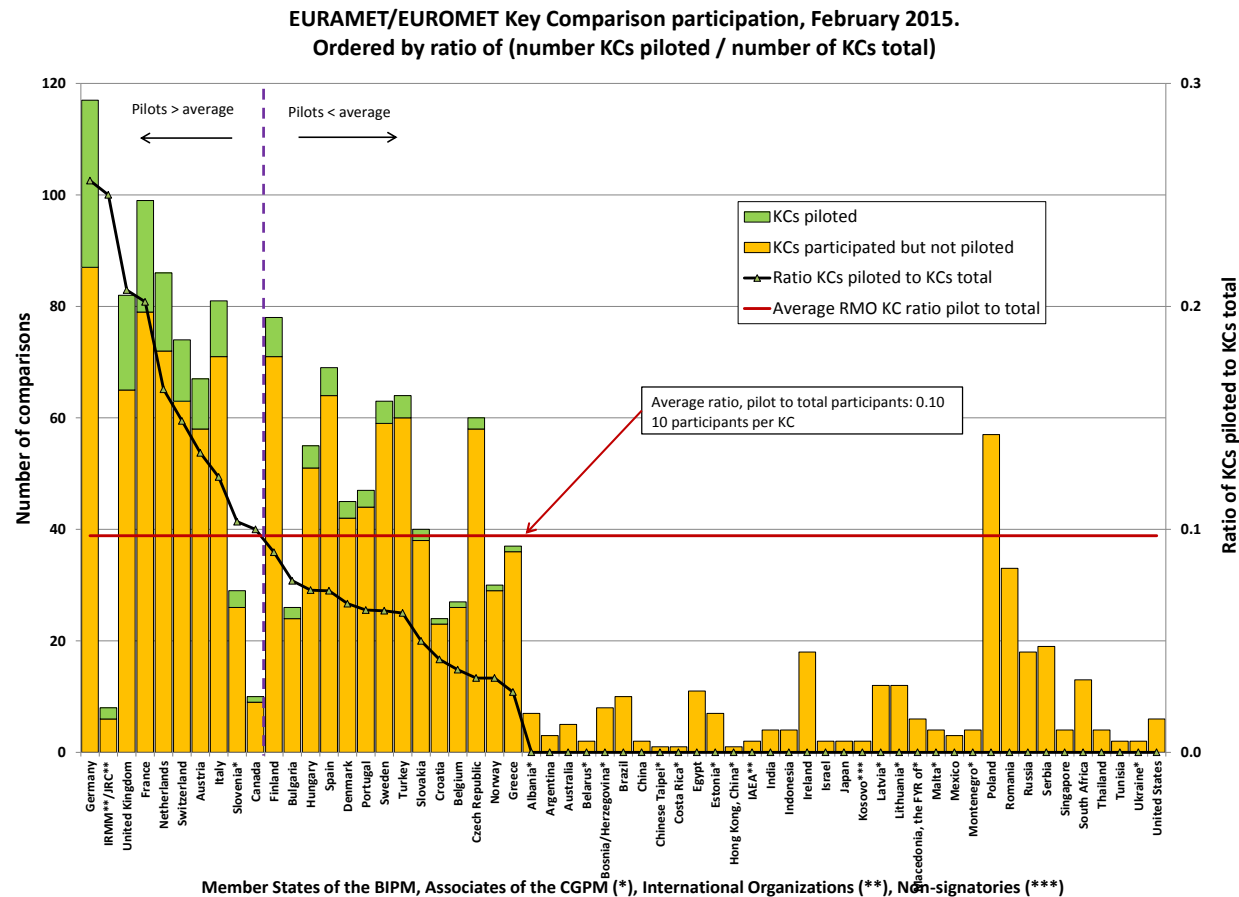
10 APMP countries
share the piloting
load

Participation in RMO KCs: COOMET

6 COOMET members share the piloting load (only 3 submit CMCs through COOMET)



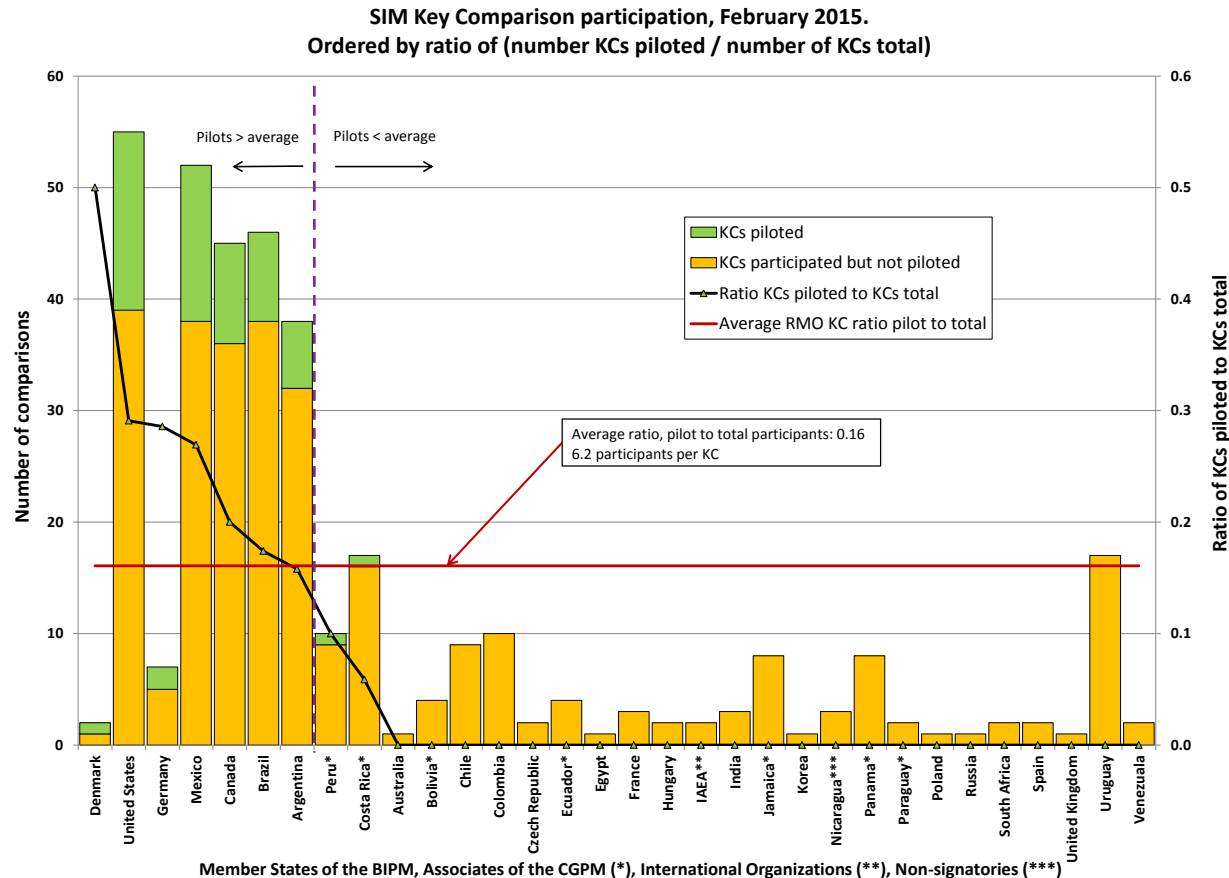
Participation in RMO KCs: EURAMET



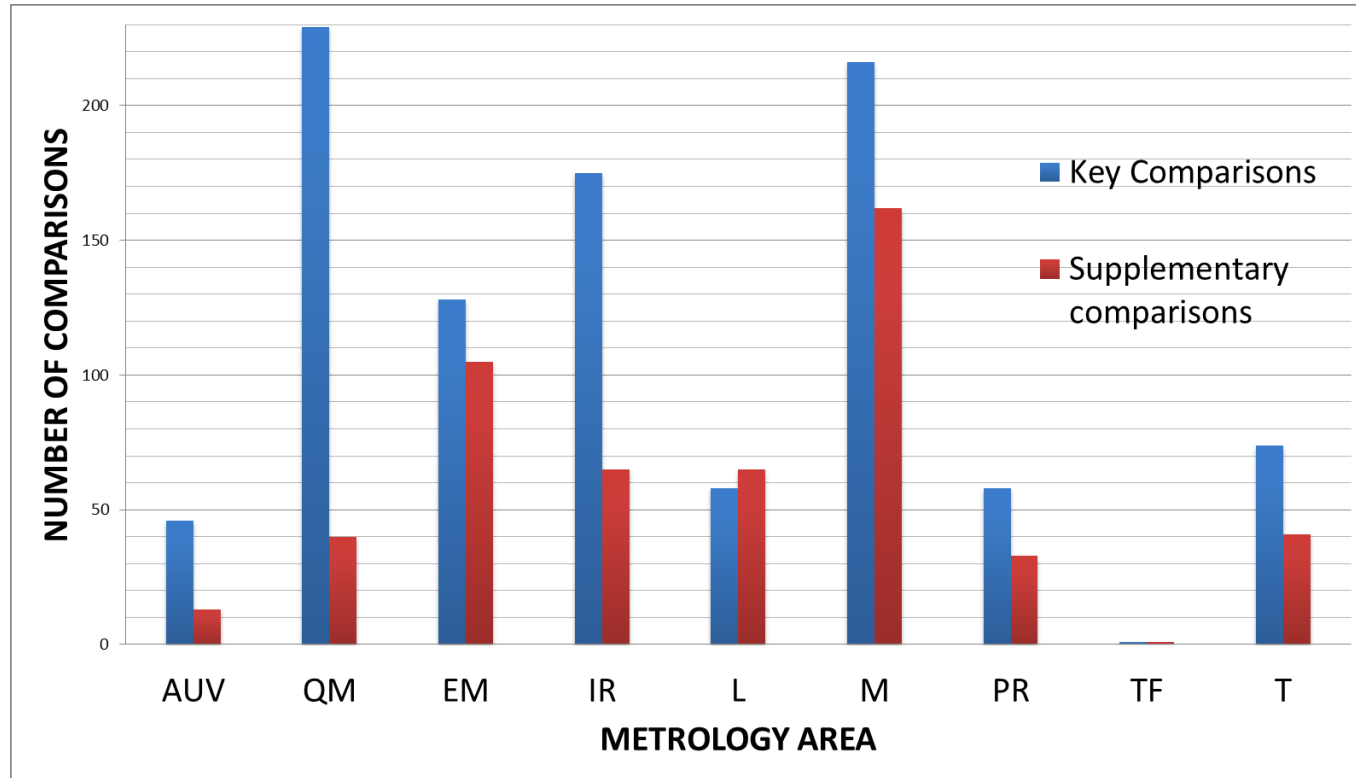
22 countries share
the piloting load

Participation in RMO KCs: SIM

7 SIM countries
share the
piloting load



Comparisons by metrology area



- Largest workload by metrology area in QM, M, IR, and EM
- 30 to 40 new KCs/yr
- 30 to 40 new SCs/yr

CMC analysis: distribution of CMCs by CIPM MRA signatory

25 Aug 2017: 24,960 CMCs in KCDB

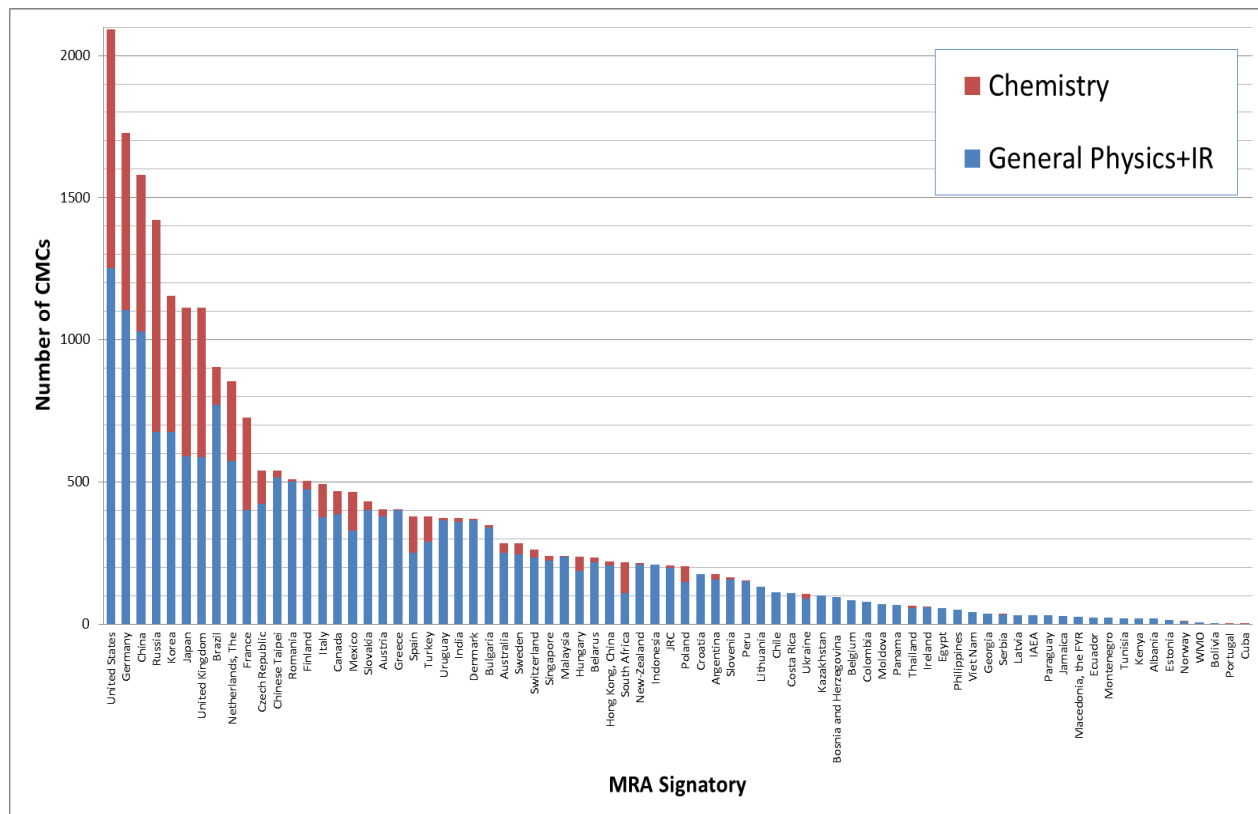
26 signatories do not have CMCs

Chemistry CMCs are concentrated in fewer institutions than physical CMCs

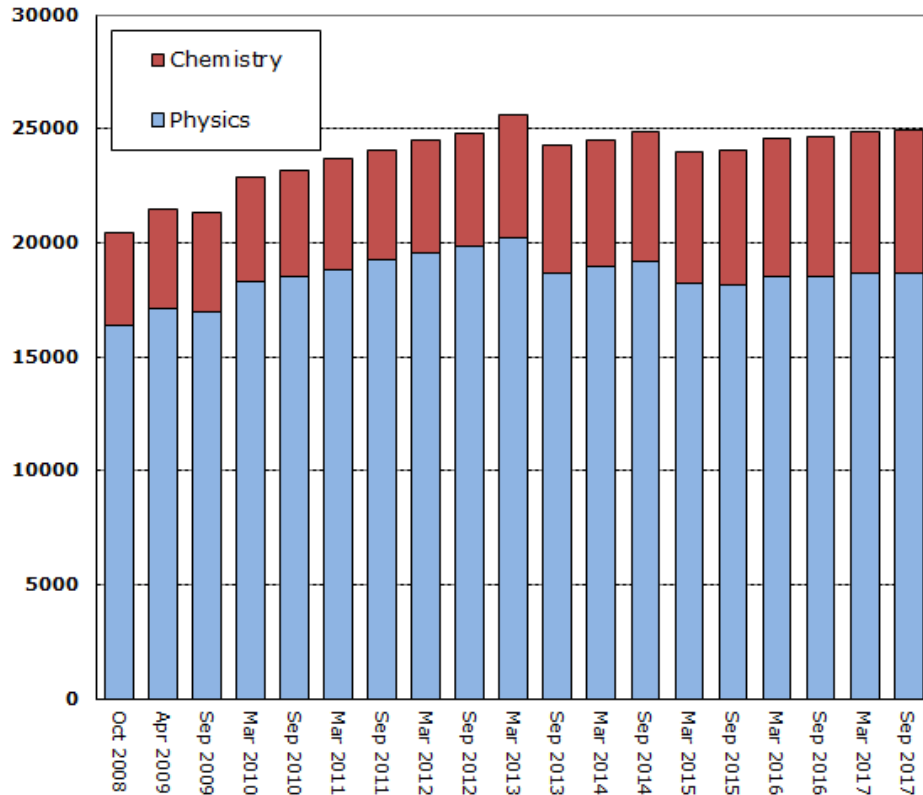
- 15 sign. with 100 or more chemistry CMCs
- 47 sign. with 100 or more physical CMCs.

10 countries with largest number of CMCs:

- | | |
|------------------|-------------------|
| 1. United States | 6. Japan |
| 2. Germany | 7. United Kingdom |
| 3. China | 8. Brazil |
| 4. Russia | 9. Netherlands |
| 5. Korea | 10. France |



CMCs: rate of change over time

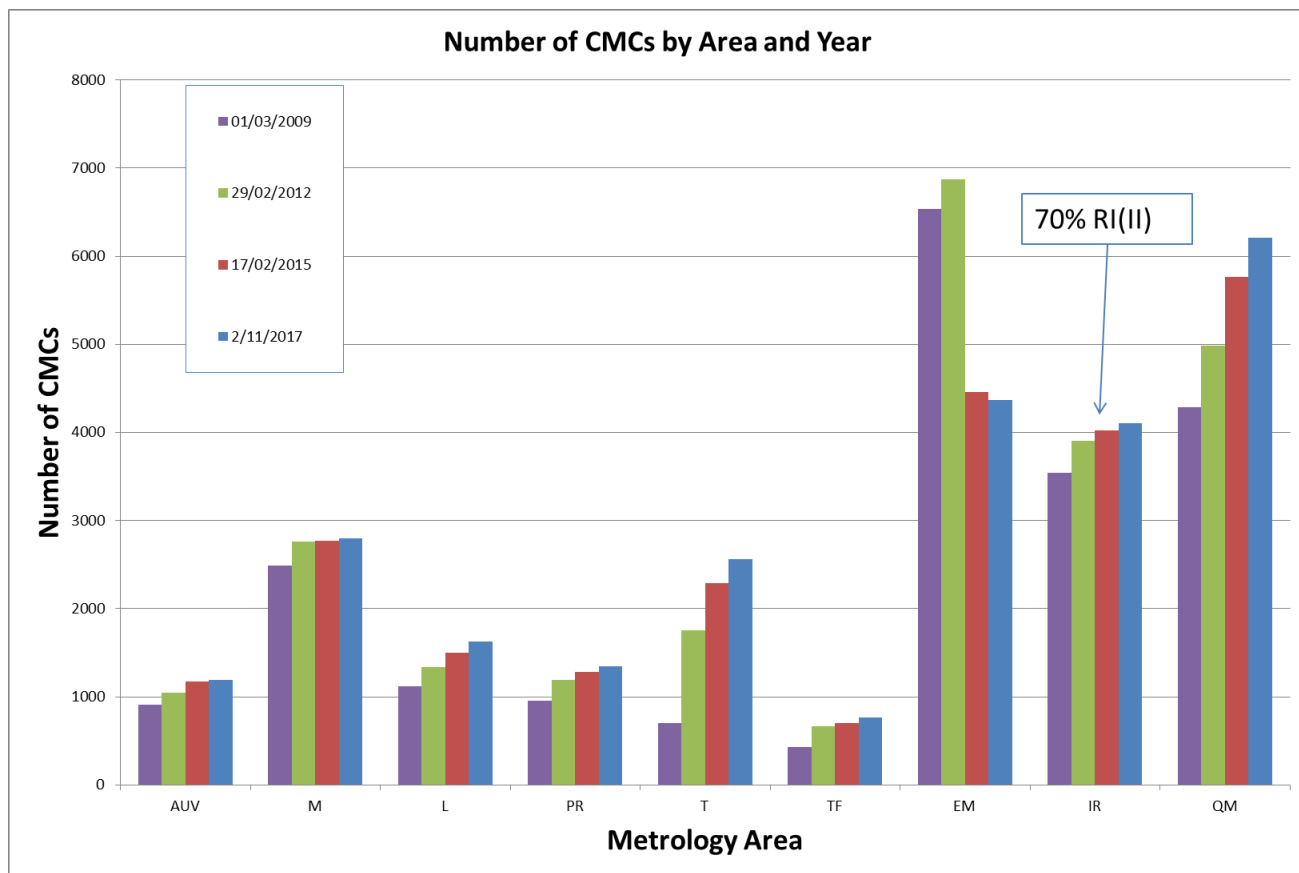


CMCs rate of increase:

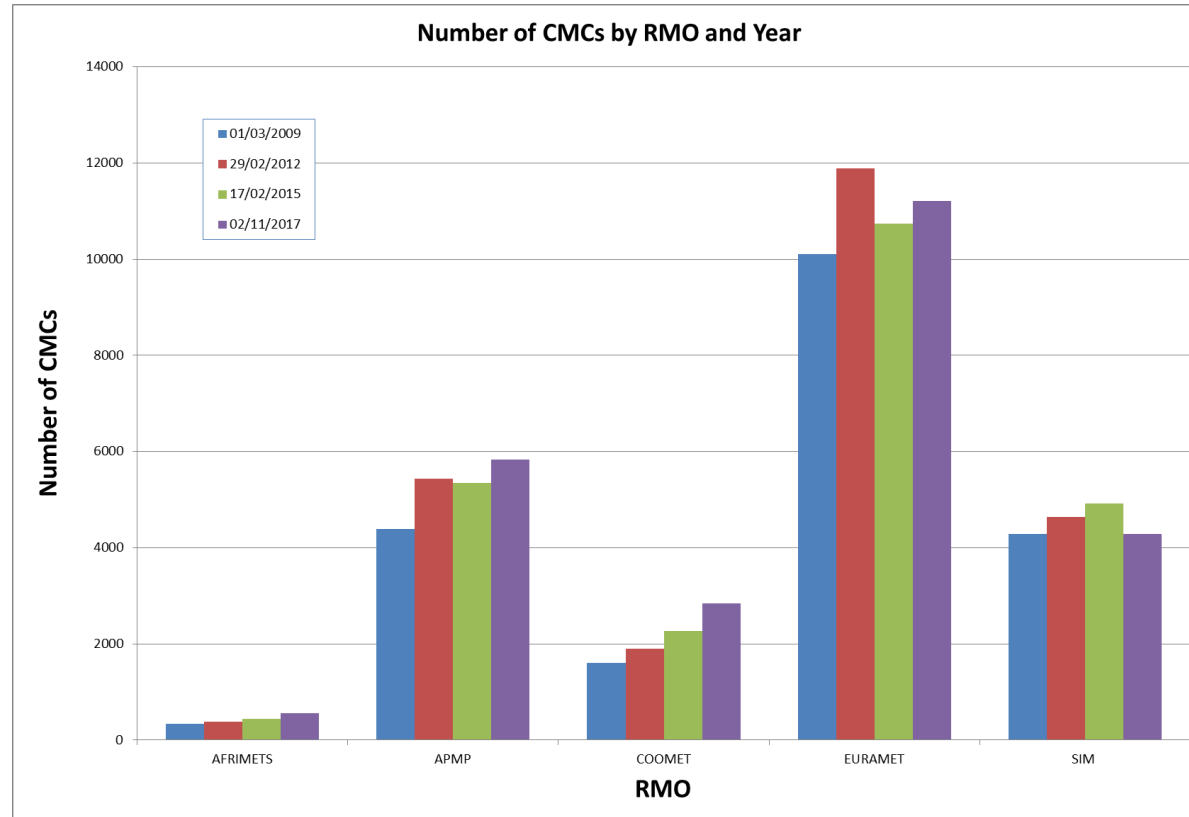
- 2000 CMCs/year over the first 10 years
- 900 CMCs/year since 2010 (excluding EM)
- Recent decreases due to use of uncertainty tables in EM

Number of CMCs by Metrology Area and year

- QM + IR + EM: 59 % of all CMCs
- Largest CMC growth: QM and T.
- QM has 25 % of CMCs in 2017

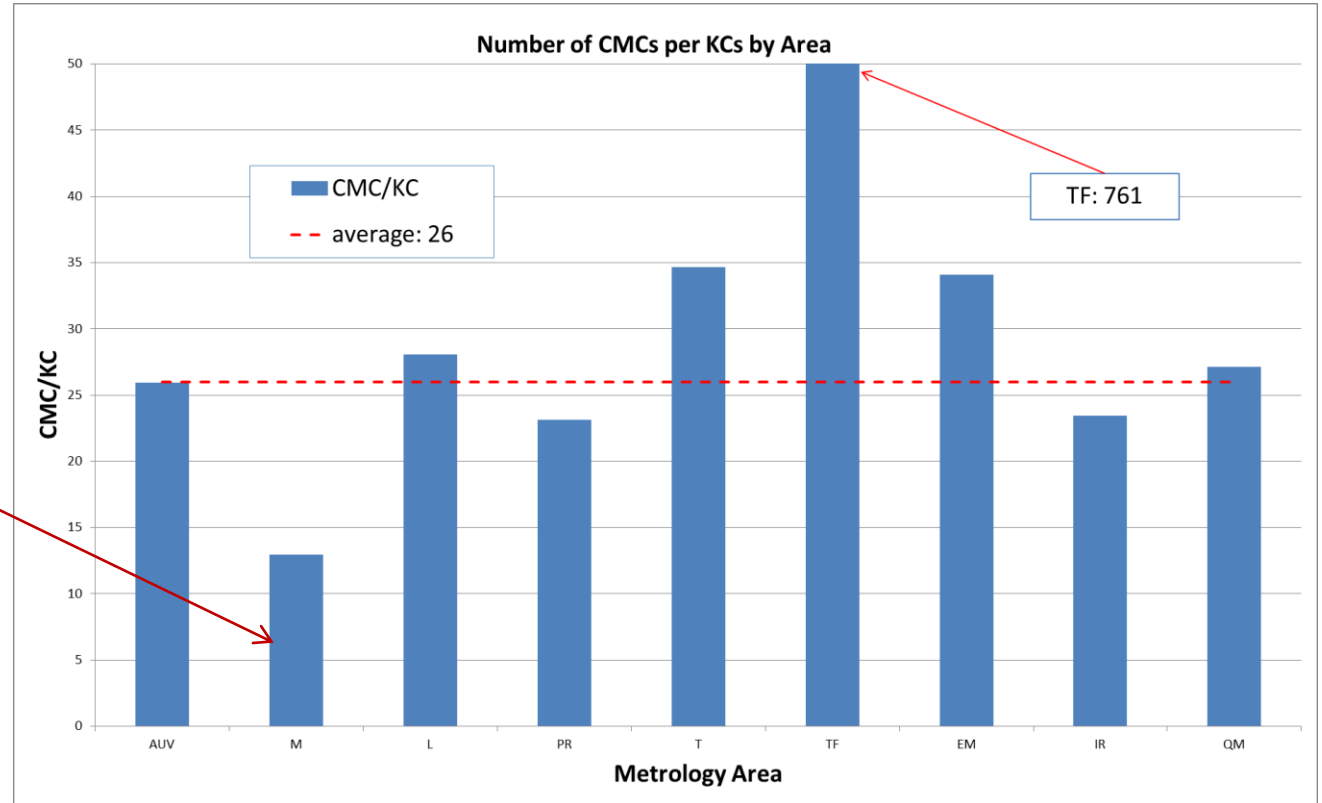


CMCs by RMO and year



- EURAMET and APMP reductions due to use of matrices in EM
- EURAMET has 45 % of all CMCs
- SIM has deleted some CMCs (409 QM CMCs in 2017)
- GULFMET has no CMCs as provisional RMO

CMCs per KC by metrology area: average is 26






Mass and related quantities: half as many CMCs per KC as average (twice as many KCs per CMC)

Outline of lecture

- Where can I get statistics?
- What do the statistics show?
 - NMI, regional, and metrology area variations
 - Changes over time
- **Statistics on the review process**
- Information on JCRB outcomes

Statistics of the JCRB CMC Review process

- Database behind JCRB CMC review can be queried to analyze process, areas for improvement, lack of understanding, etc.
 - Has the time for review improved? 
 - Are RMOs following process guidelines? 
 - Are problems in specific areas of the review? 

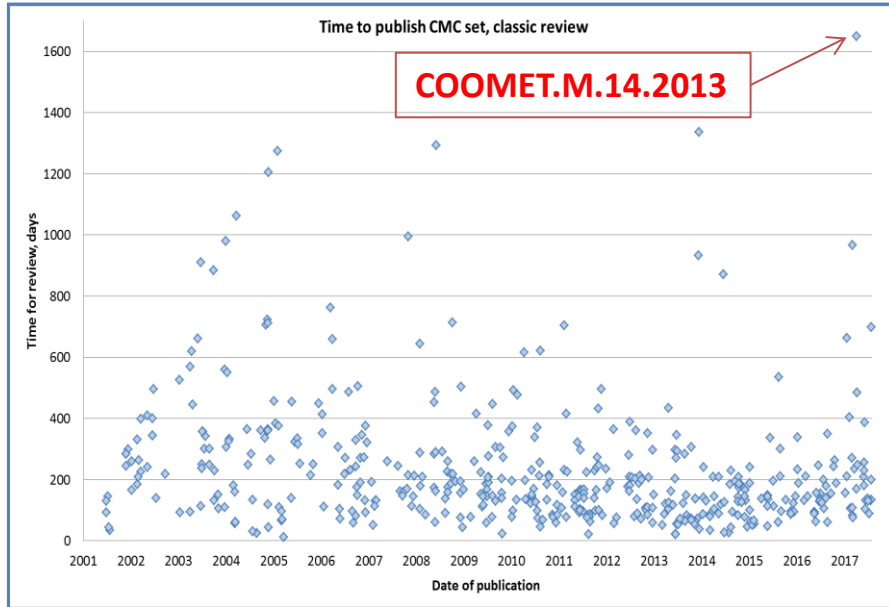
JCRB CMC database: retains records of CMC sets

- 685 CMC sets
- All files associated
- Dates of review
- Outcomes of

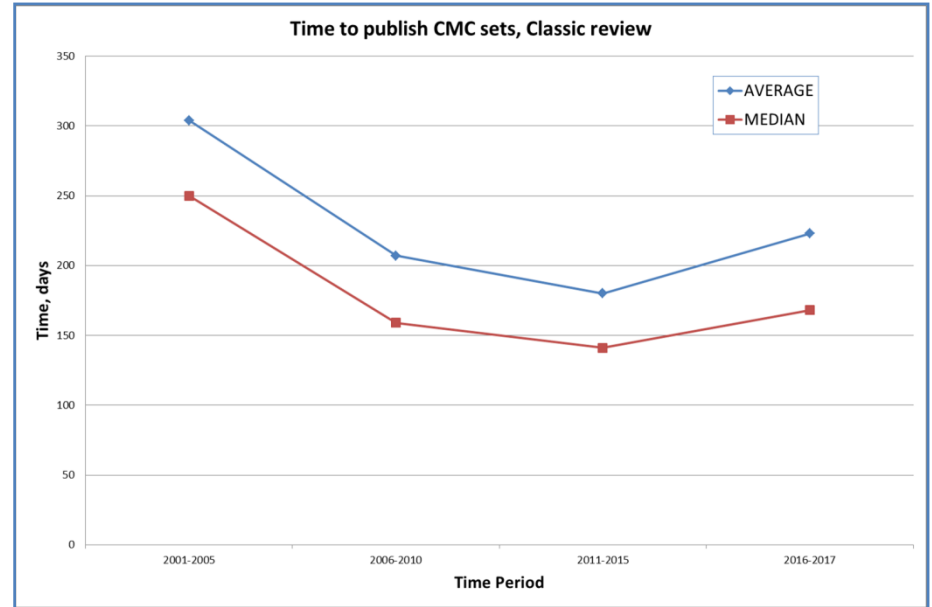
All Access Objects	cmc_pk	cmc_rmo	cmc_branch	cmc_short	cmc_long	cmc_status	cmc_receive	cmc_sent_tr	cmc_revisio	cmc_comme	cmc_revisio	cmc_final_r
Tables												
AccountType (dbo)	SIM.M.31.2016	SIM	M		CMCs on Densi c		/2016 00:30:00	/2016 00:30:00	True	False		/2016 23:42:00
AlertType (dbo)	SIM.M.32.2016	SIM	M		INTN (Paragua c		/2016 22:58:00	/2016 22:58:00	True	False		/2017 22:01:00
CMC (dbo)	SIM.M.34.2016	SIM	M		CMCs from INN c		/2016 21:46:00	/2016 21:46:00	True	False		/2017 18:06:00
CMC_Stat (dbo)	SIM.EM.10.201	SIM	EM		CMC BRAZIL c		/2017 12:53:00	/2017 12:53:00	True	False		/2017 13:25:00
CMCAAlert (dbo)	COOMET.L.14.:	COOMET	L		CMCs for INM c		/2017 08:44:00	/2017 08:44:00	True	False		/2017 15:25:00
CMCCodeStatus (dbo)	EURAMET.M.5:	EURAMET	M		EURAMET TC F c		/2017 10:45:00	/2017 10:45:00	True	False		/2017 17:41:00
CMCEvent (dbo)	SIM.M.37.2017	SIM	M		CMCs on Force c		/2017 05:29:00	/2017 05:29:00	False	False		
CMCLogBook (dbo)	COOMET.AUV.	COOMET	AUV		COOMET has p c		/2017 10:45:00	/2017 10:45:00	True	False		/2017 12:25:00
CMCReviewRound_2 (dbo)	COOMET.M.30	COOMET	M		CMC VNIIM pri c		/2017 14:00:00	/2017 14:00:00	False	False		
CMCReviewType (dbo)	EURAMET.RI.2:	EURAMET	RI		Dosimetry Cri c		/2017 09:45:00	/2017 09:45:00	True	False		/2017 17:19:00
CMCStatusByRMO (dbo)	APMP.T.12.201	APMP	T		NIM CMC entri c		/2017 02:50:00	/2017 02:50:00	True	False		/2017 10:14:00
log_sp (dbo)	EURAMET.M.4:	EURAMET	M		EURAMET CMC c		/2017 12:02:00	/2017 12:02:00	True	False		/2017 13:29:00
MetArea (dbo)	COOMET.M.27	COOMET	M		COOMET. Gas l c		/2017 07:08:00	/2017 07:08:00	True	False		/2017 09:26:00
MyFavorites (dbo)	APMP.L.26.201	APMP	L		CMCs from 4 e c		/2017 11:46:00	/2017 11:46:00	False	False		
News (dbo)	COOMET.M.29	COOMET	M		CMC KazInMet c		/2017 16:38:00	/2017 16:38:00	False	False		
ReviewStatusCode (dbo)	APMP.M.43.20	APMP	M		CMC in the fiel c		/2017 03:08:00	/2017 03:08:00	False	False		
RMO (dbo)	SIM.M.38.2017	SIM	M		CENAMEP AIP, c		/2017 22:46:00	/2017 22:46:00	False	False		/2017 18:08:00
tmpApproval (dbo)	SIM.M.35.2017	SIM	M		CMCs from IBN c		/2017 16:23:00	/2017 16:23:00	True	False		/2017 16:31:00
UserProfile (dbo)	COOMET.M.28	COOMET	M		CMC UNIIM To c		/2017 16:04:00	/2017 16:04:00	True	False		
WG_TC_Chairs (dbo)	EURAMET.T.22	EURAMET	T		Batch of CMCs c		/2017 18:32:00	/2017 18:32:00	False	False		
	COOMET.PR.1:	COOMET	PR		CMCs from NSi c		/2017 09:22:00	/2017 09:22:00	True	False		/2017 10:04:00
	SIM.QM.22.201	SIM	QM	22.2017	Cycle XVIII Fas a		05/07/2017	05/07/2017	True	False		/2017 16:25:00
	APMP.M.44.20	APMP	M		APMP CMC Sul c		/2017 07:51:00	/2017 07:51:00	False	False		
	EURAMET.M.4:	EURAMET	M		Mikes_Mass c		/2017 18:58:00	/2017 18:58:00	True	False		/2017 16:52:00
	SIM.M.36.2017	SIM	M		CMCs from CER c		/2017 15:35:00	/2017 15:35:00	False	False		
	COOMET.EM.1	COOMET	EM		COOMET.EM.1 c		/2017 12:47:00	/2017 12:47:00	True	False		/2017 07:34:00
	AFRIMETS.EM.	AFRIMETS	EM		NIS, Egypt c		/2017 11:31:00	/2017 11:31:00	True	False		/2017 17:17:00
	EURAMET.M.5:	EURAMET	M		PTB Density of c		/2017 16:10:00	/2017 16:10:00	True	False		/2017 13:36:00
	SIM.PR.10.201	SIM	PR		CMCs from NR c		/2017 03:32:00	/2017 03:32:00	False	False		
	EURAMET.AUV	EURAMET	AUV		Revision of CM c		/2017 18:54:00	/2017 18:54:00	False	False		
	COOMET.T.12.:	COOMET	T		COOMET 2017 c		/2017 09:30:00	/2017 09:30:00	True	False		/2017 15:15:00
	EURAMET.M.5:	EURAMET	M		EURAMET flow c		/2017 12:08:00	/2017 12:08:00	True	False		/2017 10:57:00
	APMP.T.13.201	APMP	T		APMP CMCs su c		/2017 05:58:00	/2017 05:58:00	True	False		/2017 09:22:00
	AFRIMETS.AUV	AFRIMETS	AUV		NMISA CMC su c		/2017 15:56:00	/2017 15:56:00	False	False		
	EURAMET.L.18.	EURAMET	L		42 CMCs from c		/2017 16:45:00	/2017 16:45:00	True	False		/2017 10:45:00
	EURAMET.M.5:	EURAMET	M		CMC from MET c		/2017 12:30:00	/2017 12:30:00	True	False		/2017 14:38:00
	EURAMET.M.5:	EURAMET	M		CMC Mass BEV c		/2017 17:09:00	/2017 17:09:00	False	False		
	COOMET.L.13.:	COOMET	L		COOMET.L-S17 c		/2016 09:50:00	/2016 09:50:00	True	False		/2016 08:14:00
	APMP.QM.27.:	APMP	QM	27.2016	Cycle XVII - no a		03/10/2016	03/10/2016	True	False		/2016 15:40:00
	APMP.AUV.13.	APMP	AUV		CMC submissio c		/2016 09:26:00	/2016 09:26:00	True	False		/2017 08:46:00
	SIM.EM.9.2016	SIM	EM		CMCs from Par c		/2016 14:49:00	/2016 14:49:00	True	False		/2017 16:02:00
	EURAMET.EM.:	EURAMET	EM		CMC sets from c		/2016 16:56:00	/2016 16:56:00	True	False		/2017 16:06:00
Queries												
All_Actions_View (dbo)												
CMCSummaryByRMO (dbo)												
CompleteListOfCMCs_View (dbo)												
rqf_Ack_comm_View (dbo)												
rqf_forward_review_View (dbo)												
rqf_indicate_approval_View (dbo)												
rqf_send_revised_file_View (dbo)												
View_CMCReports (dbo)												
View_DateDiffForReviewByRMO (dbo)												
View_ExpectedReviewDateCompareToAction...												
View_LastReviewByKey (dbo)												
View_ListOfReviewers (dbo)												
View_NoReviewers_1 (dbo)												

Historical trends in time to review of CMC sets

483 CMC sets, classic review, 2001 to November 2017. Time is from initial file post to publication for inter-RMO review



Time, post to publish for each set



Mean and median time, post to publish, vs time periods

Which parts of the inter-RMO review take the longest?

Set Name	RMO	Branch	Submitted on		Reviewed on		Revised on		Published on	Totally
SIM.EM.10.2017	SIM	EM	13-Feb-17	38	24-Mar-17	4	27-Mar-17	64	31-May-17	106
COOMET.M.27.2017	COOMET	M	23-Mar-17	35	27-Apr-17	20	17-May-17	29	15-Jun-17	84
EURAMET.M.48.2017	EURAMET	M	27-Feb-17	59	28-Apr-17	28	25-May-17	20	15-Jun-17	107
COOMET.EM.12.2017	COOMET	EM	05-Apr-17	39	15-May-17	11	26-May-17	25	20-Jun-17	75
COOMET.T.12.2017	COOMET	T	30-Jan-17	31	02-Mar-17	98	07-Jun-17	40	18-Jul-17	169
APMP.AUV.13.2016	APMP	AUV	14-Sep-16	75	28-Nov-16	128	05-Apr-17	69	13-Jun-17	272
SIM.EM.9.2016	SIM	EM	04-Oct-16	141	23-Feb-17	22	16-Mar-17	48	04-May-17	211
EURAMET.EM.14.2016	EURAMET	EM	06-Nov-16	151	07-Apr-17	19	25-Apr-17	65	30-Jun-17	235
AFRIMETS.TF.2.2016	AFRIMETS	TF	18-Nov-16	54	11-Jan-17	54	06-Mar-17	49	24-Apr-17	157
SIM.AUV.3.2016	SIM	AUV	18-Nov-16	69	27-Jan-17	133	08-Jun-17	45	24-Jul-17	247
AFRIMETS.QM.16.2017	AFRIMETS	QM	21-Jun-17	FAST TRACK			21-Jun-17	61	22-Aug-17	62
COOMET.QM.27.2017	COOMET	QM	21-Jun-17	FAST TRACK			21-Jun-17	64	25-Aug-17	65
APMP.AUV.11.2014	APMP	AUV	21-Oct-14	93	22-Jan-15	844	15-May-17	31	15-Jun-17	968
SIM.PR.8.2015	SIM	PR	10-Jul-15	81	30-Sep-15	533	15-Mar-17	48	03-May-17	662
COOMET.M.14.2013	COOMET	M	09-Jan-13	7	17-Jan-13	1594	30-May-17	49	18-Jul-17	1650
SIM.M.29.2016	SIM	M	22-Mar-16	64	26-May-16	379	09-Jun-17	42	21-Jul-17	485
EURAMET.PR.12.2016	EURAMET	PR	14-Apr-16	196	27-Oct-16	175	19-Apr-17	33	23-May-17	404

Published CMC sets: 17 since 37th JCRB and 38th JCRB Meetings

**Elapsed time, classic review:
Median: 211 days
Mean: 351 days**

Three stages of review

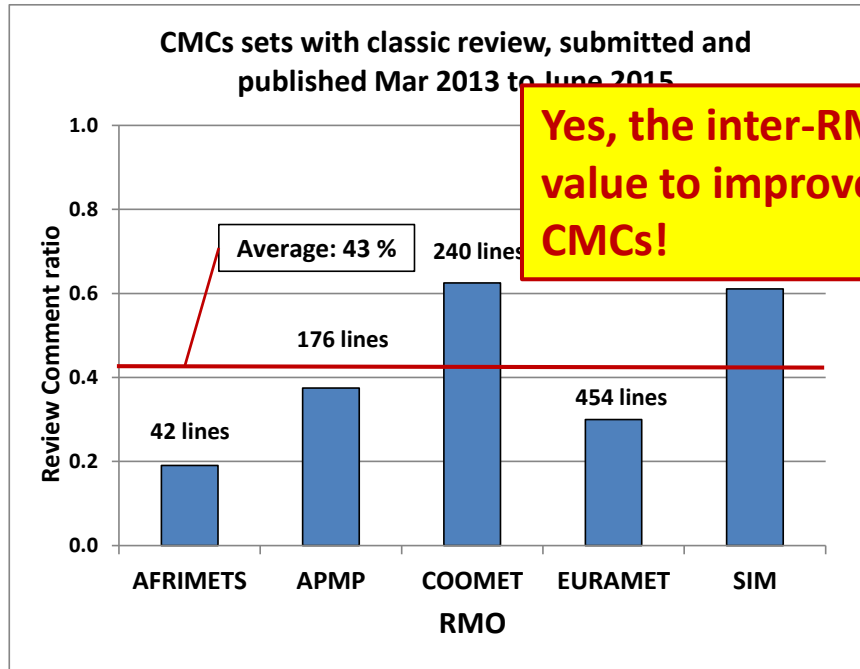
Longest delay: post revised file



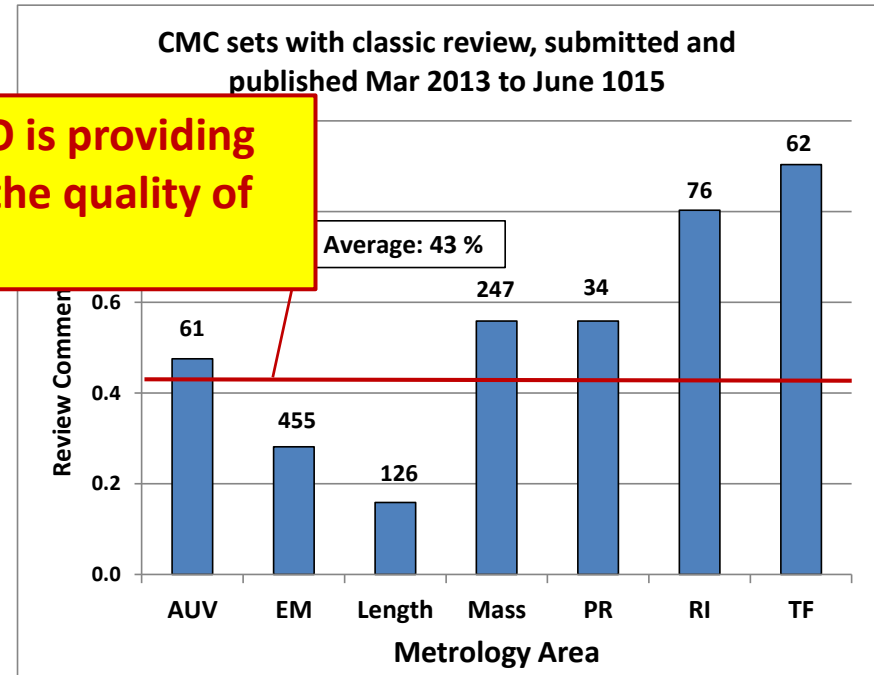
Is the inter-RMO review necessary?

- Analysed comments of 63 CMC sets, Mar 2013 to June 2015
- Classic review, 1061 lines of new or revised CMCs
- On average, 43 % of CMC lines had at least one comment
- About half of comments related to technical quality/supporting evidence of CMC

20 % of CMC lines receive technical comments at inter-RMO review



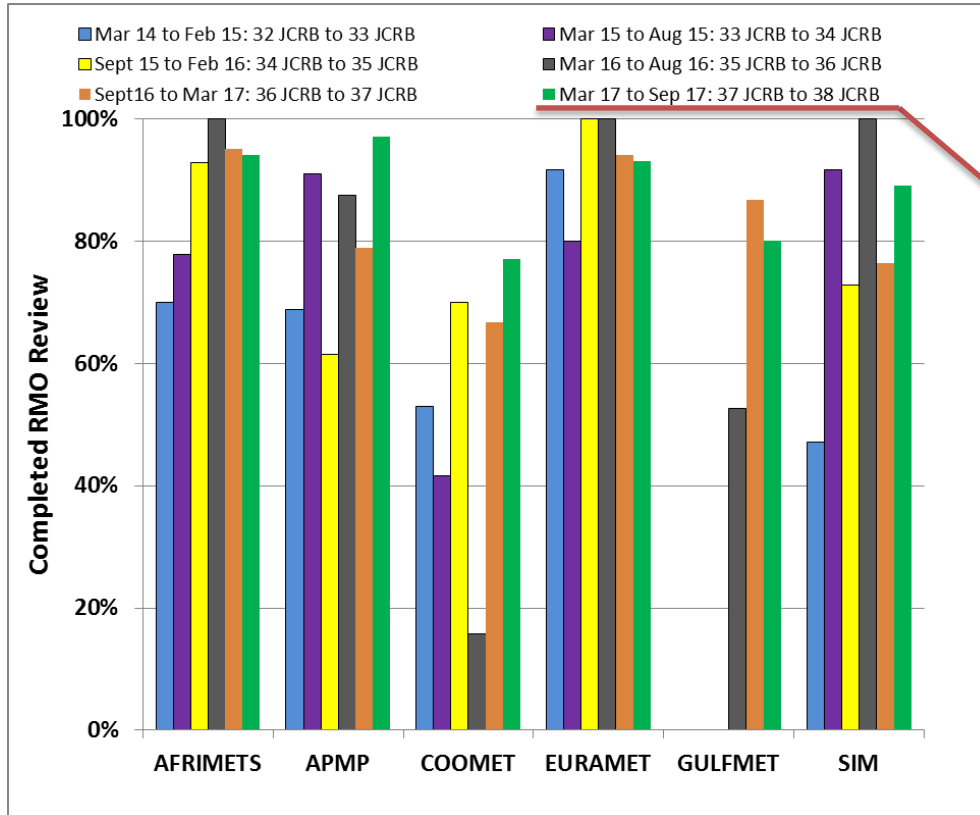
Yes, the inter-RMO is providing value to improve the quality of CMCs!



Are RMOs adhering to review process guidelines?

- Consequence for missing review deadlines: loss of rights to continue with review on CMC set
- System has built-in reminders, so deadlines should not be missed due to lack of awareness
- Loss-of-rights allows review to proceed, but it reduces number of technical experts to assess CMCs

Inter-RMO review performance: adherence to deadlines



38 sets since March 2017:
3 sets for review and voting
17 sets only for voting
18 sets only for reviewing

- **AFRIMETS: 94 %**
- **APMP: 97 %**
- **COOMET: 77 %**
- **EURAMET: 93 %**
- **GULFMET: 80 %**
- **SIM: 89 %**

Less than 100 % complete due to loss of right to review

- No response to review request
- Respond yes, no review
- Did not vote on final approval

Reasons for loss of review rights by RMO

38 CMC sets were on stage of classic reviewing (review and vote or only vote), March 2016 to Sept 17

Reasons for loss of rights	AFRIMETS	APMP	COOMET	EURAMET	GULFMET	SIM
No response to review request	2	1	5	0	5	1
Respond yes, no review	0	0	2	1	0	1
Didn't vote on final approval	0	0	0	1	0	1
Total loss of rights	2	1	7	2	5	3
Metrology areas	PR	PR	L,M,PR	AUV, T	M, T	M,T

No response to request is the main reason for loss of rights

Are RMOs including QMS evidence with submissions?

Action 35/09: The RMOs to remind TC and WG chairs of the requirement stated in CIPM MRA-D-04 to submit, *at the beginning of the inter-RMO review*, the confirmation that the QMS evidence supports the CMC set, and to consider how this will be embedded in the update to the KCDB/JCRB IT suite.

CMC sets submitted **with** confirmation of QMS evidence at time of post:

- Sept 2016 to March 2017: 73%
- March 2017 to Sept 2017: 69 %

March 2017 to Sept 2017 time period, sets submitted **with** QMS evidence

	AFRIMETS	APMP	COOMET	EURAMET	SIM	total
AUV	1 of 1		1 of 1			2 of 2
EM	0 of 1		1 of 1			1 of 2
L		1 of 1	0 of 1	1 of 1		2 of 3
M			2 of 2	5 of 5	2 of 2	9 of 9
PR			1 of 1		1 of 1	2 of 2
QM	0 of 1	0 of 1	0 of 1	0 of 1	0 of 1	0 of 5
RI						
T		1 of 1		0 of 1		1 of 2
TF		1 of 1				1 of 1
total	1 of 3	3 of 4	5 of 7	6 of 8	3 of 4	18 of 26

Green: TC/WG chair submitted ≥ 1 set w/QMS

Pink: TC/WG chair submitted set w/o QMS

Although QM uses fast track procedure and always checks QS confirmation before it, the confirmations should be submitted with the submissions, in order to have them together on the CMC-portal.

Outline of lecture

- Where can I get statistics?
- What do the statistics show?
 - NMI, regional, and metrology area variations
 - Changes over time
- Statistics on the review process
- **Information on JCRB outcomes**

Information on JCRB outcomes

<http://www.bipm.org/en/committees/jc/jcrb/>



The screenshot shows the website for the Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB). The navigation bar at the top includes links for ABOUT US, WORLDWIDE METROLOGY, INTERNATIONAL EQUIVALENCE, MEASUREMENT UNITS, SERVICES, PUBLICATIONS, and MEETINGS. Below the navigation bar, a breadcrumb trail indicates the current location: > You are here: worldwide metrology: committee structure > Joint Committees > JCRB.

The main heading is "Joint Committee of the Regional Metrology Organizations and the BIPM (JCRB)". Below this, there is a horizontal menu with tabs: Mission, Members, JCRB outcomes, CIPM MRA documents, Photographs, and CMC Review area. A red arrow points to the "JCRB outcomes" tab.

Below the tabs, the text states: "The terms of reference of the JCRB are defined in Appendix E of the CIPM MRA, which charges the Joint Committee with:"

The list of terms of reference includes:

- coordinating the activities among the RMOs in establishing confidence for the recognition of calibration and measurement certificates, according to the terms of the CIPM Mutual Recognition Arrangement (CIPM MRA);
- making policy suggestions to the RMOs and to the CIPM on the operation of the CIPM MRA;
- analysing the application by each RMO of the criteria of the CIPM MRA;
- analysing and entering into Appendix C the proposals of each RMO in respect of the calibration and measurement capabilities of their member NMIs and reporting to the CIPM;
- facilitating appropriate inter-regional supplementary comparisons;
- writing an annual report on the activities of the Joint Committee to the CIPM and to the signatories of the CIPM MRA.

At the bottom of the page, there is a button labeled "JCRB Rules of procedure" with a document icon.

On the right side of the page, there are two sections:

- Next meetings:**
 - 14-15 September 2016: 36th meeting of the JCRB – at KEBS, Nairobi, Kenya
 - 15-16 March 2017: 37th meeting of the JCRB
- JCRB summary**
 - General information
 - Minutes of JCRB meetings
 - JCRB Directory
 - Photographs of the JCRB
 - Terms of reference of the JCRB
 - Rules of procedure for the JCRB
- Governance**
 - JCRB Terms of reference
 - JCRB Rules of procedure

The logo for KCDB is visible at the bottom right of the page.

Information on JCRB outcomes

- JCRB outcomes
 - By meeting
 - By topic
 - By search term
- Meeting reports
- KCDB reports

Bureau International des Poids et Mesures – the intergovernmental organization through which Member States act together on matters related to measurement science and measurement standards.

Search facility:

[Site map](#) | [News](#) | [Contact us](#)

[ABOUT US](#) | [WORLDWIDE METROLOGY](#) | [INTERNATIONAL EQUIVALENCE](#) | [MEASUREMENT UNITS](#) | [SERVICES](#) | [PUBLICATIONS](#) | [MEETINGS](#)

> You are here: worldwide metrology: committee structure > Joint Committees > JCRB > Outcomes of JCRB meetings

Outcomes of JCRB meetings: JCRB Resolutions, Recommendations and Actions

JCRB outcomes Meeting reports KCDB reports CIPM MRA documents JCRB

→ Please select a meeting or a topic using the boxes below, or enter a search term in the text box:

Select a meeting:

or a topic:

or enter a search term:

Summary

- General information
- Minutes of JCRB meetings
- JCRB Directory
- Photographs of the JCRB
- Terms of reference of the JCRB
- Rules of procedure for the JCRB

Information on JCRB Outcomes:

- Outcomes for 38th JCRB
- Outcomes for topic “CMCs”
- Outcomes for term “SIM”

The image displays three overlapping screenshots of the JCRB Outcomes website. The top screenshot shows the 'JCRB outcomes' page with a search bar and a list of outcomes. The middle screenshot shows a list of resolutions and actions, including 'Action 37/3' and 'Action 37/4'. The bottom screenshot shows a detailed view of 'Action 37/3' with a description of the task group and the meeting report. A red arrow points to the search bar in the top screenshot.

Outcomes of JCRB meetings: JCRB Resolutions, Recommendations and Actions

JCRB outcomes

Select a meeting:

or a topic:

or enter a search term:

SIM

Search

Summary

- General information
- JCRB Directory
- Minutes of JCRB meetings
- Photographs of the JCRB
- Terms of reference of the JCRB
- Rules of procedure for the JCRB

Action 37/3 March 2017

The JCRB charged a task group (comprising Claudia Santo (convener), Beat Jeckelmann, Peter Manson, Zakithi Msimang, and Toshiyuki Takatsuji) with collating the ideas around the possibilities of “broad-scope CMCs” such that they can be considered by the CCS.

[Meeting report]

Action 36/5 September 2016

The JCRB charged a task group (comprising Claudia Santo (convener), Beat Jeckelmann, Peter Manson, Zakithi Msimang, and Toshiyuki Takatsuji) to prepare a draft document reviewing “best practices” in formulation and submission of CMCs, to be distributed prior to the 37th JCRB meeting in March, 2017.

[Meeting report]

Action 35/7 March 2016

The JCRB charged a subgroup (comprising Claudia Santo (convener), Beat Jeckelmann, Toshiyuki Takatsuji and Zakithi Msimang) to prepare a draft position paper on the feasibility of “broader scope” CMCs for discussion at the next meeting of the JCRB.

[Meeting report]

Action 34/2 September 2015

SIM will identify, by March 2016, an NMI within its region to work with the BIPM in developing a poster for World Metrology Day for 2017.

[Meeting report]

Action 33/9 March 2015

SIM volunteered to identify an NMI within its region to work with the BIPM in developing a poster for World Metrology Day for 2017.

[Meeting report]

Action 33/12 March 2015

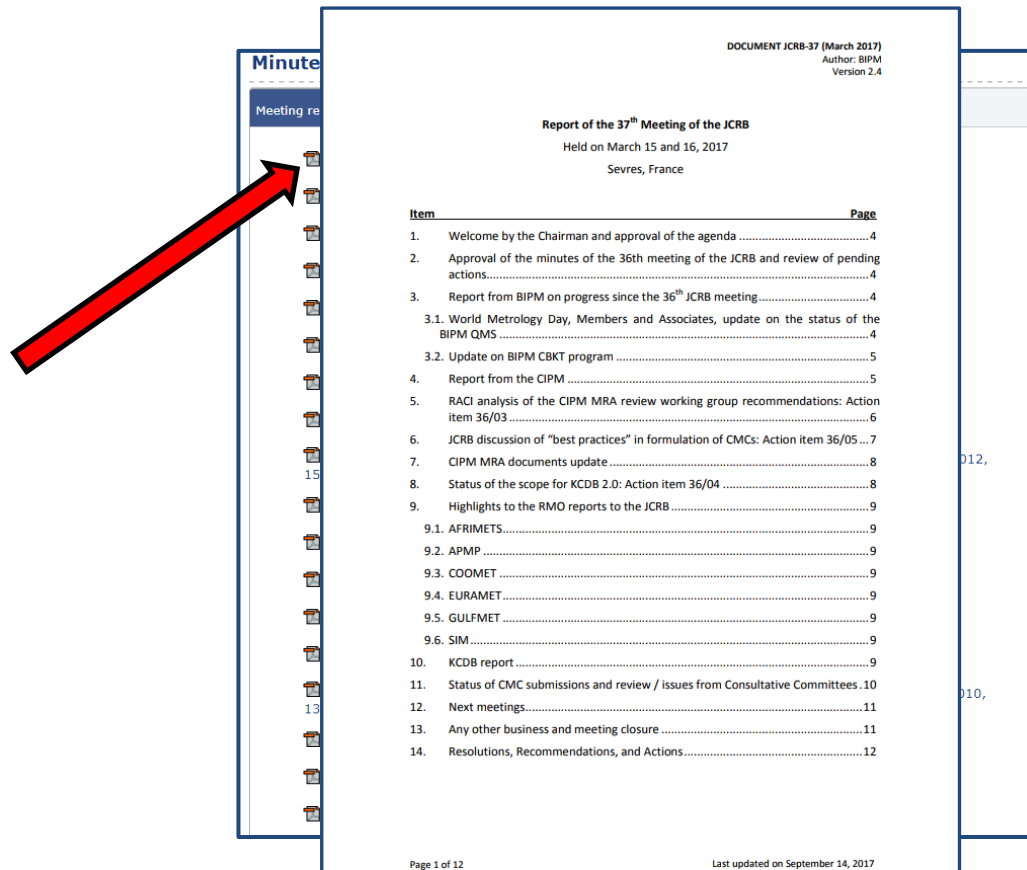
The JCRB will return to the issue of publication of results of non-signatory participants in Supplementary Comparisons and RMO Key Comparisons at the 34th JCRB. SIM, who raised the issue, will prepare a paper on the concerns and proposed actions to be distributed to the JCRB Executive Secretary one month prior to the 34th JCRB, for posting on the JCRB working documents webpage.

[Meeting report]

Action 32/9 March 2014

Noting that the RMOs indicated that they either already have a dedicated webpage (EURAMET) for training or are in the process of creating such page (AFRIMET, APMP, COOMET, SIM), the BIPM will propose to the DCMAS Network to include the appropriate links on their website. Furthermore BIPM will enquire whether it is possible for them to make “training” more visible on the website. RMOs to provide the JCRB Executive Secretary with appropriate links as soon as they become available.

Information on JCRB Outcomes: Meeting reports



Minute

Meeting re

Report of the 37th Meeting of the JCRB
Held on March 15 and 16, 2017
Sevres, France

DOCUMENT JCRB-37 (March 2017)
Author: BIPM
Version 2.4

Item	Page
1. Welcome by the Chairman and approval of the agenda	4
2. Approval of the minutes of the 36th meeting of the JCRB and review of pending actions.....	4
3. Report from BIPM on progress since the 36 th JCRB meeting.....	4
3.1. World Metrology Day, Members and Associates, update on the status of the BIPM QMS	4
3.2. Update on BIPM CBKT program	5
4. Report from the CIPM	5
5. RACI analysis of the CIPM MRA review working group recommendations: Action item 36/03	6
6. JCRB discussion of "best practices" in formulation of CMCs: Action item 36/05 ...	7
7. CIPM MRA documents update	8
8. Status of the scope for KCDB 2.0: Action item 36/04	8
9. Highlights to the RMO reports to the JCRB	9
9.1. AFRIMETS.....	9
9.2. APMP	9
9.3. COOMET	9
9.4. EURAMET	9
9.5. GULFMET	9
9.6. SIM	9
10. KCDB report	9
11. Status of CMC submissions and review / issues from Consultative Committees ..	10
12. Next meetings.....	11
13. Any other business and meeting closure	11
14. Resolutions, Recommendations, and Actions.....	12

Page 1 of 12

Last updated on September 14, 2017

Conclusion

- BIPM webpages (both open access and restricted) can provide statistics on comparisons, CMCs, and the review process
- These statistics can be used to show engagement of NMIs and RMOs in the CIPM MRA, and show variations across metrology areas and over time
 - Statistics can help guide decisions on implementation and effectiveness, and identify problem areas needing corrective action



For question on the JCRB and statistics contact:

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or

Susanne.picard@bipm.org

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