CITAC news
Co-Operation on International Traceability in Analytical Chemistry
FEBRUARY 2002

Foreword by the Chairman

The 1st quarter of each new year sees the production and distribution of CITAC´s Newsletter. Through the wide and numerous distribution channels of the host organization of our secretariat, the IRMM in Geel, it is assured that the activities and achievements of the past year are well disseminated, even though not all of us – particularly those in the more remote parts of the world – have always a chance to take part in the activities and attend the workshops in person that are organized or sponsored by CITAC during the year.

There were two official meetings of the Members of CITAC held in 2001 where our "business" – metrology in chemistry – was discussed and advanced: one, in Gaithersburg at NIST to celebrate with our US friends the NIST Centennial in the week following PITTCON in New Orleans. There NIST staged five successive sessions as NIST Centennial Celebration and it was a great pleasure to experience the strong CITAC input into "Impact of NIST Activities in Chemical Measurement Science: International Perspective". The other business meeting was held in Athens, Greece, in September and it was accompanied by a well attended symposium that turned out to be a good blend of international views and Greek solutions. A report is included in this Newletter (page 6).

Among the different activities in the past year the work on the adaptation of our Guide No 1 "Guide to Quality in Analytical Chemistry, An Aid to Accreditation" to meet the needs of ISO 17025 is pursued jointly with EURACHEM. Members of the editorial team are M. Walsh and D. Holcombe from EURACHEM and B. King and A. Squirrell from CITAC. The report has been sent out for comments and will be ready for release not long after you read these lines.

The Guide "Quantifying Uncertainty in Analytical Chemistry" is well distributed through the internet, but is of late also available in printed form from the EURACHEM Secretariat at BAM in Berlin (see page 2). There are many positive comments about the document being made as it appears to have developed into an indispensible tool for the analytical chemist worldwide. Almost as a natural extension of the previous terms of reference the joint working group under the leadership of A. Williams has been charged to produce now a more comprehensive document on traceability in analytical chemistry. A good opportunity to participate in these activities is the workshop organized in Lucerne, Switzerland, in June by EMPA. On June 16 there will be a tutorial event for newcomers on the subject, followed by the "Workshop on Measurement Traceability and Uncertainty in Analytical Chemistry" on June 17 and 18, 2002 (see page 2).

Earlier in 2002 an important event is the joint workshop with the Chemical Metrology Group of NCSLI (National Conference of Standard Laboratories International) on the occasion of PITTCON 2002 in New Orleans entitled "Traceability and Uncertainty: Key Technical Issues and Laboratory Accreditation". A more detailed account can be found on page 5. Honoring a long standing invitation by our South American friends plans are underway to hold the 2nd CITAC Meeting in fall 2002 in Brazil.

With all the might of these activities a strong executive of CITAC is of vital importance. As I am stepping down from the post of chair of CITAC it is my pleasure to introduce Dr Kensaku Okamoto of Japan as Chair Elect and Dr Ilya Kuselman of Israel as Secretary Elect. Both have been vital over the years to the success of various CITAC activities and no doubt will their contributions in the future also have a tremendously positive impact on the well being and the development of our group and thus on the advancement of our ideas on technical quality issues in the chemical laboratory on a worldwide basis.

Now, let me voice my sincere Thank You for all the support I had during the last three years, the biggest of which without doubt came from Mr. Secretary, Dr Ioannis Papadakis of Geel. The Institute for Reference Materials and Measurements, EC-JRC (Prof. Manfred Grasserbauer, Director) is gratefully acknowledged for hosting the secretariat during these years and providing the technical and logistics support required to run CITAC smoothly.

Prof. Wolfhard Wegscheider
CITAC chairman

CITAC News published by:

The CITAC Secretariat
IRMM
Retieseweg
B-2440 GEEL
Belgium

Tel: +32 14 571 682
Fax: +32 14 571 863
e-mail: citac@irmm.jrc.be

Internet:

http://www.citac.ws

Internet administrator:

Hermann Schranzhofer, Austria

Newsletter Editors:

Ioannis Papadakis, IRMM
Ciarán Nicholl, IRMM

Newsletter designed and produced by:

N.V. Peeters S.A.
Klein Dalenstraat 42
B-3020 Herent
Belgium

Tel: +32 16 49 03 07
Fax: +32 16 48 14 86

Joint EURACHEM/CITAC Workshop on Measurement Traceability and Uncertainty in Analytical Chemistry

Meeting the requirements of ISO/IEC 17025
Culture and Congress Centre, Luzern / Switzerland June 16-18, 2002

Traceability and uncertainty are important elements of measurement results and for this reason they are given greater emphasis in ISO/IEC 17025 than in Guide 25. The main objective of this workshop is to share experience and to develop guidance on how these requirements can be met in a cost effective manner.

After briefly reviewing the requirements of ISO/IEC 17025, the first session will concentrate on the experience gained using the first and second editions of the EURACHEM/CITAC Guide "Quantifying Uncertainty in Analytical Measurement", with particular emphasis on the use of validation data in uncertainty estimation as described in the second edition. The plenary session is intended to give a good overview of the principles of the second edition. Working Groups will then consider such topics as practical examples of uncertainty evaluation, design of validation studies to provide uncertainty data and experience in practicla implementation inder ISO/IEC 17025. An important feature is consideration of topics covered in little detail in the current edition of the EURACHEM/CITAC Guide, such as evaluation of uncertainty near detection limits, and the emerging issue of uncertainty associated with qualitative analysis and testing. Current work being carried out to update and extend the fundamental ISO Guide will also be discussed; an important development here is the increasing interest in Monte Carlo methods.

The second session will cover the EURACHEM/CITAC draft guide on measurement traceability, giving practical guidance on how to establish the traceability of results obtained using existing methods. Selection and use of reference materials for establishing traceability will be discussed as will the international work being carried out under the auspices of BIPM to provide traceability to SI.

It is proposed to hold Working Groups on traceability for existing methods, traceability and method development, selection and use of reference materials, traceability in accreditation and the development of international traceability systems.

Full information on the workshop is available by the author or at http://www.measurementuncertainty.org/mu/workshop/index.html

Bertie Frei
EMPA St. Gallen,
Lerchenfeldstrasse 5
CH-9014 St. Gallen – Switzerland
Phone +41 (0)71 274 74 46
Fax: +41 (0)71 274 77 88
E-mail: office@workshop2002.ch

EURACHEM/CITAC GUIDE

Quantifying Uncertainty in Analytical Measurements - 2nd Edition

Printed copy available

Available on the web since mid-2000, the second edition is now also available in printed form. The printed form includes minor editorial corrections, and can be obtained from BAM in Germany or LGC in the UK.

The second edition was produced primarily by a joint EURACHEM/CITAC Measurement Uncertainty Working Group in collaboration with representatives from AOAC International, IAEA, and EA.

The most important features of the second edition deal with the use of method performance data and in particular the use of method validation data, from both collaborative validation studies and from in-house studies. These new sections show that in many cases such data gives all, or nearly all information required to evaluate the uncertainty. Chapters 1 and 2 deal with the scope and the concept of uncertainty. Chapter 3, Analytical Measurement and Uncertainty, is completely new and covers the process of method validation and conduct of experimental studies to determine method performance, and considers their relationship to uncertainty estimation. There is also an informative section on traceability. The chapter on uncertainty estimation was considerably expanded and split into four separate chapters, dealing with the four steps involved in estimating uncertainty: Specification of the measurand, Identifying the uncertainty sources, Quantifying the uncertainty (with extensive reference to validation data) and Calculation of the combined uncertainty. The examples were completely revised and new ones added. All the examples are shown in short form and in detail, and illustrate specific situation, including the use of in-house and collaborative study data. They show the use of cause and effect analysis and spreadsheet calculations as practical aids for uncertianty estimation. The guide also includes material on statistical procedures, including uncertainties associated with calibration and the combination of uncertainties using spreadsheet methods, tables of typical uncertainties and methods of estimating them, guidance on treating uncertainty which varies with analyte concentration, brief guidance on uncertainty near detection limits, and a bibliography.

Another important resource is the EURACHEM/CITAC working group website at www.measurementuncertainty.org which contains an indexed HTML version of the Guide, hosts a discussion forum on the application of the guide and has a section for the publication of additional examples.

Hard copies of the guide are available in the UK from LGC (Queens Road, Teddington, Middlesex, TW11 0LY or through the website http://www.vam.org.uk/), and from the BAM EURACHEM website at http://www.eurachem.bam.de/. The price is much lower than the first edition, from DM75 for European customers through BAM or £20 sterling in the UK from LGC.

Steve Ellison
LGC, UK

Message from the Incoming Chairman

Aiming a Most Useful Forum for Dissemination of "Metrology in Chemistry"

It is my great honor to serve as the Chairman of CITAC for the next 3-year term. I am very happy for this opportunity to send a message from the new Chairman to all involved/interested in activities of CITAC.

First of all, I would like to extend my sincere thanks to Professor Dr. Wolfhard Wegscheider, the former Chairman, who have made remarkable contributions to enhance CITAC activities during the last 3 years. I also wish to thank Dr. Ioannis Papadakis for his excellent job as the Secretary.

Since the establishment of CITAC at the PittCon in 1993, CITAC has been playing an increasingly important role in achieving traceability in analytical chemistry. CITAC has published the three CITAC/Eurachem Guides through the joint work: "Guide to Quality in Analytical Chemistry – An Aid to Accreditation-"(the 2nd edition will be available shortly), "Quality Assurance in Research and Development and Non-routine Analysis" and "Quantifying Uncertainty in Analytical Measurement". A number of accesses to the Guides on the CITAC website indicate that these documents are quite useful for the purpose of analytical quality assurance in chemical measurement laboratories. Following these Guides, "CITAC/Eurachem draft guidance on establishment of traceablity" has been prepared. CITAC will continue to discuss feasibility to prepare a new guide, when required, in co-operation with other relevant organizations to assist improvement of analytical quality.

Education and training associated with traceability and uncertainty of analytical data for those engaged in chemical measurements is an important mission of CITAC. We had successfully organized many such workshops/symposiums on the occasion of PittCon and in conjunction with CITAC members meetings, jointly with other related national/international organizations. This summer "CITAC/Eurachem Workshop on Measurement Traceability and Uncertainty in Analytical Chemistry – Meeting the Requirements of ISO/IEC 17025 –" will be held on 16-18 June 2002 at the Culture and Convention Centre in Luzern, Switzerland. The recent replacement of ISO/IEC 25 by ISO/IEC 17025 has been requiring analytical laboratories much more work to demonstrate traceability and uncertainty of their analytical values. Most analytical laboratories still have to tackle the big issue in order to survive in the competitive global market. CITAC is willing to provide an opportunity as a series of CITAC workshops and symposiums to strongly support education and training of the participants for their better-understanding and implementation of traceability, uncertainty estimation and related factors.

There have been remarkable progress in metrology in chemistry after the sign up of "Mutual Recognition Arrangement (MRA)" by the directors of the National Metrology Institutes (NMIs) at BIPM in 1999. I myself have been heavily involved as a staff member of NMIJ (see page 8) in this tough work definitely required for NMIs, such as participation in the BIPM/CCQM key comparisons, declaration of calibration and measurement capability (CMCs) on the BIPM database Appendix C, and so on. NMIs have to do efforts to provide more information on their activities to chemical measurement communities, so as to promote

mutual understanding of each role in achieving traceability and to ensure proper estimation of uncertainty of analytical data. CITAC will continue to work as a most appropriate forum to discuss current hot-topics over all aspects of chemical metrology between NMI members and those who working in analytical, environmental, clinical, regulatory laboratories, etc.

CITAC wishes to invite delegates worldwide to its Working Group, particularly from countries in Asia and Africa, to become a truly international forum. CITAC will also increase collaboration with other relevant international organizations in various fields and activities of chemistry. Finally, I would like to continue to count on your co-operation in order to strengthen CITAC activities and to provide a more open/useful forum to all involved in metrology in chemistry.

Kensaku Okamoto
Deputy Director, NMIJ, Japan

ICAS 2001 No. 18 Symposium

Establishing Chemical Metrology in the 21st Century

Tokyo, Japan, 10 August 2001

In the first year of the 21st century, the 3rd International Congress on Analytical Sciences (ICAS 2001) took place between 6 and 10 August 2001 at Waseda University located in the center of Tokyo, Japan. The Japan Society for Analytical Chemistry (JSAC) organized the ICAS 2001 under the sponsorship of the International Union of Pure and Applied Chemistry (IUPAC) and Science Council of Japan. The scope of this congress was to provide discussion of recent researches in the field of analytical sciences.

Almost 1000 participants attended and approximately 900 papers for oral and poster presentations were contributed for ICAS 2001. There were 26 special symposia arranged on the updated topics. Among those, there was No.18 Symposium titled "Establishing Chemical Metrology in the 21st Century". The Symposium was organized by Yoshinori Takata and Wolfhard.Wegscheider (Co-organizer) and sponsored by JSAC Committee on Chemical Metrology. The Symposium was held on the last day of the ICAS 2001.

The No.18 Symposium aimed to promote the essential components of measurements validation (fit for purpose), for those working in analytical laboratories including:

1 establishing traceability,
2 quantifying uncertainty,
3 laboratory accreditation,
4 proficiency testing and
(5) reference material production.

In this Symposium, seven invited speakers presented the papers that are allotted a 30min each. The program of the presentation was as follows:

The opening ceremony of ICAS 2001

1. Introductory Remarks by Yoshimasa Nihei (Chair of JSAC Committee on Chemical Metrology)
2. THE ROLE OF METHOD VALIDATION IN TRACEABILITY by Wolfhard Wegscheider (University of Leoben, Austria)
3. CURRENT ACTIVITIES IN THE PRODUCTION OF REFERENCE MATERIALS IN JAPAN by Kensaku Okamoto (National Metrology Institute of Japan, NMIJ/AIST)
4. PRACTICAL USE OF MATRIX REFERENCE MATERIALS IN CLINICAL CHEMICAL ANALYSIS by Katsuhiko Kuwa (College of Medical Technology and Nursing, University of Tsukuba)
5. CHEMICAL METROLOGY PROGRAMME FOR THE ANALYSIS OF CHINESE MEDICINES IN THE HKSAR GOVERNMENT LABORATORY by Chuen-shing Mok (Government Laboratory Hong Kong)
6. UNCERTAINTY OF INSTRUMENTAL MEASUREMENT. A STOCHASTIC APPROACH by Rieko Matsuda (National Institute of Health Sciences)
7. CASCADING TRACEABILITY TO THE WORKING LEVEL PROVIDING THE MISSING LINKS by Bernard King (National Analytical Reference Laboratory, Australia)
8. JSAC PROFICIENCY TESTING PROGRAMS BASED ON ISO/IEC GUIDE 43-1 by Masaaki Kubota (National Institute of Advanced Industrial Science and Technology)

Twenty to thirty participants attended the Symposium. All the lectures attracted the full attention of the participants and resulted in very fruitful discussions during and after the Symposium.

Proceedings of the ICAS 2001, containing invited talks oral and poster contributions is going to be published as a supplement issue of "Analytical Sciences". All fully paying participants will receive a copy of the Proceedings (CD version) free of charge. For more information, please access to the journal at: http://wwwsoc.nacsis.ac.jp/jsac/infoas.html

W. Wegscheider (CITAC chair) and B. King (CITAC member) during a break

Yoshinori Takata
Japan Chemical Analysis Center
takata@jcac.or.jp

CITAC-NCSLI Joint Workshop

Traceability and Uncertainty: Key Technical Issues and Laboratory Accreditation

Sunday 17th March 2002, Pittcon 2002, New Orleans, Room 272-273

Globalization of trade and removal of non-technical barriers to trade demand special measures in chemical testing and analysis of goods. National requirements not being sufficient, one has to look for an acceptable common denominator in testing and analysis standards. As the relevant basis for this acceptance is frequently deemed to be laboratory accreditation an upgrading of requirements for the operation of laboratories was necessary: it also brought about the transition from ISO Guide 25 to ISO 17025 with the status of an ISO standard.

The technical aspects of advanced laboratory operation are to be highlighted in this Workshop. There are numerous implications around the new ISO 17025 Standard that cause serious problems in the minds of the laboratory community, the most serious of these concern the requirements for traceability and uncertainty of results. For a successful operation of accreditation of laboratories it is indispensable that these requirements are seriously addressed in accreditation and this requires frequently a fresh look at the quality of the analytical data produced.

The Workshop will highlight practical interpretations and solutions for these issues on the basis of the technical guidance that was developed through the efforts of Eurachem and CITAC – Cooperation in International Traceability in Analytical Chemistry (www.measurementuncertainty.org). It will focus on the needs of laboratories worldwide by bringing together experts in the respective areas with practitioners from the laboratory community. This format will greatly aid the proliferation of good practices in laboratory operation and lead to an enhanced trustworthiness of laboratory data.

- 13:30 *Introduction to Workshop*
  W. Wegscheider, U Leoben, T. Ouimet, Kodak
- 13:35 *Chemical Metrology at NCSLI: Charter and Goal*
  R.B. Pettit, Sandia
- 14:00 *Guidance on Technical Aspects of ISO 17025 from CITAC*
  A. Squirrell, NATA
- 14:25 *The Role of In-House Standards for Support of Research and Production*
  T. Ouimet, Kodak
- 14:50 Coffee break
- 15:05 *Assuring the Quality of Reference Materials and Proficiency Testing Schemes*
  R. Parris, NIST
- 15:30 *Practical Solutions to Traceability and Uncertainty in Accreditation*
  W. Merkel, A2LA
- 15:55 *APLAC Approaches to Meeting the ISO/IEC 17025 Requirements forTraceability and Measurement Uncertainty*
  B. King, NARL
- 16:20 *Identification, Measurement and Decision in Analytical Chemistry*
  S.L.R. Ellison, LGC
- 16:45 *Method Validation Revisited: Its Role in Traceability of Results*
  W. Wegscheider, U Leoben
- 17:05 End

Mr Thomas Ouimet (Co-organizer)
Eastman Kodak Company, Rochester, NY 14650-2139, USA
Tel +1 716 722 1666
Email thomas.ouimet@kodak.com

Prof Dr Wolfhard Wegscheider (Co-organizer)
Dept. of General & Analytical Chemistry, University of Leoben, Franz-Josef Strasse 18
A-8700 Leoben, AUSTRIA
Tel + 43 3842 402 340
Fax + 43 3842 402 543
Email wegschei@unileoben.ac.at

CITAC Symposium

Quality of Measurements in Analytical Chemistry

Monday 3rd September 2001, Athens, Greece

The 2nd CITAC members meeting of 2001 was held in Athens (Greece). Taking advantage of the presence of several CITAC members in Athens, CITAC contributed to the organisation of a symposium with the subject "Quality of Measurements in Analytical Chemistry". The symposium was co-organised in collaboration with the Association of Greek Chemists (AGC) and the General Chemical State Laboratory (GCSL) of Greece. The conference facilities of the GCSL in Athens were kindly offered for the symposium, which took place on Monday 3rd September 2001.

The target audience of the symposium was practitioner chemists, laboratory managers, academics, accreditors as well as policy makers. The attendance was very encouraging as more than 130 scientists registered and attended the symposium.

The subjects discussed during the symposium were very important and interesting for the Greek audience. The symposium was separated into two sessions. At the end of the afternoon session a round table discussion was organised in order to interact with the audience.

The first (morning) session included contributions from CITAC members concerning the latest developments relevant to quality of chemistry measurements. The plenary lecture was given by Prof. Wolfhard Wegscheider (CITAC Chairman, University of Leoben, Austria) with title "Traceability in Analytical Chemistry". In the beginning of his lecture, Prof. Wegscheider thanked the local organisers (AGC and GCSL) on behalf of CITAC for their efforts and presented some information about the aims and objectives of CITAC. The main presentation featured the importance of traceability, guidance towards establishment of traceability and included examples were traceability is established for chemical measurements.

The next contribution was presented by Dr Robert Kaarls (President CCQM, The Netherlands) with title "International Measurement Structure". Dr Kaarls gave an overview of the numerous developments in the area of Metrology in Chemistry of the past few years as well as reported on the latest activities of the main international bodies. Special attention was paid to Mutual Recognition Arrangement of BIPM and its importance for the international measurement community.

Dr Steve Ellison (Laboratory of the Government Chemist, United Kingdom) followed with the presentation "Measurement Uncertainty for Chemical Measurements". Dr Ellison included in the presentation the importance of appropriate uncertainty calculation, general rules for calculating measurements uncertainty as well as making special reference to the 2nd edition of the EURACHEM/CITAC Guide "Quantifying Uncertainty in Chemical Measurement"

The floor was then given to Dr Ilya Kuselman (National Physical Laboratory, Israel) who presented the lecture "The Role of Reference Materials". Dr Kuselman talked about the functionality and importance of RMs, the different categories of RMs as well as the important steps in the preparation of RMs.

The next contribution was given by Dr Ioannis Papadakis (CITAC Secretary, Institute for Reference Materials and Measurements, Joint Research Centre, European Commission) with title "The Role of Interlaboratory Comparisons". Dr Papadakis highlighted the importance of Interlaboratory Comparisons (ILCs) in order to achieve high quality measurements. Subjects such as 'how ILCs are organised', 'relation of traceability with ILCs' as well as 'optimum use of ILCs by laboratories, their customers and accreditation' were discussed.

Dr Alan Squirrell (ILAC Secretary, NATA, Australia) then presented the contribution with title "Current Developments in Accreditation of Chemistry Laboratories". Dr Squirrell gave general information about the function, objectives and aims of accreditation and an exhaustive presentation of the latest international developments while special attention was given to the implementation of the ISO 17025.

The morning session finished with a second lecture from the accreditation field presented by Dr Warren Merkel (American Association for Laboratory Accreditation, USA). The lecture was titled "Chemical Laboratory Accreditation in the USA" and aimed to give to the audience information on how a national accreditation system functions. Dr Merkel generally presented the structure of accreditation in the USA and gave more detailed information about accreditation of chemical laboratories.

The second (afternoon) session included presentations from Greek scientists concerning the relevant activities in Greece. Dr Constantinos Kagarakis (ESYD President) gave the first contribution with title "Accreditation of Chemical Laboratories in Greece". ESYD is the Greek national accreditation council. Dr Kagarakis presented how ESYD is organised and functions, highlighting the activities relevant to chemical laboratories.

Prof. Anastasios Voulgaropoulos (AGC, University of Thessaloniki) followed with a presentation with title "Metrology in Chemistry Activities in Greece". Metrology in Chemistry is a relatively new discipline all over the world and Greece is not an exception. Prof. Voulgaropoulos presented the relative activities in Greece including the information concerning the Hellenic Institute for Metrology (EIM) which does not include (yet) any function relevant to chemical metrology.

The oral presentations finished with a practitioner's report from the GCSL. Dr Evangeli Billa presented a lecture titled "The Experience and Practice of Accreditation in the GCSL". Dr Billa presented all the problems that GCSL encountered seeking for accreditation, how they were solved and what is changed in the laboratory after accreditation is granted.

After the end of the oral presentations, the speakers were invited for a round table discussion in order to interact with audience and answer questions. A very lively discussion followed that showed the interest of the audience in the topics presented as well as the need for such activities.

The feedback from the symposium was extremely positive from all parties involved (i.e. audience, speakers and organisers). It is of high importance for small scientific communities (such the Greek one) to have the opportunities to interact with international panels. For this reason CITAC is willing to continue its contribution to such activities.

Ioannis Papadakis
CITAC Secretary

NEW CITAC/EURACHEM GUIDE

Guide to Quality in Analytical Chemistry An Aid to Accreditation

With many laboratories and accreditation bodies busy implementing the new requirements of the quality standard ISO/IEC 17025, it is timely to provide advice on current views on 'good measurement practice'. This new guide is an update of the CITAC Guide 1 (1995), which itself was an update of the 1993 EURACHEM/WELAC guide and covers recent developments emanating from a variety of international organizations. Input from a number of organizations and individuals working in the laboratory, accreditation and standards communities is gratefully acknowledged. This high level of input reflects the wide-ranging interest in the guide. The guide is now nearing completion and it will be available on the CITAC and EURACHEM websites early in 2002.

The guide concentrates on the technical apsects of quality assurance (QA). It can be used as a stand-alone document, or in association with a quality standard, such as ISO/IEC 17025. The emphasis is on areas where interpretation of good practice and accreditation requirements can be difficult. The topics covered include planning the analytical task and specifying the measurement requirement, sampling, staff, laboratory facilities, methods and method validation, calibraiton, reference materials, traceability, measurement uncertainty, quality control, proficiency testing, use of computers and laboratory audit and review. Updated references to more specialist texts are also provided, together with new tables comparing the relevant clauses of ISO/IEC 17025 (1999), its predecessor ISO 25, ISO 9001 (2000), and OECD GLP Protocol (1998).

By providing information and advice about the types of issues that need to be addressed, the guide will help both laboratories and assessors decide what is a reasonable interpretation of good practice and the requirements of the quality standards.

A task-group comprising Bernard King and Alan Squirrell from CITAC and Maire Walsh and David Holcombe from Eurachem led the development of the guide. During the drafting process a number of drafts were circulated for comments and input from colleagues in the following organizations is gratefully acknowledged: CITAC, EURACHEM, AOACI, CCQM, IUPAC, ISO REMCO, ILAC, EA, and APLAC. The revision is nearing completion and the 'final draft' will be circulated for comment in early January, prior to publishing the guide on the CITAC and EURACHEM websites. The guide will be available free of charge, in order to make it available to as wide an audience as possible. So please keep an eye on the websites – there are lots of other nice things there as well!

Finally, on behalf of the task group, thank you to all those who have contributed to this project.

Alan Squirrell
NATA, Australia

Bernard King
NARL, Australia

Inauguration of the National Metrology Institute of Japan (NMIJ)

April 2001

Most national research institutes in Japan were reorganized in April 2001 following the central government reform. A new organization scheme, the Independent Administrative Agency (IAA), was introduced to enhance flexibility, effectiveness, and transparency through the Japanese central government reform based on laws to implement the governmental policies. The Ministry of International Trade and Industry (MITI) was renamed the Ministry of Economy, Trade and Industry (METI). All research laboratories of METI were reconstructed to form a single research institute named the National Institute of Advanced Industrial Science and Technology (AIST). The new AIST is an IAA dedicated to R&D of industrial science and technology, geological survey, and metrology that depends mostly on the government for finances.

Research activities on standards and reference materials of National Research Laboratory of Metrology (NRLM), Electrotechnical Laboratory (ETL) and National Institute of Materials and Chemical Research (NIMC) merged into a new AIST unit named the National Metrology Institute of Japan (NMIJ). NMIJ now covers the whole areas of physical and chemical metrologies. NMIJ consists of four organizations. The Metrology Institute of Japan (MIJ) is the core of NMIJ activities and is responsible for research and calibration, including legal metrology. The Metrology Management Division, Metrology Training Center, and International Metrology Cooperation Office share the administrative activities for NMIJ. The director of MIJ, Dr. Akira Ono, represents NMIJ.

NMIJ accounts for around 10% of the personnel and budget of the new AIST. There are about 270 permanent personnel (including 250 scientists) and about 100 temporary personnel. The annual budget of NMIJ is about 13 million US $ for basic research and calibration, and 9 million US $ for research contracts with METI and other ministries. The annual income of NMIJ consists of 0.7 million US $ from calibration and testing and 0.4 million US $ from training service.

NMIJ covers six areas in the mid-term plan from 2001 to 2005: developing national measurement standards, implementing legal metrology, research for next generation standards, collaboration for international measurement systems, training of domestic and overseas metrologists, and developing measurement technologies commonly applicable to broad areas. The number of national measurement standards disseminated is planned to increase from 140 in 2001 to 300 in 2005. Priorities in national measurement standards to be disseminated are identified electrical standards, basic standards for MRA, advanced standards for high-tech industries, and reference materials for the environment, health and safety, and advanced technology.

There are three Divisions dedicated to chemical reference materials among 15 Divisions of NMIJ. The Inorganic Analytical Chemistry Division, which consists of Inorganic Standards Section and Environmental Standards Section, are responsible for metallic and pH standard solutions, and matrix reference materials for inorganic and organic analysis of environmental concern. The Organic Analytical Chemistry Division, consisting of Organic Standards Section and Polymer Standards Section, is in charge of production of high-purity organic substance CRMs and polymer standards for molecular weight and ingredient determinations. The Material Characterization Division has two sections: Surface and Thin Film Standards Section and Nanopore Standards Section both for developing CRMs of semiconductor and other advanced materials.

Regarding activities related to the global MRA, NMIJ has participated or plans to participate in about 170 international comparisons. In the field of chemical measurements NMIJ has participated in about 40 CCQM/APMP pilot studies and key comparisons, and will be able to serve as a pilot laboratory for some of future CCQM/APMP comparisons. The quality system of calibration services in NMIJ is under construction to be conformable with the ISO/IEC 17025. For the production of NMIJ reference materials the quality system according to the ISO Guide 34 will be established shortly. The NMIJ will be reviewed, as a reference material producer, by National Institute of Technology and Evaluation (NITE), a domestic accreditation body, for quality management system and by foreign experts for technical performance, probably in October 2002. NMIJ has already submitted the Calibration and Measurement Capability (CMC) declarations in the field of the Amount of Substances, which are already reviewed, approved and published on the Appendix C of the BIPM website.

NMIJ hosted the 17th APMP General Assembly and related meetings, under the chairmanship of Dr. H. Imai of NMIJ, in Tsukuba on 5-8 November 2001 with 220 participants from 20 economies. NMIJ will celebrate 100 years of foundation of Japanese NMI in 2003. In this year, NMIJ will invite the 10th JCRB, OIML meeting and APLMF General Assembly.

More information about NMIJ can be obtained at http://www.nmij.jp

Kensaku Okamoto,
Deputy Director, NMIJ, Japan

Update of ILAC Activities

ILAC has been busy in 2001. This culminated in the General Assembly and associated Committee Meetings which took place in Kyoto, Japan in November.

CITAC was represented by Dr Bernard King at the Laboratory Committee (LC) Meeting in Kyoto. This Committee, chaired by David Stanger, coordinates the laboratory (stakeholder) activity and inputs into the ILAC decision making process (David is also a member of the ILAC Executive Committee). The Committee has been very active and productive in 2001. This reflects both ILAC's desire to increase cooperation with all relevant stakeholders (laboratories and their associations, as well as regulators, industry groups, standard writing bodies and government) and a willingness on the part of stakeholders to actively contribute to the international laboratory accreditation process. ILAC must listen to its customers – they have a lot to offer!

The LC work program is extensive and not surprisingly involves a lot of issues associated with the new ISO-IEC 17025:1999 – These include:

a The nature and timing of the next revision and possible "alignment" with the ISO 9000:2000 series.
b Measurement uncertainty – interpretations and strategies in various sectors.
c Opinions and interpretations on test reports.

The LC has also reviewed the draft of the revision (jointly by CITAC/EURACHEM) of CITAC Guide 1 (see other article in this newsletter by B King). This is seen as a useful ISO-IEC 17025 guidance/application document for chemical laboratories.

Other items on the LC work program include:

d An overview of the implementation the ILAC Mutual Recognition Arrangement (Maire Walsh from EURACHEM is an observer on the Arrangement Management Committee)
e The implications of proposed cooperation between ILAC & IAF and its impact on stakeholders.
f The identification of problems encountered by laboratories in the use of Accreditation logos and proposed solutions.

In addition, the LC also has appointed "Liaison Officers" to monitor and review certain work items carried out in other ILAC Committees – these include relations with other conformity assessment schemes and customers, the proposed ILAC Arrangement logo, cross frontier accreditation, metrological issues (eg traceability, measurement uncertainty and calibration) the grading of non-compliances, inspection and ILAC publications, guides and promotional materials.

All in all a lot of work for the LC and CITAC is pleased to play its part. The next meeting is scheduled for early March 2002 in Brussels, Belgium.

There have been a number of other significant developments within ILAC under the leadership of the current Chair, Mike Peet from South Africa. These include:

i The strengthening (deepening!) of the ILAC Mutual Recognition Arrangement (there are now 41 signatory laboratory accreditation bodies from 32 economies) and promotion of the use of accredited (competent) laboratories to governments, regulators, WTO etc.
ii Continuing work to distinguish clearly between accreditation and certification - there is still confusion in the market place.
iii Enhanced assistance to developing countries (with the support of UNIDO and ISO) – this has involved training courses, workshops and pre-evaluation visits.
iv Signing an MoU with BIPM – to strengthen the links between accreditation and metrology, particularly in relation to the respective Mutual Recognition Arrangements.
v Further cooperation between ILAC & IAF – The LC is represented by David Stanger on the Joint Committee for Closer Cooperation which "manages" those work items which are seem to be in the interests of both organisations to take on jointly.
vi Further development of the ILAC Business Plan (2002 – 2004) (the LC has direct involvement here).
vii Increased face-to-face involvement with stakeholders in workshops.

All these activities will again provide the focus for work in 2002, and again CITAC will be making an active contribution to some of them (particularly those involving Metrology), through the Laboratory Committee. Progress will be reviewed at the annual General Assembly and Conference in Berlin from 17 – 28 September 2002. Why not come along and join in the debate?

If you require more information about ILAC's activities please do not hesitate to visit our website on www.ilac.org or email the Secretary on ilac@nata.asn.au.

We look forward to the continuing support and cooperation of our readers in 2002 – there is still much to do!

Best regards

Alan Squirrell
NATA, Australia
(CITAC Member/ILAC Secretary)

David Stanger
UILI, Belgium
(Chair, ILAC Laboratory Committee)

Future CITAC Events

It was a pleasure to realise that the past few years CITAC increased its contribution to international scientific events such as conferences, seminars, workshops and symposia. This is actually one of the main strategies prescribed in the "Terms of Reference" of CITAC in order to achieve its objectives and mission.

Several colleagues requested on a number of occasions information about such events advanced in time in order to be able to organise their participation or attendance.

The best tool for publication of this information is the CITAC website, which was recently re-organised (article page 7) and is frequently updated. However we thought that it would be useful to provide general advanced information for future events through the CITAC Newsletter.

In the following table you can find information about the subject, location, date and contact persons for future CITAC events.

SUBJECT	LOCATION	DATE	CONTACT
Workshop: Traceability and Uncertainty: Key Technical Issues and Laboratory Accreditation	New Orleans (USA)	17 March 2002	W. Wegscheider (see page 5)
Workshop: Measurement Traceability and Uncertainty in Analytical Chemistry	Lucerne (Switzerland)	16-18 June 2002	B. Frei (see page 2)
Conference Session: Metrology in Chemistry (exact title not confirmed)	Sao Paolo (Brazil)	October 2002	V. Poncano
Conference Session: Metrology in Chemistry (exact title not confirmed)	Jerusalem (Israel)	November 2003	I. Kuselman

Ioannis Papadakis
CITAC Secretary

Reorganisation of the CITAC website

The last decade Internet became an important (if not the most important) tool of communication. CITAC did not ignore this evolution, and since several years has created a website where various information (program and reports from events, publications, contact details) were placed in order to be accessible at any time and free of change to all interested colleagues all over the world.

Until recently the CITAC website was kindly hosted by VTT in Finland. From the beginning of 2002 the CITAC website changed address and layout. It can now be accessed in the electronic address: **http://www.citac.ws**

This new site is administered by Hermann Schranzhofer at University of Leoben in Austria. We would like to thank Herman for his excellent work setting up the new website and wish him a lot of success for the future.

Before closing we should acknowledge the contribution of Dr Veikko Komppa for starting and keeping alive the CITAC website with minimum budget and a lot of personal input.

Finally we would like to invite all of you, the colleagues interested in CITAC work, to visit the CITAC website and give us some feedback about its functionality.

Thank you in advance and we are looking forward to your input.

Ioannis Papadakis
CITAC Secretary

CITAC Members list

Dr Celia Puglisi
INTI
CC 157, San Martin
BUENOS AIRES (1650)
ARGENTINA
Tel +54 11 4754 5151
Fax +54 11 4713 5311
E-mail cpuglisi@inti.gov.ar

Dr Sandra Hart
Australian Government Analytical Laboratory
Mezzanine Level, 111 Alinga Street
Camberra ACT 2601
AUSTRALIA
Tel + 61 2 6275 3450
Fax + 61 2 6275 3565
E-mail sandra.hart@agal.gov.au

Dr Bernard King
National Analytical Reference Laboratory
1 Suakin Street,
Pymble NSW 2073
AUSTRALIA
Tel + 61 2 9449 0111
Fax + 61 2 9449 1653
E-mail bernard.king@agal.gov.au

Mr Alan Squirrell
National Association of Testing Authorities
7 Leeds Street, RHODES, NSW 2138
AUSTRALIA
Tel + 61 2 9736 8222
Fax + 61 2 9743 5311
E-mail asquirrl@nata.asn.au

Dr Ales Fajgelj
International Atomic Energy Agency
Wagramer Strasse 5, P.O. Box 100
A-1400 Vienna,
AUSTRIA
Tel + 43 1 2600 28233
Fax + 43 1 2600 28222
E-mail A.Fajgelj@iaea.org

Prof Dr Wolfhard Wegscheider (CITAC Chair)
Dept. of General & Analytical Chemistry
University of Leoben
Franz-Josef Strasse 18
A-8700 Leoben,
AUSTRIA
Tel + 43 3842 402 340
Fax + 43 3842 402 543
E-mail wegschei@unileoben.ac.at

Prof Dr Paul De Bièvre
Duineneind 9
B 2460 Kasterlee
BELGIUM
Tel +32 14 851 338
Fax +32 14 853 908
E-mail paul.de.bievre@skynet.be

Dr Ioannis Papadakis (CITAC Secretary)
Institute for Reference Materials and Measurements
Joint Research Centre – European Commission
Retieseweg
B-2440 GEEL,
BELGIUM
Tel +32 14 571 608
Fax +32 14 571 863
E-mail ioannis.papadakis@irmm.jrc.be
citac@irmm.jrc.be

Mrs Vera Ponçano
Instituto de Pesquisas Tecnologicas
PO Box 0141
São Paulo - SP
BRAZIL
Tel + 55 11 3767 4540
Fax + 55 11 3767 4009
E-mail vponcano@ipt.br

Mrs Gabriela Massiff
INTEC CHILE
Av. Del Condor Norte 475
Ciudad Empresarial, Huechuraba
Casilla 19002, Santiago
CHILE
Tel + 56 2 242 8180
Fax + 56 2 242 8182
E-mail gmassiff@intec.cl

Dr Zhao Min
Chinese National Research Centre for CRMs
No 18, Bei San Huan Dong Lu,
Chaoyangqu
100013 Beijing,
CHINA
Tel + 86 10 6427 1638
Fax + 86 10 6422 8404

Prof Veikko Komppa
Technical Research Centre of Finland (VTT)
Chemical Technology
PO Box 1400
FIN-02044
FINLAND
Tel +358 9 456 5260
Fax +358 9 456 7026
E-mail veikko.komppa@vtt.fi

Dr Werner Hässelbarth
Bundesanstalt für Materialforschung und Prufung
Referat I.01, Unter den Eichen 87
D-12205 Berlin,
GERMANY
Tel + 49 30 8104 1101
Fax + 49 30 8104 5577
E-mail werner.haesselbarth@bam.de

Dr Wolfgang Richter
PTB
Bundesallee 100
D-38116 Braunschweig
GERMANY
Tel +49 531 592 3200
Fax +49 531 592 3015
E-mail wolfgang.richter@ptb.de

Dr Tai Lun Ting
Government Laboratory Hong Kong
Analytical & Advisory Services Division
7/F Ho Man Tin Government Offices
88 Chung Hau Street, KOWLOON
HONG KONG
Tel + 852 2 762 3722
Fax + 852 2 714 4083
E-mail tlting@govtlab.gov.hk

Dr Krishan Lal
National Physical Laboratory
Dr K.S. Krishnan Road
NEW DELHI-110012
INDIA
Tel +91 11 5741733
Fax +91 11 5852678
E-mail klal@csnpl.ren.nic.in

Dr Ilya Kuselman (Secretary Elect)
National Physical Laboratory of Israel
Givat Ram, Jerusalem 91904,
ISRAEL
Tel + 972 2 653 65 34
Fax + 972 2 652 07 97
E-mail ilya_kus@netvision.net.il

Dr Kensaku Okamoto (Chair Elect)
National Metrology Institute of Japan, NMIJ
National Institute of Advanced Industrial Science and Technology, AIST
Higashi 1-1-1, Tsukuba Central 5-2,
Tsukuba, 305-8565,
JAPAN
Tel + 81-298-61-4420
Fax + 81-298-61-4420
E-mail kensaku-okamoto@aist.go.jp

Dr Hun Young So
Division of Chemistry & Radiation
KRISS
PO Box 102, Yusong
TAEJON 305-600,
KOREA
Tel + 82 42 868 5040
Fax + 82 42 868 5042
E-mail hys@kriss.re.kr

* *Liaison/co-ordination member for PITTCON conference only*

Dr Yoshito Mitani Nakanishi
CENAM (Metrologia de Materiales)
Apdo Postal 1-100 centro
CP 76000 QUERETARO, QRO
MEXICO
Tel + 52 42 110 560
Fax + 52 42 162626
E-mail ymitani@cenam.mx

Dr Robert Kaarls
NMi
PO Box 654, 2600 AR DELFT
THE NETHERLANDS
Tel + 31 15 269 1739
Fax + 31 15 269 1515
E-mail rkaarls@euronet.nl

Dr Menno Plantenga
NMi
PO Box 654, 2600 AR DELFT
THE NETHERLANDS
Tel +31 15 269 1501
Fax +31 15 269 1515
E-mail tmplantenga@nmi.nl

Mr John Hammond
C.Chem MRSC
Marketing & Technical Manager
Optiglass Ltd.
52-54 Fowler Road
Hainault, Essex, IG6 3UT
UNITED KINGDOM
Tel +44 20 8500 1264
Fax +44 20 8500 1955
E-mail sales@optiglass.co.uk

Dr Steve Ellison
Laboratory of the Government Chemist
Queens Road, TEDDINGTON
Middlesex, TW11 0LY
UNITED KINGDOM
Tel + 44 181 943 7325
Fax + 44 181 943 2767
E-mail slre@lgc.co.uk

Dr Martin Milton
National Physical Laboratory
Queens Road, TEDDINGTON
Middlesex, TW11 0LY
UNITED KINGDOM
Tel + 44 181 943 6826
Fax + 44 181 943 6755
E-mail martin.milton@npl.co.uk

Dr Al Pohland
AOAC International
Office of International Activities
481 North Fredrick Avenue, Suite 500
GAITHERSBURG, MD 20877 - 2417,
USA
Tel + 1 301 924 7077
Fax + 1 301 924 7089
E-mail Al@aoac.org

Dr Gerst A. Gibbon*
National Energy Technology Laboratory
U. S. Department of Energy
P.O. Box 10940
Pittsburgh, PA 15236
USA
Tel +1-412-386-6092
Fax +1-412-386-6015
E-mail gerst.gibbon@netl.doe.gov

Dr Willie May
Analytical Chemistry Division
NIST, 100 Bureau Drive, ms 8390
GAITHERSBURG
MD 20899-8390,
USA
Tel + 1 301 975 3108
Fax + 1 301 926 8671
E-mail willie.may@nist.gov

Dr Warren Merkel
American Association for Laboratory
Accreditation
5301 Buckeystown Pike, Suite 350
Frederick, MD 21704-8307
USA
Tel + 1 301 644 3212
Fax + 1 301 662 2974
E-mail wmerkel@a2la.org

Dr Chuck Wibby
Environment Resource Associates
5540 Marshall Street
Arvada, CO 80002
USA
Tel +1 303 431 8454
Fax +1 303 421 0159
E-mail cwibby@eraqc.com

Dr Wayne Wolf
Beltsville Human Nutrition Research Centre
Agricultural Research Service
US Department of Agriculture
10300 Baltimore Blvd
Beltsville, MD 20705,
USA
Tel +1 301 504 8927
Fax +1 301 504 8314
E-mail wolf@bhnrc.usda.gov

The CITAC Secretariat
IRMM – JRC - EC
Retieseweg
B-2440, Geel
Belgium
Tel + 32 14 571 608
Fax + 32 14 571 863
E-mail citac@irmm.jrc.be

** Liaison/co-ordination member for PITTCON conference only*