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1. General Aspects

EURAMET TC-T currently has 33 representatives from an equal number of different European countries. There exist one subcommittee on humidity. Several members are participating at the IMERA joint research project "Boltzmann constant".

The workload of the TC chair and of the subfield convenor has increased during the last years. Therefore TC-T has installed 3 working groups during its annual meeting in Malta from April 1st to 3rd, 2009.

2. Projects

The latest status of the projects can be seen on the TC-T webpages. The actual progress reports have been given on the annual meeting in Malta mentioned above and are published in the restricted part of the TC-T webpages. For a short overview over the actual status see the following table:

Year	Proposed projects	Agreed projects	Completed projects
2009	1	0	0
2008	7	8	0
2007	1	2	0
2006	0	6	2
2005	0	4	1
2004	0	6	8
2003	0	4	7

Clearly, it can be seen that many projects are not yet on a proper schedule. TC-T will intensify the coordination of the projects, checking their status and publishing the reports on the TC-T webpages.

3. Comparisons

The EURAMET.T-K7 comparison of water triple point cells could be completed with great success. It was performed as a regional extension of CCT-K7 (2002-2004) with 24 participant NMIs (9 of them had participated in CCT-K7). Finally, a robust linkage to CCT-K7 was established. The comparison evolved as a powerful tool to evidence the impact of the recently refined definition of the water triple point temperature in terms of VSMOW. The EURAMET.T-K7 reference value results 65 μ K higher than the CCT-K7 KCRV (thus agreeing within few μ K with the best estimate of the SI unit).

About 13 comparisons among the EURAMET TC-T projects mentioned above are still under the way mostly linking one or more NMIs to participants of CCT or EURAMET comparisons.

Proj.	Date	Purpose	pilot	Status	
1098		A bilateral comparison between NIS and UME in the temperature range from argon to zinc fixed points	UME	proposed	comparison
1095	2008-03-01	Bilateral comparison of the realizations of the ITS-90- at the fixed points of Hg, H₂, Ga, In, Sn and Zn	BIM-NCM	agreed/started	comparison
1094	2008-03-01	Bilateral Comparison of Relative Humidity Calibration	BIM-NCM	agreed/started	comparison
1082		EUROMET.T-K7.1: key comparison of water triple point cells (regional extension of CCT-K7)	SMU	proposed	comparison

1071		Bilateral comparison Cu-fixed points by using Pt/Pd thermocouple	VSL	proposed	comparison
1061	2008-09-01	Comparison of Air Temperature Calibrations	MIKES	agreed/started	comparison
1058	2008-04-03	Bilateral Comparison of the realisations of the ITS-90 at the mercury point	DANIAMet-TEKNOLOGISK	agreed/started	comparison
1033	2008-11-01	Comparison of psychrometer calibrations – Pre-study	DANIAMet-DELTA	agreed/started	comparison
1015	2008-04-01	Trilateral comparison in fixed points of Zn, Sn, In, Ga and Hg	CMI	agreed/started	comparison
927	2007-03-01	Comparison of blackbodies for calibration of infra-red ear thermometers	MIRS/UL-FE	agreed/started	comparison
916	2006-09-01	Bilateral comparison of mercury triple point cells	INTiBS PAN	agreed/started	comparison
899	2006-06-01	EUROMET.T-K7: key comparison of water triple point cells (regional extension of CCT-K7)	VSL	agreed/started	comparison
820	2004-12-01	EUROMET-T K4: Comparison of the realizations of the ITS-90 at the freezing points of Al(660,323 °C) and Ag (961,78 °C)	PTB	agreed/started	comparison

4. CMCs

A large number of CMC submissions has been reviewed by the CMC review group of TC-T last year. Final adjustments are under way at the moment seriously pushed by the new chairman of the CMC review group Andrea Peruzzi. We are confident, that the CMCs of TC-T are in an actual shape within 2009.

5. Activities of the Sub-Committees

TC-T has presently one Sub-Committee: Humidity. Anton Steiner from METAS became the new convenor last year.

EURAMET project 1002 has successfully been performed as a part of the first global comparison in the extreme trace humidity region (Coordinator NPL), which covered the measuring range from 10 ppb to 2000 ppb water content by volume. Participants were NIST (US), NPL (GB), PTB (DE) and NMIJ (JP) using two Cavity-Ring-Down spectrometers (CRDS) as transfer standards.

The EURAMET P717 comparison on 'Dew point temperature high range' was started with the coordinator PTB (DE), co-pilot BEV/E+E (AT) and 15 participating countries: BEV/E+E (AT), BNM-CETIAT (FR), CEM-INTA (ES), DELTA (DK), EIM (GR), GUM (PL), IMGIC (IT), MIRS/UL-FE (SI), METAS (CH), MIKES (FI), NMI/VSL (NL), NML (IE), NPL (GB), PTB (DE), UME (TR). The measuring range extends from 30 °C to 95 °C dew point temperature. Two chilled mirror hygrometers in two loops are used as transfer standards.

Future activities in subfield 'Humidity' are the participation in the CIPM key-comparison CCT-K8, in the EURAMET 1061 'Comparison of air temperature calibrations' and in EURAMET 1065 'Survey & strategic planning in the field of measurement of moisture in materials'. Furthermore, CMC claims for relative humidity and for calibration of humidity generators will be prepared.

6. Participation in iMERA-Plus

Several members of the EURAMET TC-T are participating in the "Boltzmann constant" project. The aim of the project is to get a reliable value of the Boltzmann constant by using different measuring methods in different laboratories. Then, a redefinition of the base unit of temperature, the kelvin, can be adopted. A scientific workshop presenting the progress of the project was held on April 7th and 8th, 2008, in Paris. The next workshop is scheduled for September 22nd to 24th, 2009 in Torino.

7. Meetings

The 2009 annual meeting of the EUROMET TC-T was held from April 1st to 3rd in Malta. 32 TC-T members participated in the humidity meeting on the first day, 36 in thermometry meeting on the two following days. 24 among them stayed for the whole meeting.

On February 10th, 2009 a limited group of contact persons met in Berlin to support the new chair of TC-T in preparing the meeting in Malta.

On October 15th and 16th, 2009 the new strategy working group will meet in Madrid to prepare the contribution of TC-T to the upcoming EMRP calls “environment” and “industry”. This meeting will follow the 3rd EURAMET Workshop “Towards More Accurate Fixed Points” on 14th and 15th October 2009 bei CEM in Madrid.

The next annual meeting of TC-T will be held from April 14th to 16th, 2010 at Thessaloniki, Greece.

8. Issues

On the meeting in Berlin in February this year mainly the following issues were discussed:

- contributions of TC-T to the EMRP call “energy”,
- installation of working groups to decrease the workload of the chairperson.

In order to prepare the contributions of TC-T to the EMRP call “energy” a large list was compiled including all ideas available from other TCs and NMIs. This list was distributed to the EURAMET secretariat and all chair persons of the other TCs including TC-IM some weeks ago. From this list one can estimate not only the current ideas metrology may contribute to the energy problem, but also the potential partners when forming JRP to solve some of the listed problems.

9. Strategic planning

During the recent TC-T meeting in Malta a new working group was installed, which should deal with strategic issues as they are addressed by the subjects of the upcoming EMRP calls for, e.g., “energy”, “health”, “food”, “environment”, “mis-en-pratique”, and “metrology for industry”. As mentioned, the next meeting of this group will be held in October.

In this context the revision of the TC-T roadmaps is of permanent importance. And the overall developments in the thermometry and humidity community should be observed and appropriate strategies developed for the future.

10. Outlook for 2009/2010

There are a few major objectives for this year:

- complete the actual CMC review process.
- create an operational structure of the TC-T to include more active people running the business.
- shape the contributions of TC-T to the EMRP call “energy”, prepare those for the following calls and strengthen the cooperation with other TCs on this field.

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Chair EURAMET TC-T 2009-06-01