



TC- F : Flow and Fluid Metrology Highlights and Challenges

Richard Paton, TC-F Chair
Elsa Batista TC-F Chair elect
EURAMET GA meeting
June 2011



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MEMBERSHIP AND MEETINGS

- Last meeting March 2011 : Oslo Norway
- 26 Countries : 52 Delegates
- Three day meetings
- 3 formal subgroups met before the main meeting
 - Gas Flow
 - Liquid Flow
 - Volume (including fluid properties)

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TC STRUCTURE

- Three sub groups convenors
 - Gas Flow - Bodo Mickan from PTB
 - Liquid Flow - Petra Milota from BEV
 - Volume - new convenor, Zoe Metaxiotou from EIM
- Significant overlap in membership
- Taking more responsibility
- Good format having three separate meetings preceding the 2011 full meeting

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SUMMARY OF THE TC

- Very good enthusiastic group
- Extensive exchange of information
- Good assimilation of 'new states'
- Network of assistance well established

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CHALLENGES

- Retain technical focus for specialists
- Maintain general interest
- Improve R&D and techniques through collaboration

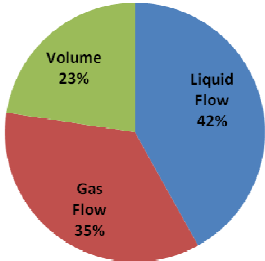
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EURAMET PROJECTS


- Total 62 (9 research)
- Liquid flow – 26
- Gas flow – 22
- Volume - 14



Category	Percentage
Liquid Flow	42%
Gas Flow	35%
Volume	23%

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KC's

- CCM.FF-K1 – Water flow
- CCM.FF-K2 – Liquid hydrocarbon Flow
- CCM.FF-K3 - Air Speed
- CCM.FF-K4 – Liquid Volume
- CCM.FF-K5 – High pressure gas flow
- CCM.FF-K6 – Low pressure gas flow

First round concluded with published results, second round starts in 2011-2012

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CHALLENGES FOR KC's

- Establish repeat programme
- Fill gaps in coverage
- Establish network of 'investigative' intercomparisons
 - To investigate differences
 - To develop transfer artefacts


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CMCs

- TC Flow has been slow to update CMCs
- Have moved to standardise entries (units ranges etc)
- Started updating now with new countries, new CMCs then revisions in that order
- CMC's from Spain, Greece and Portugal regarding static volume were revised by the Volume subgroup and sent to BIPM for RMO revision


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CMCs

- Suspect there are still problems on KCs and linkages being needed
- Accept 'unique' CMC where intercomparison is not possible. e.g Multiphase flow, or hydrodynamics
- Two test rigs can be covered by one CMC, under discussion

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CHALLENGES FOR CMCs

- Develop a Relational data base for flow CMCs
- Easier to search by range/ capability/ comparison, etc
- Easier to present for editing and approval
- Generate Excel form when needed
- Three quarters way to developing it

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EMRP

- Some interest from members
- No initiative being taken to progress ideas for current calls within TC Flow
- Seems actions being taken within NMIs rather than TCs (Or at least TC flow)

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EMRP

- Disappointment no 'flow based' projects accepted last call
- Concern over quality of the feedback
- Worry over the apparent lack of appreciation by assessors (based on feedback)
- Are industrial focussed projects disadvantaged
- Cost to prepare a bid which is unsuccessful
 - Can process be streamlined in earlier stages?
 - Discouraging participation?

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OTHER R&D

R&D ideas for future projects were discussed, these included:

- Carbon Capture and Storage (CCS)
- Open channel flow, e.g. flow in rivers, waste water
- Environment
- Medical flows, e.g. blood flow, breathing equipment

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FUTURE

- Good news
- Next two TC meetings have offers of hosting
 - 2012 – Vienna/Austria
- New document regarding revision of CMC under development
- Update of roadmaps under development

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OTHER HIGHLIGHTS

- One accepted and published guide
- Second guide under preparation
- Welcome to the new Chair
- Thank you all for help and assistance over last four years
 - Richard

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Thank you
Any Questions?