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### News from the Executive Committee

The 27<sup>th</sup> Executive Committee held meetings in Wuxi, China, in April 2014 and during the Conference in Copenhagen September 2014. Among others, the meetings covered the items briefly described in the following.

The proposed revisions of the ITTC Rules regarding decision making between conferences and qualifications for AC membership were finally agreed so they could be presented to the Full Conference for adoption.

The financial situation was reviewed. Due to the increased involvement of ITTC with IMO and ISO, and due to some other one-off expenses, a deficit of some 10,000 USD was foreseen for this period. This was accepted by the EC, and the continued involvement in IMO and ISO was supported. ITTC still have funds to cover the deficit, and it was decided to support the 27<sup>th</sup> Conference financially with 6,000 USD.

The review of AC membership in accordance with the proposed new requirements was assessed. A few minor revisions to the review questionnaire had been agreed, and all but one

AC member submitted the forms. The AC membership of the organisation, which did not respond, was terminated. Two new AC members were accepted to join from the 28<sup>th</sup> ITTC, SSSRI (Shanghai Ship and Shipping Research Institute) and SHI (Samsung Heavy Industries).

Arrangements for the 27<sup>th</sup> Conference were discussed and it was agreed that the Group Discussions should include the following:

- Shipowner's view on optimisation, including aspects of EEDI and energy saving methods
- The role of ITTC in the future
- Modelling of environmental conditions

The EC report to the Conference was reviewed and accepted with some small revisions. One of these was the addition of the obituary of Jan Dudziak, Poland.

Finally, the appointment of members and chairmen of the technical committees for the 28<sup>th</sup> ITTC was undertaken.

The first meeting of the 28<sup>th</sup> Executive Committee was also held during the Copenhagen conference, and introduced a number of new appearances. Zhenping Weng, CSSRC, took over as Chairman and new Area Representatives

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were Paul Crossland, Qinetiq, for Central Europe, Kourosh Koushan, Marintek, for Northern Europe, Fabio di Felice, CNR INSEAN, for Southern Europe, and Baoshan Wu, CSSRC, for East Asia. Baoshan Wu was also appointed EC Secretary.

## 27th Full Conference

The 27<sup>th</sup> Full Conference was successfully held in the IDA Congress Centre, Copenhagen, Denmark, 31<sup>st</sup> August to 5<sup>th</sup> September, 2014, preceded by a joint ITTC-ISSC workshop held on 30<sup>th</sup> August.

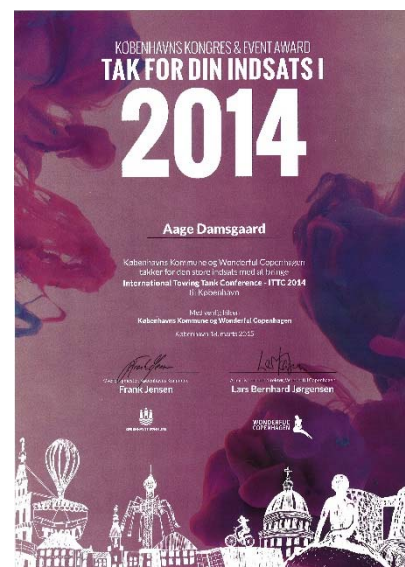
Hosted by FORCE Technology (formerly Danish Maritime Institute) with financial support from several Danish shipowners, private funds, ITTC and ONR Global, the conference attracted the attendance of 240 delegates from 28 countries. Of these, 147 were formal delegates (Designated Representatives and committee members) and 93 were Observers. The latter included some vendors of equipment for towing tanks, Qualisys, Cussons, Dantec Dynamics and LaVision. 75 of the 92 ITTC member organisations were represented at the conference, and altogether some 97 organisations were represented.

The technical programme followed the usual standard and is well covered in the Proceedings, which are available on the ITTC website. Volumes I and II contain the reports from the Executive Committee, Advisory Council and the technical committees. Volume III includes all the presentations made at the conference and will eventually contain all the written discussions and replies from the committees. Volume III also contains an account of the decisions made at the Conference, including the committee members and Terms of Reference.

Despite a tight technical programme, time was left for the social part which included welcome reception at the Tivoli Garden, reception at Copenhagen Town Hall, excursion to Roskilde and the Viking Ship Museum and, not least, the banquet at the Opera House with the memorable performance by the EC Chairman (click photo).



The organisers wish to thank all the participants who helped make this conference a success. The organisers were also acknowledged by the City Council for attracting the conference to Copenhagen.



## News from the Advisory Council

Since the last ITTC newsletter the Advisory Council has held two meetings, in Wuxi April 2014 and in Copenhagen September 2014. The April meeting, in particular, has a very heavy agenda with the review of all the draft new and revised procedures submitted by the technical committees, the decisions on the structure of new committees and the writing of the Terms of Reference for the committees. It was very helpful for the meeting schedule that this time, the technical committees had mostly delivered their material well ahead of the meeting such that the AC working groups had had time to review the procedures before the meeting. The meeting could then primarily be used to summarise the comments and formulate the responses to the committees.

Once the committee structure for the 28<sup>th</sup> ITTC was agreed, the AC working groups collected all the suggestions for future work into a first draft of the Terms of Reference for the new committees. This was further discussed during the meeting, and a second and third draft eventually prepared. After some polishing after the meeting, this draft was submitted to the EC for presentation at the Conference. This draft is included in Volume I of the Proceedings of the 27<sup>th</sup> Conference. Further revisions were made by the AC during the Conference, based on the input received there, and the final version issued to the committees is as shown in Volume III of the Proceedings, which is available on the ITTC website.

At all the AC meetings, the activities in relation to IMO and ISO are extensively discussed, and a separate account of the latest work is given by the AC Chairman in the following.

### *ISO*

The EEDI for new ships is the most important technical measure and it aims at promoting the use of more energy efficient equipment and engines. The EEDI requires a minimum energy efficiency level per capacity mile for different ship type and size segment.

Ship speed and power consumption are one of the key inputs for the determination of the EEDI. It is therefore of great importance that the speed power relation is determined by use of a method that is accurate and consistent for all ship types.

Up to 2002 the sea trials analysis was an ad hoc affair, for which the shipyards adopted different sea trial assessment methods. In an effort to standardise the method, the ISO developed ISO 15016:2002. Then ISO 15016 has been adopted by some shipyards. Since speed trials have been conducted to confirm the guarantee speed of a single ship building contract, ISO 15016:2002 was oriented towards more flexible international standards so that the parties concerned with the contract could easily agree to it. Ironically, however, this flexibility was attributed to a problem connected to the introduction of the new EEDI regulations.

In 2011, ITTC was requested by IMO to review the procedures for analysis and implementation of speed trials. After the discussion in the specialist committee "Performance of Ships in Service", it was decided that a method taking into account the improvements of the STA method would be selected as the basis. Between the ITTC Conferences a preliminary version of the sea-trial procedure was developed by the PSS committee which was submitted to MEPC (IMO) which only afterwards has been approved by the Full Conference in Copenhagen.

Meanwhile ISO tried to revise their standard by making small modifications. However this effort was rejected by a voting and IMO decided to declare the ITTC procedure as the preferable one.

After this ISO approached ITTC whether it was possible to co-operate and to provide one common procedure for sea trial performance and evaluation. ITTC agreed to this suggestion under the condition that the ITTC procedure was the base for the common standard.

In this way, the three organizations/groups ISO, STA and ITTC which had made efforts to develop speed trial analysis methods started to develop a new ISO standard in 2013, in accordance with the same basic principles. Also the ITTC Symbols List was the base for the symbols used in the standard.

The voting at the 1st DIS (Draft International Standard) stage (until 6th April, 2014) was not approved. The largest reason was because the newly introduced Iterative method for current correction had not been validated yet. Therefore, ITTC and some other companies/organizations (e.g. Bureau Veritas) conducted the validation work. It turned out that the Mean of Means method, suggested by ITTC and the It-

erative Method suggested by ISO are equivalent and both have special benefits under particular circumstances.

The voting at the 2nd DIS stage (until 6th December, 2014) was successfully approved with zero negative votes. Comments submitted during the voting were discussed at the ISO expert meeting on 19th January 2015, and the ISO15016:2015 is going to be published soon (expected by June 2015)

However there are still some items not really validated or need to be updated. This is being dealt with by the PSS Committee in this period. Between ITTC and ISO it has been agreed that the co-operation shall continue for the next three years. Therefore ITTC will in the next MEPC insist that the ITTC method is considered as equivalent to ISO and can also be used for the evaluation of the EEDI.

### ***Joint Industrial Working Group***

The objective of the Industry Guidelines for calculation and verification of the Energy Efficiency Design Index (EEDI) is to provide details and examples of calculation of attained EEDI and to support the method and role of the verifier in charge of conducting the survey and certification of EEDI in compliance with the relevant IMO Guidelines.

This means that the main aim of the Joint Industrial Working Group is to interpret the IMO decisions with regard to EEDI and to define their practical implementation and execution. This applies especially the function of the verifiers. The Group has prepared a submission to MEPC 68 (taking place at IMO in May this year) where they give examples for the calculation of EEDI for different ship types and different engine arrangements.

ITTC played a major part in the development of the criteria for the acceptance of model tank facilities by the verifiers. ITTC took the ITTC Recommended Procedures as a base for this. The criteria which have been developed in co-operation with ITTC are given in Appendix 3 and 4 of the paper which may be found [here](#).

The conclusion from the reported events is that the presence of a representative of ITTC in MEPC is imperative until this issue has been finally solved, otherwise ITTC will inevitably be governed by external organisations with less competence in our field.

## **Reports from technical committees**

### ***Propulsion Committee***

The first meeting was held in Busan, Korea from 17<sup>th</sup> to 19<sup>th</sup> Dec. in 2014. The tasks were reviewed and allocated to the members in the meeting. Steven Ceccio is chosen as a Secretary for the Propulsion Committee. The second meeting will be held in Potsdam GmbH in Germany in October 2015. The Propulsion and ESD Committee are discussing about the Joint Meeting for sharing the opinions for the similar common tasks.

The committee is of the opinion that task 6 is thought be very difficult to accomplish from our reviews in the first meeting because the full-scale validation is almost impossible due to its uncertainty and confidentiality. A revised formulation of the task has been proposed for consideration by AC.



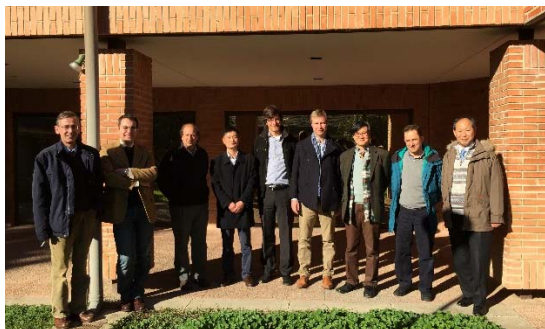
### ***Seakeeping Committee***

The 28<sup>th</sup> Seakeeping Committee started the activity with a new organization with nine members. The members who serve consecutive terms are Chengsheng Wu (CSSRC, China), David Hayden (NSWCCD, USA), Katsuji Tanizawa (NMRI, Japan), Pepijn de Jong (Delft University, The Netherlands) and Yonghwan Kim (Seoul National University, Korea). New members are Adolfo Marón (CEHIPAR, Spain), Ayhan Akinturk (NRC, Canada), Florian Sprenger, (MARINTEK, Norway), and Frederik Gerhardt (SSPA, Sweden). Yonghwan Kim continues the chair of the committee.

In the 28<sup>th</sup> term, 11 main tasks are assigned to the committee, which are slightly more than previous terms. Besides typical tasks to update and review the existing procedure, the assigned missions include the review of ITTC's CFD procedures, the inclusion of hull structural

hydroelasticity computation, the development of new procedures for  $f_w$  in EEDI equation and sloshing model test, continuing collaboration with other committees, and supporting joint workshops of the Manoeuvring and the Stability in Waves Committees and the Specialist Committee on Performance of Ships in Service

The first meeting was held at CEHIPAR, Spain, on 10 and 11 December, 2014. Adolfo Marón organized the meeting with a great success and all members attended. Committee chair explained the terms of references and key timelines of the 28<sup>th</sup> ITTC term. The meeting went very smoothly and Pepijn de Jong was elected as the secretary of Seakeeping Committee. In the first meeting, the committee missions and tasks were discussed, and the detailed plan for three-year effort was made. The tasks were assigned to the members, and all of the coordinators for the assigned tasks were tabled with proper schedule planning. Some action items were heavily discussed, and the missions and actions were evenly distributed to committee members. Additionally, Florian Sprenger made a short presentation about SHOPERA project which many European organizations are involved. Members had a facility tour of CEHIPAR, including towing tank, cavitation tunnel, and many experimental models such as segmented ship models.



*First meeting of Seakeeping Committee at CEHIPAR, Spain (Dec. 10–11, 2014)*

### ***Specialist Committee on Ice***

Mr. Rüdiger von Boch und Pollach at Aalto University was appointed as a secretary of our committee.

The first meeting was held at Kogakuin University, Tokyo, Japan in February 3<sup>rd</sup> and 4<sup>th</sup>, 2015. All members of the SC attended. We discussed three TOR items and distributed tasks to members.



*Group photo (From left) Natalia Fatieva (interpreter), Kirill Sazonov, Yinghui Wang, Akihisa Konno, John Wang, Nils Reimer, Victor Westerberg, Rüdiger von Boch und Pollach, and Topi Leiviskä*

### ***Specialist Committee on Hydrodynamic Noise***

The committee met in Istanbul 12 – 13 March 2015 and discussed the Terms of Reference in detail and decided to divide the work in three groups: model scale measurements, numerical methods and full scale measurements.

The TOR were distributed over the groups and a leader/coordinator was assigned to each term. A global time planning was made for all terms of reference and concrete actions were defined for those with a tight planning.

Dr. Ted Farabee of NSWC/CD (USA) will act as secretary for the noise committee.

For the further development of the model scale and full scale guidelines, a questionnaire will be distributed among those who participated in the survey of the previous committee and those who we know are active in the field. The survey will consist of some specific questions which will be defined in the remainder of the year. The questionnaire will be distributed in January 2016. As also stated in the terms of reference, we will further develop guidelines,

only, for noise measurements but if sufficient information becomes available, they may be suitable for an ITTC procedure. This is to be decided when submitting the guidelines to the ITTC.

A number of ISO working groups were identified who are active on developing ISO standards for either model scale or full scale noise measurements. Most of the 'full scale' ISO working groups have already released a draft version of a new standard, the ITTC committee will try to get these standards through its members so they can be discussed in the committee. The 'model scale' ISO working group has just started. It was decided that the ITTC committee will inform the ISO working group that they are willing to cooperate but that there is a strict deadline for the ITTC committee to submit their guidelines which might influence any possible cooperation. It was noted that one person, unfortunately not present at the meeting, is member of both the ITTC committee and the ISO working group which simplifies the communication between the two groups.

So communication between ISO and ITTC will be set-up soon, especially for the 'model scale' ISO working group. The committee suggests that ITTC seek a closer and more formalised cooperation with ISO. E.g. as a liaison member of ISO.

### ***Specialist Committee on Performance of Ships in Service***

The first meeting of the 28<sup>th</sup> ITTC Specialist Committee on Performance of Ships in Service (PSS) was held at the Vienna Model Basin (VMB), Vienna, Austria between 17<sup>th</sup> and 19<sup>th</sup> December 2014. Ten committee members attended the meeting, one member was absent. Another HSVA member left HSVA and nobody was instead. Gerhard Strasser (Vienna Model Basin), ITTC AC and ITTC representative in IMO with regard to EEDI, attended as observer.

With two members volunteering to be secretary to the committee, a ballot was held. Dominic Hudson, from University of Southampton, was elected to be secretary.

The meeting was carefully prepared. TOR was discussed in detail and some suggestions were made to AC secretary and had got agreement.

Seven presentations had been prepared on work relevant to the committee tasks. Presentations were given and discussed at the meeting. A document sharing site was hosted by SSPA for the committee documentation.

The first meeting was successfully held with plenty of results. Five meetings were agreed within committee, and the second meeting will be in MARIC on May 20-22, 2015.

### ***Specialist Committee on Energy Saving Methods***

The first meeting of the committee was held at BMT Headquarters at Goodrich House in Teddington, London, on the 12<sup>th</sup> and 13<sup>th</sup> February. All members attended.

Professor Marc Perlin of UMICH was appointed as Secretary to the committee.

The terms of reference were reviewed. The committee has some further questions on the TOR and will be coming back shortly to the AC for some further clarification. Some areas of overlap between the Propulsion, the Performance of Ships in Service and the Resistance Committees were identified and we will be seeking clarification from both the AC and by direct contact with these committees to establish which committee is taking responsibility for what. To facilitate this process we have organised to have our third meeting at the same time and place as the propulsion committee so that we can have a joint session for part of the time.

The next meeting is going to be held in Osaka in Japan in November 2015 and the third meeting will be held jointly with the Propulsion Committee in Shanghai, China in May 2016. The fourth meeting will be held in Michigan, USA.

### ***Call for Input***

The scope of the ground to be covered by the Committee is potentially large (and depending on the interpretation of the terms of reference) may include initial design, both active and passive devices, green energy devices (wind, wave and solar energy), coatings and roughness treatments, operational measures (routing and voyage planning), machinery sizing and sea margins. The Committee will of course be doing the usual monitoring of conferences/papers/publications which is expected to pick up most developments in Energy Saving Devices.

But it occurs to us that as our scope is wide (and includes the term "Methods"), there may be conferences and publications outside our normal review that we should be taking into account. Other ITTC members may also be aware of new technologies/methods that the Committee should consider, particularly as not all developments currently being pursued are well publicised!

ITTC members are invited to send any thoughts on this area that they have to the Energy Saving Devices Chairman ([tperen@bmtdsl.co.uk](mailto:tperen@bmtdsl.co.uk)).

### ***Specialist Committee on Hydrodynamic Modelling of Marine Renewable Energy Devices***

The first meeting of the Specialist Committee was held on the 11<sup>th</sup> and 12<sup>th</sup> February 2015 at Yokohama National University, Yokohama, Japan, hosted by Prof. Motohiko Murai. All nine members of the Committee attended the meeting. Assoc. Prof. Irene Penesis of the Australian Maritime College (institute of the University of Tasmania) chaired the meeting, and Dr William Batten from QinetiQ was elected as the Secretary.

At this first meeting, the tasks of the Committee were reviewed and three working groups were established. Tasks and activities of the working groups would initially entail:

- Development and writing of two (draft) guidelines for uncertainty predictions for (i) wave energy converters (WECs) and (ii) current turbines. The guidelines will focus on a specific example in both, an oscillating water column WEC and horizontal axis turbine.
- Outline a suitable approach for potential 'round-robin' test campaign of a WEC and circulate to participants to check willingness to participate.
- Reviewing and reporting of progress made and challenges associated with the prediction of performance using physical and numerical techniques of single WECs and WEC arrays.
- Reporting on developments and challenges associated with the prediction of performance of current turbines, in particular the effect of unsteady flows on the device. Reporting on progress made

modelling arrays of current turbines using physical and numerical techniques.

- Report and review on wind field modelling including Froude/ Reynolds scaling challenges associated in the modelling of realistic environmental conditions for floating offshore wind turbine tests. This committee will initially liaise with the Specialist Committee on Modelling of Environmental Conditions to discuss this task.
- Suggested updates and improvements to published ITTC guidelines and procedures from this Specialist Committee.

The Committee also identified existing studies and projects worldwide that are relevant to the terms of reference. The next meeting of the Committee will be held at the Australian Maritime College, Tasmania, Australia in late January 2016.

### ***Specialist Committee on the Modelling of Environmental Conditions***

The Specialist Committee on the Modelling of Environmental Conditions met at CNR-INSEAN in Rome, Italy for their first meeting on 15-16 December, 2014. As a first step of the new Committee, the Dr. David Drazen was appointed as Secretary. The Committee went through the TOR analyzing all the points. In particular the report of the Ocean Engineering Committee from the 24<sup>th</sup> ITTC was carefully reviewed and any recent advancements on the different topics was discussed. At the end of the meeting the work was distributed among the members according to their experience and competency. As one of the members resigned just before the meeting, at least for the first year it was decided to distribute the effort over a reduced number of points and discuss the distribution of the others points of the TOR in the next meeting. Second meeting of the Committee is tentatively scheduled for October 2015.

### **SIMMAN 2014**

The Workshop on Verification and Validation of Ship Manoeuvring Simulation Methods (SIMMAN2014) was held in Copenhagen, Denmark on 8<sup>th</sup> -10<sup>th</sup> December 2014. Around 60 persons participated in the workshop, which

was hosted by FORCE Technology and organized by FORCE, MARIN and IIHR, University of Iowa with assistance and support from the 27<sup>th</sup> ITTC Manoeuvring Committee and co-organizers from MARIN, Dept. of Marine Systems Eng., Faculty of Eng. Kyushu University, Japan, Hyundai Maritime Research Institute (HMRI), Technical University Berlin, Germany, FDS at Hamburg University of Technology (TUHH), Germany, Flanders Hydraulics Research (FHR), Belgium and IIHR, University of Iowa, USA.

The purpose of the workshop was to benchmark the prediction capabilities of different ship manoeuvring simulation methods including systems and CFD based methods through comparisons with results for tanker, container ship and surface combatant hull form test cases. Systems based methods were compared with free-running model test data using provided PMM and CMT (circular motion mechanism/rotating-arm) data, whereas CFD based methods were compared with both PMM/CMT and free-running model test data. Benchmark ships covered KCS, KVLCC2 and 5415. Both deep and shallow water was considered. Compared to SIMMAN 2008 much new experimental data was provided for the workshop.

A website was used to facilitate the workshop organization and dissemination of information and instructions to participants: <http://www.simman2014.dk/>.

The workshop consisted of 9 technical sessions and 1 conclusion session. The presentation for each session was given by a chairman from the organizing institutes. Each presentation was based on analysis of the submitted results carried out before the workshop. After each presentation there was a discussion of the results and conclusions with the participants. Day one and two were rounded off with poster sessions where participants discussed the details of their work.

When it comes to the learning from the workshop it was preliminary observed that there was much less ambiguity in the free running test cases and more consistent agreement between different EFD submissions compared to SIMMAN2008. For the captive model tests there was considerably less spreading in the results of captive tests compared to 2008. For the trajectory predictions there was a significant improvement compared to 2008 and there was a great

progress in the RANS capabilities and the number of different submissions, with both RANS-based coefficient models and RANS time domain. However, that are still many things to be investigated and more work is needed to answer some of the questions raised on the workshop.

Work is now ongoing in order for the organizers to prepare the final proceedings from the workshop and to look at the results in more detail to summarize the workshop results and draw the final conclusions from the workshop.

Finally, it should be noted that SIMMAN has fulfilled an important need for validation of prediction methods. Open-minded discussions in detail were made and a need for a follow-on workshop was observed. A suitable year could be 2018.

### **Changes to Technical Committees**

A number of changes in the committee membership have already taken place, as follows:

In the Manoeuvring Committee, Janne F. Otzen, FORCE, has replaced Claus D. Simonsen, FORCE.

In the SC on Performance of Ships in Service, Uwe Hollenbach, HSVA, has resigned and no replacement appointed.

In the SC on Hydrodynamic Noise, Dean Capone, Penn State, has resigned and no replacement appointed.

In the SC on Energy Saving Methods, Alexander Phillips, Southampton University, has been replaced by Joe Banks, also from Southampton University.

In the SC on Modelling of Environmental Conditions, Janou Hennig, MARIN, has resigned and no replacement appointed. Janou is new director of HSVA.

### **New ITTC members**

The following new members of ITTC have been registered:

Tianjin University, Ice Engineering Laboratory, China

Indian Institute of Technology Madras, India  
Universiti Teknologi Petronas, Malaysia

Orion Energy Centre, UK