

## CONTENTS

<i>Message from the Chairman.....</i>	<i>1</i>
<i>Arrangements for the 24<sup>th</sup> ITTC 2005.....</i>	<i>1</i>
<i>News from the Executive Committee.....</i>	<i>1</i>
<i>News from the Advisory Council.....</i>	<i>1</i>
<i>News from the Technical Committees.....</i>	<i>2</i>
<i>ITTC fee.....</i>	<i>6</i>
<i>Next issue of the ITTC News.....</i>	<i>6</i>
<i>Conference Programme.....</i>	<i>7</i>

## Message from the Chairman

I am very pleased to advise you that at the time of writing this message all but two of the technical committee reports have reached the Executive Committee Secretary and they are being edited for publication in the 24th ITCC Proceedings. All the reports will be uploaded to the ITCC Conference web site by 15th July 2005 for your review before the Conference. I would like to take this opportunity to thank the members of all the Committees for their excellent work in producing the Committee reports.

As this is the last ITTC News before the Conference I wish you all well with your preparations for attending the Conference in Edinburgh in September and my colleagues at the Conference Secretariat and I will be only too pleased to hear from you if we can assist you in any way towards your attendance at the 24th ITTC.

I am very much looking forward to welcoming you to the Conference in September.

With very best wishes,

**Atilla Incecik, Chairman**  
24th ITTC Executive Committee

## Arrangements for the 24<sup>th</sup> ITTC 2005

The Conference programme is attached at the end of this issue.

## News from the Executive Committee

The Executive Committee met on Wednesday 6th April 2005 in Newcastle upon Tyne, England. During the meeting the subject of ITTC Membership Fees was discussed further and it was agreed that the fee for each Member Organisation per three year Conference Period will be set provisionally at \$600.00. This matter is to be discussed fully by the whole Conference in Edinburgh, Scotland (see also page 6).

The Edinburgh Conference organisational details and registration fee were also discussed by the Executive Committee and they agreed with a fee of £950.00 for registration before 22nd July 2005. Full registration details and latest Conference Programme are on the Conference Website at [www.ittc.ncl.ac.uk](http://www.ittc.ncl.ac.uk).

As many Members will be aware, the Executive Committee Secretary has completed all the necessary forms and forwarded them to IMO Headquarters, to allow ITTC to be granted Observer Status at IMO. It is hoped this extremely lengthy process may have reached a satisfactory conclusion in time for the Conference in September.

The Secretary of the Executive Committee is still waiting to hear from any members who are interested in chairing any of the Discussion Group sessions in Edinburgh.

The next meeting of the Executive Committee will take place immediately before the Conference, on Sunday 12th September 2005 in the Roxburghe Hotel Edinburgh.

## News from the Advisory Council

The AC met in Newcastle upon Tyne, UK on April 2004. 28 out of 33 members attended.

## ***Review of draft conclusions and recommendations***

The Council reviewed the draft conclusions and recommendations to the Conference submitted by the technical committees. The Council made some mostly editorial changes to make them distinct and consistent.

## ***Recommended Procedures***

The technical committees have proposed in total 31 new or revised procedures. Following the review by the working groups formed at the Council's meeting in August 2004 (see ITTC News 51) and discussions at the meeting the Council recommended 19 for publication in the ITTC Quality Manual, Recommended Procedures and Guidelines.

## ***Proposed Technical Committees.***

The main part of the meeting was devoted to formulate the tasks for the future work of technical committees based on the proposals from the committees. Based on the proposed tasks for the 25th ITTC technical committees, the Council agreed on the following technical committees and group:

### **General Committees**

- Resistance
- Propulsion
- Manoeuvring
- Seakeeping
- Ocean engineering

### **Specialist Committees**

- Azimuthing Podded Propulsion
- Cavitation
- Ice
- Powering Performance Prediction
- Stability in Waves
- Uncertainty Analysis
- Vortex Induced Vibrations
- Wakefields

### **Group**

- Quality Systems Group

## ***AC officers***

For the 25th ITTC the Council elected Mr David Murdey as Chairman and Dr Naoji Toki as Vice Chairman. Mr Aage Damsgaard was appointed as the AC secretary.

## **News from the Technical Committees**

### ***Resistance Committee***

A final 5<sup>th</sup> RC meeting was held on March 16 and 17, 2005 in Osaka (Japan), at the Osaka Prefecture University, hosted by Prof. Yusuke Tahara. Motivation for the meeting was the need of carefully analysing draft versions of all the sections and the remaining work to complete the report.

The structure of the final report is as follows:

- 1.) Introduction;
- 2.) Trends in experimental fluid dynamics;
- 3.) Uncertainty Analysis in experimental fluid dynamics;
- 4.) Trends in computational fluid dynamics;
- 5.) Uncertainty analysis for towing tank measurements;
- 6.) Uncertainty Analysis in CFD;
- 7.) Far Field Waves and Wash;
- 8.) Developments in modelling of relevance to resistance;
- 9.) New developments in ship concepts, design methods and design optimization;
- 10.) Recommendations for scaling and extrapolation.

After a detailed analysis of recent international published literature, more than 250 papers have been referenced, which mostly have appeared in the last three years. Attention has also been devoted to the examination of the proceedings of the recent CFD Workshop held in Tokyo and to illustrating aims and technical aspects of an international campaign for establishing facility biases.

Recommendations were also provided for tasks for the 25<sup>th</sup> ITTC RC, which will be provided in Appendix 1 of the Proceedings of the 24<sup>th</sup> ITTC.

### ***Manoeuvring Committee***

Dr. Andres Cura-Hochbaum hosted a final non-mandatory editorial meeting of the Maneuvering Committee on 31 March – 1 April 2005 at Schiffbau-Versuchsanstalt, Potsdam, Germany. Seven of the nine members attended. The meeting focused on careful analysis of draft versions of all sections of the report and Quality Manual procedures and the remaining work for their completion. Preparations for the forthcoming 24<sup>th</sup> ITTC and SIMMAN 2008 Workshop also discussed.

The contents of the final MC report are as follows:

1. Introduction
2. Progress in Systems-Based Simulation Methods
3. Progress in CFD-Based Maneuvering Simulations
4. Benchmark Data
5. High Speed & Unconventional Vessels
6. Confined Waters
7. Maneuvering Standards and Safety
8. Quality Manual Procedures
9. Conclusions
10. Recommendations
11. References

The MC recommends the 24<sup>th</sup> ITTC adoption of the improved Quality Manual Procedures 7.5-02-06-01, "Testing and Extrapolation Methods, Manoeuvrability, Free Running Model Test Procedure," and 7.5-02-06-02, "Testing and Extrapolation Methods, Manoeuvrability, Captive Model Test Procedure."

### ***Ocean Engineering Committee***

The Ocean Engineering Committee (OEC) finished and submitted its report to the 24<sup>th</sup> ITTC in May/June 2005. In addition to a State-of-the-Art Review over a very broad range of topics, and reviews/modifications of Procedures, in-depth work was also carried out on a few particular topics:

- Wave generation in shallow water (with focus on modelling of moored floaters)
- Questionnaire on numerical and physical wind modelling in offshore basins
- Experimental benchmark study on nonlinear effects in extreme random waves

The Committee's Conclusions, Recommendations to the ITTC (on Procedures and Guidelines) and Recommendations for Future Work were originally submitted in March, and eventually updated after input from the Advisory Council and Quality & Symbols Group. The final Recommendations on Procedures and Guidelines are as follows:

- Adopt the revised ITTC Procedure 7.5-02-07-03.1, "Floating Offshore Platform Experiments".
- Remove the ITTC Procedure 7.5-02-07-03.3 "Model Tests with Tanker-Turret Systems" (included in ITTC Procedure 7.5-02-07-03.1).
- Adopt the new ITTC Procedure 7.5-02-07-03.5 "Truncation of Test Models and Integration with Numerical Simulations".
- Rename the existing ITTC Procedure 7.5-02-07-03.4 from "Hybrid Mooring Simulation" to "Active Hybrid Mooring Simulation".

- Adopt as an ITTC Guideline, "Laboratory Modelling of Multidirectional Irregular Wave Spectra" (7.5-02-07-01.1).

The existing Procedure 7.5-02-07-02.4, "Validation of Seakeeping Computer Codes in the Frequency Domain", which was originally made for application to vessels with forward speed mainly, was also reviewed, and a draft outline of a possible extension to include stationary structures was worked out together with the review. Due to significant differences in tools for the two different ranges of applications, however, a split into two different Procedures was an equally reasonable choice, and this was also finally decided by the Advisory Council as a task for future work.

The fourth and last Committee Meeting was held during 28 February – 1 March, 2005 at the Graduate School for International Development and Cooperation, Hiroshima University, Japan.

### ***Committee on Stability in Waves***

The Committee concentrated its effort on writing the final report and recommendations to the 24<sup>th</sup> ITTC as well as the recommended procedures after its final meeting, which had been held in Shanghai, China on 4 November 2004.

Three draft recommended procedures submitted to AC by the Committee were on 1) Model Test on Intact Stability, 2) Model Tests on Damaged Stability and 3) Predicting the Risk and Magnitude of Parametric Rolling, and were reviewed by an AC working group. As a result, the first two procedures on model tests were accepted with minor corrections and the procedure on parametric rolling was accepted only as a guideline and starting point for upgrading in the future. The Committee revised these three draft procedures following the comments from the AC working group and further instructions from QSG were received. Finally the following will be sent to the Conference for its approval; 1) Procedures on Model Test on Intact Stability, 2) Procedures on Model Test on Damage Stability in Waves and 3) Guideline on Predicting the Occurrence and Magnitude of Parametric Rolling. Although developing procedures on parametric rolling had been originally a task of the Seakeeping Committee, it was completed by the Committee on Stability in Waves as an additional task following conferral with the Seakeeping Committee.

For preparing the final report task coordinators submitted their drafts of parts of the final report by the end of March 2005. It is noteworthy here that the benchmark testing programmes of numerical model-

ling on intact and damage stability were successfully completed by this deadline. Based on these materials, the chairman and secretary of the Committee composed the draft final report in the beginning of April and subsequently it was approved by the committee members through e-mail discussion. On 14 May 2005 the final report was submitted to the EC secretary. Contents of the final report is as follows:

1. Introduction
2. Prediction of Extreme Motions and Capsizing of Intact Ships
3. Prediction of Dynamics of Damaged Ships
4. Stability Safety Assessment
5. IMO HSC Model Test Method
6. Evacuation in Waves
7. ITTC Member Survey
8. Conclusions and Recommendations
9. References and Nomenclature

The Committee also completed the review of the IMO Draft MSC Circular - Interim Guidelines for the Conduct of IMO High-Speed Craft Model Tests - by the end of May 2005 and will suggest its improvements to the ITTC Executive Committee.

#### ***Committee on Assessment of Ocean Environmental Issues***

The Committee on Assessment of Ocean Environmental Issues (CAOEI) was tasked by the 23<sup>rd</sup> ITTC with investigating ocean environmental pollution problems caused by spilled oil, marine debris, seabed litter, and other chemicals. Under this last category, the committee considered the following pollutants: CO<sub>2</sub>, nutrients, ballast water discharges, and produced water discharges. In fulfilling its role, the CAOEI has acted as a filter, or interpreter, of broad ocean environment issues for the ITTC members at large, with the aim of identifying opportunities for the ITTC community to make contributions.

The assessment of ocean environmental issues requires a holistic, multi-disciplinary approach. At a general level, involvement of the ITTC might include specific actions that aim to catalyze the formation and strengthening of ties between ocean engineers and naval architects with scientists. More specifically, spilled oil and CO<sub>2</sub> storage were identified as having particular relevance to the ITTC. Marine debris, seabed litter, ballast water discharges, and issues related to nutrients were considered to be of continued interest. While produced waters and nutrients from land-based runoff are important environmental issues, the

consensus view of the committee was that they are of marginal relevance to the ITTC.

In its report to the ITTC, the Committee summarized the environmental pollution problems posed by the pollutants, state-of-the-art technology for management, control and recovery, existing experimental and numerical modelling techniques for prediction of the distribution of the pollutants, and field equipment or sensors related to the detection and measurement of the pollutants in the marine environment.

The Committee met four times in the course of its work: in Vancouver, Canada, 10-11 April 2003; Kyushu, Japan, 8-9 January 2004; St. John's, Canada, 6-7 August 2004; and Southampton, England, 10-11 January 2005. The members of the Committee acknowledge the hospitality of our hosts, the cooperation of our organizations, and the able Chairmanship of Dr. Chang-Gu Kang.

#### ***Ice Committee***

The 3<sup>rd</sup> and last meeting for the 24<sup>th</sup> ITTC ice specialist committee took place on February 18 and 19, 2005, in Dalian, China. Dr. Y. Qian-jin of Dalian University of Technology (DUT) hosted the meeting. It should be pointed out that the committee received a very warm welcome from the DUT staff and the hospitality of Dr. Qian-jin was very much appreciated.



The main item on the agenda for the meeting was to discuss the committee's conclusions and develop a set of recommendations for future ITTC ice committees. Dr. Qian-jin gave an excellent presentation regarding ice regimes, ice conditions and ice loads on tubular jacket structures in the Bohai Sea, China. Severe and continuous vibrations of the structural elements due to ice breaking are the main engineering concern/problem. This was very apparent (and somewhat frightening) in the videos of actual jacket structures under ice loads, shown by Dr. Qian-jin. The committee recommended that future ITTC ice committees should look at developing new designs aimed at reducing vibrations and avoiding resonance of jacket structures due to ice breaking.

Dr. Jens-Holger Hellmann (from the Hamburg Ship Model Basin, HSVA, Germany) showed a video of an interesting experimental program conducted at the HSVA's ice tank. Ship resistance tests in brash ice were performed, and the stern of the ship is used for ice breaking - the ship was equipped with 2-podded propellers). It was recommended that the HSVA testing program and results should be used to develop a procedure for ship resistance in brash ice.

As a part of the 24<sup>th</sup> ice specialist committee work, a series of ice-propeller interaction tests were performed in both Helsinki University of Technology (HUT, Finland) and Institute for Ocean Technology (IOT/NRC, Canada) ice tanks. It was recommended that the test results from both laboratories should be combined and used to develop an ITTC procedure for testing of podded propellers in ice.

The committee developed a new procedure for experimental uncertainty analysis in ice tank tests. The new procedure was recommended to the EC/AC, it was accepted.

The 24<sup>th</sup> ice committee achieved all of its tasks successfully. There are no outstanding issues. The committee completed and submitted its final report. All recommendations for future work seem to be very interesting and challenging at the same time. All members expressed their wishes to continue working together within framework of the ITTC ice specialist committee.

All committee members thank very much the ITTC for the opportunity to work with a great team and visit ice tanks and towing tanks in Finland, Germany, Japan, China, and Canada. It was a great learning experience. Equally important, the team members are developing various lateral R&D collaborations in ice engineering.

### *Committee on Validation of Waterjet Test*

The Committee for Validation of Waterjet Test Procedures (Waterjet Committee in short) was given the task to finalize the standardization tests and to develop procedures and nomenclature (where needed) for the performance prediction of waterjet driven vessels. The standardization tests should also be used to feed the uncertainty analysis. The requested deliverables have been submitted in the second half of May.

The main focus in the report is on three aspects of the overall powering prediction. First, the physical model that was already proposed by the 21<sup>st</sup> ITTC has been scrutinized and updated. Secondly, the collected results on the ITTC propulsion tests have been analysed and evaluated on simplicity and uncertainty. And thirdly, a similar analysis was made of the results from the pump and the waterjet system tests that were collected from three and two members respectively.

Perhaps the most important difference with the model for propulsion test analysis from the 21<sup>st</sup> ITTC is that the current proposal systematically breaks down the individual performance of the waterjet system components leading to a set of relations where the overall powering characteristics is explicitly expressed as the product of free stream characteristics and waterjet-hull interaction. The most important finding from the collected propulsion test results is that four out of seven institutes showed an essentially similar flow rate signal for the propulsion tests. This crucial measurement is considered to be difficult and prone to significant bias errors. However, the good repeatability between the four members showed the feasibility of the momentum flux approach. The scatter in final results appeared to be largely caused by the different "self propulsion points ship" that were used in the analysis of the test results. The current report and procedures attempt to take away uncertainty caused by the determination of the self propulsion point.

The Committee hopes and expects that this work will contribute to a better acceptance and to a wider belief in the reliability of waterjet propulsion tests. She also realizes that the last word is not yet spoken on some of the issues that are discussed in the report. Especially the choice of working point is still debated. Yet, she trusts that the guidelines given, help in resolving any remaining debates in a quick and efficient way.

### ***Committee on Cavitation Erosion on Propellers and Appendages on High Powered/High Speed Ships***

The final meeting of the committee was held in the Froude Building at the University of Southampton on the 3rd and 4th February and hosted by Dr Stephen Turnock. All members of the committee were able to attend.

The mainwork was an intensive collective editing process for the final report as well as generating the final conclusions and recommendations for the 24<sup>th</sup> ITTC. An initial start was also made on collecting material for the presentation for September. The work of the committee concentrated on firstly examining the fundamental physical scaling laws that control cavitation erosion, considerable use was made from the successful cavitation workshop at Bassin d'Essais des Carenes in May 2004. The next major section described the development and basis of a new procedure (7.5-03) for predicting cavitation-induced erosion damage on propellers, rudders and appendages.

The committee wishes to thank all those individuals and organisations who contributed to this process through detailed response to the questionnaire that was circulated to all members of ITTC. The final component of the report is a section that provides guidance for designers on how to avoid, control or mitigate cavitation erosion damage.

### **ITTC fee**

The introduction of an ITTC fee has been discussed by the Advisory Council and the Executive Committee. On the recommendation of the Advisory Council the Executive Committee decided at its meeting in Newcastle in April 2005 that an ITTC membership fee shall be proposed to the full Conference in Edinburgh. The level of the proposed fee will be USD 600:- for the three-year Conference period.

The background for the introduction of an ITTC fee can be summarised as follows:

The ITTC has the following main tasks:

The technical work performed by the technical committees

Arranging the full Conference (every three year)

Service to members

It is fully recognized that the main cost of the ITTC is the work by the technical committees, and this cost is fully carried by the institutions, which have members in the committees.

The costs for the full Conference are paid by the participants to the Conference. However, substantial

parts of the Conference costs incur long before the Conference and cause the organizer of the full Conference a cash flow problem. Such costs include secretarial costs, booking fees etc.

The service to the members includes information to members (ITTC News, permanent website), maintaining the member organization list, providing a contact point for co-ordination of ITTC activities etc. In the past these services have been provided partly by the EC secretary and partly by the AC secretary. The costs of these services have been covered by the Conference fee and the AC membership fee.

The ITTC fee is proposed in order to maintain the service to ITTC members, to some extent lighten the Conference organizer's cash flow problem and to have a more fair distribution between ITTC members of the costs.

Further details of the costs and an explanation of how the fee will be administered will be put on the ITTC web site in the beginning of August. Comments from ITTC members are welcome and should be sent to the AC secretary (e-mail: [willem.van.berlekom@sspa.se](mailto:willem.van.berlekom@sspa.se)).

### **Next issue of the ITTC News**

The next issue of the ITTC News, No 53, is planned to be published on December 15, 2005. Deadlines for contributions is November 30, 2005.

## Conference Programme

### Sunday 4th of September 2005

14.00-16.00	Advisory Council Meeting	Registration
16.30-17.30	Executive Committee Meeting	Registration
18.00-20.00	<a href="#">Reception Edinburgh Castle</a>	
21.00-22.00	Fireworks Display	

### Monday 5th of September 2005

08.00-09.00	Registration
09.00-10.00	Welcome and Opening
10.00-10.45	Executive Committee report
11.15-12.45	Resistance Committee
12.45-14.00	Lunch
14.00-15.15	Powering, Performance and Prediction
15.45-17.15	Seakeeping Committee
17.15-	Free

### Tuesday 6th of September 2005

09.00-10.15	Validation of Waterjet Test Procedures
10.45-12.15	Propulsion Committee
12.15-13.30	Lunch
13.30-14.45	Assessment of Ocean Environmental Issues
15.15-16.30	Quality Systems Group
	Group Discussions 1 & 2 (parallel sessions)
16.30-18.00	GD1- Full Scale Trials GD2- Vortex Induced Vibrations
18.00-	Free

**Wednesday 7th of September 2005**

09.00-10.15	Azimuthing Podded Propulsion
10.45-12.15	Manoeuvring Committee
12.15-13.30	Lunch
13.30-14.45	Stability in Waves
15.15-16.45	Group Discussion 3 GD3- New Facilities
19.00-22.00	<a href="#">Reception Royal Yacht Britannia</a>

**Thursday 8th of September 2005**

08.00-09.00	Advisory Council Meeting
09.30-12.30	Executive Committee Meeting
12.30-13.30	Lunch
14.00-22.00	Conference Tour

**Friday 9th of September 2005**

09.00-10.15	Cavitation Erosion on Propellers and Appendages on High Powered - High Speed Ships
10.45-12.15	Ocean Engineering Committee
12.15-13.30	Lunch
13.30-14.45	Ice
15.15-16.45	Group Discussion 4 GD4- ITTC Guidelines and Procedures
19.00-23.00	<a href="#">Banquet Hopetoun House</a>

**Saturday 10th of September 2005**

09.00-10.15	Plenary Session Closing
10.45-12.15	Executive Committee and new Technical Committees Meetings
12.15-13.30	Lunch
14.00-	<a href="#">Post Conference Tours</a> (Optional)