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## Message from the Chairman

When you will receive this issue of our newsletter, we will be well beyond mid term towards the next ITTC general meeting. I would like to thank you all for your active co-operation in the Conference's life.

I am particularly grateful to those members of the Advisory Council that have submitted the information requested for the review of their Advisory Council membership, thus renewing the commitment to serve the ITTC community.

Ulderico Grazioli, Chairman  
23rd ITTC Executive Committee

## News from the Executive Committee

Some issues promoted at the last meeting of the Executive Committee in Val de Reuil are currently in progress. The relevant information is reported in the following.

### *Review of Advisory Council Membership*

The EC Secretary will send a letter to the EC members, to transmit them the forms prepared by the selected Advisory Council member organisations, which include information requested for the review of their Advisory Council membership. The discussion will take place at the next meeting of the EC and a report, giving results of the EC review, will be presented at the EC meeting in March 2002.

### **Newsletter editor:**

Dr. Enrico De Bernardis  
Istituto Nazionale per Studi ed Esperienze  
di Architettura Navale (INSEAN)  
Via di Vallerano 139  
I-00128 Roma, ITALY

### *Membership of Technical Committees*

The Executive Committee approved replacement of members in two Technical Committees. Mr. Niclas Olofsson, left Rolls-Royce Hydrodynamic Research Centre, and resigned from the Committee for Validation of Waterjet Test Procedures. Mr. Reima Aartojärvi, (e-mail: reima.aartojarvi@rolls-royce.com), from the same organisation, has taken over; Dr. Pier Giorgio Esposito, left INSEAN, and resigned from the Propulsion Committee. Dr. Francesco Salvatore (e-mail: f.salvatore@insean.it), INSEAN, has replaced him. A summary of changes in Technical Committees membership is given in another section.

### *23rd ITTC Web Site*

The web site for the 23rd Conference is going to be established in July 2001. It will be hosted by INSEAN (URL address: <http://www.ittc-2002.insean.it>), and managed by the Secretary of the Executive Committee. This new ITTC-2002 web site will stand beside the (permanent) ITTC web site (<http://ittcdoc.org>), which is administered by the Secretary of the Advisory Council.

### *Host Organisation for the 24th ITTC in 2005*

Answering the invitation of the Executive Committee, the Central Europe Area has proposed a candidate member organisation to host the 24th ITTC in 2005. It is the University of Newcastle upon Tyne. The nomination will be discussed at the next EC meeting.

### *Next Meeting*

The 3rd meeting of the Executive Committee will be held in Washington, DC, USA, on the 23rd October 2001. Among other issues, the following topics will be discussed:

- Review of Advisory Council membership.
- Arrangements for the 23rd ITTC in 2002.
- Invitation for hosting the 24th ITTC in 2005.

### **Published by:**

Executive Committee Secretariat  
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Web Site URL: <http://www.ittc-2002.insean.it>

## News from the Advisory Council

The next meeting of the Advisory Council will be held in Washington, DC, USA, on October 22 and 23, 2001.

The item to be discussed at the meeting will include:

- Report from the three wise men (see *ittc - news* No. 43, December 2000).
- Future Specialist Committees and their tasks, a first discussion.
- The ITTC web site(s).

A new representative will take part in the next AC meeting: Ir. G.F.M. Remery, President of MARIN, will replace Dr. S.G. Tan, who retired as announced at the last AC meeting.

## News from the Technical Committees

### *Resistance Committee*

The third meeting of the Resistance Committee was held on 12-14 March 2001 at ETSIN, Madrid, Spain and hosted by Prof. Luis Perez-Rojas. Eight of the nine members attended.

All section leaders presented summaries of the progress made. For sections reviewing new developments in modelling of relevance to resistance, trends in EFD, trends in CFD and far field waves and wash, discussions were held concerning the material under consideration, including lists of topics, journals and conferences, and of papers and reports organised according to topical subsections.

The section developing Quality Manual procedures for towing tank tests reported progress on new procedures developed for test uncertainty analysis spreadsheets for carriage speed, resistance, sinkage and trim, wave profile and elevations, and nominal wake. The spreadsheets are being used by most members of the Committee for preparation of co-operative uncertainty analysis examples for each test.

The section finalising QM procedures for CFD verification and validation discussed progress and issues. A revised procedure is nearly completed. The section reviewing extrapolation methods, uncertainty analysis, and full scale testing reported progress on summarising data reduction equations and consideration of propagation of errors. Additional discussions were held by the Committee concerning the Gothenburg 2000 Workshop on CFD in Ship Hydrodynamics and new developments in friction and model-ship correlation lines.

Group meetings were held for all sections to analyse the work to be done and to fix the time schedule. Ac-

tion items and schedules were approved for each section.

The web site of the Committee ([www.ittc-rc.insean.it](http://www.ittc-rc.insean.it)) has been updated with the new material, including lists of references, drafts of section reports, and list of action items and schedules of each section.

A "virtual" meeting, in which each section leader will electronically submit to the Committee the progress on action items and time schedule, has been decided for the 15th of June. Draft report will be distributed for all sections, including conclusions and recommendations by the 15th of September. The next Committee meeting will be held during the week of 8-12 October 2001 at the Ship Design and Research Centre, Gdansk, Poland. In the event that insufficient progress is made at the time of the virtual meeting, an additional meeting will be held on 15-17 August at the Iowa Institute of Hydraulic Research, Iowa City, USA and the October meeting may be delayed.

### *Propulsion Committee*

The 23rd ITTC Propulsion Committee is planning its third meeting on June 13-15 in St. Petersburg, Russia. The Committee's efforts were described in the December newsletter, and the Committee is awaiting the next meeting to show progress in relevant tasks. Under Task 2, the Committee is awaiting input from the two cavitation specialist Committees, in order to review revisions to the Model Scale Cavitation Pattern Tests, Procedure 4.9-0.3-03-03.1.

Pier Giorgio Esposito notified the Committee that he was leaving INSEAN and would be unable to remain on the Committee. INSEAN proposed Dr. Francesco Salvatore as a replacement. The ITTC Executive Committee has approved the appointment. Fortunately we were able to make the necessary arrangements for Dr. Salvatore to attend our meeting in St. Petersburg, thus maintaining continuity for the Committee.

### *Loads and Responses Committee*

The Loads and Responses Committee had its first two meetings at 11-12 January 2000 in Madrid (Spain) and at 16-17 October 2000 in Osaka (Japan) under chairmanship of Prof. Wataru Koterayama (e-mail: [Kotera@riam.kyushu-u.ac.jp](mailto:Kotera@riam.kyushu-u.ac.jp)).

Since then papers and reports were collected for preparing an up-to-date bibliography. Research on new facilities for VLFS and deep risers has been carried out, and papers on hydro-elasticity of these structures have been studied. Reviews and new procedures applied to "regular wave tests", "predicting power increase in irregular waves from model experiments in regular waves", "experiments on rarely occurring events", "offshore model testing" and "validation of

2-D seakeeping computer codes" are in good progress. Proposals will be ready for discussion at the third meeting at 14-15 September 2001 in Wuxi (China).

Parts have been reported already to the Secretary of the Committee for discussion and inclusion in a draft report.

The 4th and last meeting will be held in January 2002 in Helsinki (Finland) for a discussion of the final L&R Committee report.

### ***Committee on Water Quality and Cavitation***

The Committee will have its 3rd meeting in Pasadena on 24-25 June 2001 in conjunction with CAV 2001, the 4th International Symposium on Cavitation, which is being organised by Dr. Steven Ceccio of Michigan University.

Since the last meeting at Val de Reuil in last September, the members have been working on their allocated duties addressing the four main tasks of the Committee. As part of these tasks a new set of questionnaires has been prepared and distributed to key institutes to survey different practices for establishing the cavitation inception data for propellers as well as for measuring the water quality and conditions to minimise scale effects (Task 1). In the forthcoming meeting the results of this questionnaire are to be discussed. Also the results of another questionnaire, which was distributed for surveying the techniques and procedures to control and adjust the water quality, will be reviewed. Data available on measured nuclei on tunnel and at-sea will be discussed (Task 2). Further analysis of new extrapolation methods for the cavitation inception and that of the rationality of Keller's extrapolator have been underway to conclude (Task 3). The members have been collecting fundamental test data to document the effects of flow mechanisms to clearly define intermittence and stability of the cavitation inception and other parameters involved in the inception phenomena (Task 4). These have been submitted for discussion in the next meeting.

The Committee Chairman has been in touch with other ITTC Committees, *e.g.* the Cavitation Induced Pressures Committee and the Propulsion Committees to avoid any overlapping, as well as the ISSC and IAHR. A progress report to the Advisory Council has been submitted by the Chairman in April 2001.

In the meeting in Pasadena, based upon the discussion of the contributions in the above tasks, the Committee will draw early conclusions and recommendations for the executive Committee. A report outline has been drafted by the Chairman and some of these contributions will be ready to be put in the draft report after the 3rd meeting. The Committee plans to have a 4th and final meeting with a limited number of members to review the report later in 2001.

### ***Cavitation Induced Pressures Committee***

During the first meeting in Hamburg, the Committee discussed several ways to address the task and it was agreed that two questionnaires (one on numerical and one on experimental procedures) would be developed and distributed to the ITTC member organisations. The second Committee meeting was held on 29-30 November 2000 in Rome, hosted by the Italian Ship Model Basin (INSEAN). All seven members of the Committee attended. The focus of the meeting was on the evaluation of the responses to the Questionnaires and on the Committee report. The Questionnaires were sent out to 102 tankery organisations asking for the numerical and experimental methods in use to predict propeller cavitation and cavitation-induced hull pressures. Up to now more than 36 organisations responded positively and 12 negatively primarily because they do not have suitable experimental facilities. Several more responses are still expected. The rate of responses was very good, when compared with similar surveys by other Committees in the past.

During the meeting in Rome the evaluation of the responses was made. Presentation and grouping of the survey results were discussed. The framework of developing two procedures (experimental and numerical) for predicting the cavitation-induced hull pressure was also finally decided. A general discussion on the outline of the procedures was made and it was decided that the procedures would deal only with the measurement of pressure fluctuations generated by the cavitating propeller. The procedure will not include details on how to create the wake. But in the main text of the Committee report however more of the surrounding details will be described. The procedure in the existing Quality Manual would be used as a starting point. It was decided that the cavitation test procedure will not be included in the report since it will be a part of the Propulsion Committee Report and that the full-scale measurement procedure will not be repeated since it was already studied and reported by the 22nd ITTC Committee Report.

The report outline was discussed and the different sections were defined. Members were identified being responsible for writing the different sections. It was also decided to include in the final report recent publications in the area but only work published after the 22nd ITTC meeting. Each member has to prepare a preliminary outline of his section of the report by the third meeting in June 2001.

Information is exchanged with the general Committee on Propulsion of the ITTC. This is done mainly for the procedure on how to perform cavitation tests, developed by that Committee.

Up to now, the Committee sees no problems to complete the assigned tasks.

The 3rd meeting will be held in Pasadena, California, USA on 18-19 June 2001 in conjunction with the Cavitation 2001 Symposium (20-22 June 2000) at Caltech. The 4th meeting is scheduled for 31 October-2 November 2001 in Tokyo, Japan. If necessary, a 5th meeting will be held in January 2002, in a place to be determined. This meeting is optional and depending upon the progress of the Committee report.

### ***Committee on Procedures for Resistance, Propulsion and POW Tests***

The third meeting of the specialist Committee was held on the 7th, 8th and 9th of May, 2001 at SSPA in Gothenburg and hosted by Mr. Lars Gustafsson. Five members of the Committee attended.

The meeting reviewed the progress of the tasks of the Committee and discussed the final details of the proposed procedures for model manufacture, resistance tests, propulsion tests, propeller open water tests and resistance tests on HSMVs. Sources of suitable data for establishing uncertainty analysis examples for the various tests are currently being explored and finalised.

Satisfactory progress has been made by the Committee and drafts of the proposed recommended procedures will be completed by the end of May, 2001. These draft procedures will then be sent by mid June to selected tanks representing a cross-section of the tank testing community, in order to invite comments and feedback on the proposals.

The Committee has liaised with the Resistance and Propulsion Committees on areas of mutual interest. It will continue to liaise with these, other Committees and the Quality Systems Group regarding the content, structure and final layouts of the recommended test procedures.

The next meeting of the Committee will be held at the Vienna Model Basin on the 5th, 6th and 7th of November, 2001.

### ***Committee for Prediction of Extreme Ship Motion and Capsizing***

**Questionnaires.** Two questionnaires have been developed, one addressing numerical prediction of extreme motions and capsizing, and one addressing model tests. To date the response to these questionnaires has been disappointing.

**Benchmark Tests.** Two sets of benchmark tests have been established: one for intact ships, and one for damaged ships. Both involve two different vessels.

The aim of these tests is for member organisations to test their numerical prediction methods against existing physical model test results. In this way, the numerical techniques will be validated.

To date six organisations have reported their results for the benchmark tests with the intact ships, and further two stated they are working on them and hope to have them finalised soon.

Five organisations have reported their results for the benchmark tests with damaged ships.

**Next meeting of the Committee.** The fourth meeting of the Committee on the Prediction of Extreme Ship Motions and Capsizing will be held in Glasgow, Scotland in May, 2001. The results to date for the benchmark tests will be collated and a report will be presented at the 5th International Workshop on Stability and Operational Safety, to be held at the University of Trieste, Italy, in September.

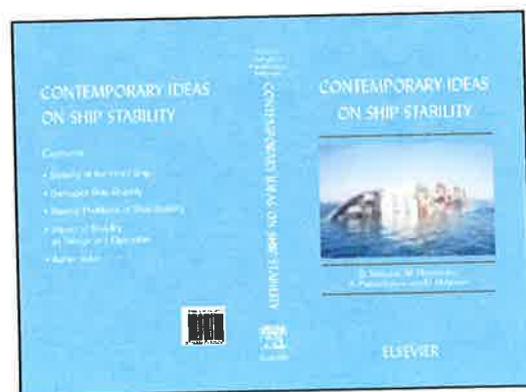
**Future Contact Details for the Committee.** As the Secretary of the Committee, Dr. Martin Renilson, will be leaving AMC in June to take up a position in DERA, UK, his contact e-mail will change from then to: [MRRenilson@dera.gov.uk](mailto:MRRenilson@dera.gov.uk). Contact with the Committee can also be made through the Chairman, Prof. Dracos Vassalos (e-mail: [d.vassalos@strath.ac.uk](mailto:d.vassalos@strath.ac.uk)).

**New Committee's web site.** The Chairman, Prof. D. Vassalos, has taken the responsibility to set up and serve web site for the Specialist Committee on the Prediction of Extreme Motions and Capsizing. The URL address of the website will be:

[www.strath.ac.uk/Other/SSRC/ITTC/SCEXCAP/](http://www.strath.ac.uk/Other/SSRC/ITTC/SCEXCAP/)

The site is under construction at the moment.

**New book on ship stability by the members of the Committee.** It is being published by Elsevier and includes, as the editors and/or authors, five members of the ITTC Committee for Prediction of Extreme Ship Motions and Capsizing. The cover design, table of contents and preface are reported in the following.



**CONTEMPORARY IDEAS ON SHIP STABILITY**

*Edited by D. Vassalos, M. Hamamoto, A. Papanikolaou and D. Molyneux*

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## Contemporary Ideas on Ship Stability

### *Preface*

Widely publicised disasters serve as a reminder to the maritime profession of the imminent need for enhancing safety cost-effectively and as strong indicator of the existing gaps in the stability safety of ships and ocean vehicles. The problem of ship stability is so complex that practically meaningful solutions are feasible only through close international collaboration and concerted efforts by the maritime community, deriving from sound scientific approaches. Responding to this and building on an established track record of co-operative research between UK and Japan, a Collaborative Research Project (CRP) was launched on 1 April 1995, jointly supported by the British Council, the Japanese Ministry of Transport and the Japanese Science and Technology Agency, aiming to foster international co-operation to investigate systematically the stability, survivability and operational safety of ships and to evolve design and operational guidelines for reducing the risk of ship losses. The project was co-ordinated by Professor Dracos Vassalos of Ship and Marine Technology at the University of Strathclyde in UK and Professor Masami Hamamoto of Naval Architecture and Ocean Engineering at Osaka University in Japan with participating institutions including The Centre for Non-Linear Dynamics at University College London in UK and Osaka Prefecture University, Ship Research Institute and National Research Institute of Fisheries Engineering in Japan.

As part of the CRP, Professor Vassalos organised a two days workshop at Ross Priory of the University of Strathclyde in July 1995 by inviting international experts on ship stability to address the timely and sensitive issue of ship capsizing and to formalise ways for accelerating developments in the future. Twelve countries were represented, including all major shipping nations, with experts covering the whole spectrum of ship safety. This provided the foundation for the formation of the International Stability Workshops aiming to address contemporary ideas related to the stability and operational safety of ships in depth by promoting (Round-Table-) discussion by internationally recognised experts on a restricted number of invited papers that address specific problem areas of ongoing front-end research, development and application. Furthermore, to provide an enabling platform for promoting international collaboration on ship stability and for nurturing a continuous dialogue with the International Maritime Organisation (IMO) to facilitate an effective transfer of theoretical advances to practical rules and design procedures and guidelines. Following the 1st workshop, three others have been organised and plans are in place to continue in the

foreseeable future with the workshops as well as with the publications of additional volumes by adopting the same format as presented here.

This volume includes selected material from the first four workshops: 2<sup>nd</sup> in Osaka Japan, Osaka University, November 1996 by Professor Masami Hamamoto; 3<sup>rd</sup> in Crete Greece, Ship Design Laboratory of the National Technical University of Athens (NTUA-SDL), October 1997 by Professor Apostolos Papanikolaou; and 4<sup>th</sup> in Newfoundland Canada, Institute for Marine Dynamics, September 1998 by David Molyneux. It contains 46 papers that represent all currently available expertise on ship stability, spanning 17 countries from around the world. The framework adopted for grouping the papers aims to cover broad areas of ship stability in a way that it provides a template for future volumes, namely: (1) *Stability of the Intact Ship*; (2) *Damage Ship Stability*; (3) *Special Problems of Ship Stability*; and (4) *Impact of Stability on Design and Operation*.

We would like to express our gratitude and sincere thanks to all the speakers, especially to speakers from the industry; to all the participants of the workshops; to the members of the International Standing Committee and International Advisory Board for the Stability of Ships and Ocean Vehicles; and to Dr. Ismail Helvacioğlu for his assistance in the final compilation of this volume.

A special thanks is reserved for all sponsoring organisations for their contribution in making these workshops a memorable experience.

*Professor Dracos Vassalos*

Chairman of the International Standing Committee for the Stability of Ships and Ocean Vehicles (on behalf of the editorial Committee)

## News from Member Organisations

After publishing the lists of ITTC member organisations (No. 43, December 2000), few changes have been noticed before the preparation of this issue. They are reported in the following.

As it is mentioned in the section "News from the Advisory Council", Dr. S.G. Tan was replaced the new president of MARIN, Ir. G.F.M. Remery, as MARIN representative in the Advisory Council. The same change holds for the position of ITTC delegate. So the reference of MARIN in the list of member organisations is updated as follows:

### Maritime Research Institute Netherlands (MARIN)\*

P.O. Box 28  
 NL-6700 AA Wageningen  
 Attn.: Ir. G.F.M. Remery, President  
 Tel.: +31 317 493 219; Fax: +31 317 493 345  
 E-mail: G.F.M.Remery@marin.nl  
 URL: <http://www.marin.nl>

After the move of Dr. Martin Renilson to DERA (as mentioned in the section "News from Technical Committees", Dr. Gregor Macfarlane has become the new ITTC delegate from the Australian Maritime College. The complete reference for AMC is updated as follows:

#### Australian Maritime College

P.O. Box 986  
 Launceston, Tasmania 7250  
 Attn.: Dr. Gregor Macfarlane  
 Tel.: +61 36 335 4880; Fax: +61 36 335 4720  
 E-mail: G.Macfarlane@mte.amc.edu.au  
 URL: <http://www.amc.edu.au>

### Address Corrections

In the following a correction is reported, which refer to addresses appeared on *itc - news* no. 43 (December 2000), in the section "Member Organisations Overview". Data concerning Vosper Thornycroft ltd. were partly obsolete and incomplete. The updated reference for VT is as follows:

#### Vosper Thornycroft (UK) Ltd.

Victoria, Woolston  
 Southampton SO19 9RR  
 Attn.: Mr. Nick Ireland  
 Tel.: +44 23 8042 6000; Fax: +44 23 8042 6010  
 E-mail: [nick.ireland@vosperthornycroft.com](mailto:nick.ireland@vosperthornycroft.com)  
 URL: <http://www.vosperthornycroft.co.uk>

### Catalogue of Facilities

The ITTC Catalogue of Facilities is updated in this issue of *itc - news*. The annex reports the description of the following renewed facility:

#### Towing Tank no. 1 (1974)

Istituto Nazionale per Studi ed Esperienze di Architettura Navale (INSEAN), ITALY

Organisations changing or extending their facilities, as well as those that have never provided relevant information, are kindly requested to send a description of their facilities in the standard format to the Executive Committee Secretariat.

### Note from the Secretary

With the present issue of *itc - news*, it starts the second half of the period of my appointment as editor of this newsletter.

I would like to thank to all the chairmen and secretaries of Technical Committees who actively take part in the preparation of this paper.

A special thank to the secretary of the Advisory Council, Mr. Willem van Berlekom, for his helpful co-operation.

Moving toward the most involving period of the 23rd ITTC, I take advantage to invite all TC chairmen to consider this newsletter an important tool for exchanging information concerning activities going on within the ITTC community, and to send their contributions for the next two issues.

As an overview of the participation of Technical Committees in the preparation of the newsletter, the contributions provided to the issue of *itc - news* nos. 41 to 44 is summarised in the table below.

Technical Committee	<i>itc - news</i> no.			
	41	42	43	44
Resistance	×	×	×	×
Propulsion	×		×	×
Manoeuvring				
Loads and Responses	×		×	×
Speed and Powering Trials	×			
Procedures for Resistance, Propulsion and POW Tests		×	×	×
Validation of Waterjet Test Procedures	×		×	
Cavitation Induced Pressures	×	×	×	×
Water Quality and Cavitation	×	×	×	×
Ice	×	×	×	
Waves	×		×	
Stationary Floating Systems	×	×		
Esso Osaka				
Prediction of Extreme Ship Motions and Capsizing	×	×	×	×
Quality Systems Group		×		

### Deadline of Next Newsletter

The deadline for submitting material to the December 2001 issue (No. 45) is 15 November 2001.