ittc-news

INTERNATIONAL TOWING TANK CONFERENCE

July 2008 No. 58

CONTENTS

Obituaries

Dr. Tetsuro Hanaoka

Dr. Tetsuro HANAOKA, former Professor of Kagoshima University and former Director of the Ship Dynamics Division of Ship Research Institute, Ministry of Transport, Japan, passed away on April 28, 2008, at the age of 92.

Dr. Tetsuro HANAOKA graduated from Yokohama Technical High School, the predecessor of Yokohama National University, in 1940. After getting through the wartime and postwar shambles, he studied as a special research student at Nagoya University and started his scientific career in 1947 at the Railway Technical Laboratory, the predecessor of Transportation Technical Research Institute and subsequent Ship Research Institute (present National Maritime Research Institute, Japan). After his retirement from Ship Research Institute in 1979, he moved to Kagoshima University as a professor in the Faculty of Engineering.

His name is engraved on the well-known "Haskind-Hanaoka-Newman's relation". That is one of the most important theorems in ship hydrodynamics representing a reciprocity theorem on the wave-exciting force and the radiation wave of a ship with forward speed. As shown in this instance, his outstanding contributions to ship hydrodynamics are firstly in the theory of unsteady wave resistance and ship dynamics in waves. We are reminded of a fact that the unsteady wave field around a ship advancing in waves is governed by a parameter $\Omega=\omega V/g$ known as Hanaoka's parameter. Another outstanding contribution in naval hydrodynamics is the theoretical development of unsteady propeller lifting-surface theory. He solved unsteady flow problems around a propeller by utilizing the acceleration potential as a magic stick and established an elegant treatment for the singularity in the complicated kernel function appearing in an integral equation. The computational results based on his theory contributed to the comparative study on the propeller shaft force conducted at the 14th ITTC Propeller Committee and demonstrated one of the best correlations with measurements. He also developed a beautiful and fully analytical cavity flow theory on two-dimensional hydrofoils of arbitrary shape. Computed results on three-dimensional hydrofoils by an extended method based on his cavity flow theory also contributed to the 14th ITTC Cavitation Committee. Most of his noteworthy achievements have been continuously enlightening us.

We express our deep sorrow over the passing of Dr. Tatsuro HANAOKA.

Dr. Kaname Taniguchi

It is my deepest regret that I have to inform you Dr. Kaname Taniguchi, the re-founder of Nagasaki basin of Mitsubishi, passed away at the age of 94, on April 29, 2008

Newsletter editor:
Mr Aage Damsgaard
FORCE Technology
Hjortekaersvej 99
2800 Kgs. Lyngby, Denmark

Published by:
ITTC Secretariat
25th International Towing Tank Conference
Tel.: +45 72 15 77 00 Fax: +45 72 15 77 01
E-mail: aad@force.dk
Web Site http://ittc.sname.org.

Dr. Kaname Taniguchi entered Mitsubishi Heavy Industries Ltd. after graduating from the University of Tokyo in April, 1937 and started working in the model basin. At the time, the model basin of Mitsubishi was a copy of No.1 Tank in Hasler, which had been completed in Nagasaki shipyard in 1908. Shortly after, the planning of a new larger model basin in a site separate from the shipyard was started and the construction of the present basin was completed in December, 1943. However, in less than two years, the above-ground part of the tank was completely destroyed by an Atomic bombing in August 9th, 1945.
After the war, he devoted himself to the revival of the tank, and completed the revival of a part of the smaller basin in 1949 and whole facility in 1953. Then, he tried to manage the whole process of the tank tests as well as possible, from hull and propeller design, model manufacturing, equipments for the measurements, conducts of model tests, analyses of the measured data and power estimation of the full-scale ship. After completing the whole procedures of works within the model tank, he proceeded to the improvement of the measurement in Sea Trial and developed the use of what we call "Togino-type torsion meter" and accumulated the full-scale trial data. His paper titled "Model-Ship Correlation Method in the Mitsubishi Experimental Tank" was published in 1963 and marked as the first paper of this kind.
He served as a leader of the model tank until May 1965 and then he undertook the higher and wider responsibility in Mitsubishi. He retired from Mitsubishi in June 1981 after serving as the vice-president of the company. After the leave from the tank and even after the retirement from Mitsubishi, he continued to be a backbone of us, Nagasaki Basin.

He attended International Towing Tank Conference for the first time at 7th ITTC (1954, Scandinavia). In 1958, he joined the "Committee of Scale Effects on Propellers and on Propulsion Factors" of 9th ITTC (1960, Raris) in response to the request by the chairman, Dr. H. Edstrand. He continued the contribution to ITTC as a member of Propulsion Committee in 10th ITTC (1963, Teddington), a member of Performance Committees in 11th ITTC (1966, Tokyo) and 12th ITTC (1969, Rome). Then, he served as a member of Executive Committee in 13th ITTC (1972, Berlin Hamburg) and 14th ITTC (1975, Ottawa) representing Japan, Korea and China. However, shortly after the start of the 14th term, he got an ill and handed over the Executive Committee membership to Prof. Seizo Motora.
He also served as a primary member of the Local Organizing Committees of 11th ITTC and 18th ITTC (1987, Kobe).

Naoji Toki

25th Conference Organisation

Preparation of the 25th IIIC Conference to be held in 2008 Fukuoka is proceeding successfully by the local organizing committee in Fukuoka led by Professor Masashi Kashiwagi. The latest Conference Programme and the information of the Conference are on the Website at http://ittc.sname.org where a link to the conference is found. The final reports from the technical committees and group and the appendices are linked to the page of 'Reports' at the above 25th ITTC Website, as is the programme. The group discussions of the following three topics will be held during the Fukuoka Conference

- Impact of CFD on Ship Hydrodynamics
- Image-based Measurements around Ship Hulls
- Global Warming and Impact on ITTC Activities

215 participants have already registered by July 20th. The information of accompanying persons program has been updated in the Website and sent to the expected participants.

News from the Executive Committee

The Executive Committee held its fourth meeting in Copenhagen, Denmark, on 28th March, 2008. The agenda mostly concerned the arrangements for the forthcoming conference, which are proceeding according to plans. The EC approved that the following Group Discussions are organised:

- Impact of CFD on ship hydrodynamics
- Image-based measurements around ship hulls
- Global warming and impact on ITTC activities

The venue of the 26th Conference was further discussed and it was agreed to continue to consider Rio de Janeiro, Brazil, as the first choice, with some alternatives available in case this should not be finally accepted.

An application for membership of the Advisory Council from AMC, Australia, was accepted as was an application of membership of the ITTC from Jiangsu University of Science and Technology, China. This brings the number of Chinese members to nine.

The EC continues to support ITTC representation at IMO, specifically the participation of a member of the Specialist Committee on Stability in Waves in the SLF-meetings.

The next meeting of the EC will be in Fukuoka, Japan, on 14th September, in connection with the opening of the 25th Conference.

News from the Advisory Council

The Advisory Council held its third meeting in Copenhagen, Denmark, on 26th to 28th March, 2008. The rather heavy agenda included the review of the final draft procedures submitted by the technical committees, review of recommendations and conclusions from the technical committees, Terms of Reference for and structure of the technical committees under the 26th ITTC, the final review of the proposal for new ITTC Rules and, finally, elections for the next AC.

A total of 41 new or revised procedures were prepared by the technical committees and reviewed by the AC. 22 of these were accepted for publication right away, 18 for publication after minor revisions, and the last for publication with a note of concern by the AC. The cooperation between the AC and the technical committees in these efforts has been excellent.

Based on the proposals from the technical committees, the Council members and ITTC members at large, the Terms of Reference for the committees of the 26th ITTC were prepared, and in this context the committee structure was decided as follows:
Permanent committees

- Resistance Committee
- Propulsion Committee
- Manoeuvring Committee
- Seakeeping Committee
- Ocean Enginering Committee

Specialist committees

- CFD in Ship Hydrodynamics
- Detailed Flow Measurements
- High-speed Craft
- Scaling of Wake Field
- Stability in Waves
- Surface Treatment
- Uncertainty Analysis
- Vortex Induced Vibrations

TOR were also prepared for the Quality Systems Group.

Throughout the period of the 25th ITTC a working group established by the Executive Committee has been working on the preparation of draft new ITTC Rules with the aim to put these forward for adoption by the 25th Conference. The final draft of the new Rules was reviewed and accepted with very few and small comments.

As both the Chairman and the Vice-Chairman of the AC will retire following the Fukuoka Conference replacements for both of these positions were needed. Prof. Dr. Gerhard Strasser of the Vienna Model Basin was elected Chairman and Dr. S.W.Hong of MOERI was elected Vice-Chairman of the 26th AC. Mr. Aage Damsgaard of FORCE Technology was nominated as secretary for the 26th ITTC.

The next meeting of the AC will be held in Fukuoka, Japan, on 14th September, 2008.

News from Technical Committees

Manoeuvring Committee

Proposed conclusions and recommendations for the coming ITTC in Fukuoka, September 2008, and proposed tasks for the next Manoeuvring Committee have been submitted to the AC. The Manoeuvring Committee Report

to the 25th ITTC is being completed and intensively discussed by all MC members these days and will be submitted subsequently to the EC Secretary.

The MC helped to organise the Workshop on Verification and Validation of Ship Manoeuvring Simulation Methods SIMMAN 2008 which was successfully held in Copenhagen in April 2008. The web site of the workshop www.simman2008.dk containing all information about the workshop will stay available in future. The proceedings of the workshop will be available on CD-ROM at the end of 2008 or early 2009.

Specialist Committee on Wake Fields

The Specialists Committee on Wake-Field met for the 5th time on 17-18 January 2008, in Gdansk, Poland. The meeting was held at the Ship Design and Research Centre S.A. (CTO S.A.) and hosted by Dr. Tomasz Bugalski. Final versions of the four procedures the committee was to review (Procedures 7.5-02-03-03.1, Model-Scale Cavitation Test Cavitation Induced Pressure; 7.5-02-03-03.3, Fluctuations Model Scale Experiments; 7.5-02-03-03.5, Cavitation Induced Erosion on Propellers, Rudders and Appendages Model Scale Experiments; and 7.5-02-03-03.6, Podded Propulsor Model-Scale Cavitation Test) have been accepted by the AC, as have the two procedures the committee developed. These two procedures are Procedure 7.5-02-03-02.4 Nominal Wake Measurement by LDV and Procedure 7.5-02-03-02.5 Nominal Wake Measurement by 5-Hole Pitot Tubes.

Specialist Committee on Stability in Waves

The Committee had the fourth meeting at Osaka University (Japan), on the 30-31 March 2008. Seven members physically attended this meeting. Dr. Reed who was unable to attend it, virtually took part in the discussion using e-mails during the meeting.

All members submitted their assigned sub-chapter drafts of the final report in advance and the Secretary tabled the consolidated final report draft for the meeting. The contents of the final report are as follows:

1. INTRODUCTION by Mr. Peters

2. Prediction of extreme motions and capsizing of intact ships
   - 2.1 Experimental Technique for Capsizing in Wind and Waves by Prof. Fan
   - 2.2 Experimental Technique for Head-Sea Parametric Rolling by Dr. Ishida
   - 2.3 Revision of Model Test Procedure by Prof. Fan and Dr. Ishida
   - 2.4 Benchmark Testing Plan of Numerical Codes for Predicting Parametric Rolling by Dr. Ishida

3. PREDICTION OF DYNAMICS OF DAMAGED SHIPS
   - 3.1 Recent Literature by Prof. Papanikolaou
   - 3.2 Benchmark Testing Plan of Numerical Modelling by Prof. Papanikolaou
   - 3.3 Review of Numerical Prediction Methods of Time-to-Flood by Dr. van Walree
   - 3.4 Benchmark Testing of Numerical Codes of Time-to-Flood by Dr. van Walree

4. STABILITY SAFETY ASSESSMENT
   - 4.1 Review of Techniques for Naval Ships by Dr. Reed
   - 4.2 Review of Techniques for Merchant Ships by Prof. Francescutto with help of Prof. Spyrou

5. CONCLUSIONS AND RECOMMENDATIONS by Dr. N. Umeda with the comments from the AC taken into account

6. REFERENCES AND NOMENCLATURE by Mr. Peters

The Committee discussed the draft in detail and finalised it. A major point of the discussion was the phase II of the benchmark testing of numerical codes for the time-to-flood. Due to the difficulty of dealing with a complicated interior layout of a cruise liner within a short time frame, only two participants were able to submit their results by the specified deadline. In addition, non-confidential ex-

perimental data was not available in this term. The Committee decided to regard the current result as a preliminary comparison and to state that its final conclusions should be provided when accurate experimental model benchmark data is available for comparison with wider participation. The draft report was submitted to the EC secretary on the 30 April 2008, as requested.

The Committee also drafted the document for SLF 51 of the IMO for reporting the phase II of the benchmark testing of numerical codes of time-to-flood, based on Sub-chapter 3.4 of the final report to the 25th ITTC. It was submitted to the ITTC secretary on the 10 April 2008 and is now available as SLF 51/ 8 for the IMO delegates. Dr. van Walree will attend the SLF 51 at the IMO Headquarters representing the ITTC on the 14-18 July 2008 and will introduce the document at the plenary of the SLF 51.

The Committee submitted the draft of revised recommended procedure on model tests of intact stability (7.5-02-07-04.1) to the QSG on the 30 April 2008 and then the QSG provided editorial comments. The Committee will invite the ITTC to adopt this revision of the recommended procedure at the full conference in Fukuoka.

Specialist Committee on Uncertainty Analysis

The Uncertainty Analysis Committee (UAC) met at the US National Academy of Sciences in Washington, D. C., on January 30 – February 01, 2008. Dr. Joel T. Park of the David Taylor Model Basin (DTMB) was the host for the meeting. Dr. Ahmed Derradji-Aouat of Canada, Prof. Shigeru Nishio of Japan, and Mr. Baoshan Wu of China were in attendance. Ms. Susan Campbell of the Naval Studies Board at the National Academy of Sciences was the hostess for the meeting. The primary purpose of the meeting was a discussion of the procedures developed by the committee. In addition, the writing tasks for the final report were assigned to the committee members. A tour of the hydrodynamic test facilities at DTMB was provided to the committee members. Prof. Nishio will host a meeting in Kobe, Japan, just prior to the meeting of the 25th ITTC in Fukuoka, Japan, where the committee presentations at the conference will be reviewed.

Subsequent to the meeting in the USA, the following five procedures were reviewed by the AC and the Quality Systems Group and revised by the UAC members. The first two procedures are revisions, while the other three are new.

- ITTC Procedure 7.5-02-01-01, "Guide to the Expression of Uncertainty in Experimental Hydrodrodynamics", Revision 01. This is a general guide on the application of uncertainty analyis for ITTC. The procedure has been completely re-written in conformance with the ISO "Guide to the Expression of Uncertainty in Measurement" (1995) or GUM. All procedures from the committee comply with the principles of the ISO GUM.
- ITTC Procedure 7.5-02-01-02, "Guidelines for Uncertainty Analysis in Resistance Towing Tank Tests", Revision 01. Although this is also a revision, it has been completely re-written.
- ITTC Procedure 7.5-01-03-01, "Uncertainty Analysis: Instrument Calibration". This procedure is complementary to the first procedure and is the basis for the following two procedures.
- ITTC Procedure 7.5-01-03-02, "Uncertainty Analysis: Laser Doppler Velocimetry Calibration". The procedure outlines the methods for alignment and calibration of LDV and the associated methods for the estimation of uncertainty. The procedure is independent of the flow application.
- ITTC Procedure 7.5-01-03-03, "Uncertainty Analysis: Particle Imaging Velocimetry". The methodology of the uncertainty estimates for PIV is outlined. The uncertainty estimates are independent of the particular flow field measurement.

The final report of the committee has also been submitted. The report is primarily a summary of the above uncertainty analysis procedures. In addition, it contains a brief history of uncertainty analysis, its importance, a discussion of repeatability and reproducibility with examples, interlaboratory comparisons, discussion of uncertainty analysis in free-running model tests, interaction with other committees, and a list of symbols for uncertainty analysis as an addition to the ITTC List of Symbols.

ITTC Benchmark data

At the last AC/EC meetings it was again discussed how a survey could be conducted on the availability of benchmark data, which could be of common interest to the ITTC community. It was decided that it should be part of the Terms of Reference for the next Quality Systems Group to continue work on this matter.

Membership Status

The ITTC membership list has now been updated and the present membership is as shown in the table below.

Region	Members	AC-members	Cancelled
Americas	13	3	6
C. Europe	14	7	4
East Asia	16	4	1
N. Europe	10	6	3
Pacific Is.	24	6	4
S. Europe	16	6	5
Total	93	32	23

ITTC website

The list of ITTC members and AC members has been updated with the latest known data. As member representatives change rather frequently and information about such changes is not always conveyed to the ITTC secretary there may still be unintentional mistakes in the lists. Members are advised to inform the ITTC secretary if such mistakes are found.

Proceedings from all but one of the earlier ITTC conferences are now available on the website. The Proceedings of the 2nd Conference held in London in 1934 were published as part of the Transactions of the Institute of Naval Architects, today's RINA. RINA has been approached in order to obtain permission to publish the Proceedings on the ITTC website.