Further PATEs: Post-ANONYMA Trial Evaluations for two sister ships in the East China Sea

Berlin. March 04, 2014

Dear Colleagues,

the results of my rational evaluation of the trial with a bulk carrier in ballast condition PATE_01 have triggered the request for the evaluation of the trial with a sister ship performed a fortnight earlier at the same loading condition, but at more 'ideal' wind and sea conditions.

In the course of this exercise I have modified the program structure, similar to the structure developed during the analysis of the ANONYMA trials, to permit ready comparisons of the results of evaluations based on two sub-sets of the data for the two ships. Subsequently the files PATE_01.1, PATE_01.2, PATE_02.1, PATE_02.2, and PATE_00.2 originated and have been published on my website under 'News on ship powering trials'; links provided below.

The indices 01 and 02 refer to the trial analysed before (PATE_01) and the trial of its sister ship, respectively, the latter a fortnight earlier, while the additional indices 1 and 2 refer to the number of double runs at the lower speeds considered as outliers. The index 00 refers to the references, including general remarks, concepts and their symbols, units and, last but not least, the various general routines developed.

In case of index 2 the sub-sets of data are identically the same as those analysed by an undisclosed traditional method. The results of the traditional evaluations, nota bene at the reference conditions, deviating only slightly from the trials condition, provide the rare chance to compare many 'things'. A number of interesting comparisons are already offered; additional ones may be provided on request.

The following are some noteworthy, 'considerable' observations.

Contrary to all traditional procedures the rational evaluation of ship powering trials is conceived and treated not as a hydrodynamical, but as a conventional problem. The extremely transparent rational evaluation gets along with only four very simple, generally acceptable conventions.

Their parameters are identified solely from the data recorded during the trials, different from all traditional procedures without any prior information, without any parameters to be sucked from the thumb, and without the propulsive efficiency, the joker to be pulled out of the sleeve, as in the STAimo procedure.

The number of double runs included in the evaluation, five or four, as in the traditional evaluation, had only minimal influence on the results. Thus the rational evaluation is also objective, observer independent, as it must be! An additional evaluation (PATE_01.3) including only three double runs, as usually performed and frequently analysed before, is still pending.

In case of the trials 01, with strong wind prevailing, the powering performance of the propeller in the behind condition and the current identified by the traditional and rational procedures differ considerably. This confirms the repeated observation that the in-transparent traditional procedures do in general not permit correctly to identify currents.

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Despite the discrepancy mentioned the final results of the traditional prediction (!) of the performance at the reference (!) condition and of the rational evaluation at the trials (!) condition, agree perfectly well. The reason for this surprising result remains unexplained.

In case of the trial 02, at the nearly 'ideal' condition of no wind, the powering performance of the propeller in the behind condition and the current identified by the traditional and rational procedures are essentially identical. And the final results of the traditional prediction (!) of the performance at the reference (!) condition and of the rational evaluation at the trials (!) condition, agree again perfectly well.

While the identification of the propeller powering performance in the behind condition poses no problems at all, it does not come as a surprise, that the rational evaluation at ideal conditions suffers from ill-conditioned equations for the identification of the parameters of the partial powers required. In the present case reliable values for the first partial power happened to be available from PATE_01.1 and .2.

The rational procedure to overcome this problem in general is to perform quasi-steady tests as has been stated over and over again and as have been performed with the METEOR, CORSAIR and a model. The data acquired at the model test have recently been used to demonstrate the feasibility of full scale monitoring of the powering performance and the full scale identification of resistance and propulsive efficiency, nota bene without thrust measurements.

All details have been published together with all my recent work on trials and monitoring on my website and in the volume 'From METEOR 1988 to ANONYMA 2013 and further! Future Ship Powering Trials Now!', the 'Festschrift' commemorating my tests with METEOR in the Greenland Sea, published on occasion of the 108th Annual Meeting of the Schiffbautechnische Gesellschaft held at Berlin, November 20 thru 22, 2013.

The present results may give rise to the question: Why should we move to the rational procedure, if the traditional procedure does the job 'as well'? Evidently it does not quite 'as well'! Due to the lack of transparency its results are not trustworthy and it definitely is doomed to fail, if no prior experience and data are available.

Thus the results of my exercise also give rise to the conclusion, that traditional procedures based on the concepts of our great-grandfathers are blurring all the essential features of the problem to be solved. And that in view of the state of research these methods, now being 'harmonised' in the standard ISO 15016 to be adopted by the IMO MEPC, are endangering the credibility of the professional community.

With many thanks for your kind attention
yours, Michael Schmiechen.

PS. Links to my website www.m-schmiechen.de

and to the 'News on ship powering trials' http://www.m-schmiechen.homepage.t-online.de/HomepageClassic01/news_trl.htm

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