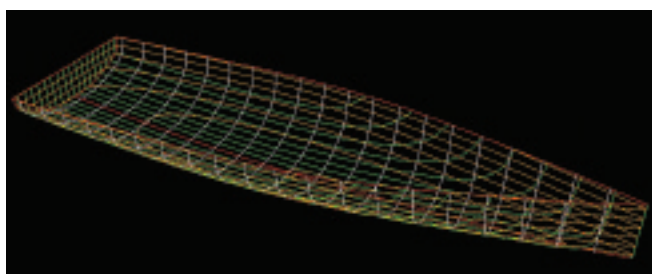
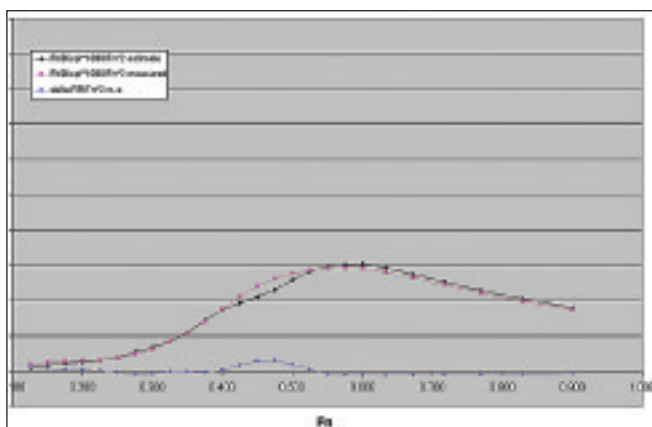


## Towards a better (VPP) world

Progress on the agenda for the International Technical Committee (ITC) is now proceeding at high speed ahead of the 2010 AGM, with our members hard at work on a variety of items that are summarised below. Interestingly, the first two items come from our own direct observations of the ORC fleet racing in light airs this year, while others come from general observation as well as concerns recorded among ORC competitors.

### Small spinnakers

After the removal of penalties on the spinnaker area in relation to the overall sailplan, there is still some typeforming of small spinnakers, especially at lighter venues. A careful comparison was made of recorded performances for different sizes of light spinnaker using the new Comet 50 *Verve*, and the results almost always favoured the smaller sail... although the handicap is higher for the larger spinnaker.



**Top: estimated versus measured Residuary Resistance (TP52). Above: in future ORC will manage the canoe body offset files (also a TP52) separately from appendages for ease of re-measurement**

The ITC will, therefore, make a correction in the driving force of the spinnaker with the help of a 'shape function', which will take into account the ratios Spi/Main, Spi/Default Spi and any other ratios that could drive this problem. This 'new' shape input will have its primary influence below 12kt of wind speed.

### Crew weight to leeward

In light air it is normal to place crew to leeward to heel the boat. The VPP does not take this into account, as some boats (mainly the slab-sided or 'boxy' designs) get a further advantage as they heel, allowing for a decrease in their wetted surface as they also become longer. Next year the position of the crew will be treated differently, moving it from leeward in light wind to windward in medium-strong wind. Crew weight will also be moved to windward and aft in downwind conditions, making for better replication of how modern boats sail in real life.

### Transom drag

A fine-tuning of the method of assessing the frictional resistance of the immersed transom is currently under study. The committee would like to avoid exploitation of stern-down trim to obtain an

advantage, while at the same time protecting those boats with genuine immersed transoms (at rest). A new smoothing function of this transom drag effect will, therefore, be introduced.

### Velocity Made Course

The problem of assessing the proper crossover point between jibs and downwind sails was addressed last year in an approach that limited the possibility for the VPP to reduce spinnaker area beyond a certain unrealistic limit. To better tune this procedure the committee will consider a different approach for handicapping the reaching conditions, based not only on estimated performance but also taking into account the so-called VMC (Velocity Made Course) function, often used on long offshore courses where the best combination of different course headings is used to get to the same point.

This is a completely new approach that illustrates how ORC International is a handicapping system and not just a pure VPP, one that clearly distinguishes the concept of performance from handicap.

### Separate appendage measurement

The ITC has spent considerable time discussing this important item – it has remained resolutely on the agenda for many years now!

Since appendages are treated separately by the VPP, the possibility of measuring them separately from the canoe body would return some significant advantages over the current approach. With laser measurement machines like Total Stations now available to measure horizontal profiles of keels, and other appendages, a much more precise reconstruction of their forms is possible. Since some boats may change appendages many times over their lifetime, this approach will not require a re-measurement of the whole boat but only the modified appendage.

A procedure to measure the canoe body and appendages separately and the generation of different files (one for the canoe body and one for each appendage) has been drafted and will allow a rebuild of a complete offset file that will be fully compatible with the existing offset file format.

### Movable bowsprits

Rotating bowsprits will now be allowed under ORCi, taking into account a modified TPS depending on the position of the rotation axis and the angle of rotation. This will make it easier to rate popular offshore fleets like the Class 40 and Mini 6.50.

### Delft testing

The ORC Management Committee last year approved construction of four new models for testing at Delft, where committee member Lex Keuning has been performing tests whenever tank time has become available. Apart from adding the new models for the Delft Systematic series, we will also use the TP52 model to validate the different regression polynomials, trying to choose the one that has the best fit between estimated versus measured Residuary Resistance (RR), not only looking at the average error of the regression as was the case previously.

This is in order to find a regression that assesses the resistance inherent to these kinds of boats more accurately – lightweight, fast, immersed-transom types such as TP52s, GP42s and the like. An example of how this process works is shown in the graph (*above left*), where the RR is plotted against speed (Froude number) and the match between measured and predicted RR from the current VPP is plotted. It can be seen here that agreement is good at low speeds, but at moderate speeds the predicted RR is lower than measured, whereas at higher speeds the predicted RR is slightly higher.

Work on the polynomials in the regression will help correct this mismatch and so improve the influential RR term that is used for the VPP.

*Alessandro Nazareth, ITC chairman*

