OFFSHORE RACING CONGRESS

World Leader in Rating Technology

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ITC – INTERNATIONAL TECHNICAL COMMITTEE

Minutes of a meeting of the **International Technical Committee** of the Offshore Racing Congress held on 29-31st October 2010 at UVAI, Rome Italy.

Present:
Alessandro Nazareth (Chairman)
Andy Claughton
Rob Pallard
Axel Mohnhaupt (research Associate)
Nicola Sironi (Chief Measurer)
Manolo Ruiz de Elvira
David Lyons
Kay Enno Brink
Philippe Pallu
Davide Battistin (ORC Programmer)
Zoran Grubisa (ORC Technical staff)
Panayotis Papapostolou (ORC Technical staff)

Observers:
Peter Reichelsdorfer (US Sailing)
Riccardo Provini (UVAI)
Gennaro Aveta (Italy)
Claudio Schiano (Italy)
Maurizio Cossutti (Italy)
Alessandro Paganini (Italy)
Massimo Paperini (Italy)
Emanuela di Mundo (Italy)
Andrea Falcon (Italy)
Emanuel Richelmy (Italy)

Apologies for absence were received from Research Associate, Lex Keuning and Fabio Fossati. The Committee thanked the UVAI for their hospitality and above all the staff for their assistance during the meeting.

1 Minutes of the last meeting

The minutes of the previous meeting in Delft were approved.

2 Allocated Submissions

2.1 SUI 1 - FURLING MAINSAIL CREDIT

ITC agreed about introducing a different treatment for these kinds of masts with furling mainsails if the mast weight has not been recorded. A reference weight of the mast will be introduced, with a 20% higher tube weight (that will accounted for in the larger tube profile and internal furling system), while rigging and VCG will remain unchanged:

TUBE WEIGHT = DEFAULT TUBE WEIGHT *1.2
RIG WEIGHT= DEFAULT RIG WEIGHT
TUBE VCG = DEFAULT TUBE VCG
RIG VCG= DEFAULT RIG CG

The gyradius adjustment will be computed using the above mast weight and VCG compared to the normal default weight. ORC Club boats that have no measured flotation and heeling moments will have a new reduced RM that will be computed by subtracting from the total displacement and VCG the default mast weight, and then adding the reference weight of the furling mast computed as explained above.

The committee suggests to all owners having a furling mast (that normally have mainsails with no battens and thus a negative roach) to measure the girths and hence obtain a smaller sail area compared to the default area assigned by the VPP.

2.2 ESP 1 - MOBILE BOWSPRIT

The committee is in favour of allowing the mobile bowsprit, and in fact some years ago for ORC CLUB a boat's TPS was considered as an SPL and the certificate was issued. The Chief Measurer proposed as a simplification that when measuring this kind of boat the TPS will be recorded as SPL and hence the boat will be considered as being "Asymmetric on pole."

2.3 ESP 2 - ORC RULE 206.4 – CLARIFICATION

The current rule allows the use of both pole and sprit, thus declaring both SPL and TPS. The only thing to do is to correct rule F7.2 that is misleading, as it refers to an asymmetric spinnaker while it should address every kind of spinnaker (symmetric and asymmetric). The clarification of tacking point for symmetric, asymmetric, code0 (TPS) and jib (J) is not necessary as it is already in the rule.

2.4 FRA 1 - CREDIT FOR FURLING GENOAS

ITC agrees with the submission but prefers to apply the credit to all boats with a furling jib with LPG> 1.1 J as many cruising boats have furling jibs with LPG below 1.35 J but above 1.1 J. For the boats with LPG<1.1 J it is correct not to apply the credit as they almost never reduce area up to 20 kts TWS. The rule will be written in a way that would avoid any exploitation (e.g. measuring a jib with a 135% overlap to obtain the credit and race with a 105% Jib).

2.5 FRA 2 - CODE 0 - FRA 3 and FRA 4-- CODE 0 ONLY CONFIGURATION

When only a code0 sail is declared, the VPP currently performs a full run (upwind and downwind) with this kind of sail with the AMG at 75% of the ASF. Then the code0 performances are compared with the jib-only performances (upwind) and with the spinnaker-only performances when present (downwind) to obtain the fastest result.

The committee observed also that the current code0 sails have AMG girths not bigger than 55-60% of the foot to be used as true upwind sails, while a spinnaker with 75.1% mid girth is almost impossible to be used as an upwind sail with good results.

So, ITC believes that the current treatment of code0 sails should be kept unchanged. Code0's with 74.9% AMG are not common sails in the racing field, and the committee feels comfortable in making no change to avoid the possibility of having a range where it is not possible to measure sails (as it is now below 55% and above 51% of LPG).

The committee noted that the artificial increase of the AMG to 75% of the foot for configurations with only a code0 used as a downwind sail is over-predicting its performance. So next year a new way of treating code0 configurations will be applied: two downwind runs will be made, one with the actual code0 area and one with an asymmetric tacked on the centerline with the same surface of the code0 without any artificial increase of the mid girth at 75% of the foot. This will return a better handicap for a code0-only configuration and no large jump in reaching conditions with an asymmetric spinnaker and a code0 with an AMG in the range of 75% of the foot.

2.6 FRA 5 - TWIN KEELS

Next year boats with this configuration will be allowed to race in ORCi (it is already possible in ORC CLUB). The double keel will be coded into 2011 VPP taking into account the following inputs:

- fin distance from bow
- span
- top and bottom chords and thicknesses
- y-offset (distance from CL of fin)
- angle of fin

The scheme for force prediction is:

- viscous drag with the transitional flow scheme
- induced drag: existing scheme applied for double rudders and canards

2.7 FRA 6 - STABILITY EFFECT

ITC is fully convinced that the current treatment of stability by the VPP has adequately addressed the unanimous request coming from sailing constituency of not favouring boats with low stability. After 3 years of adoption of this new stability scheme in the VPP it seems that the effect is working in the correct direction, yet there are some claims that this is still not enough. Going back to 4 years ago in the stability treatment could make some low stability cruising boats more competitive, but will oblige the majority of the fleets currently racing to reduce their stability to remain competitive. So the committee has decided not to support this submission.

2.8 FRA 7 - ADDED SCOOP

After the Delft meeting the French chief measurer sent to the committee the offset files of the test boat with and without a scoop. The first thing that was noted was that the lengthened boat (with 28 cm scoop added) was not presenting the manual rudder as the shortest boat did. So adding the manual rudder to the lengthened boat reduced the GPH variation at 16 sec/nm about (instead of 25 sec/nm).

The committee is revising the transom drag effect (see below par.3.4.) so the ITC believes that the fine tuning of the treatment of transom drag will reduce the handicap dependency from LOA.

2.9 GER 1 - VPP DOCUMENTATION

The 2010 version of the VPP Documentation has been double-checked by the programmer Davide Battistin and Andy Claughton and published on ORC web site during the meeting. For future years ITC would like to have the possibility to publish updated documentation as soon as possible after the final release of the ORC VPP.

2.10 GER 2 - ILC SINGLE NUMBER HANDICAPS

ITC agrees that the single number to be used in inshore races should be changed, as the Olympic triangle is no more used, while the WW/LW course is used in the majority of cases.

So the committee proposes to change the new inshore time-on-distance coefficient as a weighted average of WW/LW handicap with the following weights:

25% WW/LW 8
40% WW/LW 12
35% WW/LW 16

Inshore TCF, PLT, PLD and triple number scoring coefficients will be changed accordingly.

2.11 GER 3 - MAINSAIL DEFAULT VALUES

Mainsail default girths values are used only for ORC CLUB certificates when girths are not measured. So ITC proposes to change the default girths to have a more faired leech curve on the default mainsail, while keeping the same surface.

The new mainsail default girths will be:

HB = 0.05 * ***E***
MGT = 0.25 * ***E***
MGU = 0.41 * ***E***
MGM = 0.66 * ***E***
MGL = 0.85 * ***E***

Regarding the definitions of areas, the current rule is almost self-explanatory:

- Measured areas are those computed on the measures taken on the sails
- Rated areas are the areas used by VPP
- Default areas (used only for spinnakers - for mainsails and jibs only default measures are used) is the minimum area of the spinnaker. If a spinnaker's area is below this limit its rated area is the average between the measured and the default.

From next year, for the sake of simplicity, for measured spinnaker areas below the default – that will be called "minimum" from next year - the rated area will be the same as the default, that will be then called minimum area.

2.12 GER 5 - WBV AND CEXT

Regarding the definition of Water Ballast Volume, IMS rule E5 clearly states that it is the volume of water ballast that can be measured with a double inclining (E5.2 to E5.4), or taken directly by the measurer.

Regarding the definition of CEXT (crew Extension), ORC Classes rule 4.2 c) is correct, but the option to include it to the ORC Rating Rules will also be taken in consideration.

2.13 GER 6 - DIRECT INPUT OF PIPA IN ORC CLUB

The current option of entering PIPA and PRD at the same time (being an invalid measurement procedure) will be corrected. For ITC the direct input of PIPA should not be encouraged.

2.14 GER 7 - SECOND FIELD FOR ISP

ITC agrees on the proposal, but defer to the Measurement Committee for final decision on how to handle with this double measurement.

2.15 GRE 1 - SPINNAKER AT SMALL TWA

The problem of a spinnaker used at reduced TWA's has been partially addressed last year and the ITC worked the whole year on this subject:

- The whole set of spinnaker coefficients (symmetric, asymmetric on CL and on pole) has been revised below AWA=60.
- A new depowering system has been introduced with a reefing factor fixed at 0.85 *Area Default/Area Spi and a maximum heel angle fixed at 28°.
- The introduction of a VMC (see par. 2.1 below) concept will mainly affect the crossover zone between jib and spinnaker.

2.16 NED 1 – NON-SPINNAKER RATING

The current formulation of non-spinnaker configurations (boats that are treated with an asymmetric sail on centerline with the same surface as the genoa or jib) is considered correct by ITC, who has made a further investigation on this subject.

Looking at the different ways the two areas (of jibs and spinnaker) are computed, it was discovered that measuring a jib or genoa as a spinnaker returns an area 3.5% larger than the jib.

Therefore ITC has proposed to rate the non-spinnaker configuration with a spinnaker of area that is 3.5% greater than the largest jib/genoa, but has also accepted a proposal to further evaluate the VPP beta version with data of boats from the Netherlands fleet before making its final decision.

The Committee would like to advise that an important consideration is the scoring system used when some of these boats are racing: if the race is scored with single number systems (GPH, TCF, triple number etc.) and if the race has a very reduced number of downwind legs, or if with the wind is particularly strong and a lot of boats didn't use spinnakers, the boats rated with no spinnakers are undoubtedly favoured, so other scoring systems should be used (PCS, PLS, etc).

2.17 RUS 1 - FRICTION DRAG

The current Friction Drag is computed at various heel angles taking into account different wetted areas as described in VPP at par. 5.1.1, so the submission is already accomplished.

2.18 Preparation of an "all effects" test run and a beta VPP for immediate release

After the meeting the ORC programmer prepared an "all effects" test run and a 2011 beta VPP with all major modifications approved (see chapt. 6.7 below), to be distributed right after the next AGM in Athens.

It will be important at the same time that ORC will appoint reliable and skilled beta testers (among rating officers, designers, DVP subscribers) that will debug the new code.

This debugging will enable ORC to issue certificates from the 1st of January without having to make any later fixes during the season (as happened in the previous years) that would oblige rating offices to re-issue already issued certificates.

3 Aerodynamics

3.1 Introduction in VPP of VMC (Velocity made good along the course) concept - Jib-Spinnaker crossover (spinreef issue)

A different approach for handicapping reaching conditions will be introduced, as the test runs were satisfactory and the committee felt comfortable in inserting it into next year's VPP.

This is based not only on estimated performances but will take into account the so-called VMC (Velocity Made good along Course) concept very often used in long offshore races, where the best combination of different courses is used to get the fastest time to the mark.

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

3.2 Jib-Spinnaker crossover fine-tuning (spinreef issue)

The crossover sailing point between the jib and the spinnaker is a known problem to the ITC, and this year the Committee devoted a long time in discussing this issue, making different tests to verify various approaches.

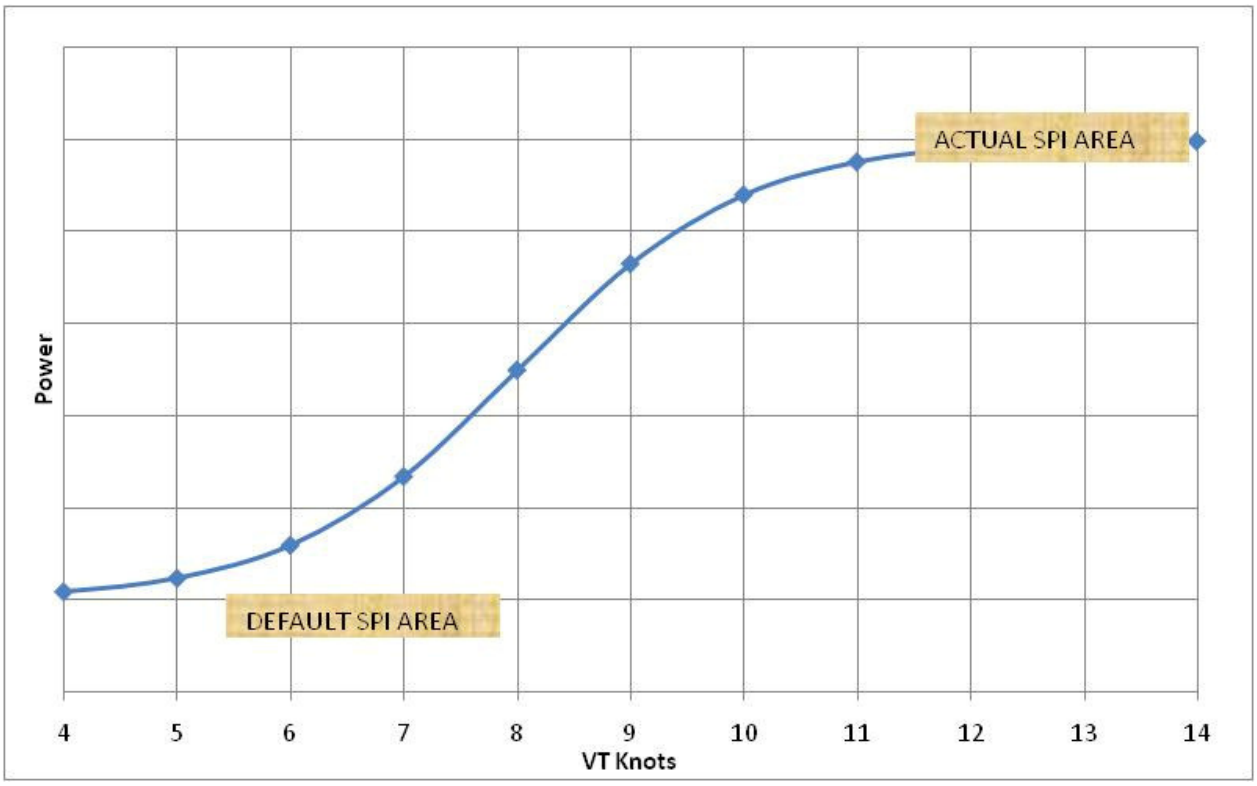
During the last meeting various tests runs were presented, and at last an agreement was reached taking into account the following modifications to the aerodynamics:

a) Spin coefficients (lift and drag) were changed at low Apparent Wind Angles (AWA) to better address the loss of efficiency at low AWA;
b) Max heel angle with spinnaker was fixed at 28°. The VPP will shift from the Spinnaker to the Jib earlier because of the maximum heel angle reached with the spinnaker on;
c) Max reef factor fixed at 0.85* Spin Area/Default Area will prompt the VPP to shift to the Jib earlier and not have the possibility to fly the spinnaker with a big reduction in speed.

The test runs confirmed the overall shift of the crossover point to wider AWA's than in the present VPP, so the Committee decided to implement the above modifications into the 2011 VPP.

3.3 Small spinnaker type-forming assessment

After this issue was introduced by the chairman in the Delft meeting, Andy Claughton prepared a "shape function" that is based on the ratio AREA DEFAULT/AREA SPI to take into account the loss of efficiency of big spinnakers below 12 kts of true wind speed (TWS). The shape function will reduce the area of the spinnaker bigger than default area with the transition represented in the following plot.



For spinnaker area below default area, no further reductions will be made, while the maximum reduction will be limited to 75% of measured area.

Test runs showed the effect in the direction expected so ITC decided to implement the above formulation in 2011 VPP.

3.4 SPL/TPS blanketing function validation and loopholes

Last year a function that could take into account the blanketing of the mainsail over the spinnaker was introduced based on the ratio SPL/SMG and/or SPL/AMG and/or TPS/AMG, according to the sail configuration.

Since it is always possible to have an inventory list with more sails than those that are actually on board when racing, handicaps could be done with the most favoured sails but which may be left on the dock.

For this reason ITC has made a new approach in which the blanketing function is no longer based on SPL/SMG (and SPL/AMG and TPS/AMG) but on the ratio of SPL (or TPS) with an average girth of the spinnaker (Area Spi/ISP).

This will avoid also extreme exploitation making wide spinnakers in correspondence with only the mid girth measurement.

4 Hydrodynamics

4.1 Delft Tests Update

Three new models have been built during this year to be tested in the TU Delft tank. Two have been designed to be part of the systematic series, on the light side (high LVR) similar to the most aggressive boats on the racing fields (not only ORCi). These two models will be possibly inserted into the regression for the Residuary and heeled drag to improve the accuracy for lighter boats.

The third has been designed with a shape as close as possible to a late-generation TP52. This is the status of the tests:

- TP52 model has been tested with trim moment applied
- The two light models have been tested with no trim moment applied

The following tests will be made (the exact schedule will be decided by TU Delft according to the tank's availability):

- The two light models will be tested upright with trim moment applied
- All the models will be tested heeled
- The two light models will be tested upright with the truncated transom at the same overhang of the TP52

The tests with trim moment applied are fundamental to obtain consistency with a correct residuary regression formulation.

4.2 Delft Database ITC management

At the end of the year Axel Mohnhaupt will retire from ITC after more than 20 years of membership and cooperation and very important contributions to the development of IMS, which 3 years ago became ORC INTERNATIONAL.

The ITC and ORC want to thank the great and always important work made by Axel in all these years.

Axel has been managing the very big database of Delft tests developing all the main hydrodynamic formulations related to this large amount of experimental data. So, with the approval of TU Delft,

ORC Management Committee and the agreement of Axel Mohnhaupt too, this large database will be handed to ITC member Kay Enno Brink that will work in close cooperation with the ORC programmer.

4.3 Investigation on influence of leeward crew weight position

In light winds it is common to put the crew on the leeward side to heel the boat. The VPP does not take this into account, so some boats (mainly the slab-sided or "boxy" boats) get an advantage as they heel, allowing for a decrease in their wetted surface as they also become longer.

For this reason Davide Battistin has prepared some different test runs where the transverse position of crew weight is taken into account. The ITC, after an analysis of the results, chose to implement (only in downwind conditions) the one that starts with crew weight on the leeward side ending with the crew on the rail at 18° of heel, with a smooth transition between the two positions as heel increases.

4.4 Truncated sterns treatment and Fn Transition. Fine tuning and increase of LPP routine robustness. Investigation of the influence of longitudinal crew weight position

A fine-tuning of the method of assessing the frictional resistance of the immersed transom (introduced last year) has been performed during the year.

The committee wanted to avoid some exploitation of stern-down trim to obtain an advantage, but at the same time keep protecting those boats with actual transoms in the water.

The programmer Davide Battistin discovered that the tail effect (that was apparently removed last year with the introduction of this new formulation), is still in a minor way affecting the length of the boats with immersed transom, with an extrapolation of the area curves up to zero value, thus increasing the integrated length. This extrapolation will be removed for next year.

Axel Mohnhaupt worked also on two other parts of this transom immersed area drag routine. The first is on the effect of LVR (length/volume ratio) on the wave height that is used to compute in dynamic conditions the portion of immersed transom, smoothing its effect.

Another small adjustment in the trim will be introduced to avoid extreme stern down exploitation. In computing the wave height the difference in trim due to the forward movement of the crew weight of 10% of LSM1 will be subtracted.

In making this thorough revision it was also noted that the biggest percentage of gain when trimming the boat stern down is more due to the change in residuary drag than to the transom drag. In fact in the 2009 VPP, when transom drag was not applied, all the boats with stern down trim gained in GPH a very high percentage (more than 70%) of the total compared to the new formulation for 2011.

So it was decided that the completion of the work on the extreme aft trims will be completed next year when the full revision of upright residuary drag will be performed (see below).

The second part of Axel's work was based on the fact that the immersed transom drag is a frictional resistance and a correct computation of residuary drag should be made, taking also into account this small drag obtained when subtracting the frictional resistance from total measured resistance.

This an excerpt of a detailed description of this last modification made by Axel Mohnhaupt:

FROM AXEL MOHNHAUPT DOCUMENT

Some further Thoughts On Immersed Transom Drag

1. The addition of the result of the current calculation of the drag of the immersed transom to the Rr and Rf does not consider the presence of the same drag component during the model testing.

2. The immersed transom drag is according to the Hoerner formula related to the frictional resistance of the hull and the ratio of immersed transom area and AMS1. Since the frictional drag is scaled according to the Re-Number also the immersed transom drag has to be scaled in the same fashion.

   Hoerner formula applied to immersed transom pressure loss:
   Cdtransom = .029 * (ATR / AMS1c)^(3/2)/ Cdhull^0.5, with ATR being the immersed transom area AMS1c the midship section area in sailing trim, and
   Cdhull = Rfhull / (rho/2 * v^2 * AMS1c), with Rfhull being the frictional resistance of the canoe body

3. To do things right, the following scaling procedures have to be devised:

   a) The total model resistance has to be split into three components i.e. frictional drag, immersed transom drag, and residuary resistance.
   b) The frictional and residuary resistance should be scaled to the standard IMS L sailing length.
   c) The residuary resistance should be corrected by the Froude number transformation to that of a standard overhang length, since there are systematic differences in overhang length of the various model series tested.

d) The resulting Rr values are to be used for the calculation of the regression coefficients.
e) For any boat to be handicapped, the current methods for Rr estimate, Rf calculation, Fn-transformation for differences in overhang length, and immersed transom drag assessment should be applied.

4. All required tools to change the current treatment of the resistance to the outlined one are available. The only task to be done is to calculate once the immersed transom areas for all models for the Fn's 0.2 to 0.6. The calculation of the immersed transom drag of the models can then be done in the model resistance scaling sheet and subtracted together with the Rf from the measured total resistance.

5. The general effect will be a small reduction in Rr, with the result that the whole test fleet will be predicted to be faster.

   This work thus involves a revision of upright residuary resistance, and so various regressions with different set of models were tested, but ITC was not completely satisfied by the test runs for the following reasons:

   a) The impact on the fleet was potentially significant with big GPH variations
   b) Some reference boats were not moving in the correct direction
   c) Some additional tests (see par. 3.1 above) could be valuable in better assessing the Residuary Resistance

ITC's aim would have been to implement a new residuary regression into the 2011 VPP because the current model has been changed in 1999 and then modified and smoothed with some extrapolation work not connected to tank results.

This will be done hopefully next year and the new formulation could also take into account the possible adoption of different polynomials with different parameters.

This new formulation could be very effective in addressing some issues like high Cp and aft LCB boats (and stern down trim as said above) and would be possible to implement if the impact on the whole fleet is not disruptive.

For the committee this one-year notice on future modifications to the VPP is very important because, as said above, the aim is to implement a new regression formulation better related to Residuary Resistance tests. This was almost done this year, but remains uncompleted due mainly to time problems.

5 Appendages:

5.1 Induced drag CFD research for multi-appendage configurations

In 2009 Philippe Pallu began a study to better address different combined appendage configurations to obtain a refined evaluation of induced drag that would not change the current treatment for a conventional configuration (fixed keel + rudder).

After a long discussion during this meeting, the ITC decided to not continue this project. The current way of computing effective draft on the more immersed appendages at various heel angles is dealing adequately with the unconventional appendage configurations (for eg, double rudders, canting keels, forward appendages, etc.).

5.2 Revision of resistance of High Volume/Surfaces with strakes keels; Possible evaluation of interference drag

In 2009 Manolo Ruiz de Elvira began a study on keels with:

a) Big volume
b) Big area
c) Wide strakes at canoe body interception

According to Manolo the main factor that should be addressed is Residuary Resistance of the keel at the intersection with canoe body, as frictional resistance should be correctly addressed by the revision of Cf made some years ago for extreme thick fins, while interference drag would surely increase the overall resistance of this kind of keel.

So it was decided that in the case where the first stripe of the keel will be 1.5 times longer than the average of the rest of the fin keel, a reduction in residuary drag will be applied in a similar way as for long bulbs.

This correction proved to be effective on this kind of keel configuration and will be implemented in the 2011 VPP.

6 New ORC Offset Editor – Separate appendages measurement – Offsets from Designers – New LPP

Panayotis Papapostolou made a presentation of the new Offset Editor release. This new release has powerful new tools that can handle and merge different files representing a boat's canoe body, keel and rudders.

A technique is under development to measure appendages with horizontal profiles or waterlines – this will be very important for editing designer offset files that have been accepted last year to issue new ORC INTERNATIONAL certificates. This was widely appreciated by the sailing community and favoured the adoption of ORCi as handicap system in new areas.

Now some new tools to help designers and RO's to prepare a valid offset file are under final testing and will soon be made available to users. These include:

a) A RHINO3D script that transforms the tri-dimensional Rhino file of a hull into an offset file. This will be very helpful as RHINO3D is a widely used design programme;
b) A pre-processor that transforms 3D DXF files into an offset file.

Finally, the availability of the above software (Offset Editor and Off files converters) was very important for the ITC to suggest that the new LPP rewrite is no longer necessary and could be separated from the main body of the VPP, allowing for the possibility to run it as a stand-alone module being able to collect LPP data before they are used by the VPP iterations.

The ITC together with ORC staff will develop the list of outputs needed for this LPP stand-alone.

7 New Test Fleets

The database of all ORCi issued certificates in the world will constitute the new test fleet. This new test fleet will be augmented by some of the boats included into the present test fleet that have been considered of interest even if they don't have a valid 2010 ORCi certificate.

The above fleet has been purged of the boats of the same kind with same offset files, so the final test fleet is composed of about 900 boats. A smaller test fleet of about 100 boats will be created to be used for the further development of the Rr prediction methods. Additional program features of the ITC-version of the VPP will be the option of reading new experimental coefficient tables, thus enabling anybody at anytime to examine new ideas on Rr.

8 Summary of proposed changes to the 2011 Beta VPP and recommendations to the Congress:

a) Truncated stern fine tuning (removal of tail, new wave height)
b) Crew on the leeward side in downwind conditions
c) Modification of long keels root chord Residuary Resistance
d) Double keel coding
e) VMC (Velocity Made good along Course) introduction
f) Spinnaker coefficient revision below AWA=60°
g) New min SPIN REEF=0.85 (smoothed by Adef/Aspin<=1), and MAX HEEL=28° to increase accuracy in crossover between jib and spinnaker
h) Introduction of the spinnaker SHAPE FUNCTION to deal with inefficiency of big spinnakers in light winds.
i) Updated Blanketing function for spinnaker with average spinnaker girth
j) CODE0 different treatment with double run (one as code0 and one as asymmetric on CL)
k) Non-Spinnaker configuration handled with an asymmetric on CL with an area 3.5% higher than the jib
l) Furling mainsail new gyradius adjustment
m) Furling Jib different set of coefficients only for jibs with overlap > 110%
n) Possibility to install Mobile Bowsprit that will be treated as pole of equivalent length
o) Change of mainsail default girths for ORC CLUB boats with mainsail not measured
p) Possibility to adopt lenticular rod (for windage calculation a 25% diameter of normal rod will be assumed)
q) Carbon construction gyradius adjustment equivalent for C/R and Performance divisions
r) New ILC handicap based on WW/LW courses (and correspondent TCF, PLT, PLD and triple number variations)

The above modifications represent the list of Recommendations to the Congress.

ITC strongly suggests that the new beta VPP will be widely distributed immediately to expert RO and DVP users for beta testing. Former ITC members have also expressed their availability to be part of the beta testers too.

Using this method of beta testing and debugging performed before the end of the year should enable the ORC to avoid having to issue new versions of the VPP during the 2011 season.

9 Strategic planning for work after this meeting; Main projects for 2011

- New residuary Resistance
- Heeled drag increase in accuracy
- Jib-Spinnaker crossover increase of accuracy
- Update of documentation

10 Any other Business

10.1 <u>Carbon gyradius adjustment</u>

An inconsistency in gyradius adjustment between boats built in carbon for the C/R and Performance Divisions has been discussed, and it was agreed to unify it at the value of the current adjustment for the Performance division.

In the past the difference was due to the fact that there was a minimum panel weight for bulkheads in the C/R division, which was removed last year with the revision of the Accommodation Regulations, so this is no longer needed.

10.2 Lenticular rigging

A request to allow lenticular rigging in ORC INTERNATIONAL was issued. The committee unanimously agreed to allow lenticular rigging for ORC INTERNATIONAL, but reducing their windage calculations for this rigging type by 75% of the conventional rigging windage.