INTERNATIONAL TECHNICAL COMMITTEE

Meeting

9 – 11 October 2026 at the Royal Malta Y.C.

MINUTES

Present on site:	Alessandro Nazareth (ITA) – vice chairman, Davide Battistin (ITA), Zoran Grubiša (CRO), Jason Ker (GBR), Marcus Mauleverer (GBR), Matteo Polli (ITA), Robert Ranzenbach (USA), Robin Zinkmann (GER)
Present online:	Andy Claughton (GBR) - Chairman, Simon Forbes (GBR), Nicola Sironi (ITA)
Apologies:	David Lyons (AUS)
Observers on site:	Panayotis Papapostolou (GRE), ORC programmer, Pietro Zanirato (ITA), ORC VPP programmer.
Observers online:	Laszlo Szeremley, Tobias Merkel, Karl-Hannes Tagu, Casper Nielsen, Johan Tuvstedt' Roberto Biscontini' Robert Jacobsen, Bertil Balser, Chris Tutmark, John Victorin, Heather Kerns, Wick Hillege, Ab Pasman, Max Gurgel, Kim Henriksen, Peter Gustafsson

1.Submissions

a) ESP 3 (Inner Headsails / Staysails):

The committee noted that large inner staysails generate unrated reaching force advantages. It was agreed that if an inner HSF exceeds 75% of the largest rated jib area, a dedicated VPP run will be triggered to evaluate the sail's aerodynamic impact.

b) ESP 4 (Taper Length measurement):

The ITC concluded that there was no need to change the way the mast dimensions were recorded but asked the Measurement Committee to update the measurement protocols.

c) ESP 5 (Number of stations in the offset file:

The ITC saw no reason to change the minimum number of measurement stations (a minimum of 20 stations and a maximum of 180 from each side spaced with a maximum distance of 5% *LOA*. Within the forward and aft 15% of *LOA* the spacing between stations not greater than 2.5% of *LOA*). These limitations were set when hulls were originally measured with HMI and later with TS and changing this could make some old offset files non-compliant with the rule. With the development of 3d scanning, newly measured offset files have more stations. The LPP output is not sensitive to increasing the number of stations above that required to properly define the hull shape, nevertheless the Measurement Committee should also investigate this.

d) FIN 1 (Sail age, material and weight in ORCclub):

Assessing sail performance based upon age, material, and weight is fraught with numerous challenges and is just as likely to create opportunities for costly exploitation as not. Making this applicable only to ORC Club could also disadvantage ORCi racers when ORC Club and ORCi are being scored together.

The submission is not supported.

e) FIN 2, FIN 3, MANCOM 1, MANCOM 2, NED 3, NED 4, NED 5, NED 6 (Weather Routing Scoring)

All submissions related to the Weather Routing Scoring were addressed collectively. The report is presented in Appendix A

f) FIN 4 (Liferaft in Measurement Conditions):

As in previous years this submission is not supported with the same rationale as in previous years.

g) GRE 1 (LCFD for Poles Inclining):

There is no need to position the outriggers for the inclining weights (boom, spinnaker pole, etc.) at a specific longitudinal location. The longitudinal position used must be recorded and the LPP takes care of the calculations.

h) NED 2 (Adjustable Forestay):

The ITC considered that the 'Cake' approach to handicapping performance improving features that were difficult to model in the VPP was working well.
The submission suggests making the presence of a forestay turnbuckle the baseline level and offering boats that cannot adjust the turnbuckle a small favourable adjustment.
The ITC asked the Measurement Committee to consider this.

i) NED 7 (Asymmetric Spinnaker to Windward):

The submission is not supported with the same rationale as last year. ORC Rule 209.4 prohibits setting asymmetric spinnakers to windward and current aero model does not cover this situation.

j) NED 8 (Spinnaker Retriever System and Pedestal):

Whilst the Superyacht rule contains allowances for differences in sail handling systems, ORCi does not. The 'Cake' approach offers small modifications to the VPP force models. The presence of a pedestal alters many sail handling effects, but none of these relate to the force models.
The submission is not supported.

k) TUR 4 (Cruiser Division):

The committee affirmed that cruising class formation is a local race management decision, but this may be included in a simplified 3-sail wardrobe approach as noted in TUR 6.

l) TUR 5 (Performance index for Cruiser Division):

The ITC does not want to have different VPP's for the ORCi and ORCclub.
The submission is not supported.

m) TUR 6 (Reduced Sail Inventory):

The ITC supported developing the aerodynamic force model to include a simplified 3-sail (main, jib, spinnaker) wardrobe. This may be available as an owner declaration rating option for 2027/2028.

n) USA 1 (Age Allowance Start Date):

The ITC supported shifting the age allowance start date downstream by five years, pending final review and approval from the management committee.

o) USA 2 (Age Allowance for Hulls and Appendages):

The committee discussed separating hull and appendage age allowances when modern keels or rigs are fitted to older hulls. The submission was not supported; the committee were confident that the VPP would assess a change of appendages fairly.

p) USA 5 (CEXT, crew extension)

The ITC acknowledged the contradictions in the current CEXT and lifeline allowances. The ITC deferred crew extension adjustments for boats without lifelines pending resolution of racing rule contradictions by the measurement and rating officers committees.

q) USA 6 (Interceptors):

The ITC agreed to implement a handicap adjustment for boats with interceptors.

r) USA 8 (Outriggers):

The ITC acknowledged that some races adjust the RRS to allow sails to be sheeted to outriggers. The use of a whisker pole to leeward is already accommodated by the VPP. The ITC intends to study the assessment of varying the sheeting base for all sails during the anticipated update to the aerodynamic force model. This will eventually allow the VPP to equitably handicap sails sheeted to outriggers, where these are permitted and correctly recorded on the Certificate. Until that time, outriggers are not properly handicapped by the ORC VPP and should not be allowed.

2. Hydro

a) Change to the Residuary Resistance Force Model:

Marcus Mauleverer and Robin Zinkmann presented the deployment of a new combination of Artificial Neural Networks (ANNs) based on 3,400 CFD points run at fixed pitch across various trims, multiplied by 10 crew mass percentages (34,000 total data points). The initial network predicts pressure drag, viscous drag, and pitching moment. Pitching moments are translated into required crew movement. A second network trained with LPP parameters and crew mass percentages predicts residuary resistance when crew mass is used to move as close as possible to the optimum pitch angle.

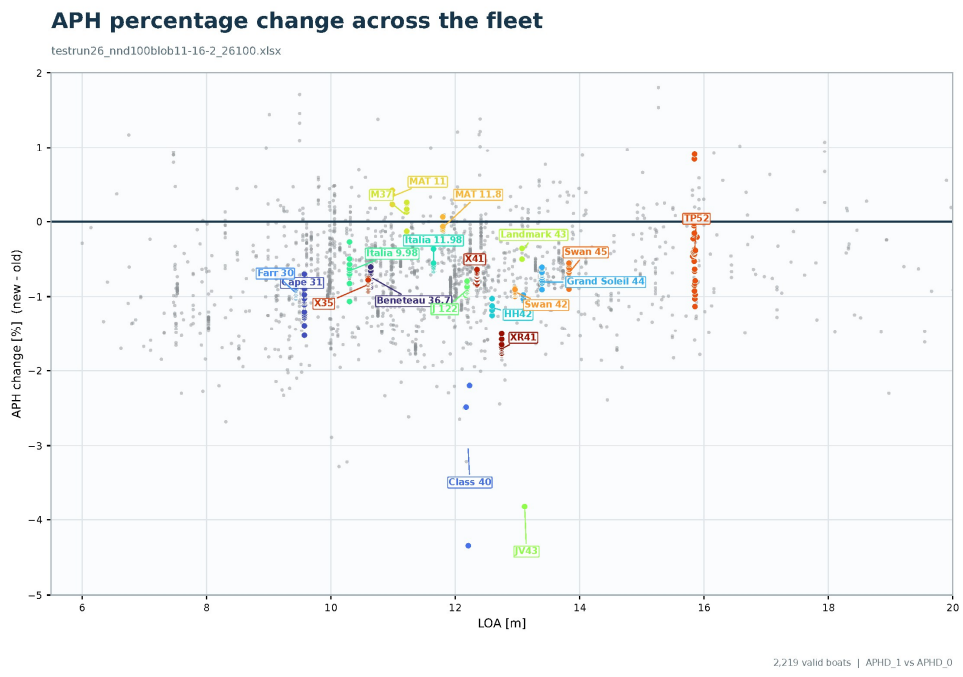
Extracts from the presentation made to the committee and observers is shown in Appendix B.

The new model removes the 50% contribution from the 2013 surfaces and significantly reduces prediction sigmas across the CFD Mini Test Fleet

The Mini Test Fleet is a small collection of data based on actual hull shapes. These data are used to compare with the output of the VPP. The committee reviewed the deltas (actual vs. VPP resistance) across the 16-vessel test fleet (including Cape 31, TP52, Class 40, Grand Soleil 44, Farr 30, Italia 1198, Botin 43, and JV43). The upwind sigma dropped from 16 to 8.6; downwind sigma dropped from 13 to 10.

The All-Purpose Handicap change (Figure 1) showed the fleet sailing about 0.5% faster due to reduced overprediction of resistance.

Figure 1. APH Change across the fleet.



Figures 2, 3 and 4 show the change for upwind and downwind optimum VMG at each true wind speed for three classes: Beneteau 36.7, X41 and XR41 respectively.

Figures 2 and 3 show small changes, whilst Figure 4 shows the XR41 broadly unaffected upwind but significantly accelerated downwind as the wind speed increases. The ITC and the observers considered that this change for 2027 matched the observed performance of this class.

Figure 2.
Percentage change to upwind and downwind handicaps vs TWS compared to the 2026 VPP
[Coloured lines are individual boats, solid black line is class average, dashed grey line is Class C average.]

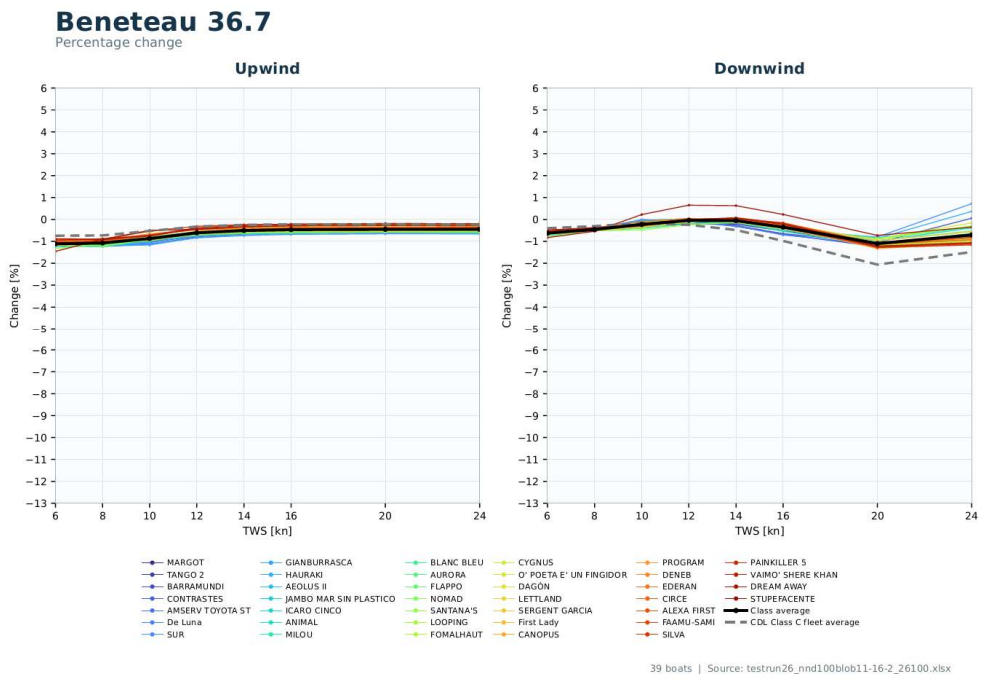


Figure 3.

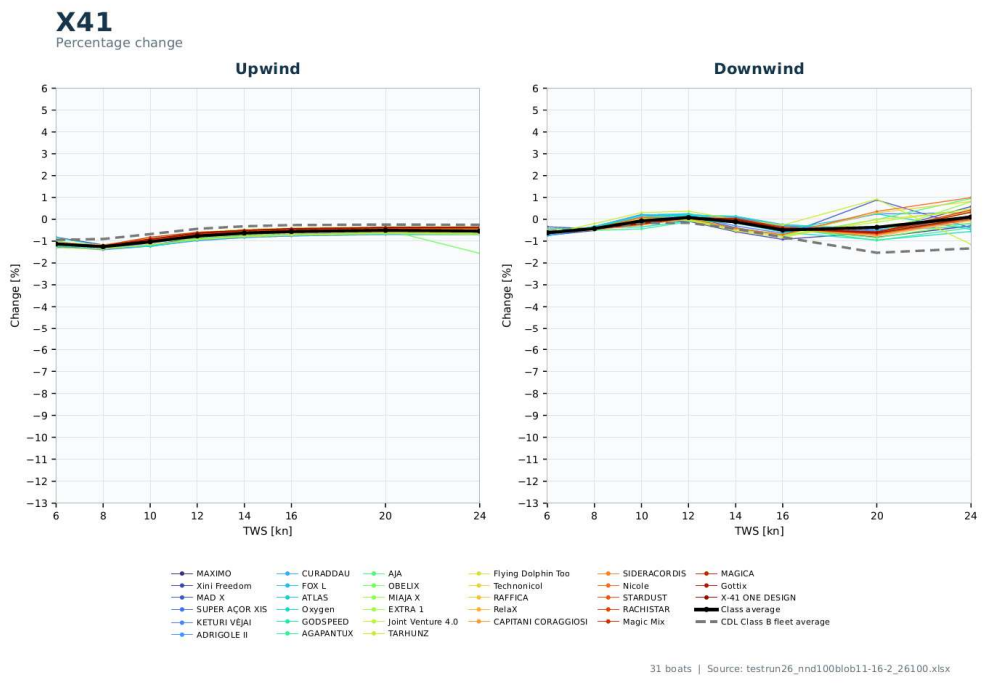
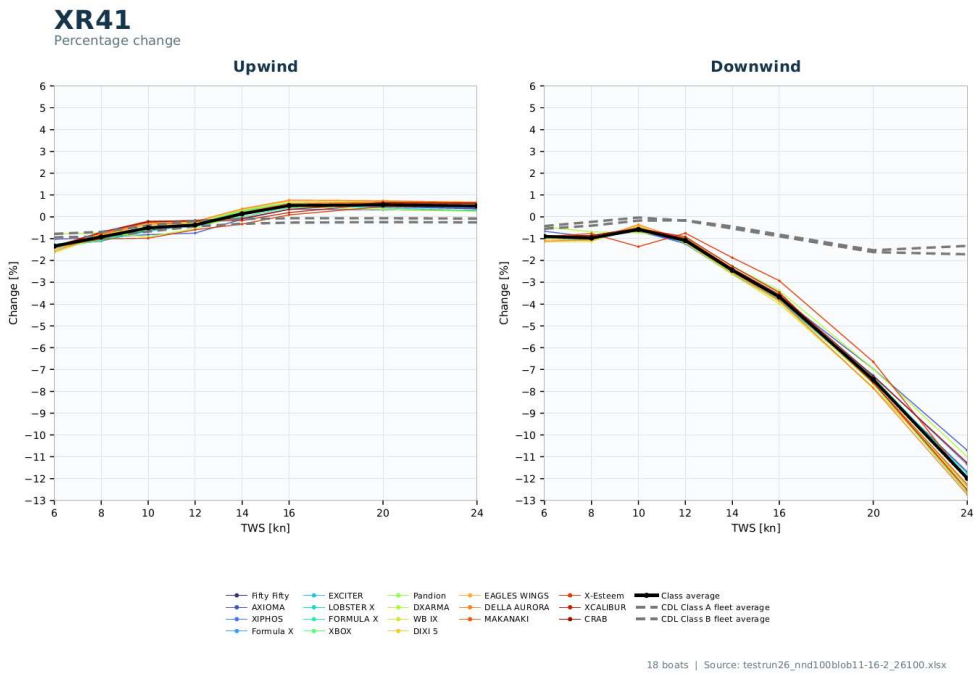


Figure 4.



This work completes the process of properly including high Coefficient of waterplane area (planing) hulls into the residuary resistance force model.
The new force model has a new parameter set, and all the existing fleet falls within the parameter bounds. All the short-term caps adopted for the 2026 model have been removed, and the behaviour of the surfaces outside the parameter range has been ring fenced to avoid exploitation.
This change significantly improves the equity of the handicapping for planing hulls, and the modern breed of 'scow bow' boats. But the change to the All-Purpose Handicap is small, to achieve the full benefit of this change condition sensitive scoring models must be used. These include Performance curve scoring, Constructed Course Scoring and Weather Routing Scoring.

b) Change to the Long Keel Residuary Resistance Force Model:

The current model for long keel yachts does not attenuate the canoe body and keel residuary resistance with depth, causing artificially high drag calculations. The committee agreed to apply canoe body depth attenuation to align long keel calculations with standard keel models, resulting in an AP delta of approximately 3 to 5 seconds per mile.

c) Interceptors:

Fixed interceptors will receive a speed-dependent handicap adjustment using an appropriate shape function. The handicap adjustment for an interceptor is approximately 0.3% on APH. N.B. ORC Rating Systems Rule 104.2.
Hull interceptors mounted on the transom to redirect the water flow to change the attitude of transom shall not be movable.

d) Double Rudders:

The committee examined the upwind performance penalties experienced by twin-rudder vessels (e.g., Neo430). Robin Zinkman noted that single-rudder boats benefit from using higher rudder angles to optimise the keel/rudder lift sharing upwind, which is not captured

by the VPP. Twin rudder vessels generally operate with less loaded rudders due to their lower span, which reduces the opportunity for optimal lift sharing with the keel. This effect is complex to model because rig balancing moments are not in the VPP. ORC will run a verification of the current method and report back.

e) Centreboards ORCi:

The committee approved transferring the superyacht centreboard routine into ORCi to replace the very old code which still includes the KCDA measurement parameter. The routine separates pressure and viscous case drag based on a 9-degree flow angle and applies CFD-derived effective draft corrections.

f) Canting Keels:

The committee discussed canting keel pivot rake and its performance implications observed in IRC Maxi vessels. ITC agreed to create offset files to evaluate canting keel pivot rake and hull lift interaction for the 2028 cycle.

3. Aero

a) New Aero Model for 2028 / First 36.7 Study:

Robert Ranzenbach reviewed the status of the membrane sail study parameters with North Sails using three rig configurations on the Beneteau First 36.7: conventional 2-spreader, narrow 3-spreader, and wide single-spreader.
this is a first step towards a complete revision of the aerodynamic force model to be implemented in 2028 or 2029.

b) Passive Rotating Masts:

The committee noted that current rules assess a rotating mast penalty if the mast is rotated by mechanical control. For passively rotating masts, i.e. where the mast sits on a ball and rotates under the influence of the stay tension, the committee recommended measuring deck collar limits and developing a new handicap adjustment.
The current handicap adjustment for mechanically controlled masts adds the lateral projected area of the mast to the sail area. This approach is very simple and does not model the potential drag effects. This will be amended when a more sophisticated force model is introduced for passively rotating masts.

c) Single Sail Depowering:

Currently the ORCi VPP depowers the sail forces by a continuous reduction in lift and sail area via the Flat and Reef factors. This does not reflect the reality that yachts carry a number of fixed sized headsails and spinnakers which are selected by the crew.
In the limit, where a boat has a basic inventory of 3 sails (jib, mainsail and spinnaker) the boats ability to depower is much more restricted than the VPP imagines. The ITC will develop a depowering model for this simple inventory, limiting spinnaker depowering and applying a 'Velocity made good along the course' (VMC) approach to generate scoring polars that combine different sail combinations at each True Wind Angle.

4. ORCi Changes for the 2027 VPP

a) Residuary Resistance.

Replacement of 2013 baseline surfaces, deployment of 5 cross-validated ANNs.

b) Reduced performance in strong winds.

The extension of the wind range to 24 knots has made it clear that the VPP overestimates performance in strong winds, this affects not only PCS, but also WRS.
The ITC will find a plausible algorithm to mitigate this problem.

c) Disjointed Polar Curves (Move to VMC Calculation):

Examine non-monotonic performance curves on certificates caused by step-changes when sail combinations change. The non-monotonic scoring curves prevent proper implied wind calculations during live scoring. The ITC agreed to implement Velocity Made Good on Course (VMC) calculations to smooth polar curve step-changes.

d) Long keel residuary resistance update.

e) Centerboard force model updated to match ORCsy

f) Interceptors.

Add Handicap adjustment. See Submission USA 6.

g) Inner HSF treatment.

See Submission ESP 3.

h) Age allowance.

See submission USA 1.

5. World Sailing

a) Stability Database and OSR Inclining Test:

The committee reviewed proposed changes to OSR Rule 3.04 regarding the relaxation of mandatory inclining tests for Category 0 and 1 races. The ITC strongly opposed removing the physical confirmation of capsize angle using an inclining test. The use of the ISO standard alone for trans ocean races is unsafe:

The standard is for 'Cruising' not 'Racing' yachts.

The range of stability requirements are less stringent than the corresponding commercial standards.

A single certification can be applied across a whole class of yachts with no reference to differences in the condition of an individual vessel. The ORC database of inclining test results demonstrates considerable variation of capsize angle within classes.

This change is being promoted by the RORC because the cost of an inclining experiment is seen as a barrier to entry for their races. The cost of an inclining test is a one-off cost that is not out of kilter with the annual costs of maintaining safety equipment and crew training.

The ORC will submit formal opposition to World Sailing regarding the relaxation of inclining test requirements for Category 0/1 races.

6. ORCsy (Superyachts)

Alessandro Nazareth presented his report on a successful Superyacht season. The regattas were very well attended.

The following changes are proposed for the 2027 VPP.

a) 2027 VPP (Centerboard Treatment):

Adjust the centreboard case drag based on a 7.5 -degree inflow angle for open centreboard cases. Removed the subjective 10% effective draft allowance.

b) Updated Aero Force Model:

The good performance of the modern multi-mast yachts against the sloops has been under consideration during 2026. A program of CFD and analysis work with the Wolfson Unit has been concluded leading to refined schooner effective height curves, staysail mast-gap corrections, and mainsail roach formulations.

Add three masted rigs and the limited (3 sail) inventory to the VPP.

Sail Inventory penalty to be applied only when the sail is active, jibs upwind, spinnakers downwind.

c) Residuary Resistance.

Replace the residuary resistance force model with the new ORCi version, including long keel and interceptor update.

d) Extend Age Allowance.

Age Allowance will be extended to 40 years.

e) Improved Added Resistance in Waves with Inertia Estimate:

The ITC recognizes that the Superyacht fleet is in most need of improvement to the application of the added resistance in waves. The force model already exists in the VPP but it has been considerably detuned to minimise its effect on handicaps. If a way can be found to intuit a reliable estimate of the prevailing sea state the formulation can be amplified to generate realistic added drag values. Also, research is needed to make meaningful calculations of inertia from the boat design data. The ITC will devote effort to this during 2027.

f) Technical Support for Collaboration with SYRA:

The ITC will support efforts to log performance data during regattas and develop a race replay viewer.

7. ORCmh (Multihulls)

a) 2026 Season Report:

Simon Forbes presented the ORCmh season report (Appendix C). He reported 124 certificates issued under MOCRA, and several certificates for the large multihull fleet.

b) Scoring

The racing crews are still not clear about the available scoring methods, and this has generated a lot of discussion. During the Rolex Maxi Yacht Cup several documents were shared with the fleet to debrief the scoring process each day. The ORCmh VPP generates scoring polars for all the available SailSets (Sail combinations defined on the certificate), this creates fluctuations in the performance curve as the SailSet varies with TWS at each TWA. These fluctuations cause the relative handicaps of the fleet to vary in seemingly unpredictable ways when using Constructed Course scoring.

The ITC will study ways to smooth out these fluctuations to produce more rational scoring curves.

It should be noted that the Windward - Leeward courses work well.

c) 2027 VPP:

a) Headsail set flying wind limits (scaling from 8 knots up to 26 knots apparent for 84-foot vessels),
b) Definition of daggerboard types to be determined by the LPP.
c) Introduce

d) 2027 Research

a) Improve aerodynamic force model to evaluate catamaran vs trimaran effects, high boom positions, flying bridge crew windage.
b) Review the behaviour of small trimarans
c) HSF wind limits
d) Review hydrodynamic force model with a view to including aerodynamic pitch moment effects.

8. Weather Routing Scoring (WRS)

a) 2026 Report.

WRS was used to score about 50 events this year. Three were hit by technical snags which were resolved and steps taken to avoid these happening in future. The relevant submissions have informed the development of the RaceFlow app, which is now available to race organisers. There are added features to assess the validity of the routing and scratch sheet. Examples are shown below:

Figure 5. RaceFlow predicted track analysis animation with wind barbs.

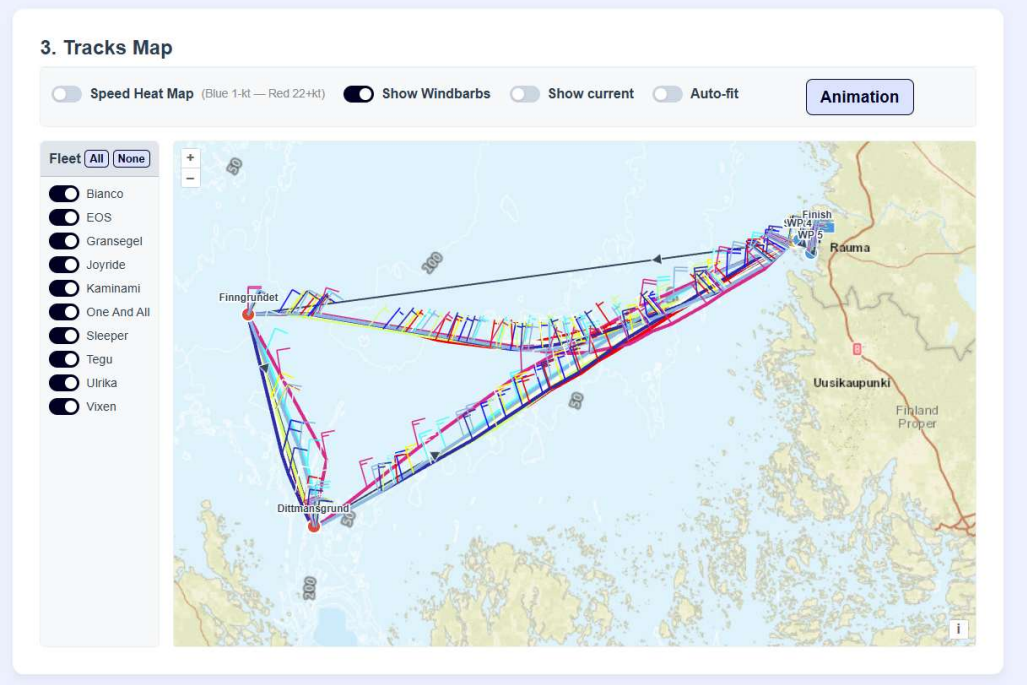


Figure 6. Mean TWS and TWA

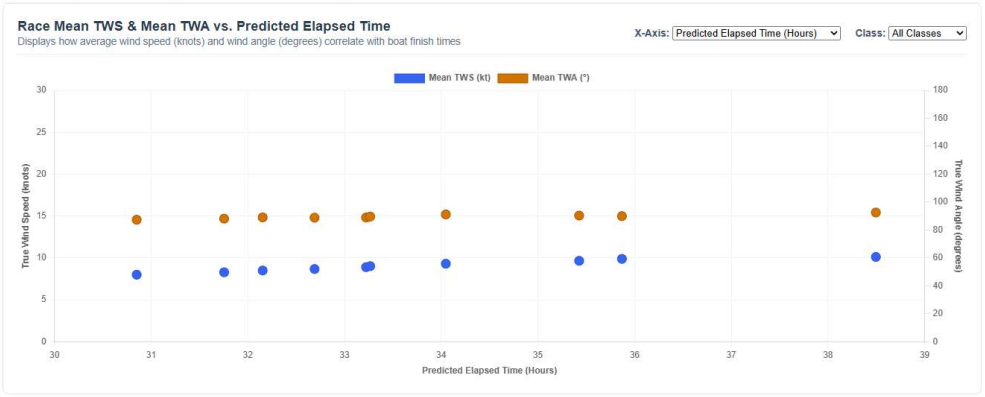


Figure 7. TWS and TWA angle distribution for the fleet.



9. Performance Database.

The performance database into two distinct groups (ORCi monohulls and ORCsy superyachts) to maintain data clarity.

Davide Battistin presented a report showing how statistical tools could be applied to use the performance database to judge VPP changes against. Whilst this was the original engine for developing the performance database, lack of easily used tools to make the comparisons were not available. With advent of AI that obstacle no longer exists. Efforts will continue with this. Also, the basic analysis of the database phases needs to be reviewed to try and find the ones which relate most closely to the boats optimum performance.

10. Real Time Scoring.

a) Real time scoring and Data Warehouse.

Zoran Grubiša, Florian Von Wieding, and Robin Zinkmann presented a live scoring prototype that calculates race positions and corrected times relative to a virtual finish line at the last boat's position.

The algorithm derives wind parameters using VMG back-calculation and DBSCAN clustering.

The ITC thanked Florian for his work and agreed to continue development of the process.

Two reports, Appendices D & E, describe the project to date.

b) Race tracking and performance monitoring.

Simon Forbes demonstrated the 'Matador' app, developed by Tom Robinson, which gathers data from yachts that can upload their instrument data to the internet. The system shows a live display of the track and boat data and compares the boat speed to that predicted from the ORC polar tables.

This system is complementary to the real time scoring project.

The committee also discussed the possibility of combining the information from RaceFlow or the Scorer app to improve the race tracking offering.

11. ITC Research Agenda

1. Aerodynamic Model Updates & Sail Force Adjustments

Aerodynamic Model Revisions: Updating the baseline aerodynamic model to incorporate dedicated three-sail force coefficients, downwind sail forces, and offwind force adjustments.
Outriggers & Sheeting Angles: Evaluating the aerodynamic performance impacts of outriggers and outboard sheeting at wide sheeting angles during CFD aero studies.
Deck Seals & Rig Variations: Assessing boom-to-deck aerodynamic seals (BAS), crossbeam catamaran variations, and trimaran jib tack sealing positions.
Downwind Power Factors: Analysing spinnaker downwind efficiency power factors (testing 5% and 10% increases) alongside historical aerodynamic coefficient adjustments to correct downwind speed underpredictions.

2. Passive Rotating Masts

Angle-Based Measurement Rules: Developing mechanical measurement rules for deck collar constraints to establish a graduated rating correction based on rotational angles rather than generic mast area penalties.

3. Hydrodynamics, Leeway & Appendage Modelling

Leeway & Trim Tab Integration: Incorporating leeway into the VPP and resolving induced drag anomalies caused by short rudders operating behind large apertures or propellers.
Canting Keel Rake & Pivot Canting: Investigating canting keel pivot rake, axis inclination, and pivot canting to evaluate hull lift interaction and performance impacts on IRC Maxi vessels.
Twin-Rudder Performance Analysis: Conducting VPP sanity checks and performance evaluations on twin-rudder vessels (e.g., *Neo430*) regarding upwind VMG penalties and rig balancing moments.
Centerboard & Case Drag Refinements: Validating centreboard pressure and viscous case drag against total drag using CFD run tests and refining effective draft handling for OCI and superyachts.

4. Frictional Resistance & Form Factors

Friction Form Factor Multipliers: Evaluating CFD-derived mean multiplier form factors (ranging from 1.05 to 1.12) applied to frictional resistance across test fleets for potential 2028 implementation.

5. Added Resistance in Waves

Hull Shape Correlations: Refining the added resistance in wave models by incorporating hull shape factors, wetted length shifts, and vessel motion dynamics.
Jason Ker and Marcus Mauleverer demonstrated the latest FineMarine simulations to compare different hull forms.

6. Live Scoring, Wind Determination & Data Warehouse

Centralized Data Warehouse: Building an AI-driven data warehouse to compile and standardize historical tracks, certificates, GRIB files, and polars across past regattas.
Wind Determination Algorithms: Testing and merging VMG back-calculation and density-based spatial clustering (DBSCAN) methods to derive accurate wind direction and speed directly from tracking data.

7. Multihull & Superyacht Aero/Hydro Studies

Multihull Aero & Foil Dynamics: Establishing headsail set flying (HSF) wind limits across vessel lengths, evaluating DSS foil and curved daggerboard hydrodynamics, and modelling boom-to-deck sealing.
Superyacht Aerodynamics: Refining schooner effective height curves, staysail mast-gap corrections, and mainsail roach formulations based on CFD processing reports.

12. Any Other Business

a) DSS Foil Stowage Rules:

The ITC discussed recent examples of vessels extending Dynamic Stability System (DSS) boards to windward to act as movable ballast. Agreed to draft rule wording requiring DSS boards to be stowed flush with the hull on the leeward side, prohibiting windward deployment as movable ballast.

b) World Sailing Rule 52 (Non-Manual Power):

Reaffirmed support for allowing race committees to modify Rule 52 for short-handed divisions while restricting automated super-autopilots in fully crewed fleets.

c) Baltic Superyacht Wing Foil Measurement:

Alessandro Nazareth presented measurement challenges for a Baltic superyacht equipped with movable wing foils. Andy Claughton proposed inclining the vessel with both foils lowered to establish a baseline, then calculating centre of gravity shifts for other foil positions.

13. Next Meeting.

The next ITC meeting will be held in Winchester during April 2027.
The date will be confirmed after conducting a poll of the TC members.

14. Meeting closed.

The Chairman thanked the committee for their diligent work during the year, and the observers for their helpful contributions.

Appendix A.

ITC REPORT ON WRS SUBMISSIONS

During its meeting in Malta, the ITC discussed several submissions relating to Weather Routing Scoring (WRS) and reviewed the technical implementation of WRS during the season. The submissions discussed were:

FIN 2 - WRS Fallback method
FIN 3 - Weather model selected for WRS
MANCOM 1 - Weather Routing Scoring backup
MANCOM 2 - Offshore scoring single numbers
NED 3 - WRS - Blended TCF
NED 4 - WRS - Retroactive routing
NED 5 - WRS - Post-race scoring
NED 6 - WSR - Fall back scoring option

It should be noted that the latest version of the RaceFlow App was probably not available when the submissions were drafted. The latest version introduces features that can significantly improve the understanding and implementation of WRS and address several of the issues raised in the submissions.

1. Fall-back method

Submissions FIN 2, MANCOM 1 and NED 6 request a fall-back method for circumstances in which WRS cannot be applied with sufficient confidence. The ITC acknowledges the need for such an option. The RaceFlow App provides analytical tools that can help the Race Committee assess WRS routing predictions and determine whether a fall-back method is necessary.

MANCOM 2 proposes wording for inclusion in the Green Book (Championship Sailing Instructions). Proposed clause 15.2 addresses circumstances in which the prevailing or forecast weather conditions are unsuitable for Weather Routing Scoring. Proposed clause 15.3 addresses circumstances in which technical difficulties or other reasons beyond the reasonable control of the Race Committee make it impossible or impracticable to score a race using Weather Routing Scoring. Because "other reasons beyond the reasonable control of the Race Committee" also covers the circumstances described in clause 15.2, the two clauses can be combined.

While MANCOM 2 proposes changing the Sailing Instructions for championship events only, NED 6 proposes applying the same fall-back method to all events by incorporating it into the ORC Rating Rules. The ITC considers inclusion in the ORC Rating Rules to be the better option because it would remove the need for each organiser to add suitable wording to the Sailing Instructions. The ITC proposes that the ORC Rating Rules be updated as follows:

Add new rule ORC 403.4:

A custom-made ToD or ToT coefficient may be calculated using weather routing of each boat capturing expected wind direction and speeds over the course through the ORC RaceFlow App. If, due to technical difficulties or other reasons beyond the reasonable control of the Race Committee, it becomes impossible or impracticable to score a race using Weather Routing Scoring method, any of the other single scoring options available on the certificates may be used.

MANCOM 2 proposes adding three single-number options to the certificate: Predominant Upwind, Predominant Downwind and Predominant Reaching. However, experience and analysis of races

scored using WRS indicate that wind speed has a greater influence on results than wind direction. If the weather forecast cannot be trusted, an average-wind approach may be used. The difficulty in using WRS mainly arises in very light winds, when forecasts cannot predict with sufficient accuracy when the wind will start or stop. The APH approach would also be unsuitable in these conditions because it is based primarily on a wind speed of approximately 12 knots. However, the scoring table on page 2 of the certificate already includes All-Purpose time allowances for individual wind speeds from 4 to 24 knots, allowing a more appropriate light-wind value to be selected.

The RaceFlow App also provides a wind analysis for each race routing, including fleet mean TWS and TWD. When the mean TWS is below 4 knots, the App will be updated to display a warning and advise the Race Committee that alternative scoring options may need to be considered.

The fall-back solution should be used only when WRS results cannot provide sufficient confidence. WRS should remain the primary scoring option, and the Race Committee should make the final decision on the scoring option to be used. It is not possible to prescribe a single rule for selecting an alternative because the decision depends on several factors. The RaceFlow App provides the Race Committee with the information needed to select the most appropriate scoring option.

2. Weather model selected for WRS

Submission FIN 2 proposes that the weather model used for WRS calculations be announced no later than 24 hours before the start of the race. However, this submission may have been prepared before the new version of the RaceFlow App was released. A major advantage of the current version is that it allows WRS calculations to be run using different weather models and the results to be compared before a model is selected. Requiring selection 24 hours before the start would restrict the Race Committee's ability to choose the most appropriate model and could require it to use a model that later proves unsuitable.

3. Blended TCF

Submission NED 3 is asking for the possibility of blending TCF factors calculated by the WRS and APH. This proposal cannot be supported as WRS and APH are based on different approaches:

- WRS is calculated by routing each boat through the weather conditions applicable to that boat, which may differ across the fleet. By contrast, APH applies the same TWS and TWA matrix to all boats, regardless of the conditions in which they are racing.
- APH is average of all wind directions and most likely not matching the conditions. The same may apply for any pre-selected single number.
- WRS will give different ratings for different starting dates and times, while APH or any pre-selected single number will always be the same.

Therefore, blending WRS with APH or any pre-selected single number would probably give an unintended advantage to some boats and disadvantage others. Because the methods use different inputs and assumptions, combining them cannot be justified.

4. Retroactive routing

The ITC acknowledges the need to rerun WRS calculations at any time to correct errors, account for certificate changes and rescore races when testing new VPP versions. This capability should be investigated with PredictWind and established as a priority for future WRS development.

5. Post-race scoring

WRS is designed to provide ratings before the start of a race, enabling competitors to understand how they must perform against the rest of the fleet. Changing ratings during or after the race would undermine competitive fairness and reduce confidence in the use of WRS.

However, post-race calculations using GRIB files that describe the wind conditions during the race may be useful for internal technical analysis by the ITC. Rerunning WRS with different GRIB files could form part of the retroactive-routing development described in section 4 above, but it should not alter the official race results.

Appendix B

ORC Residuary resistance update.

Marcus Mauleverer & Jason Ker
9th October 2026

RR Recap

- 2023
  - New neural networks introduced (50:50 with 2013 surfaces)
- 2025
  - Input parameter out-of-range bug identified
  - 'Zoomed' (LVR & BTR) – CFD dataset processed
    - Circa 1200 boats
    - Inverse optimisation of build parameters for even shape spread
    - Fixed trim enabling pre-optimisation of crew position
    - New networks trained and analysis performed to understand the performance deltas
- 2026
  - Short term fix agreed and implemented
    - Still using the 2023 'full range' networks
    - Caps introduced based on new knowledge gained, inc. a dynamic CWPA cap with boat speed

ORC

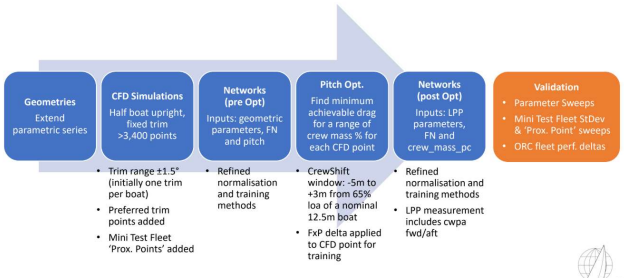
2027 Initial Concept

- Fully Heave and Pitch Balanced VPP
  - Pitching moments & vertical forces from…
    - Aero
    - Hydrodynamics (hull and appendages)
    - Crew movement (longitudinal)
    - Additional ballast? Anything else!
- Progress
  - LPP updated to provide pitch and heel surfaces for all measurement parameters
  - VPP updated to use them in rough examples
- Two main hurdles
  - VPP processing time
  - Validation and delta checking

ORC

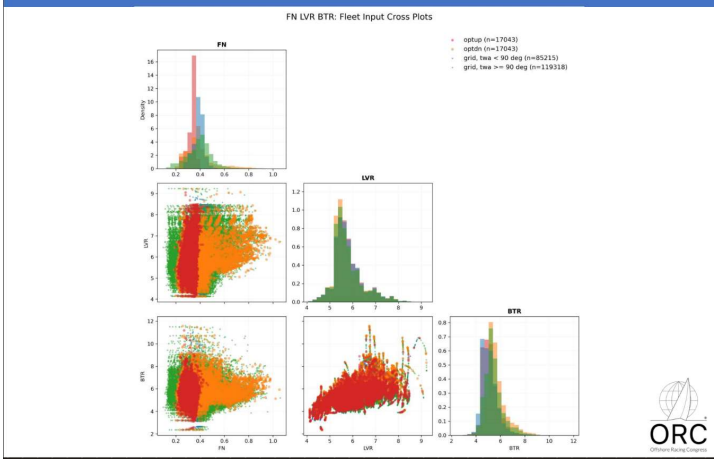
2027 Pragmatic Proposal

- Extend the 2026 dataset for the wide range of boat shapes
- Enable trim optimisation using "Crew Mass %" as an additional input.

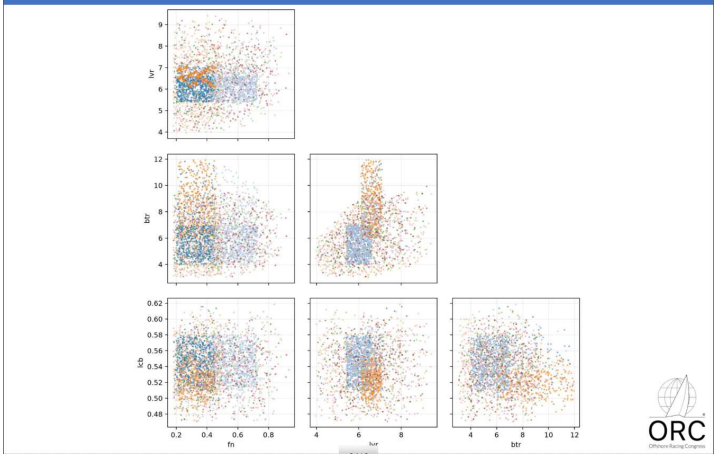


ORC

ORC Fleet – LVR & BTR



CFD Fleet (to date)



Todo

- ➢ Now
  - ✓ Input Caps
    - Formulate cap functions for non square input edges
    - Enable conservative extrapolation / flat line rule
  - ✓ Increase LPP heel fidelity and re-run the fleet checks
  - ✓ Outside cap flags
- ➢ Future options
  - Point ‘certainty’ assessment?
    - Gaussian confidence metric and or nearest neighbour distance
    - A quick post-process in the VPP to flag boats in sparce areas
  - Potential to create a new parametric geometry?
  - Downwind heel correction for broaching?
  - Hull lift efficiency review?
  - Viscous review?
  - RAW shape assessment?

Appendix C

ORC Multihull Report 2026

123 ORC Mh Certificates issued so far in 2026.

MOCRA adopted ORCMh VPP for 2026, 93 Certificates, 7 Mh International Certificates, 23 Mh Club Certificates.



Changes for 2026 were a VPP Apparent Wind Speed limit of 16 knots for headsails set flying. This limit was needed for production 8m boats. Adoption of the general ORC rig adjustment and non-manual power scheme and change in age allowance from ORCi.

Meetings were held regarding the performance of foiling boats and a proposal developed to address degradation of foiling performance in waves.

Racing started at the end of January with the Dubai-Muscat Race through the Straits of Hormuz. Ten catamarans and trimarans from 48ft-32ft competed.

Caribbean Racing saw Round Antigua and Caribbean 600 involving a total of 11 multihulls from 42ft to 70ft.

UK MOCRA Racing saw 13 multihulls (26ft-48ft) racing Plymouth-Falmouth-Fowey.



Tre-Golfi (ITA): there were 3 Mh International catamarans racing Irens 84, VPLP Gunboat 80, Gunboat 72.

Mid-May, there were four multihulls 35-51ft racing in the Pacific NW, Ilwaco to Victoria, BC Race.

Palma Super Yacht Cup in June, four Mh International cats racing as a Morelli & Melvin 65 with upgraded taller rotating mast joined the fleet.

UK MOCRA Nationals saw 10 boats racing in the eastern Solent, followed by the Round the Isle of Wight Race with 23 multihulls.

July, nine multihulls were shadow-scored in the Bayview Mackinac race and 10 multihulls shadow scored in the Great Lakes Multihull Championships in August.

September, there were six Mh International boats gathered for racing in Maxi Rolex Cup, additions being a Gunboat 66 and an Irens 63ft trimaran.

End of September saw five catamarans racing at the Multihull Cup at Port Adriano, Mallorca, as the fleet welcomed a Frers Ocean Explorer 62 catamaran.



Photo Sailing Energy

Future work:

1. Following feedback from maxi catamarans, adjust VPP AWS limit for headsail set flying relating to righting moment.
2. Review performance of 8m trimarans upwind, perception is that VPP is slow at TWS 12 and above.
3. Implement crew to windward, currently:

"The CEXT works contrary of what expected, the reason is the crew shifts from 0.25Bmax leeward up to 0.25Bmax to windward. It's to leeward from when the heel is zero, then smoothly moves to the centre when the heel is 0.5*heelmax (about 8 degrees in this case), then moves smoothly to windward.
Adding more arm, makes the crew more effective to leeward in light winds with small heel, slowing down this boat. The slight better speed in strong winds is not enough to counterbalance the effect in terms of handicap.
The ORCMh does not include the optimization of crew weight position, which is active in ORC monohull."

4. Implement Cruiser/Racer features and gyradius adjustment
5. Implement proposed scheme for degradation of fully foiling performance in waves.
6. Report on the Certificate, offset file items regarding appendages that affect Rating, including details of board retraction ability and board designation as 'Asymmetric' or 'DSS/Foil'.
7. Interceptors, 'Highland Fling XVIII' and 'Allegra' both have adjustable devices.



8. Rig adjustment add: non-manual power furling of headsails
9. Any refinements of monohull VPP work that can be transferred to multihulls.
10. Make Multihull Designer VPP available.

Simon Forbes
ORC Multihulls Central Rating Office