Youth Conference 2026

Swiss Sailing

Online | 14.03.2026

Meetings rules

Microphone muted

Camera «ON» and active participation

Q & A in the chat anytime

Speakers presentation

Riccardo Giuliano
Head Coach Youth

Maayke Van der Pluijm
Sport Psychologist
Mental coach SST

Fiona Testuz
Head of education
J+S Expert

Agenda for the day

1. Presentation Youth Development Riccardo Giuliano 9:00-9:30
2. Mental Preparation suggestions for parents Loubna Freih 9:30-10:15
3. Pause 10:15-10:30
4. Swiss Sailing System Fiona Testuz 10:30-10:45
5. Coach Education Fiona Testuz 10:45-11:15
6. Updates from NWFK Riccardo Giuliano 11:15-11:45
7. Closing

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Youth Development Programme

Riccardo Giuliano, Youth responsible SwS,SST

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SUI
sailing

National Performance Center

Lausanne

SUI sailing

- Marco Versari head of National Performance Center
- Financed by CISIN/NASAK
- Officially installed in 2021, the first events in 2020
- Service provider for SO Card Holders

SUI sailing

- Racing Rules
- Weather
- Mental Coaching
- Health and Woman in Sport
- Nutrition and Physio
- Fitness Preparation and Test

- Tech Projects

How to select supplied Olympic equipment in Sailing

Keyword : data-driven, equipment testing, sailing, performance

Fig.1 : Picture of Elia Colombo on the iQFoil - 2024 Olympics (the hydrofoil on top-left)

Introduction

Olympic sailing events either require athletes to bring their own gear or use **supplied equipment;** the iQFoil Windsurfing is in the second category.

Due to performance differences from **manufacturing variations**, suppliers gave athletes sets of **equipment to test** before the Paris 2024 Olympics. Swiss athlete Elia Colombo had to choose his equipment from 2 boards, 4 sail masts and sails, and **4 foil sets** (mast, front wing, rear wing, fuselage).

Elia Colombo received his equipment in week 17 of 2024 and had to finalize his selection by week 28. Since the gear must remain in top condition and **time for testing is limited**, it's not possible to try all parts in every weather condition. To address this, we supported Elia and his coach **with mechanical and numerical testing** to choose the best equipment. This poster details the process for testing the 4 foil sets (more equipment has been tested with other processes).

So what !?

- We tested hydrofoil gears using mechanical, 3D scanning, and CFD methods.
- Key differences were found in mast thickness and wing shapes, affecting performance.
- Selected: torsionally stiffest mast and thinnest rear wing. Front wing choice remained suboptimal.

Providing an accurate performance prediction within regulatory constraints

Method

The process was divided into three phases:

1) Mechanical Testing:
All parts were weighed. The foil mast and front wing underwent bench tests to estimate **flexion** and **torsion** properties.

2) 3D Scanning:
We used a Hexagon Absolute Arm 87 and Hexagon AS1 3D laser scanner, with Polyworks Inspector and Modeler software. Foils were scanned in two steps, aligned and meshed into **STL models**, then cleaned and refined. 3D markers ensured accurate comparisons. The scans were analyzed and compared using **Best Fit function**, and a final report was generated.

3) CFD Simulation:
3D scans were prepared for ANSYS Fluent, and high-quality meshes were created. Steady-state **RANS simulations** with the SST k-ω model were run to determine lift and drag. **Multiple angles of attack** were tested to compare the **hydrodynamic performance** of different foil configurations.

Result

The testing process revealed that the foil mast's **flexion** properties correlate strongly with its **weight**, while its **torsional properties** are closely **linked** to its **thickness**.

The **Best Fit** function **identified** notable **variations** in the sections and overall shapes of components that were expected to be identical. Specifically, one foil **mast** was significantly **thicker** than the others, and the radii and curvatures of the **front wing tips** also **varied** substantially.

Converting the 3D scan data into a format suitable for **CFD** analysis proved to be **resource-intensive**. Moreover, the simulation results remain somewhat **ambiguous** due to the challenge of **separating** shape reconstruction **approximations** from the actual **performance differences** observed in the analysis.

To ensure the athlete's perceptions remained **unbiased**, Elia Colombo **tested** all the equipment **on the water before reviewing** any of the results and **findings**. A closed feedback loop was established to share the test results and gather his subjective impressions in response.

The athlete progressed through iterative testing, based on a mix of data and experience.

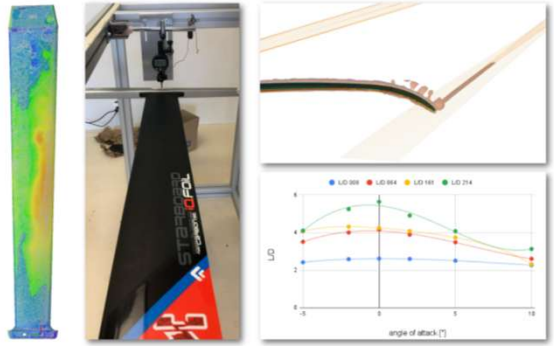

Fig.2-5: the mast foil during the bench test, one of the Best Fit outputs, a rendering of the CFD, the Lift/Drag ratio of the 4 front wings.

Conclusion

This process proved highly valuable, enhancing mutual understanding among the athlete, coach, and technicians regarding equipment characteristics. Elia chose the thickest mast for its superior reactivity (minimal torsion) and the thinnest rear wing to minimize drag. The front wing selection was more complex, and current data has yet to provide a definitive answer on the best option for the athlete. The process was reassessed after the Olympics and improved for future use.

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SUI sailing team · Sport Santé UNIL + EPFL · EPFL

SUI sailing

How to grow the internal knowledge?

- Athletes: through the Youth Development Programme

- Coach: through the education and coach day


SWISS SAILING TEAM
YOUTH
DEVELOPMENT
PROGRAMME
2024/3
23-24 November 2024
SUI
sailing team


SWISS SAILING TEAM
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2025/1
21-23 Februray 2025
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SWISS SAILING TEAM
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SWISS SAILING TEAM
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SWISS SAILING TEAM
YOUTH
DEVELOPMENT
PROGRAMME
2026/1
27 February
1 March 2026
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Different levels, different supports

Different levels, different supports

T2

Talent Pool
-YDP weekends
-SST multi-class camps

T3

Youth Team U19 classes
-YDP weekends (Fri-Sat)
-Individual sessions

T4

Youth Team Olympic Classes
-YDP weekends (Fri-Sat)
-Individual sessions

SUI sailing

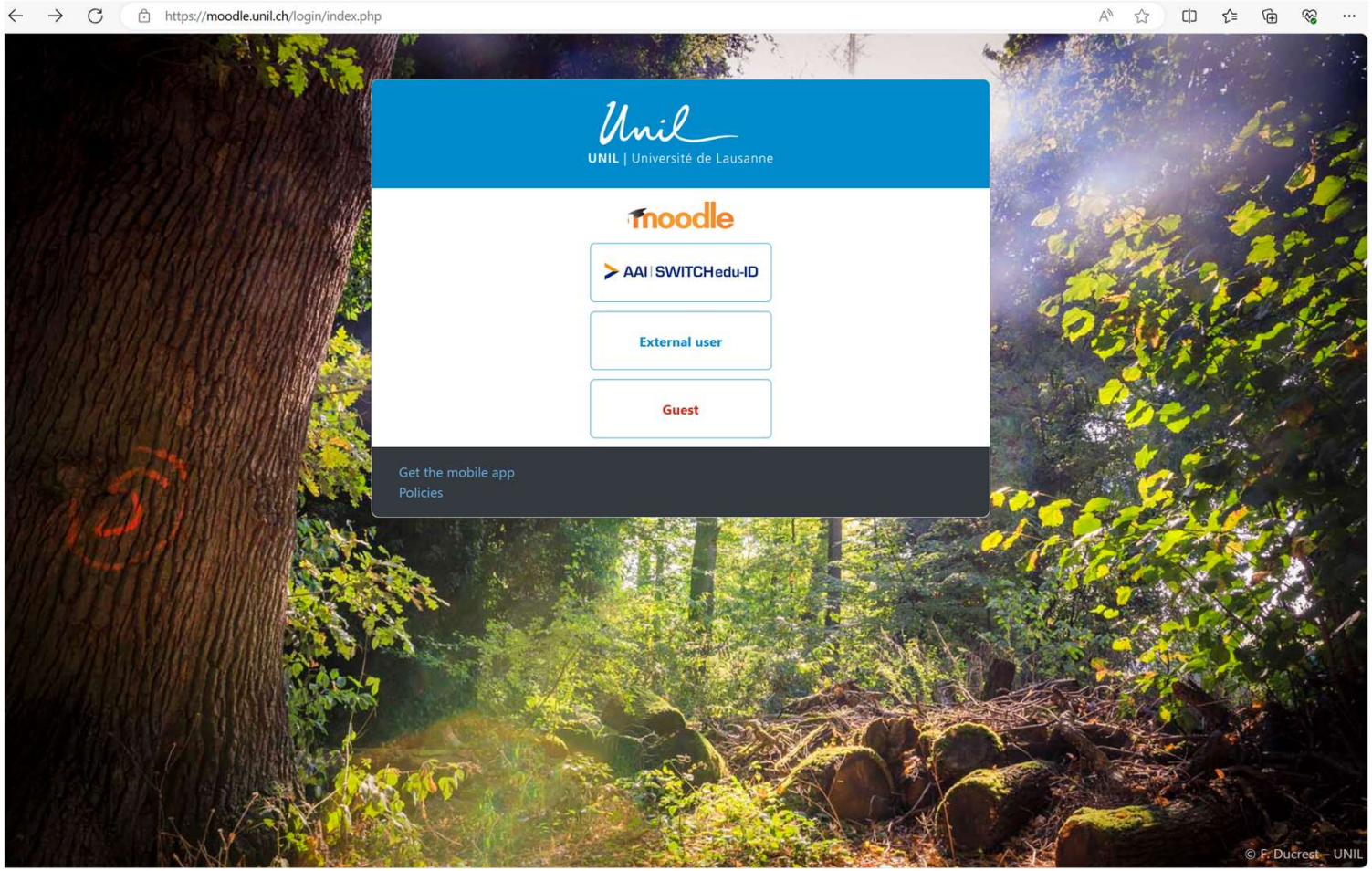
Youth Development Programme

A Pool of experts

- Riccardo Giuliano Responsible youth SwS and SST
- Marco Versari Responsible National Performance Center
- Thomas Betschen National Performance Center, Strength and Conditioning UNIL-EPFL
- Loubna Freih Mental Coach
- Roberto Amadio Nutritionist Sport Santé UNIL-EPFL

- Maayke van der Pluijm Sport Psychologist
- Gaëlle Gander Sport santé, sector Medical UNIL-EPFL
- Thomas Schillinger (CHUV) Physiothérapeutelinicien Spécialisé (MSc)
- Christian Scherrer Team Leader Swiss Sailing Team
- Marco Brunner Responsible Sport Army Swiss Sailing Team

Shared and transparent information



Moodle repository: 60+ docs

- 3 documents about Health
- 15 documents about Physical Preparation
- 15 documents about Mental Preparation
- 11 documents about Tactics and Strategy
- 8 documents about Weather Forecast
- 9 documents about Nutrition
- 1 document about Women in Sports
- 2 documents about Technology and Equipment Preparation
- 3 documents about Racing Rules of Sailing
- 1 document about Media Training

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