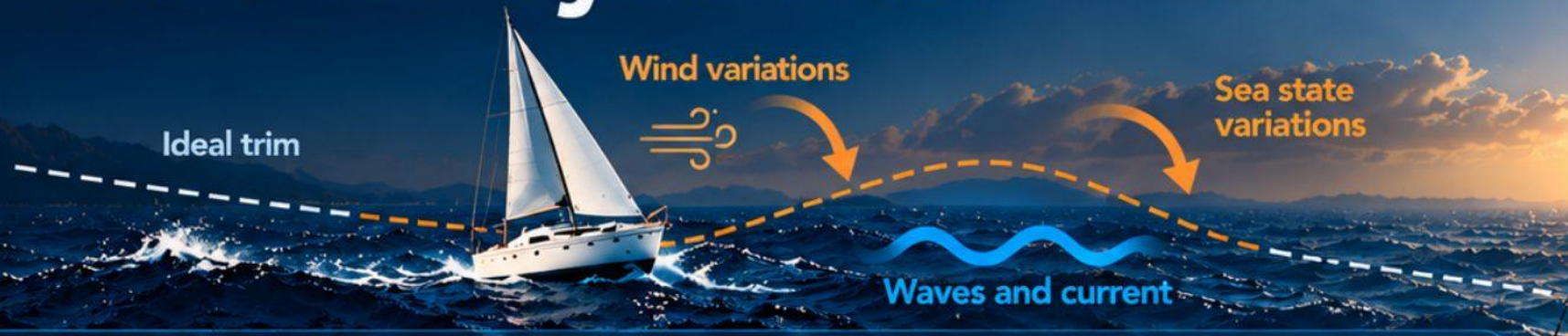
Ω-SAIL: reveals the dynamics

The problem

The boat is constantly seeking the optimal trim, but it is often taken off course by the variability of wind, waves and sea state.



Your boat's data

The onboard instrumentation provides all the information needed.

- Wind direction and speed
- Sea state and current
- Boat speed SOG / STW
- Heading COG and course
- Heel angle
- Rudder angle
- Other data (e.g. NMEA) GPS, barometer, wind sensor, etc.

Ω-SAIL

Reads the data and calculates the evolving trend in a synthetic way.

A single indicator

It shows you in advance the current state and trend, highlighting the available manoeuvring margin.



Manoeuvring margin



A margin still available to return to the optimal trim with lower energy loss.

Ω-SAIL uses what the boat already knows



It does not measure anything new. It interprets together the data already available on board.

NMEA 2000 · Signal K · B&G FastNet

Ω-SAIL warns you before you get into trouble

It recognizes when a situation is getting worse, while the boat still seems to be behaving normally, giving you **a valuable margin for manoeuvre.**

Everything seems normal



The boat is sailing regularly and the instruments show normal values.

Ω-SAIL gives a warning



The indicator signals that the margin is decreasing, even though the boat still appears to be under control.

The situation continues to get worse

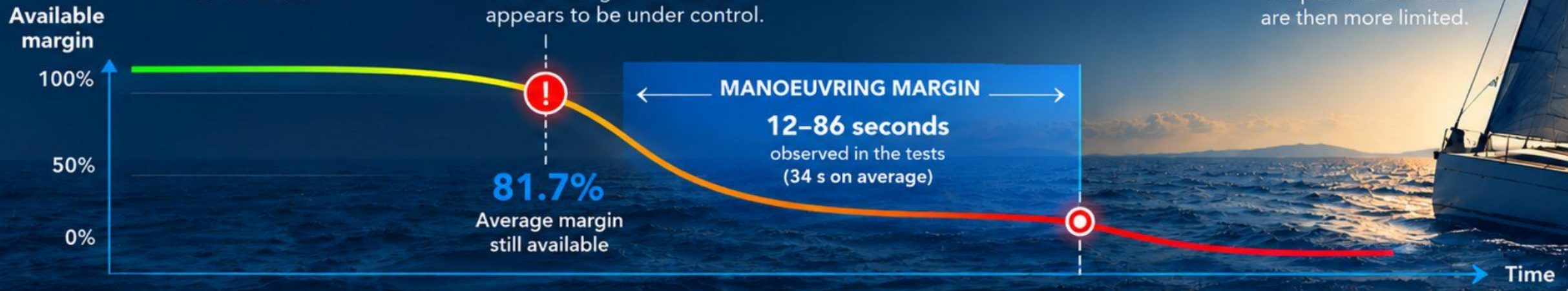


The margin decreases rapidly. This is the time to take action.

If no action is taken



The boat becomes overpowered and goes out of control. The possible reactions are then more limited.



More time
to react calmly and choose the best manoeuvre.

Greater safety
avoid critical situations and make better use of the boat's resources.

Better decisions
based on an objective and continuous signal.

Ω-SAIL how it works

It uses the data already available on board and turns them into a **predictive signal**.

INPUT DATA

Ω-SAIL uses the standard signals from the boat's instruments. No new sensors are required.

MINIMUM — global signal

- SOG, COG (GPS)
- Heading (compass)
- 1 Hz, with timestamp

RECOMMENDED — complete input with three data streams

- Heel angle (IMU)
- AWA + AWS (mast unit)
- STW (log, paddle wheel or ultrasonic)

OPTIONAL — improved control

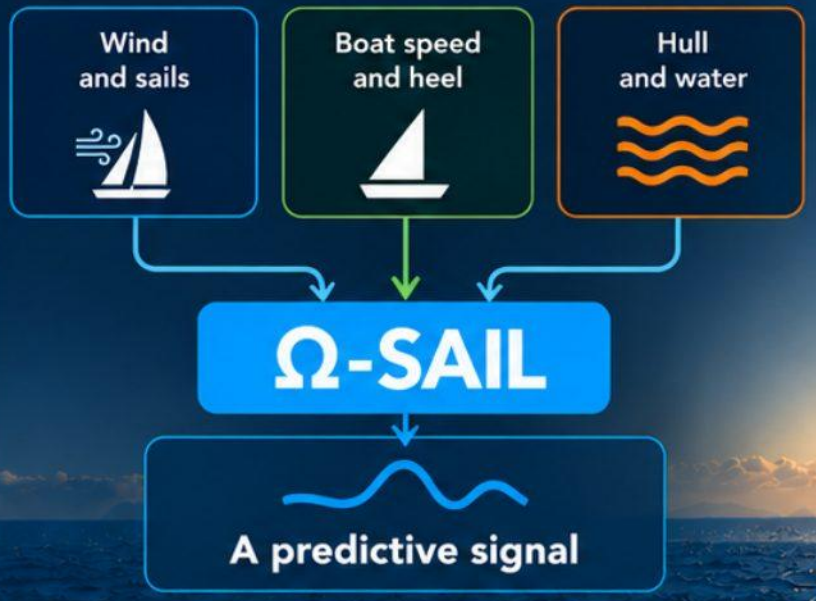
- Rudder angle (direct or derived)
- Leeway, true position
- 1–10 Hz

FORMATS AND SOURCES

- NMEA 2000
- Signal K
- B&G FastNet
- other standard NMEA streams

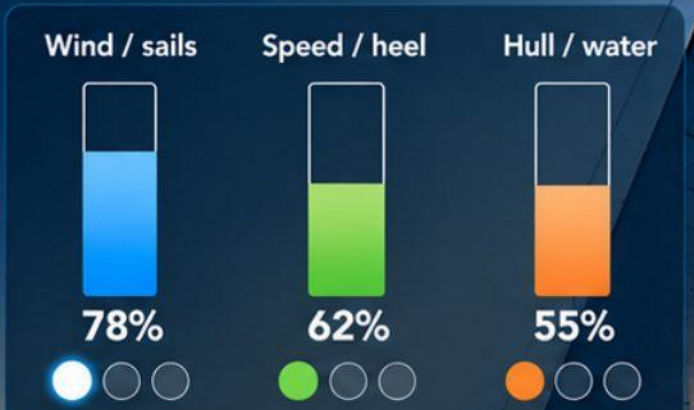
PROCESSING

Ω-SAIL continuously calculates the available margin of use along three load paths and the rate at which this margin is decreasing.



OUTPUT DATA

For each load path a normalised value (0–100%) and its derivatives are provided.



LED INDICATOR LEGEND

- Margin value (0–100%)
- First derivative (increasing / decreasing trend)
- Second derivative (rate of change of the first derivative)

EXAMPLE OF INPUT DATA FLOW

Typical sequence of NMEA (1 Hz) messages read by Ω-SAIL.

MESSAGE	TIME	CONTENT	EXAMPLE
$WIMWV	12:00:00	wind direction and apparent wind speed	`$WIMWV,52.0,T,12.4,N,A`
$GPRMC	12:00:00	position, SOG, COG	`$GPRMC,120000,A,4807.038,N,01131.000,E,7.2,45.0,130626,,,A`
$GPVTG	12:00:00	speed and course over ground	`$GPVTG,046.0,T,,,M,7.4,N,,,K`
!AIVDM	12:00:00	AIS data (other vessels)	`!AIVDM,1,1,,B,TEST,MMSI=227123456,SOG=7.2,COG=45,NAME=BOAT_EU,A`

Ω-SAIL

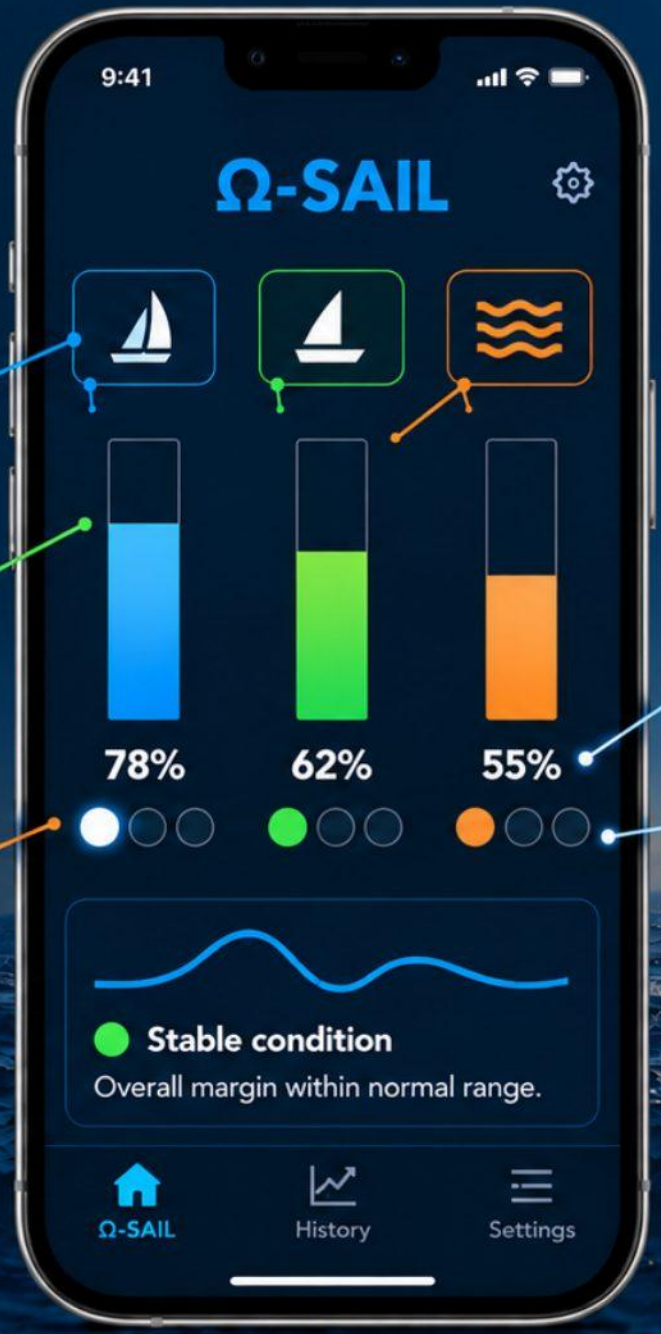
the signal that helps you sail better

Wind and sails
How much margin remains before the sails become overloaded.

Boat speed and heel
How much margin remains before the boat loses balance or efficiency.

Hull and water
How much margin remains before the resistance increases too much or the boat starts to broach.

Uses the data already available on your boat.
NMEA 2000 · Signal K · B&G FastNet



A single view, three key pieces of information.

Margin value
(0–100%)

Trend indicators
Show how quickly the margin is decreasing
(first and second derivative).