WindMar v0.1.9

Weather-routing stability validation

Independent cross-check on 5 diverse routes against a commercial weather-routing solution. We compare the conditions each tool's optimised route encounters (wind / wave / current), the route geometry, and the resulting ETA — not fuel (the commercial reference exposes no fuel model).

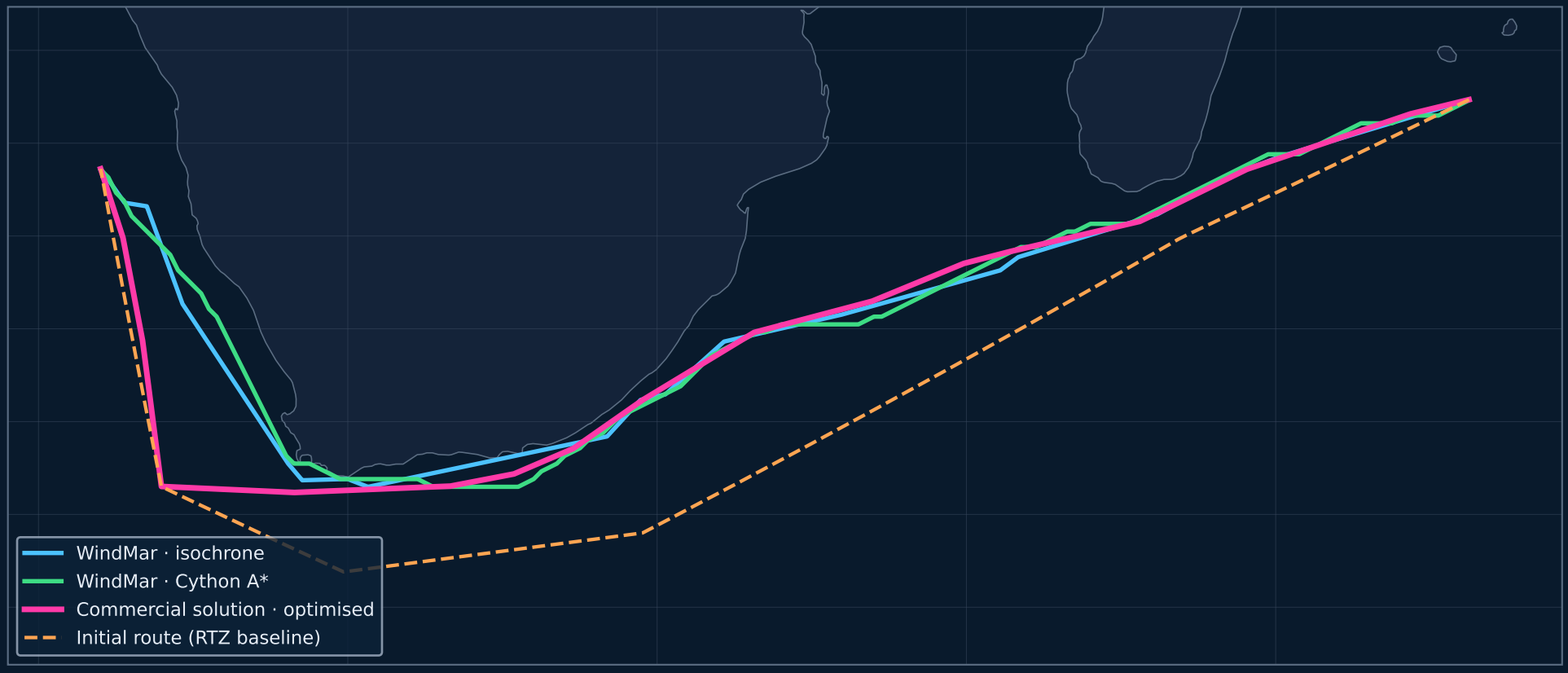
Method: identical RTZ, ETD, draught and calm speed on both sides. WindMar engines: isochrone + Cython A*. The closest-geometry engine is compared per route. Pilot-to-pilot sea passage.

slmar.co · S. Laignel

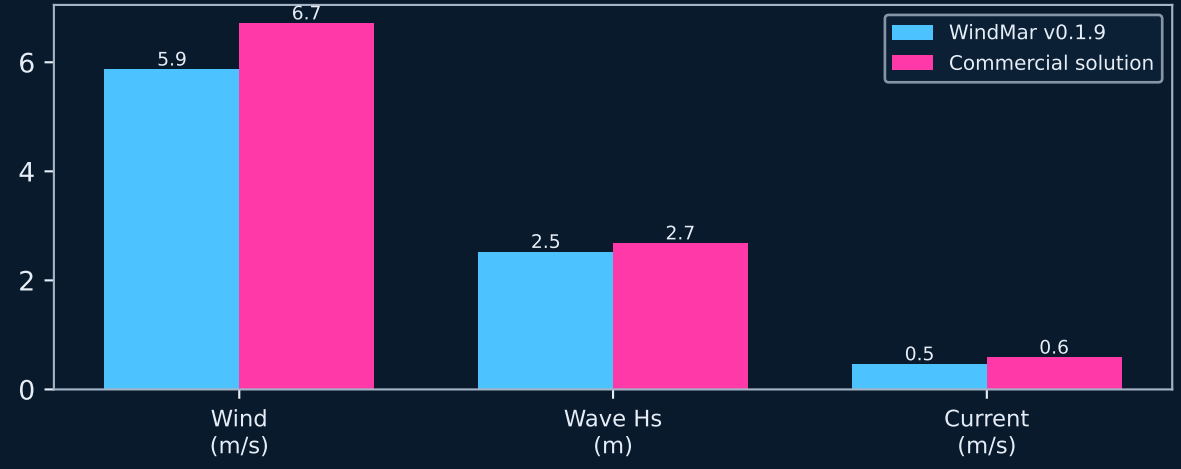
Cape Town → Walvis Bay · Agulhas current axis

Geometry + weather-conditions similarity · no fuel comparison

Route geometry



Mean weather encountered

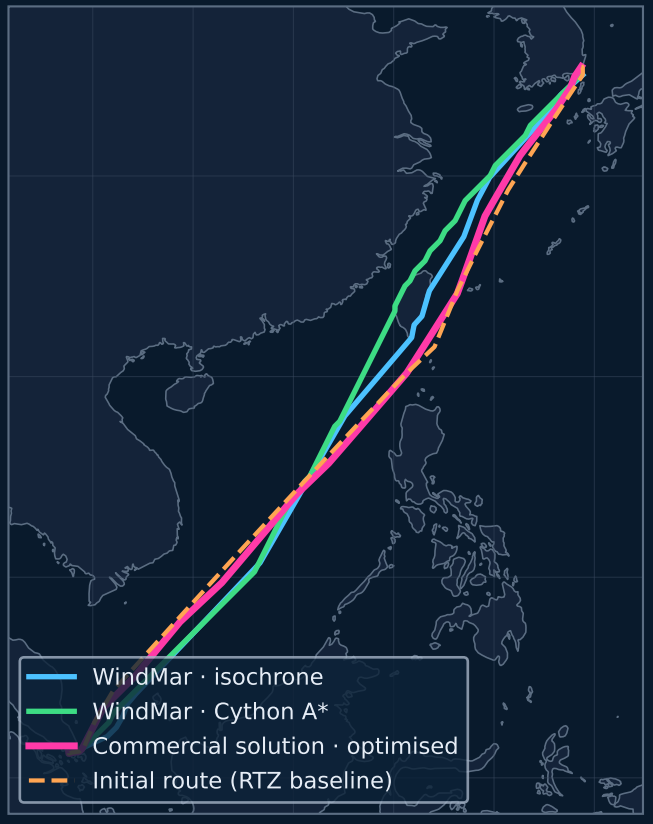


WINDMAR (dist nm · ETA d)	
isochrone	**2855 · 8.7**
Cython A*	**2869 · 8.6**
COMMERCIAL SOLUTION	
optimised	**3000 · 9.8**
INITIAL ROUTE (RTZ, both tools)	
baseline	**3055 · 10.8**
GEOMETRY vs commercial opt.	
mean XT / Hausdorff nm	**25 / 207**

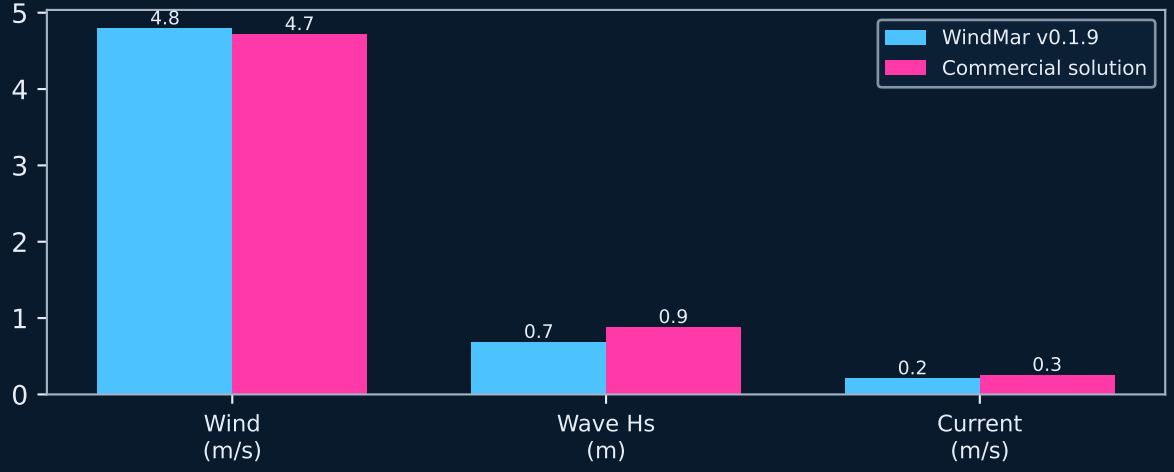
Ulsan → Singapore · NW Pacific + Malacca approach

Geometry + weather-conditions similarity · no fuel comparison

Route geometry



Mean weather encountered

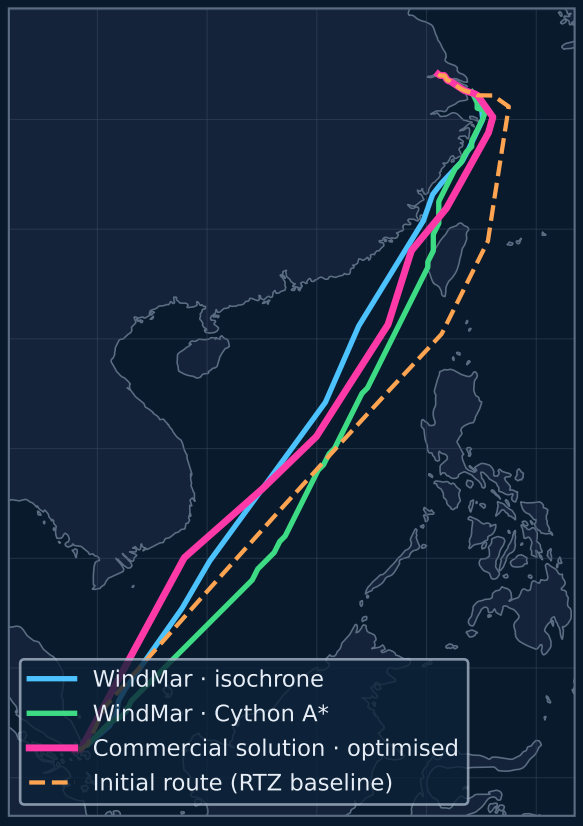


WINDMAR (dist nm · ETA d)	
isochrone	**2486 · 8.0**
Cython A*	**2472 · 8.0**
COMMERCIAL SOLUTION	
optimised	**2557 · 8.4**
INITIAL ROUTE (RTZ, both tools)	
baseline	**2566 · 8.5**
GEOMETRY vs commercial opt.	
mean XT / Hausdorff nm	**40 / 80**

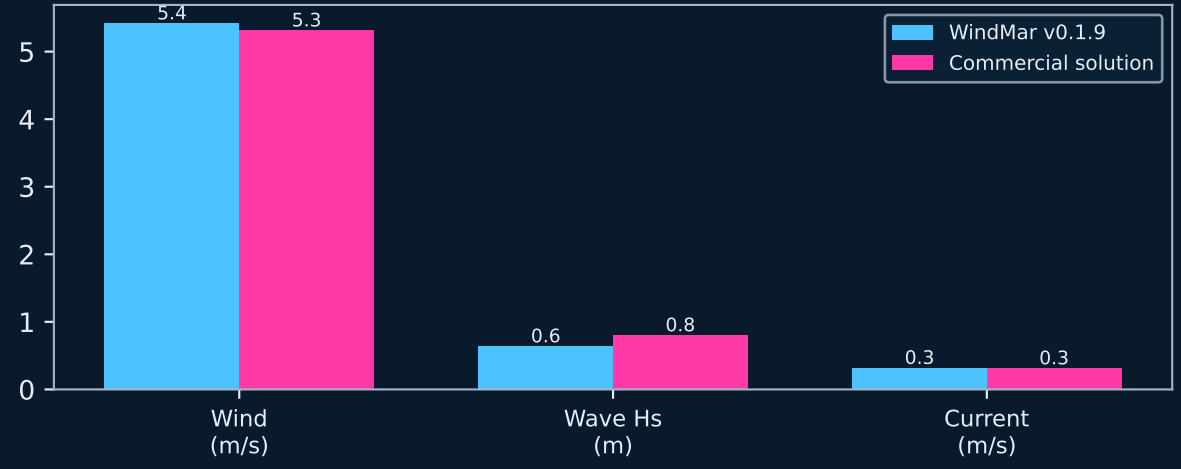
Ningbo → Singapore · dense SE-Asia archipelago

Geometry + weather-conditions similarity · no fuel comparison

Route geometry



Mean weather encountered

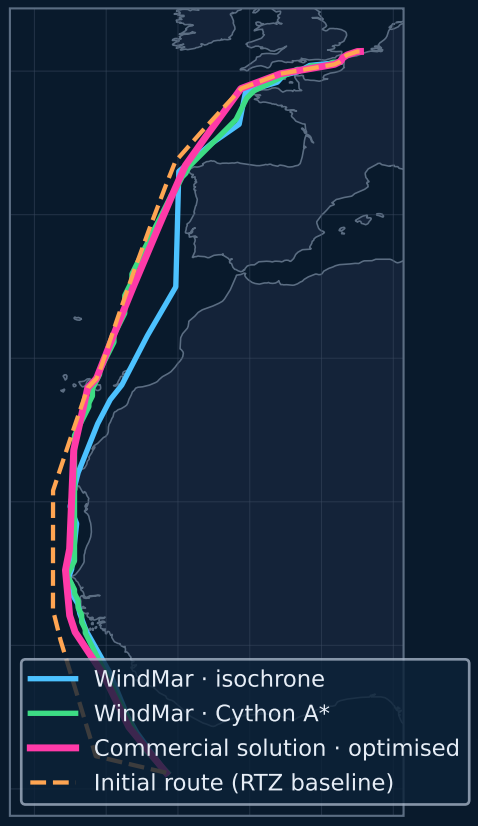


WINDMAR (dist nm · ETA d)	
isochrone	**2050 · 6.7**
Cython A*	**2128 · 6.9**
COMMERCIAL SOLUTION	
optimised	**2270 · 7.5**
INITIAL ROUTE (RTZ, both tools)	
baseline	**2365 · 7.8**
GEOMETRY vs commercial opt.	
mean XT / Hausdorff nm	**34 / 132**

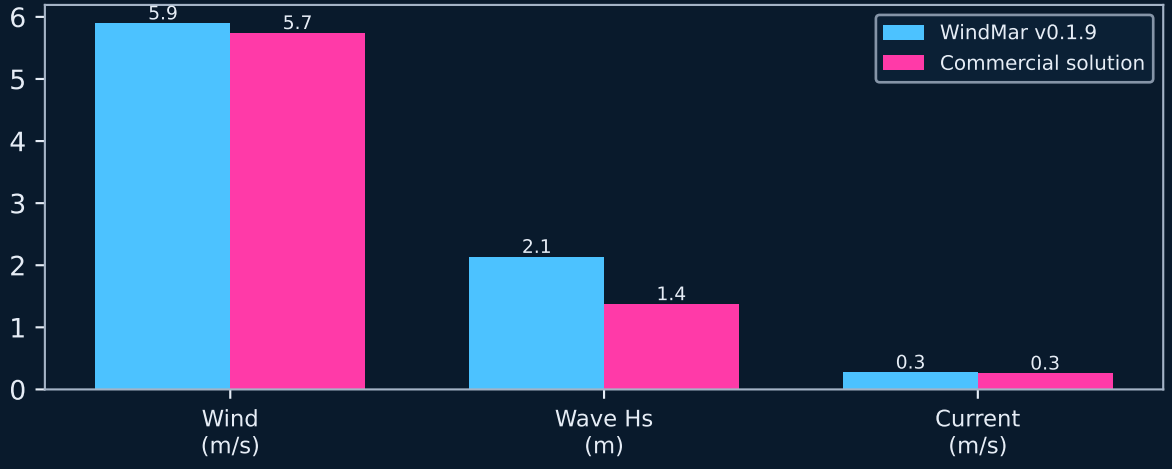
Off-Liberia → ARA range · N Atlantic + Biscay/Channel

Geometry + weather-conditions similarity · no fuel comparison

Route geometry



Mean weather encountered

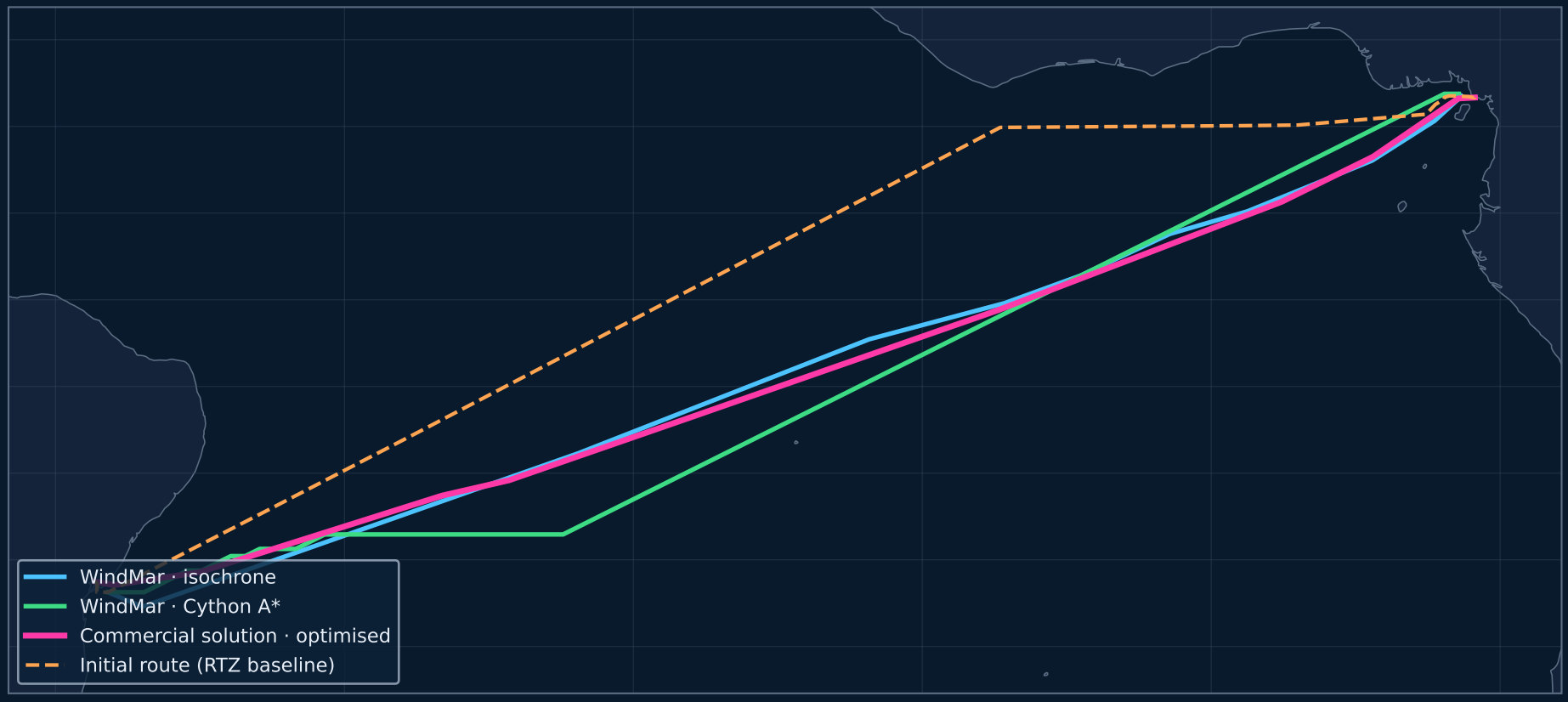


WINDMAR (dist nm · ETA d)	
isochrone	**3391 · 10.9**
Cython A*	**3361 · 10.8**
COMMERCIAL SOLUTION	
optimised	**3457 · 11.6**
INITIAL ROUTE (RTZ, both tools)	
baseline	**3614 · 12.1**
GEOMETRY vs commercial opt.	
mean XT / Hausdorff nm	**15 / 70**

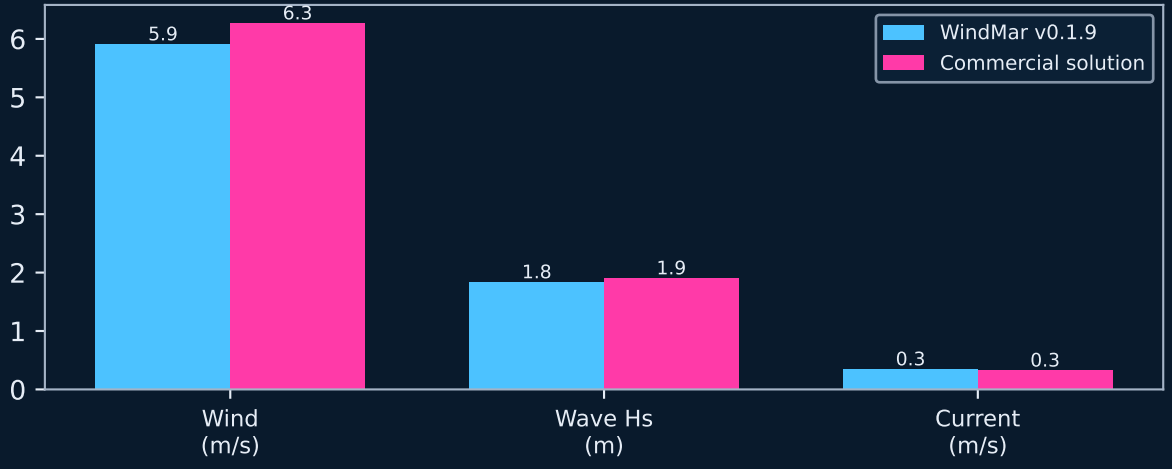
Limbe → Madre de Deus · S-Atlantic equatorial crossing

Geometry + weather-conditions similarity · no fuel comparison

Route geometry



Mean weather encountered



WINDMAR (dist nm · ETA d)	
isochrone	**3004 · 9.3**
Cython A*	**3020 · 9.4**
COMMERCIAL SOLUTION	
optimised	**3039 · 9.6**
INITIAL ROUTE (RTZ, both tools)	
baseline	**3130 · 10.1**
GEOMETRY vs commercial opt.	
mean XT / Hausdorff nm	**15 / 71**

Summary — agreement across routes

Route	WM/Com dist nm	ETA Δ (h)	XT mean nm	Hausdorff nm
Agulhas	2855 / 3000	-25.0	25	207
VOY04_KROSN-SGSIN	2486 / 2557	-8.9	40	80
VOY07_CNNTG-SGSIN	2050 / 2270	-19.5	34	132
DEVPT-ARA	3361 / 3457	-20.1	15	70
CMLMB-BRMDD	3004 / 3039	-6.3	15	71

Across the set, WindMar's optimised routes track the commercial reference's geometry and encounter statistically similar weather, with comparable ETAs — two independent pipelines converging on the same operational picture.