

Wind propulsion for cargo ships: a **new** approach

Sustainable Sea Transport
Talanoa 28 – 30 November 2012



Patrick ENGLEBERT

Vast experience with large industrial projects and innovations:

TRACTEBEL

(power, desalination, waste treatment)

EXMAR

(shipping, offshore, aquaculture, LNG STS & liquefaction)



The PELICAN **new** approach:

Maximum use of the proven
technology from

OCEAN SAIL RACING

and

AMERICA's CUP

for **CARGO SHIPS**



PROPELWIND

Project Dream Team



HDS



GIORGIO PROVINCIALI

Jean-Luc NELIAS



Our Wind Main Engine: The WINGSAIL



no **wear**, no replacement



thrust =

2 x softsail (passive)

3 x softsail (active, with BLS*)



no **size** / height limit

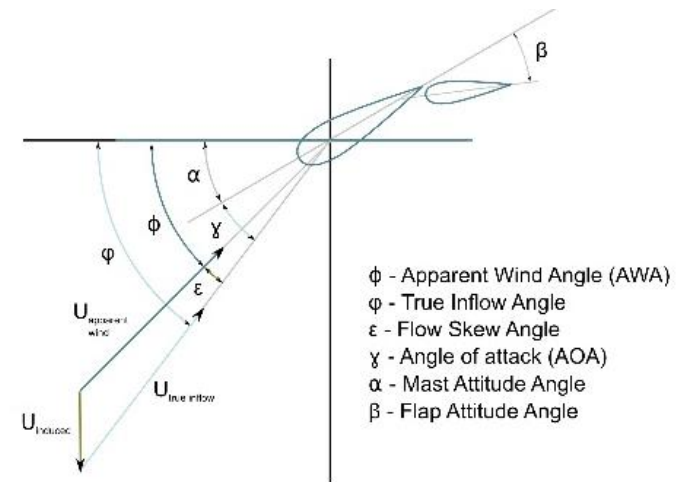


suitable for **automation**

(-> reduced manning / training)



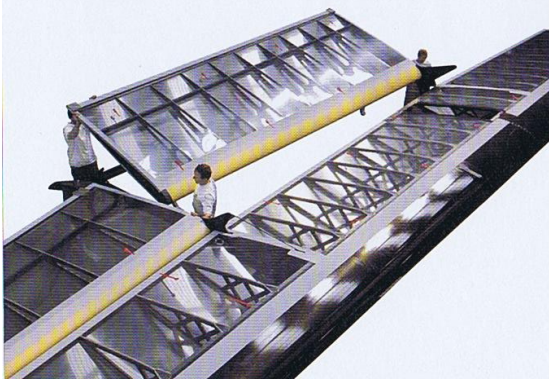
best **upwind** performance



*Boundary Layer Suction



The racing Wingsail



Courtesy: Voiles et Voiliers / Gilles Martin - Raget



The Wingsail : America's Cup

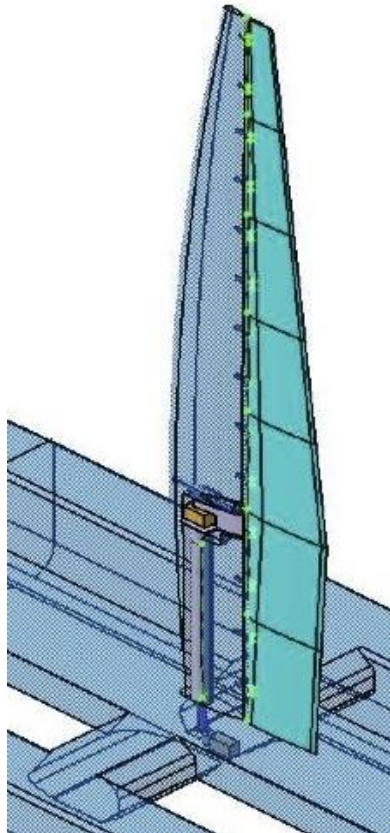
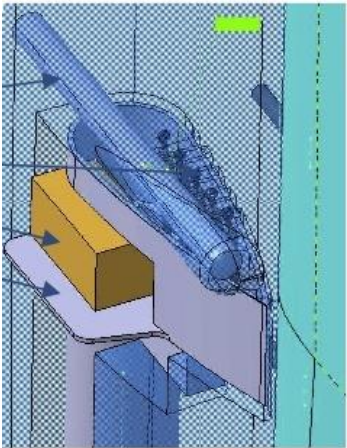
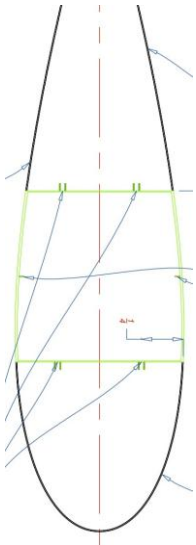


<http://www.americascup.com/>



The Wingsail

Industrial technology*



- ✓ Unstayed (*safety*)
- ✓ Tilttable / foldable (*option*)
- ✓ Power / E&I control
- ✓ Heavy duty materials
- ✓ Few moving parts

* Patent protection



Performance

for **main** propulsion:

- ✓ Average speed range **13 .. 15** knots (target)
- ✓ Less than **10%** engine use in deepsea trade
- ✓ Fuel consumption / emissions **divided by 10 or more**

Monohull performances similar to multihulls
(*even with a heel angle limited to 5°*)



Limitations for main* propulsion:

- **Short term target** (today's limitations):

Applicable up to **10,000 tdw** :

- light cargoes: cruise, cars, liquid gas, ...
- favourable routes
- no crane for cargo handling

- **Next target:**

Feeder Containerships with alternative cargo logistics

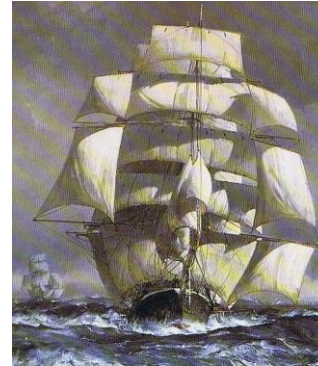
* *concept also suitable for **assistance** to propulsion*



Why it should not

STOP

this time?

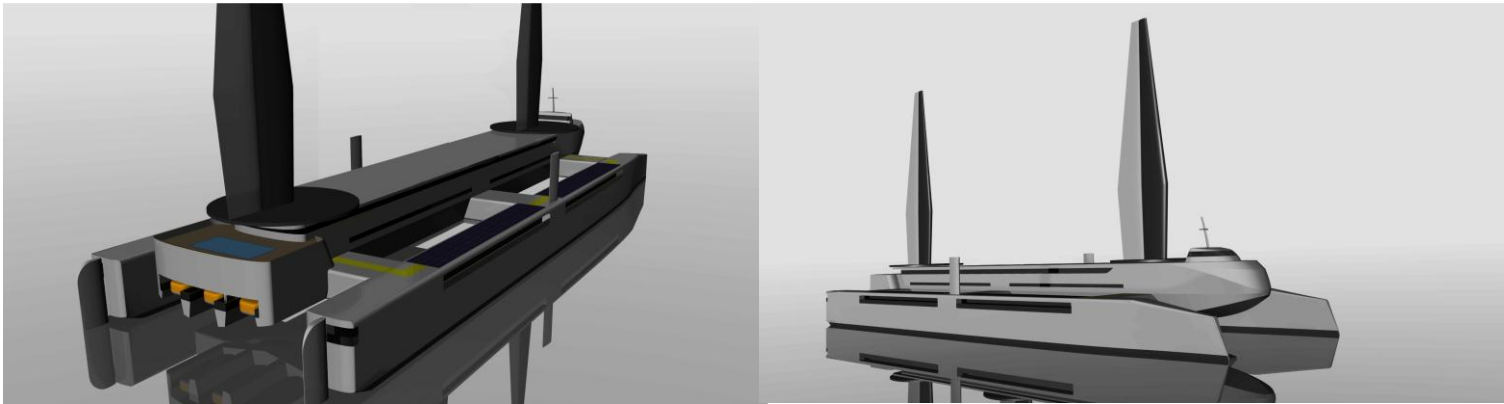
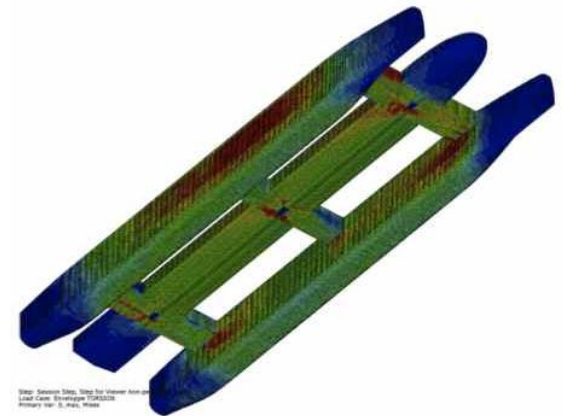


| Problem | Remedy |
|--------------------------|--|
| Slow | Speed from: - Sport technology - Wingsail performance (including upwind) |
| Unpredictable ETA | - Wind routing - Mechanical power |
| Crew size and skill | Wingsail automation |
| Excessive heel angle | - Monohull: max. 5° OK - Multihulls: no heel |
| Limited mechanical power | - Today's solutions (pods, diesel-electric, ...) - LNG as fuel |



What can PROPELWIND bring to South Pacific?

- A specific **innovative** solution :
 - loading capacity
 - shipping routes
 - local wind / wave conditions
 - mix light cargo – passengers
 - catamaran / trimaran / monohull
 - shallow draft
 - interface with infrastructure
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Thank you!

More? Please contact:

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