



# SKYSAILS – INNOVATIONS FOR EFFICIENT SHIPPING

Fabian Juers

# WHO WE ARE

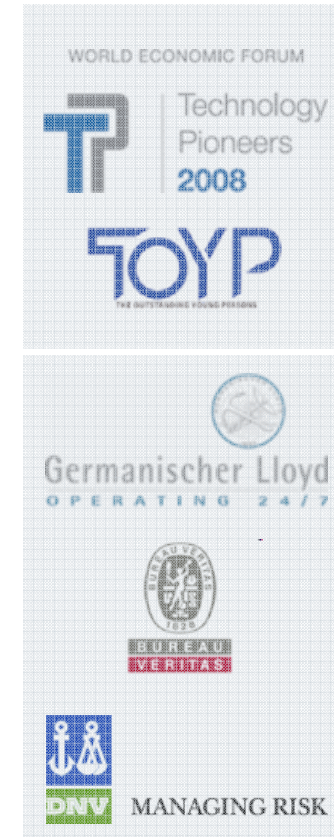


We deliver

- unique technologies
- for the marine and energy industry
- that increase profits and reduce emissions

We have

- 10 years of practical experience
- A team of 40 highly qualified employees
- Products that are used in daily operation



Main Investors



Customers, e.g.



## PARADIGM SHIFT IN SHIPPING



- Bunker price development drives constant operational cost
- Emission regulation has started (e.g. EEDI, SEEMP)
- NO<sub>x</sub>/CO<sub>2</sub> certificate trading in shipping/logistics at the verge
- owners and charterers require "Green Transport"

→ **New concepts for vessels required**



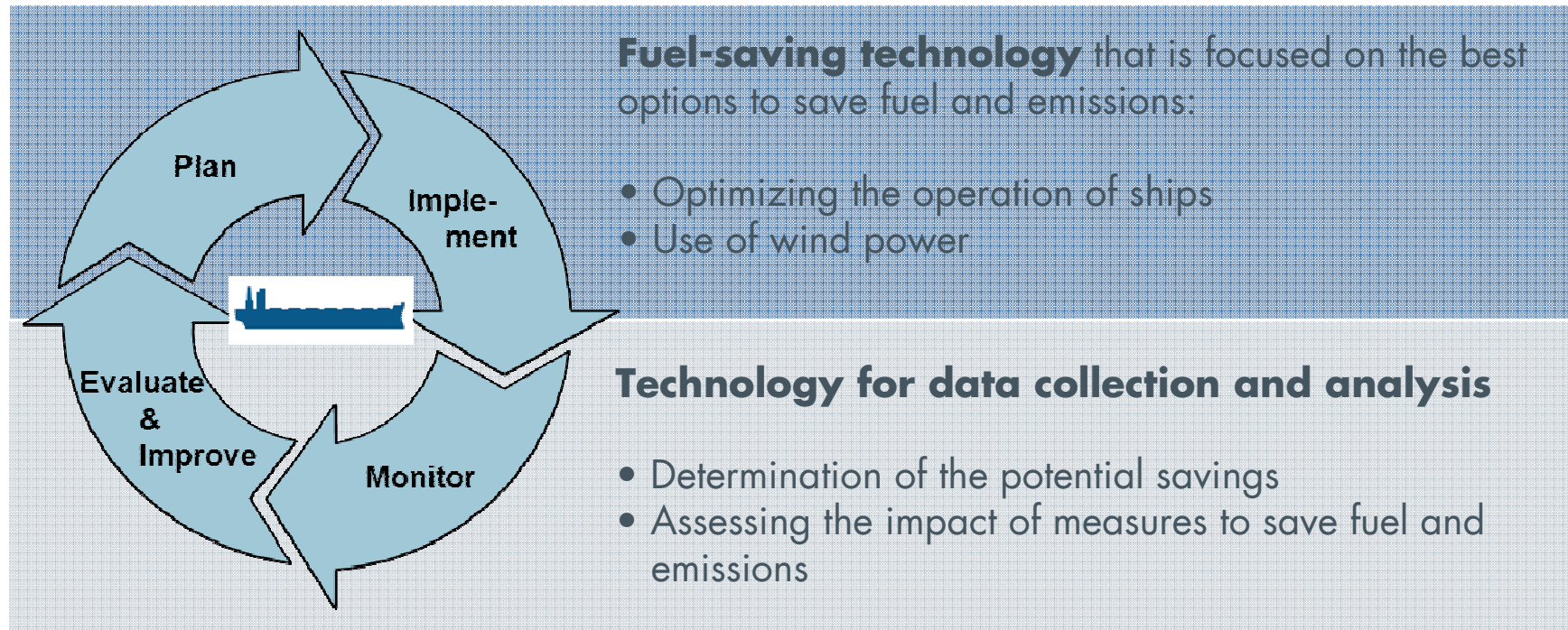
*"In a world of finite resources, environmental stewardship makes good business sense. As one of the world's largest charterers of dry bulk freight, we take this commitment extremely seriously. In addition to lowering greenhouse gas emissions, the SkySails technology aims to significantly reduce fuel consumption and costs. We are very impressed with the technology and see its installation on one of our chartered ships as the first part of an ongoing, long-term partnership."*

*Gert-Jan van den Akker, President of Cargill Ocean Transportation*

# HOLISTIC APPROACH



**SkySails' products** cover a program for reducing emissions in a holistic and systematic approach:





# TWO PRODUCTS



## SkySails Propulsion System



**Wind Power – Next Generation**

## SkyPM



**Optimize in real time  
and save fuel**

# 1. SKYSAILS PROPULSION SYSTEM

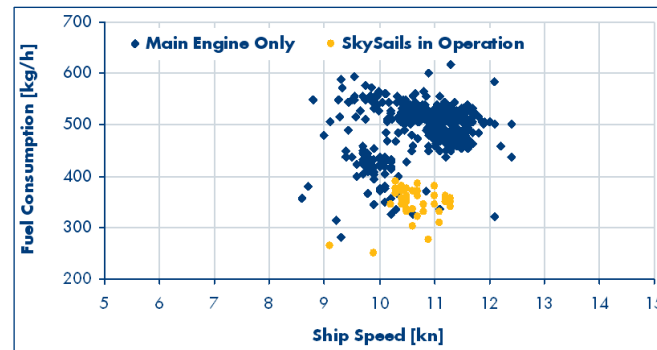
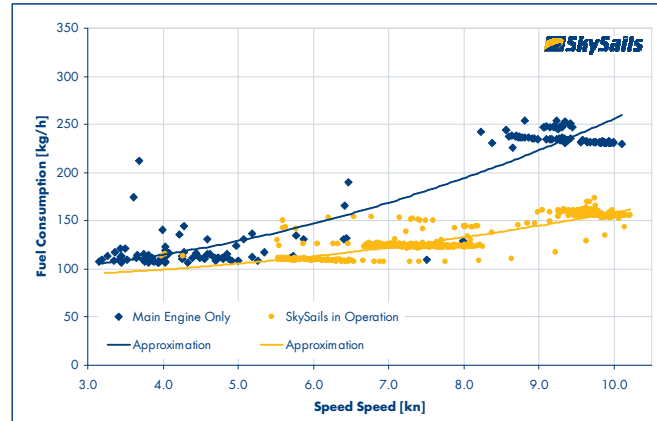


- 25\* more power than traditional sails
- measured propulsion power: up to 2,000 kW





# 1. SKYSAILS PROPULSION SYSTEM



- Savings  
~1-3 tons of oil/day  
~165,000 ¥ /day
- Use time:  
20 - 40% of all days at sea
- Annual cost reduction:  
16 Mio – 32 Mio ¥
- Annual CO<sub>2</sub> reduction:  
1,000 – 2,000 tons

| Comparison operating costs          | SkySails*   | Main engine** |
|-------------------------------------|-------------|---------------|
| Costs propulsion power (¥ /kWh)     | 4.75 – 6.35 | 11.10 – 15.68 |
| Emissions (kg CO <sub>2</sub> /kWh) | None        | 0.636         |

\* Propulsion efficiency factor: 0.6

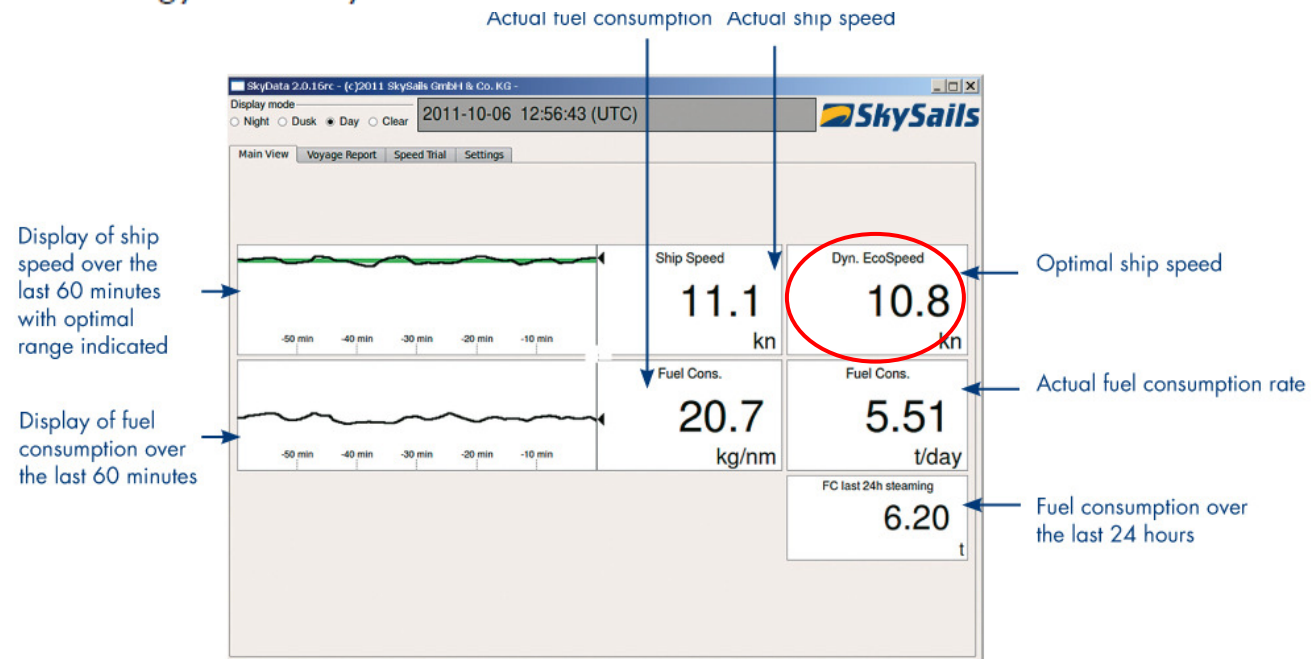
\*\* SFC 0.2 kg/kWh, IFO LS380: 700 US\$/ton, US-\$/ ¥ : 1:80

## 2. SKYSAILS PERFORMANCE MONITOR



The SkySails Performance Monitor provides onboard and onshore data and decision support for operational optimization in order to maximize energy efficiency. This leads to

- increased profitability
- reduced fuel consumption and emissions
- strengthened competitive advantage
- complete operational overview
- increased awareness for energy efficiency





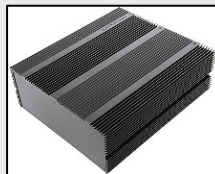
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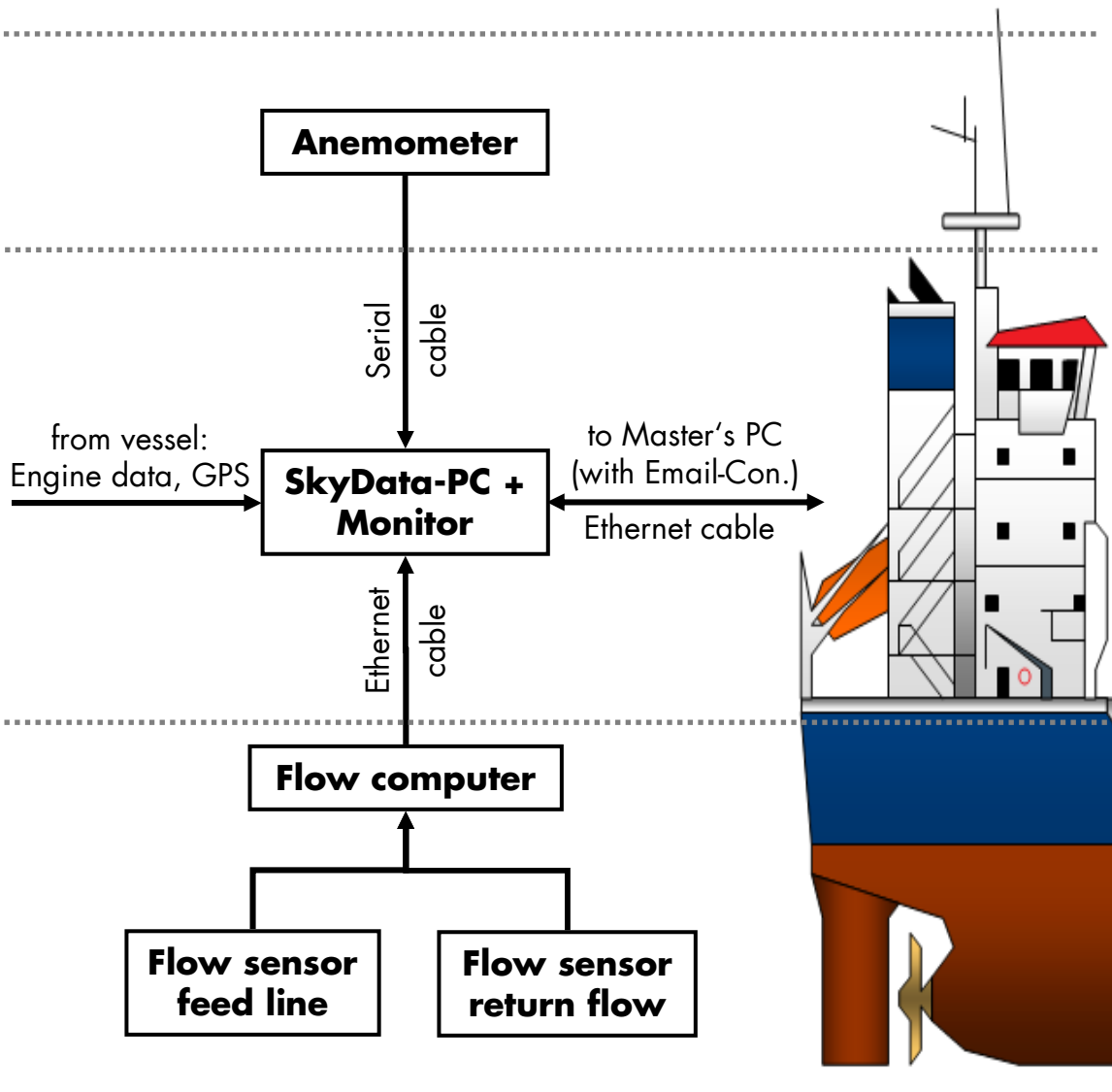
"Monkey Island"



Bridge



Engine Room



**THANK YOU FOR YOUR ATTENTION!**

**SkySails GmbH**  
**Veritaskai 3**  
**D-21079 Hamburg**  
**[www.SKYSAILS.com](http://www.SKYSAILS.com)**

