ShipShape

Efficiency at Sea, Emission-Free

Group 7 : Knot2Far

Agenda

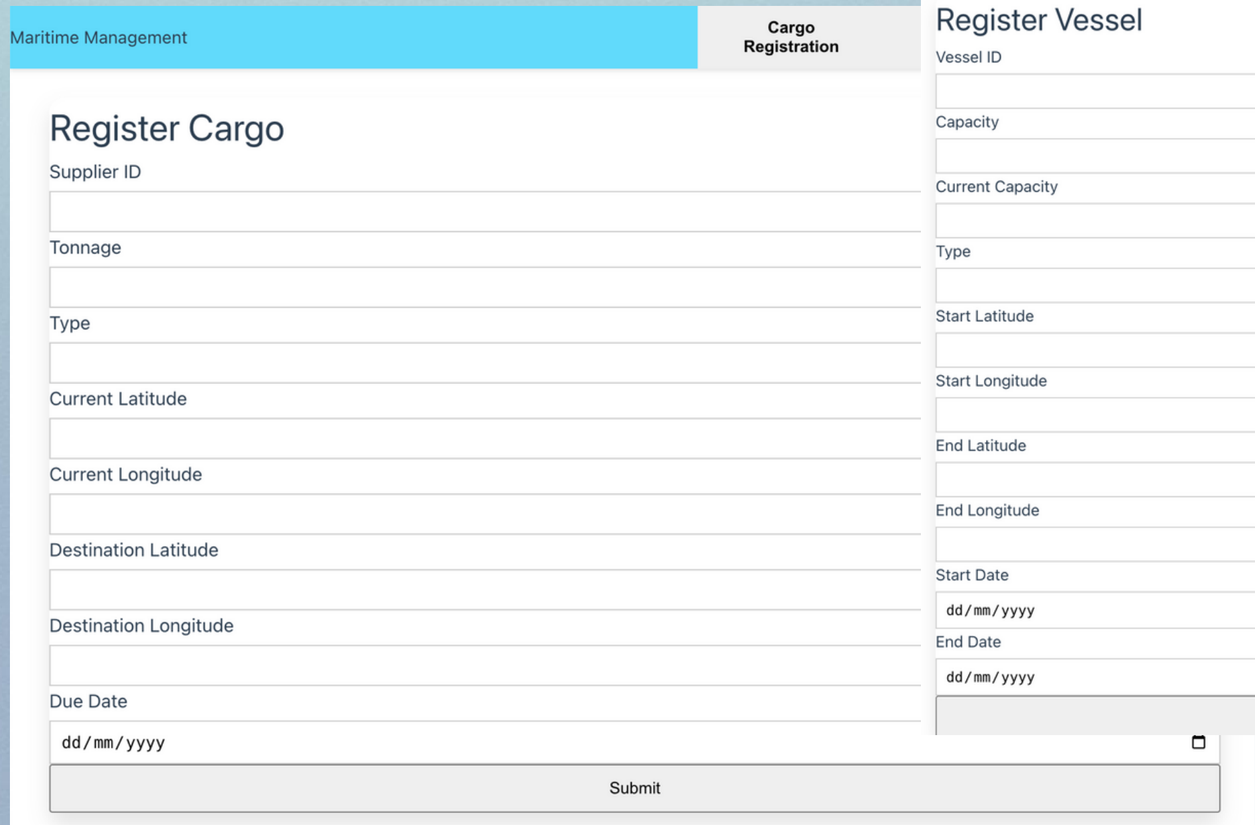
01 SHIPSHAPE

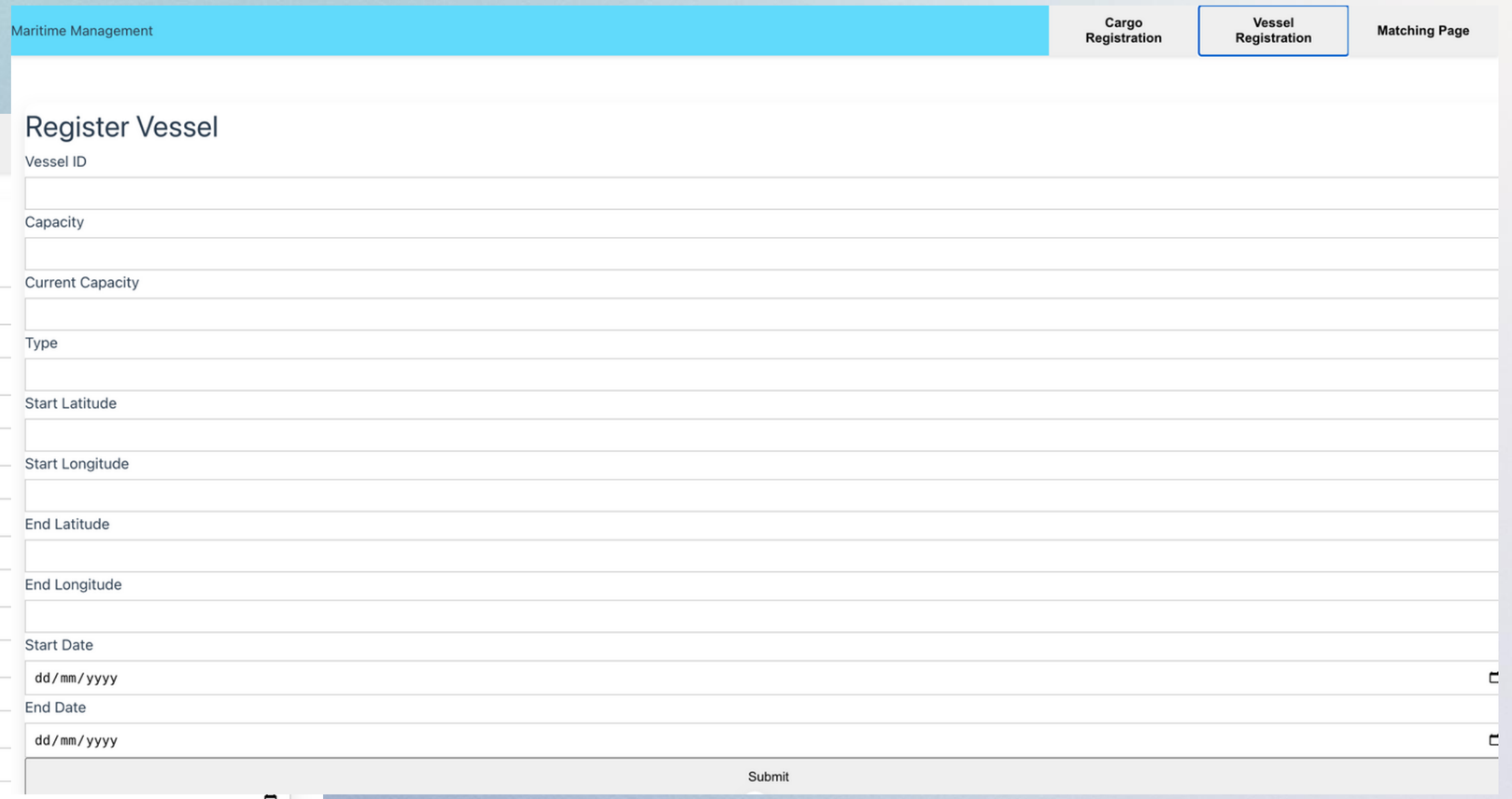
02 Safe Route

03 Smart Route

04 CargoSync

ShipShape's Efficient Management





A need for SafeRoute

Shipping Lane Closures

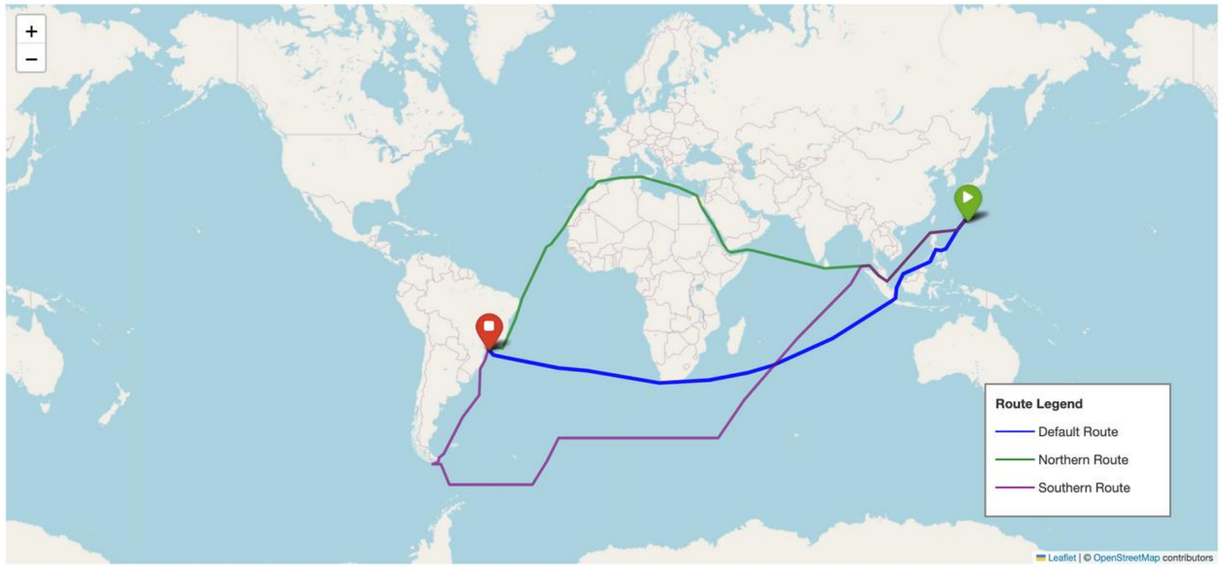
- War zones, piracy, accidents, and natural disasters can suddenly close critical shipping lanes
- Increases fuel consumption, extends delivery times, and significantly raises CO2 emissions
- A solution is required that considers multiple viable alternatives and visualises the anticipated cost - enabling a more transparent decision making process

Your solution, SafeRoute

Route Comparison Results

	Route	Distance (nm)	Time (days)	Fuel (tons)	CO2 (tons)	Description
0	Default Route	11157.7	35.8	1692474.4	5426073.0	Standard route following the most direct navigable path
1	Northern Route	18327.6	58.7	2788321.7	8939359.2	Alternative route passing through Strait of Gibraltar, Panama Canal
2	Southern Route	14104.1	45.2	2137390.2	6852473.0	Alternative route passing through Strait of Malacca, Cape Horn

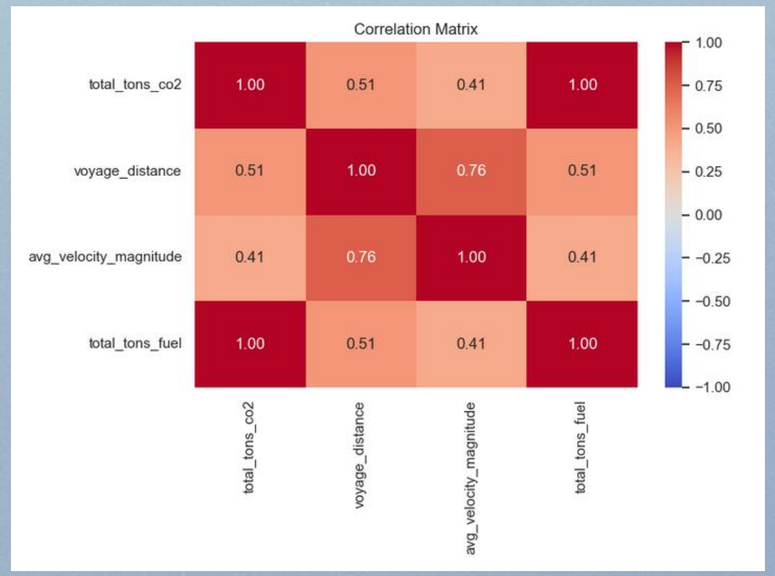
All Routes Comparison



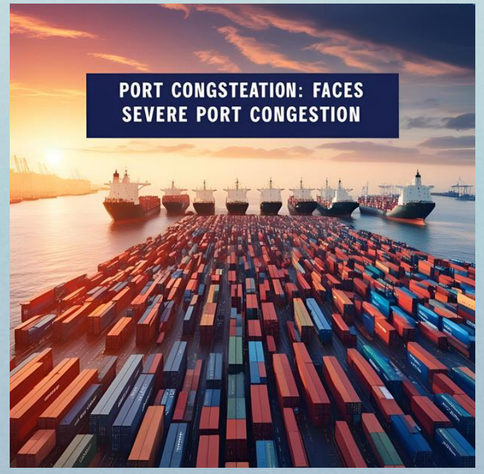
Enter SmartRoute

Tailoring our Approach

- **Emissions Tracking:** Essential for vessel operators in today's environmentally-conscious regulatory landscape
- **Empirical evidence:** Your emissions are impacted by the actions that your vessels take
- **Business-Conscious Solutions:** Our routing optimizes both on-time delivery and emissions reduction, addressing the dual priorities of modern shipping



Reacting to changing conditions to maximise efficiency based on real-time data.



Faster routes: Minimizing delays caused by port congestion

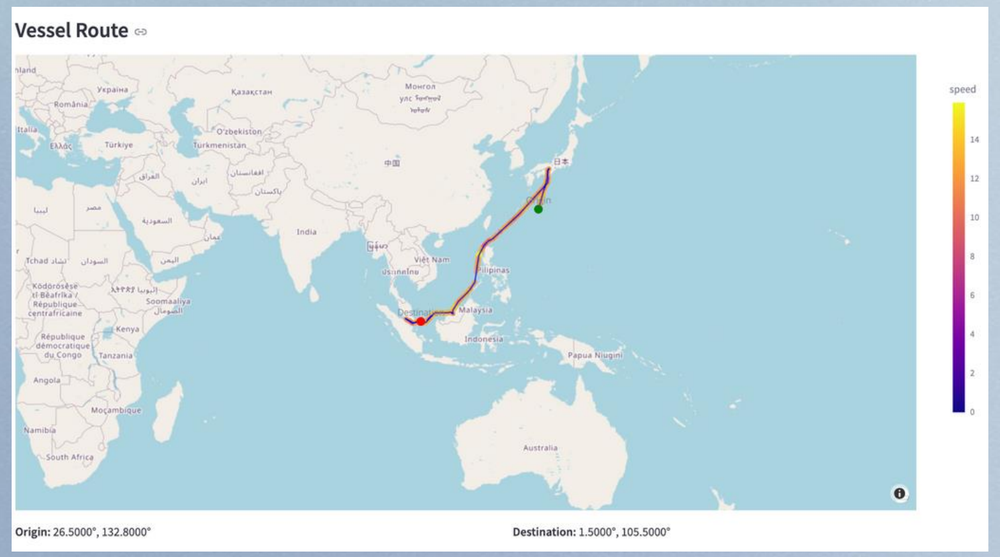
Fuel efficiency: Adjusting routes according to ocean currents

Vessel efficiency: Optimizing the cargo load on each vessel

Monitoring AIS Data

Our Approach

- AIS data provides us with different vessel characteristics at different time intervals
- We build a model to derive bunker fuel consumed and emissions for each voyage
- Visualisation in dashboard



Select Vessel

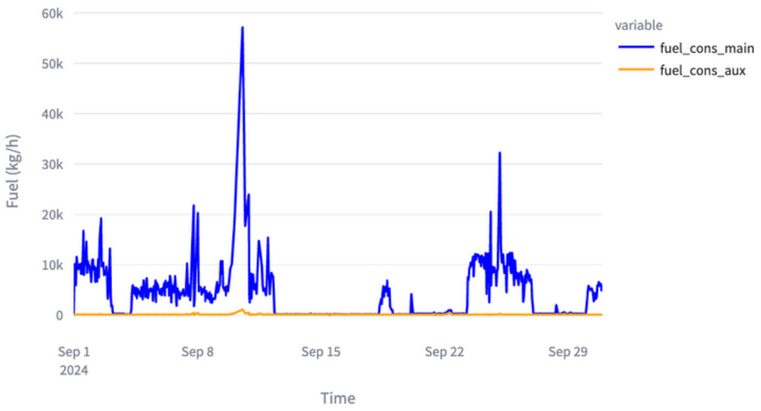
139296.0

Vessel Type	DWT	Voyage Start	Voyage End
Gas carrier	84,303 tons	2024-08-31	2024-09-30

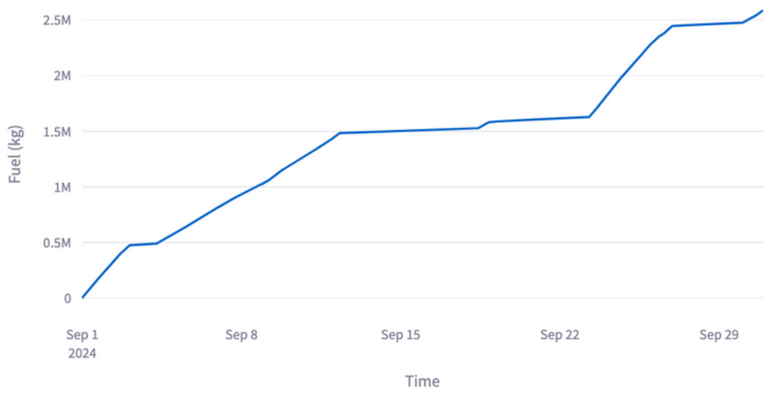
Route Map | Speed & Distance | Velocity Analysis | Fuel Consumption | GHG Emissions

Fuel Consumption Analysis

Fuel Consumption Rate (kg/h)



Cumulative Fuel Consumption (kg)



Total Fuel (Main Engine)	Total Fuel (Auxiliary)	Daily Fuel Consumption
2513214.2 kg	71900.0 kg	86.30 tons/day

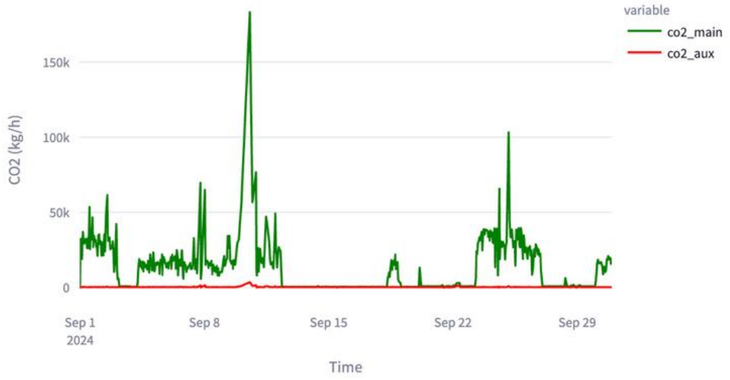
139296.0

Vessel Type	DWT	Voyage Start	Voyage End
Gas carrier	84,303 tons	2024-08-31	2024-09-30

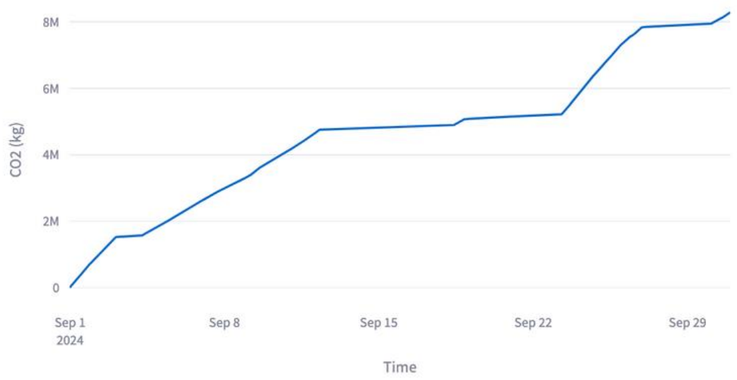
Route Map | Speed & Distance | Velocity Analysis | Fuel Consumption | GHG Emissions

GHG Emissions Analysis

CO2 Emission Rate (kg/h)



Cumulative CO2 Emissions (kg)

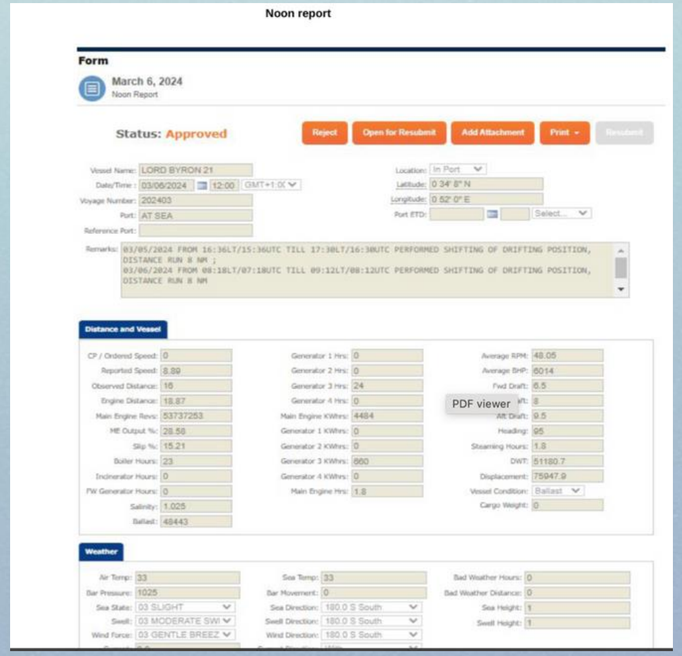


Total CO2 (Main Engine)	Total CO2 (Auxiliary)	Daily CO2 Emissions
8057361.3 kg	230511.0 kg	276.60 tons/day

CO2 Emissions Intensity

1892.47 kg/nm

From data to decisions




```
(myenv) (base) despog@HUANs-MacBook-Pro challenge-2 % /Users/des
lenge-2/myenv/bin/python /Users/despog/Downloads/T7/challenge-2/

2022-08-02 00:00:00 11.0 264.0 26200.0 83997.2

2022-08-03 00:00:00 10.4 249.60000000000002 32200.0 103233.2

2022-08-04 00:00:00 10.9 261.6 32500.0 104195.0

2022-08-05 00:00:00 11.3 271.20000000000005 35100.0 112530.6

2022-08-06 00:00:00 11.1 266.4 32500.0 104195.0
```

Raw Data

Stats : Velocity, Distance, Fuel,
GHG Emissions

CargoSync

```
Processing vessel: gas carrier, Cargo Weight: 30999.999999999996, CO2: 5458.2, Distan
ce: 6258.7
Processing vessel: bulk carrier, Cargo Weight: 40550.0, CO2: 14815.8, Distance: 8983.
0
Processing vessel: tanker, Cargo Weight: 2396.0, CO2: 409.3, Distance: 3009.3
Processing vessel: bulk carrier, Cargo Weight: 63553.0, CO2: 13398.8, Distance: 5709.
8
Processing vessel: tanker, Cargo Weight: 9500.0, CO2: 296.5, Distance: 2114.3
Processing vessel: bulk carrier, Cargo Weight: 9552.0, CO2: 246.4, Distance: 1868.8

GHG Emissions per Tonne of Cargo per Kilometer for Each Vessel Type (in gCO₂e):
  Gas carrier: 89.894619 gCO₂e per tonne-kilometre
  Tanker: 132.257231 gCO₂e per tonne-kilometre
  Bulk carrier: 414.963734 gCO₂e per tonne-kilometre
```

AIS data

Influencing Factor

Key consideration factor when mapping cargos to available vessels

Our Solutions for you

Vessel Owners

SAFE Route

Smart Route

Cargo Exporters

CargoSync

Thank You!

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