



EfficienSea2 Conference:
**GETTING CONNECTED
TO THE FUTURE**

8-9 November 2016



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EfficienSea2 solution for automated sulphur emission monitoring

An authority perspective

08-11-2016

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Why sulphur?



January 1, 2015:

Sulphur limit at 0,1 %
in marine fuels used in
SECA's (blue areas)

January 1, 2020:

Expected sulphur limit at
0,5 % in marine fuels used
anywhere in the world

Compliance methods

- Low sulphur fuel
- Alternative fuel types
- Abatement methods

The Enforcement Challenge

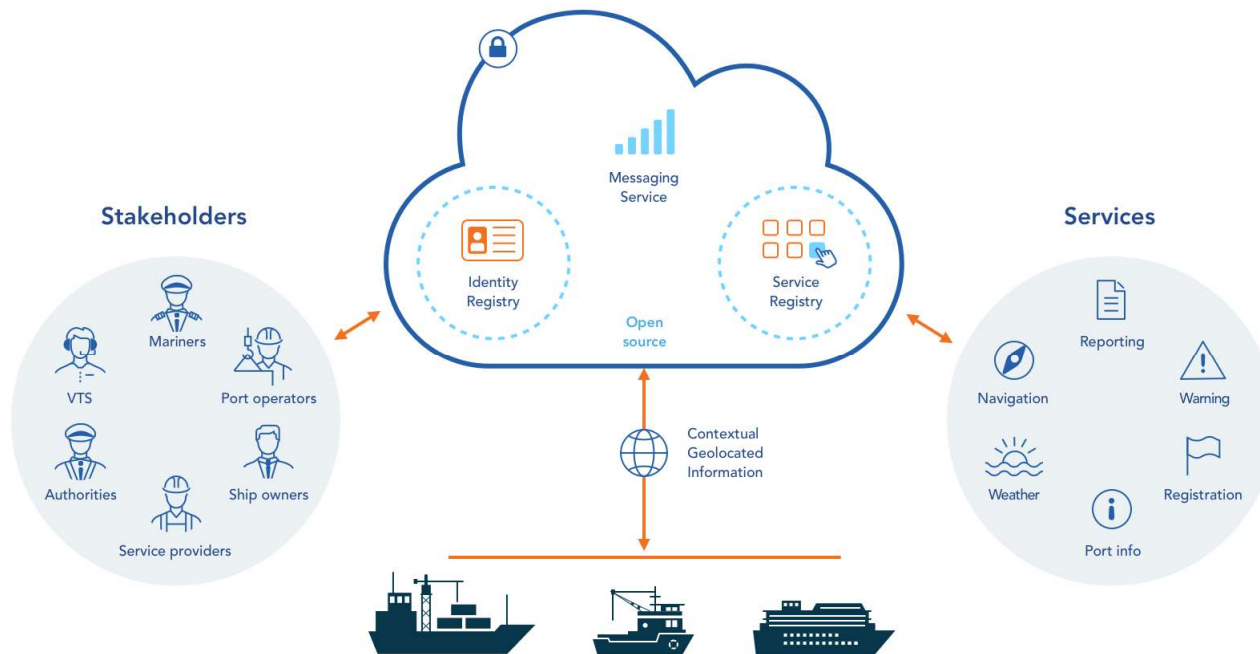
Document control and
fuel sampling



Surveillance
(experimental)



A possible solution





NEXT UP:

EfficienSea2 may be part of the solution...

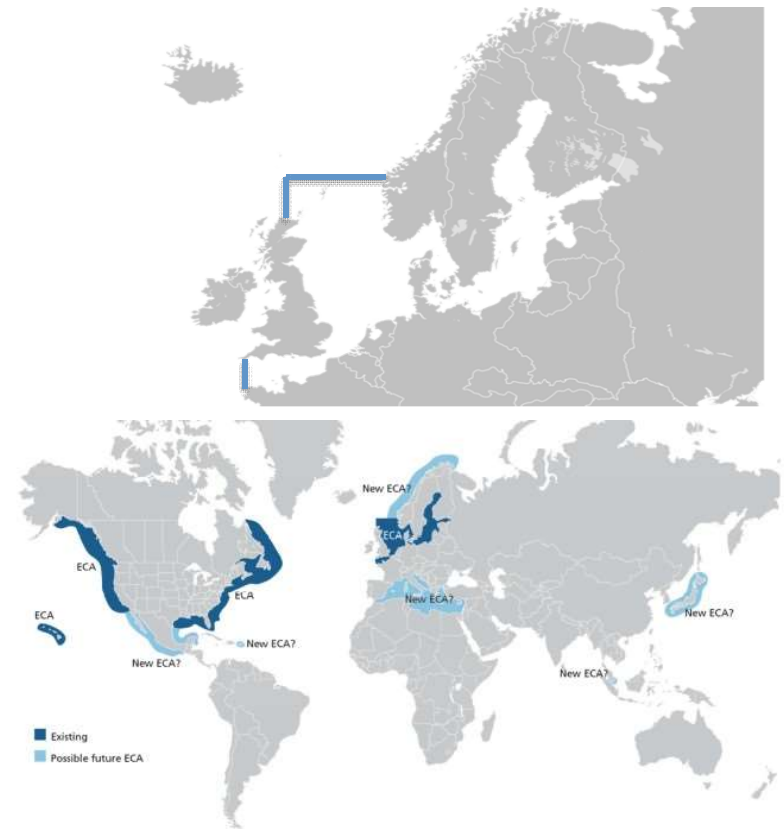


Agenda

- Background and Roadmap
- Presentation of our case
- The business case, incentives and enforcement
- A proposed solution for automated sulphur emission monitoring

EU, SECA and IMO Global sulphur cap

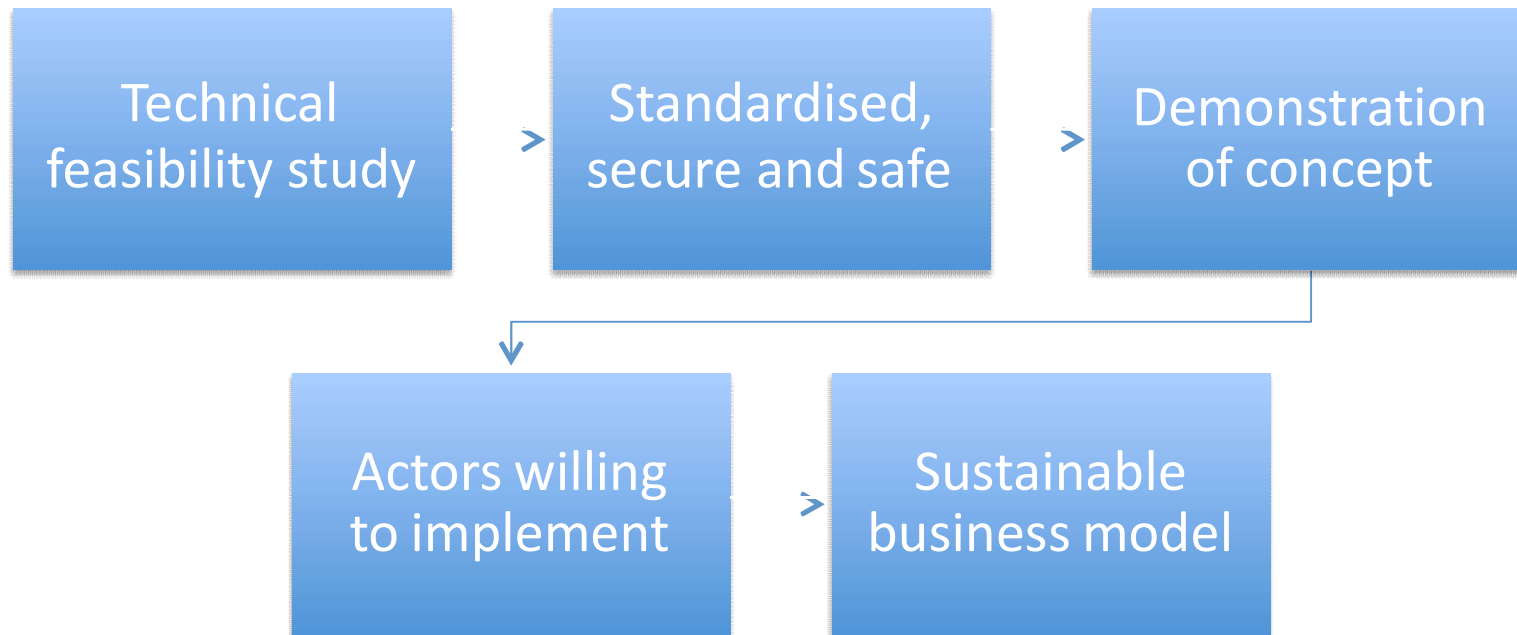
- EU Directive
 - 0.1 % in all ports 2010
- IMO SECA in North Sea and Baltic Sea
 - 0.1 % in 2015
- IMO Global Sulphur Cap
 - 0.5 % in 2020
 - Increasing number of “low sulphur” ports



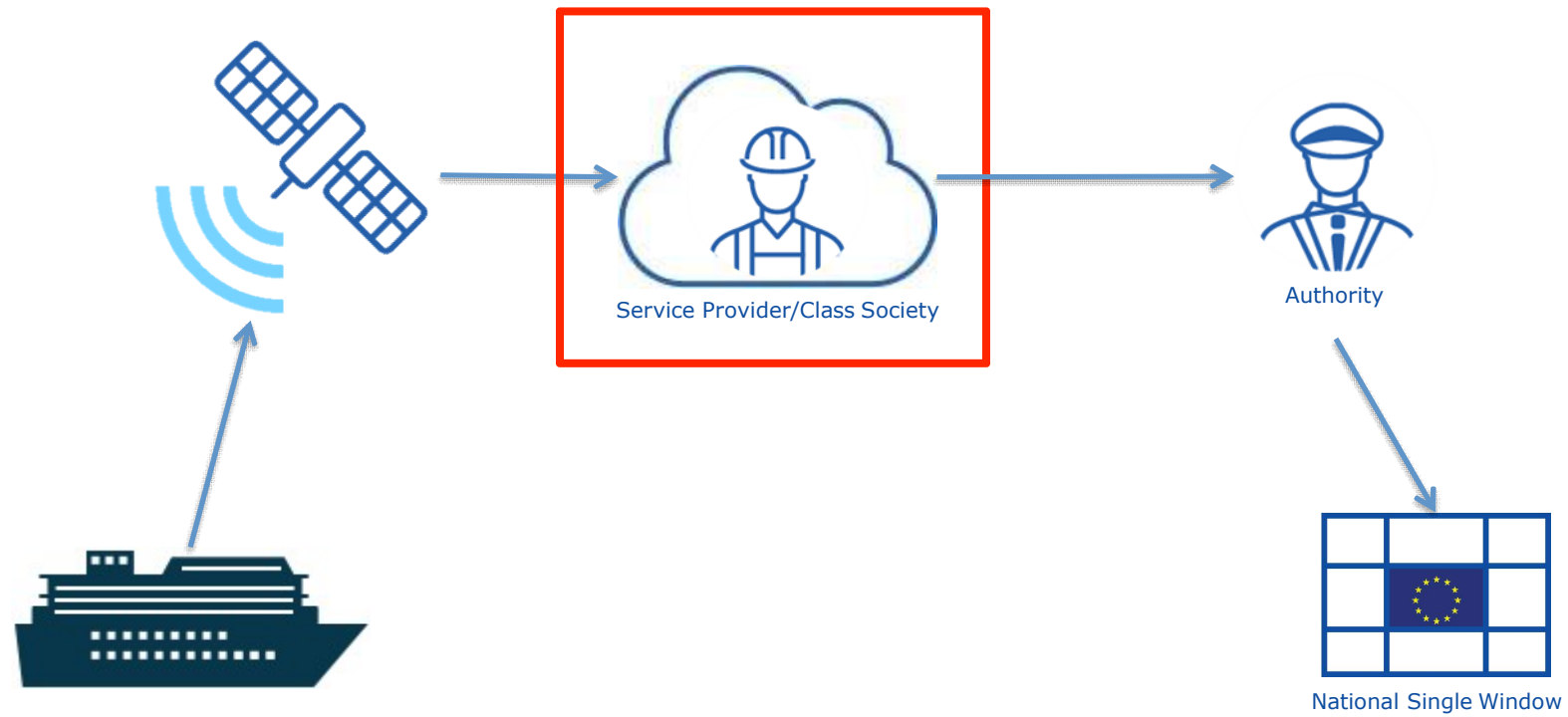
The Case

- Ships operating in EU waters beyond 2020
- Ships using approved equivalent methods, i.e. Exhaust Gas Cleaning Systems (scrubbers)
- Ships with continuous monitoring of emissions (CEM)
- Owners willing to participate in voluntary data submissions

Roadmap for automated sulfur reporting

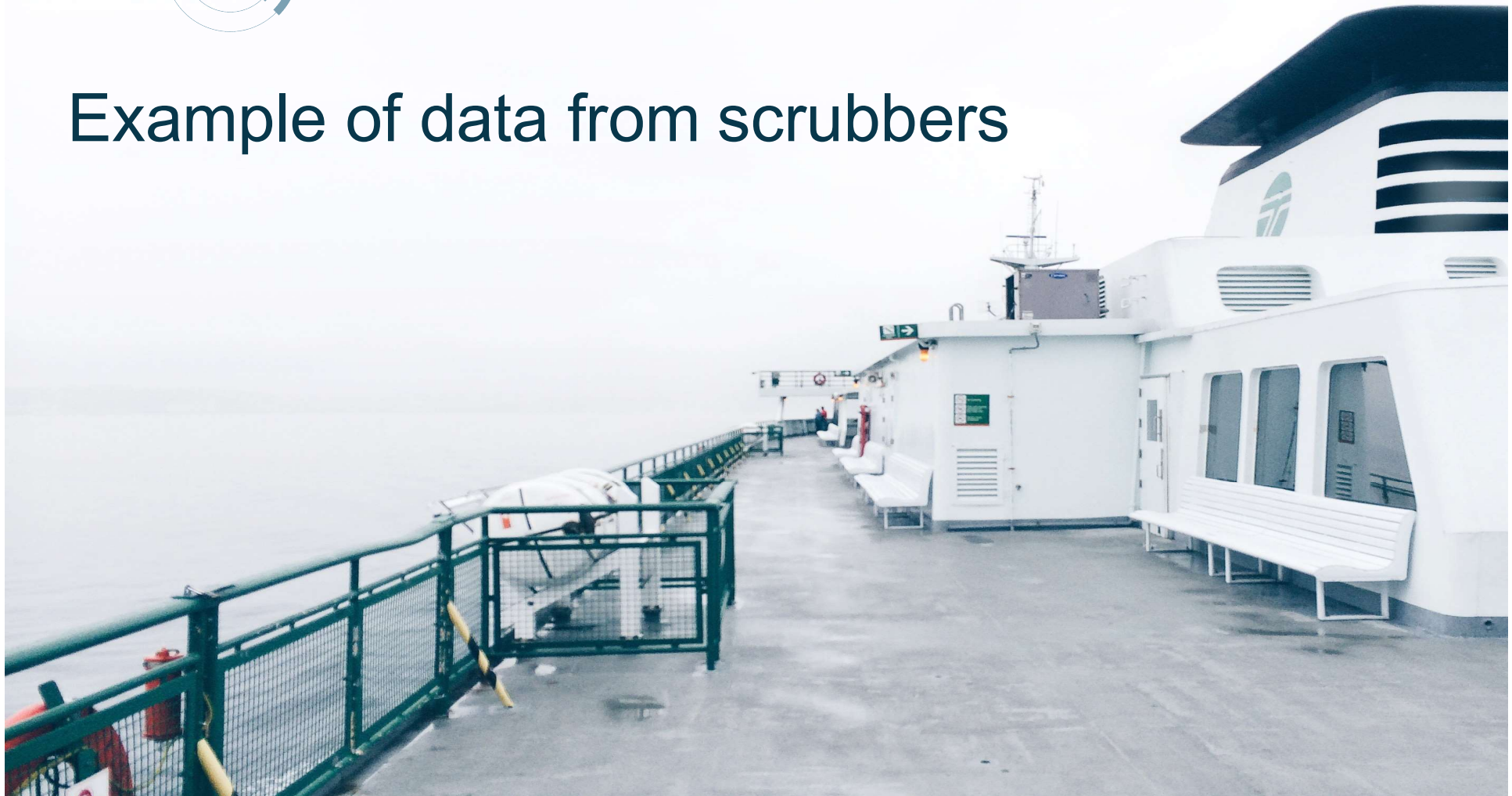


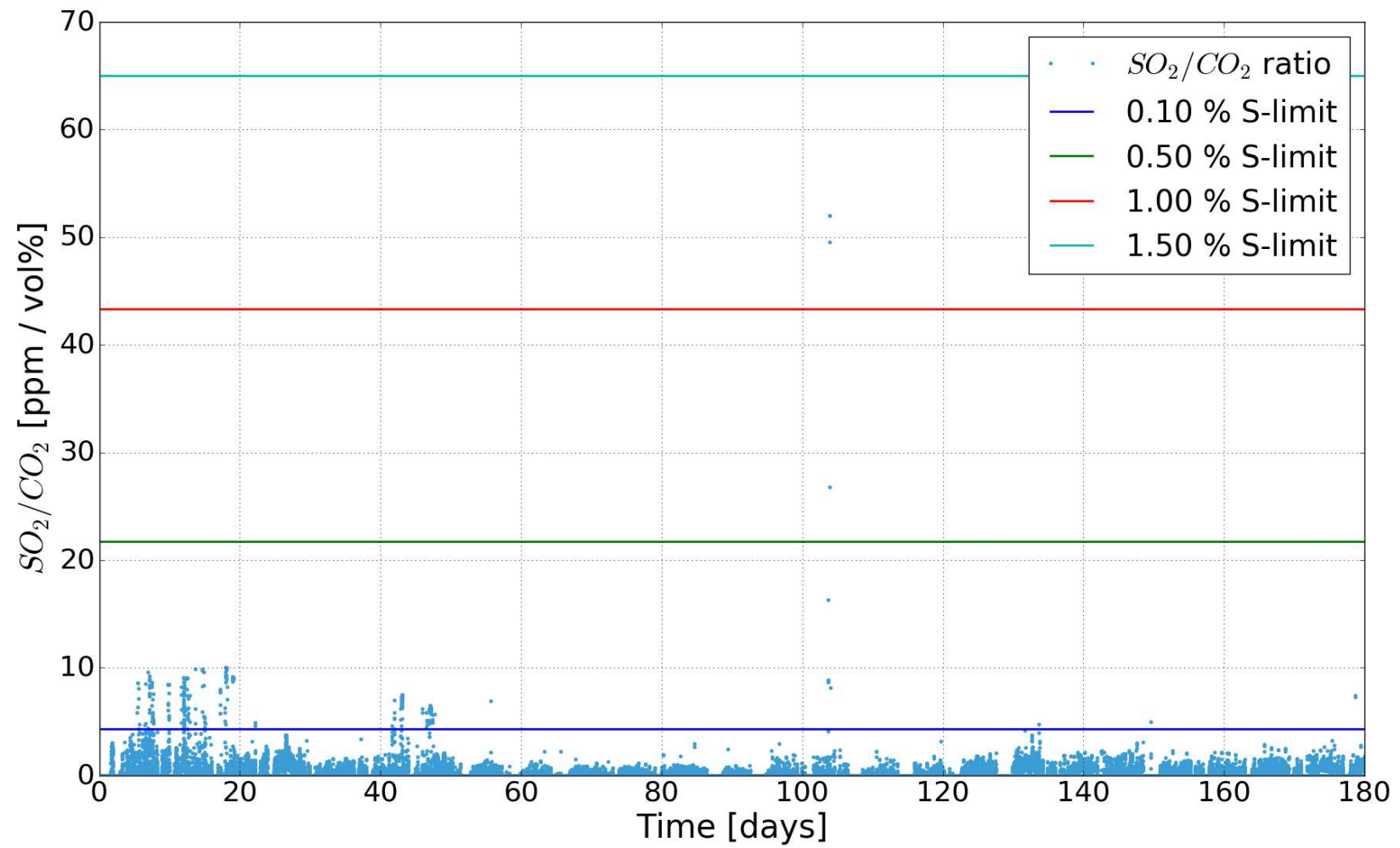
Emission report system

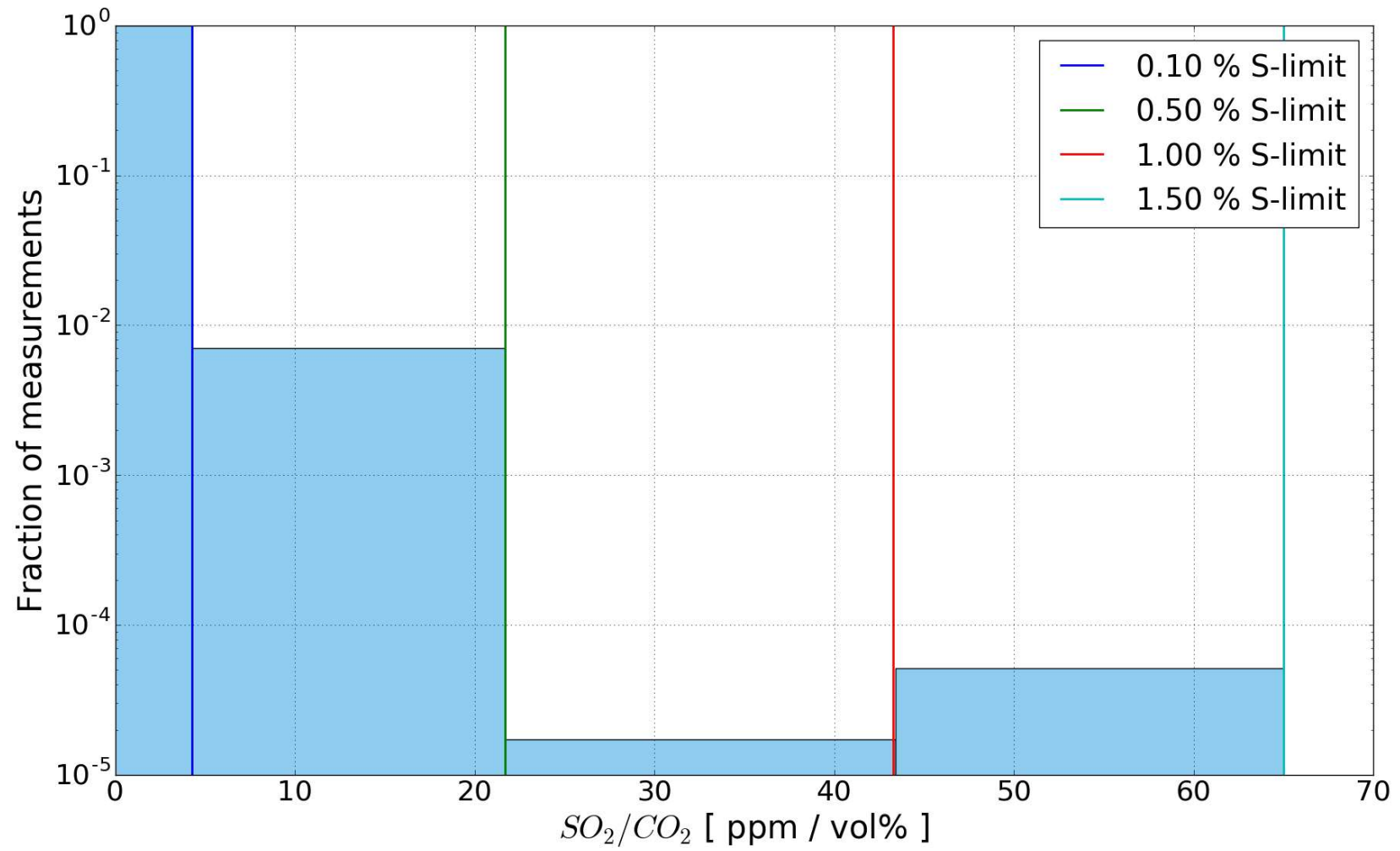


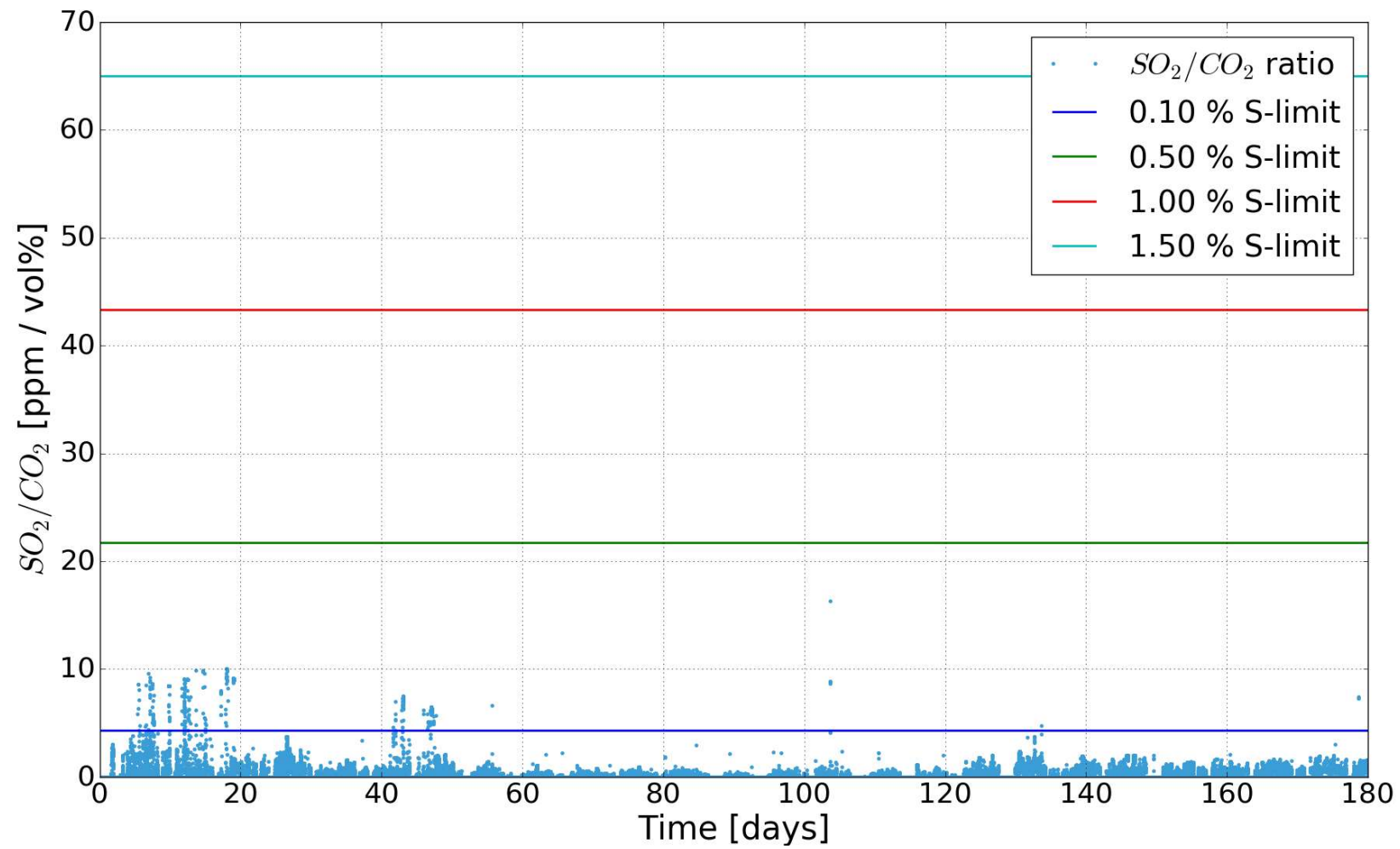


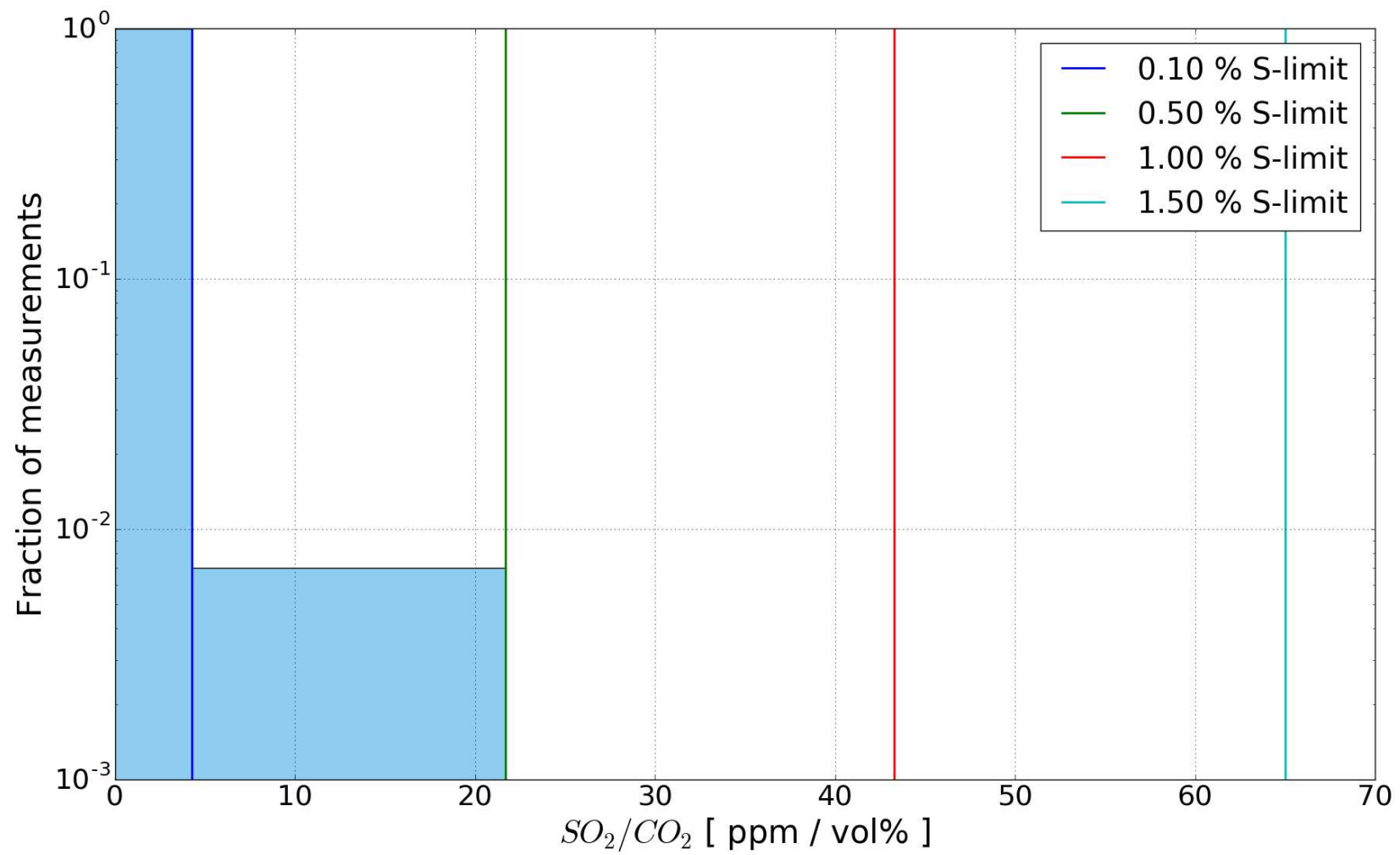
Example of data from scrubbers











Raw data or an indicative notification



Service Provider/Class Society

Raw Data



Authority

```
Pen Name,Longitude(lr),Longitude(hr),GPS time(lr),GPS time(hr),45;4:  
Alarm Status,FALSE,FALSE,FALSE,FALSE,FALSE,FALSE,FALSE,FALSE,FALSE,I  
Date and Time,Sample ,Sample ,Sample ,Sample ,Sample ,Sample ,Sampl  
42370.00799,0,0,0,0,13.056,0.954,5.203,0.17,-0.33,13.208,0.33,12.41:  
42370.00833,0,0,0,0,13.046,0.954,5.203,0.17,-0.43,13.194,0.22,12.41:  
42370.00868,0,0,0,0,13.042,0.954,5.203,0.14,-0.43,13.208,0.22,12.42:  
42370.00903,0,0,0,0,13.065,0.954,5.203,0.16,-0.35,13.194,0.27,12.38:  
42370.00938.0.0.0.0.13.065.0.954.5.202.0.16.-0.36.13.185.0.3.12.375
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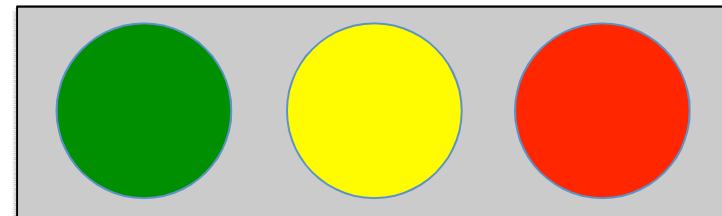


Service Provider/Class Society

Indicative
Message

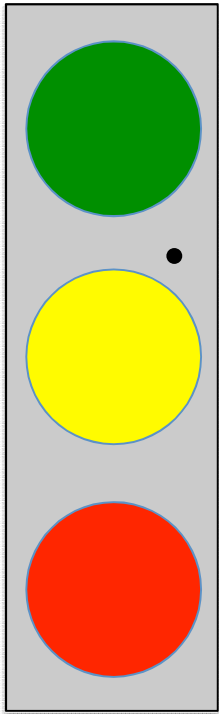


Authority



Criterion based Decision Support Tool

- The current rules are rules concerning sulphur emissions are binary
- A Decision Support Tool should be based on criteria that consider the accumulated amount of exceeded measurements



The business case

INCENTIVE POWER by 2020	SECA	Non-SECA
EU(0.1%)	WEAK to MEDIUM -If PSC for S is waived	WEAK
EU Ports (0.1%)	WEAK to MEDIUM -If PSC for S is waived	WEAK to MEDIUM -If PSC for S is waived
EU EEZ (0.5%)	Not applicable	WEAK Coastal state
Global (0.5% in EEZs)	WEAK Coastal state	WEAK Coastal state
Global (0.1% ports)	WEAK	MEDIUM to STRONG In low-S ports

The next steps

- To create an application, which implements our methods for analysing sulphur data
- Get it tested by a short sea shipping operator in the Baltic region