Satellite-based Data and Analytics to Support Ship Energy Efficiency

24th October 2018 – GMN Workshop, Technical Session
Introducing CLS
Key facts

**Created:** 21 April 1986 – subsidiary of the French Space Agency (CNES)
Operating the Argos constellation (Advanced Doppler location)

**Core activities:**

- Commercial operation of satellite systems for positioning, data collection, ocean observation and surveillance
- Developing added-value applications and services based on satellite remote-sensing data
Introducing CLS

CLS’ day to day mission

Receiving, processing, monitoring, distributing and archiving multi-sources satellite data

24/7 hotline on-call service

SLA
Energy Efficiency
EU MRV & IMO DCS- Manual Fuel Consumption Data Collection

CLS THORIUM-X Tablet

- Manual data collection
- Standardized e-form
- Satellite data transmission
EU MRV & IMO DCS- Automated Fuel Consumption Data Collection

CLS Sat- Box

- Automated data collection
- Connected to engine sensors (flowmeters) + RPM
- Satellite data transmission
EU MRV & IMO DCS- Fuel Consumption Data Monitoring

CLS Themis platform to monitor Fuel Consumption Data collection

- Web-based access
- Real-time and historical data (fuel consumption, AIS, LRIT, VMS...)
- Other functionalities: fleet or area monitoring, SAR, etc...

![Image of Themis platform interface showing monitoring data and details of collected vessel information.]
AIS data to verify EU MRV and IMO DCS data reported by ship-owners:

- Time spent at sea: verification of hours underway
- Distance: verification of distance travelled
- Cargo: verification of loading and unloading operations

+ Fuel consumption estimation: CLS model to estimate fuel consumption

<table>
<thead>
<tr>
<th>Parameters to monitor, report &amp; verify</th>
<th>IMO MARPOL annex VI RESOLUTION MEPC.292(71)</th>
<th>EU MRV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ships</td>
<td>Ships ≥ 5000GT</td>
<td></td>
</tr>
<tr>
<td>Voyages</td>
<td>All voyages</td>
<td>Voyages to/from/between EU ports of call</td>
</tr>
<tr>
<td>Monitoring plan</td>
<td>SEEMP</td>
<td>EU Monitoring Plan</td>
</tr>
<tr>
<td>First monitoring period</td>
<td>From 2019/01/01 to 2019/12/31</td>
<td>From 2018/01/01 to 2018/12/31</td>
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<tr>
<td>Reporting to</td>
<td>Flag states</td>
<td>European Commission</td>
</tr>
<tr>
<td>Verification performed by</td>
<td>Flag states or organisations acting on behalf of Flag states</td>
<td>Independent accredited verifiers</td>
</tr>
</tbody>
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AIS added-value services to improve Energy Efficiency

Close collaboration with shipping industry to develop added-value services based on AIS data. The objective is to enhance efficiency of daily operations:

Examples of services:

- Automated & real-time detection of arrival and departures at port terminal and berth level
- Automated & real-time detection of abnormality compared to schedule
- Automated identification of ships in anchorage areas and real-time congestion alerts
- Port and berth occupation indicators
- Identification of bunkering and towage operations
- ...

Save fuel, time and money by being efficient
Thank you!

Any Questions?

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