



EUROPEAN
REGIONAL
DEVELOPMENT
FUND



EMSA RPAS mission in Lithuania



Igor Kuzmenko
Adviser to the Maritime rescue coordination center
Lithuanian NAVY



SERVICE TYPE



- SOx emission monitoring (main) for maritime environmental protection and response.
- Maritime surveillance
 - SAR
 - Maritime safety
 - Fisheries control
 - Marine environmental monitoring



Stakeholders



- Environmental Ministry of the Republic of Lithuania (main)
- Environmental Protection Agency
- Lithuanian MRCC
- Lithuanian Navy
- Lithuanian Fisheries Service
- Lithuanian Transport Safety Administration

Contractor and RPAS System

- Nordic Unmanned AS (with Explicit as subcontractor for emission analysis)
- RPAS system: Schiebel CAMCOPTER S100





Contractor and RPAS System



- Schiebel CAMCOPTER S100
- Payload:
 - Electro-optical and infra-red cameras,
 - AIS receiver and
 - gas sensors for emission monitoring

Communication technology Ground to RPAS
Radio Line of Sight Communication

Communication technology Ground to RPAS-DC
Landline Internet connection (mobile 4G as backup)



Contractor and RPAS System



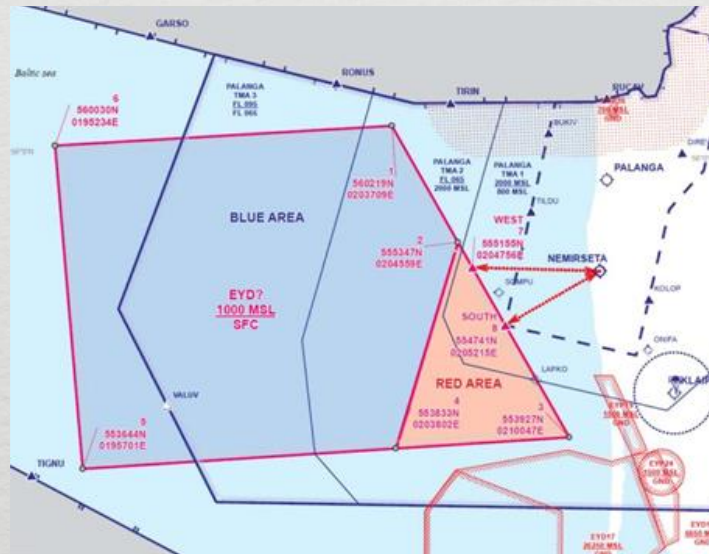
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Location and area of operation

- Area in front of the Port of Klaipėda, within Lithuanian airspace (see below).
- SECA level: 0.1%
- Take-off area: Nemirseta military air base
- Ground Station: Nemirseta military air base





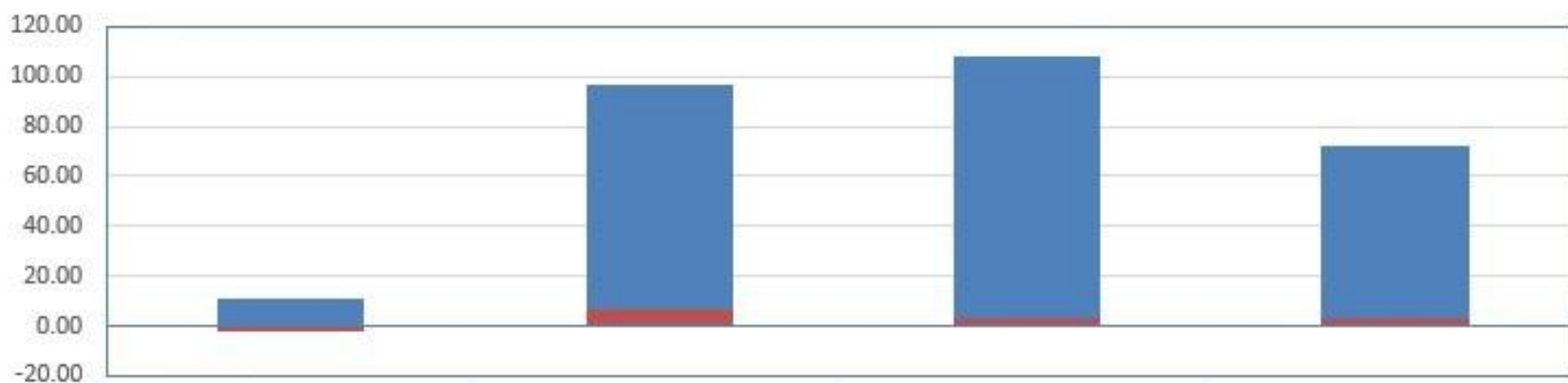
Main outcomes

From 23 March until 22 June 2020

Number of missions performed	113 missions flown missions flown
Flight hours performed	275 Flight Hours delivered
Total number of events/investigations	243 events investigated during the deployment, including: attempts for emission monitoring, dredging activity monitoring, locating naval buoys, conduction of SAR training and exercises, fishery vessel control, oil pollution detection.
Data provided	142 Sulphur emission reports produced. Video footages, raw gas measurements, AIS and other data collected by the RPAS was shared with the Users in real-time via the EMSA RPAS Data Centre.
Data distribution	Sulphur emission reports were shared with THETIS-EU, where they are made available for port control activities

Main outcomes – flight hours

Flight hours per month (achieved and missed)



	Mar-21	Apr-21	May-21	Jun-21
FH	10.55	89.88	105.12	68.87
missed FH	-2.38	6.45	2.93	3.35



Main outcomes – emissions

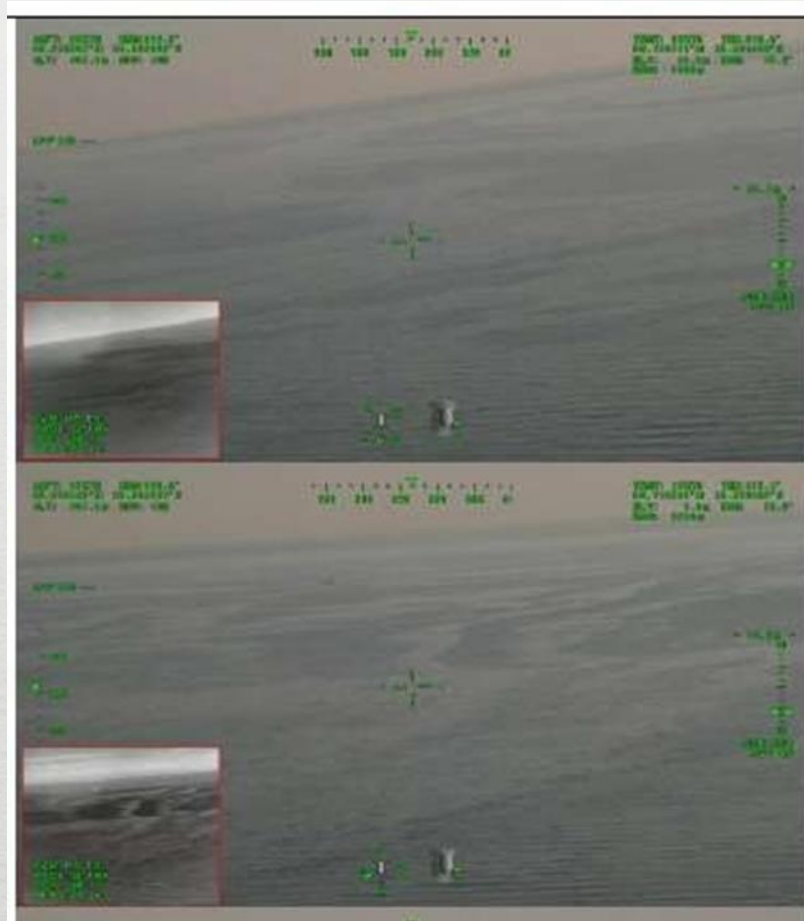
No	Date	Ships Name	IMO No	SOx measured	Route	Response
1	2021-04-13	GLORY DINA	9464522	0.183%	Out of EEZ	Flag state notified
2	2021-04-19	HIROKI	9181120	0.224%	To Klaipėda	Penalty 9000 EUR
3	2021-05-10	UNION TRADER	9445710	0.159%	Out of EEZ	Flag state notified
4	2021-05-10	REGINA SEAWAYS	9458535	0.144%	To Klaipėda	Vessel equipped with scrubber, its Logs investigated showing momentary exceedance of 0.1% SOx due to switch between Open/Closed wash water loop. Non-compliance disregarded
5	2021-05-10	PRETTY UNIVERSE	9639775	0.135%	Out of EEZ	Flag state notified
6	2021-05-10	STOLT VIKING	9196711	0.245%	Out of EEZ	Next port destination notified
7	2021-05-18	AMBAL	8807416	2.162%	Out of EEZ	Flag state notified
8	2021-05-19	SAPHIRE	9114969	0.473%	To Klaipėda	Fuels sampled, non-compliance not confirmed
9	2021-05-19	BALTIYSK	8318130	0.195%	Out of EEZ	Flag state notified
10	2021-05-24	GDYNIA	9594248	0.253%	To Klaipėda	Fuels sampled, non-compliance not confirmed
11	2021-05-25	STOLT INNOVATION	9102069	0.166%	Out of EEZ	Flag state notified
12	2021-05-27	GREETJE	9186388	0.136%	To Klaipėda	The determined SOx concentration marginal error $\pm 0.04\%$, report disregarded
13	2021-05-28	AMBAL	8807416	0.779%	Out of EEZ	Flag state notified
14	2021-05-28	ANGARA	9179842	0.149%	To Klaipėda	Flag state notified
15	2021-06-02	STENA IMPECCABLE	9693020	0.158%	To Klaipėda	Investigation

Environmental monitoring: Disposal of the dredged material at sea



Main outcomes – surveillance

Environmental monitoring: environmental scanning for litter detection



Main outcomes – surveillance

Traffic monitoring: detection of non-collaborative vessels (AIS off).



Main outcomes – surveillance

Oil spill detection:

detection EMSA Clean-Sea Net happening on Sunday 9 May, MRCC sent an helicopter. The day after also RPAS on site. No Oil spill detected



OS_2105080020_1

2021-05-08 17:20:18

Area Query

Display drift model

Possible source

Report in SSN

Click info...

OILSPILL ID

OS_2105080020_1

SERVICE ID

2105080020

ACQUISITION START

2021-05-08 17:20:18

LAT (CENTER)

55°43'54"N

LONG (CENTER)

020°39'13"E

AREA (NM2)

1.510797

LENGTH (NM)

7.096787

WIDTH (NM)

1.073234

DISTANCE FROM COAST (NM)

11.169

NUMBER OF SLICKS

3

ORIGIN DETECTED

A

< 1/2 >

Download spill

Feedback 0

Alert report 2

Main outcomes – surveillance

Pollution control: Exercise



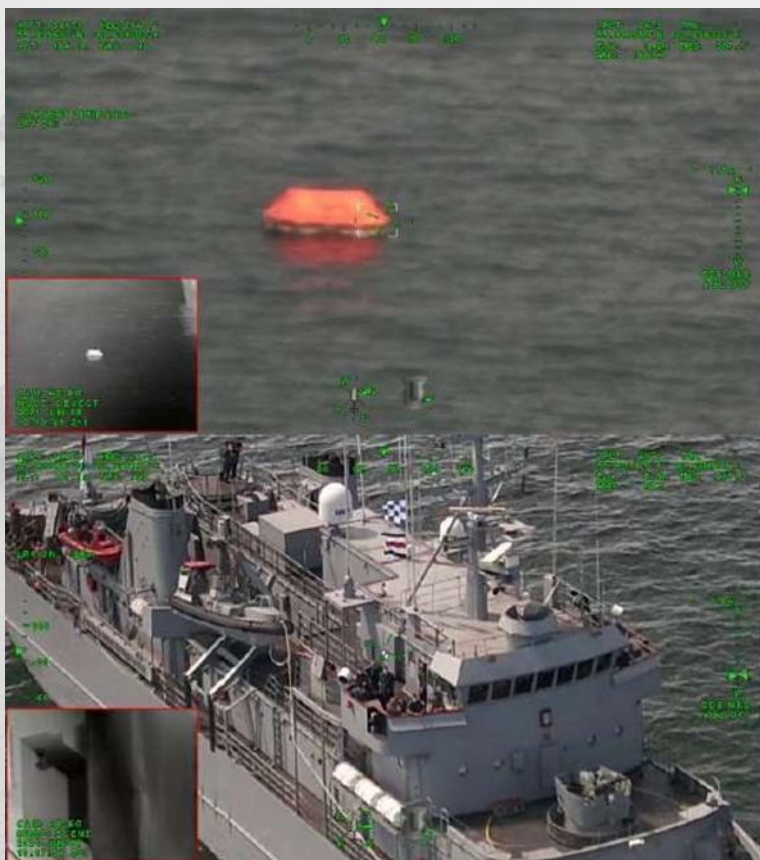
Main outcomes – surveillance

Fisheries Control:



Main outcomes – surveillance

SAR Exercise





Final Remarks



- Effective collaboration with National Authorities (performed during the COVID time!)
- Great example of real multi-purpose RPAS deployment (gas emission + general surveillance)
- Efficient employment of the RPAS

Challenges:

- Emission monitoring in the proximity of a port
- Ensure an homogeneous level of quality of the service due to crew rotation

Questions?

