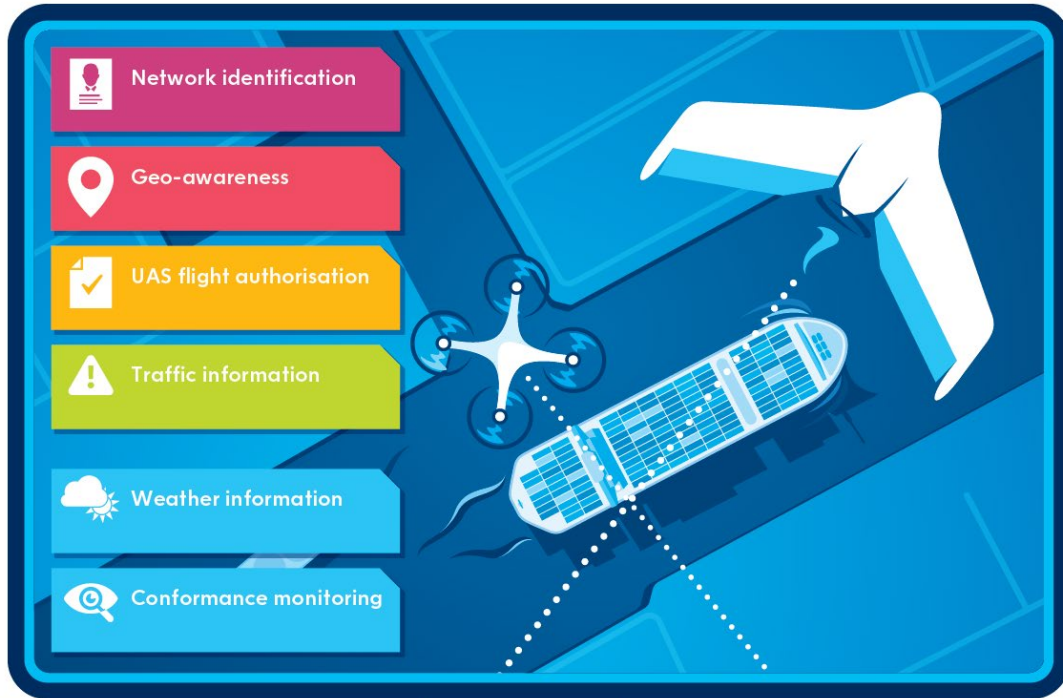




EUROPEAN NETWORK U-SPACE STAKEHOLDERS

Niels Kalshoven

U-SPACE AIRSPACE IN THE VERY LOW LEVEL AIRSPACE



U-Space;

Traffic control system for drones (UTM)

U-Space Airspace;

Geographical zone in which drone activities may only take place with UTM support services.

Airspace users, also manned aviation, can only enter the airspace using the support services and making them known to each other.

ROTTERDAM PROTOTYPE; AWAITING

- ✓ Airspace area designation
- ✓ Airspace manager
- ✓ Financing & Governance
- ✓ Certified providers
- ✓ Airspace risk assessment

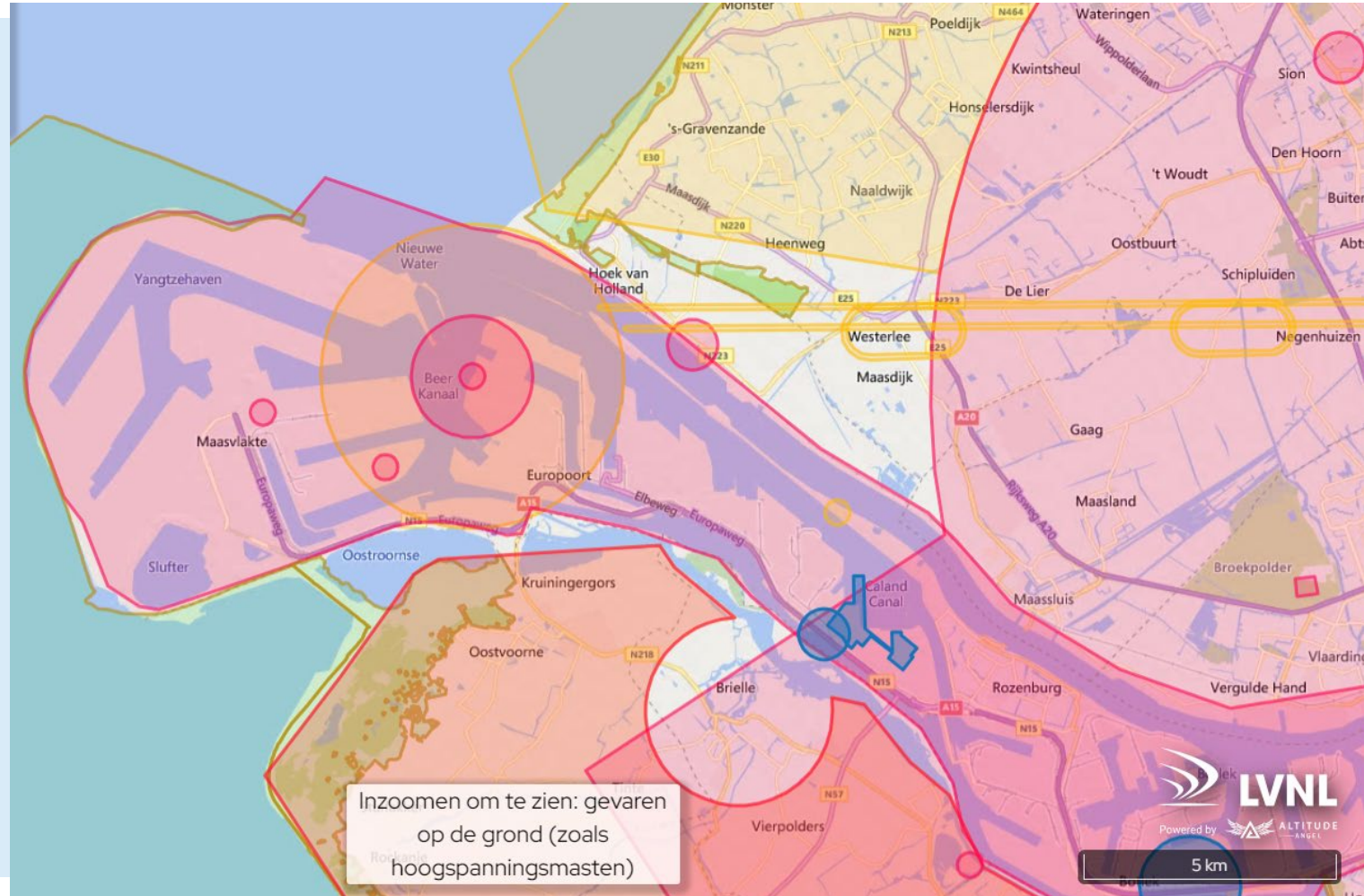
Exploration



Exploitation

Classe G airspace; Europoort -Maasvlakte-approach area

150m high - daylight





Senhive
GEO-TZNB
81m

Senhive
GEO-F5BM
106m

Rotterdam



ADS-B
PHSVN-PH
914m

Stage

SUPPORT

Co-operation Ministry of Infrastructure and Water Management

Support letter

Rotterdam municipality

King's Commissioner of the Province South Holland

Innovation Quarter

Centre for Bold cities



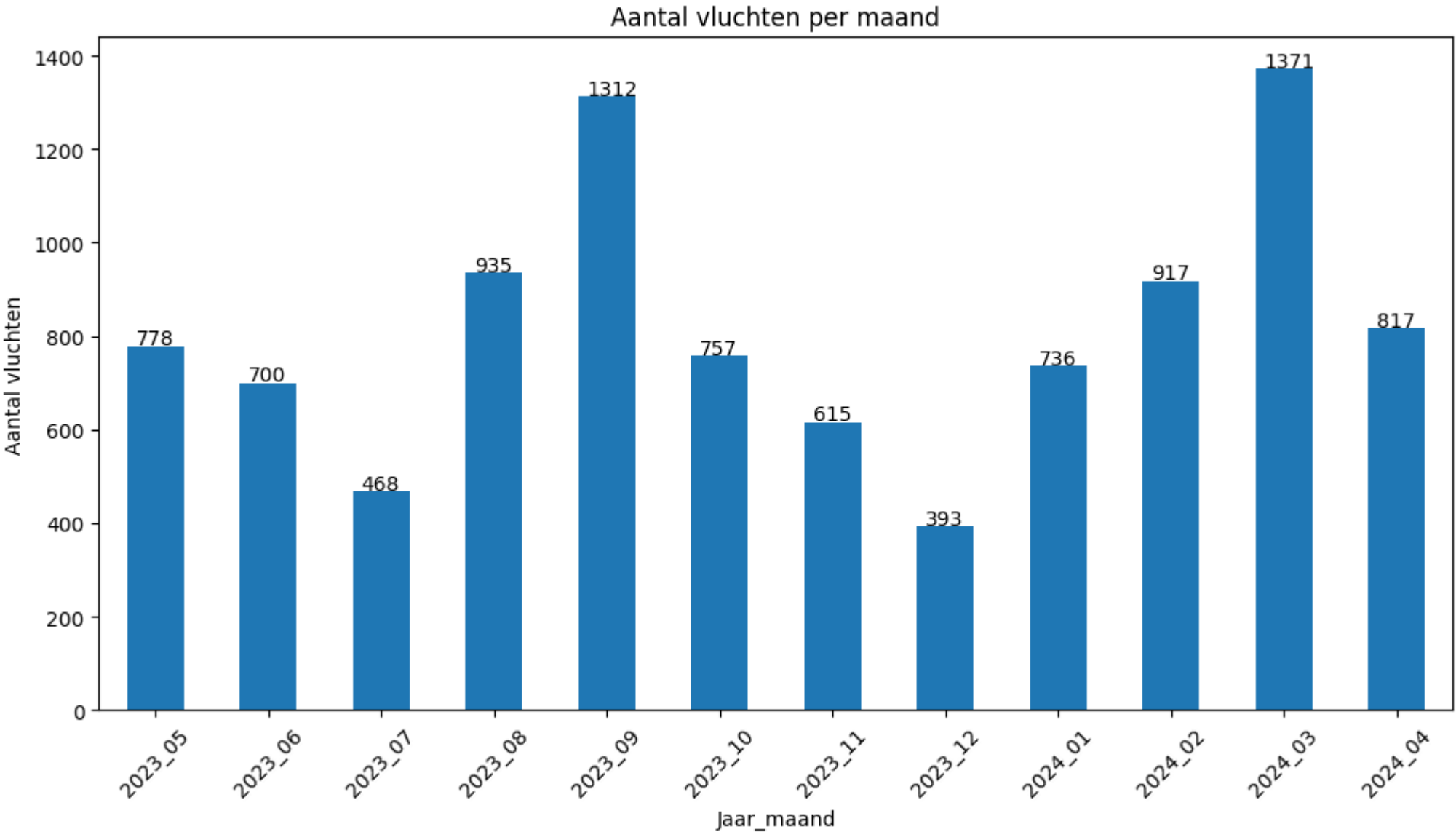


DETECTION OF DRONES

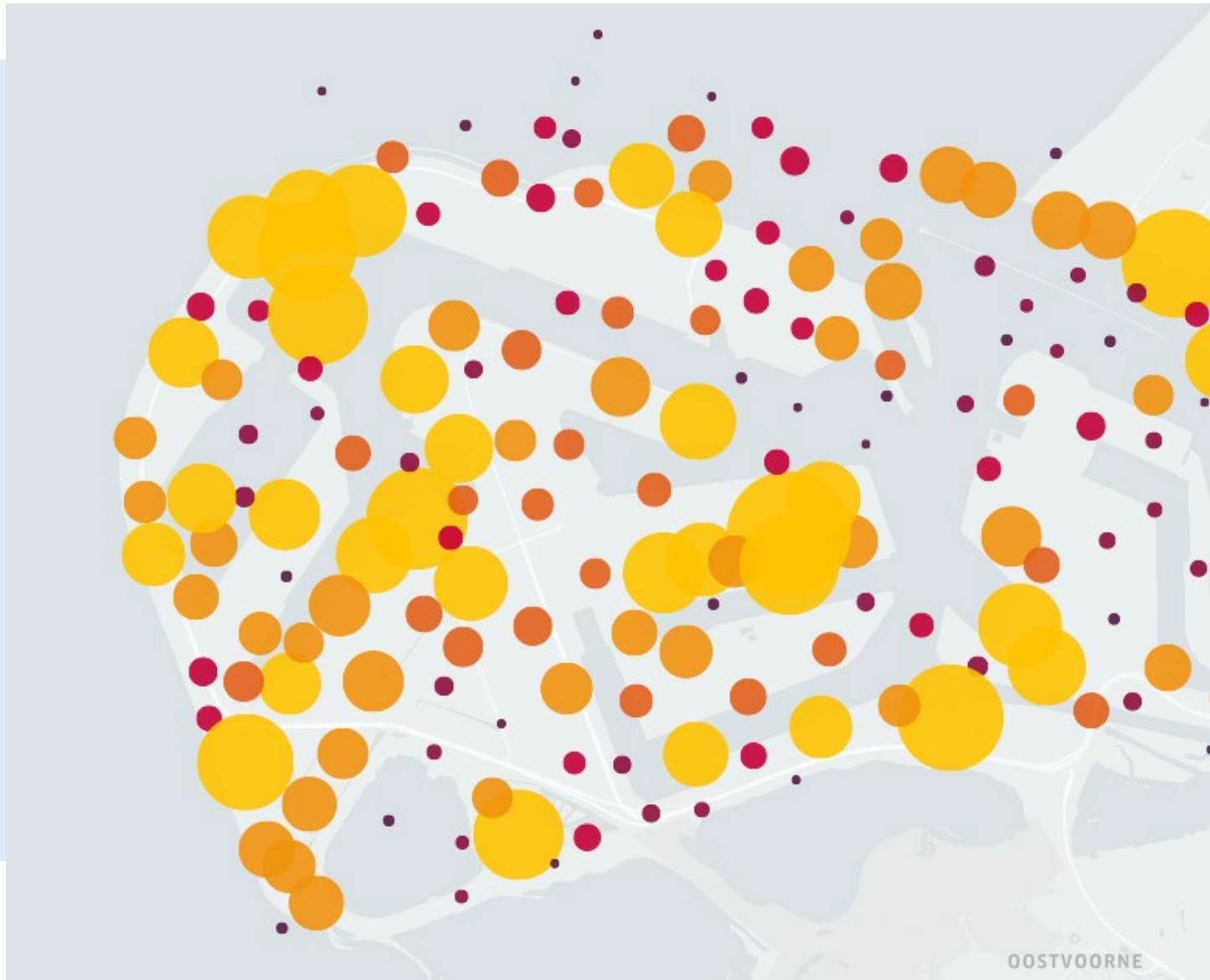
- 2 Radars (Robin Radar) are located at the Europoort/Maasvlakte area. The system will be connected with the UTM system.



NR. OF FLIGHTS PER MONTH (MAY 23-APRIL 24) (1 MIN.VERSION)



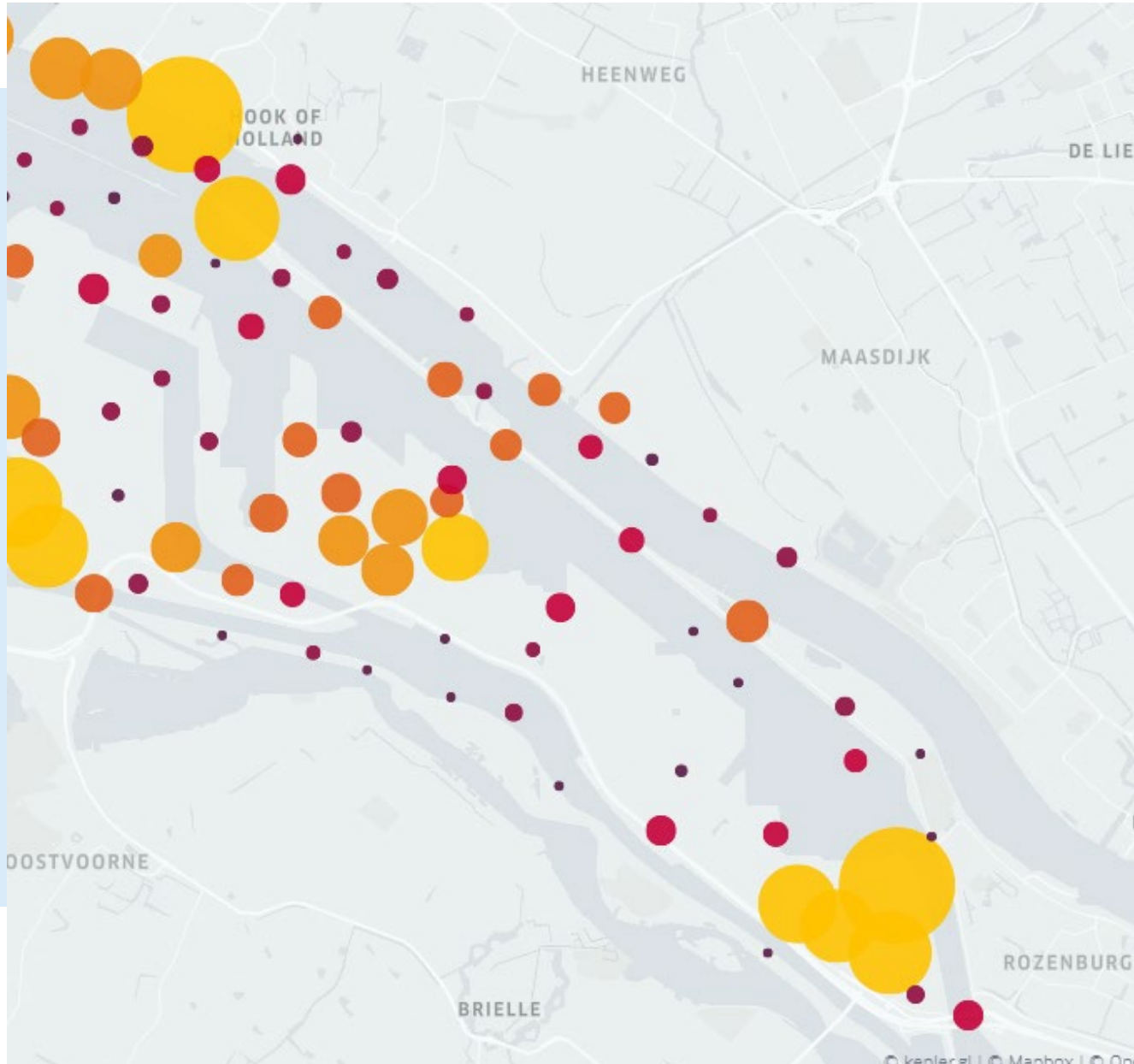
HEATMAP MAASVLAKTE 1 MIN. CORRECTION



Heatmap Maasvlakte
Correction 1 min.
Period May 23 – April 24

Based on (average)
positions of the drone,
not the drone pilot

HEATMAP EUROPOORT 1 MIN. CORRECTION



Heatmap Europoort
Correction 10 min.
Period May 23 – April 24

Based on (average) positions
of the drone, not the drone
pilot

NRS. OF NOT REQUESTED / 'ILLEGAL' FLIGHTS

	Number of flight area requests at ASC	Approximate number of flights (request x 3)	Aeroscope, correction 10 min.	Number of flights not requested at ASC
January 2024	34	102	217	115
February 2024	70	210	260	50
March 2024	106	318	382	64
April 2024	92	276	230	-46
	Number of flight area requests at ASC	Approximate number of flights (request x 3)	Aeroscope, correction 1 min.	Number of flights not requested at ASC
January 2024	34	102	736	634
February 2024	70	210	917	707
March 2024	106	318	1371	1053
April 2024	92	276	817	541

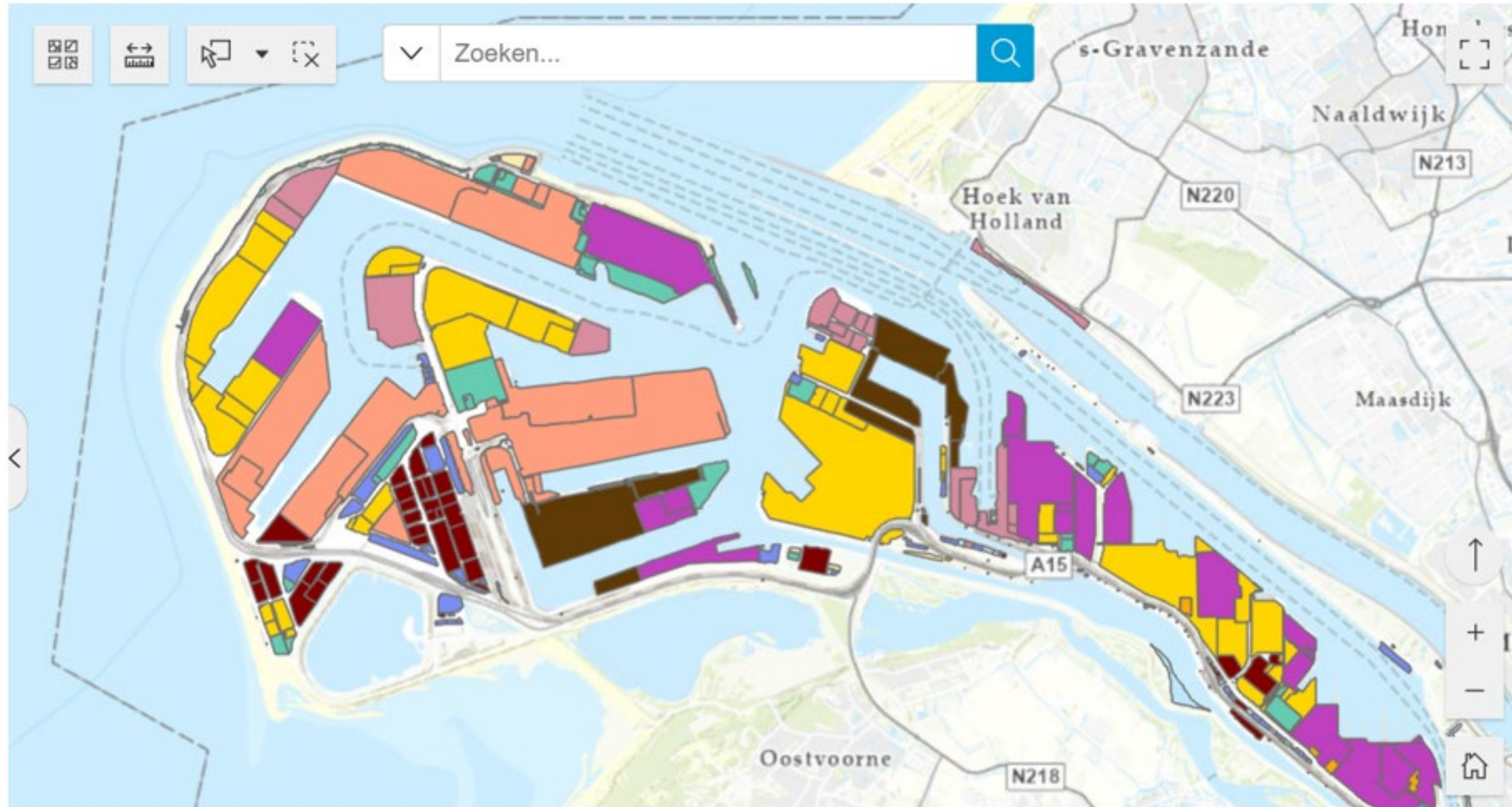
Flight requests at UTM x3
Compared to Aeroscope detection

10 min. correction

1 min. correction

GROUND RISKS; SAFETY

Segmenten;



- Containers
- Distriparken
- Breakbulk
- Droog massagoed
- Ruwe olie & raffinage
- Chemie & bio-based industry
- Onafhankelijke tankoverslag
- Gas & power
- Maritieme ind. en ov. havenger. bedr.

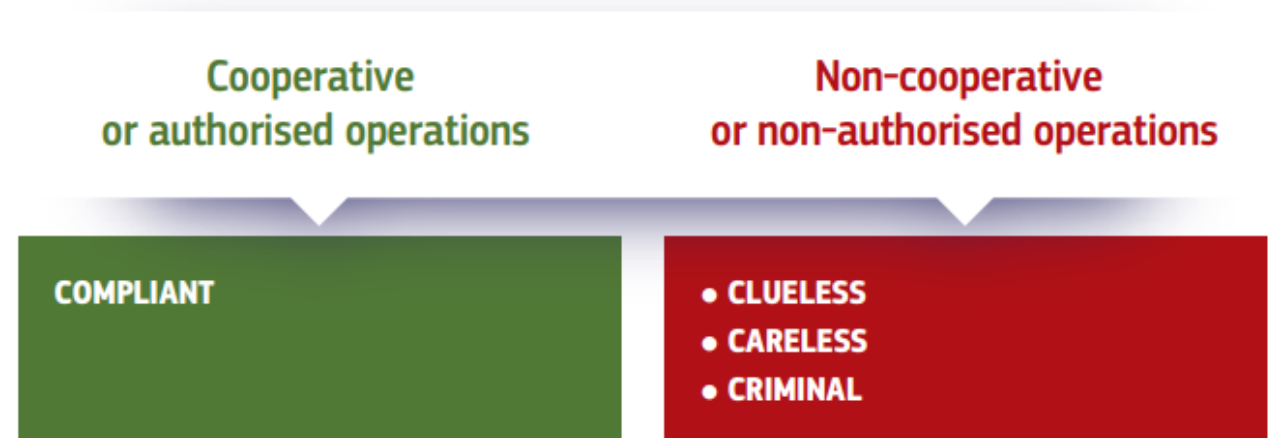
Uit; PoR Ruimtelijke Onderlegger; Locatiescan, Masterplan

ARA AND GROUND RISKS

Different responsible authorities;

- For safety - security
- For waterside - landside

Figure 6: UAS flight categories



Security & resilience!
Port continuity!
Obligations from CER
(Critical Entities Resilience)
Risks of disruptions
& gathering information

QUESTIONS?

