

Maritime Transport and Possible Accidents in the Adriatic Sea

Damir Zec, Ph.D
Lovro Maglić, B.Sc
Marija Šimić Hlača, B.Sc

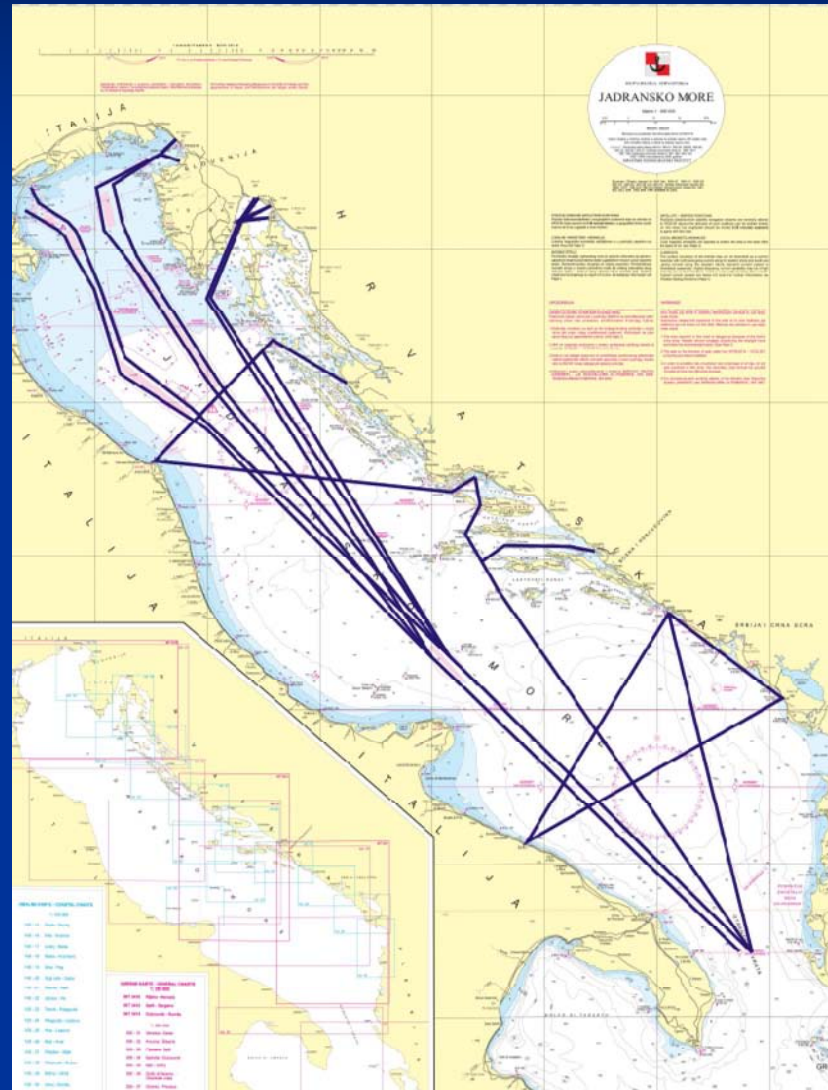
*Faculty of Maritime Studies
University of Rijeka, Croatia*

Dubrovnik, 22.10.2009.

Maritime traffic in Adriatic

- Ships:
 - Merchant ships
 - international trade,
 - in national trade,
 - Yachts, fishing vessels, war ships and other non-merchant ships.
- Traffic routes:
 - Main longitudinal route,
 - East longitudinal route (along the Croatian islands),
 - West Adriatic longitudinal route (along Italian coast),
 - transversal routes.

Traffic Routes and Separation Schemes

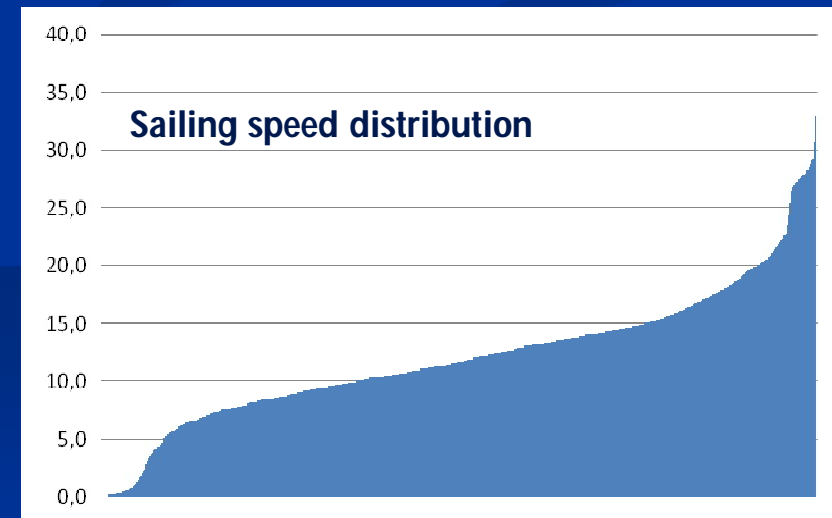
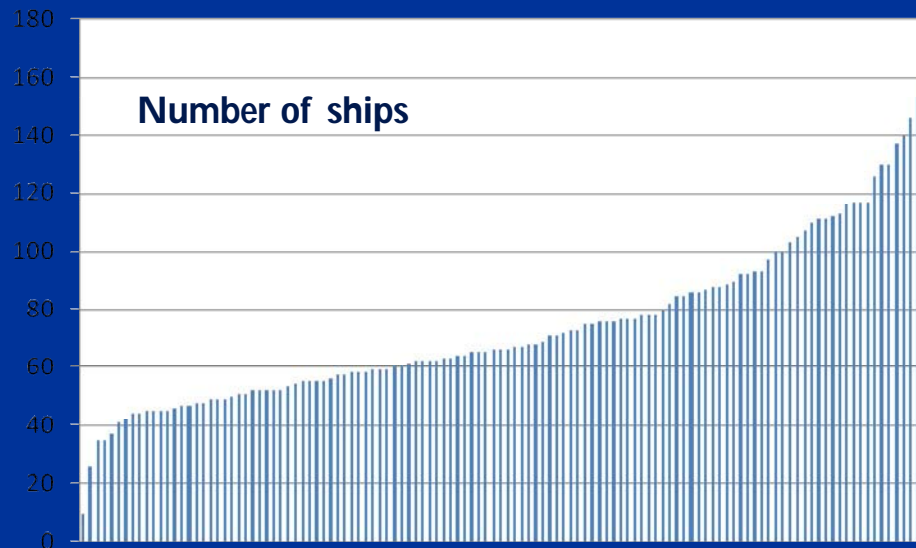


Traffic 2008



Traffic Load (September 2008)

- Ships monitored: 1.426
- Average number of ships in navigation: 73.5
- Maximum number of ships underway: 159
- Average ship's speed: 12.2 knots,
 - 8% of all ships sail at speed over 20 knots)
- Tankers (oil, chemical, gas): 20%



Traffic load – East coast

- Regular lines
 - 42 line routes, up to 1.000 sailings every day
- Cruisers
 - 300-600 sailings per day
- Smaller merchant ships:
 - up to 30 sailings daily
- Yachts & boats
 - 100.000+



Maritime accidents

Fire/explosion



Collision



Hull cracks



Grounding



Cargo shift



Bad weather



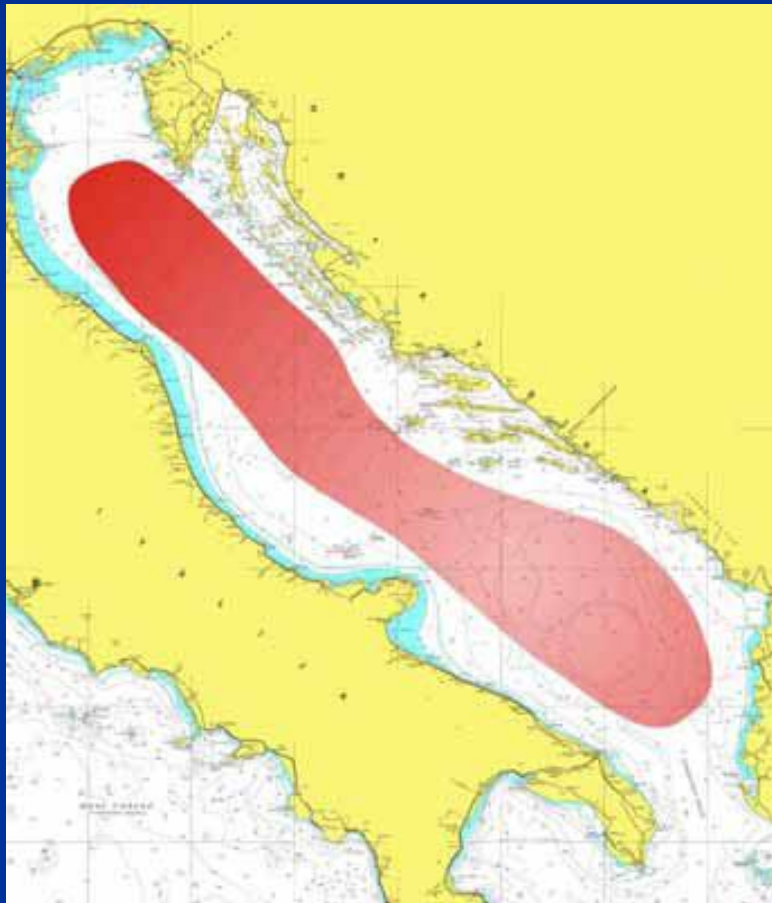
Marine accidents

- Consequences:
 - loss of lives,
 - loss of property,
 - salvage costs,
 - pollution damages,
 - pollution clean-up costs & lost profit.

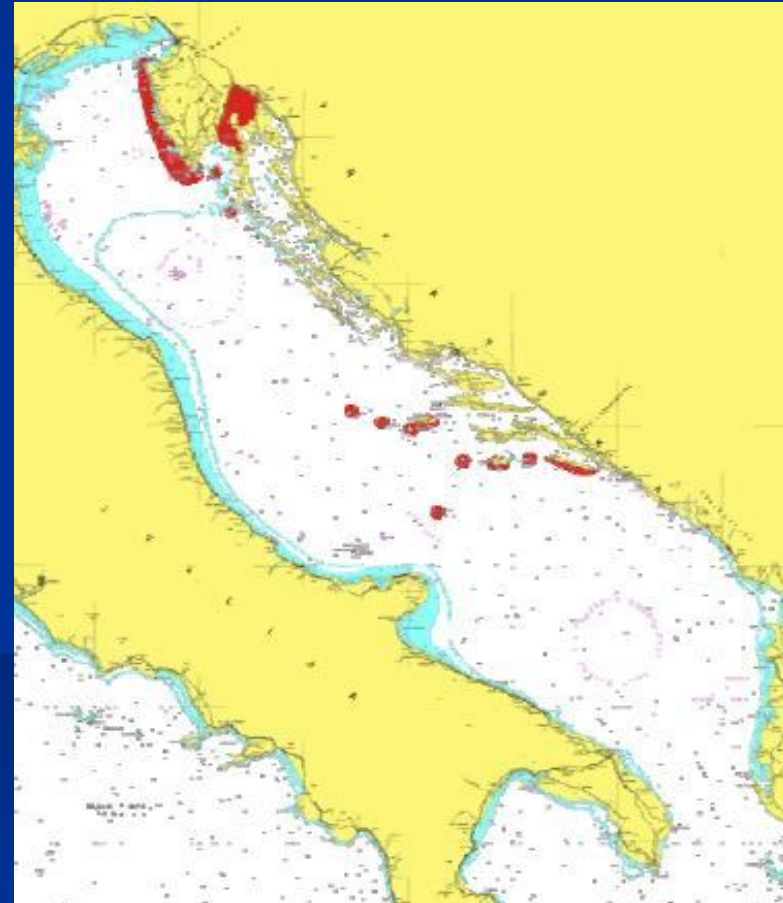


Areas of increased risks

Sinking

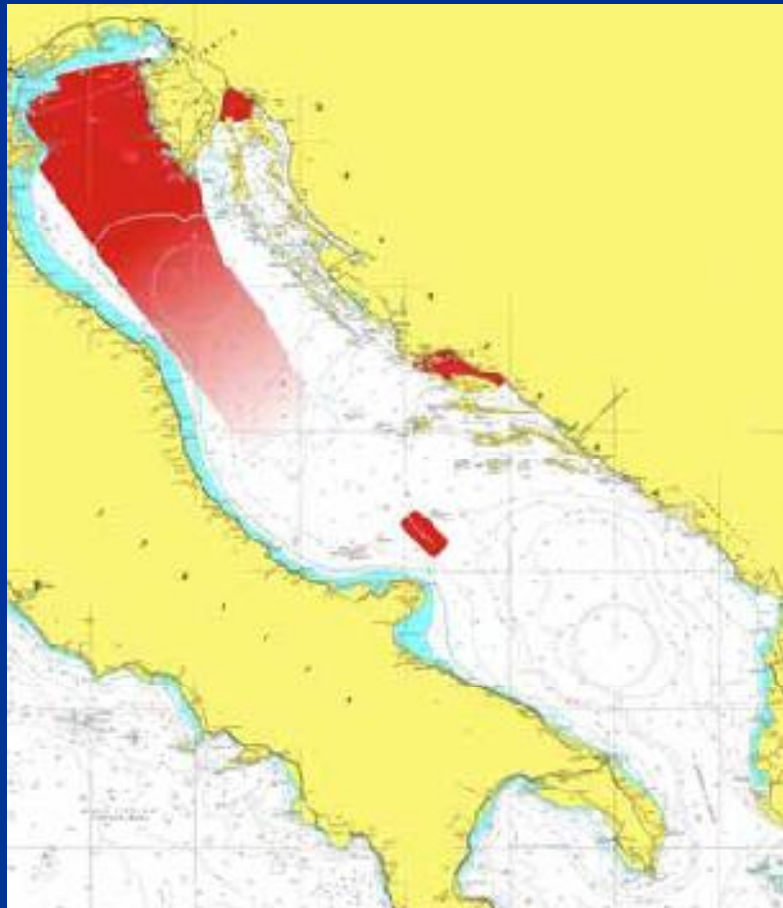


Grounding

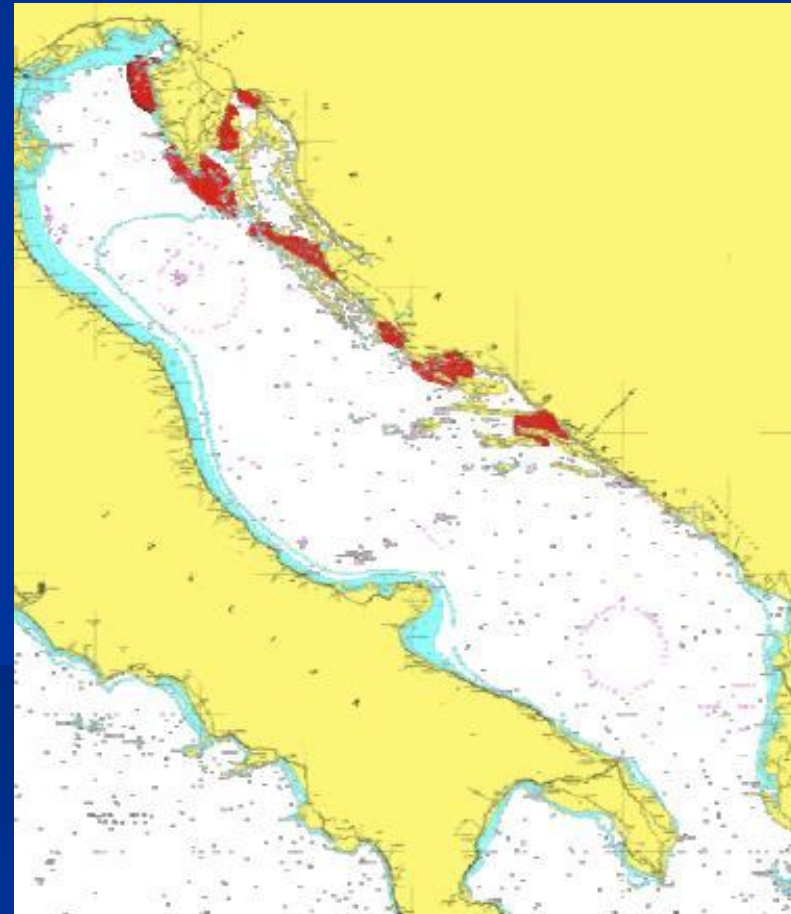


Areas of increased risks

Collisions



Groundings



Nightmares

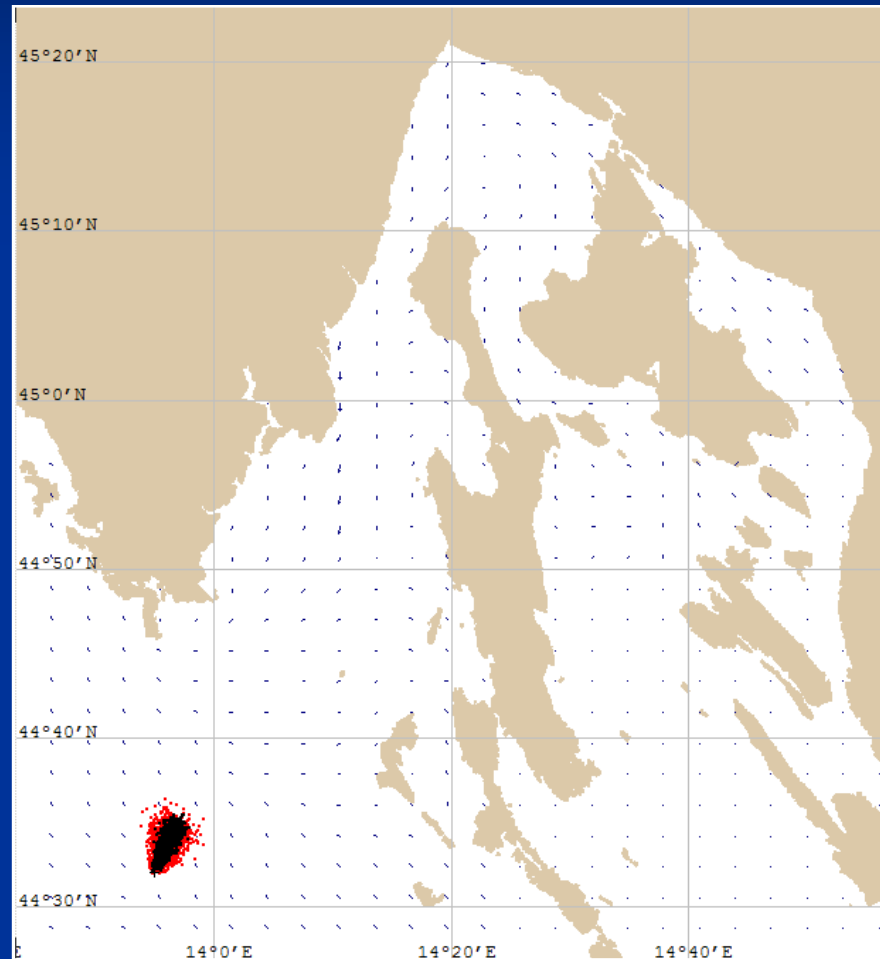
- Passenger ships, coastal ferries, cruisers
- Tankers
 - VLCCs sailing to Trieste or Rijeka, grounding, collision in Palagruža area, Kvarner or Bay of Rijeka, Bay of Trieste
 - Fire / explosion
 - Collision or grounding in internal waters
- Cargo ships with dangerous cargoes onboard
 - Sinking

Collision near entrance to Kvarner

- Spill size:
 - 6.000 tons of oil in 16 hours,
- Current:
 - NNE, 0.3 kns
- Wind:
 - SW 15 m/s.

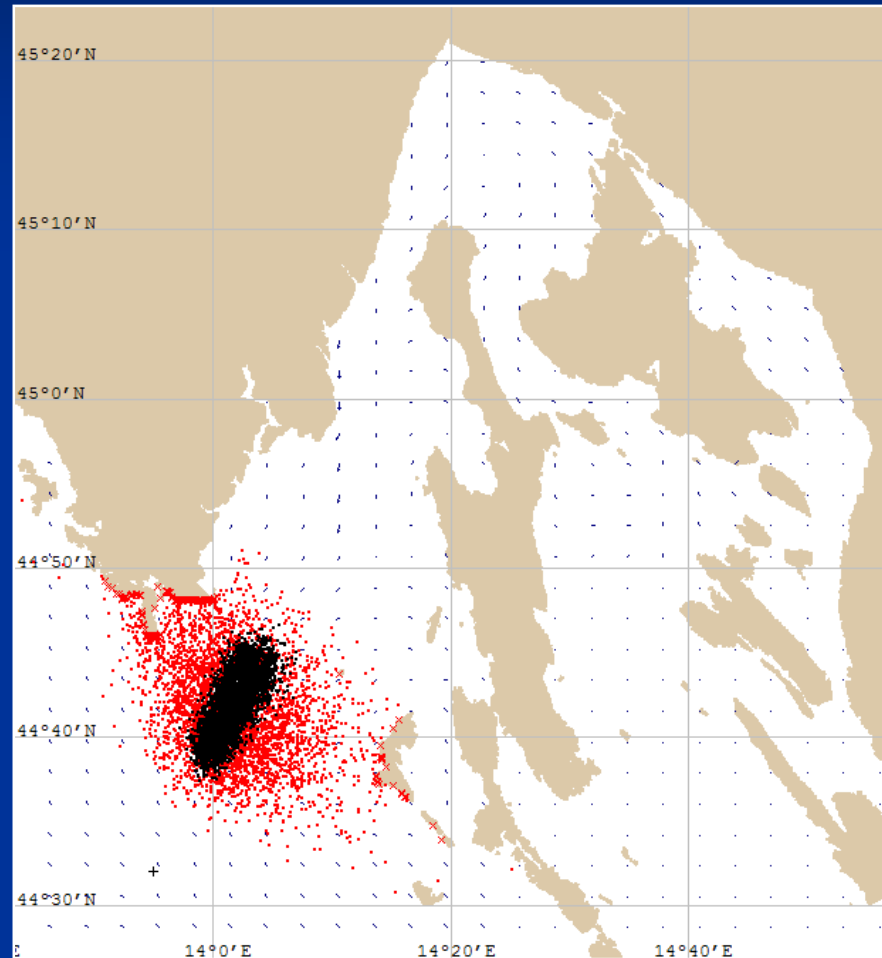


Collision in Kvarner



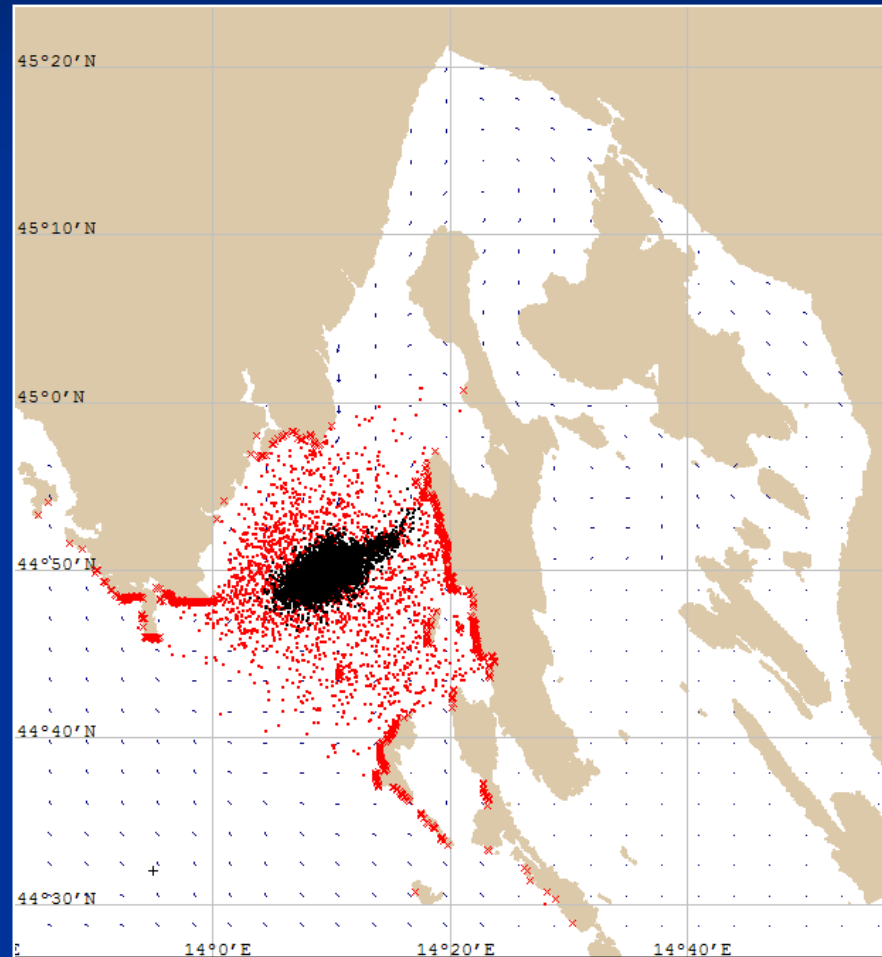
After 6 hours

Collision in Kvarner



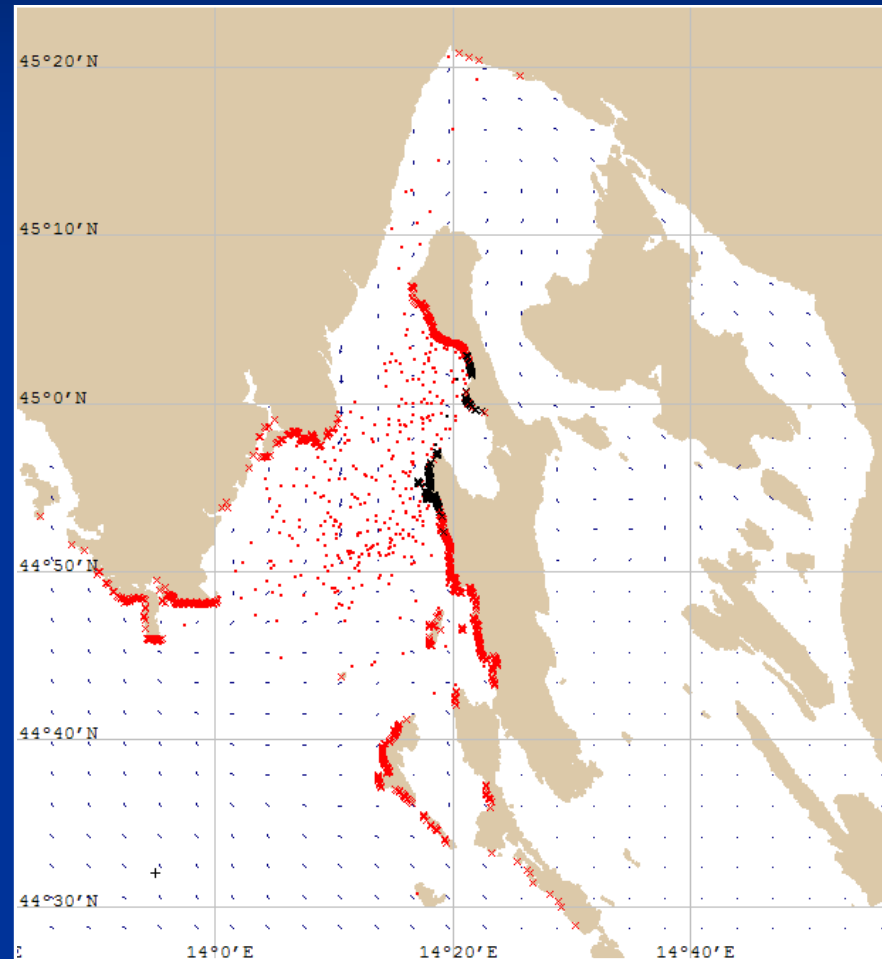
After 30 hours

Collision in Kvarner



After 60 hours

Collision in Kvarner



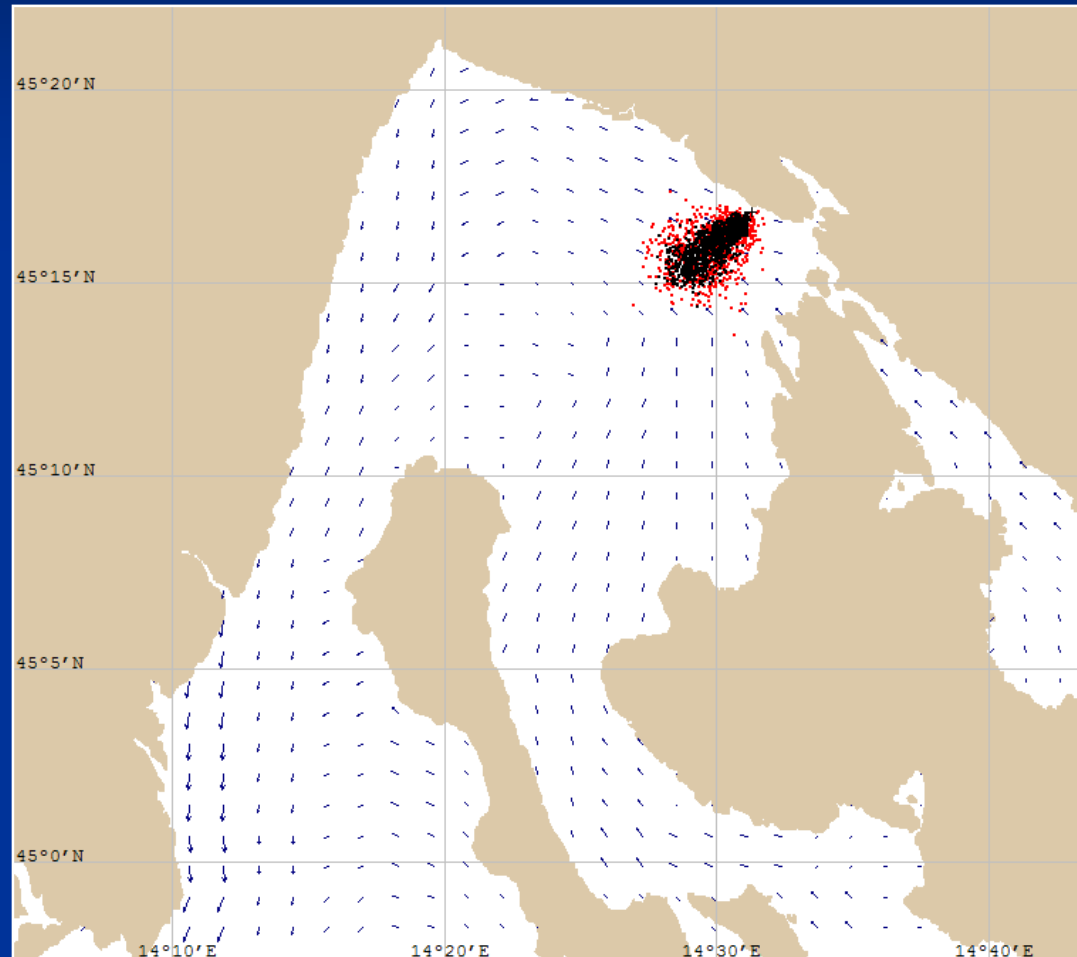
After 120 hours

Explosion and fire - Urinj

- Spill size - 40.000 tons in 24 hours;
- Current
 - circumferential, counter clockwise, 0.5 knots;
- Wind
 - NNE wind, 8 m/s

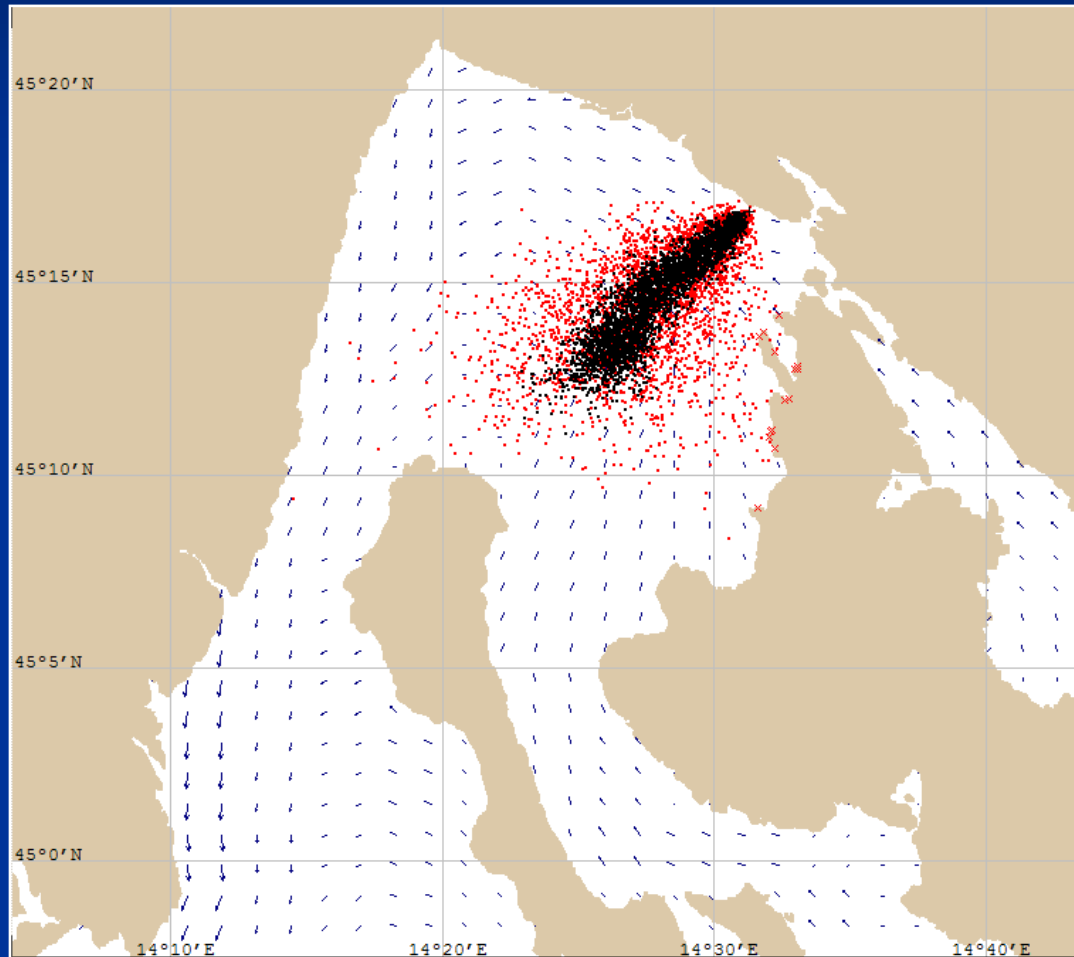


Explosion and fire - Urinj



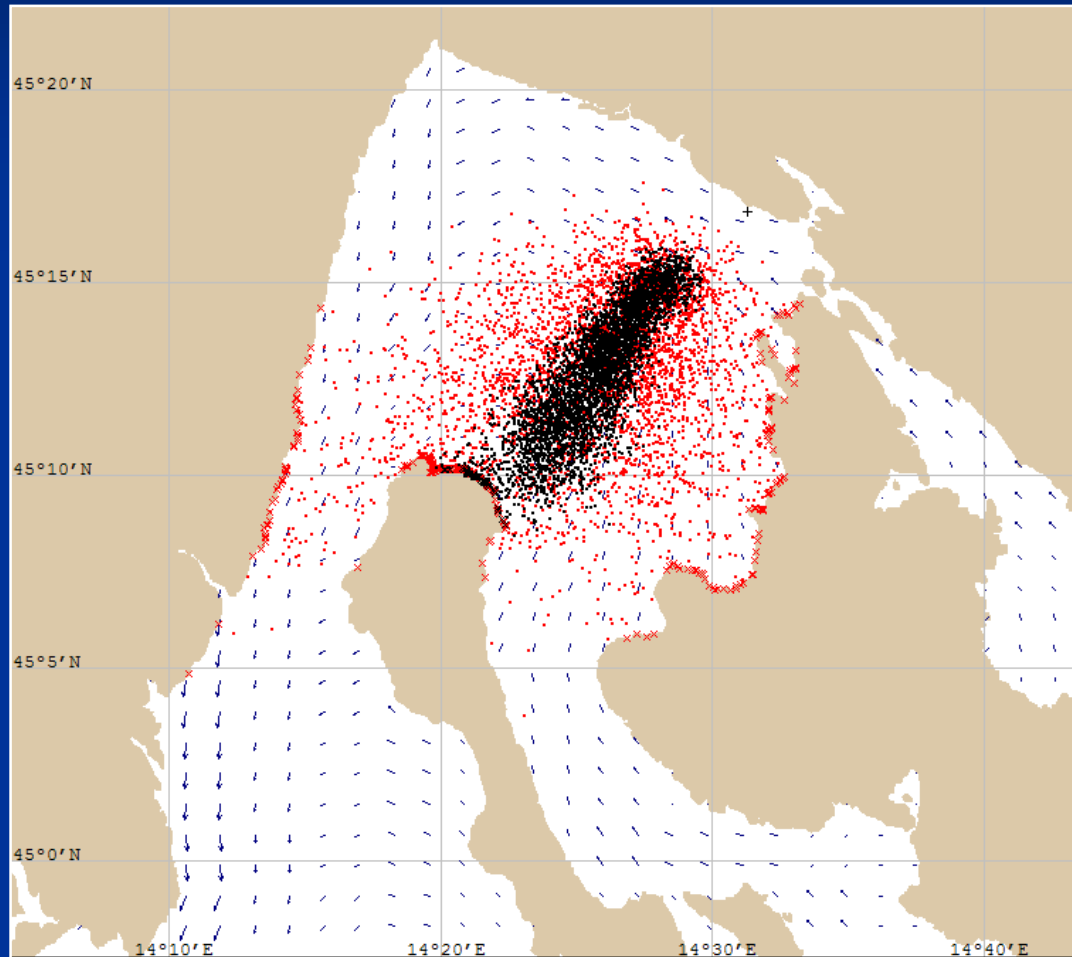
After 6 hours

Explosion and fire - Urinj



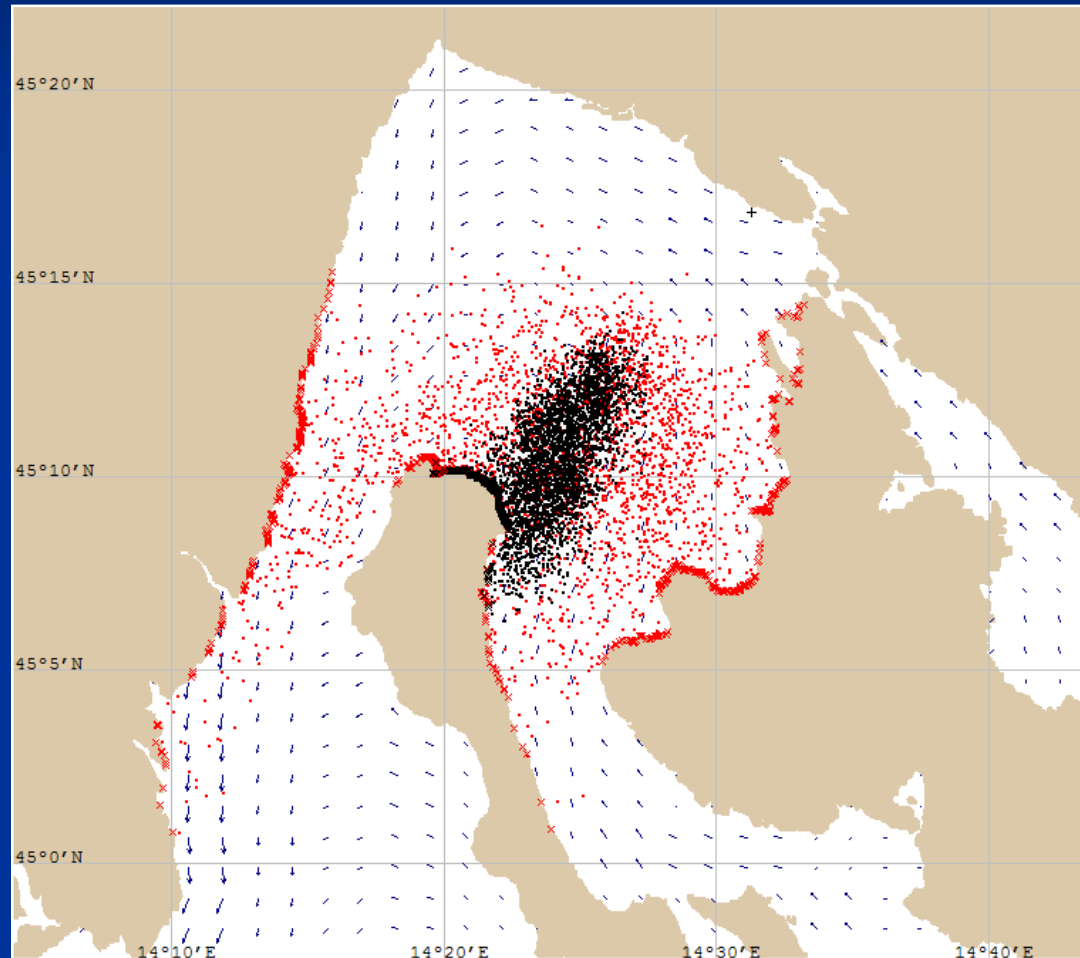
After 18 hours

Explosion and fire - Urinj



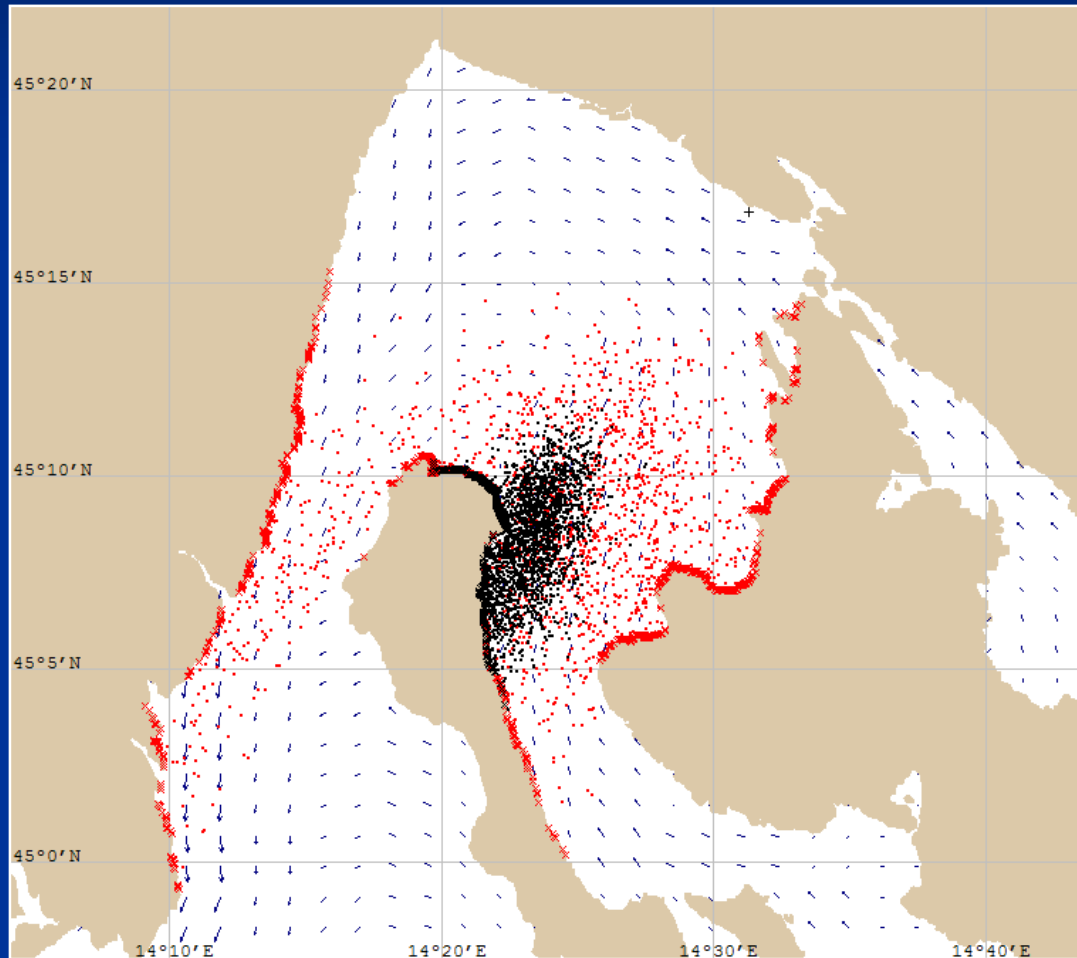
After 30 hours

Explosion and fire - Urinj



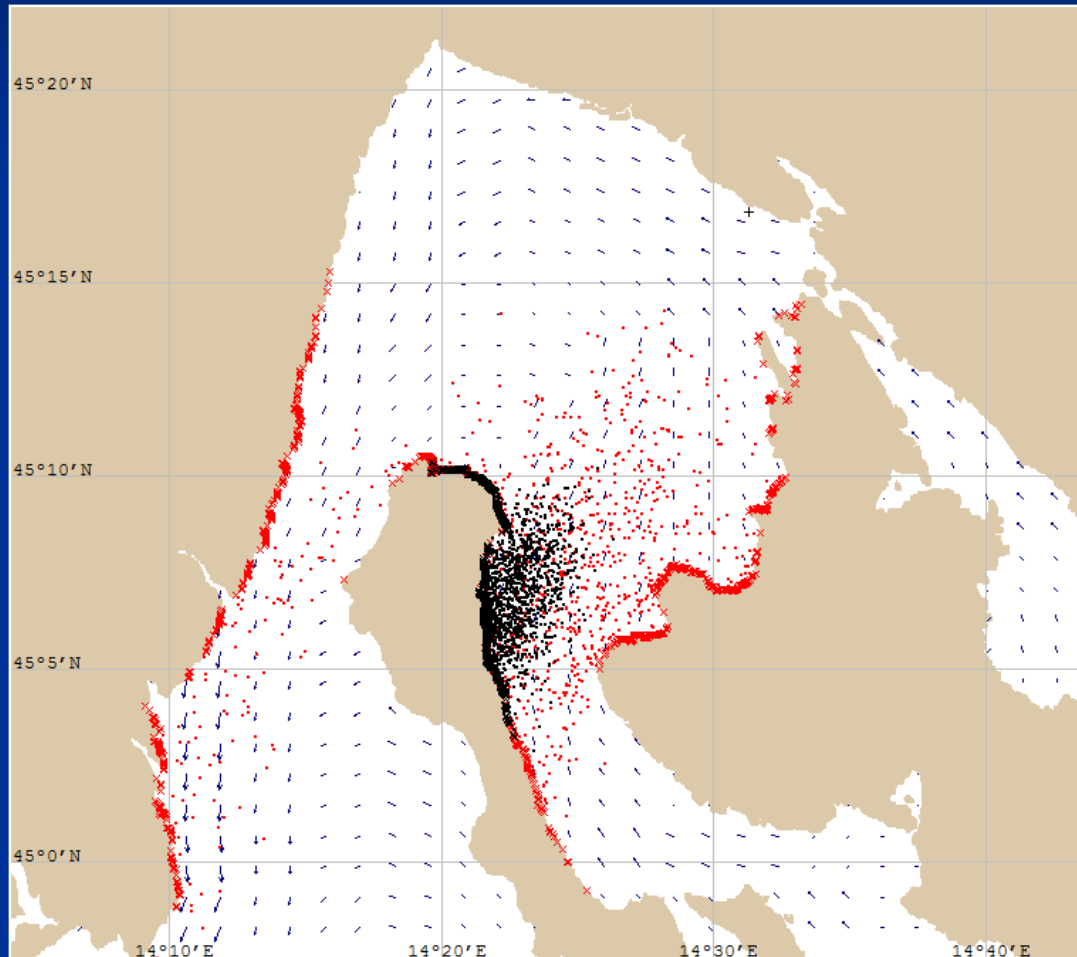
After 42 hours

Explosion and fire - Urinj



After 54 hours

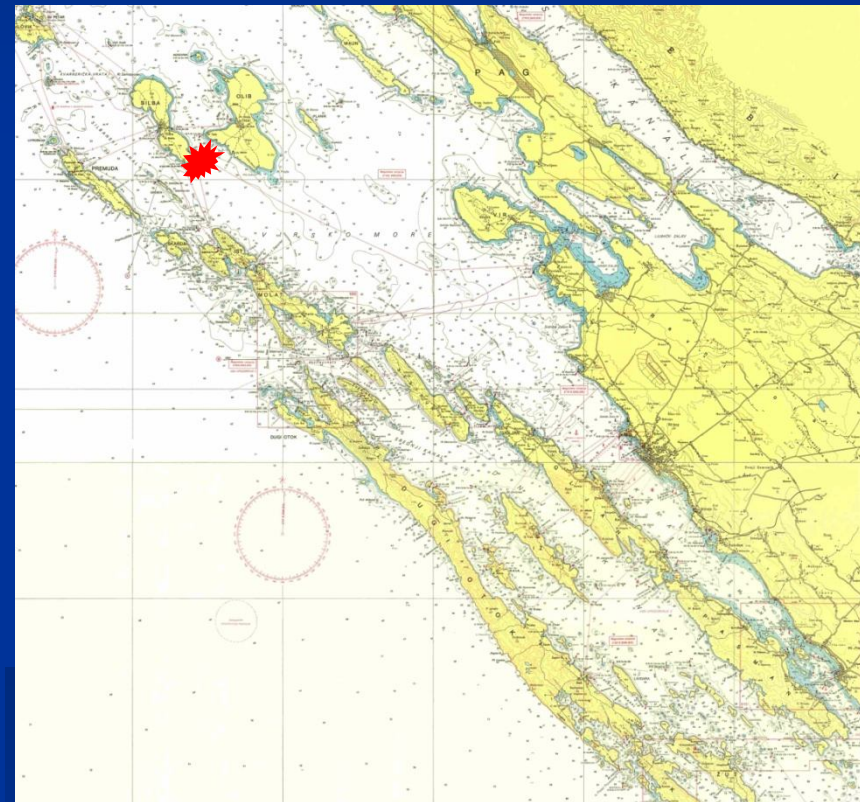
Explosion and fire - Urinj



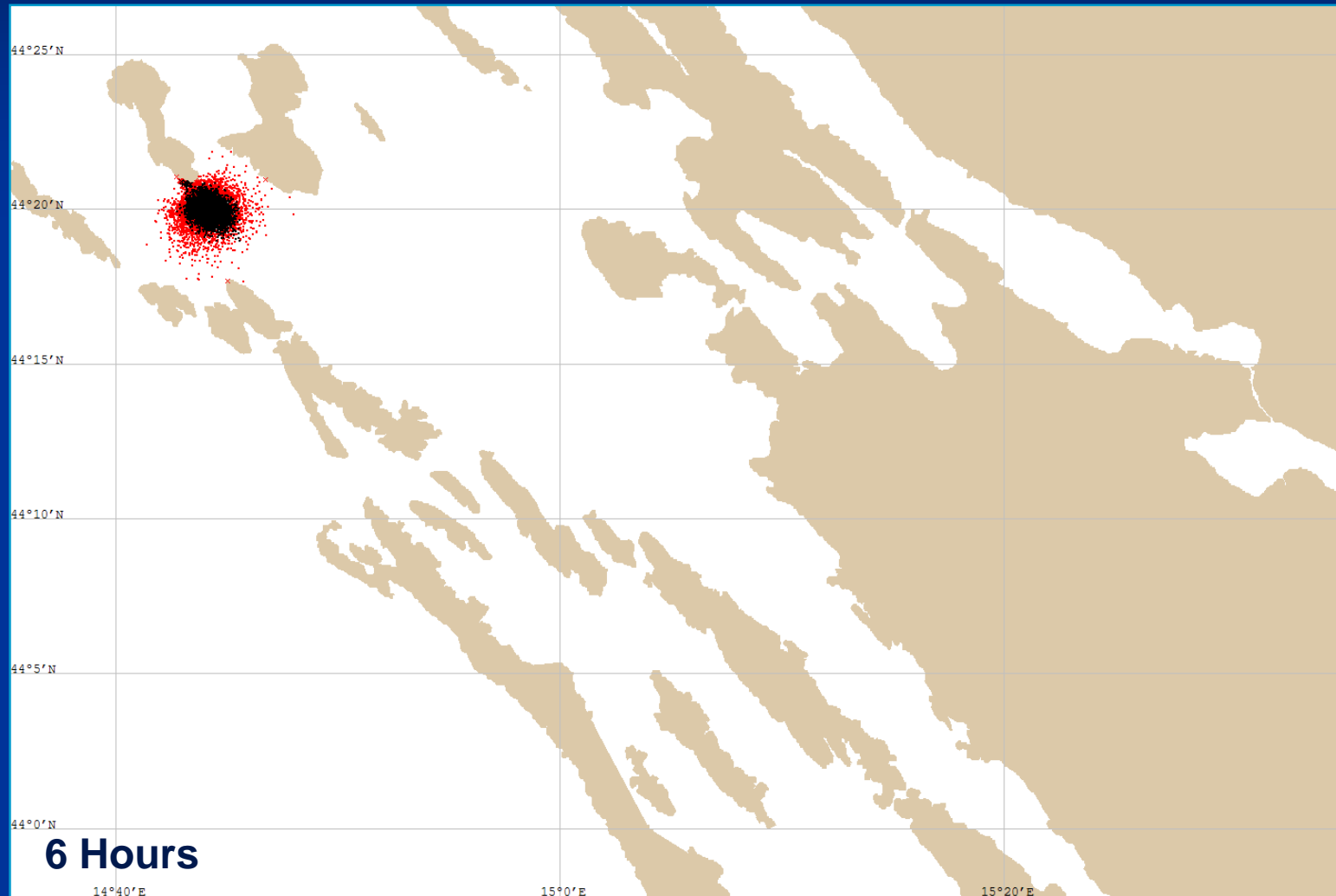
After 66 hours

Grounding – Central Adriatic

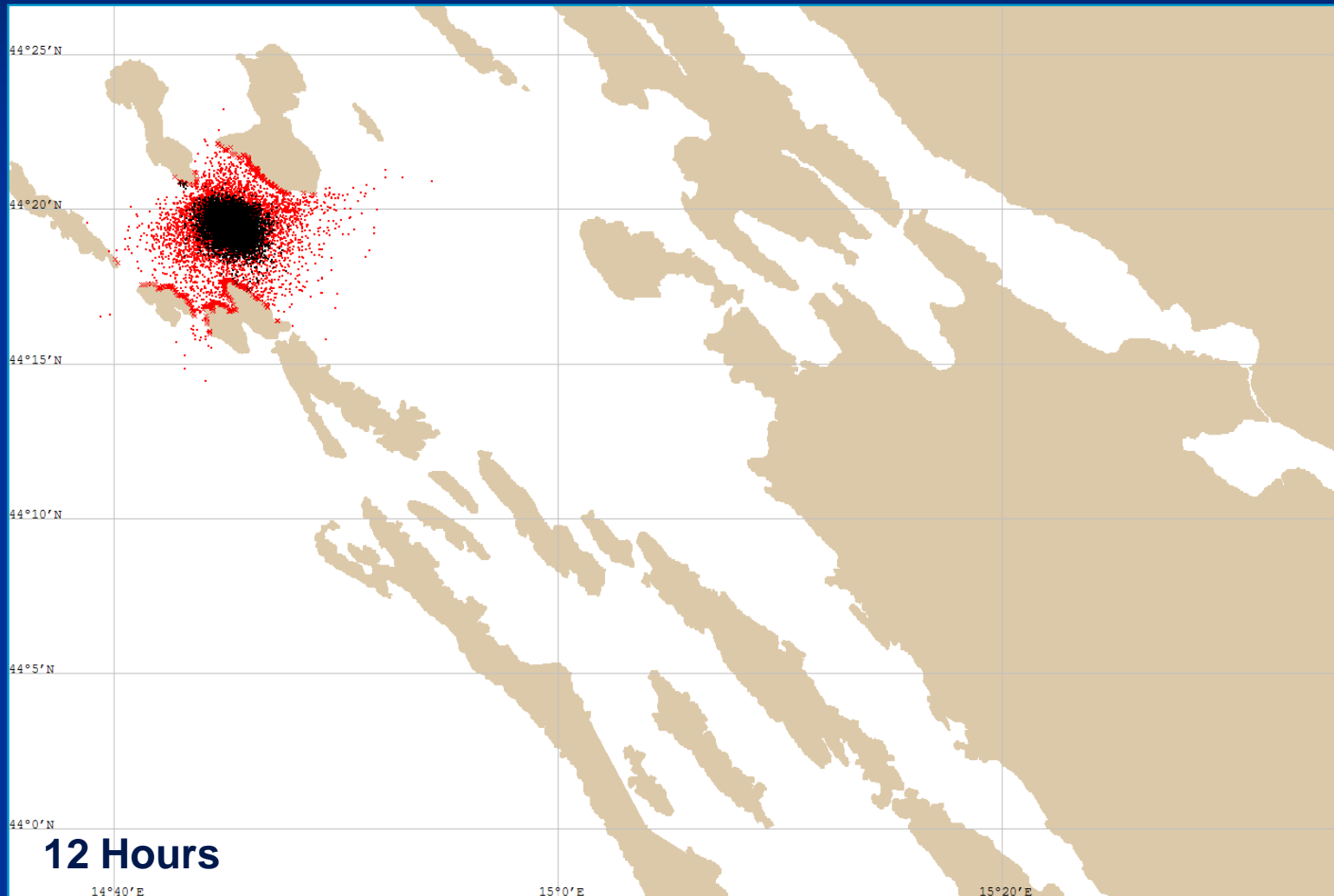
- Spill size - 6.000 tons in 4 hours;
- Current
 - NW, 0.3 knots;
- Wind
 - NNE wind, 3 m/s



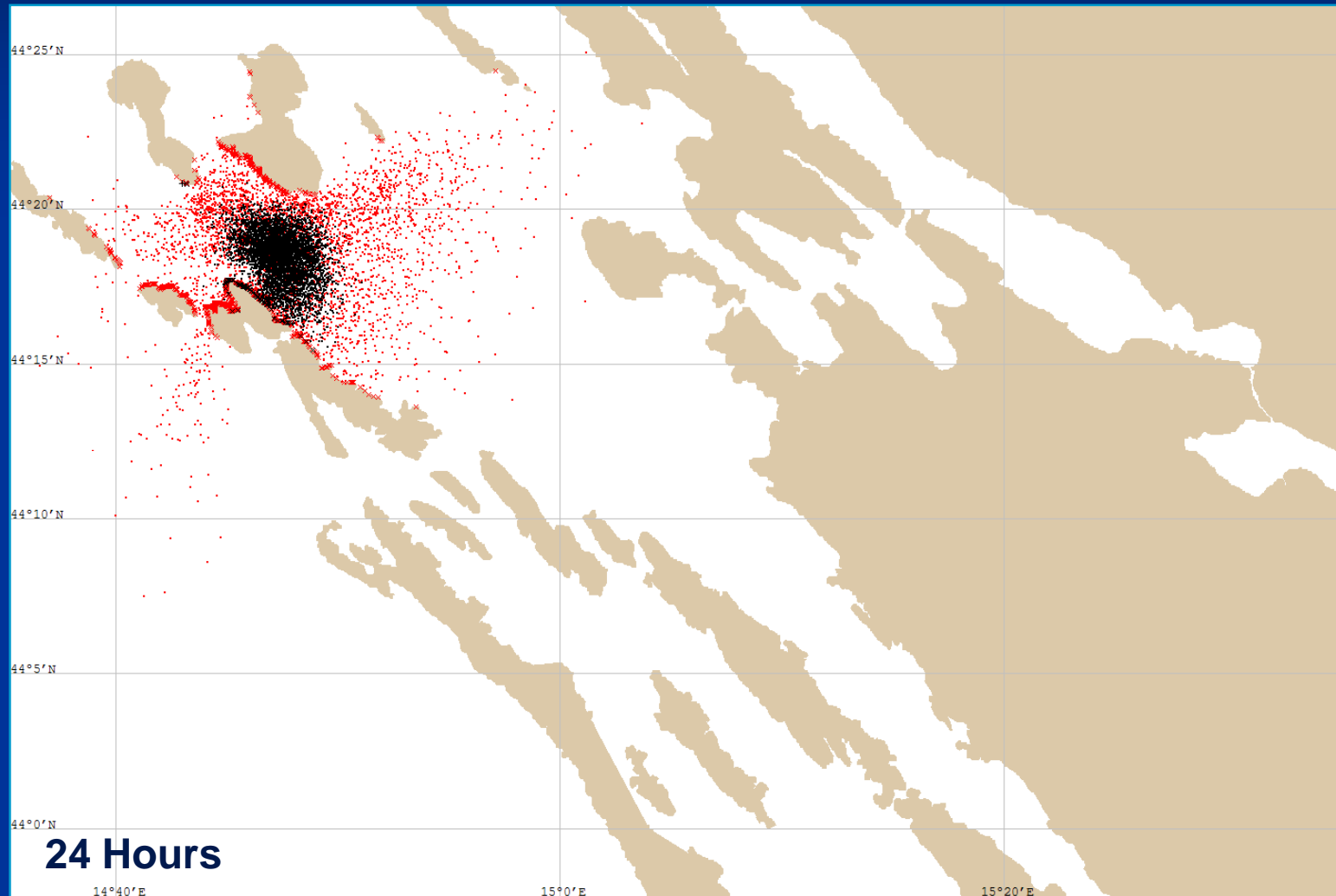
Grounding – Central Adriatic



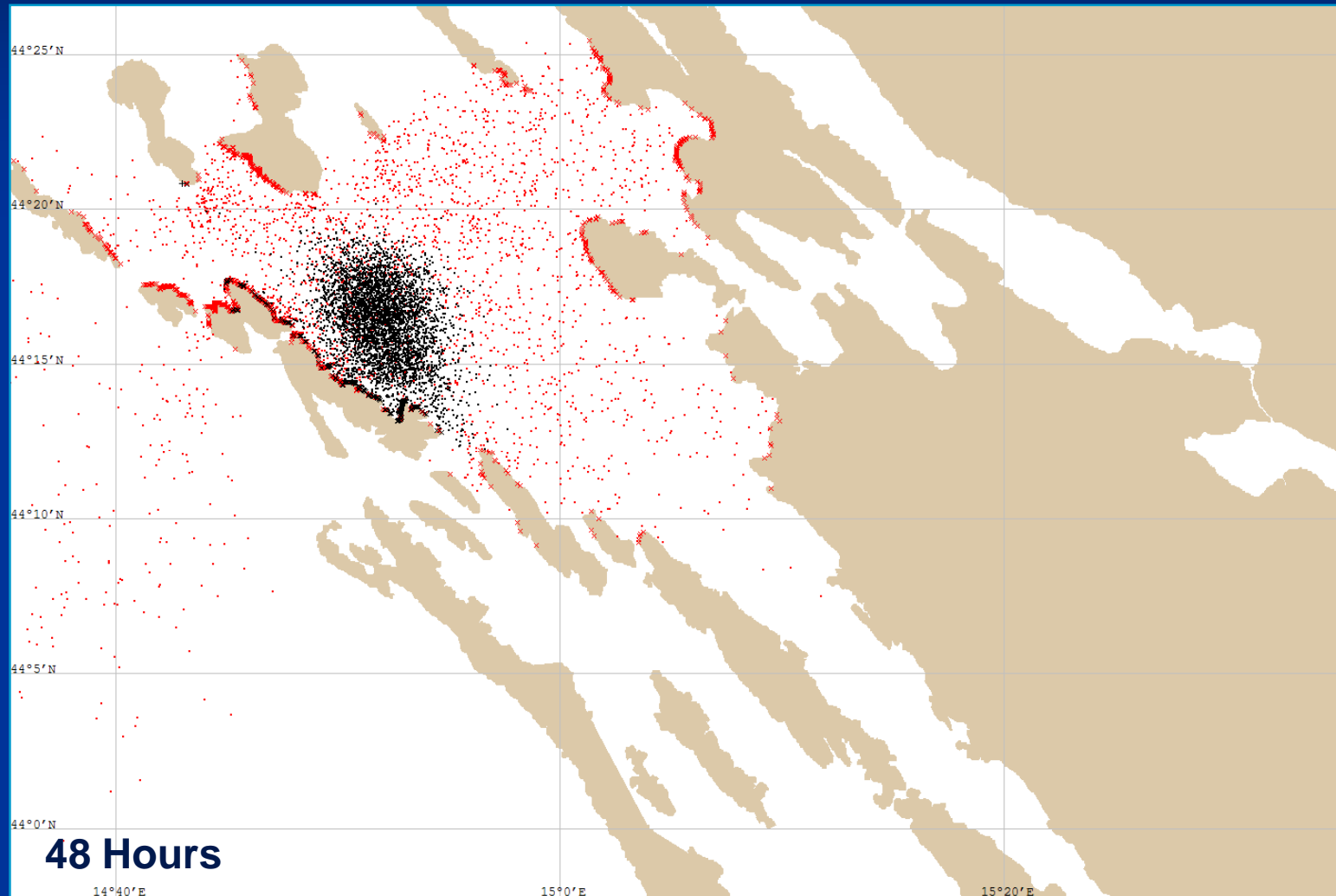
Grounding – Central Adriatic



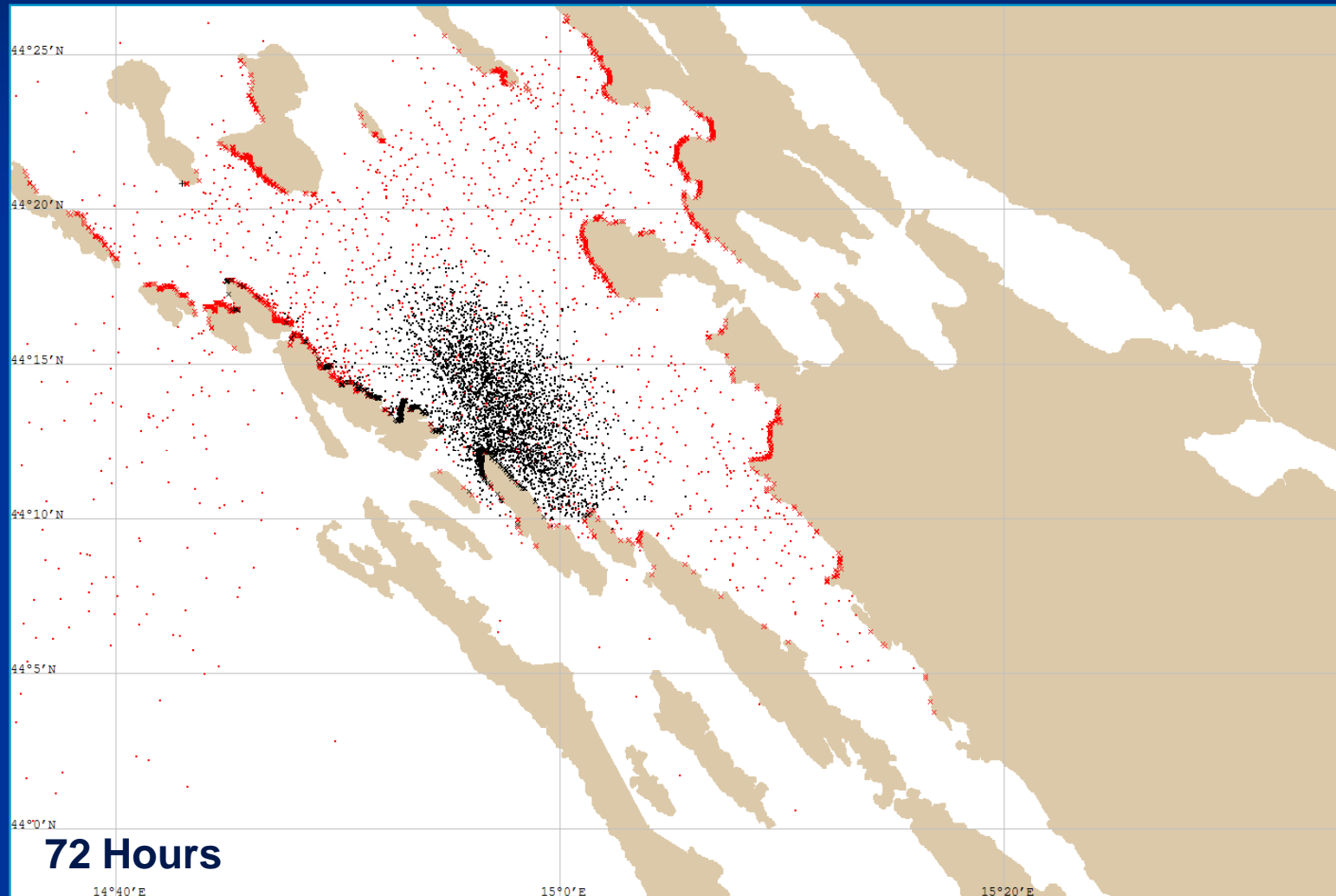
Grounding – Central Adriatic



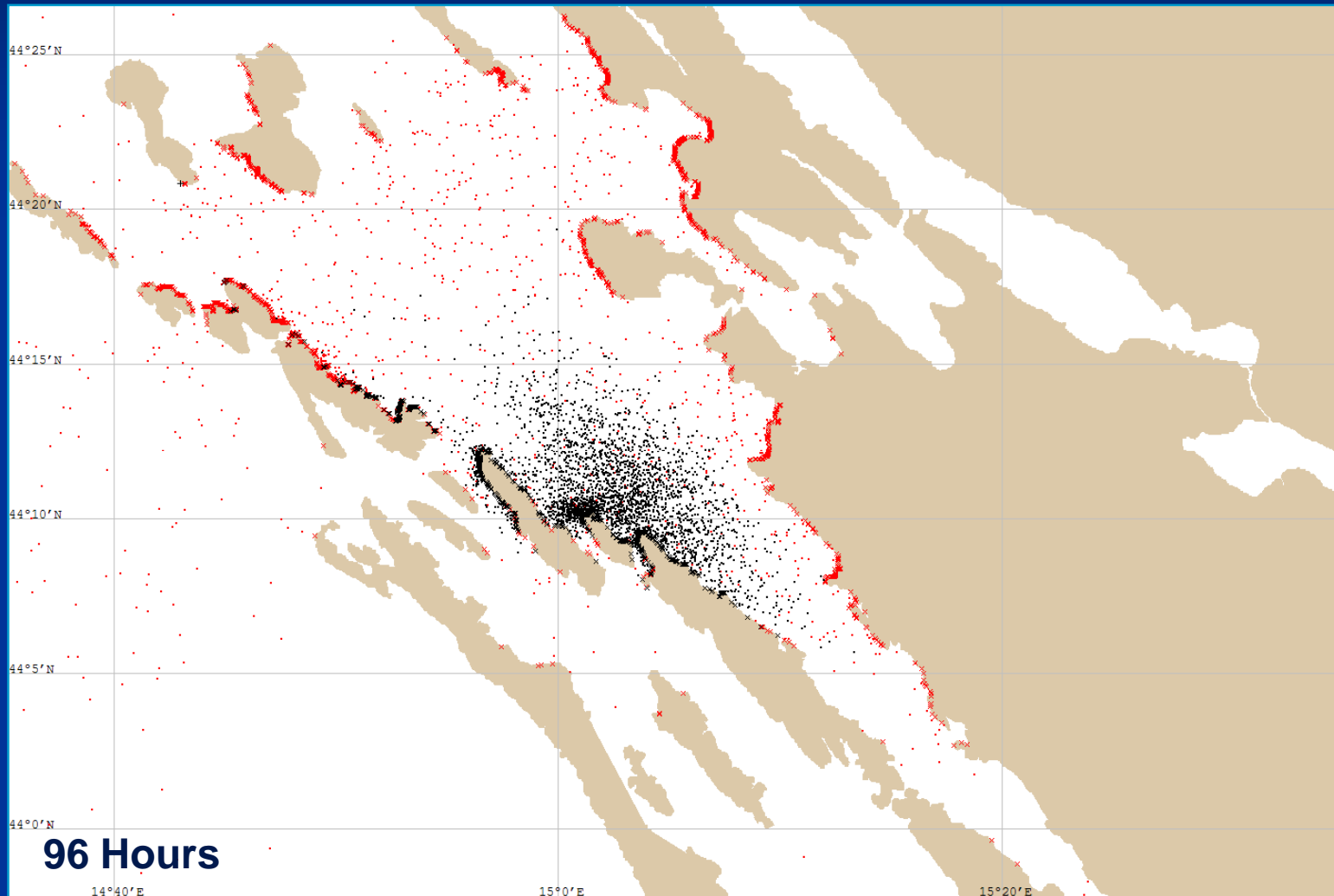
Grounding – Central Adriatic



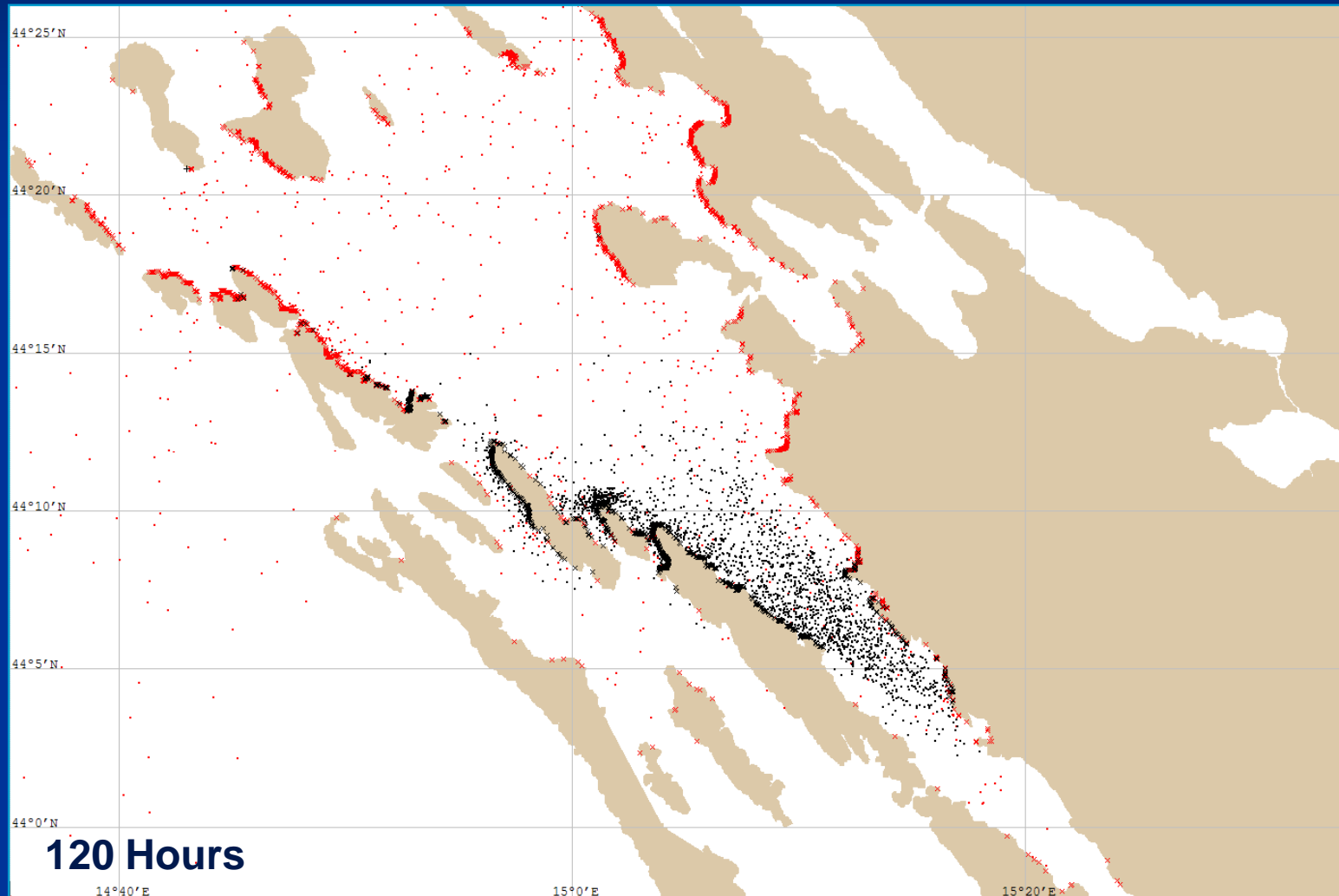
Grounding – Central Adriatic



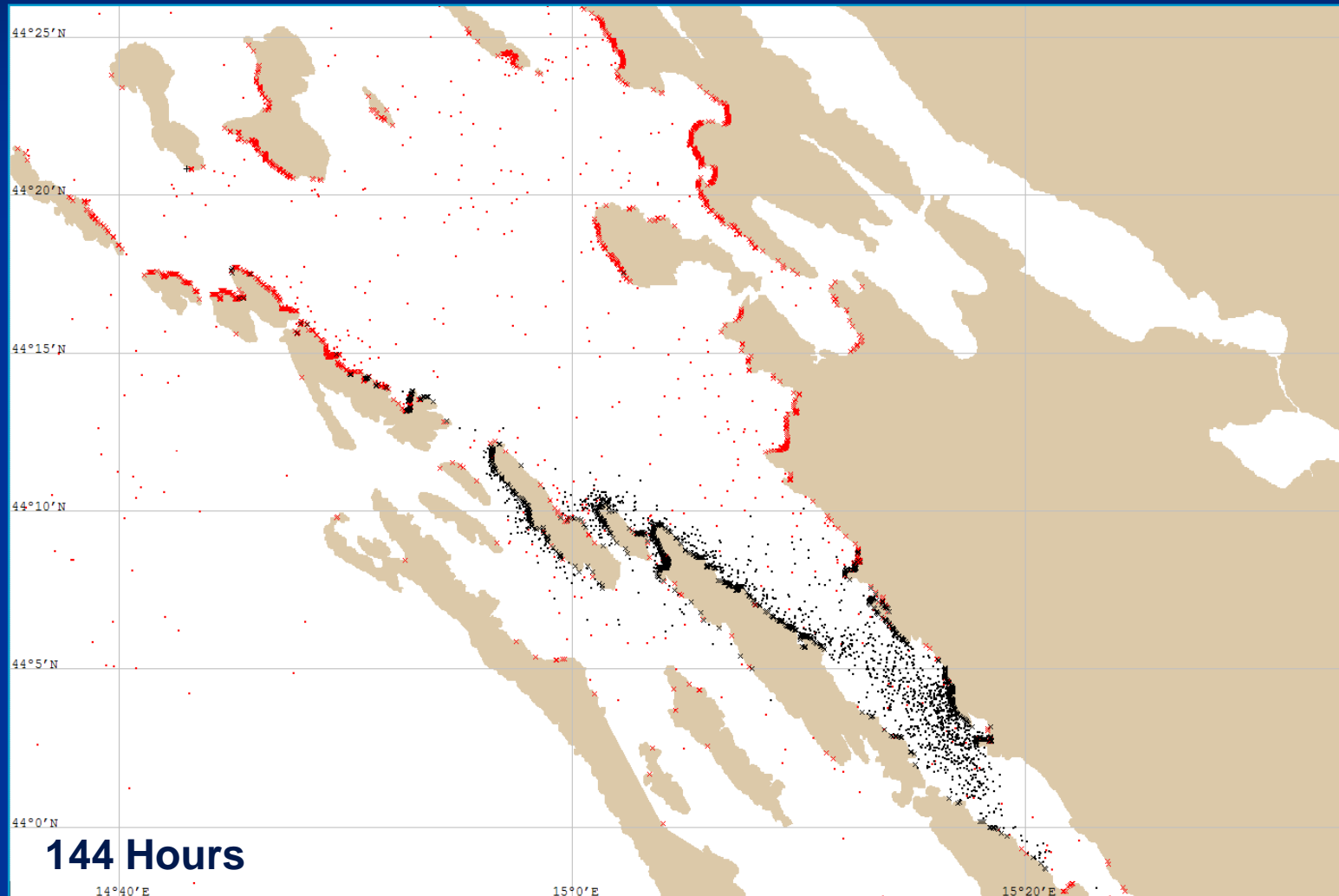
Grounding – Central Adriatic



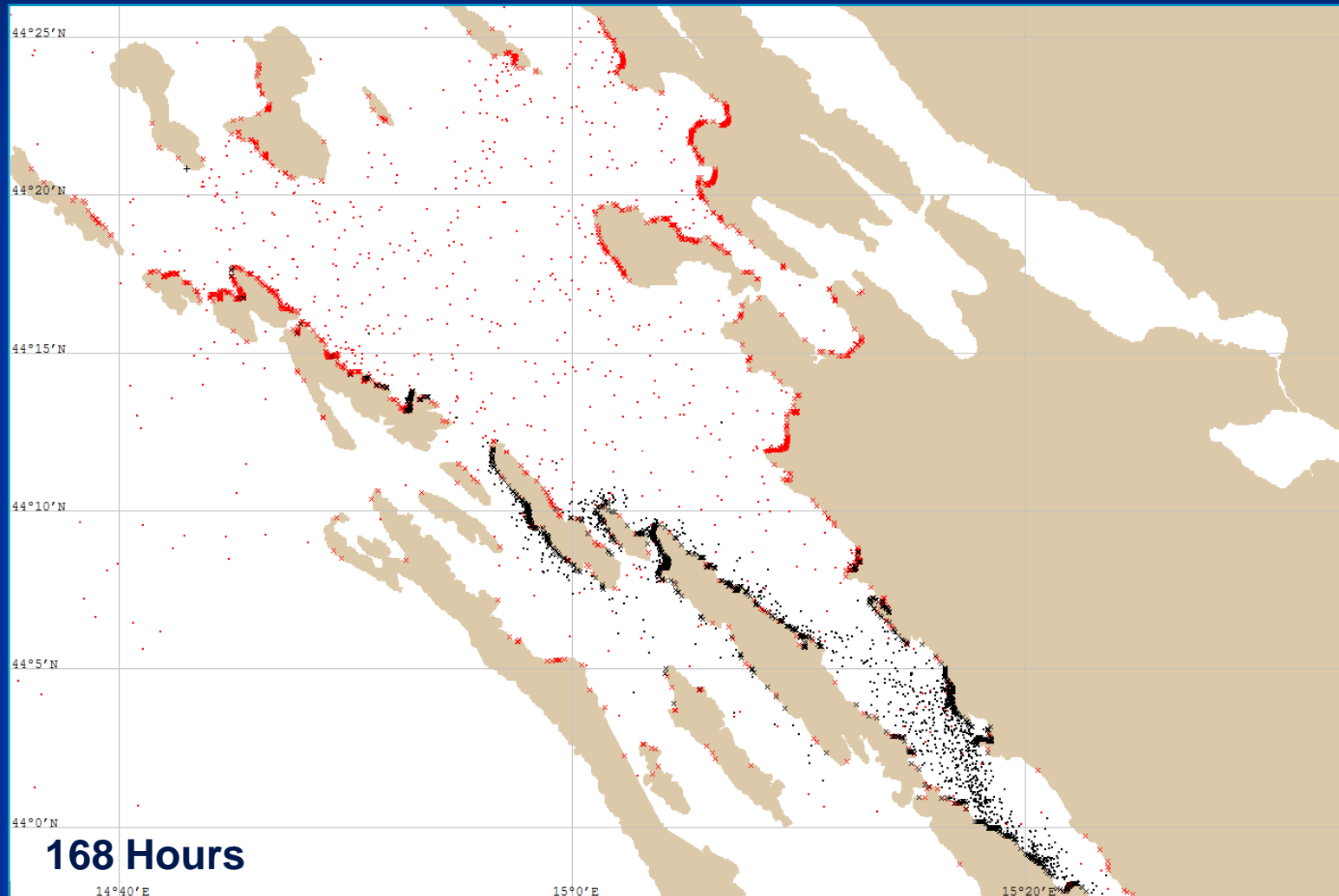
Grounding – Central Adriatic



Grounding – Central Adriatic



Grounding – Central Adriatic



Reality



Reality



Reality



Reality



Reality



Reality



Reality



Reality



Conclusions

- Marine accidents are rare but highly disastrous accidents.
- The nature of marine accidents changed significantly; impact range of marine accidents is larger today than ever before.
- No single Adriatic country can tackle the major accident.
- The constant monitoring of the area is required.

Thank you!

The background is a blue gradient. A dark blue wavy line flows from the top right towards the bottom right. A solid dark blue rectangle is positioned in the bottom right corner, partially overlapping the wavy line.