Date 9 May 2018

Bulletin n° 3 for: "Simulations for *Bright ship in support of SAR operations*"
The bulletin is built by CMCC upon Currents (Copernicus Marine Service) and wind (ECMWF provided by Italian Met Office) products used to force the LEEWAY (further developed by CMCC) objects trajectory model. The bulletin contains the forecast of objects transport in the accident area in support of search and rescue (SAR) operations.
ANNEX I presents the description of simulation scenarios.

Brief on the results:

Object dispersion forecast: An object (represented by hundreds of particles) transport is simulated starting at 0:00 on 2 May 2018. The present 234 hour-forecast is based on updated meteo-oceanographic forecast produced 9 May 2018.
Updated results confirm the previous forecasts. For a person-in-the-water scenario, the total search area is expected to be around 100–200 km to the southwest of the accident site.
In case of life raft the search area shifts further to the south. Around 60 km further for a life raft without ballast system, and 30 km for a shallow ballast system.
The object trajectory simulations have been additionally run using the high resolution regional system Atlantic-Iberian Biscay Irish-Ocean (IBI-MFC) Physics Analysis and Forecast provided by CMEMS. The results predict a little bit faster movement towards the south, which is especially clear for the person-in-water scenario. However, the other simulations quickly hit the edge of the model domain. So, we will not show the IBI results.

The mean drift over the last days has been quite steady towards the southwest.

Animations of the simulations of the 3 scenarios are available here:

Person-in-the-water	https://www.dropbox.com/s/7h9xhqvaat2nmuh/%231azores_piw_1.mp4?dl=0
Life raft without ballast system	https://www.dropbox.com/s/v4g0m0itgy0f0qc/%232azores_liferaft_nb1.mp4?dl=0
Life raft with shallow ballast system	https://www.dropbox.com/s/inepcf5n6qc1ie9/%233azores_liferaft_sb6.mp4?dl=0

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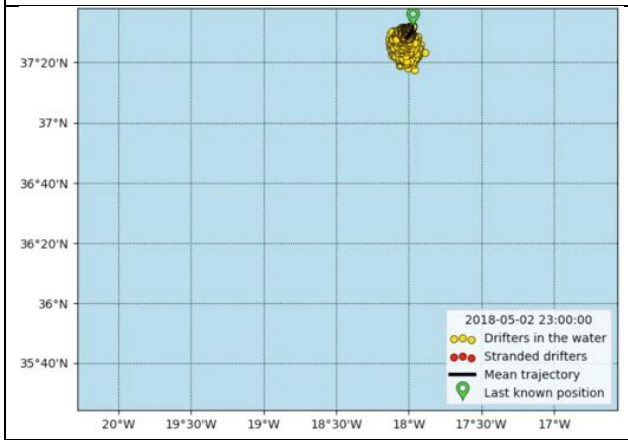
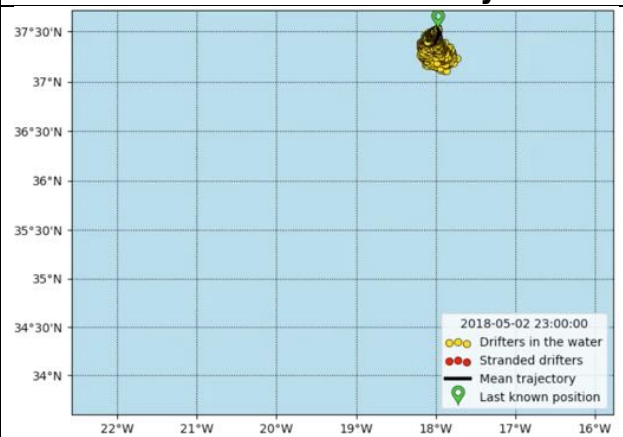
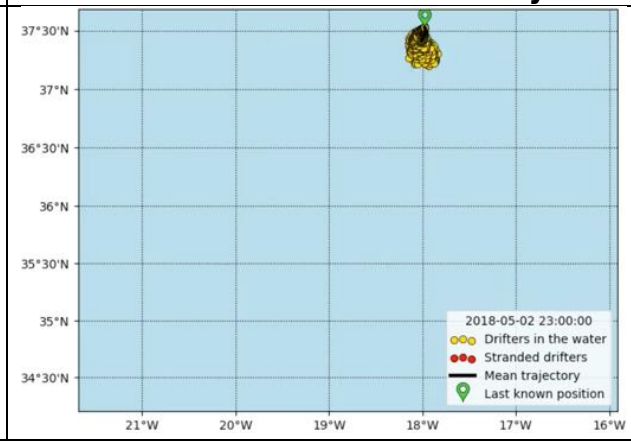
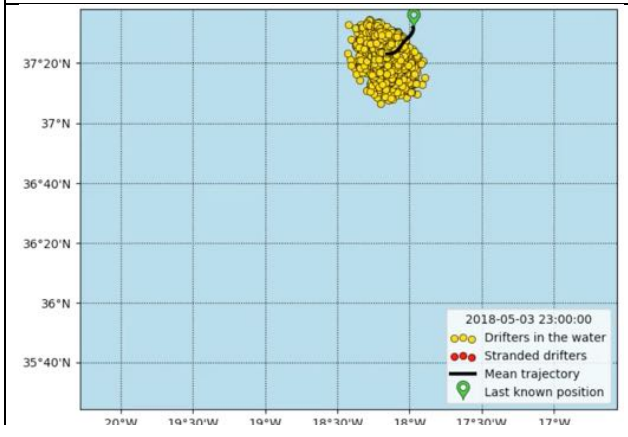
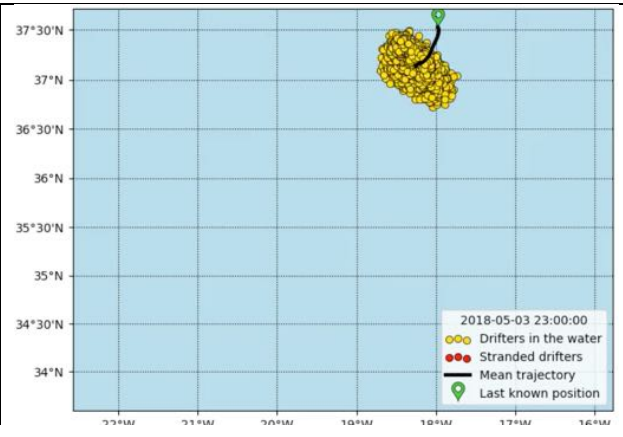
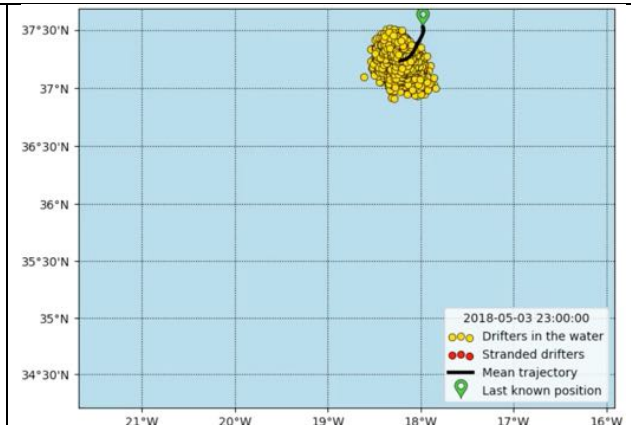
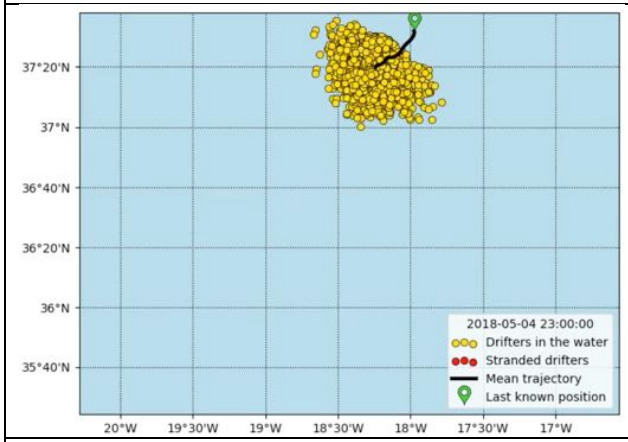
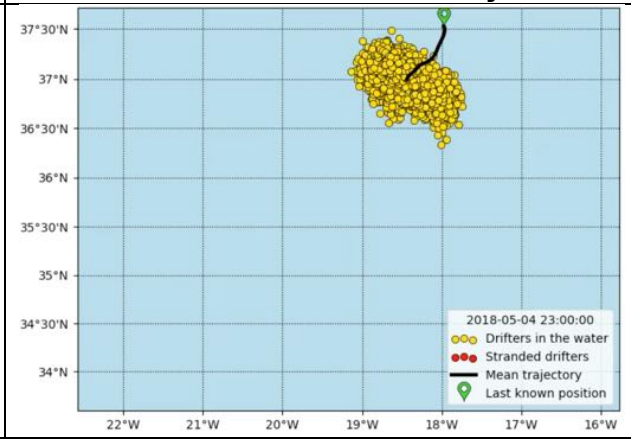
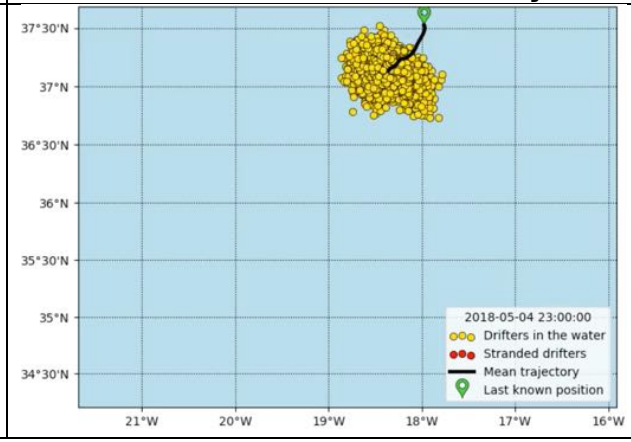
Acknowledgement: Currents are provided by Copernicus Marine Environment Monitoring Service (CMEMS) Global Ocean forecasting system (**GLOBAL_ANALYSIS_FORECAST_PHY_001_024**). Wind from ECMWF system is provided by Italian Meteorological Office (Aeronautica Militare).

Forecast of SAR object dispersion

Type of scenario		
Person-in-the-water	**Life raft without ballast system**	**Life raft with shallow ballast system**
		
SAR object location for the period of 23:00 05/02/2018 Produced 2018 CMCC		
		

Type of scenario		
Person-in-the-water	**Life raft without ballast system**	**Life raft with shallow ballast system**
		
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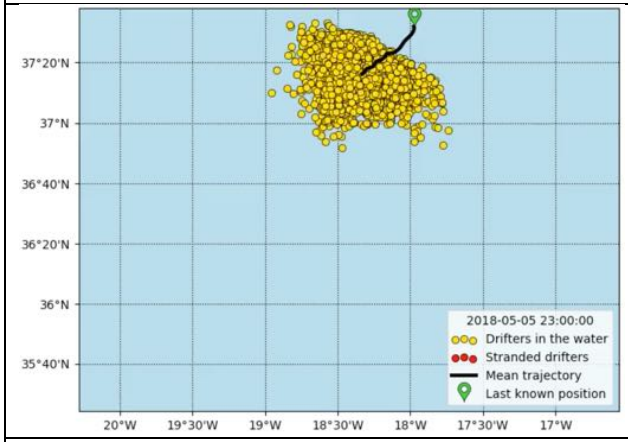
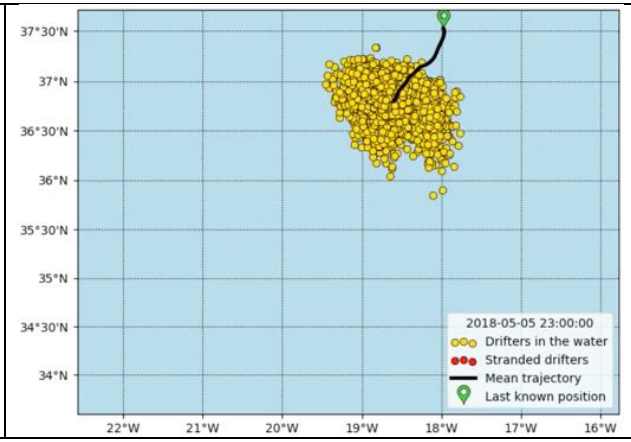
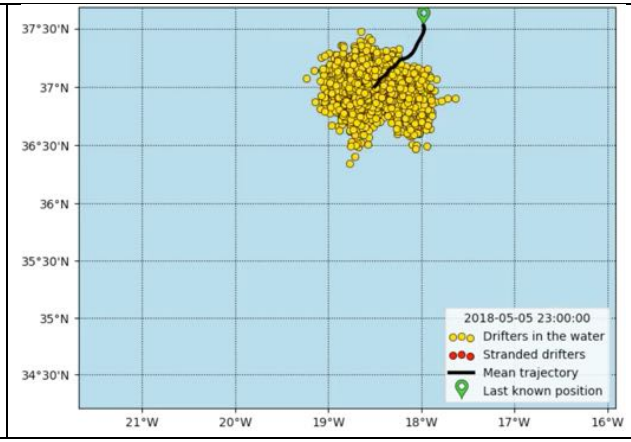
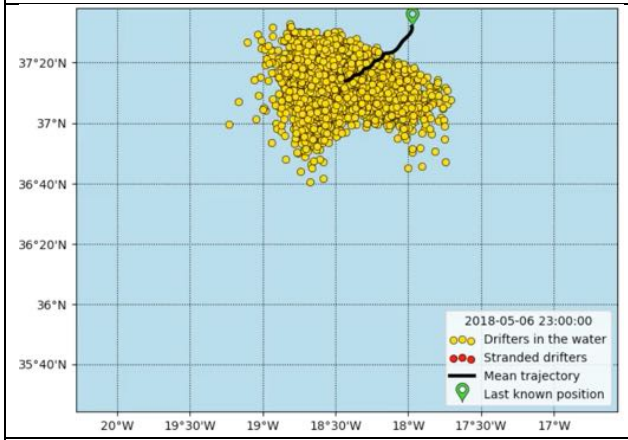
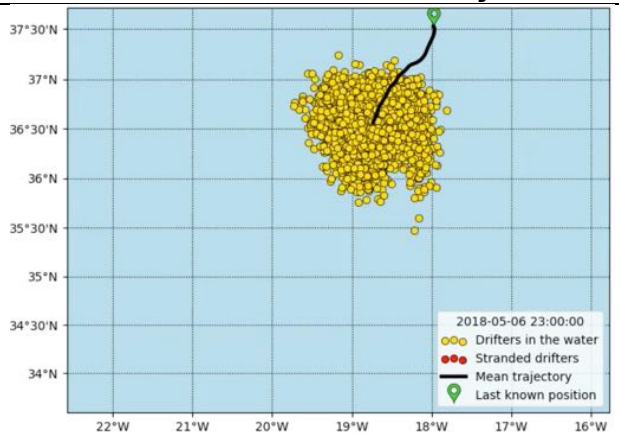
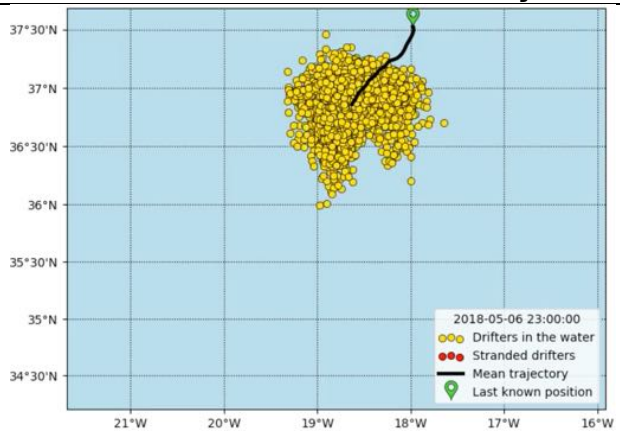
		
SAR object location for the period of 23:00 05/05/2018 Produced 2018 CMCC		

Type of scenario		
Person-in-the-water	**Life raft without ballast system**	**Life raft with shallow ballast system**
		
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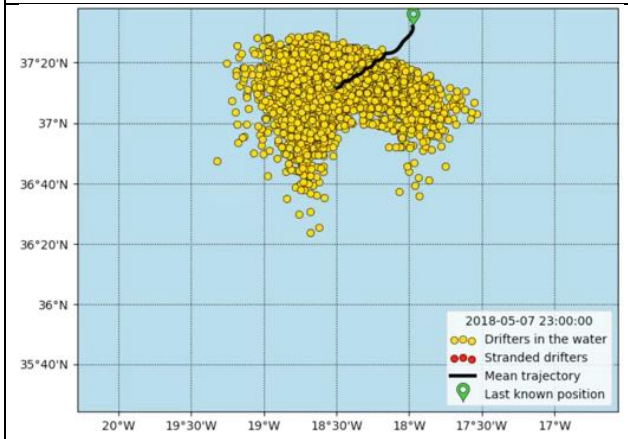
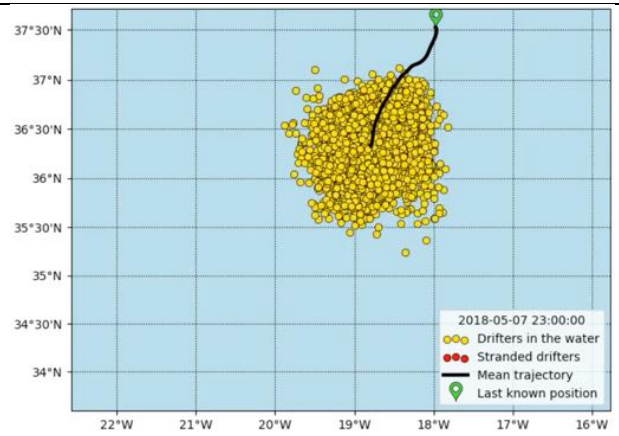
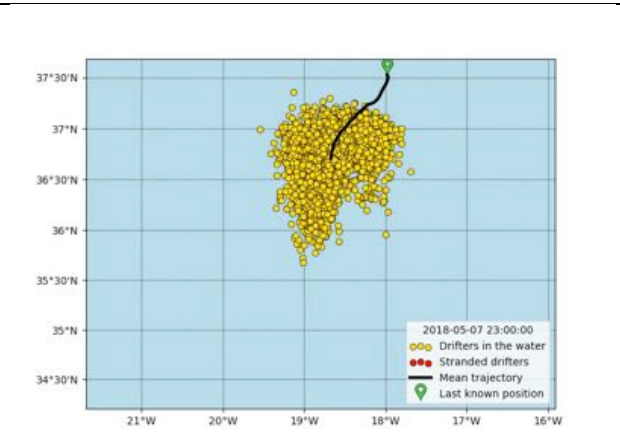
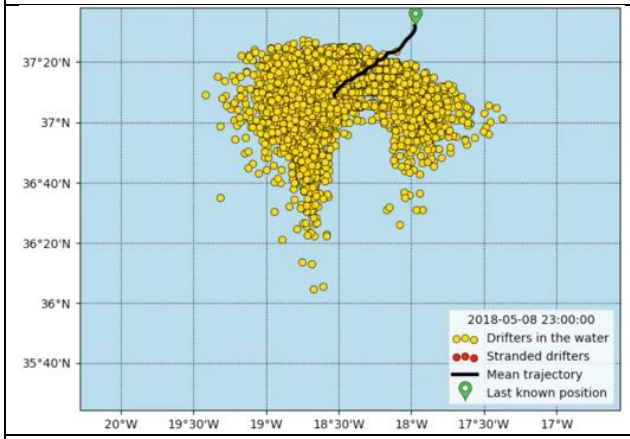
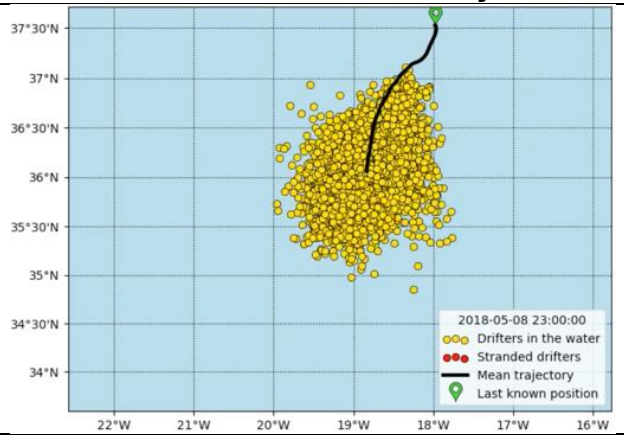
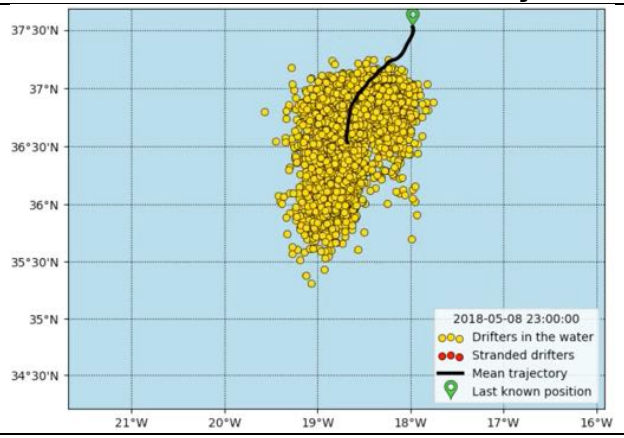
		
SAR object location for the period of 23:00 05/07/2018 Produced 2018 CMCC		

Type of scenario		
Person-in-the-water	**Life raft without ballast system**	**Life raft with shallow ballast system**
		
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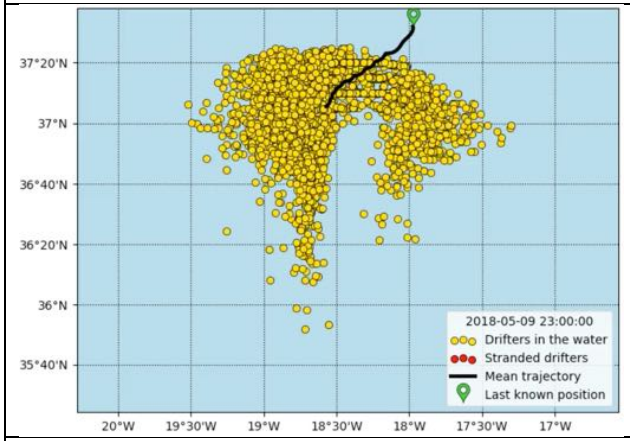
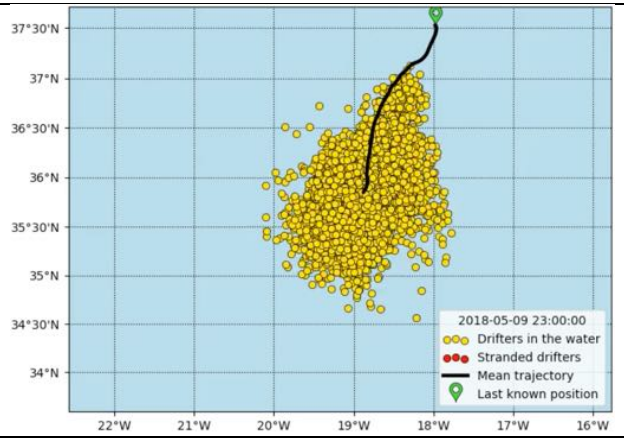
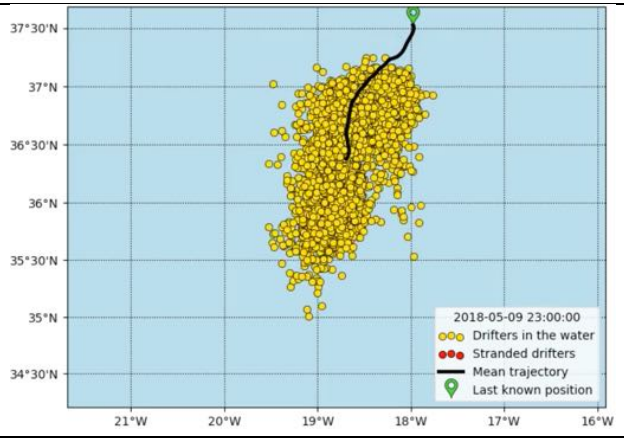
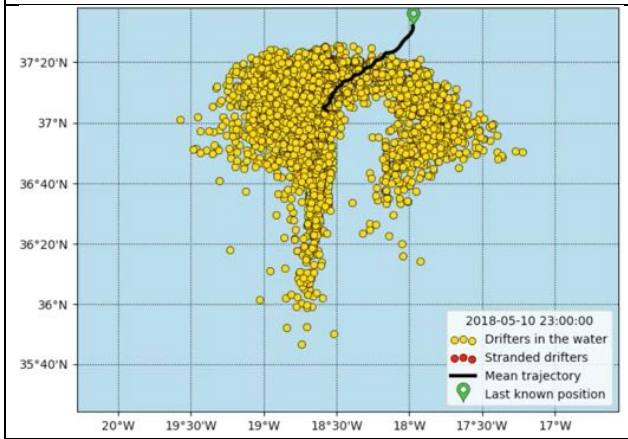
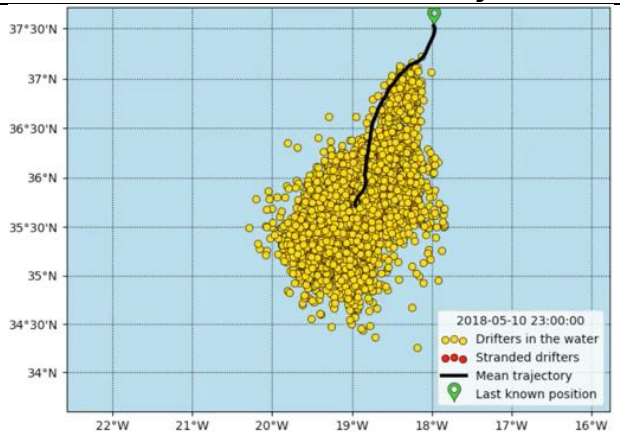
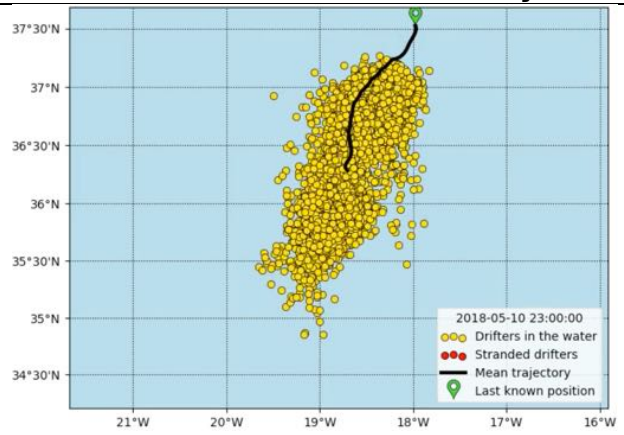
		
SAR object location for the period of 23:00 05/09/2018 Produced 2018 CMCC		

Type of scenario		
Person-in-the-water	**Life raft without ballast system**	**Life raft with shallow ballast system**
		
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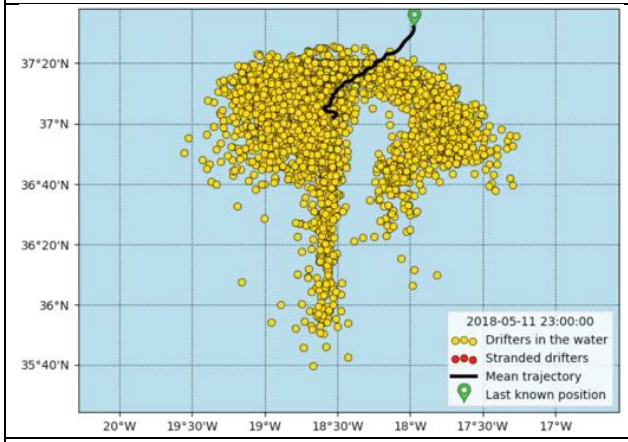
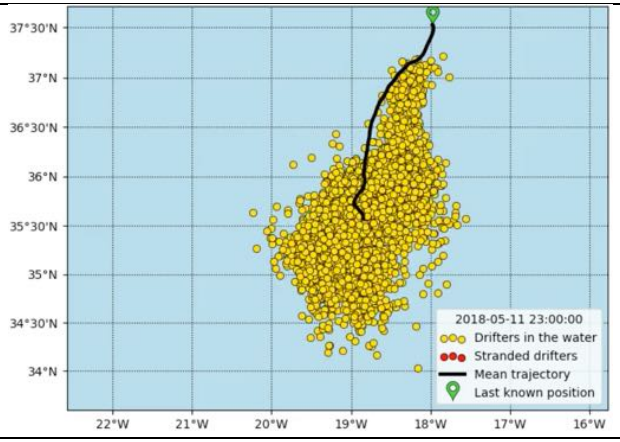
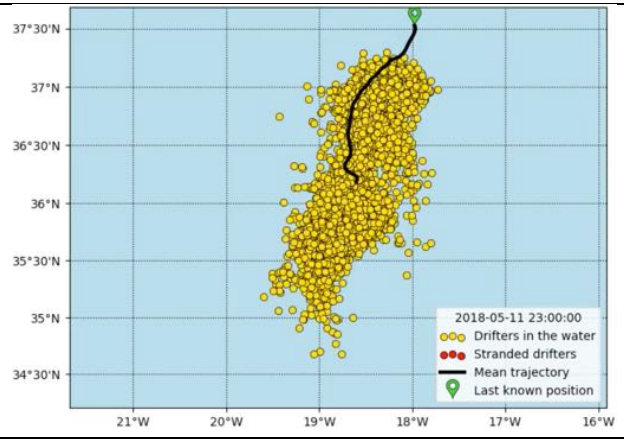
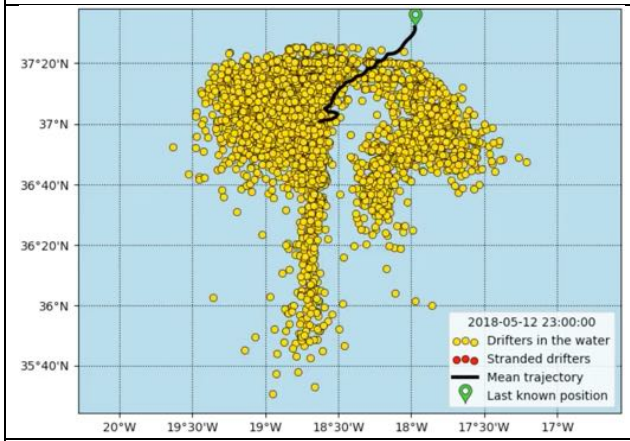
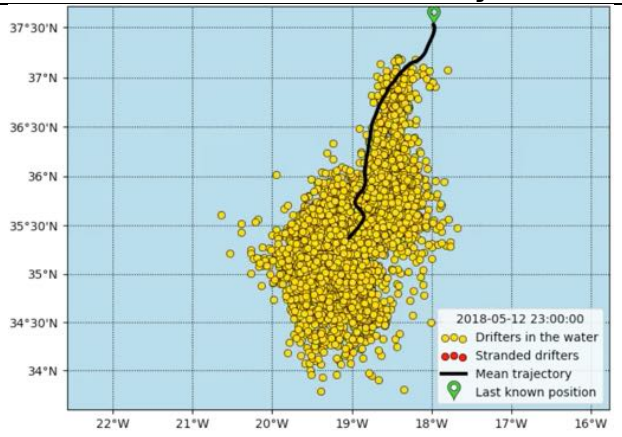
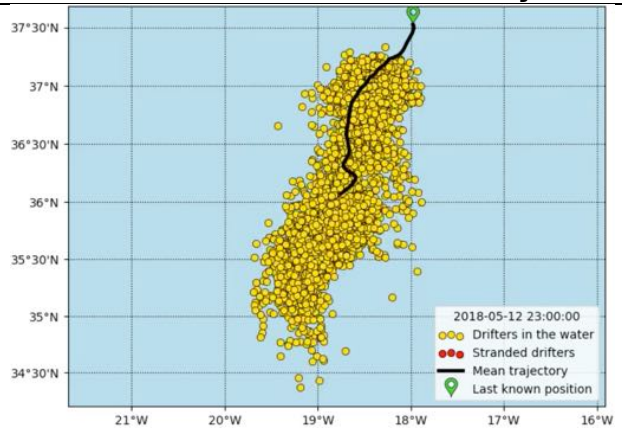
		
SAR object location for the period of 23:00 05/11/2018 Produced 2018 CMCC		

Type of scenario		
Person-in-the-water	**Life raft without ballast system**	**Life raft with shallow ballast system**
		
SAR object location for the period of 23:00 05/12/2018 Produced 2018 CMCC		

ANNEX I

Geographic coordinates of the possible accident:

lat_degree=37.35N

lon_degree=17.57W

660 km east of Sao Miguel as reported in the news (Fig. 2)

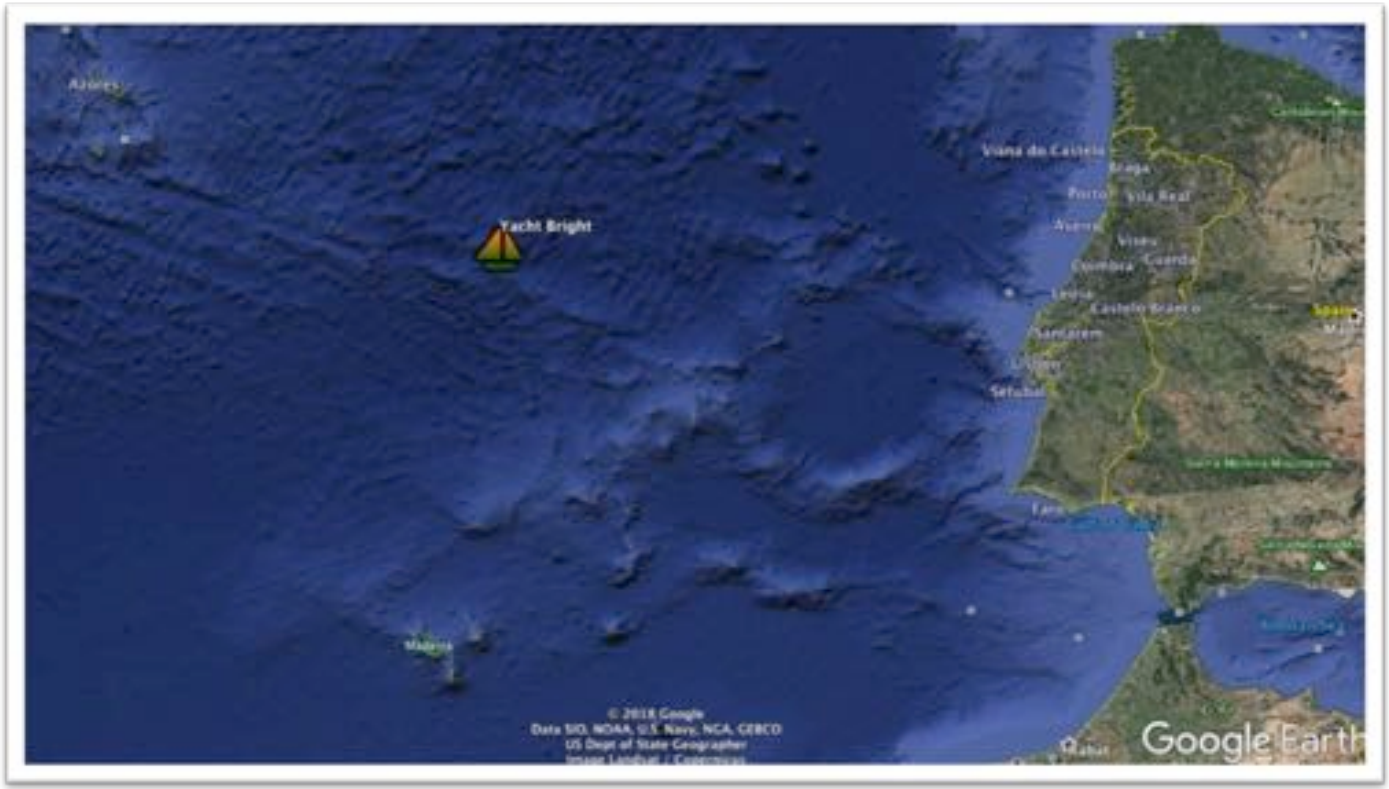


Fig. 2 Possible location of the accident (start position of the simulations)

Seeding from 0:00 until 23:59 on 2 May 2018 with a radius of 25km

Object class PIW-1

Ocean Currents: Mercator Global hourly 1/12° (GLOBAL_ANALYSIS_FORECAST_PHY_001_024)

Winds: ECMWF analysis 6-hourly 1/8°