2nd M3E Workshop 27 April 2026

Parthenope – Villa Doria D'angri, Naples

Overview:

Since the first workshop held in February 2025 in Bologna, M3E has significantly evolved. The initiative now includes nine partners and features a dedicated website hosted by OGS. In addition, a news article has been published by ECMWF. A scientific paper (Lavers et al., 2025), titled *"The Mediterranean Extreme Events Experiment (M3E) and Storm Harry in January 2026,"* has recently been submitted to the *Quarterly Journal of the Royal Meteorological Society*. Furthermore, in 2025 the M3E project received official endorsement from the WWRP of WMO.

Drifter deployments:

To date, 20 drifters have been deployed in the Ionian Sea:

- 5 SVPB drifters were deployed from the R/V Laura Bassi on 8 September 2025 (coordinated by OGS);
- 8 SVPB drifters were deployed from various container ships between September and November 2025 (coordinated by Météo-France, E-Surfmar);
- 5 SVPB drifters and 2 Minimet drifters were deployed from the R/V Meteor in January 2026 (coordinated by OGS).

Currently, 8 drifters remain operational: 5 in the central Mediterranean Sea, including the Ionian and Adriatic Seas, and 3 that have drifted southeastward into the Eastern Mediterranean.

Extreme Events:

The ECMWF analysis and forecasting system is currently assimilating mean sea level pressure data from the newly deployed drifters. An initial assessment has been conducted to evaluate the impact of Storm Harry. Both Forecast Sensitivity to Observation Impact (FSOI) diagnostics and observing system experiments indicate clear benefits from the M3E buoy data, supporting the case for future deployments.

Partners have also undertaken a range of activities focused on monitoring and analysing extreme events in the Mediterranean Sea, combining observational data and numerical modelling. These efforts highlight the critical role of in situ observations in regions affected by medicanes and severe storms, particularly in improving the predictability of numerical weather prediction systems.

New deployments:

New deployments are planned to start in autumn 2026 across both the Ionian and Tyrrhenian Seas:

- 4–5 drifters (potentially including wave spectrum measurements) will be provided by SIO-LDL;
- 5 drifters will be provided by Météo-France / E-Surfmar;
- 7 drifters (including 5 equipped for wave spectrum measurements) will be deployed by CMCC in the northern Tyrrhenian Sea, along the ferry route between Civitavecchia and Sardinia;
- 10 drifters are planned for deployment by OGS in the Ionian Sea.

Open discussion – main points/suggestions:

- A similar pool of drifters should be maintained in the Ionian Sea, while expanding observations to the Tyrrhenian Sea.
- Given that the lifetime of a drifter is typically up to one year, annual deployments are required. An ideal target would be around 20 drifters deployed per year.
- Redeployment of stranded drifters would be desirable, although this is not always feasible.
- It is important to carefully define both the spatial domain and timing of deployments in order to maximize drifter lifetime and data return.
- Feedback mechanisms should be established to optimise deployment strategies based on surface current fields and target objectives. Monthly climatological maps of surface currents derived from re-analyses, together with historical drifter tracks, could support this process.
- The development of a dedicated tool to forecast drifter tracks and optimize deployment locations would be beneficial.
- Operational constraints related to drifter availability and communication with ship captains should be considered, as delays with respect to planned deployments are likely.
- The use of sailboats could be considered; this has been done in the past, although deployment locations may not always meet scientific requirements.
- It would be useful to involve additional contributors in drifter deployments, potentially including partners from Malta, Greece, and the broader MedARGO community.
- The use of alternative instrumented platforms, such as Saildrones, could also be explored to enhance spatial coverage
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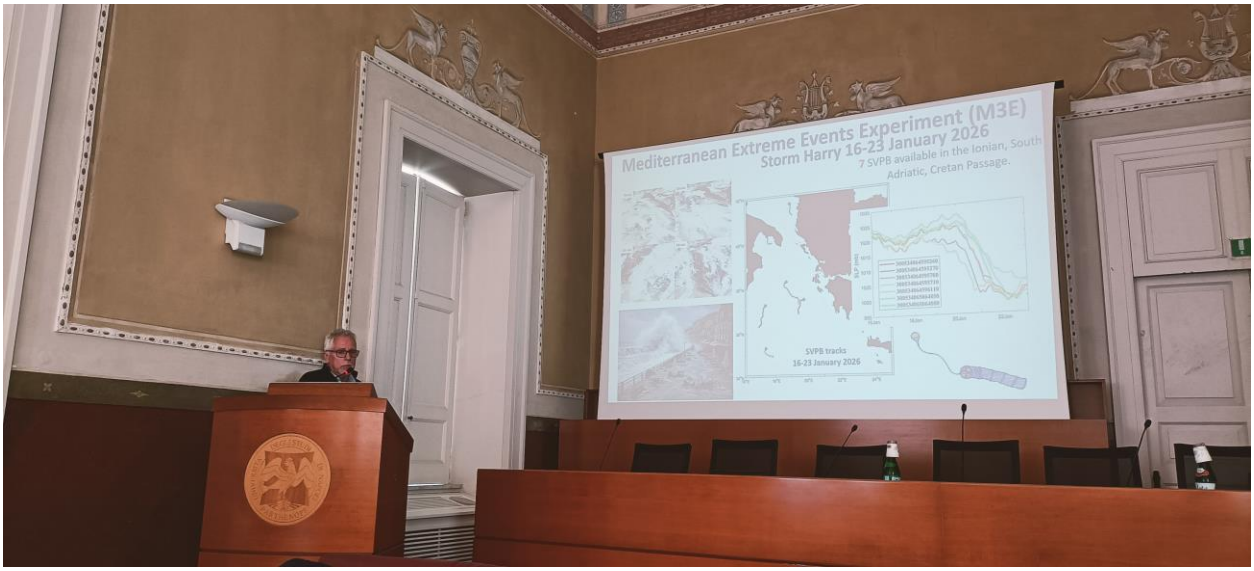
A few workshop pictures:

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