Mediterranean Outflow Water characteristics in the Northeast Atlantic in 2019 and 2021.

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Study area

The characteristics of Mediterranean Outflow Water (MOW) in the Northeast Atlantic were obtained during the 43rd cruise of the R/V Akademik Nikolaj Strakhov (October, 2019) and the 59th cruise of the R/V Akademik Ioffe (September, 2021) using CTD measurements.

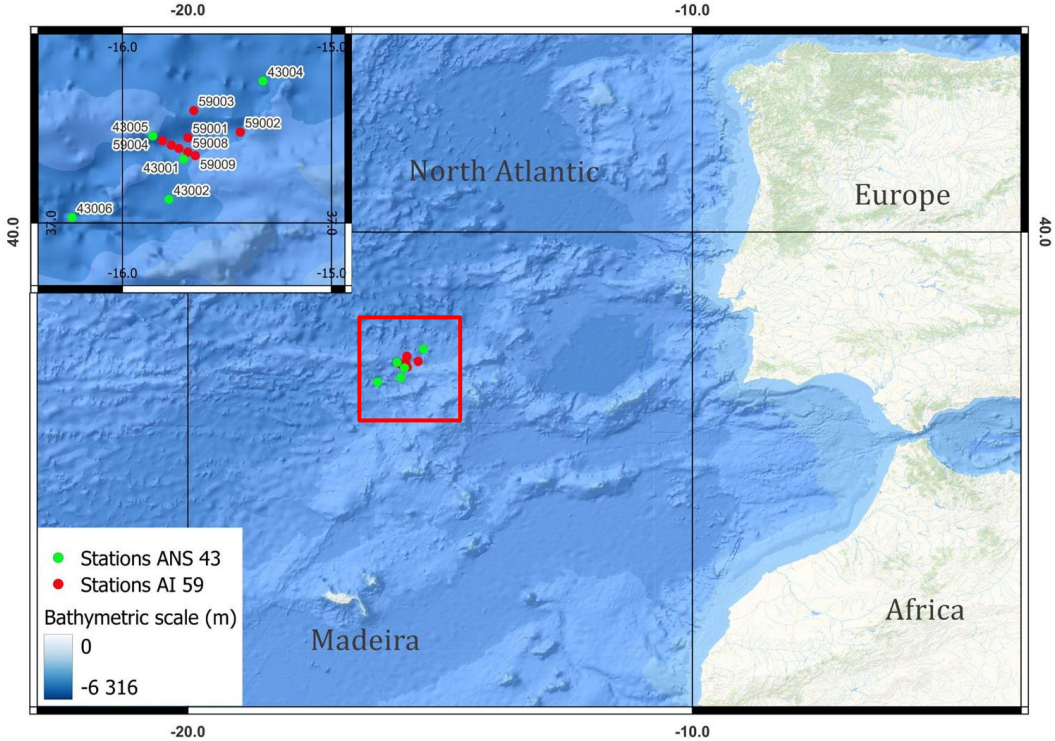

Fig. 1. Study area

The Mediterranean Outflow Water

The Mediterranean Outflow Water (MOW) is a saline and warm water mass principally occupying the intermediate depths of the eastern North Atlantic *(Bozec, A., et al., 2011).*

- Depth around 600–1500 m
- Salinity values greater than 37.0 PSU
- Temperatures higher than 13°C. *(Filyushkin, B. N.,et al., 2017).*

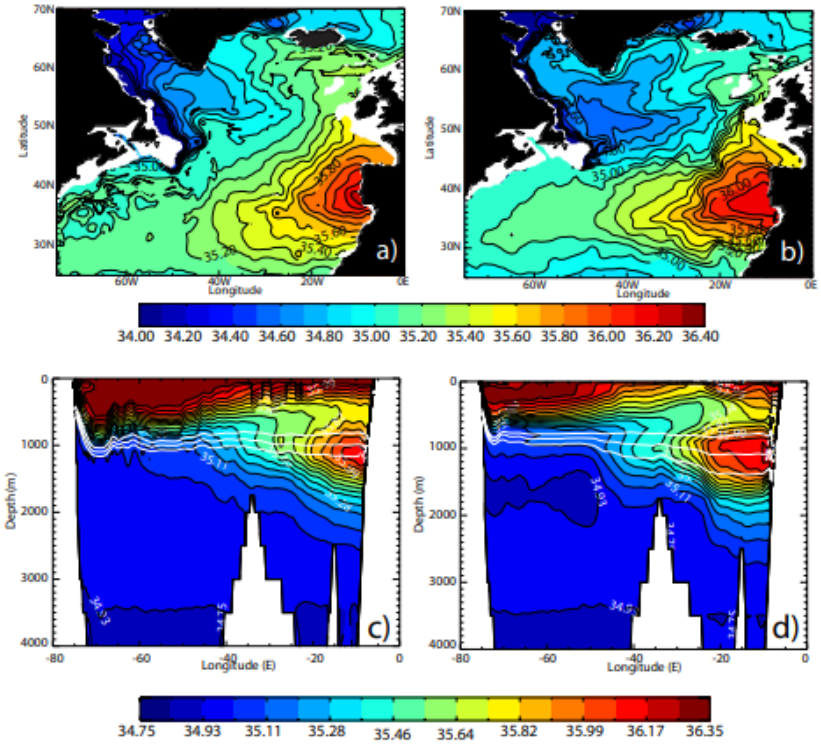

Fig. 2. Characterization of the Mediterranean Outflow Water (in red) in the Atlantic Ocean (Bozec, Alexandra, et al. 2022)

Data for 1993, 2001 and 2005

September 1993
Maximum salinity - 36.18 psu
t° - 10.7 C°

April 2001
Maximum salinity - 35.8 psu
t° - 10.6 C°

June 2005
Maximum salinity - 36.1 psu
t° - 10.7 C°

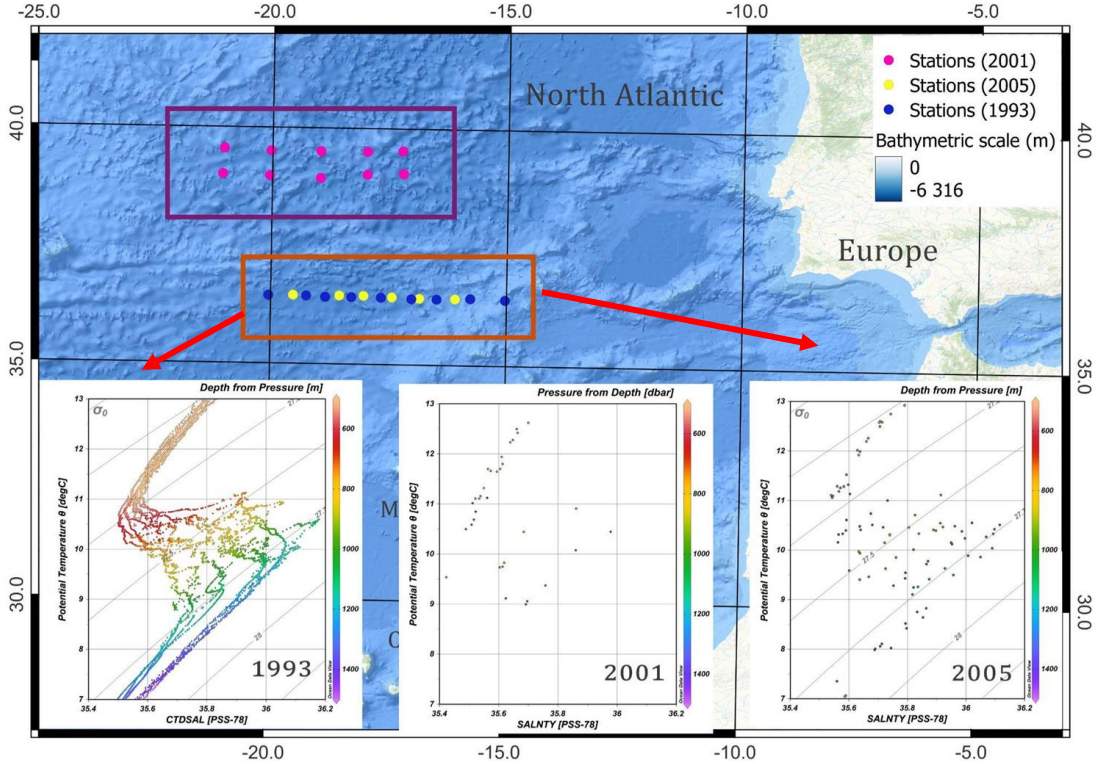

Fig.3. Data for 1993. 2001 and 2005 with TS graphics

The characteristics of the MOW in 2019 and 2021

The characteristics of the MOW according to CTD soundings in October 2019 and September 2021 were as follows:

In 2019 and 2021 MOW was located at depths of about 700–1500 m.

The temperature in the core of MOW was in the range of 9.5–11.5 °C.

The maximum salinity in the core reached 36.15 psu in 2019 and 36.08 psu in 2021.

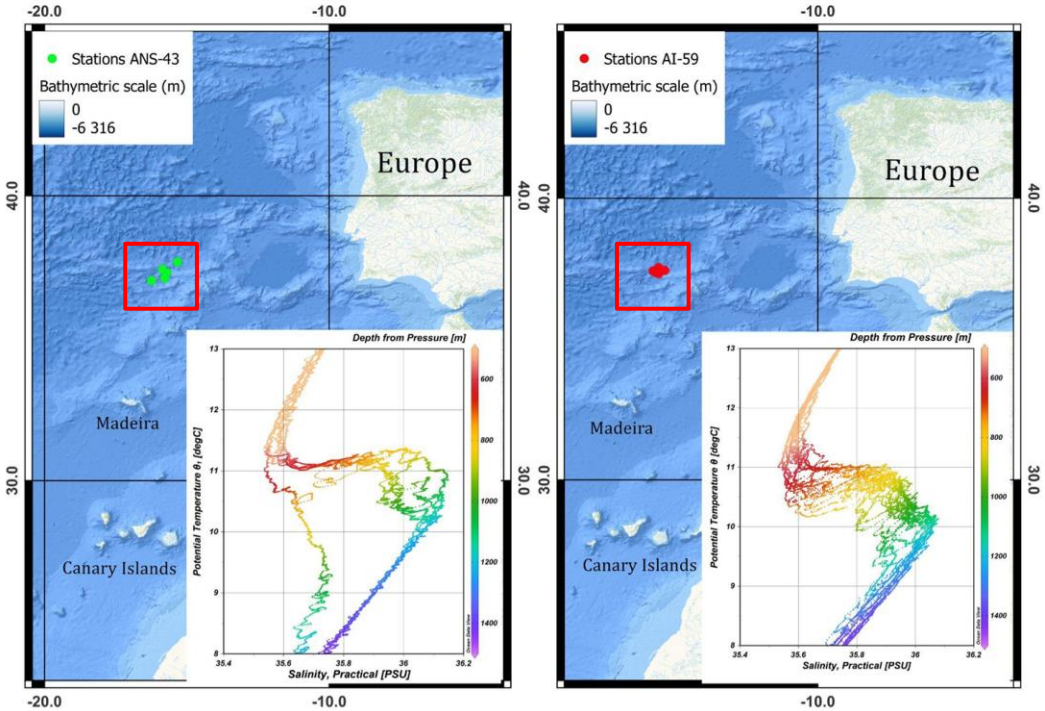

Fig.4. The map of study area in 2019 and 2021 with MOW core on TS graphics

Conclusions

1. The maximum salinity was noted at a depth of 1000–1100 m (in the 1993–2019 expeditions). In 2021, the core of MOW was slightly deeper — about 1150 m.
2. The temperature in the MOW core in all studied years was in the range of 11.1–11.5 °C. In 2001, the MOW temperature in the core was the coldest, relative to other — 10.9 °C
3. The data obtained for 1993 showed that this year the temperature and salinity were higher in core and amounted to 10.7°C and 36.15 psu

Thank you for your attention.

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