



Deep convection in the Northwestern Mediterranean Sea: Stratification versus Fluxes

Félix Margirier (1), Pierre Testor (1), Anthony Bosse (2), Loïc Houpert (3), Laurent Mortier (4), Emma Heslop (5), Katia Mallil (1), and Laurent Coppola (6)

(1) Sorbonne-Universités-UPMC-LOCEAN, Paris, France (felix.margirier@locean-ipsl.upmc.fr), (2) University of Bergen, Geophysical Institute, Allegaten 70, 5007 Bergen, Norway, (3) Scottish Association for Marine Science, Oban, UK, (4) ENSTA ParisTech, Université Paris-Saclay, Palaiseau France, (5) IOC UNSECO, Paris, France, (6) Sorbonne Universités, UMR 7093, Laboratoire d'Océanographie de Villefranche (LOV), Observatoire Océanologique de Villefranche/mer, France

After 4 consecutive years without deep convection, the Mediterranean saw deep convection in winter 2017/2018. Thanks to the intense observational effort in the Northwestern Mediterranean over the past 15 years (gliders, ship cruises, profiling floats, moorings, XBTs), a new light can be brought on the respective roles of oceanic preconditioning and atmospheric heatfluxes in the deep convective events. In a context of a warming and salinifying Mediterranean, especially at intermediate and deep levels, the change in stratification at depth is shown to be a key factor as well as the convective (or not) character of the previous year. A twilight zone in the intensity of the heatfluxes triggering deep convection is also put forwards, demonstrating the key role of ocean preconditioning.