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Different works appearing during the last decade show that the western Mediterranean has suffered a temperature and salinity increase during the 20th century. Most of these works analyze long-term trends in Levantine Intermediate Water (LIW) and Western Mediterranean Deep Water (WMDW); those dealing with changes in shallow and coastal waters are very scarce. It is still an open question whether these changes are due to meteorological factors occurring in the western Mediterranean or if they are caused by the salinity increase of the water masses contributing to deep water formation. In this work we analyze the data obtained in the last decade of the 20th century (and longer time series in some cases) within the frame of six projects aimed at the systematic collection of hydrographic data at fixed stations in the northern sector of the western Mediterranean (mainly in coastal areas). We detect strong warming trends in those stations located in the continental shelf (and probably with no influence of the LIW). This result could indicate that changes observed in the WMDW cannot be explained only on the basis of changes imported from the eastern basin. Another striking result is that these trends are an order of magnitude higher than those reported for the rest of the century, indicating that the 1990s have been an exceptionally warm decade. On the other hand, time series affected by the LIW show a salinity increase, and in some cases this is not accompanied by the corresponding temperature increment, indicating that the LIW salinity increase could also be a factor to be taken into account.

Keywords: Mediterranean warming, trend detection, warming trends, global warming, western Mediterranean