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Abnormal Cooling in the Korean Eastern Sea Water Before and After the 1982/83 and the 1997/98 ENSO Events in the East (Japan) Sea

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Abnormal cooling of the Korean Eastern Sea Water (KESW) in the East (Japan) Sea before and after the 1982/83 and the 1997/98 ENSO events is examined using bimonthly routine observation data by National Fisheries Research and Development Institute in Korea during 1965-2002. The KESW, which roughly occupies a region in the west of 131°E, showed extreme cold state in summer (August) of years (1981 and 1996) prior to the two ENSO events that have been the greatest in the last-half century. In August of 1981 and 1996, interannual bimonthly mean anomalies at 100m in the whole KESW region were -3.10℃ and -3.41℃ (SD=1.4℃), respectively. The interannual mean temperature anomalies (IMTA) in 1981 and 1996 were also -1.75℃ and -1.57℃ (SD=1.07℃), respectively. Abnormal cooling evolutions during the two years were more outstanding at deep layer (100m) rather than those at the surface layer (0m). It should be noted that these cold states in the KESW consecutively lasted for 3-4 years even after the ending of each ENSO event, ranging -0.34℃ to -1.42℃ in IMTA for the 1982/83 and -0.61℃ to -2.90℃ for the 1997/98 ENSO events, respectively, whereas warm states of the KESW appeared in 1982 (+0.323℃) and 1998 (+0.283℃) in the middle of the two ENSO events. Consequently, these results suggest that the extreme cooling in the KESW may beforehand occur prior to the greatest ENSO events.