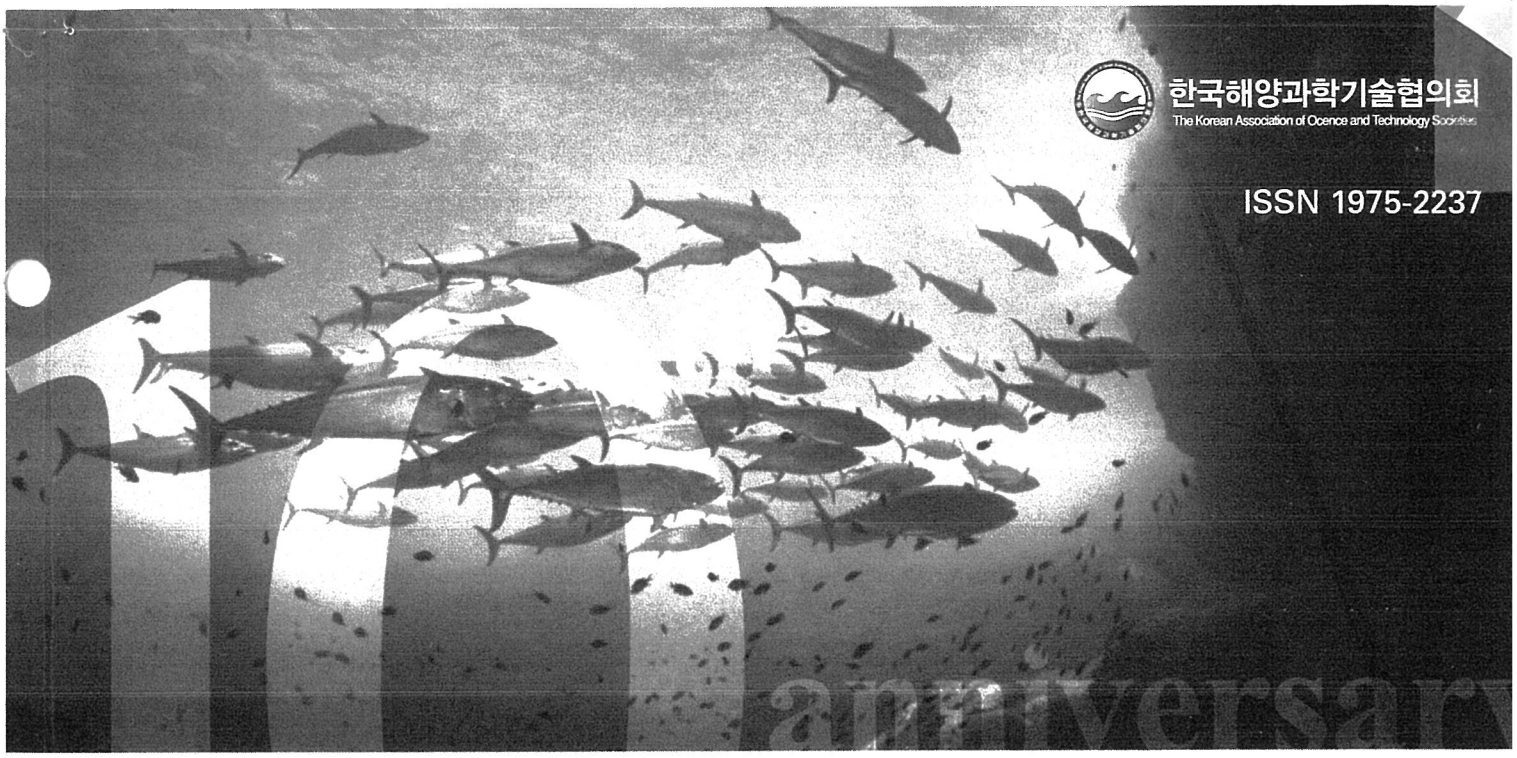

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the upper layer circulation in the NEJS during the winter.

Our results show that the significant semi-annual variation of the upper layer circulation in the NEJS can be determined by the combination of the wind (wintertime) and thermal forcing (summertime).

[References]

Morimoto, A. and T. Yanagi (2001): Variability of sea surface circulation in the Japan Sea. *J. Oceanogr.*, 57, 1-13.

Yoon, J.-H., K. Abe, T. Ogata, and Y. Wakamatsu (2005): The effects of wind-stress curl on the Japan/East Sea circulation. *DeepSeaResearch II*, 52, 1827-1844.

PP-01 Transient Response of the North Pacific to Glacial Boundary Conditions

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The transient response of the North Pacific Ocean to glacial boundary conditions was investigated using the coupled atmosphere-ocean-sea ice model developed at Canadian Centre for Climate Modelling and Analysis (CCCma). With the implementation of the glacial boundary conditions, the global-mean sea surface temperature (SST) decreases rather substantially and the surface cooling is larger for the first several decades by about 1.5°C with in 10 years, 2°C within 20 years, and by about 3°C within 80 years. Sea surface salinity also decreases with glacial conditions for the first decade, but it persists with that level with time. The North Atlantic overturning circulation increases markedly at the beginning of the perturbation by more than 40 Sv. In response to the glacial boundary conditions, sea surface salinity (SSS) markedly reduced by more than 1.5 psu with in 10 years in the East/Japan Sea associated with the limitation of salty water influx, which is a branch of the Kuroshio warm current. SSS is also reduced in the Okhotsk Sea, the Bering Sea, and the tropical Pacific, whereas it increases in the North and Southwest Pacific. With time, the freshening along the mid latitudes is becoming stronger and the low salinity feature in the tropical Pacific found in the first decade is changed into high salinity tongue. In the northeastern Okhotsk Sea and the northwestern margin of the Bering Sea SSS increases with time. In conclusion, with the implementation of glacial boundary conditions, the most distinctive change is found over the East/Japan Sea where SST and SSS are markedly reduced. This change is associated with the limitation of warm water influx to those regions due to the sea level lowering by about 120 m in the glacial time. The marked change in the East/Japan Sea subsequently influences the North Pacific ocean properties.

PP-02 New Initialization Methods for Seasonal Prediction with Tropical Instability Waves (TIWs)-like-perturbations

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Positive impacts of Tropical Instability Waves (TIWs) in initial conditions on seasonal forecasts are investigated using a SNU coupled GCM. Due to coarse observational networks and deficiencies in widely-used initialization methods (e.g. 3DVAR or OI methods), TIW variability in oceanic initial conditions is excessively suppressed. It ruins the interaction between TIWs and climate states, therefore, degrades the climate forecast skills. To settle this problem, TIW patterns obtained from free integration is added to the spatially-smoothed initial conditions to simulate realistic seasonal TIW variability (TIWV). Through 20-yr ensemble forecast experiments, it is shown that seasonal TIWV with TIWs-seeded initial conditions is significantly stronger until 2-month lead time. In addition, enhanced TIWV amplifies nonlinear relationship between TIWs and ENSO, which leads realistic simulation of the El Nino-La Nina asymmetry. As a result of better ENSO simulation, correlation improvement of simulated NINO3 index with TIWs-seeded initial conditions is over 0.1 at 4-month lead time.

PP-03 KORDI 동해연구소 주변해역의 해황과 해수유동 특성

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한국해양연구원 동해연구소는 동해의 남서부 해역의 연안역에 위치해 있다. 이 해역은 인근의 울진원자력발전소에서 배출되는 온배수, 하계에 하천으로부터 유입되는 담수, 연안역의 연안류, 외해역의 북향하는 동한난류, 그리고 해상풍에 위한 파랑 등의 영향으로 해양환경의 변화가 시공간적으로 복잡하게 발생하는 곳이다. 동해연구소 주변 연안역의 해황과 해수유동 특성을 종합적으로 파악하기 위하여 2008년 7월부터 동해연구소 옥상에 AWS를 설치하여 해양기상 인자들을 실시간 관측하고 있으며, 8월부터는 주변 연안역의 해황과 수층별 해류를 계절별로 모니터링하고, 9월부터는 RDCP-600을 동해연구소 앞 수심 10m 해역에 설치하여 수층별 해류와 파고/파향을 정밀 모니터링 하고 있다. 이 결과 연안역을 중심으로 남향하는 해류에 의해 원전 온배수가 표층역을 중심으로 남쪽으로 확산되고 있고, 주간에 동풍계열의 해상풍이 강하게 나타나는 것으로 확인되었다.