Geophysical Research Abstracts
Vol. 19, EGU2017-640, 2017
EGU General Assembly 2017

Decadal variation and trends in subsurface salinity from 1960 to 2012 in the northern South China Sea

Lili Zeng, Dongxiao Wang, Peng Xiu, Yeqiang Shu, Qiang Wang, and Ju Chen
China (zenglilicn@qq.com)

Observations suggest that subsurface waters in the northern South China Sea (NSCS) exhibited substantial low-frequency variability, with a striking decadal change in the southern limit of the 34.6-psu isohaline. Long-term freshening of the subsurface waters started in 1960, was followed by salinification from 1975, and freshening occurred again from 1993 to 2012. The linear trends were –0.0076, 0.0100, and –0.0078 psu/yr, respectively. An analysis of the subsurface salinity budget reveals that the main underlying contributors to subsurface salinity are horizontal advection and vertical entrainment. In particular, advection driven by the Luzon Strait transport and vertical entrainment from the mixed layer are the key factors controlling variations on subsurface salinity. Diagnosis of the salinity budget further suggests that entrainment from the mixed layer played a more important role in the freshening periods than in the salinifying period.