國立臺灣師範大學104學年度碩士班招生考試試題

科目：**專業英文**　　適用系所：**地球科學系**

注意：1.本試題共 2 頁，請依序在答案卷上作答，並標明題號，不必抄題。2.答案必須寫在指定作答區內，否則不予計分。

請將下面六段摘自海洋科學期刊的英文翻譯為中文 (語意正確即可，不需要逐字翻譯。專有名詞可以不用翻譯，例如 "Wang" 可以翻譯為 "王" 或保持原英文字)。

1. Beyond the seasonal time scale, the inter-annual variability of the Kuroshio migration off northeast Taiwan is seldom explored because long-term measurements are often unavailable in the region. Satellite remote sensing observations have the advantage of continuation and synoptic broad-area coverage. The sea surface temperature (SST) data from satellite can be used in winter to delineate the edge of the Kuroshio by temperature difference, but such data fail during summer when the surrounding SST is usually similar to that of the current (20 分).

2. To avoid this disadvantage, we use sea surface height (SSH) from satellite altimeter to perform the present study. In general, ocean dynamics and horizontal advection in particular play a key part in the inter-annual variability over the region. SSH instead of SST has been selected because oceanic dynamics is better represented by SSH than SST, which is strongly influenced by the atmosphere (e.g. evaporation cooling) (15 分).

3. Because long-term data are limited, only a few studies have focused on year-to-year variation in the North Equatorial Current (NEC) bifurcation. Qiu and Lukas (1996) used a numerical model to show that the NEC bifurcation latitude shifts poleward one year after an El Niño event and shifts equatorward during La Niña. They also suggested that NEC is controlled by basin-wide wind stress curl (WSC) anomaly. One year after El Niño, positive WSC intensifies and tends to shift northward the zero WSC line, affecting the NEC bifurcation (20 分).

4. Kim et al. (2004) also found that meridional migration of NEC bifurcation is strongly influenced by El Niño-Southern Oscillation (ENSO). They argued that this variation can be attributed to westward propagation of upwelling (downwelling) Rossby waves generated by winds in the central equatorial Pacific and by an anomalous anticyclonic (cyclonic) WSC located in the western North Pacific when a warm (cold) event matures (15 分).

5. Until recently, almost all existing studies suggested that the ENSO is chiefly responsible for this inter-annual variability. The ENSO is well known to have significant impacts on the inter-annual variability of the global climate, and has been reported to most strongly influence the low-latitude western North Pacific (10 分).

6. For example, in East Asia, Wang et al. (2000) found that the mature phase of El Niño events was usually accompanied by a weakened East Asian winter monsoon. In the tropical Pacific, the variability in the surface current was particularly induced by time-varying wind forcing. The wind fluctuation modulated by ENSO would therefore trigger the meridional shift of the NEC bifurcation latitude. Nevertheless, the present results indicate that ENSO may not be solely responsible for the atmospheric variability over the northwestern Pacific (20 分).