

# 國立臺灣師範大學 101 學年度碩士班招生考試試題

科目：專業英文

適用系所：海洋環境科技研究所

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，否則依規定扣分。

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## 一、解釋名詞 (每題 3 分，共 24 分)

- a. rip current
- b. Semidiurnal tides
- c. Upwelling
- d. Seasonal thermocline
- e. Kuroshio
- f. Ekman pumping
- g. Potential vorticity
- h. Kelvin waves

## 二、英翻中 (共 76 分)

請將下面三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“Luzon”可以翻譯為“呂宋”或保持原英文字)。

1. The Taiwan Strait is a narrow passage connecting the board and shallow East China Sea to the much deeper South China Sea. The Strait is generally shallower than 60 m except over the deep Penghu Channel in the southeastern corner. On seasonal time scales, monsoonal winds, southwesterly in summer and northeasterly in other seasons, drive part of the Strait circulation. The wind speed is generally weak in summer but becomes much stronger during winter. Beyond the seasonal time scale, interannual wind fluctuations related to El Niño/Southern Oscillation (ENSO) are also evident. In a four-year period from April 1996 to December 2000, winds during the 1997/1998 El Niño were relatively weaker; the much weakened northeasterly wind during the 1997/1998 El Niño winter led to warmer sea surface temperature (SST) in the Strait, as revealed by satellite images. (30 分)
2. The Kuroshio is the most important current in the seas east of Taiwan. It originates from the North Equatorial Current that bifurcates between 12° and 15°N in the western equatorial Pacific Ocean. The southward branch is the Mindanao Current, and the northward branch becomes the Kuroshio. The Kuroshio flows northward along the coasts of Luzon and Taiwan, continues to the shelf edge of the East China Sea, and finally becomes the Kuroshio Extension after departing from Japan. The Kuroshio transports warm water from the tropical ocean to mid-latitudes and is an important source of heat for the atmosphere in the global heat balance. (24 分)

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3. The upwelling at the southern East China Sea Shelf is well-known. The upwelling water is seen as a cold dome near the shelf break off the northeastern coast of Taiwan. This is a region where exchanges between the Kuroshio Water with the East China Sea Shelf Water take place. After leaving Taiwan, the northward-flowing Kuroshio bifurcates when colliding with the zonal running shelf break of the southern East China Sea defined by the 100~200 m isobath. The main stream turns eastward following the topography, while a branch intrudes onto the shelf, bringing cold and nutrient-rich subsurface waters to the shelf of the southern East China Sea. (22 分)