

Influences of flow regime on Sea Temperature over the Southern Taiwan Strait in Winter

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Exceptionally cold water is found over the Southern Taiwan Strait in winter, hitting the marine natural resources around the Penghu Islands. The drop in sea temperature can be observed by satellite and observation. The cause and process of exceptionally cold water are studied, using wind and current data from data buoy and tidal station. Two possible physical mechanisms for triggering the drop in sea temperature. The first is that in lower air temperatures with strong wind conditions, sea surface mixing would likely lead to increased air-sea heat fluxes, resulting in a drop in sea temperature. The other is that the Kuroshio Branch Current, bringing warmer water from the south, is weaker than the southward cold China Coastal Current. Our results showed that both mechanisms are important in the cooling process over the Southern Taiwan Strait.