The Dok Cold Eddy

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Remotely sensed data from a variety of sources, including inverted echo sounder travel-time measurements, satellite measured sea-surface temperature and TOPEX/Poseidon (T/P) sea-surface height anomalies, are combined with historical hydrography to examine the current and temperature patterns in the Ulleung Basin (UB) of the Japan/East Sea. The focus here is the formation and behavior of a persistent cold eddy observed south of Dok Island. This eddy, referred to as the Dok Cold Eddy (DCE), is about 60 km in diameter and orginates from the pinching-off of a Subpolar Front meander. The DCE typically dwells south of Dok Island for 1–6 months before propagating westward towards Korea. When the DCE is stationary it resides between T/P ground tracks and is undetectable. However, when the DCE propagates it crosses a T/P ground track and is detectable. The DCE impacts the formation of fronts and eddies in the UB and may be related to the occasional disappearance of the East Korean Warm Current. Meandering of the Subpolar Front may affect the formation and disappearance of the Ulleung Eddy.