

HF-RADAR TECHNOLOGY IN THE SEA OF OKHOTSK

EBUCHI Naoto, FUKAMACHI Yasushi, Ohshima Kay I., and WAKATUCHI Masaaki

Institute of Low Temperature Science, Hokkaido University

N19-W8, Kita-ku, Sapporo 060-0819, Japan

Email: ebuchi@lowtem.hokudai.ac.jp

In order to monitor variations in the Soya Warm Current (SWC), three HF radar stations were installed around the Soya Strait in August 2003. The radar covers a range of approximately 70 km from the coast. Comparisons of the observed current velocity with drifting buoy and shipboard ADCP data showed good agreement with root-mean-square differences of 20 cm/s. It is shown that the HF radars clearly capture seasonal variations of the SWC. The velocity of the SWC reaches its maximum, approximately 1 m/s, in summer, and weakens in winter. The velocity core is located 20 to 30 km from the coast, and its width is approximately 50 km. The almost same seasonal cycle was repeated in these five years August 2003. The surface transport by the Soya Warm Current shows a significant correlation with the sea level difference along the strait, as derived from coastal tide gauge records. The cross-current sea level difference, which is estimated from the sea level anomalies observed by the Jason-1 altimeter and a coastal tide gauge, also exhibits variation in concert with the surface transport and along-current sea level difference. In addition to the annual variation, the SWC exhibited subinertial variations with a period of 5-20 days.