

# **Wave Propagation in the North Pacific From GEOSAT Altimeter Data Using Time-Space Correlation Method**

**Jun Suwa\* Yasuhiro Sugimori\*\* Hajime Fukushima\*\*\*  
Pankajakshan Thadathil\*\*\*\***

## **Abstract**

A correlation function varying in both time and space, "Time-Space Correlation method", was applied to GEOSAT altimeter data collected from November 1986 to September 1989 (repeat cycles 1 - 62) in order to estimate wave propagation of the eddy field in the Kuroshio Extension region. Analysis of 62 sets of collinear data has yielded the dominant speeds and directions of wave propagations. In the zonal direction, waves tend to propagate westward with speeds of 1.5 - 5.6  $\text{cms}^{-1}$  between  $40^{\circ}\text{N}$  and  $30^{\circ}\text{N}$ , which are in good agreement with the theoretical speeds. In the meridional direction, the tendency of wave propagation in the eastern region of the study area is different from that in the western region. In the eastern region, waves seem to propagate northward with speeds of 2.0 - 3.0  $\text{cms}^{-1}$ . However, we cannot determine whether these northward speeds are actual speeds or apparent speeds due to decrease of the zonal speeds with increasing latitude. In contrast, propagations in the western region tend to be toward the axis of the Kuroshio Extension, which is consistent with the Kuroshio Extension being an energy source.