Abstract Details

AOGS 1st Annual Meeting > Ocean and Atmospheres > Midlatitude Ocean Variability and F the Pacific Decadal Oscillations: Responses and Potential Feedback >

Corresponding Author : Prof. Bo Qiu (bo@soest.hawaii.edu)

Organization: University of Hawaii

Category: Ocean and Atmospheres

Paper ID: 57-OOA-A288

Title: Midlatitude Ocean Variability and Forcing of the Pacific Decadal Oscill Responses and Potential Feedback

Abstract:

Sea surface temperature (SST) signals in the western North Pacific o past three decades are dominated by fluctuations with a 10-year time By analyzing the sea surface height (SSH) data from the TOPEX/Pose satellite altimeter measurements and by hindcasting the SSH signals past 45 years using surface wind stress data, we found that the inten the zonal Kuroshio Extension (KE) jet modulated with a dominant tim of ~ 11 yrs. Weakening (strengthening) of the jet is caused by westward expansions of negative (positive) SSH anomalies south of t and positive (negative) SSH anomalies north of the KE. Emergence of oppositely-signed SSH anomalies on the two sides of the KE jet is due different propagating speeds of the baroclinic Rossby waves, which ca wind-induced SSH anomalies generated over the eastern North Pacific By examining the baroclinic adjustment processes under stochastic atmospheric forcing relevant to the midlatitude North Pacific, we foun the maximum modulation of the zonal KE jet is obtained when the for period is about 10 years. At shorter forcing periods, phases of the wir induced SSH signals across the KE jet change rapidly along the jet ler decreasing the coherent modulation of the zonal mean jet. At longer f periods, the small SSH difference across the jet (due to the broad len scales of the wind-induced SSH signals) again suppresses the amplitu the modulating KE jet. The decadally varying SST signals are in part c this modulation of the KE jet. A more complete description of this stu be found in Qiu (2003, {\em J. Phys. Oceanogr.}, 33, 2465-2482).

Presentation Mode: Oral

Keywords: Pacific Decadal Oscillation, SST Variability, Oceanic Western Boundar Current

Status: Pending.

Co-Authors

No.	Title	First Name	Family Name	Organization