Geophysical Research Abstracts,
Vol. 11, EGU2009-10537, 2009
EGU General Assembly 2009
© Author(s) 2009

Ocean bottom pressure in relation to SOI, NAO and SAM indices.

V. Zlotnicki and Y.T. Song
Jet Prop Lab / California Inst. Techn, Science Division, Pasadena, United States (victor.zlotnicki@jpl.nasa.gov)

Six years of GRACE data over the global ocean are used, together with the output of 2 ocean models to study the relationship of ocean bottom pressure (OBP) to key indices of interannual climate variability: the Southern Oscillation index, the North Atlantic Oscillation, and the Southern Annular Mode index. All datasets have their seasonal cycles removed (estimated as a the sum of an annual plus a semiannual sinusoids). Preliminary results show: the correlation between SOI and OBP in models best agrees with the same quantity derived from GRACE mascons (JPL version) than with GRACE products derived from spherical harmonic solutions, even after destriping. As an example, at zero lag, not only is a broad positive correlation between SOI and OBP clear in the subpolar N. Pacific (previously discussed in Bingham and HUghes (2006), Song and Zlotnicki (2007)), but also in the subtropical S. Pacific and the Indian Oean sector of the Antarctic Circumpolar current; a strong negative correlation between SOI and OBP is evident in the Indian and Atlantic oceans. With one year lag, the sign of these correlations is reversed. We then use longer time series derived only from the models to obtain more robust estimates and to study the mechanisms behind these correlations.