Geophysical Research Abstracts
Vol. 14, EGU2012-10632, 2012
EGU General Assembly 2012

Observations of the refraction of the cyclonic microbarom signal by the cyclonic winds

R. Waxler, P. Blom, C. Talmadge, and G. Frazier
NCPA at the University of Mississippi, USA

Non-linear interaction of the ocean surface and atmosphere is known to produce narrow-band, low frequency, continuous acoustic and seismic radiation termed microbaroms and microseisms respectively. These are generated during the collision of counter-propagating surface waves of equal period. Hurricanes are known to be large sources of microbarom radiation. The dominant source of microbarom radiation associated with a hurricane is believed to be due to the interaction of the waves produced by the cyclonic winds with the background ocean wave field. The region in which the waves produced by the storm collide head on with the background wave field is generally hundreds of kilometers from the eye of the storm. Following up on a suggestion of Young and Bedard, propagation of the microbarom signal through the storm wind field has been investigated using geometric acoustics. Strong refraction of the signal is predicted. To observe this refraction we deployed infrasound arrays along the US eastern seaboard. Predicted and measured back azimuths for propagation through the wind field are compared to data recorded during the 2010 and 2011 Atlantic hurricane seasons.