

Correlation between ocean noise and changes in the environmental conditions in Antarctica

Alexander Gavrilov, Binghui Li

Alexander Gavrilov, Curtin University of Technolog, Centre for Marine Science & Technology, Curtin University of Technology, GPO Box U1987, Perth WA 6845, tel: +61 8 9266 4696, a.gavrilov@cmst.curtin.edu.au

***Abstract:** Long-term variations in the intensity and occurrence frequency of transient noise signals spreading to the Southern and Indian Oceans from the Eastern Antarctic continental shelf were analysed using the sea noise data recorded over 6 years at a hydroacoustic station deployed off Cape Leeuwin in Western Australia as part of the International Monitoring System of the Comprehensive Nuclear-Test-Ban Treaty. These signals were found to be produced primarily by ice breaking events on the Antarctic ice shelves and icebergs. Strong seasonal components can be observed in both mean intensity and occurrence of the Antarctic ice events detected at Cape Leeuwin. However, the seasonal cycle in the occurrence frequency is significantly delayed, by approximately 3 months, relative to the seasonal variation of the mean signal intensity. The correlation of variations in the intensity and occurrence frequency of signals from ice events with changes in different environmental characteristics, such as air and water temperatures, wind speed and surface wave height, over the Eastern Antarctic coastal zone are analysed in this study.*