The Baleakanta project. A database of hydroacoustic signatures of large cetacean animals. A few cases of individual animal identification.

Ronen Le Bras1(1), Goetz Bokelmann(2), Victor Sucic (3), Damir Malnar(4), Jean-Baptiste Tary(5), Roberto Henry Herrera(2)

1) IMGW University of Vienna, Austria (2) University of Rijeka, Croatia (3) University of Alberta, Canada

Abstract

The Baleakanta project was initiated in 2013 with the goal of establishing a database of large cetacean calls recorded at the IMS hydrophones. These calls are recorded on a continual basis at six hydrophone stations of the network, whose main purpose is to serve the mission of detecting nuclear explosions in the oceans. The calls are scientifically valuable as a means of studying animal’s migration patterns. Statistical information about the signal characteristics, frequency, seasonality, etc., of these calls are some of the expected outcome of the project and we are planning to make the information available to the marine mammal community. We will report in particular on observations which led us to distinguish two distinct blue whale individuals with type 9 acoustic signature and open the possibility to search for time-frequency methods of individual classification.

Bibliography


Bibliography


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The figure to the left shows a two minute sample at the Northern trial of the Diego Hydrophone station H08N1 on January 18. The red dots show the detection time of the two other stations. The second panel shows the STAM/LTA ratio at H08N1 (red), H08N2 (green), and H08N3 (blue) with the detection times as well. The color of the detections is red-blue-green for the first call and blue-red-blue for the second call, indicating the two very different directions of the calls from the two individuals are coming from.

The third panel shows the two estimated directions (to the North in zero degrees, to the West in 90 degrees), and the bottom panel shows the histogram of the time section between 151N and 501N.

Previous to the collection of data over the two months, one example of a two calls with clearly distinct directional parameters was made on 16 January 2003. This is a milestone in the project, since it became clear that the hydrophone trial configuration will allow, at least in some cases, to identify multiple whale species.

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