Six years of the interactive AFORO (otolith shape analysis) database website (2003/2009)

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AFORO (http://aforo.cmima.csic.es) is an interactive system for shape analysis of fish otoliths. It is a classification tool based on the unique characteristics of the otolith shape of different species. The system includes a database of images, complete morphometric information, Fourier, Wavelet analysis and Curvature Scale Space representation of the otolith contours of well identified samples. It was created in 2003, and since 2006 it has incorporated a search tool for automatic taxon identification of fishes. The system allows users to classify their own sample interactively by simply uploading an unknown otolith image as a query instead of as alphanumeric information. The user can obtain the classification output either by e-mail or at the web page, where an image is plotted showing the nine most similar otoliths in the database in order of greatest contour similarity.

AFORO is currently changing its structure to become a data provider in the GBIF (Global Biodiversity Information) facility, a global network of interconnected biodiversity databases, and will now include geographical information of the otolith samples.

The website and database are continually developing. New otolith images, with their corresponding shape analysis and classification system, are added each month. Since 2004 the otoliths in the database have increased in number of specimens uploaded (from 908 to 2510 images), in biodiversity representation (from 182 to 790 species, from 71 to 157 families, from 19 to 32 orders) and in geographical extension. In 2004 there were basically only specimens from the Mediterranean and Antarctic seas. Currently, the otolith database also includes specimens from the central and north Atlantic, north-east Pacific and south-west Pacific. In 2008 AFORO was consulted by 4195 visitors from 105 countries, with a mean of nearly 9 pages per visit. AFORO can be considered an international otolith node.