

Animal Trackers Collaborate on New Google Earth for Oceans

Pacific Grove, CA – A consortium of researchers led by Stanford University Professor Barbara Block collaborated with Google for more than a year, providing animal tracking data for the new Google Earth release, which features a three-dimensional, interactive ocean. In the animal tracking layer, called GTOPP (Global Tagging of Pelagic Predators – www.gtopp.org), users can explore the large-scale migrations of tunas, sharks, whales, seals, sea turtles and seabirds – seeing where they go through time, and even swimming along with them in special “fly-through” animations, which provide an “animal’s eye view” of the open ocean seascape.

The collaboration between GTOPP and Google has been a long-term goal for Block and her colleagues.

“Google Earth provides a powerful, intuitive interface for exploring the kinds of data these animals produce from electronic tags” says Block. “This allows users – from scientists to school kids – to quickly view and interact with animal tracks. And ultimately, they’ll be able to use this interface to access related data such as oceanographic data or diving data from that same location at the same time. Its an important evolution in being able to “see” the largest portion of our planet.”

The ability to simultaneously tag and track large numbers of open ocean animals, representing a variety of different species, has been pioneered over more than a decade by Block and her colleagues Drs. Daniel Costa from UC Santa Cruz, Stephen Bograd from NOAA and Randy Kochevar, also of Stanford University. In a program called, “Tagging of Pacific Predators” (TOPP – www.topp.org), which is one of the field programs of the global Census of Marine Life, these four principal investigators led a team of over 100 scientists from seven different countries. In the first eight years of the program they tagged over 4,000 individual animals, representing 23 different species, and collected over 1,000,000 days of data. Block also leads a program in the Atlantic Ocean called TAG-A-Giant (www.tagagiant.org) that has placed over 1000 electronic tags in Atlantic bluefin tuna.

In September, 2008 Block with the support of the Sloan Foundation brought together a broad consortium of researchers for the “Biologging III” conference to explore how the researchers could combine forces to put animal tracking data into one portal. This has given rise the Global Tagging of Pelagic Predators. The data to be featured upon release of the new Google software in the GTOPP layer is a small sample of data from a variety of projects, all of which utilize electronic tags to follow animals over months and years, and across vast distances.

Block explains, “The idea of GTOPP is to create a Web-based portal where researchers around the globe can submit tracking data, that represents live uplinks or positions from a wide variety of animals. The goal is to combine the data with other oceanographic datasets. By viewing tracking data from multiple species simultaneously, in the context of ocean conditions, it is possible to achieve a more comprehensive understanding of how

the open ocean ecosystems work. We can begin to see ocean hotspots – those critical habitat regions where animals spend a great deal of time – as well as the ocean highways that link them together.”

The open ocean is experiencing significant impacts of human overexploitation. Large marine fish such as Giant bluefin in the Atlantic Ocean, leatherback sea turtles, albatross and sharks are all experiencing steep declines in their populations.

“In order to sustainably manage open ocean fisheries, we need to provide resource managers with better information about how these animals live, and how they use the ocean,” says Block. “If we can identify the key locations and times where these animals feed or breed, for example, we can help create management tools that protect them where they most need protection – the open sea. Google has helped our efforts to visualize the deep blue sea- this enormous amount of the planet- that is difficult to access – and we now have it at our fingertips. ”

For more information about the GTOPP program, please contact: Dr. Randy Kochevar, Kochevar@stanford.edu, 831.236.0728, Dr. Dan Costa, costa@biology.ucsc.edu., or Dr. Barbara Block, bblock@stanford.edu, 831.594.2071.