3D Oceanographic Data Visualization

Using open source STOQS & X3D
Case Study
We build robots to understand the ocean...

Sometimes the ocean bites back!

MBARI engineers made a startling discovery yesterday while recovering the autonomous underwater vehicle (AUV) Brizo. Brizo survived with some minor damage, and the team managed to pull a few shark teeth from the housing! Swipe to see the extraction and dental souvenirs. Thanks to MBARI engineers Brian Kieft and Ben Raanan for sharing the images, video footage, and fantastic story!
AUV Shark Bite Animation
Sensor Data Visualization
Feature Desiderata

- Transition bathymetry processing from SRC to .glb
- Timesensor VCR style playback/pause/scrub simplification
- Tileserver for extremely large scene exploration
- Automated camera animation around interesting features
- Improving 3D navigation user experience

From: https://www.mbari.org/canon-2020/

Although MBARI engineers have had great success building robots that communicate effectively with one another, Piltz noted that one of the biggest challenges in this experiment is keeping lines of communication open among the humans involved. “We need to decide the best times and places to collect samples while making sure the LRAUV doesn’t burn out its battery or hit the bottom. This requires lots of communicating between the scientists, engineers, and marine operations staff. As a scientist at MBARI, one of the things I’ve learned is that, in order to get good scientific data, you need to work closely with the engineers to understand and adapt to the limitations of the equipment.”

The Summer 2020 CANON experiment is a prime example of how researchers can collect vast amounts of useful data by sending robots instead of people out to sea. “This mode of operation will increase dramatically in the future,” said Chavez. “Not only because of COVID but because of the need for persistent and globally distributed observations of life in the sea.”