California Polytechnic State University uses VideoRay Pro 3 ROV with KCF Technol

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California Polytechnic State University uses VideoRay Pro 3 ROV with KCF Technologies Smart Tether to help map Cisterns in Malta

Students and faculty from the California Polytechnic State University recently used the KCF Technologies Smart Tether during a trip to Malta for the mapping of underground cisterns. The goal of the project was to obtain video and sonar data to map the cisterns and gain a better understanding of the evolution of water storage systems under the fortresses in Malta. The cisterns of interest date from the 16th century back to 300 B.C.The Smart Tether was used with a VideoRay Pro 3 and SeaSprite scanning sonar to drop down through street-level chutes and explore the various cisterns. The primary task for the equipment was to aid archaeologists in determining the age, construction methods, size, shape, and network complexity of these cistern systems. Accurate positioning in such an environment is critical, since the ROV becomes invisible once it leaves the vicinity of the entrance chute.

Maps were constructed using several different methods, incorporating data from the Smart Tether, sonar, and a vehicle dynamics model. The Smart Tether positioning system was used as a means of confirming or correcting the position data generated by the vehicle model. The additional position data provided by the Smart Tether allowed easier navigation of the cisterns and a greater degree of confidence in the accuracy of maps generated during the expedition.

"The Smart Tether was great to have for our data captures, and will be of great value in making the maps accurate, so we were very fortunate to use the equipment on our trip." – Daniel Hiranandani, Senior, California Polytechnic State University

"Where the Smart Tether really improves things are when errors build over distance. As the ROV goes deeper into the tunnels, the errors in estimated state will grow over time if only the dynamic model and SONAR are used. The Smart Tether data eliminates this issue by providing GPS location measurements." – Chris Clark, Assistant Professor, Department of Computer Science, California Polytechnic State University

Visit the Cal Poly blog to learn more about this project

Visit the Cal Poly Malta Cistern Mapping website