

**Aaron Davis**

Research and Development Engineer 3

Marine Sciences: Nimitz Marine Facility

Aaron Davis is a superstar. The impacts of Aaron's innovative leadership and service have rippled outward from his position within the Ship Operations & Marine Technical Support department to profoundly benefit scientists and students throughout our University and across the country. As a consequence, Aaron has helped elevate the reputation of Scripps and UC San Diego on a national stage.

Aaron holds a unique position. Aaron is supported by federal agencies to provide engineering services to the U.S. Academic Research Fleet through our membership in the University-National Oceanic Laboratory System. His supports oceanographic winches, wires, and overboard handling systems enabling safe collection of scientific data aboard ships at sea. Aaron is the only professional engineer dedicated to this mission with the fleet.

Aaron is a national asset to ocean science – and a wonderful person to work with. Aaron's innovative engineering solutions have produced giant leaps forward in our ability to deploy large, heavy, fragile, expensive scientific instruments from ships (safely!). The many demands for his technical opinions and recommendations go well beyond his original job description, yet he remains a stalwart colleague who unflinchingly avails himself with a sense of humor and easy smile (ask him about his backyard chickens!). Aaron is grounded by a realism, and his engineering designs are imbued with innovation that is a hallmark of Scripps Oceanography.

Aaron's work has resulted in substantial value to UC San Diego. Aaron was responsible for the design, construction oversight, structural testing, shipboard modifications, installation and at-sea testing of a \$600,000 instrument boom for our famous research platform FLIP. This two-year effort required collaboration with scientific users to develop specifications and budget estimates, followed by an extensive engineering effort. Aaron demonstrated an expert command of a variety of technical disciplines including computer-aided design, stress analysis, aerodynamics, material selection, welding, and testing. Aaron also conducted finite element analyses on bolting plates and guardrail stiffeners requested by scientists, to ensure they were structurally sound. The result? A triumphant first deployment at sea that was completely successful. The new boom is made of extruded aluminum – strong, light and cheaper to maintain than the previous boom because of its resistance to corrosion. Aaron's work saved at least \$3 million (which is what commercial naval architects would have charged). The new boom was immediately put to use, supporting researchers from Scripps' Marine Physical Laboratory and MIT's Lincoln Laboratory.

Aaron's exemplary service brings national recognition to UC San Diego. Aaron is an expert regarding load capacity requirements for science overboarding systems. Every research vessel has an array of winches, wires, blocks, and other tackle used to deploy scientific instruments. Each system component must have a Maximum Capability Document (MCD) that describes its strength. Commercial naval architects quoted prices between \$25,000 and \$100,000 per MCD. To document all the systems in our fleet, those prices would consume the entire federal budget for oceanography! Instead, the Scripps and U.S. fleets rely on Aaron. Aaron has developed a testing method for ROGER REVELLE's starboard overboarding system, determining allowable deck socket loads for SALLY RIDE, computing reaction forces for University of Rhode Island's wire spooler, documenting the SeaSoar's hanging block and tow point, analyzing the foundation for ATLANTIS' telescoping boom, analyzing SALLY RIDE's A-frame, and reviewing optics test fixtures aboard FLIP for the Coastal Observing Research and Development Center. Plus many more examples.

Aaron's collegial work sensibility builds partnerships that strengthen our community. A while back, the Remotely Operated Vehicle JASON suffered a cable failure aboard a Scripps ship. JASON is an expensive instrument used by scientists to explore the deep ocean and seafloor – and is operated by the Woods Hole Oceanographic Institution. The cable failure constituted a high-profile incident that could have put the two institutions at loggerheads over culpability. Aaron was called upon for a forensic analysis to define the cause, and to make recommendations for improvements. Drawing on his technical acumen, no-nonsense approach and unimpeachable credibility, Aaron led an investigation that permitted both institutions to amicably understand the failure and engineer a solution. Thanks to Aaron's efforts, we were able to redeploy JASON and move quickly from mission HALT to mission ACCOMPLISHED.

Aaron Davis is an exemplary employee eminently worthy of recognition as Employee of the Year.