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Wideband sonar system for autonomous surveys using REMUS

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Many new roles are being proposed for Autonomous Underwater Vehicles (AUVs) to carry out hazardous tasks in harsh or remote locations and to free up valuable resources required for manned missions. These roles include marine environmental survey, target detection and classification and tracking of underwater pipes and cables. Suitable sensing and processing packages must be provided and building on recent wideband sonar research, the Ocean Systems Laboratory (OSL) is putting together a wideband system for deployment on board a REMUS AUV. The prototype sensor package comprises paired projectors and receivers mounted in a side-looking arrangement to provide complementary information to the standard REMUS sidescan modules. The sensor bandwidths cover a range from 30-130kHz similar to those used by the bottlenose dolphin. Data is gathered autonomously with a dedicated AMD Geode based PC104+ PC controlling a 4-channel 800kHz simultaneous sampling data acquisition module. Acquisition is triggered to coincide with mission requirements from a separate mission control PC on board the vehicle.