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2018: The Year in Review for Autonomous Vehicles in HYPACK

By Hannah Marshburn

It was an exciting year for autonomous vehicles and HYPACK was happy to be a part of it. The AUV sector rapidly expanded to include hybrid drones, vertical take off and landing survey drones (VTOLs), and fly swim fly drones that can work as aerial OR submersed vehicles. LiDAR scanners integrated with SLAM (Simultaneous Location And Mapping) algorithms are hitting the market so that users can operate autonomous systems in areas without GPS or areas with GPS interference. Underwater and surface autonomous vehicles boast even longer run time capabilities and increasing abilities to support diverse missions and payloads. Keeping abreast of the technology advances of unmanned systems is a daunting task, but HYPACK has found some routes to stay up-to-date for 2019: new integrations, new solutions, and new tools.

HYPACK® supports the autonomous vehicle market in various ways. Most unmanned underwater vehicles use proprietary navigation systems, and therefore HYPACK® has primarily been used for data processing. For autonomous surface vehicles, HYPACK can create custom drivers compatible with autopilot systems, considering many autopilot systems use standard NMEA communication strings. You can plan your mission using the LINE EDITOR and export it to a variety of popular formats for AUV systems: MAVlink, GPX, MOOS-IvBHV, and Teledyne ZRP. You can also import MAVlink and GPX line formats. You can enable start and stop line gates to ensure that your data is automatically logged as your system follows its designated line plan. HYPACK® continues to support various models and companies producing ASV systems including, but not limited to Seafloor Systems, Maritime Robotics, Sea Robotics, Teledyne, L3, and more!

HYPACK is working on some exciting new integrations including LiDAR scanners from Ouster, a company that offers low-cost, low-weight, highly accurate LiDAR scanners. Ouster has scanners with integrated SLAM technology and embedded INS systems. We hope to include these scanners in our portfolio of LiDAR units to continually improve aerial and vessel mounted topographic surveying. We are particularly excited about a new HYPACK® 2019 tool that uses stockpile volumes in TIN model to compute the volume of a surveyed area using a border file. The stockpile volumes tool does not require prior coverage over the area; the tool computes a TIN-to-TIN comparison between a surveyed TIN model and an interpolated TIN model from a loaded border file. This tool is a great asset for teams using LiDAR and HYPACK®/HYSWEEP® for coastal erosion or beach re-nourishment studies.

If you work in autonomous vehicles or would like to work with HYPACK in developing great tools for autonomous vehicles, please drop us a line at: sales@hypack.com!