SeaHunter/PILLS 2.0 LIDAR

Office of Naval Research
Science & Technology

AT A GLANCE

WHAT IT IS:

Light Detection and Ranging (LIDAR) is a surveying technology that uses laser light to quickly make accurate bathymetric or topographic maps.

The Pushbroom Imaging LIDAR for Littoral Surveillance (PILLS) 2.0 LIDAR is mounted on a SeaHunter unmanned aerial vehicle (UAV).

HOW IT WORKS:

The SeaHunter UAV carries the PILLS 2.0 LIDAR over a specific terrain or body of water and a 3-D laser scan is made of the dry or submerged terrain below.

The laser employed by PILLS is a low-power, eye-safe laser.

WHY IT IS IMPORTANT:

Many remote areas around the world lack precise or updated topographic maps or bathymetric charts. The SeaHunter/PILLS 2.0 LIDAR system allows operators to quickly survey a terrain or body of water for navigation hazards or other operationally relevant items, particularly where larger surveying ships and systems cannot reach.
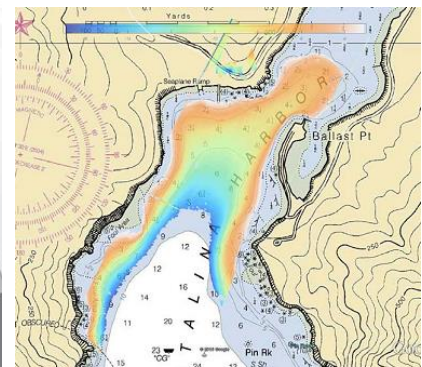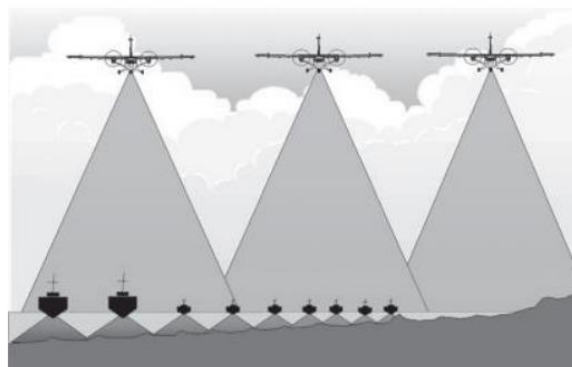
Unmanned Warrior is part of exercise Joint Warrior 2016, hosted by the United Kingdom off the North-West coast of Scotland.
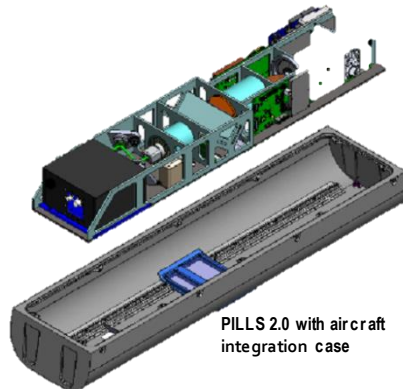
PILLS 2.0 with aircraft integration case

SeaHunter Unmanned Aircraft

PILLS is a lightweight, low power, operable expeditionary sensor. The integrated LIDAR system is used for bathymetry and topography is very portable. Total system weight is less than 30 lbs and enables high resolution littoral surveillance from a small unmanned aerial vehicles. Additionally:

- Multi-beam sonar is widely utilized for precision bathymetry; however, swath width/area coverage is limited in shallow water.

- LIDAR is effective for shallow-water bathymetry at large coverage rates.

- Naval benefit provided includes ship-launch compatible airborne Rapid Environmental Assessment (REA) for safety of navigation in non-permissive environments.

- System is ~1/10 the size, weight and power of current commercial equivalents.

Research Objectives for US in Unmanned Warrior 2016:

- UW16 provides the opportunity to demonstrate and collect sensor data in unique coastal regimes
- To test the integration of PILLS 2.0 system with SeaHunter UAV in an expeditionary environment