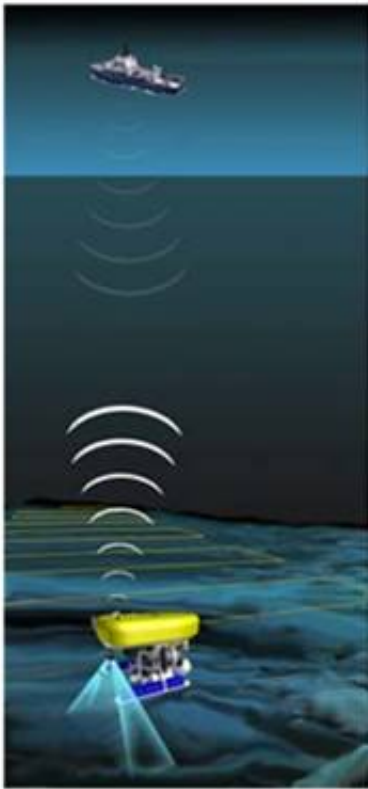
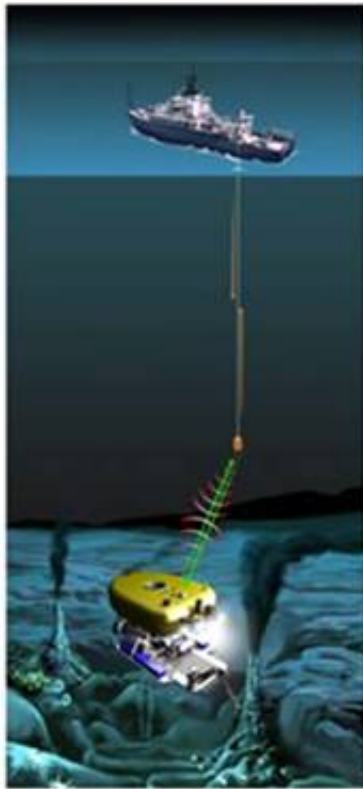


Untethered remotely operated vehicles (UTROVs) will add flexibility to accommodate missions over distances ranging from meters to kilometers, with scientists switching between “wireless” communications systems (using sound and light) that can provide more or less bandwidth and transmission speed, as required.



*UTROV performs a pre-programmed 1 to 5 kilometer seafloor survey using low-speed acoustic communication modems that allow shipboard scientists to monitor the vehicle's position and status.*



*Shipboard pilot has real-time control of and feedback from UTROV—using a combination of two-way, high-speed acoustic, and optical communications over 100 to 1,000 meters between an underwater modem and the vehicle.*



*UTROV performs a task on an instrumented mooring, with communications over distances of less than 100 meters via an optical modem and then via electrical cable and satellite to shore-based operators.*