Inventor preps robot to cut through ice on Europa

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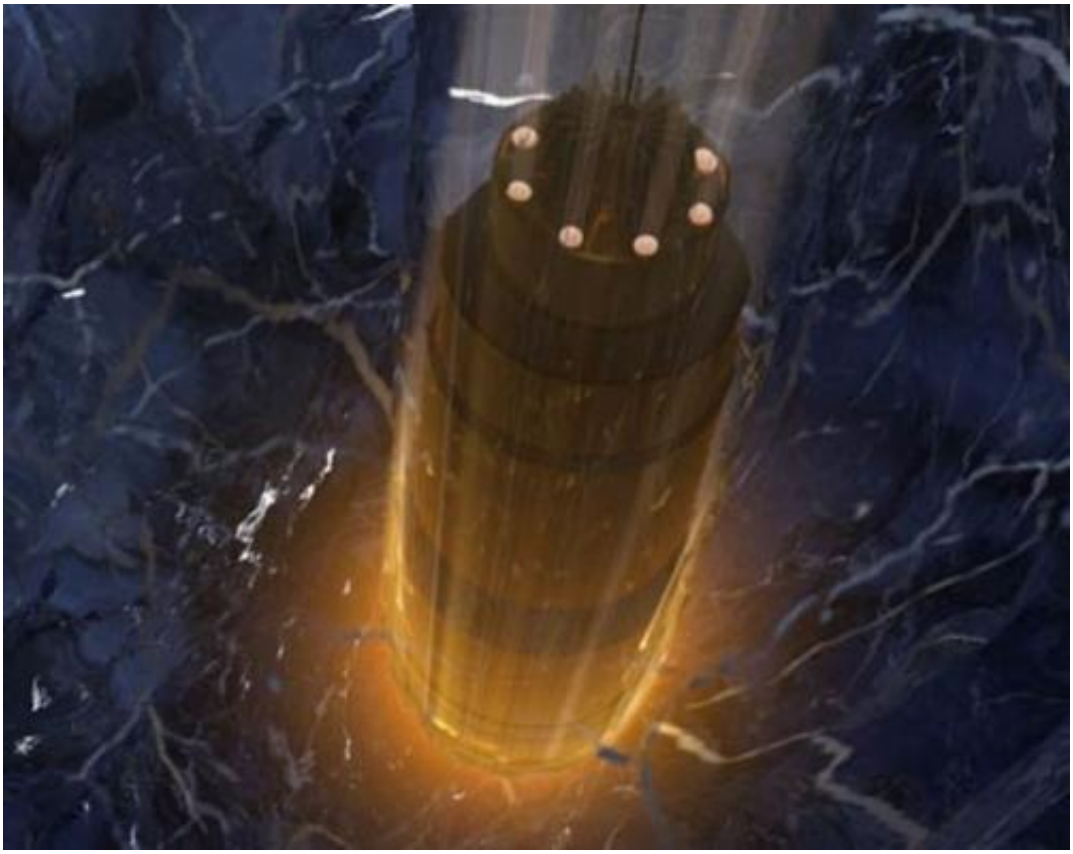

Credit: Stone Aerospace

(Phys.org) -- Robots are being developed all the time to do what we wish and to go where we can't. This week, inventor Bill Stone told attendees at NASA's Astrobiology Science Conference in Atlanta that he intends to get an autonomous robot ready to visit the icebound sea of Jupiter's

moon Europa, cut through the icy crust, and explore the waters below. He told the participants that his goal is to send his robot Valkyrie to Europa, where it will use lasers to cut through the ice to explore the waters below, collecting samples, in search of life. His company, Stone Aerospace, has been working on the six-foot by ten inch robotic cylinder called Valkyrie.

The plan is for it to leave its power plant on the surface of the moon, with a high-powered laser travelling down miles of fibre-optic cable. "Our modest goal over the next three years is to use a 5,000-watt laser to send a cryobot through up to 250 meters of ice," Stone said at the Atlanta assembly. If successful, Stone's concept would resolve obstacles in the way of studying what may lie beneath Europa's ice. A report in *Wired* says those obstacles include (1) solar power being unable to work below the surface (2) batteries not lasting long enough (3) too large a footprint of a device and (4) international treaty restrictions that would forbid testing of a nuclear robot.

Stone has a 2013-2014 dress rehearsal planned. He intends to test a working cryobot at Alaska's Matanuska Glacier in June next year, where it will attempt to cut through ten to fifty meters of ice. Afterward the cryobot will try to get through 200 meters in Greenland, in fall 2014.

Last year, Stone announced that NASA awarded Stone Aerospace four-year, $4M funding to continue development of the Valkyrie project, to design and field-test an autonomous ice penetrating cryobot. Stone, who has a doctorate in structural engineering, is no stranger to such ambitious undertakings.

Generally, Stone is known for his inventions designed to enable humans to explore remote environments. He formed Texas-based Stone Aerospace to commercialize his systems for exploration. He and a team of researchers from several universities built DepthX, a deep-diving

robot that went down Mexico's deepest watery sinkhole. He and his team also took on a mission to Antartica. He is often characterized, however, as looking toward his ultimate goal, a probe that can go through miles of ice on Europa and then explore through the sea. What intrigues scientists about Europa, one of Jupiter's moons, is that under its icy surface its expanse of water might harbor life.