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Langley Research Center



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An Automated Remote Marshland Water-Sampling Station

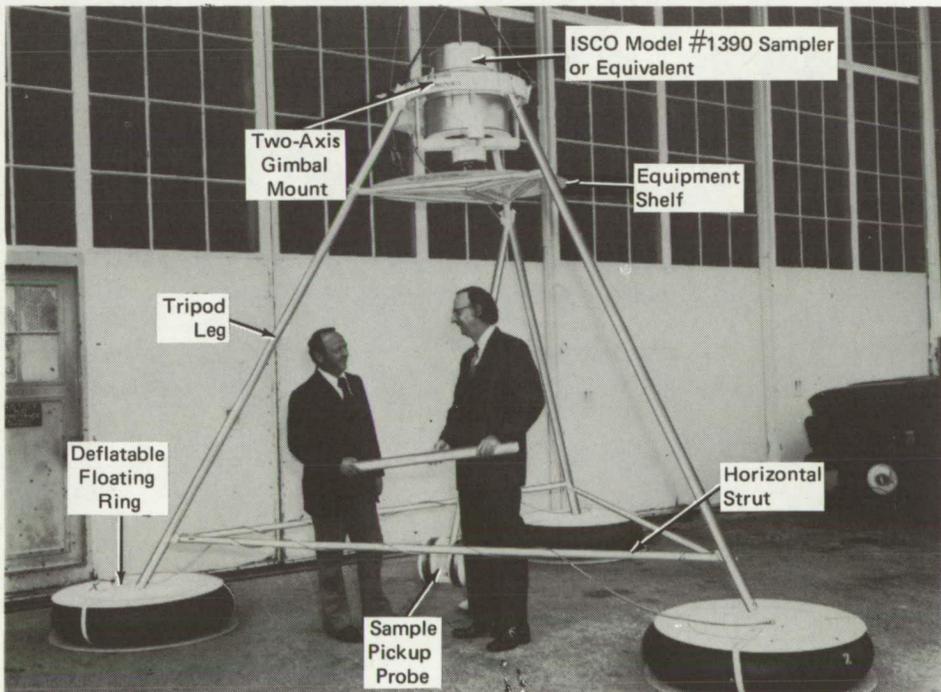
An automated remote marshland water-sampling station, for use in tidal marshland-flushing studies, has been developed and tested by the NASA Langley Research Center. The station may be made to turn on and off remotely in response to radio, audio, photo, or other suitable signals, as well as by hard-wire switching. The potential is present in the system design for general use of the station, under circumstances where scientific recording equipment must be placed in normally-inaccessible remote locations, with activation and deactivation occurring at the discretion of the investigator.

It has been established that this station meets the basic requirements of deployment and retrieval by helicopter, as well as the more usual surface transpor-

tation by truck or towing by small boat. Also, the station will remain operational under conditions of 4-foot (1.2 m) tidal variations, along with 4-foot wave action, and will withstand hurricane-force winds (up to 110 mi/h, 180 km/h) without toppling over.

The prototype sampling station consists of a tripod structure approximately 12 feet (3.7 m) in height with a base diameter of 13.5 feet (4.2 m) (see figure).

At the apex of the tripod is a two-axis gimbal mount which holds the water-sampling device (Instrument Specialties Company Model #1390 Water Sampler, or equivalent). The purpose of the gimbal is to aid in eliminating spillage and cross-contamination of samples. To further reduce spillage and still permit the sample



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(continued overleaf)

bottles to be filled, caps, with 1/2-inch (1.3-cm) drilled holes covered by thin rubber flapper valves on their undersides, are used. The pickup orifice for the sampler is located at the free end of a boom which is attached, pivot fashion, to one of the tripod legs, at a point 8 feet (2.5 m) above the tripod base.

The station is provided with an equipment shelf, just below the gimbal basket, for the attachment of additional sensors, recorders, and power supplies. An indication that the sampler is operating is provided by a flashing amber light attached to the gimbal mounting ring. Each foot of the tripod is composed of a large diameter plate to prevent the station from sinking into bottom mud, two mutually perpendicular plates to prevent lateral slipping of the station, and a 9-by 20-inch (23- by 51-cm) inner tube for flotation. Finally, the station is equipped with a bail extending 2 feet (0.6 m) above the station structure, for use in helicopter transport of the assembled station.

Note:

Requests for further information may be directed to:
Technology Utilization Officer
Langley Research Center
Mail Stop 139-A
Hampton, Virginia 23665
Reference: B73-10437

Patent status:

NASA has decided not to apply for a patent.

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(LAR-11503)