IN MEMORIAM, Meredith Sessions

Robert Knox

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A multitalented engineer and technologist for a broad range of ocean and atmospheric science projects at Scripps Institution of Oceanography and elsewhere, Meredith H. “Rip” Sessions passed away at his Del Mar home on December 27, 2011. He was 73.

He came to Scripps in 1959 after graduation from San Diego State University in physics. With John Isaacs and others, he did pioneering work in the earliest days of creating deep-ocean mooring systems that could both survive and return useful data, a quest that challenged many oceanographic institutions and investigators of that era. One result was the “Bumblebee” buoy, named for its shape and carrying instrumentation to measure and record upper ocean temperature profiles and air-sea interaction parameters. Success required solving a suite of engineering problems such as corrosion of components, wind- and current-induced vibration fatigue, biofouling and buoy survival in case of collisions, as well as devising reliable sensors and data recording methods long before cheap and effective low-power digital equipment became available. He brought this array of experience to bear on Pacific equatorial current meter moorings with Russ Davis and Bob Knox. A related development of free-vehicle cameras and other instruments designed to operate unattended on the sea floor and then to release an anchor at a preset time and return to the surface served a number of deep-sea biological investigations by Bob Hessler and others.

Aboard RAF pinnace 1382 near Gan, 1974

With Knox he explored and tested means of making lightweight current meter moorings for use in remote yet scientifically strategic places (Maldives, Seychelles) where deployment and recovery would have to rely on small local craft or chartered yachts, not large research vessels capable of handling heavy moorings. In the Maldives this entailed use of a 63 ft. small craft (pinnace) based at the former Royal Air Force station on Gan. Using charters in the Seychelles (mid-1970s, long before satellite phones) he was properly concerned to establish dependable communications to shore as a safety measure for himself and any Scripps personnel who might be embarked on such boats, in the manner of required daily radio reports to Scripps from regular research vessels at sea. He discovered a western Indian Ocean network of radio amateurs who held daily conversations. He obtained the right portable radio gear to install and use effectively on a yacht and thus participate in that group, and became a Seychelles licensed radio amateur himself. Seychelles hams being a real rarity, there were eager responses when other hams heard his VQ9 MHS call sign (note the initials) and lined up to add to their lists of far-flung contacts. This ensured that people ashore would be alerted if he announced an emergency or failed to come up on the air each day, which was precisely the point of the effort.

He was an avid aviator, for the personal joy of piloting and for the potentials of aircraft as observing platforms for oceanography. With Tim Barnett and later with John Bane of the Univ. of North Carolina, Sessions addressed problems of accuracy and unit-to-unit variability in the standard Navy AN/SSQ-36 Airborne Expendable Bathythermograph (AXBT). He devised ways to sample AXBT production lots from different manufacturers, all of them falling within the lenient Navy temperature-fall rate specifications that were meant simply to be “good enough” for antisubmarine purposes, and he was thereby able to wring oceanographically useful (and digitally recorded, on equipment he designed) data sets out of these devices. The logistical leverage afforded by being able to use Navy and NOAA P-3 aircraft to deploy these calibrated units in operationally standard ways was immense. This approach to rapid spatial survey of upper ocean temperature found application in several Pacific experiments, in Gulf Stream observations and in one of the earliest acoustic tomography experiments in the Atlantic.

With Dick Seymour he built the technical foundations of today’s Coastal Data Information Program (CDIP), a distributed network for real-time gathering and provision of wave data and associated information, first at

stations along the California coast and now extended to all continental U.S. coasts as well as Hawaii, Guam, and several foreign locations. Their leading-edge developments (late 1970s) of dial-up telephone links for logging data from remote installations, an innovative FM transmission scheme, possibly the first operational modem and one of the very first uses of remote memory, all were crucial to the growth and success of the present CDIP wave observation network. Again his breadth of knowledge, from innovative digital electronic designs to practical issues of fieldwork, logistics and equipment robustness in remote places with difficult environmental conditions, was invaluable.

By then a Principal Development Engineer, he took early retirement in 1991 to capitalize on a UC incentive program, but quickly returned to employment on a project-to-project basis. In his post-retirement yet still-working capacity he collaborated in several efforts by Scripps and other investigators, from a NOAA-led study on impacts of deep-sea mineral mining aboard a chartered Russian vessel to the instrumenting of light aircraft (with Bane and Larry Armi) for use in synoptic surveys of coastal oceanographic and meteorological fields.

Sessions rebuilt his vintage Porsche 911-E. He had a nose for interesting dining and drinking spots after a cruise or flight, once motorbiking in the teeth of a cold rain to the far end of St. David's Island, Bermuda, in search, successfully, of the best conch chowder on the island, at a quite raffish hole-in-the-wall establishment. He was a first-rate cook in more than one cuisine. He and Ken Wallace, by way of saying thank-you for project assistance, once orchestrated the shipping of all the ingredients and tools that they needed to prepare a Mexican feast halfway around the world for the mess at RAF Gan, surely a first of its kind. The eclectic list of his interests and talents goes on.

Authored by Bob Knox, with help from named colleagues (all currently or formerly at Scripps except as noted) and Meredith's friends. Posted January 10, 2012 on sio.ucsd.edu/Announcements/Sessions/