surface. An advantage of mooring validation is the high number of match-up data for satellite calibrations (data are collected regardless of cloud cover as well).

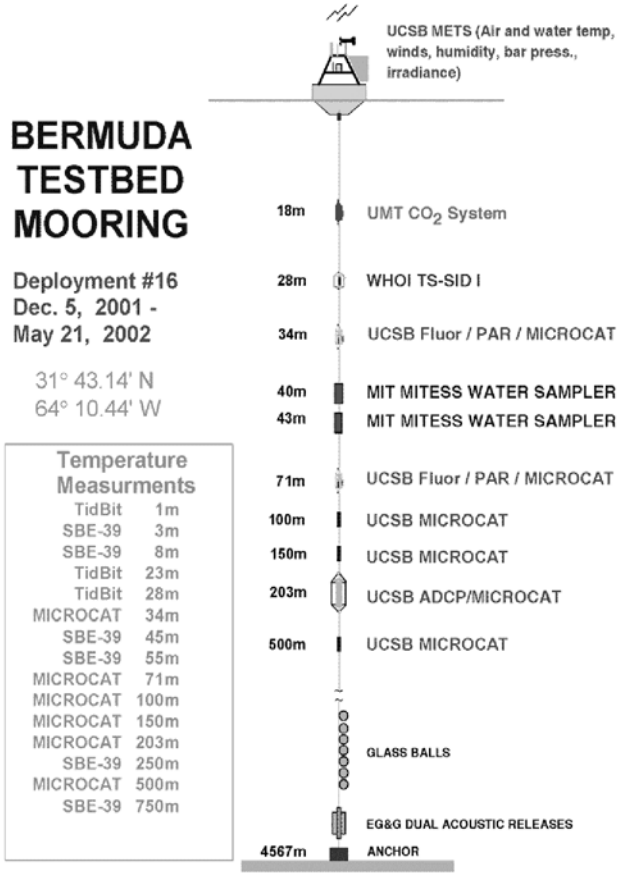

Fig. 3.6. Schematic illustration of the Bermuda Testbed Mooring (BTM), showing an example of the taut-wire mooring, surface buoy, and instrument locations.

HOT: The Hawaii Ocean Time-series (HOT) program was initiated in 1988 in parallel with the BATS program program. The HOT measurements are conducted at the oligotrophic Station ALOHA (22^{o}-45'N, 158 ^{o}-00'W) site north of Oahu. HOT's main objective is to obtain a long time-series of physical and biogeochemical observations in the North Pacific subtropical gyre to:

- document and understand seasonal and interannual variability of water masses, develop climatologies of physical and chemical variables,
- document and understand seasonal and interannual variability in primary production, new production and particle export from the surface ocean,
- quantify time-varying concentrations of carbon dioxide, and
- study the ecology of a subtropical gyre.

HOT's core measurements were selected to provide a data set to improve existing C-N-P biogeochemical models. Selected data trends related to the intensification of N and P cycles, changes in microbial community structure and the role of high frequency physical events have been documented. An interdisciplinary instrumented mooring was deployed at the HOT site in 1996, and continued in operation until about 2000 (Letelier *et al*., 2000). The mooring experiment, dubbed HALE ALOHA (Hawaii Air-sea Listening Experiment; Hale is also a Hawaiian word translated "at the house of") initially included meteorological, physical, optical and chemical sensors. Additional instruments,