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History of the RDI BB-150 Broadband ADCP on the Ka'imimoana:

The broadband ADCP was installed in the shipyard during the modification of the ship for mooring work, prior to its first cruise to Hawaii. A P/Y-code GPS receiver was installed at the same time, and has been available ever since. Sea trials were conducted in the Seattle area in late March or early April 1996. The broadband ADCP was operated with a default RDI configuration during the transit to Hawaii in early June, 1996. Data from the transit were not judged useful.

On the first TAO cruise from Hawaii (KA-96-01 LEGS 2&3, 19 JUN - 14 AUG, 1996; also referenced as GP3-96-KA and GP4-96-KA, TAO/GOALS 155W, 175W) alternative configurations were tested. Bugs in the BB firmware and in RDI's Transect data acquisition software were gradually revealed. The net result was that only the data from JUL 2-12 (LEG 2 from 5S, 180W to 3N, 163W) are of usable quality.

Usable data were collected most of the time during all the remaining Ka'imimoana cruises with the BB:

- \* KA-96-02 LEG 1: 25 AUG - 24 SEP, 1996 Honolulu to San Diego; TAO/PACS 125W, 140W
- \* KA-96-02 LEG 2: 29 SEP - 28 OCT, 1996 San Diego to Manzanillo; TAO/PACS/VENTS 95W, 110W
- \* KA-96-02 LEG 3: 11 NOV - 13 NOV, 1996 Manzanillo to Honolulu; TAO/PACS TRANSIT
- \* KA-96-03 LEG 1: 22 NOV - 18 DEC, 1996 Honolulu to Honolulu; TAO/GOALS 155W, 170W)

Apart from occasional testing periods, the standard Transect and instrument configuration was as follows. Water tracking mode 7 was used, with a 4-m blanking interval and 50 8-m depth bins. The instrument was set to ping at its maximum rate, about 1.5 seconds per ping. Ensembles of 30 profiles were vector-averaged in the profiler, recorded as "raw" data by Transect, and then further averaged by Transect and recorded as "processed" data files at 5-minute intervals. The full 1 Hz GPS fix data stream was recorded by Transect as "navigation" files.

An Ashtech 3DF was installed in San Diego in September, 1996, and became fully operational beginning with KA-96-02 LEG 3 (11 NOV - 13 NOV).

Data processing so far has been limited to preliminary treatment for KA9601L2, KA9602L1, and KA9602L3, and the data have not yet been transferred to the NODC Shipboard ADCP Data Center. Hand editing has not been completed. Water-track calibration of pre-Ashtech data has been used for a basic transducer orientation correction. Errors due to undetected gyro stepper jumps (by an integral number of degrees) may still be present along with normal gyro compass errors. Corrections based on the Ashtech have not yet been derived for the cruises on which it is available.

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