Data sets of velocity

In this document, the name, form and format of the data sets are described. The data sets are compilation of velocity data measured by ADCP on First Jupiter. The velocity data is processed and shows current velocity of oceans directly. The velocity data opened here is mainly every 20 minutes of the time.

1. Classification of data sets

One data set contains velocity data for one particular track of one cruise. Here "cruise" presents a cruise of round trip from Japan to Japan. "Track" means a ship track from one port to another port during this cruise. For example, if the ship stops by three ports, Port A, Port B and Port C before comes back to Japan, we distinguish the following four tracks: the track from Japan to port A, the track from port A to port B, the track from port B to Port C, and the track from Port C to Japan. These tracks are labeled as A, B, C and D in order.

Each cruise is identified by a number 001, 002, 003, $\cdots$ from the first cruise in order, as shown in the document cruises.ps.

2. Name of data sets

The name of a data set begins with the word "w", which is named after the initial letter of "Western Pacific ADCP Program". This "w" is followed by the year and month of the measurement, and a cruise identification number. The extension of a file name is the label of a track and a version of data processing.

For example, we have two data sets,

w9701002.a10

w9702002.b10

for the second cruise. Here "9701" ("9702") shows that this data was measured in January (February) 1997, and "002" shows the cruise identification number. "a" ("b") in the extension indicates the ship track from Japan to Australia, (from Australia to Japan), and "10" represents that the version of the data processing is 1.0.

3. Form of data sets

The data set is composed of many lines of ASCII codes, where each line ends up by new-line code (hexadecimal code 0A) as in Unix-like operating system.

4. Format of data sets

The data set contains header data and N sets of velocity data at each location on the track. Here N is the total number of the data, which is recorded in the header data. Table I and II show the format of header data and velocity data, respectively.

In these tables, Format is described by the format statement of FORTRAN77. That is, In means n digits of integer, and An means n characters. F$n.m$ is a floating point, the total length of which is n and the digit below the point is m. 1X means single space.

Table I. Format of Header Data

Line	Format	Field	Description
1	A6,1X,A11	Version / Date of data processing	The first six characters show the version of data processing. The last eleven characters show the date on which this data was last modified.
2	I3,A1	Cruise ID Number / Track ID word	The first three digits of integer mean the identification number of this cruise, and the last character distinguishes a ship track in this cruise.
3	I4	Total Number of Data	This number shows the total number N of the data measured on this track.

Table II. Format of one set of Velocity Data. There exist N sets of records of this format.

Line	Format	Field	Description
1	I4,1X,I2,1X,I2, 1X,I2,1X,I2	Date and Time	Year, Month, Day, Hour, and Minute of this measurement are shown in UTC.
2	I2,1X,F4.1	Depth / Temperature	Depth of the ADCP transducer is shown in the unit of m, and the temperature at its depth is shown in the unit of °C.
3	F7.3,1X,F8.3	Location	Latitude and Longitude of this measurement are shown in the unit of degrees. A negative value means the south latitude and west longitude.
4	I3,1X,I2,1X, F5.1,1X,F3.1	Ship Speed / Heading	The first two integers show the speed of the ship and its error in the unit of cm/s. The last two integers show the direction of the ADCP transducer from the north and its error in the unit of degrees between 0° and 360°.
5	I3,1X,I3,1X,I2	Depth Range / Interval	The minimum $h_{\min}$ and maximum $h_{\max}$ values of depth and interval Δh of depth are shown in the unit of m, where current velocity is successfully measured.
$6 \sim L+5$	I5,1X,I5,1X,I4	Velocity Components	Eastward, northward, and upward components of current velocity at the depth of $h_{\min} + (l-1)\Delta h$ m. Here $l = 1, 2, \cdots, L$, and $L = (h_{\max} - h_{\min})/\Delta h + 1$. Make sure that the velocity is shown in the unit of mm/sec, not cm/sec. A value of -9999 means bad data.