



Proposal for a BT (XBT) Punch Card System

By
D. Kohnke

This draft of a punch card system shall serve the Working Group on the Development of Marine Data Systems as basis for discussing a final system for use within the ICES.

The draft is based on the assumption that most of the NODCs are lacking the funds for buying a device enabling BT (XBT) recordings to be inserted in aperture cards and to be digitalized in the following. In many instances the purchase of such device would even not prove worthwhile because of the small number of data available.

The system briefly described in the following is, therefore, designed for the accumulation of digitalized BT (XBT) data. The basic idea of the system is to read off the temperatures at such points of the BT (XBT) trace showing an obvious variation of the vertical temperature gradient (break-point method). By this method the number of data to be stored is kept on a minimum for most of the sea areas. But, nevertheless, each BT (XBT) trace can be reproduced with sufficient accuracy.

The system consists of:

- a. a Master Card
- b. a Detail Card I
- c. a Detail Card II

a. The Master Card provides information about country; ship; Marsden square; station; date; position; sounded depth; reference temperature; meteorological measurements; the instrument used; the institute concerned; and other punch card codes (for more particulars see Annex I).

b. Detail Card I. From column 19 on, this card can take up 7 pairs of depth/temperature values. For each parameter 4 columns are reserved so that the temperature can be given to two places of decimals (for more particulars see Annex I).

c. Detail Card II. As to the arrangements of columns, this card is practically identical with Detail Card I with the exception that the depth columns are here filled with temperature data (the standard depth results from the location of the temperature in the card). It is, therefore, possible to insert in one punch card temperature data of a maximum of 14 standard depths.

The BT (XBT) trace shall be read off (digitalized) in such a way that a linear interpolation between two temperatures of sufficient accuracy is guaranteed. The temperature data supplied by the author to the respective NODC need not necessarily provide the values of the standard depths. They can be computed subsequently at the NODC to be inserted in Detail Card II.

This punch card system enables the data to be sorted after the following aspects: country; ship; station; Marsden square; year; month; day.

Country	Ship	Consecut. Stat. No.	Marsd. Squ.	Date				Lat.	Long.	W. E. N.	Depth to Bottom	Ref. Temp.	Wind		Temp.		Weather	Cloud	Visib.	Instrum.	Instit.-Code	Slide No. of Instit.	Extra info.	Card No.	Card Type	BT Code	
				Year	Mo.	D.	H.						α	v	Dry Bulb	Wet Bulb											
000	000	00000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
111	111	11111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111

BT (XBT) Master Card

																												Card No.	Card Type	BT Code		
																															Depth	Temp.
000	000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
111	111	11111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111

1.Detail Card (Temperature at Inflexion Points)

						Temperature at indicated depth																Card No.	Card Type	BT Code									
						0	10	20	30	50	75	100	125	150	200	250	300	400	500														
						600	700	800	900	1000	1100	1200	1300	1400	1500	1750	2000	2500	3000														
000	000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
111	111	11111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111	1111

2.Detail Card (Temperature at Standard Depths)