

File 2805 (46)

ACCESSION
NUMBER

73-1004

TR1026

DATA DOCUMENTATION FORM

NOAA FORM 24-13

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEANOGRAPHIC DATA CENTER
RECORDS SECTION
ROCKVILLE, MARYLAND 20852FORM APPROVED
O.M.B. No. 41-R2651

This form should accompany all data submissions to NODC. Section A, Originator Identification, must be completed when the data are submitted. It is highly desirable for NODC to also receive the remaining pertinent information at that time. This may be most easily accomplished by attaching reports, publications, or manuscripts which are readily available describing data collection, analysis, and format specifics. Readable, handwritten submissions are acceptable in all cases. All data shipments should be sent to the above address.

A. ORIGINATOR IDENTIFICATION

THIS SECTION MUST BE COMPLETED BY DONOR FOR ALL DATA TRANSMITTALS

1. NAME AND ADDRESS OF INSTITUTION, LABORATORY, OR ACTIVITY WITH WHICH SUBMITTED DATA ARE ASSOCIATED			
National Ocean Survey (Oceanographic Division) NOAA/ Department of Commerce 6001 Executive Blvd. Rockville, MD			
2. EXPEDITION, PROJECT, OR PROGRAM DURING WHICH DATA WERE COLLECTED		3. CRUISE NUMBER(S) USED BY ORIGINATOR TO IDENTIFY DATA IN THIS SHIPMENT	
OPR - 501 - FE - 71 (1971 Boston Harbor Current Survey by NOAA Ship Ferrel)		OPR - 501 - FE - 71	
4. PLATFORM NAME(S)	5. PLATFORM TYPE(S) (E.G., SHIP, BUOY, ETC.)	6. PLATFORM AND OPERATOR NATIONALITY(IES)	7. DATES
Ferrel	Surface Buoys	PLATFORM OPERATOR	FROM: MO/DAY/YR TO: MO/DAY/YR
		U.S.A. U.S.A.	5/10/71 10/26/71
8. ARE DATA PROPRIETARY? <input checked="" type="checkbox"/> NO <input type="checkbox"/> YES IF YES, WHEN CAN THEY BE RELEASED FOR GENERAL USE? YEAR MONTH		11. PLEASE DARKEN ALL MARSDEN SQUARES IN WHICH ANY DATA CONTAINED IN YOUR SUBMISSION WERE COLLECTED.	
9. ARE DATA DECLARED NATIONAL PROGRAM (DNP)? (I.E., SHOULD THEY BE INCLUDED IN WORLD DATA CENTERS HOLDINGS FOR INTERNA- TIONAL EXCHANGE?) <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> PART (SPECIFY BELOW)		GENERAL AREA	
10. PERSON TO WHOM INQUIRIES CONCERNING DATA SHOULD BE ADDRESSED WITH TELE- PHONE NUMBER (AND ADDRESS IF OTHER THAN IN ITEM-1) Bruce Parker 496-8050			

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USCOMM-DC 44289-P72

U S NAUTIC CONTENT

NAME OF DATA FIELD	REPORTING UNITS OR CODE	METHODS OF OBSERVATION AND INSTRUMENTS USED (SPECIFY TYPE AND MODEL)	ANALYTICAL METHODS (INCLUDING MODIFICATIONS) AND LABORATORY PROCEDURES	DATA PROCESSING TECHNIQUES WITH FILTERING AND AVERAGING
Velocity	Knots	TICUS I-Mark II Meter		See attached sheet.
Direction	Degrees True	TICUS I-Mark II Meter		See attached sheet.

C. DATA FORMAT

COMPLETE THIS SECTION FOR PUNCHED CARDS OR TAPE, MAGNETIC TAPE, OR DISC SUBMISSIONS.

1. LIST RECORD TYPES CONTAINED IN THE TRANSMITTAL OF YOUR FILE
GIVE METHOD OF IDENTIFYING EACH RECORD TYPE

There are two Record Types:

Record I (Text Record) contains 80 Bytes

Record II (Data Record) contains 40, 54; 68 Bytes

2. GIVE BRIEF DESCRIPTION OF FILE ORGANIZATION

	1 Sensor	2 Sensors	3 Sensors
Tape 5585		Files: 1-7	
* Tape 5579	Files: 1; 2	Files: 3-12	
Tape 5616	Files: 2; 5	Files: 1,3,4,8-11	Files: 6,7
Tape 5594	Files: 2	Files: 1,3-16	
* The last two files are repeated on the beginning of tape A671.			

3. ATTRIBUTES AS EXPRESSED IN

☐ PL-1
 ☐ ALGOL
 ☐ COBOL
 ☒ FORTRAN
 ☐ _____ LANGUAGE

4. RESPONSIBLE COMPUTER SPECIALIST:

NAME AND PHONE NUMBER Bruce Parker (301) 496-8050
ADDRESS 605, WSC-1, C333, Rockville, Maryland 20852

COMPLETE THIS SECTION IF DATA ARE ON MAGNETIC TAPE

5. RECORDING MODE <input checked="" type="checkbox"/> BCD <input type="checkbox"/> BINARY <input type="checkbox"/> ASCII <input type="checkbox"/> EBCDIC <input type="checkbox"/> _____		9. LENGTH OF INTER-RECORD GAP (IF KNOWN) <input checked="" type="checkbox"/> 3/4 INCH <input type="checkbox"/> _____	
6. NUMBER OF TRACKS (CHANNELS) <input checked="" type="checkbox"/> SEVEN <input type="checkbox"/> NINE <input type="checkbox"/> _____		10. END OF FILE MARK <input type="checkbox"/> OCTAL 17 <input type="checkbox"/> _____	
7. PARITY <input type="checkbox"/> ODD <input checked="" type="checkbox"/> EVEN		11. PASTE-ON-PAPER LABEL DESCRIPTION (INCLUDE ORIGINATOR NAME AND SOME LAY SPECIFICATIONS OF DATA TYPE, VOLUME NUMBER) <div> <div>5585</div> <div>5/10/71 - 10/26/71</div> </div> <div> <div>5579</div> <div>5/11/71 - 6/29/71</div> </div> <div> <div>5616</div> <div>9/28/71 - 10/13/71</div> </div> <div> <div>5594</div> <div>6/14/71 - 8/31/71</div> </div>	
8. DENSITY <input type="checkbox"/> 200 BPI <input type="checkbox"/> 1600 BPI <input checked="" type="checkbox"/> 556 BPI <input type="checkbox"/> 800 BPI <input type="checkbox"/> _____		12. PHYSICAL BLOCK LENGTH IN BYTES 80 unblocked	
		13. LENGTH OF BYTES IN BITS 6 Bits/character	

RECORD FORMAT DESCRIPTION

RECORD NAME TICUS (Current Data)

14. FIELD NAME	15. POSITION FROM-1 MEASURED IN (e.g., bits, bytes)	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		NUMBER	UNITS		
<u>Text Record</u>					
Title	1	30	Bytes		Station Description
<u>Data Record</u>					
Station No.	1	4	Bytes	I3	Job Number
Blank	5	2	Bytes	2X	
Year	7	2	Bytes	I2	Year of Observation
Blank	9	1	Bytes	1X	
Month	10	2	Bytes	I2	Month (1-12)
Blank	12	1	Bytes	1X	
Day	13	2	Bytes	I2	(1-31)
Blank	15	1	Bytes	1X	
Time	16	5	Bytes	F5.2	Hour/Hundredths of Hr.
Blank	21	2	Bytes	1X	
Velocity 1	23	4	Bytes	F4.2	Knots (TICUS I-Mark II Meter)
Blank	27	1	Bytes	1X	
Direction 1	28	3	Bytes	I3	Degrees True (TICUS - Mark II Meter)
Blank	31	1	Bytes	1X	
Weight 1	32	4	Bytes	I4	See the attached explanation of term "WT".
Blank	36	5	Bytes	5X	
Velocity 2	40	4	Bytes	F4.2	Knots (TICUS I-Mark II Meter) See the attached.
Blank	45	1	Bytes	1X	
Direction 2	46	3	Bytes	I3	Degrees True (TICUS I-Mark II Meter) See the attached.
Blank	49	1	Bytes	1X	

RECORD FORMAT DESCRIPTION

RECORD NAME Continued

14. FIELD NAME	15. POSITION FROM - 1 MEASURED IN (e.g., bits, bytes)	16. LENGTH		17. ATTRIBUTES	18. USE AND MEANING
		NUMBER	UNITS		
Weight 2	50	4	Bytes	I4	See the attached explanation of the term "WT"
Blank	54	5	Bytes	5X	
Velocity 3	59	4	Bytes	4F.2	Knots (TICUS I-Mark II Meter) See attached sheet and Section B.
Blank	63	1	Bytes	1X	
Direction 3	64	3	Bytes	I3	Degrees True (TICUS I-Mark II) See the attached sheet and Section B.
Blank	67	1	Bytes	1X	
Weight 3	68	4	Bytes	I4	See the attached explanation of the term "WT"

This calibration information will be utilized by NOAA's National Oceanographic Instrumentation Center in their efforts to develop calibration standards for voluntary acceptance by the oceanographic community. Identify the instruments used by your organization to obtain the scientific content of the DDF (i.e., STD, temperature and pressure sensors, salinometers, oxygen meters, velocimeters, etc.) and furnish the calibration data requested by completing and/or checking ("✓") the appropriate spaces. Add the interval time (i.e., 3 months, 6 months, 9 months, etc.) if the fixed interval calibration cycle is checked.

NOVA 1:1.1.1

DISCUSSION OF TICUS REDUCTION PROCEDURE

The speeds and directions recorded by the TICUS-II system are recorded as five speeds s_i and five directions θ_i . NOS treats the two series s_i and θ_i separately deriving a mean of each series \bar{s} and $\bar{\theta}$, then assuming that in the mean \bar{s} and $\bar{\theta}$ can be treated as an ordered pair centered on the middle of the measurement cycle, $(\bar{s}, \bar{\theta})$.

The mean of the series s_i is a simple arithmetic mean.

$$\bar{s} = \frac{\sum_{i=1}^N s_i}{N}$$

At present no editing of the s_i is done at this stage of the programming. The NOS method of editing \bar{s} is to compare $\bar{s}(t_1)$ with $\bar{s}(t_0)$ and $\bar{s}(t_2)$ where t_0, t_1, t_2 represent consecutive recording intervals.

The mean of the series θ_i is determined by assigning a unit vector to each of the elements θ_i . The cosine and sine components are arithmetically averaged to yield

$$x = \frac{\sum_{i=1}^N \cos \theta_i}{N} \qquad y = \frac{\sum_{i=1}^N \sin \theta_i}{N}$$

The components (x,y) are resolved to a tentative $\bar{\theta}$

$$\bar{\theta} = \tan^{-1} y/x$$

This $\bar{\theta}$ is compared to the θ_i . If any $|\bar{\theta} - \theta_i| > 90^\circ$, that θ_i is removed and a new $\bar{\theta}$ is computed. On the second pass all θ_i such that $|\bar{\theta} - \theta_i| > 60^\circ$ are removed and a new mean computed. A third pass is made to eliminate θ_i where $|\bar{\theta} - \theta_i| > 30^\circ$ and the final $\bar{\theta}$ is computed.

This final $\bar{\theta}$ and the \bar{s} discussed above are assigned to the ordered pair $(\bar{s}, \bar{\theta})$.

The estimated validity of $\bar{\theta}$ is assigned \bar{w} according to the ratio

$$\bar{w} = \frac{\left(\sum_{i=1}^5 \cos \theta_i \right)^2 + \left(\sum_{i=1}^5 \sin \theta_i \right)^2}{(5 \cos \bar{\theta})^2 + (5 \sin \bar{\theta})^2}$$

By visual test this yields a weight $\bar{w} = 1.000$ for $\theta_1 = \theta_2 = \theta_3 = \theta_4 = \theta_5 = \bar{\theta}$ and $\bar{w} = 0.000$ for $\theta_1 - \theta_2 = \theta_2 - \theta_3 = \theta_3 - \theta_4 = \theta_4 - \theta_5 = \theta_5 - \theta_1 = 72^\circ$ or the cases of mutually cancelling vectors.

3

Since the weight \bar{w} applies only to the $\bar{\theta}$ the ordered pair of numbers for time t will in reality be the number \bar{s} paired with the ordered pair $(\bar{\theta}, \bar{w})$, or

$$(\bar{s}, (\bar{\theta}, \bar{w}))$$

BRIEF EXPLANATION OF THE TERM "WT" (WEIGHT)

Each direction reading shown on the printout is actually an edited average of 5 direction readings (each direction reading taken instantaneously every 7.5 seconds over a 38 second period).

"WT" is an indication of how close these 5 direction values were to each other. The two extreme cases are: (1) If all 5 direction values were identical, WT = 1000.; (2) If the 5 direction values were evenly distributed around the compass, WT = 000.

There are two situations that normally bring about low WT's: (1) readings taken at or near slack waters (or minimums), i.e. when the direction of flow is rapidly changing.; (2) when the sea state is fairly great and the data is taken near the surface (i.e. 10 to 15 ft from the surface); the current meter is jerked up and down by the bouncing surface buoy, flipping the vane around and also affecting the savonius rotor.

At the present time there is no method for adjusting the data according to WT.

WT should be used only as a rough qualitative tool.