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Strategic Petroleum Reserve Project

**Wind Direction, Wind Speed and Dry Bulb Air Temperatures For Beaumont/Port Arthur, Texas
1969 through 1973**

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TAMU-SG-78-206
April 1978

Texas A&M University



Sea Grant College Program

WIND DIRECTIONS, WIND SPEEDS AND DRY BULB AIR TEMPERATURES
FOR BEAUMONT/PORT ARTHUR, TEXAS
FOR THE PERIOD 1969 THROUGH 1973

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July 1977

ACKNOWLEDGMENT

This project was sponsored by the Federal Energy Administration, the Marine Assessment Division of the National Oceanic and Atmospheric Administration and the Center for Marine Resources at Texas A&M University.

We gratefully acknowledge the assistance of the following:

Glenn Lubiens
Office of the State Climatologist
Texas A&M University
(Professor John F. Griffith, Director)

for both the loan of the Beaumont/Port Arthur NOAA airways surface observations data tape and for his help, and

Alan Montgomery
Electrical Engineering Department
Texas A&M University

for the use of his overpunched character-conversion program.

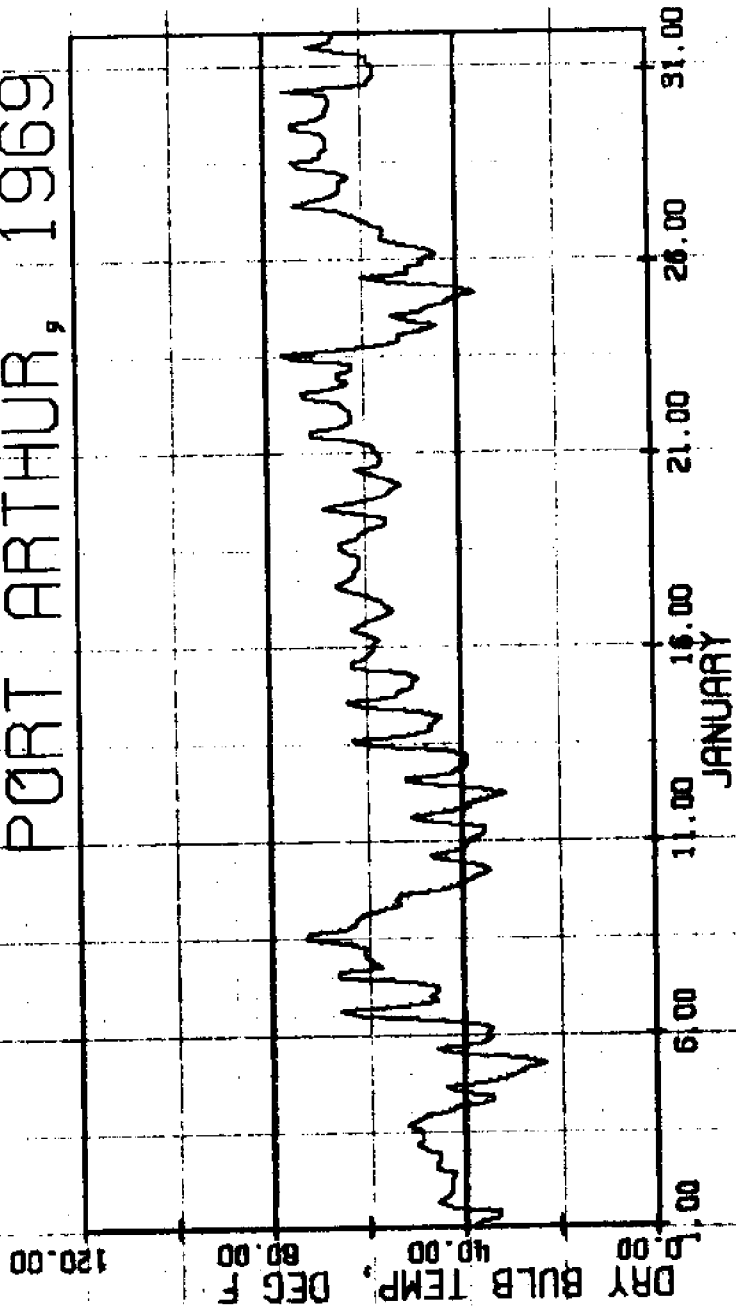
BEAUMONT/PORT ARTHUR WIND AND TEMPERATURE DATA

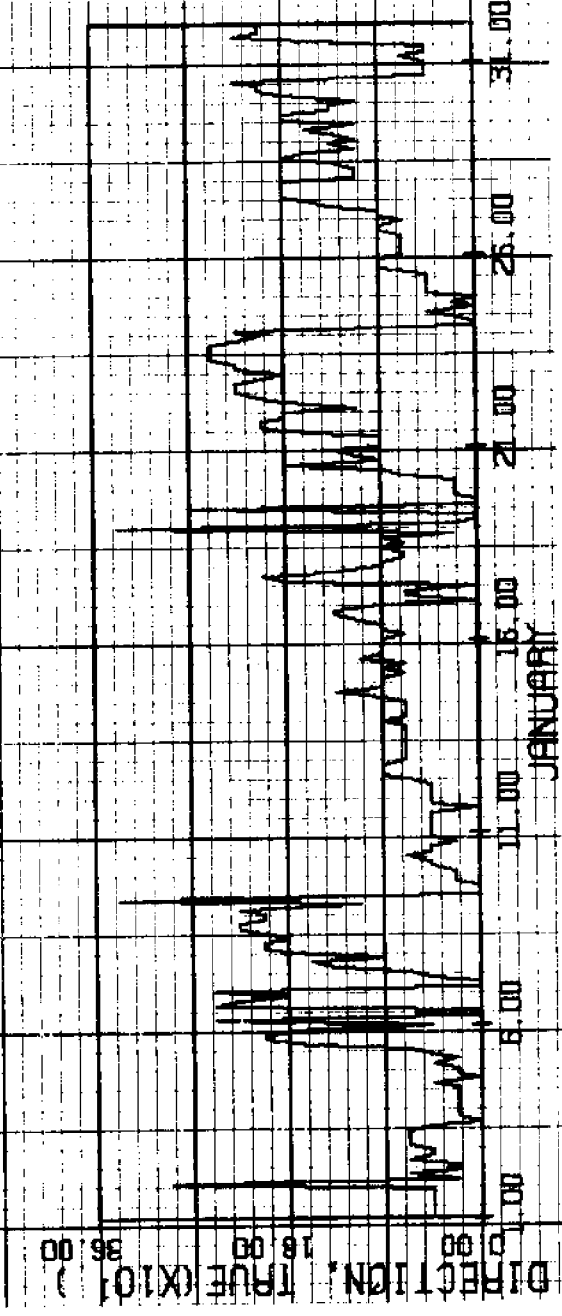
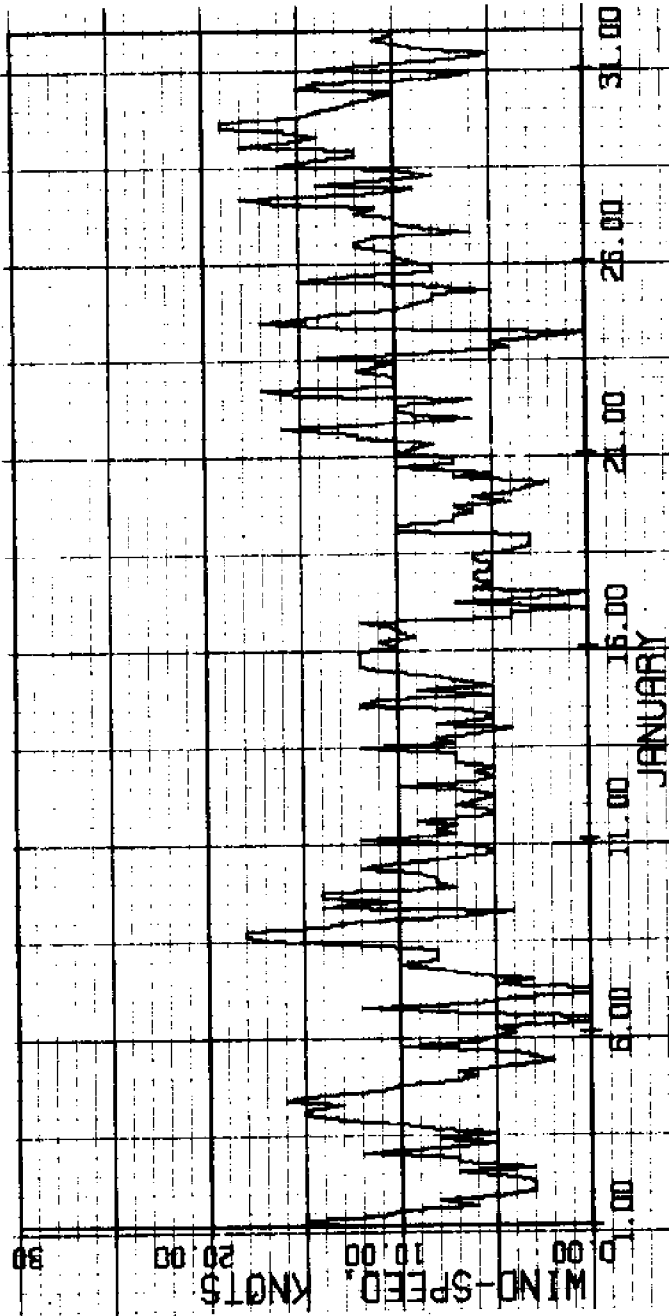
Due to the need for design data for the proposed Strategic Petroleum Reserve Program offshore brine diffusers, we present here 5 years of wind direction, wind speed, and dry bulb air temperature data plotted on a month-by-month basis.

The data are for Jefferson County Airport, midway between the cities of Beaumont and Port Arthur, Texas. The airport is located in very flat terrain some 20 miles north of the Gulf of Mexico. The location of the station is shown on the cover of this report (LANDSAT imagery, band 5, January 9, 1973).

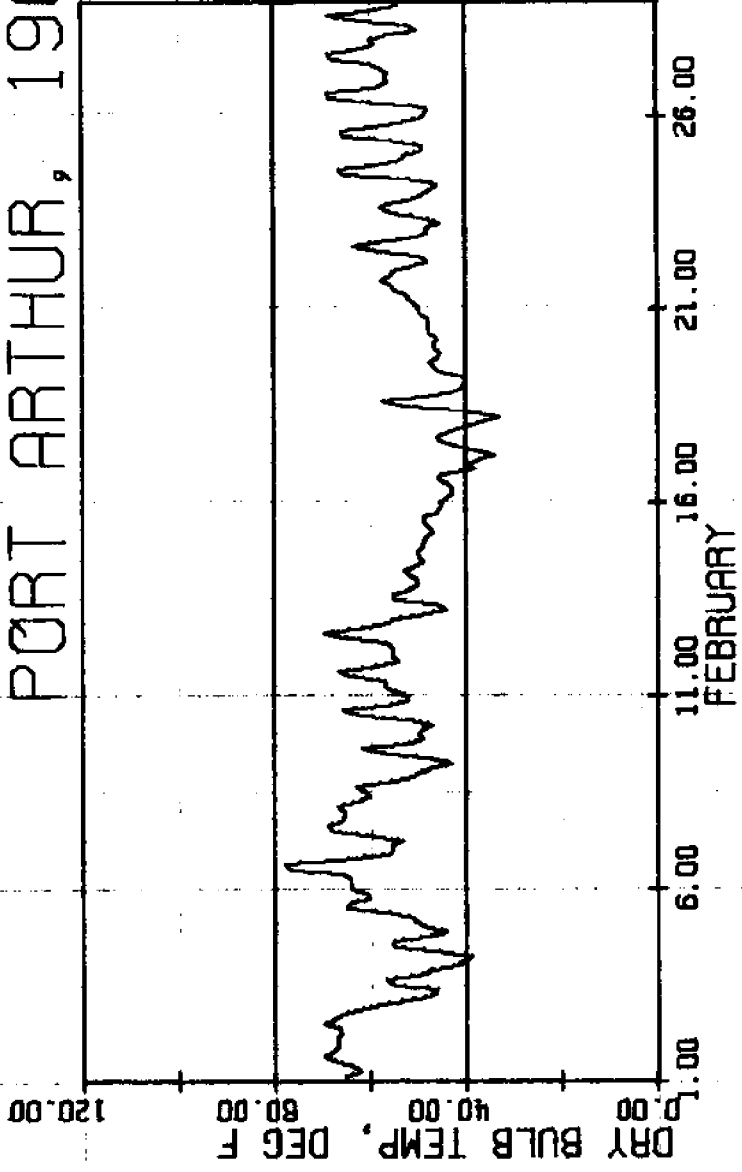
We hope that, in the absence of true coastal data, the Jefferson County Airport raw data in this fashion will prove helpful either in selecting suitable wind scenarios for use as input to numerical models or as an aid to other studies. An appendix containing the programs will be found at the end of the plots.

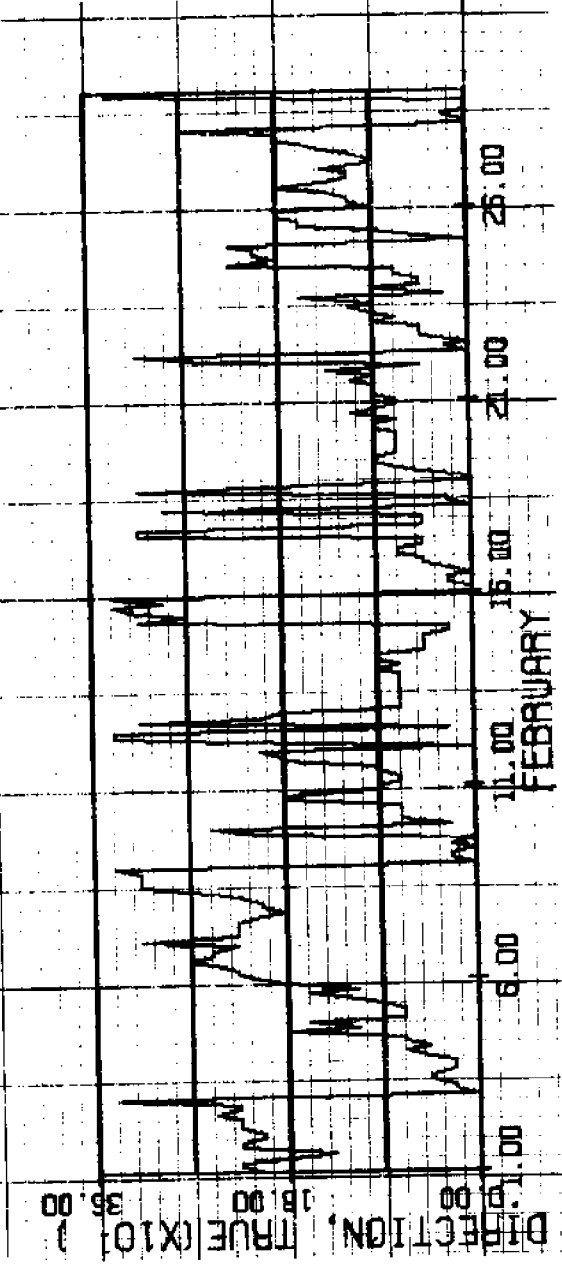
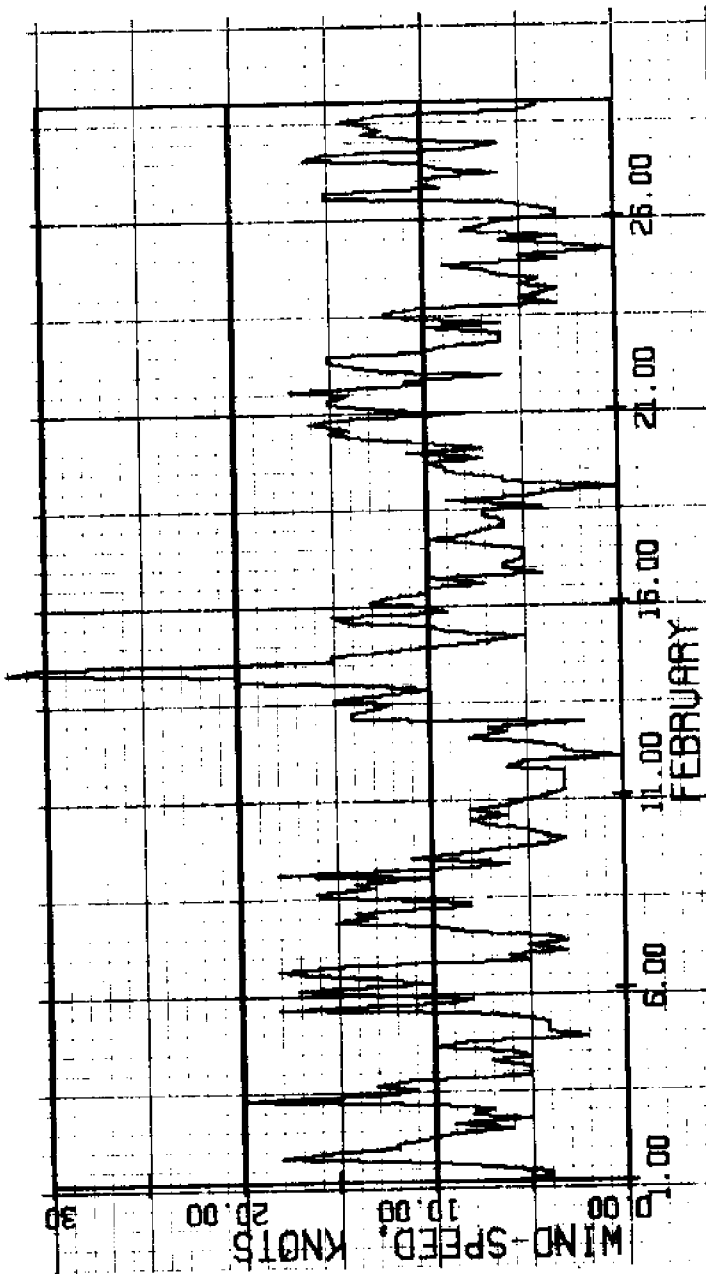
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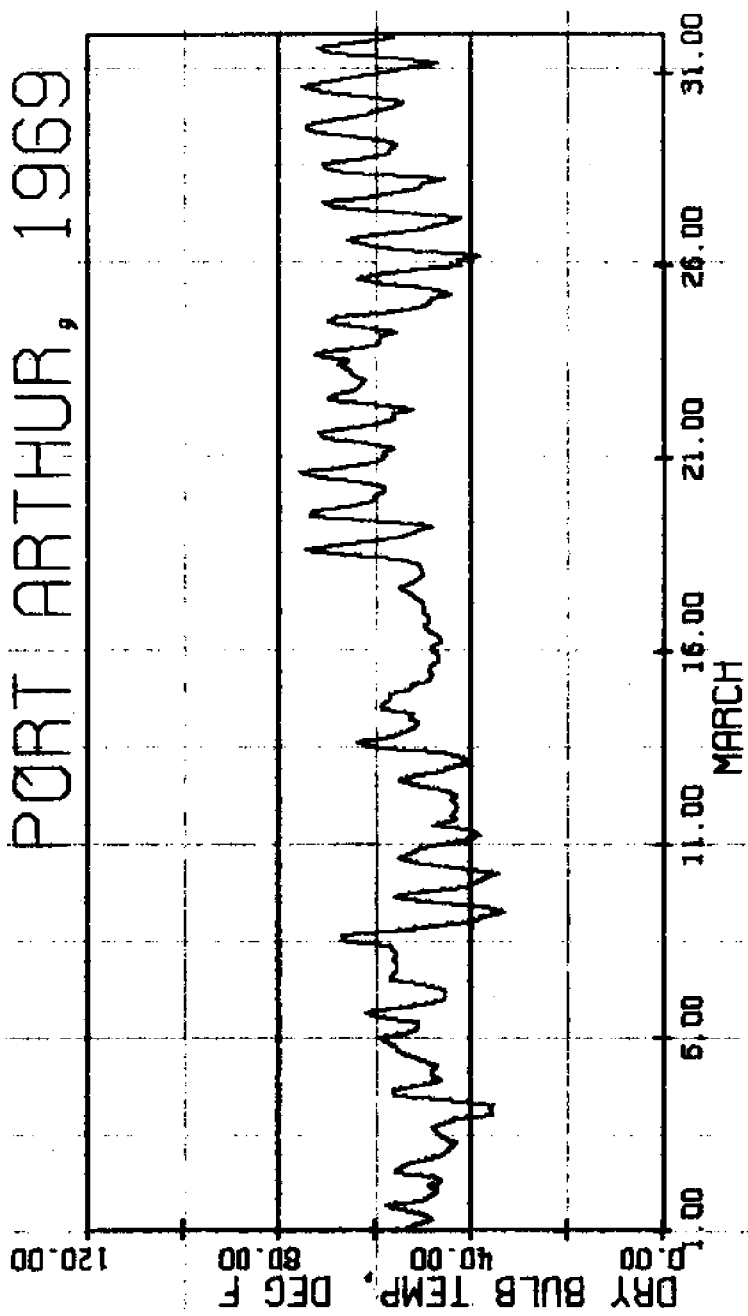


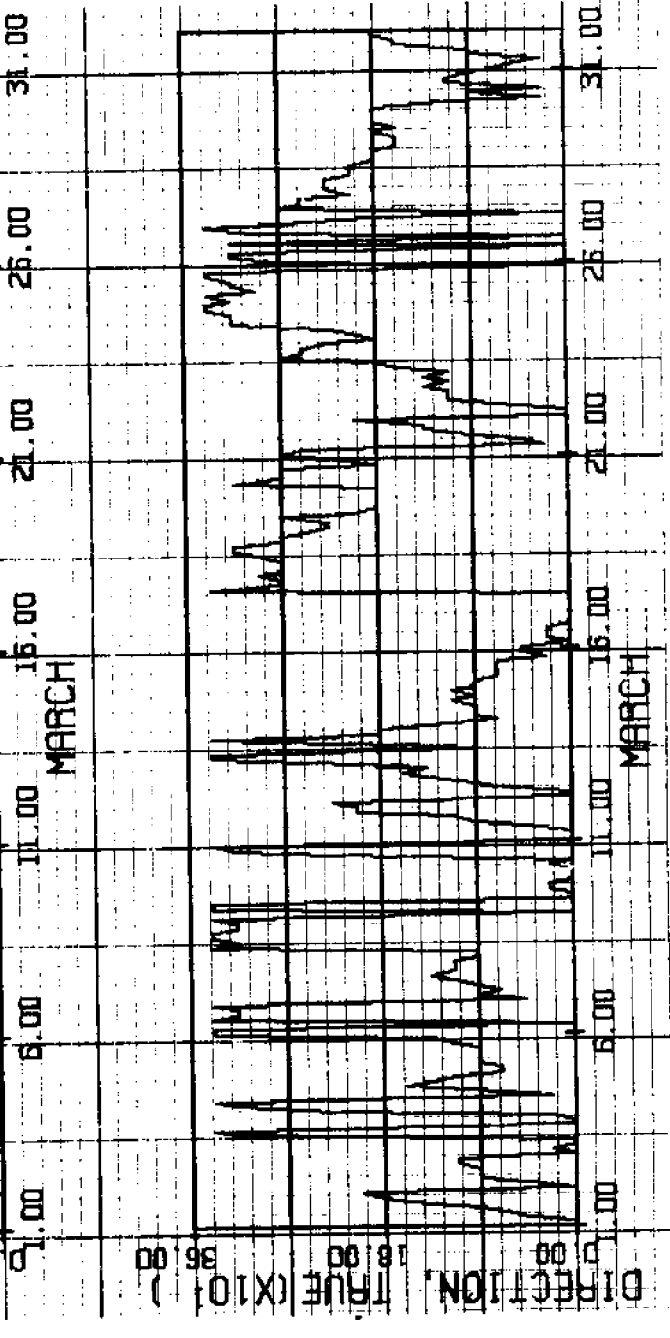
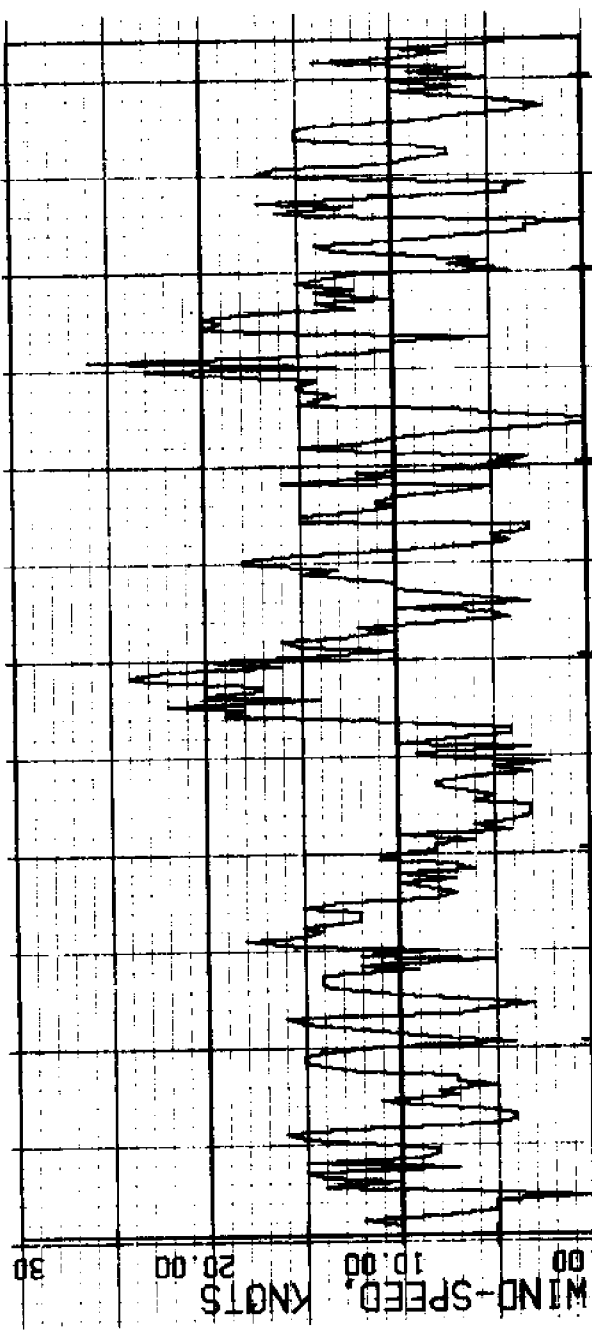
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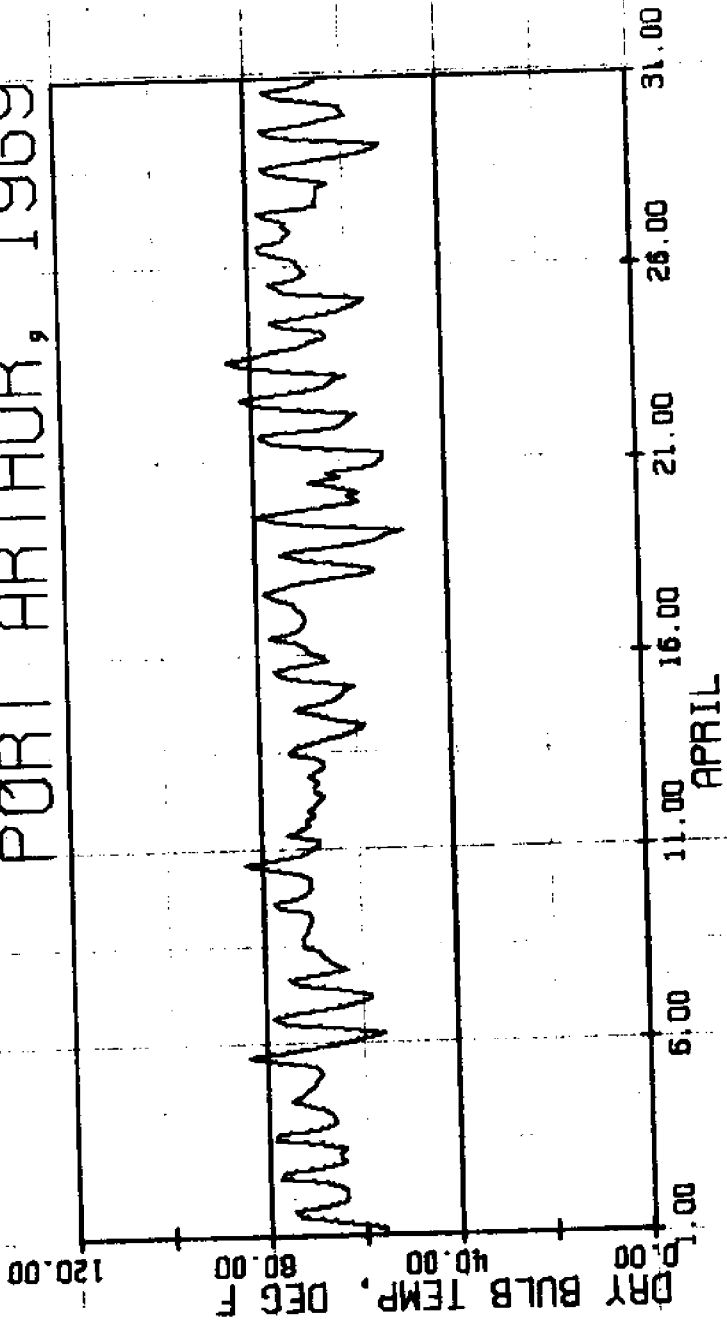


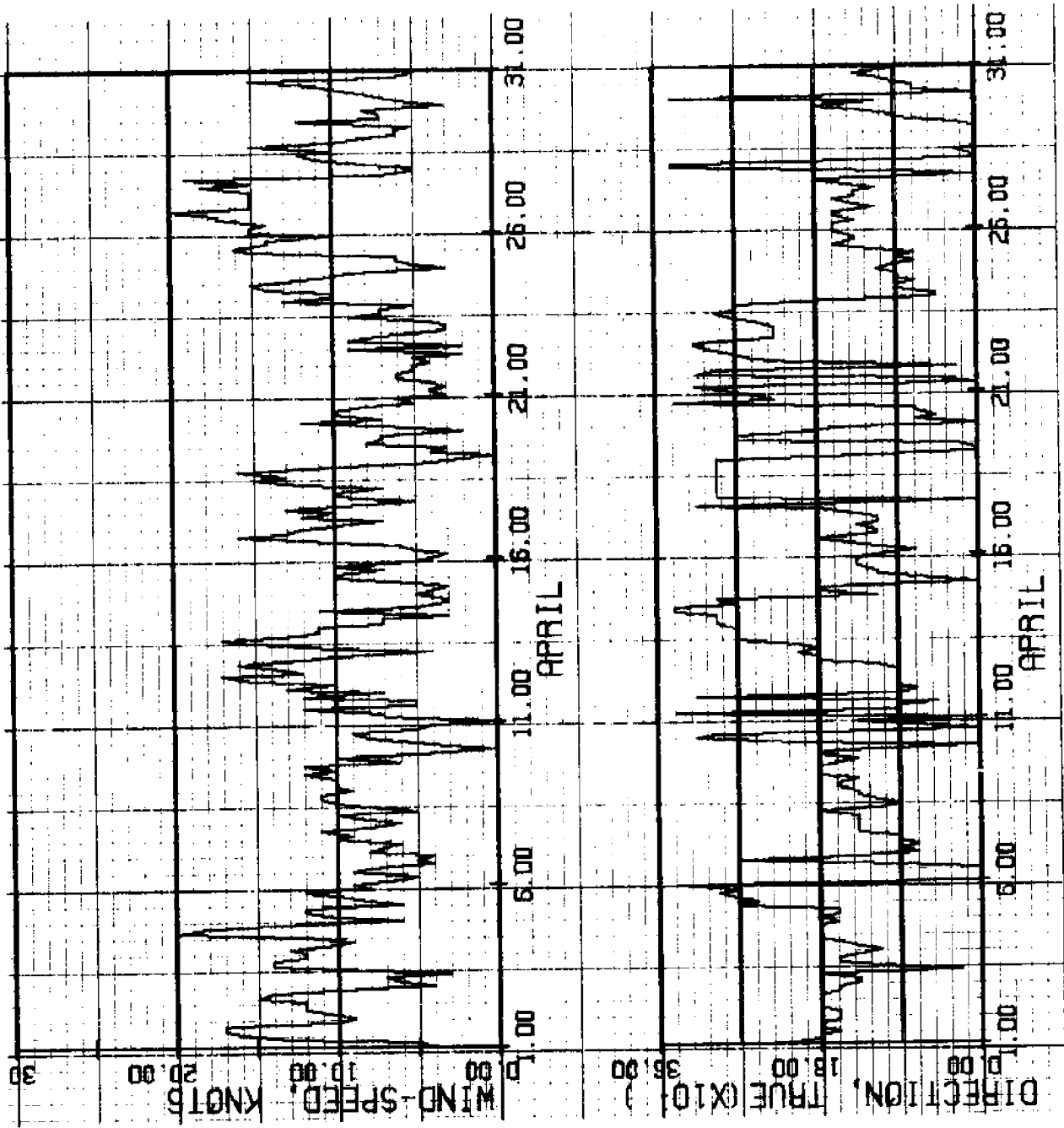
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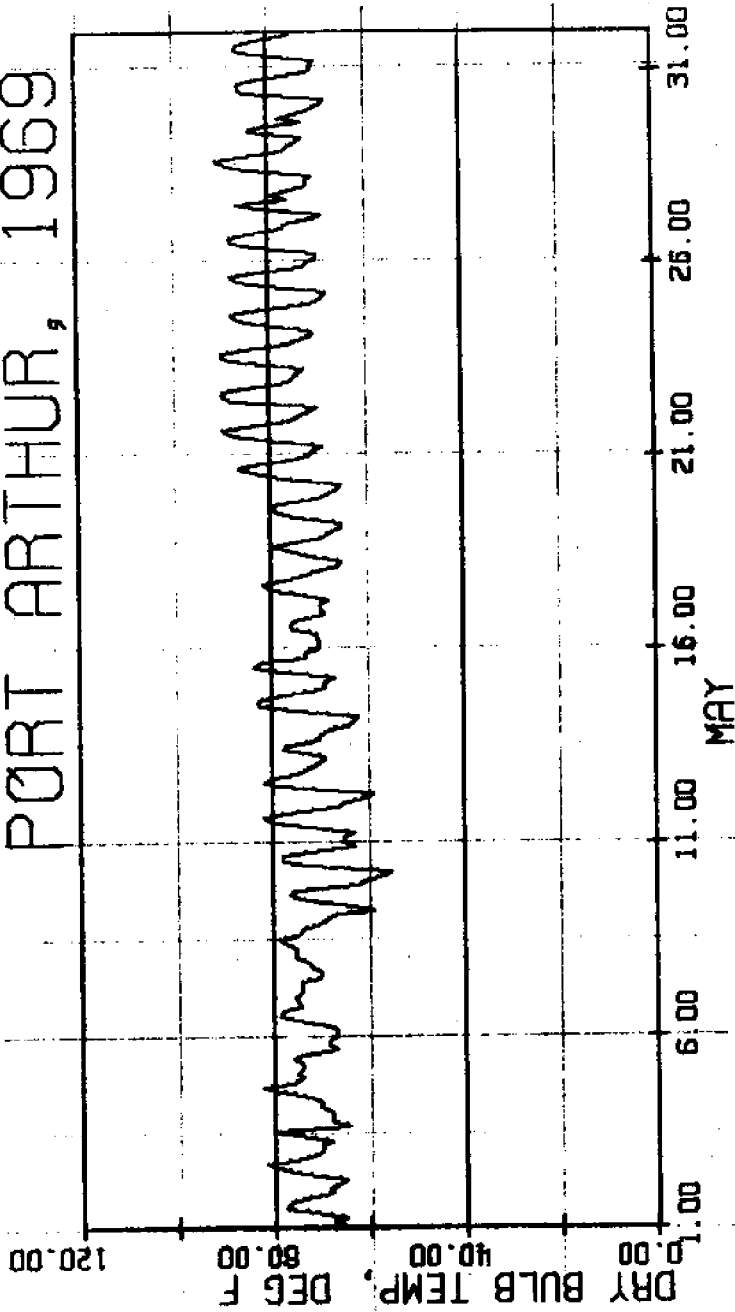


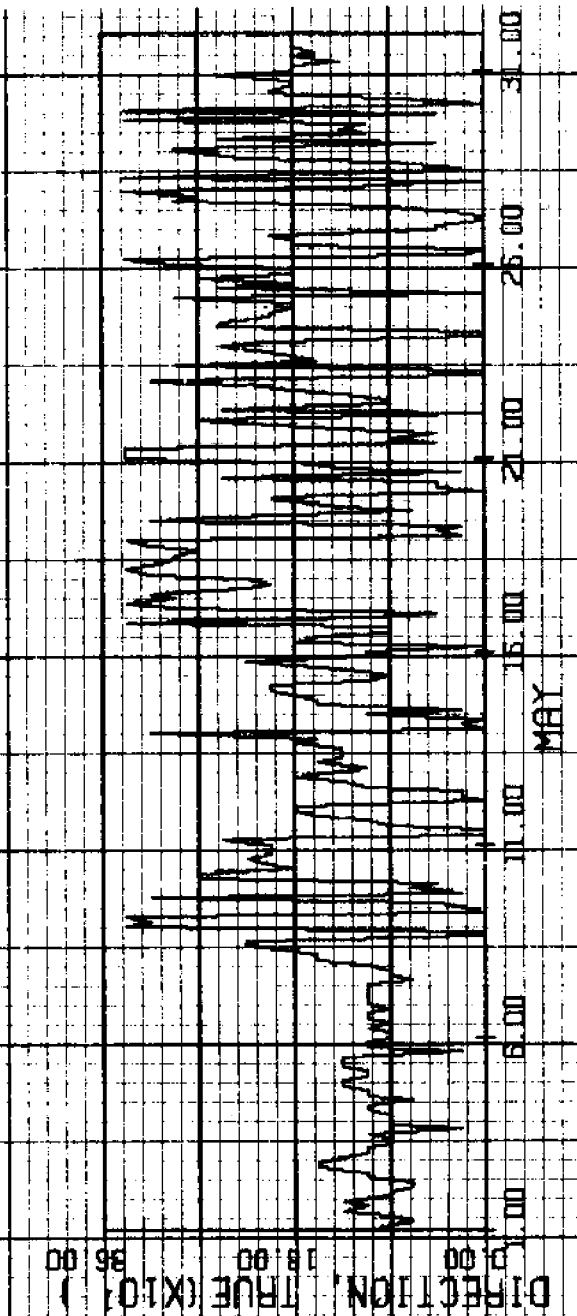
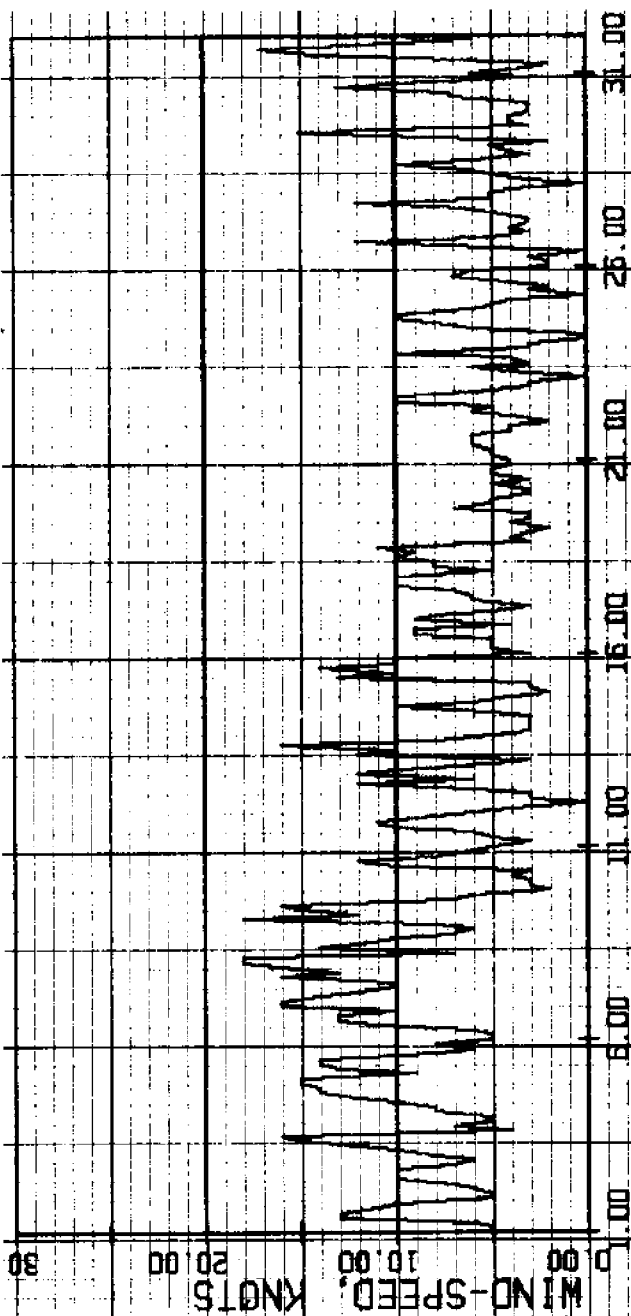
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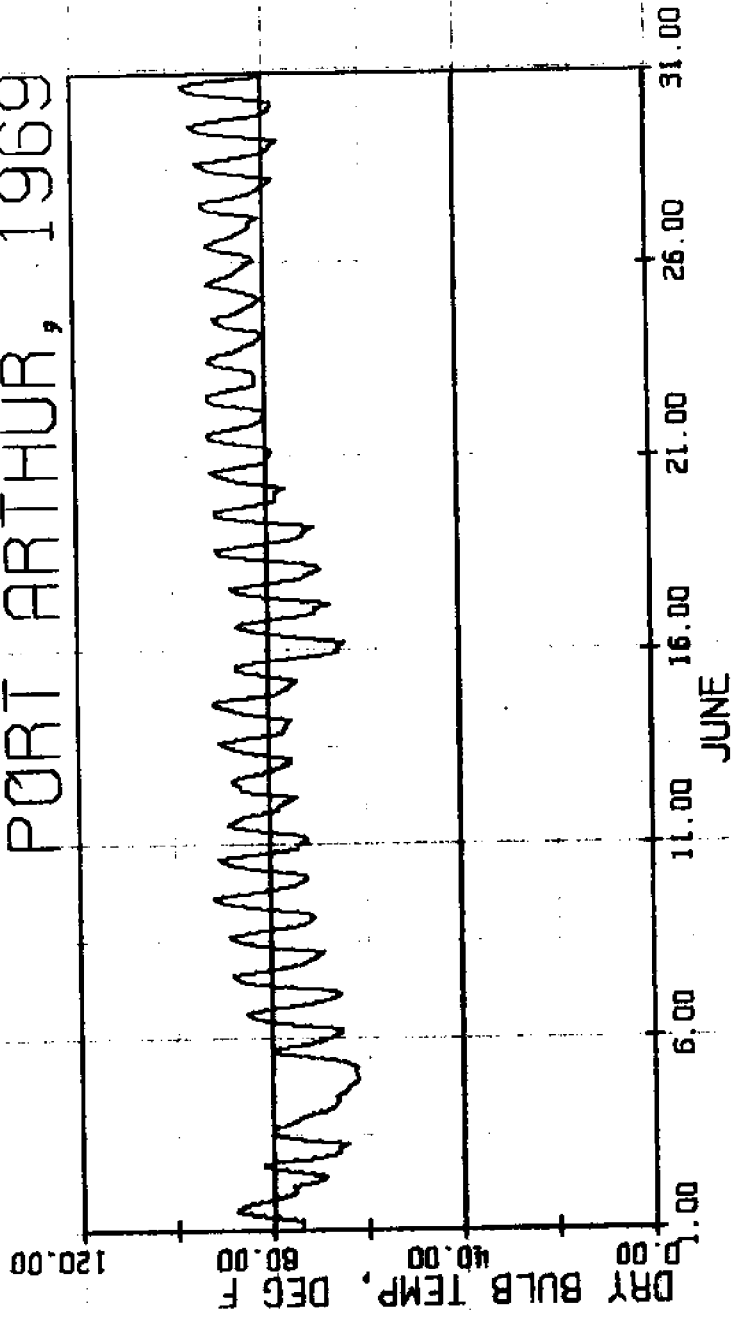


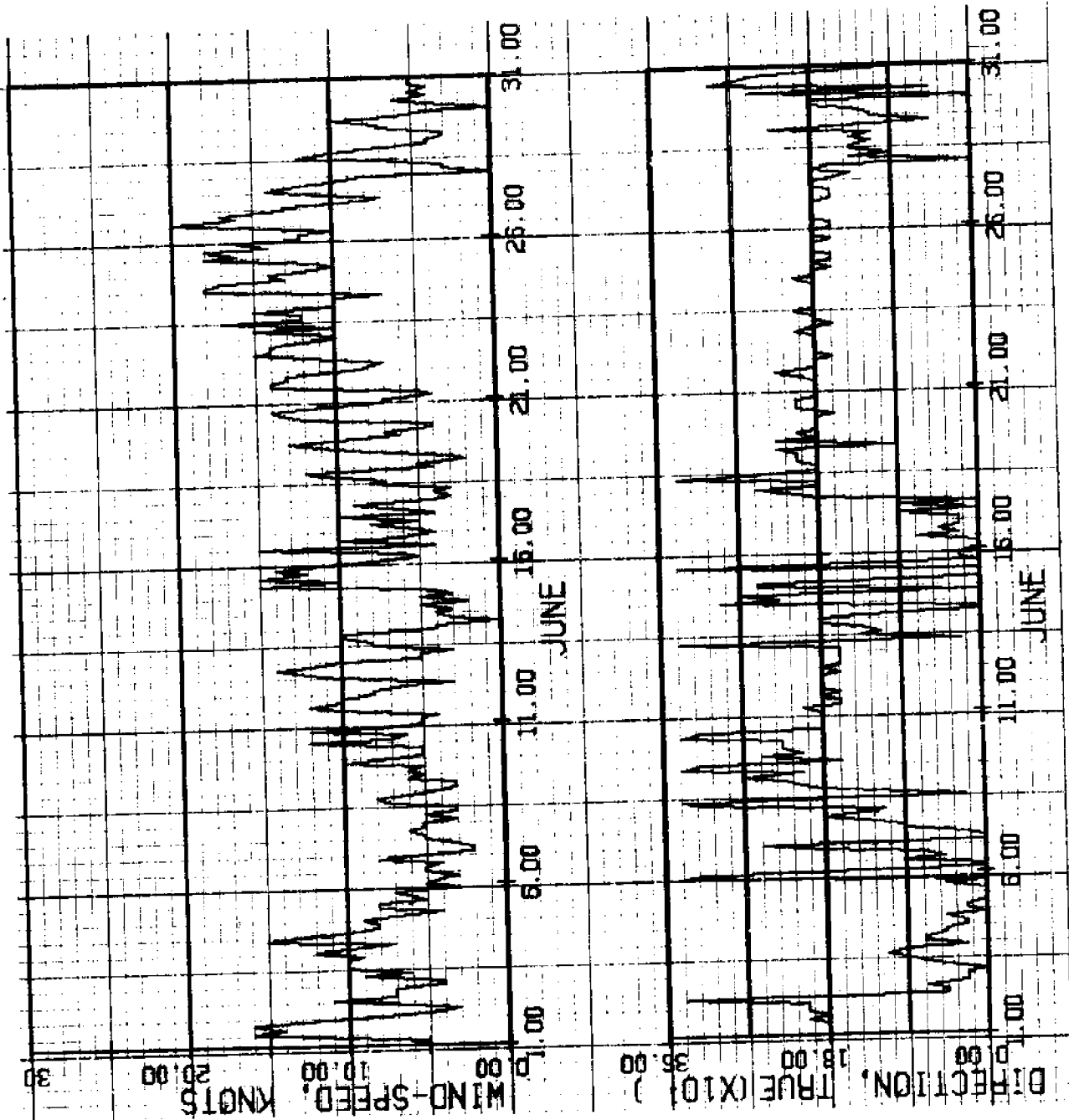
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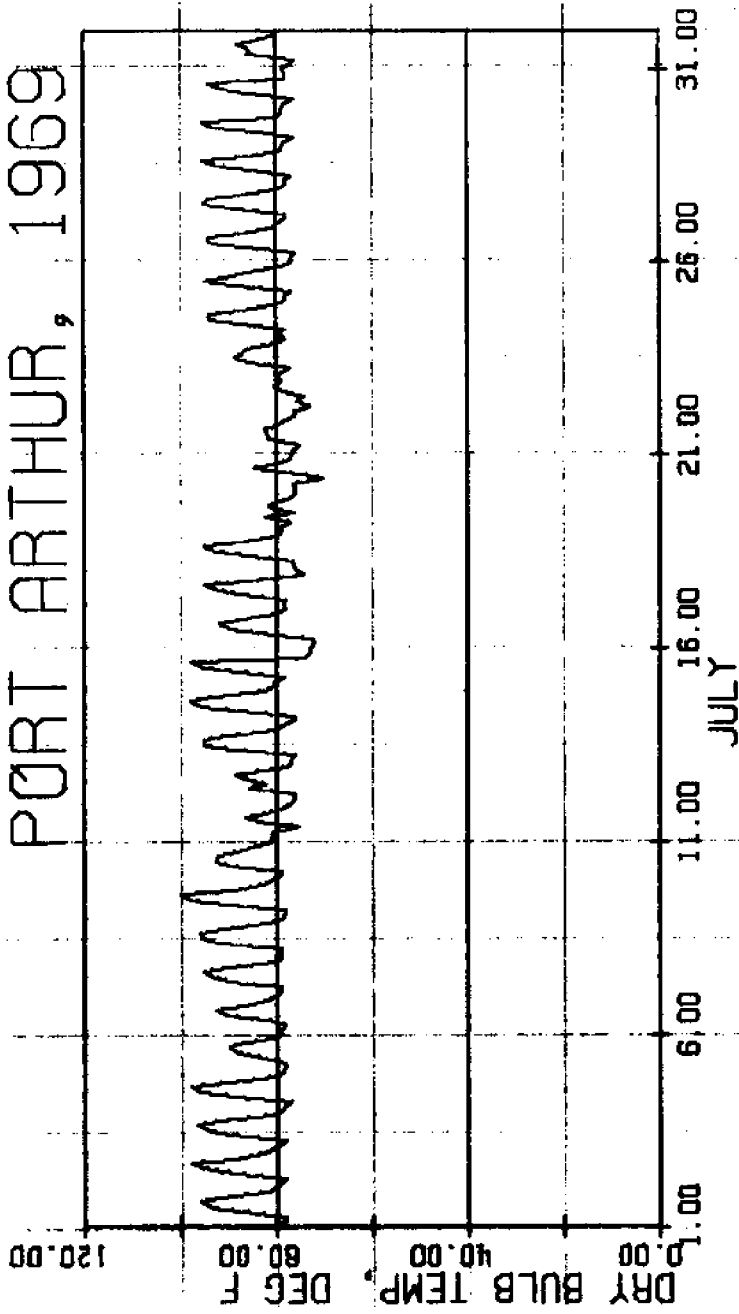


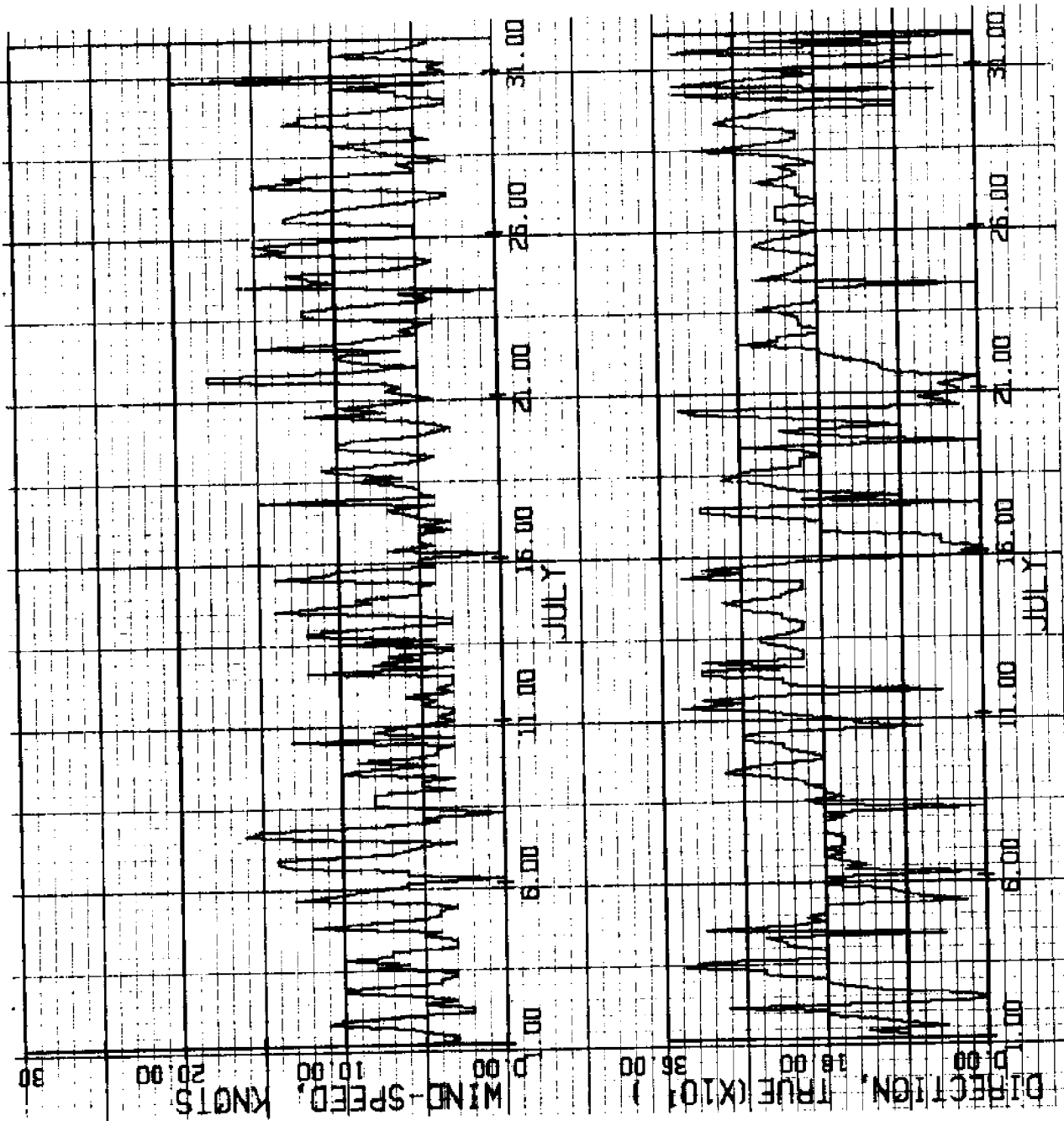
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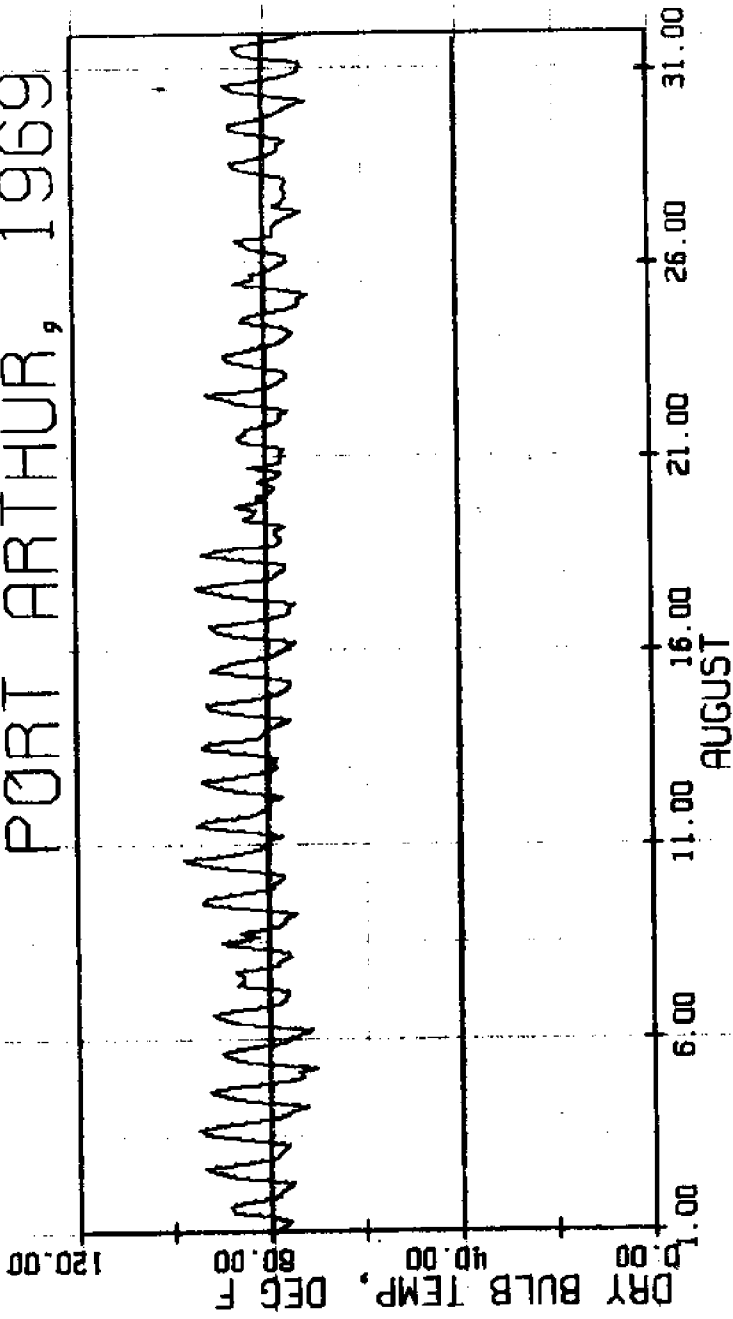


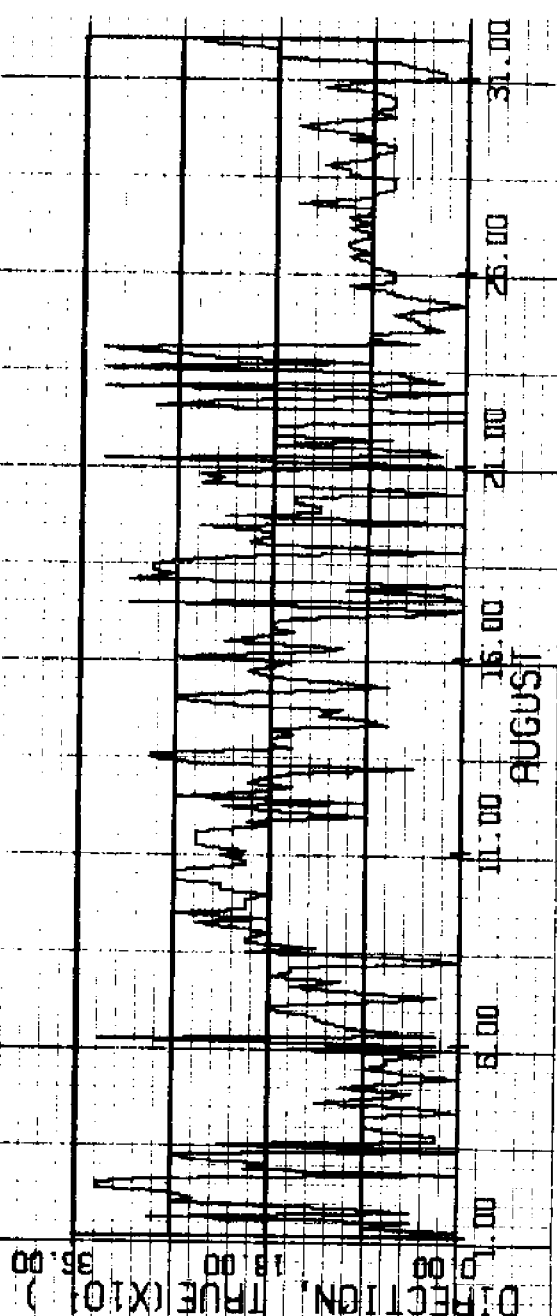
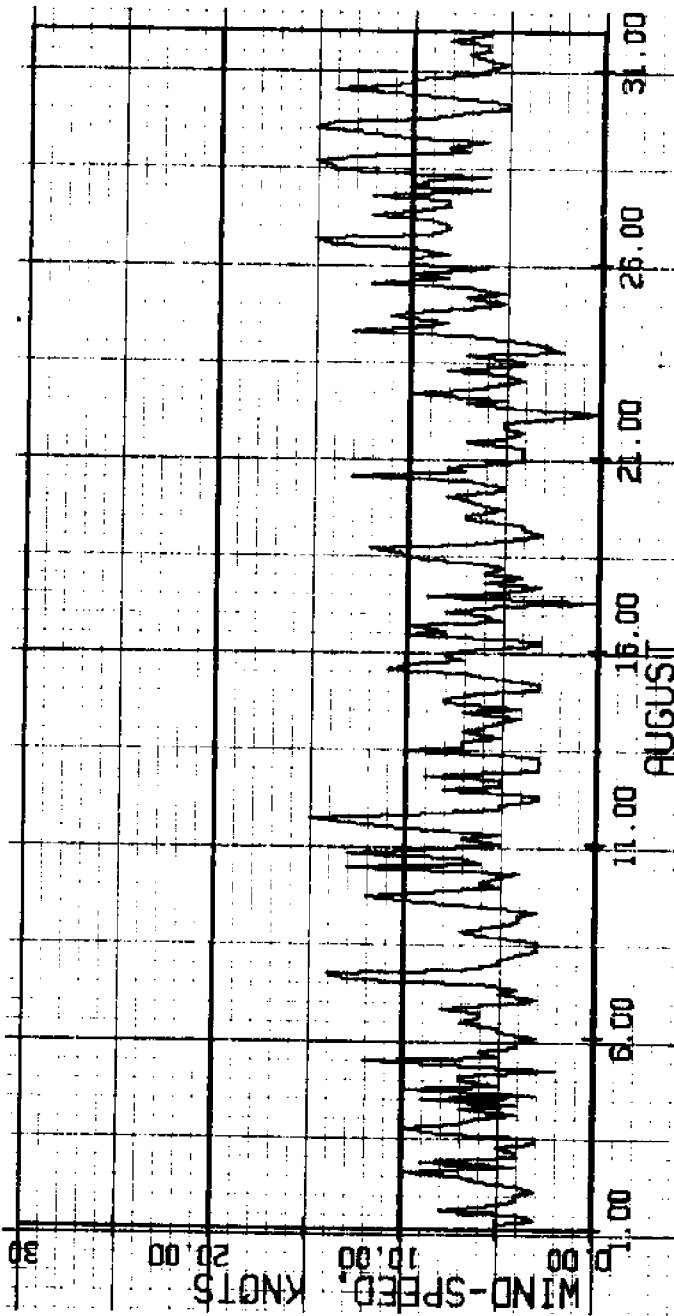
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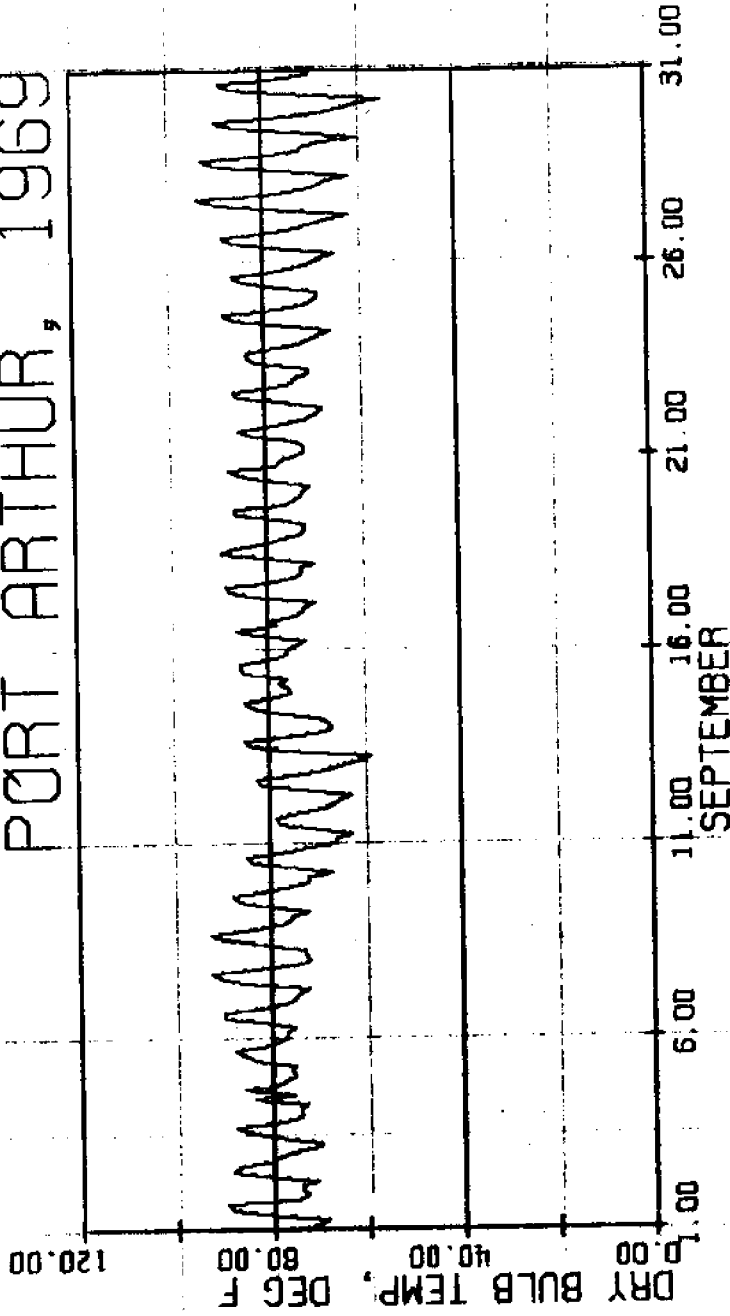


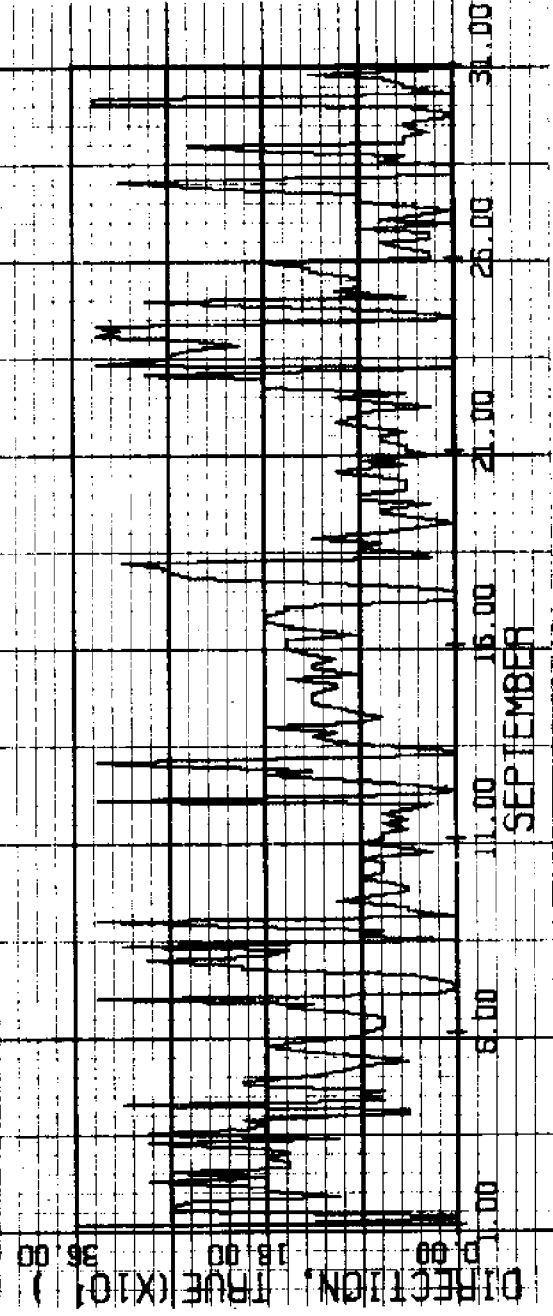
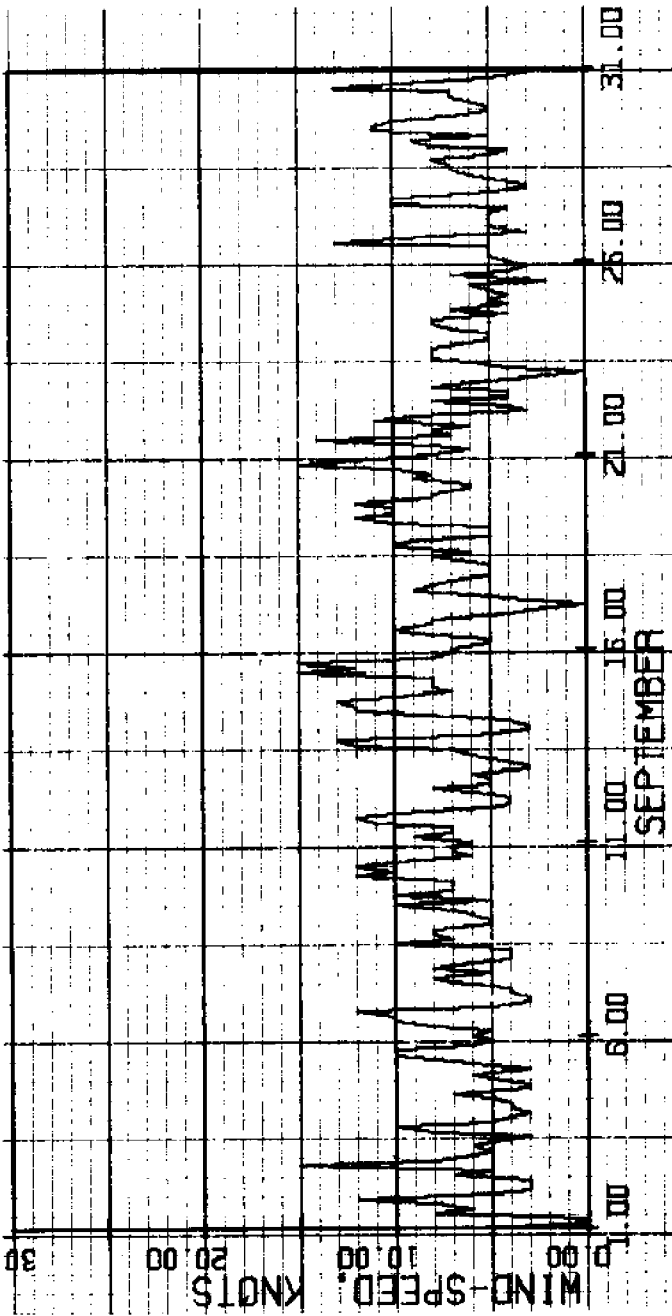
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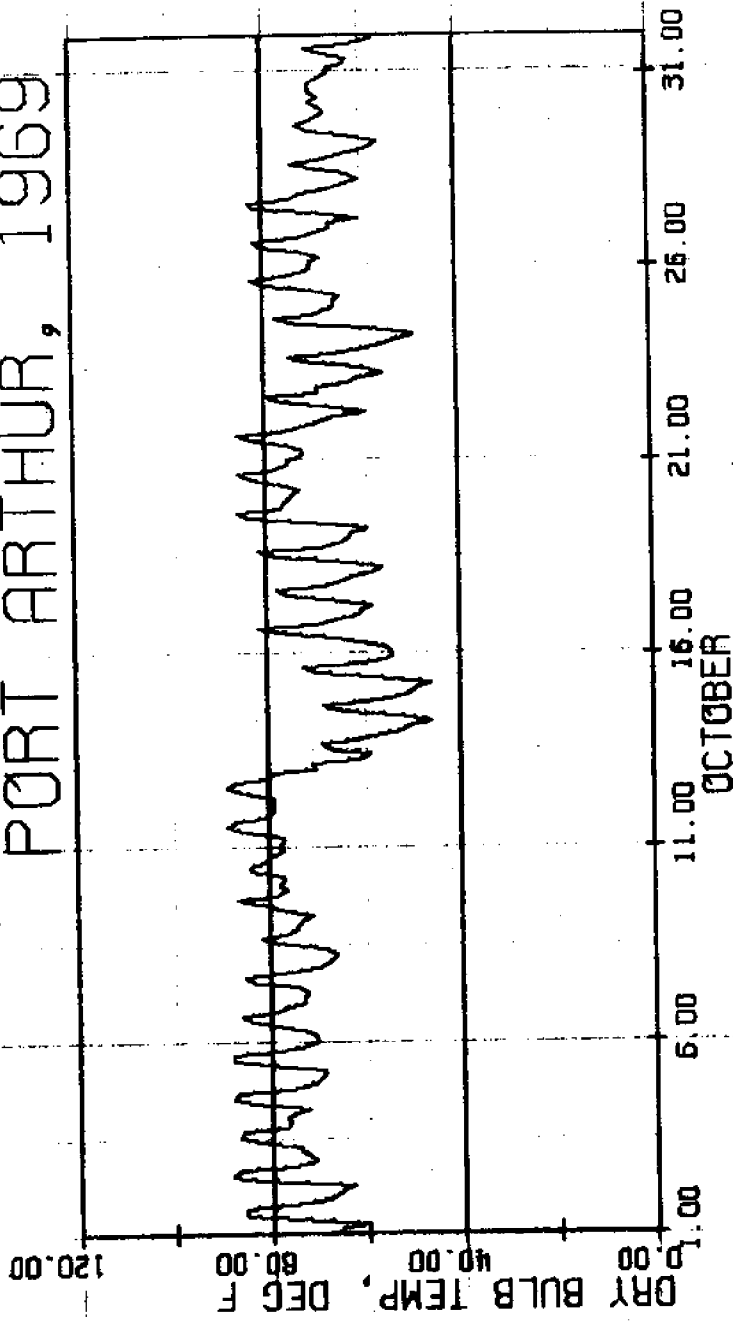


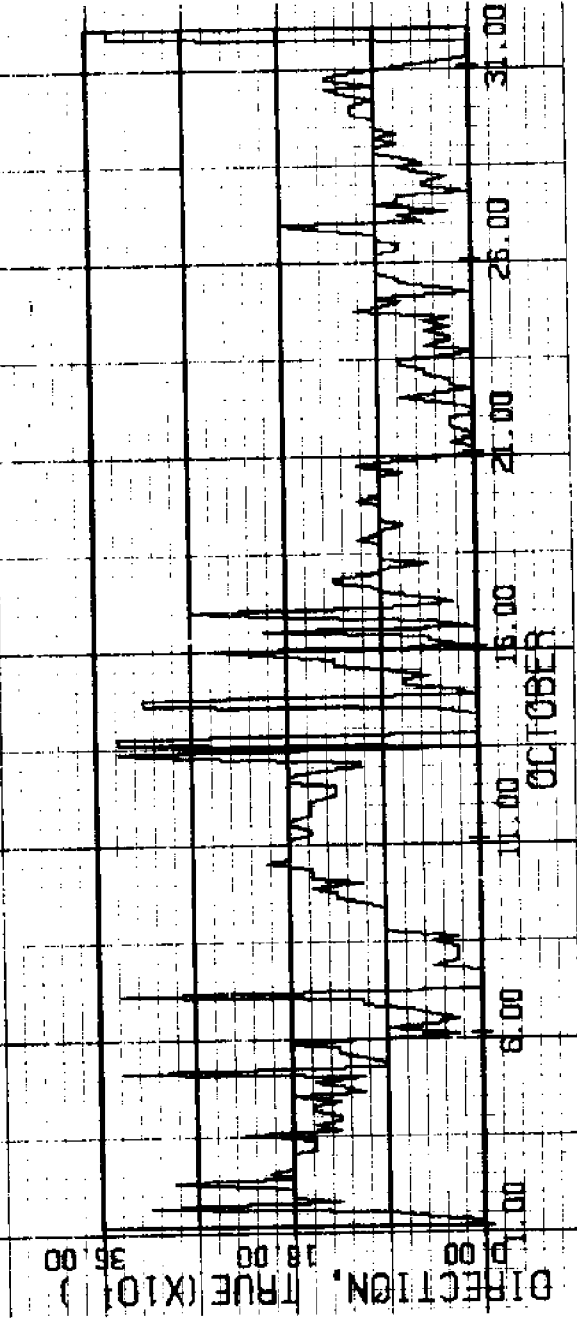
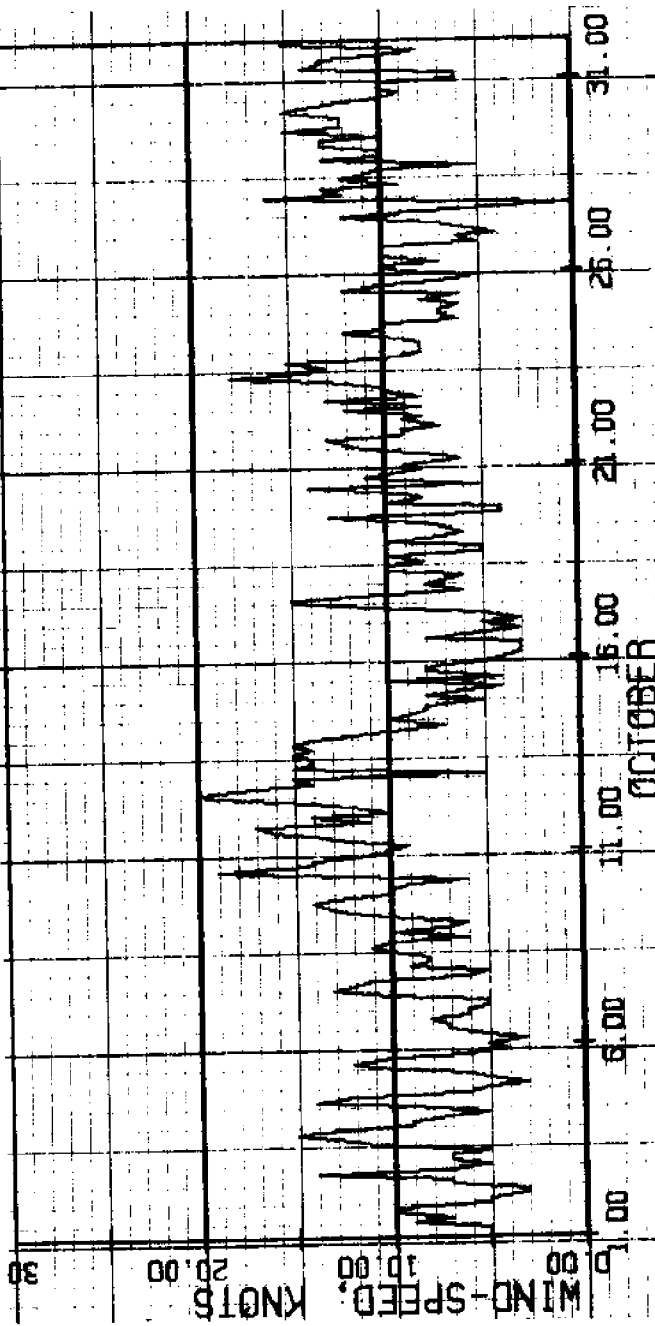
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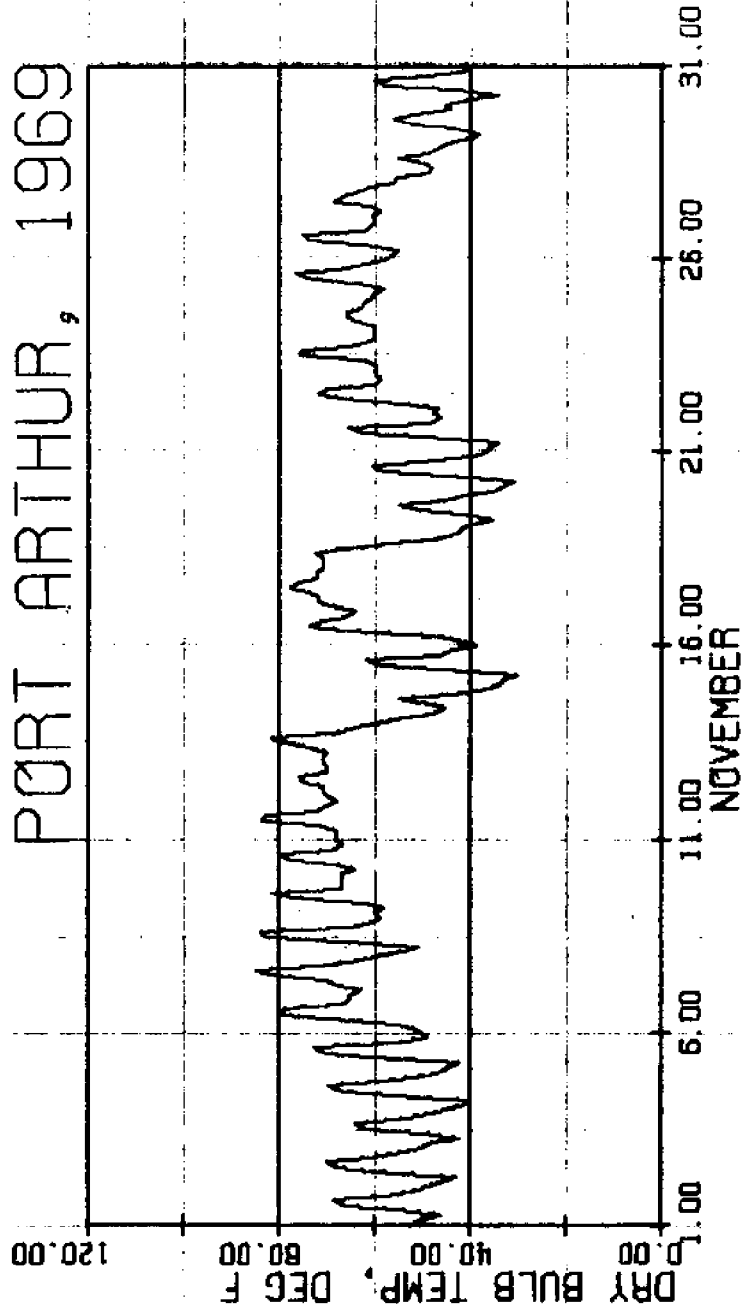


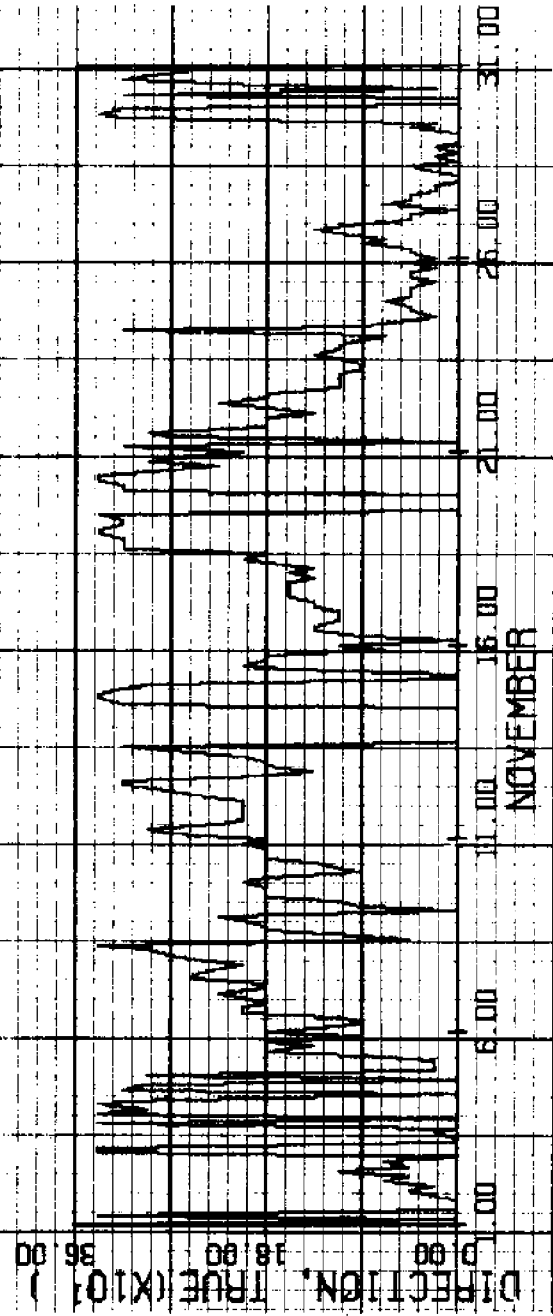
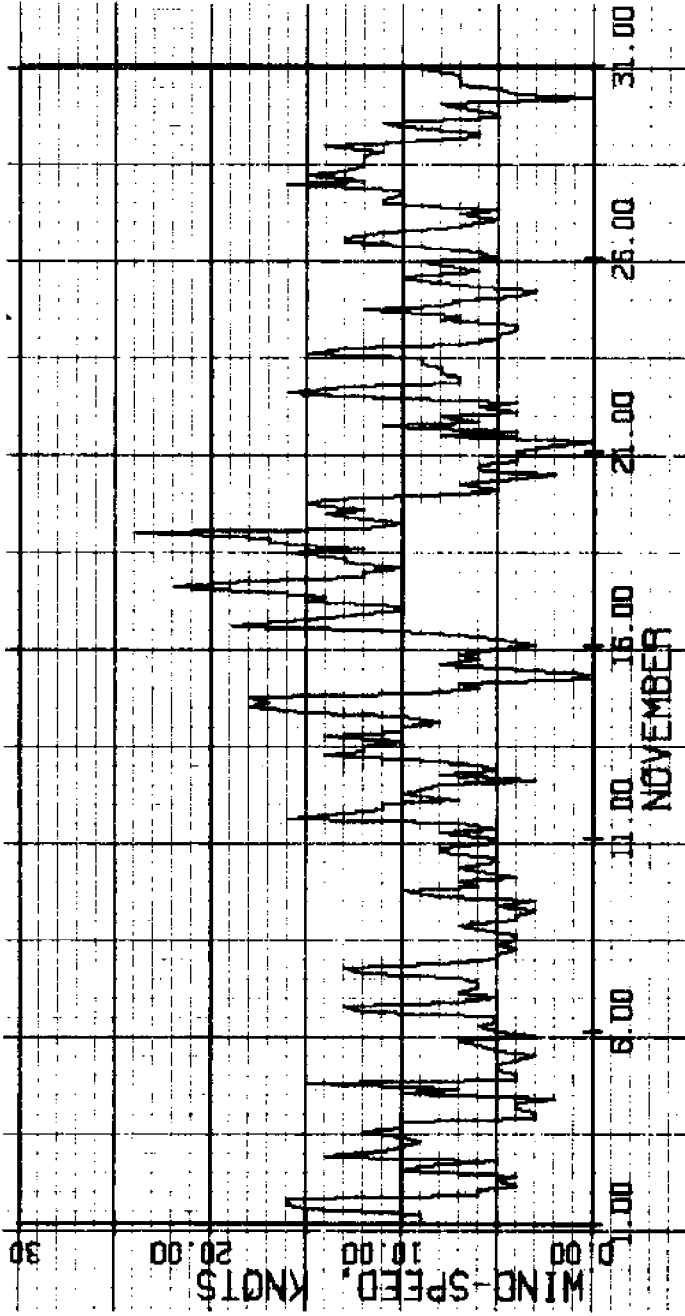
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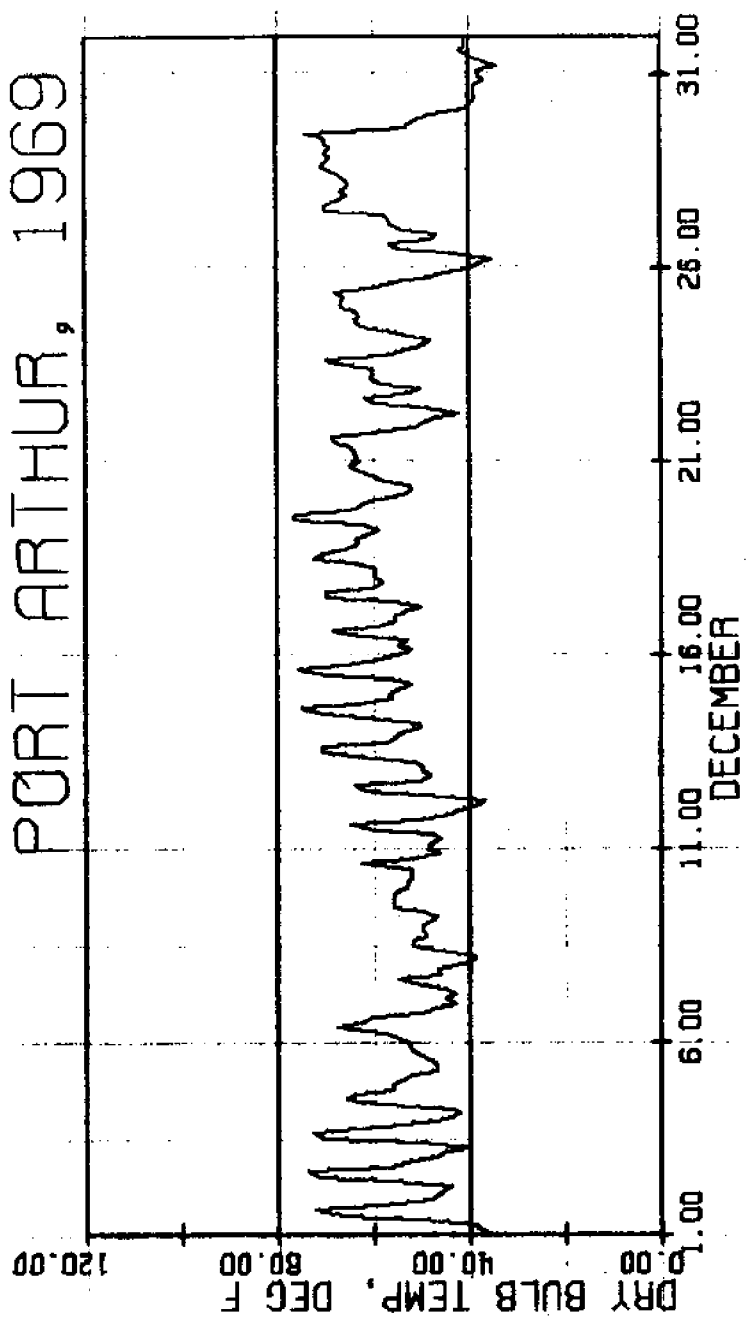


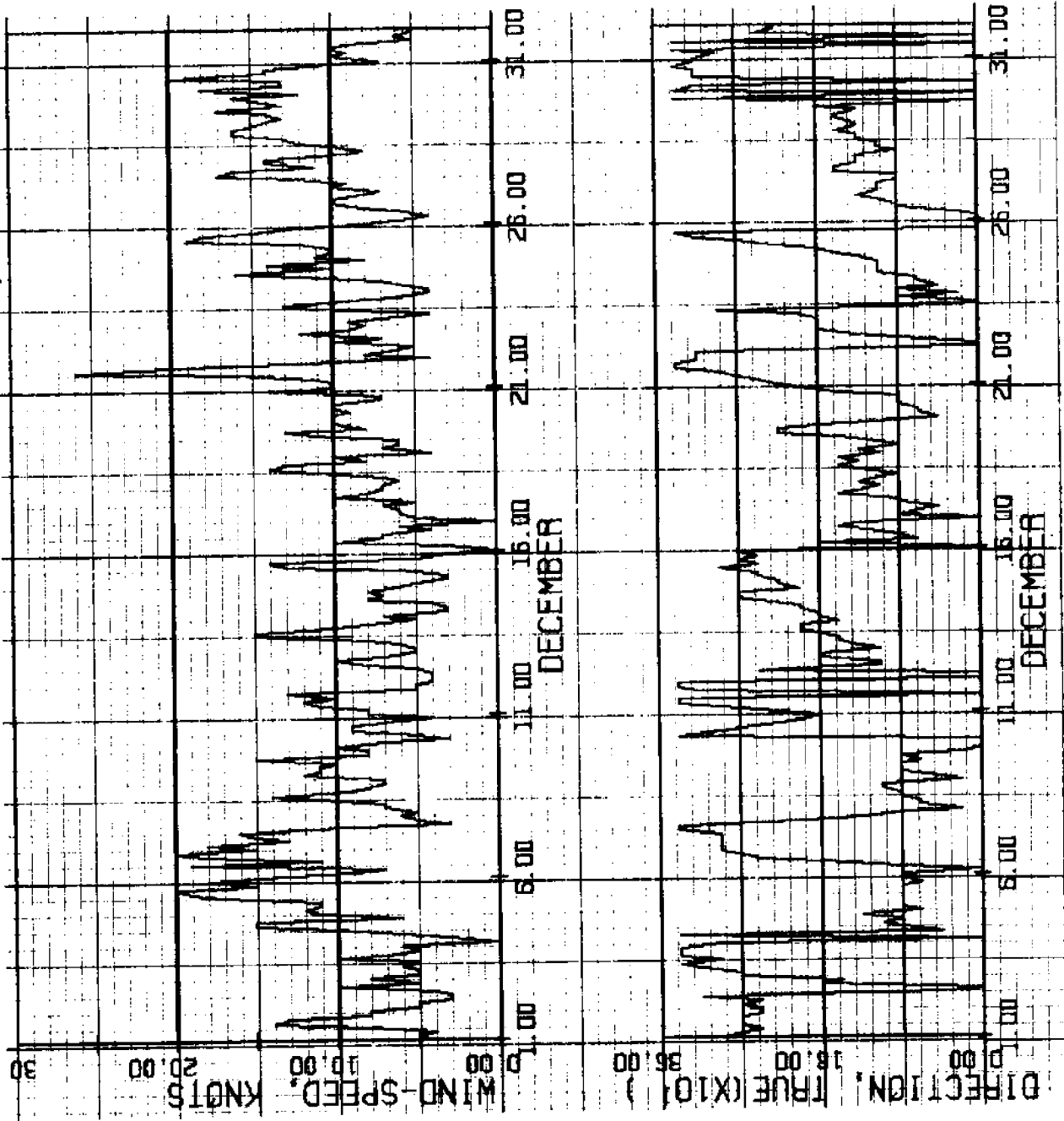
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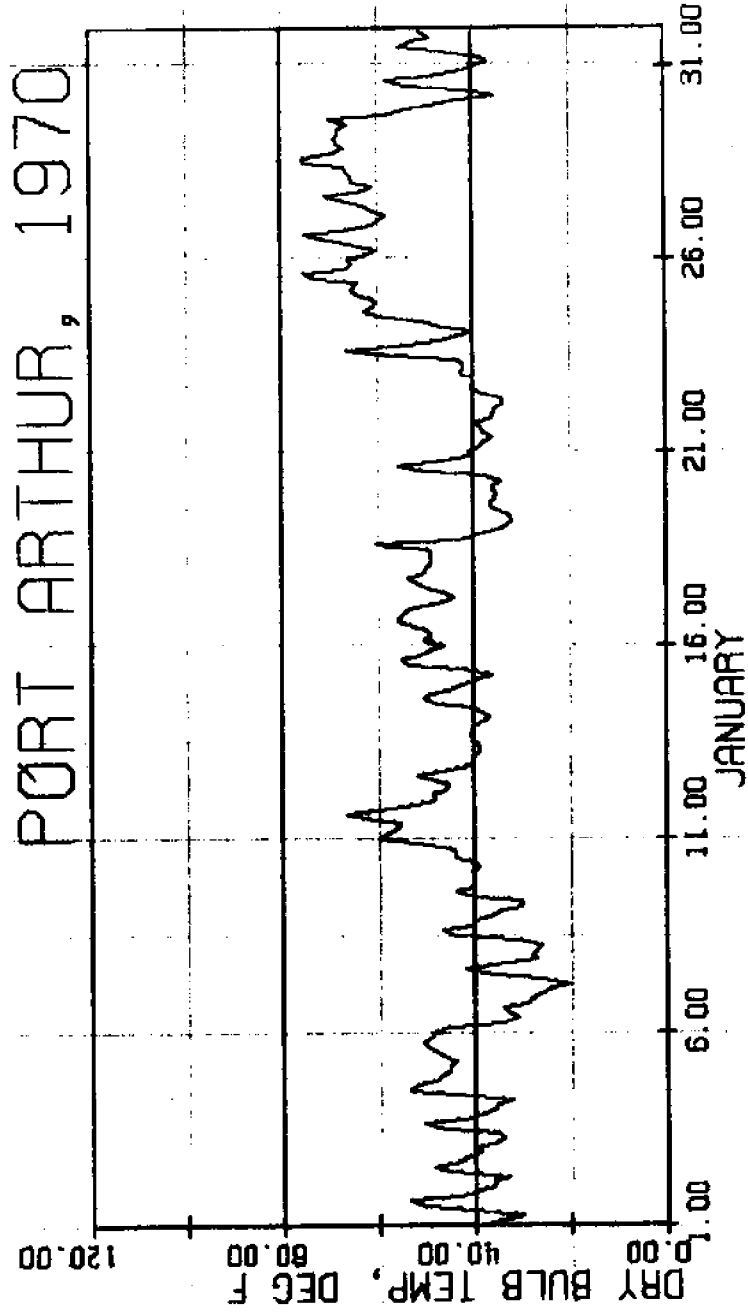


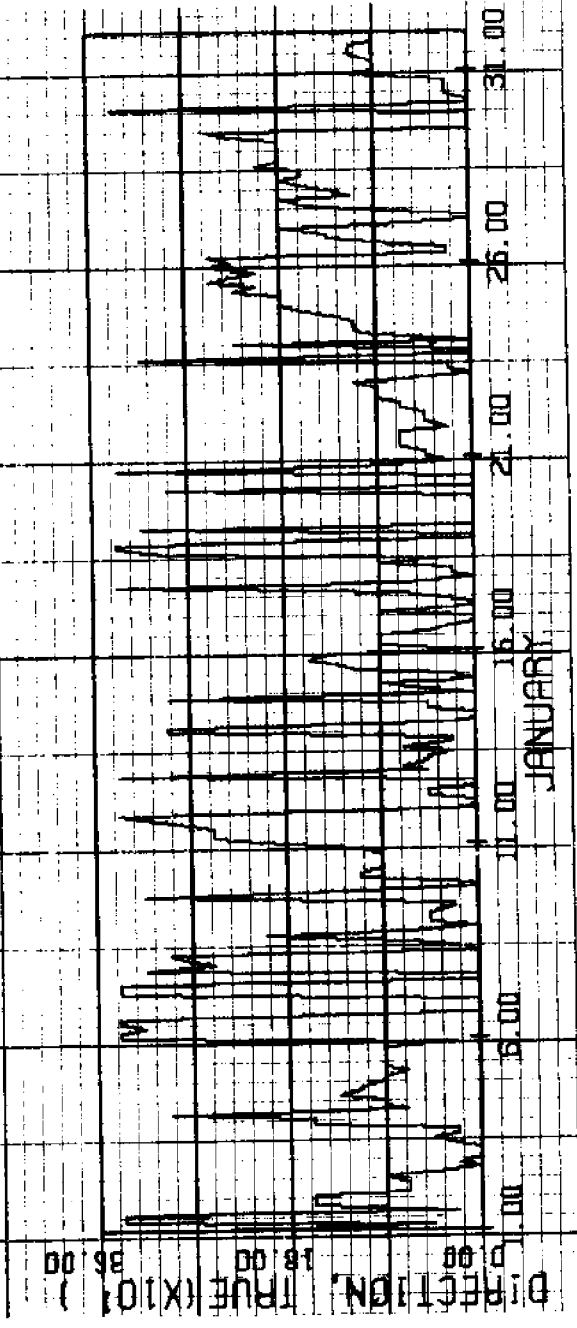
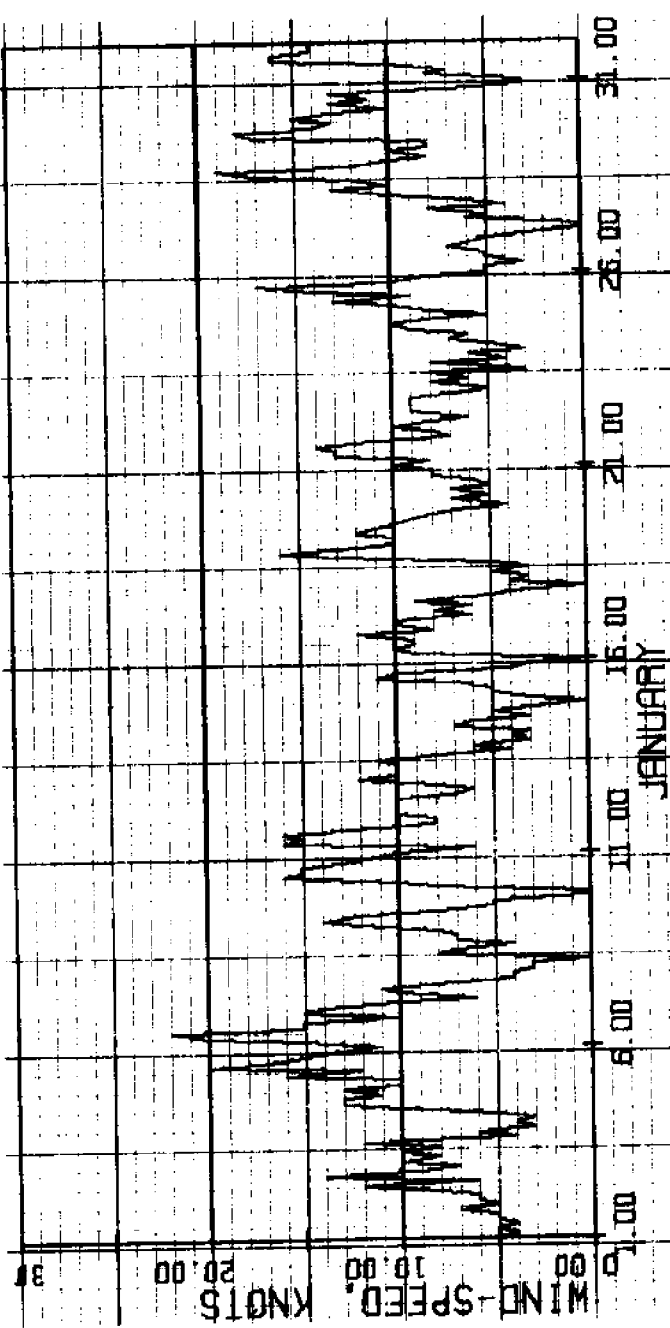


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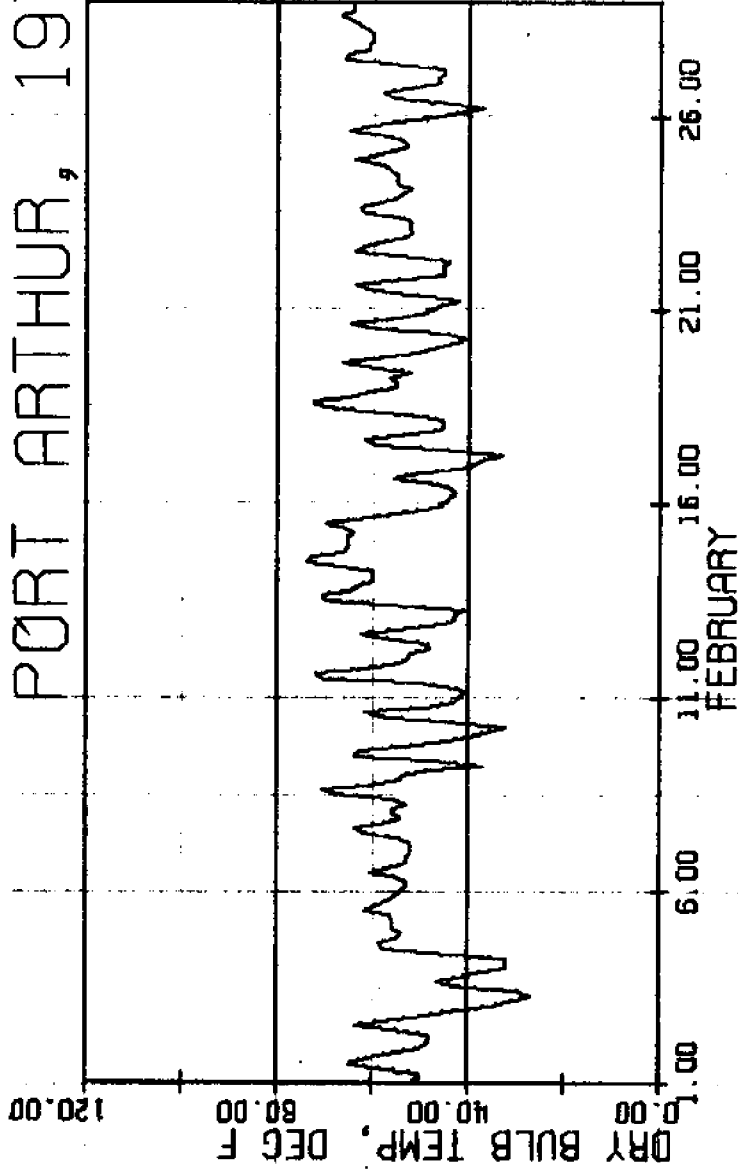


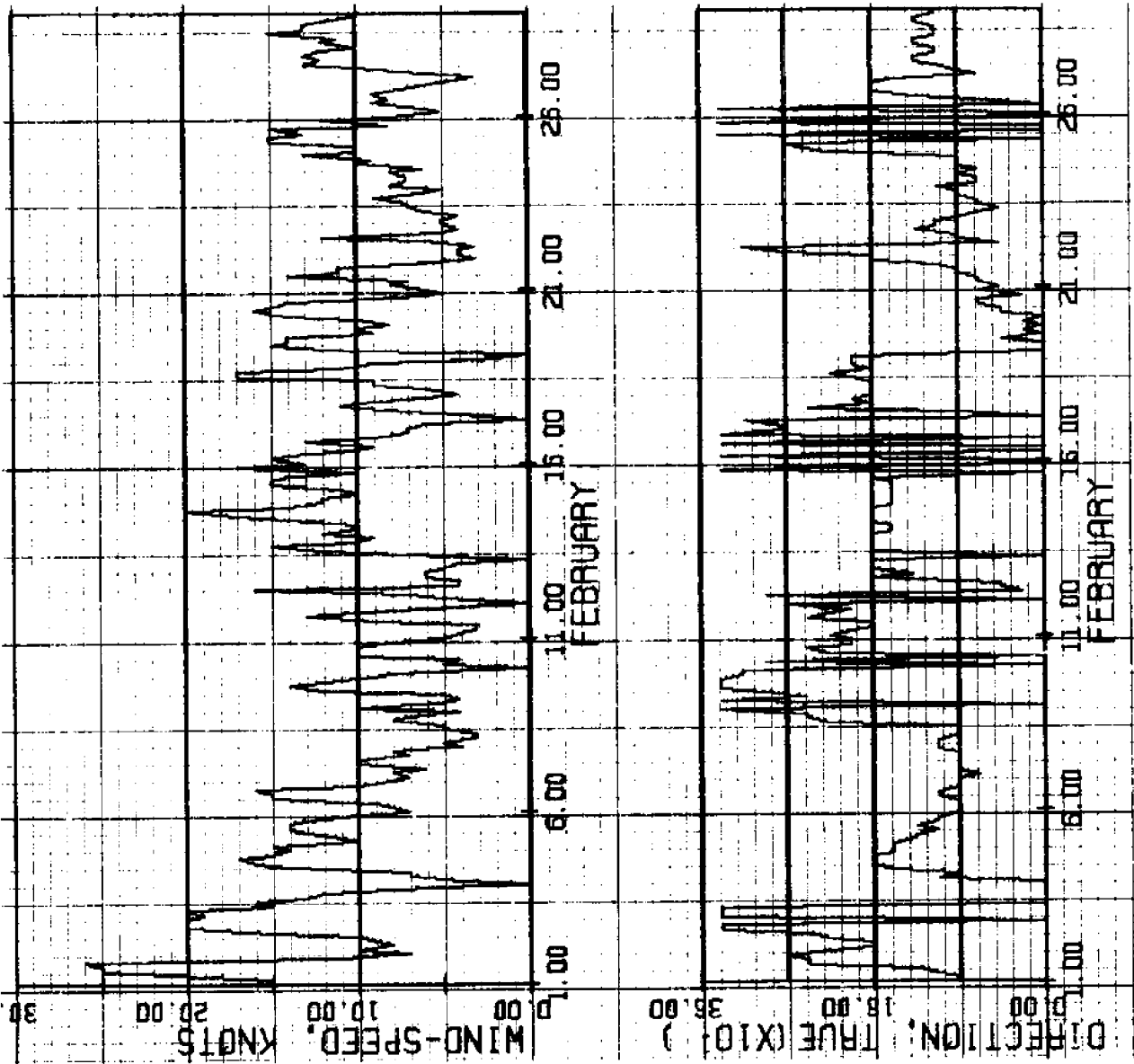




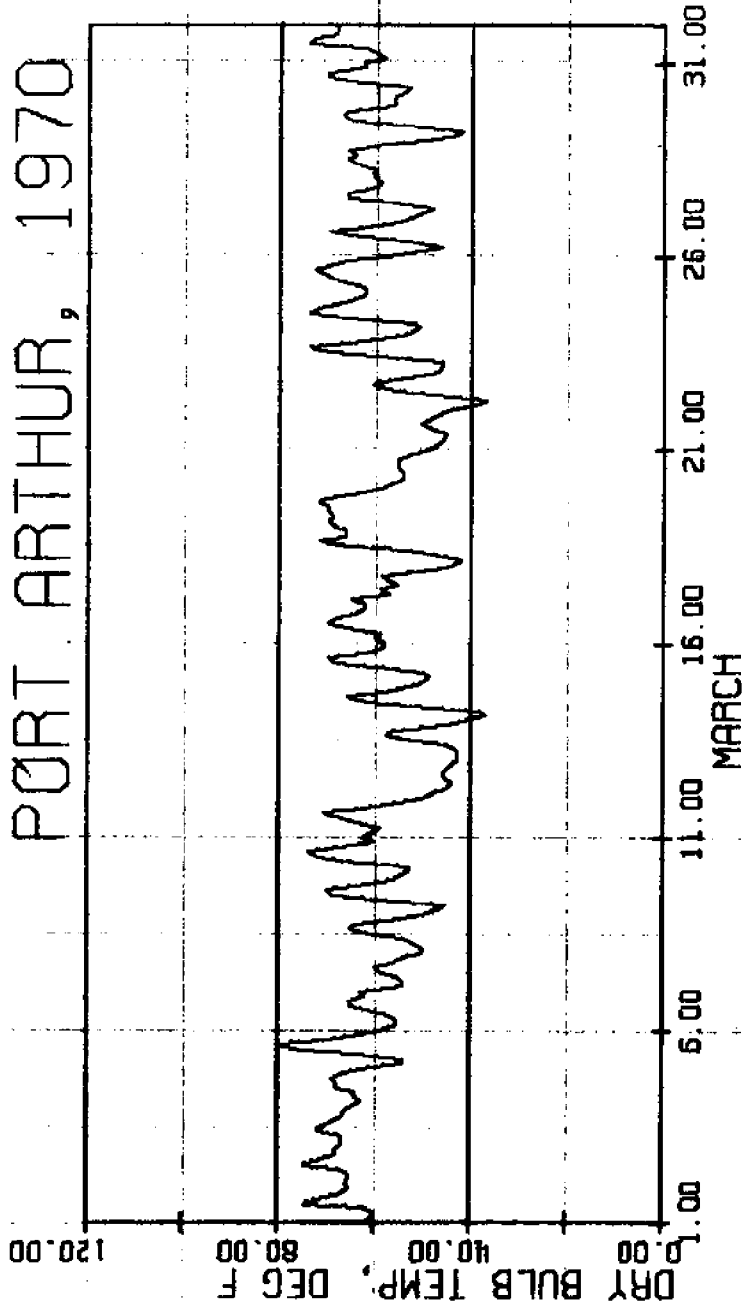


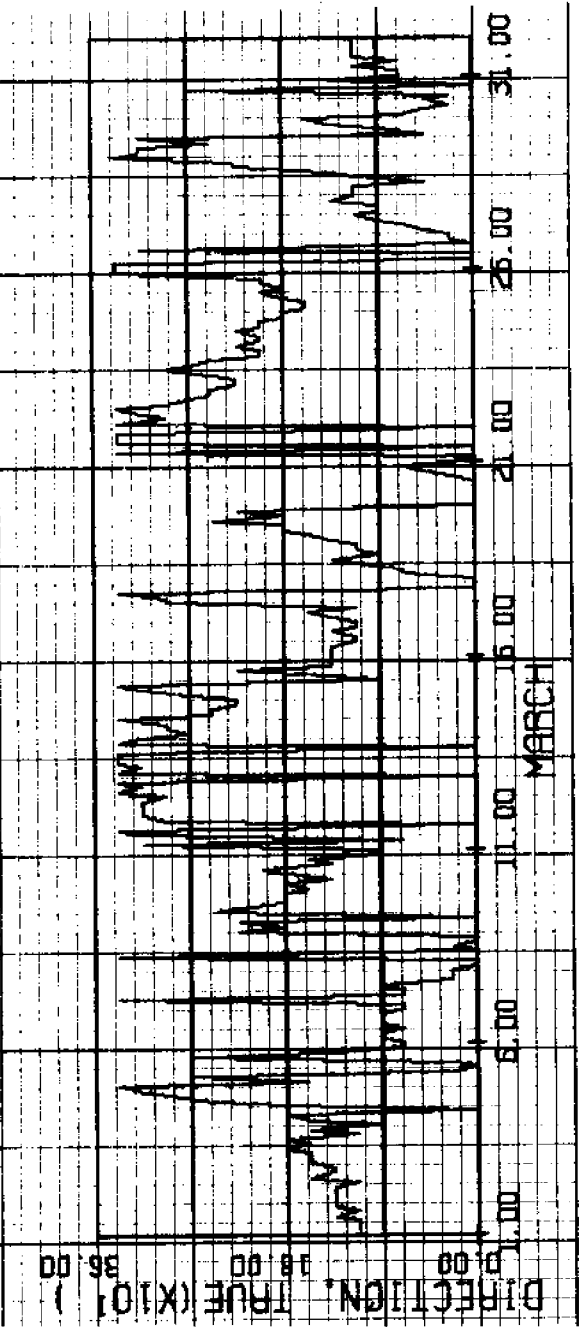
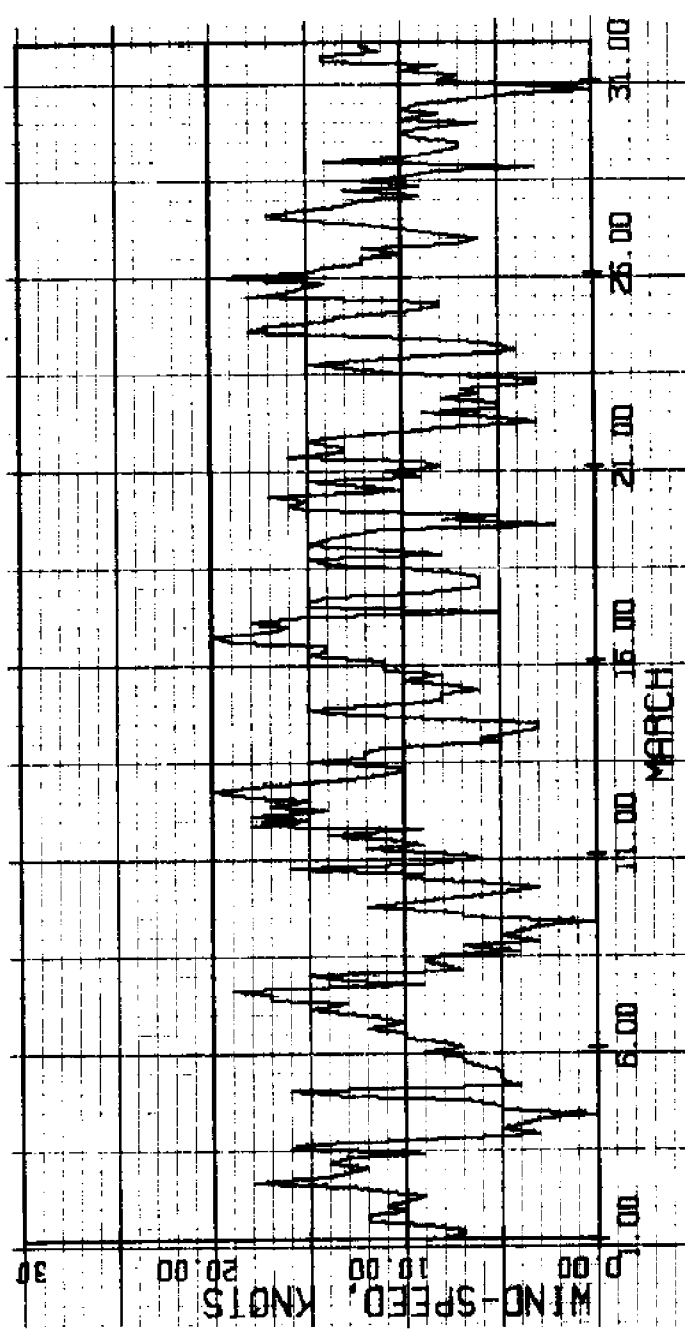
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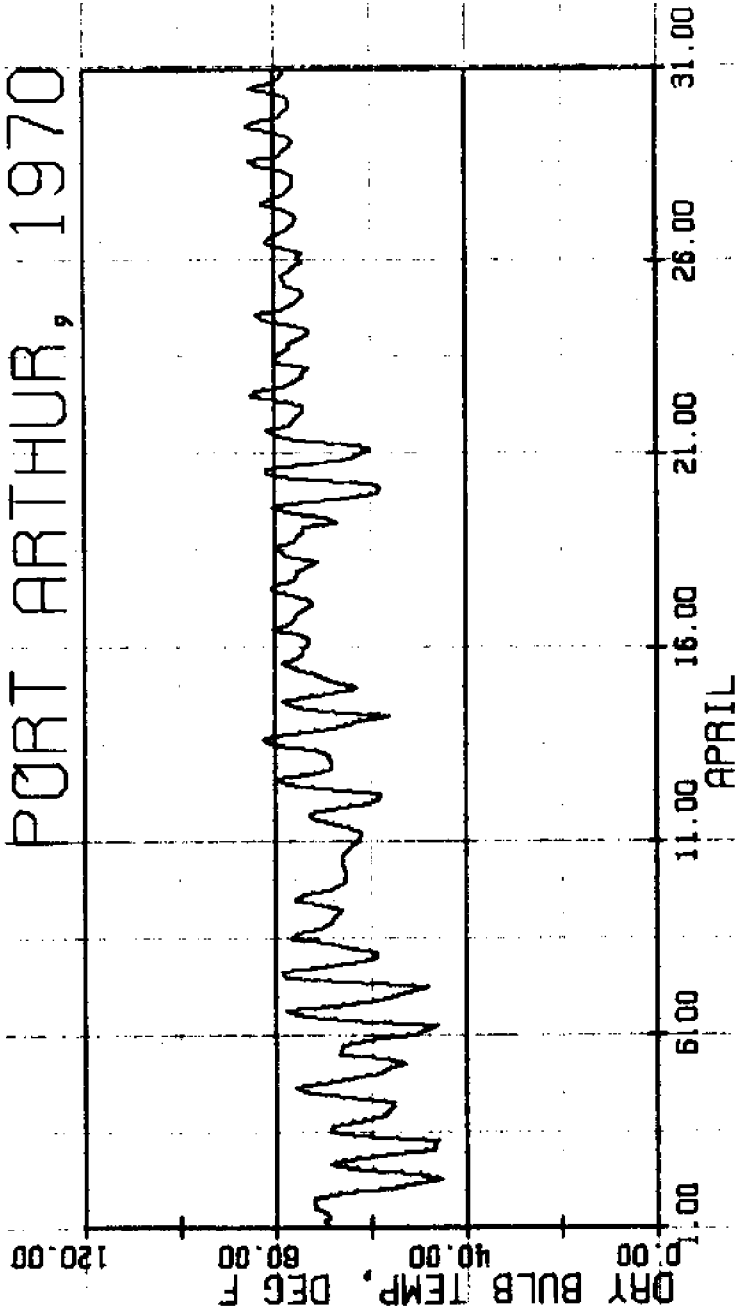


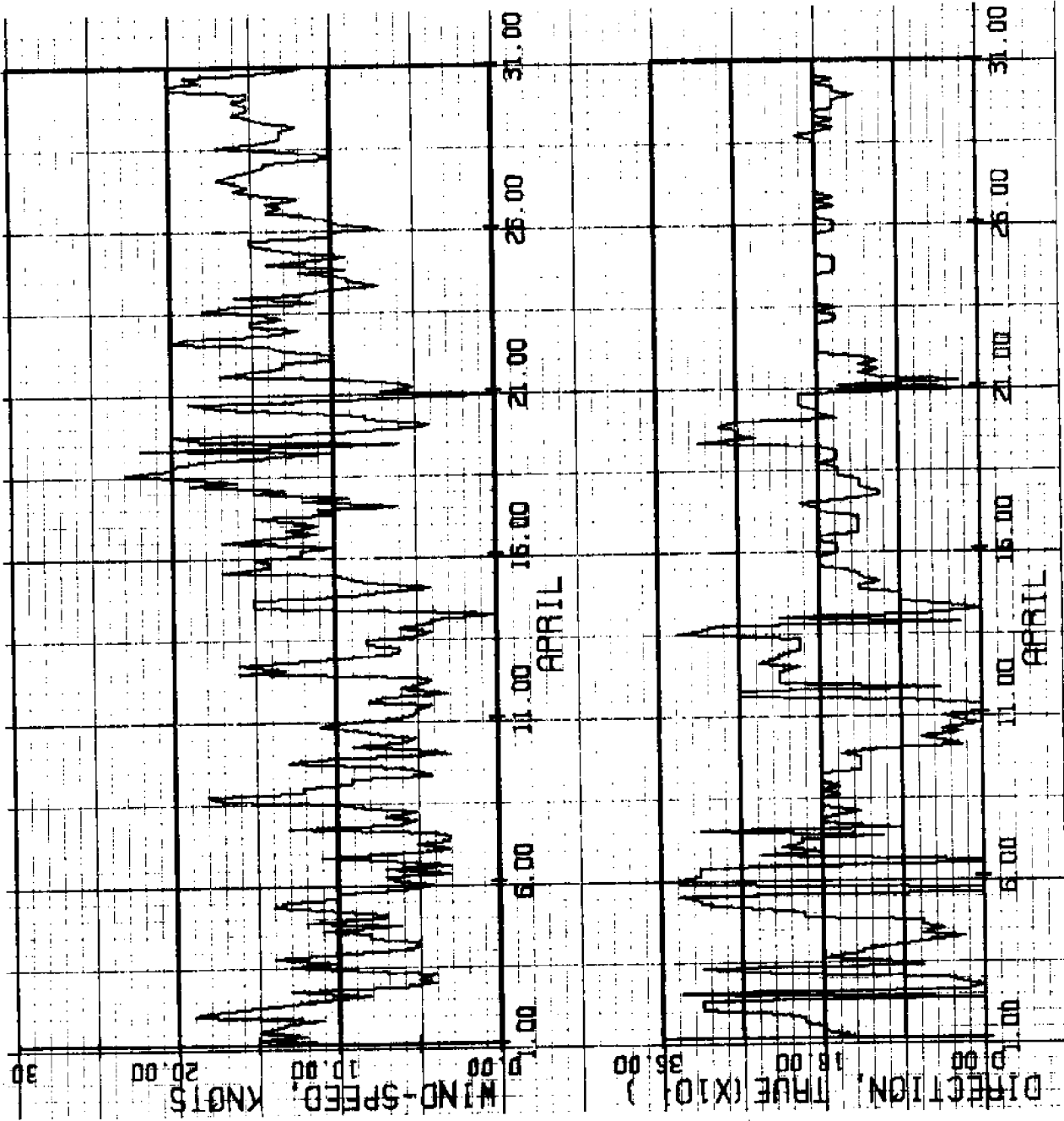
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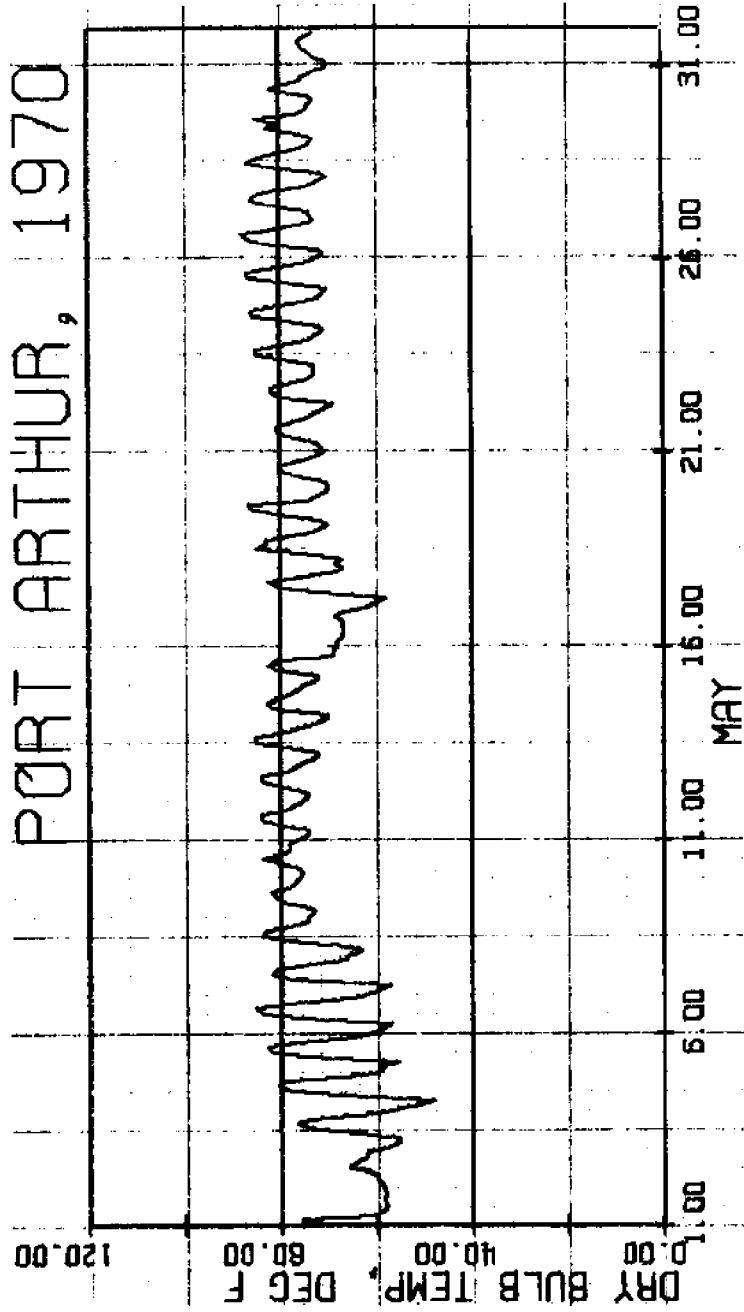


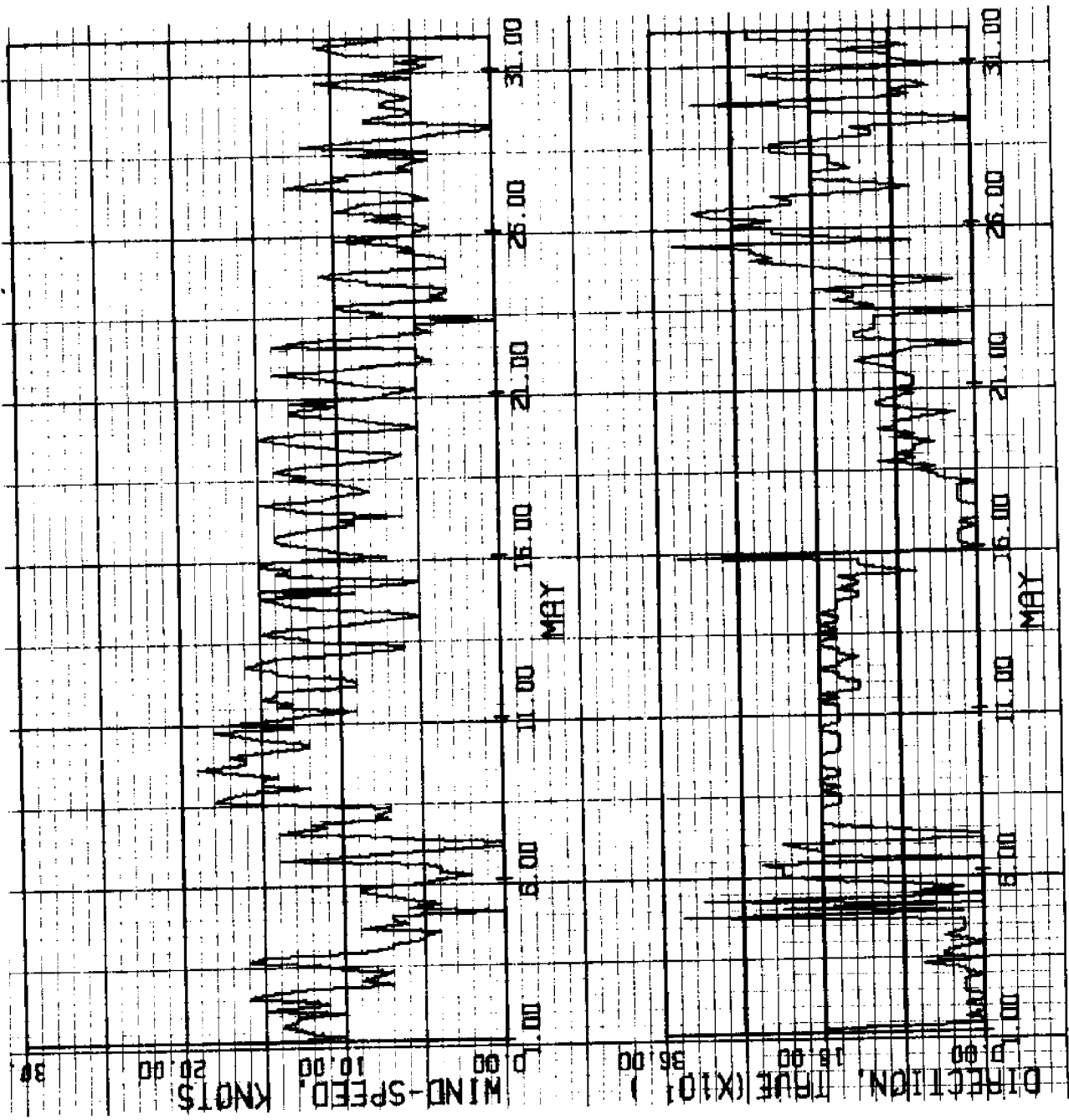


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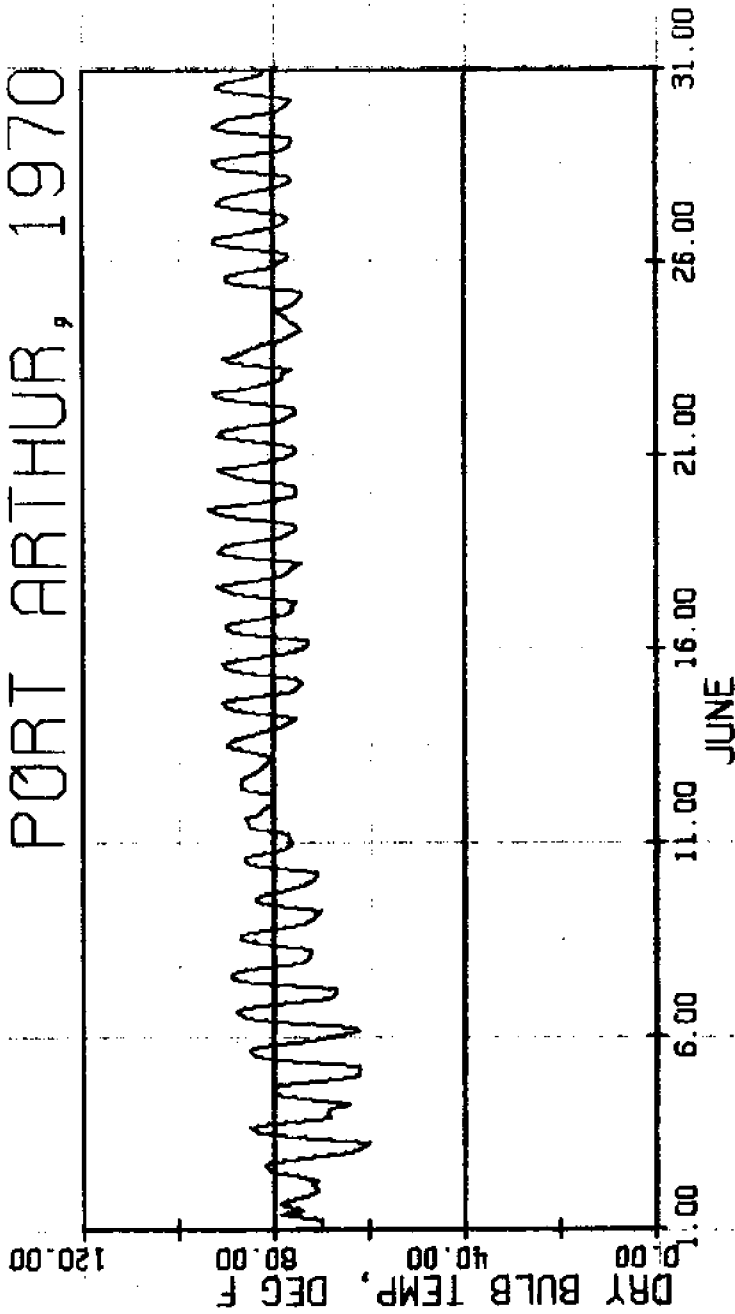


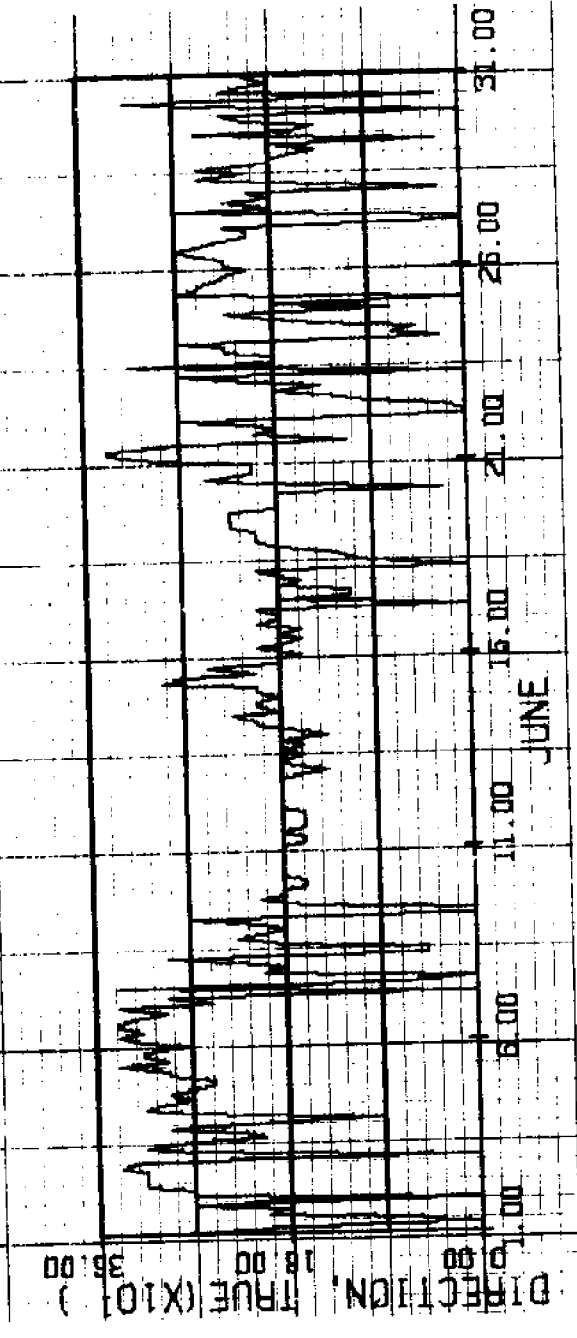
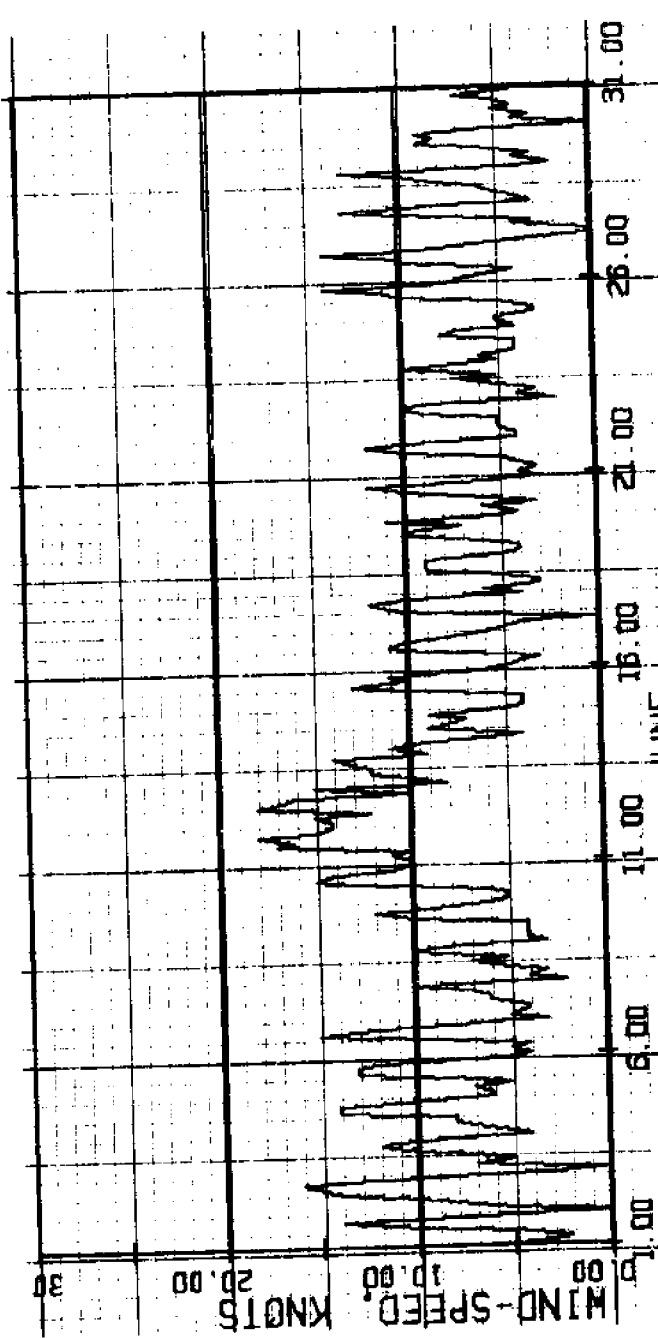




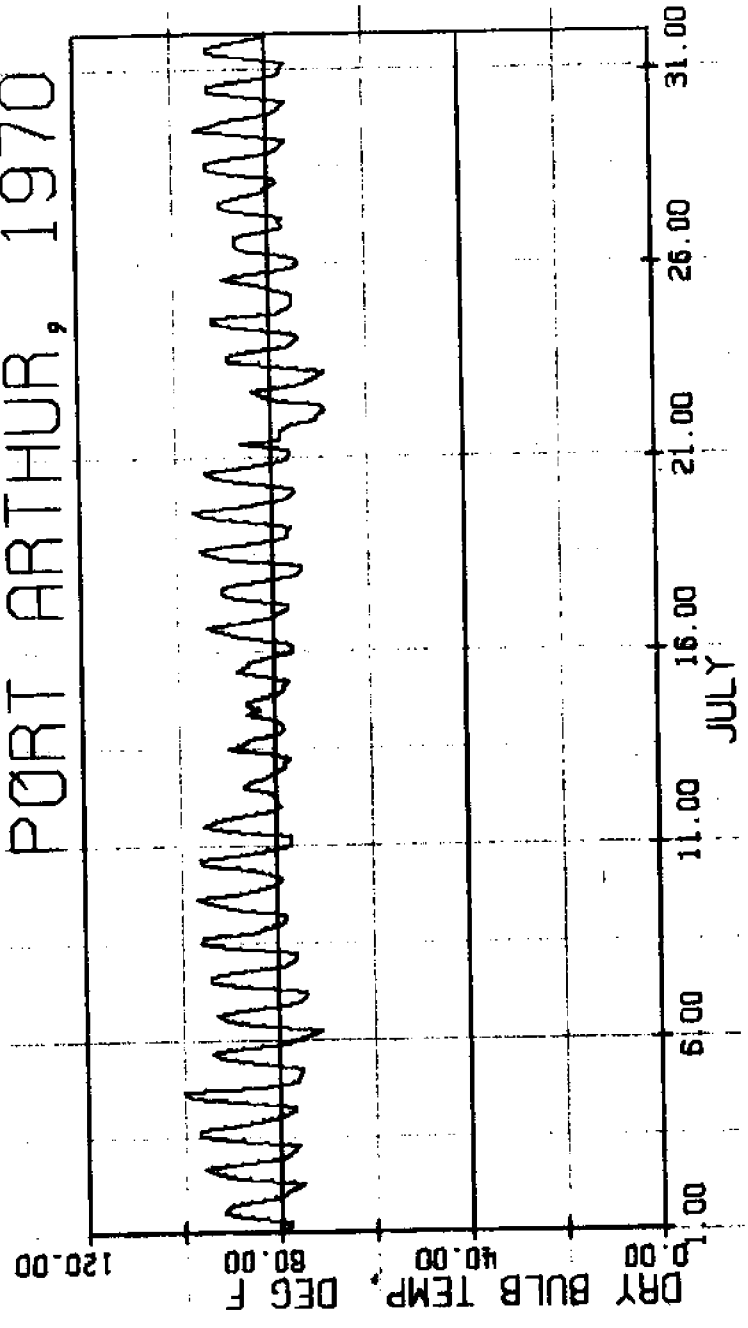


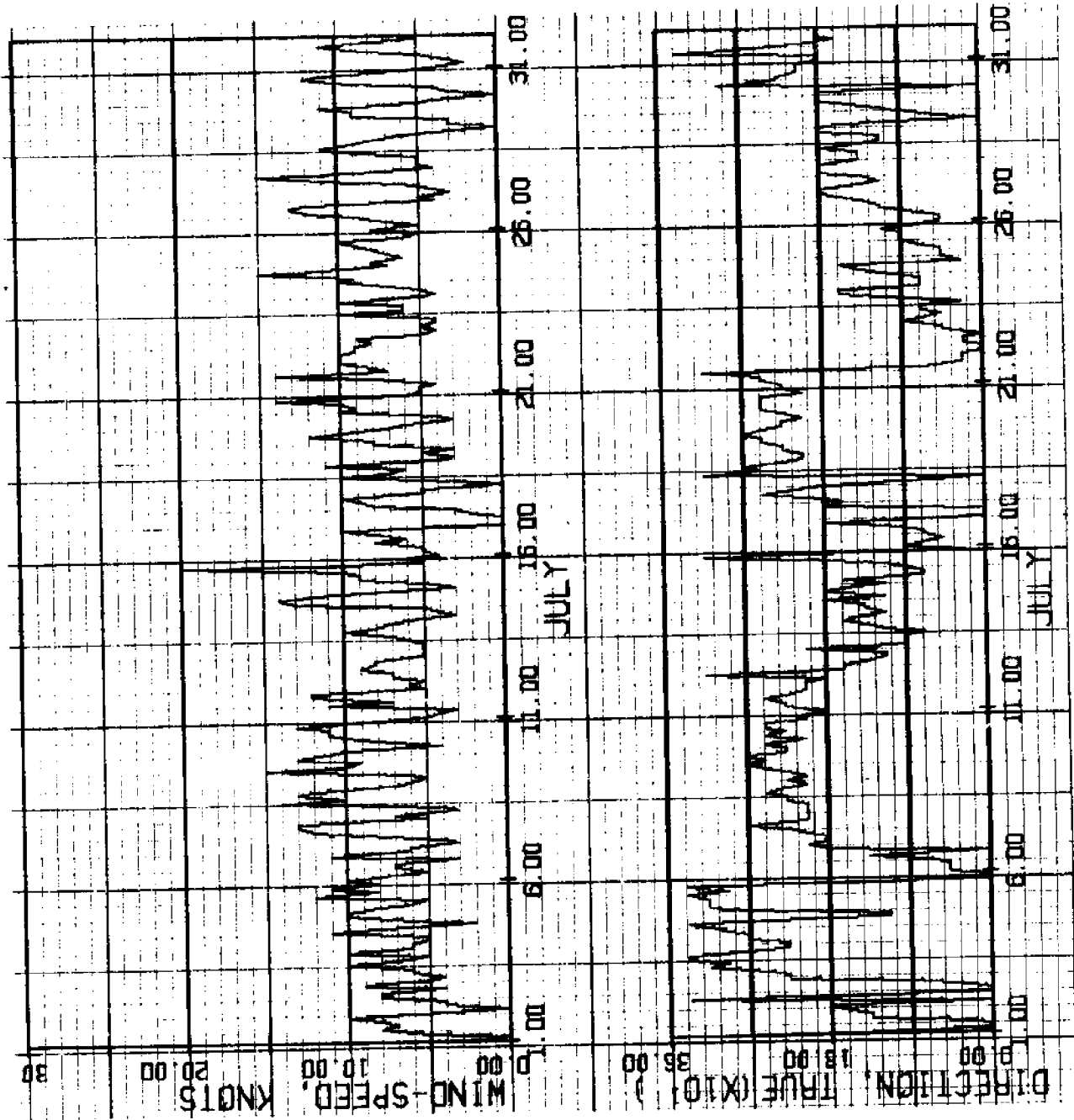
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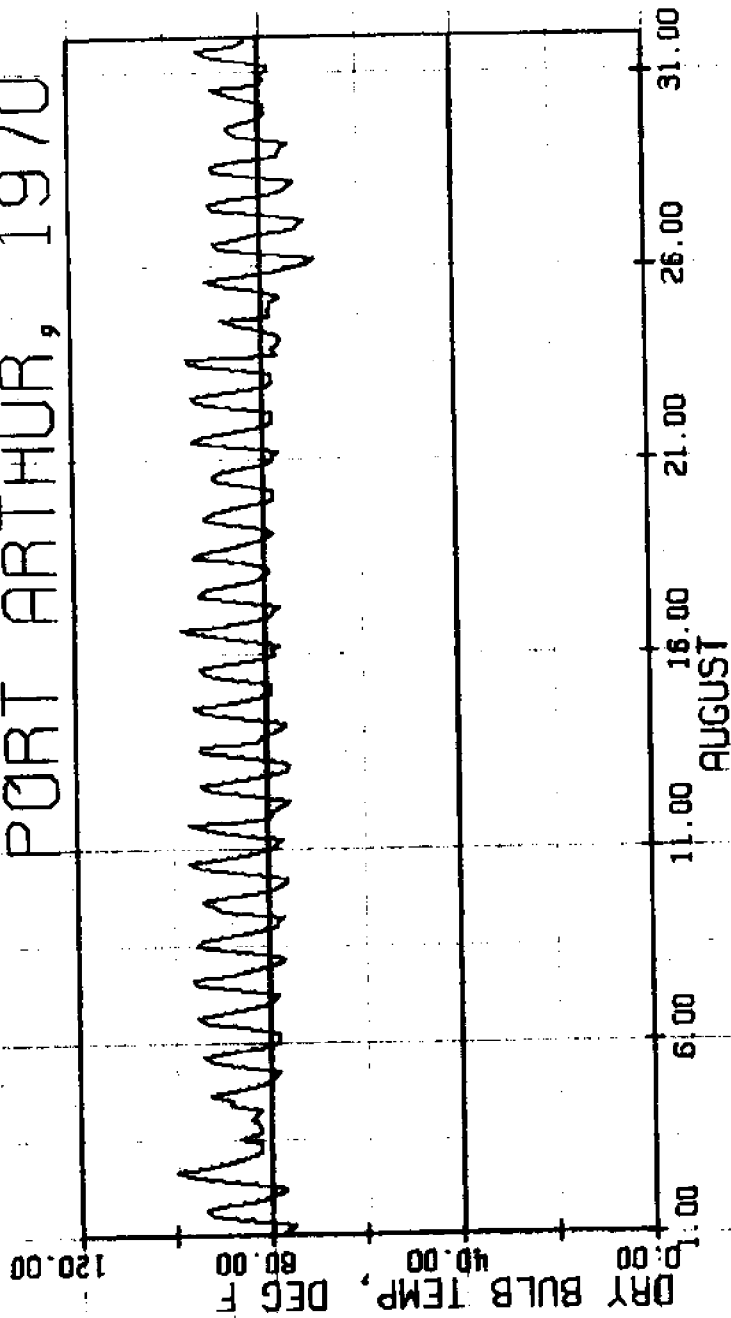


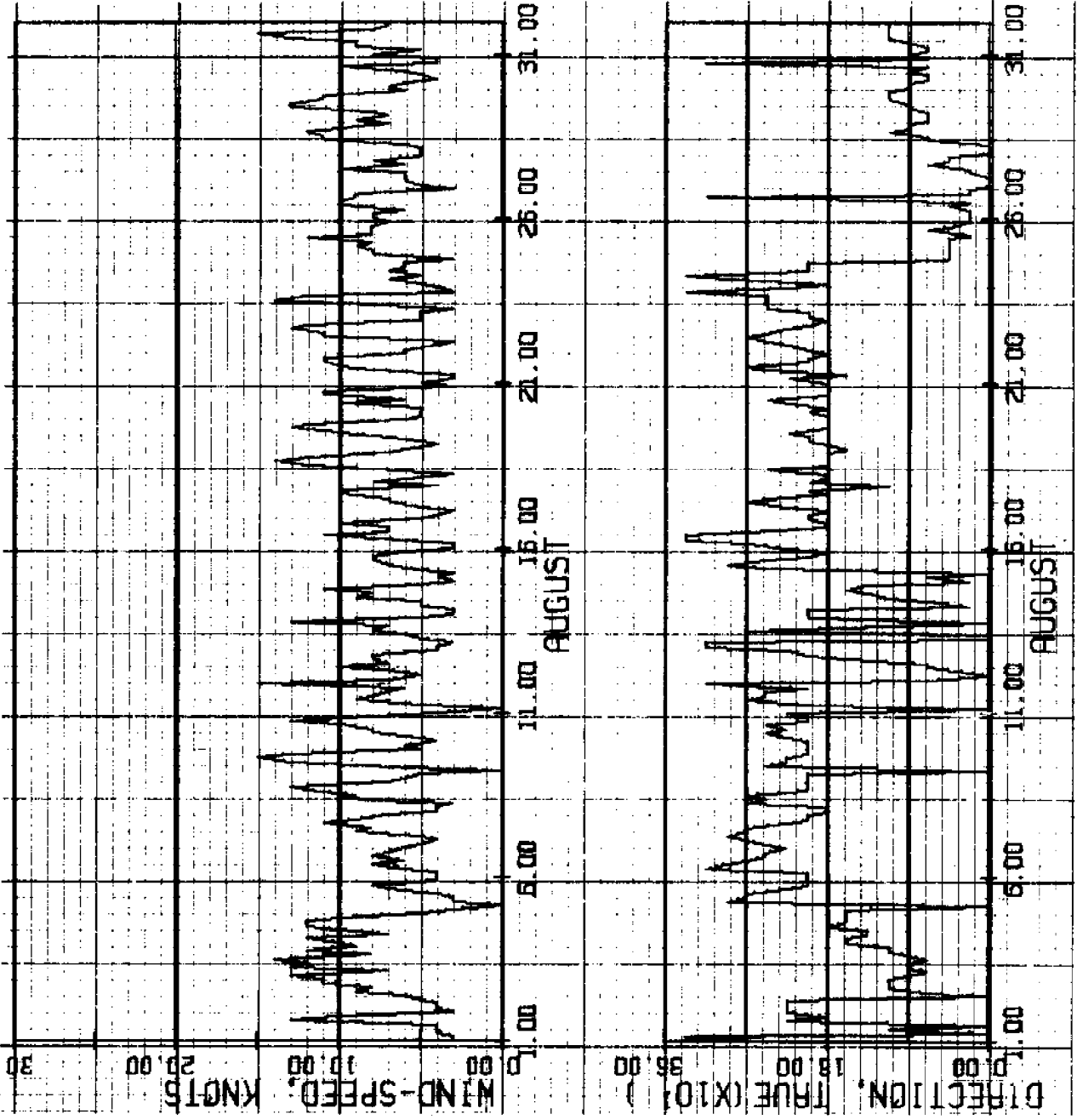
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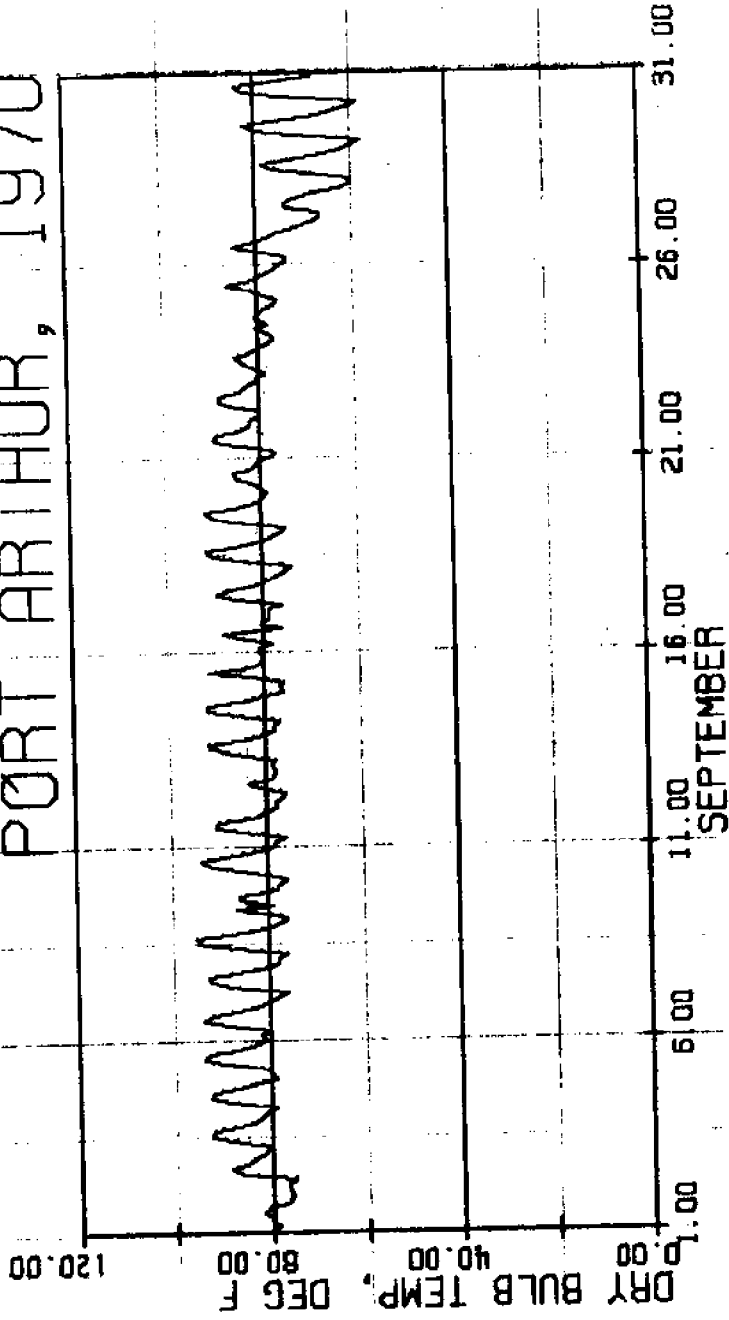


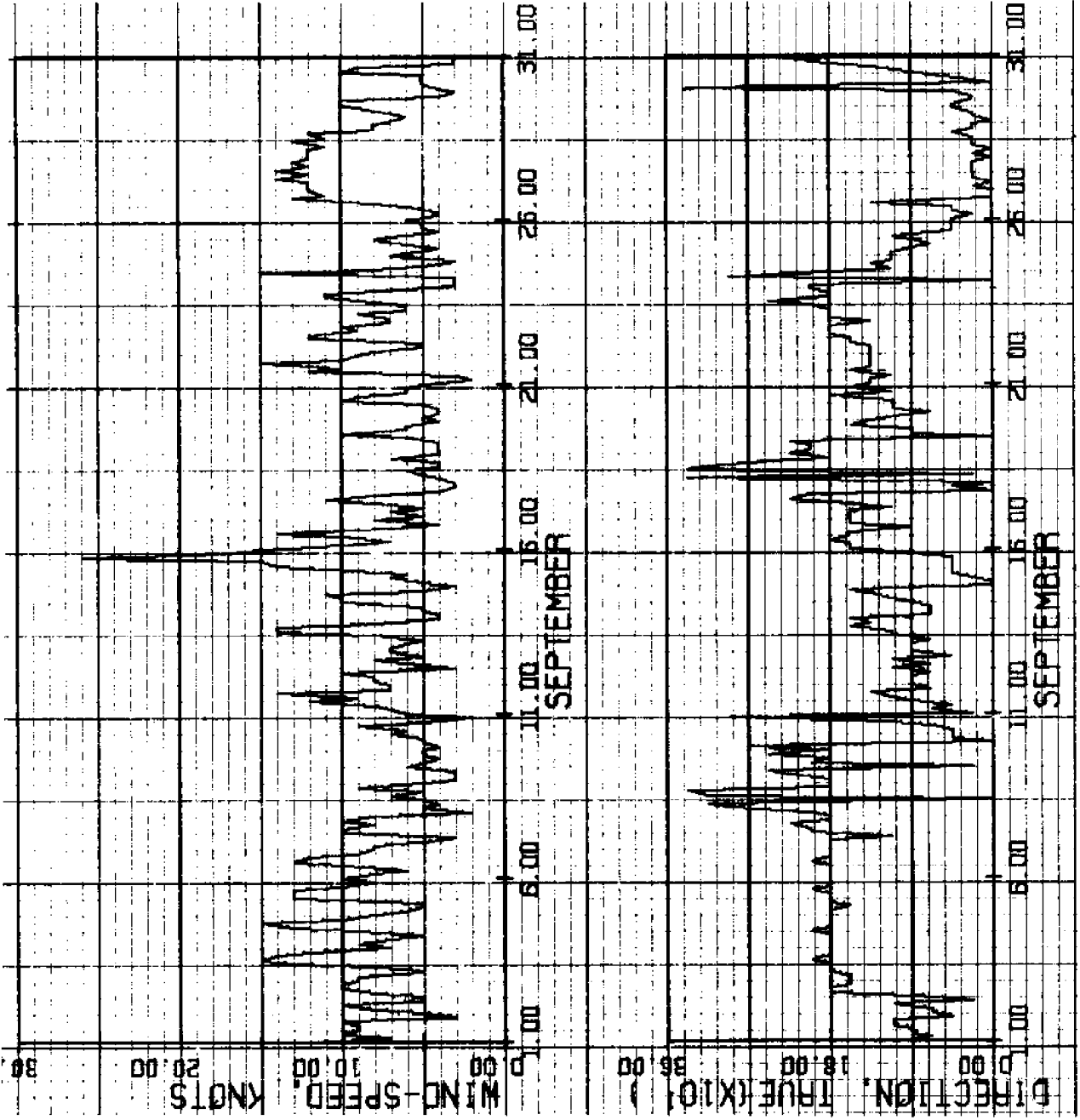
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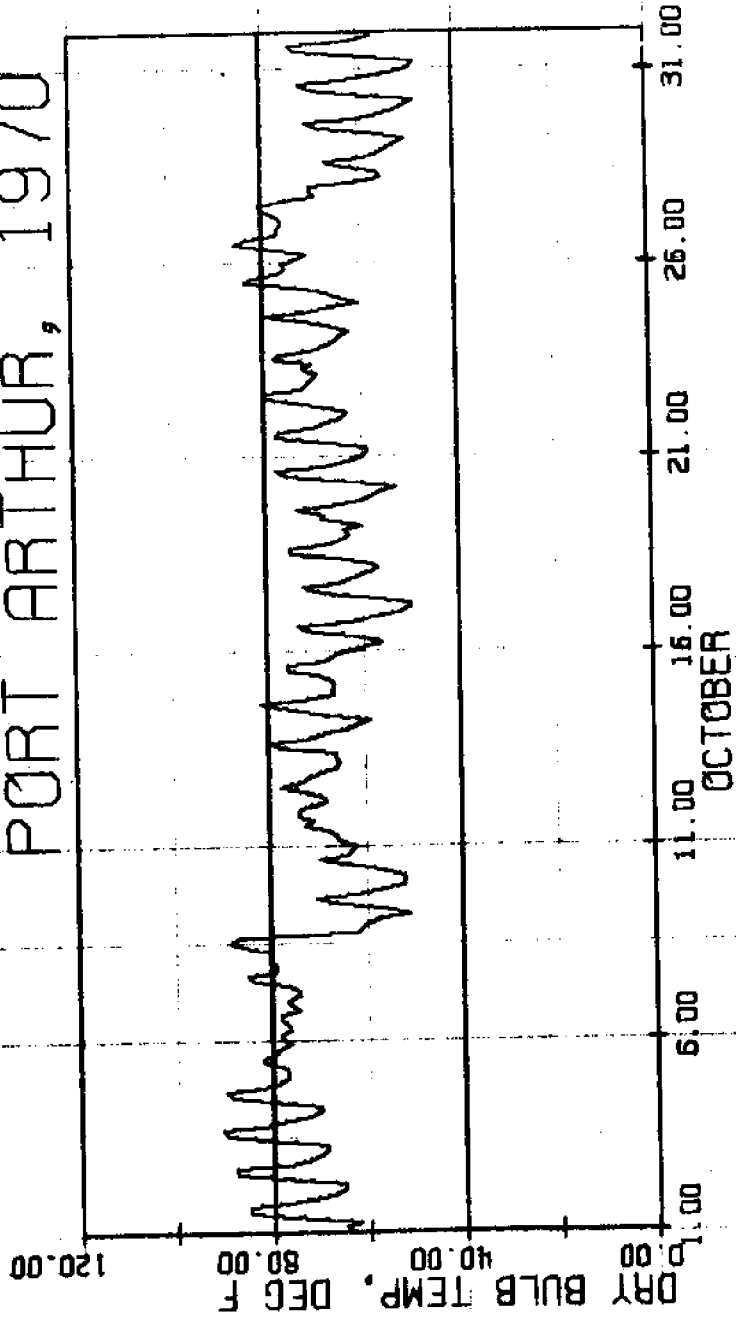


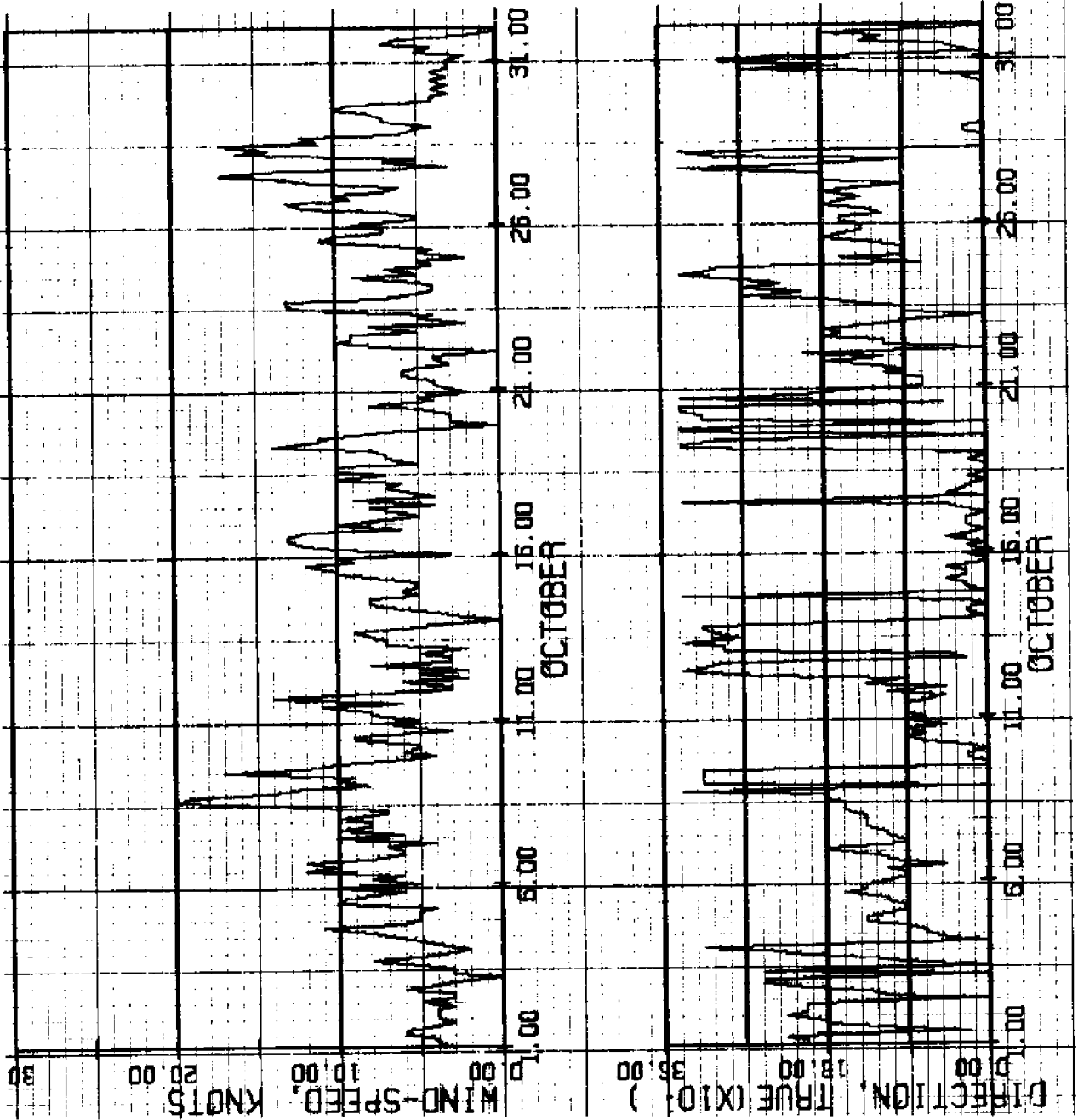
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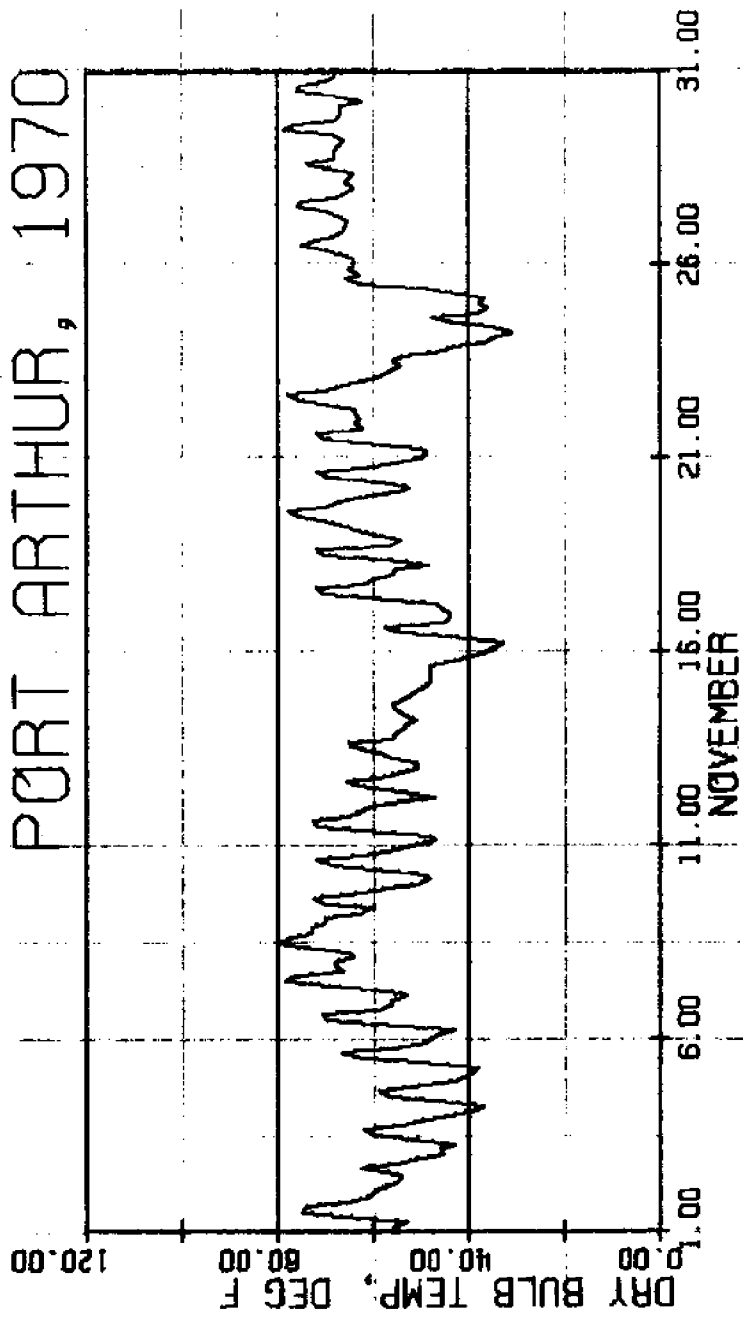


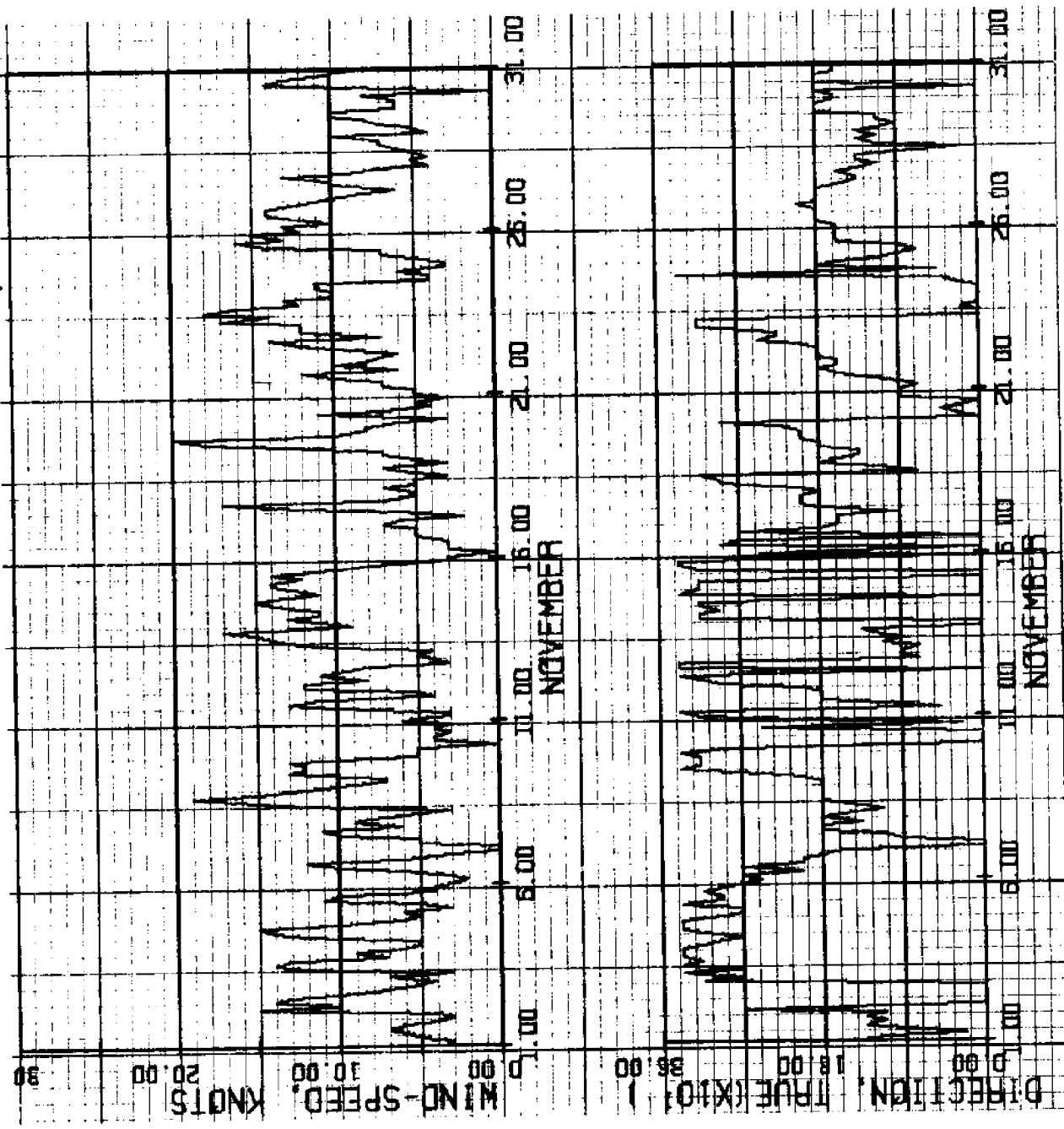
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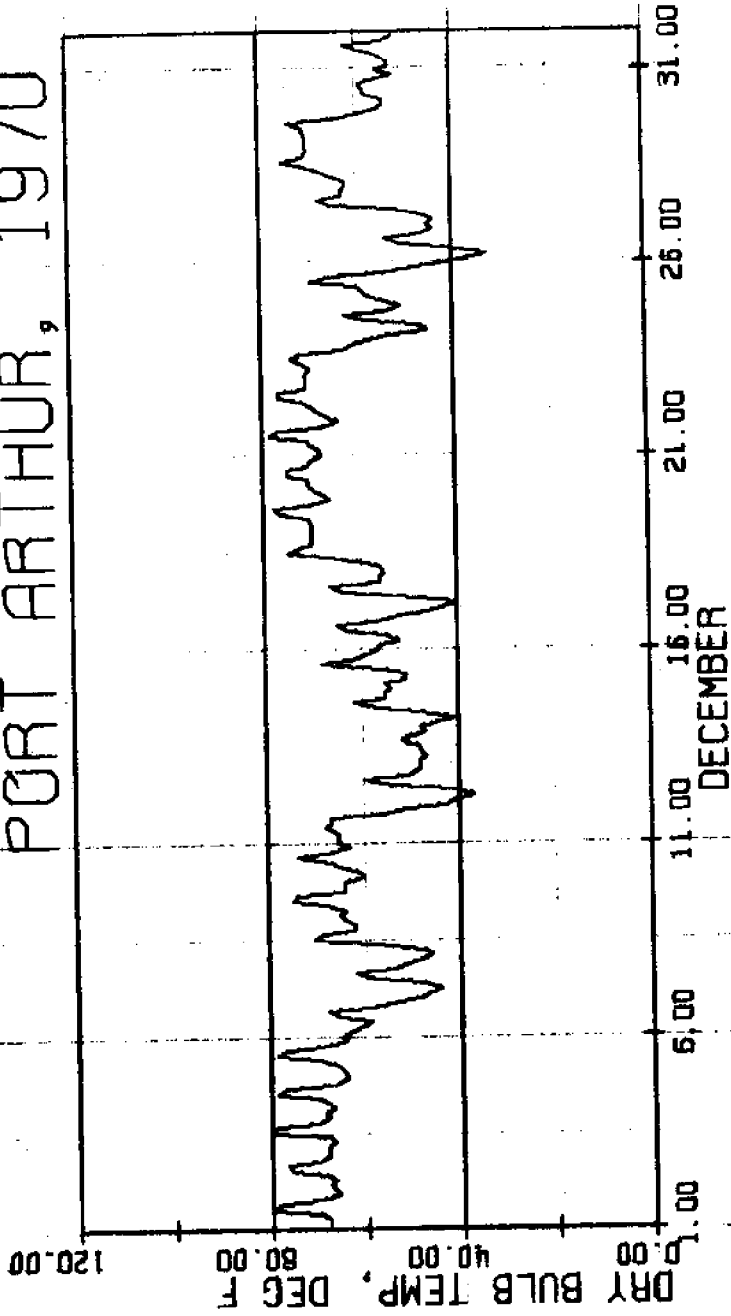


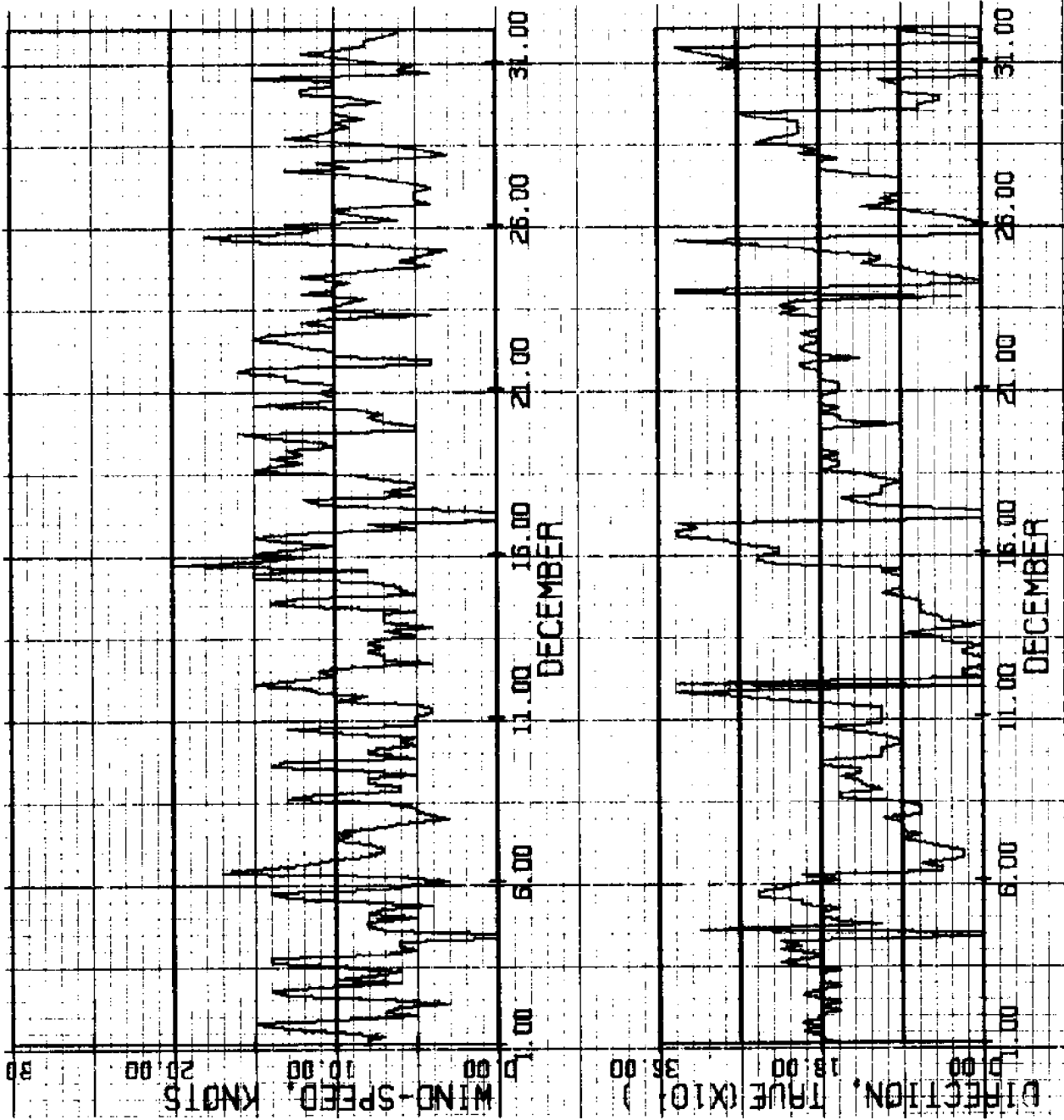
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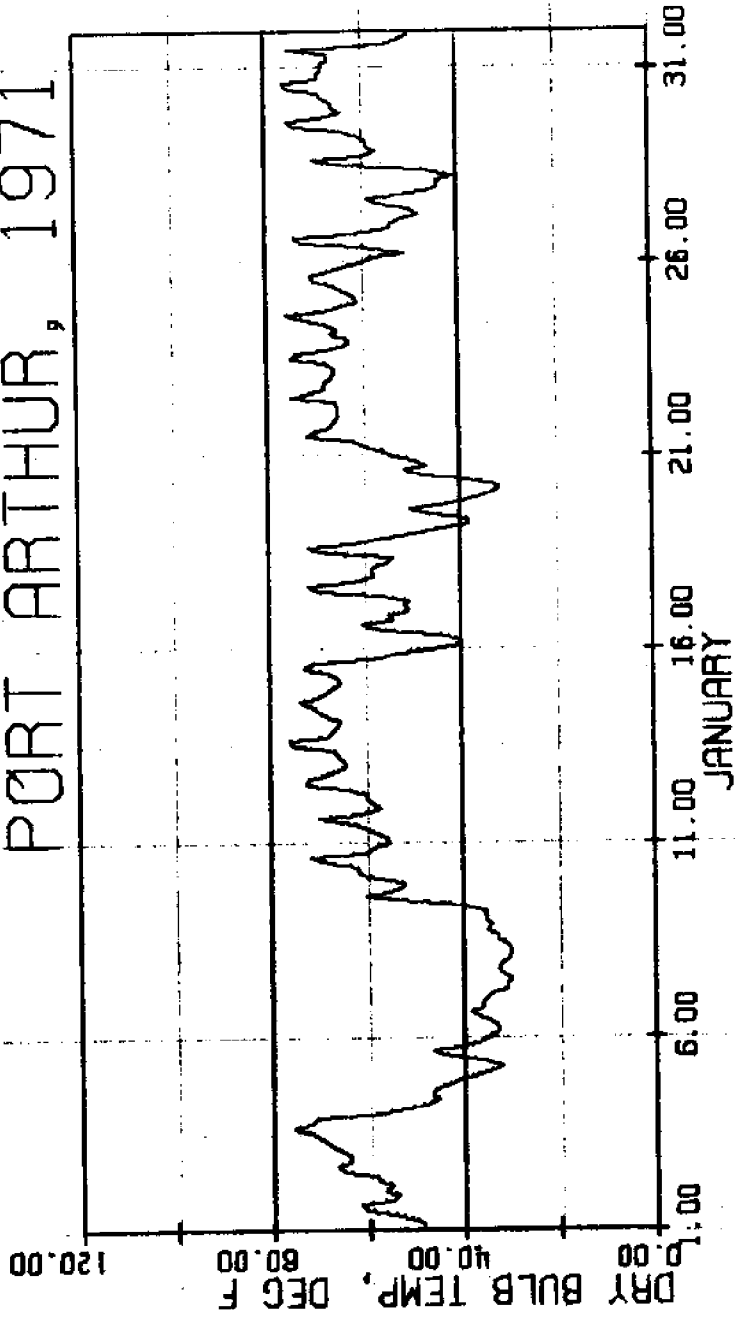


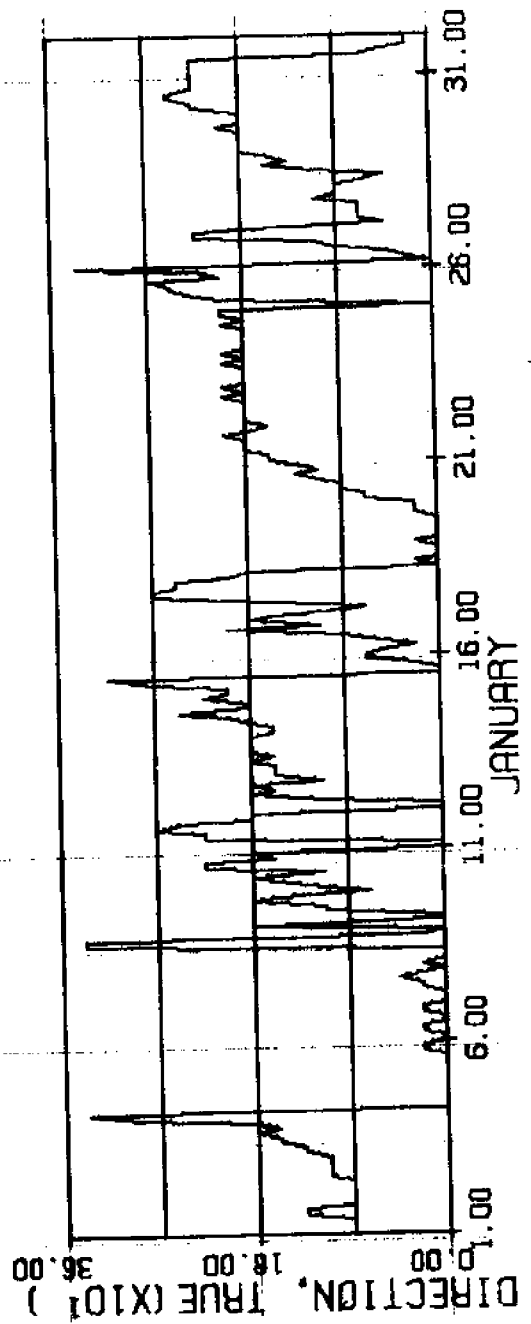
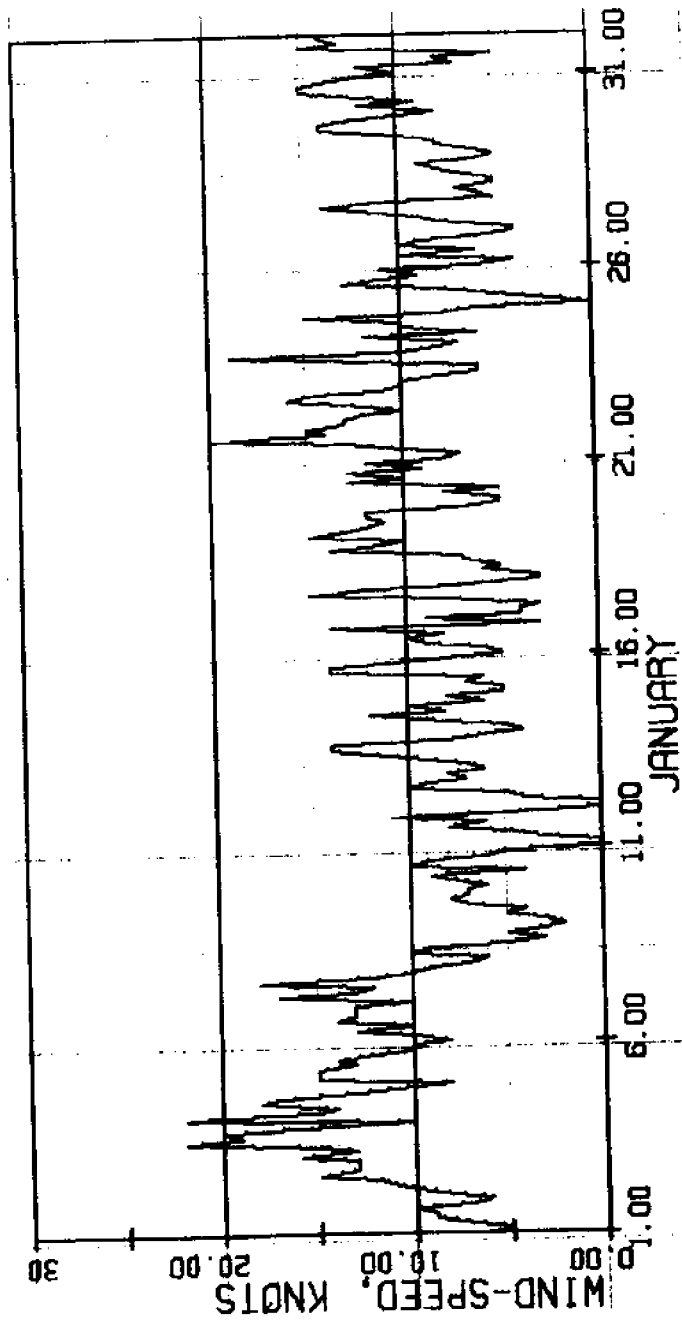
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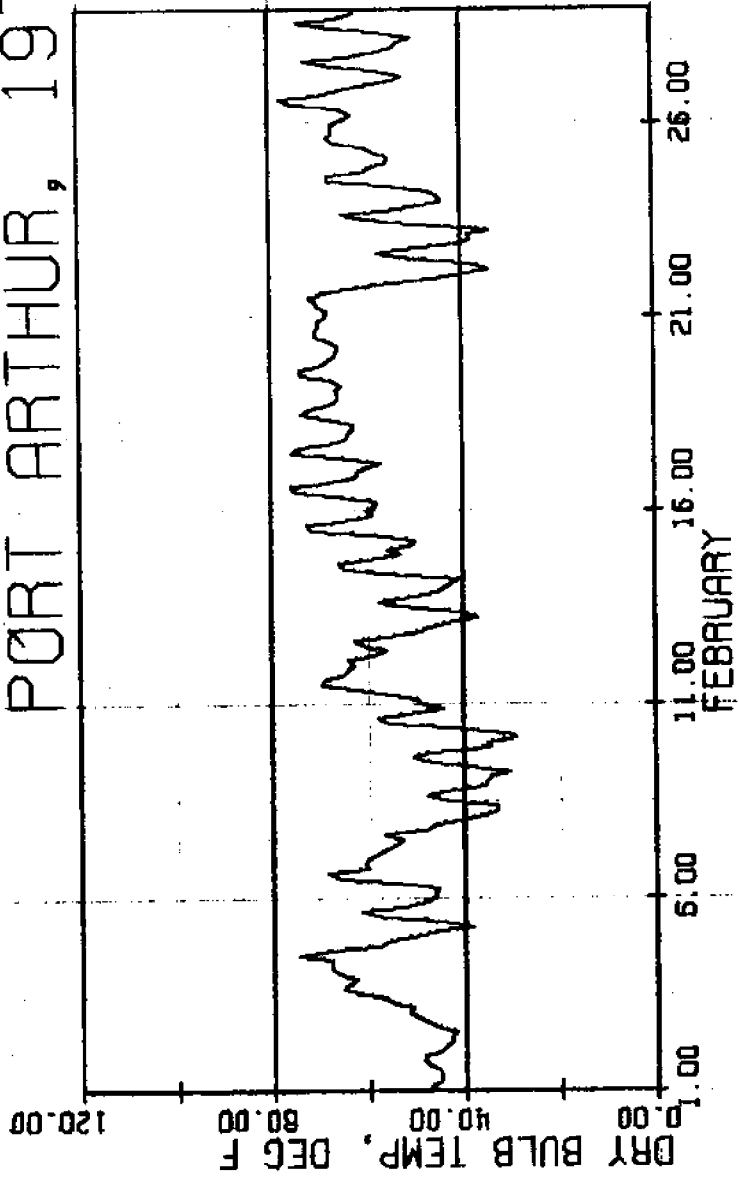


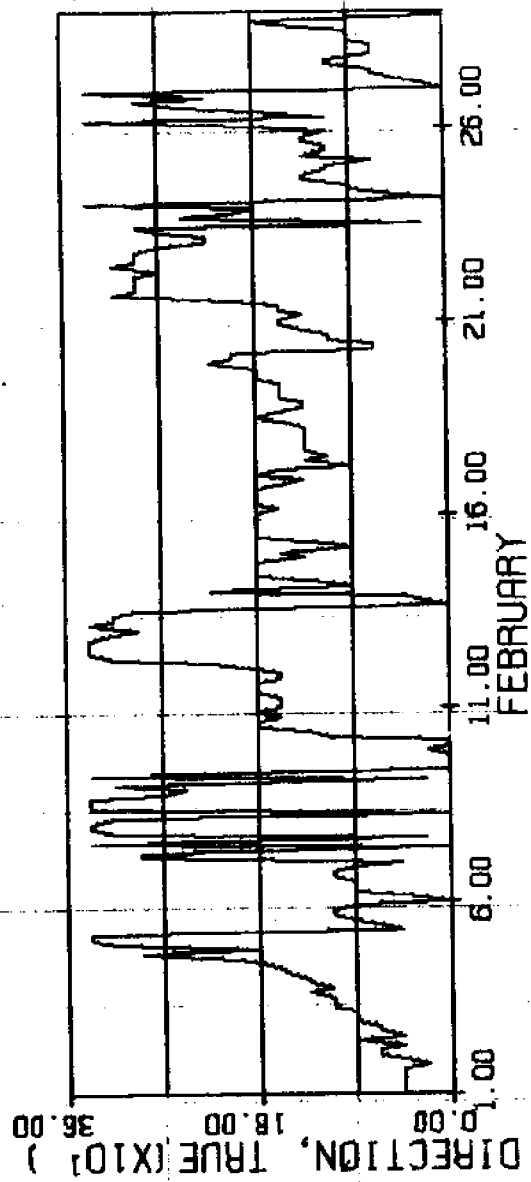
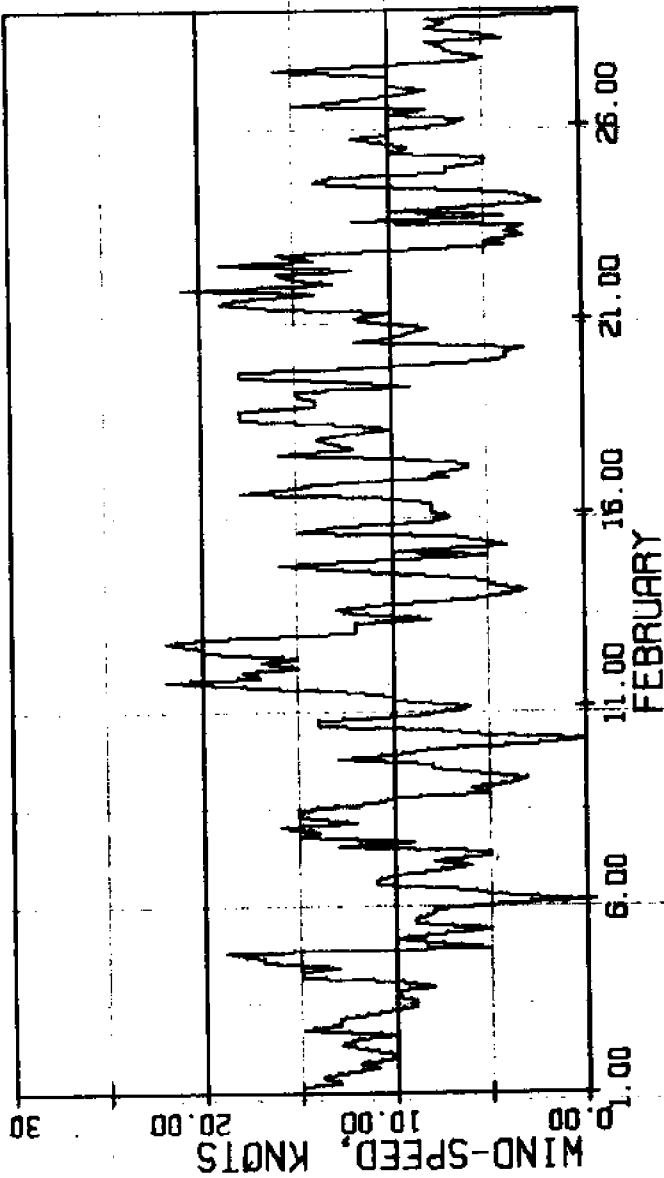
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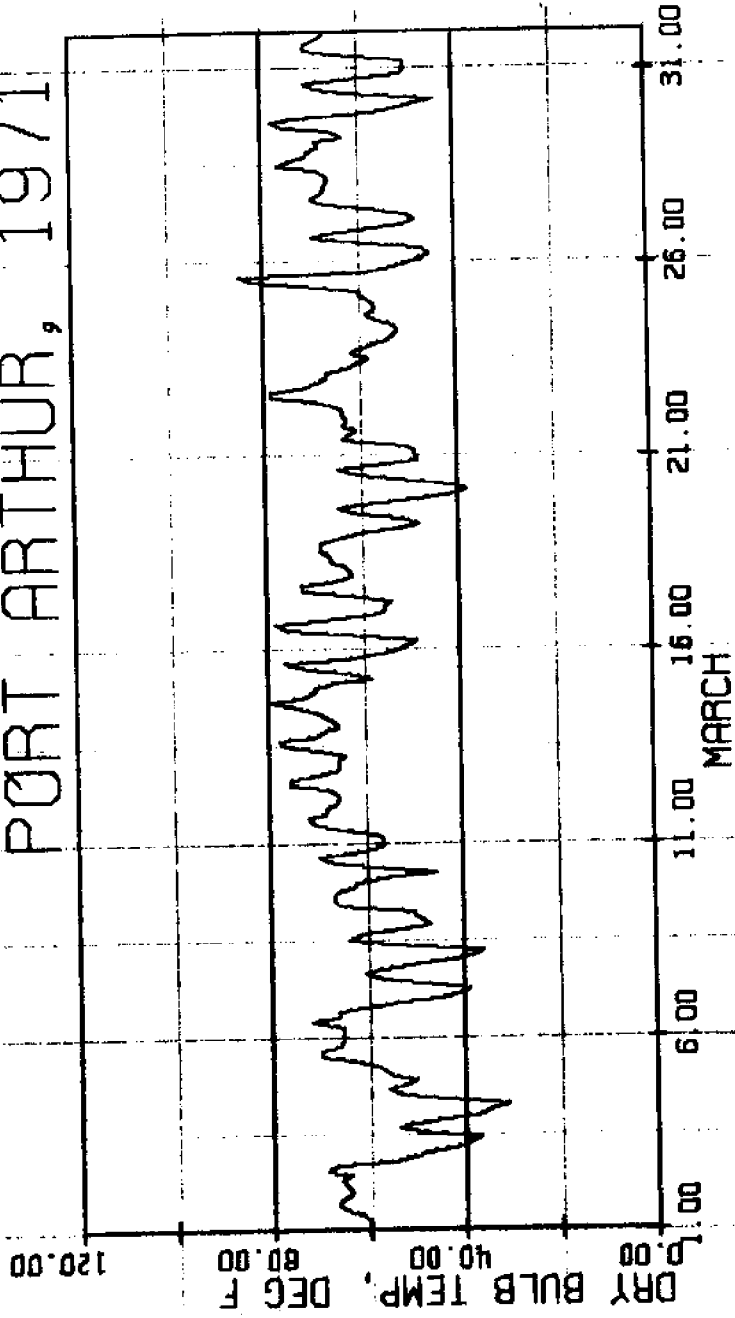


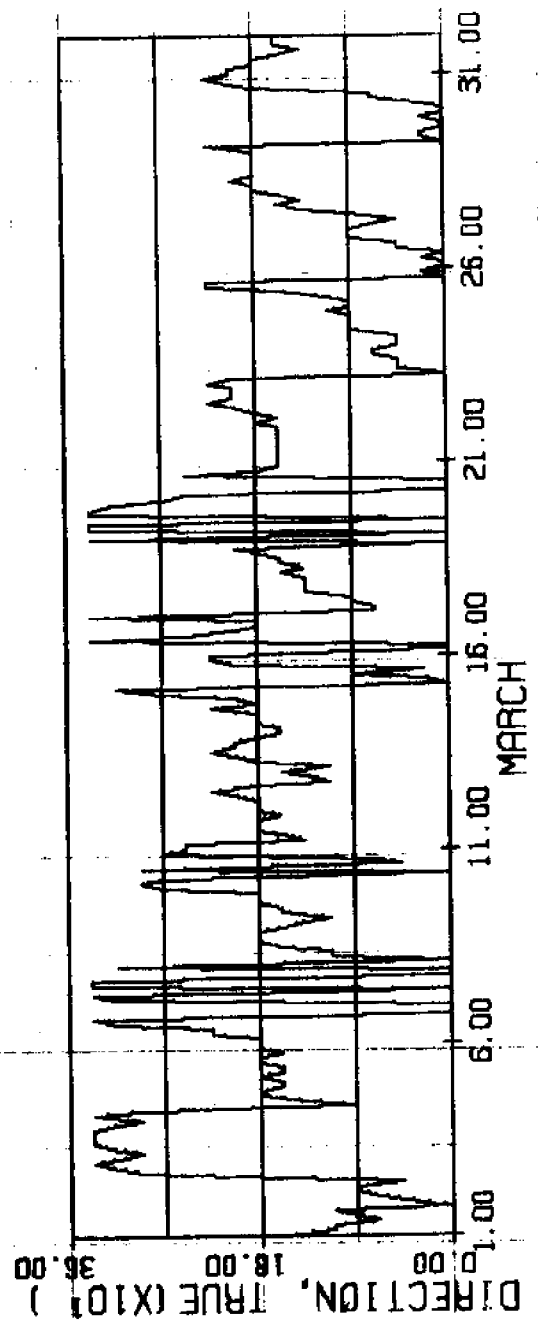
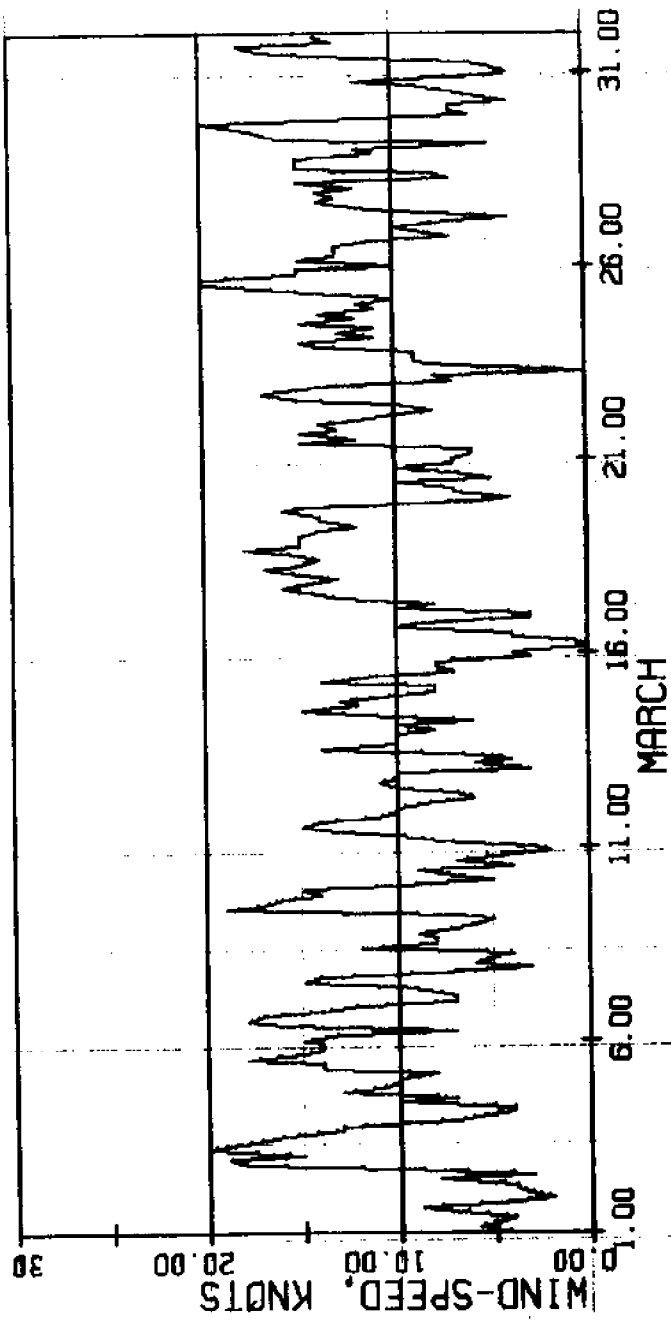
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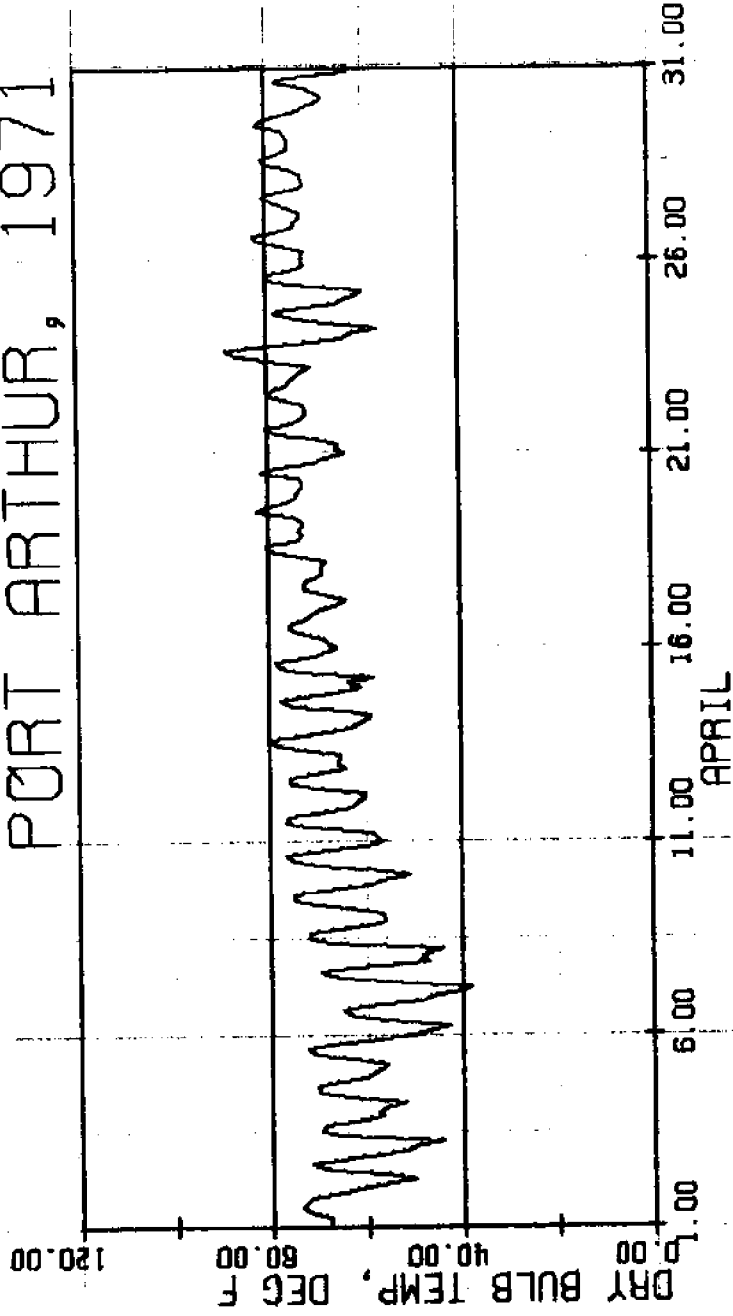


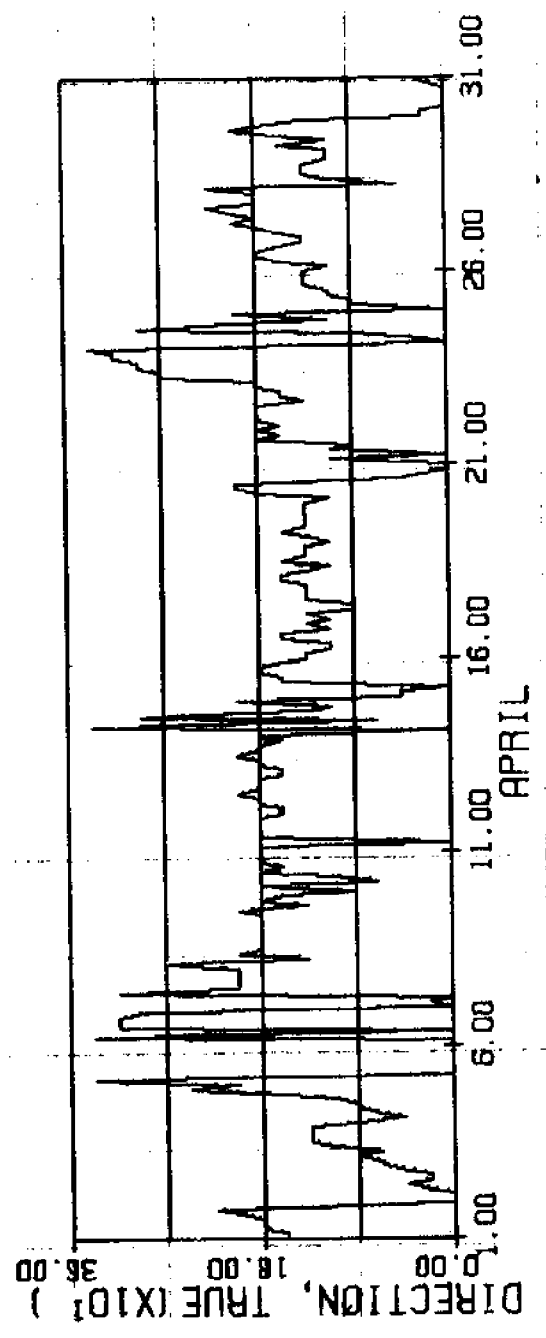
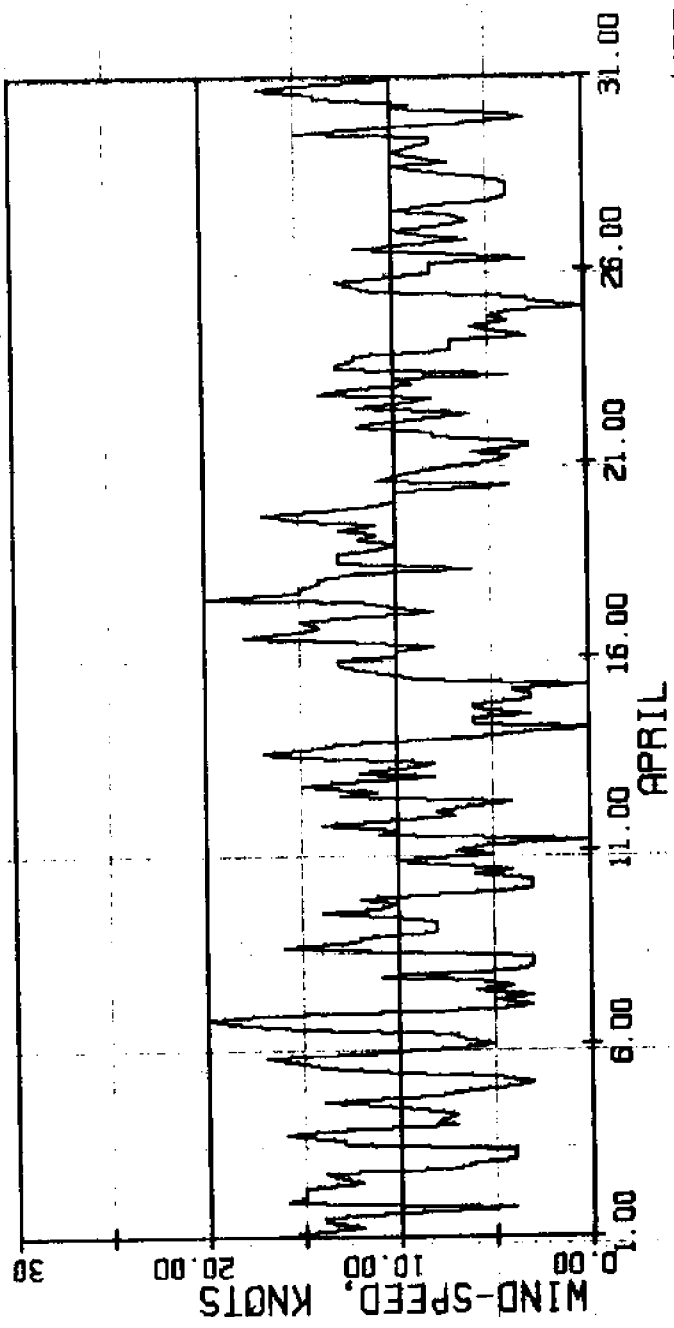
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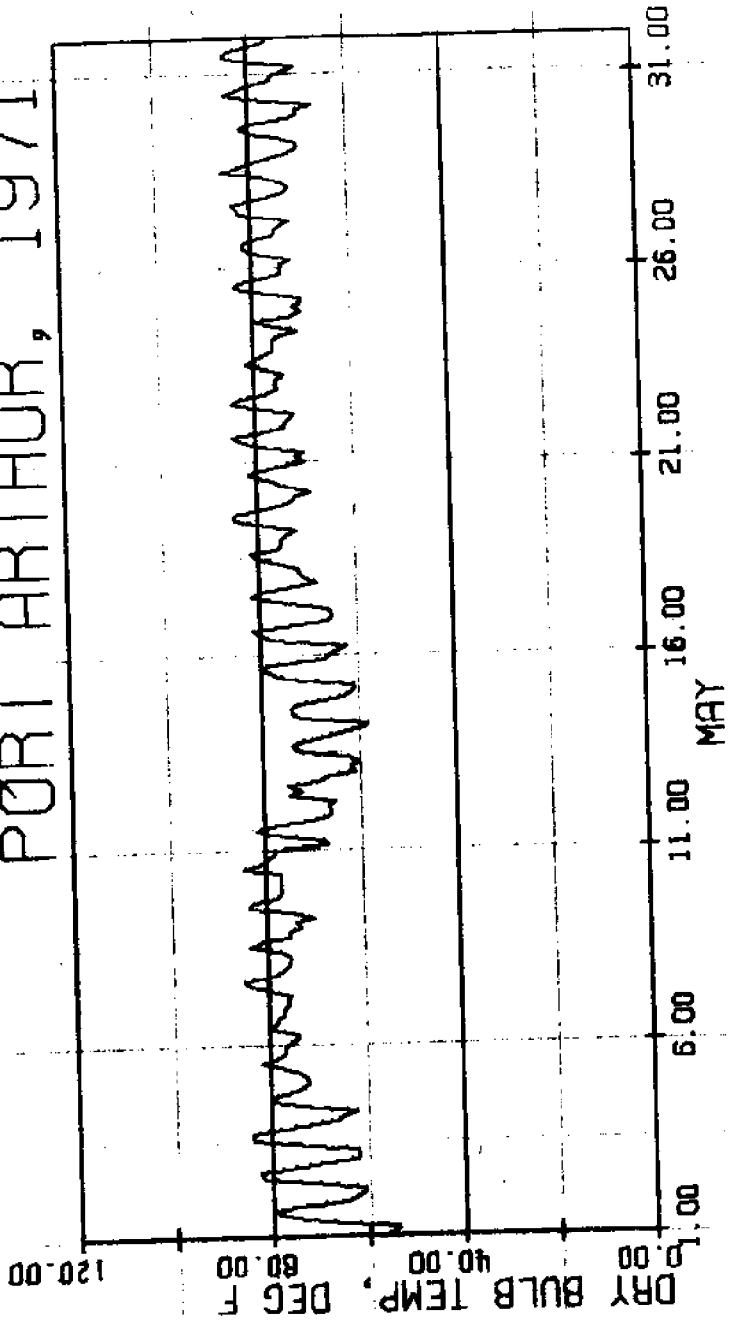


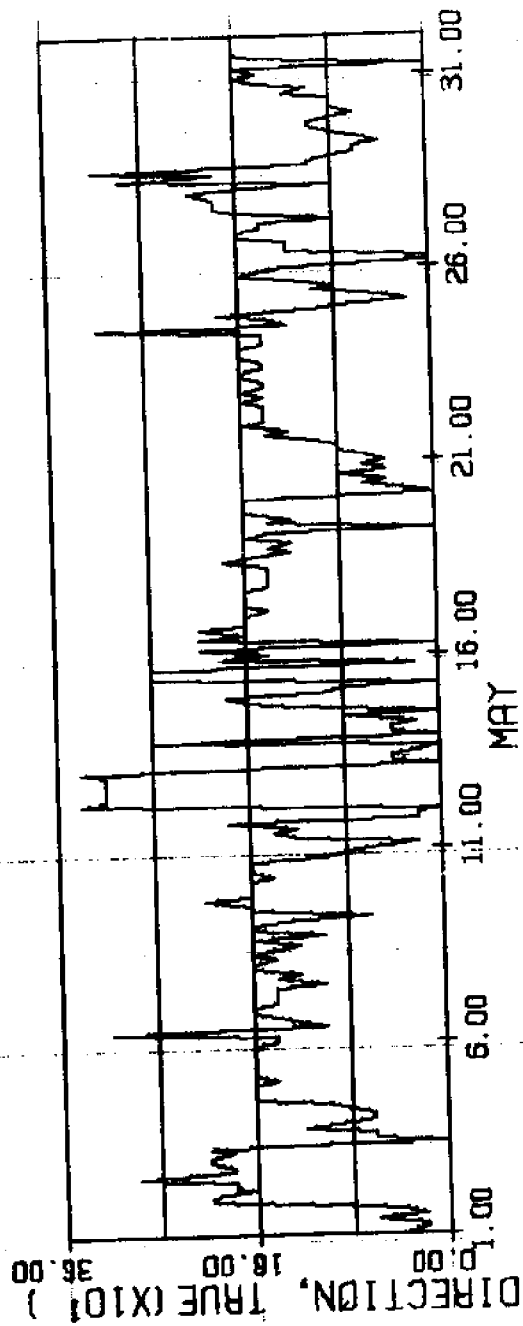
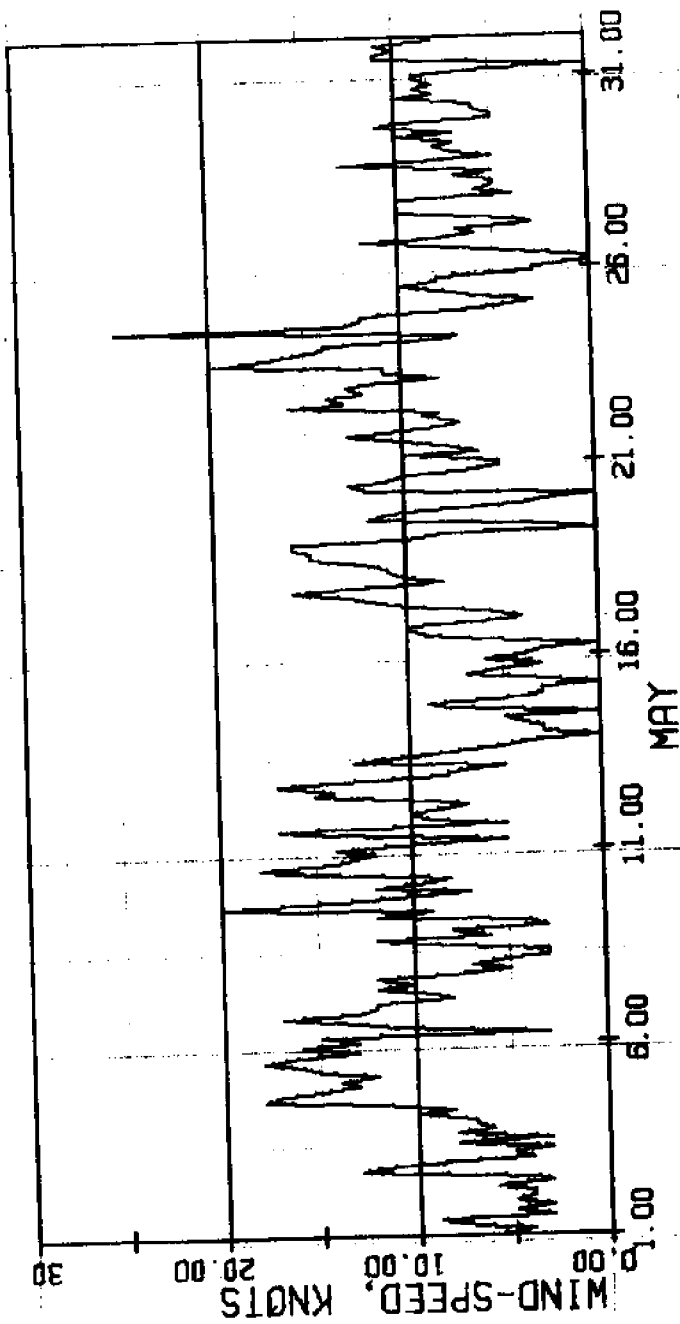
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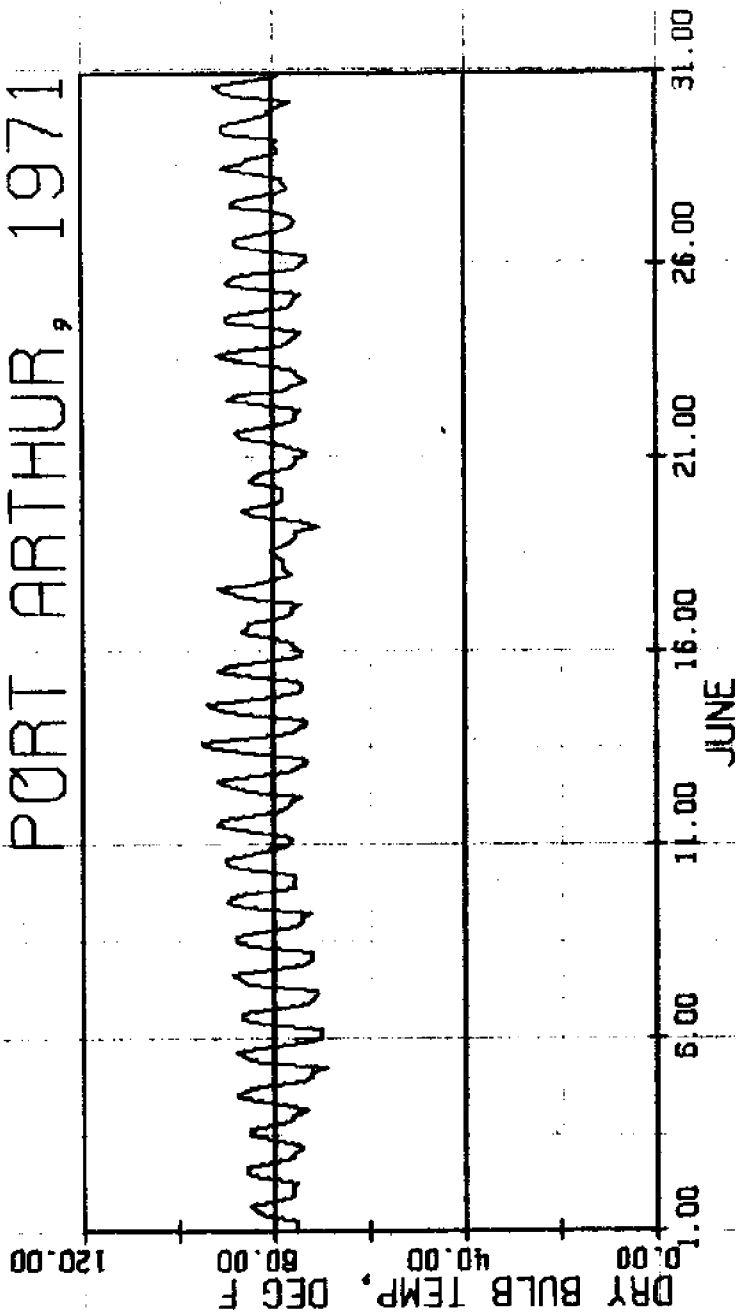


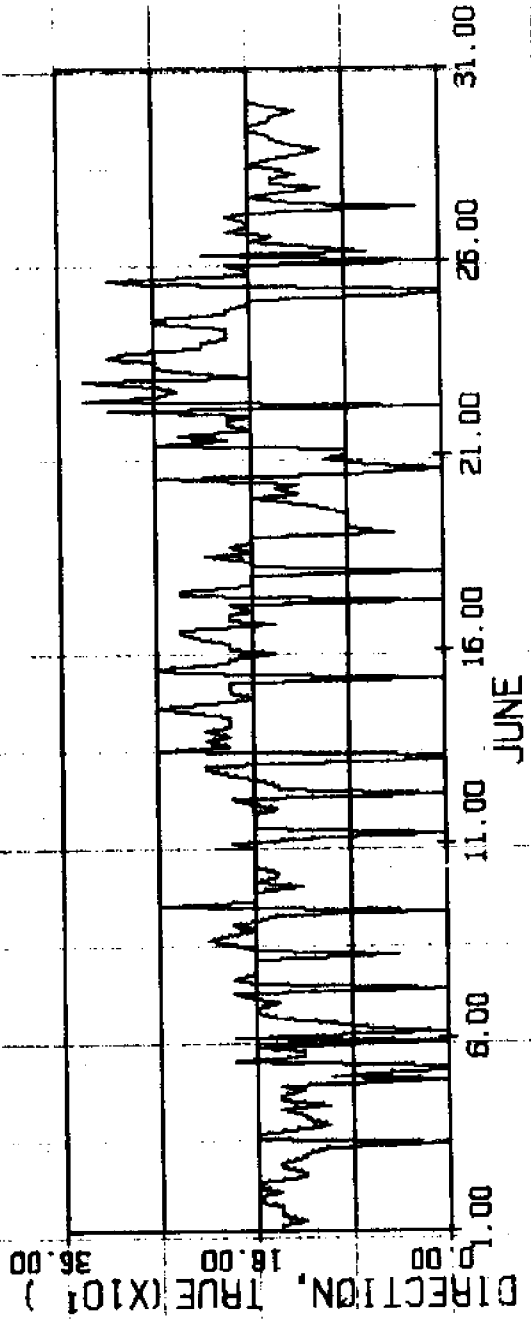
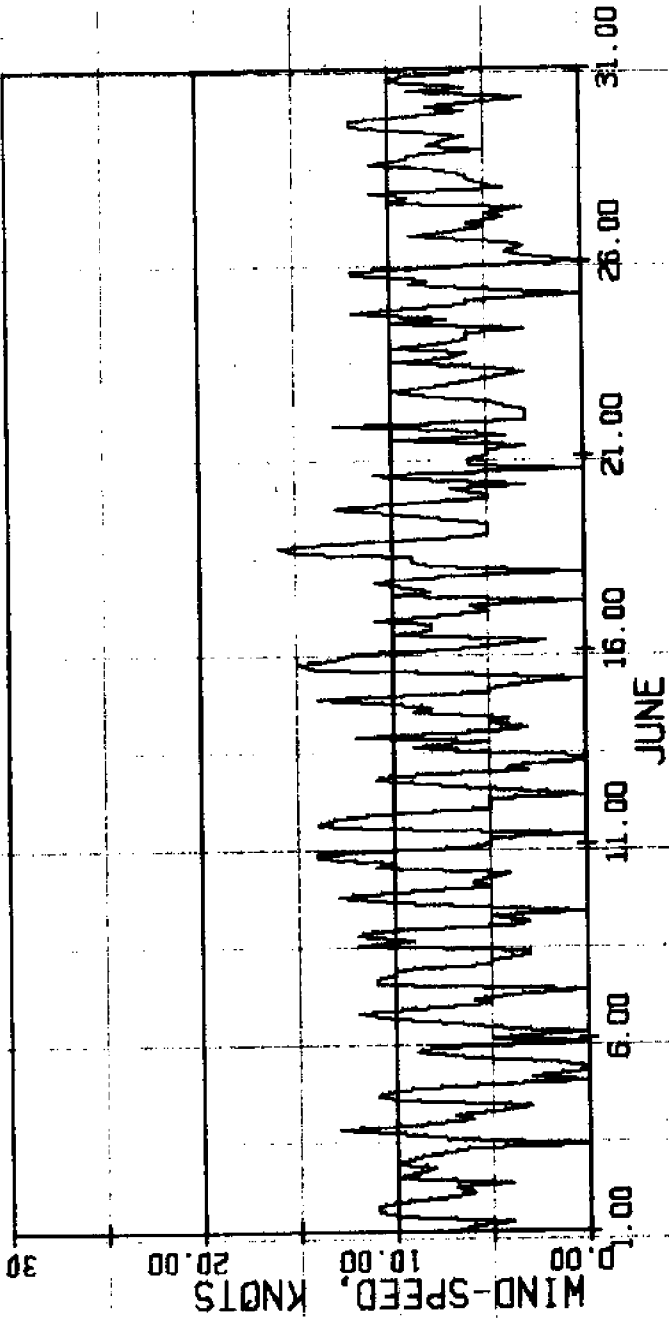
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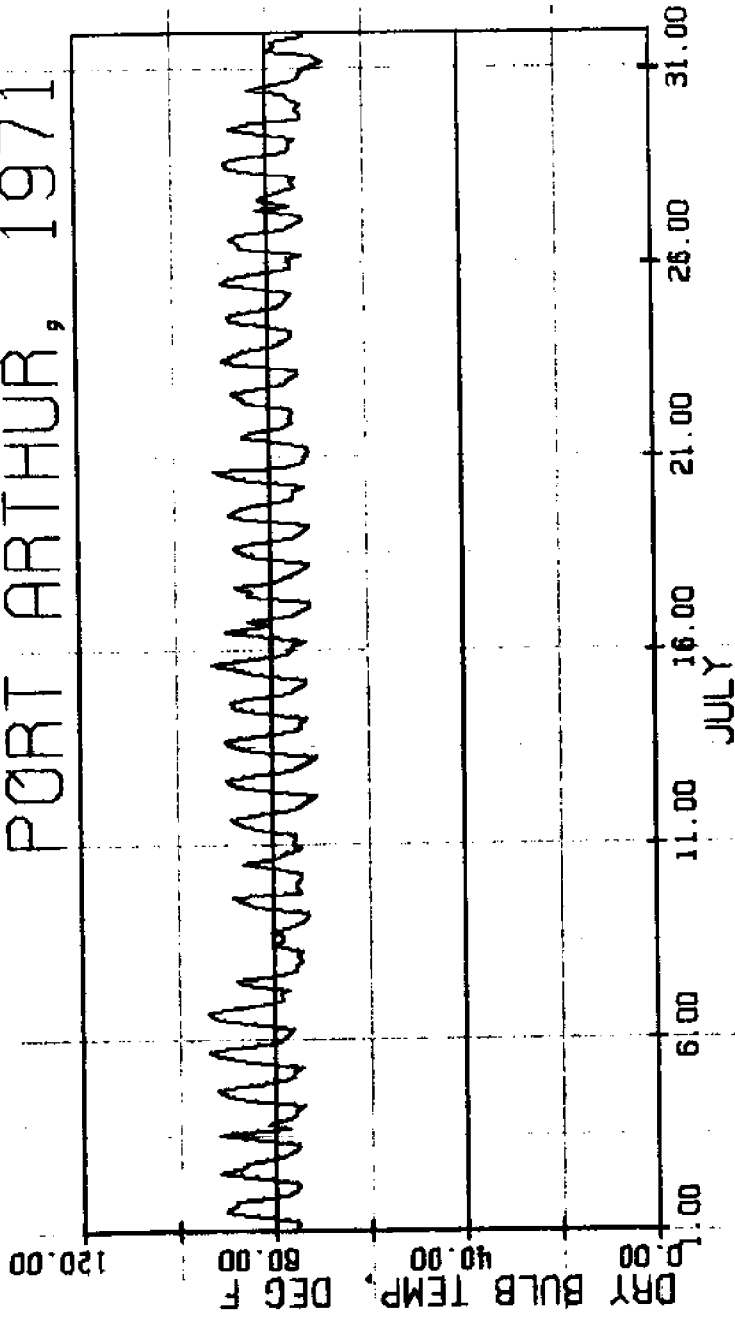


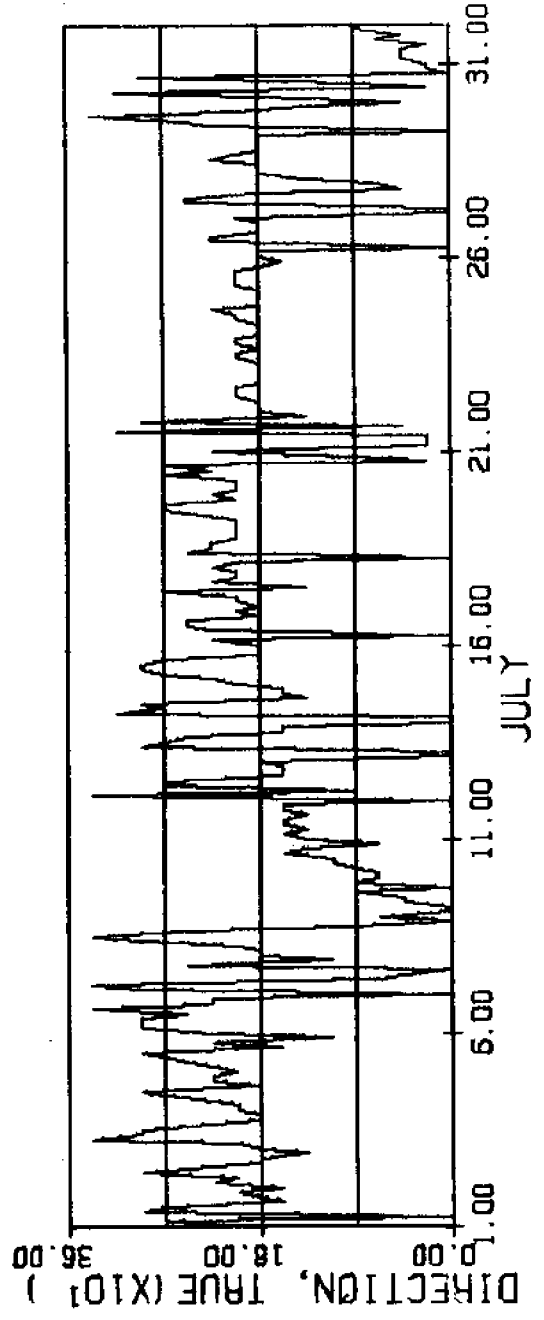
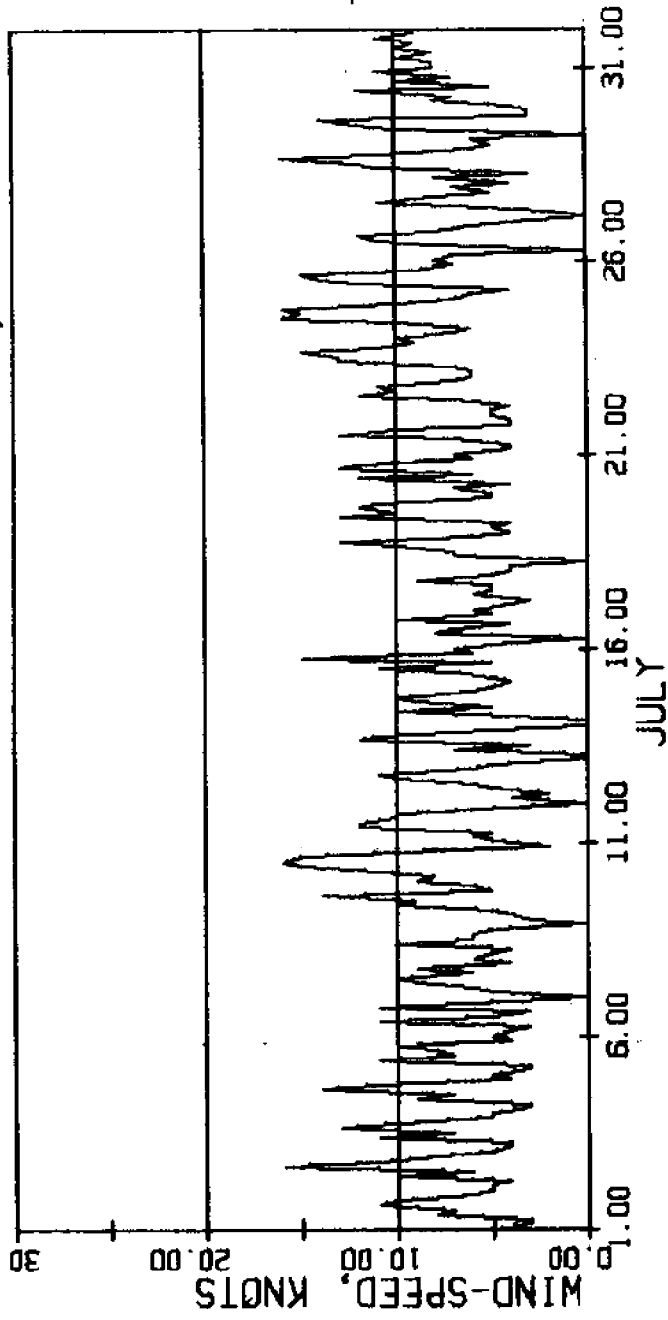
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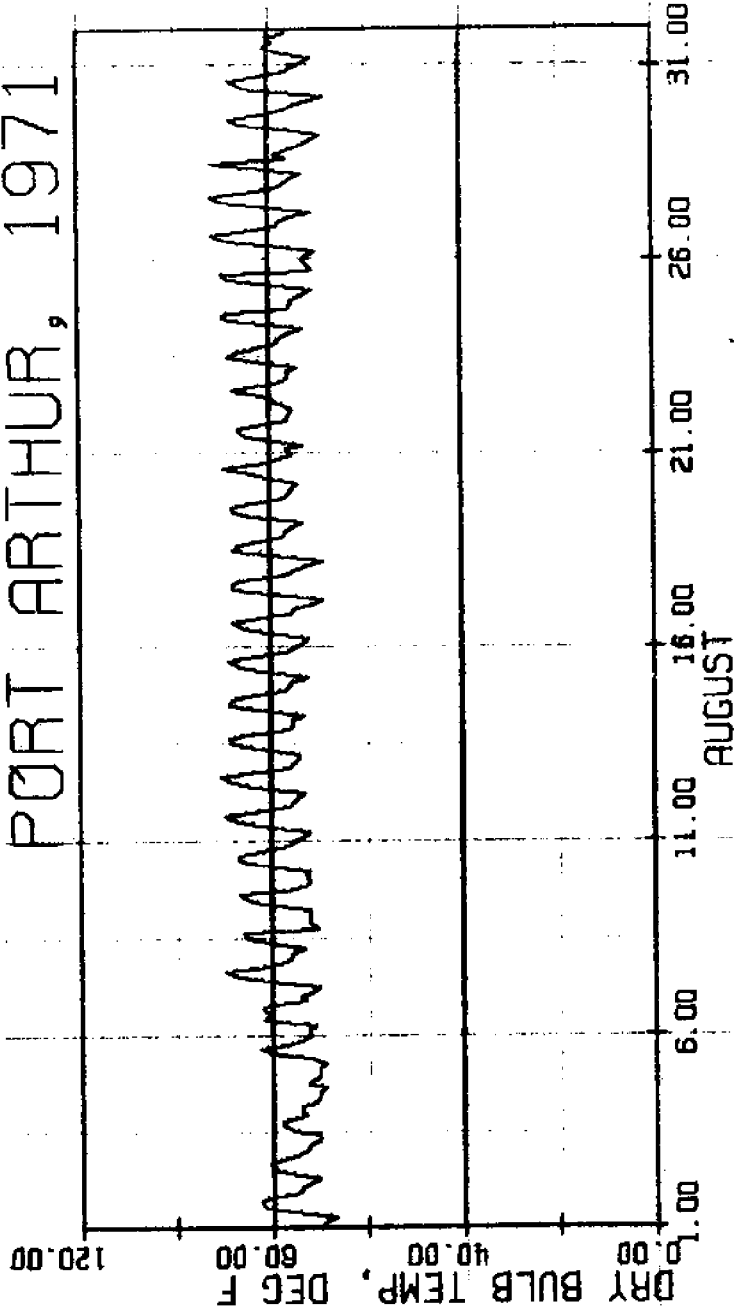


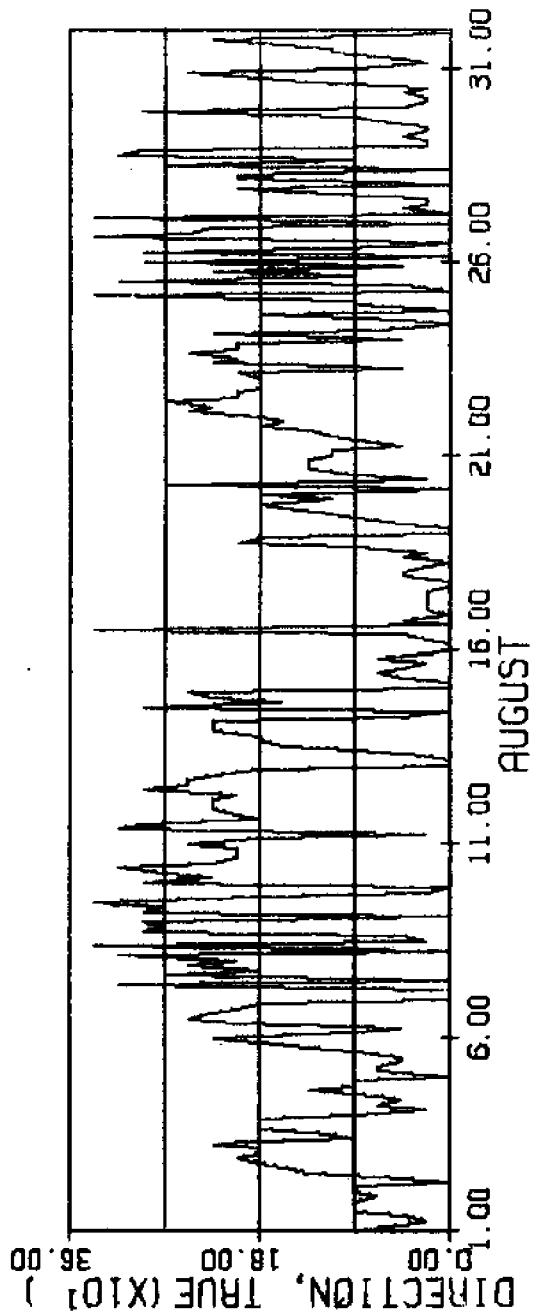
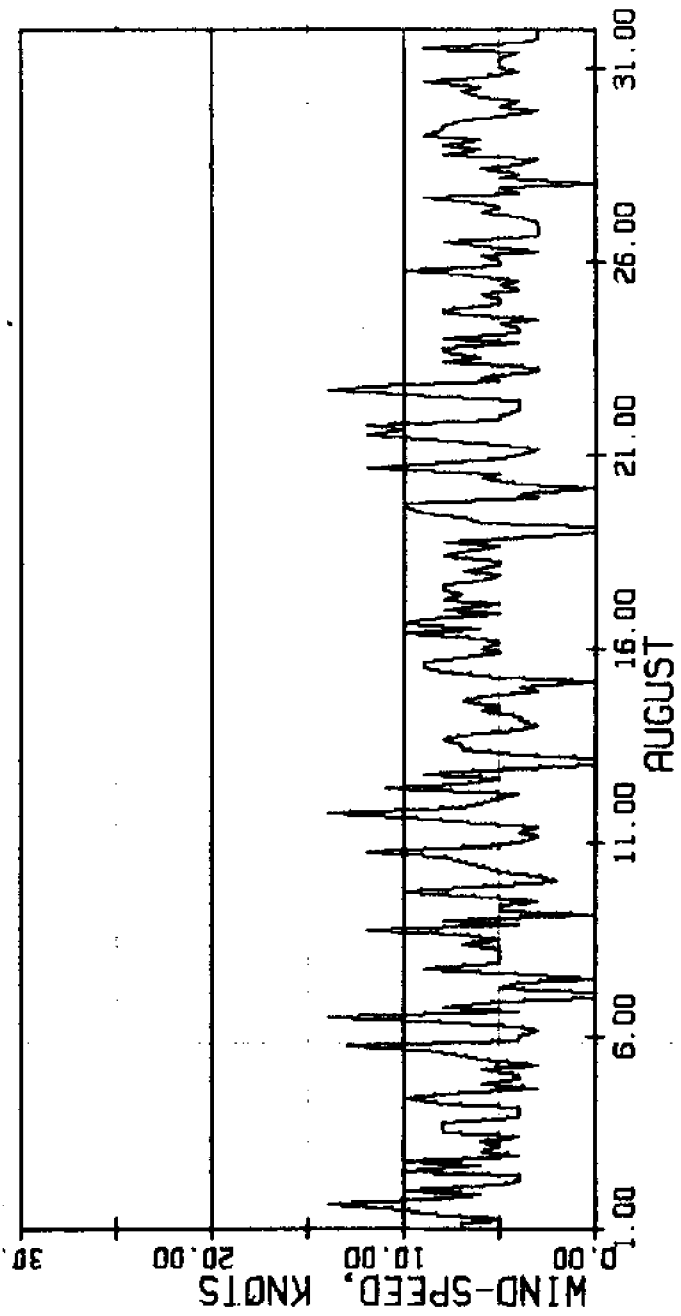
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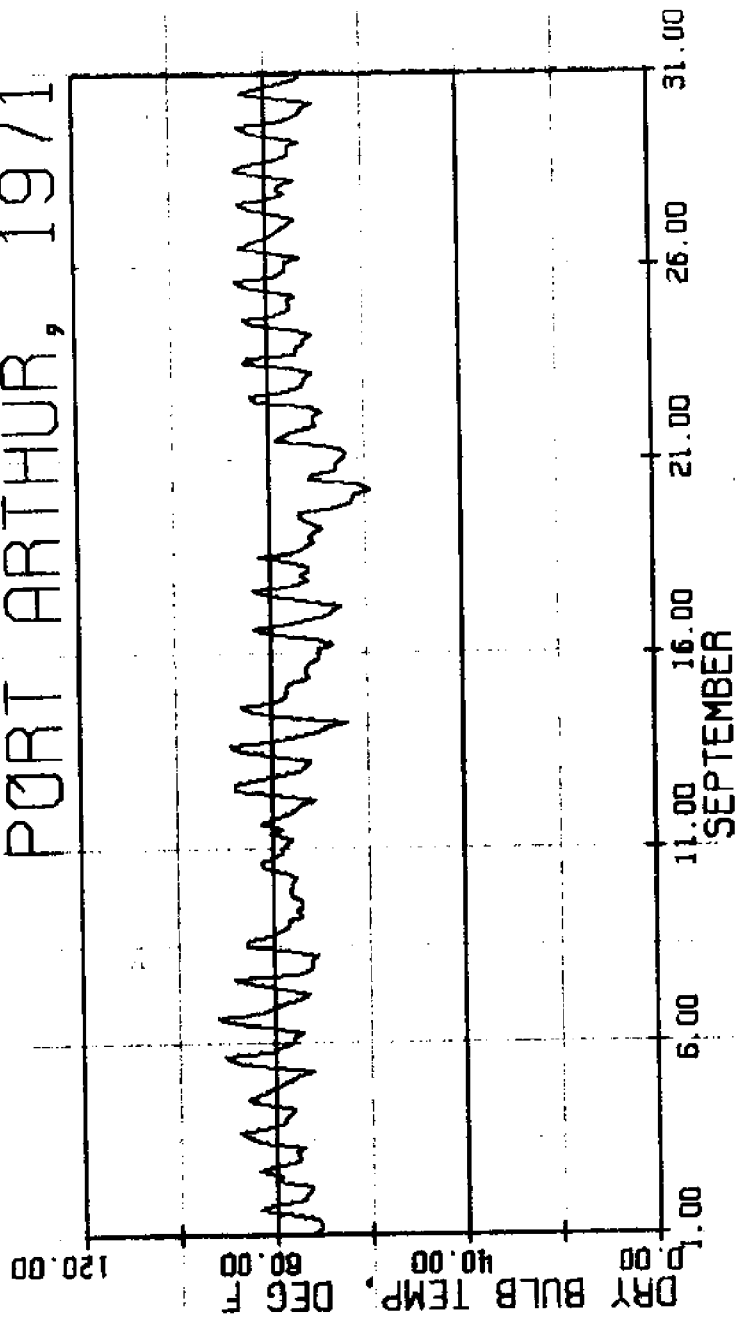


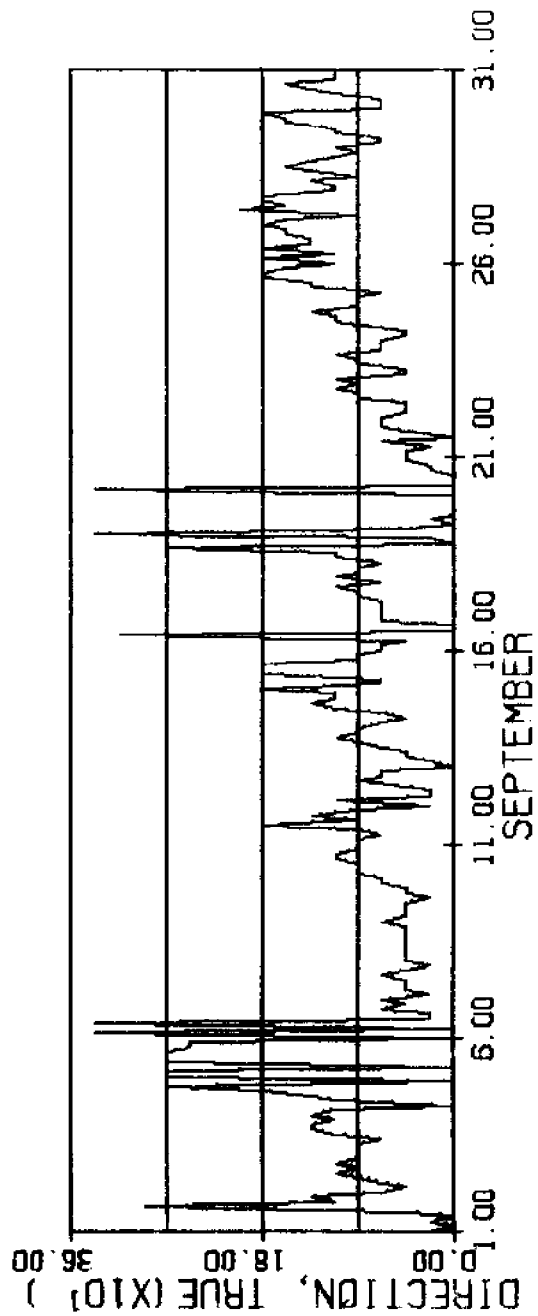
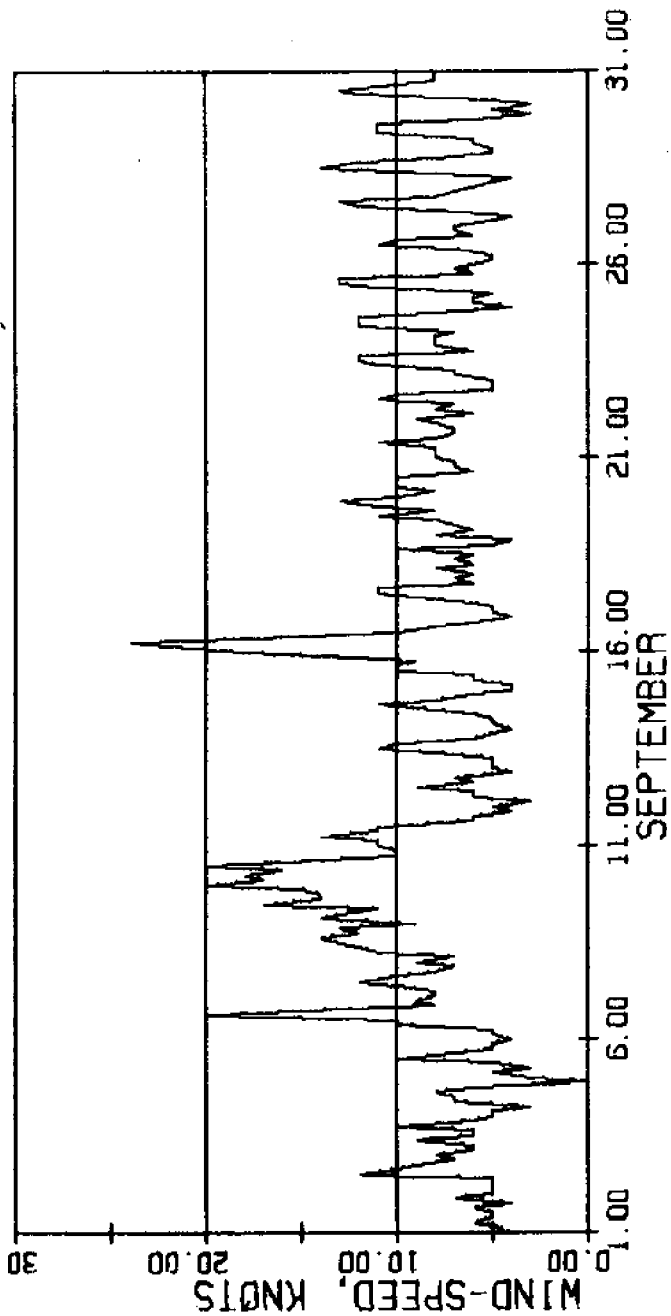
PORT ARTHUR, 1971



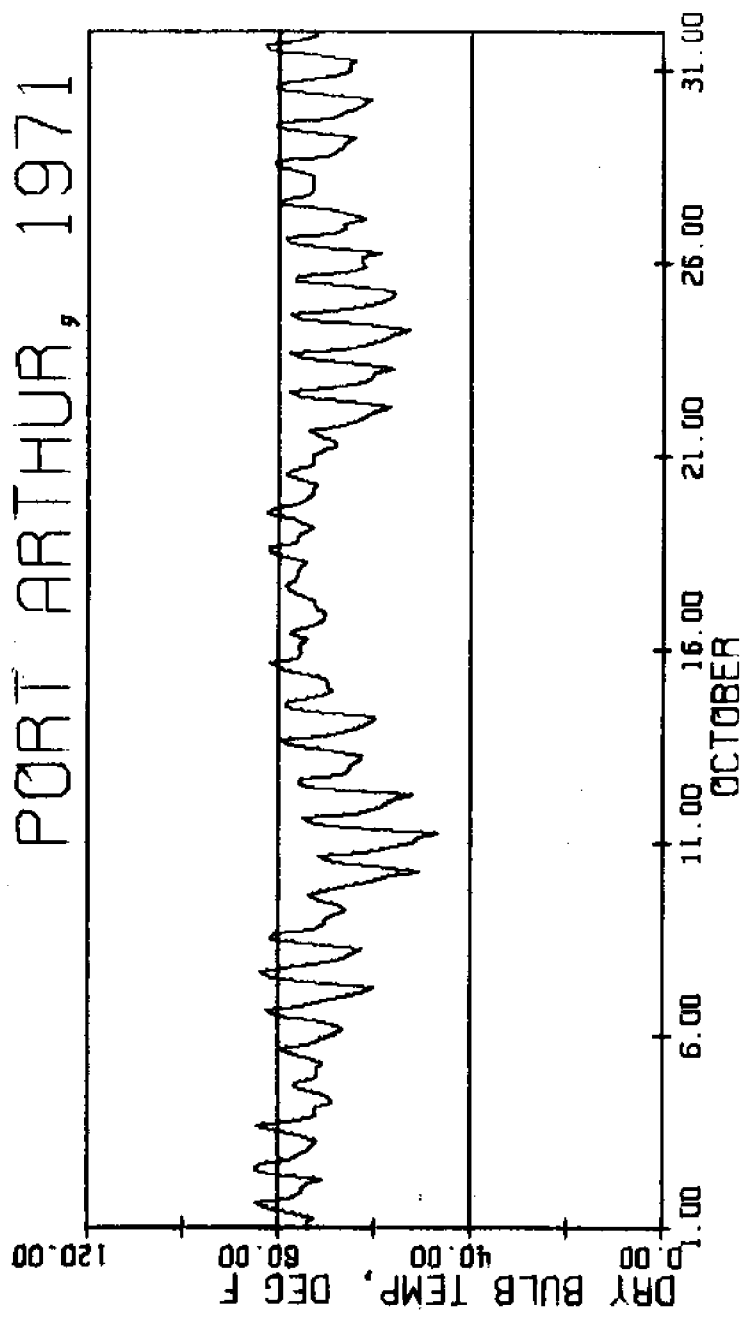


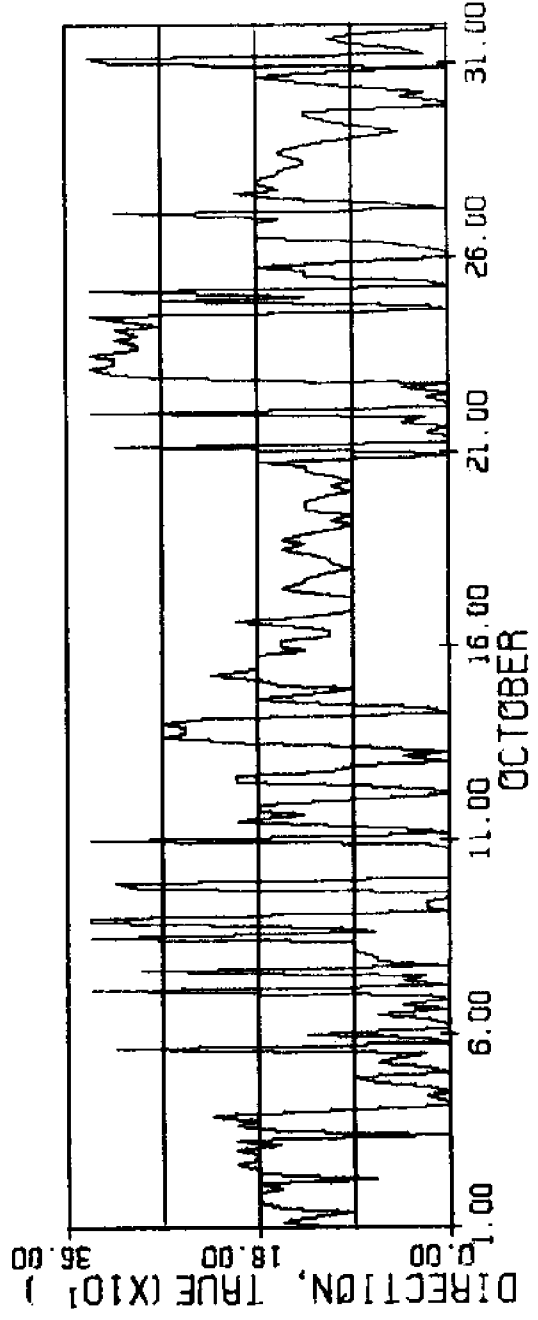
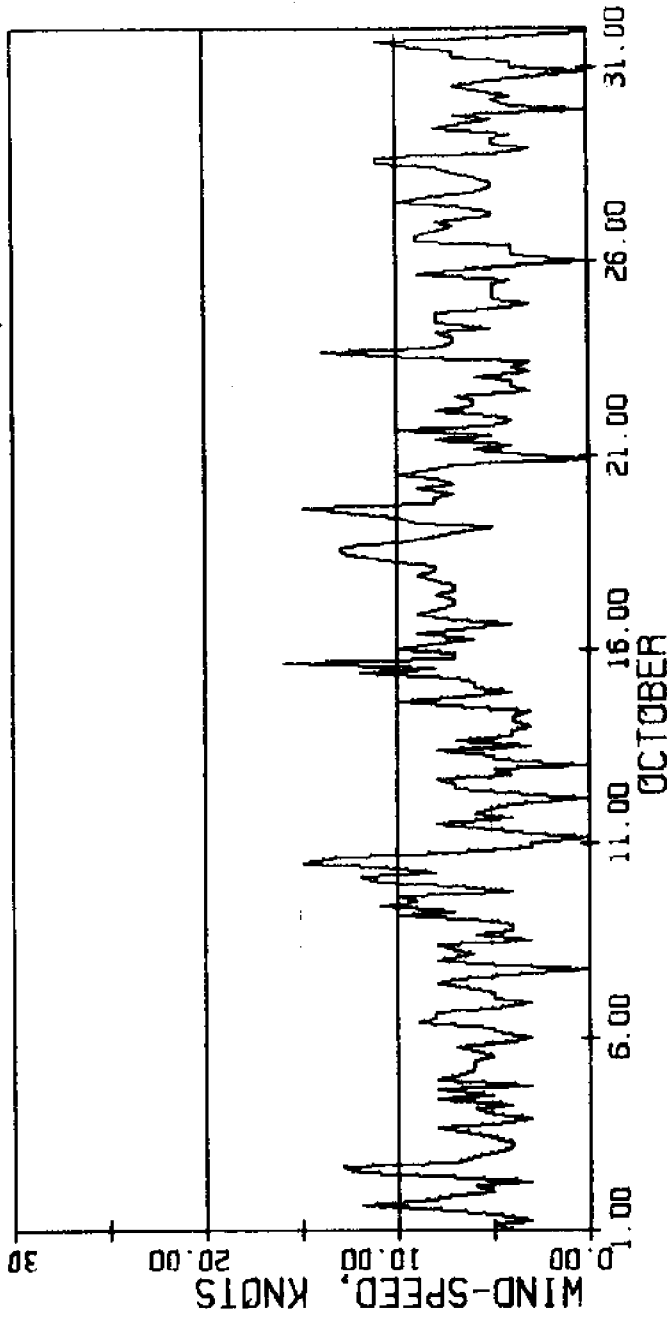
PORT ARTHUR, 1971



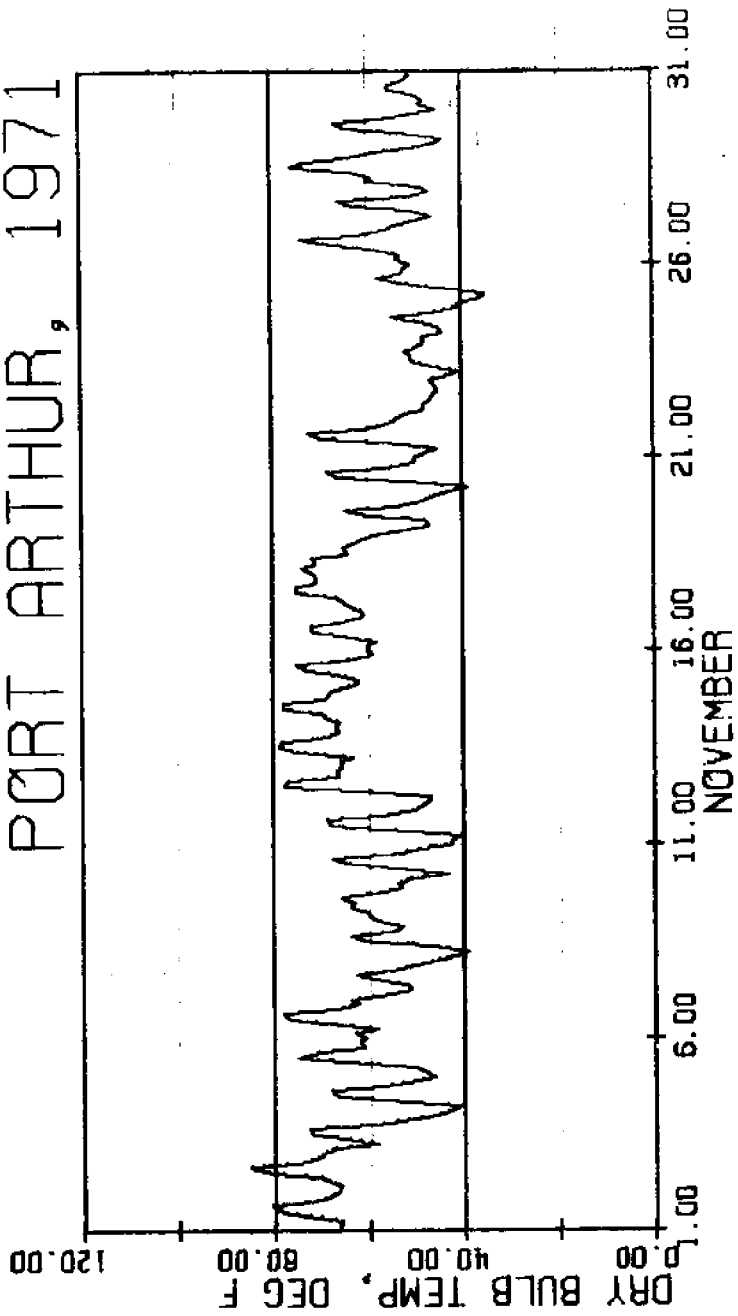


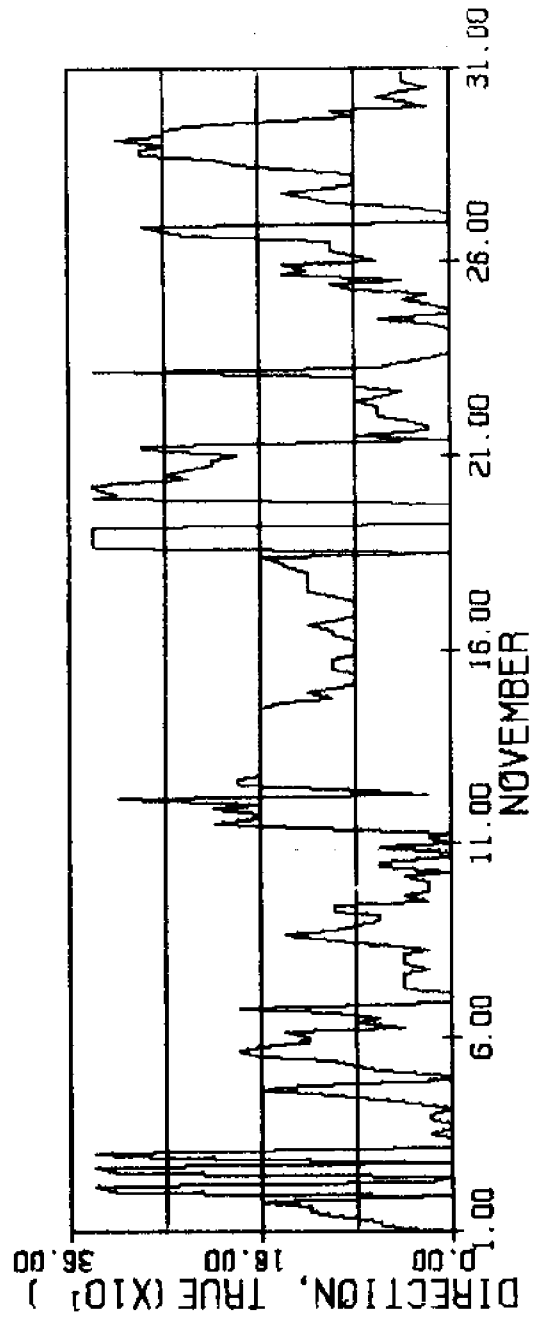
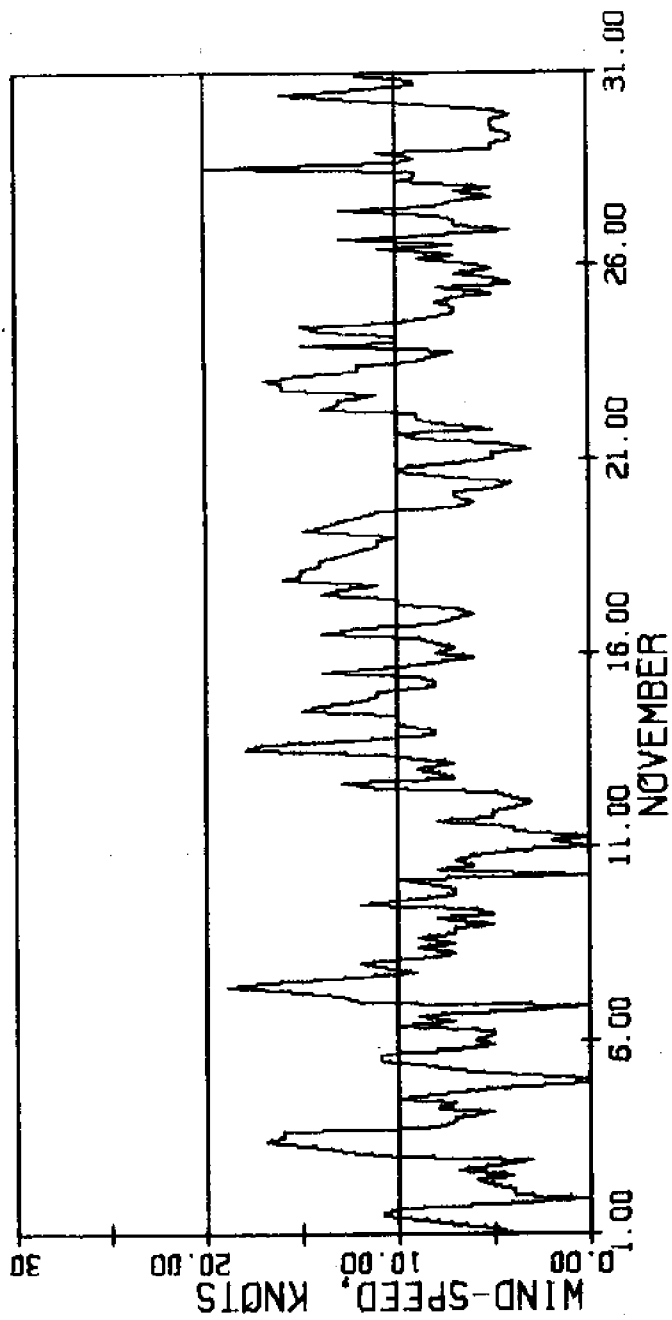
PORT ARTHUR, 1971



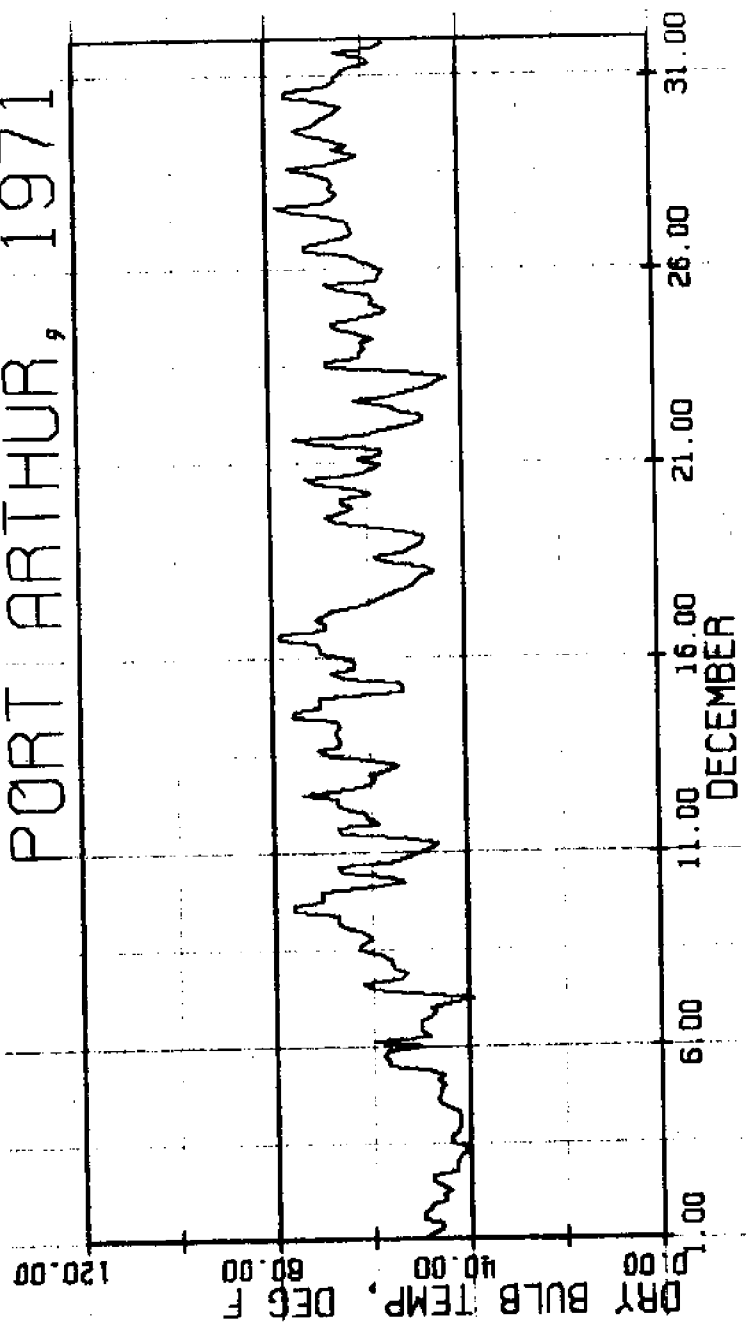


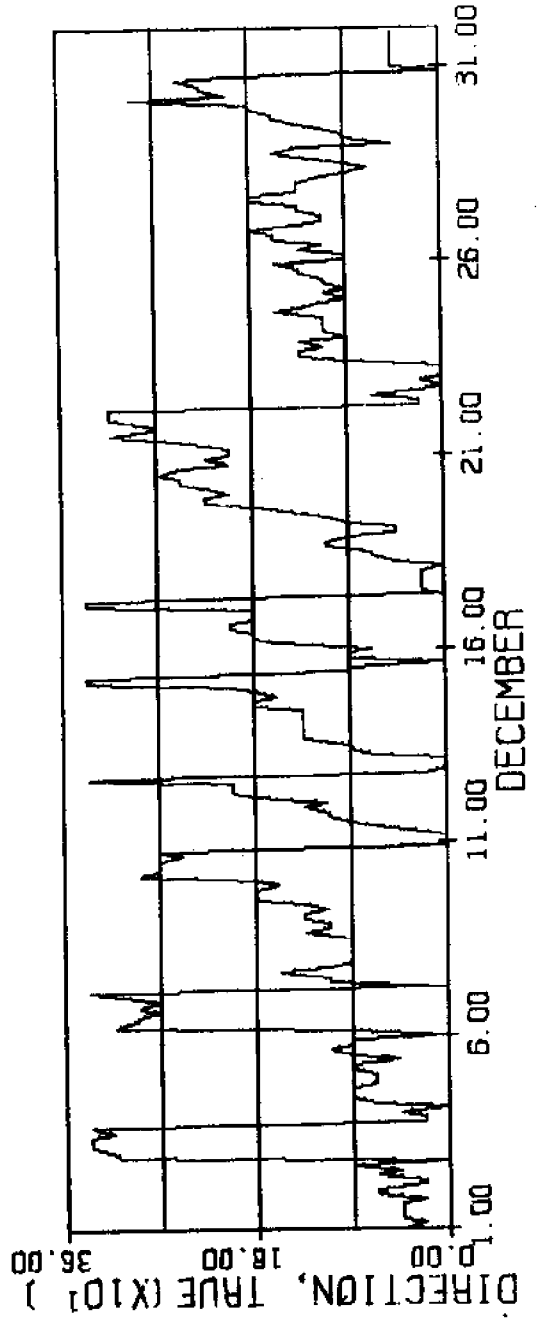
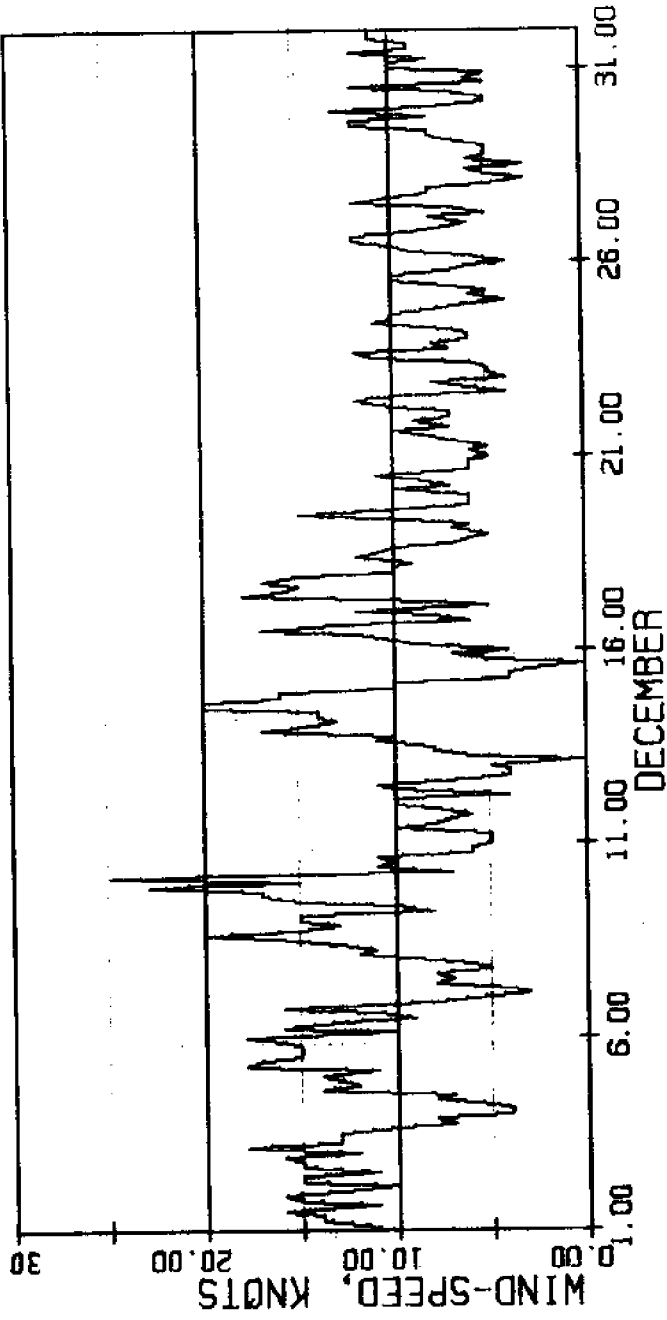
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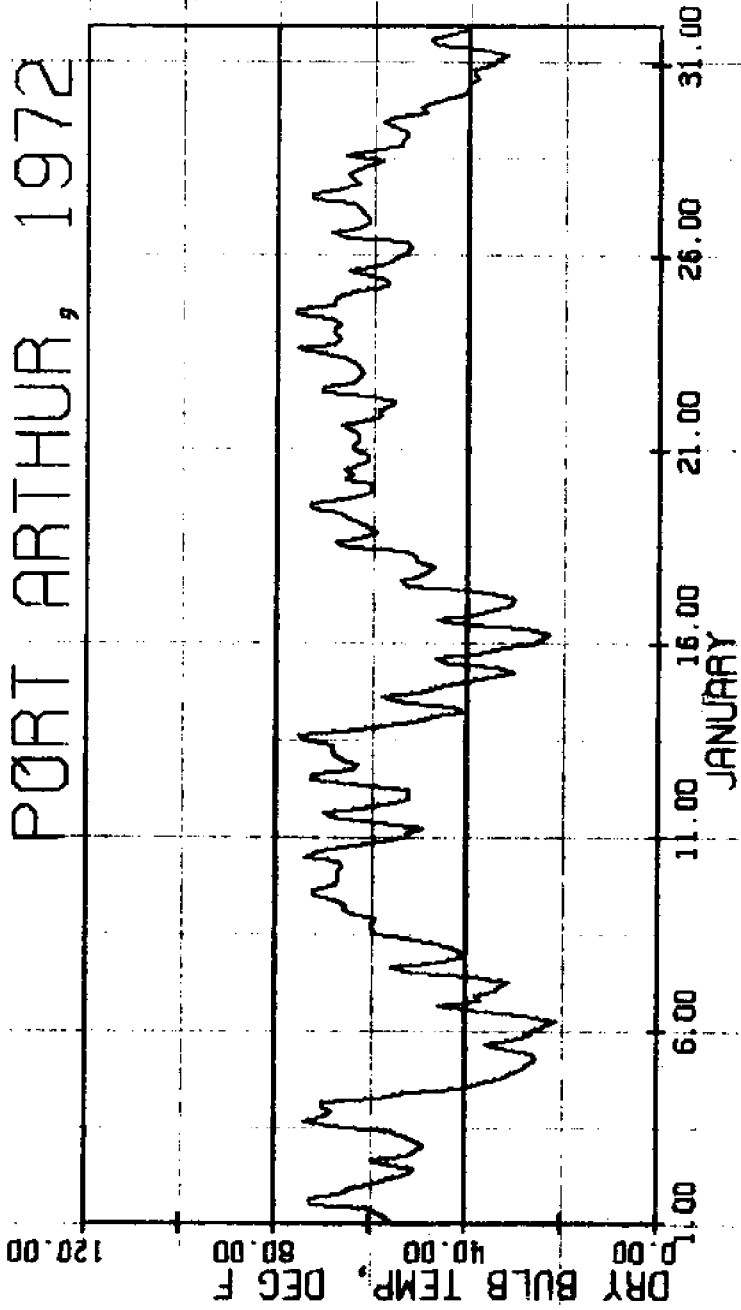


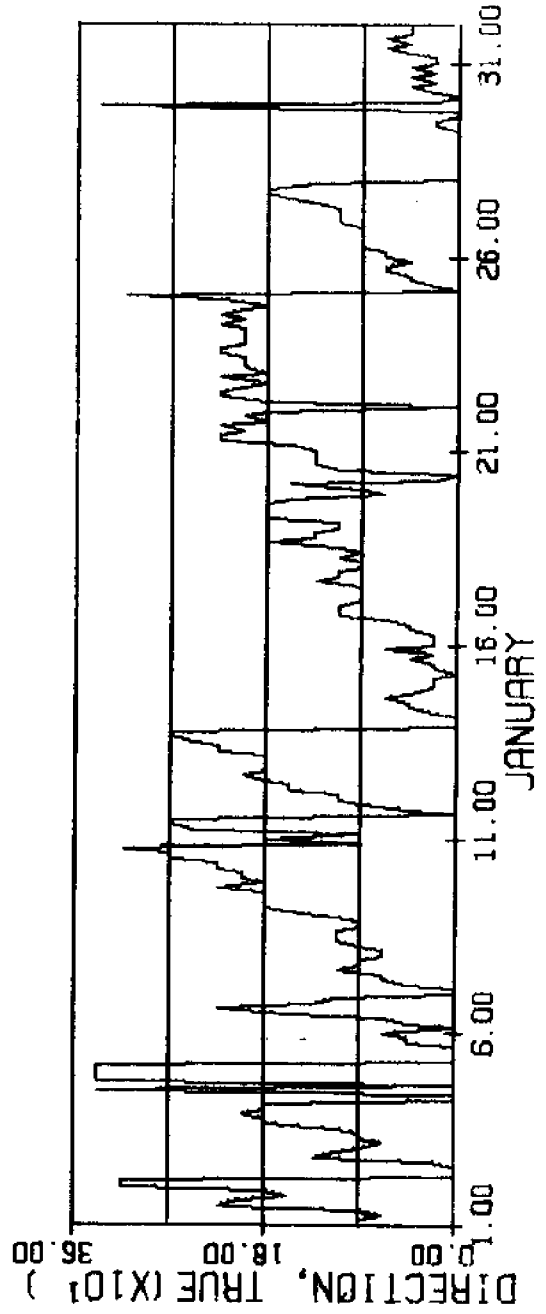
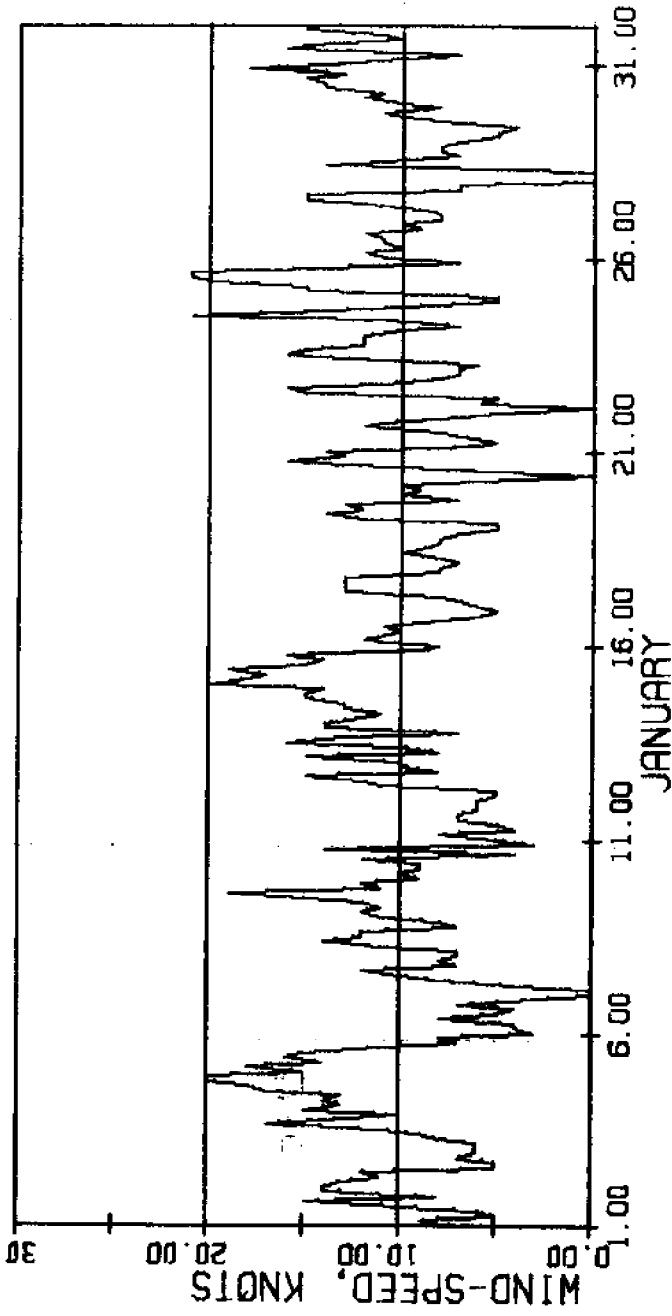
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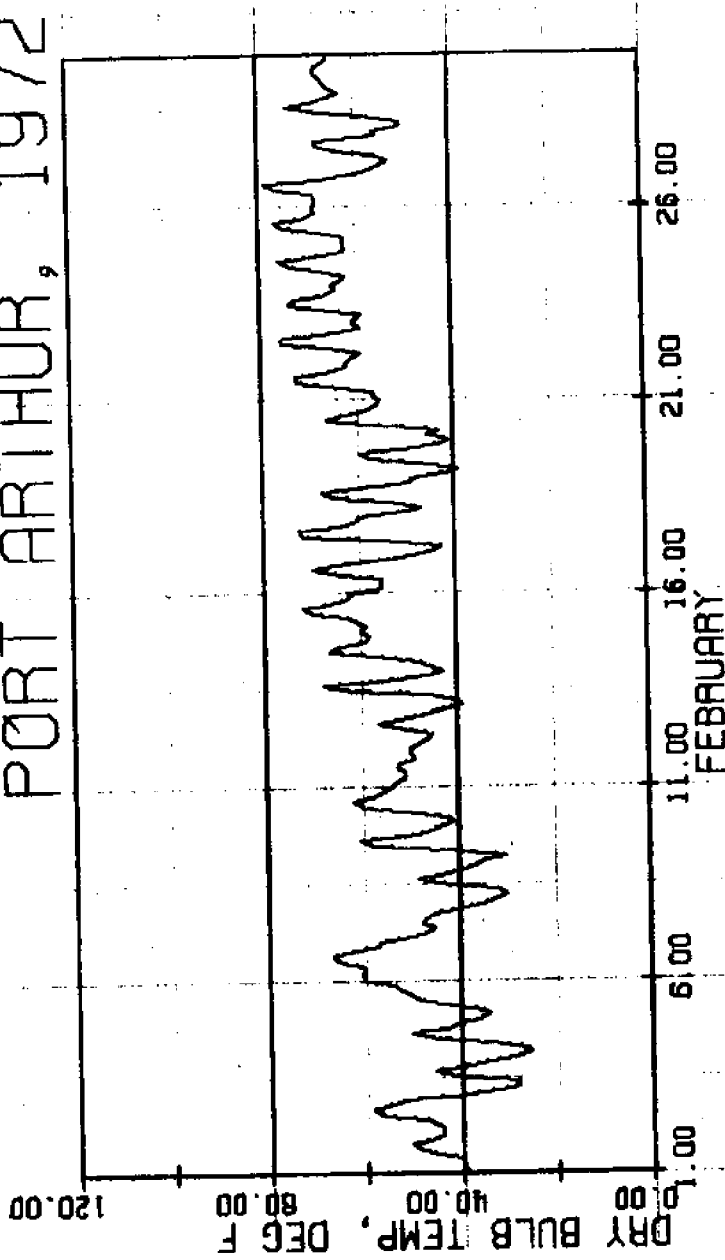


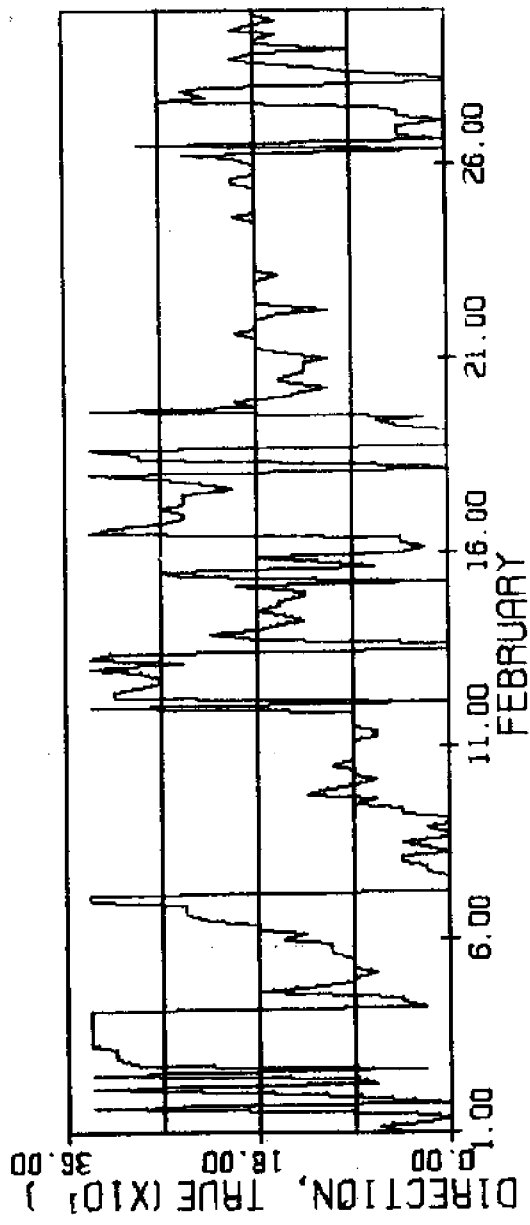
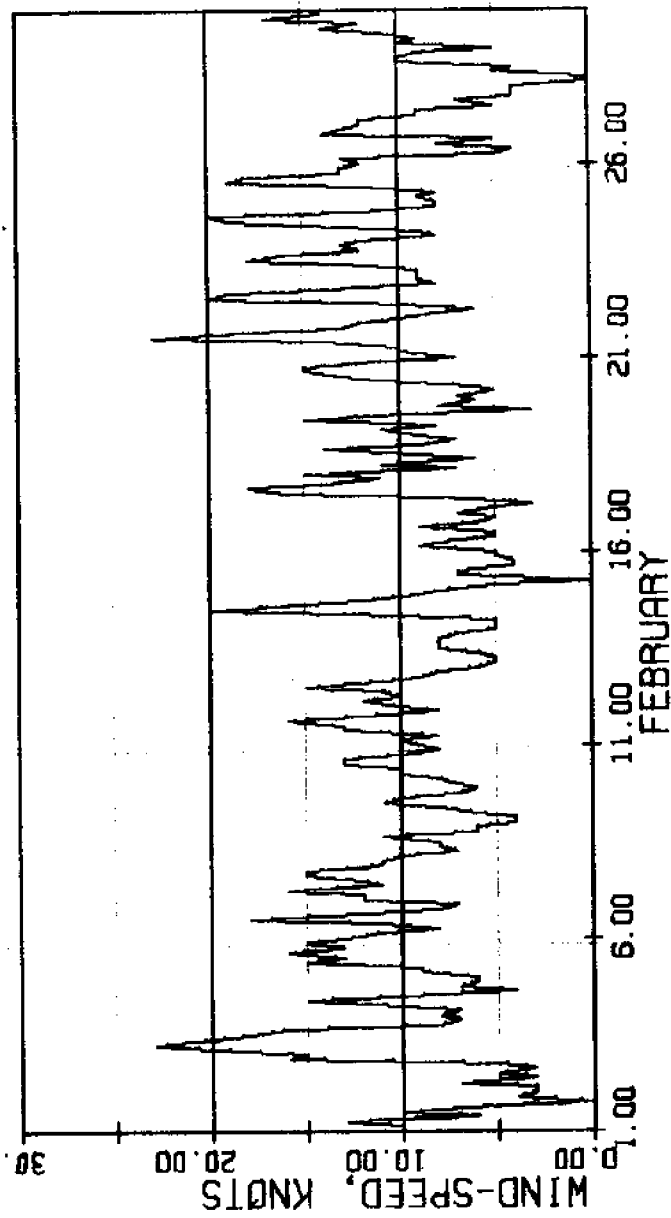
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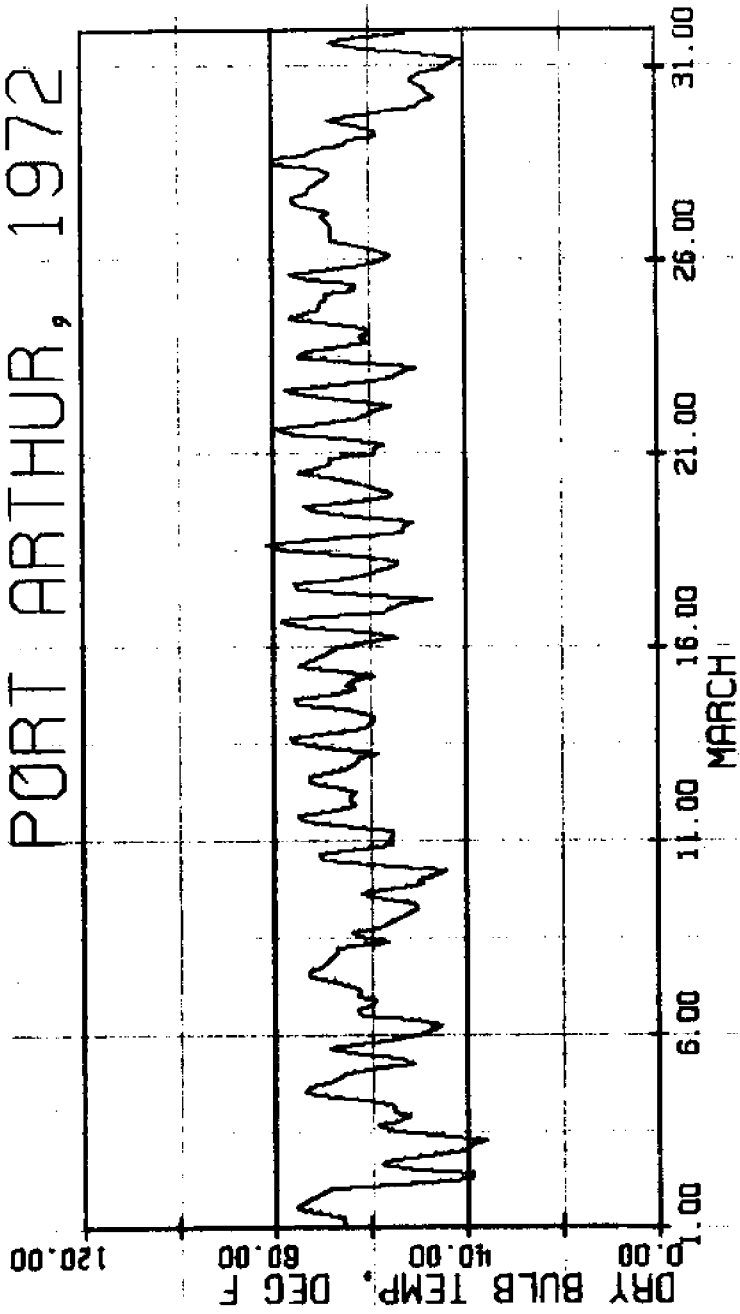


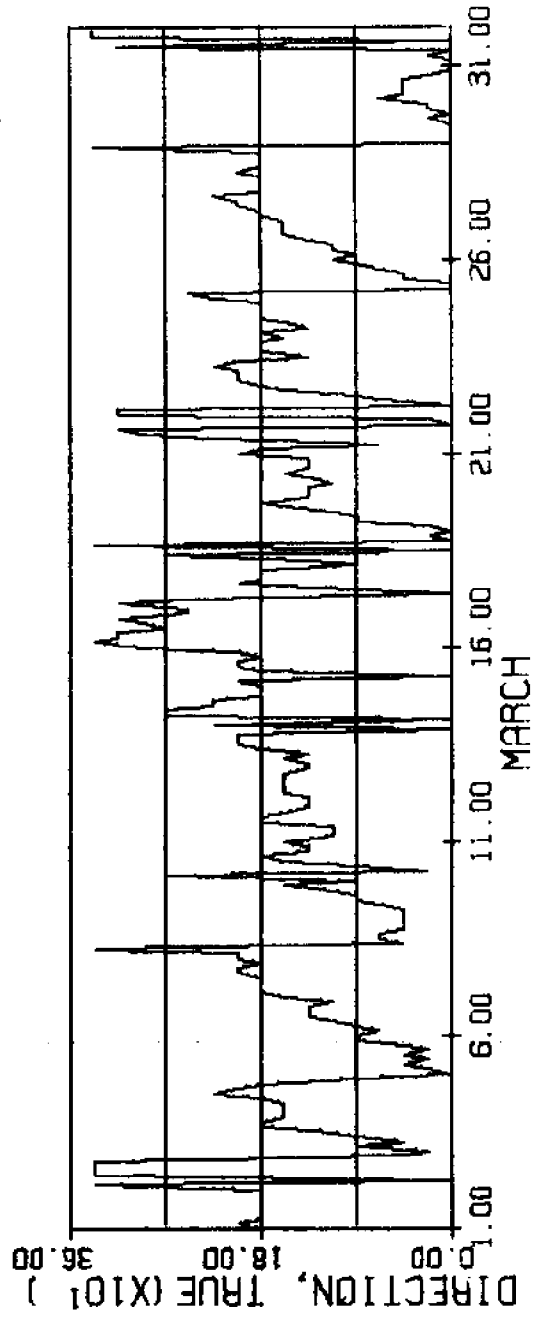
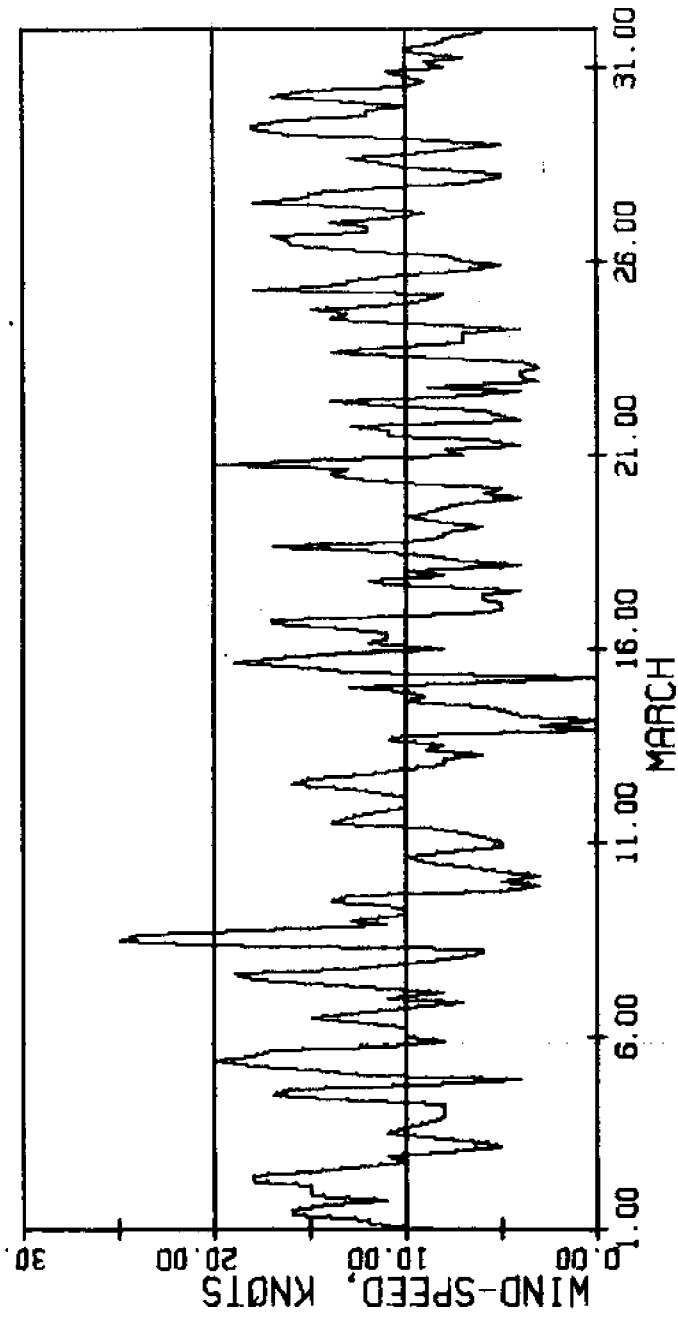
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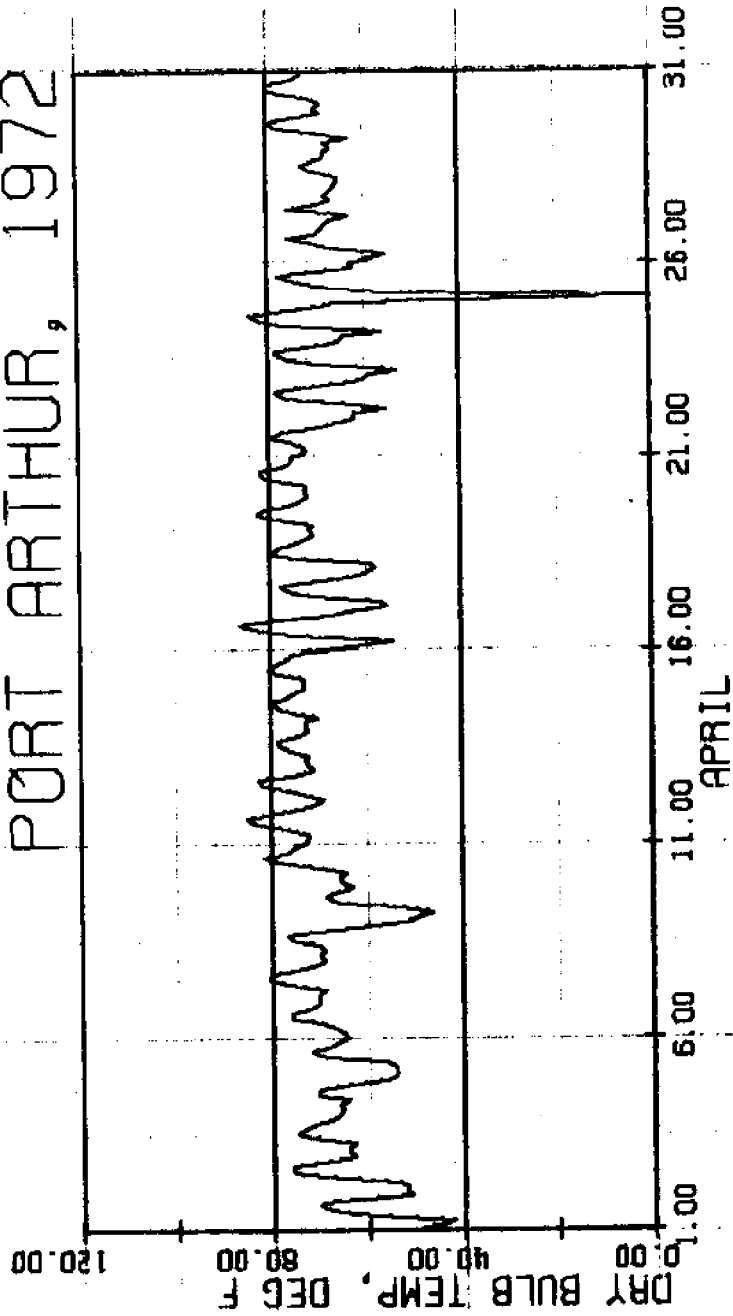


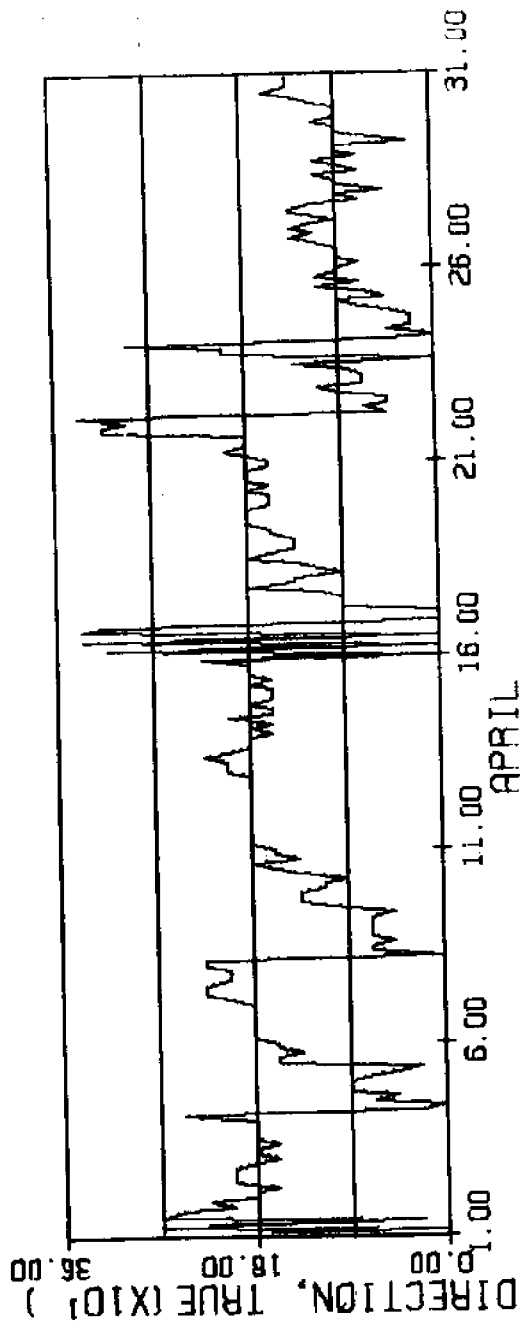
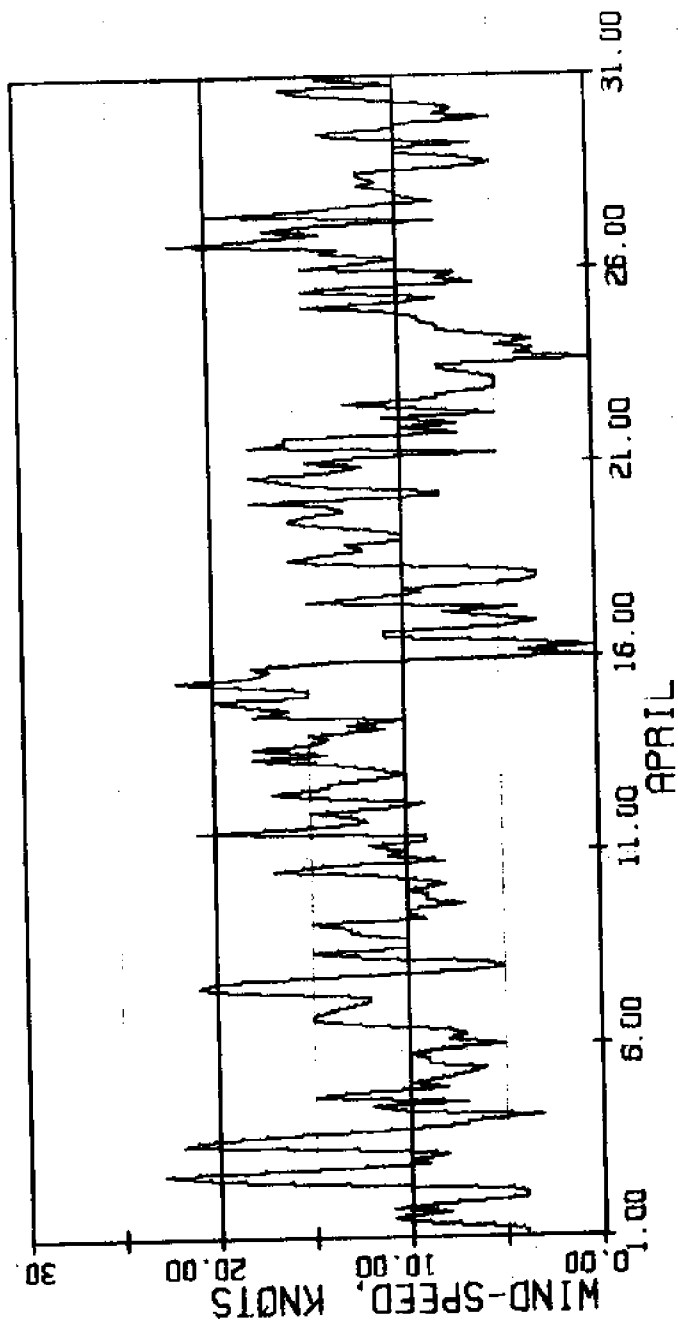
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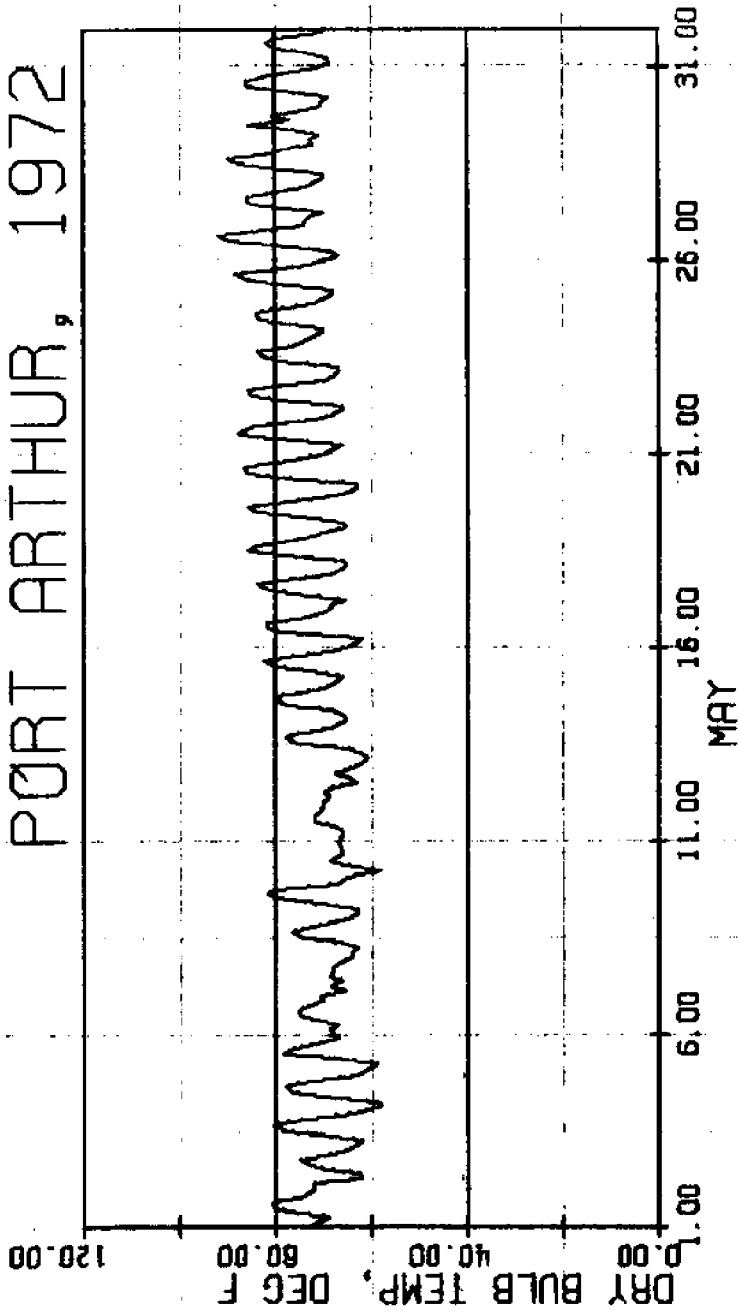


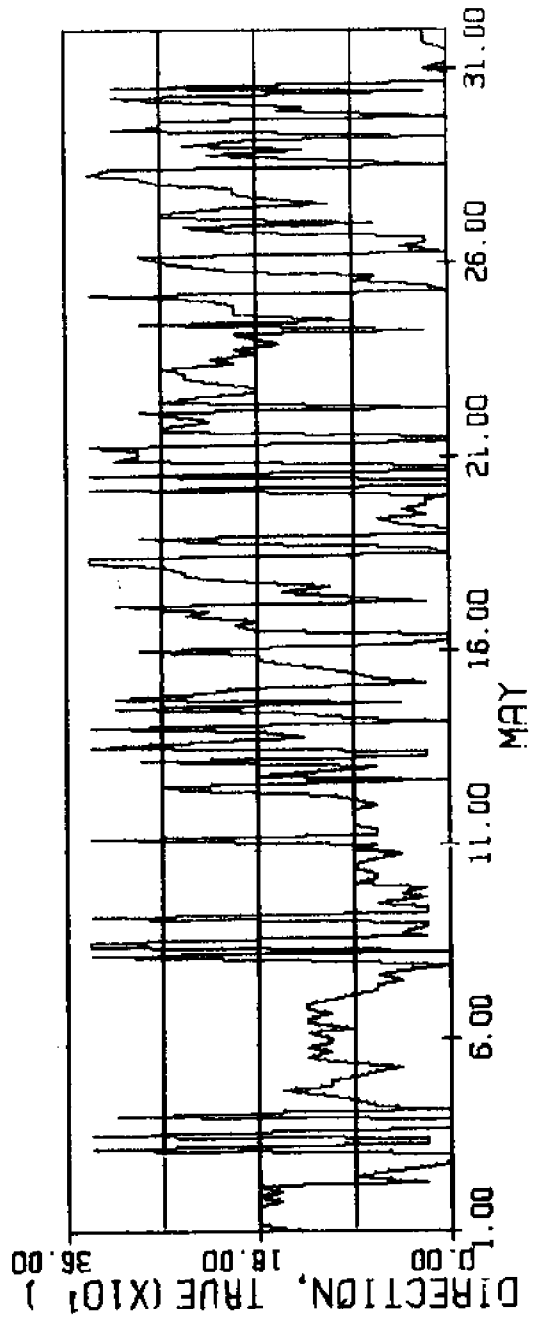
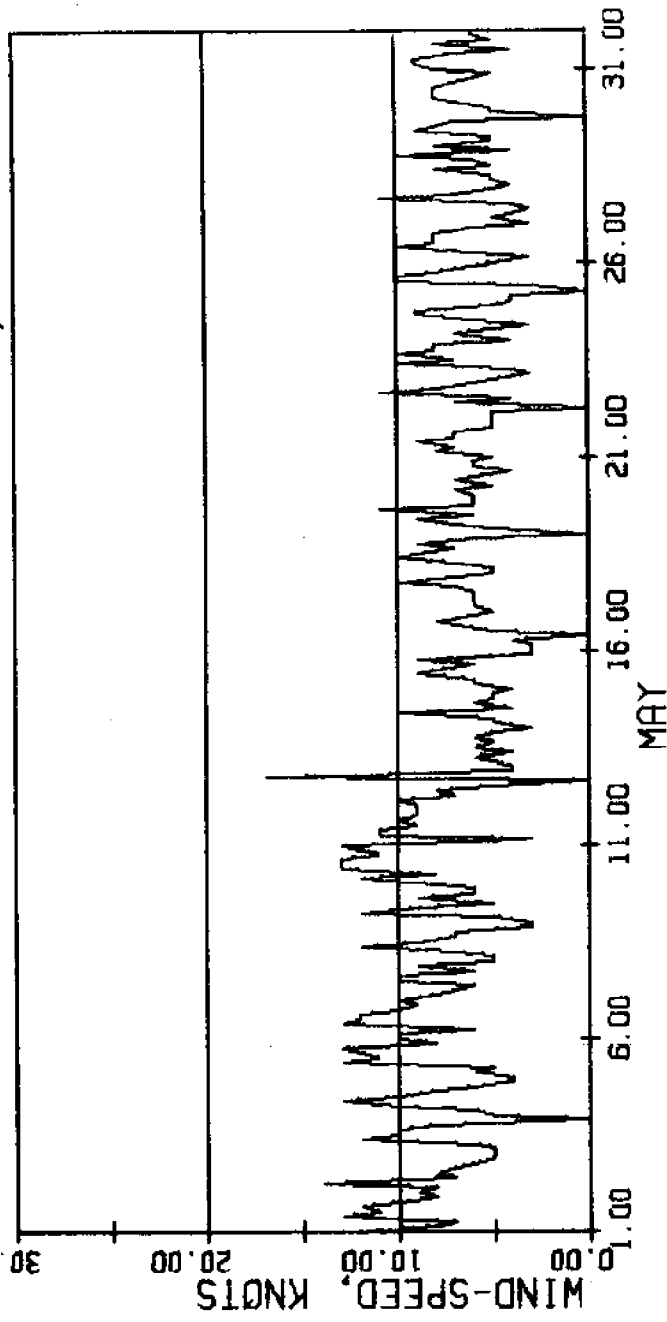
PORT ARTHUR, 1972



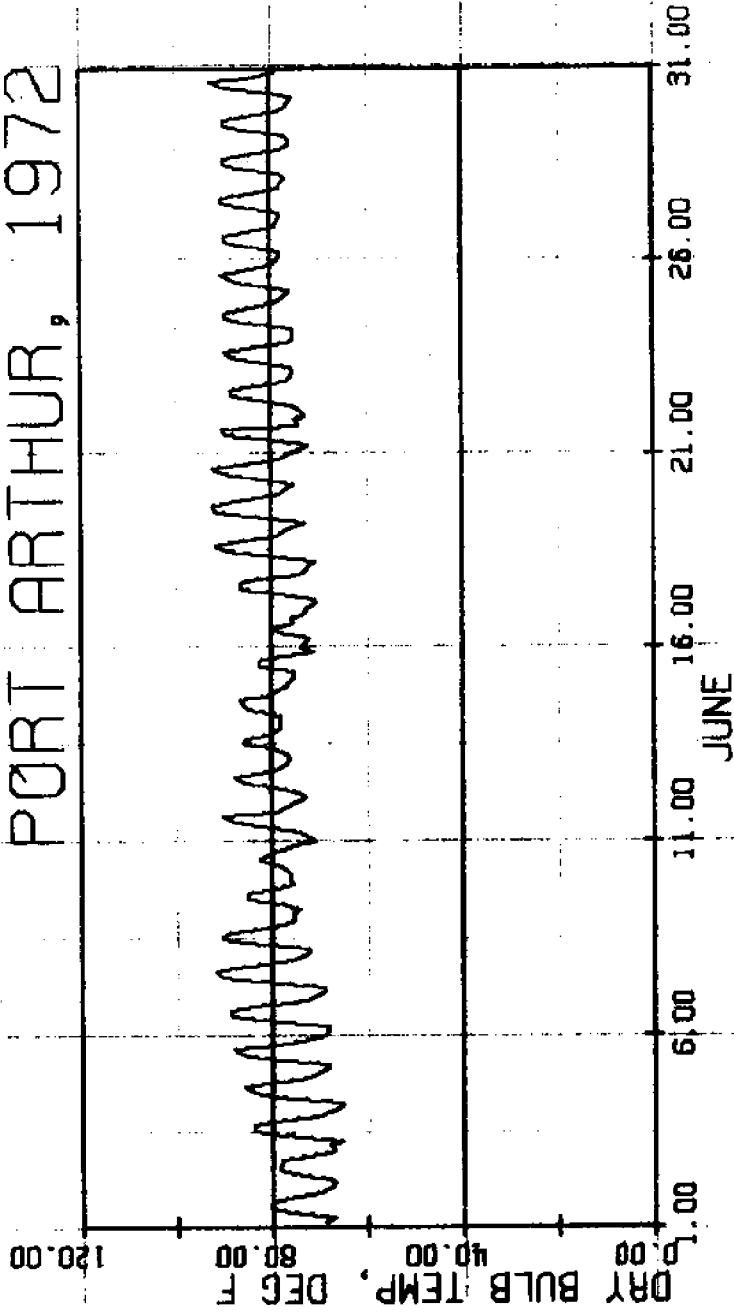


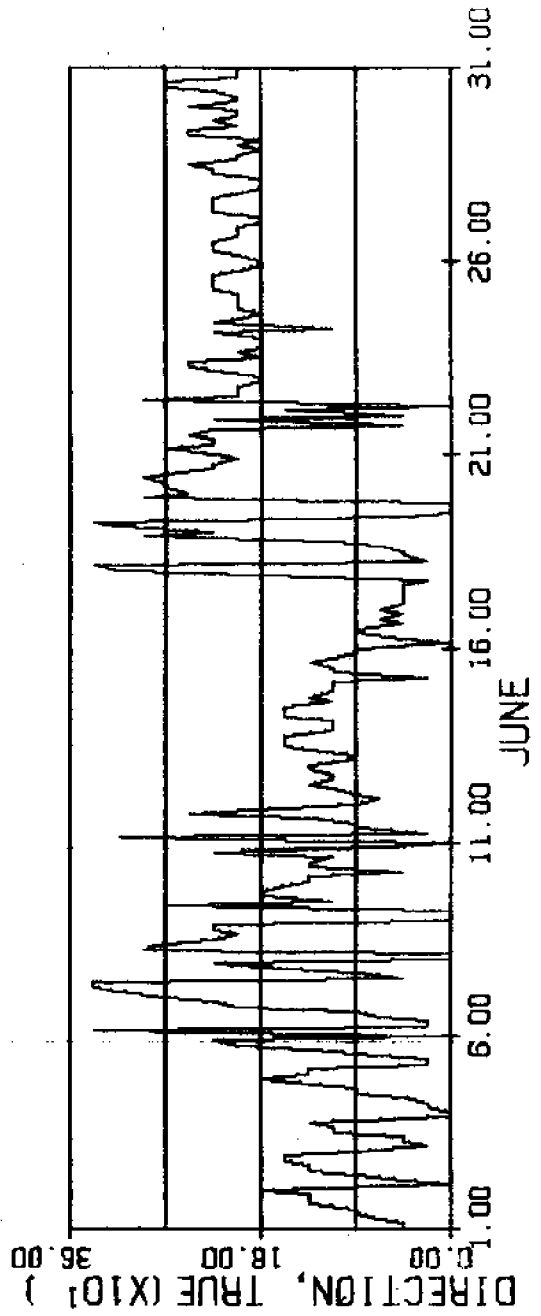
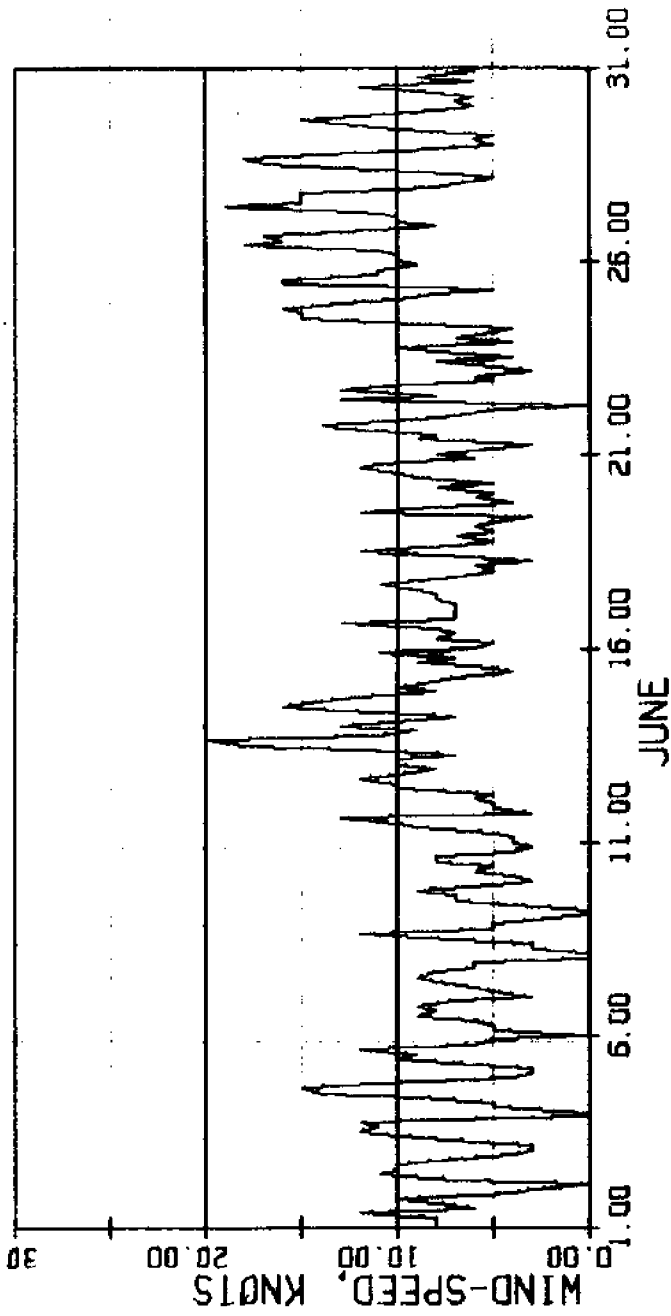
PORT ARTHUR, 1972



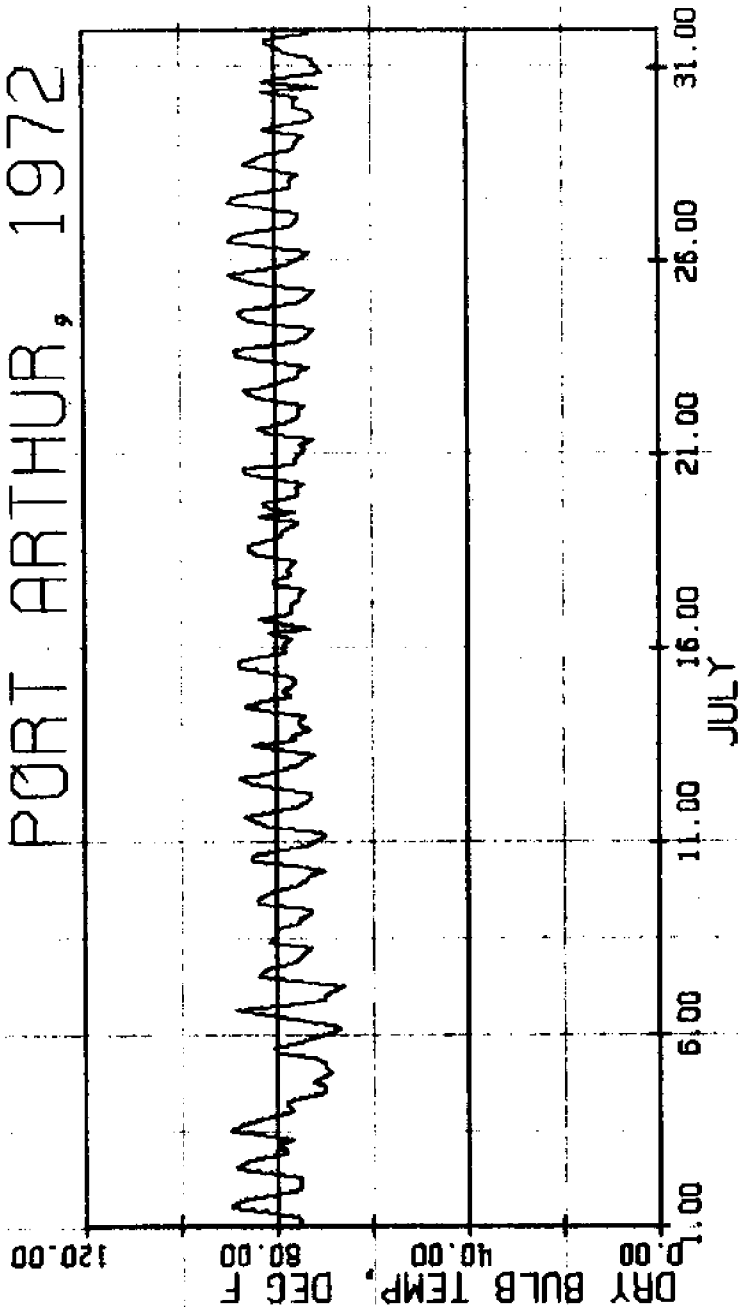


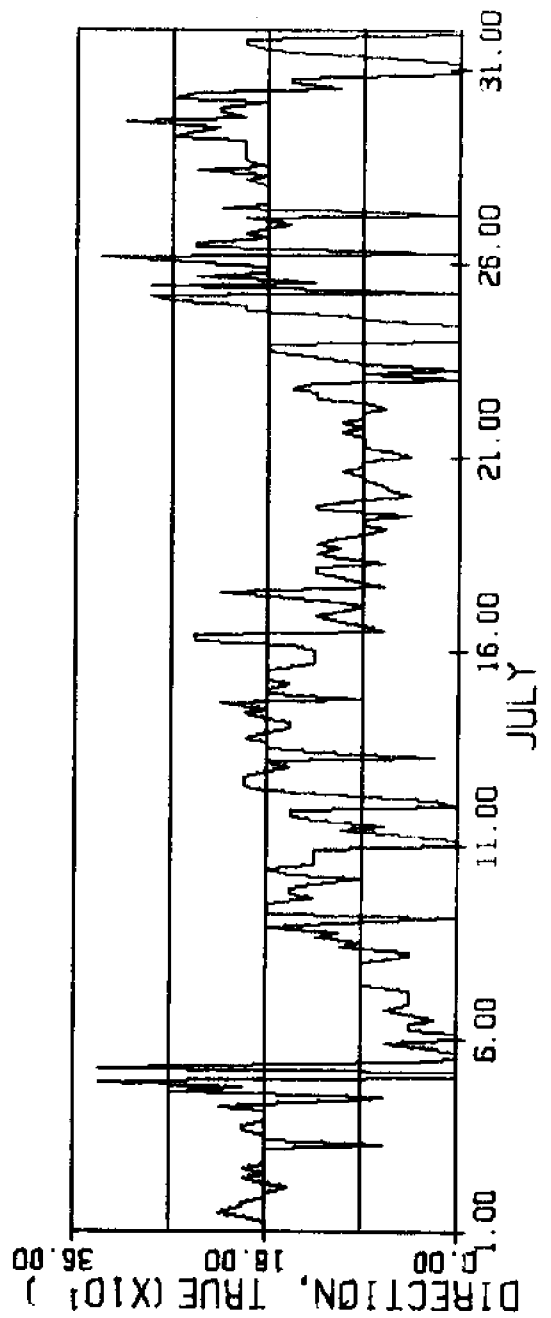
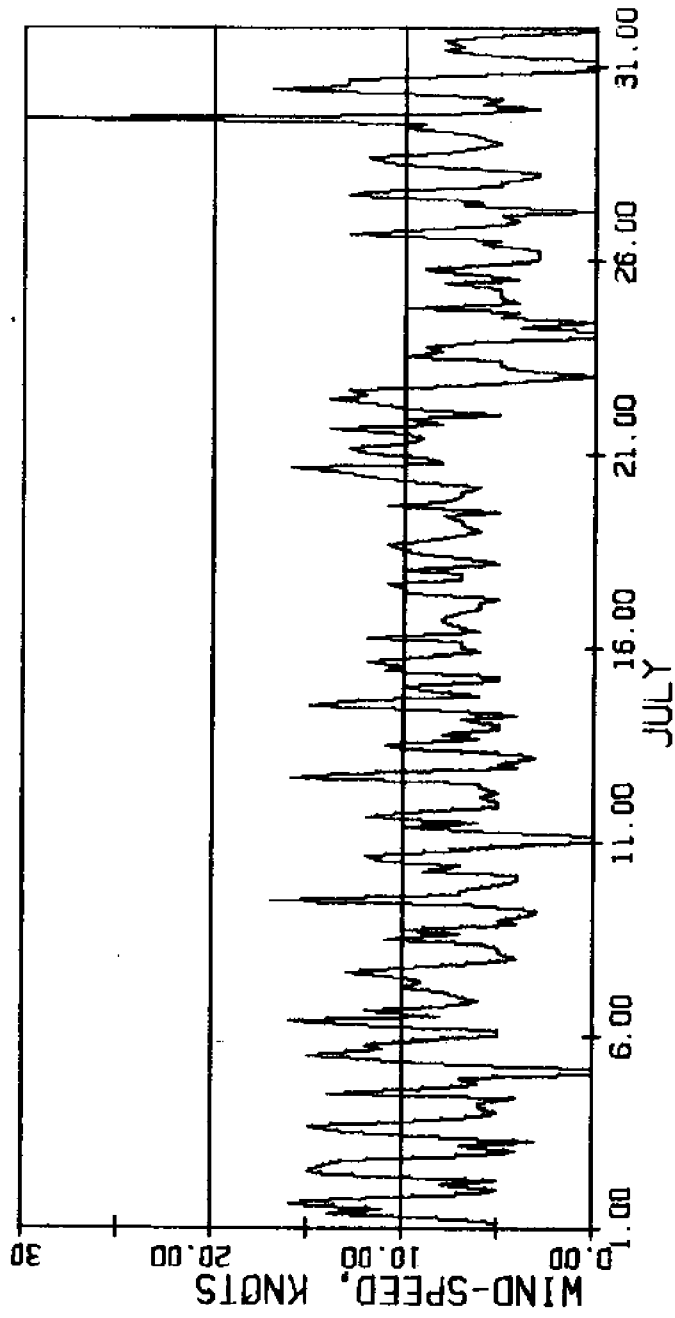
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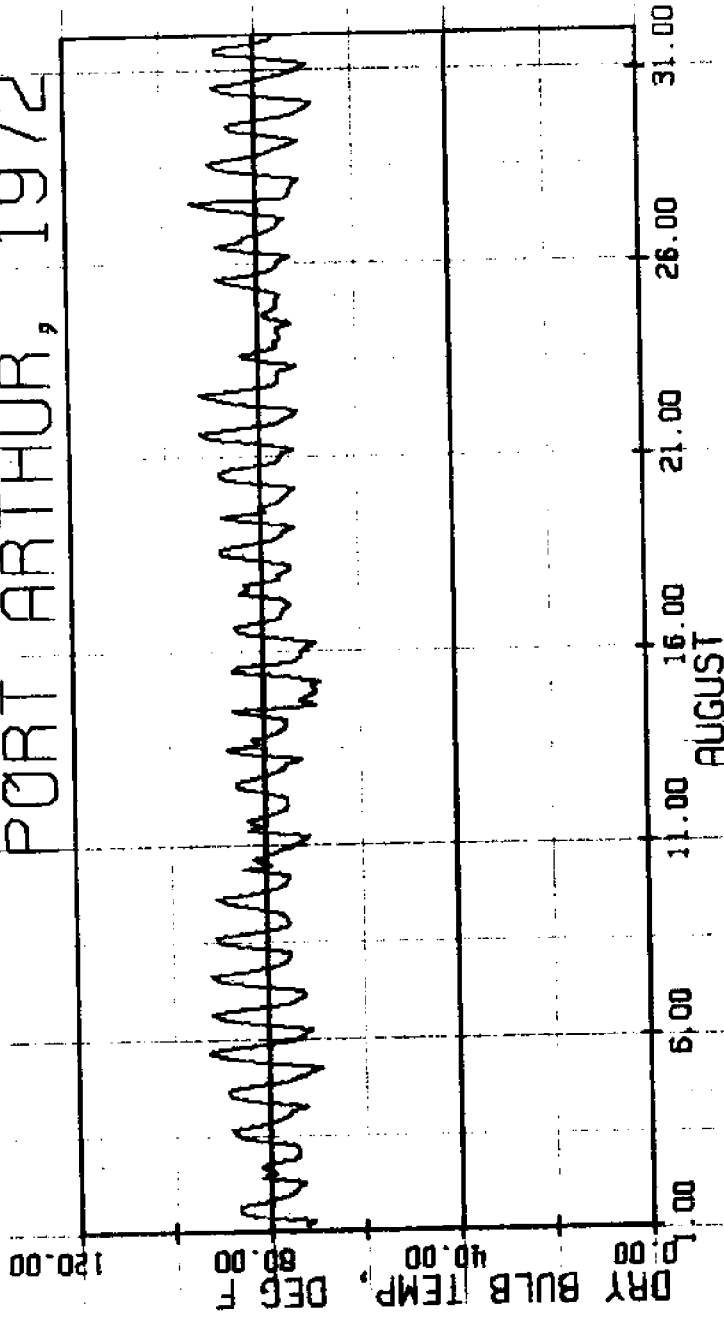


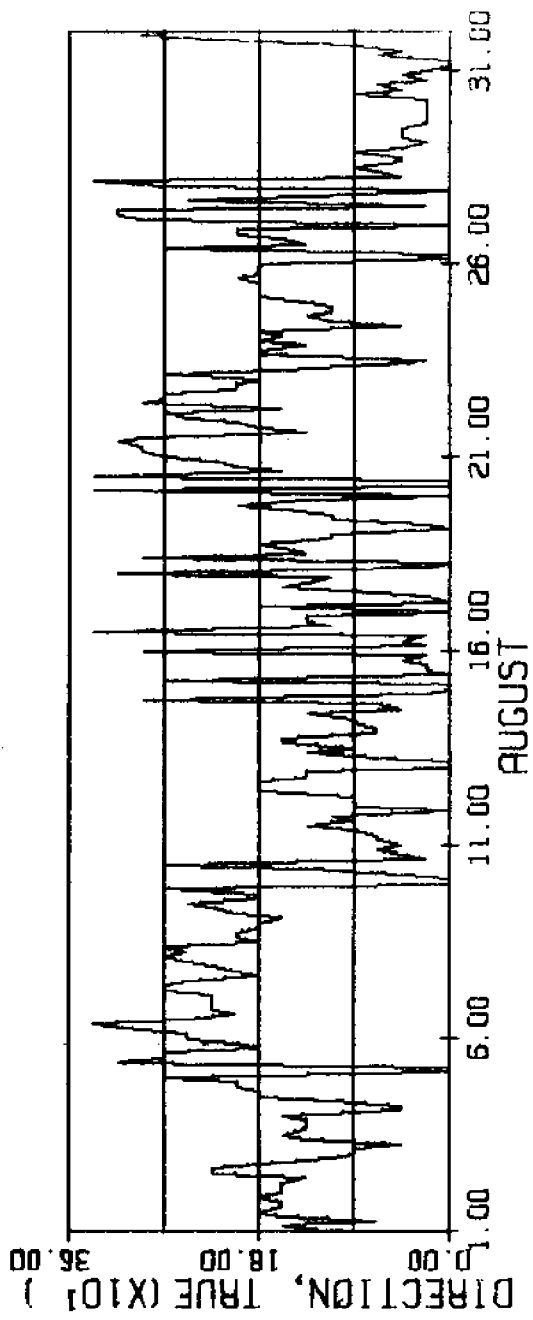
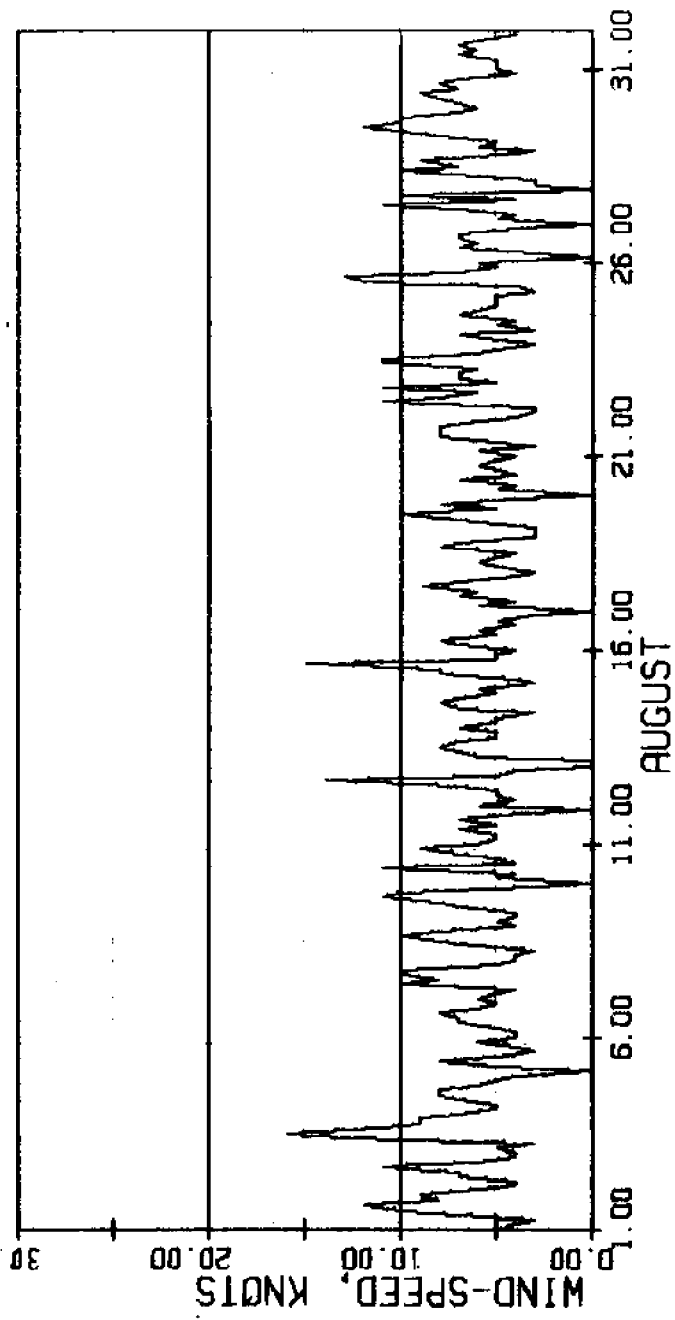
PORT ARTHUR, 1972



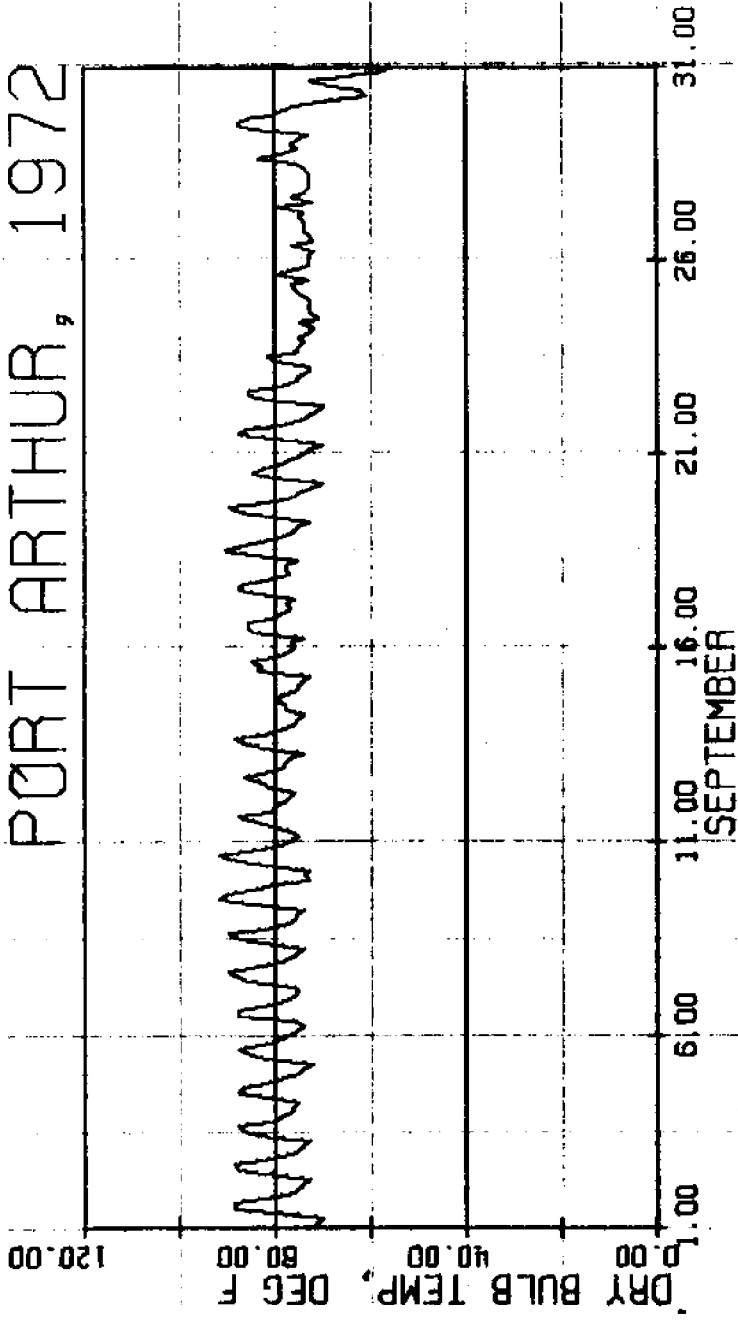


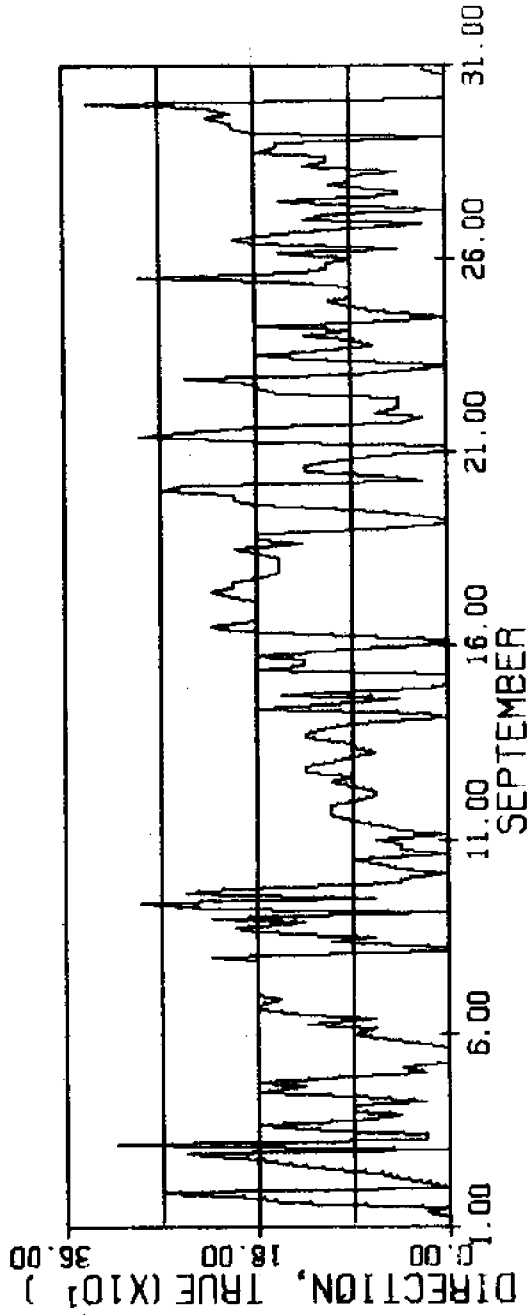
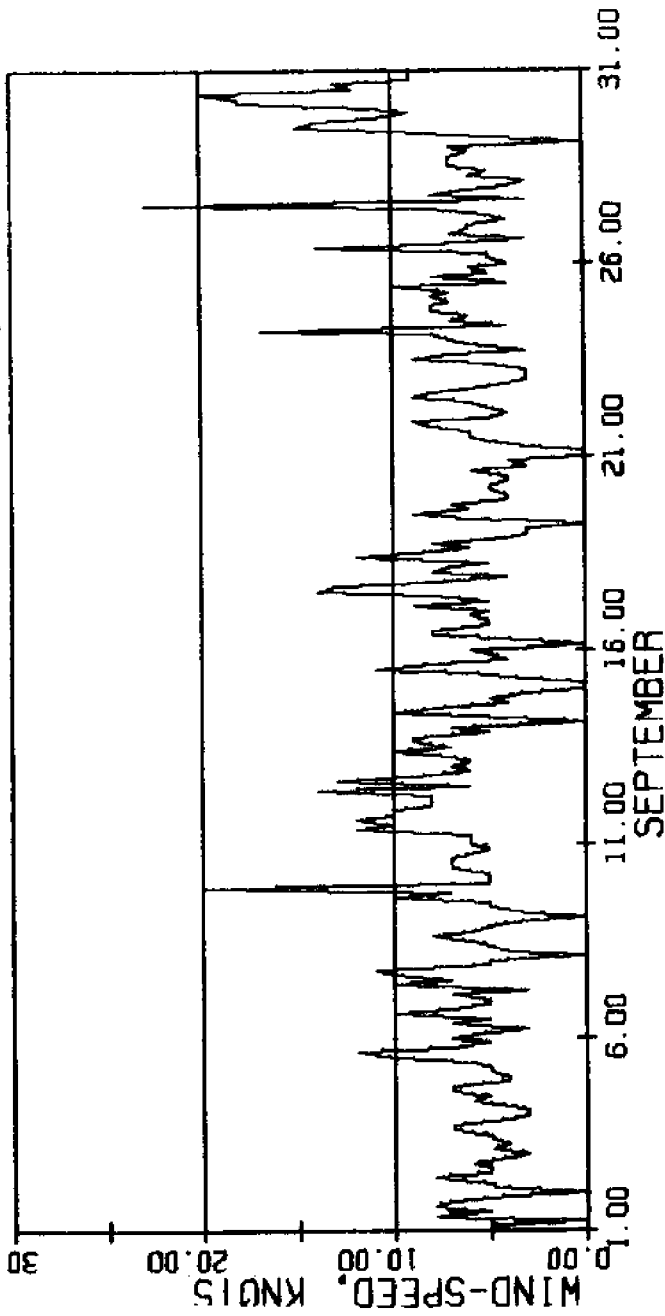
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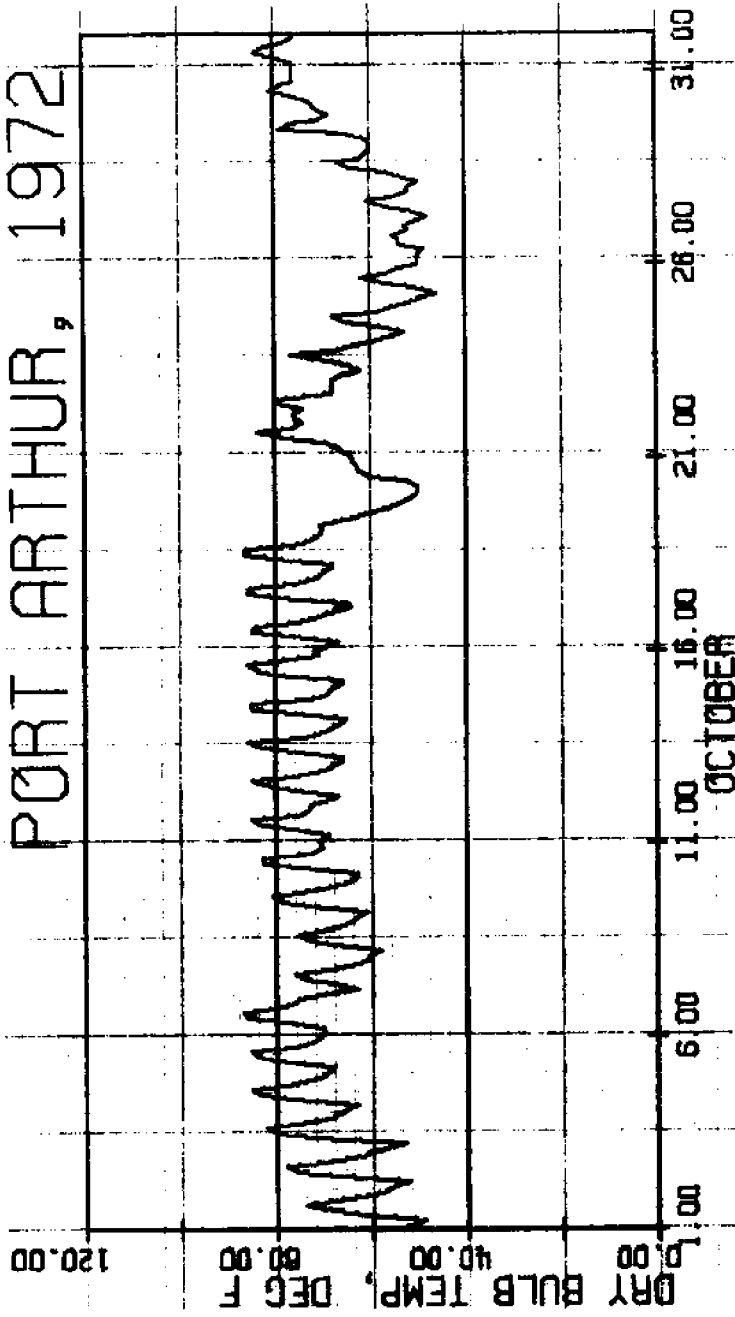


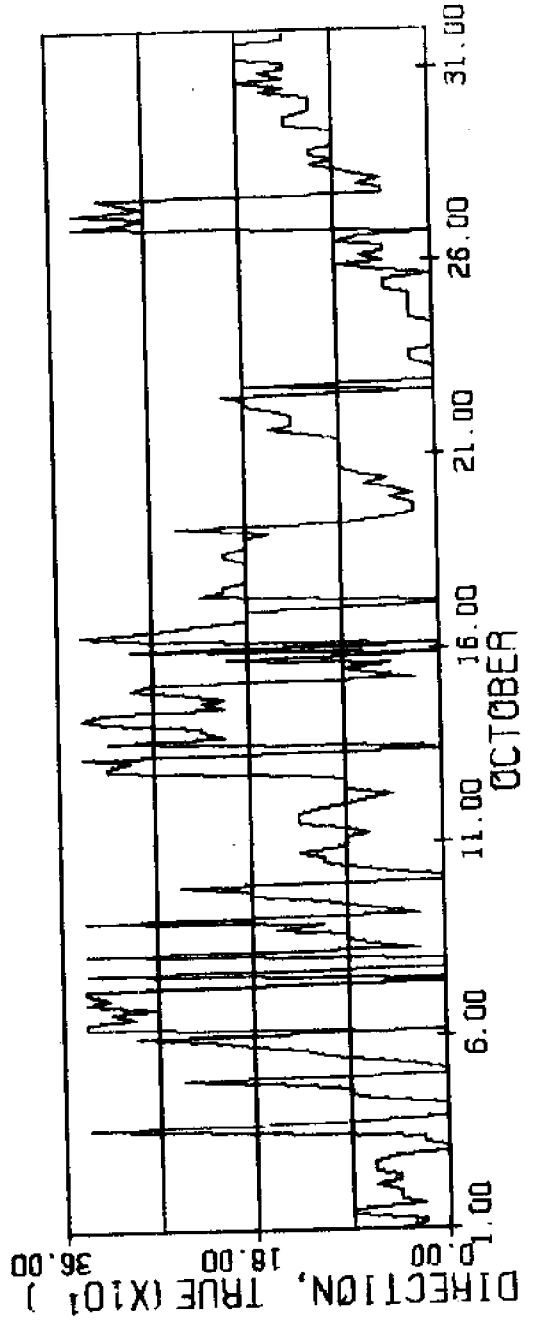
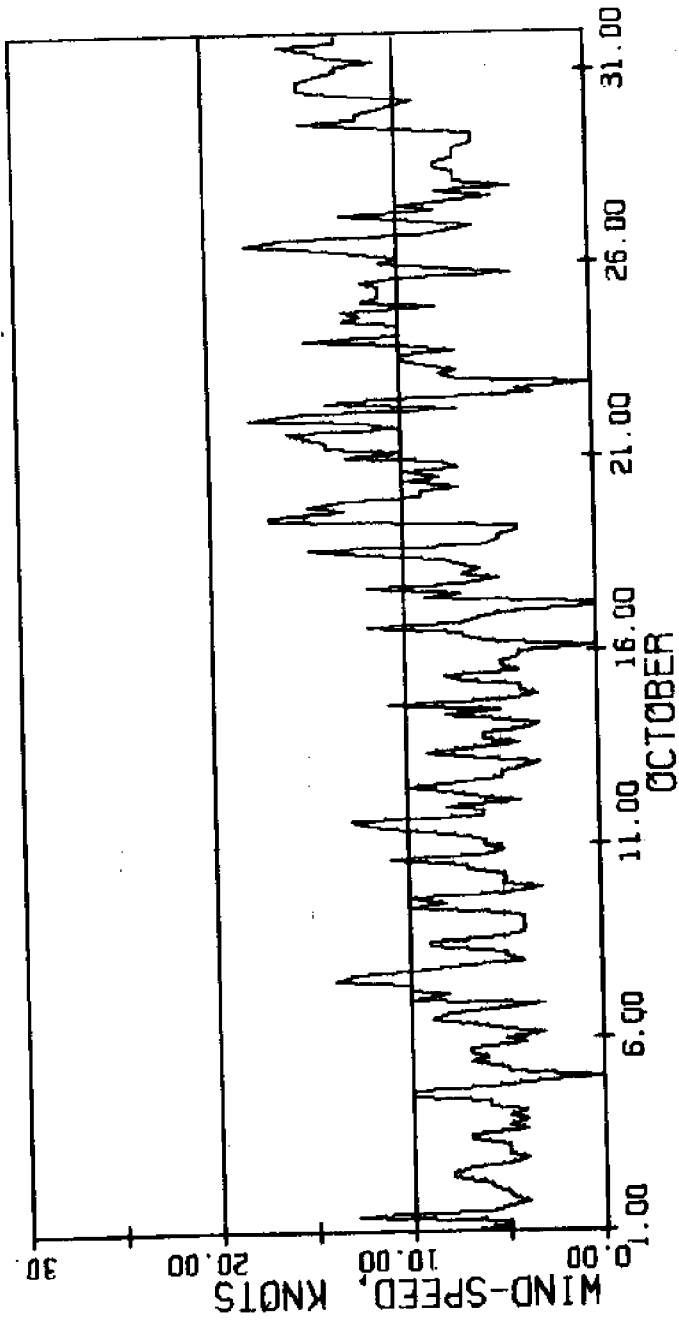
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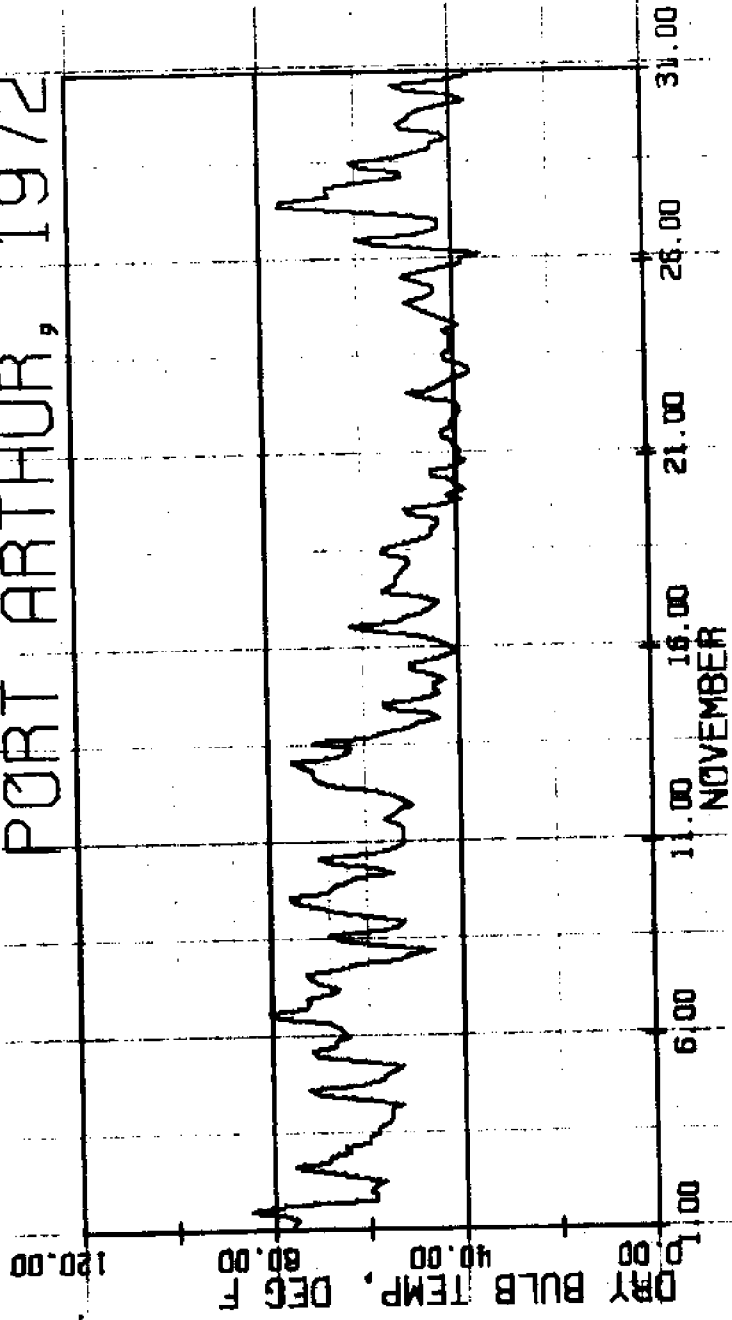


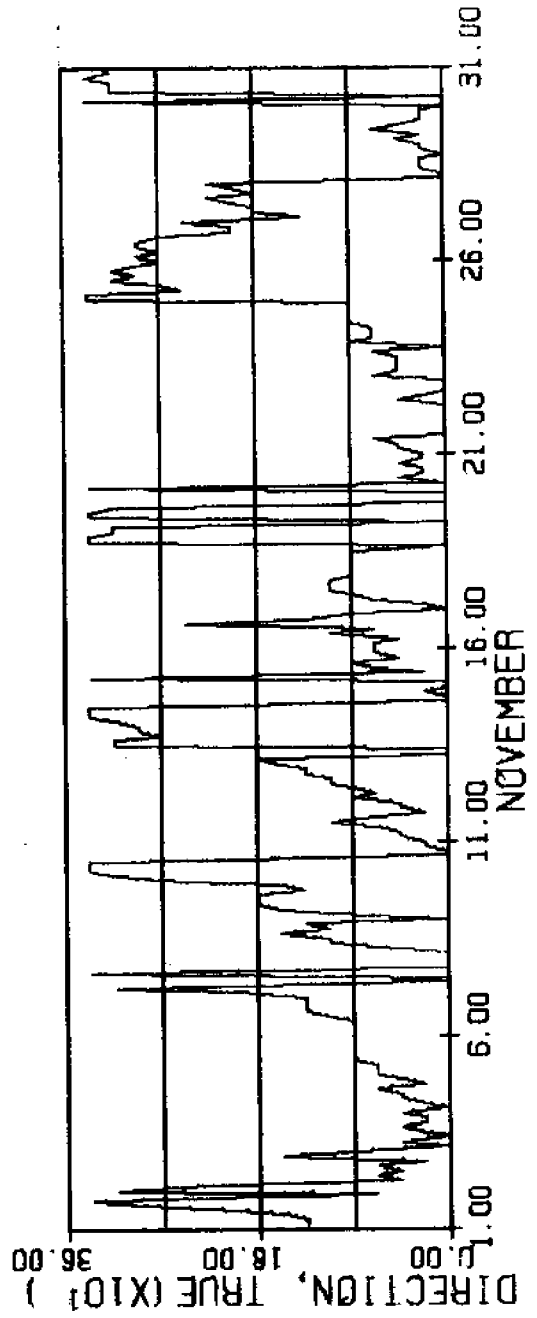
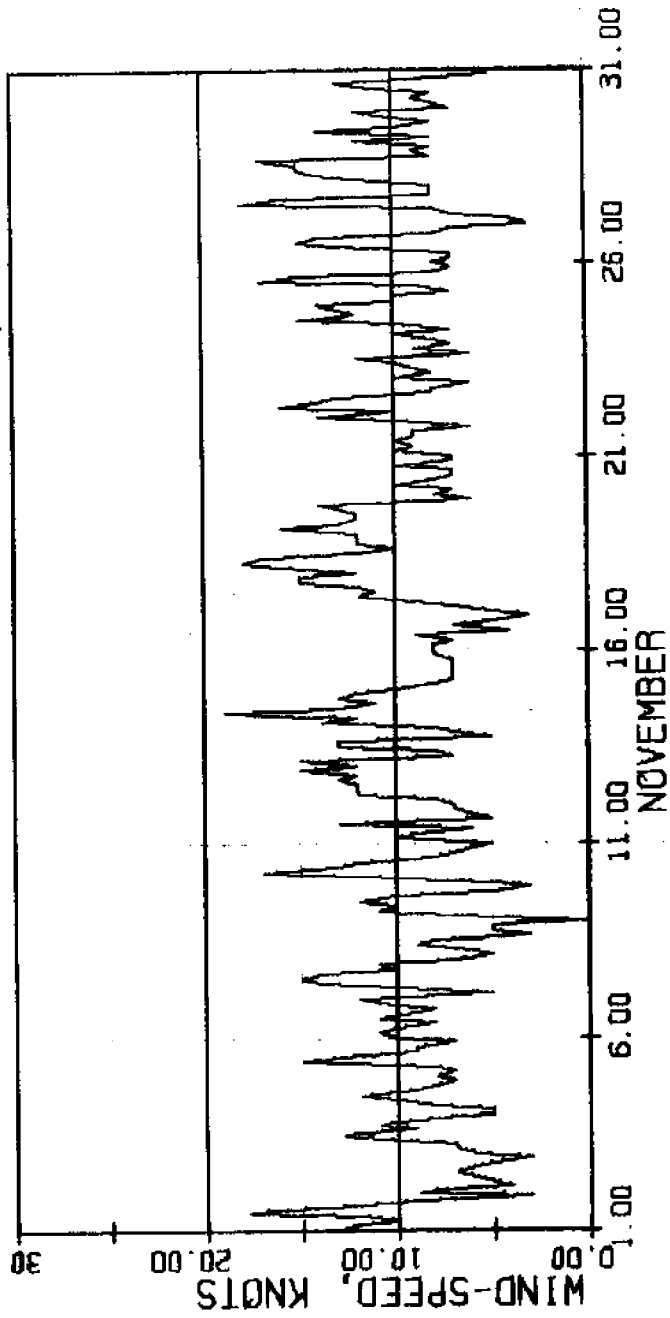
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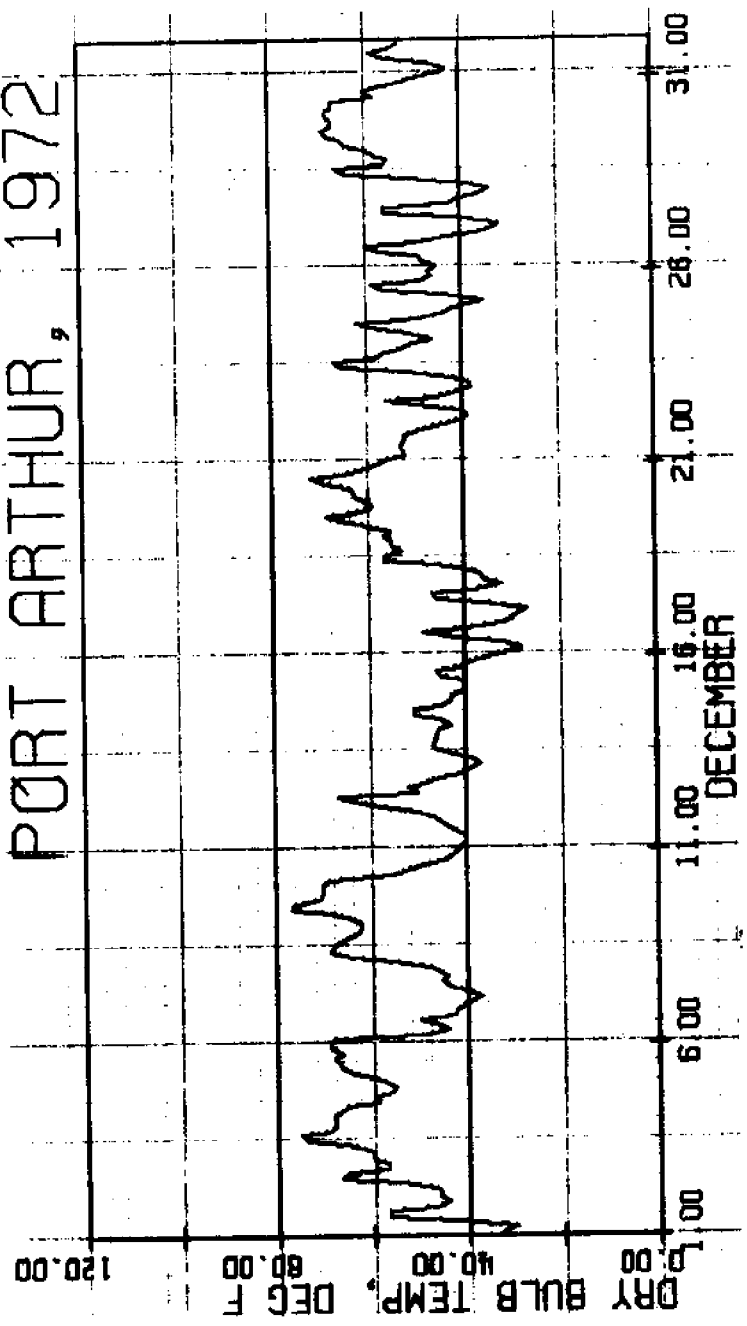


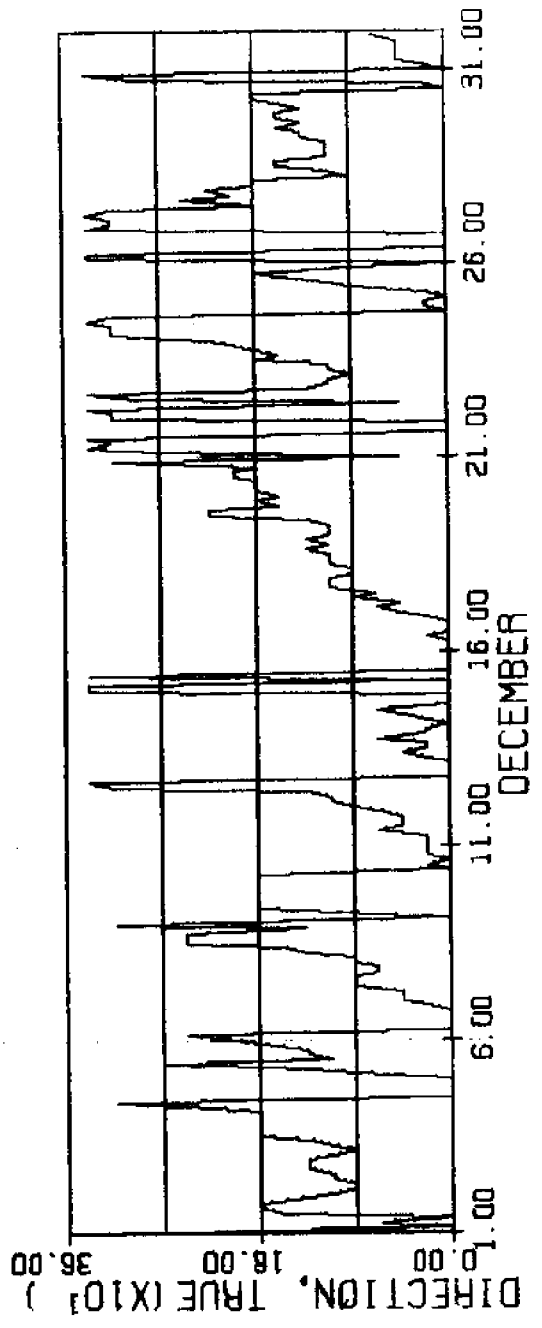
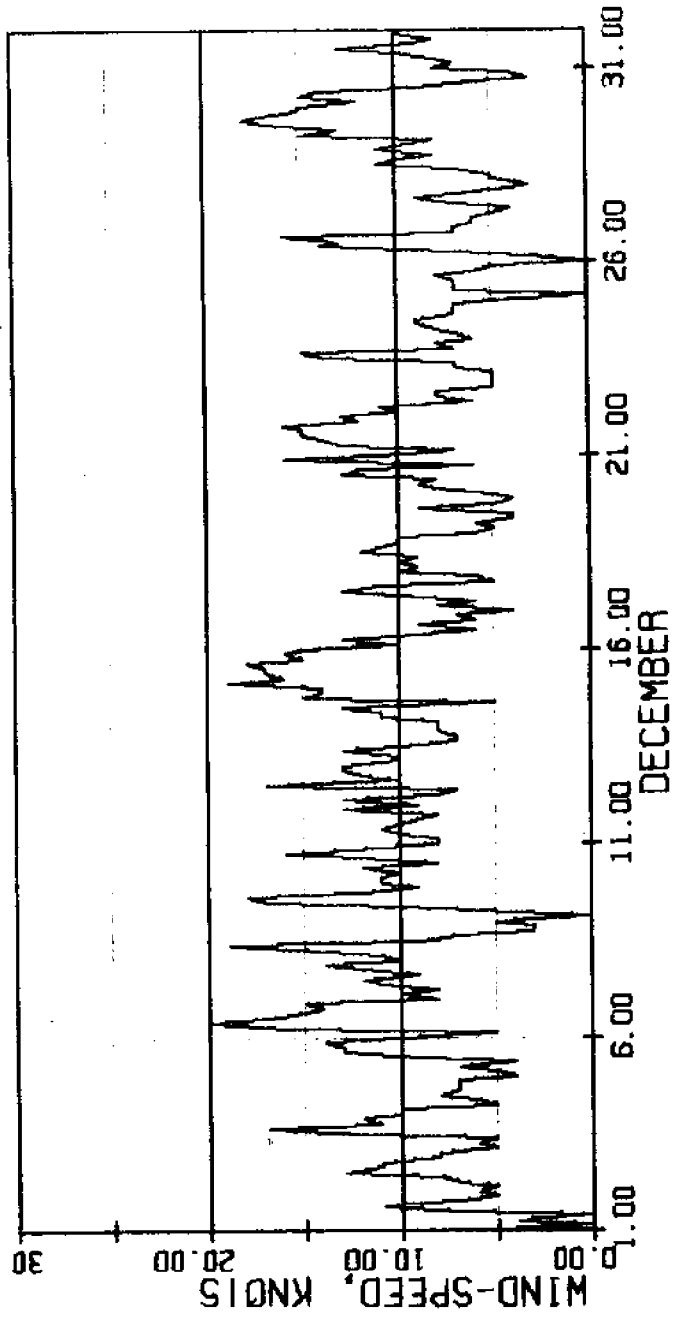
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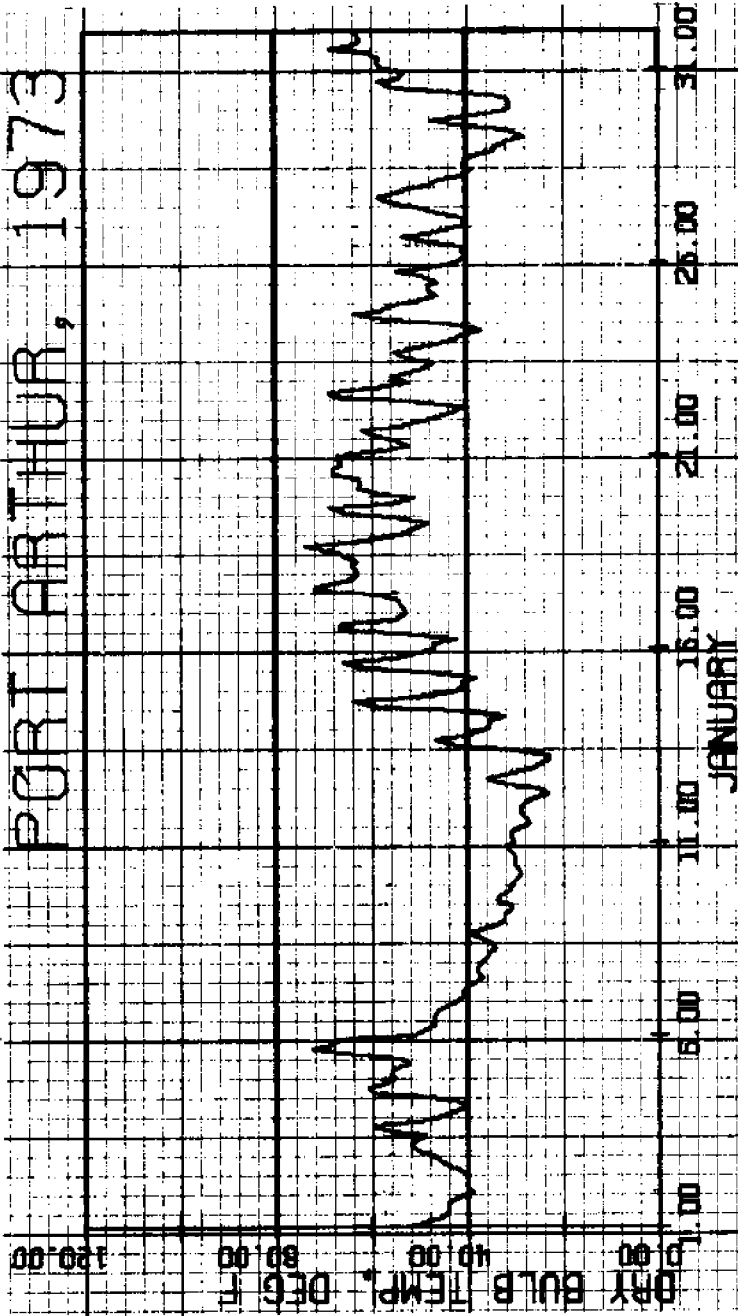


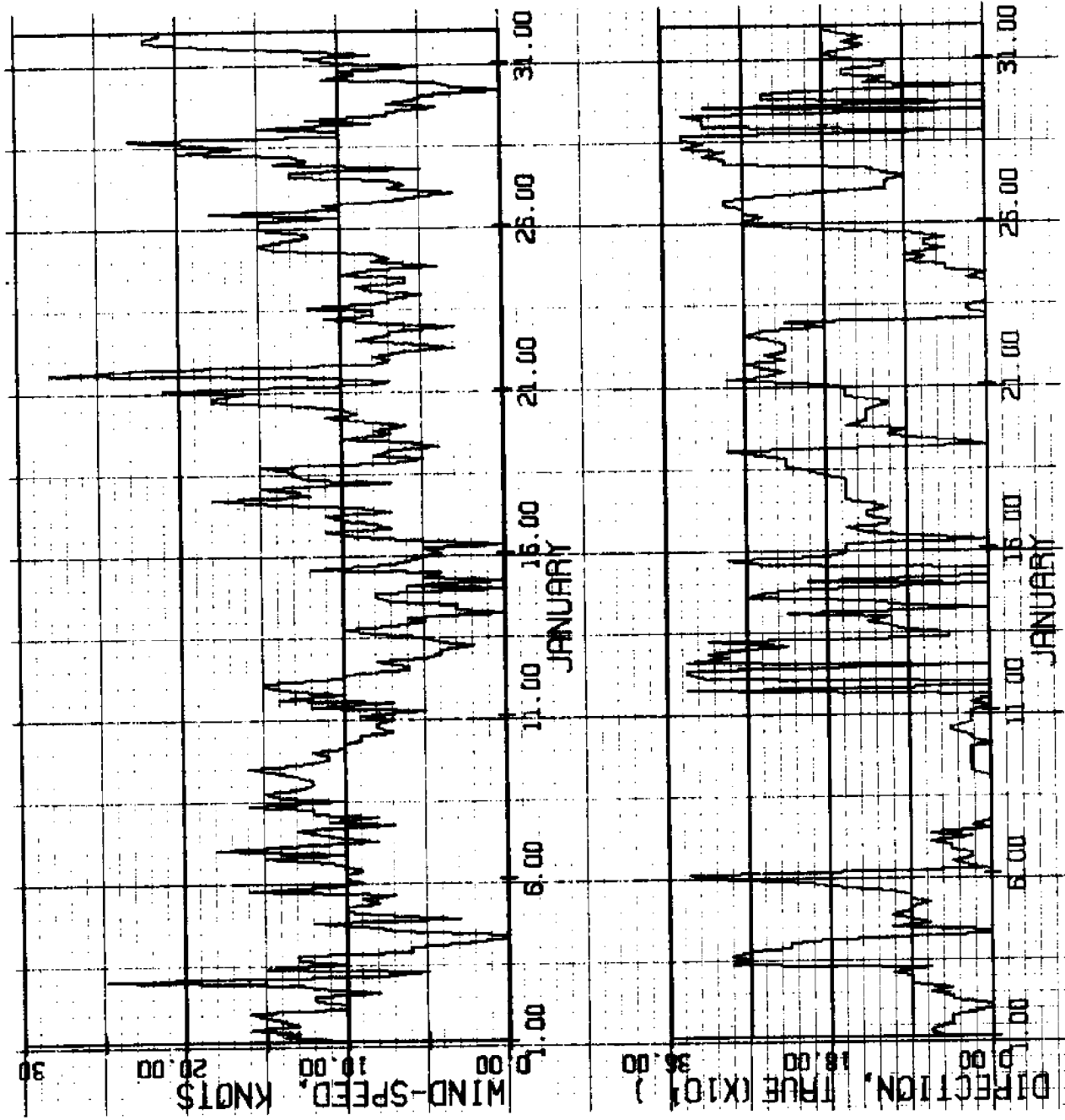
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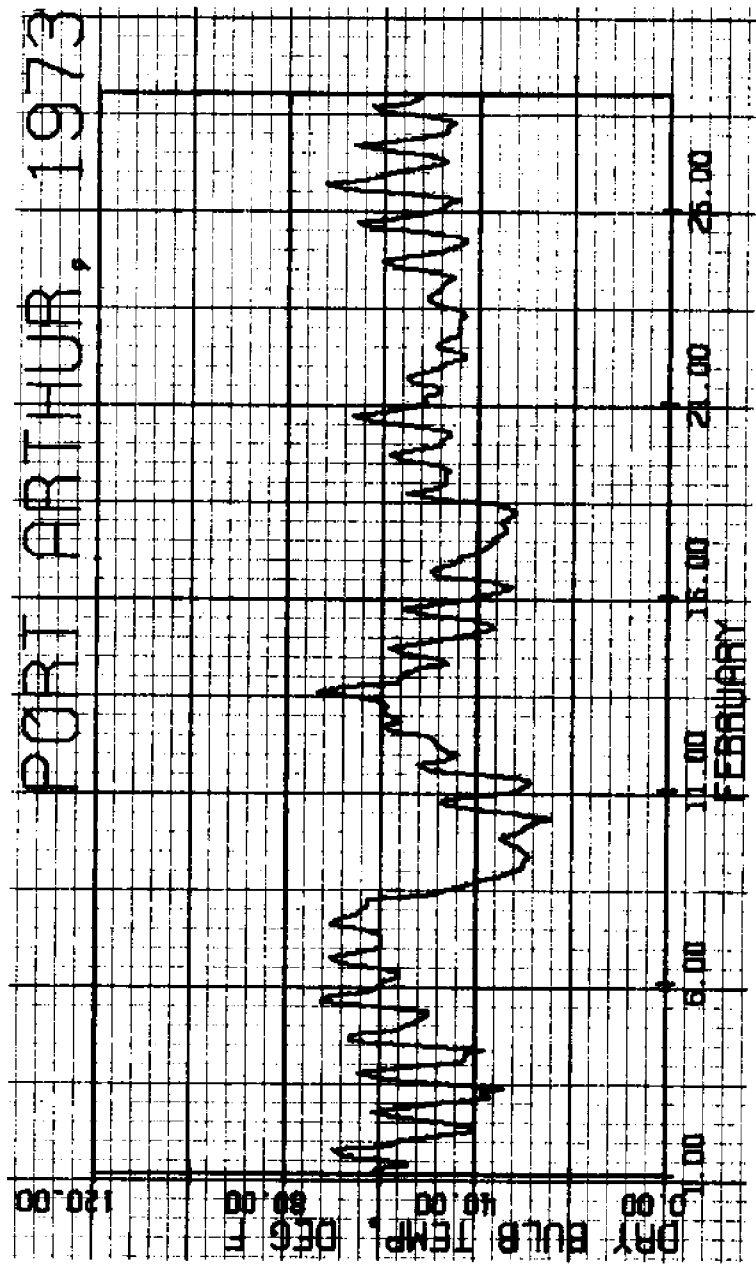


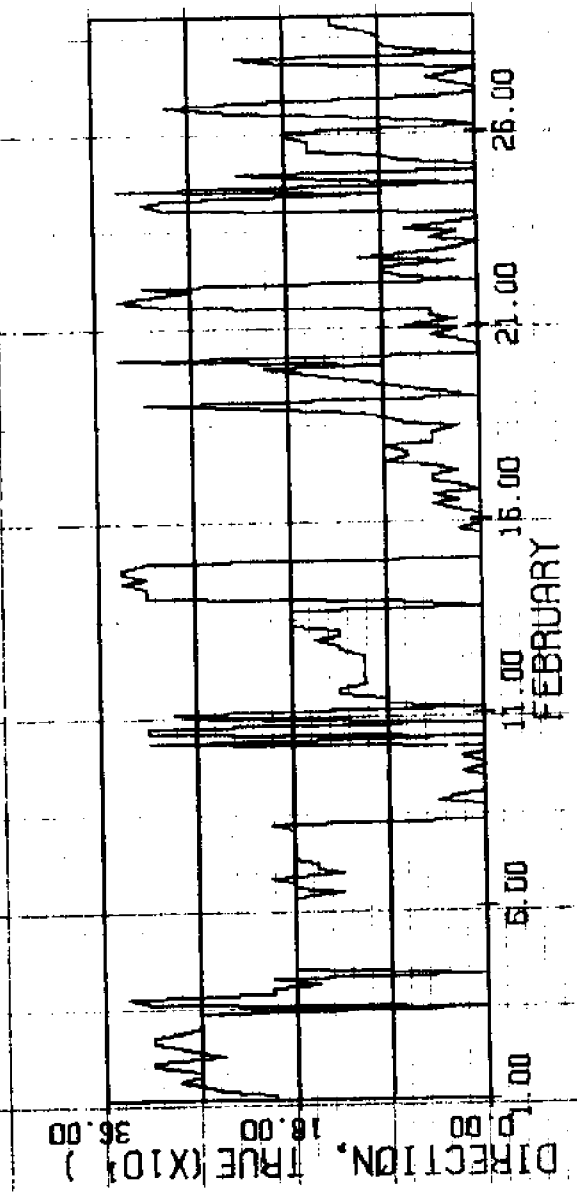
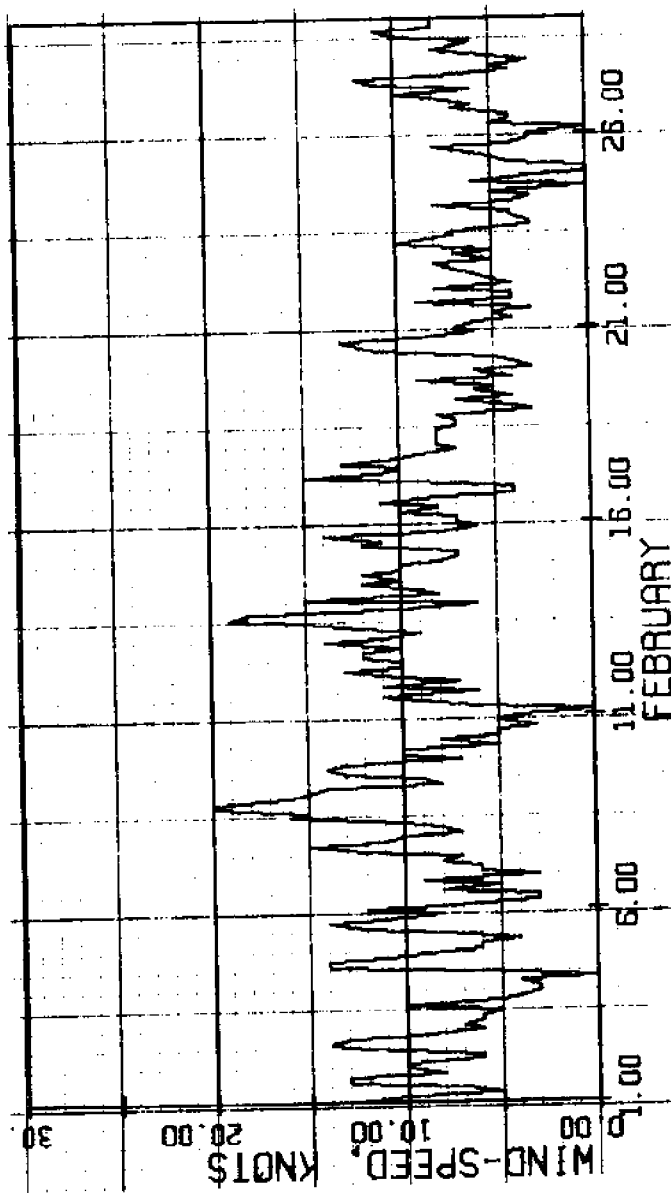
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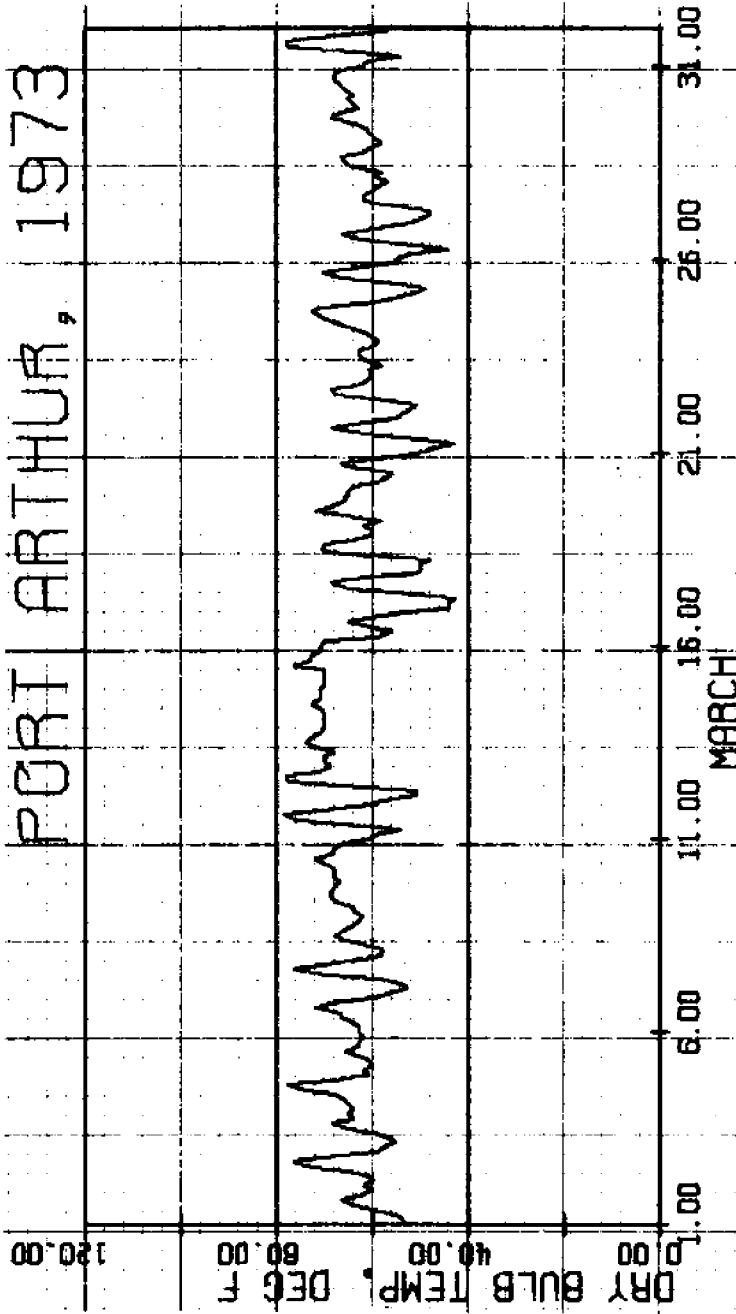


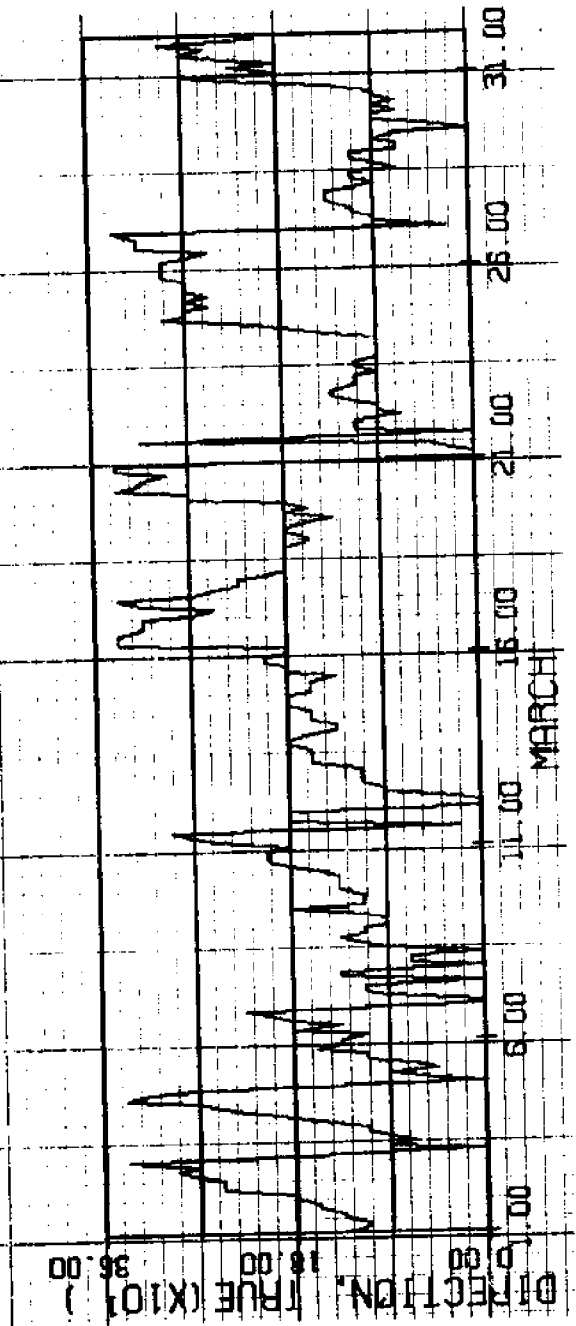
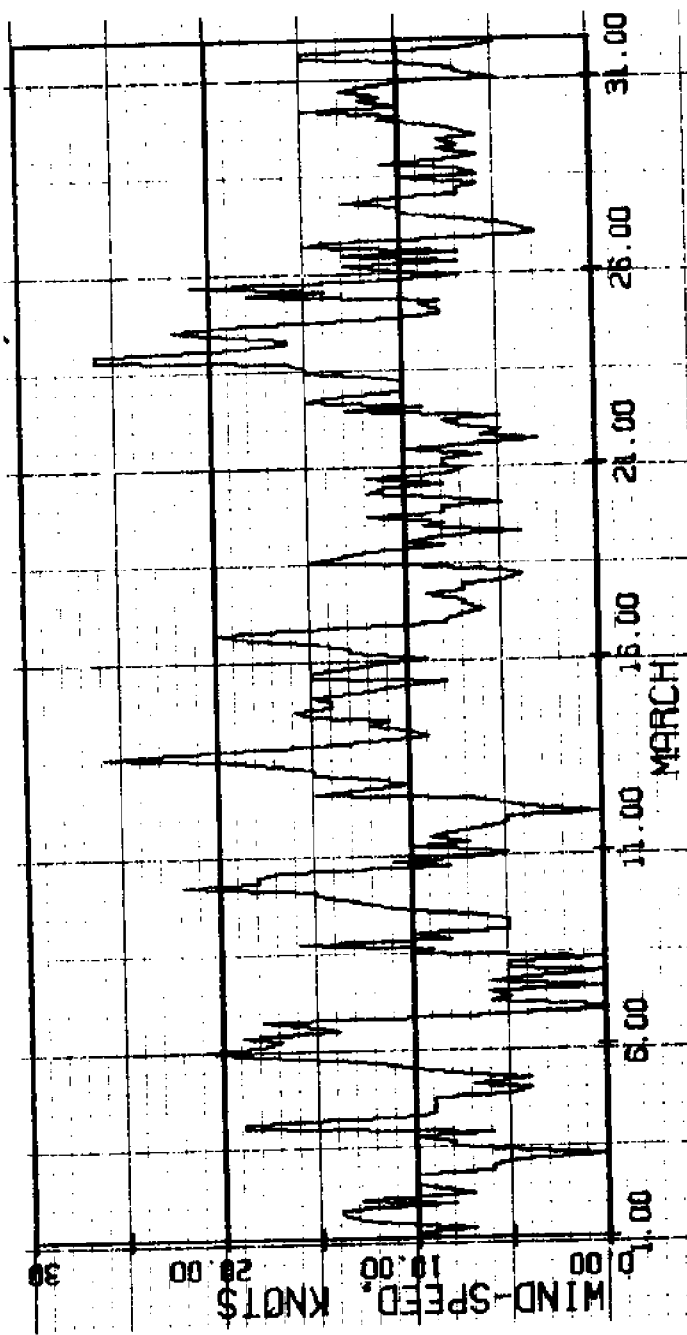
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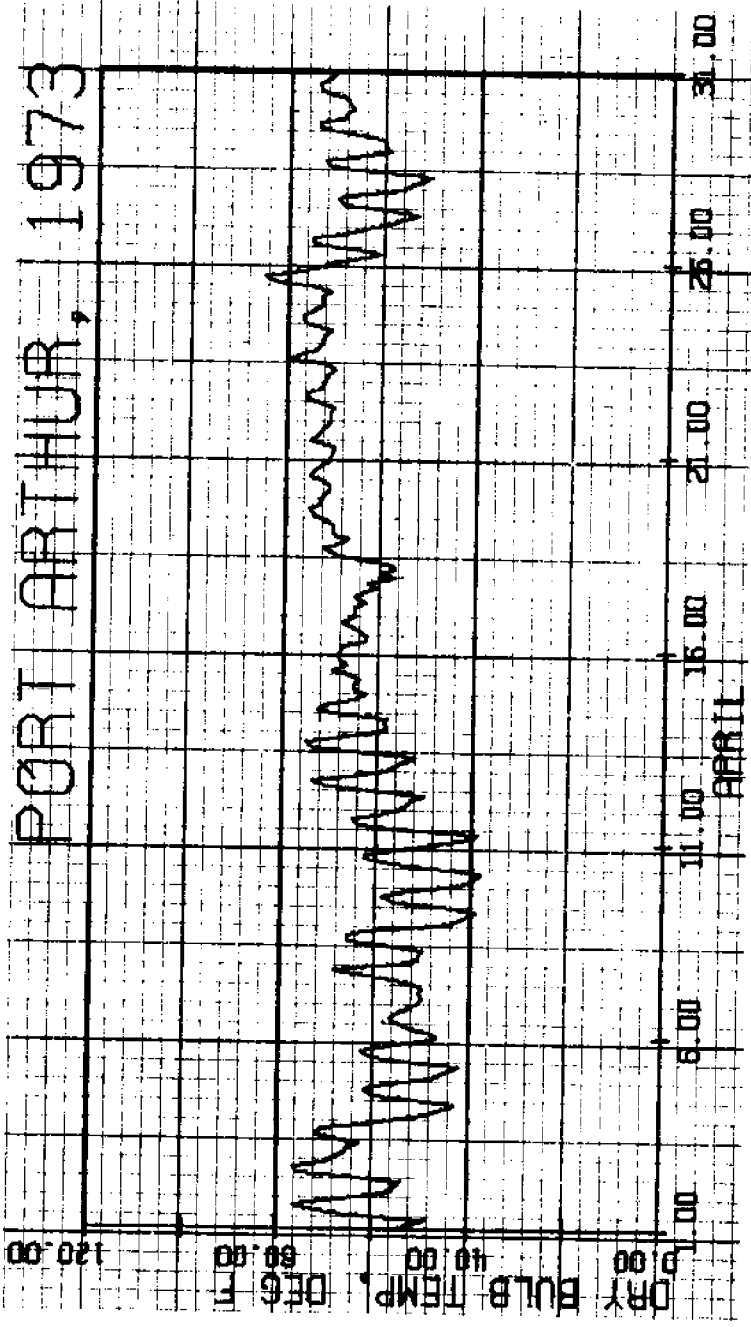


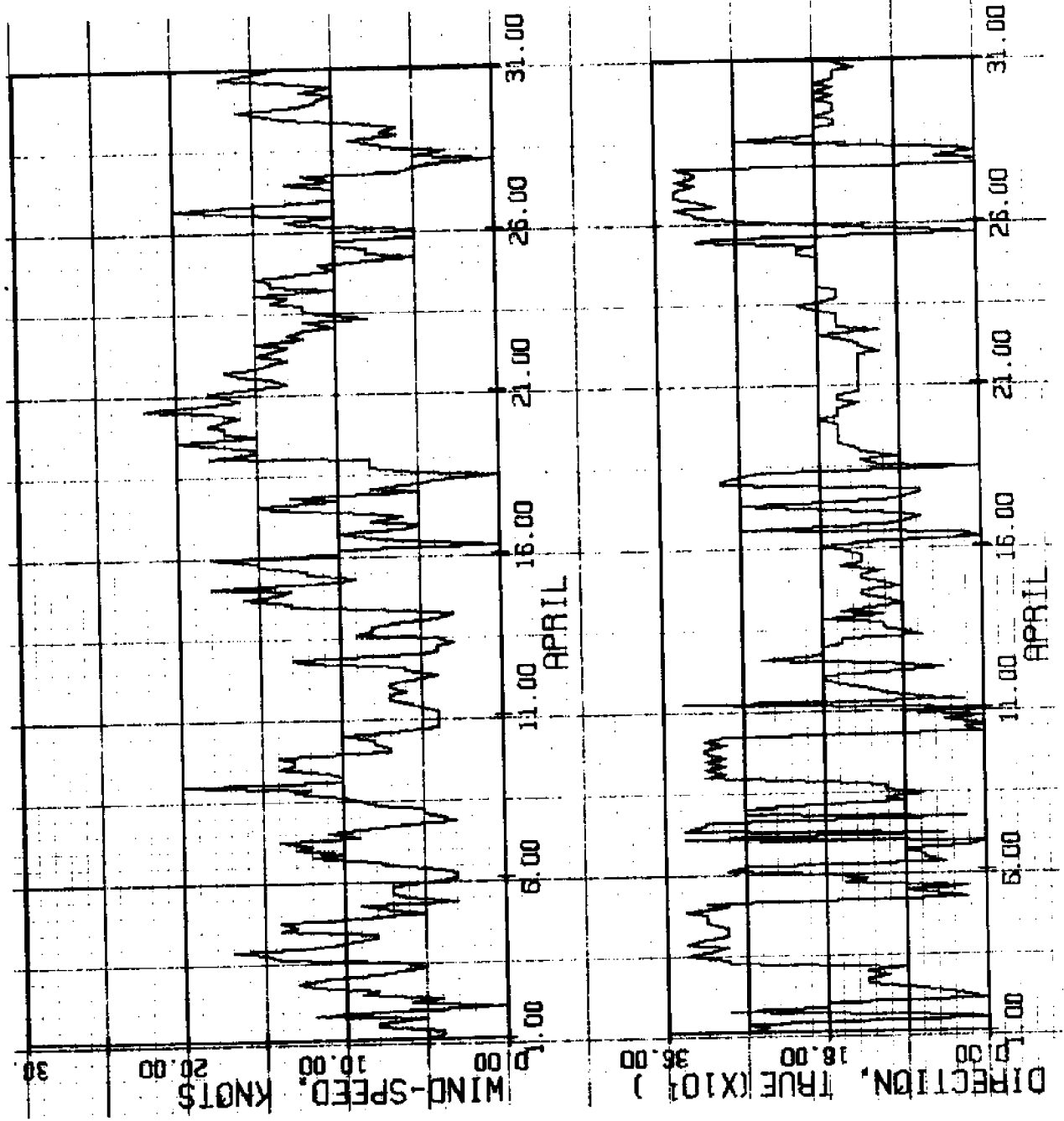


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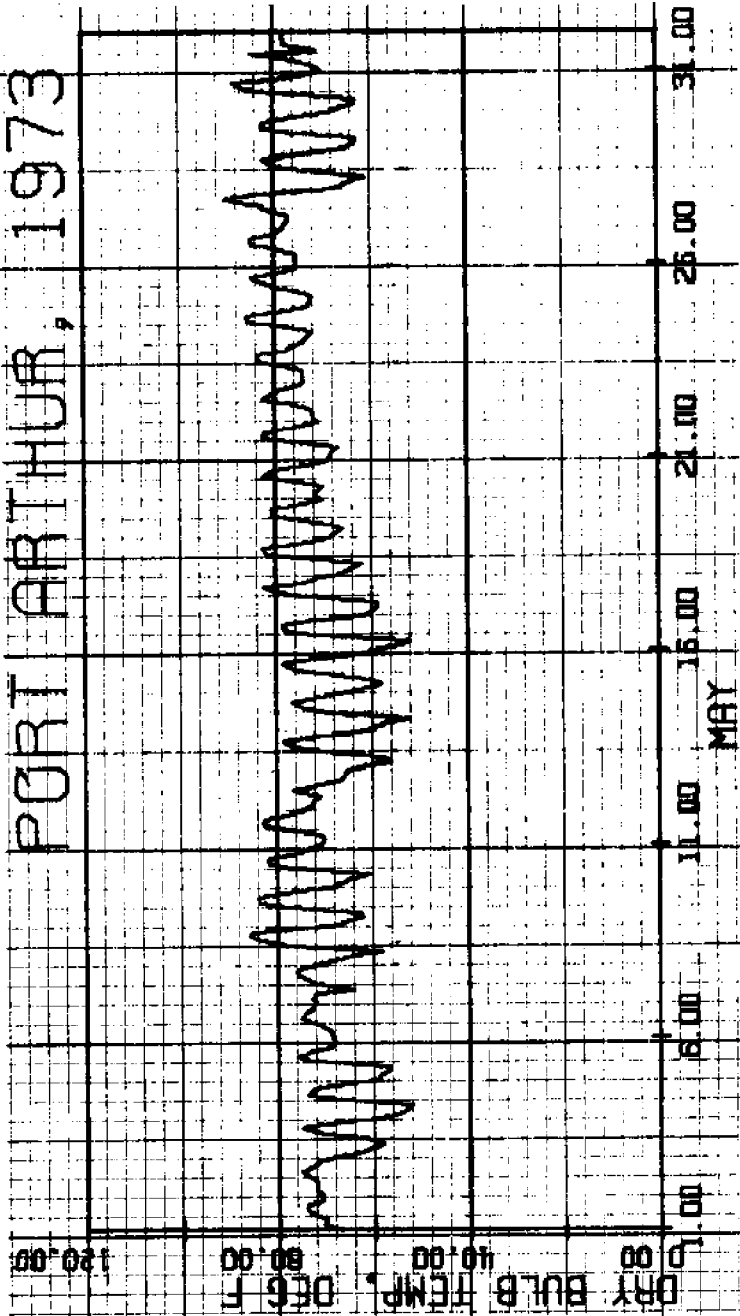


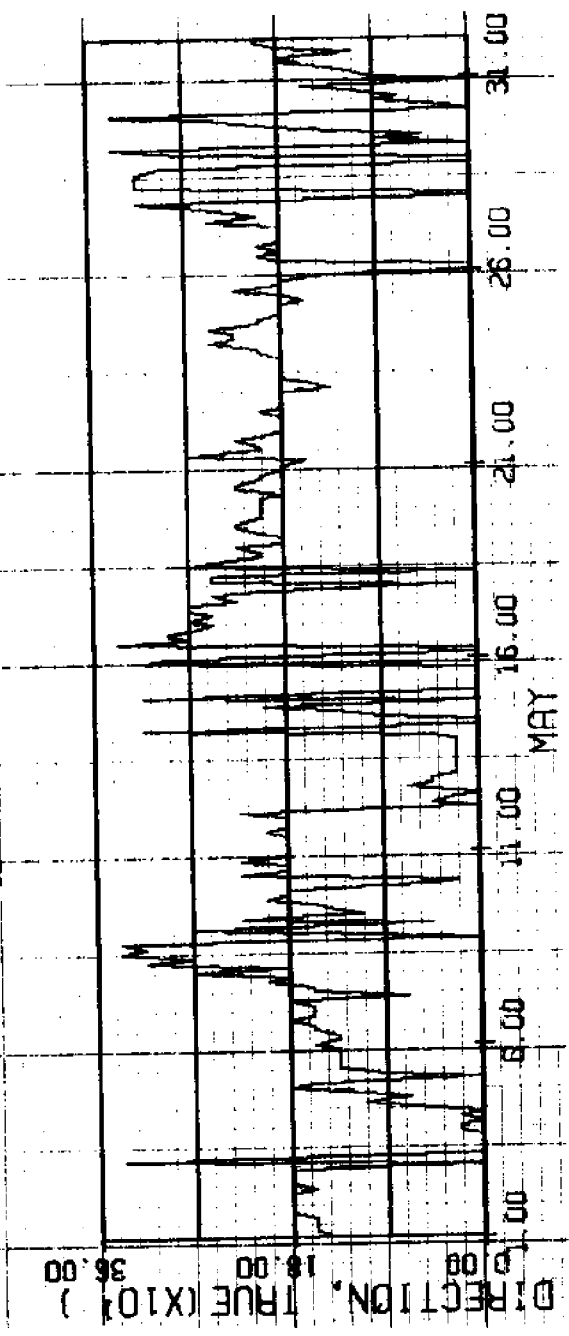
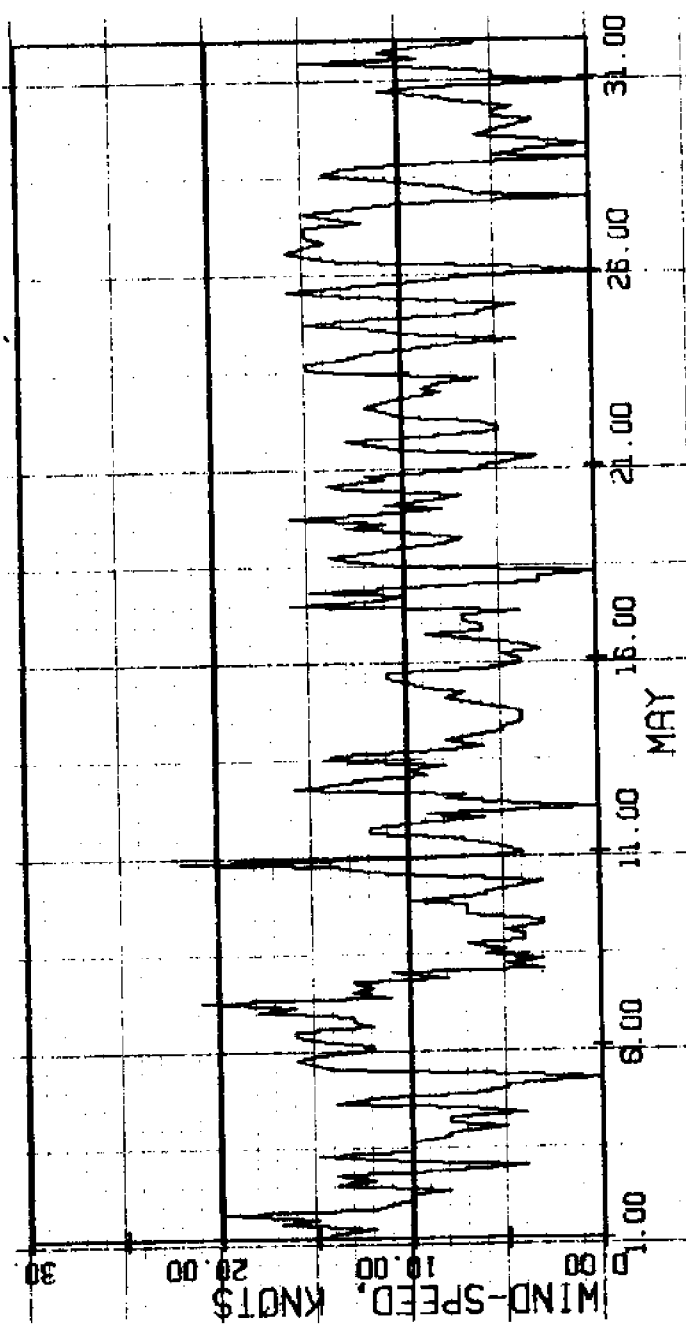




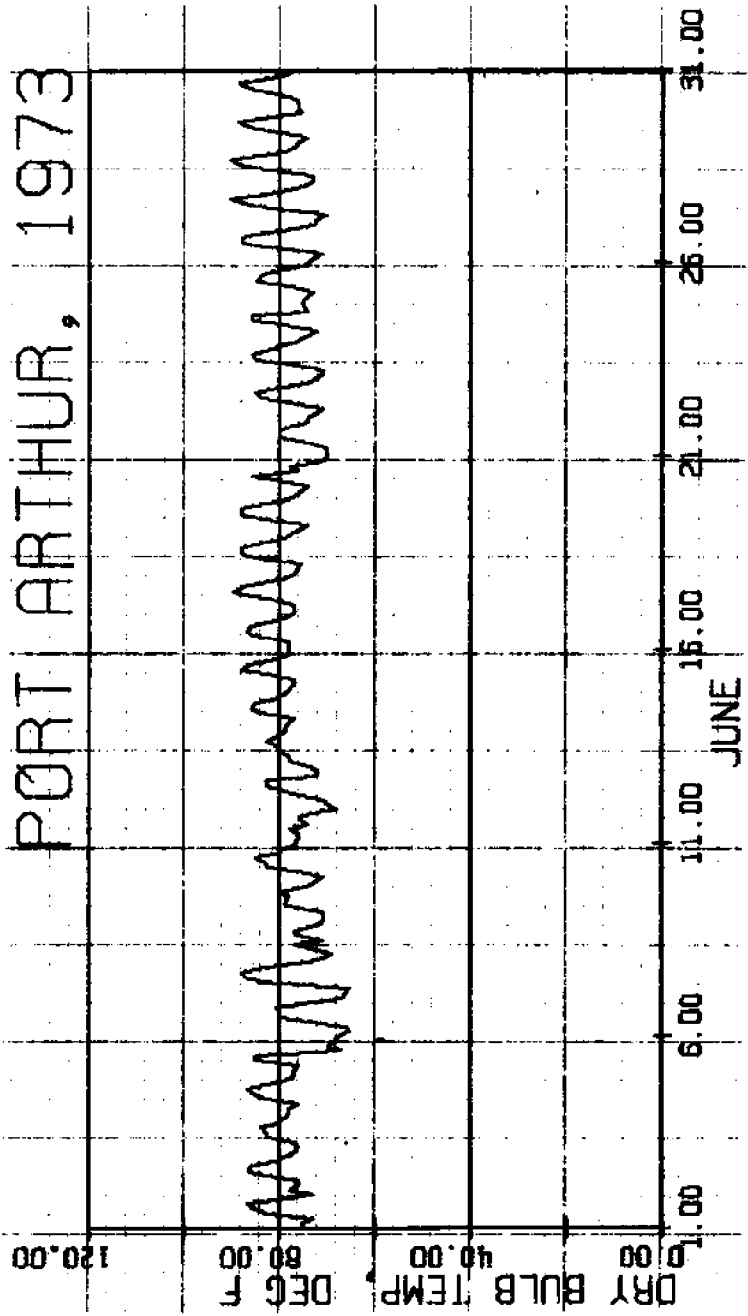


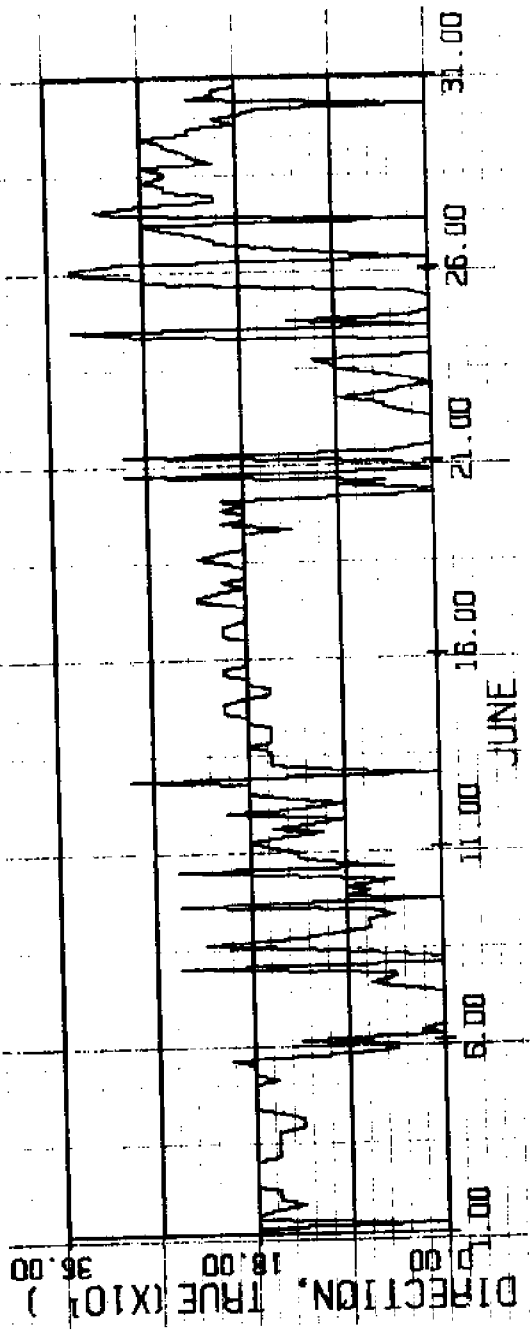
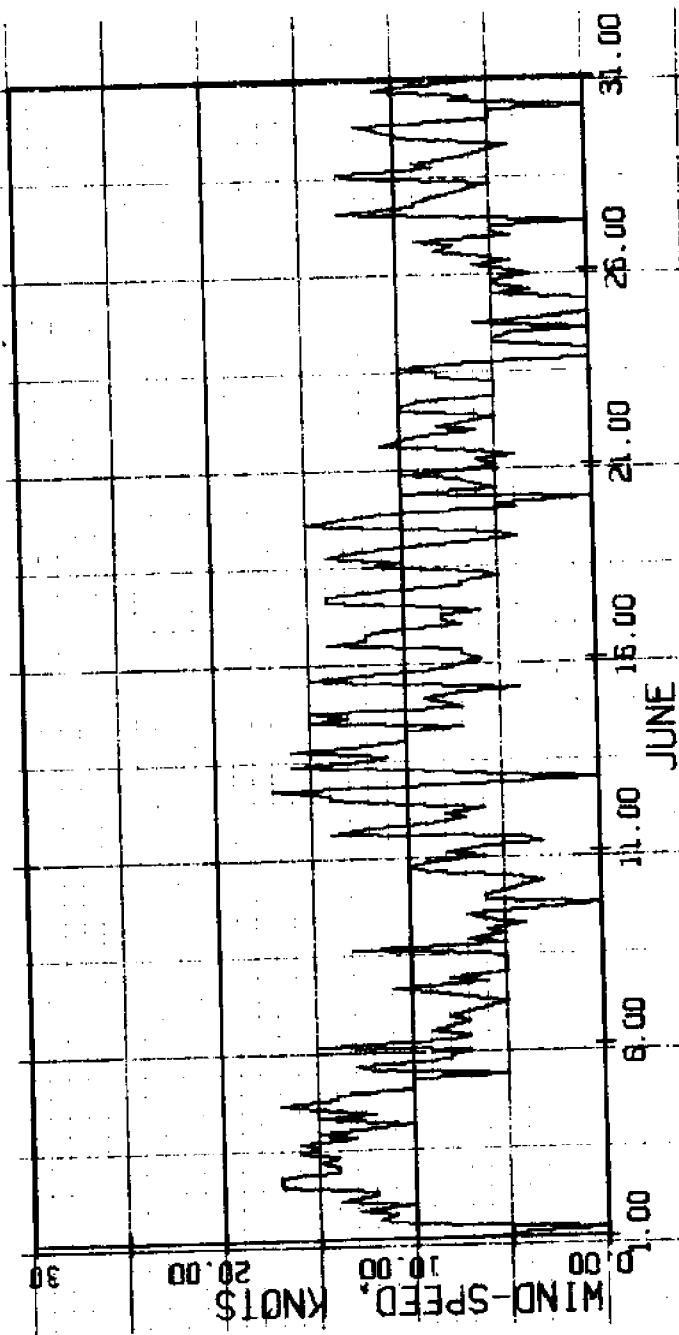
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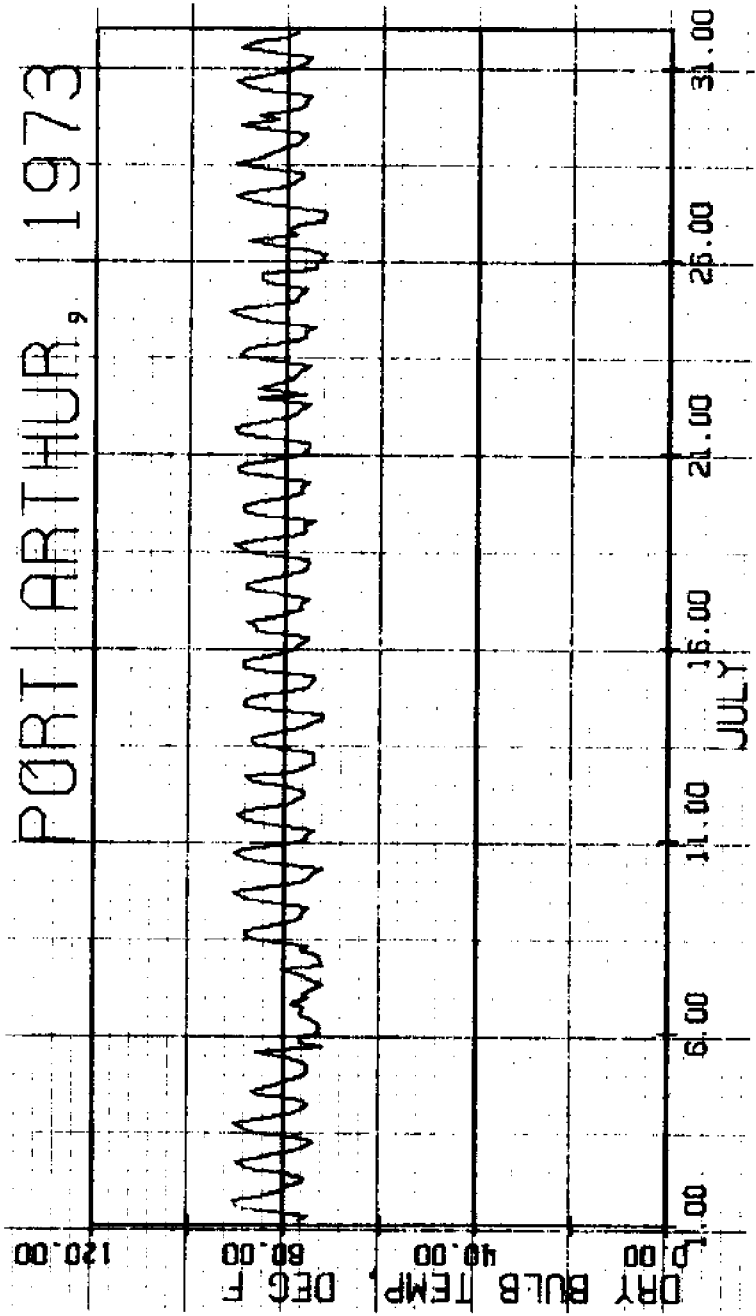


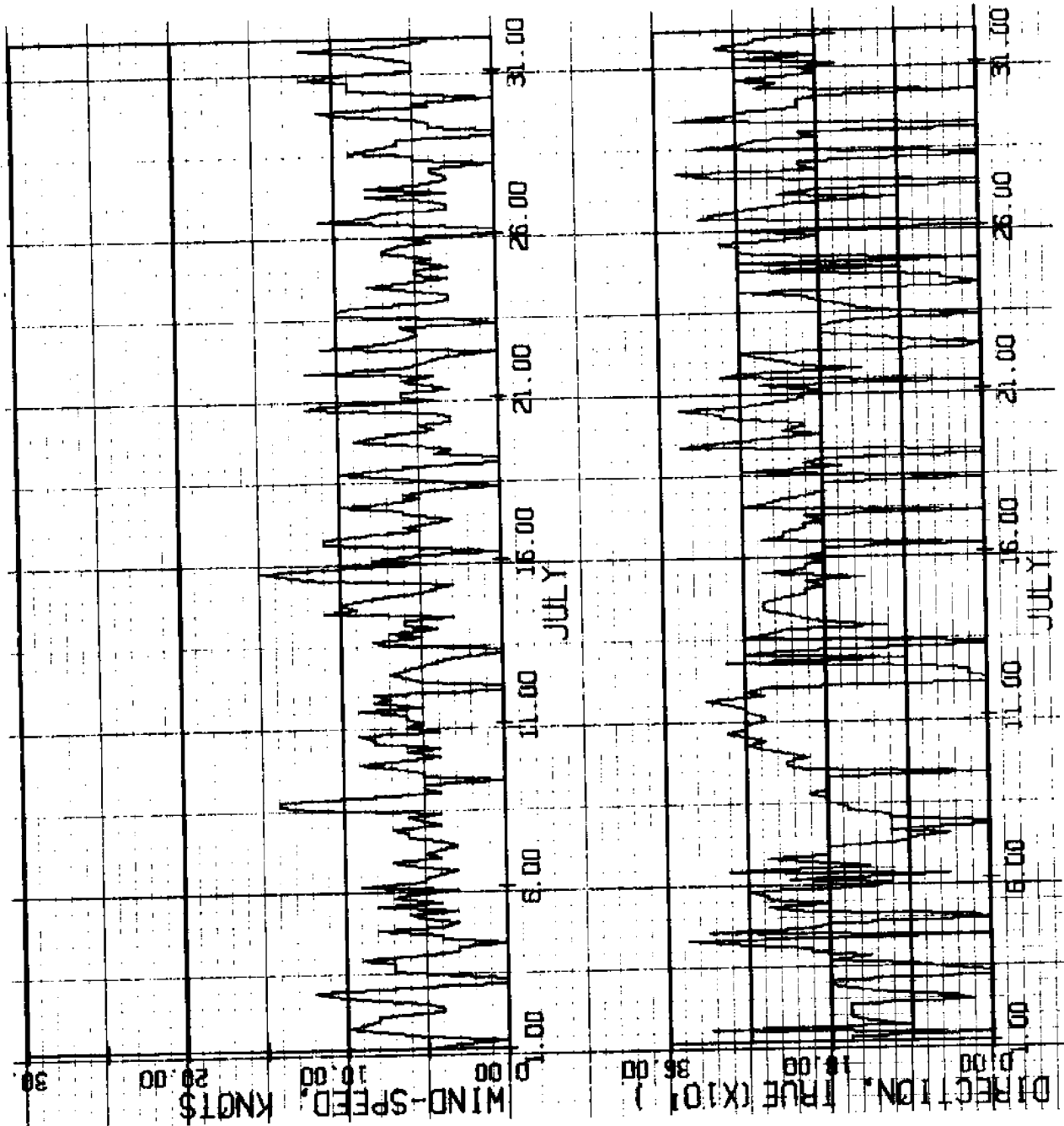
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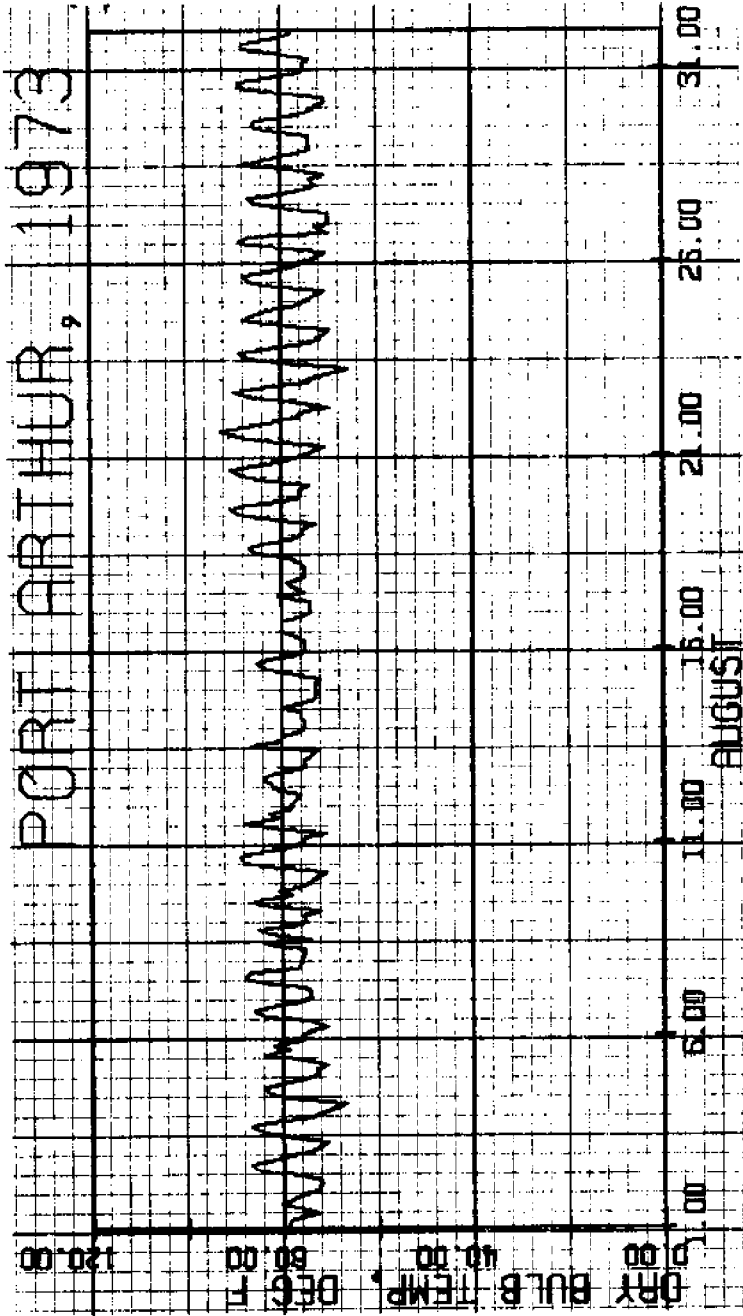


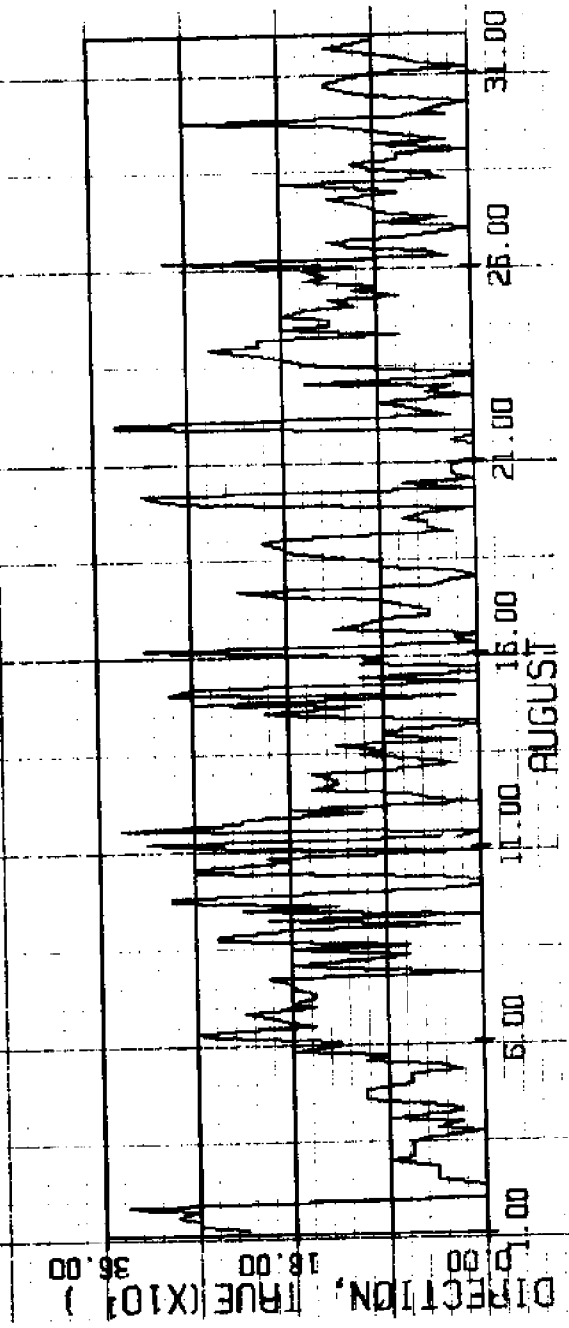
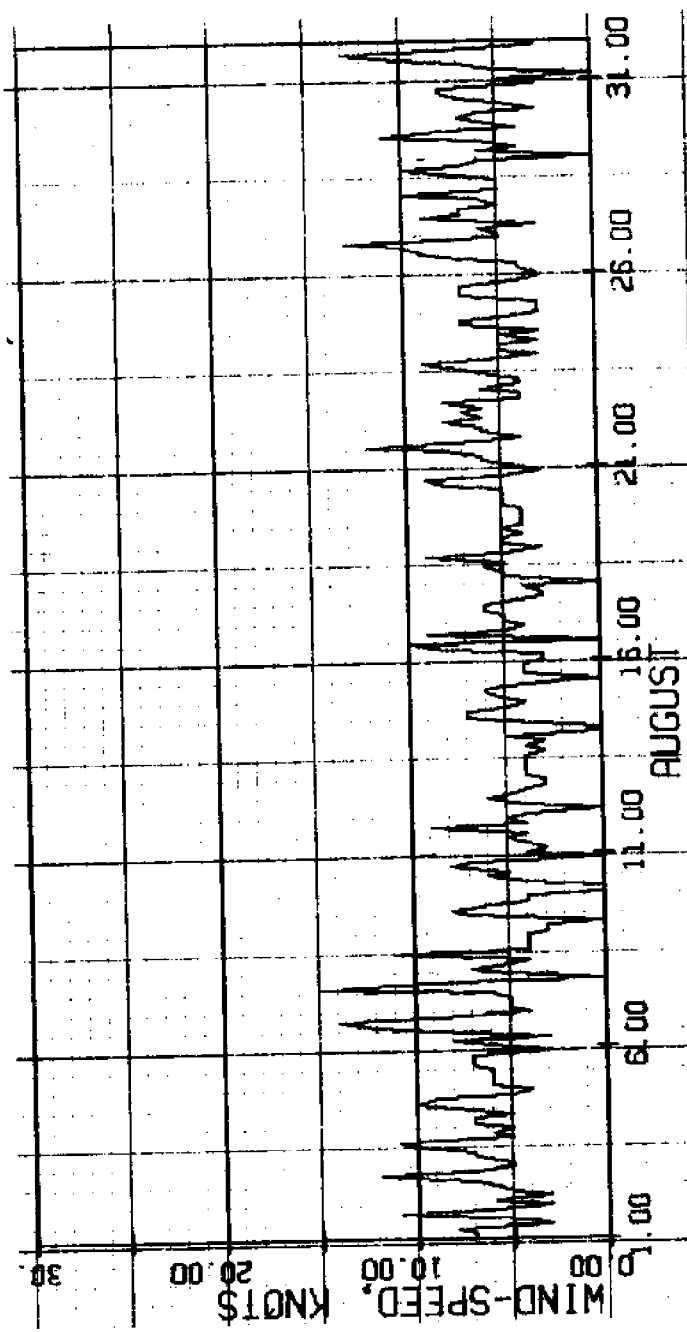


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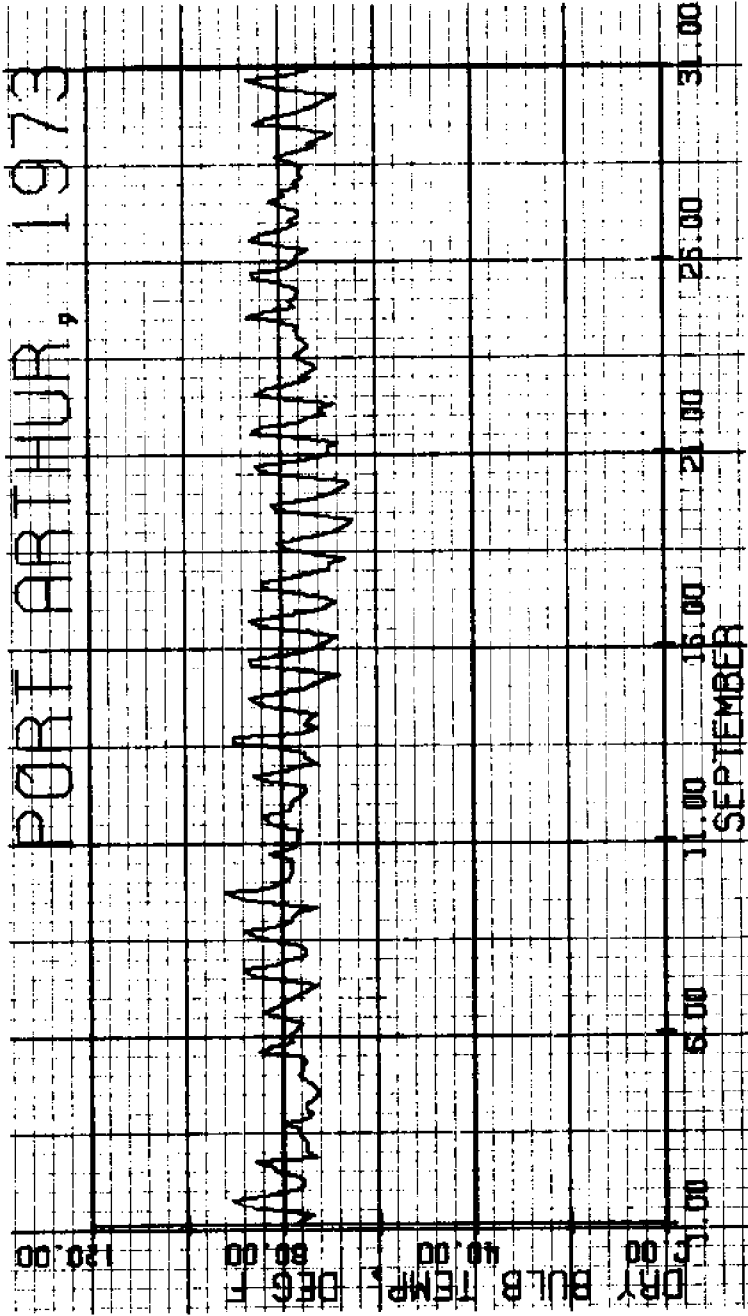


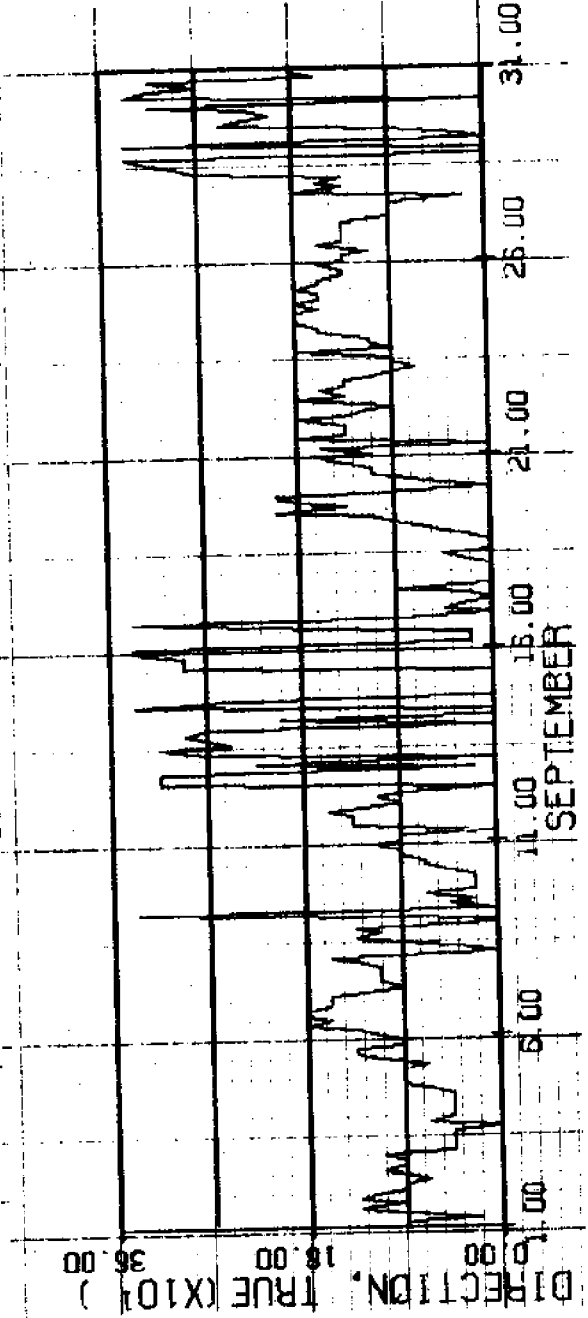
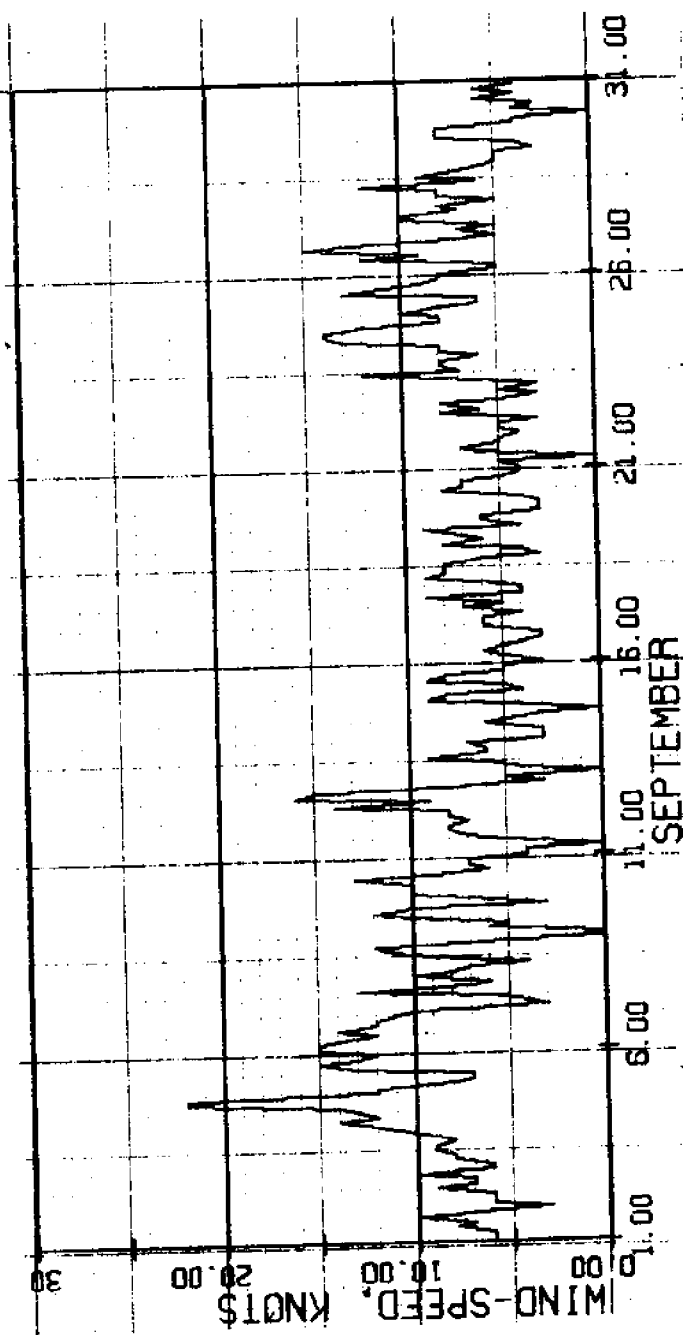


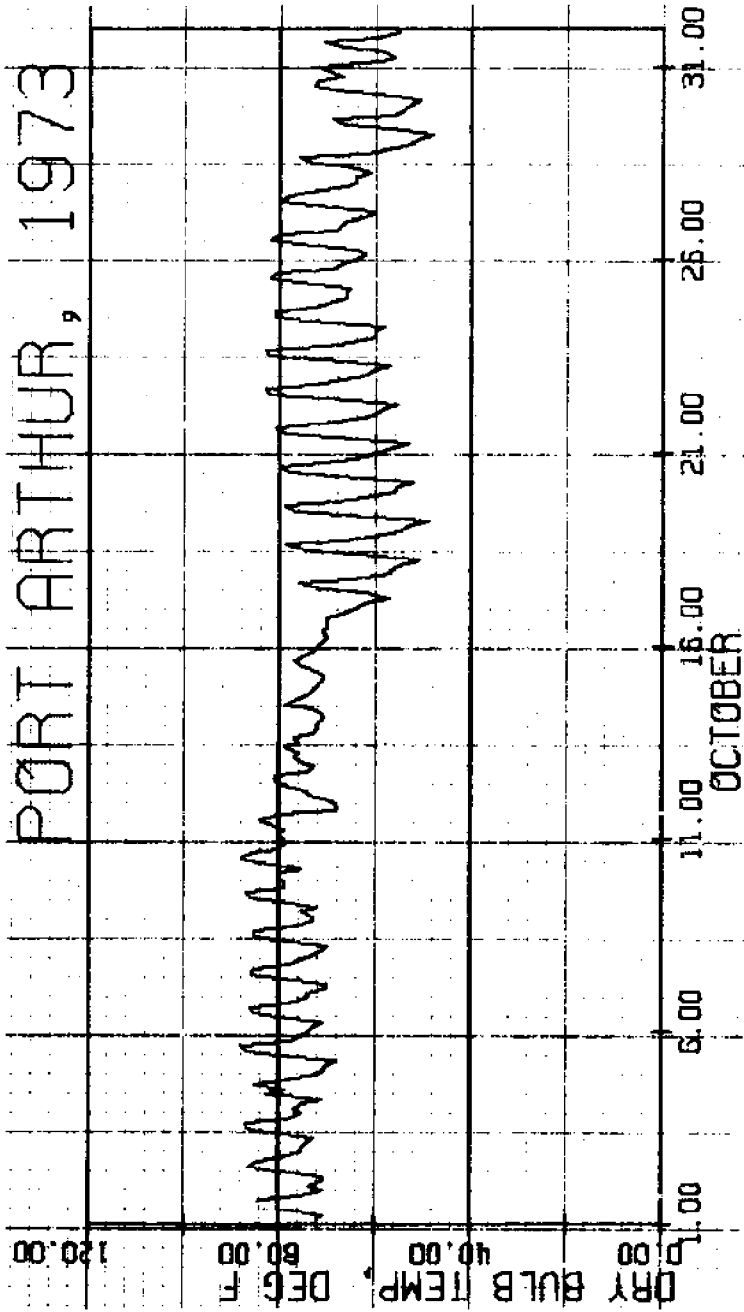


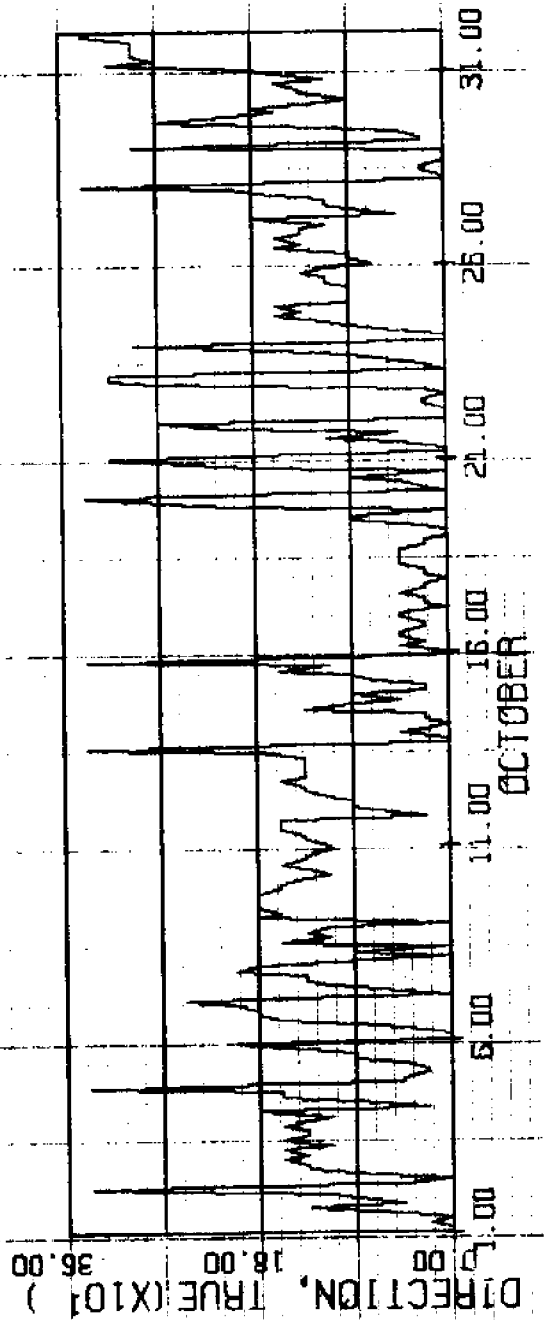
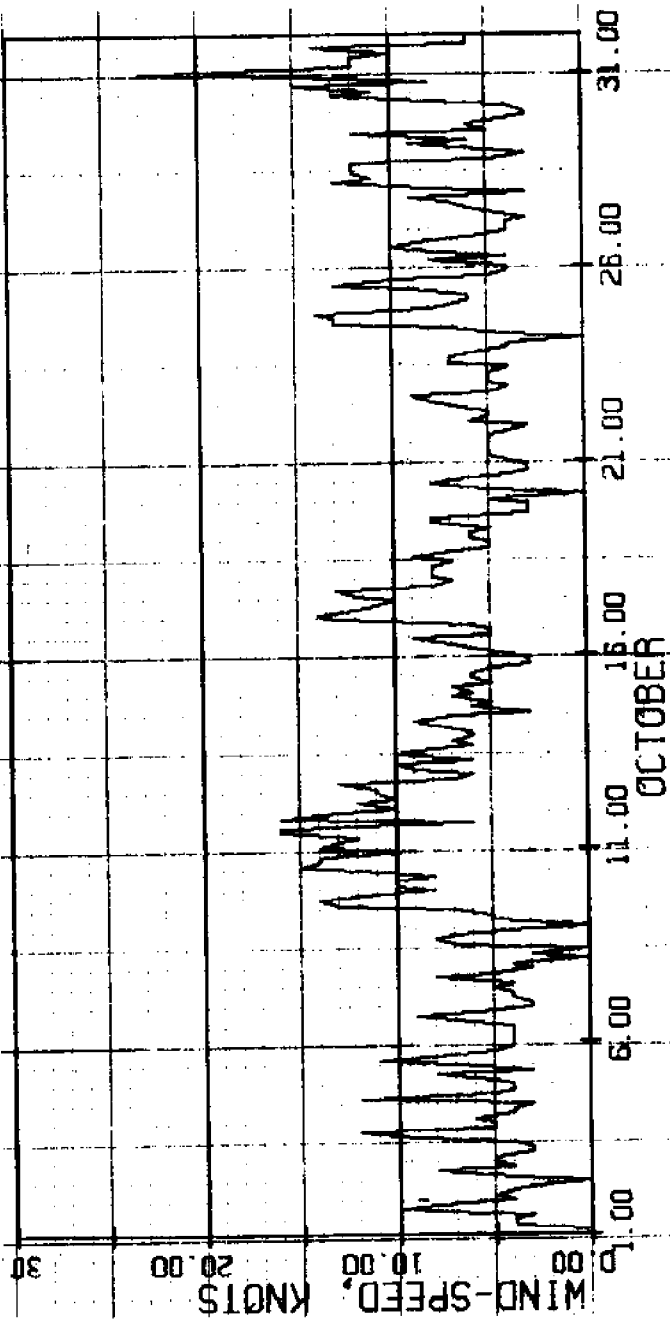


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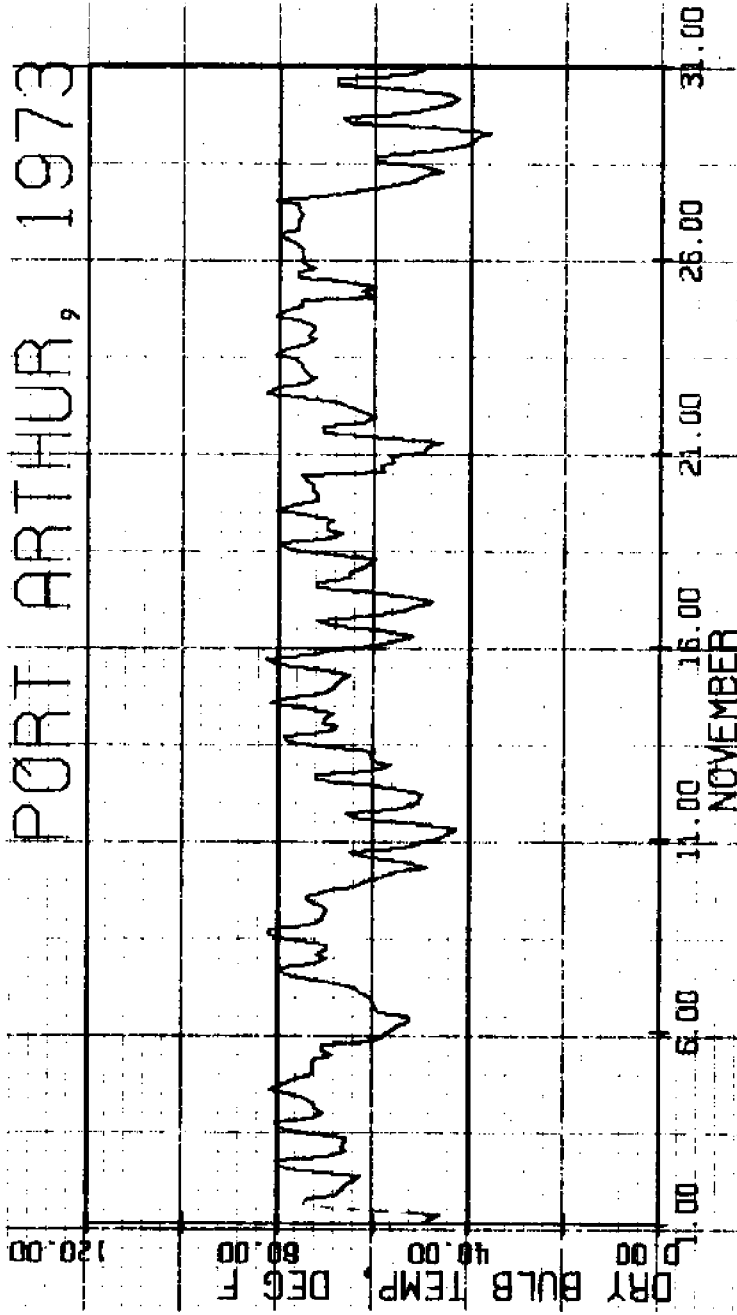


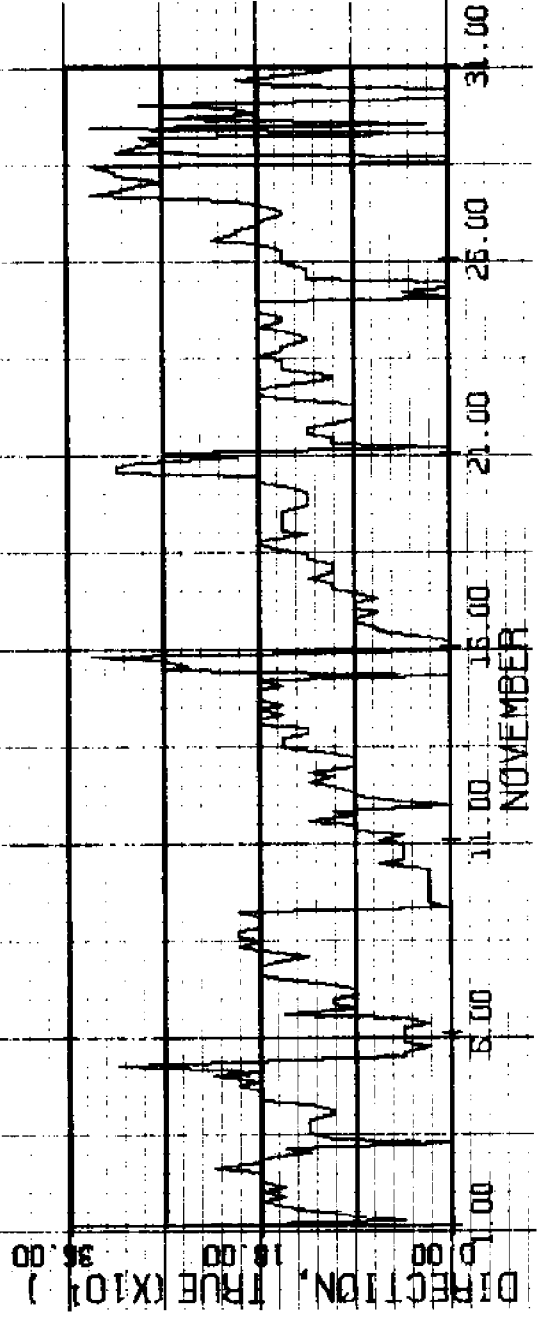
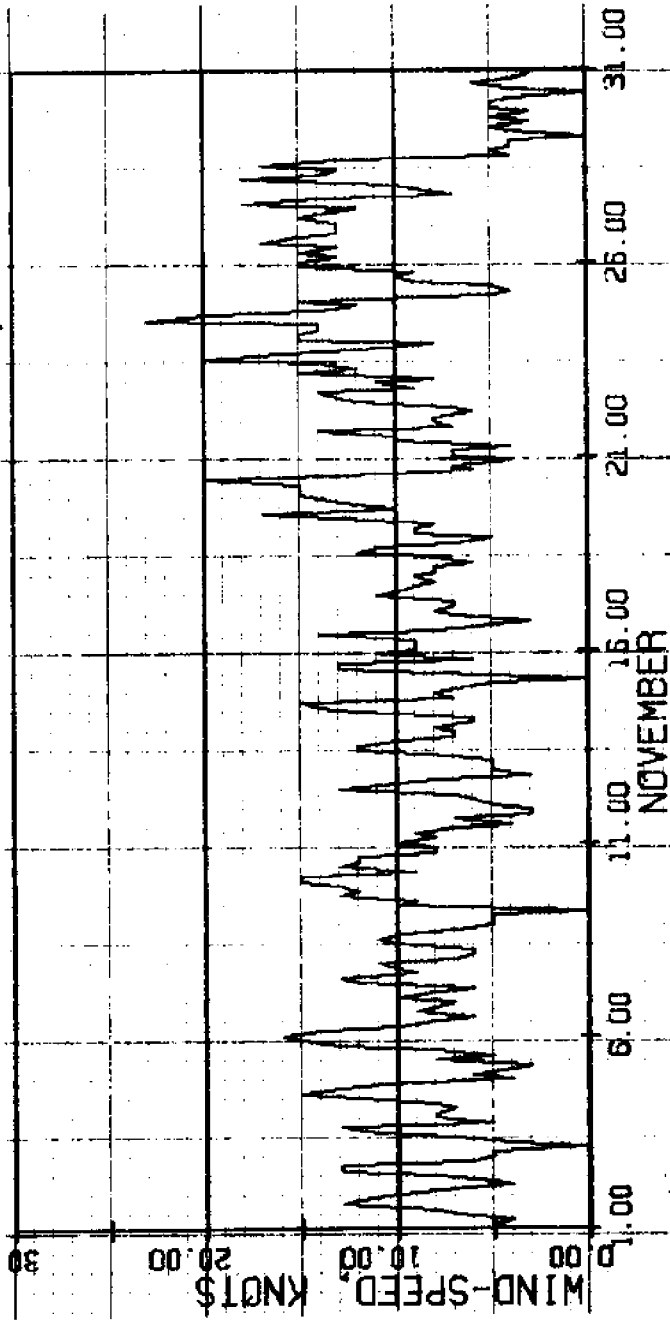




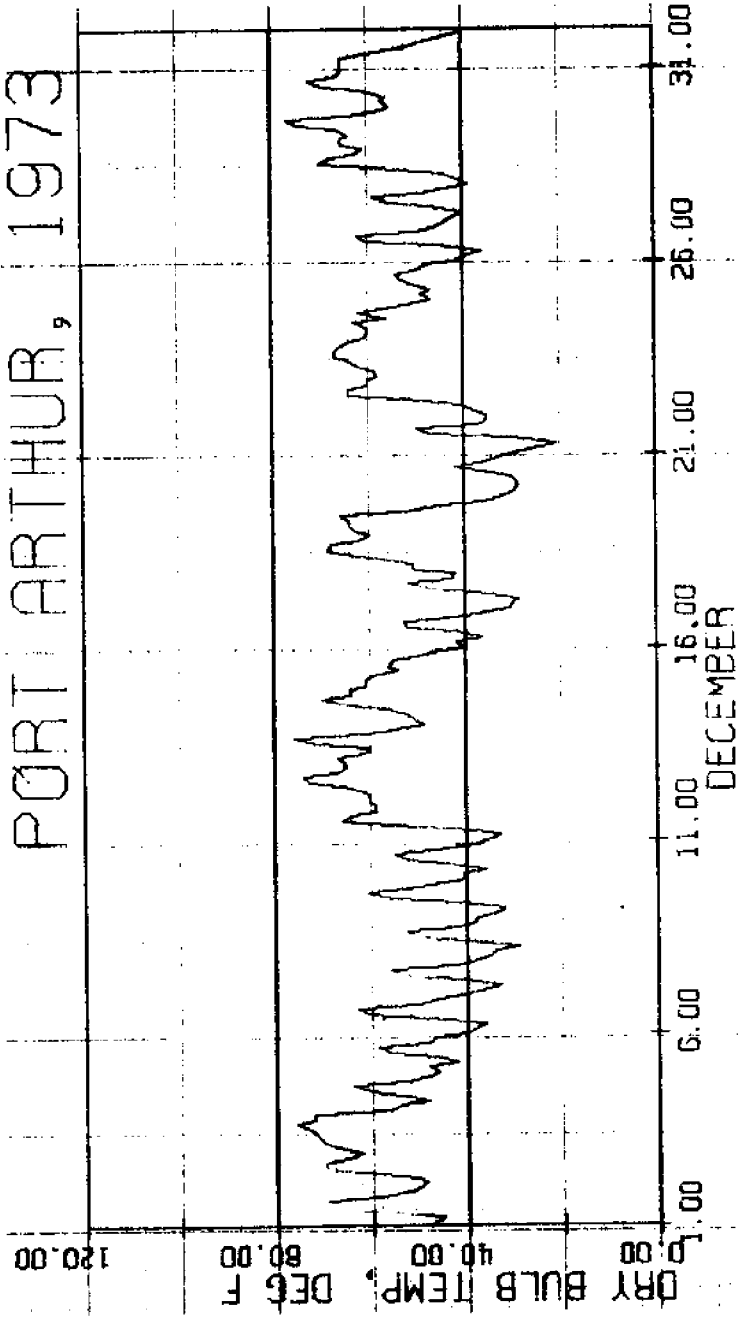


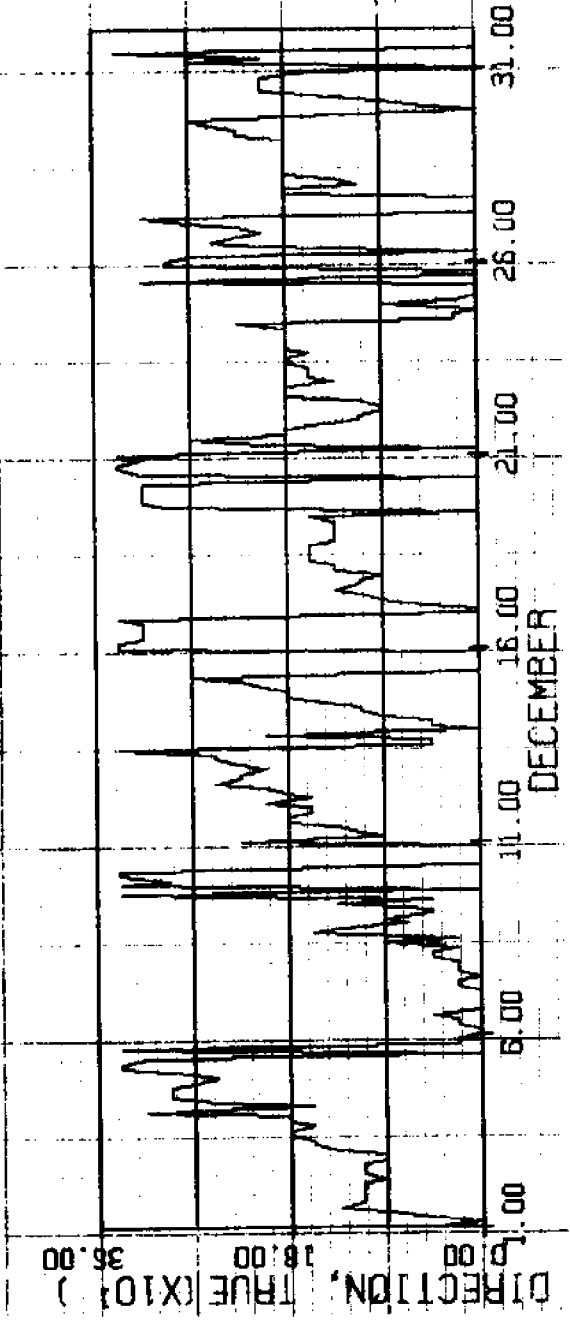
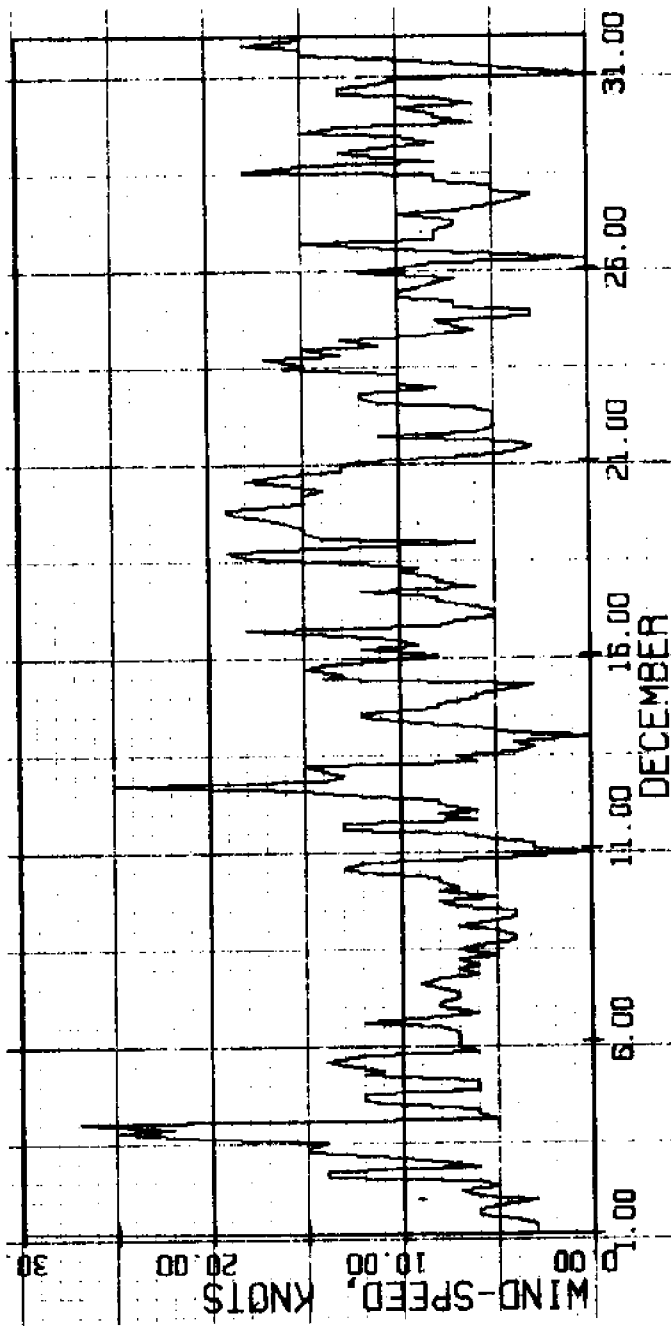
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APPENDIX A

Programs

The Beaumont/Port Arthur 1969-1973 weather data tape[†] was read and plotted in two production runs of three steps each (years 1969 through 1972, and then 1973). In each run, the first step consisted of the creation of a new data tape containing header information, wind speeds and directions, and dry bulb air temperatures in integer format. To deal with the problem of the use of overpunched data on the original data tape, use was made of an efficient Assembler language conversion program, written by Alan Montgomery (Electrical Engineering Department). The conversion of the wind directions (originally in a special 16 point WBAN code) to degrees was performed by a short subroutine. The second and third steps consisted of reading the new tape and plotting wind directions and either wind speeds or dry bulb air temperatures. A listing of the two programs follows.

[†] Note: The tape format is described in Anonymous, 1975. *Surface Observations*, Publication TDF-14, National Climatic Center, Federal Building, Asheville, North Carolina 28801, 12 pages.

```

/*SETUP
/*JOBPARM R=192,TAPE9=2
// EXEC ASMG
//ASM.SYSIN DD *
ICONVT START 0
BC 15,7+1+4(15)
DC X'7'
DC CL7'ICONVT'
STM 14,12,12(13)
BALR 12,0
USING *,12
L 2,0(1)
PACK PACKD,0(8,2)
CVB 0,PACKD
LM 2,12,28(13)
MVI 12(13),X'FF'
BCR 15,14
PACKD DS D
END
// EXEC FORTGCLG,REGION.GO=192K
//FORT.SYSIN DD *
LOGICAL*1 DUMMY(495)
DIMENSION IDIS(24),ISPS(24),ISTS(24)
LOGICAL*1 DD(8,6),DS(8,6),DT(8,6)
REAL*8 B/' /,C/' *'/.AD(6),AS(6),AT(5)
DIMENSION IDI(6),ISP(6),IST(6)
DIMENSION IH(6)
EQUIVALENCE (AD(1),DD(1,1)),(AS(1),DS(1,1)),(AT(1),DT(1,1))
DATA DD/48*Z40/,DS/48*Z40/,DT/48*Z40/
NSKIP=0
NDYS=1461
NERR=0
IF(NSKIP.EQ.0) GO TO 10
DO 6 K=1,NSKIP
READ(9,1006) DUMMY
6 FORMAT(15A1,6(80A1))
1006

```

```

10 CONTINUE
DO 5 IDAY=1,NDYS
ICON=#6
NERW=0
NERT=0
DO 4 IT=1,4
ISW=0
ICON=ICON+6
READ(9,1000,ERR=99) IY,IM,ID,((IH(K),(DD(L,K),L=7,8),(DS(L,K),L=6,
18),(DT(L,K),L=5,9)),K=1,6)
IF(I1.EQ.1) IHH=IH(I)
1000 FORMAT(9X,3I2,6(I2,8X,2A1,3A1,3A1,62X))
C IF(I1.EQ.1) WRITE(5,1001) IY,IM,ID
1001 FORMAT(IH0,'YEAR=',I2,2X,'MONTH=',I2,2X,'DAY=',I2)
C IF(I1.EQ.1) WRITE(6,1003)
1003 FORMAT(5H HOUR)
991 CONTINUE
DO 3 I=1,6
IF(ISW.FO.1) GO TO 1
IF(AD(I).EQ.B.OR.AD(I).EQ.C) GO TO 1
IDI(I)=ICONVT(AD(I))
IDIA=IDI(I)
CALL ANGLE(IDIA)
IDI(I)=IDIA
IF(AS(I).EQ.R.OR.AS(I).FO.C) GO TO 1
ISP(I)=ICONVT(AS(I))
GO TO 2
1 IDI(I)=-1
ISP(I)=-1
NERW=NERW+1
NERR=NERR+1
CONTINUE
KI=ICON+I
IDIS(KI)=IDI(I)
ISPS(KI)=ISP(I)
IF(ISW.FO.1) GO TO 8
2

```



```

IF(AT(I).EQ.8.OR.AT(I).EQ.C) GO TO 8
IST(I)=ICONVT(AT(I))
GO TO 9
8  IST(I)=-99
   NERT=NERT+1
   NERR=NERR+1
9  ISTS(KI)=IST(I)
3  CONTINUE
C  WRITE(6,1002) IH(1),(IDI(K),ISP(K),K=1,6)
1002  FORMAT(1H ,12,10X,6(13,1X,13,6X))
4  CONTINUE
   NERW=NERW+16
1007  WRITE(6,1007) IY,IM,ID,IHH,((IDIS(I),ISPS(I)),I=1,22,3),NERW
   FORMAT(1H ,4(12,1X),5X,8(13,1X,13,4X),5X,12)
   NERT=NERT-16
1008  WRITE(6,1008) (ISYS(I),I=1,22,3),NERT
   FORMAT(1H ,17X,8(13,8X),5X,12)
5  WRITE(10) IY,IM,ID,IHH,IOIS,ISPS,ISTS
   CONTINUE
   DO 7 I=1,24
   J=I-1
7  WRITE(6,1004)J,IDIS(I),ISPS(I),ISTS(I)
1004  FORMAT(1H ,12,10X,13,1X,13,1X,13)
   NERR=NERR-32*NDYS
1005  WRITE(6,1005) NERR
   FORMAT(8HOERRORS=,15)
99  GO TO 992
   READ(9,1006) DUMMY
   ISW=1
   IY=0
   IM=0
   ID=0
   IHH=0
   GO TO 991
992  CONTINUE
     STOP

```

```

END
SUBROUTINE ANGLE(IDIA)
IF(IDIA.EQ.18) IDIA=98
I1=INT(FLOAT(IDIA)/10.)
I2=IDIA-I1*10
IDIA=(I1-I1)*45+(I2-I1)*22
RETURN
END

//GO.SYSIN DD *
//FT09F001 DD UNIT=TAPE9,DCH=(LRECL=495,BLKSIZE=31680,RECFM=FB,
//  EROPT=SKP),LAREL=(1,NL),DISP=OLD,VOL=SER=ZZ5782
//FT10F001 DD UNIT=TAPE9,OCB=(LRECL=308,BLKSIZE=6164,RECFM=VRS),
//  LABEL=(1,NL),DISP=(NEW,PASS),VOL=SER=ZZ5699

```

```

/*SETUP
/*JOBPARM R=128,TAPE9=1,TAPE7=1
//STEP1 EXEC FORTGCLG,PARM,FORT='MAP',REGION.GO=128K
//FORT.SYSIN DO *
DIMENSION IDIS(24),ISPS(24),ISTS(24)
DIMENSION MO(12)
DIMENSION IA(2930),IS(2930),ITE(2930)
DATA MO/31,28,31,30,31,30,31,30,31,30,31,30,31/
DO 33 NY=1,4
ICO=-6
NDL=365
IF(NY.EQ.4) NDL=366
IF(NY.EQ.4) MO(2)=29
DO 8 IDAY=1,NDL
ICO=ICO+8
READ(9) IY,IM,ID,IHH,IOIS,ISPS,ISTS
DO 5 IC=1,8
IR=3*IC-2
ICOR=ICO+IC
IA(ICOR)=IDIS(IR)
ITE(ICOR)=ISTS(IR)
5 IS(ICOR)=ISPS(IR)
WRITE(6,1007) IY,IM,ID,IHH,((IOIS(I),ISPS(I)),I=1,22,3)
WRITE(6,1008) (ISTS(I),I=1,22,3)
1007 FORMAT(1H,4(12,1X),5X,8(13,1X,13,4X))
1008 FORMAT(1H,19X,8(13,8X))
8 CONTINUE
IST=0
IST1=0
DO 32 IMO=1,12
DRAW VELOCITY AND DIRECTION AXES
CALL AXIS1(0.5,8.0,'DIRECTION, TRUE',15.2,0.0,0.0,180.,10.)
CALL AXIS1(3.5,8.0,'WIND=SPEED, KNOTS',17.3,0.0,10.,20.)
CALL AXIS1(3.5,8.0,'DRY BULB TEMP, DEG F',20.3,0.0,40.,20.)
CALL AXIS1(3.5,8.0,'DRY BULB TEMP, DEG F',20.3,0.0,40.,20.)
IF(NY.EQ.1) CALL SYMBOL(6.6,6.0,0.28,'PORT ARTHUR, 1969',270.,17)

```

```

IF(NY.EQ.2) CALL SYMBOL(6.6,6.0,0.28,'PORT ARTHUR, 1970',270.,17)
IF(NY.EQ.3) CALL SYMBOL(6.6,6.0,0.28,'PORT ARTHUR, 1971',270.,17)
IF(NY.EQ.4) CALL SYMBOL(6.6,6.0,0.28,'PORT ARTHUR, 1972',270.,17)
X=-2.5

```

```

C DRAW MONTH AXES

```

```

DO 9 IX=1,2

```

```

X=X+3.0

```

```

FAX=5.6

```

```

IF(NY.EQ.4) FAX=5.8

```

```

GO TO (10,11,12,13,14,15,16,17,18,19,20,21) ,IMO

```

```

CONTINUE

```

```

22

```

```

C

```

```

GO TO 7

```

```

CALL AXISI(X,8.,'JANUARY',-7,6.2, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'FEBRUARY',-8,6.2, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'MARCH',-5,6.2, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'APRIL',-5,6.0, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'MAY',-3,6.2, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'JUNE',-4,6.0, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'JULY',-4,6.2, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'AUGUST',-6,6.2, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'SEPTEMBER',-9,6.0,270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'OCTOBER',-7,6.2, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'NOVEMBER',-8,6.0, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'DECEMBER',-8,6.2, 270.,1.0,5.0,50.0)

```

```

GO TO 22

```

```

CALL AXISI(X,8.,'DECEMBER',-8,6.2, 270.,1.0,5.0,50.0)

```

```

21

```

```

7 GO TO 22
  CONTINUE
9 CONTINUE
  XBT=8.0-MO(IMO)/5.0
  CALL PLOT(6.5,8.0,3)
  CALL PLOT(6.5,XBT,2)
  CALL PLOT(3.5,XBT,2)
  CALL PLOT(4.5,XBT,3)
  CALL PLOT(4.5,8.0,2)
  CALL PLOT(5.5,8.0,3)
  CALL PLOT(5.5,XBT,2)

C   CALL PLOT(0.5,XBT,3)
  CALL PLOT(2.5,XBT,2)
  CALL PLOT(2.5,8.0,2)
  CALL PLOT(2.0,8.0,3)
  CALL PLOT(2.0,XBT,2)
  CALL PLOT(1.5,XBT,3)
  CALL PLOT(1.5,8.0,2)
  CALL PLOT(1.0,8.0,3)
  CALL PLOT(1.0,XBT,2)

C   PLOT DIRECTIONS
  IN=MO(IMO)
  INR=IN*8
  IST=IST+1
  Y=8.0
  X=IA(IST)/180.
  IF(X.LT.0.) X=0.
  CALL PLOT(X+0.5,Y,3)
  DO 30 IK=2,INR
    IST=IST+1
    Y=Y-0.025
    X=IA(IST)/180.
    IF(X.LT.0.) X=0.
  CALL PLOT(X+0.5,Y,2)

30  PLOT DRY BULB TEMP OR SPEEDS
C

```

```

IST1=IST1+1
Y=8.0
C X=IS(IST1)/10.
C X=ITE(IST1)/40.
X=ITE(IST1)/40.
IF(X.LT. 0.0) X=0.
CALL PLOT(X+3.5,Y.3)
DO 31 IK=2,INR
IST1=IST1+1
Y=Y-0.025
C X=IS(IST1)/10.
C X=ITE(IST1)/40.
X=ITE(IST1)/40.
IF(X.LT. 0.0) X=0.
31 CALL PLOT(X+3.5,Y.2)
CALL PLOT(8.5,0.0,=3)
32 CONTINUE
33 CONTINUE
CALL PLOT(8.5,0.0,99)
STOP
END
//LKED,DDNAME DD DISP=SHR,
// DSN=USER,OCN=GUINASSO.JOBLIB
//LKED,SYSIN DD *
INCLUDE DDNAME(CALCOMP)
/*
//GO,SYSIN DD *
//GO,PLOTTAPE DD UNIT=(TAPE7,,DEFER),DISP=(NEW,KEEP),
// LABEL=(1,NL,,OUT),VOL=SER=ZZ3395,
// DCB=(RECFM=FB,LRECL=120,BLKSIZE=120,
//FT09F001 DD UNIT=TAPE9,DCB=(LRECL=308,RLKSIZE=6164,RECFM=VBS),
// LABEL=(1,NL),DISP=OLD,VOL=SER=ZZ5699

```

