

**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

NOAA Miami SFSS

**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

Date: 01 MAR 1996

Depicted land should not be used for navigation.
Position lines are for the edges of warmer water.

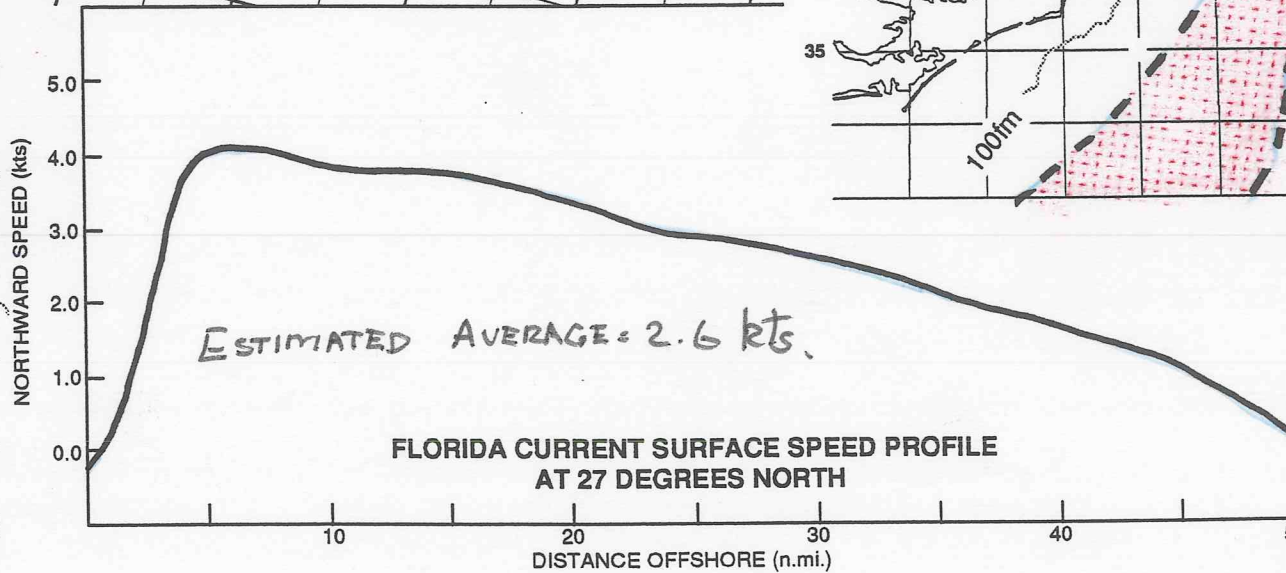
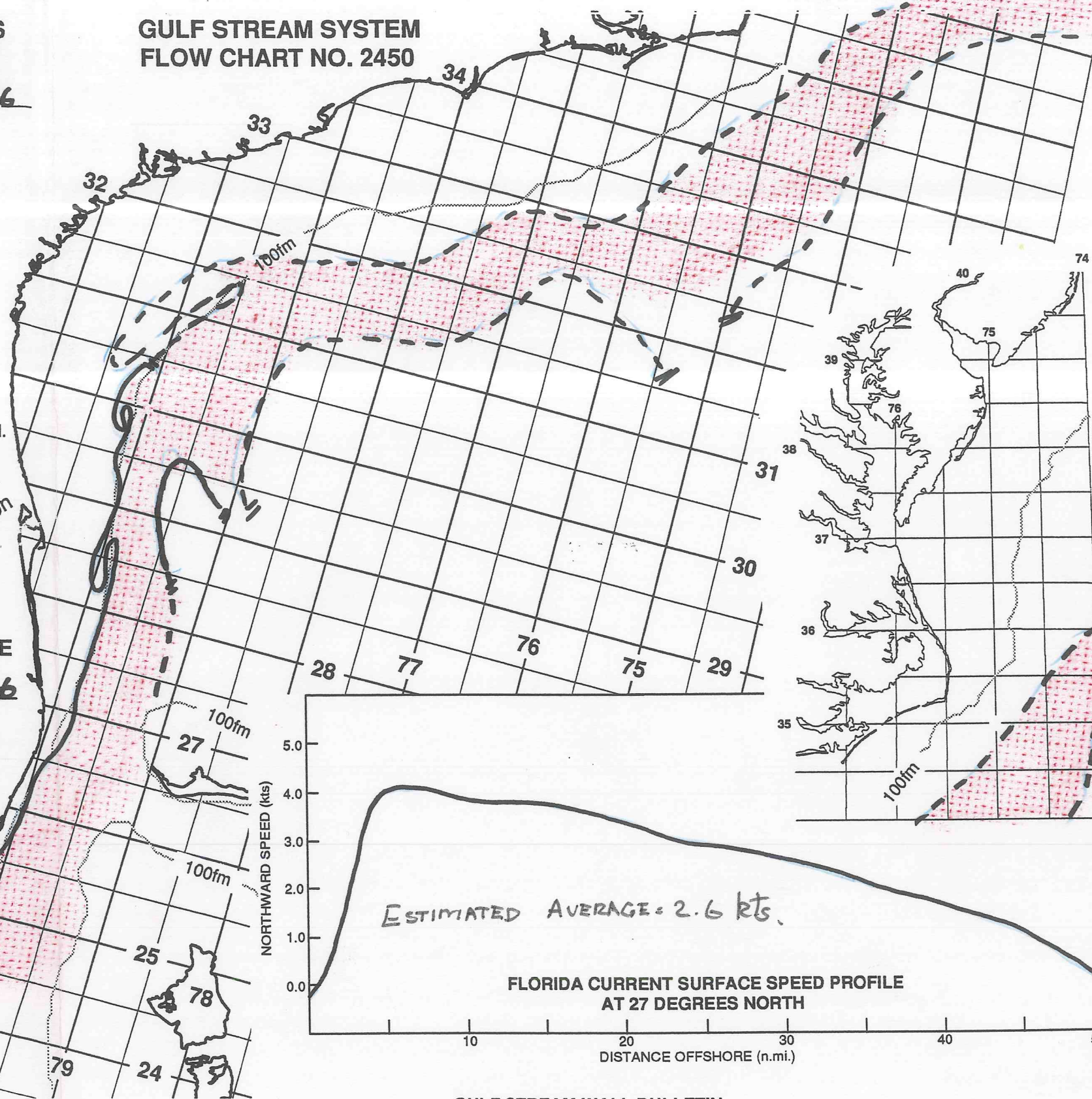
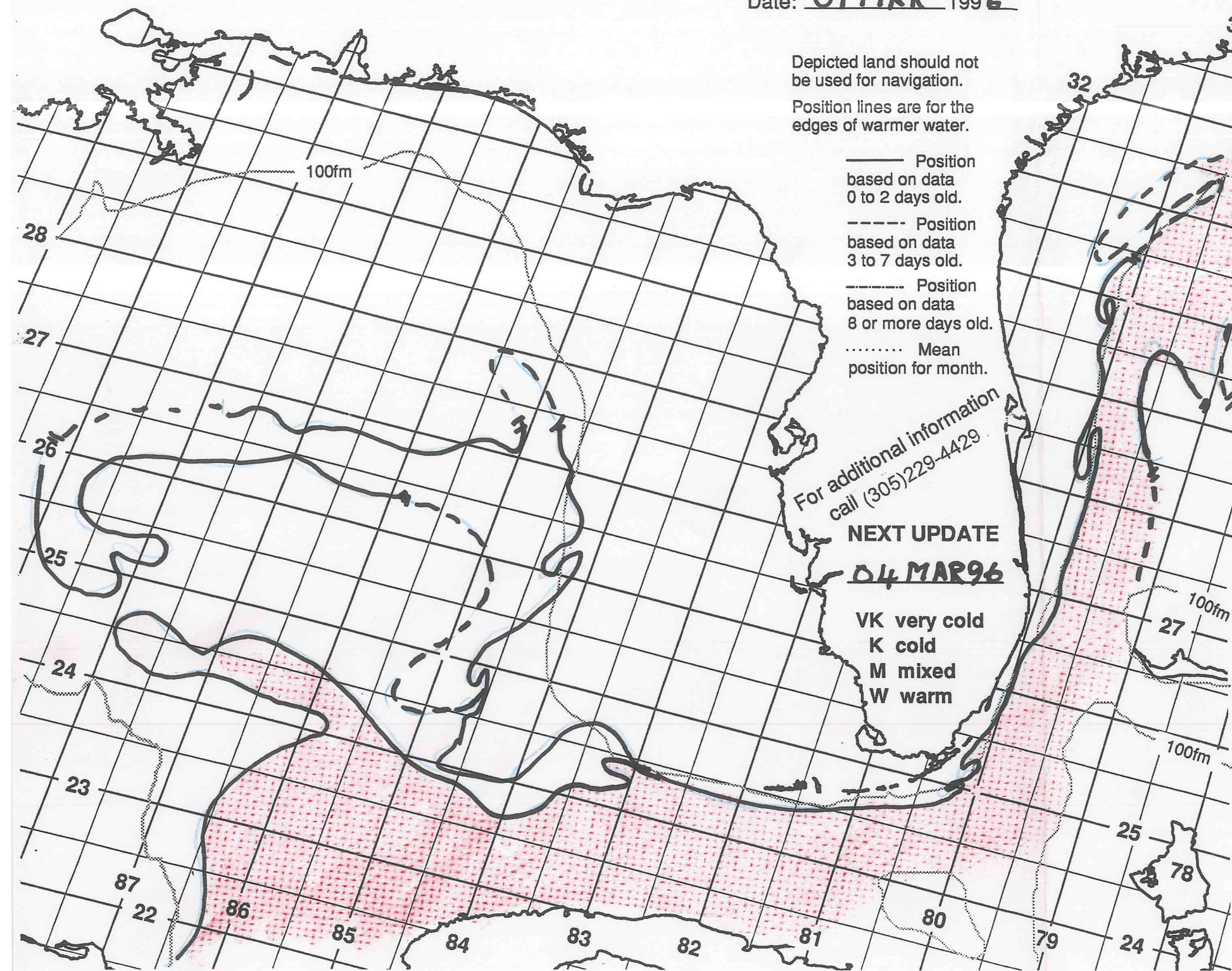
- Position based on data 0 to 2 days old.
- - - - Position based on data 3 to 7 days old.
- Position based on data 8 or more days old.
- Mean position for month.

For additional information
call (305)229-4429

NEXT UPDATE

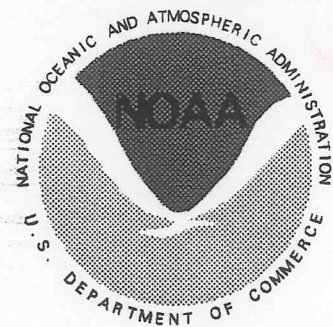
04 MAR 96

VK very cold
K cold
M mixed
W warm



GULF STREAM WALL BULLETIN

LOOP CURRENT BULLETIN



**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

NOAA Miami SFSS

**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

Date: 04 MAR 1996

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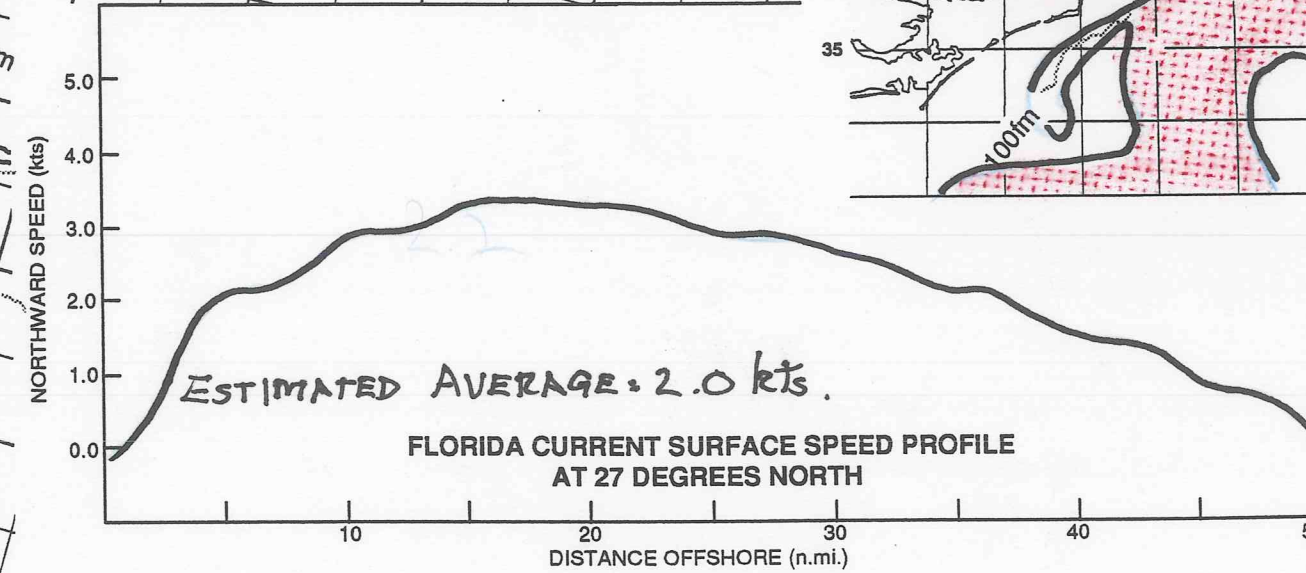
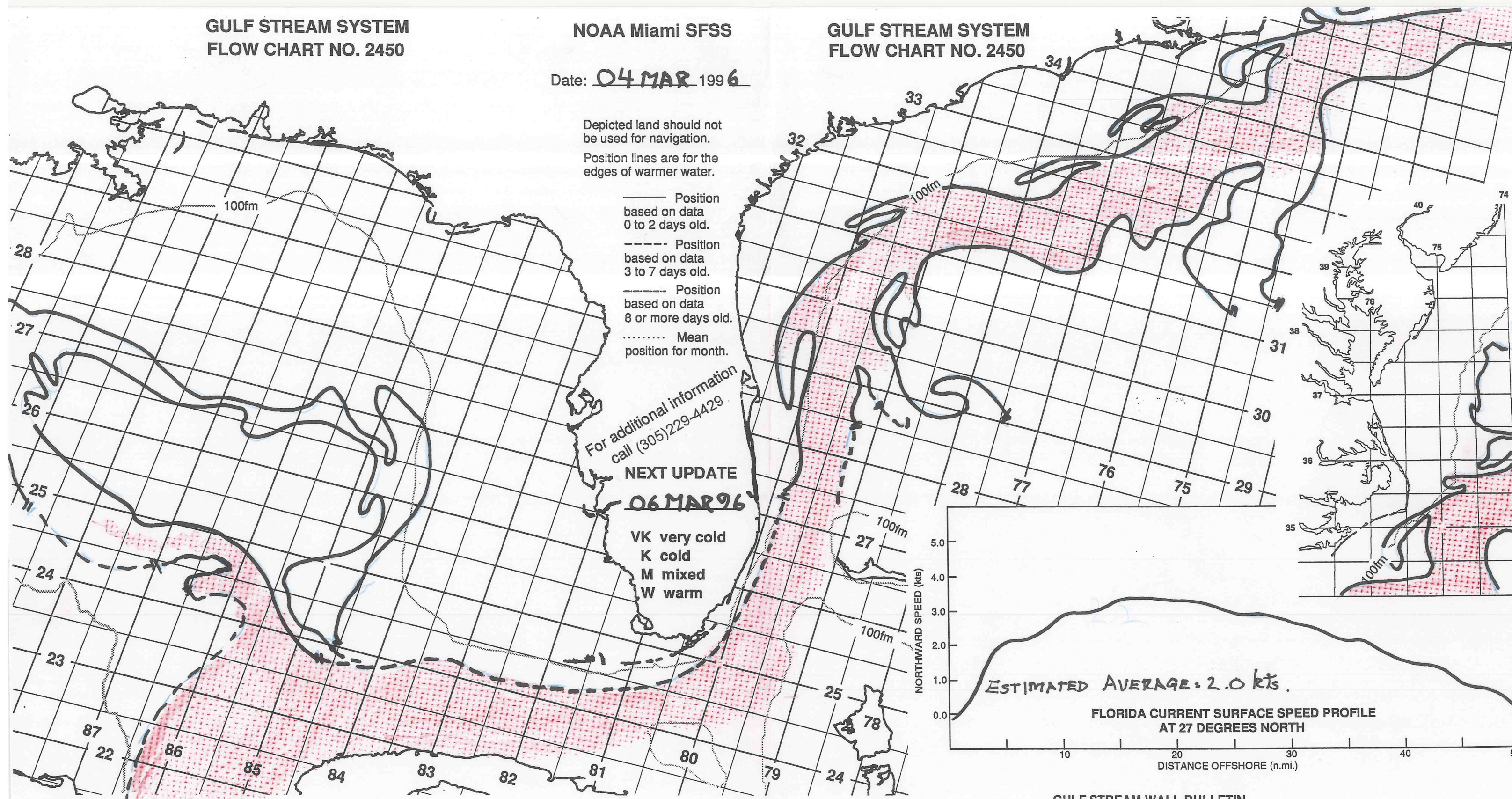
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- · — Position based on data 8 or more days old.
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NEXT UPDATE

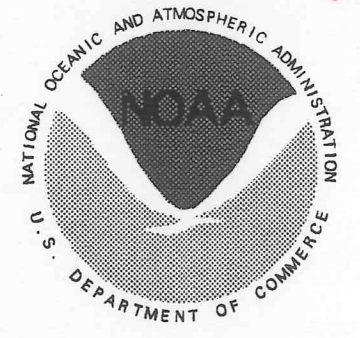
06 MAR 96

VK very cold
K cold
M mixed
W warm



GULF STREAM WALL BULLETIN

LOOP CURRENT BULLETIN



75°W

70°W

65°W

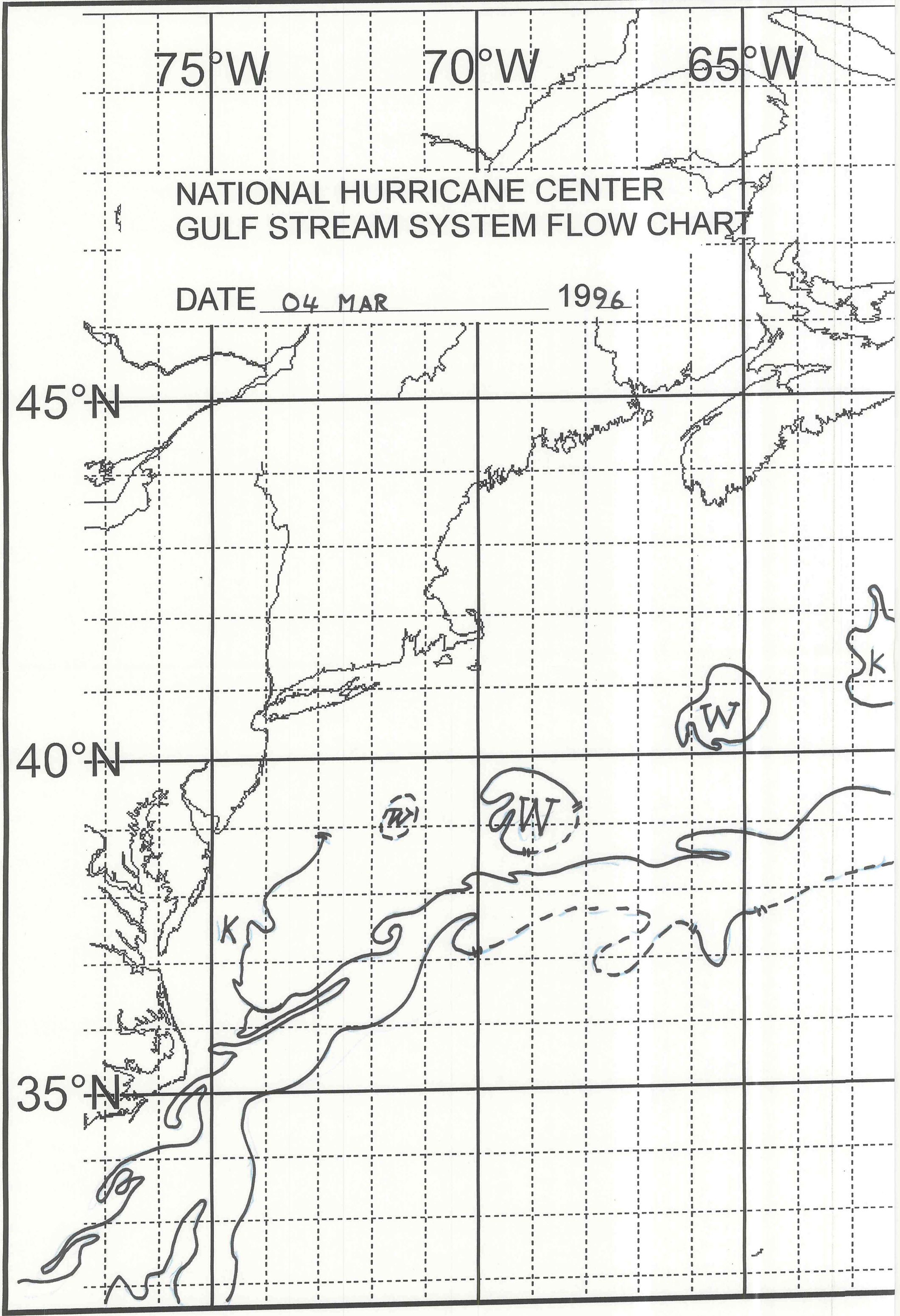
NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

DATE 04 MAR 1996

45°N

40°N

35°N



60°W

55°W

50°W



**GULF STREAM SYSTEM
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Date: 06 MAR 1996

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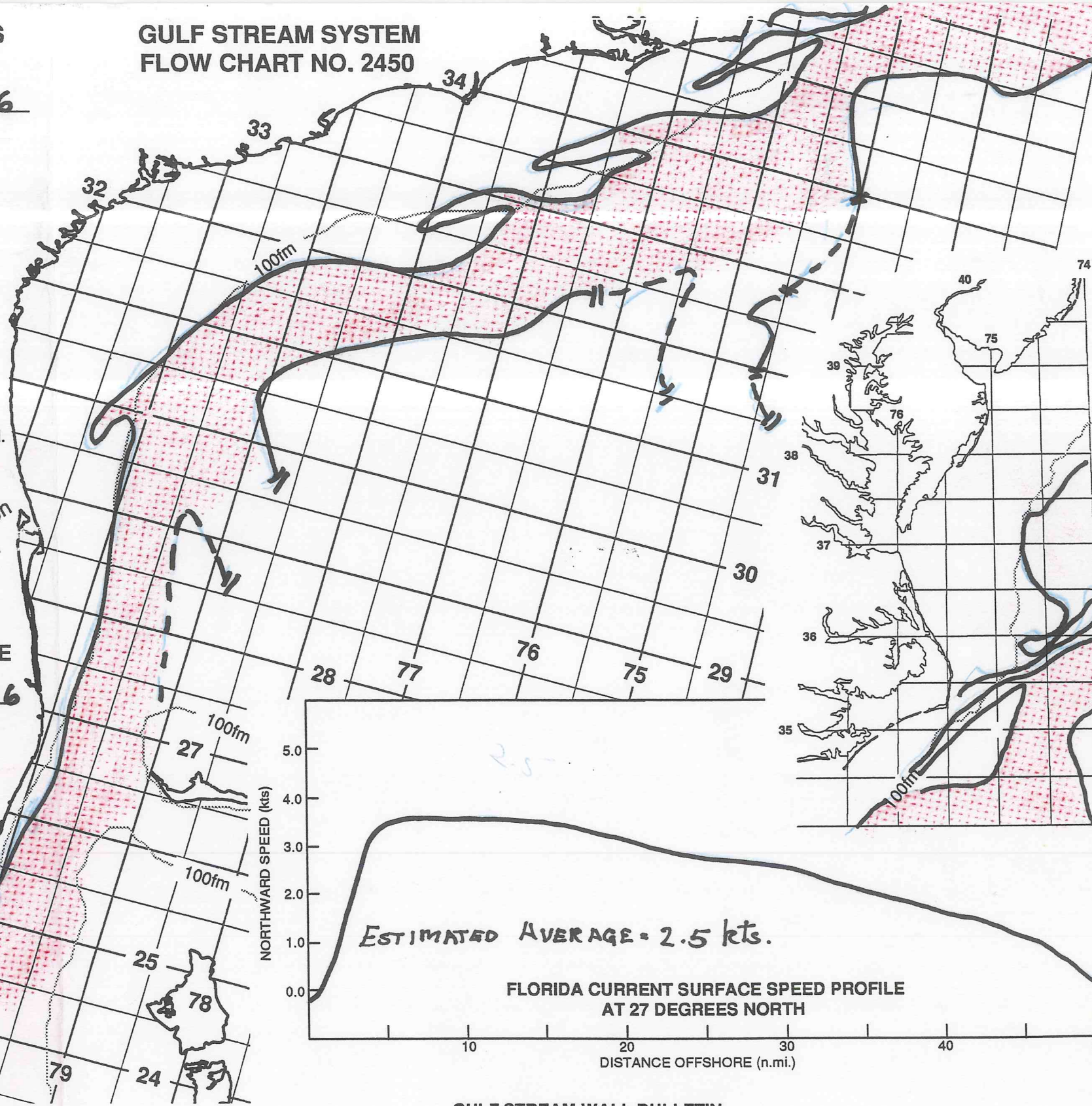
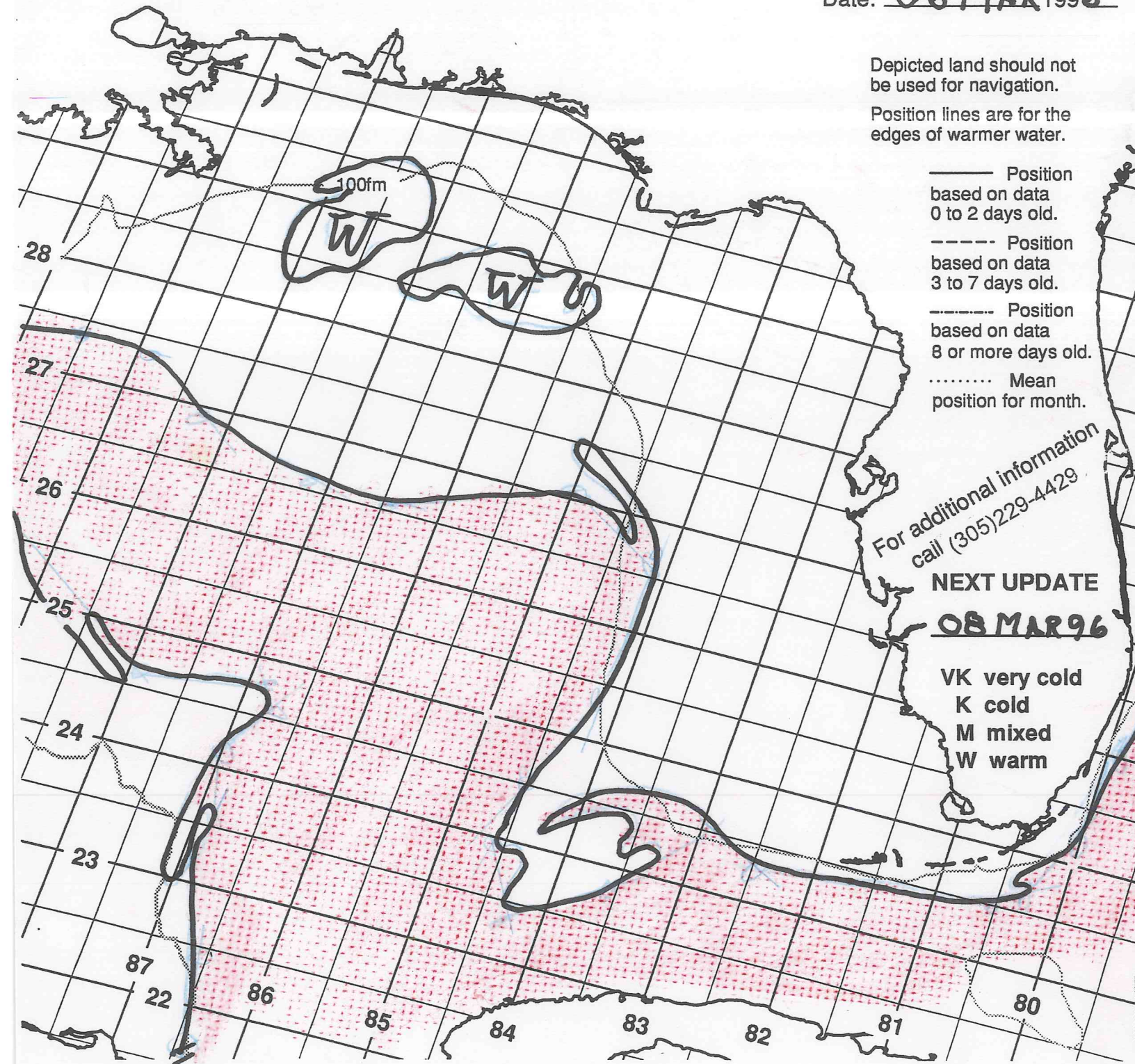
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NEXT UPDATE

08 MAR 96

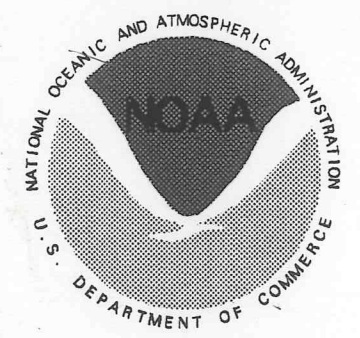
VK very cold
K cold
M mixed
W warm



GULF STREAM WALL BULLETIN

LOOP CURRENT BULLETIN

216/864	224/866	232/869	237/868	242/870	246/867	247/869	246/879	256/89:
261/901	273/885	273/889	269/883	266/871	266/845	270/850	266/841	254/84
245/845	239/846	234/843	239/835	246/827	243/825	244/815	245/805	247/80
253/800	260/799/1							



GULF STREAM SYSTEM
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NOAA Miami SFSS

GULF STREAM SYSTEM
FLOW CHART NO. 2450

Date: **08 MAR 1996**

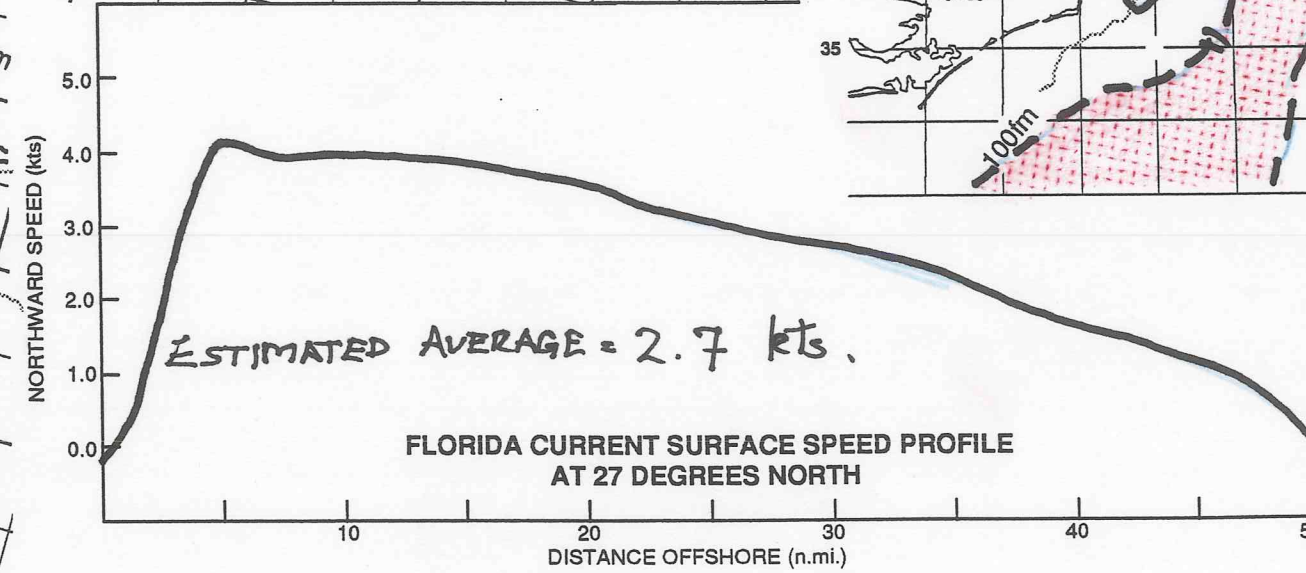
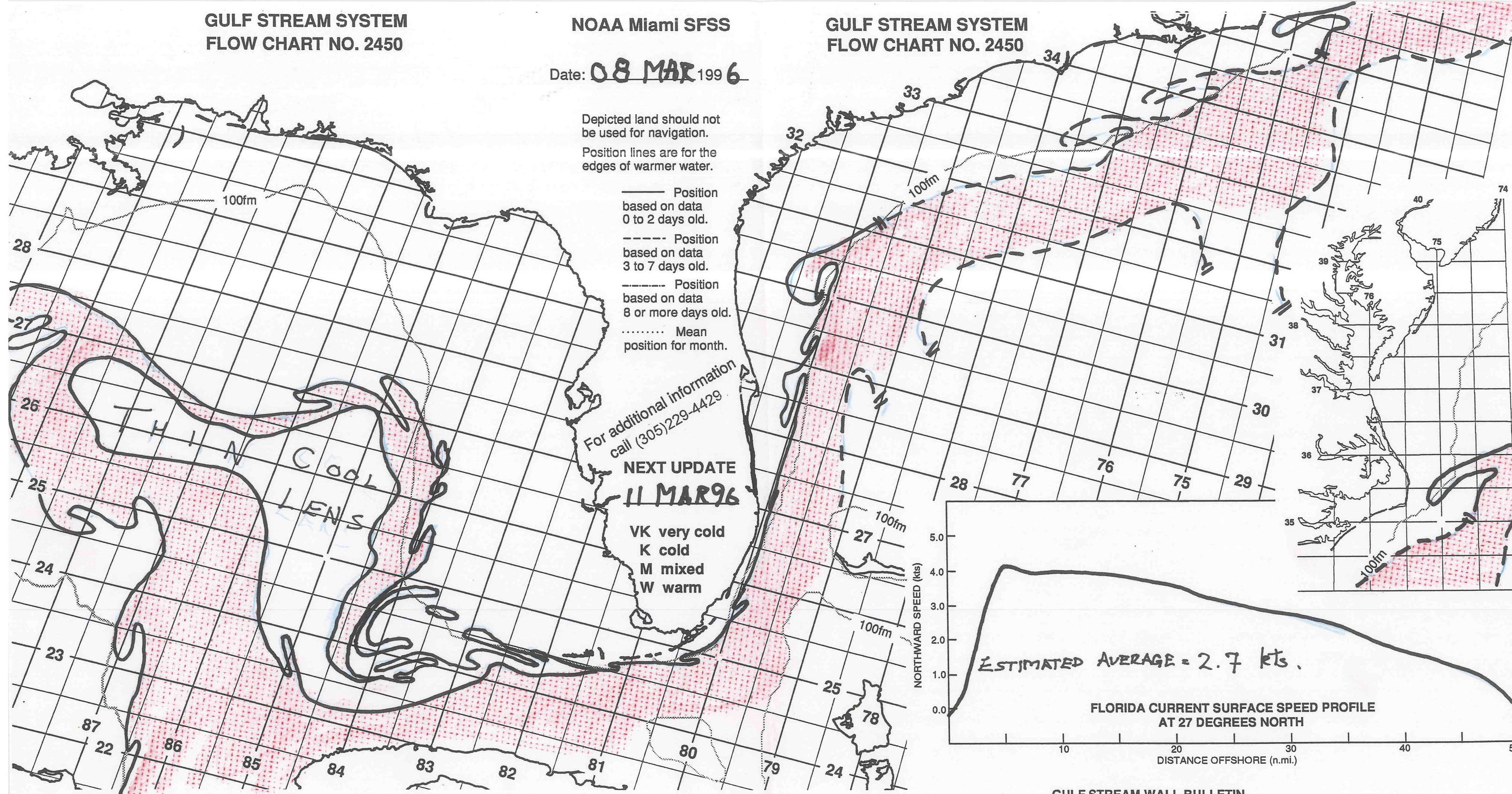
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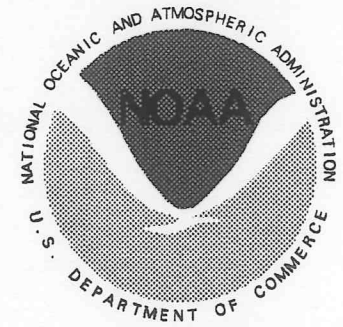
NEXT UPDATE
11 MAR 96

VK very cold
K cold
M mixed
W warm



GULF STREAM WALL BULLETIN

LOOP CURRENT BULLETIN



75°W

70°W

65°W

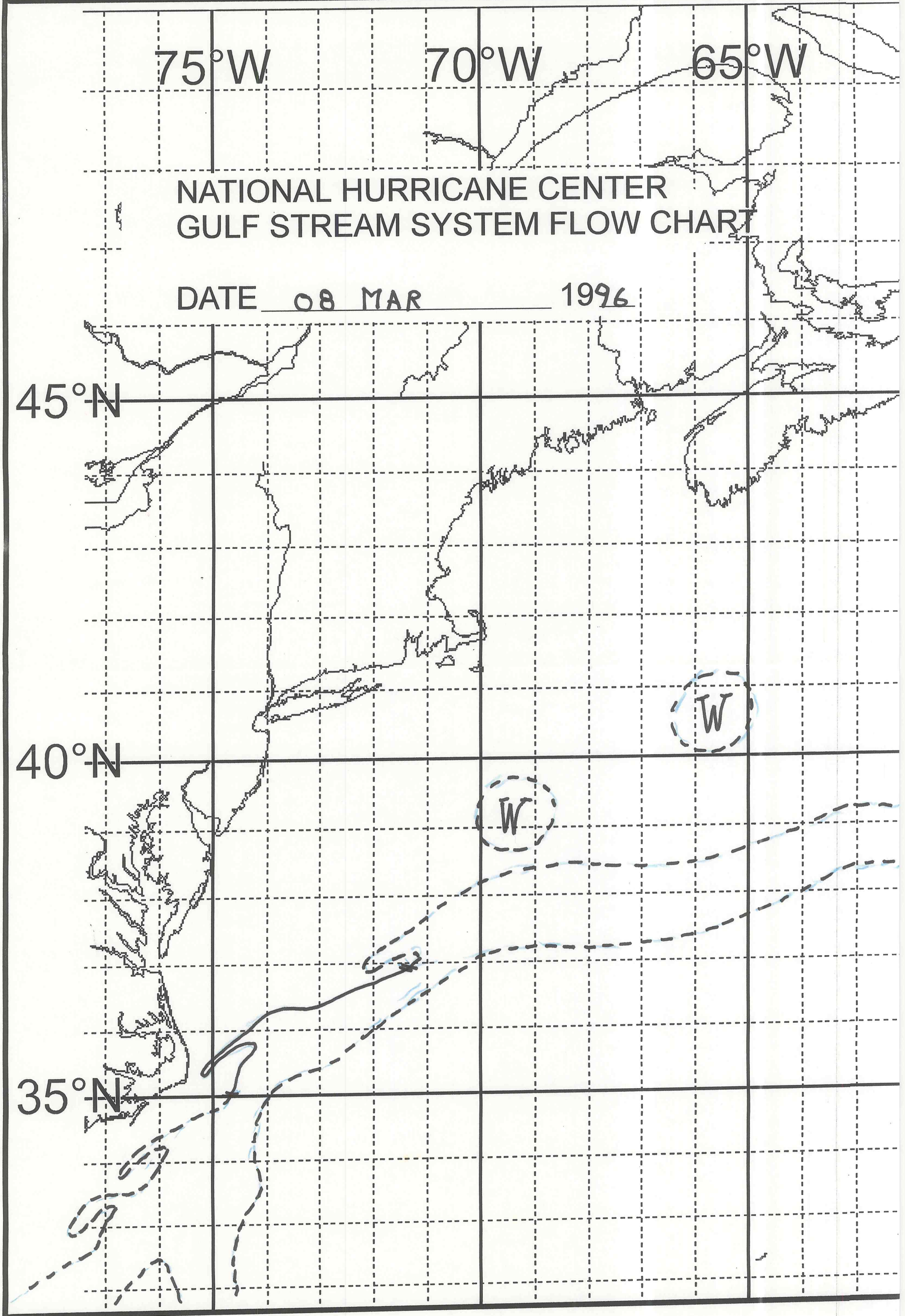
NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

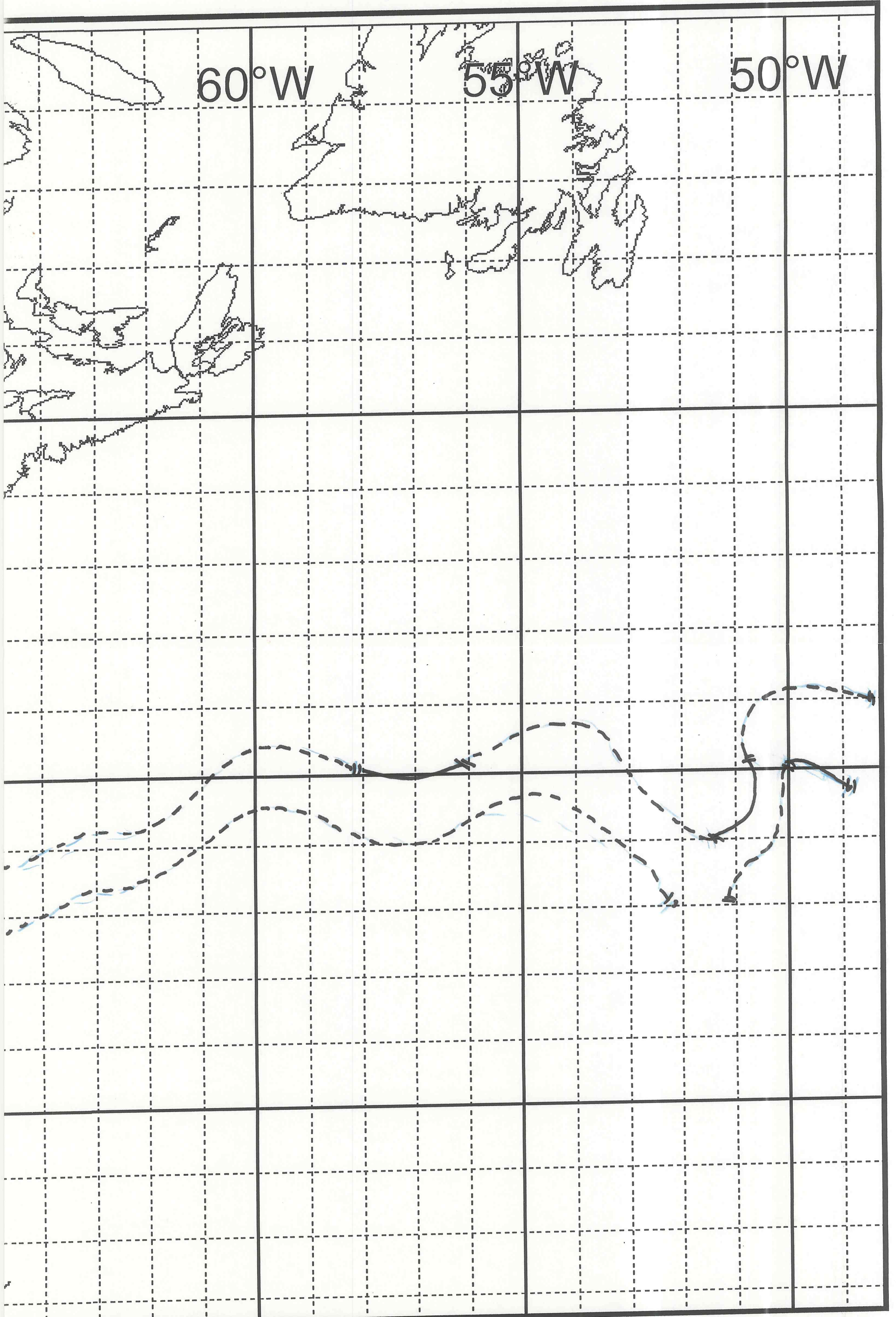
DATE 08 MAR 1996

45°N

40°N

35°N





**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

NOAA Miami SFSS

**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

Date: 11 MAR 1996

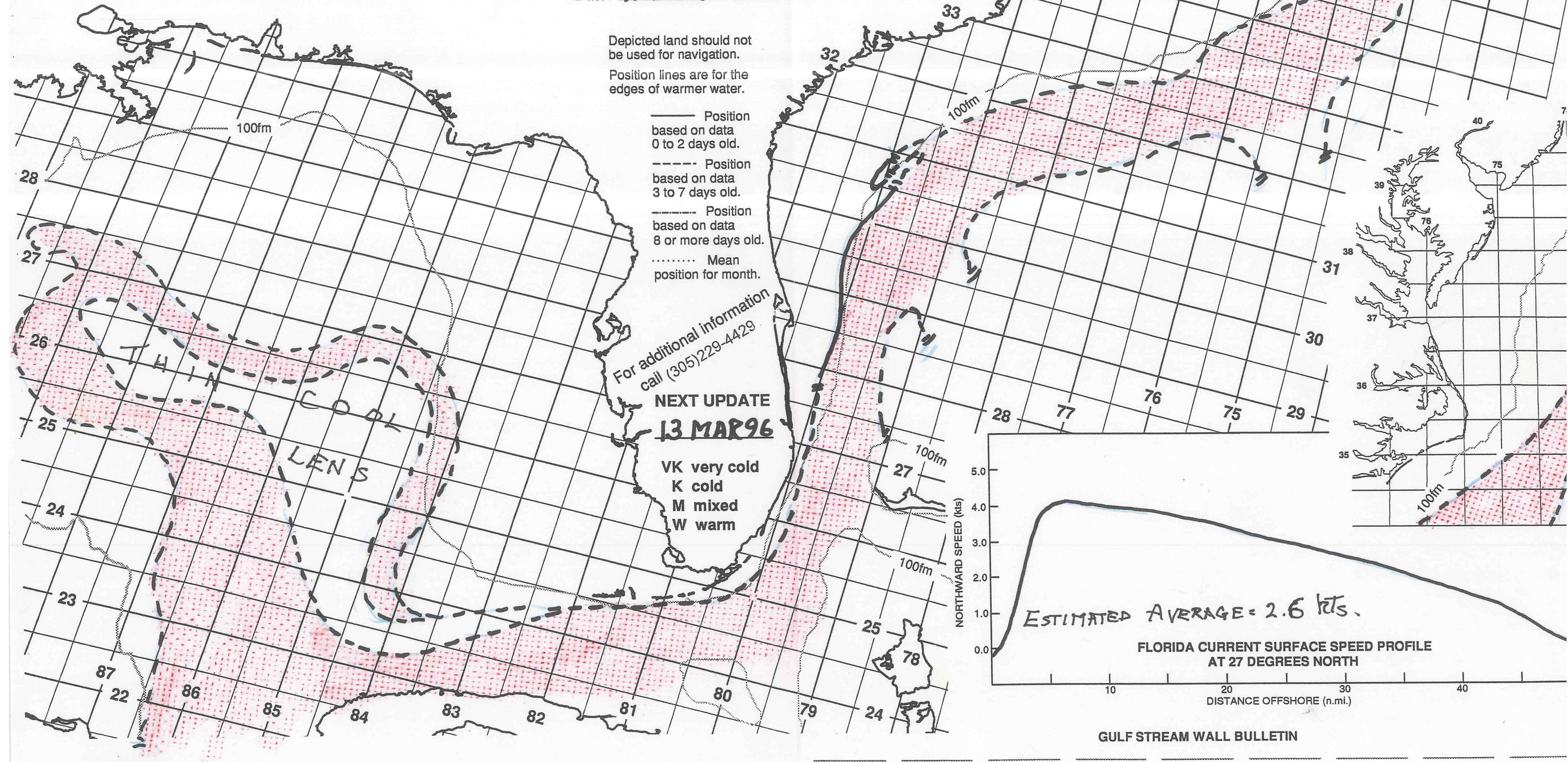
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**NEXT UPDATE
13 MAR 96**

VK very cold
K cold
M mixed
W warm



GULF STREAM WALL BULLETIN

LOOP CURRENT BULLETIN



75°W

70°W

65°W

NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

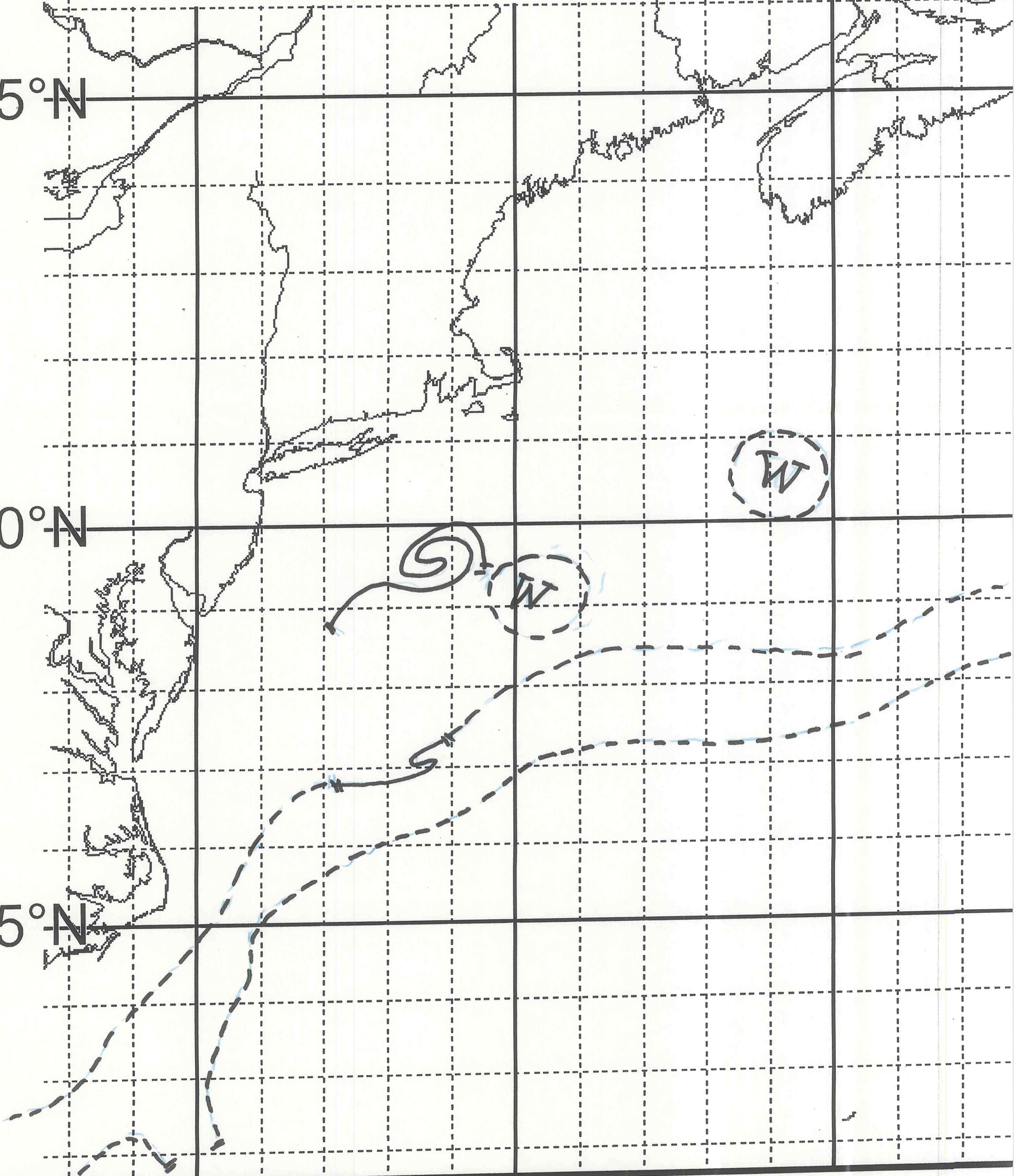
DATE 11 MAR

1996

45°N

40°N

35°N

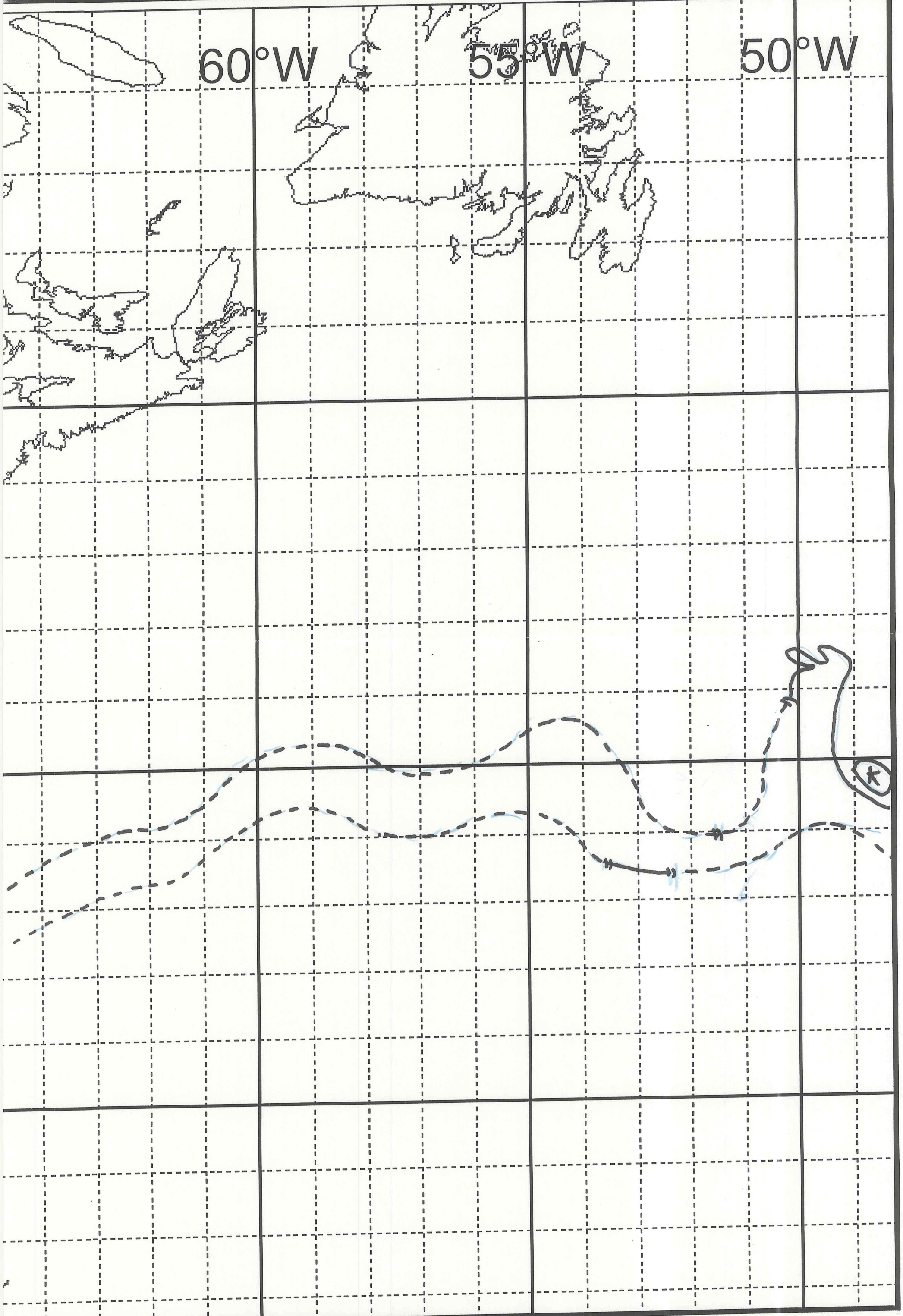


11 III 96 P.2.

60°W

55°W

50°W



**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

NOAA Miami SFSS

Date: 13 MAR 1996

**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

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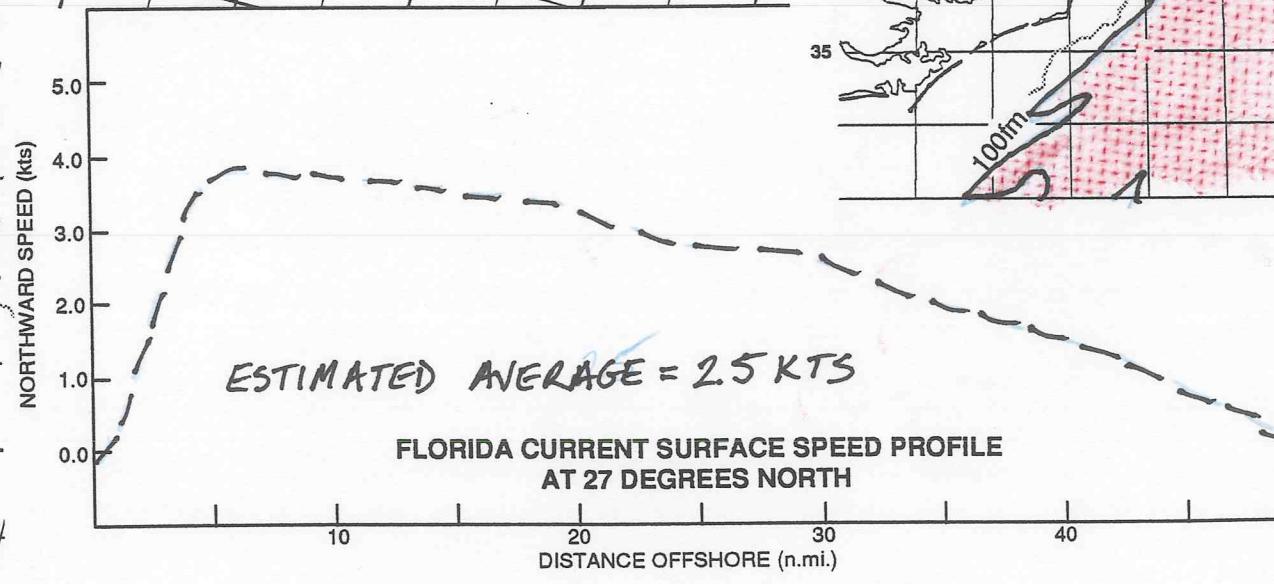
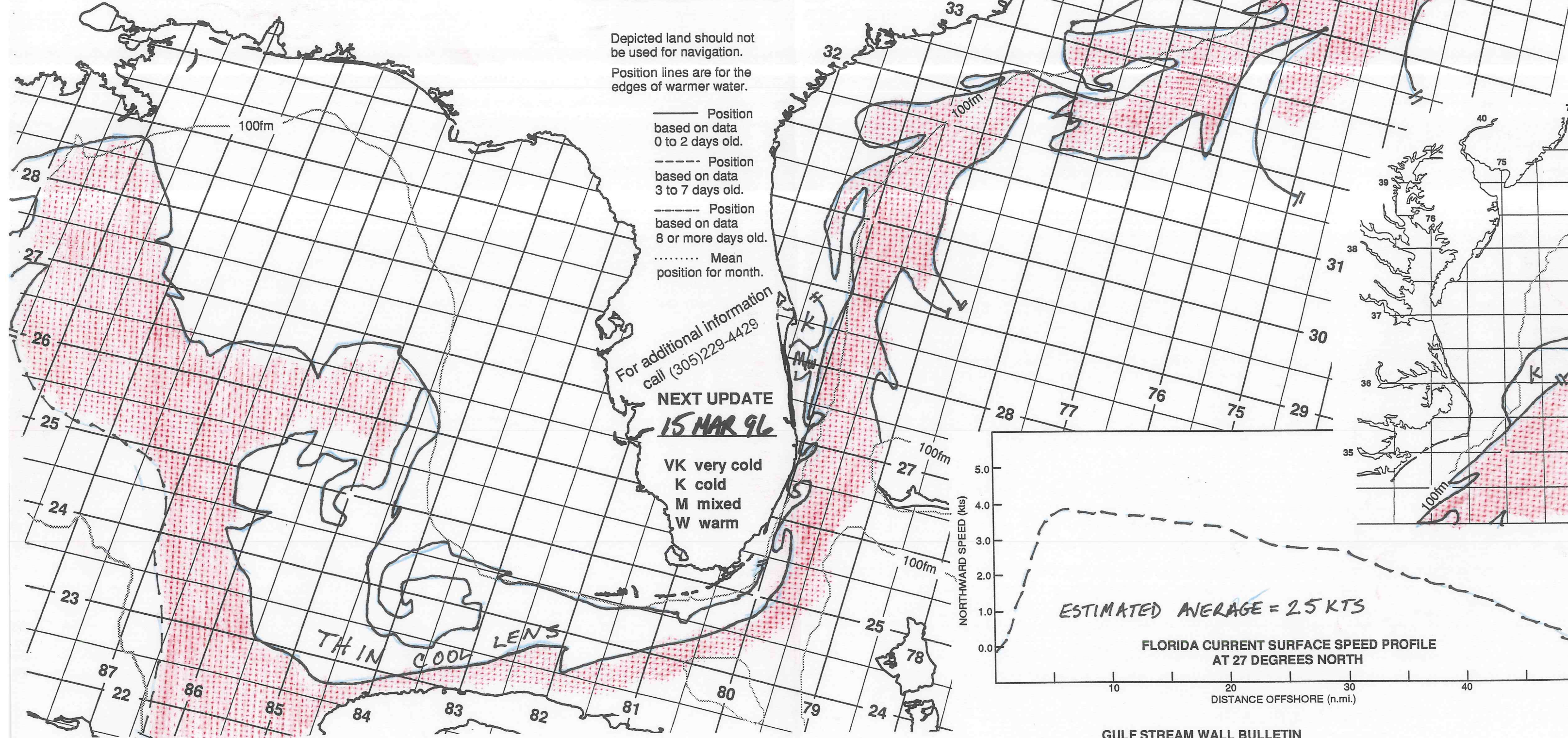
- Position based on data 0 to 2 days old.
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- Mean position for month.

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NEXT UPDATE
15 MAR 96

VK very cold
K cold
M mixed
W warm

THIN COOL LENS



GULF STREAM WALL BULLETIN

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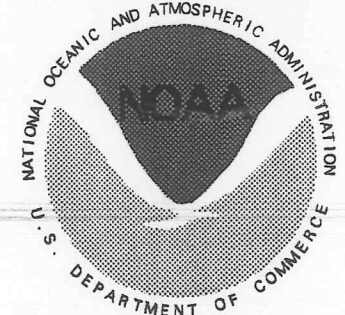
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LOOP CURRENT BULLETIN



75°W

70°W

65°W

NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

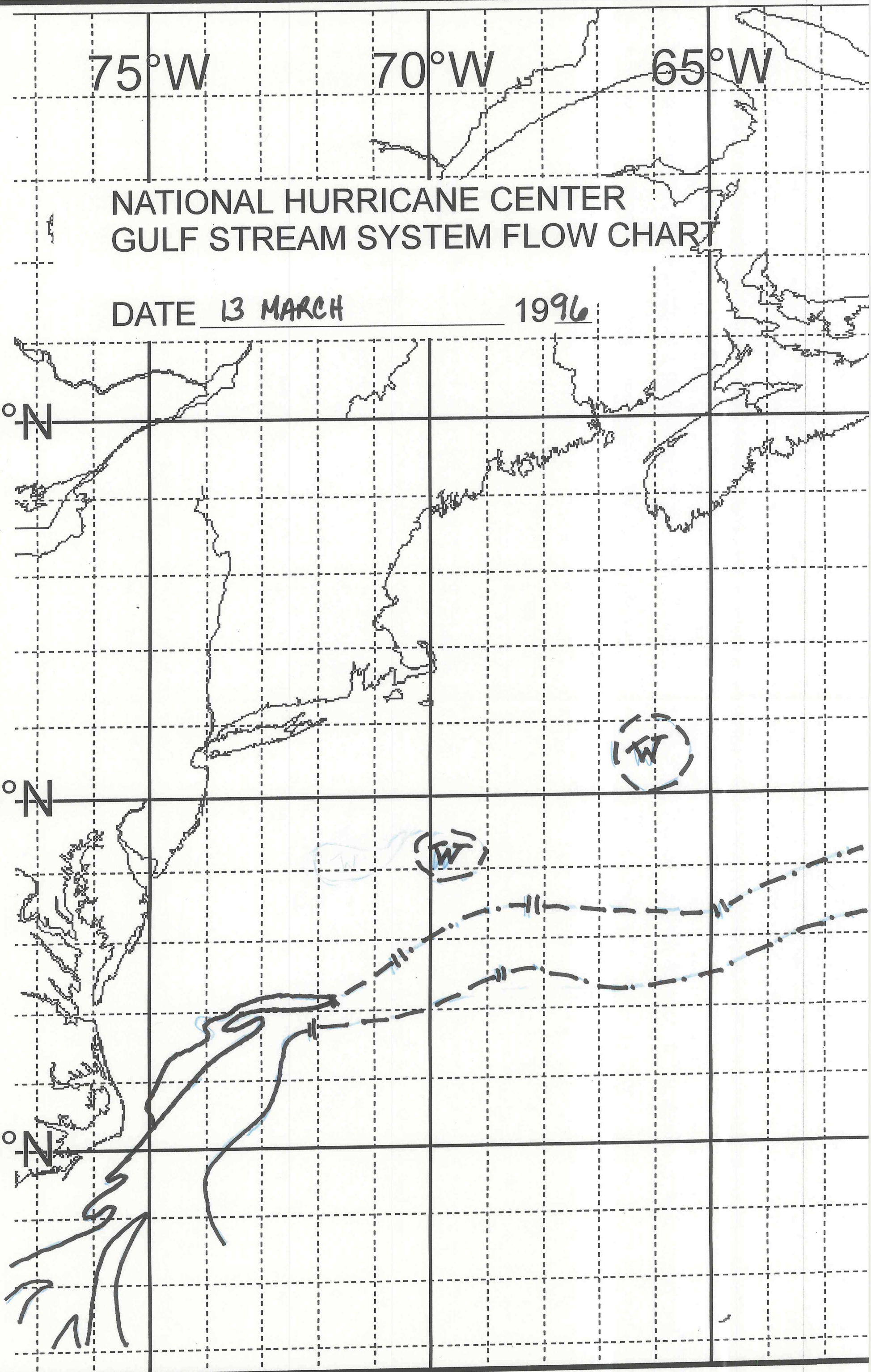
DATE 13 MARCH

1996

45°N

40°N

35°N



13 MAR 96 P.II

60°W

55°W

50°W



**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

NOAA Miami SFSS

**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

Date: 15 MAR 1996

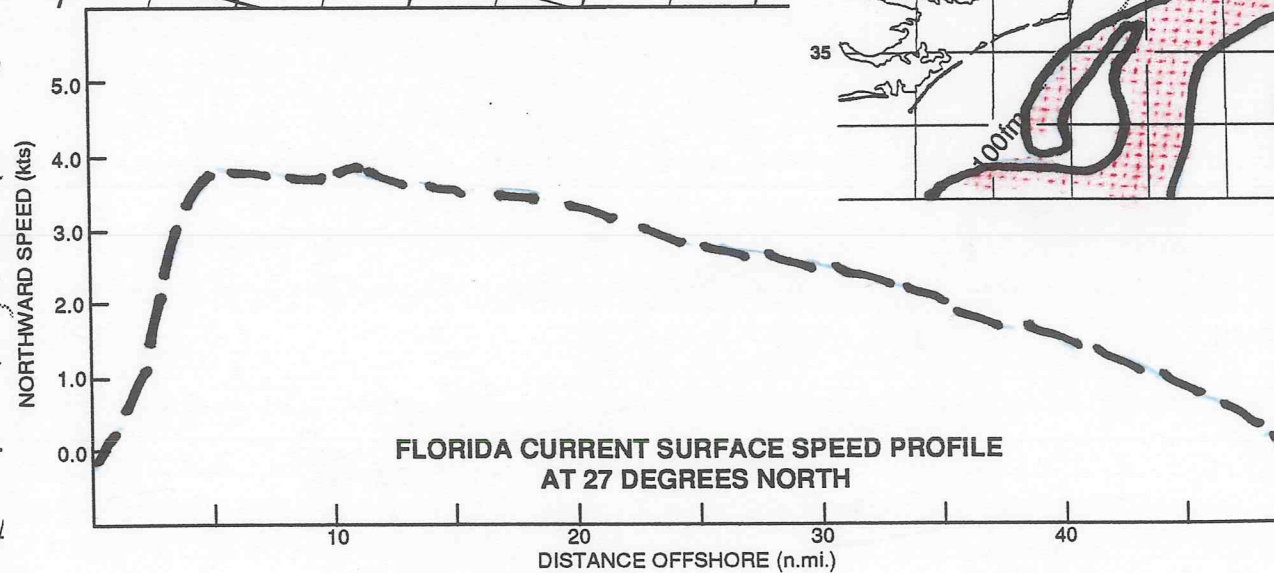
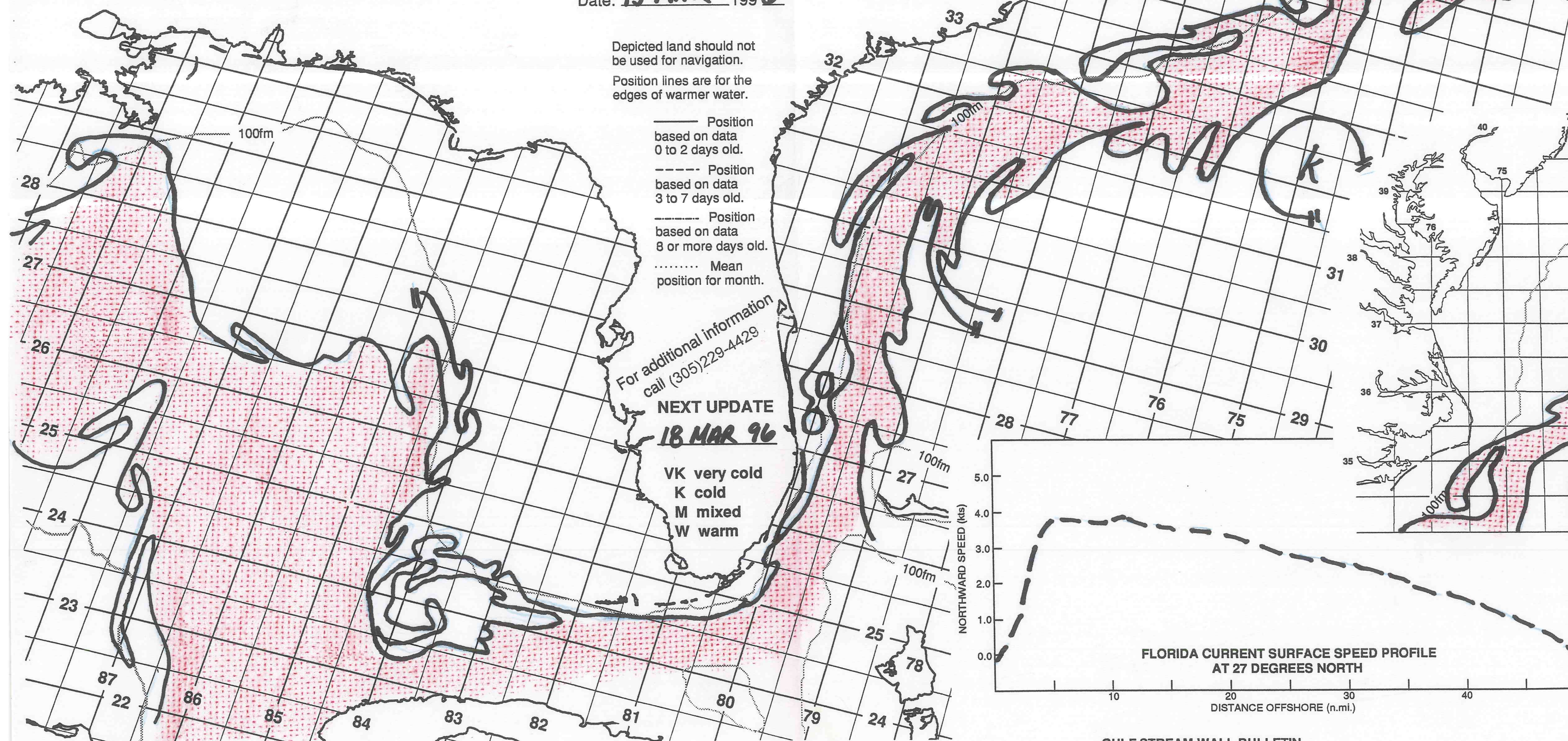
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**NEXT UPDATE
18 MAR 96**

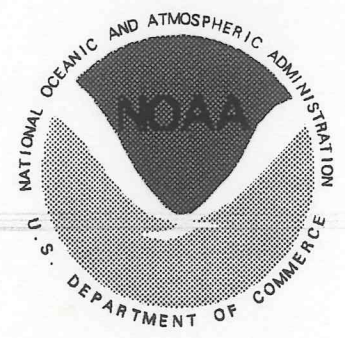
- VK very cold
- K cold
- M mixed
- W warm



GULF STREAM WALL BULLETIN

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LOOP CURRENT BULLETIN



75°W

70°W

65°W

NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

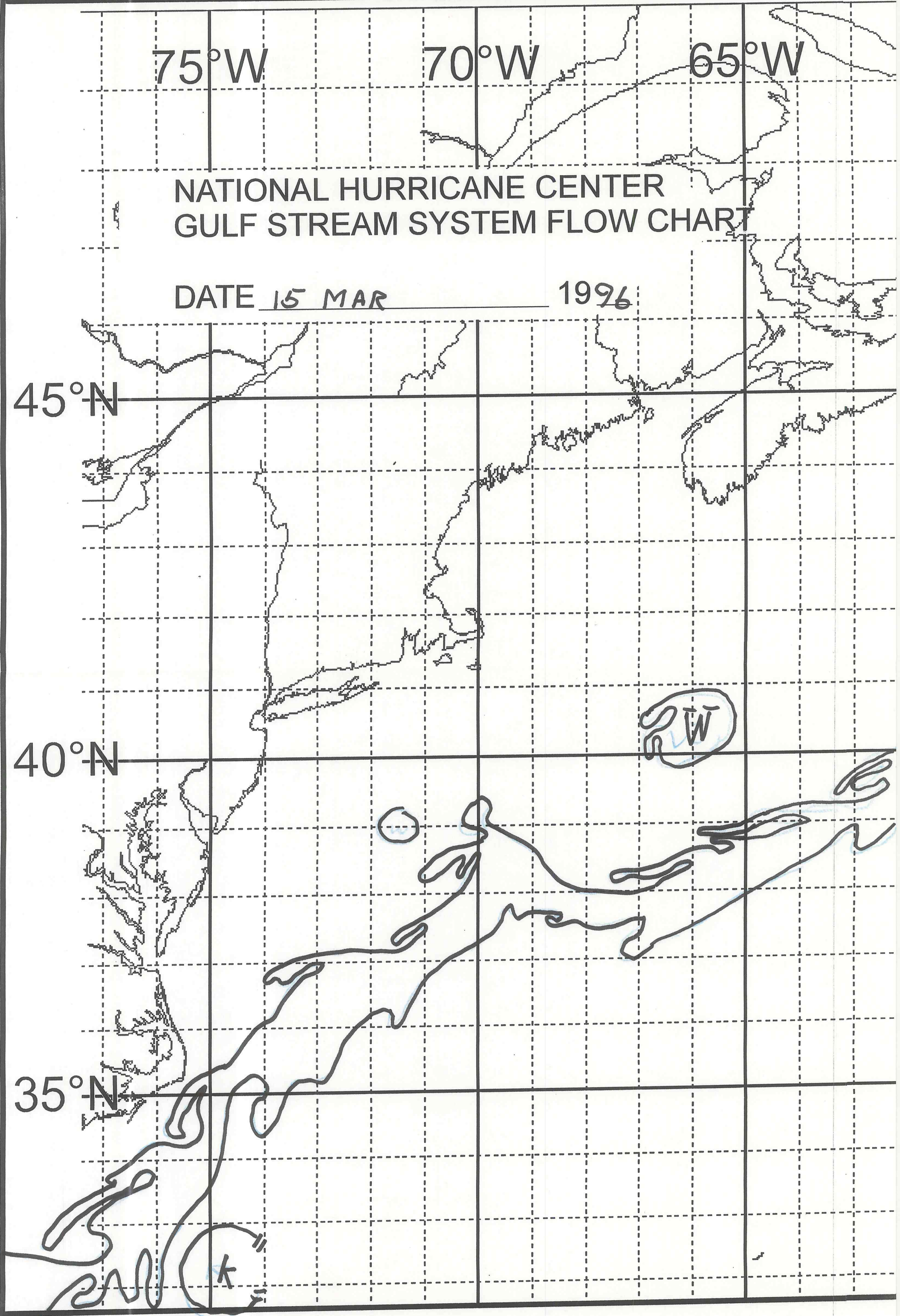
DATE 15 MAR

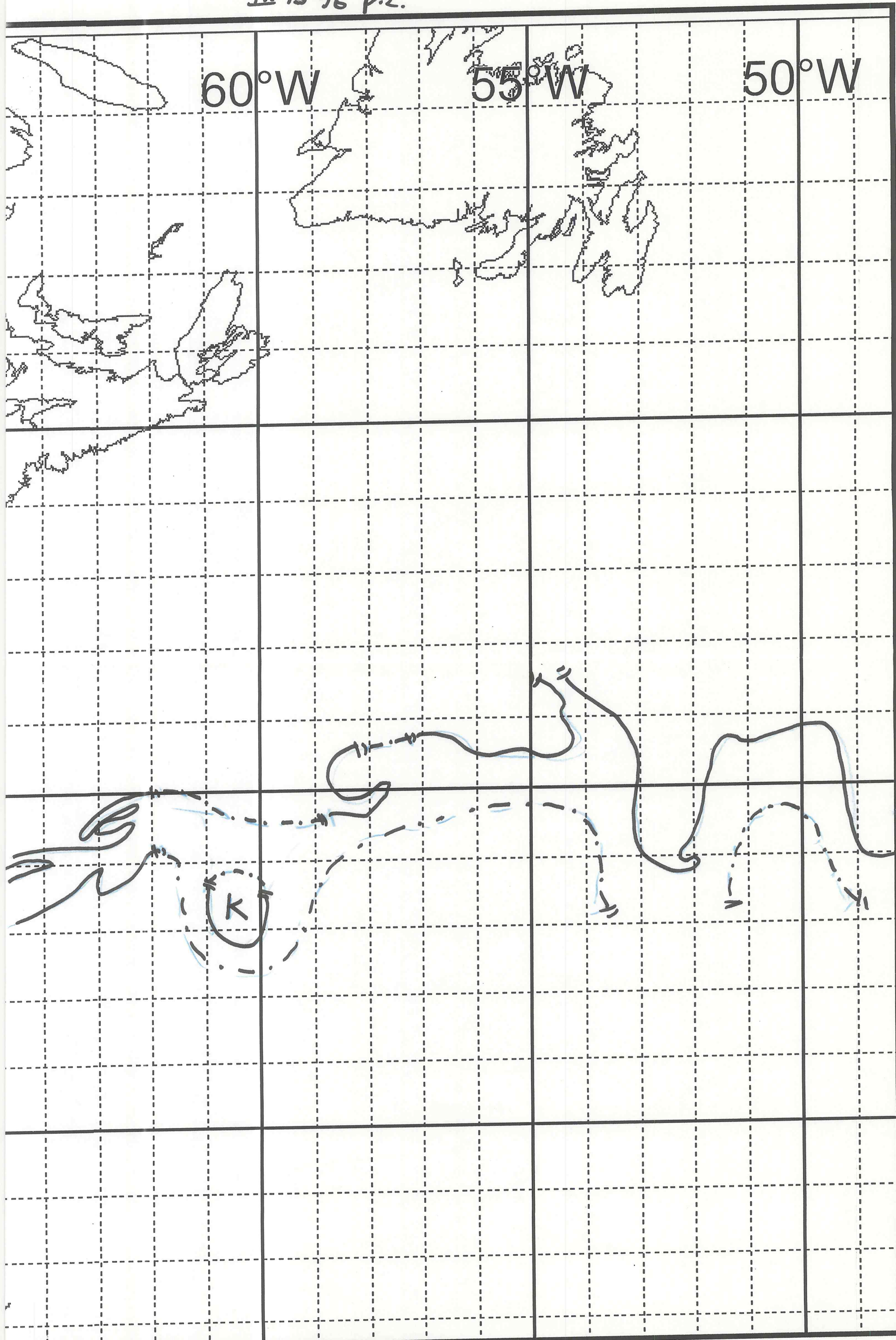
1996

45°N

40°N

35°N





75°W

70°W

65°W

NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

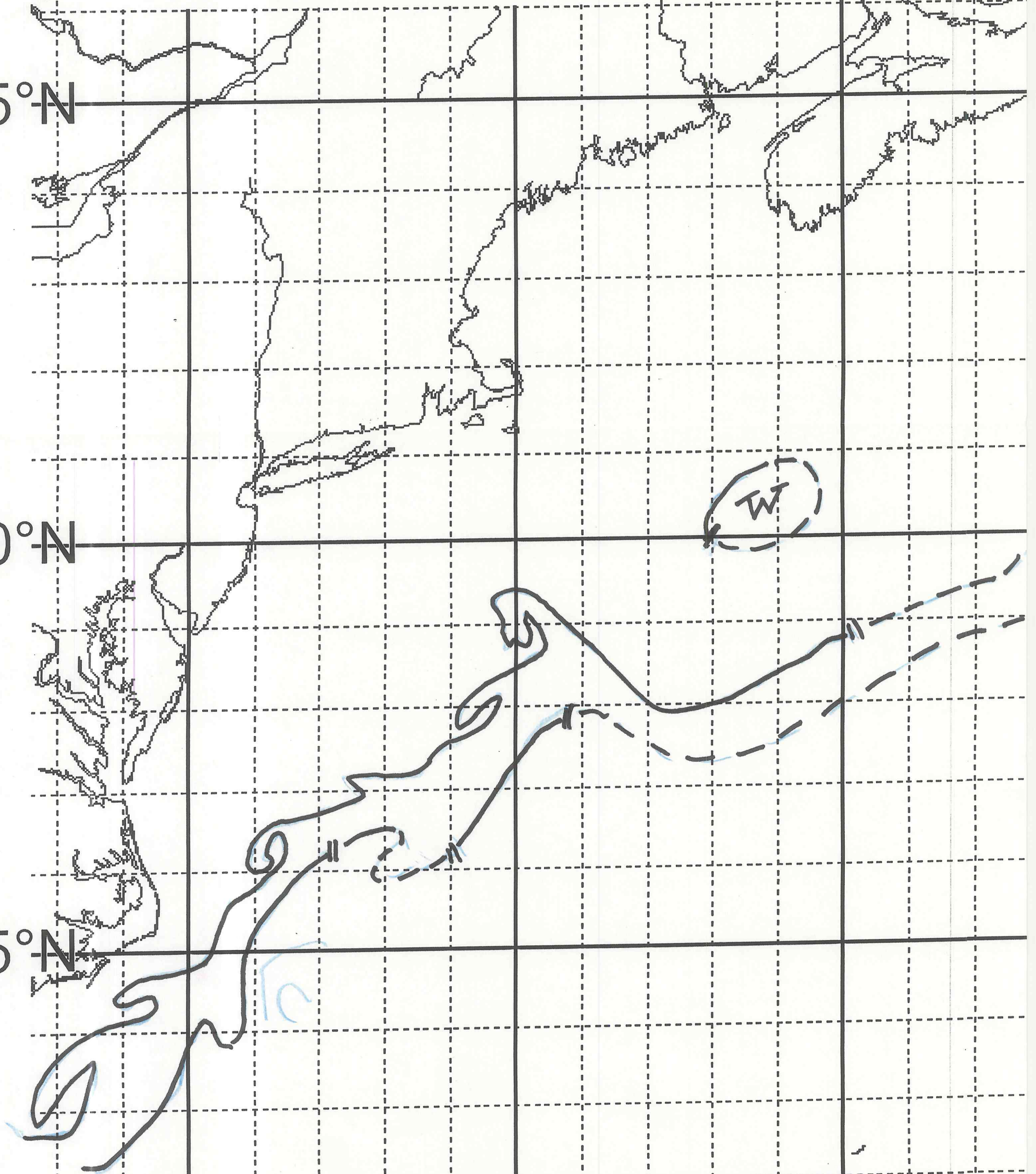
DATE 18 MAR

1996

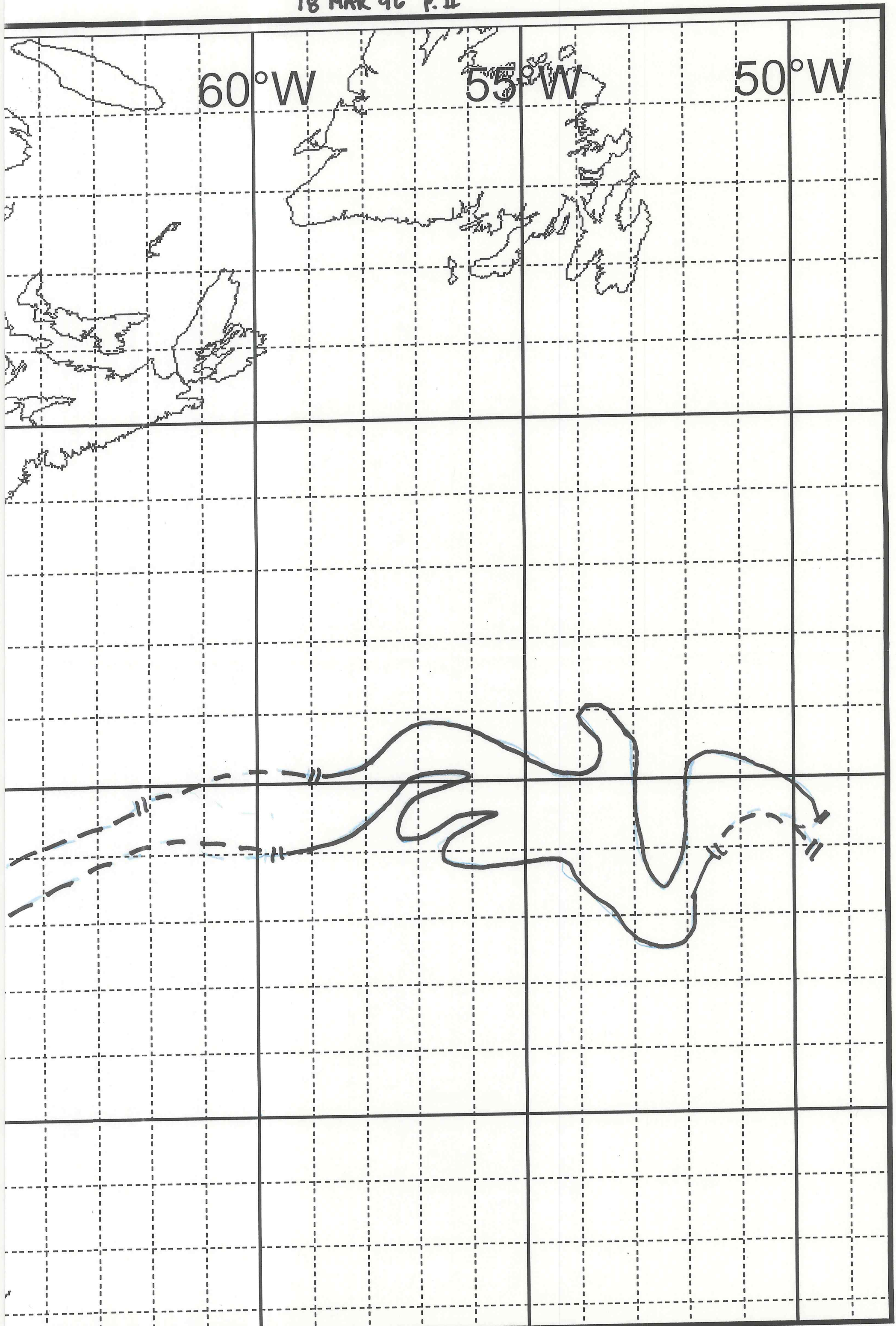
45°N

40°N

35°N



18 MAR 96 P.II



**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

NOAA Miami SFSS

**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

Date: **20 MAR 1996**

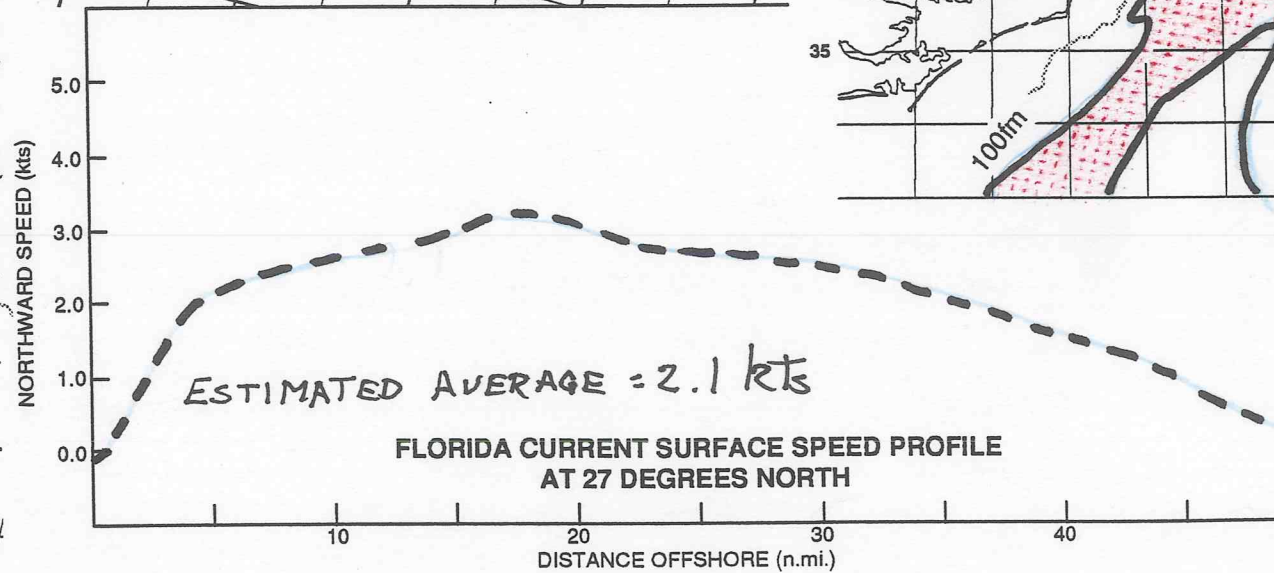
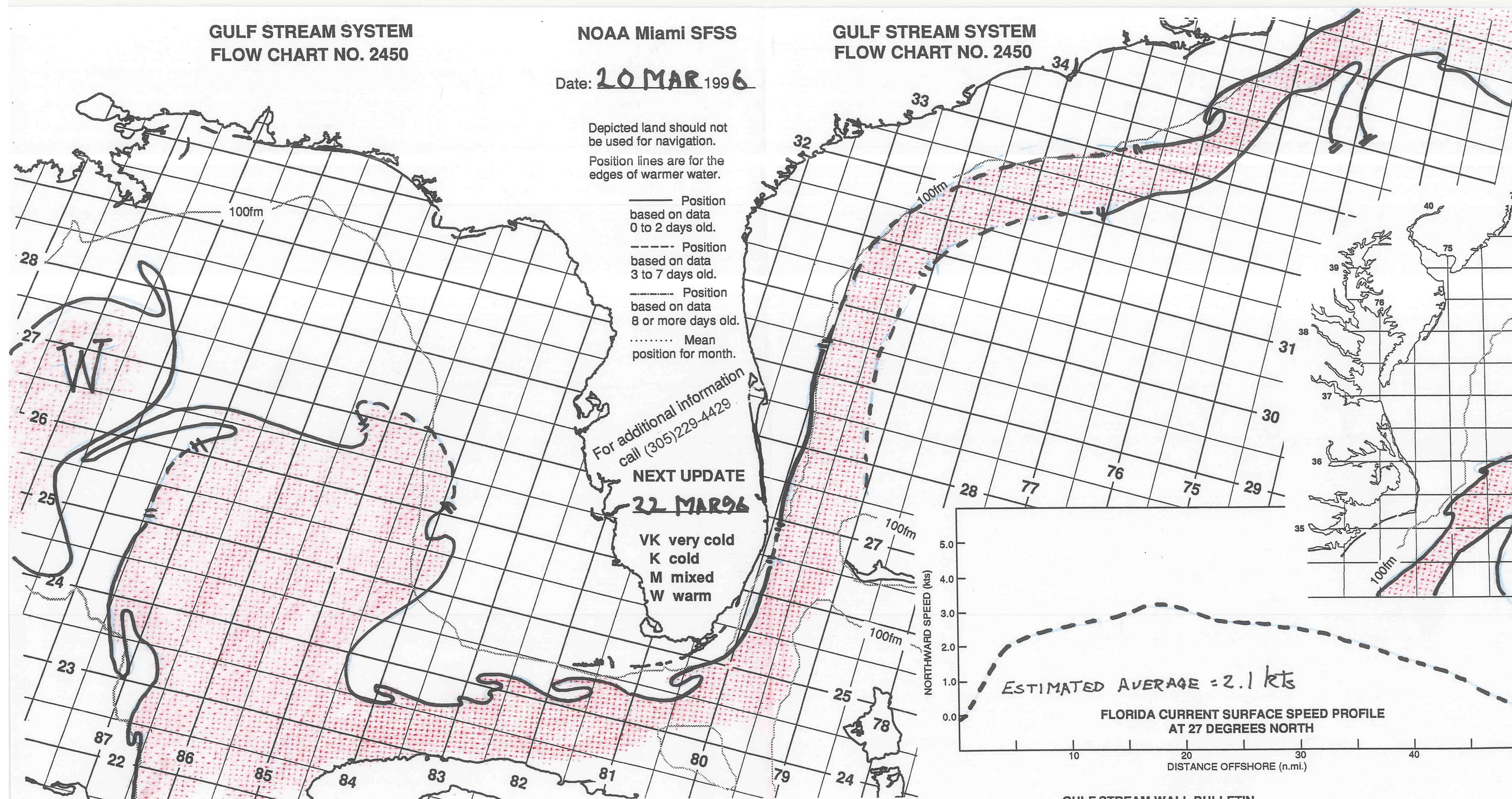
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**NEXT UPDATE
22 MAR 96**

- VK very cold
- K cold
- M mixed
- W warm



GULF STREAM WALL BULLETIN

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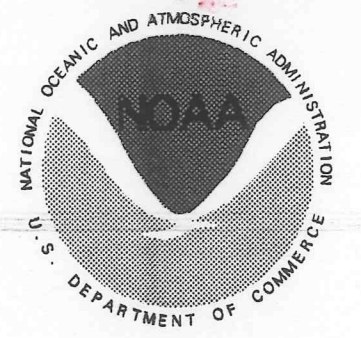
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LOOP CURRENT BULLETIN



75°W

70°W

65°W

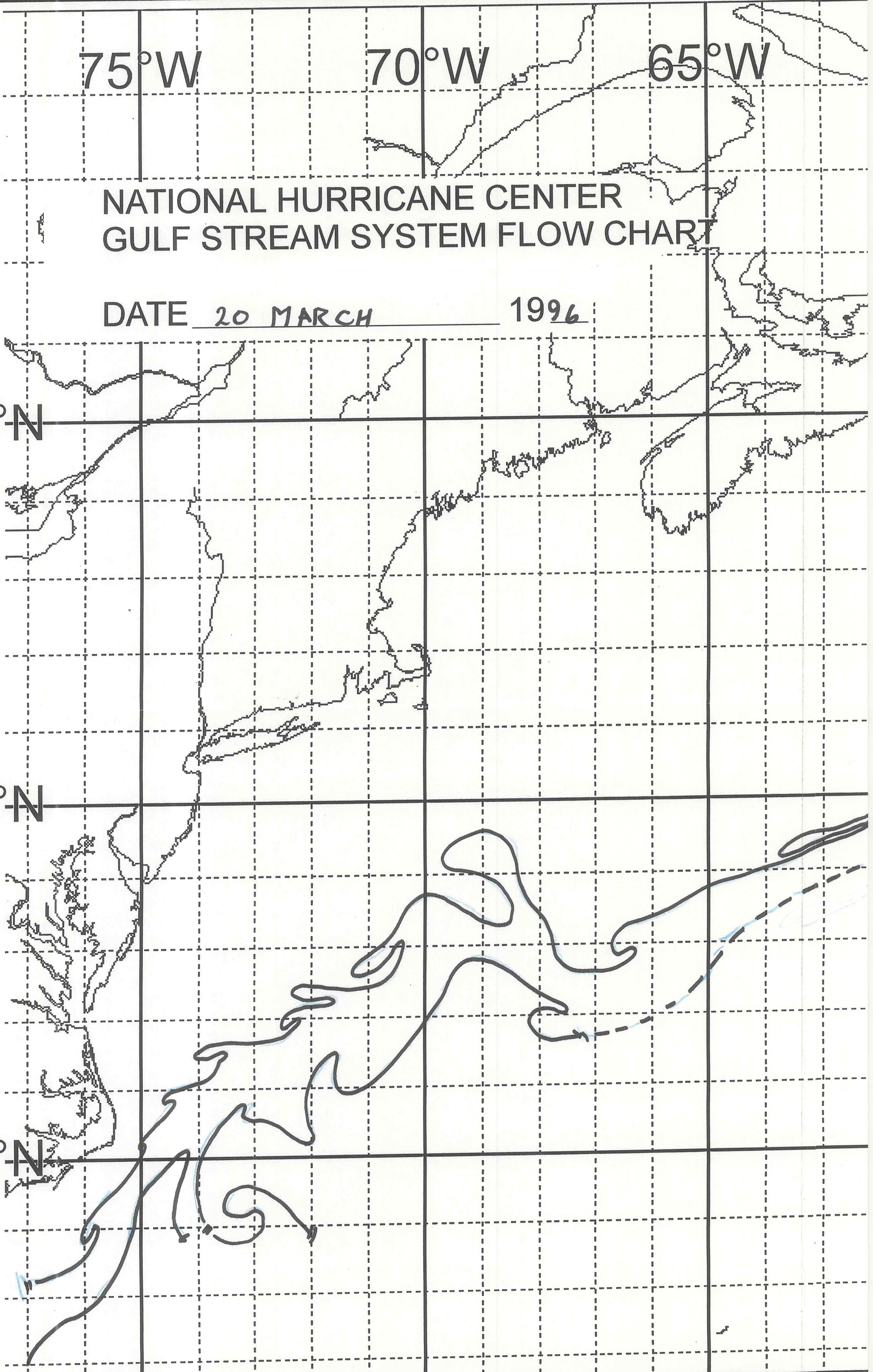
NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

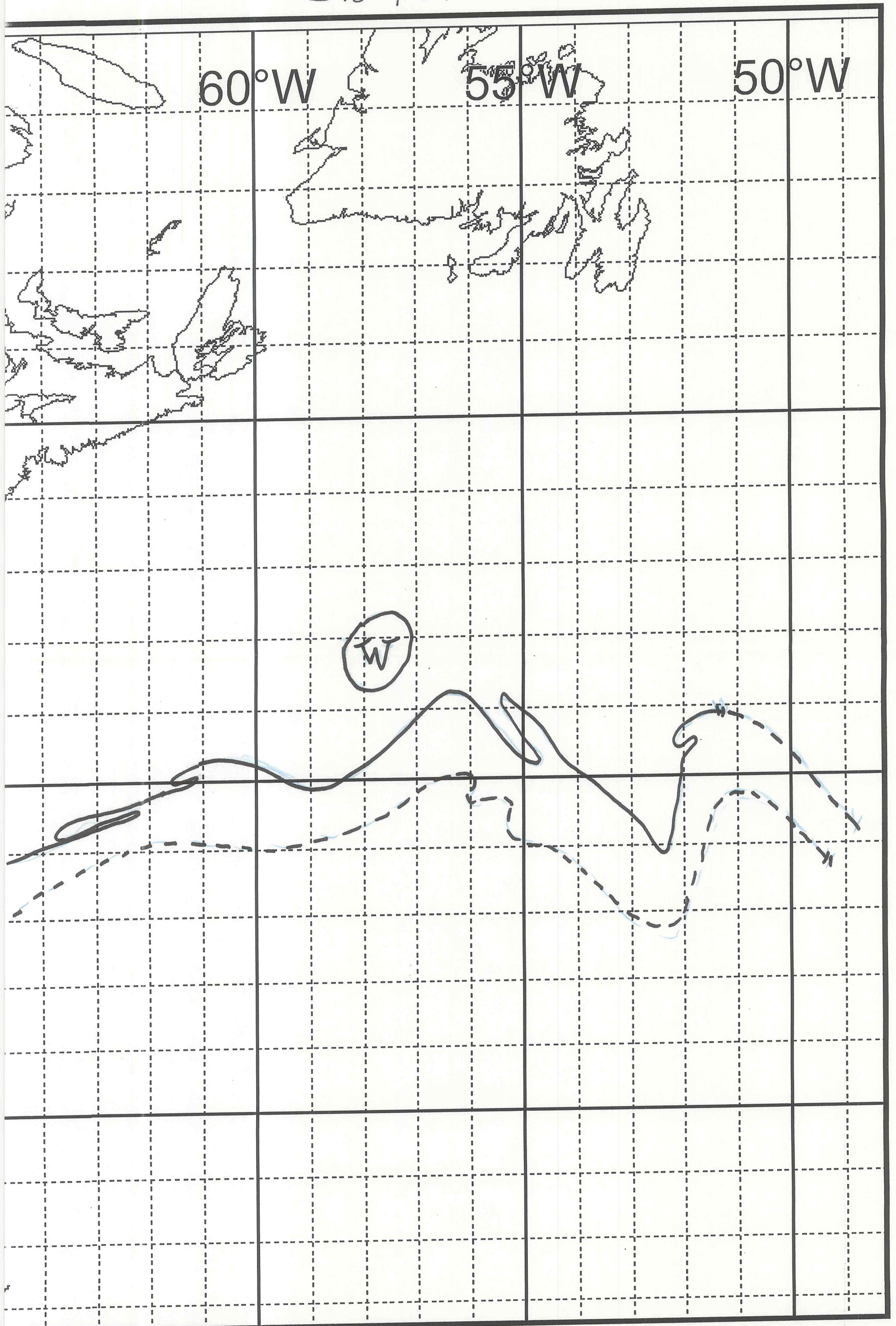
DATE 20 MARCH 1996

45°N

40°N

35°N





**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

NOAA Miami SFSS

**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

Date: 12 MAR 1996

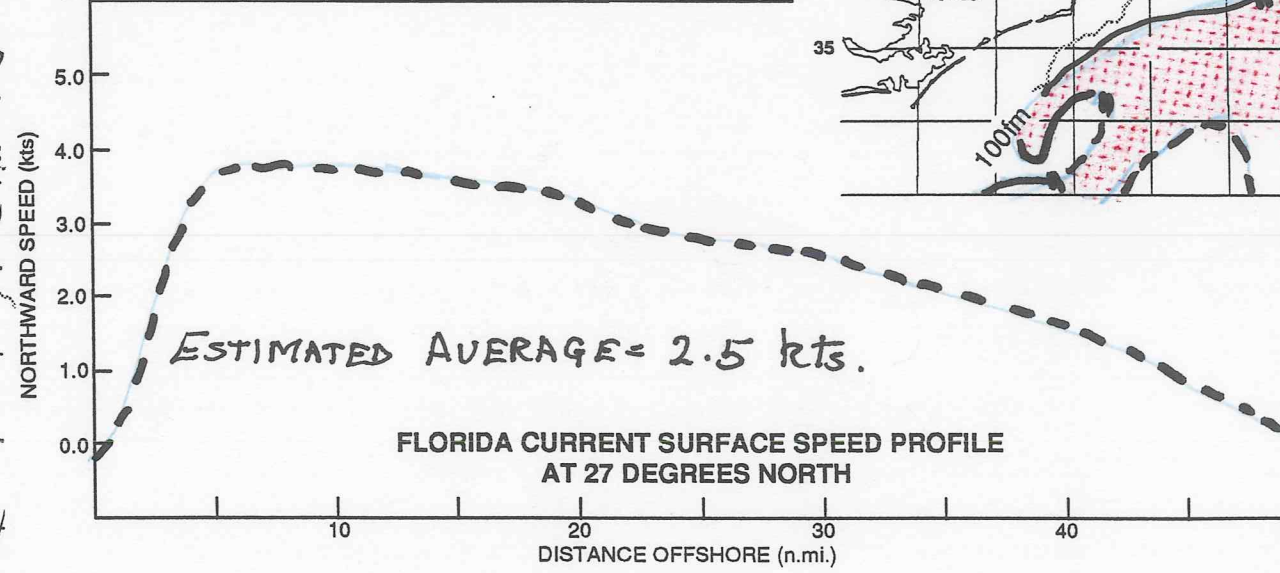
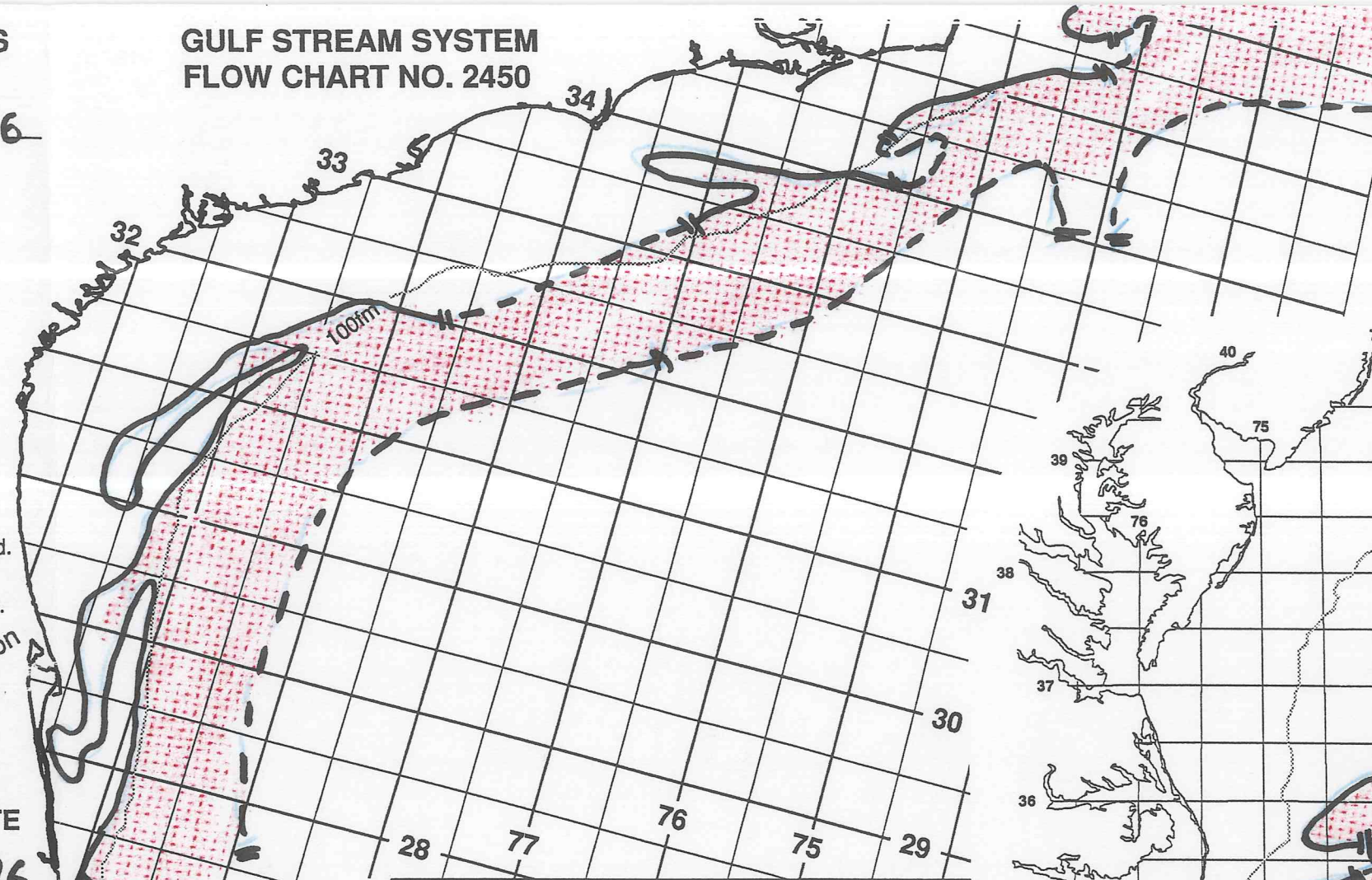
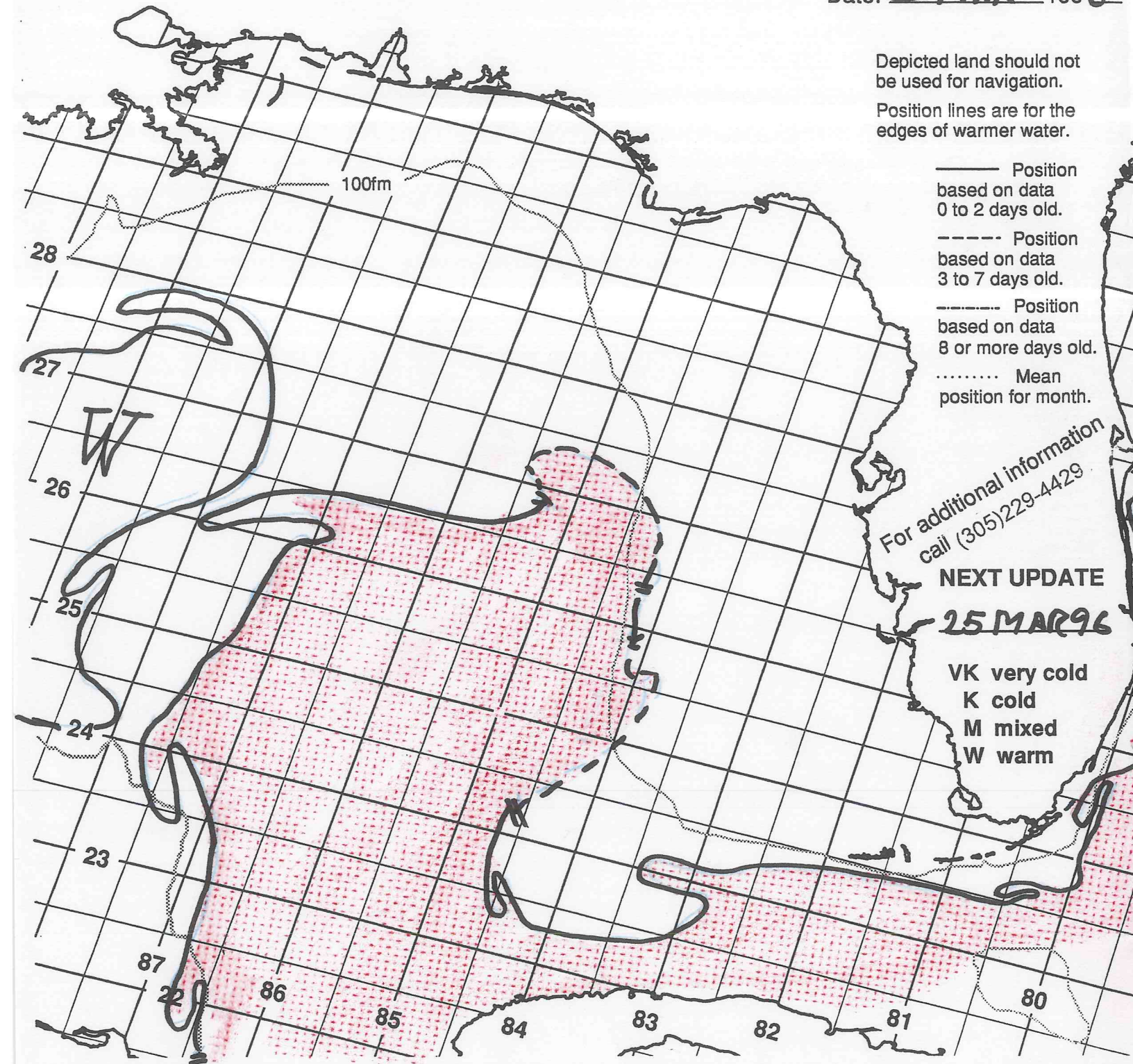
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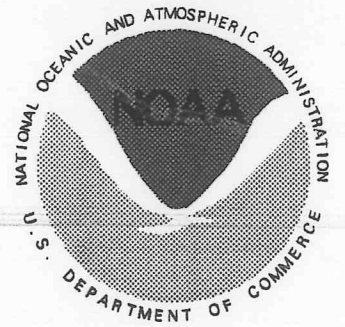
**NEXT UPDATE
25 MAR 96**

VK very cold
K cold
M mixed
W warm



GULF STREAM WALL BULLETIN

LOOP CURRENT BULLETIN



75°W

70°W

65°W

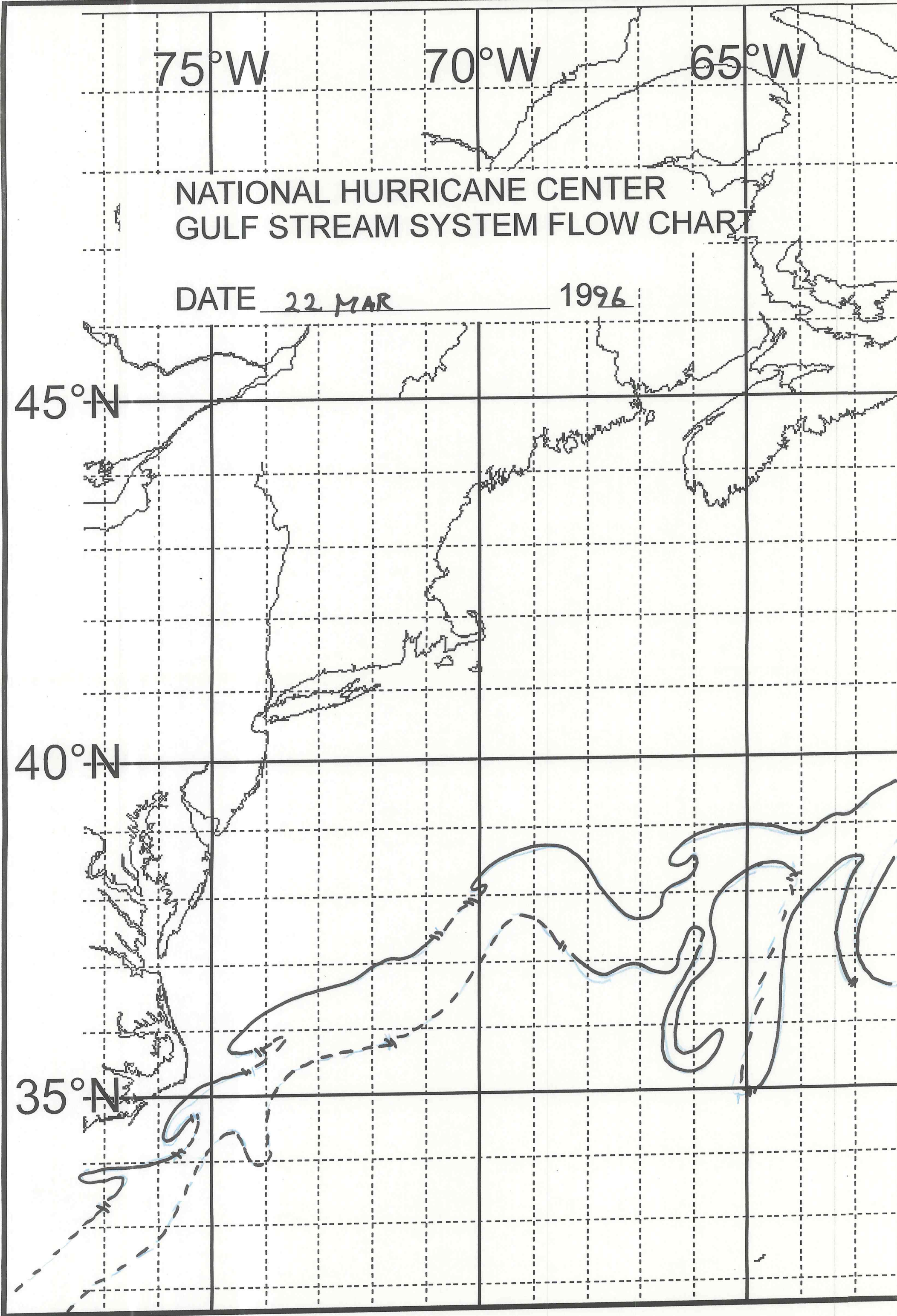
NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

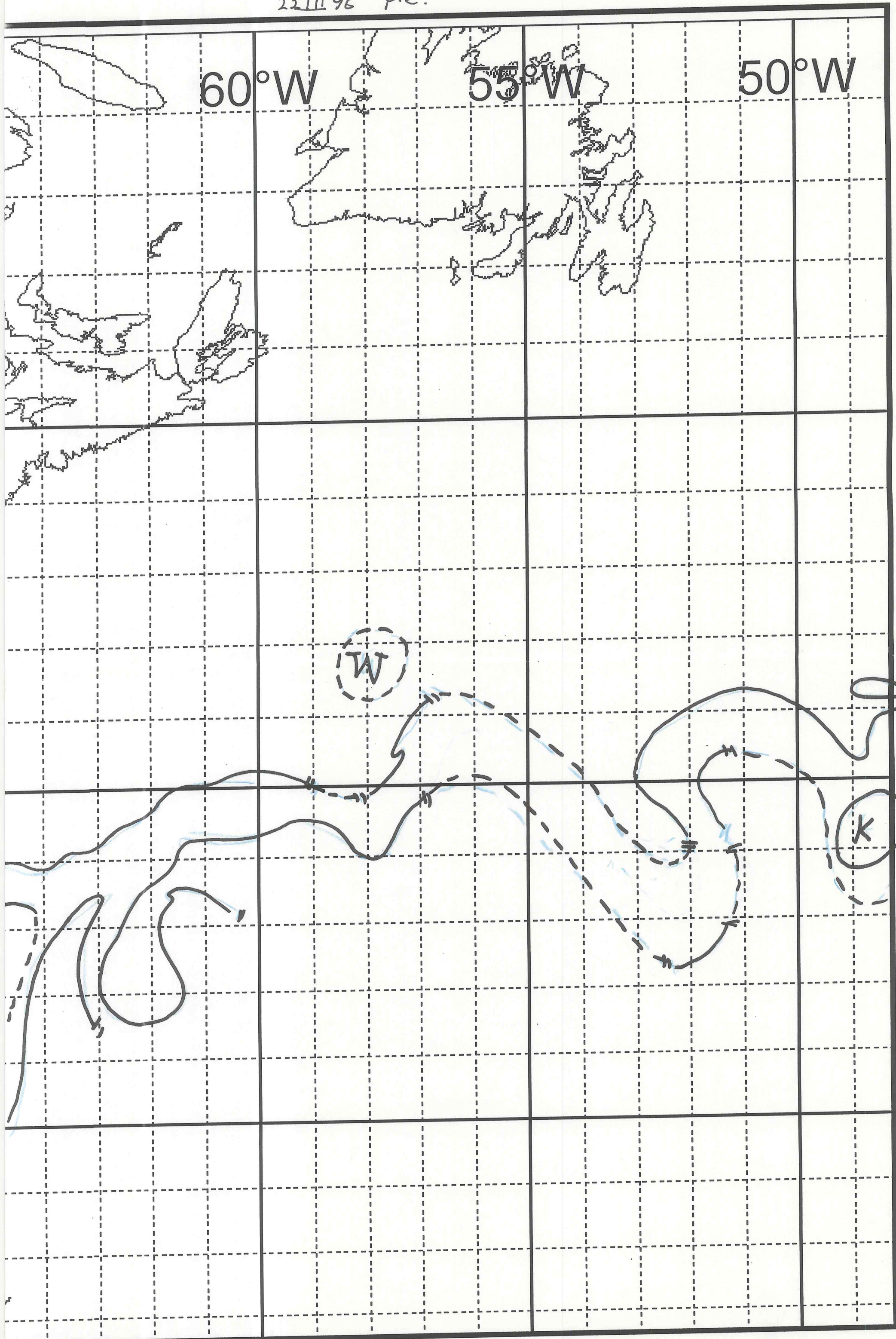
DATE 22 MAR 1996

45°N

40°N

35°N





**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

NOAA Miami SFSS

**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

Date: **25 MAR 1996**

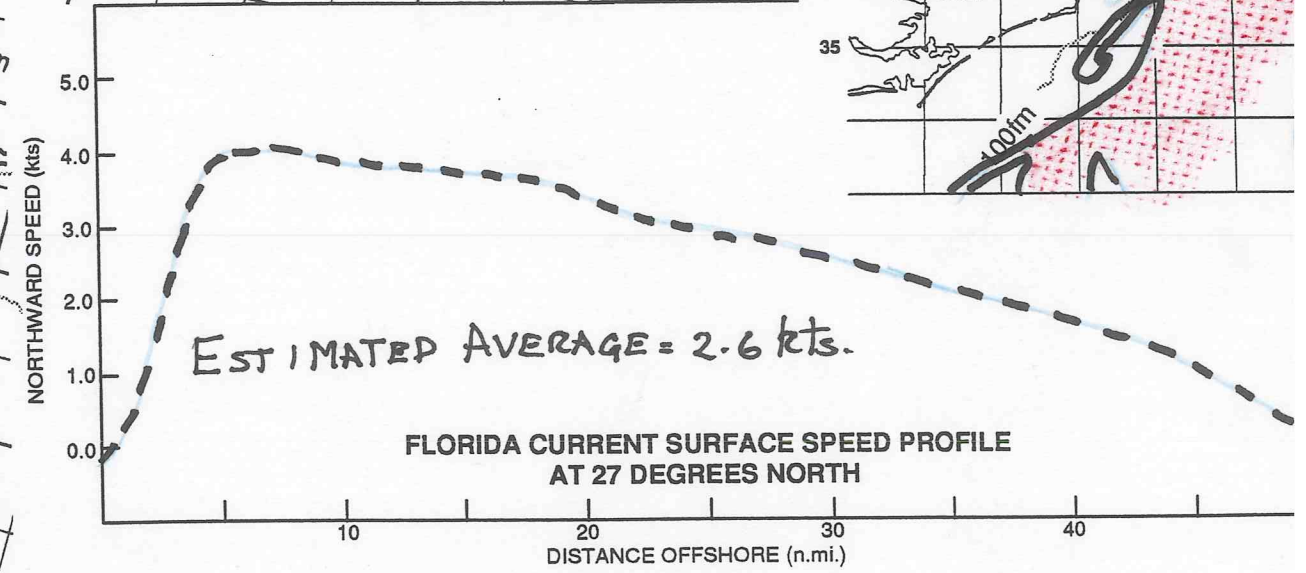
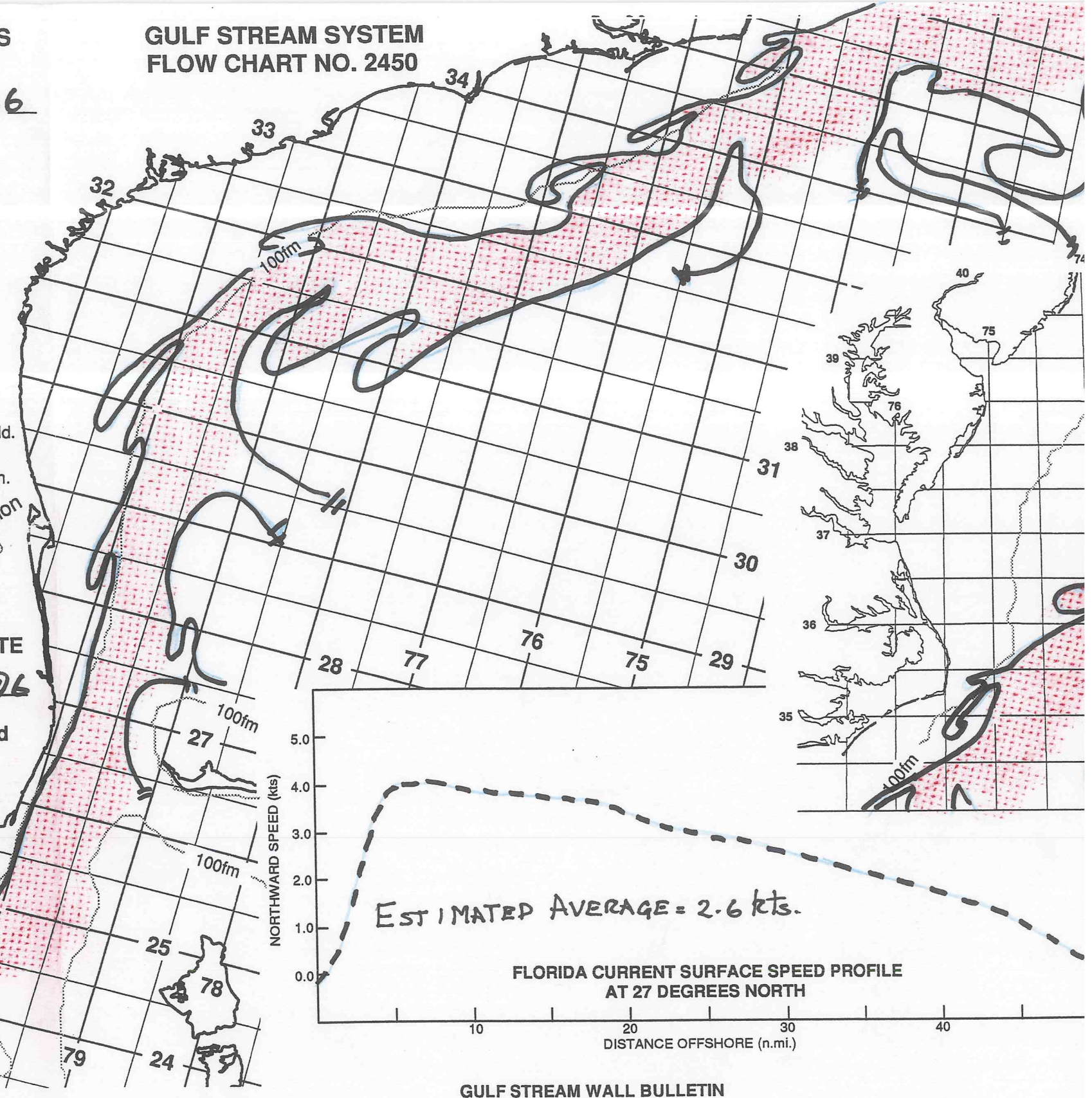
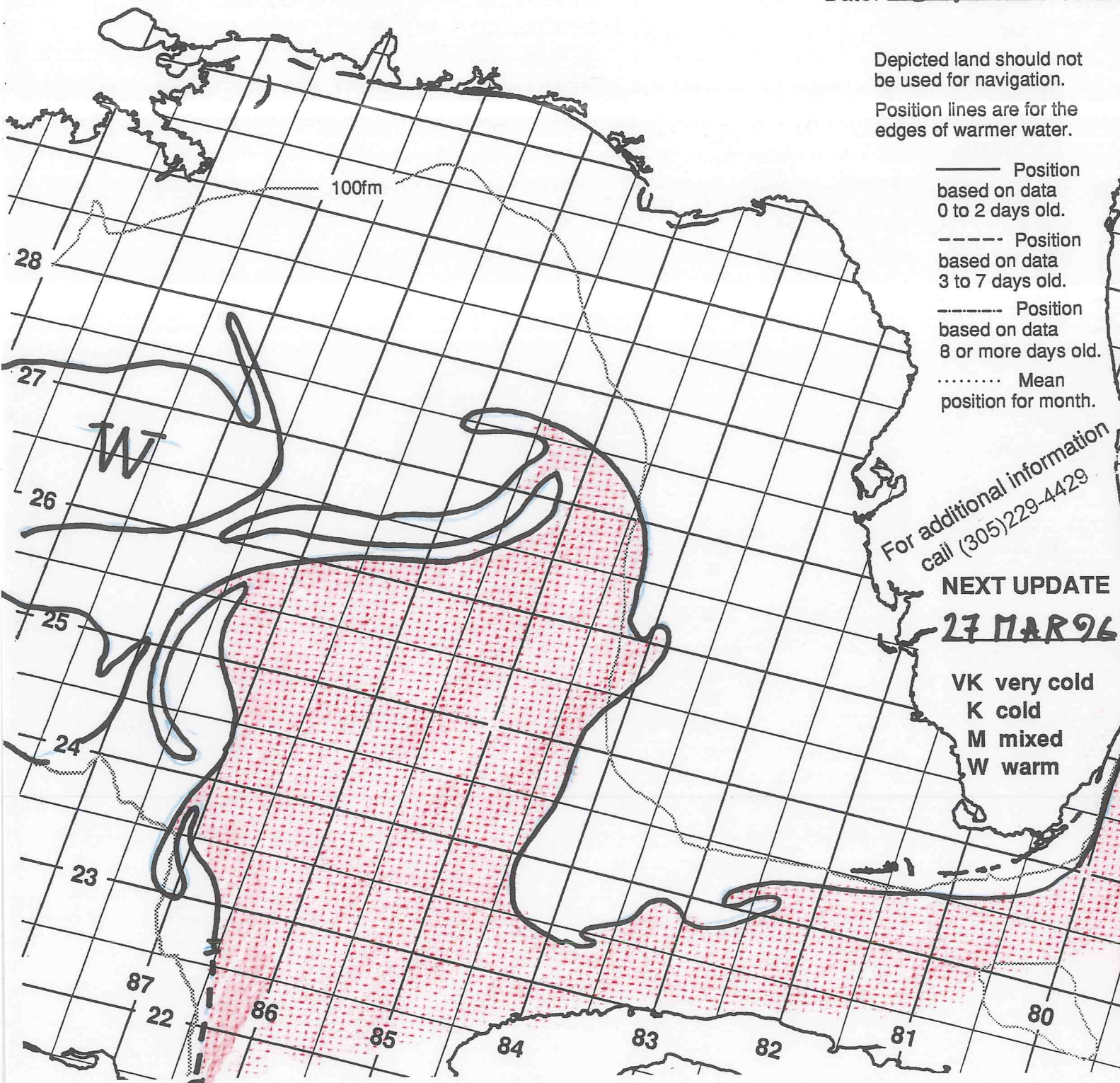
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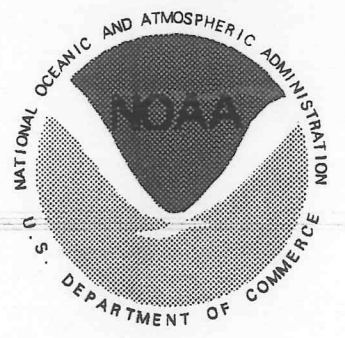
NEXT UPDATE
27 MAR 96

VK very cold
K cold
M mixed
W warm



GULF STREAM WALL BULLETIN

LOOP CURRENT BULLETIN



75°W

70°W

65°W

NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

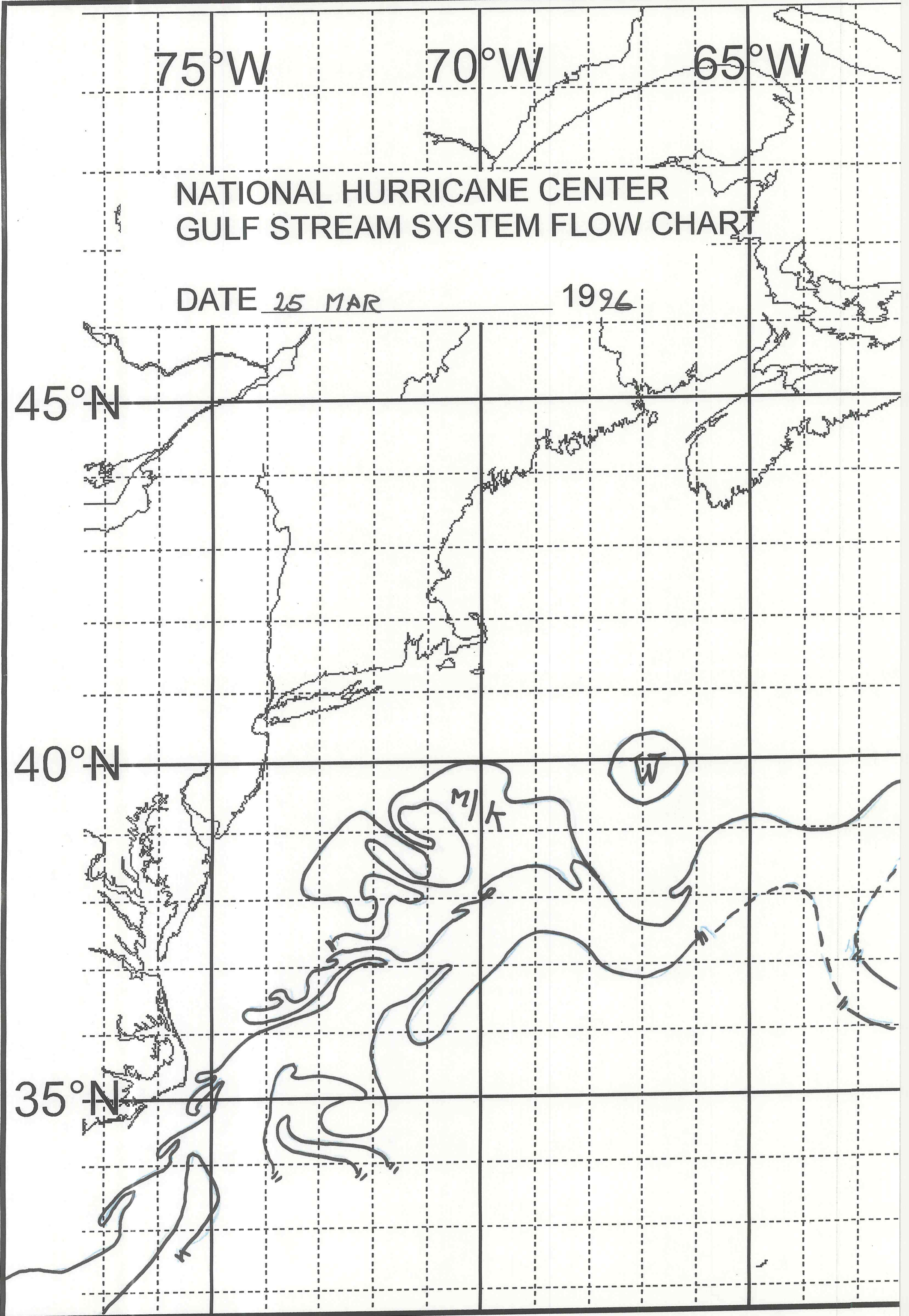
DATE 25 MAR

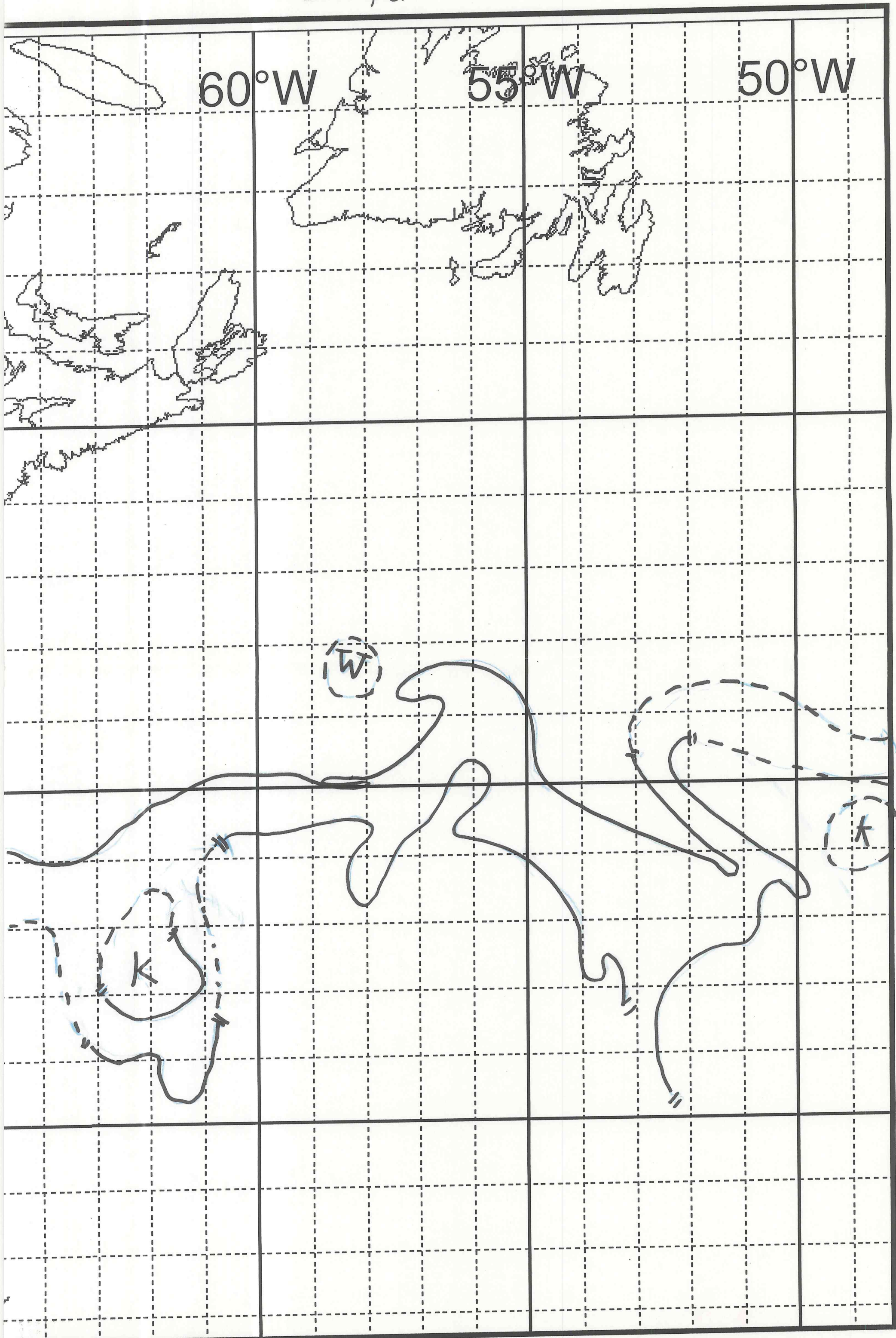
1996

45°N

40°N

35°N





**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

NOAA Miami SFSS

**GULF STREAM SYSTEM
FLOW CHART NO. 2450**

Date: 27 MAR 1996

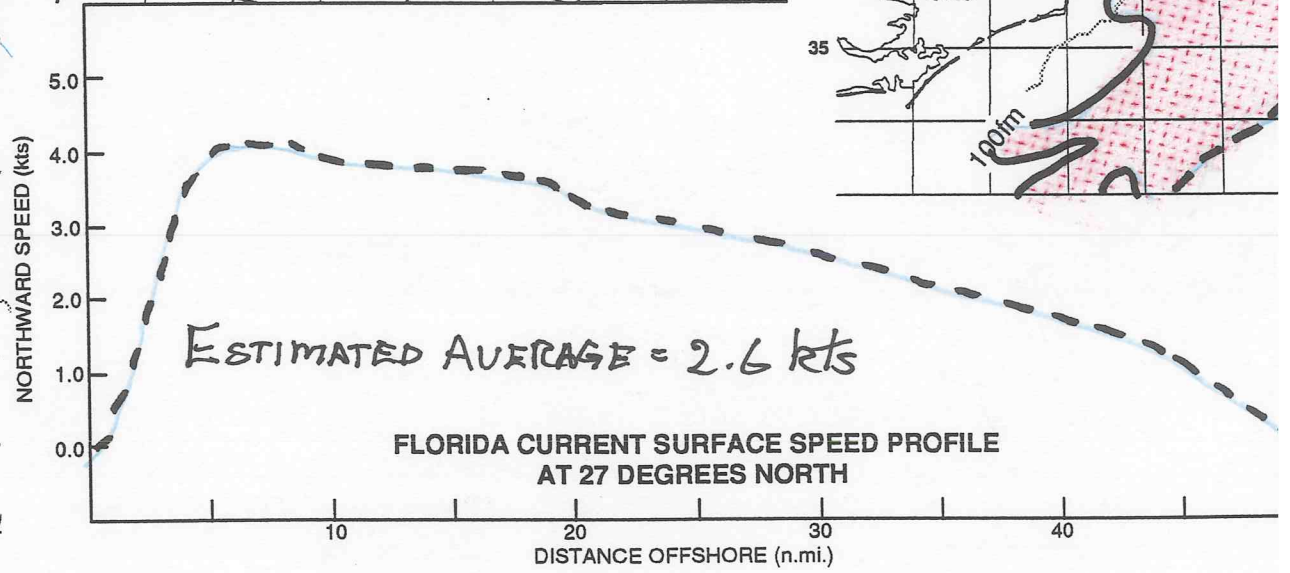
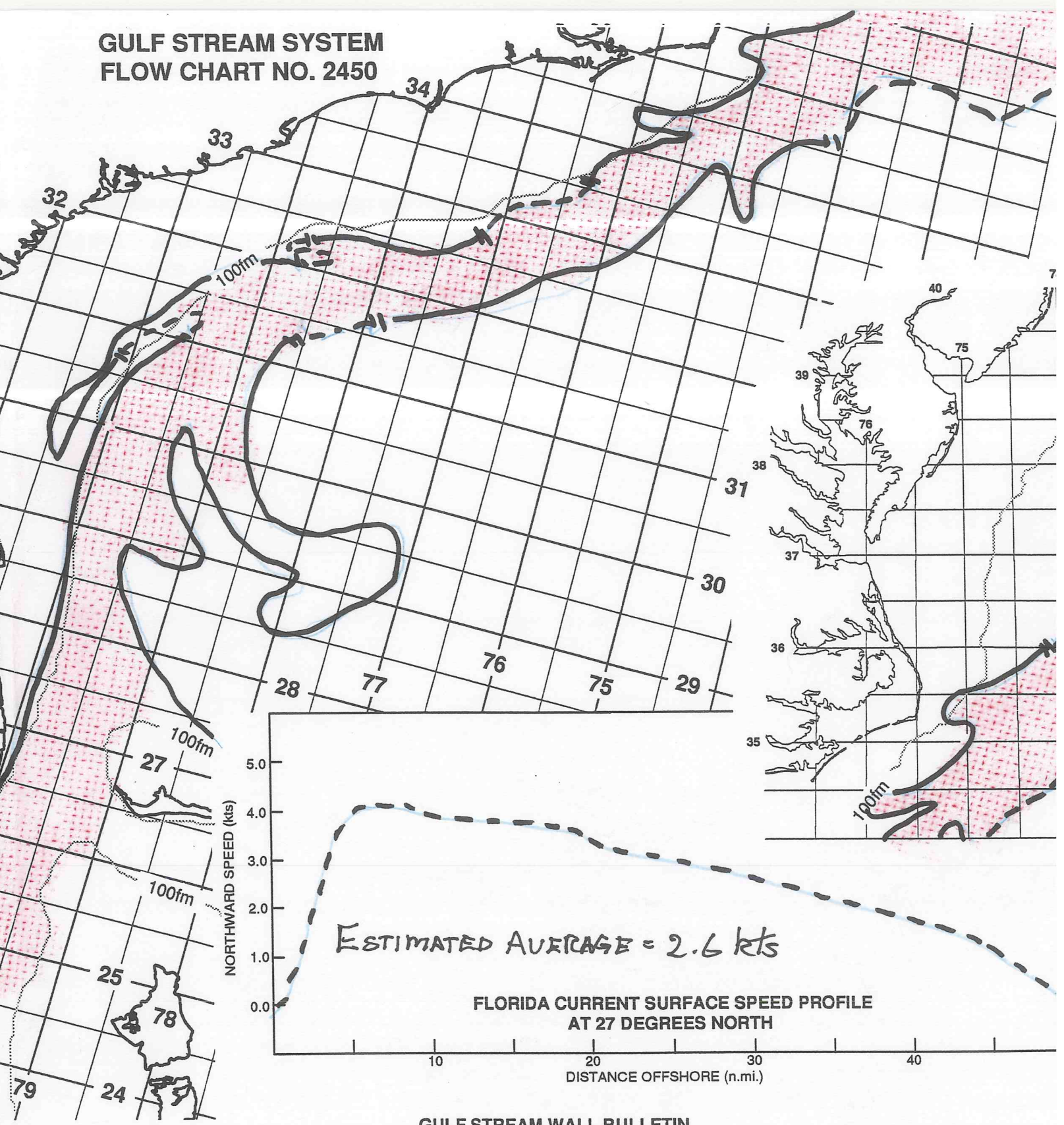
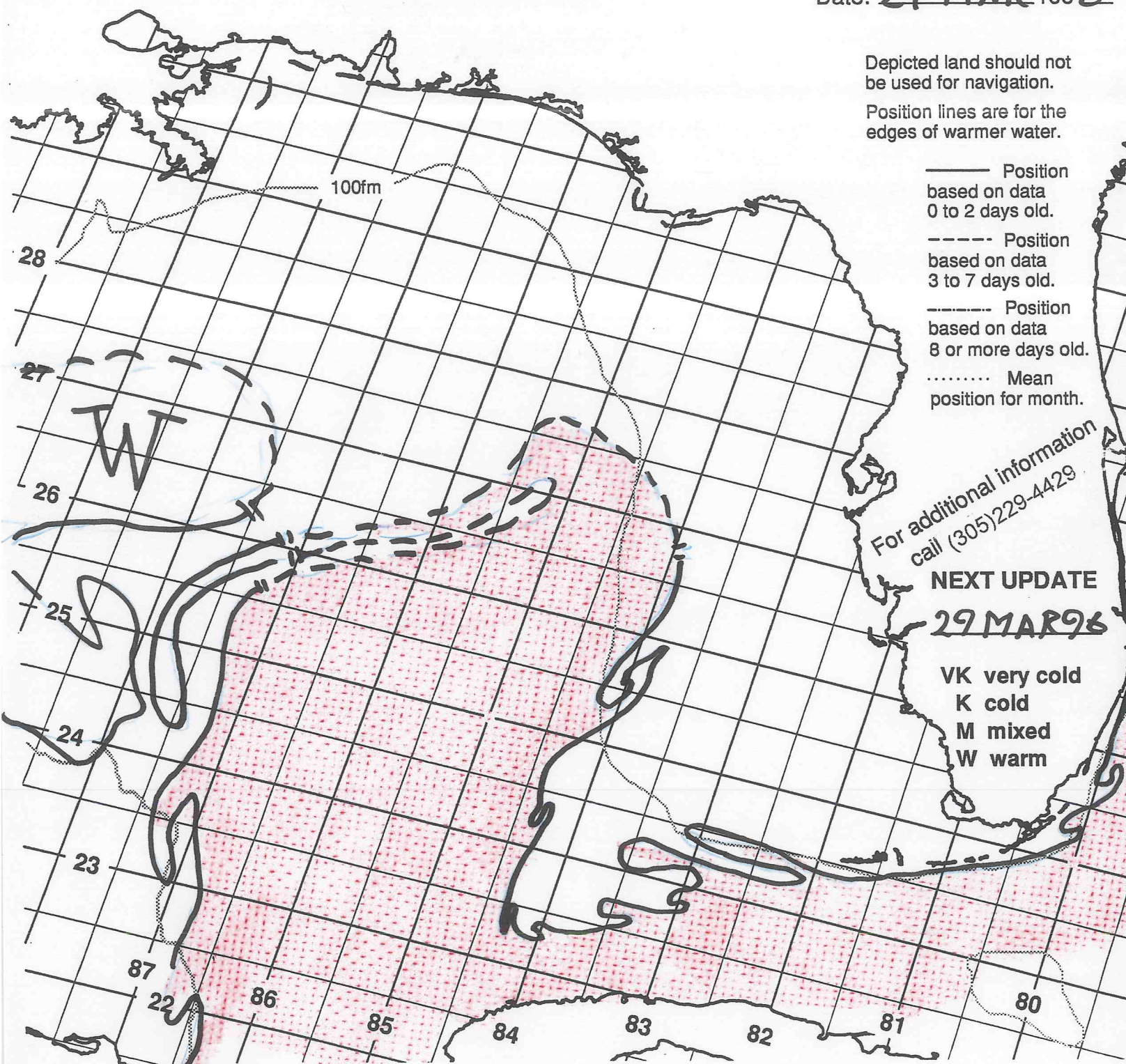
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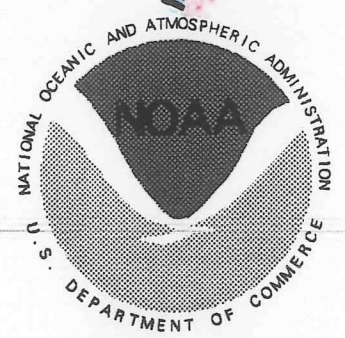
NEXT UPDATE
29 MAR 96

VK very cold
K cold
M mixed
W warm



GULF STREAM WALL BULLETIN

LOOP CURRENT BULLETIN



75°W

70°W

65°W

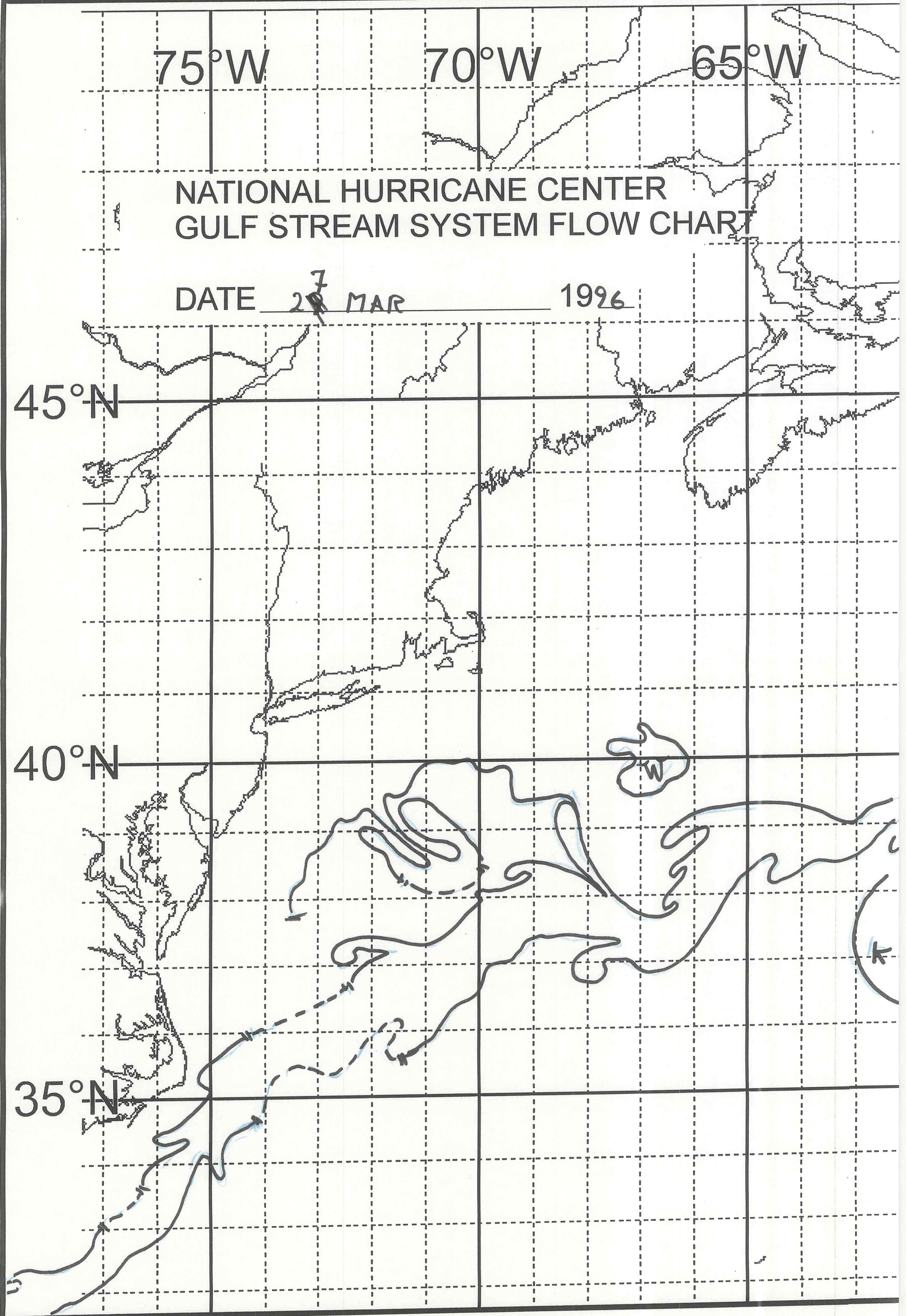
NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

DATE 27 MAR 1996

45°N

40°N

35°N

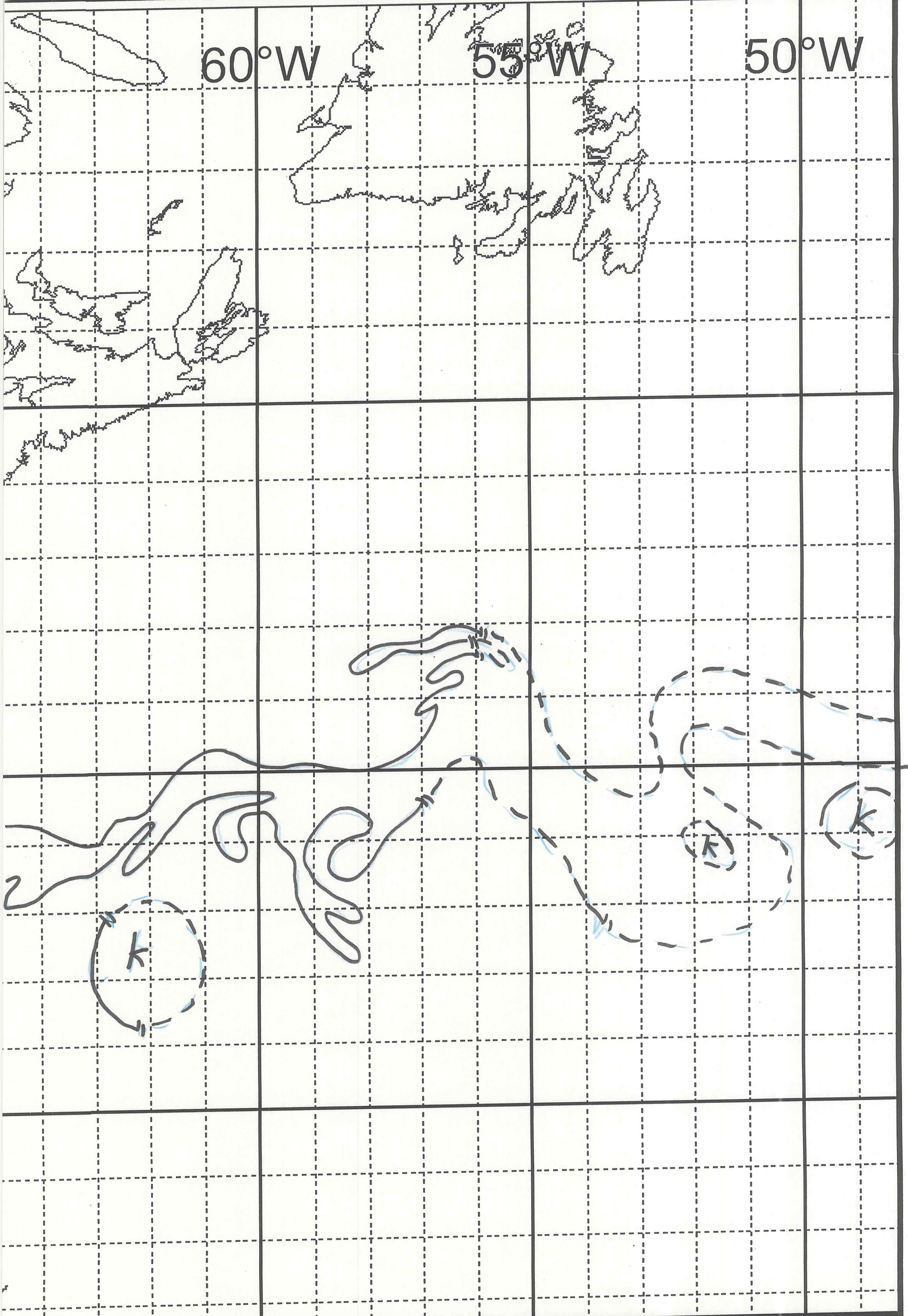


27 III 96 P.2.

60°W

55°W

50°W

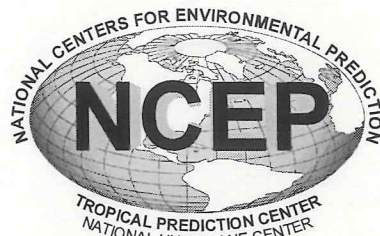


GULF STREAM SYSTEM FLOW CHART

LEGEND

- Position based on data 0 to 2 days old
- Position based on data 3 to 7 days old
- Position based on data 8 or more days old
- Mean position for month

VK very cold
 K cold
 M mixed
 W warm



MIAMI, FL

29 March 19 96

305.229.4429(voice)
 305.229.9901(fax)
 ocean@nhc.noaa.gov

*MARSHALL PROGRAM
 TRIP @ 290N*

Position lines are for the edges of warmer water

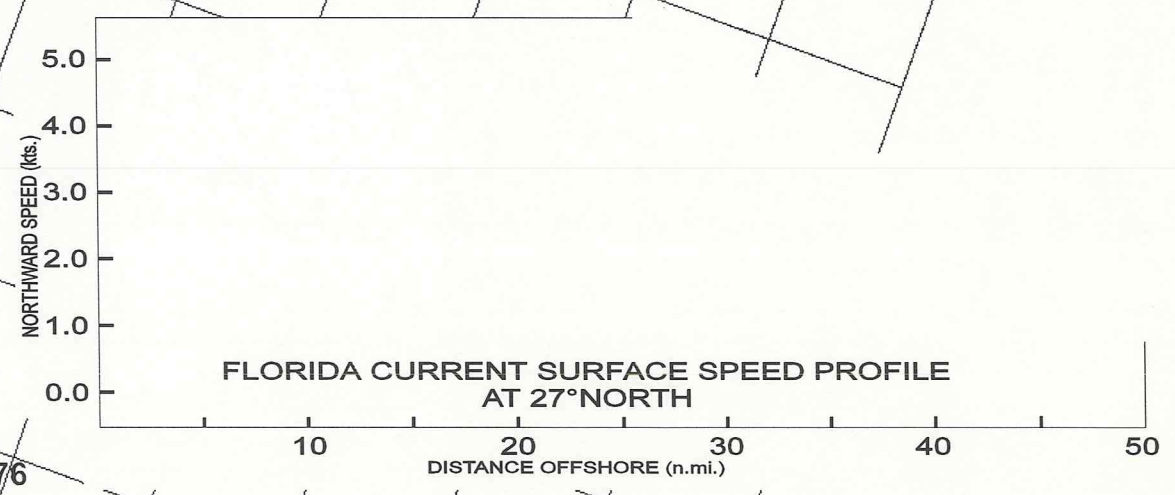
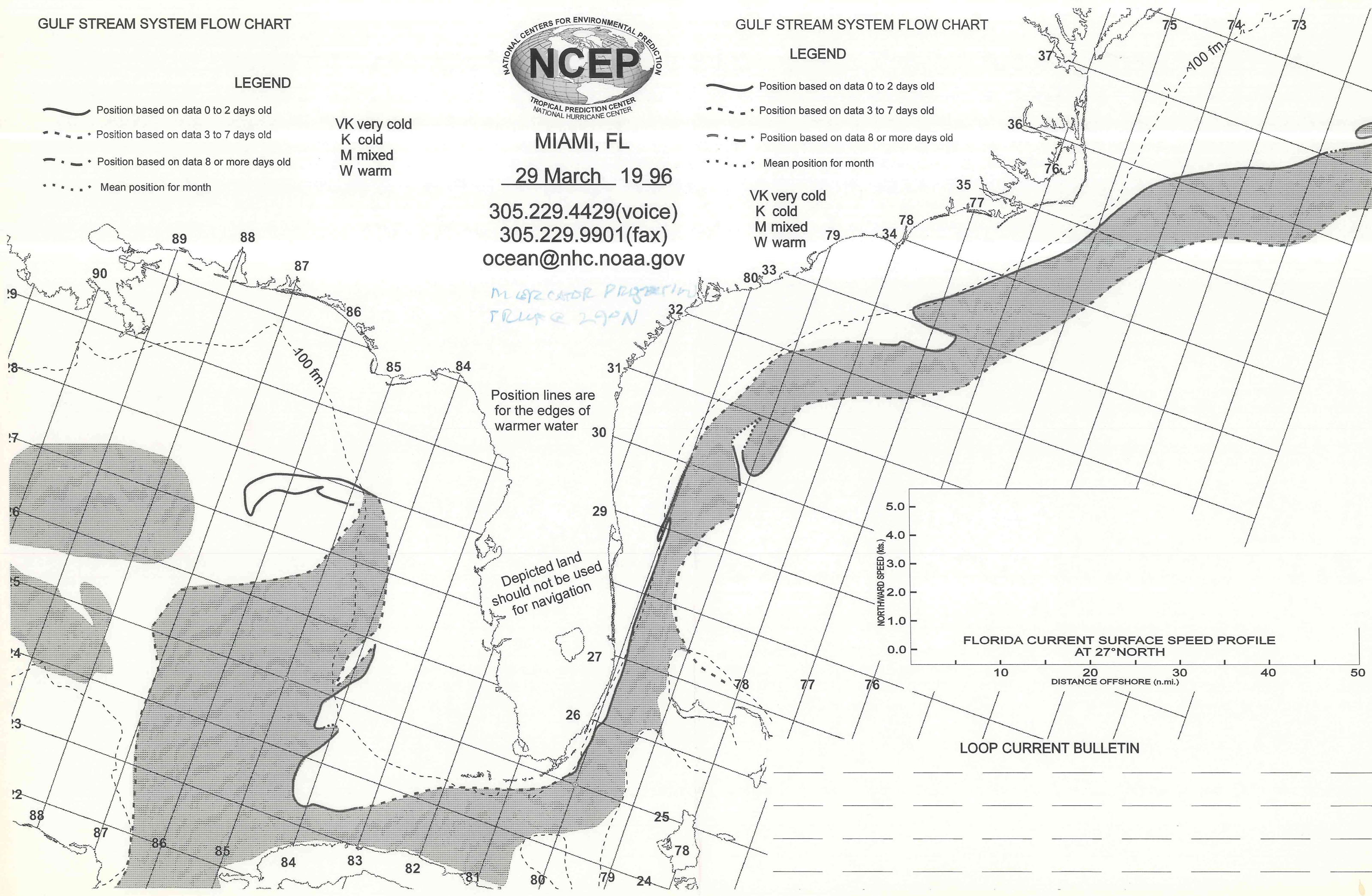
Depicted land should not be used for navigation

GULF STREAM SYSTEM FLOW CHART

LEGEND

- Position based on data 0 to 2 days old
- Position based on data 3 to 7 days old
- Position based on data 8 or more days old
- Mean position for month

VK very cold
 K cold
 M mixed
 W warm



LOOP CURRENT BULLETIN

75°W

70°W

65°W

NATIONAL HURRICANE CENTER
GULF STREAM SYSTEM FLOW CHART

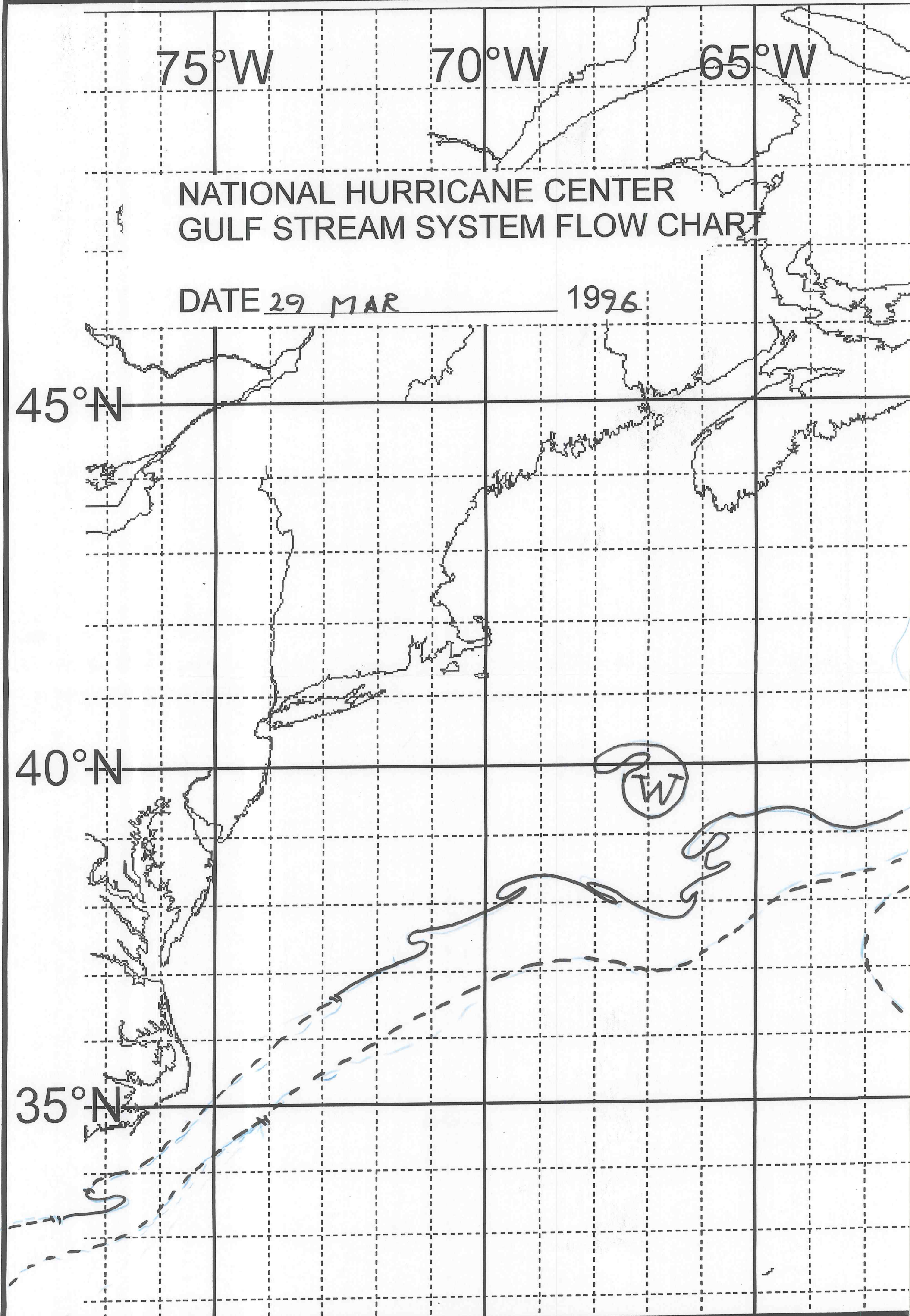
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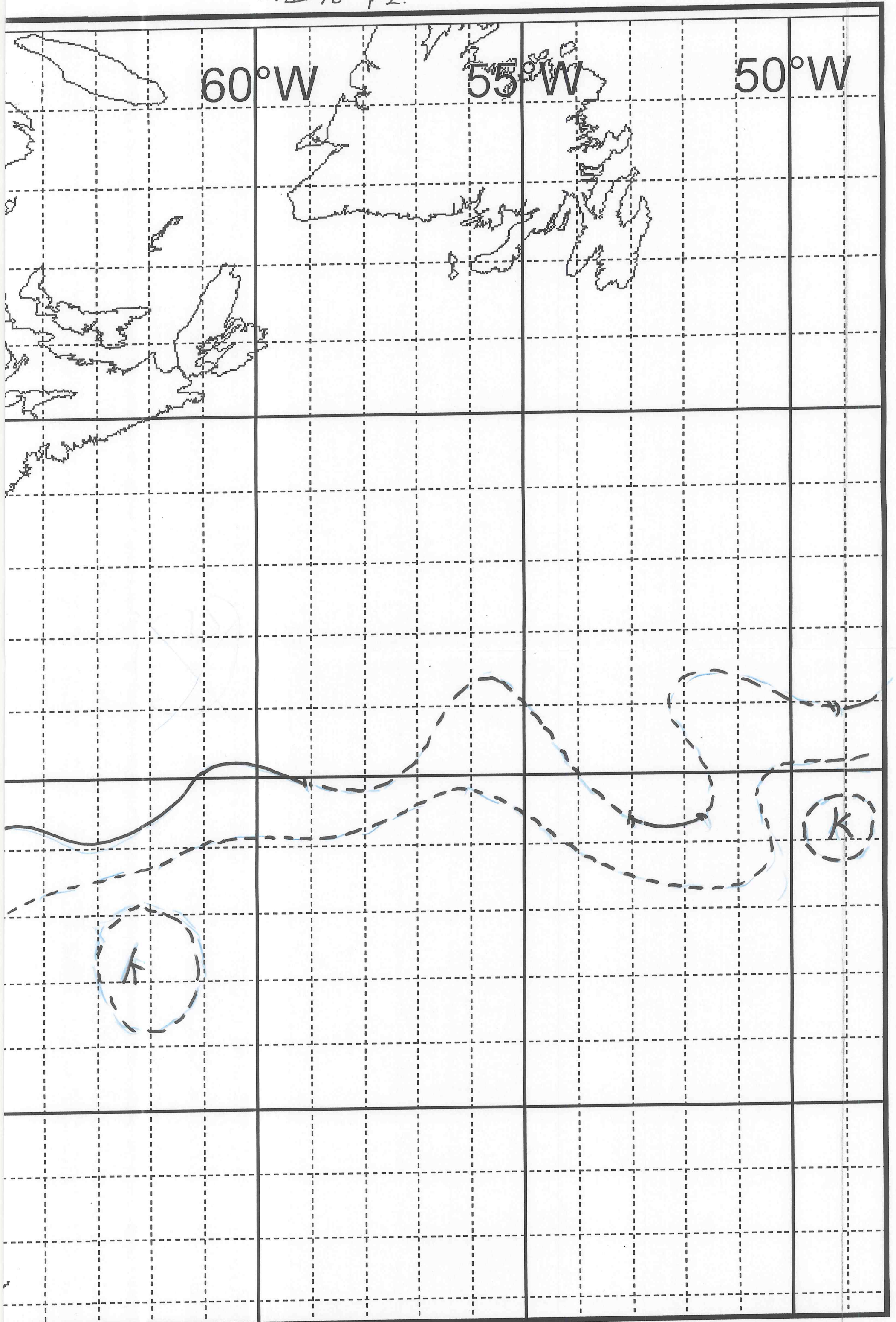
1996

45°N

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PROGRAM TDECAY

THIS PROGRAM TESTS SUBROUTINE DECAY FOR ADJUSTING INTENSITY FORECASTS FOR DECAY OVER LAND.

PARAMETER (IMAX=10) DEFINES THE PARAMETER IMAX AS 10

DIMENSION FTIME(IMAX), RLAT(IMAX), RLON(IMAX) } DECLARE NAME + MAX SUBSCRIPT OF ARRAYS.
DIMENSION VMAX(IMAX), VMAXA(IMAX), DLAND(IMAX) } ARRAY NAMES ARE FTIME, RLAT, RLON, VMAX, VMAXA, DLAND

CHARACTER *50 LABEL LABEL IS A CHARACTER CONSTANT, WITH LENGTH 50 ARRAY SUBSCRIPTS ARE FROM 1 TO IMAX

DATA LULG /20/ LULG = VARIABLE (OR ARRAY) WITH A VALUE OF 20

SET DEFAULT INPUT VALUES
LABEL='DECAY MODEL FORECAST'

DO 10 I=1, IMAX
FTIME(I) = 12.0*FLOAT(I-1)
RLAT(I) = 0.0
RLON(I) = 0.0
VMAX(I) = 0.0
VMAXA(I) = -99.
DLAND(I) = -999.
FLOAT CONVERTS INTEGER TO REAL #
FTIME, RLAT, RLON, VMAX, VMAXA + DLAND ARE ARRAYS w/ INTEGER VALUES.
THE DO LOOP SETS THE ARRAYS FROM 1, TO IMAX TO THESE VALUES TO START.

10 CONTINUE

*** BEGIN STORM SPECIFIC INPUT ***

SPECIFY DATA LABEL
LABEL='DECAY MODEL FORECAST FOR ERIN 02 AUG 95 0900 UTC'

SPECIFY FORECAST TIMES
FTIME(1) = 0.0
FTIME(2) = 0.0
FTIME(3) = 21.0
FTIME(4) = 33.0

SPECIFY FORECAST LAT/LON
RLAT(1) = 29.5
RLON(1) = -86.0
RLAT(2) = 30.5
RLON(2) = 88.3
RLAT(3) = 31.2
RLON(3) = 90.4
RLAT(4) = 31.5
RLON(4) = 92.3

SPECIFY STORM INTENSITY WITHOUT DECAY
VMAX(1) = 80.0
VMAX(2) = 80.0
VMAX(3) = 80.0
VMAX(4) = 80.0

*** END STORM SPECIFIC INPUT ***

OPEN THE LOG FILE
OPEN(UNIT=LULG, FILE='decay.log', FORM='FORMATTED', STATUS='NEW')

WRITE (LULG, 300) LABEL
300 FORMAT(A50)
LULG STANDS FOR OUTPUT DEVICE -- 300 = format identifier (FORMAT LINE)
PRINTS OUT LABEL STATEMENT
FORMAT FOR LABEL IS CHARACTERS, FIELD WIDTH = 50

RUN THE DECAY MODEL

just entering values specific to Erin

decay.log being created by the program

CALL DECAY (FTIME,RLAT,RLON,VMAX,VMAXA,DLAND,LULG)

IPRT=0 *initialize IPRT=0*

IF (IPRT .EQ. 1) THEN

WRITE (LULG,200)

200 FORMAT (//,1X,'TIME LAT LON VX VXA DLAND')

DO 20 I=1,IMAX

IF (VMAX(I) .GT. 0.0) THEN

WRITE (LULG,202) FTIME(I),RLAT(I),RLON(I),
VMAX(I),VMAXA(I),DLAND(I)

202 FORMAT (1X,F5.0,1X,F4.1,1X,F5.1,1X,F4.0,1X,F5.1,1X,F6.0)

ENDIF

20 CONTINUE

ENDIF

STOP

END

SUBROUTINE DECAY (FTIME,RLAT,RLON,VMAX,VMAXA,DLAND,LULG)

THIS ROUTINE ADJUSTS A TROPICAL CYCLONE INTENSITY FORECAST TO ACCOUNT FOR DECAY OVER LAND. THIS VERSION IS VALID FOR THE ATLANTIC BASIN AND WAS WRITTEN BY M. DEMARIA AND J. KAPLAN OF THE HURRICANE RESEARCH DIVISION, MAY 1994.

***** INPUT *****

FTIME: THE TIME IN HOURS (FOR EXAMPLE, 0.,12.,24. ... 72.)
THE TIMES NEED TO SEQUENTIAL, BUT THE TIME INTERVAL DOES NOT NEED TO BE EVEN.

RLAT: THE STORM LATITUDE (DEG N) AT THE TIMES IN ARRAY FTIME
RLON: THE STORM LONGITUDE (DEG W POSITIVE) AT THE TIMES IN ARRAY FTIME

VMAX: THE STORM MAXIMUM WIND (KT) (ASSUMING THE STORM IS OVER WATER) AT THE TIMES IN ARRAY FTIME.
SET VMAX=0 FOR MISSING FORECAST TIMES.

LULG: UNIT NUMBER FOR WRITE STATEMENTS

***** OUTPUT *****

VMAXA: THE STORM MAXIMUM WIND (KT) ADJUSTED FOR DECAY OVER LAND AT THE TIMES IN ARRAY FTIME.

DLAND: THE DISTANCE (KM) FROM THE STORM CENTER (RLAT,RLON) TO THE NEAREST MAJOR LAND MASS. DLAND IS NEGATIVE IF THE POINT IS STORM CENTER IS INLAND.

***** METHOD *****

THE SIMPLE EXPONENTIAL DECAY MODEL DEVELOPED BY M. DEMARIA AND J. KAPLAN AT HRD IS USED TO DECAY THE STORM INTENSITY FOR THE PORTIONS OF THE TRACK OVER LAND.

***** PARAMETER SPECIFICATION *****

SPECIFY THE MAXIMUM NUMBER OF TIME VALUES.
PARAMETER (IMAX=10)

SPECIFY THE TIME INTERVAL (HR) FOR LINEARLY INTERPOLATING THE TRACK POSITIONS.
DATA DT /1.00/

when IPRT=1, THESE ARE NOT EXECUTED

when IPRT=0, THEN THIS IS PRINTED TO LULG

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C
C SET INTERP=1 TO PRINT OUT (TO UNIT LULG) ALL INTERMEDIATE
C INTENSITY CALCULATIONS OR ELSE SET INTERP=0 FOR NO PRINT.
C OR ELSE SET INTERP=2 FOR SUBSET OF OUTPUT VARIABLES.
C DATA INTERP /2/
C
C SPECIFY DECAY MODEL PARAMETERS
C DATA ALPHA,VB,REDFAC /0.095,26.7,0.9/ ASSIONS VALUES TO THESE PARAMETERS
C DATA S1,S2,B1,B2,IDTLC /0.5450,-0.0109,-2.5150,0.0503,0/
C
C COMMON /MPARM/ ALPHA,VB,REDFAC,S1,S2,B1,B2,IDTLC THESE ALWAYS SHARE COMMON
C MEMORY LOCATIONS
C ***** DIMENSION ARRAYS ***** IN MPARM
C
C DIMENSION FTIME(IMAX),RLAT(IMAX),RLON(IMAX) EACH ARRAY HAS LOCATIONS FROM 1 TO IMAX
C DIMENSION VMAX(IMAX),VMAXA(IMAX),DLAND(IMAX)
C
C ***** MODEL CODE *****
C
C FIND THE NUMBER OF VALID FORECAST TIMES
C ITIMET = 0
C DO 10 I=1,IMAX AS LONG AS THERE ARE VALUES FOR VMAX(I)
C   IF (VMAX(I) .LT. 0.5) GO TO 1000 THE LOOP RUNS WHEN THERE ARE NO MORE
C   ITIMET=I VALUES FOR VMAX; ITMET = I (LAST VALUE OF IMAX)
C 10 CONTINUE ITIMET IS THE # OF VALID FORECAST TIMES. MOVE ON
C
C 1000 CONTINUE
C THERE MUST BE AT LEAST TWO VALID FORECAST TIMES IF ITIMET < 2, GO TO END OF PROGRAM
C IF (ITIMET .LT. 2) RETURN IF NOT CONTINUE
C
C CHECK TO MAKE SURE TIMES ARE SEQUENTIAL
C ITIME=0
C DO 15 I=2,ITIMET
C   IF (FTIME(I) .LE. FTIME(I-1)) GO TO 1100
C   ITIME=I
C 15 CONTINUE
C
C 1100 CONTINUE SAME IDEA AS B4 MUST HAVE AT LEAST 2 VALID
C IF (ITIME .LT. 2) RETURN FORECAST TIMES
C
C FIND THE DISTANCE TO LAND OF THE FORECAST POINTS
C DO 20 I=1,ITIME
C   CALL ALAND(-RLON(I),RLAT(I),DLAND(I)) CALLS FOR PROGRAM ALAND
C 20 CONTINUE
C
C DIVIDE FORECAST TIME INTERVALS INTO SMALL SEGMENTS OF LENGTH
C DT FOR APPLYING DECAY MODEL.
C
C VMAXA(1) = VMAX(1)
C TTLAND = 0.0
C IF (DLAND(1) .LT. 0.0) THEN
C   DLANDS = DLAND(1)
C   NLAND = 1
C ELSE
C   DLANDS = 0.0
C   NLAND = 0
C ENDIF
C ILTOW = 0
C
C DTT = DT

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VML = VMAXA(1)
DLANDT = DLAND(1)

DO 25 I=2,ITIME
VM = VMAXA(I-1)
RLATT = RLAT(I-1)
RLONT = RLON(I-1)

DFT = FTIME(I) - FTIME(I-1)
DLATDT = (RLAT(I) - RLAT(I-1))/DFT
DLONDT = (RLON(I) - RLON(I-1))/DFT
DVDT = (VMAX(I) - VMAX(I-1))/DFT

IF (INTERP .EQ. 1) THEN

800 WRITE(LULG,800)
+ FORMAT(/,1X,' TREL DTT LAT LON ',
+ ' VMAX TLAND VML DLANDT DAVG')
IF (I .EQ. 2) THEN
+ WRITE(LULG,805) TREL,DTT,RLATT,RLONT,VM,
+ TLAND,VML,DLANDT,DAVG1
805 FORMAT(1X,F6.2,1X,F5.2,1X,F5.1,1X,F6.1,
+ 1X,F6.1,1X,F6.2,1X,1X,F6.1,1X,F6.0,1X,F6.0)

ENDIF

ELSEIF (INTERP .EQ. 2) THEN

IF (I .EQ. 2) THEN
WRITE(LULG,802)

ENDIF

802 FORMAT(/,1X,' TIME LAT LON DIST. TO TIME OVER
+ ' MAX WIND MAX WIND',
+ /,1X,' (HR) LAND (KM) LAND (HR) ',
+ ' NO DECAY WITH DECAY')

IF (I .EQ. 2) THEN

803 WRITE(LULG,807) TREL,RLATT,RLONT,DLANDT,
+ TLAND,VM,VML
+ FORMAT(1X,F6.1,1X,F5.1,1X,F6.1,1X,F6.0,
+ 6X,F6.1,6X,F6.0,5X,F6.0)

ENDIF

ENDIF

START SMALL TIME LOOP

ILAST = 0

2000 CONTINUE
TREL = TREL+DT

DTT = DT

IF (TREL .GT. FTIME(I)) THEN

DTT = FTIME(I) - (TREL-DT)

TREL = TREL-DT+DTT

ILAST = 1

ENDIF

RLATT = RLATT + DTT*DLATDT

RLONT = RLONT + DTT*DLONDT

CALL ALAND(-RLONT,RLATT,DLANDT)

IF (DLANDT .GE. 0.0) THEN

STORM IS OVER WATER

IF STORM HAS MOVED FROM LAND TO OVER WATER,
INCREASE WINDS TO ACCOUNT FOR DIFFERENCE


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C      BETWEEN LAND AND WATER EXPOSURE
      IF (ILTOW .EQ. 1) THEN
        VM = VM/REDFAC
        ILTOW = 0
      ENDIF

C      VM = VM + DTT*DVRT

C      RESET LAND PARAMETERS FOR NEXT LAND POINT
      TTLAND = 0.0
      VML = VM

C      DLANDS = 0.0
      NLAND = 0
      DAVG0 = 0.0
      DAVG1 = 0.0
    ELSE
C      STORM IS OVER LAND
      TTLAND = TTLAND + DTT
      TTEMP = TTLAND - DTT

C      IF (NLAND .LE. 0) THEN
        DAVG0 = 0.0
      ELSE
        DAVG0 = DLANDS/FLCAT(NLAND)
      ENDIF

C      DLANDS = DLANDS + DLANDT
      NLAND = NLAND + 1
      DAVG1 = DLANDS, FLOCAT(NLAND)

C      CALL DMODEL(VML, TTLAND, DAVG1, VMF)
      CALL DMODEL(VML, TTEMP, DAVG0, VMI)
      VM = VM + (VMF-VMI)
      ILTOW = 1
    ENDIF

C      IF (INTERP .EQ. 1 .AND. DTT .GT. 0.0001) THEN
      WRITE(LULG, 805) TREL, DTT, RLATT, RLONT, VM,
      +               TTLAND, VML, DLANDT, DAVG1
    ELSEIF (INTERP .EQ. 2 .AND. DTT .GT. 0.0001) THEN
      WRITE(LULG, 807) TREL, RLATT, RLONT, DLANDT,
      +               TTLAND, VM, VML
    ENDIF

C      IF (ILAST .EQ. 1) THEN
      VMAXA(I) = VM
      GO TO 3000
    ENDIF
    GO TO 2000
3000 CONTINUE
25 CONTINUE

C      RETURN
      END
      SUBROUTINE DMODEL(V0, TIMEHR, DLAND, VT)
C      THIS ROUTINE EVALUATES THE MAXIMUM WIND VT (KT) OF A STORM
C      AFTER TIMEHR INLAND. V0 IS THE STORM INTENSITY AT LANDFALL
C      AND DLAND IS THE DISTANCE TO THE NEAREST LAND MASS.
C

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COMMON /MPARM/ ALPHA,VB,REDFAC,S1,S2,B1,B2, IDTLC

IF (TIMEHR .LE. 1.0E-5) THEN

VT = V0

RETURN

ELSE

VT = VB + ((REDFAC*V0) - VB) * EXP (-ALPHA*TIMEHR)

ENDIF

IF (IDTLC .EQ. 0) RETURN

ADD DISTANCE TO LAND CORRECTION

S = S1*TIMEHR + S2*TIMEHR*TIMEHR

B = B1*TIMEHR + B2*TIMEHR*TIMEHR

IF (S .LT. 0.0) S=0.0

IF (B .GT. 0.0) B=0.0

DIST = ABS(DLAND)

IF (DIST .LT. 10.0) DIST=10.0

CORR = - (B + S*ALOG(DIST))

VT = VT + CORR

WRITE(UNIT,100) S,B,DIST,TIMEHR,CORR

100 FORMAT('S,B,DIST,T,CORR. ',E11.4,1X,E11.4,3X,F6.1,

+ 1X,F5.2,1X,F5.2)

RETURN

END