NOAA Data Report ERL PMEL-27

STRUCTURE OF THE MARINE BOUNDARY LAYER OVER THE PACIFIC OCEAN DURING THE RITS 88 AND RITS 89 CRUISES

James E. Johnson
Wayne Mitchell

Pacific Marine Environmental Laboratory
Seattle, Washington
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Contribution No. 1272 from NOAA/Pacific Marine Environmental Laboratory

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CONTENTS

Structure of the Marine Boundary Layer Over the Pacific Ocean During the RITS 88 and RITS 89 Cruises

James E. Johnson[1] and Wayne Mitchell[2]

1. INTRODUCTION

During 1988 and 1989, research cruises were conducted onboard the NOAA ships *Oceanographer* and *Discoverer* respectively, as part of NOAA's Radiatively Important Trace Species (RITS) Program. The mission of the RITS cruises was to measure the latitudinal distribution of trace species that are climatically important and to determine the role of the ocean in controlling and modifying the cycling of these gases through the atmosphere. To this end, continuous measurements were made of CO_2, CO, CH_4, and $(CH_3)_2S$ in the atmosphere (at ship level) and in seawater. Measurements of atmospheric aerosol concentrations, size distributions, and chemistry also were made. To aid in the interpretation of processes controlling the measured changes in the concentration of these species, measurements were made of the structure of the atmospheric boundary layer using high resolution radiosondes. These radiosondes were launched on balloons and measured dry and wet bulb temperatures as a function of pressure. The radiosonde observation system and the data reduction are described here. Also presented are plots of each sounding and latitude-height relative humidity cross sections for each cruise and hourly weather observations collected by ship's personnel.

2. CRUISE TRACKS

The RITS 1988 cruise occurred on the NOAA ship *Oceanographer* starting in Dutch Harbor, Alaska (52°N, 166°W) on April 6 and proceeding south along 170°W arriving in Pago Pago, American Samoa (14°S, 171°W) on May 5. The RITS 1989 cruise occurred on the NOAA ship *Discoverer* starting in Seattle on February 5, proceeding south along the U.S. West Coast, arriving in Manzanillo, Mexico on February 14, leaving Manzanillo on February 15 proceeding south along 105°W, and arriving in Easter Island (27°S, 109°W) on March 1. The *Discoverer* departed Easter Island on March 4 and proceeded south along 105°W to 61°S (on March 17) then west to 125°W, then north along 130°W to Tahiti (18°S, 150°W) arriving on April 2. The *Discoverer* departed Tahiti on April 7 and proceeded along a great circle route (with a minor detour near the Equator to retrieve a buoy) to Seattle, arriving April 20. The cruise tracks for both cruises are shown in Figure 1.

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[1] NOAA, Pacific Marine Environmental Laboratory, 7600 Sand Point Way N.E., Seattle, Washington 98115-0070, and Joint Institute for the Study of the Ocean and Atmosphere, University of Washington, Seattle, Washington 98195.

[2] NOAA, National Ocean Survey, NOAA ship *Discoverer*, Seattle, Washington 98102.

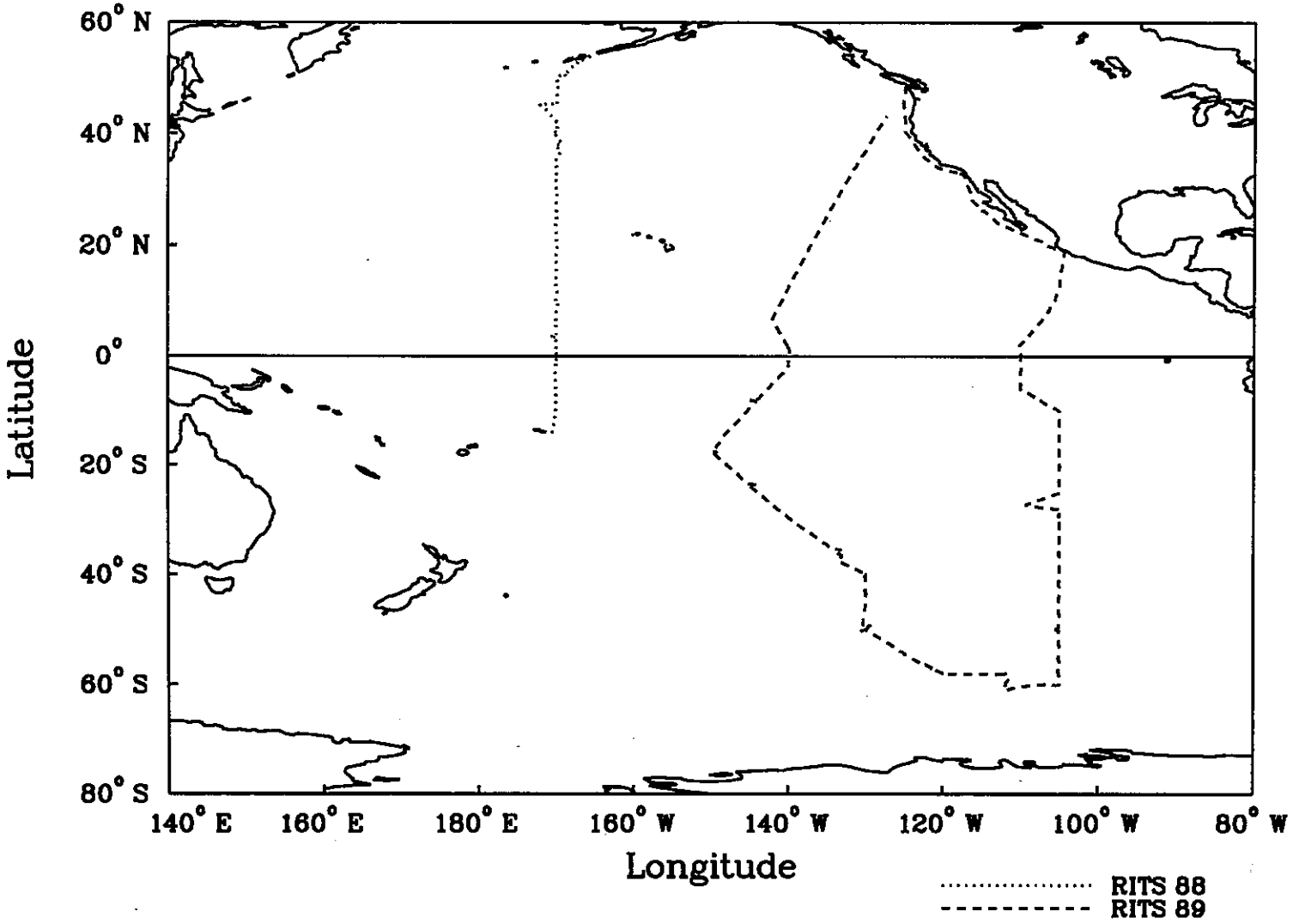

Fig. 1. Cruise tracks for RITS 88 and RITS 89.

3. MEASUREMENT SYSTEM

Model AS-1A-PTH Airsondes™ (A.I.R. Inc., Boulder, Colorado) were used for each sounding. These expendable radiosondes use a calibrated aneroid pressure sensor, a thermistor to sense the dry bulb temperature, and a thermistor surrounded by a wetted wick to sense the wet bulb temperature. The wet and dry bulb sensors are held in radiation shielded styrofoam tubes at the end of styrofoam wings that cause the entire radiosonde to rotate, aspirating the temperature sensors. The measurements of pressure and wet and dry bulb temperature are frequency modulated on a 403.5 Mhz carrier radio signal. A new set of measurements are transmitted every 5 seconds.

The signals were received by a model TS-2AR (A.I.R. Inc.) receiver/computer which converted the frequency signals to standard units (pressure in mb, temperatures in °C) and sent the information via a RS-232 serial interface to an IBM compatible laptop computer (Zenith ZFL-181) where the data were stored as ASCII characters on a microfloppy magnetic disk. The manufacturer claims an accuracy of ±0.3°C for the temperature measurements and ±3 mb for the pressure measurement. Using the manufacturer's instructions, the pressure signal from each radiosonde was adjusted before launch to agree within 1 mb of the ship's barometer.

During the 1988 RITS cruise, radiosondes were launched on 25 g pilot balloons which gave ascent rates of 1 to 2 m/s. Several severe storms were encountered at the beginning of the cruise which prevented balloon launches. Regular soundings commenced near 40°N (April 14) at twice daily intervals. To observe diurnal cycles, one sounding was launched near local sunrise, and one in late local afternoon. During the last 5 days of the cruise, a third daily sounding was conducted near local midnight.

During the 1989 RITS cruise, radiosondes were launched on 100 g pilot balloons which gave ascent rates of approximately 3 m/s. The leg from Seattle to Manzanillo was a transit/testing run in which only two soundings were made. Between Manzanillo and Easter Island two soundings were conducted on most days. South of Easter Island soundings were made until high winds prevented reliable balloon launches (39°S, March 9). Soundings then were made whenever local wind conditions were favorable (biasing all soundings to calm weather days). North of Tahiti, the supply of radiosondes was limited so that six soundings were made between 5°S and 30°N. The 1989 RITS cruise in this report is separated into Leg 1, the southbound leg, and Leg 2, the northbound leg.

4. DATA PROCESSING

The data from each sounding consist of 100 to 500 records. Each record contains four numbers: the time in minutes from the initialization of the TS-2AR receiver/computer, the dry bulb temperatures in °C, the wet bulb temperature in °C, and the pressure in mb. The resolution in the digital record is hundredths of minutes in time, hundredths of degrees for temperature, and tenths of mb in pressure. For each sounding, 1 to 10% of the data records obviously were bad

and could be detected by eye as spikes in plots of pressure versus wet or dry bulb temperature. A computer program was used to automatically de-spike the data. Starting with a known "good" record at the beginning of each sounding, records were discarded if the time derivative of the pressure exceeded 60 mb/min, or the time derivative of the dry bulb temperature exceeded 5°C/min, or the time derivative of the wet bulb temperature exceeded 15°C/min. Plots were then made of dry and wet bulb temperature as functions of pressure and were examined further by eye. If any obvious deviation of one point from a relatively smooth line was found, that data record was also discarded.

The data from each sounding were reduced as follows. At each point in each sounding, the vapor pressure of water in mb, e, was calculated using an empirical formula from List (1963):

$$e = e' - [0.000660(1 + 0.00115t')]\,p\,(t - t') \tag{1}$$

where t is the air temperature in °C, t' is the wet bulb temperature in °C, p is the air pressure in mb and e' is the saturation (water) vapor pressure in mb at the wet bulb temperature.

The saturation vapor pressure e' in mb is given by Bolton's (1980) relationship:

$$e' = 6.112 \exp\left(\frac{17.67t'}{t' + 243.5}\right) \tag{2}$$

The relative humidity, RH, was calculated as:

$$RH = \frac{e}{e_s} \times 100\% \tag{3}$$

where e_s, the saturation vapor pressure at the dry bulb temperature was calculated using (2), substituting t for t'. In a few cases the wet bulb temperature was slightly warmer then the dry bulb temperature ($t' > t$). This usually occurred while the radiosonde was in a cloud and most likely was due to the error (±0.3°C) in each temperature sensor. In these cases, during the data reduction, t' was set equal to t so that the calculated dew point temperature was equal to the dry bulb temperature and the calculated RH was equal to 100%.

The dimensionless mass mixing ratio for water vapor, w, was calculated as:

$$w = \varepsilon \frac{e}{p - e} \tag{4}$$

where ε is the gas constant (per kg) of water vapor divided by the gas constant (per kg) of dry air (which is very close to the ratio of the molecular weight of water to the molecular weight of dry air) and is equal to 0.6220 (Bolton, 1980).

The dew point temperature t_d was calculated from e, using the inverse of (2):

$$t_d = \frac{243.5 \ln e - 440.8}{19.48 - \ln e} \tag{5}$$

The potential temperature in kelvins, θ, the temperature to which an air parcel would reach if it were compressed (or expanded) adiabatically to 1000 mb, was calculated by the relationship from Bolton (1980):

$$\theta = T \left(\frac{1000}{p} \right)^{0.2854 \, (1 - 0.28 \, w)} \tag{6}$$

where T is the air temperature in kelvins.

The thickness between each point in each sounding, Δz, was calculated using the hypsometric equation (Wallace and Hobbs, 1977):

$$\Delta z = \frac{R_d \, T_v}{g} \ln \left(\frac{p_0}{p_1} \right) \tag{7}$$

where T_v, the virtual temperature in kelvins, is defined as $T_v = T(1 + 610 \, w)$, p_o and p_1 are the pressure at the lower and upper points respectively; R_d is the gas constant of dry air, 287.04 J kg^{-1} K^{-1}; and g is the acceleration of gravity, 9.81 m s^{-2}.

The equivalent potential temperature, θ_e, is defined by Bolton (1980) as "the final temperature to which a parcel attains when it is lifted dry adiabatically to lifting condensation level, then pseudo-wet adiabatically (with respect to water saturation) to a great height (dropping out condensed water as it is formed), then finally brought down dry adiabatically to 1000 mb." θ_e is conserved during both dry and saturated adiabatic processes and is useful as a tracer. θ_e was calculated from Bolton's empirical relationships:

$$\theta_e = \theta \exp \left[\left(\frac{3.376}{T_L} - 0.00254 \right) 10^3 \, w(1 + 0.81 \, w) \right] \tag{8}$$

$$T_L = \frac{2840}{3.5 \ln T + \ln e - 4.805} \tag{9}$$

Where T_L is the temperature of the lifting condensation level in kelvins.

5. PLOTS

The latitude, longitude, date, time of day and label for each sounding are listed in Appendix 1. The labels for the RITS 88 soundings consist of the letters "RS" followed by a number representing the day of the month (April or May) and a letter (A, B, or C) to distinguish between the several soundings on a particular day. The labels for the RITS 89 soundings consist of the characters "89-" followed by an "F", "M", or "A" (representing February, March, or April

respectively) followed by a number for the day of the month, followed by an optional letter (A,B, or C) to distinguish between several soundings on a particular day.

The reduced soundings are shown in Appendix 2. For each sounding the temperature and dew point temperature are shown on the left panel and the potential temperature, equivalent potential temperature, and relative humidity are displayed in the right panel. In the left panel, the dew point temperature is always less than or equal to the temperature so that the line left is always the dew point temperature. For the right panel, in the lower boundary layer (approximately 400 m altitude) the left line is always the potential temperature, the middle line is always the equivalent potential temperature, and the right line is always the relative humidity. This ordering of the lines is because all of the soundings are from a moist, marine boundary layer where the relative humidity is always greater than 75%, and by definition, $\theta_e \geq \theta$.

The hourly surface weather observations from the navigation bridge of the ship for each cruise are included in Appendix 4 so that the soundings can be placed in the context of the surface weather.

One problem that affects humidity measurements made with a wet bulb sensor is that the sensor can supercool, then freeze, causing its temperature to rapidly warm to 0°C. As we were interested in soundings below 4 km in altitude this was not a problem in the tropics. However, in the higher latitudes the wet bulb wick could freeze at an altitude of 1 km or less. In cases where the wet bulb froze, the parameters which are functions of humidity (dew point temperature, equivalent potential temperature, and relative humidity) are not plotted for altitudes above the freezing point of the wick (e.g. RS15A, RS16A, 89-M11).

Some of the soundings made in the afternoons in the tropics may have been affected by heat from the ship. The air temperature over the deck of the ship was sometimes as much as 5°C warmer than the ambient temperature. After noticing this effect during the RITS 88 cruise, we attempted to minimize it by holding the radiosonde into the free wind for several minutes on the windward side of the fantail deck before launch. This was not always successful and some of the soundings show a large super adiabatic lapse rate in the lowest 200 meters that may not be representative of the air away from the ship.

A number of soundings lost synchronization with the receiver just after launch, perhaps due to the signal strength changing rapidly at that time. For the plots in Appendix 2, these regions of missing data are represented by a line connecting the points denoted by symbols (RS22A, RS29A, 89-A13). During RITS 1989 a number of radiosondes were defective and a few plots have a large number of points missing (89-F22B).

6. DISCUSSION

The main purpose of collecting these atmospheric soundings was to determine the height of the marine boundary layer (MBL). For purposes of transport and chemistry of trace gases and aerosols, the MBL can be defined as that part of the lower atmosphere that is, or has recently

(one day or less) been in, contact with the ocean surface. Most conceptual models of the MBL include a mixed layer, ≈300 to 1000 m deep in which θ and θ_e are constant with height and RH increases monotonically with height from values of 70–80% at the surface to near 100%. The mixed layer is characterized by very short vertical mixing time scales of ≈20 min. The mixed layer is topped by a cloud layer ≈500–1000 m thick, in which θ increases with height but θ_e remains constant. The circulation within the cloud layer is organized into isolated vigorous updrafts, containing the clouds, separated by larger, cloud free regions of slowly descending air. The RH profile through the cloud layer depends on the local location of the sounding. The RH inside a cloud is near 100% (e.g. RS26A), but in the cloud free regions of descending air the RH is generally between 80 and 100% (e.g. 89-F25). The mixing time scale in this cloud layer is of order several hours.

The boundary between the MBL and the free troposphere, at the top of the cloud layer (called the trade wind inversion in the tropics) is generally characterized by vertically decreasing θ_e and RH and vertically increasing temperature. The parameter with the largest percentage change at the top of the MBL is RH. Because of the distinct change in RH at the top of the MBL, we have chosen to make an operational definition of the top of the MBL as that point where the RH is decreasing with height and is at 75%. This definition should be only taken as a guide, since there are many soundings where there is a dry layer at about 2 km altitude, and two regions where 75% RH exists in a vertically decreasing RH gradient (RS2B, and 89-F20B). There are also examples where the atmosphere undergoes free convection to a great height and the concept of an MBL is meaningless (RS28A). With these cautions in mind, we have included as Appendix 3, contour plots of RH on latitude-height cross sections for the RITS 88 cruise and for the two legs of the RITS 89 cruise. These same data are also plotted with only the isopleths between 70 and 80% RH to emphasize the transition zone at the top of the MBL. The 75% RH isopleth can be taken as a guide to determining the MBL height.

7. ACKNOWLEDGMENTS

This research was carried out under the Radiatively Important Trace Species (RITS) component of the NOAA Climate and Global Change Program. We wish to thank the Captain and crew of the NOAA ships *Oceanographer* and *Discoverer* for their help and support. We also wish to thank Nick Bond for helpful comments. Contribution number 123 from the Joint Institute for Study of the Atmosphere and Ocean (JISAO).

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Appendix 1.

Time, location, and label for each of the radiosondes plotted in Appendix 2. The date/time is in GMT day of year. Under this convention, 32.5 is 12:00 noon (GMT) on February 1.

RITS 1988

Label	Latitude Degrees N	Longitude Degrees W	Day/Time (Day of Year)
RS7A	52.00	168.00	98.991
RS8A	50.00	170.00	99.909
RS9A	48.48	169.93	100.369
RS12A	45.22	171.55	103.211
RS13A	42.02	170.00	104.396
RS14A	40.07	170.00	105.268
RS14B	40.00	170.02	105.924
RS15A	40.05	170.15	106.125
RS15B	38.00	170.00	106.983
RS16A	36.60	169.53	107.374
RS17A	34.02	170.00	108.067
RS17B	32.00	170.02	108.758
RS18A	30.00	170.00	109.281
RS18B	29.57	169.93	109.753
RS19A	28.00	170.00	110.123
RS19B	25.98	170.00	110.754
RS20A	25.45	169.93	111.110
RS20B	23.92	169.97	111.743
RS21A	22.35	170.00	112.110
RS21B	20.38	169.97	112.770
RS22A	19.92	169.93	113.120
RS22B	18.02	169.98	113.733
RS23B	16.35	170.00	114.213
RS23C	14.95	170.00	114.746
RS24A	14.00	169.97	115.126
RS24B	12.17	170.00	115.740
RS25A	12.02	170.00	116.094
RS25B	10.00	170.00	116.765
RS26A	10.00	169.82	117.144
RS26B	8.60	169.95	117.738
RS27A	7.10	169.98	118.137
RS27B	5.98	170.00	118.765
RS27C	4.65	170.00	118.986
RS28A	3.60	170.00	119.326
RS28B	3.50	170.37	119.804
RS29A	3.63	170.52	120.233
RS29B	2.00	169.97	120.725
RS30A	1.03	170.03	121.026
RS30B	1.00	169.92	121.317
RS30C	0.50	169.98	121.731
RS1A	0.00	170.00	122.134
RS1B	–0.03	169.90	122.423
RS1C	–0.50	170.00	122.772
RS2A	–0.98	170.03	123.085

RITS 1988 (cont.)

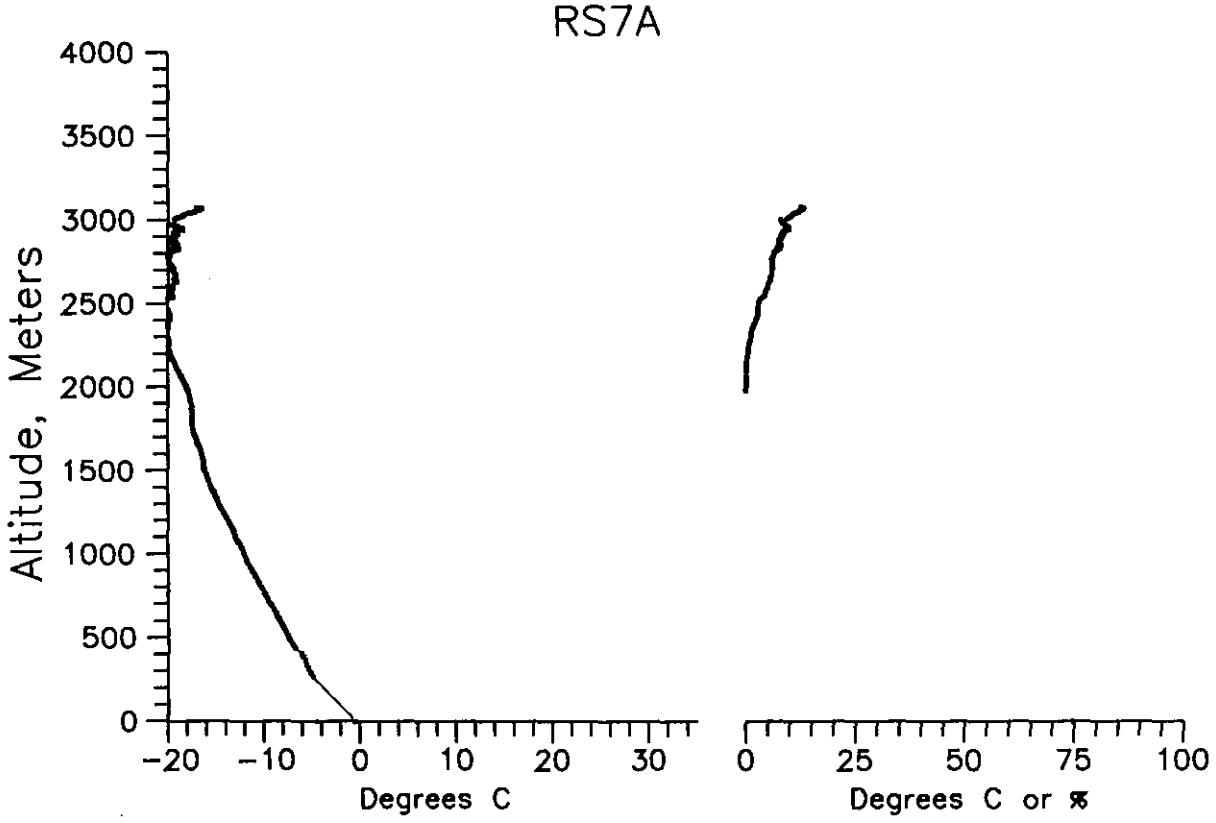
Label	Latitude Degrees N	Longitude Degrees W	Day/Time (Day of Year)
RS2B	–1.67	169.98	123.418
RS2C	–2.00	170.00	123.750
RS3A	–3.93	170.00	124.085
RS3B	–4.73	170.03	124.427
RS3C	–6.00	169.98	124.764
RS4A	–6.93	170.00	125.063
RS4B	–8.28	170.03	125.424
RS4C	–10.00	170.02	125.778
RS5A	–10.90	170.08	126.115
RS5B	–12.07	170.20	126.383

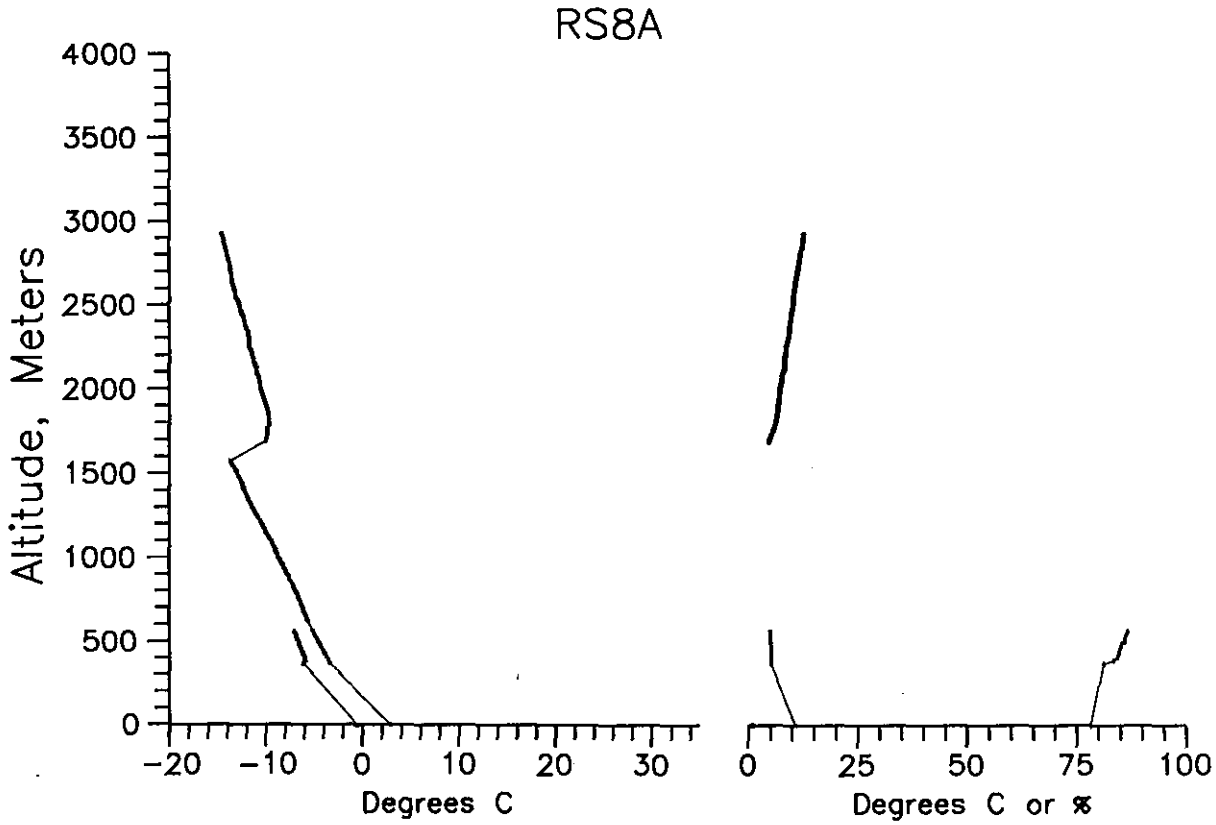
RITS 1989

Label	Latitude Degrees N	Longitude Degrees W	Day/Time (Day of Year)
89–F7	39.68	124.62	38.908
89–F10	32.83	117.83	41.095
89–F16	14.00	105.00	47.918
89–F17	10.50	105.57	48.885
89–F18	8.00	106.47	49.779
89–F19A	8.00	106.43	50.014
89–F19B	4.95	108.30	50.859
89–F20A	4.02	108.85	51.066
89–F20B	2.00	110.13	51.885
89–F21A	1.00	110.02	52.228
89–F21B	–0.23	109.97	52.922
89–F22A	–1.30	109.98	53.163
89–F22B	–4.03	109.98	53.999
89–F23A	–4.97	110.00	54.276
89–F24A	–8.00	107.50	55.257
89–F25	–10.02	105.00	56.076
89–F26	–14.23	105.02	57.113
89–F28	–22.00	105.00	59.026
89–F28B	–24.97	104.97	59.705
89–M6	–31.98	104.97	65.879
89–M7	–36.00	105.00	66.999
89–M9A	–39.98	105.00	68.067
89–M11	–48.07	105.08	70.760
89–M12	–52.03	105.02	71.813
89–M23A	–53.98	125.37	82.013
89–M26A	–46.00	130.00	85.096
89–M27A	–42.00	130.00	86.043
89–M28A	–40.00	129.95	87.056
89–A10A	–5.00	142.00	100.192
89–A11A	0.00	140.00	101.554
89–A11B	1.85	140.07	101.944
89–A12	6.68	142.00	102.889
89–A13	11.98	140.10	103.898
89–A16	29.40	133.35	106.917

Appendix 2.

Plots of the atmospheric soundings from the RITS 88 and RITS 89 cruises. The date, time, and location of the individual soundings are listed in Appendix 1. For each sounding the dew point temperature and the temperature are shown on the left panel and the potential temperature, equivalent potential temperature, and the relative humidity are displayed in the right panel. In the left panel, the dew point temperature is always less than or equal to the temperature so that the line left is always the dew point temperature. For the right panel, in the lower boundary layer (approximately 400 m altitude) the left line is always the potential temperature, the middle line is always the equivalent potential temperature, and the right line is always the relative humidity. In some of the soundings from higher latitudes the wet bulb wick froze below 4 km altitude. In these cases the dew point temperature, the equivalent potential temperature, and the relative humidity are not shown above the altitude where the wick froze. In a few cases (RS7A, RS8A) the potential temperature was below 0°C and was not plotted. Regions of missing data are denoted by lines connecting the symbols, which represent data points. A digital form of the data on an IBM-PC format floppy disk can be obtained by mail from the author.


RS7A
Altitude, Meters
4000
3500
3000
2500
2000
1500
1000
500
0
−20
−10
0
10
20
30
Degrees C
0
25
50
75
100
Degrees C or %


RS8A
Altitude, Meters
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3500
3000
2500
2000
1500
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0
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−10
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Degrees C
0
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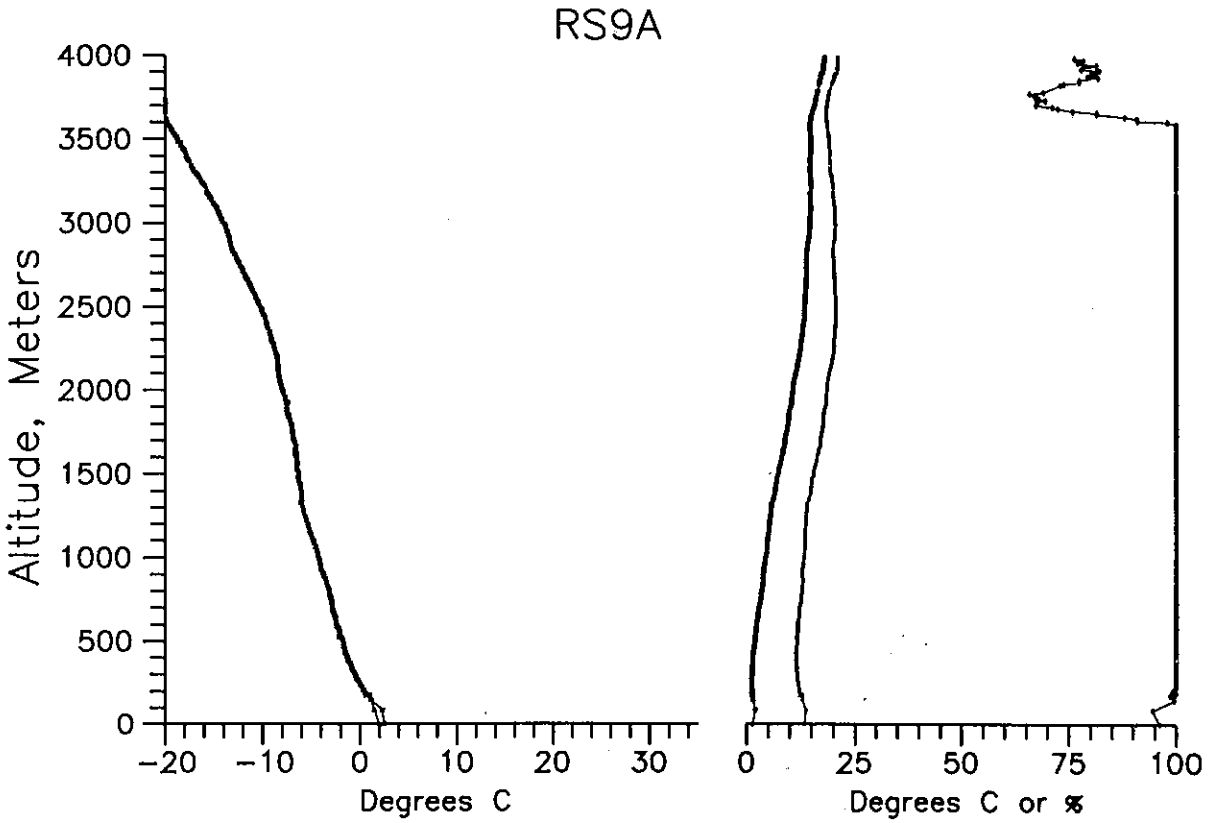
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Altitude, Meters
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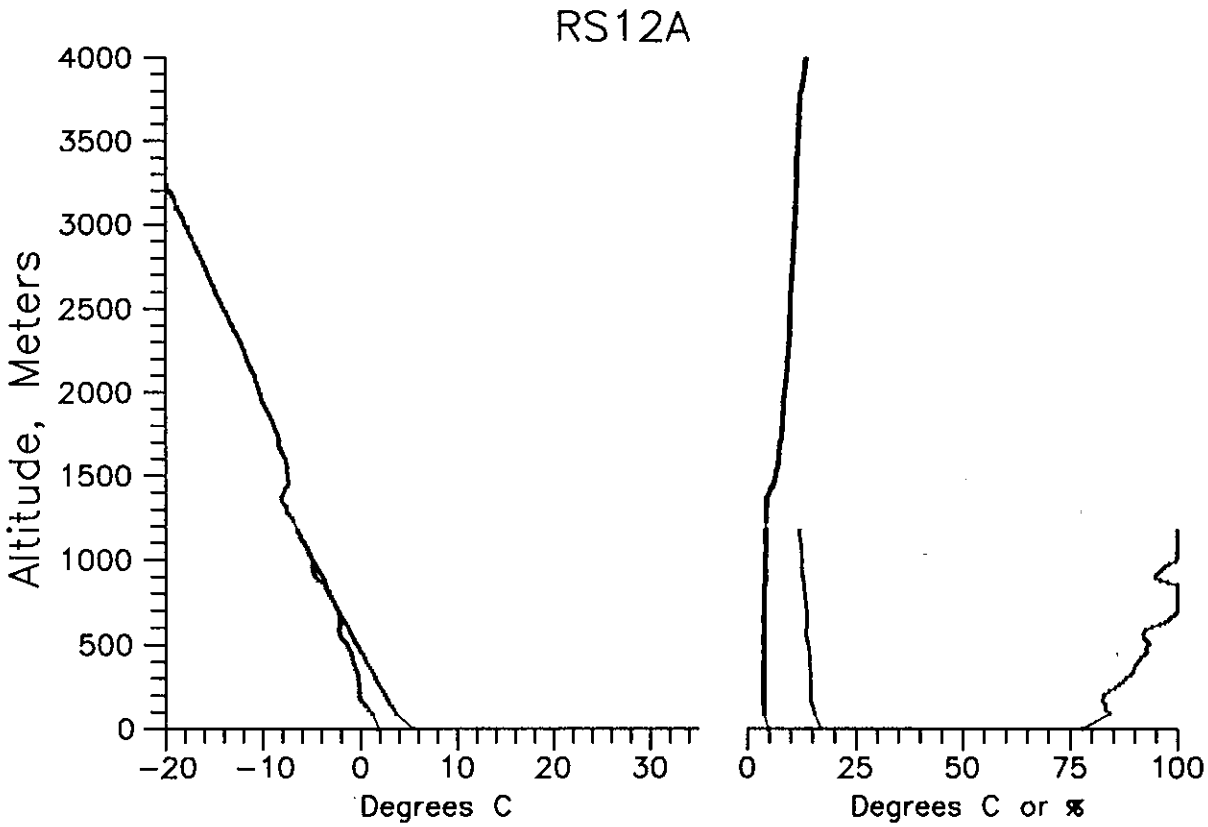
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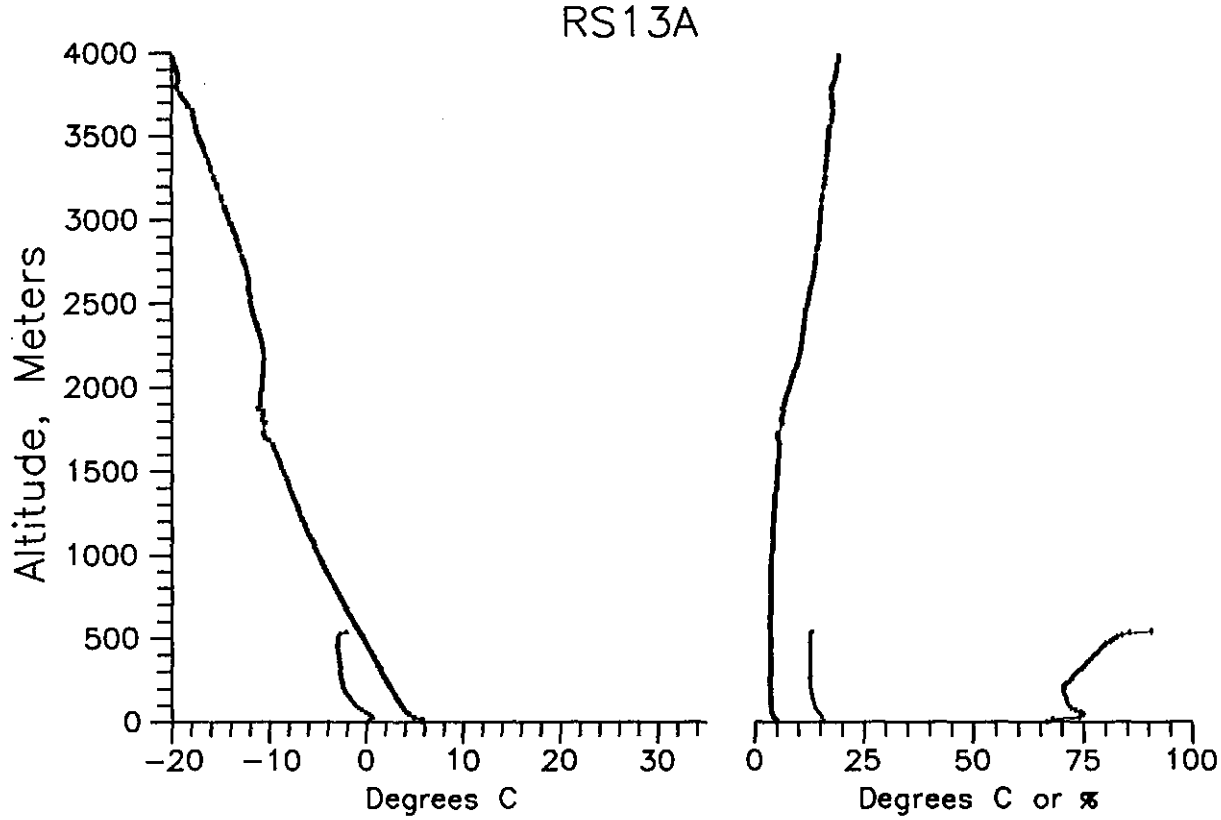
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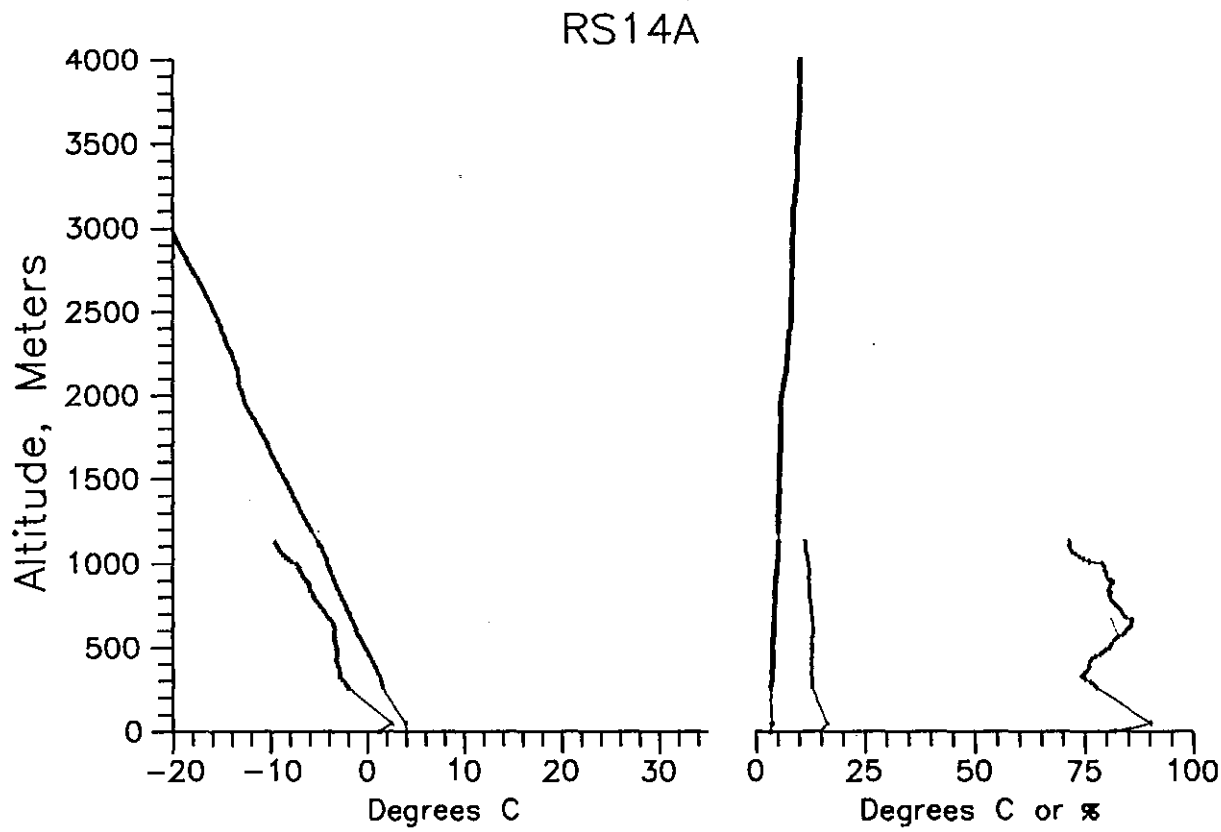
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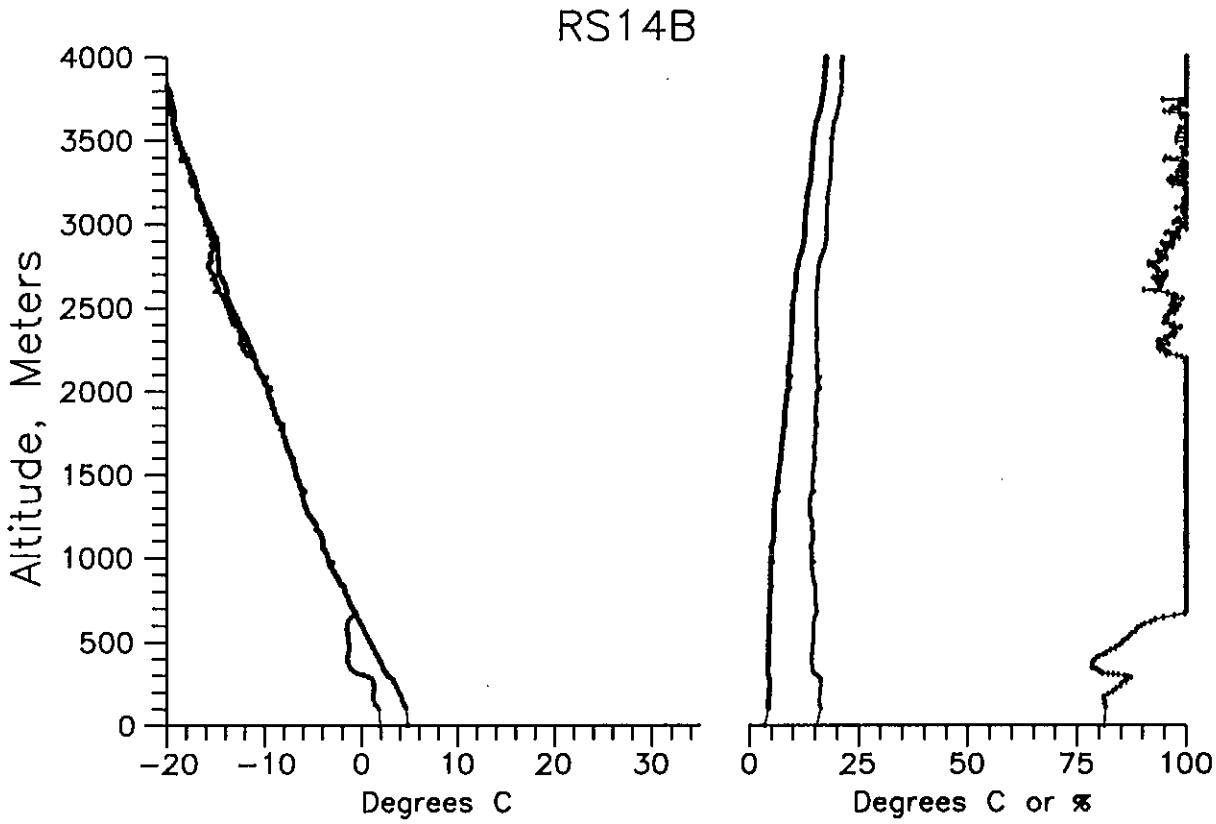
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Altitude, Meters
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3500
3000
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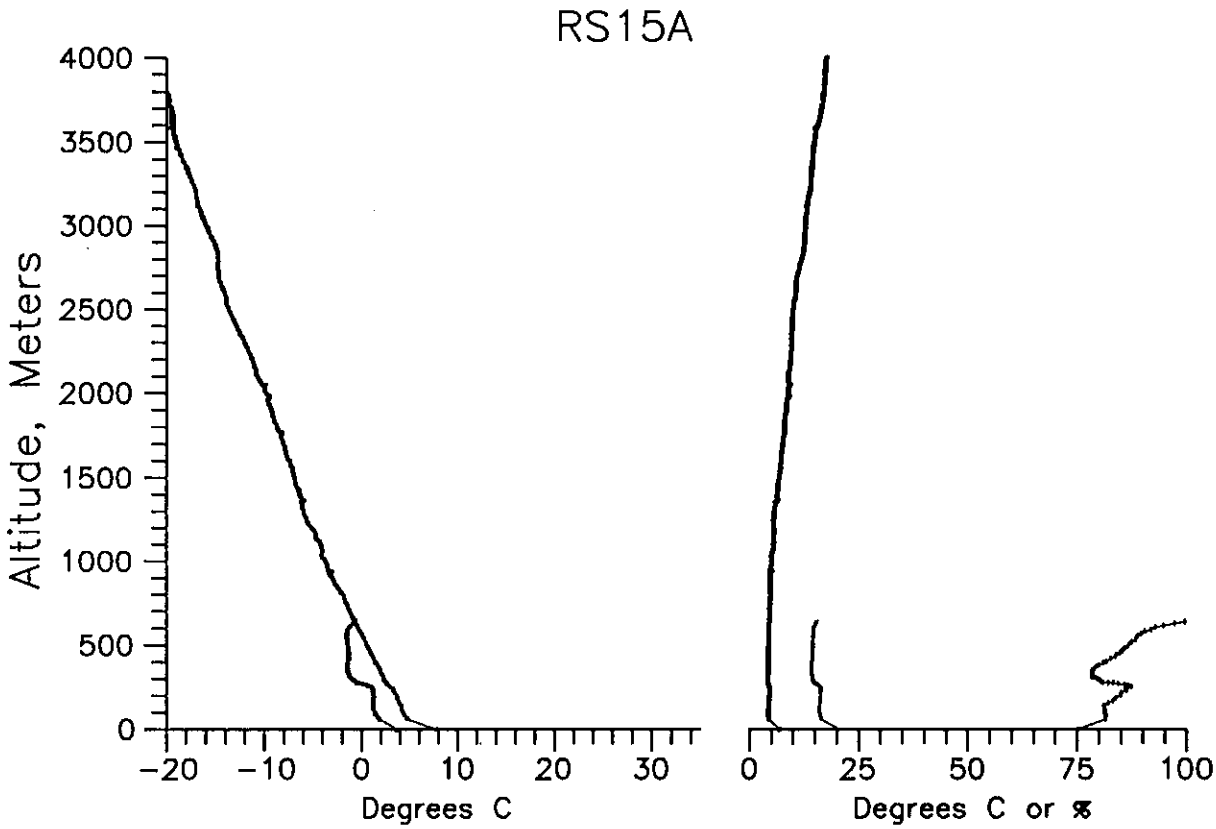
Degrees C or %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Altitude, Meters
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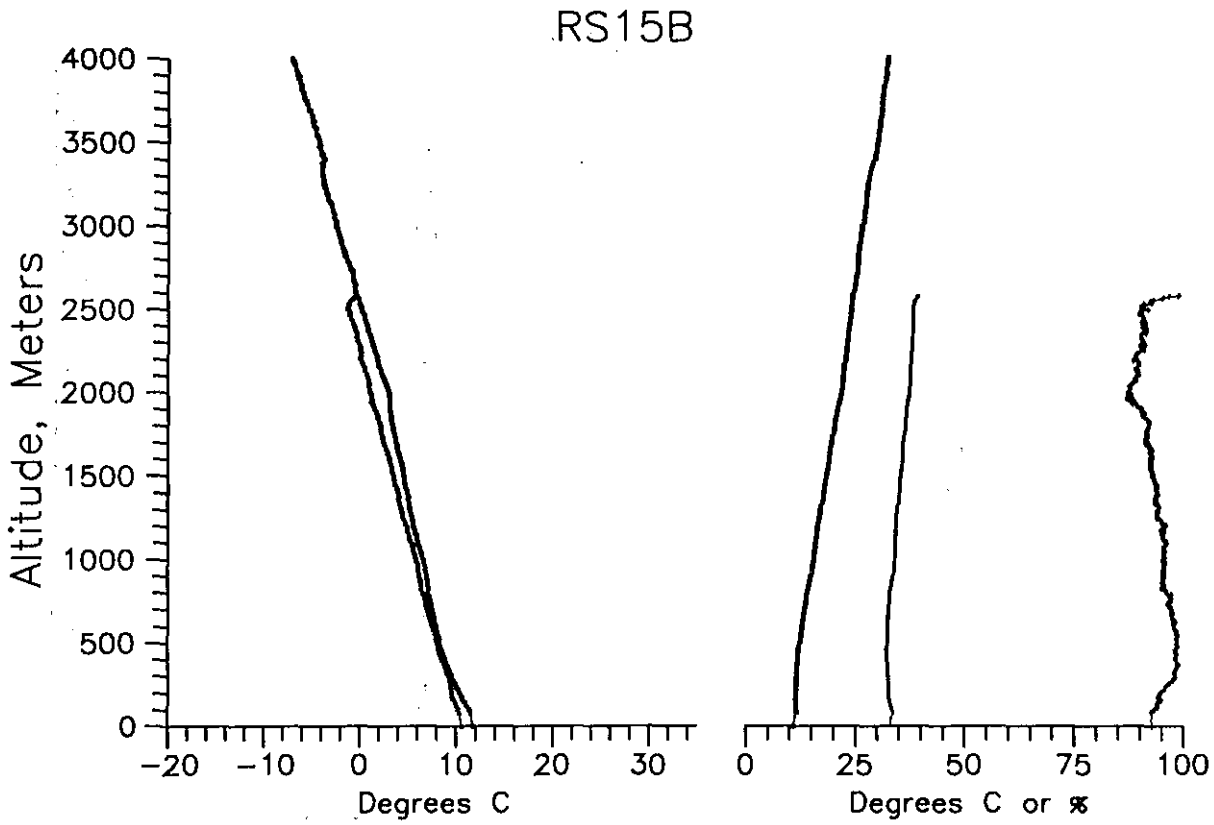
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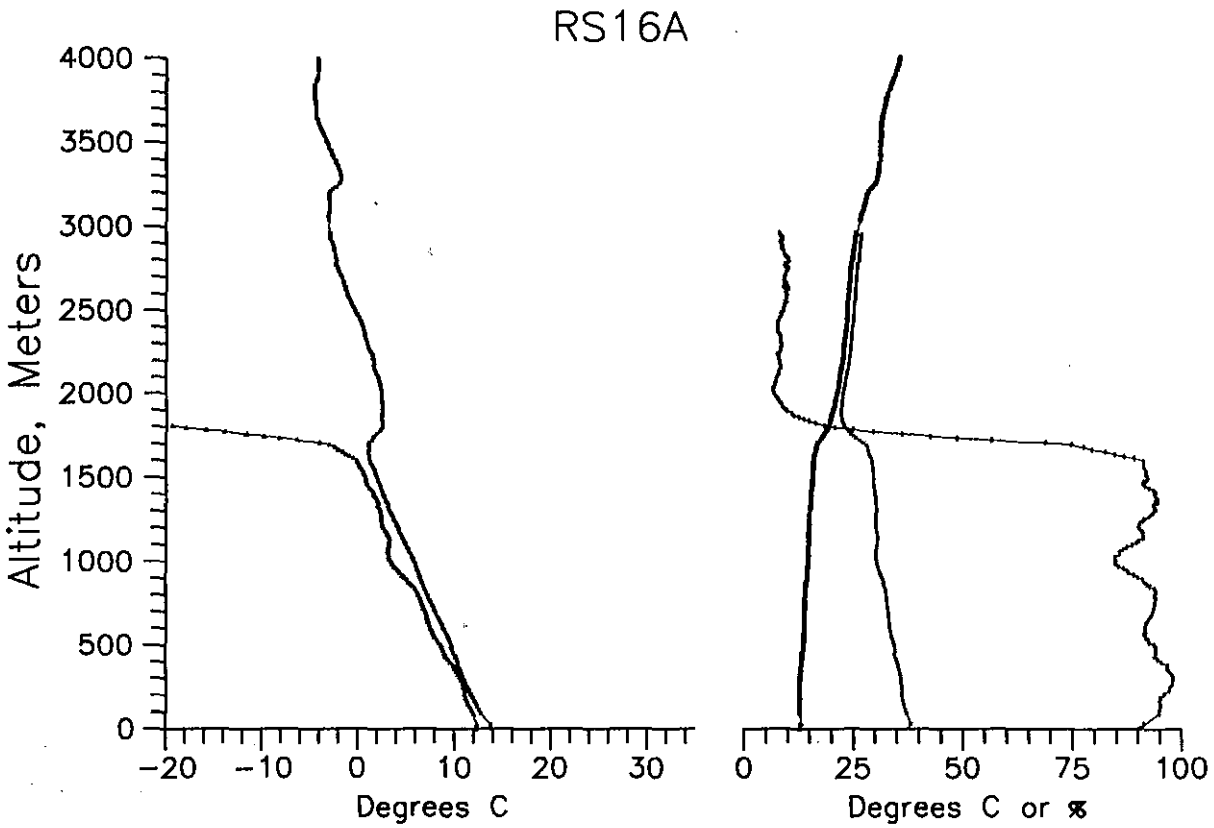
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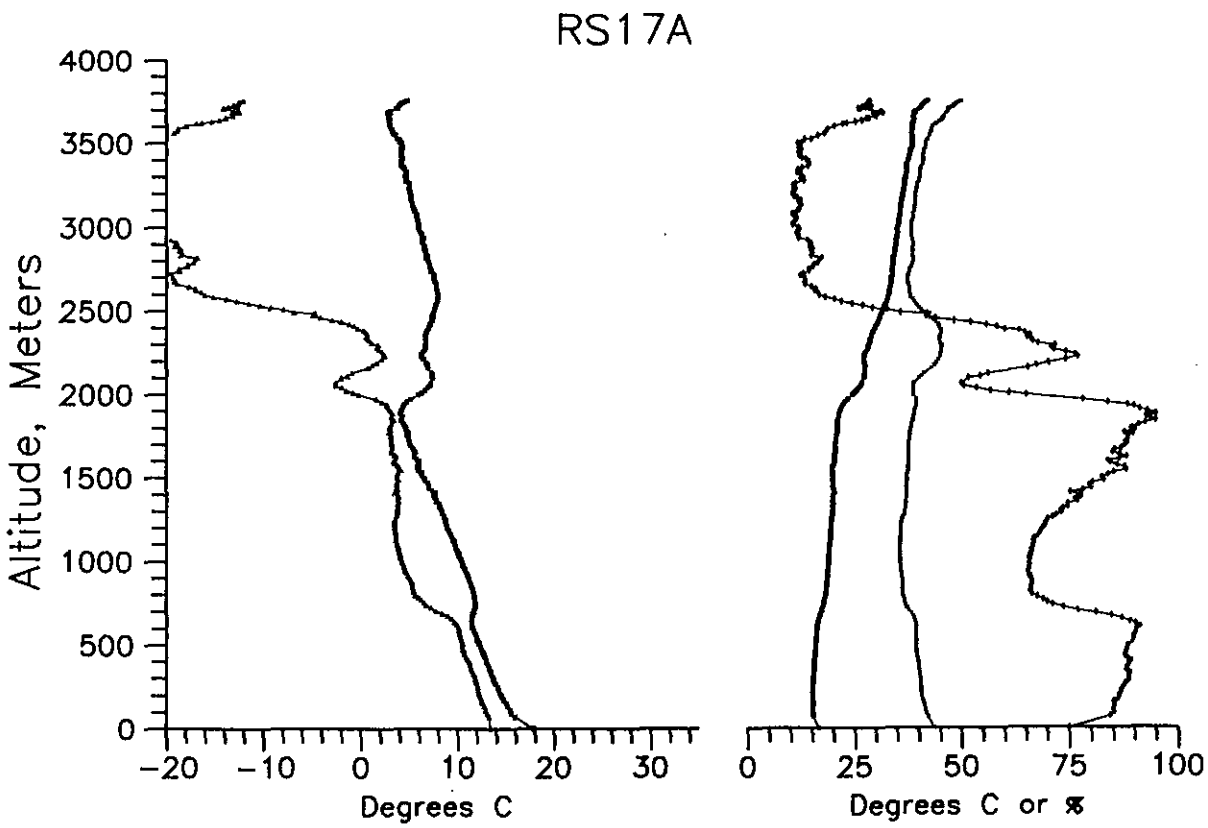
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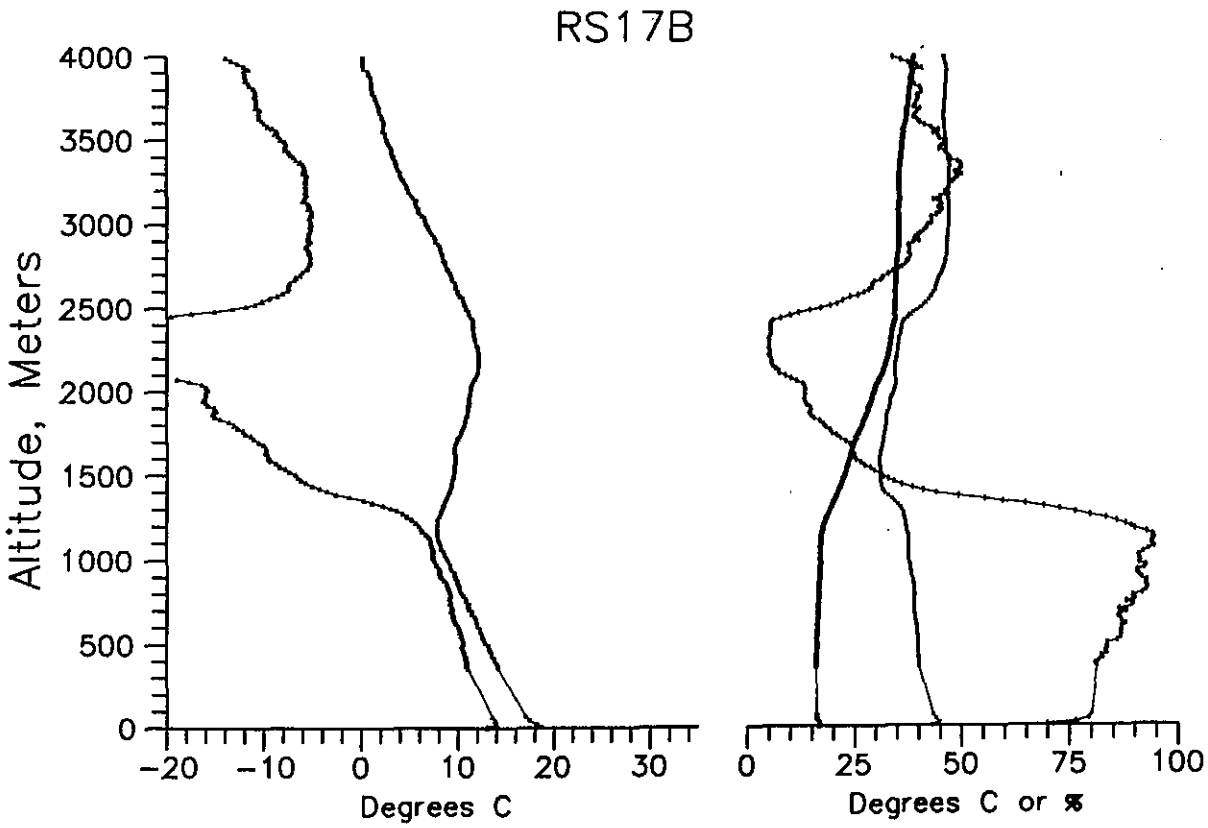
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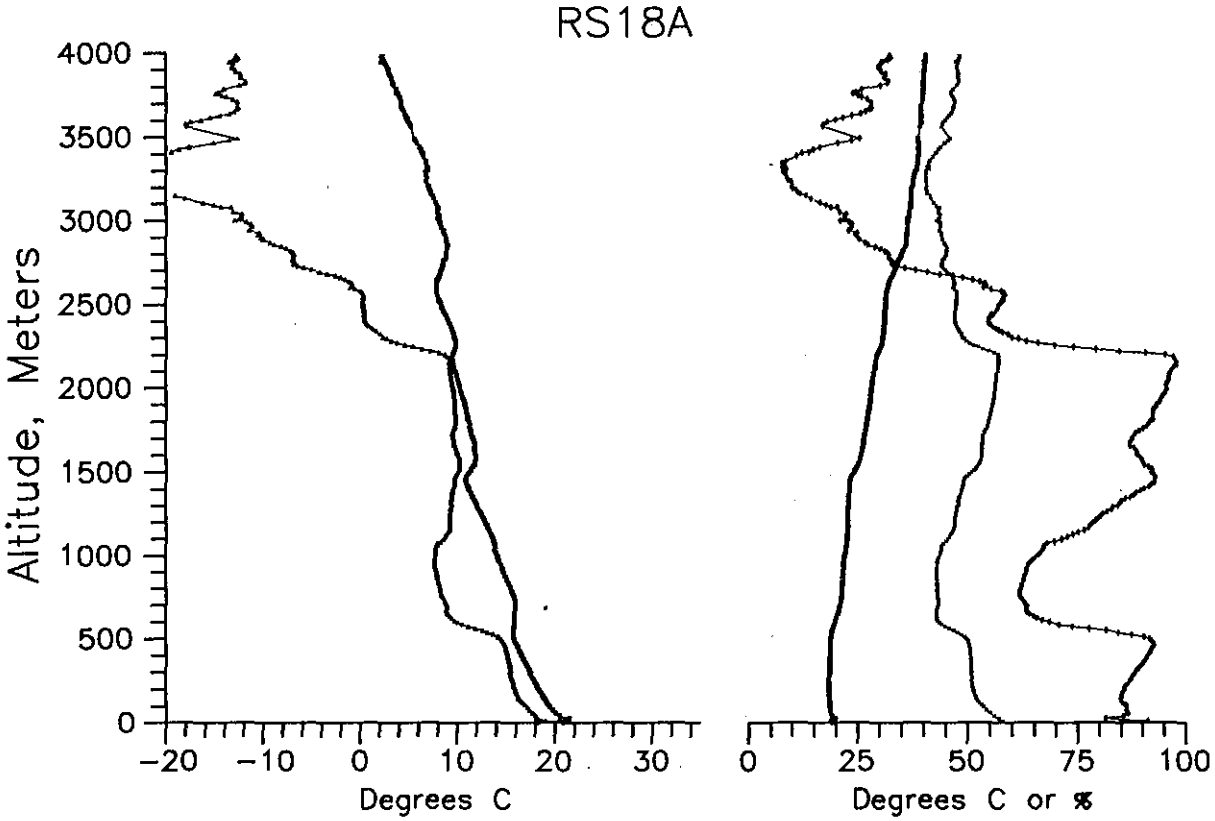
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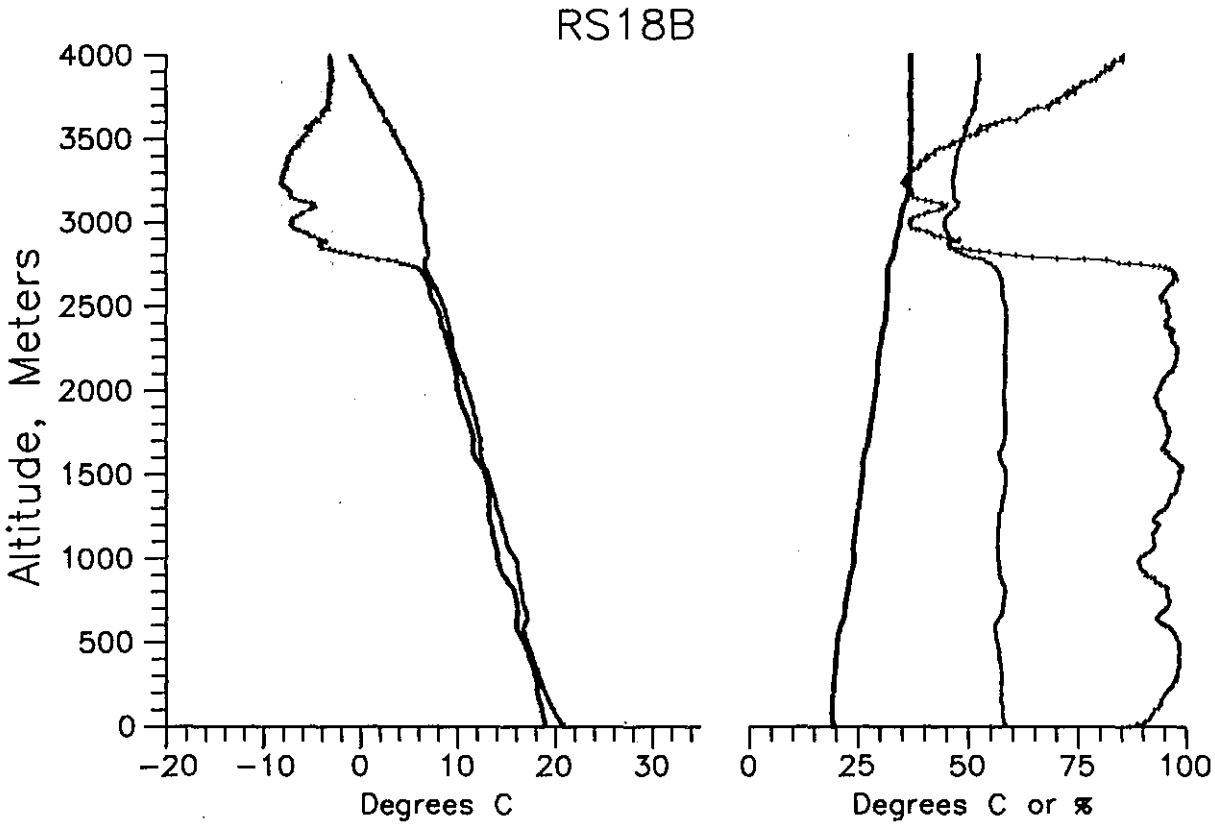
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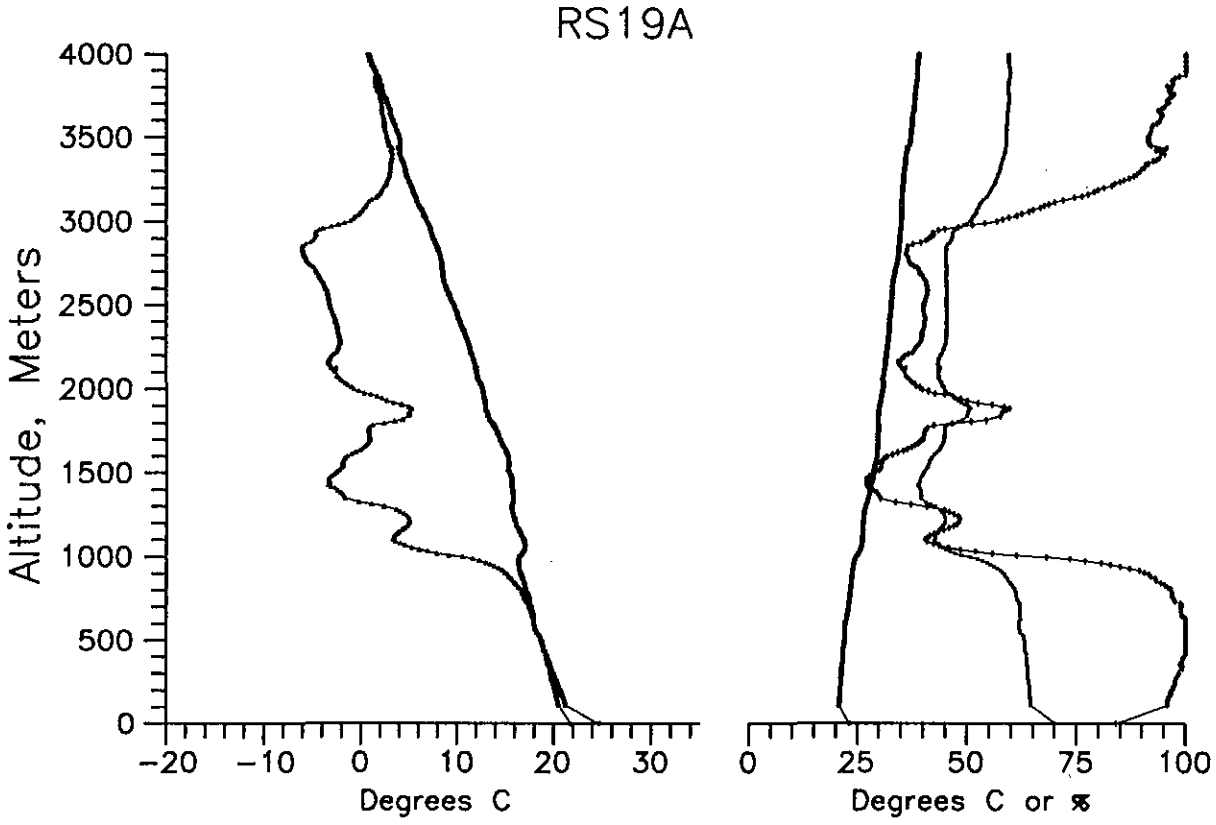
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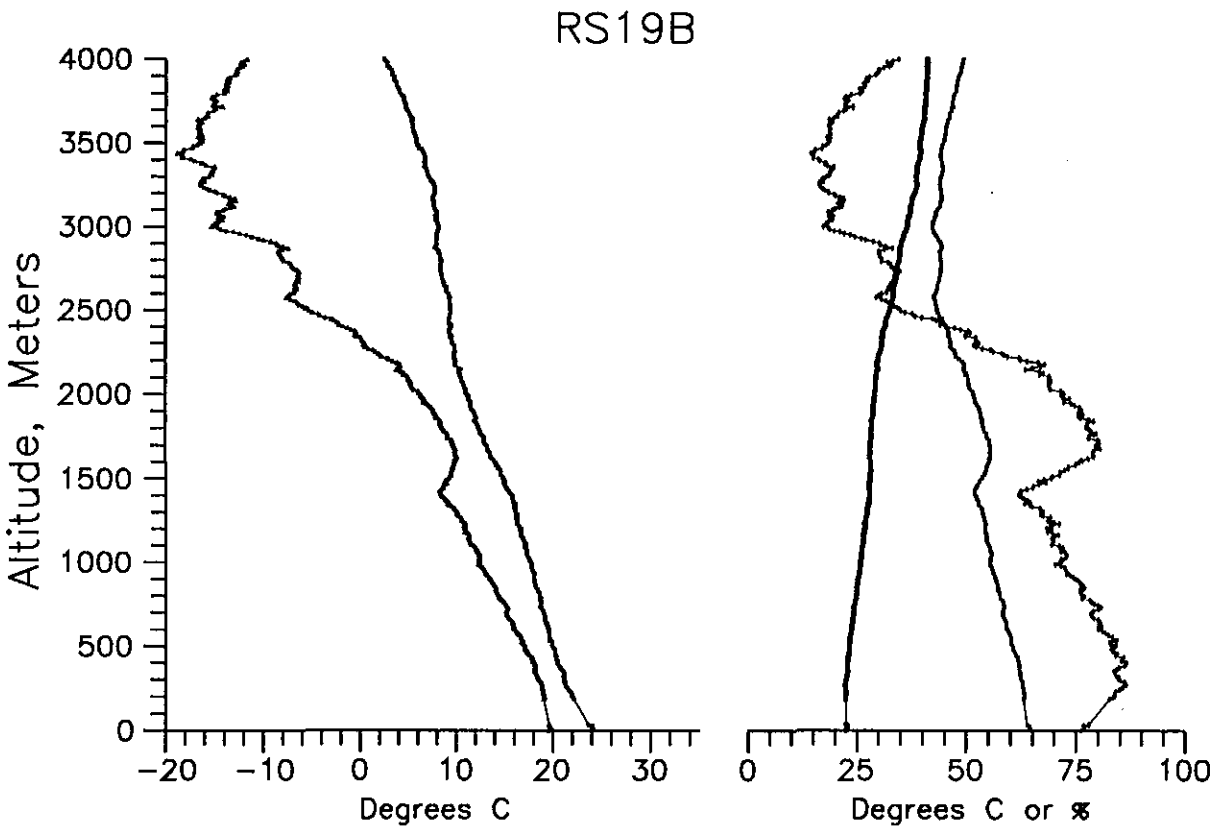
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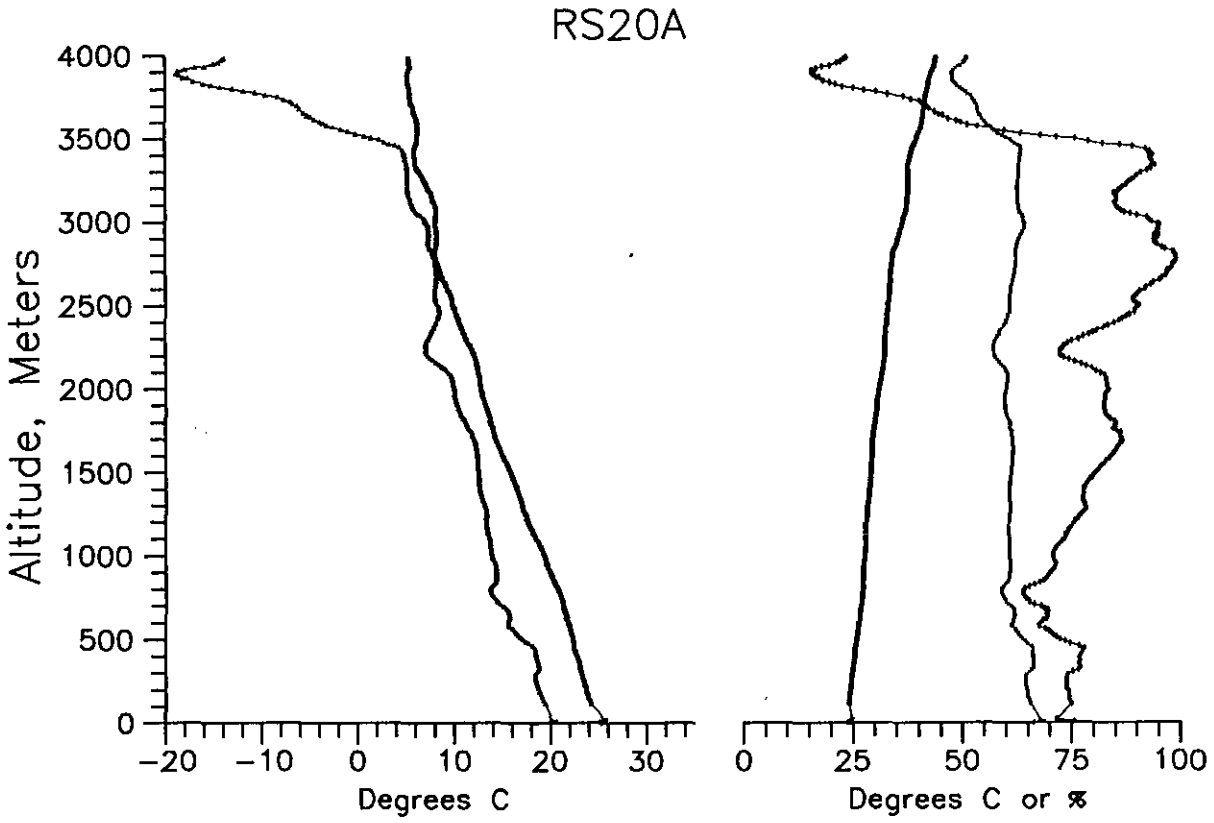
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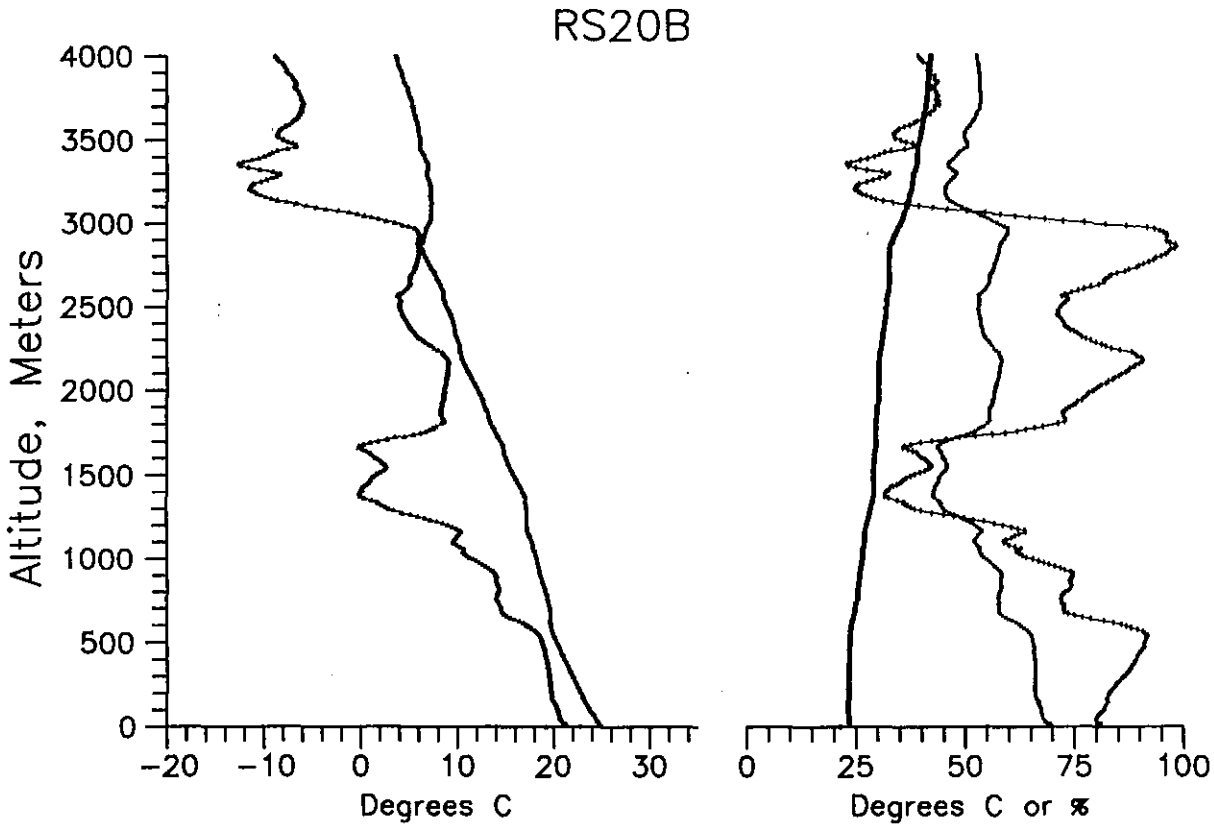
Degrees C or %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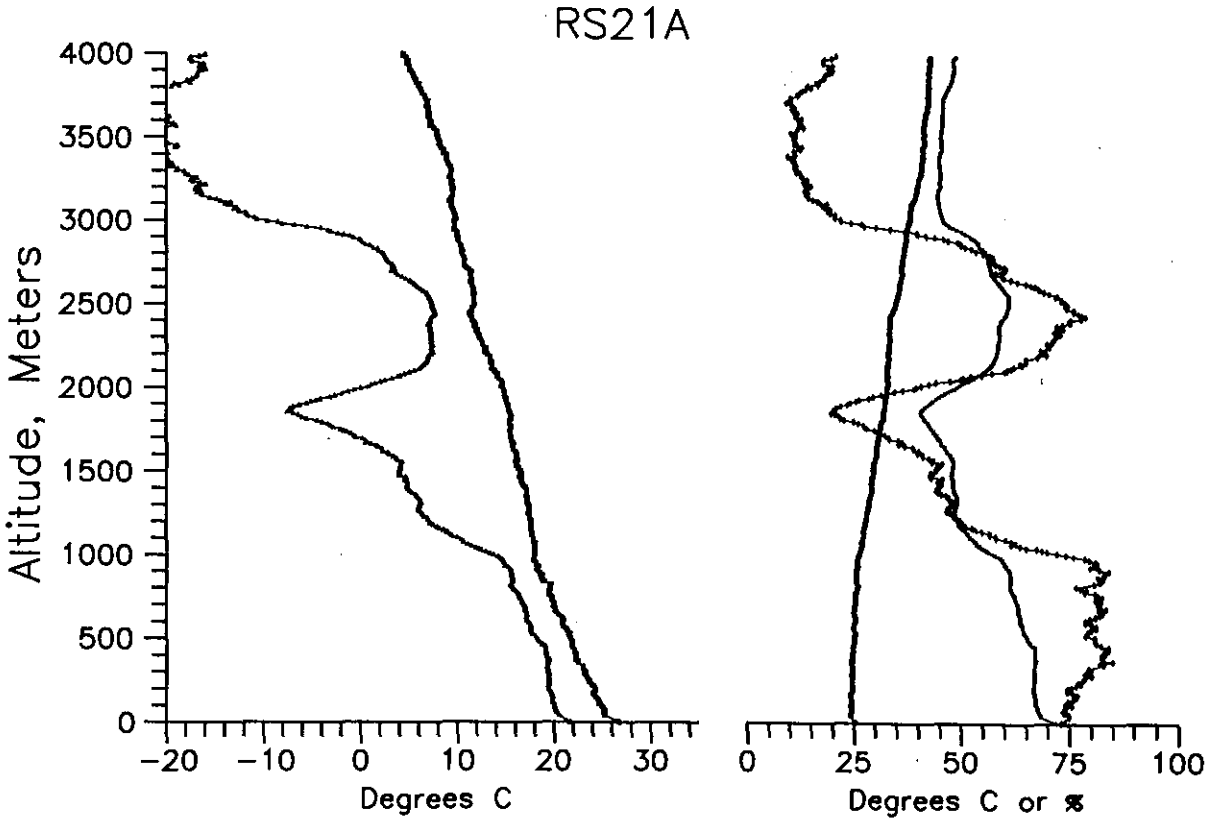
Degrees C or %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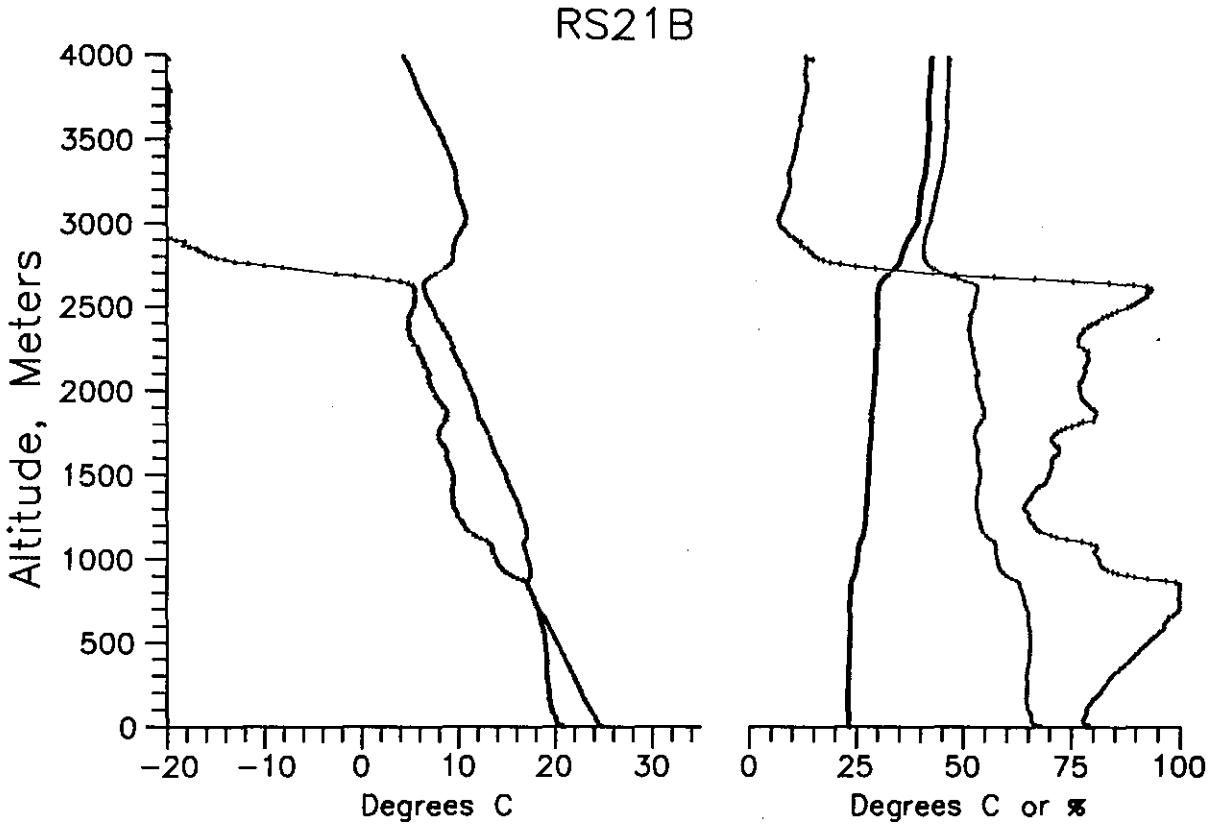
Degrees C or %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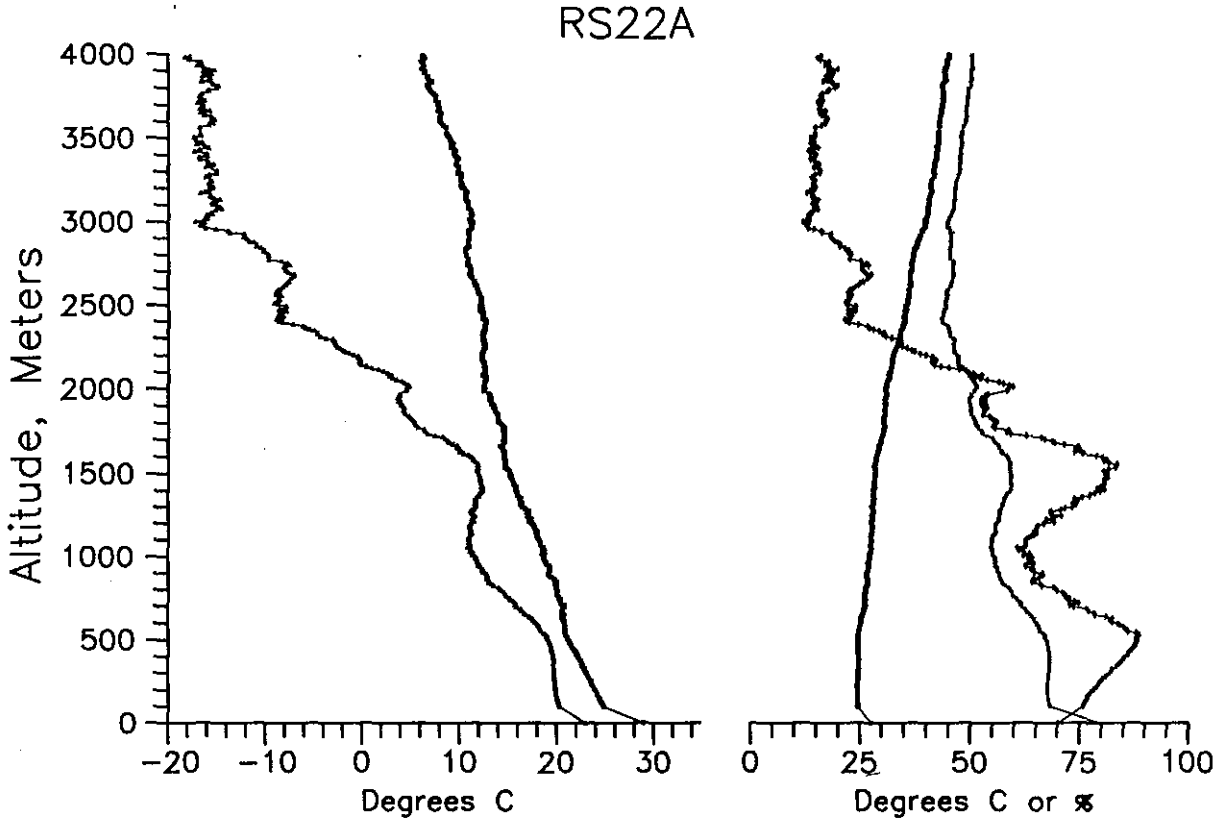
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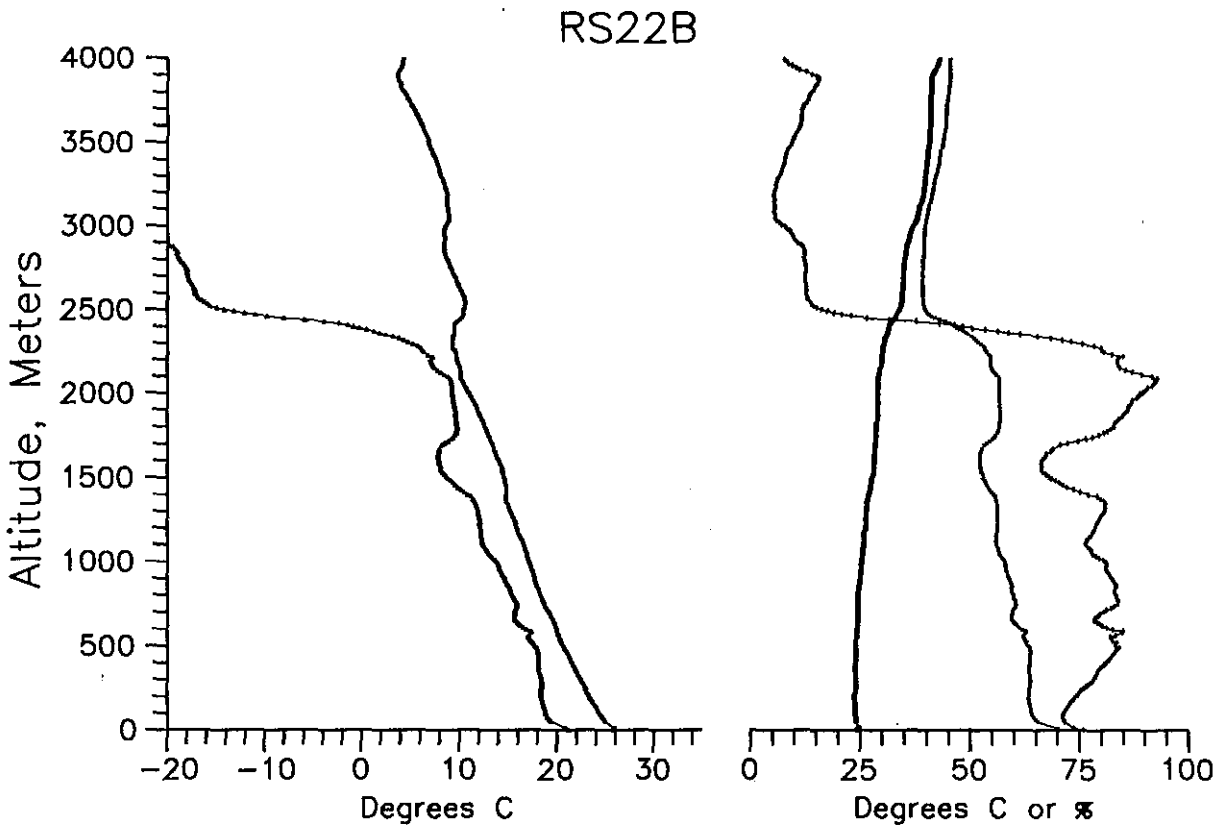
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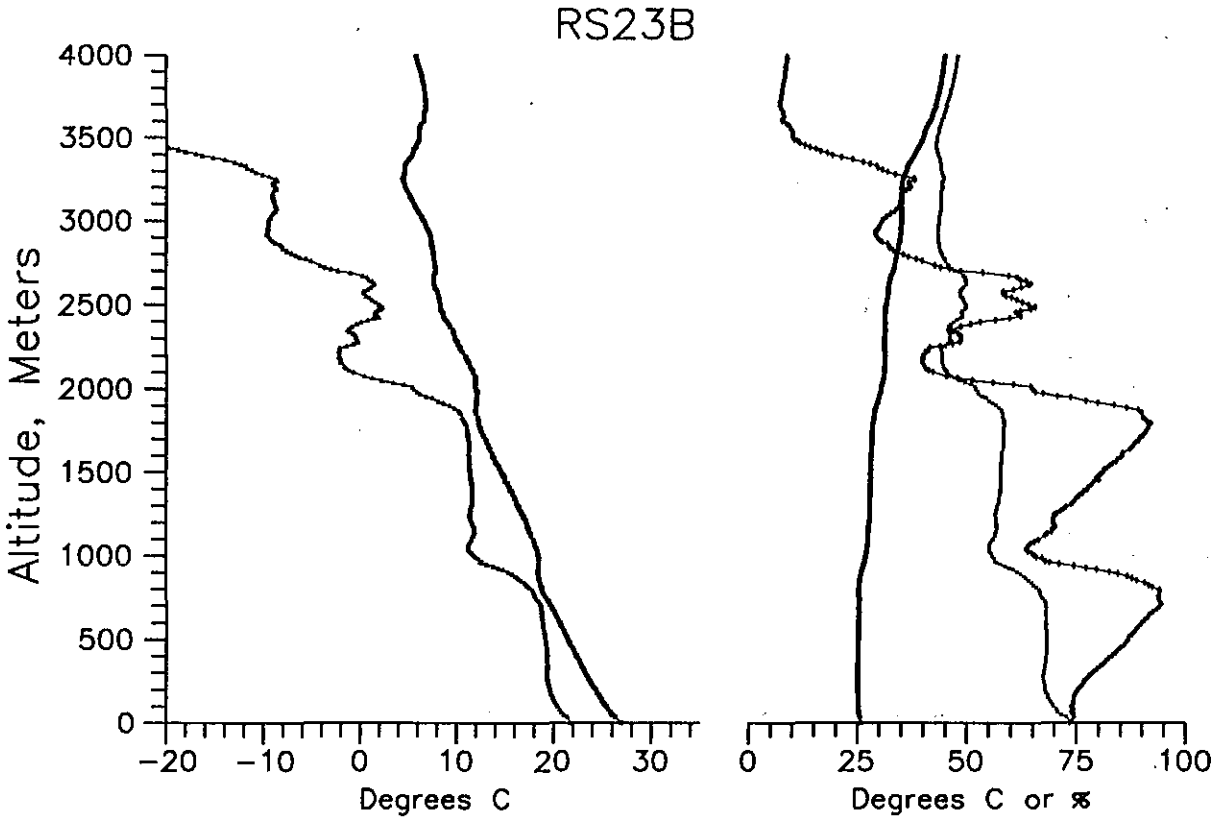
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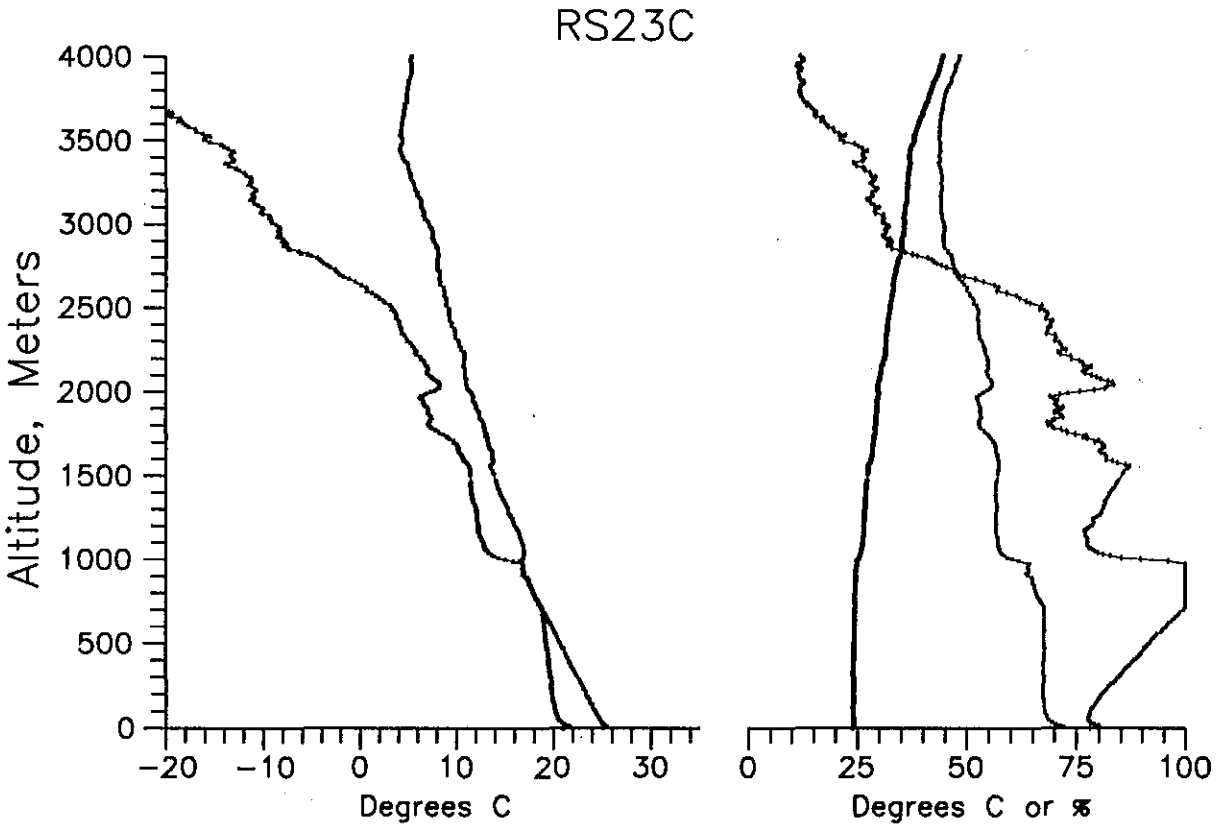
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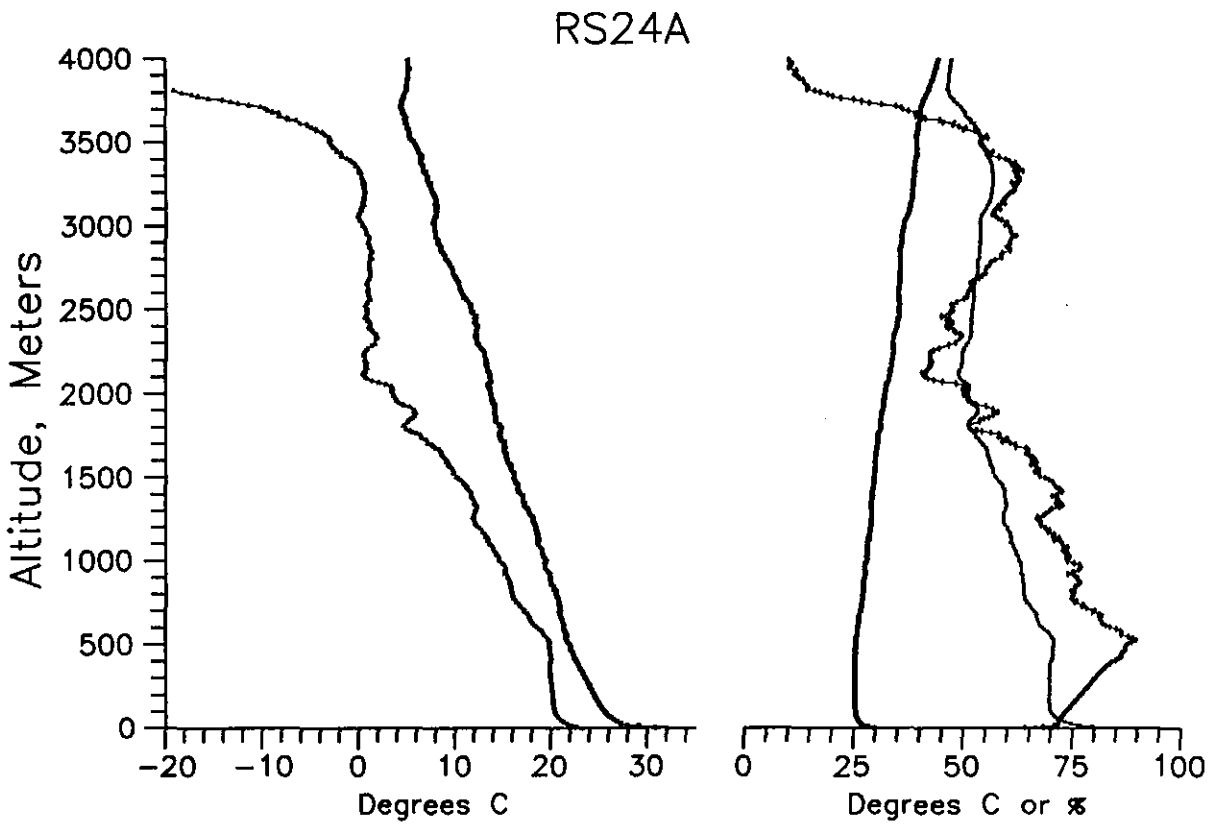
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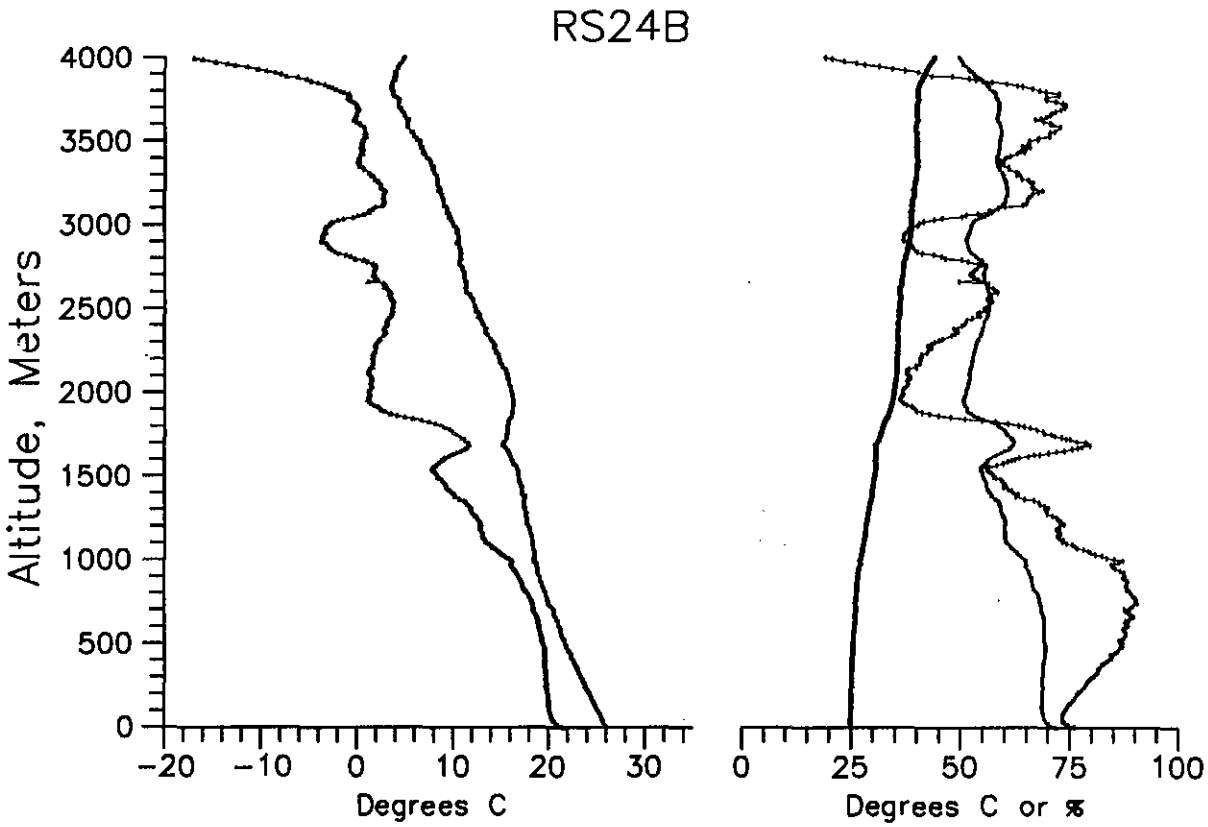
Degrees C or %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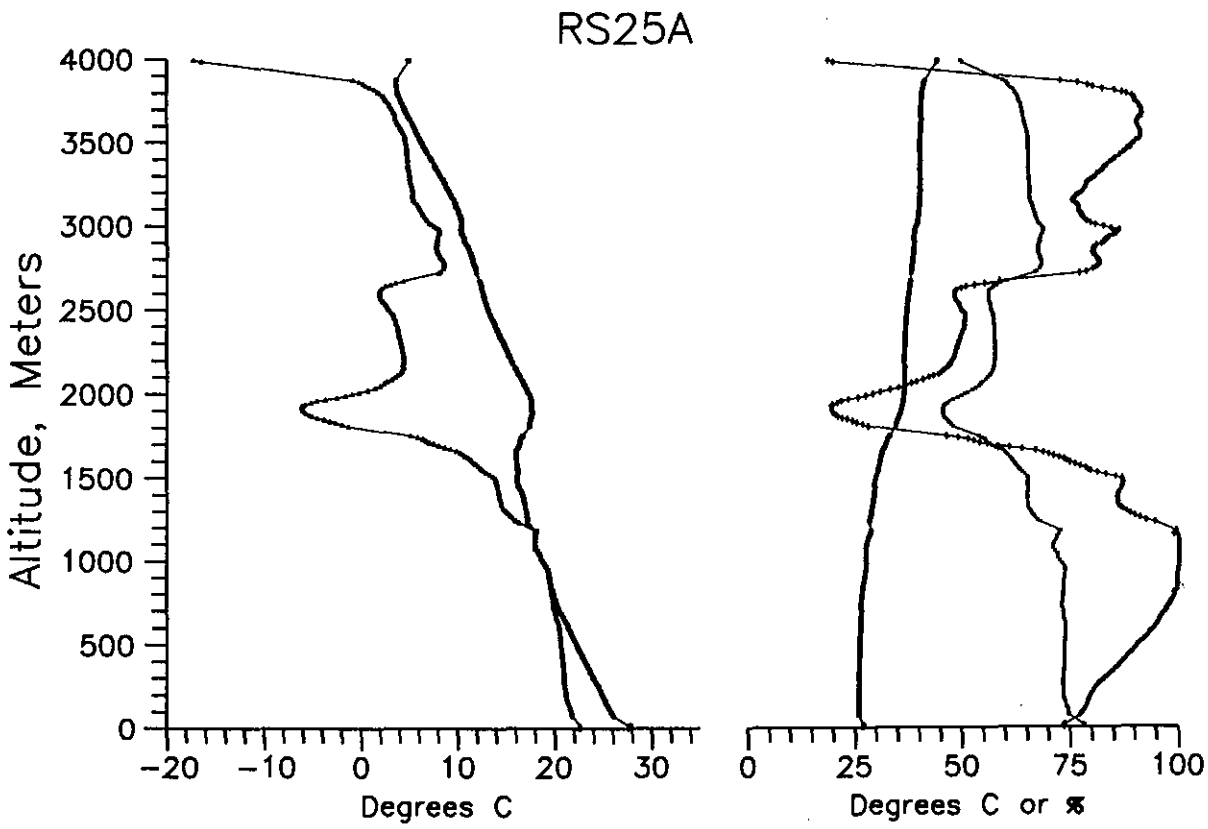
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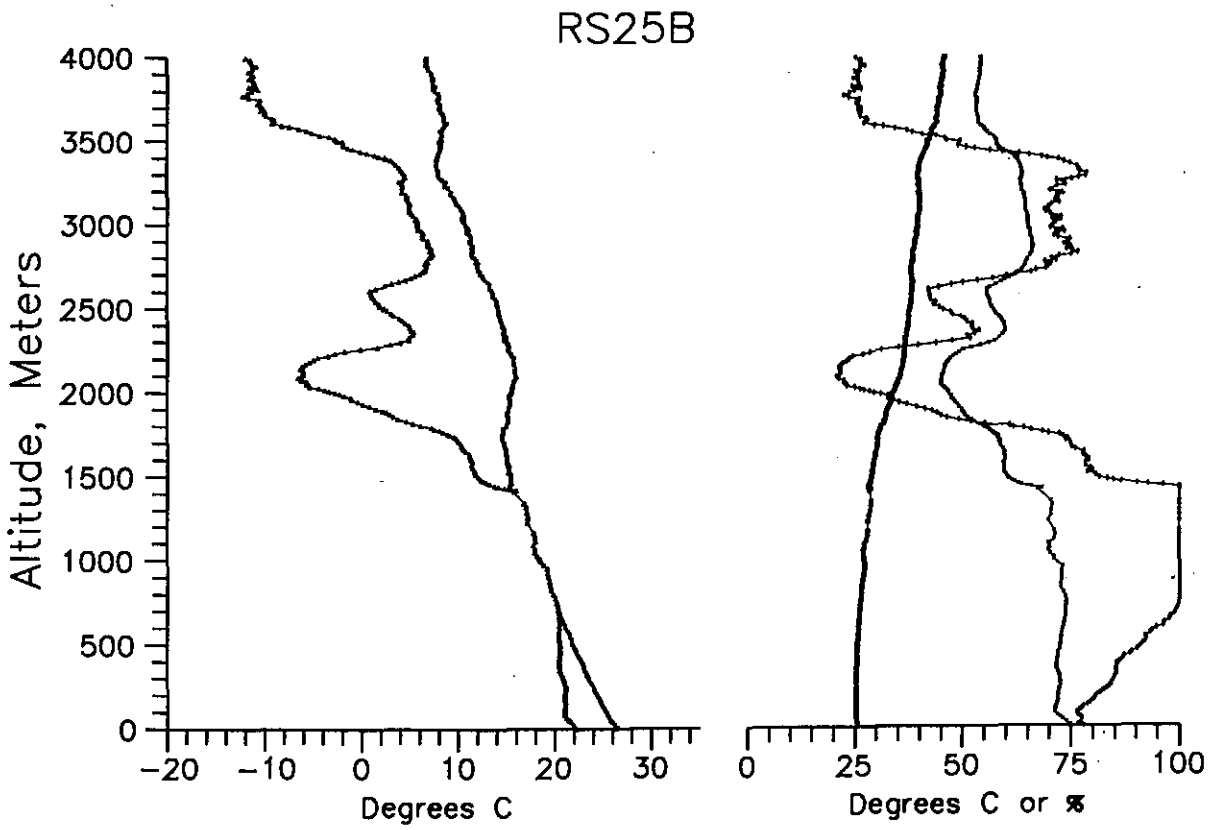
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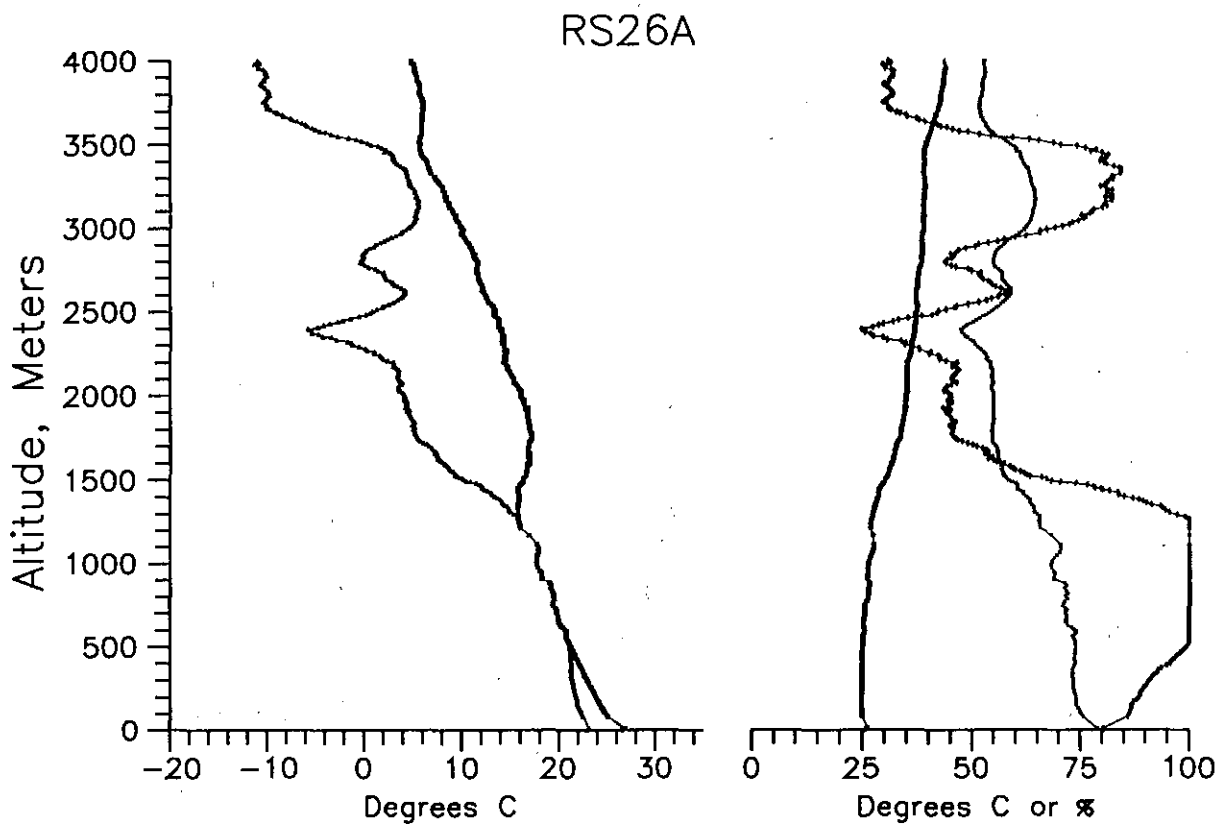
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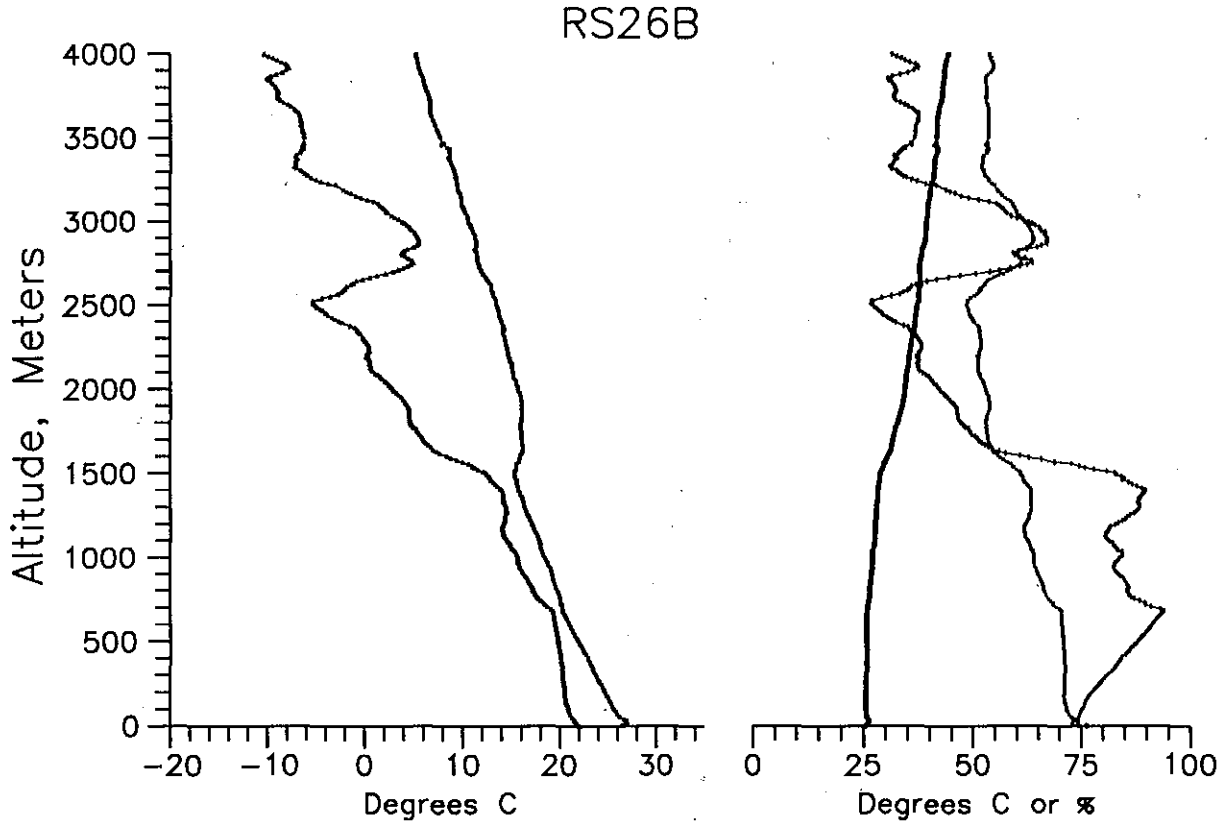
Degrees C or %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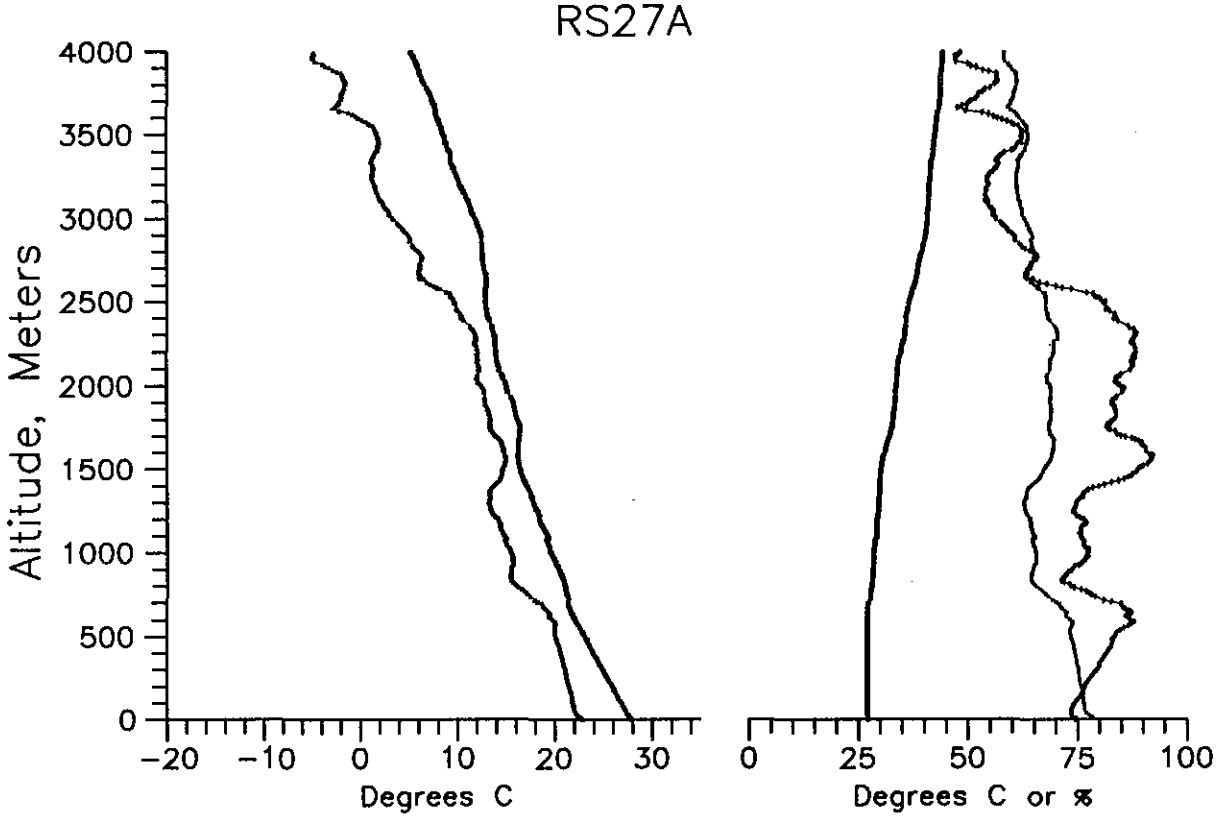
Degrees C or %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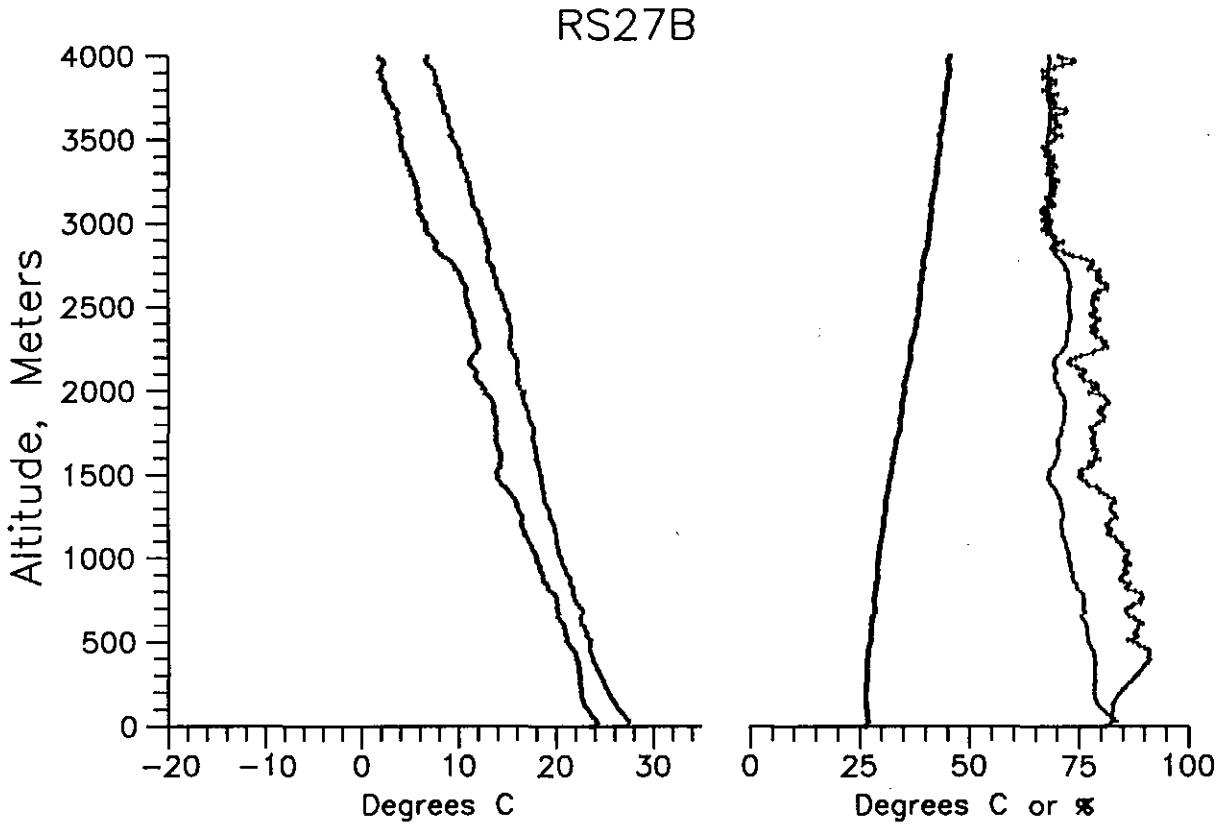
Degrees C or %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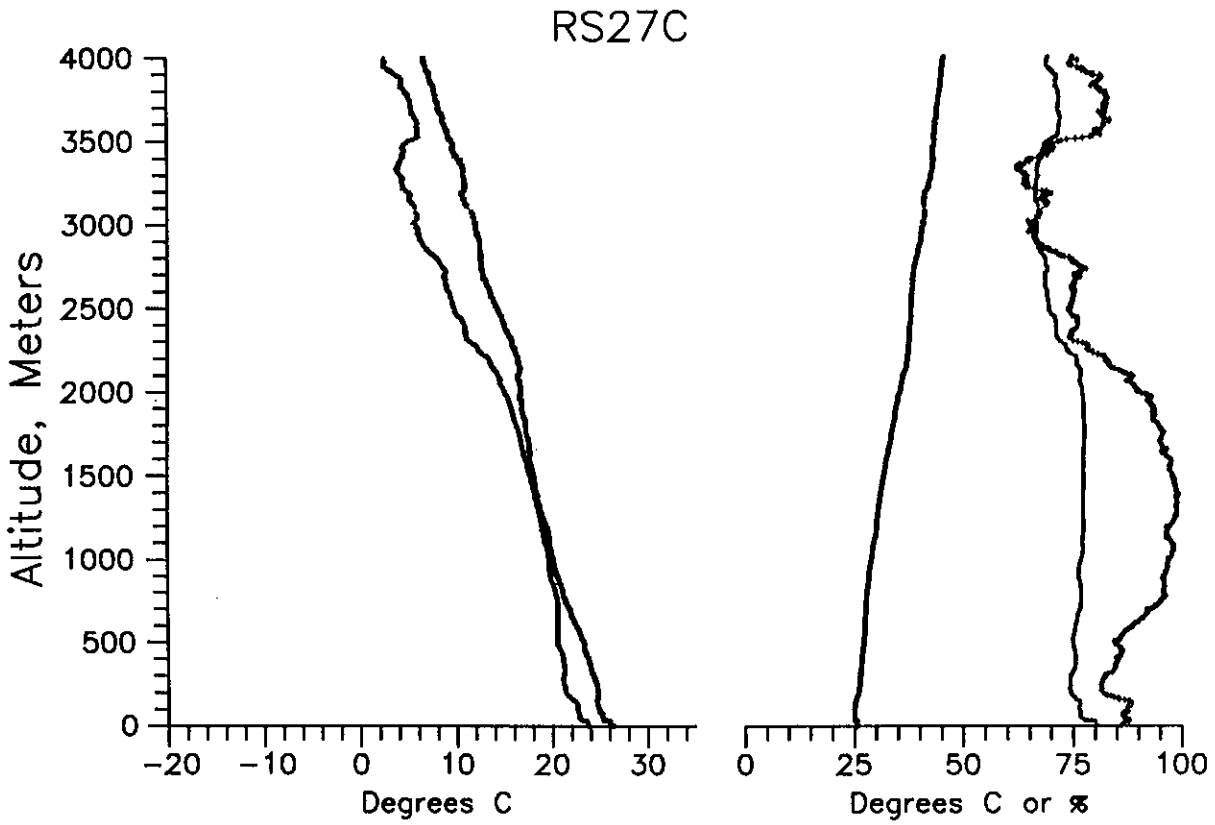
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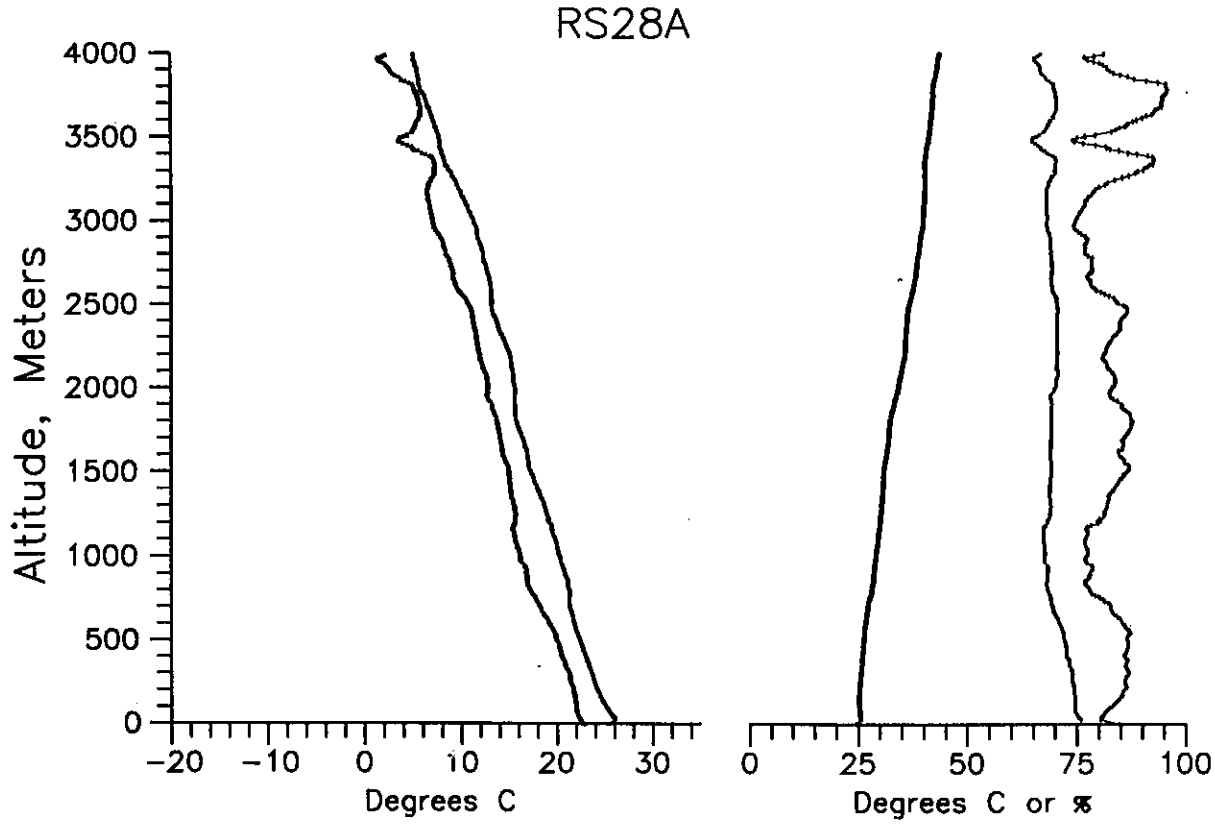
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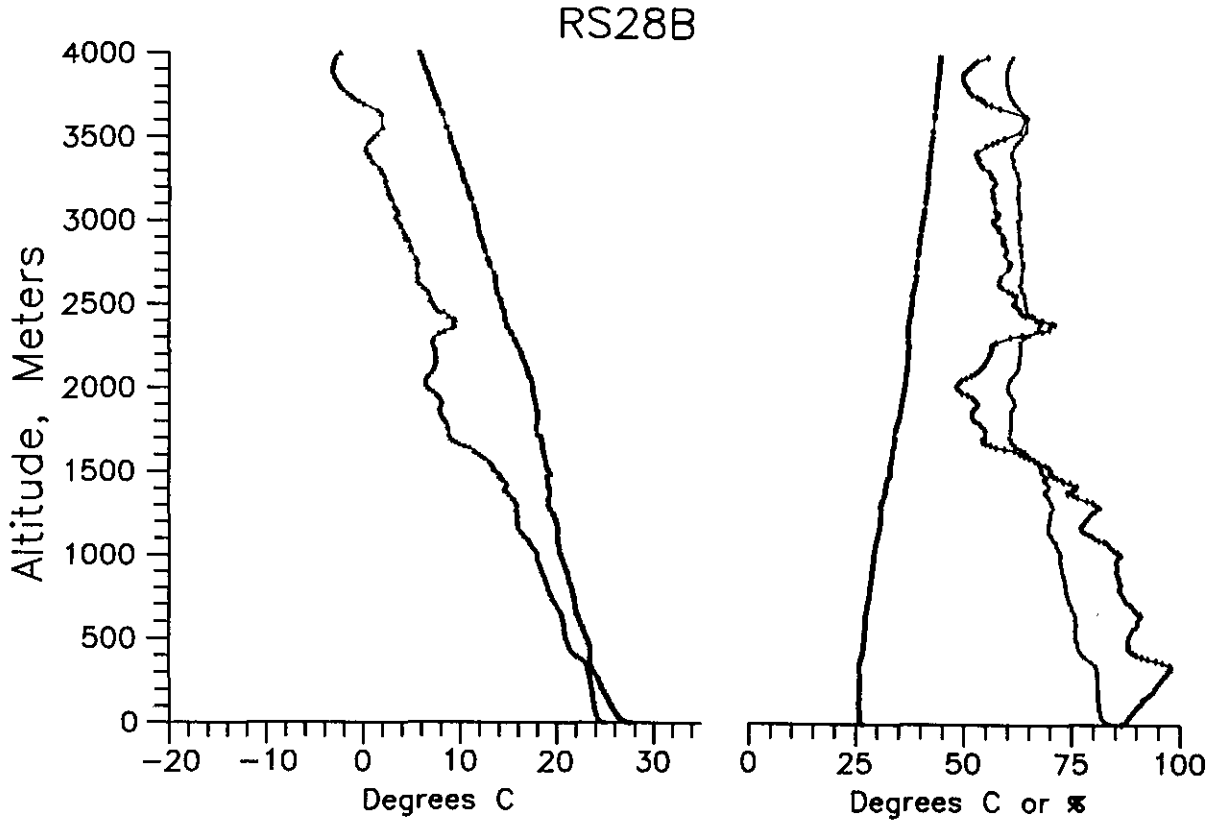
Degrees C or %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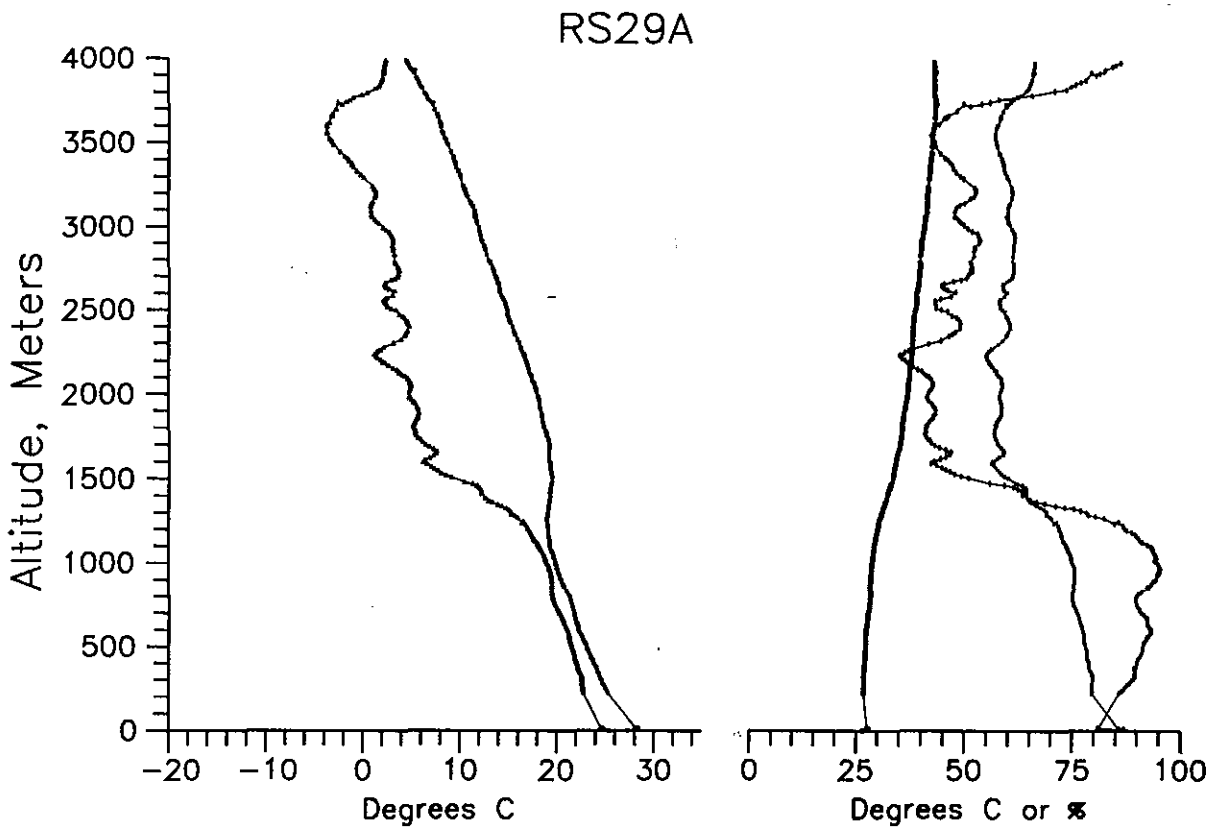
Degrees C or %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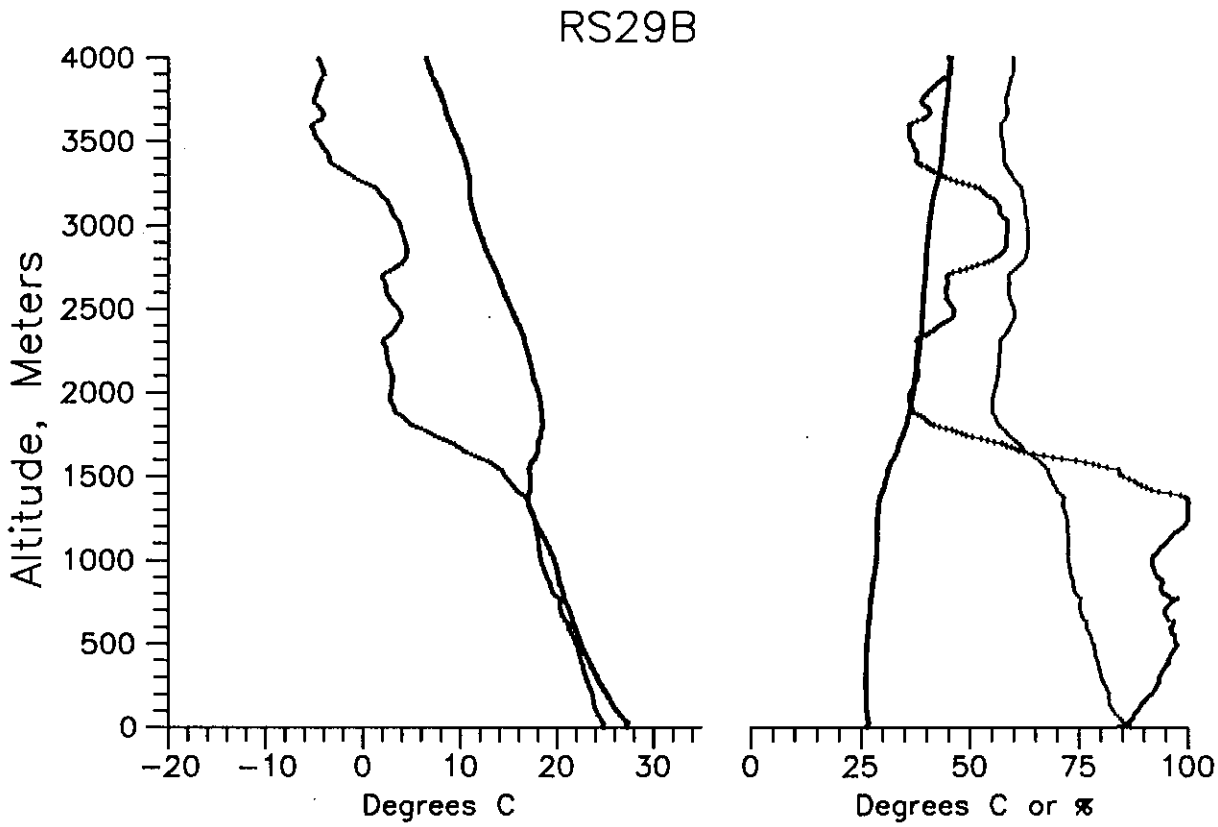
Degrees C or %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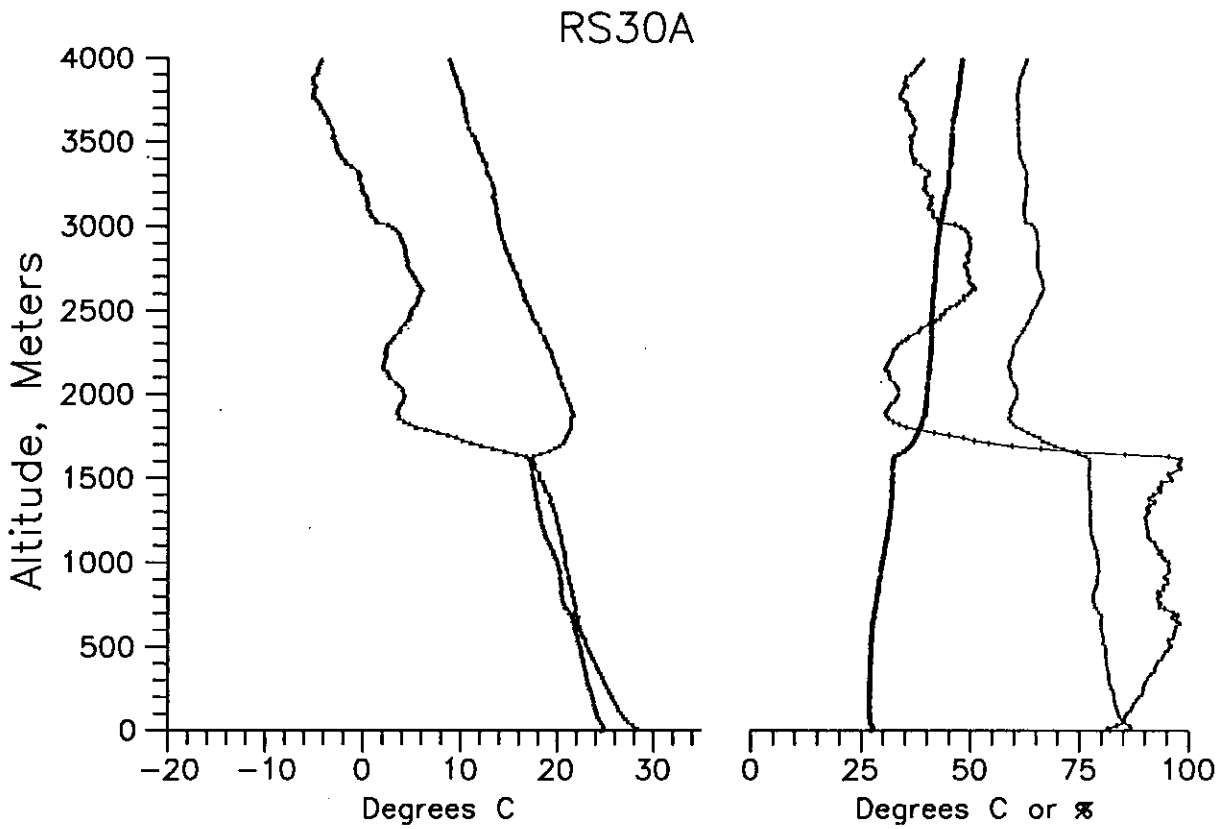
Degrees C or %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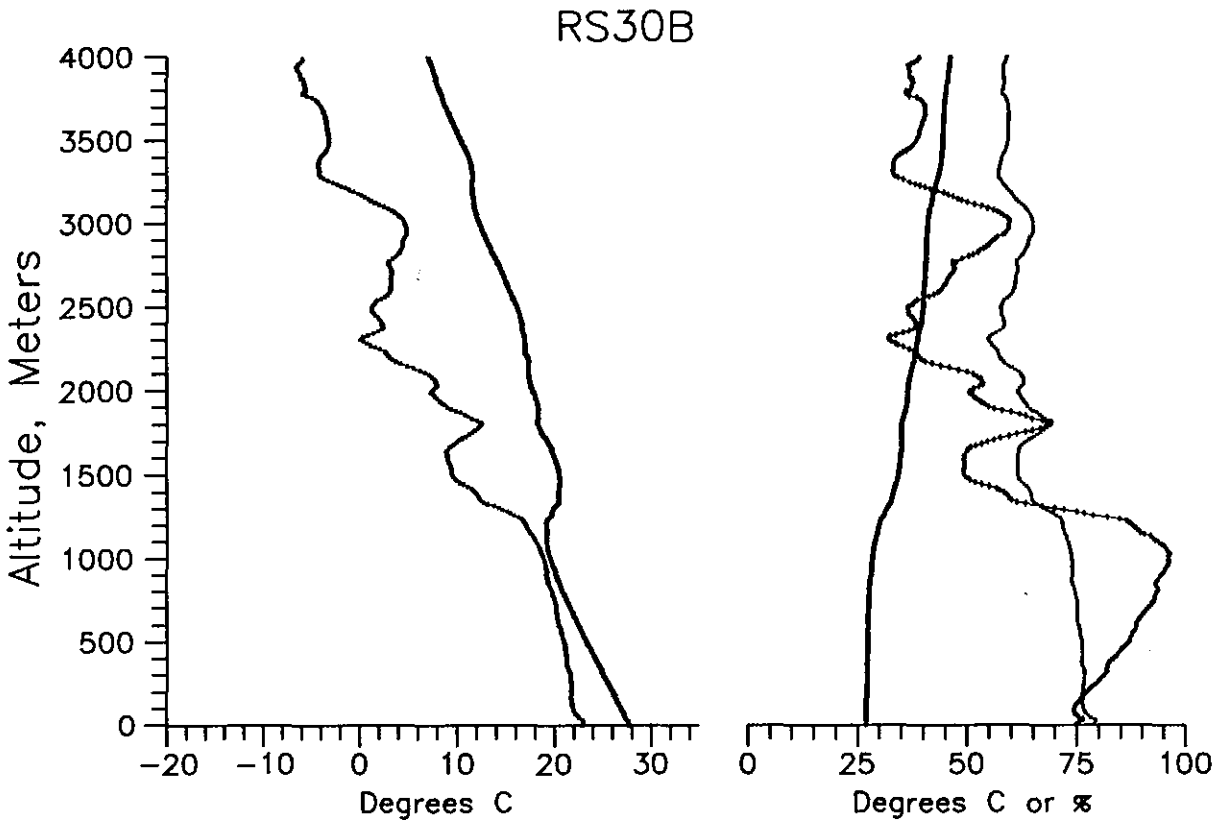
Degrees C or %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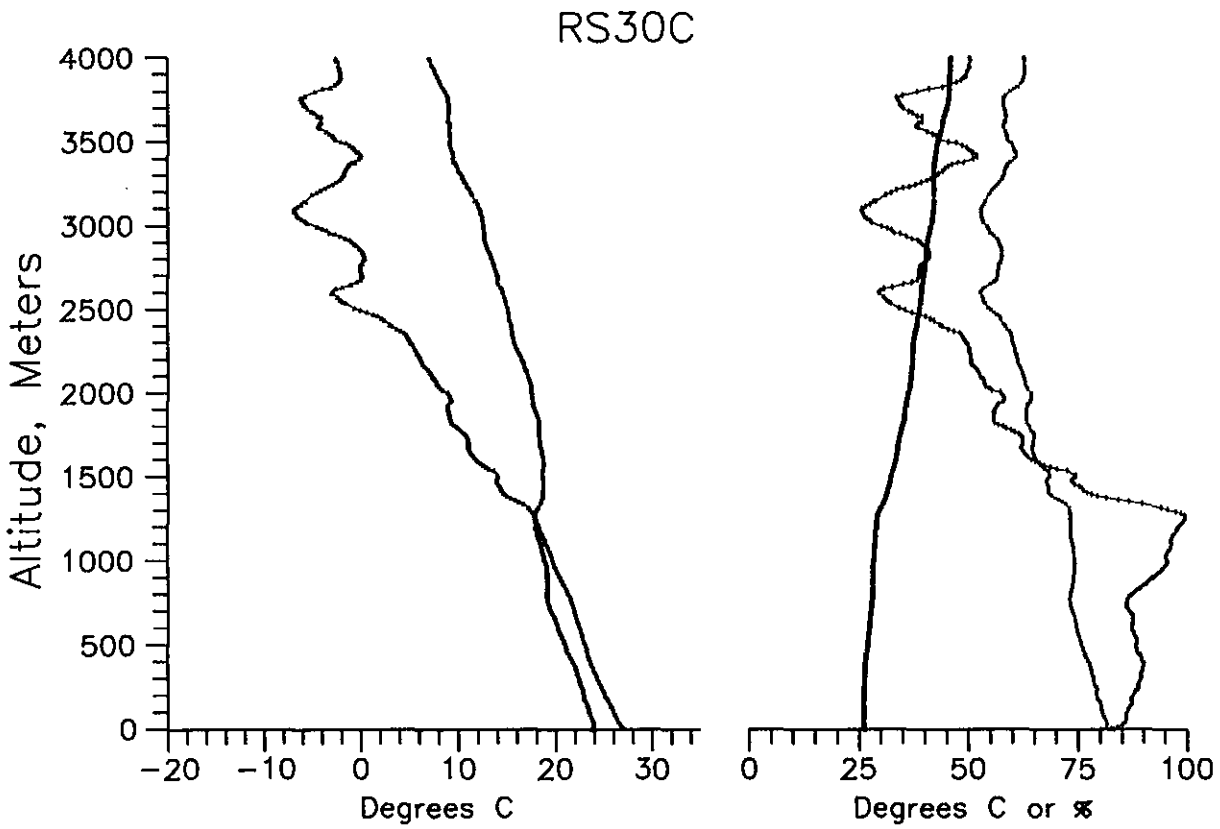
Degrees C or %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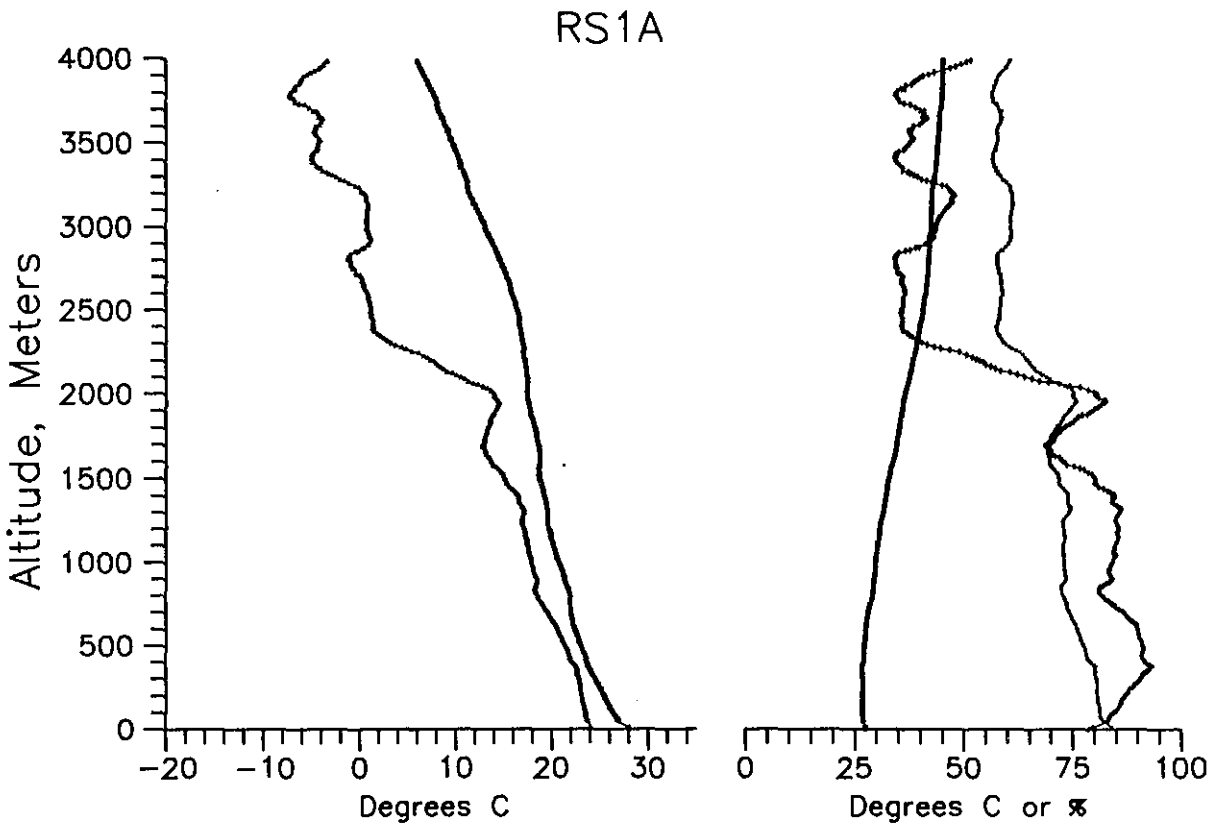
RS1A
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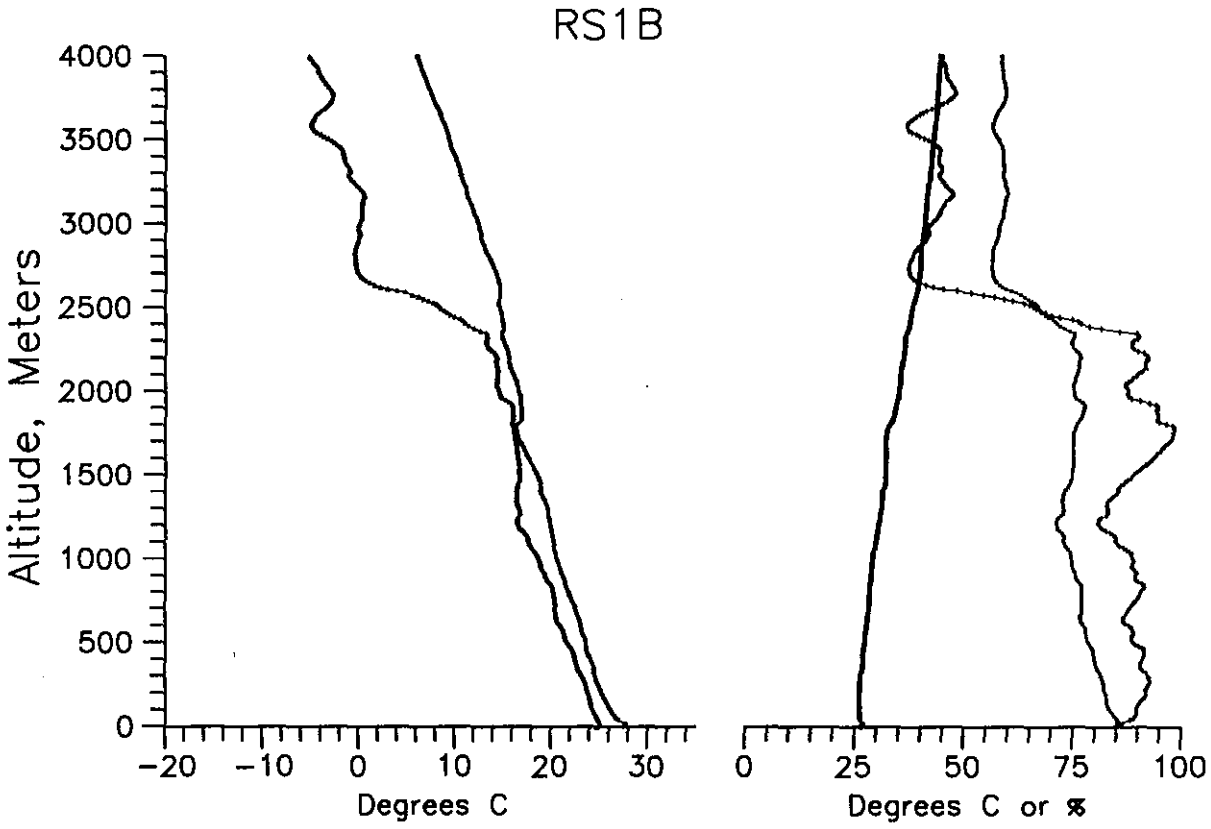
Degrees C or %


RS1B
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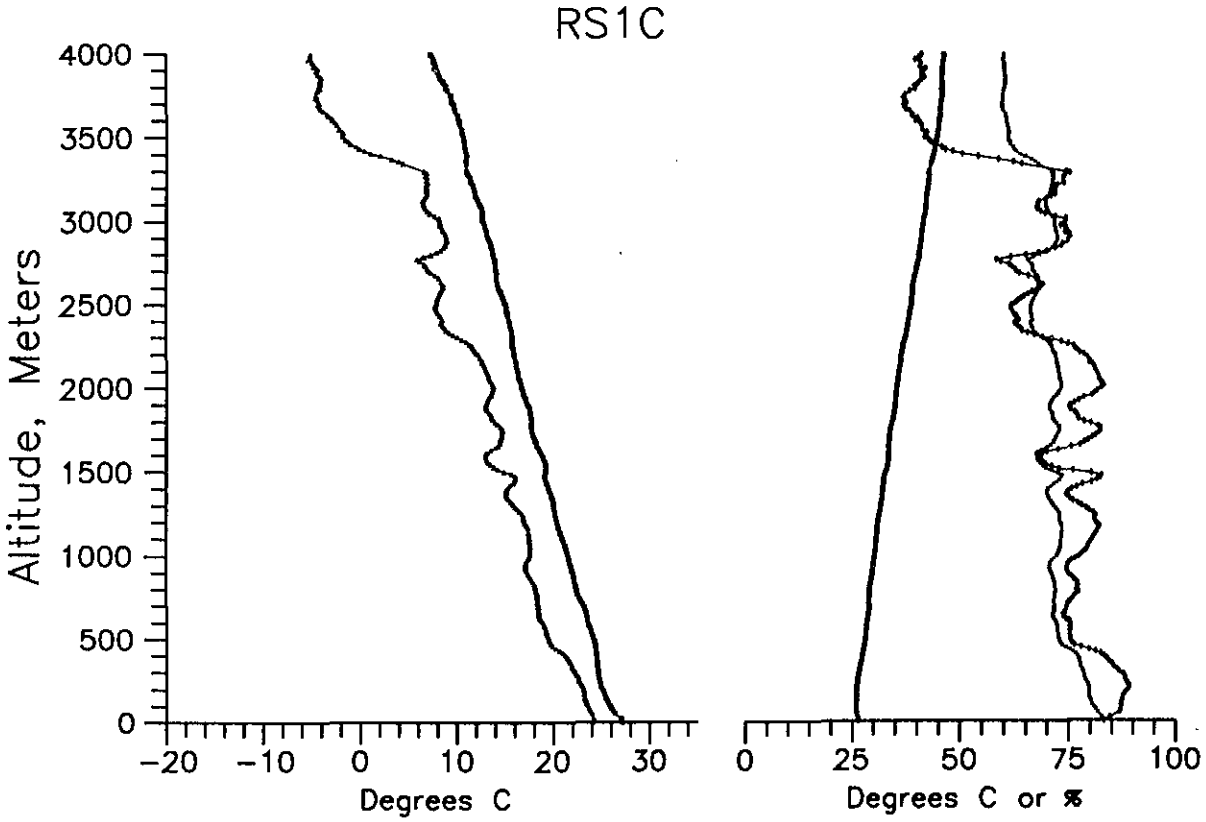
Degrees C or %


RS1C
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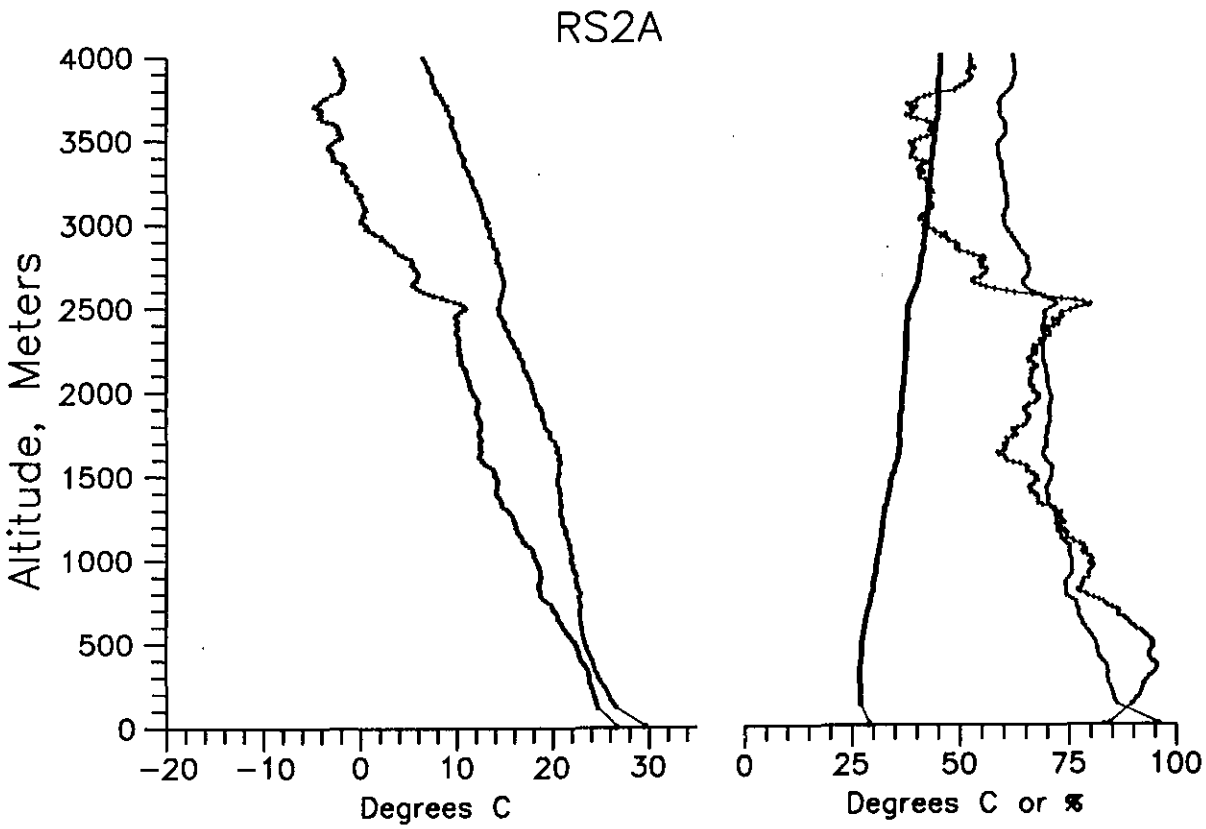
Degrees C or %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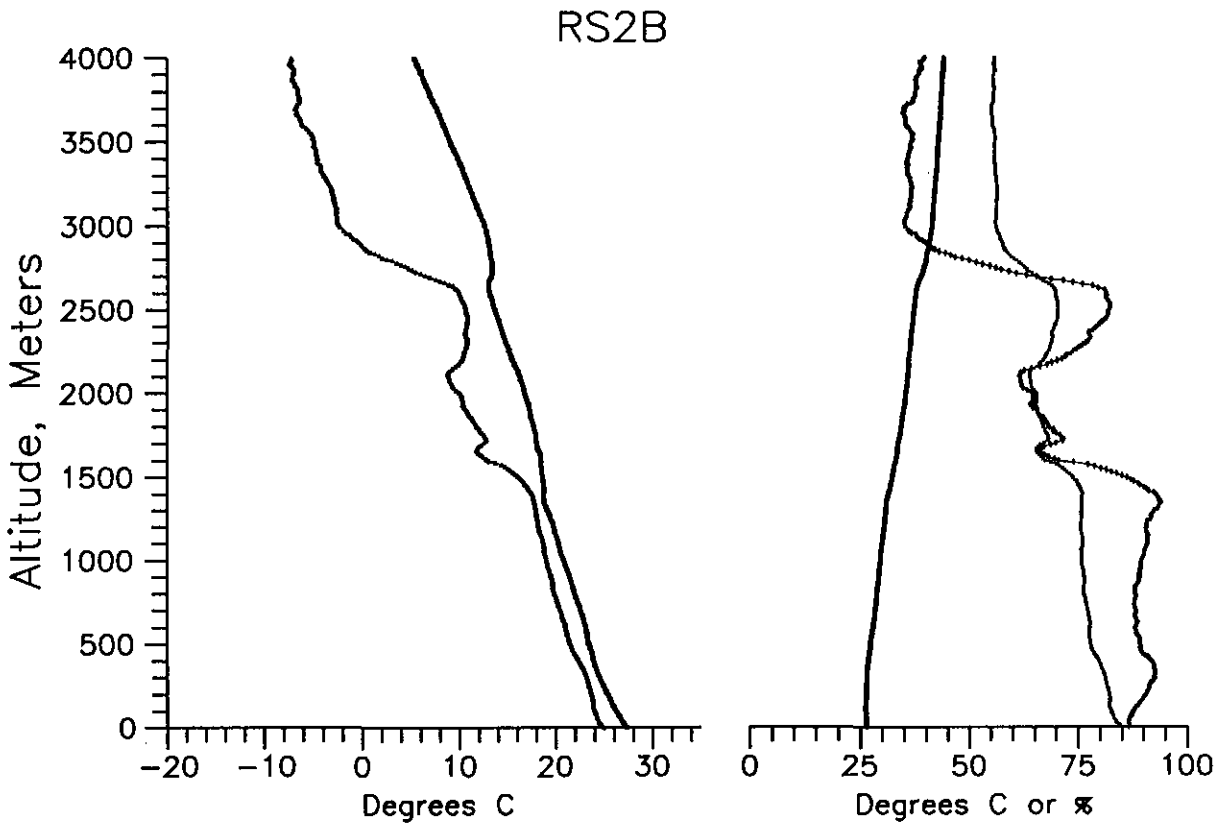
Degrees C or %


RS2B
Altitude, Meters
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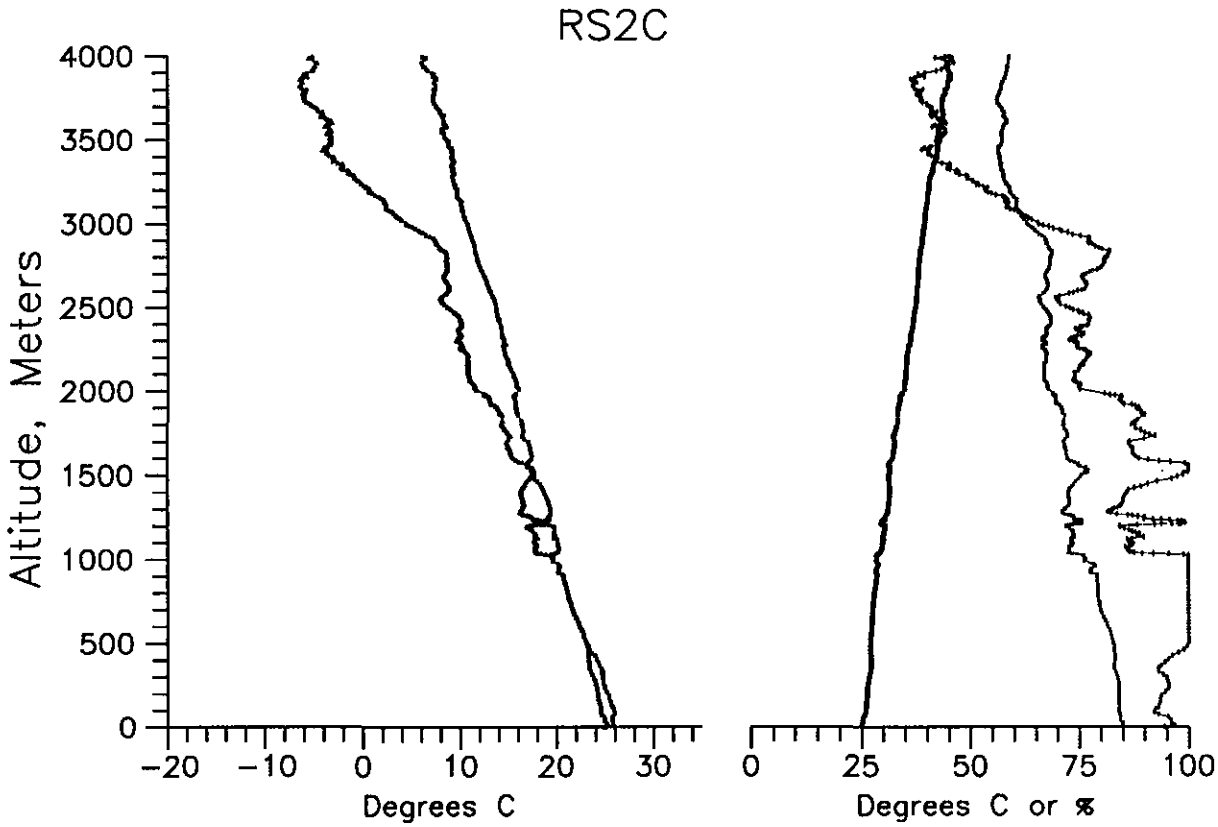
Degrees C or %


RS2C
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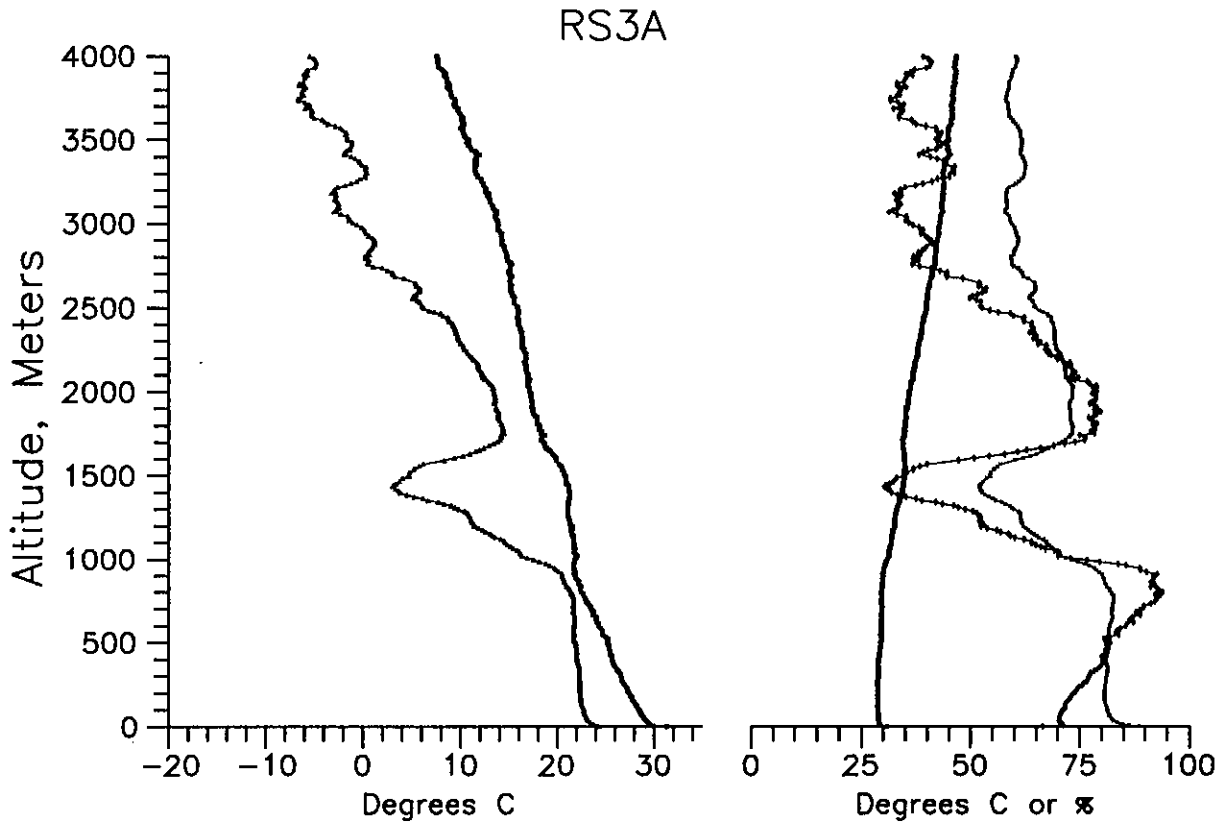
Degrees C or %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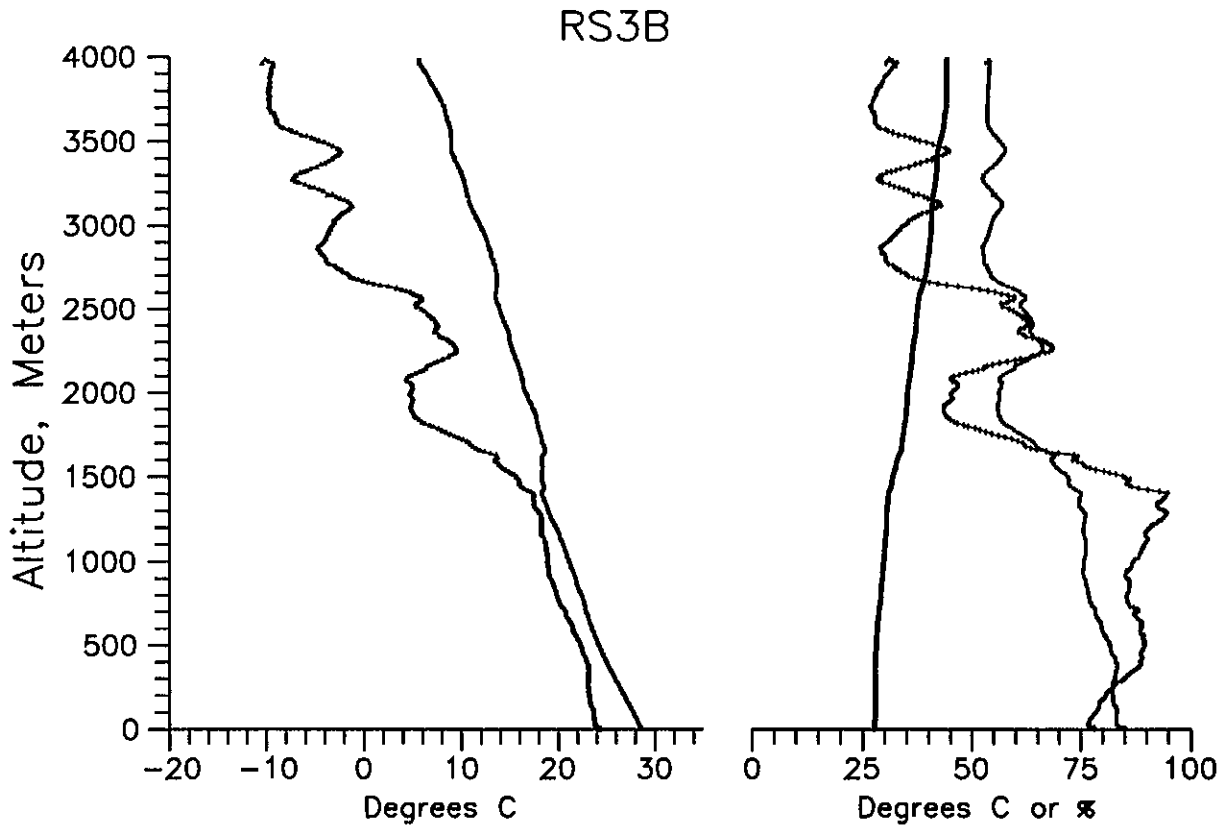
Degrees C or %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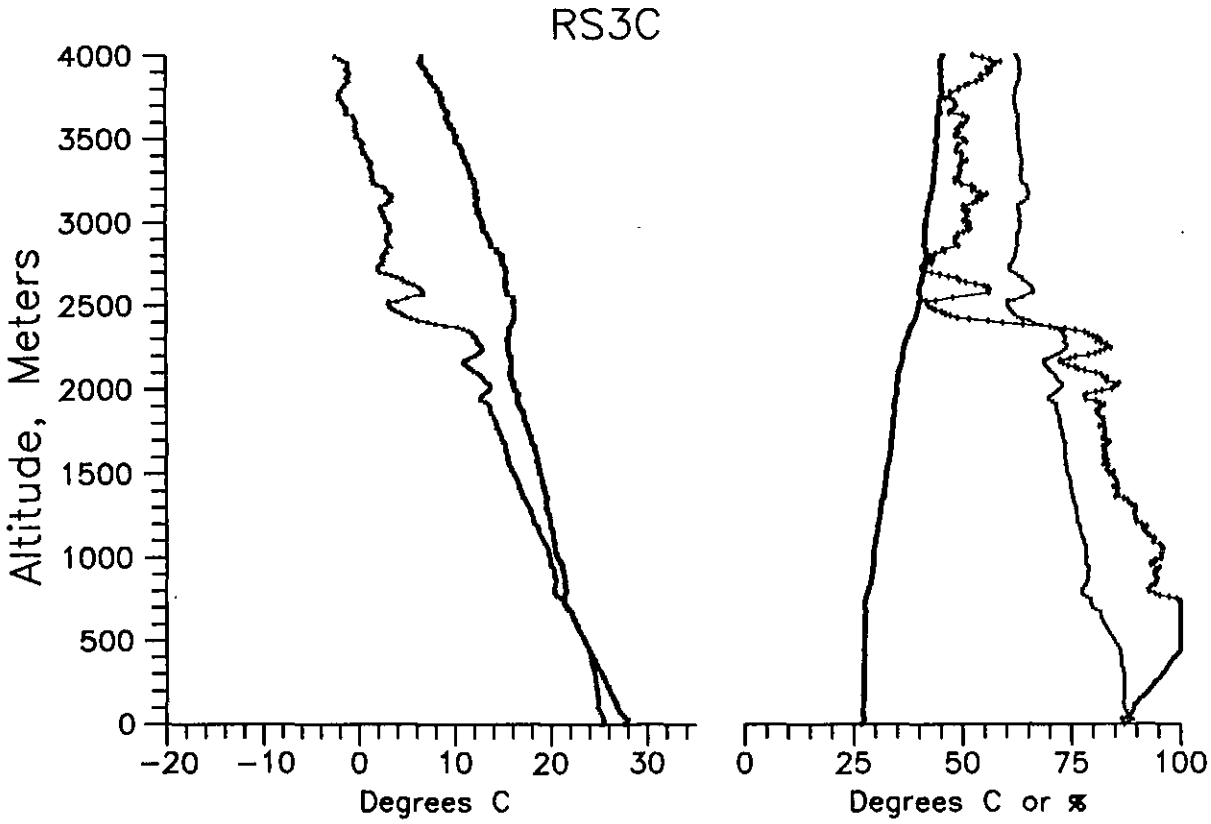
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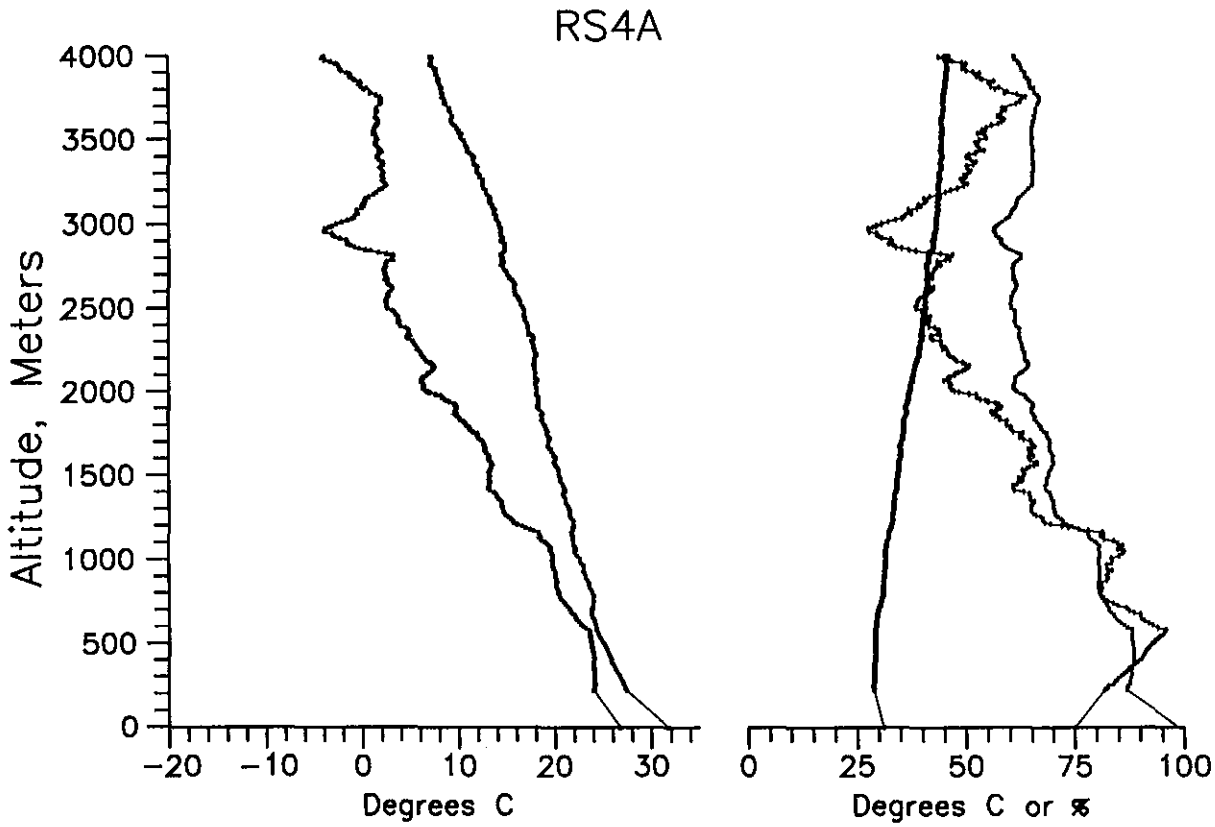
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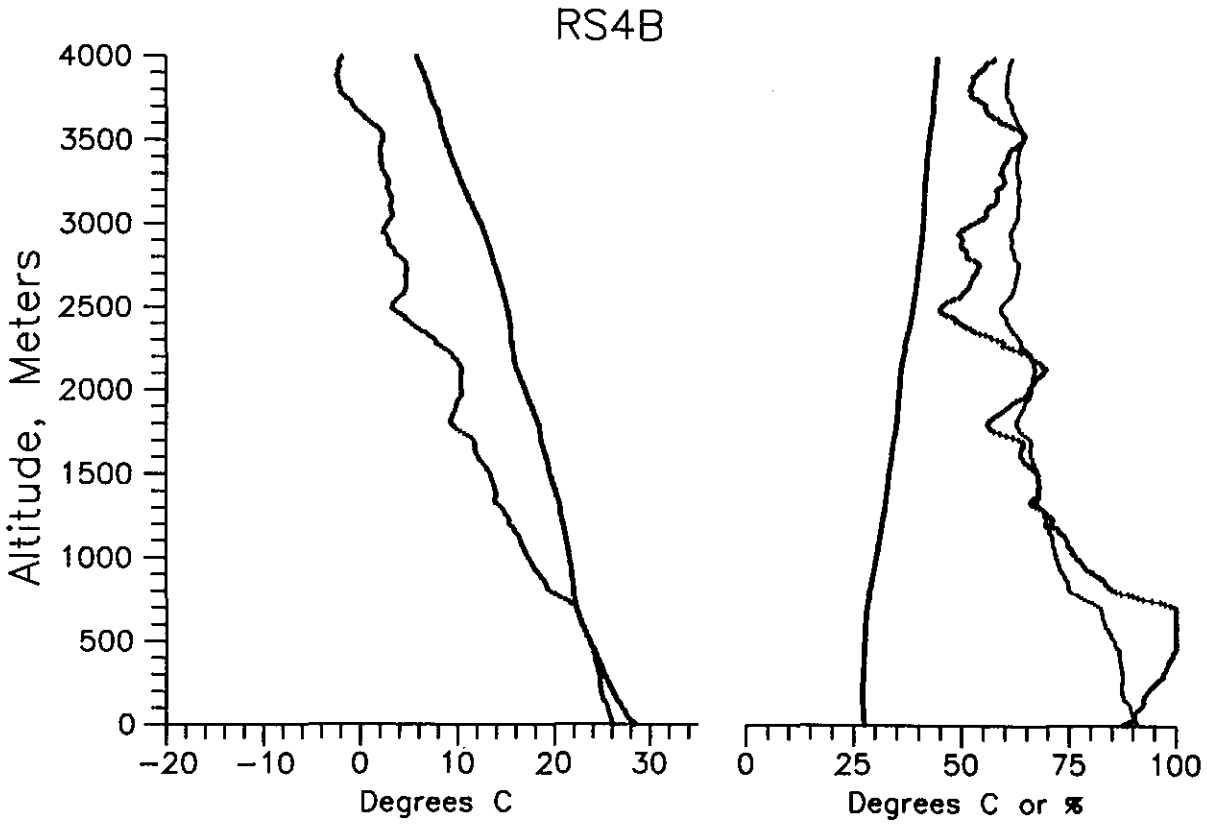
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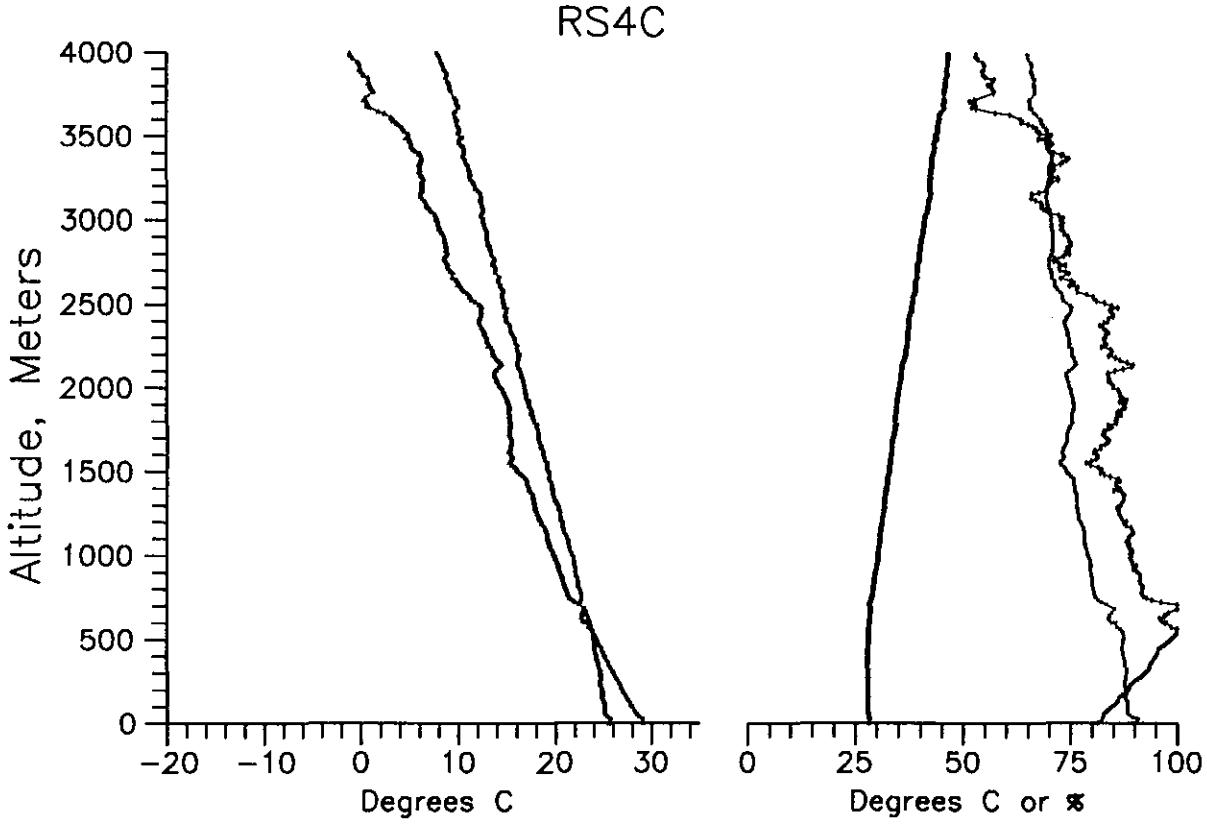
Degrees C or %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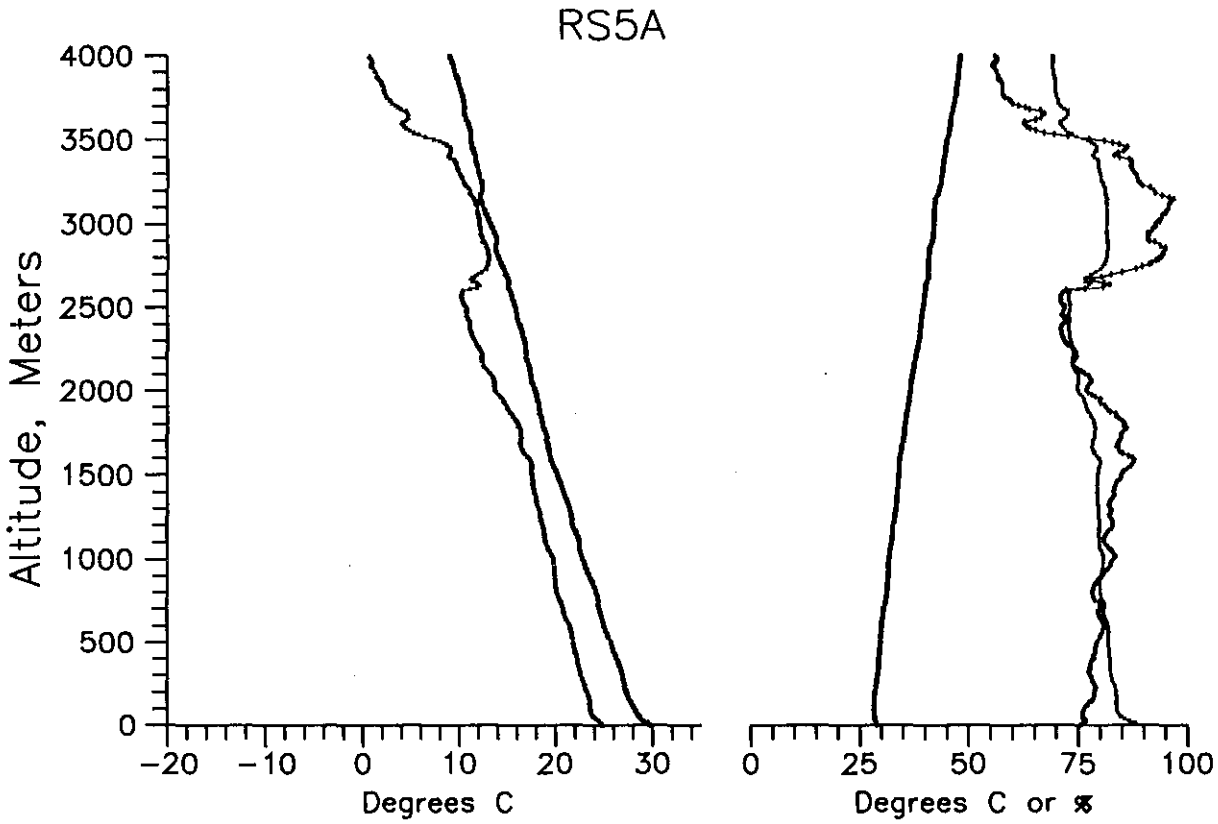
Degrees C or %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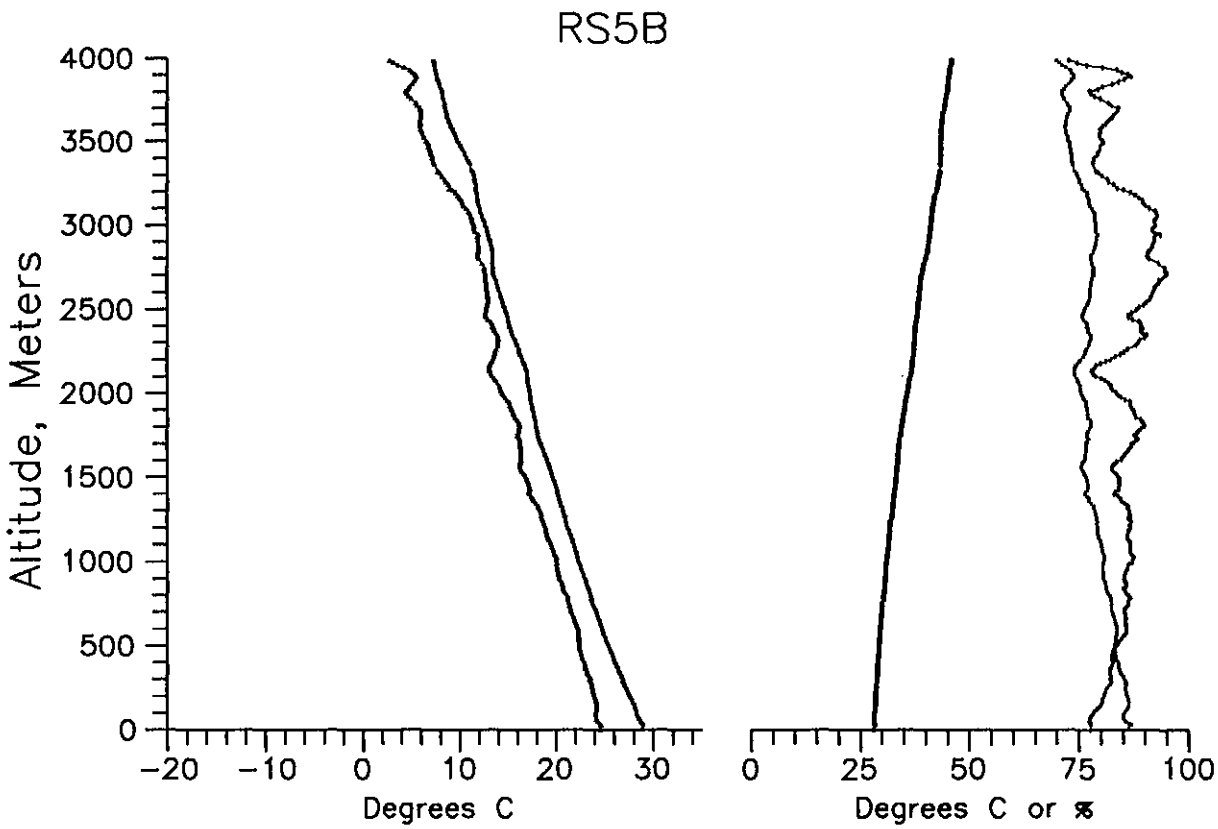
Degrees C or %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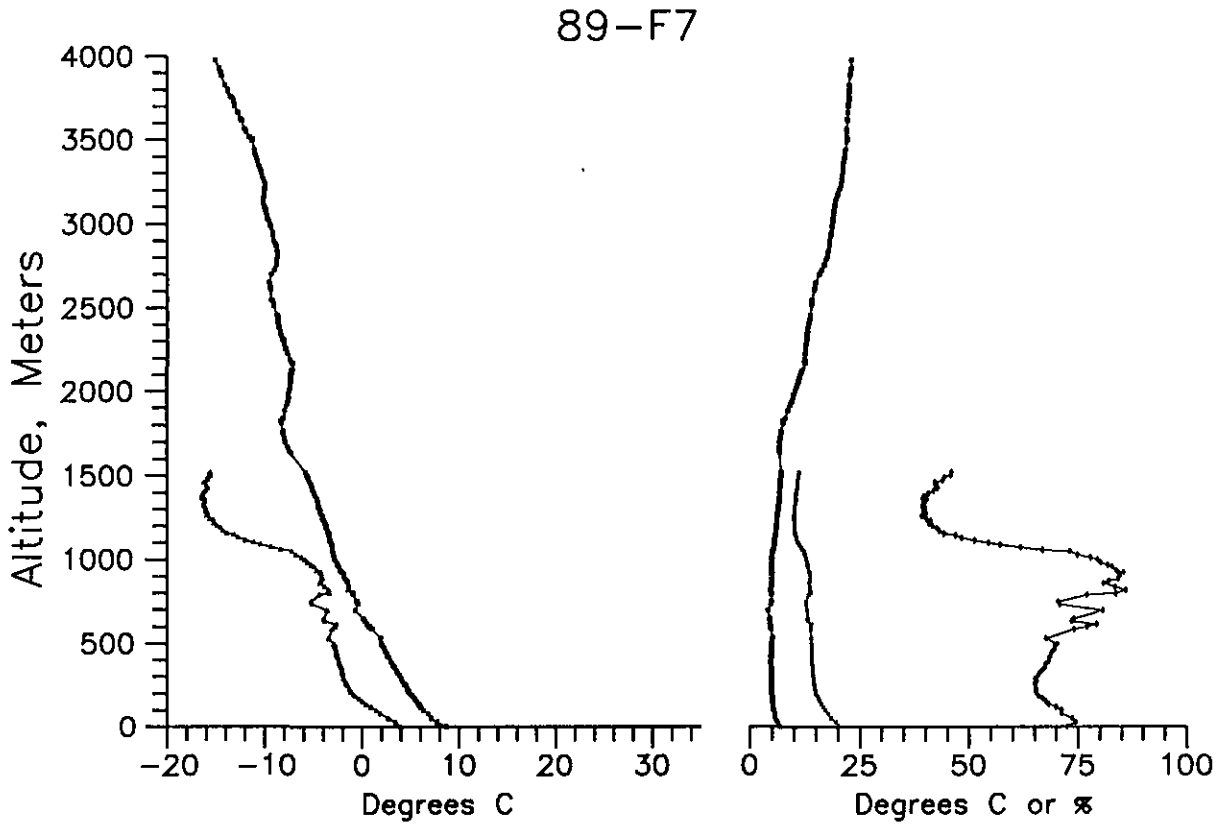
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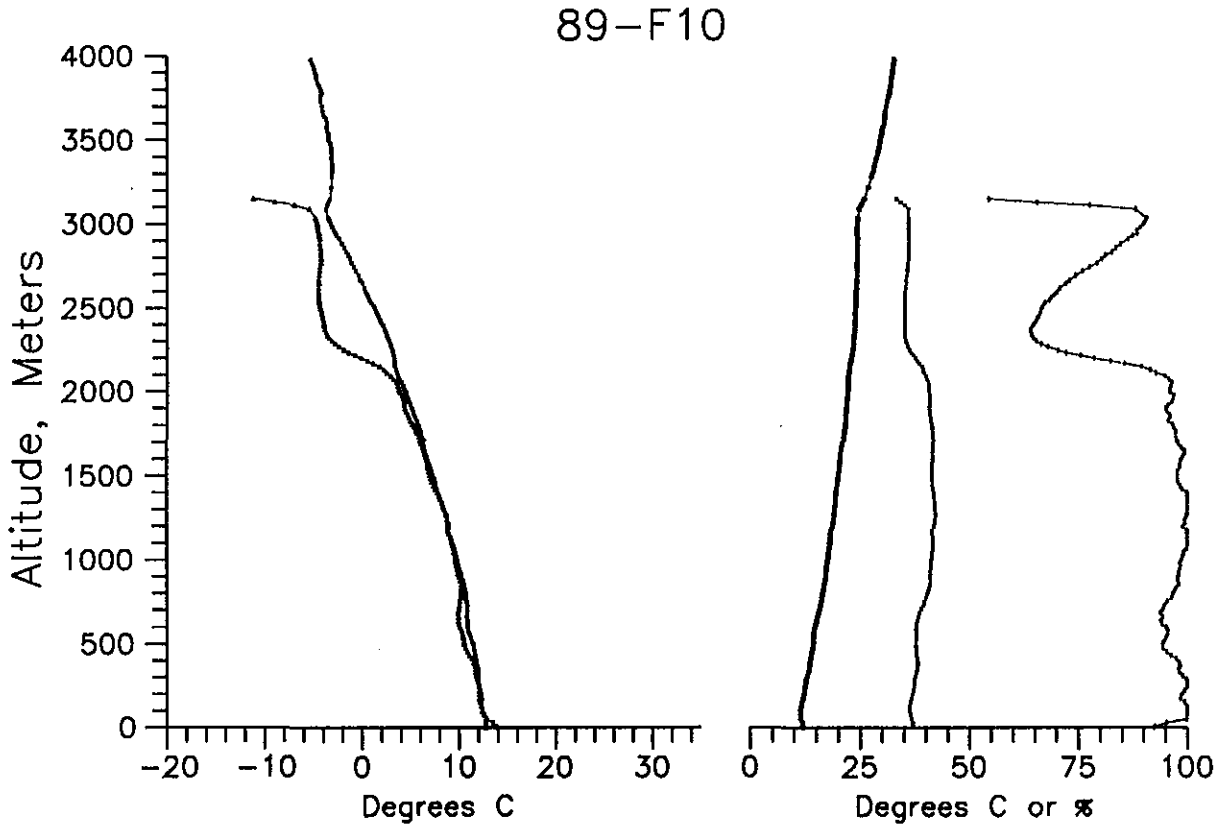
Degrees C or %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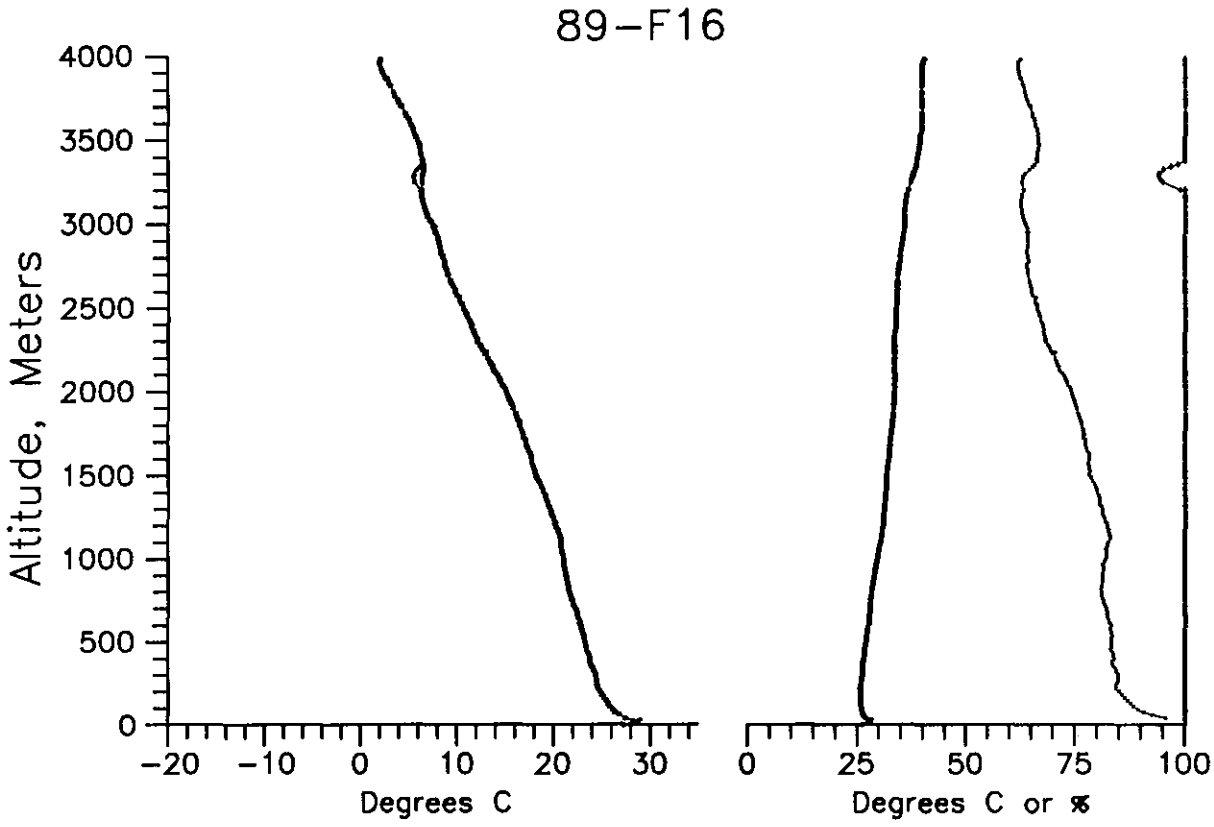
Degrees C or %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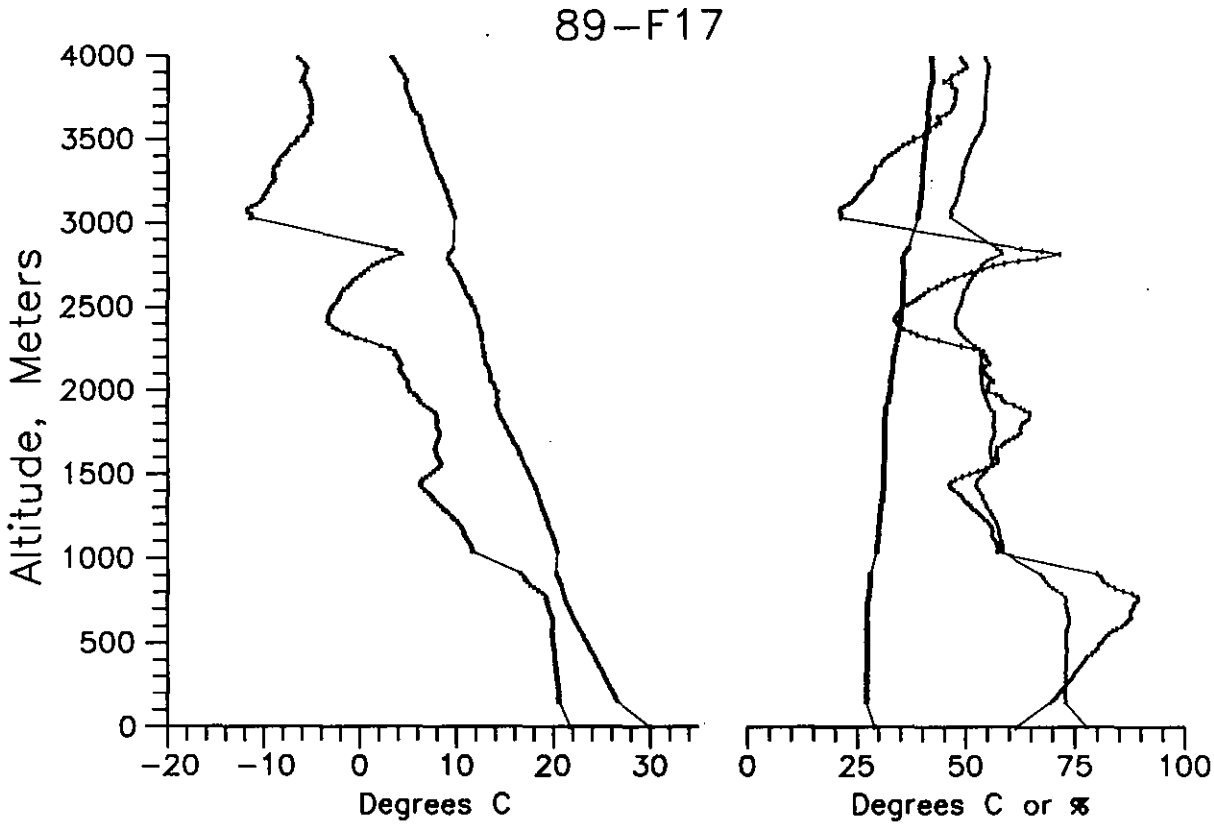
Degrees C or %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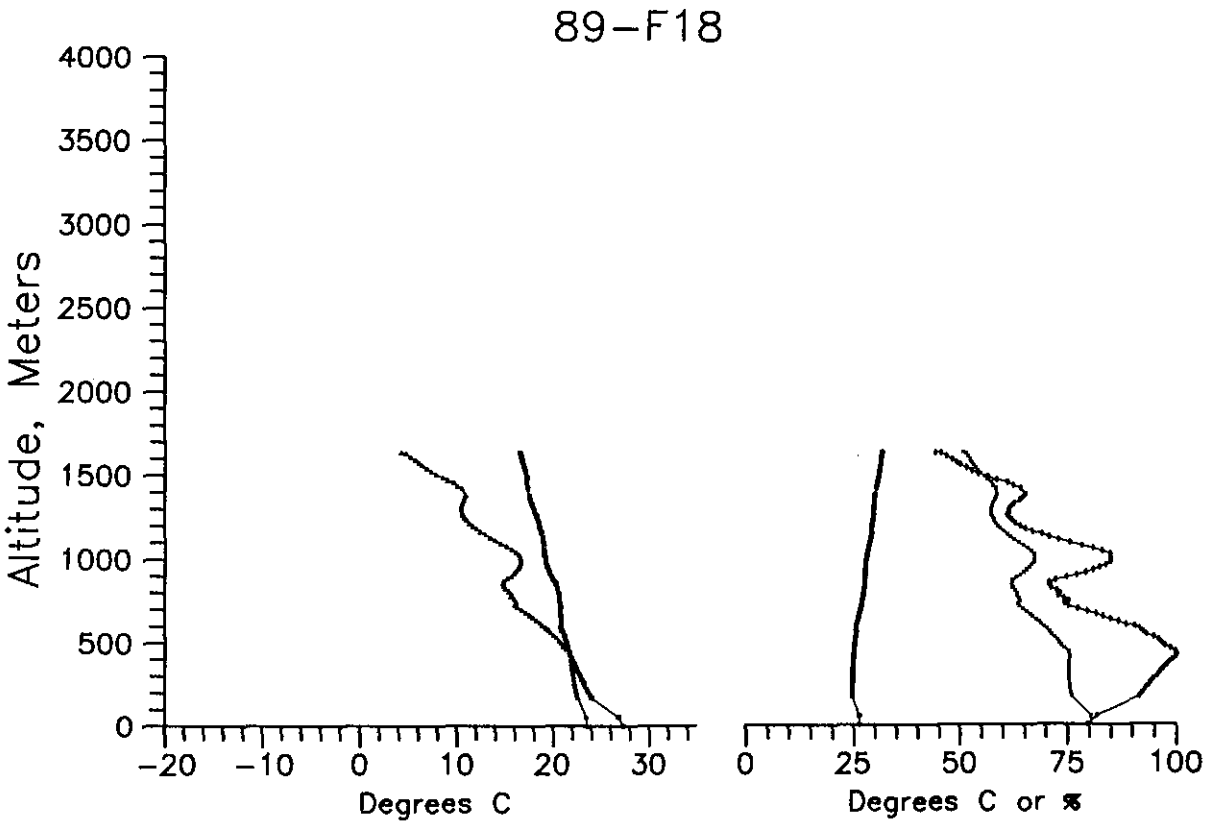
Degrees C or %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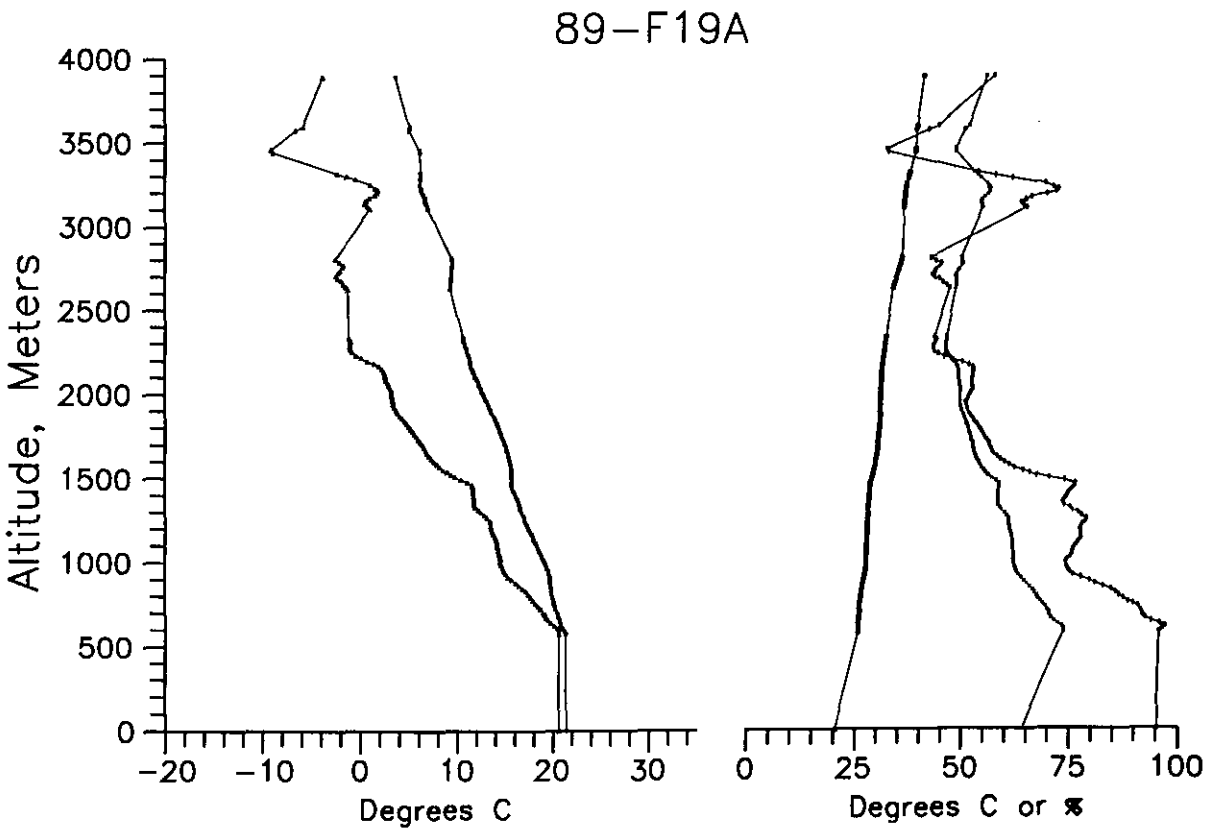
Degrees C or %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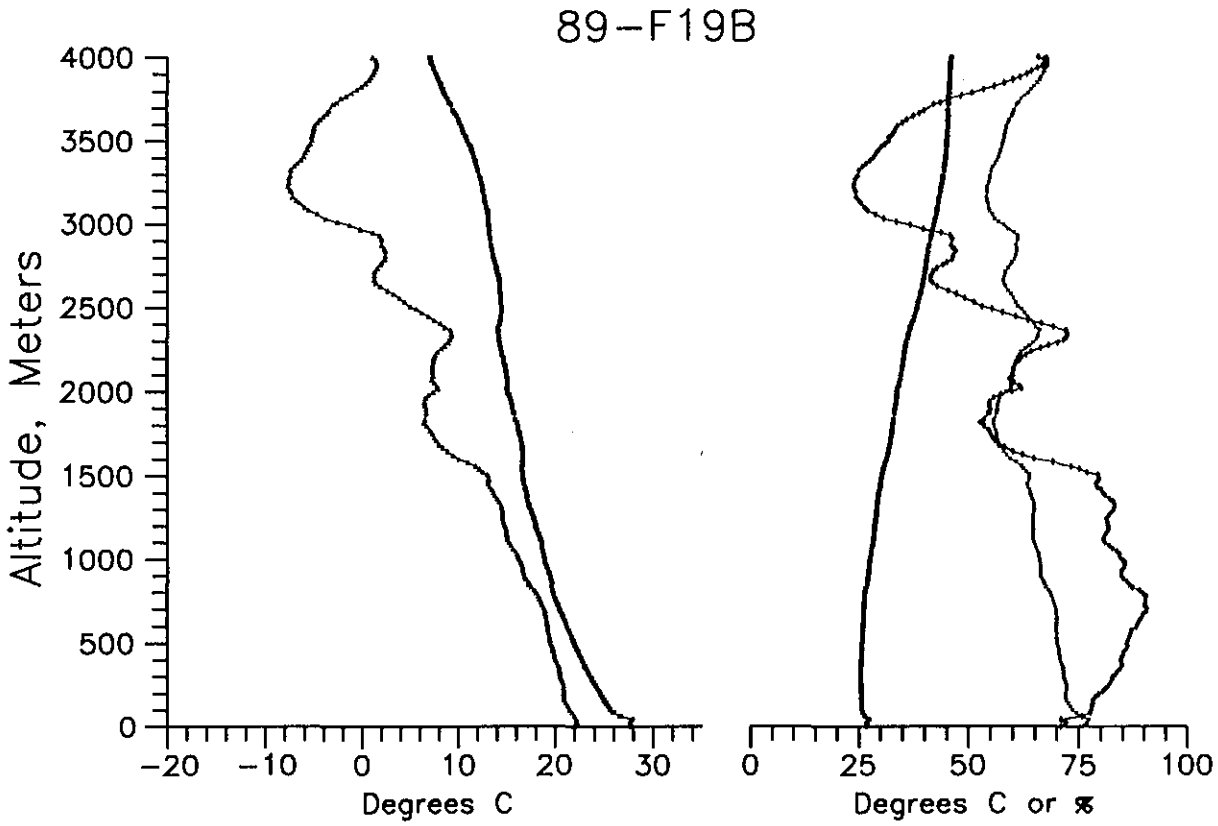
Degrees C or %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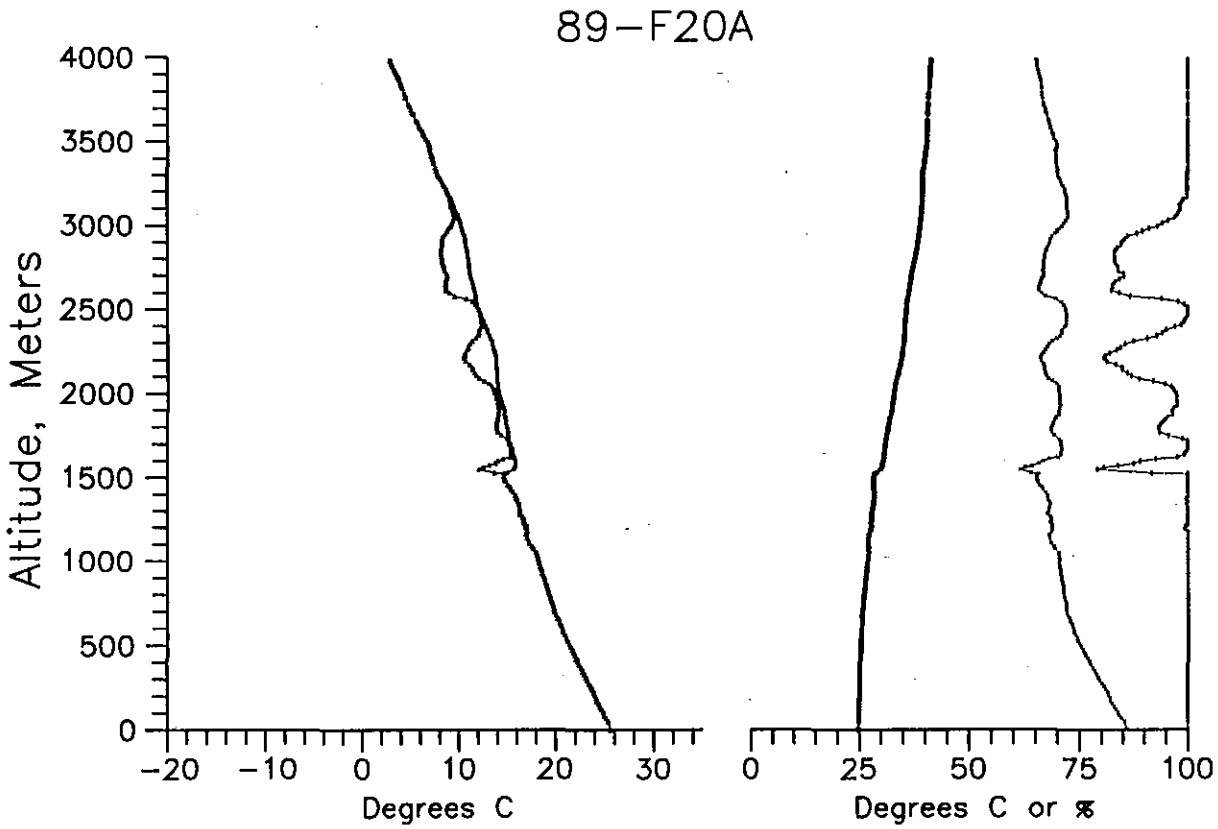
Degrees C or %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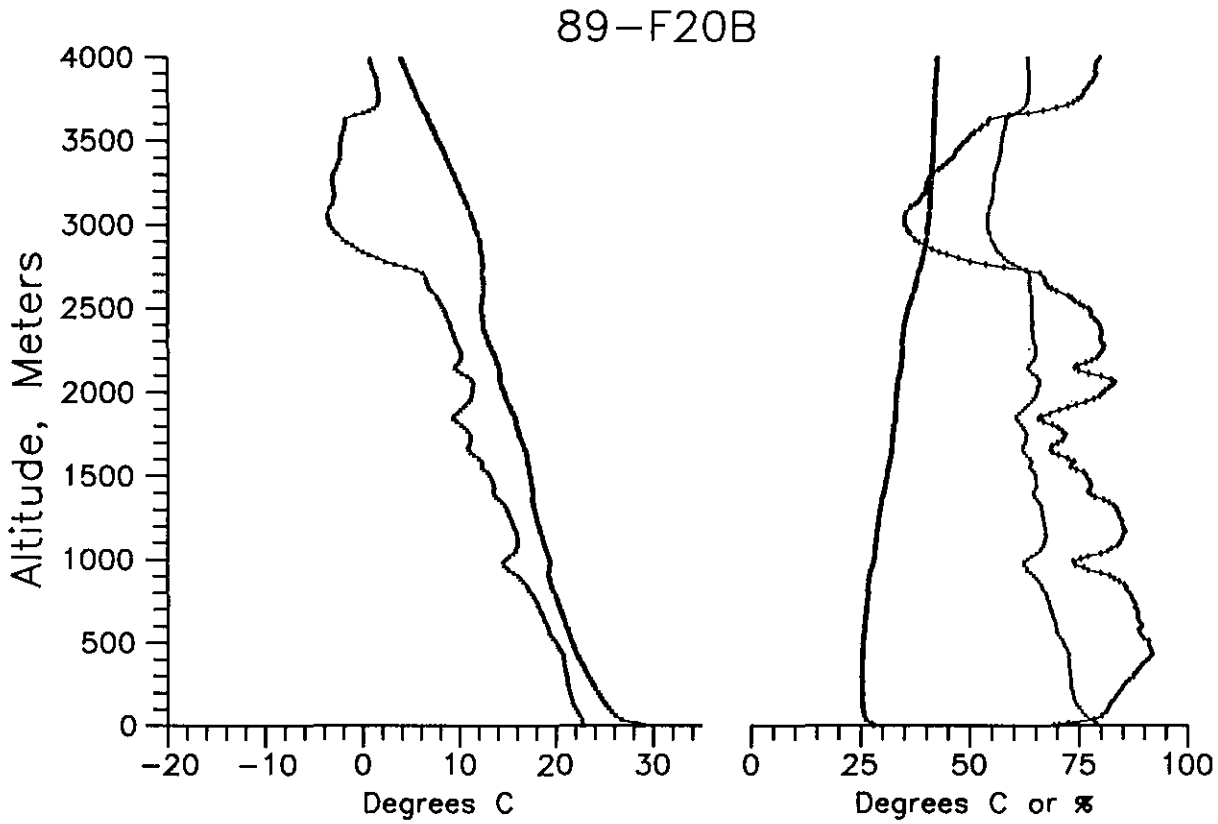
Degrees C or %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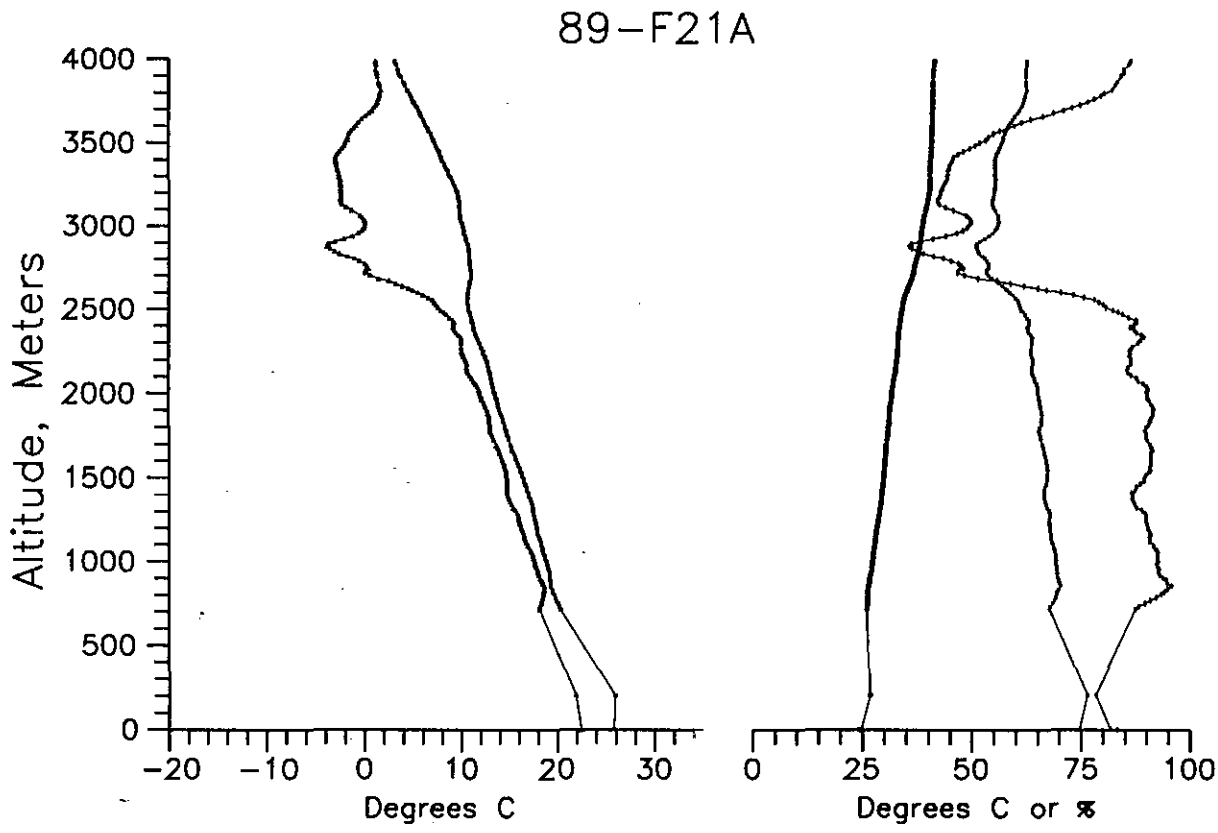
Degrees C or %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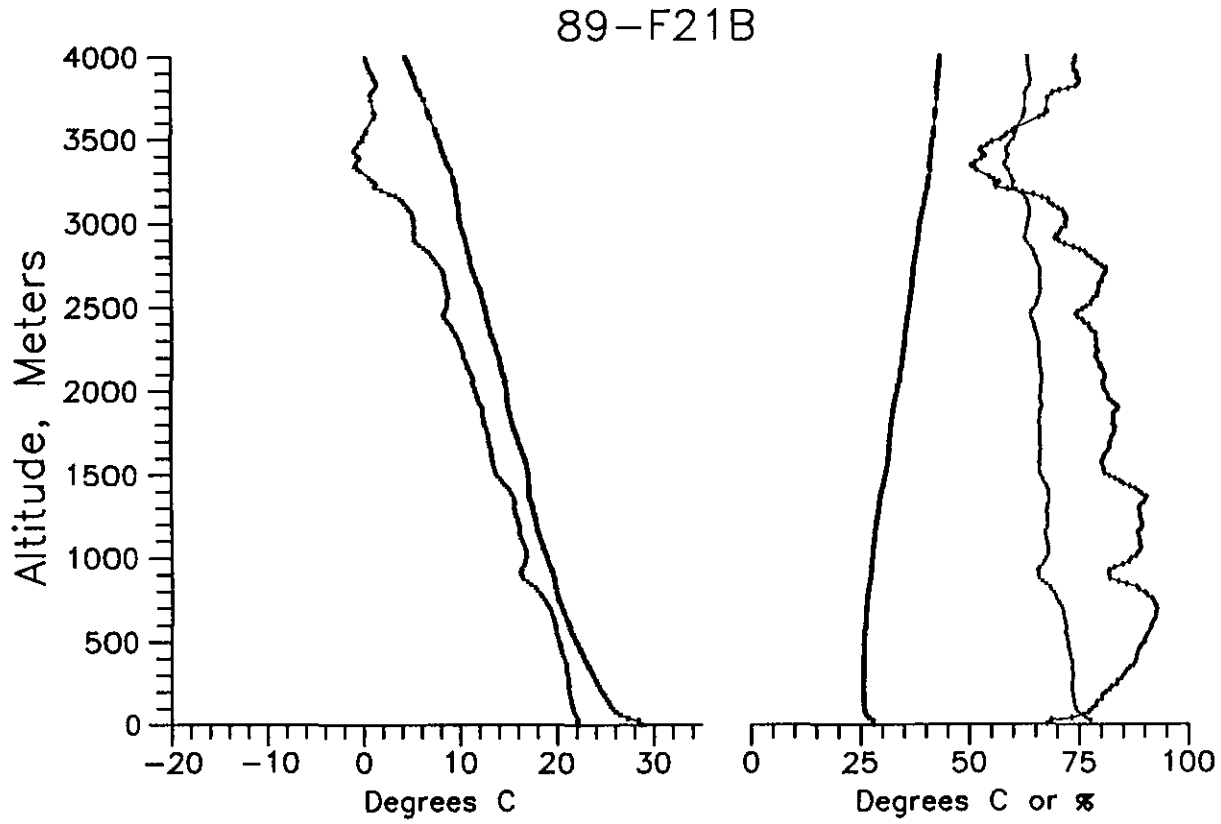
Degrees C or %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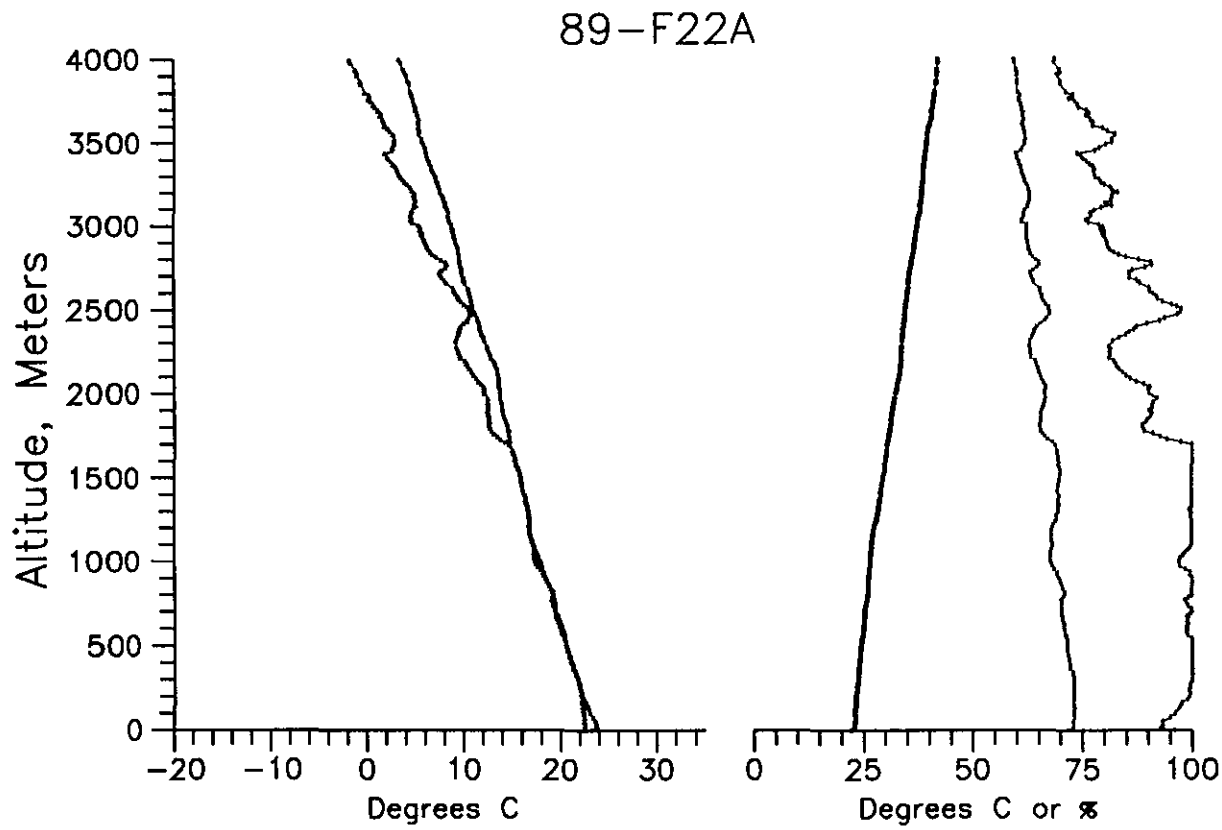
Degrees C or %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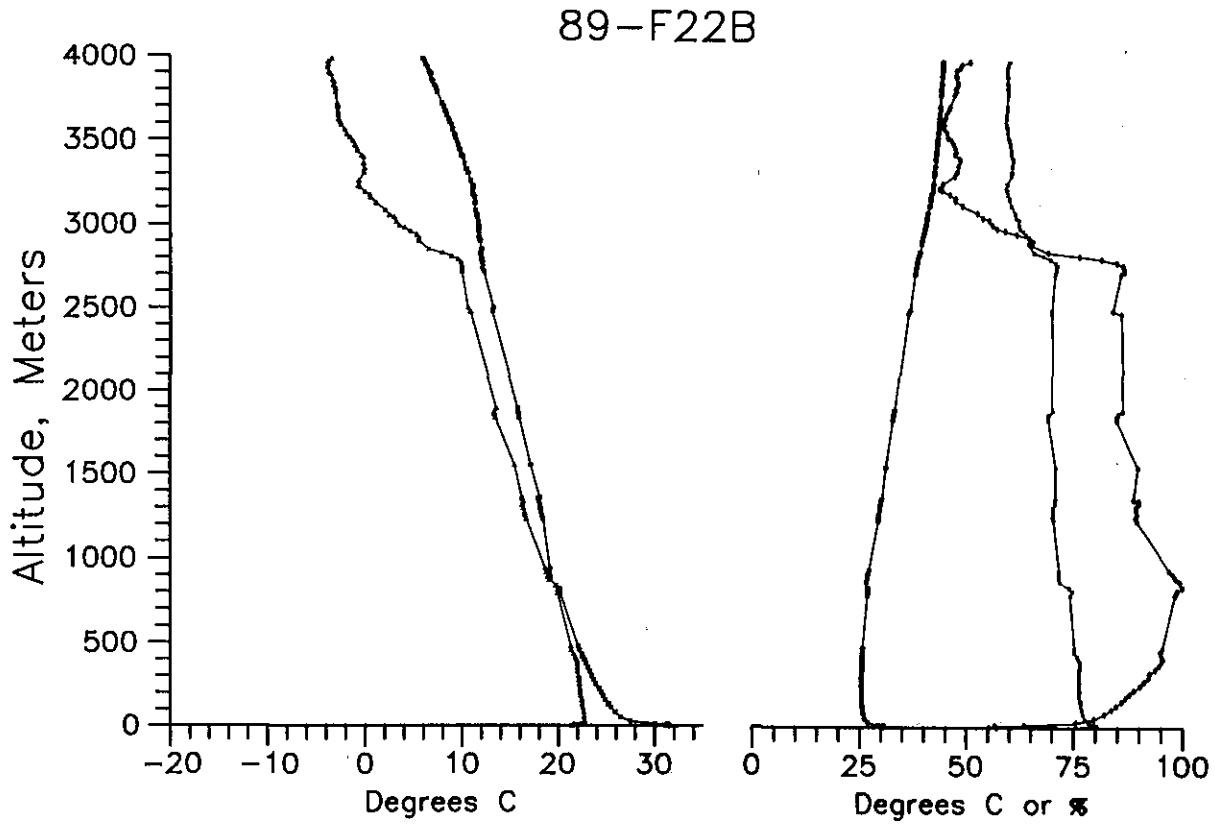
Degrees C or %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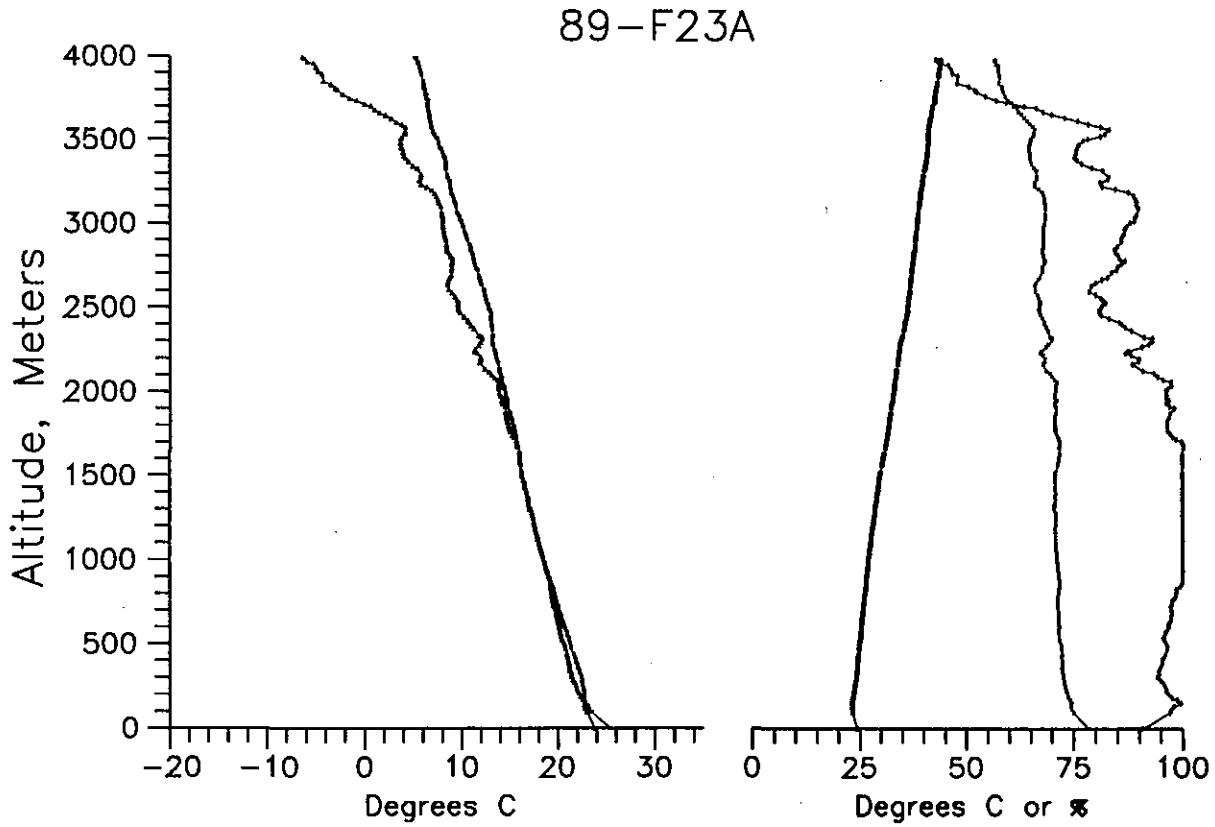
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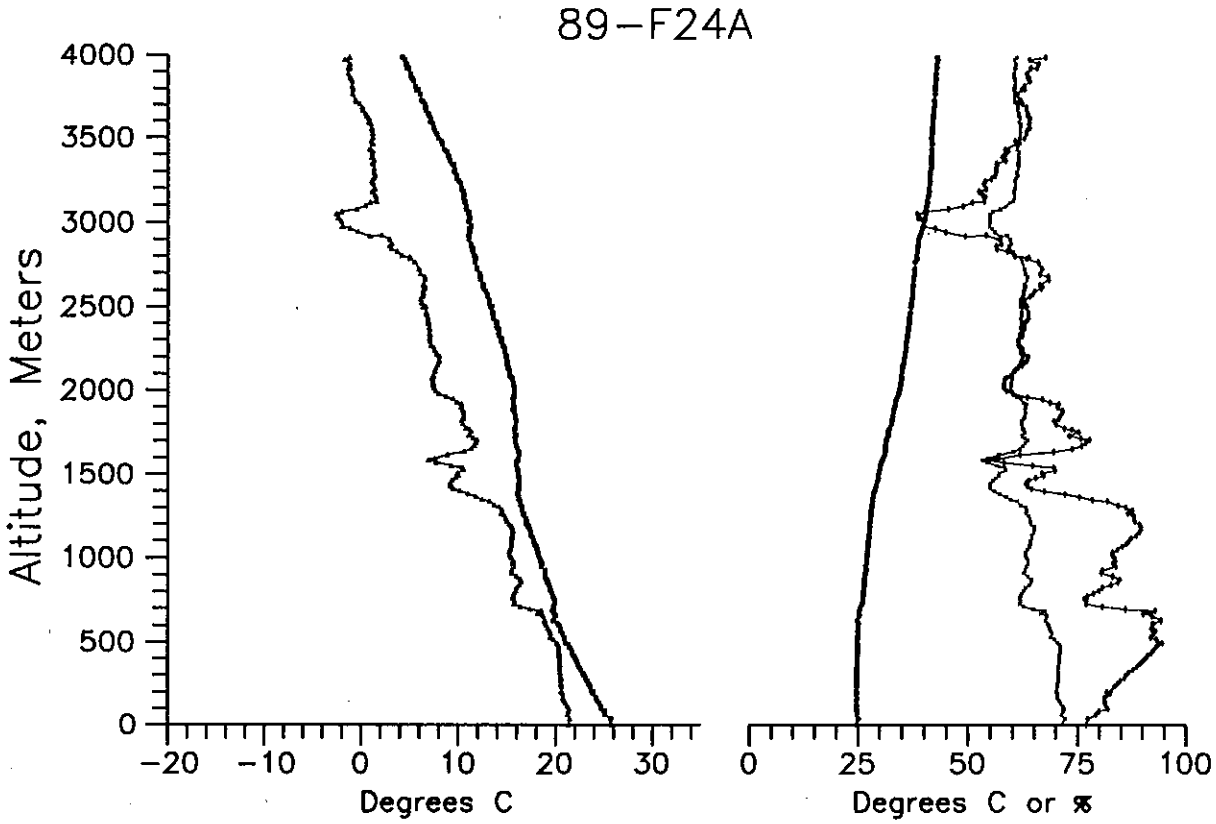
Degrees C or %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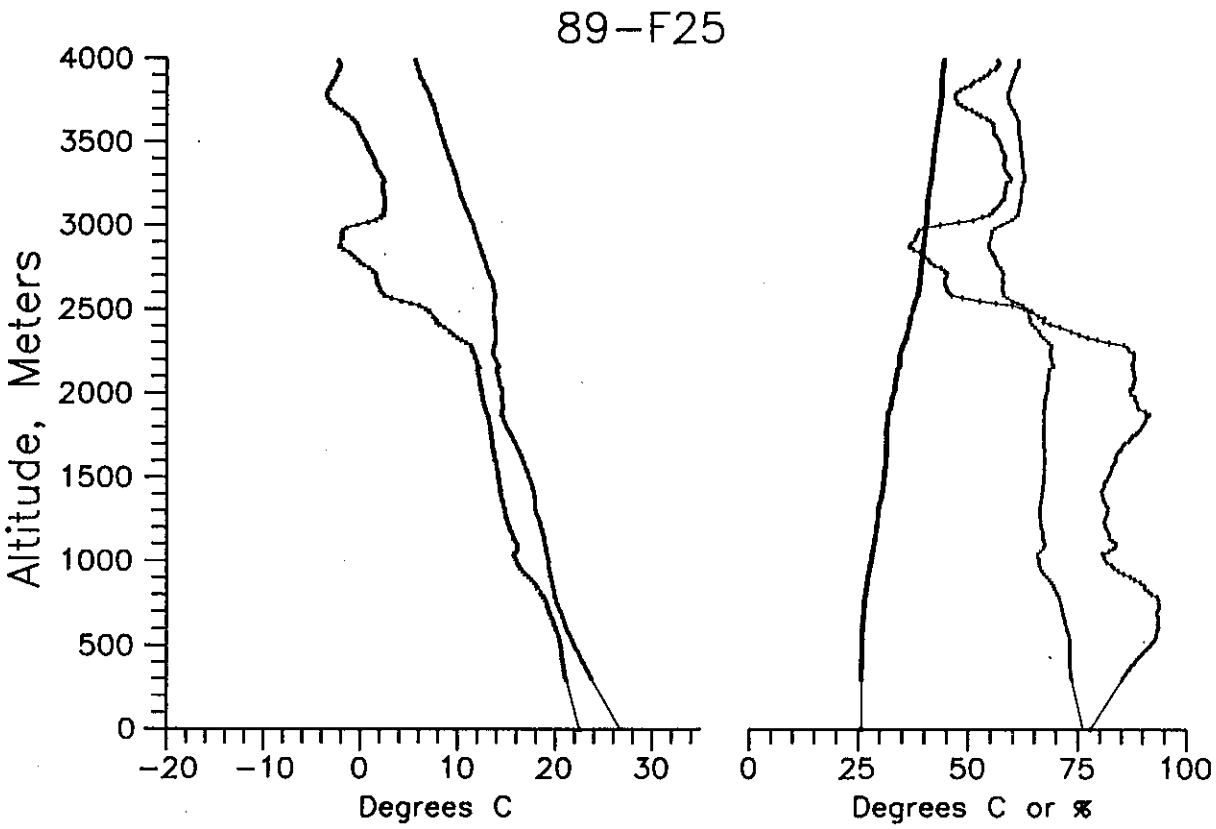
Degrees C or %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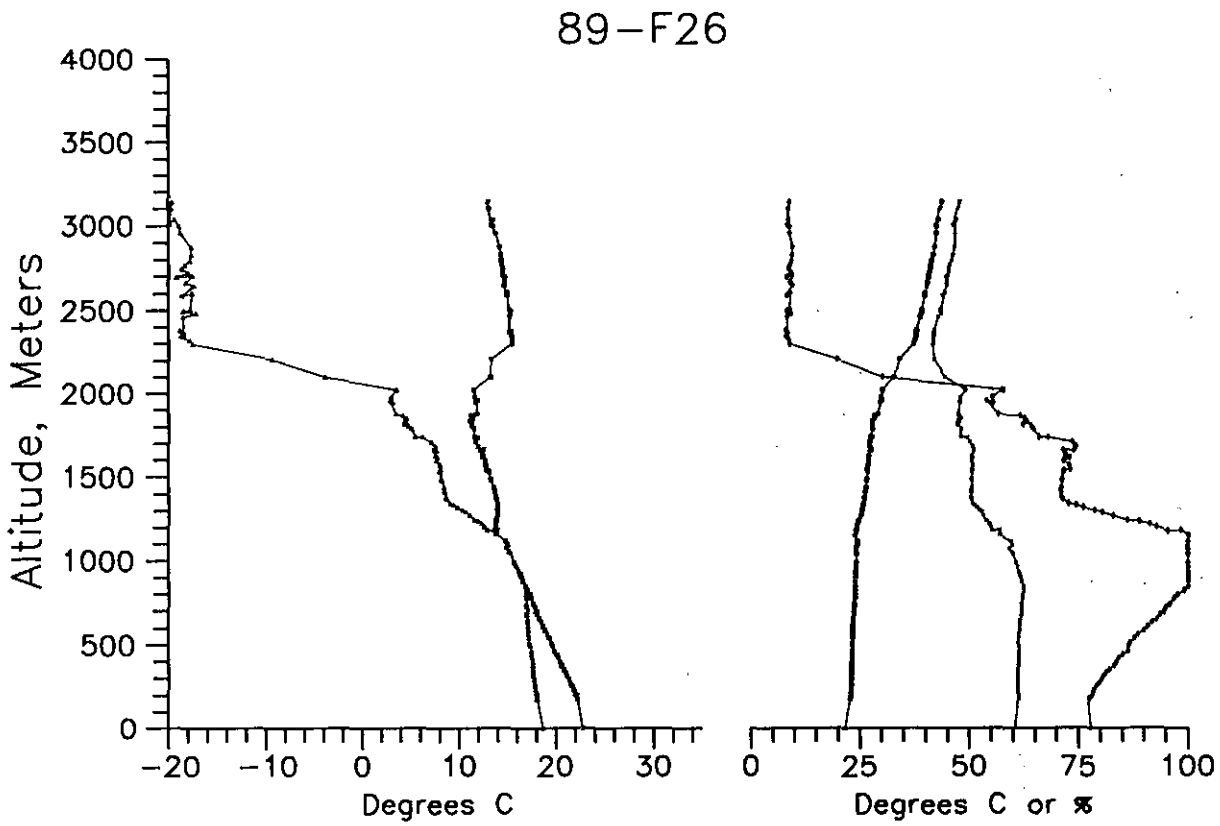
Degrees C or %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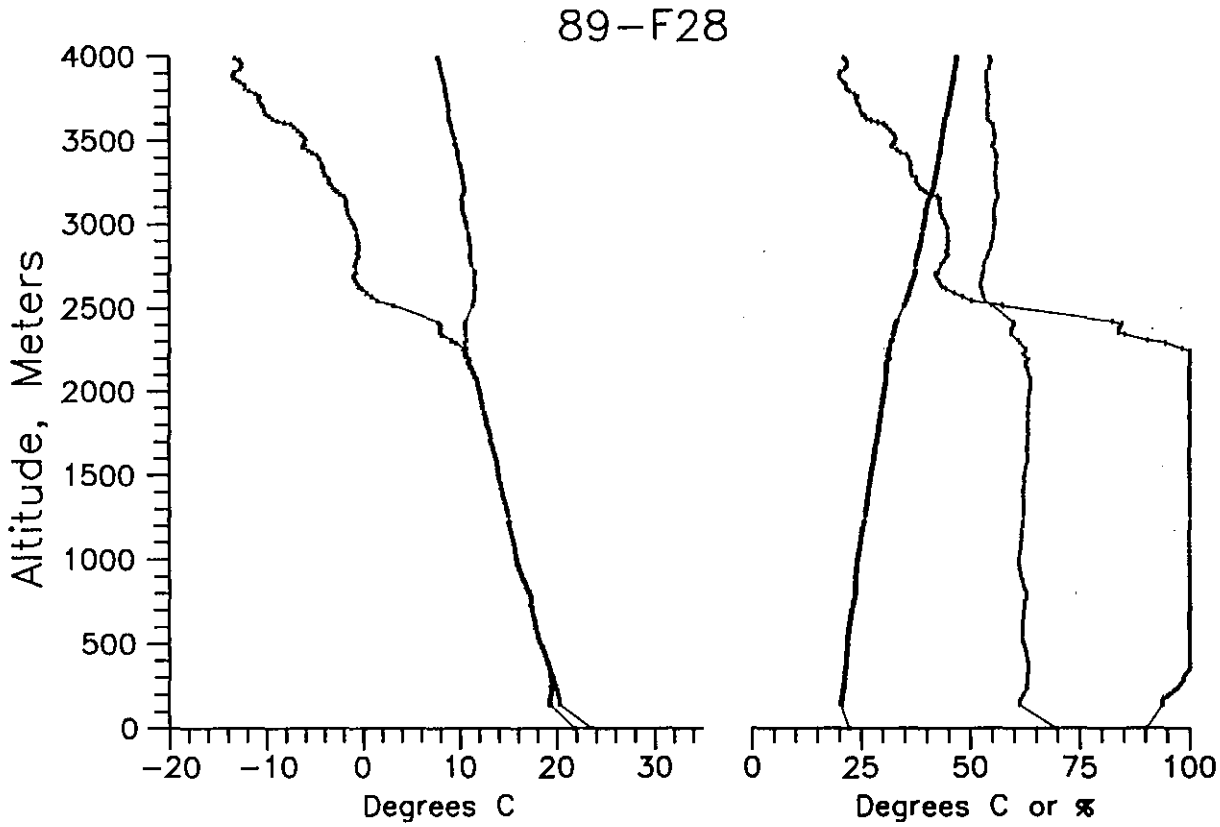
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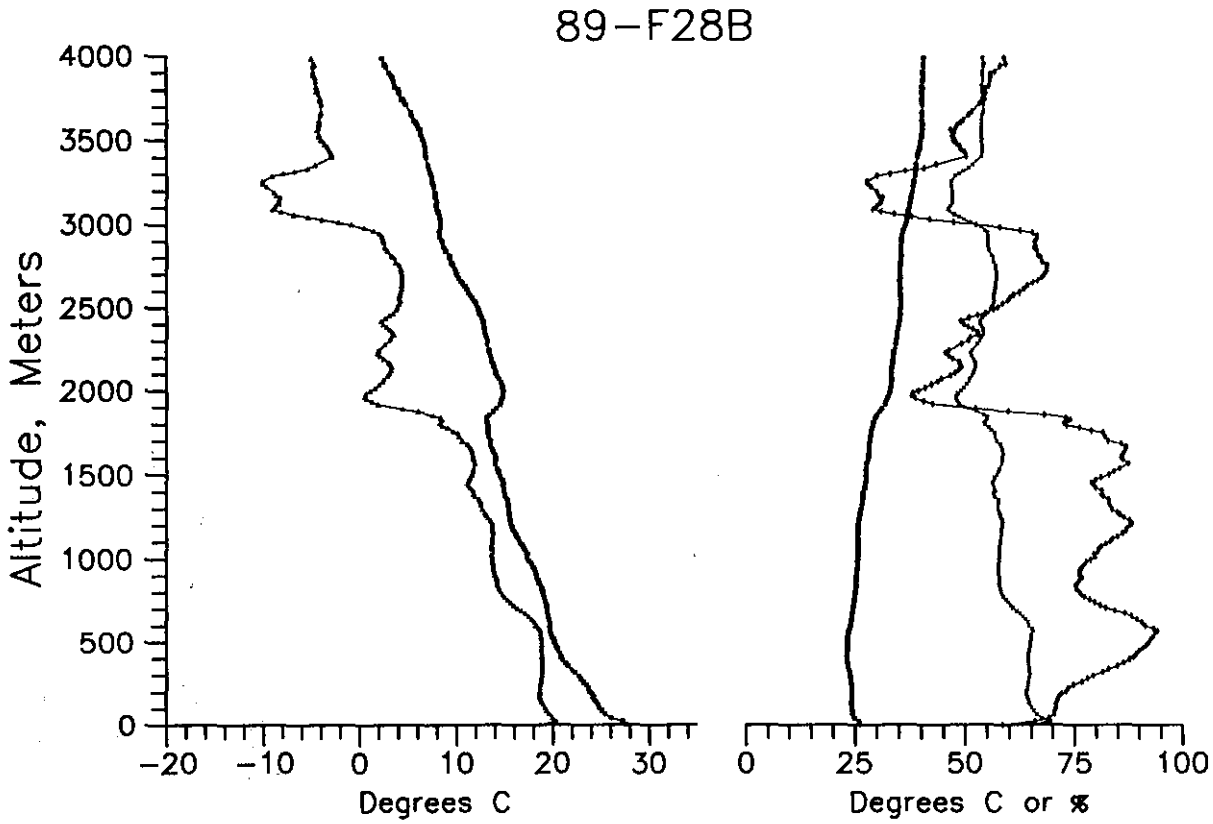
Degrees C or %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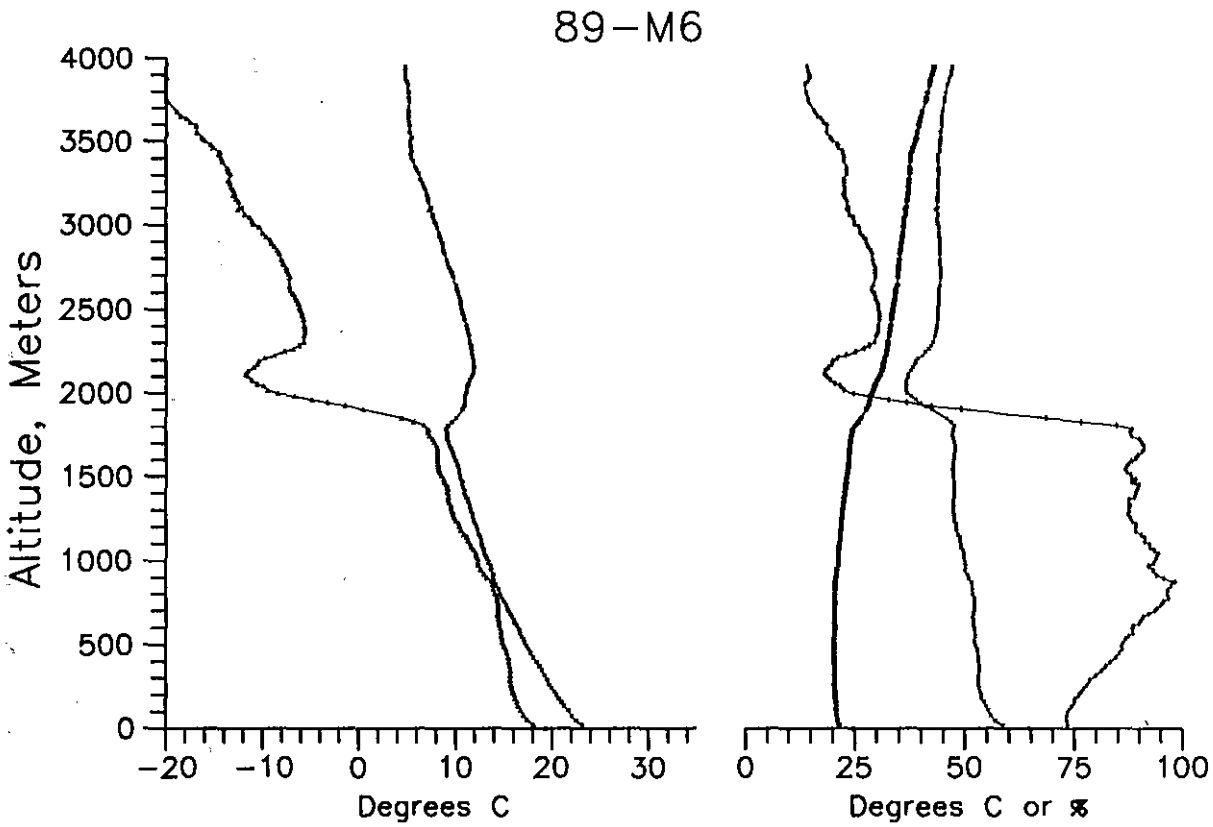
Degrees C or %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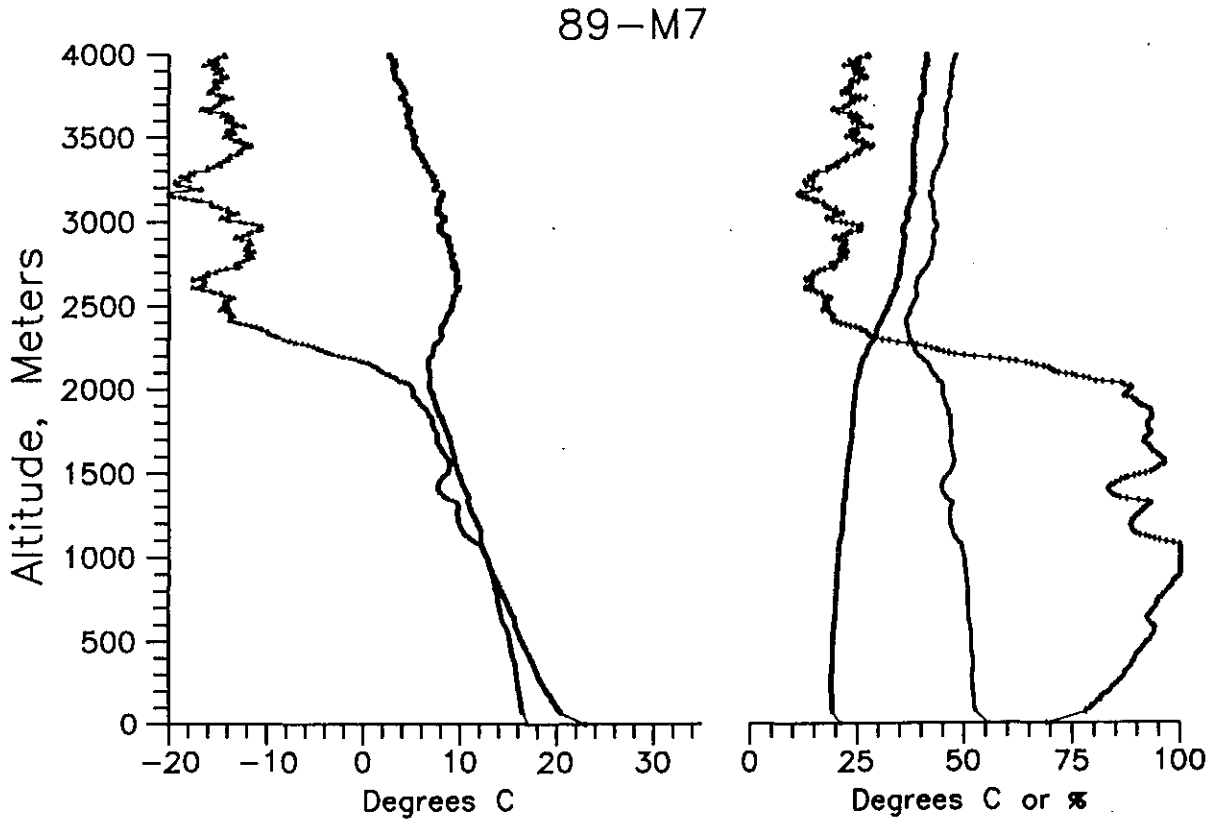
Degrees C or %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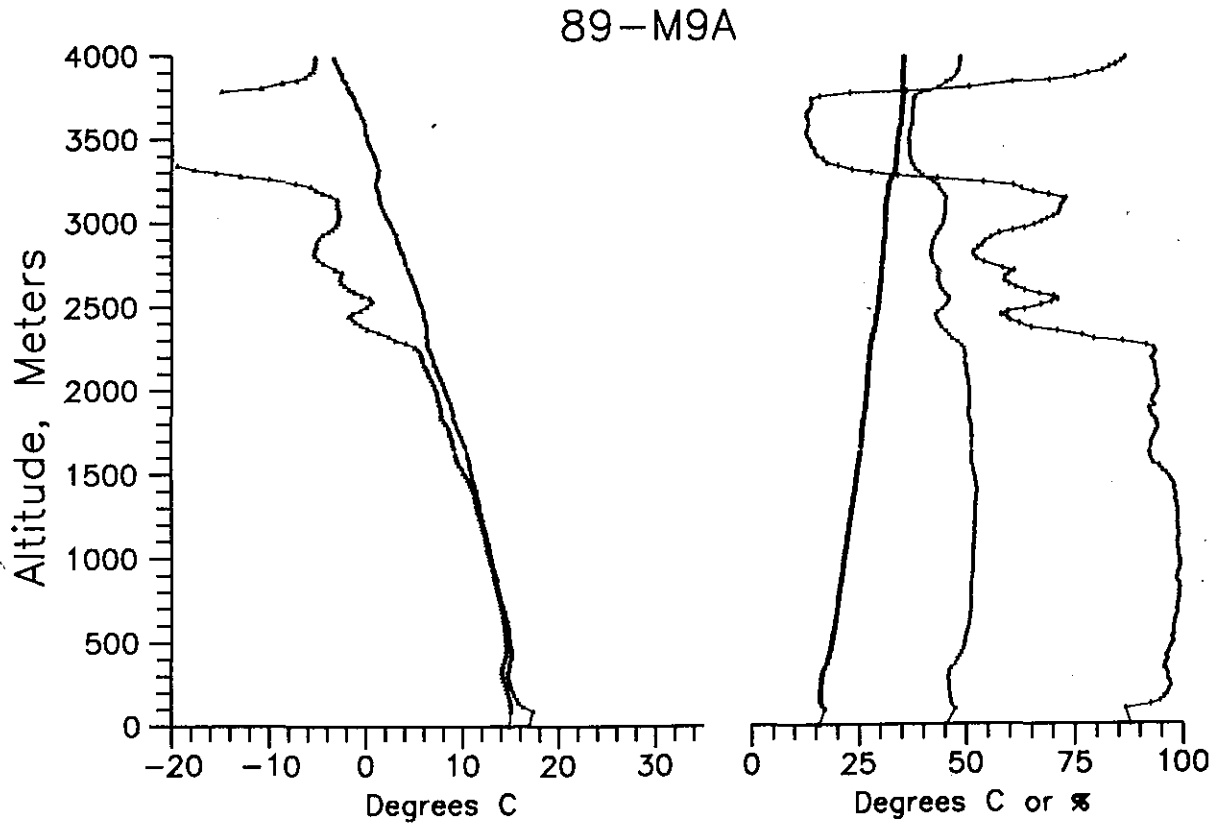
Degrees C or %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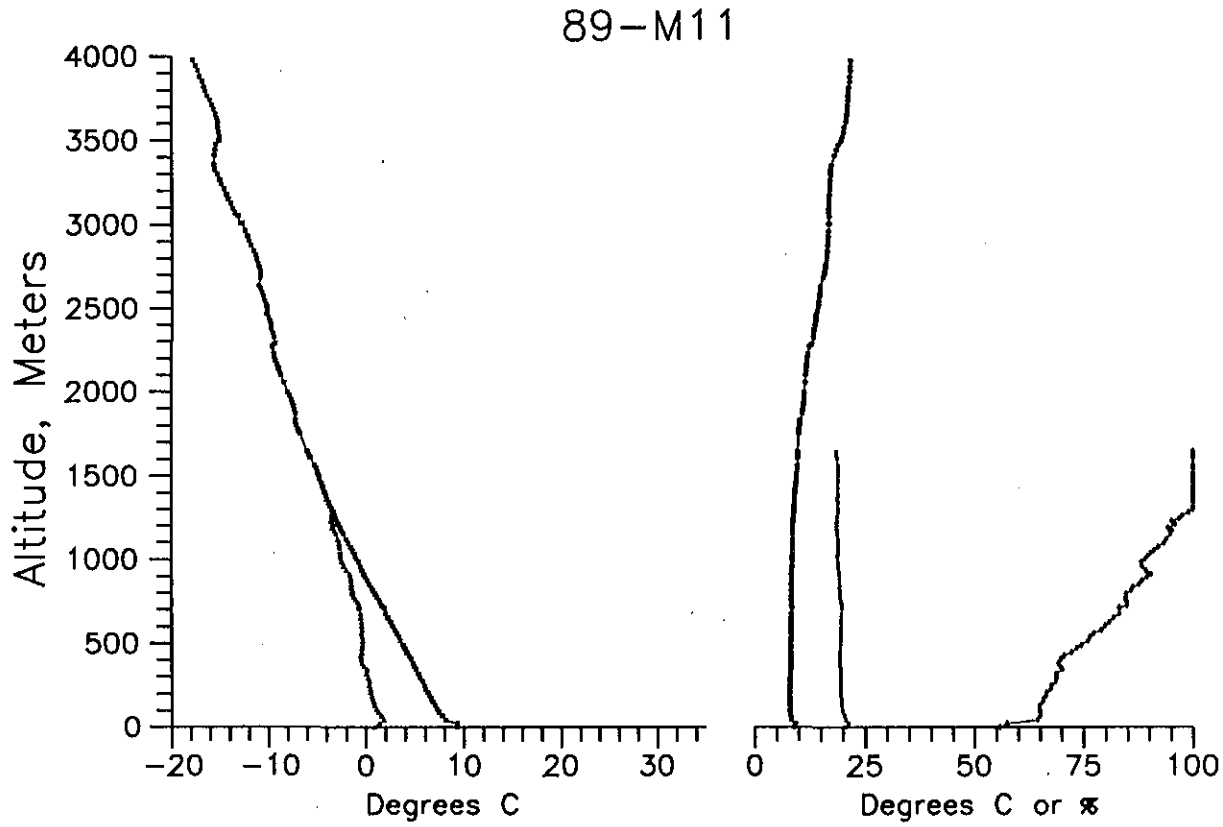
Degrees C or %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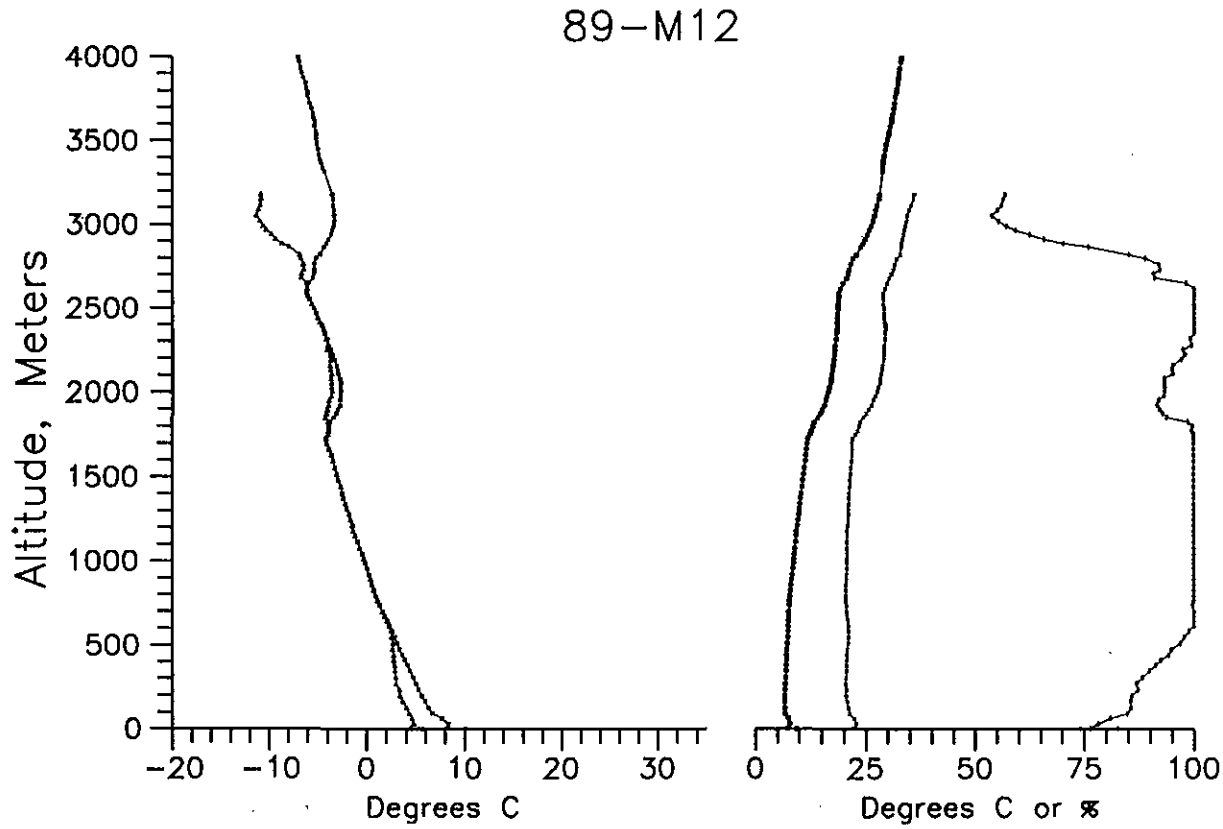
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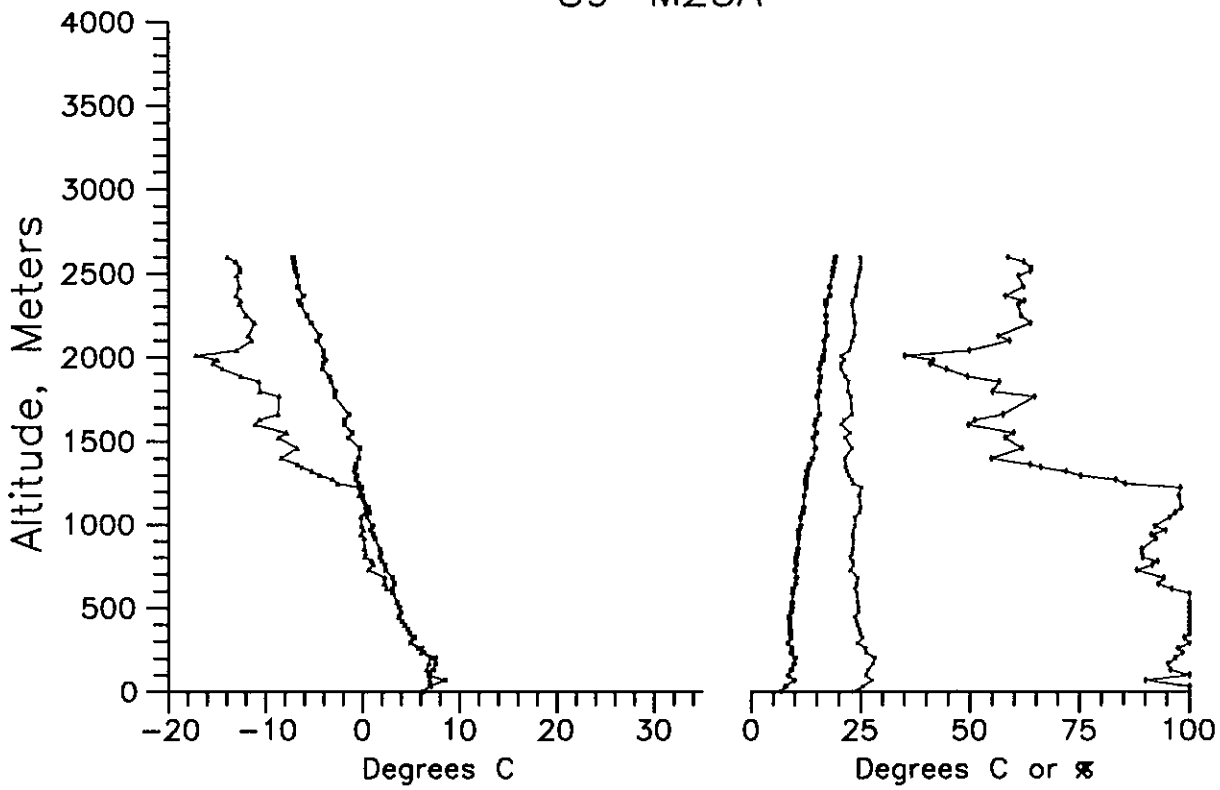
Degrees C or %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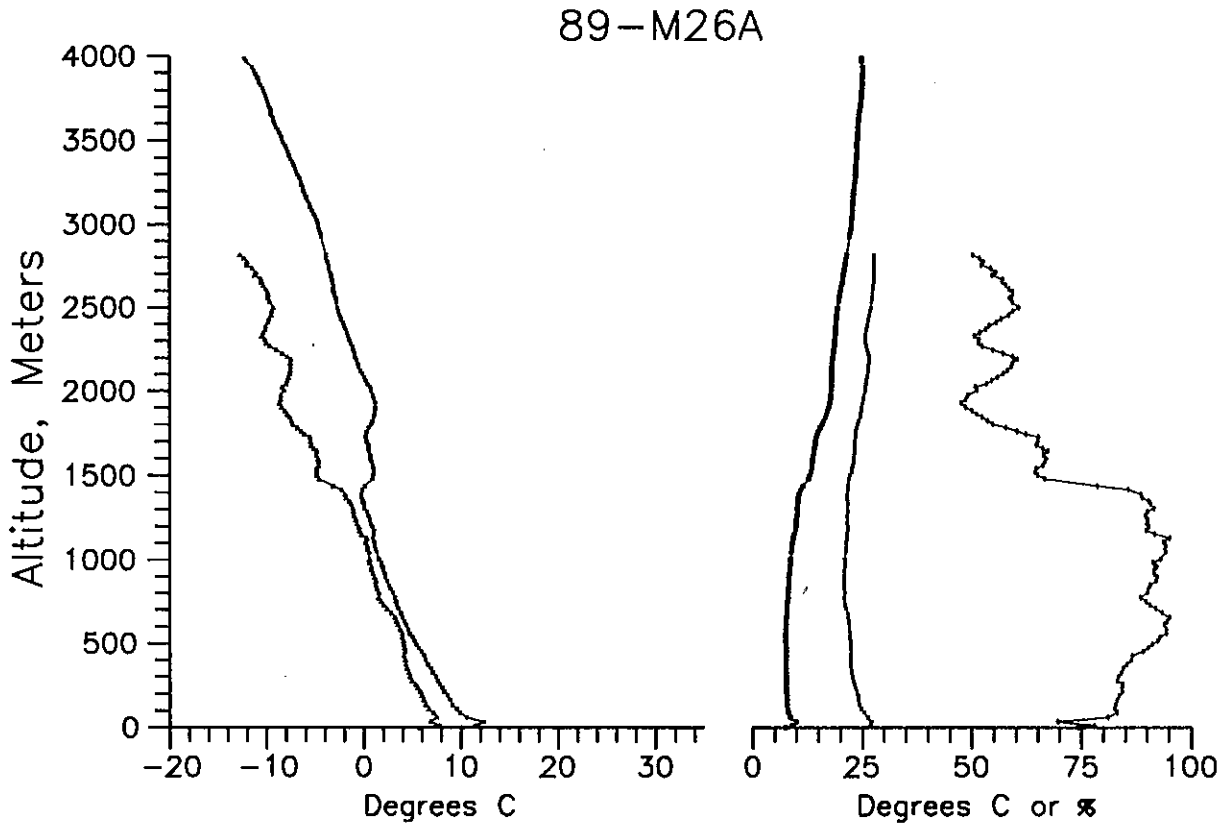
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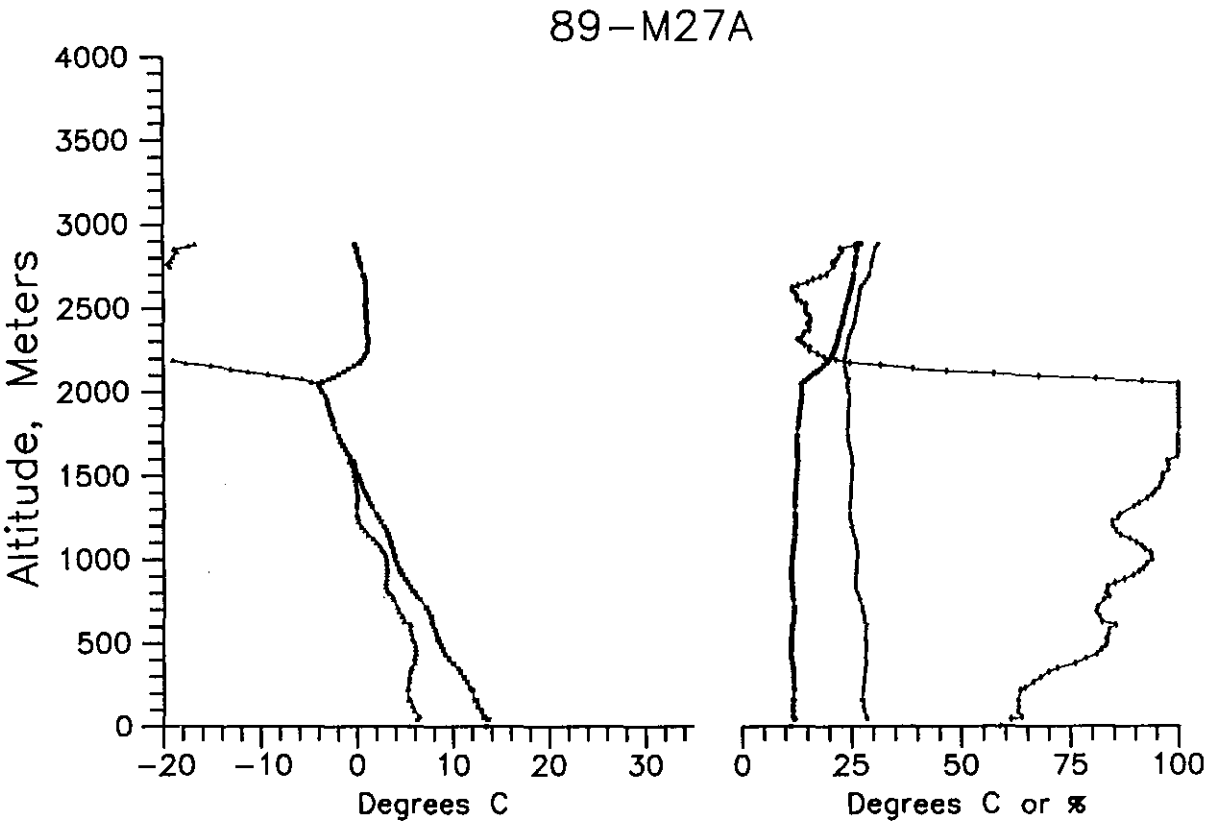
Degrees C or %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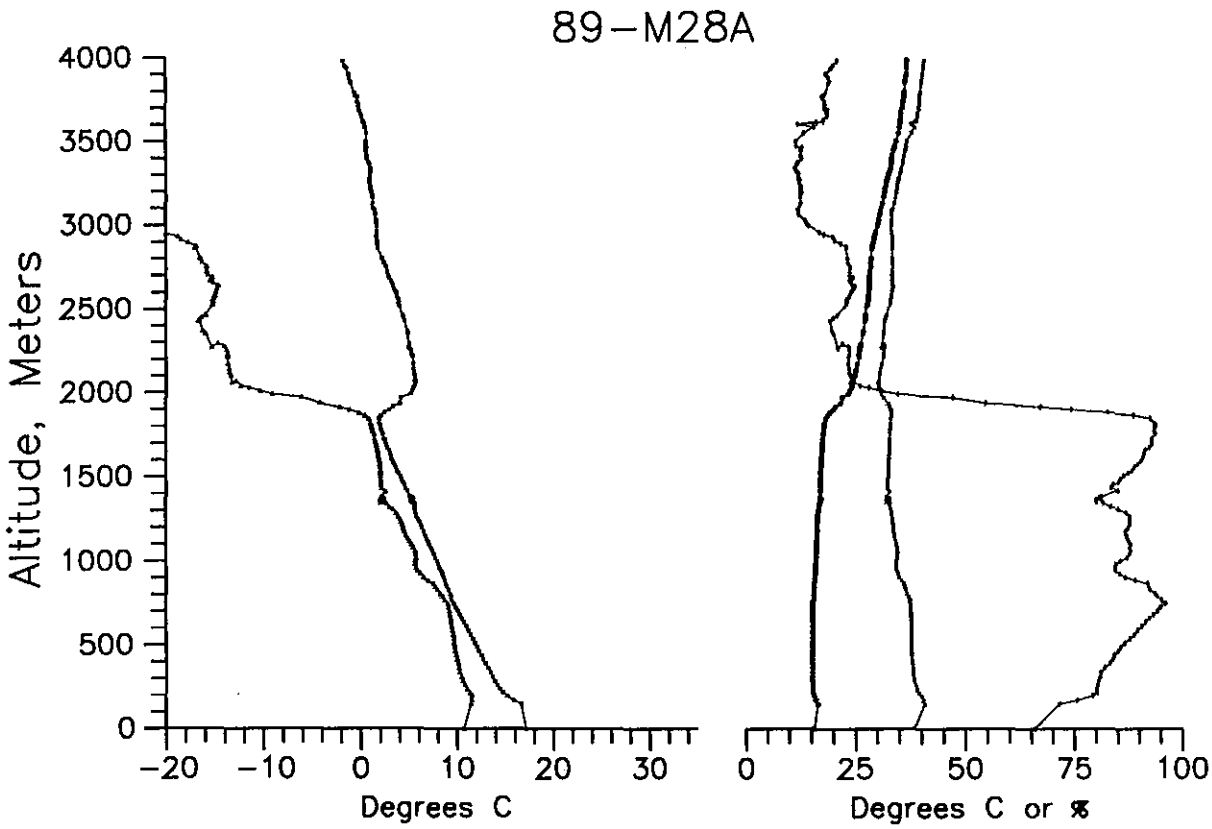
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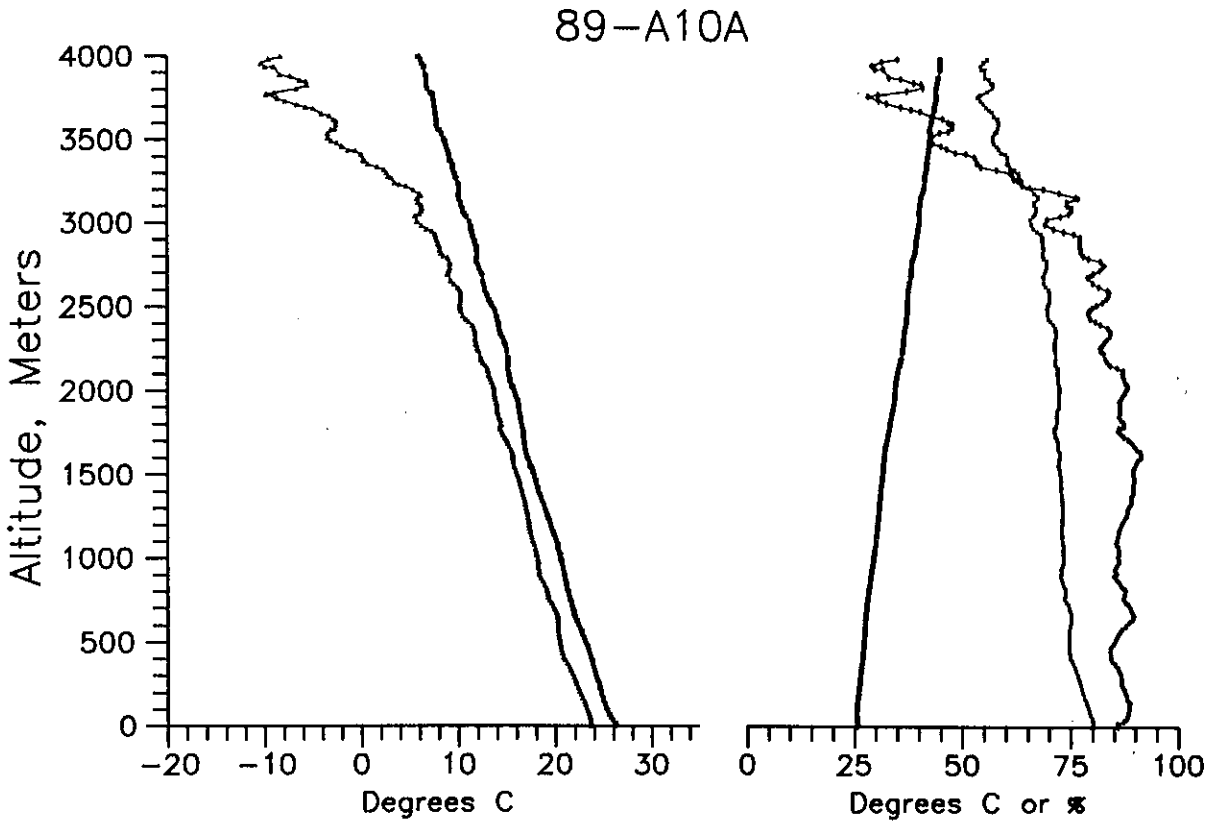
Degrees C or %


89-A10A
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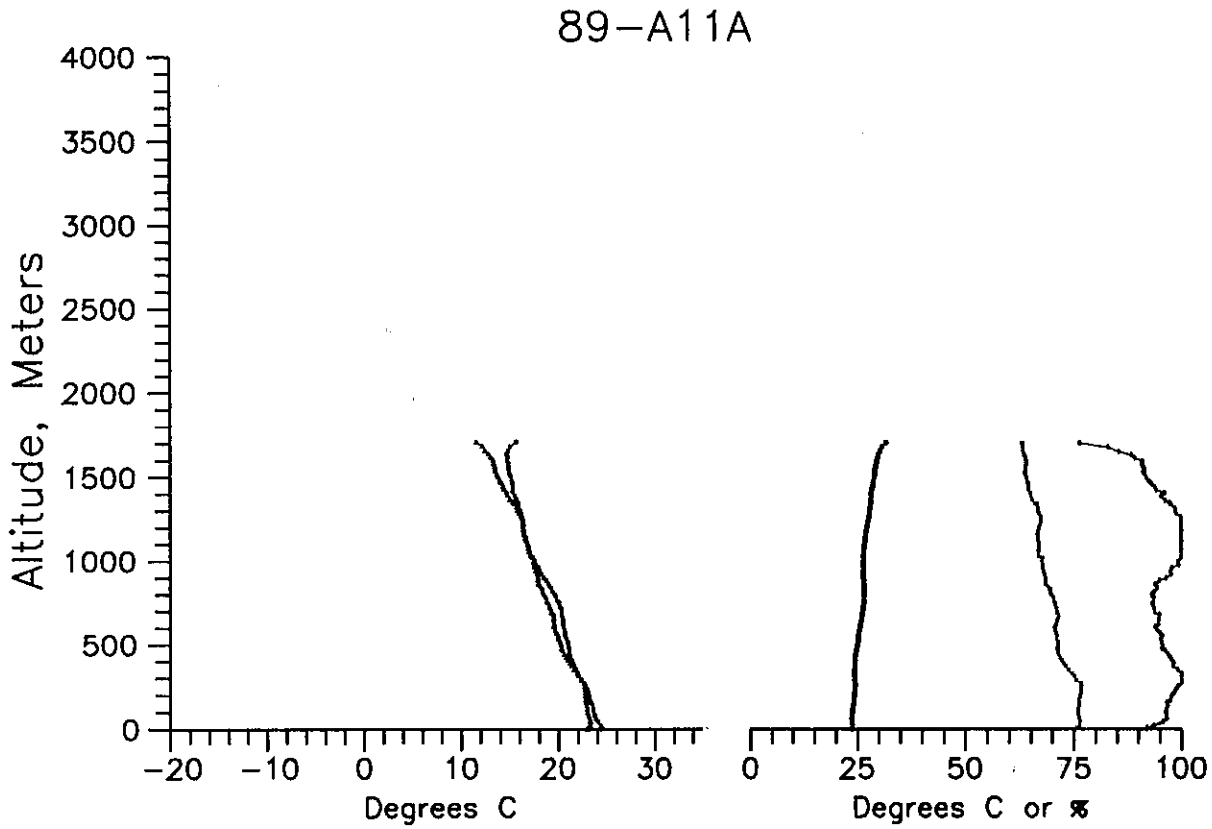
Degrees C or %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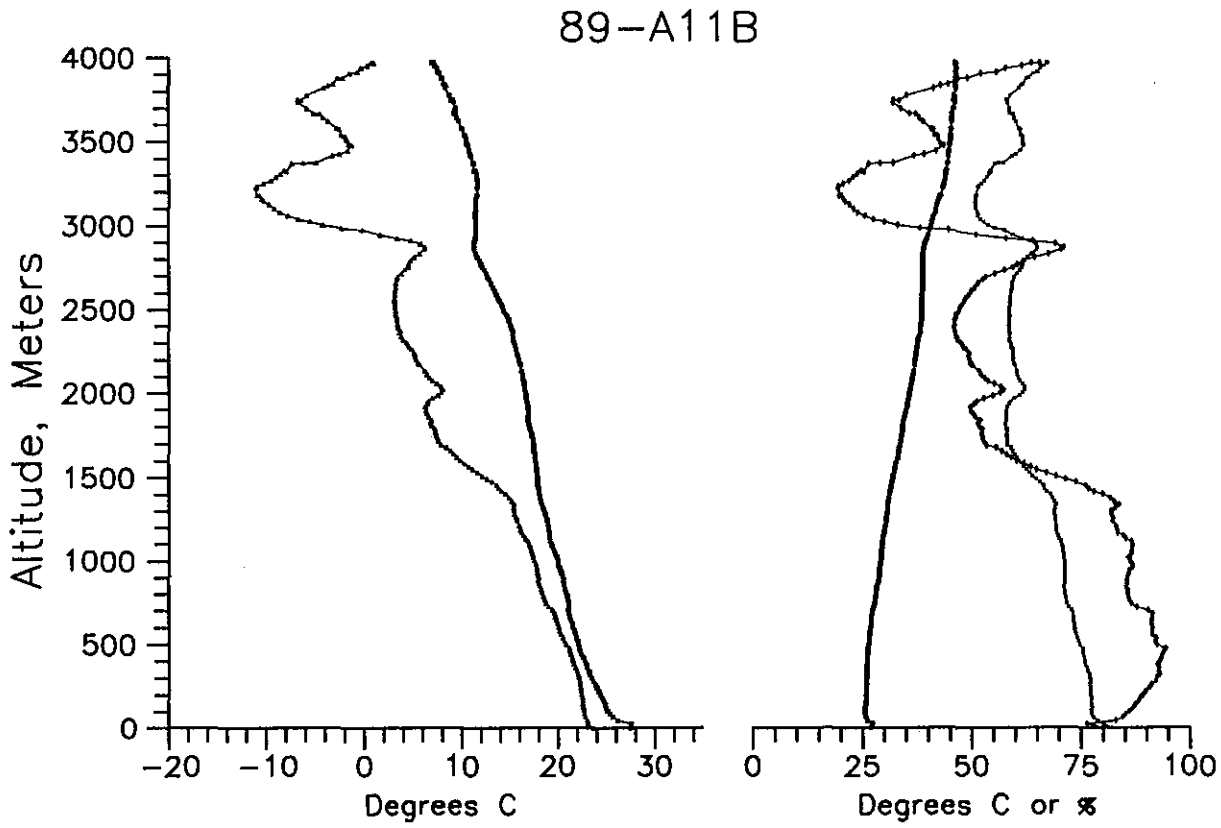
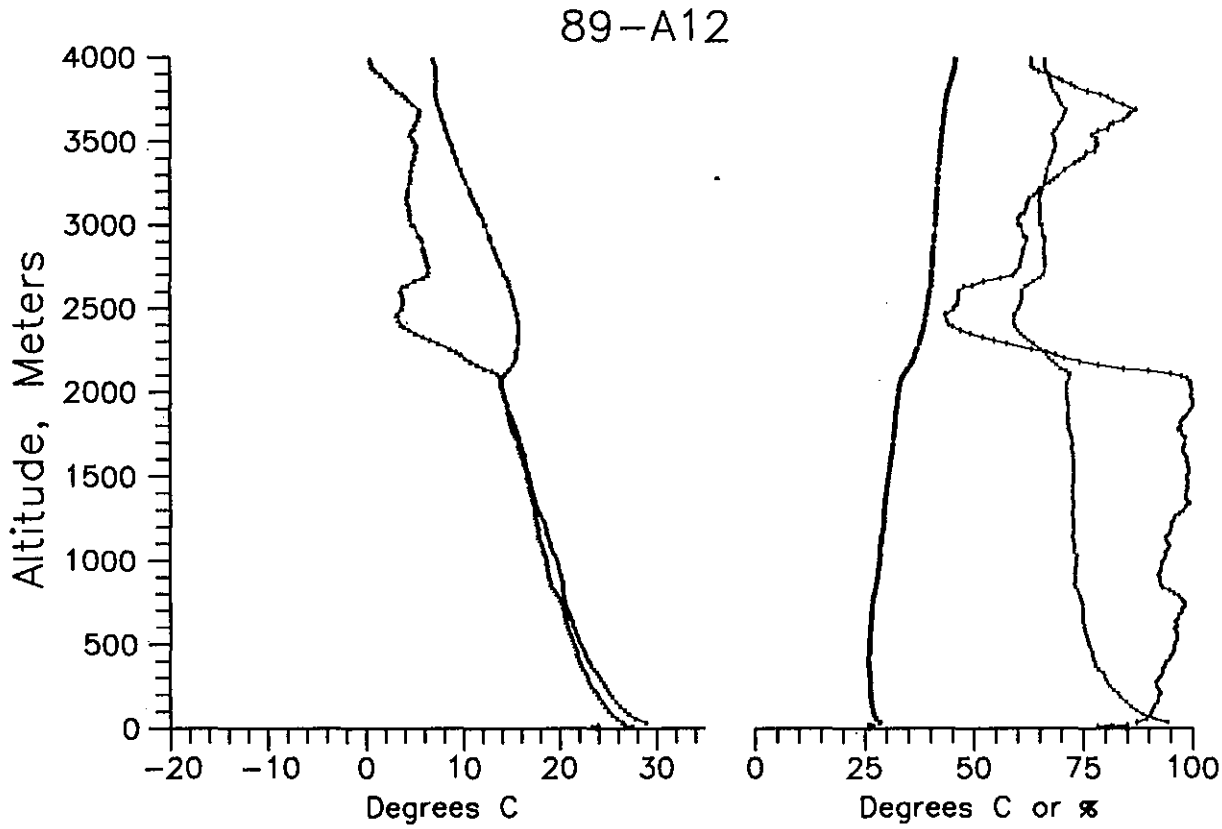
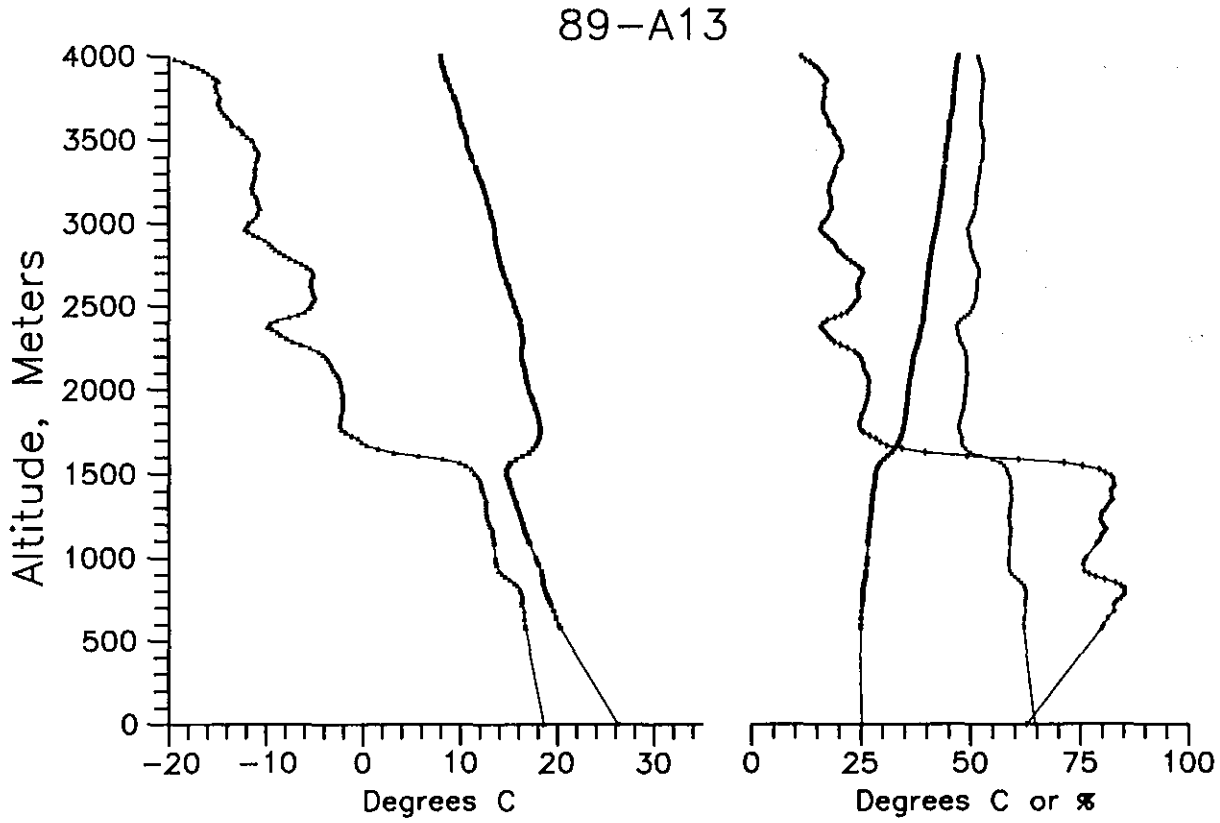
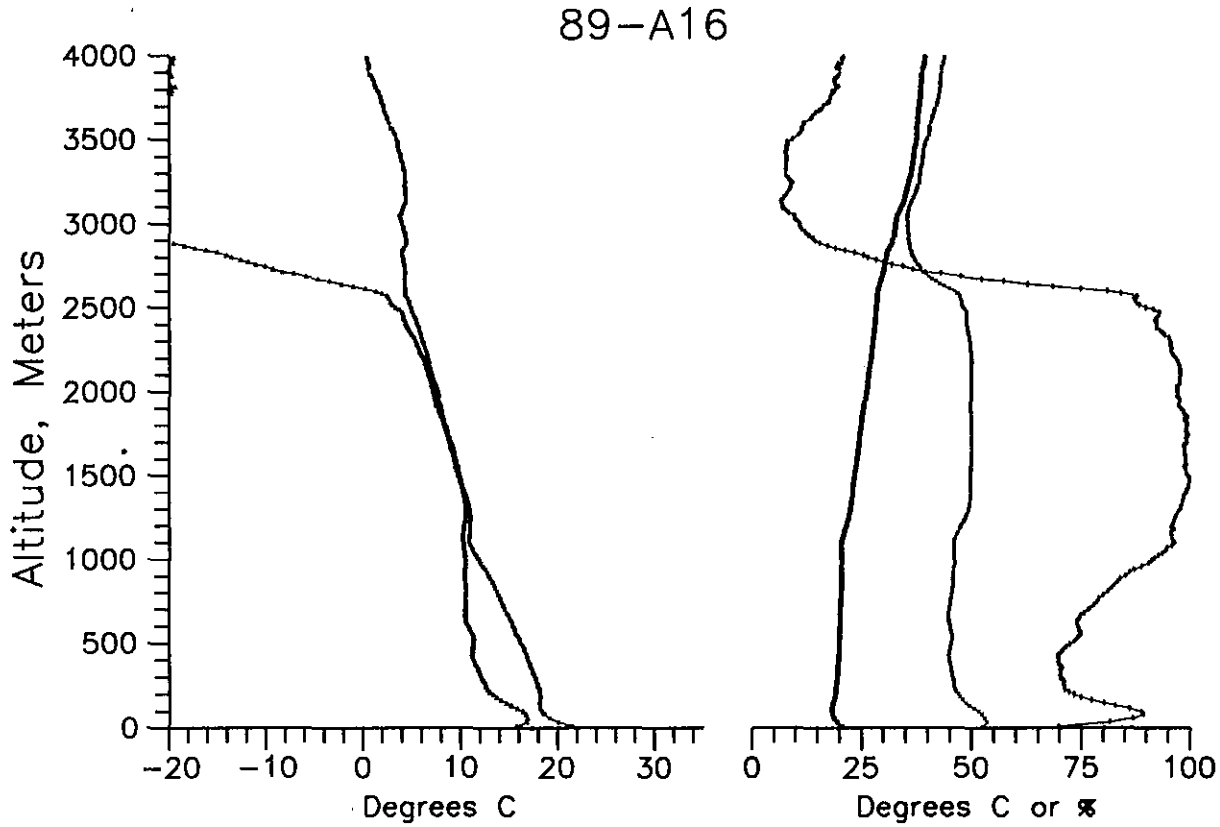

89-A11B
Altitude, Meters
4000
3500
3000
2500
2000
1500
1000
500
0
-20
-10
0
10
20
30
Degrees C
0
25
50
75
100
Degrees C or %

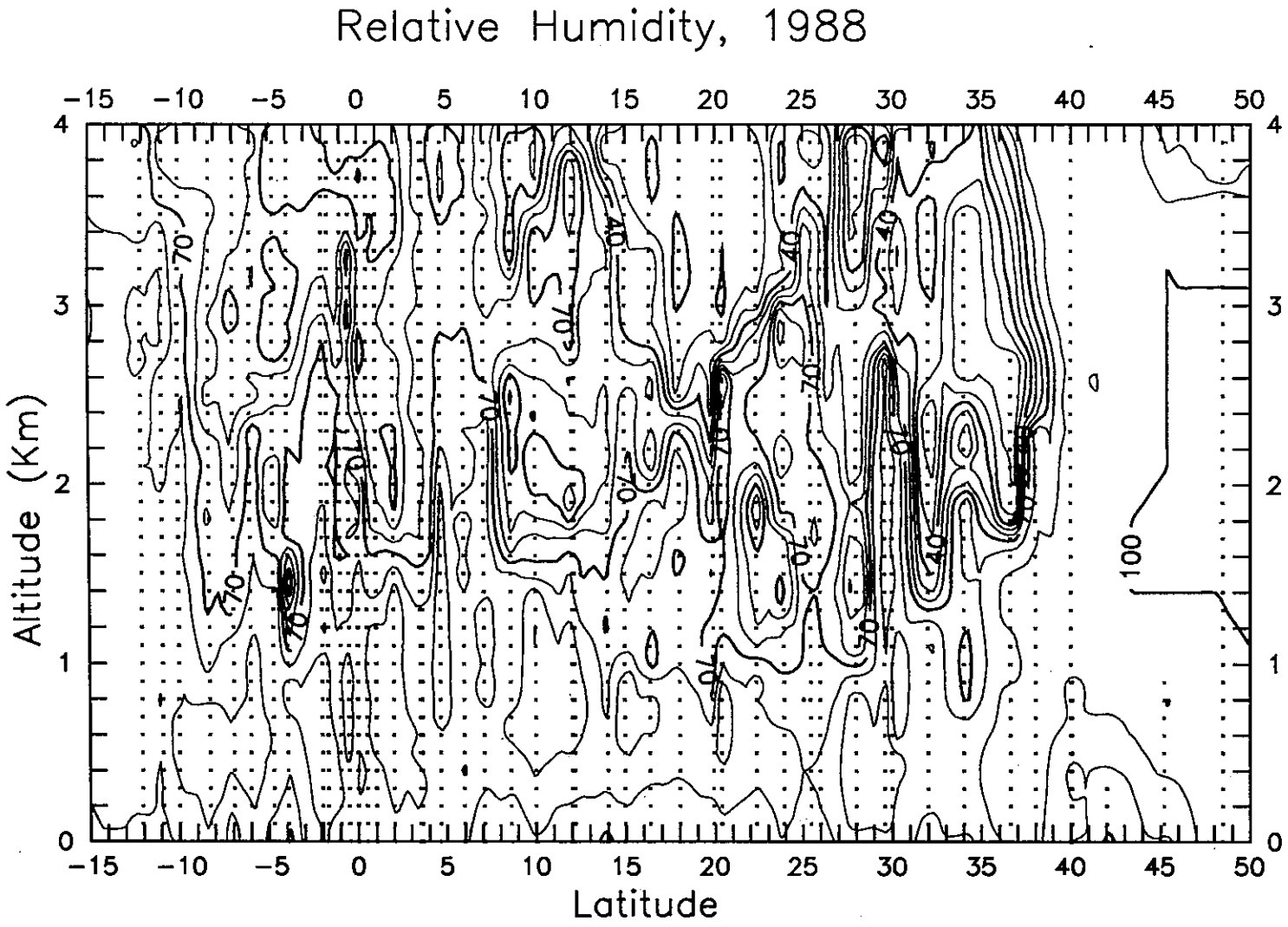

89-A12
Altitude, Meters
4000
3500
3000
2500
2000
1500
1000
500
0
-20
-10
0
10
20
30
Degrees C
0
25
50
75
100
Degrees C or %

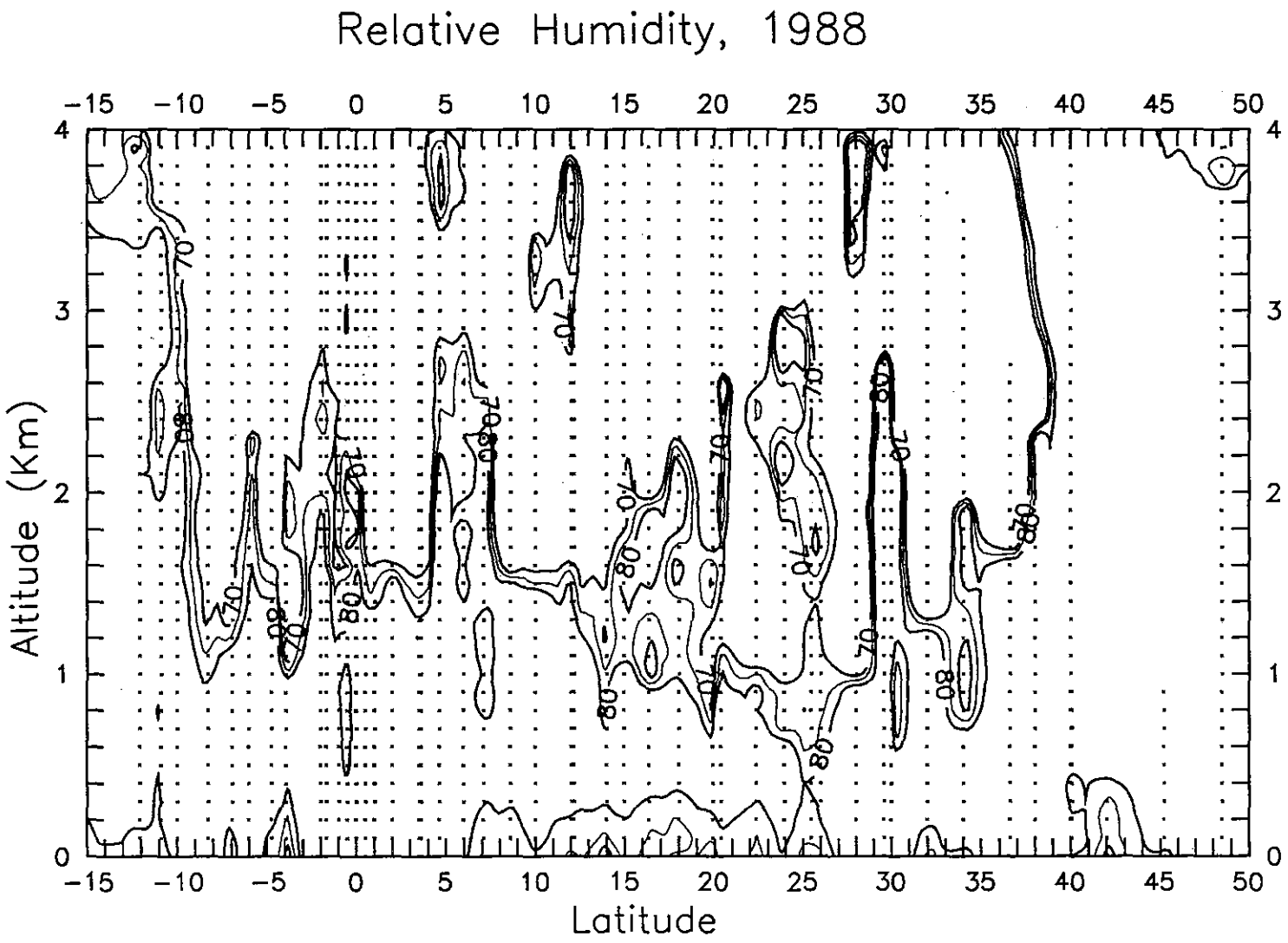

89-A13
Altitude, Meters
4000
3500
3000
2500
2000
1500
1000
500
0
-20
-10
0
10
20
30
Degrees C
0
25
50
75
100
Degrees C or %

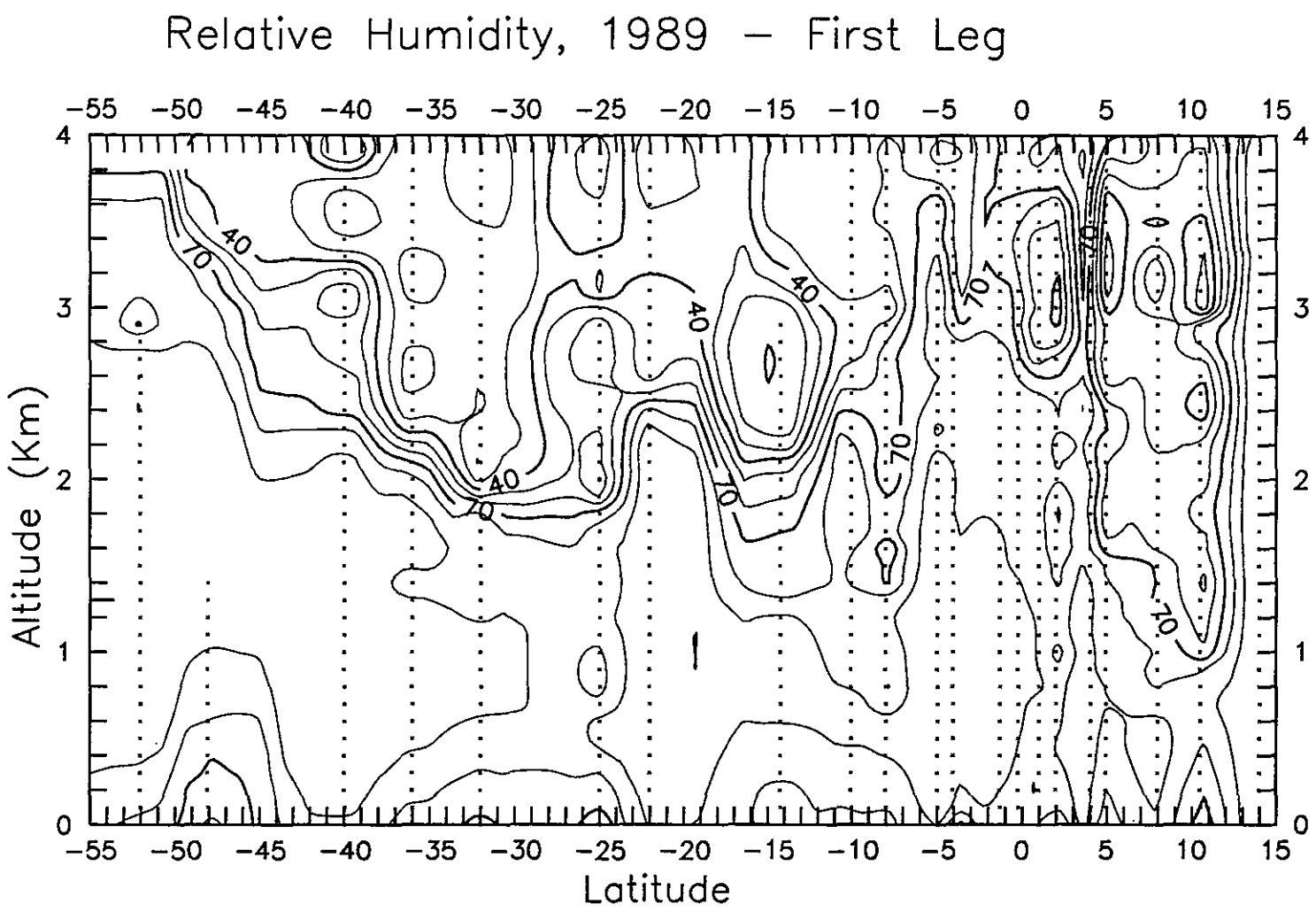

89-A16
Altitude, Meters
4000
3500
3000
2500
2000
1500
1000
500
0
-20
-10
0
10
20
30
Degrees C
0
25
50
75
100
Degrees C or %

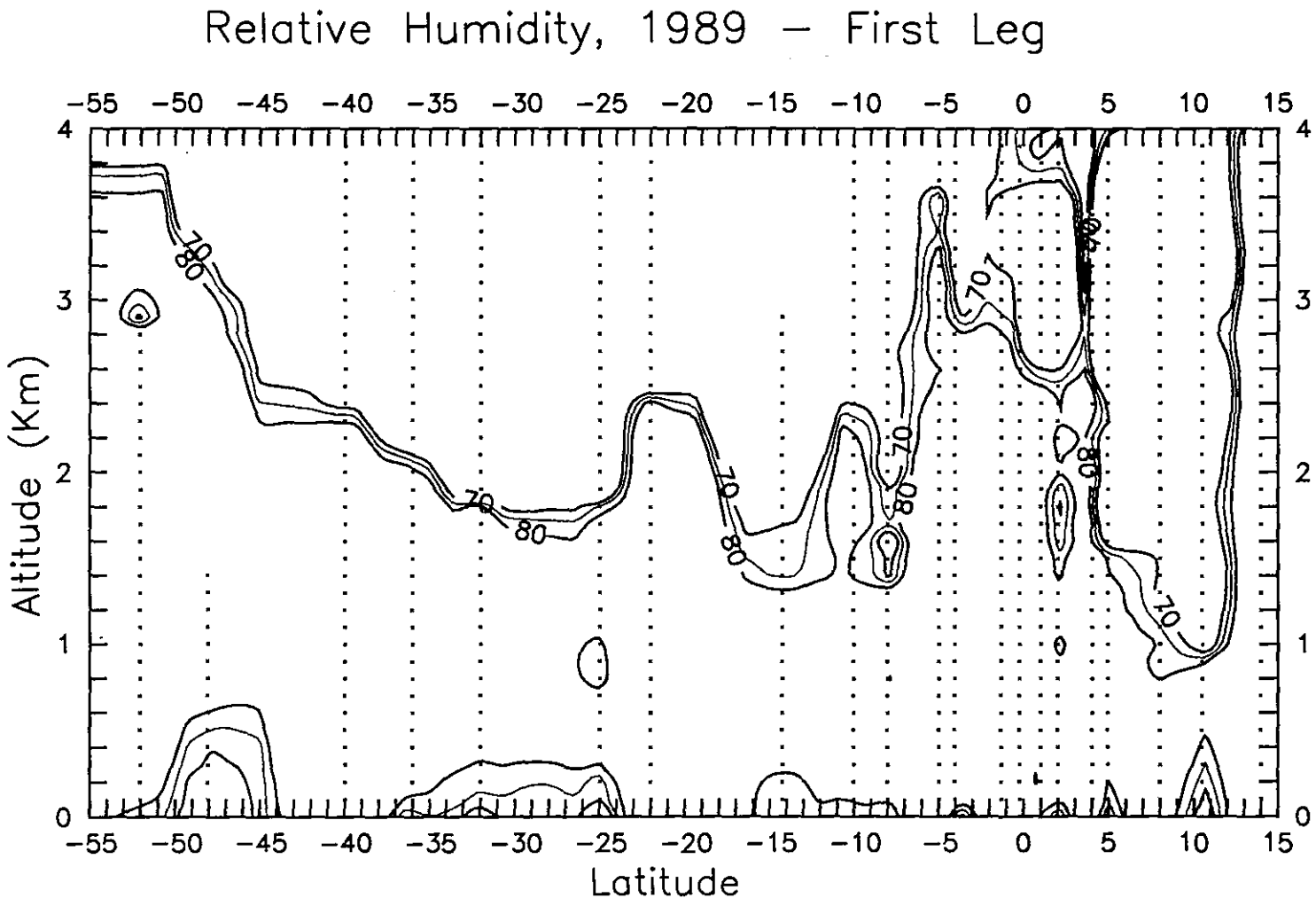
Appendix 3.

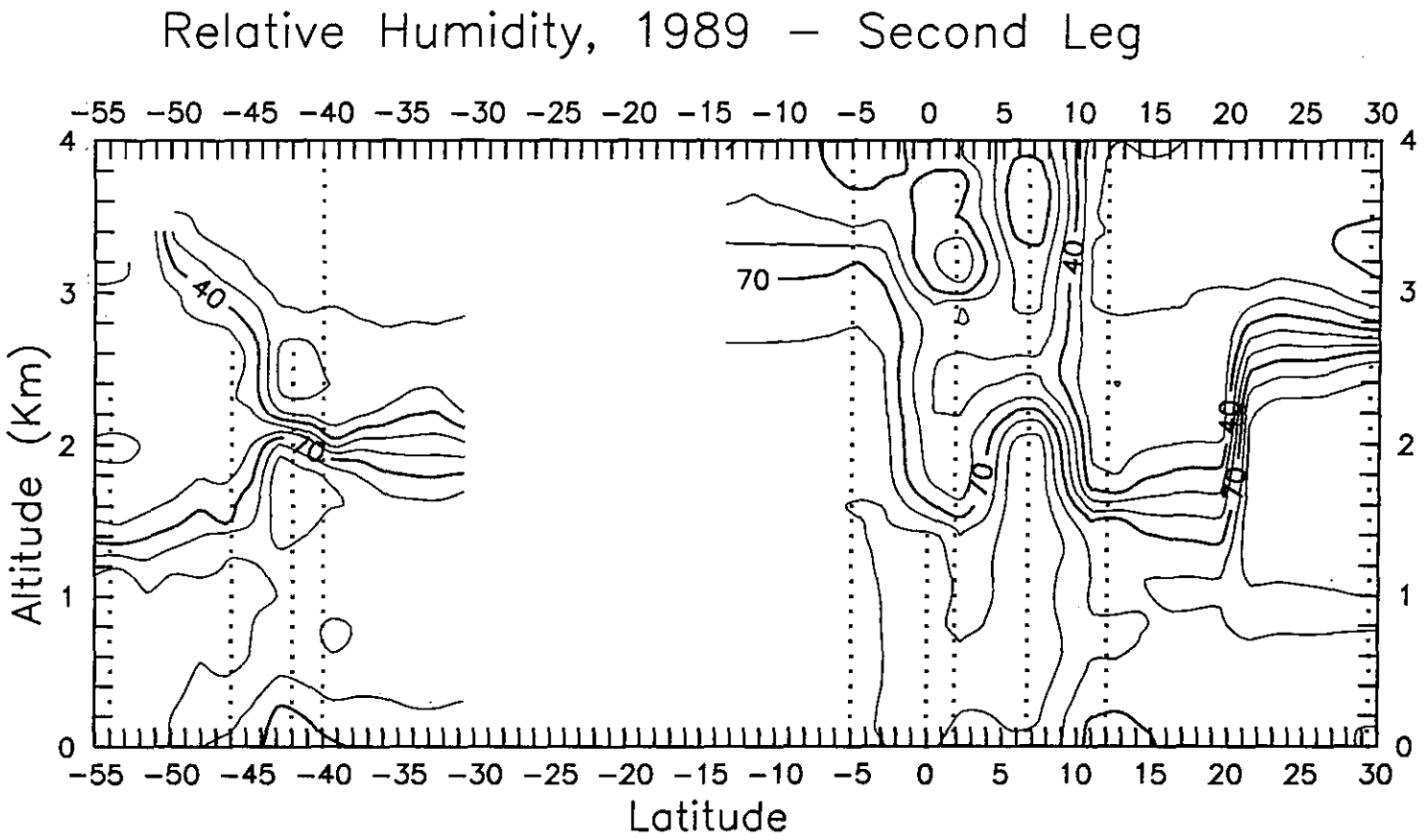
Plots of relative humidity for the RITS 88 and RITS 89 cruises. The RITS 89 cruises have been separated in to Leg 1, the southbound leg, and Leg 2, the northbound leg. Each set of data is displayed twice. In the first plot, all contour lines are shown, from 0 to 100% in 10% intervals. In the second plot, only the 70%, 75%, and 80% contour lines are shown to highlight the transition zone from wet to dry air at the top of the MBL. The location of each sounding is denoted by tick marks at altitude intervals of 100 m.

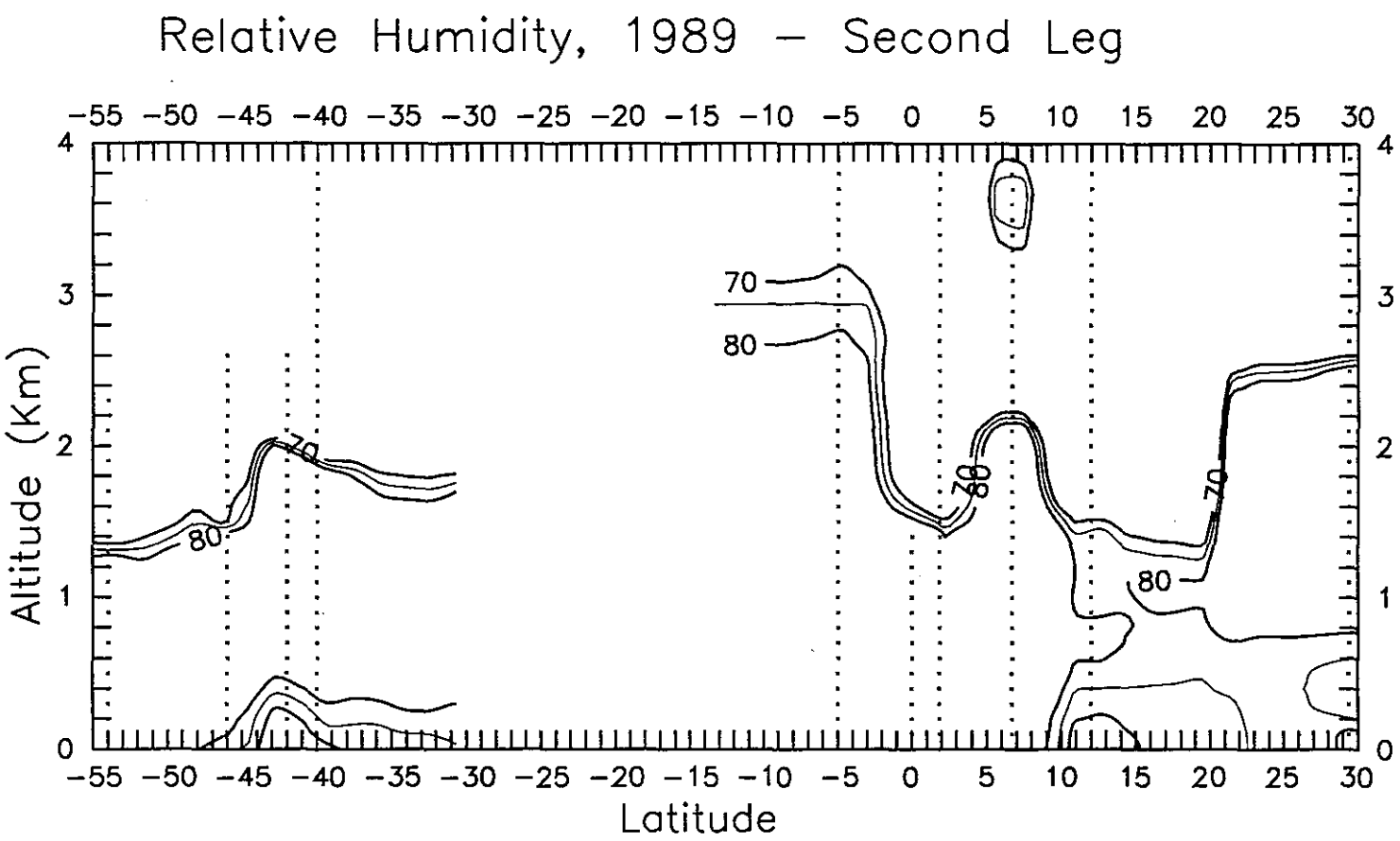

Relative Humidity, 1988
Altitude (Km)
Latitude
−15 −10 −5 0 5 10 15 20 25 30 35 40 45 50
0 1 2 3 4
70
40
0
100


Relative Humidity, 1988
Altitude (Km)
Latitude
−15 −10 −5 0 5 10 15 20 25 30 35 40 45 50
0 1 2 3 4
70
80


Relative Humidity, 1989 – First Leg
Altitude (Km)
Latitude
−55 −50 −45 −40 −35 −30 −25 −20 −15 −10 −5 0 5 10 15
0 1 2 3 4
40
70


Relative Humidity, 1989 – First Leg
Altitude (Km)
Latitude
−55 −50 −45 −40 −35 −30 −25 −20 −15 −10 −5 0 5 10 15
0 1 2 3 4
70
80


Relative Humidity, 1989 – Second Leg
Altitude (Km)
Latitude
−55 −50 −45 −40 −35 −30 −25 −20 −15 −10 −5 0 5 10 15 20 25 30
0 1 2 3 4
40
70


Relative Humidity, 1989 – Second Leg
−55 −50 −45 −40 −35 −30 −25 −20 −15 −10 −5 0 5 10 15 20 25 30
4
3
2
1
0
Altitude (Km)
70
80
Latitude

Appendix 4.

Hourly weather observations for each of the two RITS cruises as recorded by the Ship Officers. The columns from left to right are: month, day of month (local ship time), hour (local ship time), julian day (GMT), decimal latitude (degrees North), decimal longitude (degrees West), present weather, visibility (nautical miles, UL ≥ 12), true wind direction (compass degrees), true wind speed (knots), sea wave height (feet), swell wave direction (compass degrees), swell wave height (feet), sea surface temperature (degrees Celsius), barometric pressure (millibars), air temperature (degrees Celsius), air wet bulb temperature (degrees Celsius).

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MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	6	17	98.042	53.89	165.738	PC	UL	305	18	2			3.0	1017.0	2.8	2.0
4	6	18	98.083	53.68	165.996	PC	UL	313	14	2			3.3	1016.6	1.8	0.1
4	6	19	98.125	53.47	166.312	PC	UL	310	10	2			3.4	1016.6	2.0	0.2
4	6	20	98.167	53.26	166.645	PC	UL	315	10	2			3.8	1017.0	1.8	0.7
4	6	21	98.208	53.05	166.943	PC	UL	340	14	2			3.7	1017.4	1.7	0.4
4	6	22	98.250	53.00	167.027	PC	UL	350	15	2			3.6	1017.6	1.1	0.0
4	6	23	98.292	53.00	167.005	PC	UL	330	16	2			3.6	1018.0	0.8	0.0
4	6	24	98.333	53.94	167.128	PC	UL	340	13	2			3.7	1018.0	0.9	0.0
4	7	1	98.375	52.75	167.325	PC	UL	0	9	2			3.6	1018.2	0.8	-0.8
4	7	2	98.417	52.61	167.468	PC	UL	10	10	2			3.7	1018.2	0.7	-0.5
4	7	3	98.458	52.47	167.583	PC	UL	10	10	2			3.6	1018.1	0.8	-0.8
4	7	4	98.500	52.33	167.687	PC	UL	0	10	2			3.8	1018.1	0.8	-1.3
4	7	5	98.542	52.20	167.810	PC	UL	320	6	2			3.3	1017.7	0.8	-1.3
4	7	6	98.583	52.06	167.920	PC	UL	320	10	2			3.0	1017.4	1.1	-1.1
4	7	7	98.625	51.95	168.072	SW	2	350	12	3			3.1	1017.4	0.0	-0.3
4	7	8	98.667	52.00	167.998	PC	10	320	14	2			3.1	1017.1	1.9	0.5
4	7	9	98.708	52.00	167.992	SW	1	25	18	2			3.1	1017.3	-1.0	-0.3
4	7	10	98.750	51.99	167.998	SW	5	0	20	3			3.1	1018.6	-1.2	-1.2
4	7	11	98.792	51.99	167.998	PC	10	0	18	3			3.1	1018.7	-1.0	-1.2
4	7	12	98.833	51.99	167.998	PC	10	0	16	3			3.1	1018.9	-0.8	-1.8
4	7	13	98.875	52.00	168.010	PC	10	0	18	3			3.1	1019.5	-1.5	
4	7	14	98.917	52.00	168.022	PC	10	5	18	3			3.1	1019.6	-1.2	
4	7	15	98.958	52.00	168.015	PC	12	20	20	4			3.1	1019.7	-1.1	
4	7	16	99.000	52.00	168.013	PC	12	15	20	5			3.2	1019.9	-1.2	
4	7	17	99.042	52.00	168.003	PC	10	5	20	5			3.1	1020.2	-2.0	
4	7	18	99.083	52.02	167.967	PC	10	354	24	5			3.1	1020.1	-0.8	
4	7	19	99.125	51.91	168.075	PC	10	350	18	5			3.0	1020.7	0.9	-0.5
4	7	20	99.167	51.68	168.288	F,C	3	345	19	5			3.0	1020.8	-0.8	
4	7	21	99.208	51.49	168.475	PF,PC	10	0	21	5			3.0	1021.6	-0.5	
4	7	22	99.250	51.27	168.652	PC	10	350	22	5			3.0	1022.6	-0.3	
4	7	23	99.292	50.07	168.818	PC	10	345	22	5			3.1	1023.5	-0.4	
4	7	24	99.333	50.84	169.047	PC	10	0	22	5			3.0	1024.5	-0.5	
4	8	1	99.375	50.64	169.287	PC	UL	5	21	4			3.0	1025.0	-0.1	
4	8	2	99.458	50.24	169.753	PC	UL	355	16	4			3.1	1026.0	1.0	-0.6
4	8	3	99.500	50.02	169.970	PC	UL	350	18	4			3.1	1026.5	0.7	-0.9
4	8	4	99.542	50.01	170.012	PC	UL	345	16	4			3.1	1026.5	0.3	-0.4
4	8	5	99.583	50.00	170.023	PC	UL	340	17	4			3.1	1026.5	-0.4	
4	8	6	99.625	50.03	170.040	PC	UL	350	12	4			3.1	1026.5	-0.2	
4	8	7	99.667	50.04	170.048	CL	10	340	10	4			3.1	1026.3	2.0	0.0
4	8	8	99.708	50.05	170.040	CL	12	310	4	3			3.0	1026.3	0.0	-1.0
4	8	9	99.750	49.98	169.992	CL	12	300		3	0	3	3.1	1026.6	0.6	-0.8
4	8	10	99.792	49.98	169.995	CL	12			3	0	3	3.1	1026.5	0.8	-0.5
4	8	11	99.833	49.99	170.002	CL	12				0	3	3.1	1026.2	1.6	0.0
4	8	12	99.875	50.00	170.005	CL	UL	180	4		0	3	3.1	1026.1	1.3	0.1
4	8	13	99.917	50.00	170.005	PC	UL	180	5	CALM	0	2	3.1	1025.4	1.7	0.2
4	8	14	99.958	50.00	170.012	PC	UL	180	6	CALM	0	2	3.2	1024.6	2.2	0.5
4	8	15	100.000	50.02	170.017	PC	UL	180	8	2	0	3	3.2	1023.2	1.5	0.2
4	8	16	100.042	48.79	170.017	CL	UL	180	16	2	10	3	3.2	1022.6	1.2	1.0
4	8	17	100.083	49.53	169.990	CL	UL	168	16	3			3.4	1021.4	1.8	1.1
4	8	18	100.125	49.29	169.990	PC	UL	180	23	3	10	3	3.4	1020.6	2.0	1.2
4	8	19	100.167	48.99	169.975	CL	UL	175	26	6	10	3	3.5	1019.5	3.3	3.0
4	8	20	100.208	48.75	169.980	S,CL	4	168	22	5			3.4	1019.2	1.6	1.1
4	8	21	100.250	48.55	169.993	S,CL	4	163	24	5			3.4	1017.5	1.4	1.0

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MN	D (Ship)	HR	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	8	22	100.292	48.50	169.997	R,CL	4	160	28	5			3.3	1016.7	1.3	1.0
4	8	23	100.333	48.49	169.960	CL	5	150	34	7			3.3	1015.1	1.0	0.8
4	8	24	100.375	48.49	169.923	R	5	155	28	7			3.3	1014.0	2.0	2.0
4	9	1	100.417	48.46	169.900	R	5	170	30	7			3.4	1012.5	2.1	2.1
4	9	2	100.458	48.31	169.888	R	5	170	34	8			3.4	1011.0	3.2	3.0
4	9	3	100.500	48.18	169.882	R	5	200	19	8			3.3	1011.0	3.7	3.7
4	9	4	100.542	48.05	169.890	CL	UL	240	17	8			3.3	1011.0	3.9	3.5
4	9	4	100.583	47.90	169.902	CL	UL	235	24	8			3.2	1011.0	3.8	3.2
4	9	5	100.625	47.75	169.922	CL	UL	250	20	8			3.2	1011.5	3.9	3.0
4	9	6	100.667	47.59	169.945	CL	UL	230	17	8			3.2	1011.4	3.9	3.0
4	9	7	100.708	47.44	169.975	CL	8	220	18	8			3.3	1010.6	4.0	3.3
4	9	8	100.750	47.25	170.000	CL	5	225	17	8			3.5	1010.2	3.8	3.3
4	9	9	100.792	47.12	170.008	CL	7	205	22	8			3.5	1009.5	3.8	3.3
4	9	10	100.833	47.00	170.000	CL	8	205	20	6			3.5	1009.7	3.7	3.3
4	9	11	100.875	46.99	170.010	CL	8	160	22	6			3.5	1007.8	4.1	3.1
4	9	12	100.917	46.99	170.008	R	7	160	22	6			3.5	1006.6	4.3	4.1
4	9	13	100.958	46.99	170.007	R	7	160	28	7			3.5	1005.2	4.6	4.3
4	9	14	101.000	46.99	169.998	R	6	185	28	7			3.5	1003.9	5.5	5.2
4	9	15	101.042	46.99	169.995	R	4	190	34	7			3.5	1001.5	5.9	5.5
4	9	16	101.083	46.99	169.995	R	4	210	36	8			3.5	999.6	6.8	6.5
4	9	17	101.125	46.98	170.007	R	5	195	42	8			3.5	998.0	6.1	6.0
4	9	18	101.167	46.95	170.023	R	3	200	42	10			3.5	996.3	6.1	6.0
4	9	19	101.208	46.88	170.002	R	3	180	42	12			3.5	995.1	6.0	6.0
4	9	20	101.250	46.78	169.960	F,R	2	195	43	12			3.5	994.5	6.4	6.0
4	9	21	101.292	46.67	169.925	F,R	5	195	34	12			3.5	994.0	6.0	6.0
4	9	22	101.333	46.56	169.900	R	5	200	32	12			3.5	993.8	6.0	6.0
4	9	23	101.375	46.45	169.895	R	5	220	30	12			3.5	994.0	5.6	5.2
4	9	24	101.417	46.36	169.908	CL	5	240	26	12			3.5	994.6	4.8	4.5
4	10	1	101.458	46.26	169.918	PCL	10	230	33	12			3.5	994.6	4.9	4.0
4	10	2	101.500	46.16	169.917	PC	10	225	27	12			3.4	994.8	5.1	4.8
4	10	3	101.542	46.06	169.945	PC	7	240	24	12			3.4	994.8	4.7	4.5
4	10	4	101.583	45.96	169.933	CL,L	7	235	28	12			3.4	994.7	4.0	4.0
4	10	5	101.625	45.89	169.955	CL,L	7	225	34	12			3.4	994.8	4.6	4.2
4	10	6	101.667	45.70	169.952	CL	10	220	36	12			3.4	995.3	4.5	4.1
4	10	7	101.708	45.70	169.957	PC	10	220	32	12			3.6	995.0	4.2	4.1
4	10	8	101.750	45.61	169.963	PC	8	210	34	12			3.6	995.2	6.0	4.8
4	10	9	101.792	45.54	169.957	PC	8	225	36	15			3.5	996.2	4.8	4.1
4	10	10	101.833	45.51	169.968	PC	7	230	38	18			3.5	996.5	5.2	3.8
4	10	11	101.875	45.50	169.982	PC	10	230	38	21			3.5	997.1	5.1	3.9
4	10	12	101.917	45.47	170.017	CL	8	225	38	20			3.5	996.8	5.9	4.3
4	10	13	101.958	45.43	170.045	PC	8	230	48	22			3.5	997.1	4.1	4.0
4	10	14	102.000	45.73	170.075	PC	10	230	38	25			3.6	997.0	4.5	3.8
4	10	15	102.042	45.38	170.110	PC	8	230	40	28			3.6	997.3	4.2	4.0
4	10	16	102.083	45.37	170.172	PC	8	230	42	30			3.6	997.3	5.0	3.9
4	10	17	102.125	45.34	170.227	PC	8	240	46	30			3.7	998.0	6.0	5.0
4	10	18	102.167	45.32	170.288	CL	8	245	42	30			3.7	998.7	4.2	3.3
4	10	19	102.208	45.30	170.347	CL	8	245	42	30			3.9	998.7	4.8	3.3
4	10	20	102.250	45.28	170.412	CL	8	237	40	25			4.1	1000.0	4.7	3.4
4	10	21	102.292	45.28	170.468	CL	8	270	43	20			4.1	1001.0	4.8	4.3
4	10	22	102.375	45.27	170.632	CL	8	270	42	20			4.0	1003.5	3.8	3.0
4	10	23	102.417	45.27	170.703	CL	8	270	42	20			4.3	1003.8	3.2	3.2
4	10	24	102.458	45.27	170.745	PC	8	270	43	30			4.3	1004.5	3.2	3.0
4	11	1	102.500	45.27	170.782	PC	10	280	40	30			4.4	1005.0	3.2	2.9

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MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	11	2	102.542	45.26	170.810	PC	10	280	40	30			4.4	1005.7	2.8	2.5
4	11	3	102.583	45.26	170.827	PC	10	270	40	30			4.5	1006.1	3.0	2.2
4	11	4	102.625	45.23	170.832	PC	10	260	40	30			4.6	1006.7	3.0	2.5
4	11	5	102.667	45.28	170.883	PC	10	270	40	30			4.7	1007.2	3.0	2.2
4	11	6	102.708	45.20	170.895	PC	8	270	42	30			4.7	1008.1	3.0	2.3
4	11	7	102.750	45.19	170.945	PC	8	270	42	30			4.7	1009.0	3.4	2.5
4	11	8	102.792	45.17	170.985	PC	8	270	40	30			4.7	1009.9	4.9	5.0
4	11	9	102.833	45.16	171.032	PC	8	272	38	25			4.8	1010.6	4.5	3.0
4	11	10	102.875	45.15	171.077	PC	8	270	40	30			4.8	1011.0	4.5	3.0
4	11	11	102.917	45.15	171.138	PC	10	275	38	30			4.8	1011.3	5.5	3.5
4	11	12	102.958	45.14	171.195	PC	10	275	38	30			4.8	1011.6	4.3	3.5
4	11	13	103.000	45.15	171.237	PC	8	270	38	25			4.4	1011.2	5.0	4.1
4	11	14	103.042	45.17	171.295	PC	8	260	36	25			4.6	1011.1	5.0	3.8
4	11	15	103.083	45.19	171.337	PC	8	265	32	25			4.5	1010.6	5.5	3.4
4	11	16	103.125	45.20	171.388	PC	8	260	32	25			4.4	1010.0	4.5	4.0
4	11	17	103.167	45.21	171.445	PC	8	255	32	18			4.4	1009.6	4.0	4.0
4	11	18	103.208	45.22	171.500	PC	8	255	32	18			4.4	1009.0	4.7	4.0
4	11	19	103.250	45.24	171.550	PC	8	250	32	18			4.4	1007.5	4.8	3.9
4	11	20	103.292	45.25	171.603	PC	10	238	28	15			4.4	1007.5	4.8	3.9
4	11	21	103.333	45.27	171.657	PC	10	240	27	15			4.6	1006.3	3.6	3.5
4	11	22	103.375	45.28	171.712	PC	10	225	34	15			4.6	1005.5	4.3	4.1
4	11	23	103.417	45.30	171.778	PC,ZR	2	280	30	12			4.3	1005.0	4.4	4.0
4	11	24	103.458	45.29	171.832	PC	8	275	34	12			4.2	1004.8	4.0	3.6
4	12	1	103.500	45.31	171.888	PC,ZR	3	275	34	12			4.1	1004.8	2.0	1.3
4	12	2	103.542	45.29	171.980	PC	10	280	32	12			4.1	1004.6	0.5	0.5
4	12	3	103.583	45.26	172.020	PC	10	280	36	15			4.2	1005.1	1.0	8.0
4	12	4	103.625	45.24	172.082	PC	10	280	34	15			4.2	1005.3	2.8	2.5
4	12	5	103.667	45.23	172.153	PC	10	300	34	12			4.2	1006.0	2.7	2.3
4	12	6	103.708	45.21	172.228	PC,SW	12	300	32	12			4.1	1006.8	2.8	2.6
4	12	7	103.750	45.21	172.297	PC	15	305	28	12			4.0	1008.3	2.8	1.8
4	12	8	103.792	45.12	172.265	PC	10	305	22	8			4.0	1010.0	4.0	3.0
4	12	9	103.833	44.95	172.045	PC	10	305	24	8			4.6	1011.4	4.8	3.2
4	12	10	103.875	44.74	171.782	PC,SW	10	300	26	8			4.1	1006.8	2.8	2.6
4	12	11	103.917	44.55	171.633	PC	10	310	19	8			4.0	1008.3	2.8	1.8
4	12	12	103.958	44.31	171.463	PC	10	310	21	8			5.1	1013.0	5.1	3.6
4	12	13	104.000	44.07	171.300	PC	10	300	18	8			4.9	1012.9	4.8	3.0
4	12	14	104.042	43.83	171.137	PC	UL	310	16	8			5.6	1013.1	5.5	3.1
4	12	15	104.083	43.58	170.978	PC	UL	320	15	7			5.8	1013.4	5.8	3.2
4	12	16	104.125	43.33	170.832	PC	UL	320	14	6			5.9	1013.3	5.3	3.3
4	12	17	104.167	43.08	170.672	PC	UL	330	12	5			5.8	1013.0	5.6	2.8
4	12	18	104.208	42.83	170.522	PC	UL	330	12	5			6.1	1013.3	4.6	1.9
4	12	19	104.250	42.59	170.373	PC	UL	330	8	5			6.4	1013.1	4.6	2.5
4	12	20	104.292	42.34	170.222	PC	UL	345	7	5			6.7	1013.9	5.0	4.0
4	12	21	104.333	42.10	170.072	PC	UL	0	6	5			7.1	1013.4	4.8	4.0
4	12	22	104.375	42.01	169.987	PC	UL	30	5	5			7.0	1010.4	4.9	4.1
4	12	23	104.417	42.01	169.992	PC	UL	40	2	5			7.0	1011.0	4.9	4.0
4	12	24	104.458	42.02	170.000	CL	16	40	8	3			7.0	1010.9	4.7	3.8
4	13	1	104.500	42.03	170.005	CL,R	5	30	8	3	335	3	7.1	1009.8	4.8	4.0
4	13	2	104.542	42.05	170.013	CL	5	30	8	3	335	3	7.2	1008.8	5.0	4.5
4	13	3	104.583	42.06	170.045	CL	5	10	8	2	335	3	7.2	1007.8	4.6	3.7
4	13	4	104.625	42.08	170.022	CL	5	20	14	2	335	3	7.2	1006.4	5.8	3.9
4	13	5	104.667	42.07	170.013	CL	5	20	16	2	340	3	7.2	1005.5	4.8	4.2
4	13	6	104.708	42.08	170.025	CL	8	50	20	2	335	4	7.1	1004.8	4.5	3.9

RITS/CO2 APRIL-MAY 1988 NOAA SHIP OCENOGRAPHER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	13	7	104.750	42.09	170.037	CL	8	40	20	5	335	3	7.1	1004.5	3.3	2.9
4	13	8	104.792	42.11	170.053	CL,S	5	0	16	2	5	5	7.1	1004.9	2.5	1.8
4	13	9	104.833	41.92	170.043	CL	5	5	16	2	5	5	7.4	1004.1	2.7	2.0
4	13	10	104.875	41.64	170.020	CL	5	0	35	2	280	5	7.6	1003.5	2.8	2.3
4	13	11	104.917	41.38	170.007	CL	10	0	33	3	300	3	7.4	1003.1	5.0	3.8
4	13	12	104.958	41.05	169.988	CL,L	10	0	34	3	300	4	7.6	1003.1	4.8	3.5
4	13	13	105.000	40.85	169.980	CL,S	8	325	34	4	300	4	8.0	1003.4	5.0	4.2
4	13	14	105.042	40.58	169.985	CL	10	320	33	6			8.2	1003.7	4.8	4.5
4	13	15	105.083	40.31	169.995	PC	10	320	34	6			7.8	1004.6	6.0	4.2
4	13	16	105.125	40.04	170.000	PC	10	320	34	10			10.8	1005.6	6.2	5.6
4	13	17	105.167	40.01	170.005	PC	10	325	30	10			11.0	1006.4	6.0	5.4
4	13	18	105.208	40.03	170.000	PC,SP	5	330	44	10			10.9	1007.6	5.8	4.2
4	13	19	105.250	40.05	170.005	PC,SP	3	300	38	10			10.6	1008.3	5.5	4.0
4	13	20	105.292	40.08	170.017	PC	5	325	30	10			9.7	1009.5	5.4	4.0
4	13	21	105.333	40.11	170.030	PC,RW	5	315	36	10			9.6	1011.0	5.5	4.1
4	13	22	105.375	40.12	170.050	PC,R	5	315	34	12			9.6	1012.0	5.7	4.3
4	13	23	105.417	40.14	170.075	PC,SQUALL	7	315	34	12			9.8	1011.5	4.9	4.4
4	13	24	105.458	40.16	170.087	PC,SQUALL	7	315	36	12			9.6	1013.0	3.5	2.5
4	14	1	105.500	40.17	170.107	PC,SP	5	320	40	15			9.3	1013.6	5.0	3.8
4	14	2	105.542	40.19	170.132	PC,SP	8	320	32	15			9.6	1014.0	4.5	2.8
4	14	3	105.583	40.21	170.173	PC	8	310	38	15			9.7	1014.7	4.5	2.5
4	14	4	105.625	40.22	170.213	PC,L	10	300	30	12			9.1	1015.0	4.2	3.9
4	14	5	105.667	40.26	170.233	PC	10	300	34	10			8.8	1015.0	5.3	4.8
4	14	6	105.708	40.28	170.267	PC,L	15	300	32	10			8.7	1015.6	3.9	3.5
4	14	7	105.750	40.30	170.298	SP,PC	7	290	36	10			8.6	1015.7	5.5	4.7
4	14	8	105.792	40.35	170.318	PC	10	290	27	10			8.6	1016.2	5.1	3.3
4	14	9	105.833	40.35	170.332	PC	10	290	28	10			8.8	1017.0	6.7	5.1
4	14	10	105.875	40.14	170.133	PC	10	285	23	5	325	9	9.6	1017.0	6.9	5.0
4	14	11	105.917	40.01	170.020	PC	10	270	24	6	315	5	10.9	1017.0	6.8	5.9
4	14	12	105.958	40.03	170.022	PC	10	270	20	8	330	7	10.9	1016.3	7.2	5.8
4	14	13	106.000	40.04	170.033	PC	10	280	20	8	330	5	10.9	1015.8	6.1	4.6
4	14	14	106.042	40.05	170.042	CL,RW	10	290	20	8	330	4	10.9	1015.1	5.7	5.0
4	14	15	106.083	40.06	170.083	CL,RW	8	275	20	7	320	4	10.9	1014.3	5.2	4.8
4	14	16	106.125	40.07	170.093	CL,RW	8	275	14	7	320	5	10.9	1013.5	5.3	4.5
4	14	17	106.167	40.06	170.115	CL	10	290	10	6	320	4	10.9	1013.0	5.0	4.2
4	14	18	106.208	40.06	170.132	CL,L	10	300	10	6			10.9	1012.8	5.3	4.5
4	14	19	106.250	40.03	170.153	CL,L	10	290	6	6			10.9	1012.7	5.0	4.5
4	14	20	106.292	40.05	170.167	CL	10	295	7	5			10.9	1012.6	5.2	4.5
4	14	21	106.333	39.83	170.148	CL	10	315	12	5			10.5	1012.5	6.5	5.7
4	14	22	106.375	39.57	170.105	PC	10	315	12	5			9.1	1012.9	6.4	5.3
4	14	23	106.417	39.31	170.083	PC	10	315	10	6				1013.0		
4	14	24	106.458	39.04	169.960	PC	10	305	16	7			10.7	1013.2	9.2	8.5
4	15	1	106.500	38.81	169.787	CL,R	10	310	19	8			10.9	1013.3	10.2	9.6
4	15	2	106.542	38.57	169.608	CL,R	8	300	22	8			11.0	1013.5	10.0	9.5
4	15	3	106.583	38.34	169.445	CL,R	8	280	22	8			10.9	1013.0	11.1	10.3
4	15	4	106.625	38.13	169.307	CL	8	275	22	8			10.8	1013.0	11.5	10.5
4	15	5	106.667	38.00	169.312	CL,R	8	255	26	8			10.9	1013.0	11.3	10.2
4	15	6	106.708	37.99	169.422	CL,L	10	250	34	8			10.8	1013.0	11.3	10.7
4	15	7	106.750	37.99	169.543	CL	10	250	30	10			10.7	1013.0	11.2	10.7
4	15	8	106.792	38.00	169.645	CL,R	6	250	33	10			10.8	1013.2	11.4	10.8
4	15	9	106.833	38.01	169.747	CL,R	6	250	33	10			10.7	1012.5	11.4	10.8
4	15	10	106.875	38.01	169.863	CL,R	4	255	35	10			10.8	1012.6	11.4	11.0
4	15	11	106.917	38.00	169.942	CL,R	3	255	29	11			11.1	1012.3	11.2	11.1

RITS/CO2 APRIL-MAY 1988 NOAA SHIP OCENOGRAPHER

MN	D	HR	Julian Day (Ship)	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	15	12	106.958	38.00	170.008	CL,R	3	255	30	10			11.3	1012.0	11.5	11.2
4	15	13	107.000	38.01	169.990	CL,R	4	260	32	10			11.3	1011.6	11.5	11.2
4	15	14	107.042	37.93	170.060	CL,R	4	255	32	10			11.1	1010.6	12.0	11.1
4	15	15	107.083	37.77	170.132	CL	5	255	36	12			11.9	1010.7	12.0	11.2
4	15	16	107.125	37.62	170.220	CL	5	260	32	12			12.4	1010.7	12.9	11.7
4	15	17	107.167	37.49	170.108	CL	5	255	26	11			12.8	1012.3	14.0	12.5
4	15	18	107.208	37.42	169.848	CL	8	255	28	10			11.2	1011.6	13.2	12.1
4	15	19	107.250	37.26	169.718	CL	8	270	20	10			12.4	1011.6	13.6	12.4
4	15	20	107.292	37.04	169.548	CL	8	265	21	10			12.6	1013.0	13.3	12.6
4	15	21	107.333	36.82	169.398	PC	UL	247	28	10			12.6	1013.2	13.8	13.0
4	15	22	107.375	36.60	169.543	PC	UL	247	25	9			12.6	1013.7	13.5	13.0
4	15	23	107.417	36.40	169.678	C	UL	240	28	5			12.6	1013.5	14.0	13.5
4	15	24	107.458	36.14	169.847	PC	UL	245	24	9			13.4	1014.1	13.8	13.2
4	16	1	107.500	36.00	170.000	PC	UL	245	24	8			13.1	1014.0	14.0	12.9
4	16	2	107.542	35.99	170.018	PC	UL	240	26	7			13.1	1013.4	14.0	12.7
4	16	3	107.583	35.98	170.042	PC	UL	240	28	7			13.1	1013.1	14.1	13.1
4	16	4	107.625	35.97	170.055	CL	10	245	30	7			13.1	1012.5	13.9	13.1
4	16	5	107.667	35.96	170.070	PC	10	240	26	7			13.1	1012.0	13.9	
4	16	6	107.708	35.88	170.090	PC	10	240	26	7			12.9	1012.2	14.8	
4	16	7	107.750	35.63	170.098	PC	10	235	26	7			13.0	1012.9	15.0	14.7
4	16	8	107.792	35.40	170.087	PC	8	235	27	4			13.5	1013.6	16.0	15.5
4	16	9	107.833	35.13	170.078	PC	9	235	26	4			13.6	1014.6	15.6	14.2
4	16	10	107.875	34.89	170.053	PC	9	235	23	4			13.5	1015.7	16.5	14.5
4	16	11	107.917	34.60	170.015	PC	9	235	26	4			14.2	1016.1	16.0	15.0
4	16	12	107.958	34.36	169.983	PC	10	230	26	5			15.5	1016.5	17.1	15.2
4	16	13	108.000	34.13	170.002	PC	10	240	23	5			15.9	1016.4	17.4	15.4
4	16	14	108.042	34.01	169.980	PC	10	240	23	6			15.9	1017.6	16.0	14.6
4	16	15	108.083	34.02	169.992	PC	10	240	26	6			15.9	1017.3	16.8	15.1
4	16	16	108.125	34.03	170.015	PC	10	245	24	6			15.9	1017.1	16.7	15.0
4	16	17	108.167	34.05	170.022	CL	10	240	22	5			15.9	1017.1	16.3	15.3
4	16	18	108.208	34.07	170.033	CL	10	240	22	5			15.8	1017.3	16.3	15.2
4	16	19	108.250	34.07	170.043	CL	10	240	22	6			15.8	1017.5	16.2	15.1
4	16	20	108.292	34.08	170.050	CL	10	240	20	5			15.8	1018.0	16.0	15.3
4	16	21	108.333	34.08	170.050	CL	10	245	20	5			15.8	1018.5	16.0	15.2
4	16	22	108.375	34.07	170.058	CL	10	245	18	5			15.8	1018.6	16.3	15.0
4	16	23	108.417	34.05	170.057	CL	10	243	18	5			15.8	1018.0	16.2	15.1
4	16	24	108.458	33.88	170.050	C	12	230	21	5			15.8	1018.3	16.2	15.1
4	17	1	108.500	33.58	170.040	C	12	225	21	5			16.1	1018.6	16.2	15.1
4	17	2	108.542	33.31	170.038	C	12	225	19	5			15.5	1018.6	16.3	15.2
4	17	3	108.583	33.03	170.032	C	12	225	19	5			16.5	1018.9	16.4	15.5
4	17	4	108.625	32.77	170.017	C	12	240	14	5			16.1	1019.8	16.2	15.2
4	17	5	108.667	32.49	170.008	C	UL	240	12	4			15.7	1020.4	16.1	15.0
4	17	6	108.708	32.23	170.012	PC	UL	230	13	2	290	5	16.5	1020.9	16.6	14.8
4	17	7	108.750	33.00	170.008	PC	UL	215	12	2	290	5	16.7	1021.4	17.2	15.2
4	17	8	108.792	32.01	170.010	PC	UL	200	12	3	290	5	16.4	1022.0	17.3	15.2
4	17	9	108.833	32.00	170.065	PC	UL	200	12	3	290	5	16.2	1022.1	17.5	15.2
4	17	10	108.875	32.00	170.087	PC	UL	190	12	2	270	5	16.5	1022.2	17.5	15.8
4	17	11	108.917	32.00	170.095	PC	UL	180	10	2	260	4	16.9	1022.4	18.0	16.1
4	17	12	108.958	31.99	170.100	PC	UL	170	10	2	260	3	16.7	1021.6	18.0	16.5
4	17	13	109.000	31.74	170.057	PC	UL	175	10	2	260	3	16.9	1021.2	18.0	16.0
4	17	14	109.042	31.47	170.075	PC	UL	170	8	2	275	3	17.2	1020.7	18.2	17.2
4	17	15	109.083	31.19	170.060	PC	UL	160	14	2	270	3	17.7	1020.1	19.0	17.2
4	17	16	109.125	30.91	170.057	PC	UL	160	14	2	270	3	17.4	1020.0	19.0	17.2

RITS/CO2 APRIL-MAY 1988 NOAA SHIP OCENOGRAPHER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	17	17	109.167	30.63	170.052	PC	UL	155	14	2	290	3	18.5	1020.0	19.5	18.3
4	17	18	109.208	30.36	170.042	PC	UL	157	16	3	310	3	18.5	1020.0	19.8	18.0
4	17	19	109.250	30.10	170.020	PC	UL	150	16	3	310	3	20.2	1021.0	19.9	18.3
4	17	20	109.292	30.00	170.003	PC	UL	146	15	3	310	3	19.6	1021.5	20.1	18.4
4	17	21	109.333	30.01	169.997	PC	UL	150	12	3	310	3	19.7	1021.9	20.0	18.2
4	17	22	109.375	30.03	170.010	PC	UL	150	11	3	310	2	19.6	1022.0	20.0	18.1
4	17	23	109.417	30.02	170.000	PC	UL	150	14	3	310	2	19.6	1021.7	20.3	18.0
4	17	24	109.458	30.02	170.002	CL	UL	150	14	3	310	2	19.5	1021.4	20.0	18.7
4	18	1	109.500	30.01	169.995	CL	12	120	12	3			19.2	1020.8	19.2	18.0
4	18	2	109.542	30.01	169.985	CL	12	120	13	3			19.1	1020.2	19.6	18.6
4	18	3	109.583	30.01	169.983	PC	12	130	14	3			19.0	1020.9	19.6	18.5
4	18	4	109.625	30.00	169.970	PC,L	12	130	14	3			19.0	1019.5	19.2	18.7
4	18	5	109.667	29.99	169.957	PC,L	5	130	14	3			18.9	1019.4	18.9	18.7
4	18	6	109.708	29.87	169.947	CL,L	4	140	18	4			18.5	1019.1	19.2	19.0
4	18	7	109.750	29.60	169.935	PC	8	135	22	4			19.4	1019.2	20.2	19.8
4	18	8	109.792	29.35	169.940	PC	10	145	27	4			21.2	1019.0	21.3	20.3
4	18	9	109.833	29.10	169.945	CL	8	135	24	4			21.8	1018.5	21.2	20.5
4	18	10	109.875	28.87	169.958	CL	5	135	24	5			21.6	1018.8	21.2	20.8
4	18	11	109.917	28.63	169.975	CL	2	135	22	4			21.9	1018.5	21.8	21.3
4	18	12	109.958	28.39	169.993	PC	12	205	16	5			22.2	1018.8	22.7	21.0
4	18	13	110.000	28.14	170.008	PC	10	200	10	5			21.2	1018.8	21.5	20.7
4	18	14	110.042	28.01	169.995	PC	10	195	14	4			21.2	1018.8	22.0	20.8
4	18	15	110.083	28.00	170.003	PC	10	175	12	4			21.3	1018.4	21.9	21.0
4	18	16	110.125	27.99	170.007	PC	UL	165	12	3	150	4	21.2	1018.3	22.0	20.2
4	18	17	110.167	27.99	170.008	PC	UL	165	10	3	120	3	21.2	1018.1	22.1	21.2
4	18	18	110.208	27.98	170.002	PC	UL	155	8	3			21.2	1018.3	21.7	20.7
4	18	19	110.250	27.97	170.000	CL	UL	155	14	3			21.2	1018.5	21.3	20.0
4	18	20	110.292	27.97	170.003	CL	UL	160	11	3			21.1	1019.0	21.5	21.0
4	18	21	110.333	27.85	170.013	PC	UL	148	1	3			20.9	1019.4	21.5	21.0
4	18	22	110.375	27.65	170.010	PC	UL	151	14	3			20.9	1019.5	21.8	21.2
4	18	23	110.417	27.47	170.015	PC	UL	150	14	3			20.6	1019.5	22.0	21.3
4	18	24	110.458	27.28	170.017	C	UL	140	13	3			21.8	1019.2	22.1	21.1
4	19	1	110.500	27.10	170.005	C	UL	140	13	3			21.6	1018.3	22.1	21.1
4	19	2	110.542	26.90	170.000	C	UL	145	16	3			22.4	1017.8	22.2	20.6
4	19	3	110.583	26.72	169.985	PC	UL	145	16	3			22.7	1017.4	22.5	20.8
4	19	4	110.625	26.52	169.992	PC	UL	145	16	3			22.7	1017.5	22.7	20.8
4	19	5	110.667	26.33	169.985	PC	UL	145	16	4			23.3	1017.5	22.8	20.9
4	19	6	110.708	26.13	169.997	PC	UL	150	16	4			23.3	1017.3	23.1	21.5
4	19	7	110.750	26.00	169.990	PC	UL	150	20	4			23.4	1017.7	23.8	21.6
4	19	8	110.792	25.99	169.998	PC	UL	145	14	4			23.5	1018.4	24.5	22.7
4	19	9	110.833	26.00	169.997	PC	UL	150	16	3			23.5	1018.4	24.2	23.5
4	19	10	110.875	26.00	169.992	PC	12	155	18	2			23.5	1018.1	25.0	23.5
4	19	11	110.917	26.01	169.980	PC	UL	155	18	2			23.6	1018.1	25.0	23.4
4	19	12	110.958	26.01	169.988	PC	UL	160	20	3			23.6	1017.9	25.0	22.9
4	19	13	111.000	25.98	169.977	PC	UL	160	20	3			23.8	1017.4	24.5	22.8
4	19	14	111.042	25.89	169.852	PC	UL	160	18	3			23.6	1016.9	24.8	23.0
4	19	15	111.083	25.63	169.893	PC	UL	155	19	3			23.8	1016.2	24.5	22.7
4	19	16	111.125	25.36	169.940	PC	UL	155	18	3			23.6	1015.7	24.4	23.1
4	19	17	111.167	25.11	169.987	PC	UL	160	23	3			23.5	1015.8	24.0	21.8
4	19	18	111.208	24.95	169.997	PC	UL	145	18	4			23.7	1016.4	24.7	22.0
4	19	19	111.250	24.91	169.980	CL	UL	150	18	4			23.9	1016.9	24.3	22.8
4	19	20	111.292	24.71	169.995	CL,R	10	145	10	4			24.0	1017.4	24.0	22.3
4	19	21	111.333	24.48	169.953	PC	UL	150	20	4			24.3	1017.4	24.6	23.2

RITS/CO2 APRIL-MAY 1988 NOAA SHIP OCENOGRAPHER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	19	22	111.375	24.22	169.958	PC	UL	165	17	4			24.0	1018.0	24.5	23.1
4	19	23	111.417	24.00	169.998	PC	UL	165	20	3			24.0	1018.4	24.3	23.0
4	19	24	111.458	23.99	169.968	PC	UL	170	20	3			24.0	1018.4	24.8	22.9
4	20	1	111.500	23.98	169.970	PC	UL	170	16	3			24.0	1017.8	24.5	22.8
4	20	2	111.542	23.97	169.962	PC	UL	160	20	3			24.0	1017.3	24.6	22.7
4	20	3	111.583	23.96	169.958	PC	UL	170	18	3			24.0	1017.0	24.7	22.6
4	20	4	111.625	23.96	169.952	PC	UL	170	11	3			23.9	1016.5	24.9	22.6
4	20	5	111.667	23.95	169.948	PC	UL	170	12	3			23.9	1016.3	24.5	22.6
4	20	6	111.708	23.94	169.945	PC	UL	155	13	4			23.9	1016.7	24.4	22.4
4	20	7	111.750	23.90	169.982	PC	UL	160	13	4			23.9	1017.2	24.6	22.7
4	20	8	111.792	23.89	170.052	PC	UL	160	12	4			23.9	1017.6	24.9	23.1
4	20	9	111.833	23.72	170.068	PC	12	155	10	6			24.3	1017.9	24.8	23.0
4	20	10	111.875	23.52	170.063	CL	12	140	10	6			24.4	1018.0	25.0	23.5
4	20	11	111.917	23.32	170.057	PC	10	138	8	4			24.5	1018.2	25.2	23.6
4	20	12	111.958	23.11	170.040	PC	10	155	8	4			24.5	1018.2	25.2	22.7
4	20	13	112.000	22.91	170.033	PC	10	140	6	4			24.9	1018.0	25.5	23.2
4	20	14	112.042	22.67	170.022	PC	10	155	12	4			25.1	1017.5	25.6	23.3
4	20	15	112.083	22.50	170.020	PC	10	100	6	4			24.8	1016.9	25.5	23.0
4	20	16	112.125	22.27	170.012	PC	UL	100	5	3	135	4	25.0	1016.7	25.2	23.5
4	20	17	112.167	22.07	170.003	PC	UL	75	5	3	140	3	25.0	1017.0	25.3	23.4
4	20	18	112.208	22.00	169.990	PC	UL	120	6	3	140	4	25.0	1017.7	25.3	22.9
4	20	19	112.250	22.00	169.987	PC	UL	120	4	4			25.0	1018.4	24.9	22.7
4	20	20	112.292	22.00	169.998	PC	UL	110	6	2	140	4	25.0	1018.9	24.7	22.4
4	20	21	112.333	22.01	170.010	PC	UL	105	5	1	135	4	25.0	1019.5	24.8	23.0
4	20	22	112.375	22.02	170.002	PC	UL	110	6	1	135	4	25.0	1019.9	24.7	22.9
4	20	23	112.417	22.02	169.998	PC	UL	110	7	1	135	4	24.9	1019.9	24.7	23.0
4	20	24	112.458	22.02	169.993	PC	UL	110	6	1	135	3	24.9	1019.5	24.8	22.3
4	21	1	112.500	21.89	169.997	C	UL	60	6	3			24.9	1018.6	24.5	22.4
4	21	2	112.542	21.67	169.998	PC	UL	80	9	3			25.1	1018.1	24.5	22.5
4	21	3	112.583	21.44	169.997	PC	UL	70	9	3			25.2	1017.7	24.2	22.2
4	21	4	112.625	21.24	169.987	PC	UL	60	12	3			25.5	1017.3	24.8	22.5
4	21	5	112.667	20.99	169.985	PC	UL	65	12	3			25.7	1017.6	24.8	22.3
4	21	6	112.708	20.77	169.980	PC	UL	70	12	4			25.9	1017.8	24.8	22.6
4	21	7	112.750	20.51	169.995	PC	UL	85	13	4			25.8	1018.0	25.4	22.8
4	21	8	112.792	20.28	169.983	PC	UL	85	13	1	145	3	25.7	1018.7	26.0	23.7
4	21	9	112.833	20.07	169.990	PC	UL	75	13	1	145	3	25.7	1018.9	26.0	23.9
4	21	10	112.875	19.99	170.000	PC	UL	95	12	3			25.8	1019.0	26.5	23.9
4	21	11	112.917	20.00	169.975	PC	UL	100	12	4			25.8	1018.9	26.2	23.5
4	21	12	112.958	19.96	169.990	PC	UL	100	18	5			25.8	1018.6	26.2	23.2
4	21	13	113.000	19.95	169.968	PC	UL	100	18	5			25.9	1017.6	26.7	23.3
4	21	14	113.042	19.93	169.955	PC	UL	100	18	5			25.9	1017.0	25.8	23.4
4	21	15	113.083	19.92	169.940	PC	UL	100	18	5			25.8	1016.4	25.9	23.2
4	21	16	113.125	19.92	169.928	PC	UL	100	16	5			25.8	1016.2	28.0	23.9
4	21	17	113.167	19.91	169.915	PC	UL	90	16	5			25.8	1015.7	27.3	23.8
4	21	18	113.208	19.82	169.893	PC	UL	75	18	5			25.8	1015.7	25.6	23.0
4	21	19	113.250	19.62	169.898	PC	UL	80	17	5			25.6	1016.1	25.5	22.7
4	21	20	113.292	19.41	169.905	PC	UL	85	17	5			25.7	1016.7	25.4	22.5
4	21	21	113.333	19.22	169.900	PC	UL	90	16	5			25.7	1017.0	25.4	22.9
4	21	22	113.375	19.04	169.923	PC	UL	85	15	5			25.7	1017.6	25.5	22.8
4	21	23	113.417	18.85	169.928	PC	UL	90	16	5			25.6	1017.4	25.4	22.5
4	21	24	113.458	18.67	169.960	PC	UL	80	20	5			25.7	1016.9	25.3	22.2
4	22	1	113.500	18.48	169.977	PC	UL	70	14	3			25.7	1016.4	25.2	22.0
4	22	2	113.542	18.30	170.013	PC	UL	70	15	3			25.7	1015.5	25.0	22.5

RITS/CO2 APRIL-MAY 1988 NOAA SHIP OCENOGRAPHER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	22	3	113.583	18.12	170.005	PC	UL	70	16	3			25.7	1015.0	25.1	22.1
4	22	4	113.625	18.00	169.997	PC	UL	75	16	3			25.2	1014.6	25.0	22.3
4	22	5	113.667	18.01	169.995	PC	UL	75	16	3			25.7	1014.9	25.2	22.2
4	22	6	113.708	18.01	169.990	PC	UL	80	17	4	120	4	25.7	1015.5	25.2	22.2
4	22	7	113.750	18.02	169.977	PC	UL	80	16	4	120	4	25.7	1015.7	25.5	22.0
4	22	8	113.792	18.02	169.965	PC	UL	75	16	3	110	3	25.6	1016.2	26.2	23.8
4	22	9	113.833	18.02	169.958	PC	UL	75	13	2	110	3	25.7	1016.4	26.2	23.8
4	22	10	113.875	18.01	169.993	PC	UL	75	12	2	115	3	25.7	1016.7	26.8	24.3
4	22	11	113.917	18.01	170.005	PC	UL	75	14	2	110	2	25.7	1016.4	26.0	23.5
4	22	12	113.958	17.94	170.015	CL	UL	80	12	3	130	2	25.7	1016.0	26.2	23.3
4	22	13	114.000	17.73	170.008	CL,R	12	80	8	3	120	2	25.8	1015.2	23.2	21.5
4	22	14	114.042	17.46	169.998	CL,R	12	90	4	3	120	2	25.8	1014.4	22.2	21.9
4	22	15	114.083	17.19	169.993	CL,R	8	75	14	3	120	2	25.8	1013.3	25.0	23.0
4	22	16	114.125	16.91	169.997	PC	UL	90	14	3			26.0	1012.9	25.9	23.9
4	22	17	114.167	16.65	169.998	PC	UL	80	15	1	130	3	26.0	1012.9	26.0	23.8
4	22	18	114.208	16.38	169.998	PC	UL	80	17	3	120	3	26.0	1013.2	25.8	23.8
4	22	19	114.250	16.12	169.998	PC	UL	70	18	3	120	3	26.2	1013.7	25.9	22.9
4	22	20	114.292	16.00	170.000	PC	UL	70	15	1	110	3	26.1	1014.4	25.7	22.9
4	22	21	114.333	16.00	169.998	PC	UL	75	16	1	110	3	26.1	1014.5	25.8	23.7
4	22	22	114.375	16.00	169.998	PC	UL	70	22	1	110	3	26.1	1015.0	25.5	23.9
4	22	23	114.417	16.00	169.995	PC	UL	90	22	1	110	3	26.1	1015.0	25.4	23.6
4	22	24	114.458	15.99	169.982	PC	UL	70	20	1	110	3	26.1	1014.9	25.3	22.9
4	23	1	114.500	15.99	169.975	PC	UL	80	16	3			26.1	1014.4	25.3	22.8
4	23	2	114.542	16.01	169.972	PC	UL	95	16	3			26.0	1013.9	25.3	22.4
4	23	3	114.583	15.84	169.978	PC	UL	80	16	3			26.0	1013.1	25.3	22.5
4	23	4	114.625	15.64	169.962	PC	UL	85	16	3			25.9	1013.1	25.3	22.5
4	23	5	114.667	15.39	169.995	PC	UL	90	16	3			25.9	1013.3	25.4	22.6
4	23	6	114.708	15.17	170.003	PC	UL	80	16	3			26.0	1013.7	25.6	22.6
4	23	7	114.750	14.93	170.008	PC	UL	85	18	4			26.1	1013.9	26.2	23.8
4	23	8	114.792	14.71	170.012	PC	UL	90	20	4			25.9	1014.3	26.8	24.2
4	23	9	114.833	14.48	170.007	PC	UL	90	16	3			25.9	1014.3	26.8	24.6
4	23	10	114.875	14.26	170.007	PC	UL	80	17	3			25.9	1014.0	26.9	24.5
4	23	11	114.917	14.08	169.998	PC	UL	80	16	3			26.2	1014.0	27.0	24.3
4	23	12	114.958	14.00	170.000	PC	UL	90	12	3			26.3	1013.6	27.0	23.9
4	23	13	115.000	13.99	169.983	PC	UL	80	16	3			26.3	1013.6	27.2	24.1
4	23	14	115.042	13.99	169.975	PC	UL	80	16	3			26.3	1012.8	26.8	24.0
4	23	15	115.083	13.99	169.965	PC	UL	70	16	3			26.4	1012.1	26.5	23.6
4	23	16	115.125	14.00	169.960	PC	12	85	16	3			26.4	1012.2	26.6	23.1
4	23	17	115.167	14.00	169.955	PC	UL	70	15	3			26.4	1012.2	26.9	23.4
4	23	18	115.208	14.00	169.948	PC	12	75	14	3			26.4	1013.0	26.3	23.8
4	23	19	115.250	14.00	169.940	PC	UL	75	19	3			26.3	1013.5	26.1	23.7
4	23	20	115.292	13.99	169.927	PC	UL	78	18	3			26.3	1014.5	26.0	24.0
4	23	21	115.333	13.99	169.937	PC	UL	70	16	3			26.3	1015.0	25.7	24.0
4	23	22	115.375	13.86	169.943	PC	UL	85	16	3			26.3	1014.9	25.8	23.7
4	23	23	115.417	13.67	169.955	PC	UL	60	16	3			26.3	1014.8	26.0	23.8
4	23	24	115.458	13.46	169.967	PC	UL	65	17	3			26.4	1014.1	25.7	23.8
4	24	1	115.500	13.22	169.970	PC	UL	65	15	3			26.4	1013.5	25.9	23.3
4	24	2	115.542	13.06	169.990	PC	UL	60	17	3			26.3	1013.3	25.9	23.5
4	24	3	115.583	12.87	170.005	PC	UL	60	14	3			26.2	1012.7	25.7	23.5
4	24	4	115.625	12.67	170.012	PC	UL	60	16	3			26.2	1012.5	25.9	23.7
4	24	5	115.667	12.51	169.987	PC	UL	70	20	3			26.2	1012.5	25.1	23.8
4	24	6	115.708	12.31	169.983	PC	UL	70	20	4			26.5	1013.0	26.0	23.3
4	24	7	115.750	12.11	169.993	PC	UL	70	20	4			26.5	1013.3	26.3	24.0

RITS/CO2 APRIL-MAY 1988 NOAA SHIP OCENOGRAPHER

MN	D	HR	Julian	Decimal	Decimal	PRESENT	VIS	WIND DIR	WIND SPD	SEA WAVE	SWELL DIR	SWL HGHT	SST	BAROM	AIR T	AIR T
	(Ship)		Day	Lat	Long	WEATHER	NM	deg,true	knts	HGHT, ft	deg	ft	deg C	mb	dry	wet
4	24	8	115.792	11.99	169.983	PC	UL	75	20	4			26.5	1013.7	27.0	25.0
4	24	9	115.833	12.00	169.988	PC	12	70	21	5			26.5	1013.6	27.2	25.0
4	24	10	115.875	12.00	169.988	PC	UL	75	21	5			26.6	1013.5	27.1	24.9
4	24	11	115.917	12.00	169.995	PC	UL	70	20	5			26.6	1013.2	27.5	25.0
4	24	12	115.958	12.01	169.993	PC	UL	75	22	5			26.6	1012.9	27.2	24.5
4	24	13	116.000	12.01	169.990	PC	UL	80	24	6			26.6	1012.3	27.0	23.7
4	24	14	116.042	12.01	169.987	PC	UL	80	22	5			26.6	1011.1	27.0	24.4
4	24	15	116.083	12.01	169.985	PC	UL	80	22	5			26.6	1010.6	27.7	24.2
4	24	16	116.125	12.02	169.985	PC	UL	80	22	5			26.7	1010.7	27.8	24.0
4	24	17	116.167	12.02	169.985	PC	UL	85	23	5			26.7	1011.2	26.8	23.9
4	24	18	116.208	11.99	169.968	PC	UL	65	23	5			26.6	1011.4	26.8	23.8
4	24	19	116.250	11.84	169.910	PC	UL	65	22	5			26.5	1012.0	26.4	23.8
4	24	20	116.292	11.59	169.873	PC	UL	70	23	5			26.5	1013.0	26.0	24.0
4	24	21	116.333	11.31	169.923	PC	UL	75	22	5	125	5	26.4	1013.3	26.2	23.8
4	24	22	116.375	11.05	169.937	PC	UL	75	22	5	130	5	26.4	1013.3	26.2	23.8
4	24	23	116.417	10.82	169.948	PC	UL	75	22	5	130	5	26.6	1013.4	26.5	24.2
4	24	24	116.458	10.51	169.972	PC	UL	65	20	5	130	6	26.5	1012.4	26.1	24.6
4	25	1	116.500	10.26	169.997	PC	UL	80	25	5	130	6	26.5	1011.6	26.5	24.0
4	25	2	116.542	10.01	170.003	PC	UL	70	22	5	130	6	26.5	1011.0	26.1	24.2
4	25	3	116.583	10.00	170.027	PC	UL	70	20	6			26.5	1010.9	26.2	23.9
4	25	4	116.625	10.02	170.007	C	UL	70	24	6			26.5	1010.6	26.2	23.6
4	25	5	116.667	10.04	169.983	PC	UL	70	24	6			26.5	1011.0	26.3	23.3
4	25	6	116.708	10.07	169.983	PC	UL	70	24	6			26.5	1011.6	26.2	23.4
4	25	7	116.750	10.04	169.937	PC	UL	80	24	6			26.5	1012.0	26.3	24.0
4	25	8	116.792	10.04	169.927	PC	UL	70	18	5			26.5	1012.6	26.7	24.6
4	25	9	116.833	10.04	169.917	PC	UL	67	24	4			26.5	1013.5	27.5	25.4
4	25	10	116.875	10.04	169.902	PC	UL	70	23	4			26.5	1013.3	27.2	24.8
4	25	11	116.917	10.03	169.893	PC	UL	65	20	4			26.6	1013.4	27.2	25.2
4	25	12	116.958	10.02	169.880	PC	UL	65	22	4			26.7	1013.0	27.5	24.2
4	25	13	117.000	10.02	169.862	PC	UL	70	22	5			26.7	1011.5	27.4	24.7
4	25	14	117.042	10.01	169.845	PC	UL	80	20	5			26.7	1011.2	27.4	23.8
4	25	15	117.083	10.01	169.832	PC	UL	75	22	5			26.7	1010.5	27.4	23.7
4	25	16	117.125	10.00	169.818	PC	UL	75	22	5			26.7	1010.3	27.2	24.0
4	25	17	117.167	10.00	169.808	PC	UL	65	22	4			26.7	1010.6	26.8	23.9
4	25	18	117.208	10.00	169.777	PC	UL	60	20	5			26.6	1011.2	26.8	24.4
4	25	19	117.250	10.00	169.770	PC	UL	70	22	5			26.6	1011.8	26.5	23.0
4	25	20	117.292	10.00	169.762	PC	UL	75	22	4			26.6	1012.4	26.5	23.6
4	25	21	117.333	10.00	169.762	PC	UL	70	20	4			26.6	1013.4	26.6	23.4
4	25	22	117.375	9.99	169.762	PC	UL	70	17	4			26.5	1013.5	26.3	23.5
4	25	23	117.417	9.99	169.775	PC	UL	70	18	4			26.5	1013.0	25.8	23.5
4	25	24	117.458	9.98	169.757	PC	UL	75	16	4			26.5	1012.5	26.2	23.5
4	26	1	117.500	9.98	169.763	PC	UL	70	22	4			26.5	1011.5	26.0	23.1
4	26	2	117.542	9.84	169.735	PC	UL	70	22	4			26.7	1011.1	25.5	23.1
4	26	3	117.583	9.56	169.785	PC	UL	65	20	4			26.6	1010.8	26.0	23.4
4	26	4	117.625	9.29	169.783	PC	UL	60	22	4			26.6	1010.3	25.9	23.2
4	26	5	117.667	9.05	169.862	PC	UL	60	21	4			26.8	1010.6	26.2	23.6
4	26	6	117.708	8.79	169.903	PC	UL	60	20	4			27.0	1010.9	26.3	23.9
4	26	7	117.750	8.52	169.948	PC	UL	65	22	4			27.0	1011.3	27.2	24.1
4	26	8	117.792	8.23	169.963	PC	UL	55	20	4			27.4	1012.2	27.8	25.0
4	26	9	117.833	7.99	169.985	PC	12	60	21	6			27.6	1012.5	28.0	25.1
4	26	10	117.875	7.99	169.978	PC	UL	60	21	6			27.6	1012.6	28.0	24.3
4	26	11	117.917	8.00	169.975	PC	UL	60	18	6			27.6	1012.3	27.8	24.8
4	26	12	117.958	8.01	169.973	PC	UL	60	18	7			27.7	1011.7	27.9	24.8

RITS/CO2 APRIL-MAY 1988 NOAA SHIP OCENOGRAPHER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	26	13	118.000	7.98	169.952	PC	UL	65	18	6			27.7	1010.5	28.0	24.5
4	26	14	118.042	7.72	169.953	PC	UL	70	18	6			27.7	1009.5	27.8	23.9
4	26	15	118.083	7.45	169.967	PC	UL	70	22	8			27.7	1008.9	27.3	23.7
4	26	16	118.125	7.18	169.975	PC	UL	60	20	6			27.7	1008.4	27.8	24.0
4	26	17	118.167	6.91	169.985	PC	UL	55	19	5			27.6	1008.2	27.0	23.8
4	26	18	118.208	6.64	169.998	PC	UL	55	20	6			27.6	1008.4	27.5	24.9
4	26	19	118.250	6.38	170.003	PC	UL	55	22	5			27.6	1009.7	27.3	24.9
4	26	20	118.292	6.12	170.012	SQUALL,R	8	80	12	4			27.7	1009.1	27.3	24.9
4	26	21	118.333	6.00	170.000	F,PC	10	50	20	4			27.5	1009.6	26.7	24.6
4	26	22	118.375	6.02	170.013	PC	UL	55	18	3			27.5	1010.2	27.2	25.0
4	26	23	118.417	6.03	170.023	PC	UL	55	18	3			27.4	1010.0	27.3	25.1
4	26	24	118.458	6.04	170.023	PC	UL	65	18	5			27.5	1009.5	27.2	25.0
4	27	1	118.500	6.04	170.030	CL	UL	75	18	5			27.5	1008.8	27.0	25.0
4	27	2	118.542	6.05	170.033	CL	UL	75	12	5			27.5	1008.5	26.0	24.8
4	27	3	118.583	6.06	170.028	PC	UL	70	16	5			27.5	1008.6	26.5	24.8
4	27	4	118.625	6.06	170.052	PC	UL	70	14	5			27.5	1008.2	26.2	24.2
4	27	5	118.667	6.08	170.013	PC,RW	10	70	20	5			27.4	1008.7	26.4	25.0
4	27	6	118.708	6.08	170.013	PC	12	70	20	5			27.4	1009.2	26.7	24.6
4	27	7	118.750	6.06	169.997	PC	UL	65	17	5			27.4	1009.5	27.2	24.8
4	27	8	118.792	5.84	170.002	PC,SQUALL	UL	52	20	4			27.1	1010.3	26.7	25.4
4	27	9	118.833	5.57	169.993	PC	UL	52	16	3			27.0	1010.9	28.0	26.2
4	27	10	118.875	5.32	169.983	PC	UL	52	16	3			27.1	1010.6	27.8	26.4
4	27	11	118.917	5.07	169.983	PC	UL	67	18	3			27.1	1010.5	28.3	26.1
4	27	12	118.958	4.83	169.993	PC	UL	60	19	3			27.0	1009.8	28.4	25.7
4	27	13	119.000	4.58	170.002	PC	UL	55	18	3			27.0	1008.7	26.6	24.3
4	27	14	119.042	4.34	169.998	PC	UL	65	18	3			27.0	1007.6	26.6	24.7
4	27	15	119.083	4.10	170.003	PC	UL	70	20	3			27.0	1007.2	26.2	25.0
4	27	16	119.125	4.01	170.000	PC	UL	70	10	5			27.0	1006.9	26.8	24.8
4	27	17	119.167	4.04	169.993	PC,R,SQAL	UL	60	10	4			27.1	1007.0	26.1	24.9
4	27	18	119.208	4.06	169.985	CL,SQUALL	UL	70	10	5			27.1	1007.9	26.3	24.5
4	27	19	119.250	4.07	169.973	CL	UL	80	12	5			27.0	1008.7	26.7	24.8
4	27	20	119.292	3.94	169.975	CL	UL	75	7	3			27.3	1009.5	26.5	24.7
4	27	24	119.458	3.42	170.062	PC	UL	50	9	3			27.3	1010.6	26.8	25.5
4	28	1	119.500	3.41	170.182	PC	UL	75	7	3			27.2	1008.4	26.8	25.4
4	28	2	119.542	3.50	170.160	PC	UL	55	15	3			27.2	1007.8	27.0	25.1
4	28	3	119.583	3.53	170.100	PC	UL	65	14	3			27.3	1007.9	27.0	24.9
4	28	4	119.625	3.44	170.070	PC	UL	40	15	3			27.3	1007.9	27.0	25.1
4	28	5	119.667	3.45	170.245	PC	UL	40	12	3			27.3	1008.5	27.0	25.5
4	28	7	119.750	3.44	170.185	PC	UL	45	14	3			27.2	1009.9	27.2	25.9
4	28	8	119.792	3.45	170.338	PC	UL	35	14	3			27.2	1010.0	26.9	25.5
4	28	9	119.833	3.53	170.390	PC	UL	40	12	3			26.9	1010.7	27.0	25.2
4	28	10	119.875	3.61	170.322	PC	UL	40	12	3			27.1	1010.3	27.3	25.5
4	28	11	119.917	3.64	170.260	PC	UL	43	8	3			27.3	1010.3	27.9	26.1
4	28	12	119.958	3.51	170.263	PC	UL	50	9	4			27.4	1009.6	28.1	25.9
4	28	13	120.000	3.47	170.257	PC	UL	50	8	4			27.4	1008.5	29.9	26.1
4	28	14	120.042	3.51	170.272	PC	UL	75	8	4			27.4	1007.7	29.9	26.2
4	28	15	120.083	3.51	170.273	PC	UL	70	6	4			27.7	1006.9	29.2	25.8
4	28	16	120.125	3.53	170.278	PC	UL	70	6	4			27.9	1006.7	29.5	26.8
4	28	17	120.167	3.54	170.348	PC	UL	80	9	3			27.5	1007.0	28.9	26.2
4	28	18	120.208	3.59	170.505	PC	UL	100	8	3			27.5	1007.2	28.2	26.3
4	28	19	120.250	3.74	170.517	PC	UL	110	8	3			27.4	1008.1	27.5	25.5
4	28	20	120.292	3.71	170.503	PC	UL	110	10	3			27.2	1009.0	27.3	25.8
4	28	21	120.333	3.52	170.385	PC	UL	110	12	3			27.5	1009.4	27.6	25.4

RITS/CO2 APRIL-MAY 1988 NOAA SHIP OCENOGRAPHER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	28	22	120.375	3.45	170.153	PC	UL	90	13	3			27.7	1010.0	27.4	25.7
4	28	23	120.417	3.30	169.995	PC	UL	110	12	3			27.6	1010.0	27.3	25.6
4	28	24	120.458	3.12	169.988	PC	UL	100	10	3			27.6	1010.0	27.4	25.0
4	29	1	120.500	2.80	169.993	PC	UL	90	10	3			27.5	1009.2	26.9	25.1
4	29	2	120.542	2.54	169.993	PC	UL	90	10	3			27.5	1008.8	27.0	24.8
4	29	3	120.583	2.28	170.008	PC	UL	90	8	3			27.4	1008.5	27.0	25.0
4	29	4	120.625	2.01	169.980	PC	UL	80	8	3			27.3	1008.5	26.9	24.7
4	29	5	120.667	2.04	169.978	PC	UL	95	11	3			27.2	1009.0	27.0	24.9
4	29	6	120.708	2.00	169.968	PC	UL	95	11	3			27.2	1009.5	26.9	24.8
4	29	7	120.750	2.00	169.967	PC	UL	115	12	3			27.2	1009.9	27.4	25.0
4	29	8	120.792	1.99	169.940	PC	UL	110	10	3			27.2	1010.1	28.8	26.0
4	29	9	120.833	1.93	169.938	PC	UL	125	10	3			27.3	1011.6	28.5	25.5
4	29	10	120.875	1.74	169.955	PC	UL	125	7	3			27.2	1010.9	28.2	25.9
4	29	11	120.917	1.63	169.972	PC	UL	120	8	3			27.2	1010.9	28.5	27.0
4	29	12	120.958	1.36	169.985	PC	UL	100	8	3			27.2	1010.0	28.2	25.8
4	29	13	121.000	1.18	169.997	PC,RW	UL	100	12	3			27.1	1009.0	27.8	25.6
4	29	14	121.042	1.02	170.032	PC,RW	UL	110	16	3			27.1	1008.0	27.6	25.5
4	29	15	121.083	1.01	170.012	PC	UL	100	18	4			27.1	1007.5	27.9	25.1
4	29	16	121.125	1.01	169.995	PC	UL	100	20	4			27.0	1007.5	27.9	25.1
4	29	17	121.167	1.00	169.982	PC	UL	90	15	3			27.0	1008.0	28.0	25.8
4	29	18	121.208	1.00	169.958	PC	UL	95	15	3			27.0	1008.5	27.2	25.4
4	29	19	121.250	1.00	169.928	PC	UL	90	14	3			27.0	1009.2	27.2	25.0
4	29	20	121.292	1.01	169.912	PC	UL	95	15	3			27.0	1010.0	27.3	25.0
4	29	21	121.333	1.01	169.910	PC	UL	95	17	3			27.0	1010.5	27.6	25.7
4	29	22	121.375	1.01	169.892	PC	UL	90	15	3			27.0	1010.9	27.5	25.4
4	29	23	121.417	1.00	169.890	PC	UL	90	14	3			27.0	1010.9	27.1	25.5
4	29	24	121.458	0.93	169.925	PC	UL	110	12	4			26.9	1010.5	26.8	25.1
4	30	1	121.500	0.84	169.957	CL	UL	100	15	4			26.8	1009.9	27.0	25.2
4	30	2	121.542	0.75	170.015	CL	UL	110	16	4			26.7	1009.6	27.0	25.2
4	30	3	121.583	0.67	170.005	CL	UL	100	20	4			26.7	1009.0	26.8	24.8
4	30	4	121.625	0.60	170.003	PC	UL	120	15	3			26.6	1009.0	26.5	24.9
4	30	5	121.667	0.55	170.015	PC	UL	120	15	3			26.6	1009.4	26.8	25.0
4	30	6	121.708	0.50	170.008	PC	UL	120	18	4			26.6	1010.0	26.9	25.0
4	30	7	121.750	0.50	169.998	PC	UL	120	20	4			26.6	1010.5	27.3	25.3
4	30	8	121.792	0.48	169.950	PC	UL	110	18	3			26.6	1011.2	27.7	25.2
4	30	9	121.833	0.48	169.933	CL	UL	110	15	3			26.6	1011.3	27.5	25.3
4	30	10	121.875	0.45	169.920	CL	UL	105	17	3			26.6	1011.2	27.8	25.5
4	30	11	121.917	0.42	169.915	CL	UL	105	17	3			26.7	1010.7	28.8	26.0
4	30	12	121.958	0.42	169.920	PC	UL	100	14	4			26.7	1010.0	28.0	26.0
4	30	13	122.000	0.42	169.928	PC	UL	100	15	4			26.7	1009.2	28.6	25.9
4	30	14	122.042	0.33	169.948	PC	UL	90	12	4			26.7	1008.4	27.4	25.5
4	30	15	122.083	0.26	170.015	PC	UL	100	14	4			26.8	1007.4	27.5	25.8
4	30	16	122.125	0.04	170.007	PC	UL	95	17	3			26.8	1007.1	27.1	25.2
4	30	17	122.167	0.01	169.990	PC	UL	95	16	3			26.8	1007.6	28.1	26.2
4	30	18	122.208	0.00	169.965	PC	UL	95	18	3			26.6	1008.0	27.0	25.5
4	30	19	122.250	0.01	169.940	PC	UL	100	16	3			26.6	1008.5	26.7	25.8
4	30	20	122.292	-0.02	169.908	PC	UL	105	16	3			26.6	1009.5	26.6	25.9
4	30	21	122.333	-0.03	169.892	PC	UL	100	12	3			26.6	1010.2	26.7	25.6
4	30	22	122.375	-0.03	169.893	PC	UL	100	12	3			26.6	1011.0	26.9	25.7
4	30	23	122.417	-0.04	169.887	PC	UL	100	13	3			26.6	1011.3	26.9	25.7
4	30	24	122.458	-0.03	169.885	PC	UL	105	10	4			26.5	1010.8	26.8	25.8
5	1	1	122.500	-0.02	169.877	PC	UL	110	8	4			26.5	1010.0	26.7	25.3
5	1	2	122.542	-0.10	169.878	PC	UL	100	6	4			26.5	1009.7	26.6	25.5

RITS/CO2 APRIL-MAY 1988 NOAA SHIP OCENOGRAPHER

MN	D (Ship)	HR	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
5	1	3	122.583	-0.15	169.902	PC	UL	100	6	4			26.5	1009.2	26.6	25.5
5	1	4	122.625	-0.23	169.903	PC	UL	95	10	4			26.5	1009.1	26.5	25.5
5	1	5	122.667	-0.27	169.895	PC	UL	95	7	4			26.4	1009.5	26.5	25.7
5	1	6	122.708	-0.33	169.923	PC	UL	85	8	4			26.5	1009.7	26.6	25.7
5	1	7	122.750	-0.38	169.948	PC	UL	95	14	3			26.4	1010.4	26.8	25.8
5	1	8	122.792	-0.51	169.998	CL	UL	95	15	3			26.5	1011.5	27.5	26.0
5	1	9	122.833	-0.52	169.972	CL	UL	95	15	3			26.5	1011.6	27.8	26.0
5	1	10	122.875	-0.53	169.968	PC	UL	95	16	3			26.5	1011.7	28.5	26.5
5	1	11	122.917	-0.53	169.953	PC	UL	90	16	3			26.6	1011.3	28.0	26.0
5	1	12	122.958	-0.65	169.957	PC	UL	80	13	3			26.7	1010.4	28.0	26.8
5	1	13	123.000	-0.77	169.983	PC	UL	80	10	3			26.8	1009.8	28.1	26.1
5	1	14	123.042	-0.88	170.005	PC	UL	80	9	3			26.9	1008.8	28.0	26.0
5	1	15	123.083	-0.98	170.027	PC	UL	80	10	3			27.0	1008.1	28.0	26.0
5	1	16	123.125	-1.03	170.042	PC	UL	75	11	3			27.0	1007.8	28.7	26.5
5	1	17	123.167	-1.04	170.055	PC	UL	80	13	3			27.1	1008.0	28.5	26.5
5	1	18	123.208	-1.03	170.032	PC	UL	85	15	3			27.0	1008.1	27.5	26.0
5	1	19	123.250	-1.00	170.007	PC	UL	70	18	3			27.0	1008.6	27.0	25.8
5	1	20	123.292	-0.90	169.995	PC	UL	75	16	2			27.0	1009.0	27.0	25.7
5	1	21	123.333	-0.91	169.993	PC	UL	75	15	2			27.0	1010.0	27.0	26.0
5	1	22	123.375	-1.20	169.965	PC	UL	60	14	2			27.0	1010.4	26.9	25.8
5	1	23	123.417	-1.44	169.997	PC	UL	65	13	2			26.9	1010.5	27.0	25.4
5	1	24	123.458	-1.67	169.990	PC	UL	55	14	2			26.9	1010.1	27.0	26.0
5	2	1	123.500	-1.90	170.012	PC	UL	80	10	3			27.2	1009.5	26.7	25.6
5	2	2	123.542	-2.00	170.010	PC	UL	50	10	3			27.6	1009.0	26.9	26.0
5	2	3	123.583	-2.01	170.013	PC	UL	55	10	3			27.6	1008.6	26.8	25.6
5	2	4	123.625	-2.01	170.015	PC	UL	55	10	3			27.6	1008.5	26.9	25.6
5	2	5	123.667	-2.00	170.000	PC	UL	55	8	3			27.5	1008.8	26.4	25.6
5	2	6	123.708	-2.00	170.018	PC	UL	60	8	3			27.4	1009.5	27.2	25.9
5	2	7	123.750	-2.00	169.998	PC	UL	50	8	3			27.4	1010.0	26.8	26.0
5	2	8	123.792	-2.10	170.017	PC	UL	50	7	3			27.6	1010.4	27.9	26.4
5	2	9	123.833	-2.36	170.025	PC,R	12	95	10	3			28.2	1010.4	27.1	25.7
5	2	10	123.875	-2.63	170.037	PC	UL	105	12	3			28.4	1010.5	29.2	27.2
5	2	11	123.917	-2.86	170.053	PC	UL	100	13	3			28.7	1010.1	30.0	27.0
5	2	12	123.958	-3.13	170.057	PC,RW	UL	120	16	3			28.9	1009.2	28.3	26.1
5	2	13	124.000	-3.40	170.043	PC	UL	130	24	4			29.0	1008.6	29.6	26.4
5	2	14	124.042	-3.66	170.023	PC	UL	115	17	4			29.0	1007.9	30.0	26.5
5	2	15	124.083	-3.93	170.003	PC	UL	110	16	4			29.0	1007.3	29.2	25.8
5	2	16	124.125	-4.01	170.002	PC	UL	110	16	4			28.9	1007.4	30.2	26.5
5	2	17	124.167	-4.03	170.022	PC	UL	105	15	4			28.9	1007.5	29.9	26.6
5	2	18	124.208	-4.03	170.020	PC	UL	100	15	4			28.9	1007.8	29.5	26.0
5	2	19	124.250	-4.03	170.025	PC	UL	105	16	4			28.9	1008.0	28.9	25.5
5	2	20	124.292	-4.04	170.035	PC	UL	100	17	3			28.7	1009.0	28.8	26.5
5	2	21	124.333	-4.19	170.045	PC	UL	95	14	3			28.8	1009.4	28.5	26.2
5	2	22	124.375	-4.47	170.030	PC	UL	85	14	3			28.8	1009.9	28.5	25.8
5	2	23	124.417	-4.73	170.030	PC	UL	85	14	3			28.8	1010.6	28.7	26.4
5	2	24	124.458	-5.02	169.983	PC	UL	75	16	4			28.6	1010.4	28.6	26.2
5	3	1	124.500	-5.29	169.953	PC,RW	UL	65	16	3	120	2	28.7	1010.0	28.5	26.2
5	3	2	124.542	-5.56	169.977	PC,RW	UL	70	14	3	120	2	29.0	1009.5	28.1	26.7
5	3	3	124.583	-5.83	170.005	PC	UL	70	14	3	120	2	29.1	1009.2	27.3	26.3
5	3	4	124.625	-6.00	169.988	PC	UL	80	14	3			28.9	1009.0	28.5	26.4
5	3	5	124.667	-6.01	169.983	PC	UL	80	13	3			28.9	1009.0	28.5	26.4
5	3	6	124.708	-6.01	169.983	PC	UL	80	14	3			28.8	1009.2	28.4	25.9
5	3	7	124.750	-6.00	169.983	PC	UL	80	14	3			28.9	1009.5	28.8	25.9

RITS/CO2 APRIL-MAY 1988 NOAA SHIP OCENOGRAPHER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
5	3	8	124.792	-6.00	169.977	PC	UL	80	13	3			28.8	1010.0	29.5	25.9
5	3	9	124.833	-6.00	169.970	PC	UL	80	14	3			28.8	1010.3	30.2	27.0
5	3	10	124.875	-6.00	169.963	PC	UL	80	14	3			28.9	1010.0	30.5	27.2
5	3	11	124.917	-6.20	169.967	PC	UL	85	14	3			29.3	1010.0	30.5	27.5
5	3	12	124.958	-6.46	169.980	PC	UL	70	14	3			29.4	1009.6	29.8	26.7
5	3	13	125.000	-6.72	169.992	PC	UL	80	12	3			29.4	1009.2	30.1	27.2
5	3	14	125.042	-6.93	169.997	PC	UL	75	14	3			29.4	1008.4	30.0	27.1
5	3	15	125.083	-7.24	169.993	PC	UL	75	14	3			29.4	1008.1	30.1	27.5
5	3	16	125.125	-7.50	169.990	PC	UL	80	16	3			29.4	1007.5	29.9	27.0
5	3	17	125.167	-7.77	169.992	PC	UL	90	14	2			29.4	1007.7	29.8	26.8
5	3	18	125.208	-8.00	169.998	PC	UL	90	13	3			29.4	1008.3	29.0	26.7
5	3	19	125.250	-8.00	169.987	PC	UL	90	13	3			29.3	1008.6	29.0	26.7
5	3	20	125.292	-8.00	169.968	PC	UL	100	12	2			29.3	1009.9	29.2	26.8
5	3	21	125.333	-8.00	169.987	PC	UL	110	12	2			29.3	1010.0	29.0	27.3
5	3	22	125.375	-8.06	169.990	PC	UL	115	11	2			29.2	1010.0	29.0	27.0
5	3	23	125.417	-8.29	170.025	PC	UL	110	13	2			29.3	1010.0	29.0	27.1
5	3	24	125.458	-8.57	169.978	PC	UL	105	11	3	160	4	29.2	1010.1	28.9	26.5
5	4	1	125.500	-8.85	169.990	PC	UL	100	12	2			29.3	1009.8	29.0	26.0
5	4	2	125.542	-9.11	170.015	PC	UL	100	12	2			29.3	1009.0	28.8	26.3
5	4	3	125.583	-9.39	170.017	PC	UL	100	12	2			29.1	1009.1	28.8	26.2
5	4	4	125.625	-9.67	170.005	PC	UL	90	10	2			29.1	1009.3	28.9	26.5
5	4	5	125.667	-9.93	170.003	PC	UL	100	12	2			29.2	1009.5	28.2	26.3
5	4	6	125.708	-10.01	169.992	PC	UL	125	14	2			29.2	1010.0	28.0	26.2
5	4	7	125.750	-10.00	170.023	PC	UL	125	14	2			29.2	1010.8	28.9	26.3
5	4	8	125.792	-10.02	170.005	PC	UL	115	16	2			29.2	1011.5	29.8	27.0
5	4	9	125.833	-10.03	170.002	PC	UL	120	15	1			29.2	1011.6	30.0	27.1
5	4	10	125.875	-10.04	169.990	PC	UL	110	14	2			29.2	1011.5	30.0	27.4
5	4	12	125.958	-10.10	169.995	PC,RW	UL	100	12	2			29.3	1010.6	29.1	27.8
5	4	13	126.000	-10.35	170.025	PC	UL	100	14	2			29.3	1009.9	30.0	27.0
5	4	14	126.042	-10.62	170.052	PC	UL	110	18	2			29.6	1009.1	29.3	26.8
5	4	15	126.083	-10.89	170.077	PC	UL	100	18	2			29.6	1008.6	28.7	27.0
5	4	16	126.125	-11.03	170.097	PC	UL	100	12	3			29.5	1008.8	29.0	26.6
5	4	17	126.167	-11.03	170.108	PC	UL	90	14	3			29.5	1009.0	29.0	27.0
5	4	18	126.208	-11.09	170.117	PC	UL	80	16	2			29.5	1009.0	28.8	26.2
5	4	19	126.250	-11.27	170.128	PC	UL	90	16	2			29.5	1009.4	29.0	26.5
5	4	20	126.292	-11.52	170.138	PC	UL	120	17	2			29.3	1010.2	29.1	28.3
5	4	21	126.333	-11.79	170.178	PC	UL	117	24	2			29.3	1010.8	28.0	26.7
5	4	22	126.375	-12.06	170.203	PC	UL	103	17	2			29.4	1011.0	28.5	26.6
5	4	23	126.417	-12.32	170.243	PC	UL	107	17	2			29.3	1011.0	29.0	27.2
5	4	24	126.458	-12.59	170.270	PC,RW	UL	105	18	3	153	4	29.2	1011.1	28.8	27.0
5	5	1	126.500	-12.87	170.350	PC	UL	110	19	3	150	4	29.2	1010.9	28.9	26.7
5	5	2	126.542	-13.15	170.403	PC	UL	110	17	3	150	4	29.2	1010.5	28.8	26.2
5	5	3	126.583	-13.40	170.460	PC	UL	110	17	3	140	4	29.4	1010.4	28.8	26.5
5	5	4	126.625	-13.67	170.458	PC	UL	120	14	3	140	4	29.4	1010.7	28.6	26.8
5	5	5	126.667	-13.93	170.443	PC	UL	120	12	3	140	4	29.4	1010.8	28.6	26.4
5	5	6	126.708	-14.19	170.495	PC	UL	130	12	3	140	4	29.3	1011.2	28.6	26.3

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
2	6	1	37.375	48.427	124.455	C	12	120	12	1				1039.2	2.9	0.9
2	6	2	37.417	48.480	124.777	C	12	60	13	1				1039.2	2.8	0.6
2	6	3	37.458	48.297	124.998	C	12	90	10	2	350	2		1038.2	3.7	0.9
2	6	4	37.500	48.047	125.002	C	12	60	12	2	350	2		1038.2	2.8	0.5
2	6	5	37.542	47.777	125.035	C	12	30	10	2	350	2		1038.0	2.0	0.0
2	6	6	37.583	47.602	125.013	C	12	356	6	1	350	2		1037.5	3.3	1.5
2	6	7	37.625	47.252	124.995	C	12	60	8	1	350	2		1037.5	3.2	1.5
2	6	8	37.667	47.007	125.025	C	12	42	9	1				1037.7	4.1	1.8
2	6	9	37.708	46.775	125.020	C	12	60	17	2			7.7	1037.0	3.0	1.0
2	6	10	37.750	46.503	124.998	C	12	51	17	2			7.7	1036.8	2.8	0.7
2	6	11	37.792	46.255	124.997	C	12	60	16	3			7.7	1036.2	3.0	0.1
2	6	12	37.833	46.018	125.092	C	12	55	20	3				1035.1	3.5	1.4
2	6	13	37.875	45.778	125.193	C	12	60	18	2	75	3		1034.0	3.5	1.2
2	6	14	37.917	45.507	125.232	C	12	40	15	2	75	3		1032.5	4.0	1.2
2	6	15	37.958	45.248	125.235	C	12	40	14	2	75	3		1032.0	3.9	1.3
2	6	16	38.000	44.988	125.205	C	12	47	15	2	75	3		1031.5	4.0	1.3
2	6	17	38.042	44.732	125.157	C	12	25	16	1	60	4	8.3	1030.5	4.2	1.5
2	6	18	38.083	44.475	125.073	C	12	15	18	1	60	4	8.3	1030.0	5.0	2.3
2	6	19	38.125	44.218	125.000	C	12	40	20	1	60	4	8.3	1029.5	5.2	2.5
2	6	20	38.167	43.953	125.008	C	12	40	18	1			8.3	1028.8	5.2	2.8
2	6	21	38.208	43.690	125.008	C	12	50	21	2.5			8.3	1027.9	5.1	2.7
2	6	22	38.250	43.435	125.013	C	12	50	24	2.5			8.3	1026.9	4.6	2.3
2	6	23	38.292	43.177	125.002	C	12	40	20	2.5			8.3	1026.5	5.1	3.0
2	6	24	38.333	42.927	125.050	C	12	45	11	2.5			9.9	1026.0	5.0	2.8
2	7	1	38.375	42.667	125.002	C	12	40	11	2			10.0	1025.5	5.8	3.4
2	7	2	38.417	42.403	125.008	C	12	200	6	1			10.0	1024.9	6.9	3.4
2	7	3	38.458	42.140	125.012	C	12	130	11	1			10.0	1024.5	6.7	3.2
2	7	4	38.500	41.873	124.998	C	12	95	12	1			10.0	1024.0	7.0	4.0
2	7	5	38.542	41.618	124.977	C	12	120	12				10.0	1024.1	7.0	4.0
2	7	6	38.583	41.365	124.993	C	12	170	3				10.0	1024.1	7.0	4.5
2	7	7	38.625	41.113	124.997	C	12	145	10	2	150	3	11.7	1024.1	6.5	3.5
2	7	8	38.667	40.850	125.000	C	12	100	7	2	55	2	9.4	1024.9	6.8	4.4
2	7	9	38.708	40.575	125.008	C	12		1	1	5	2	9.4	1025.4	7.1	4.2
2	7	10	38.750	40.323	125.060	C	12		1	1	5	2	9.4	1025.2	7.9	5.0
2	7	11	38.792	40.105	124.855	C	12		1	1	5	2	9.4	1025.5	7.9	5.0
2	7	12	38.833	39.882	124.725	C	12	290	5	1	5	2	9.4	1025.5	7.6	5.0
2	7	13	38.875	39.683	124.610	C	12		1	1			9.9	1024.9	7.3	3.9
2	7	14	38.917	39.692	124.610	C	12		1	1			10.0	1024.5	8.2	5.1
2	7	15	38.958	39.700	124.608	C	12			1			10.0	1024.2	8.0	4.9
2	7	16	39.000	39.518	124.503	C	12			1	320	2	10.0	1023.5	7.1	3.8
2	7	17	39.042	39.273	124.380	C	12	320	8	1	320	2	10.0	1023.5	7.0	4.0
2	7	18	39.083	39.030	124.262	C	12	345	8	1	320	1	8.7	1023.1	8.0	4.0
2	7	19	39.125	38.783	124.143	C	12	20	8	1	320	1	8.7	1023.4	7.2	3.0
2	7	20	39.167	38.550	124.017	C	12	15	10	1			8.7	1023.0	7.5	3.5
2	7	21	39.208	38.315	123.882	C	12	0	10	1.5			8.7	1022.9	8.0	4.0
2	7	22	39.250	38.080	123.787	C	12	45	12	1.5			8.7	1022.9	7.5	3.5
2	7	23	39.292	37.848	123.672	C	12	45	16	3.5	130	4	8.7	1021.9	7.4	3.5
2	7	24	39.333	37.615	123.560	C	12	50	21	3.5			9.0	1021.3	7.5	3.8
2	8	1	39.375	37.385	123.430	C	12	50	19	3.5			12.3	1020.5	7.7	4.5
2	8	2	39.417	37.148	123.313	C	12	50	19	3.5			12.3	1020.0	7.5	4.2
2	8	3	39.458	36.912	123.188	C	12	50	18	3			12.3	1019.2	8.2	3.8
2	8	4	39.500	36.692	123.057	CL	10	54	20				12.0	1018.5	8.2	5.0
2	8	5	39.542	36.453	122.945	CL	10	54	20				12.0	1017.0	8.5	5.5

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
2	8	6	39.583	36.242	122.783	L	10	95	13				12.0	1018.0	7.5	5.0
2	8	7	39.625	36.005	122.672	CL	10	70	14	1	150	4.5	12.0	1017.1	8.5	5.5
2	8	8	39.667	35.777	122.557	CL/R	8	55	20	3	130	5	11.7	1016.3	7.8	6.9
2	8	9	39.708	35.687	122.492	CL/R	8	70	19	3	120	4		1016.5	8.0	7.4
2	8	10	39.750	35.703	122.497	CL	10	85	22	3	120	4	11.7	1016.2	9.6	8.4
2	8	11	39.792	35.718	122.512	CL/R	7	50	17	3	120	4	11.7	1016.1	8.9	8.1
2	8	12	39.833	35.723	122.508	CL/R	5	80	22	4	130	4	11.4	1014.4	9.4	8.7
2	8	13	39.875	35.613	122.378	CL/R	5.5	100	26	5	130	4	11.4	1013.9	10.0	9.0
2	8	14	39.917	35.457	122.220	CL/R	4	110	38	5	145	10	10.9	1012.4	11.4	11.1
2	8	15	39.958	35.338	122.118	CL	5	115	40	5	145	10	11.1	1012.5	11.5	11.4
2	8	16	40.000	35.215	122.017	CL	8	120	38	5	145	15	11.1	1012.5	10.2	9.0
2	8	17	40.042	35.093	121.912	PC	8	120	40	5	135	15	11.1	1012.5	10.0	9.1
2	8	18	40.083	34.982	121.793	CL	8	120	40	4	135	12	11.1	1012.5	10.2	9.5
2	8	19	40.125	34.867	121.670	PC	8	120	40	4	135	12	11.1	1012.5	10.2	9.5
2	8	20	40.167	34.767	121.573	PC	8	120	43	12			11.1	1013.5		
2	8	21	40.208	34.678	121.482	CL	8	105	40	13.5			11.1	1014.5		
2	8	22	40.250	34.597	121.405	CL	8	115	35	12			11.1	1015.2	10.3	10.2
2	8	23	40.292	34.517	121.330	CL	8	125	35	12			11.1	1015.8		
2	8	24	40.333	34.423	121.242	CL	8	100	32	12			11.1	1016.5		
2	9	1	40.375	34.357	121.178	CL	10	100	26	10			11.1	1016.2	10.8	10.0
2	9	2	40.417	34.287	121.110	CL/L	10	100	30	10			11.1	1016.8	10.7	10.0
2	9	3	40.458	34.203	121.017	CL/R	10	110	30	10			11.1	1017.5	11.1	10.6
2	9	4	40.500	34.110	120.915	CL	10	105	34	10			11.1	1017.8	10.8	10.1
2	9	5	40.542	34.005	120.792	CL	10	140	24	8			11.4	1019.1	11.0	10.0
2	9	6	40.583	33.865	120.642	PC	10	110	20	8				1020.5	11.2	10.8
2	9	7	40.625	33.780	120.397	PC	10	90	22	3	135	5		1020.5	11.2	10.8
2	9	8	40.667	33.682	120.132	CL	10	75	18	5			11.5	1022.0	11.1	10.6
2	9	9	40.708	33.582	119.858	CL	10	78	19	4			11.5	1022.5	11.1	10.7
2	9	10	40.750	33.472	119.583	CL	10	68	18	3			11.5	1023.0	11.8	11.2
2	9	11	40.792	33.363	119.305	PC	12	210	3	1	105	3	11.5	1023.2	12.8	12.3
2	9	12	40.833	33.287	119.058	F	0.3	230	5	1	90	2	11.5	1023.2	12.0	11.7
2	9	13	40.875	33.240	118.925	PC/F	1		0	1	130	2	11.5	1022.8	12.4	12.1
2	9	14	40.917	33.192	118.787	PC/F	2		0	1	120	3	13.3	1022.7	13.2	12.8
2	9	15	40.958	33.000	118.548	PC/F	1.5		0	1	120	3	13.2	1023.2	13.3	13.0
2	9	16	41.000	33.007	118.308	PC	12		0	1	120	3	13.6	1023.2	13.0	13.0
2	9	17	41.042	32.908	118.052	F	0.5	155	4	1	120	3	13.1	1023.9	13.0	13.0
2	9	18	41.083	32.840	117.838	F	1	164	8	1	120	3	13.2	1024.1	13.1	12.9
2	9	19	41.125	32.748	117.598	CL	4	164	8	1	120	3	13.2	1024.5	13.1	12.9
2	11	1	42.375	32.473	117.265	C	12	350	8				14.7	1026.5	11.7	10.8
2	11	2	42.417	32.235	117.255	C	12	0	10				15.0	1026.0	12.0	10.8
2	11	3	42.458	31.978	117.192	C	12	10	14				15.0	1025.6	11.7	10.7
2	11	4	42.500	31.727	117.130	C	12	355	14				15.0	1025.6	11.6	10.5
2	11	5	42.542	31.467	117.073	C	12	334	18				15.0	1025.0	11.6	10.7
2	11	6	42.583	31.207	117.017	C	12	338	24	1	350	3	15.0	1024.9	12.0	10.7
2	11	7	42.625	30.955	116.957	C	12	338	24	1	350	3	15.0	1024.9	13.4	12.0
2	11	8	42.667	30.520	116.873	C	12	320	24	4				1025.2	14.7	12.6
2	11	9	42.708	30.382	116.823	C	12	325	27	4			10.4	1025.8	14.8	12.8
2	11	10	42.750	30.162	116.760	C	12	325	27	4			10.4	1025.9	15.8	13.2
2	11	11	42.792	29.907	116.687	C	12	340	21	4				1025.0	16.1	13.0
2	11	12	42.833	29.645	116.628	C	12	335	22	4			14.7	1024.0	16.4	12.8
2	11	13	42.875	29.408	116.555	C	12	335	18	4			14.9	1023.2	16.2	11.0
2	11	14	42.917	29.263	116.525	C	12	335	20	4			14.9	1022.2	16.3	12.5
2	11	15	42.958	29.043	116.498	C	12	320	22	5			14.5	1021.5	16.2	12.0

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
2	11	16	43.000	29.035	116.490	PC	12	320	24	5			15.3	1022.1	16.1	12.5
2	11	17	43.042	28.732	116.445	PC	12	320	20	5			15.3	1022.1	14.0	12.0
2	11	18	43.083	28.515	116.408	PC	12	325	22	4	280	2	15.3	1022.5	14.0	12.0
2	11	19	43.125	28.258	116.370	PC	12	330	20	4	280	4	15.3	1023.0	14.0	12.0
2	11	20	43.167	27.998	116.307	PC	12	330	26	5			15.3	1022.8	13.9	12.0
2	11	21	43.208	27.788	116.125	PC	12	335	24	5			15.3	1022.8	13.2	11.5
2	11	22	43.250	27.568	115.972	PC	12	335	25	5			15.3	1021.8	13.5	11.8
2	11	23	43.292	27.368	115.798	PC	12	340	28	5				1021.5	13.5	11.9
2	11	24	43.333	27.168	115.620	PC	12	335	24	5			16.4	1021.0	13.5	11.8
2	12	1	43.375	26.972	115.443	PC	12	330	24	5			16.4	1021.0	13.6	12.0
2	12	2	43.417	26.765	115.282	PC	12	330	26	5			17.0	1019.5	13.7	12.0
2	12	3	43.458	26.000	115.103	PC	12	335	24	6			16.7	1019.0	13.8	12.0
2	12	4	43.500	26.313	114.923	PC	12	345	24	6			16.7	1018.5	15.5	13.5
2	12	5	43.542	26.170	114.798	PC	12	330	22	6			17.2	1018.9	16.0	13.9
2	12	6	43.583	25.975	114.625	PC	12	335	24	1	340	5	17.0	1019.0	16.0	14.0
2	12	7	43.625	25.770	114.448	PC	12	335	20	1	340	5	17.0	1019.5	16.3	14.0
2	12	8	43.667	25.568	114.277	PC	12	340	24	2	310	4		1019.8	14.8	13.0
2	12	9	43.708	25.362	114.118	PC	12	335	17	2	310	3	17.3	1020.3	15.1	13.3
2	12	10	43.750	25.175	113.950	PC	12	330	20	3	310	3	17.3	1019.3	15.9	14.0
2	12	11	43.792	25.058	113.832	PC	12	330	20	2	310	3	17.3	1018.9	16.5	13.8
2	12	12	43.833	24.862	113.638	PC	12	320	16	2	310	3	17.6	1017.9	16.3	14.6
2	12	13	43.875	24.705	113.520	PC	12	330	20	2	310	3	17.6	1016.3	16.3	14.0
2	12	14	43.917	24.700	113.535	PC	12	330	18	2	310	3	17.8	1016.3	16.3	14.4
2	12	15	43.958	24.705	113.532	PC	12	320	22	3	310	3	17.8	1015.8	15.8	13.8
2	12	16	44.000	24.645	113.473	PC	12	320	20	6			18.2	1016.1	17.5	15.0
2	12	17	44.042	24.458	113.325	PC	12	320	20	6			18.4	1016.2	17.8	15.5
2	12	18	44.083	24.253	113.177	PC	12	320	16	5			18.4	1016.5	17.8	15.5
2	12	19	44.125	24.043	113.095	PC	12	320	16	5			18.4	1017.0	17.5	15.5
2	12	20	44.167	23.907	112.768	PC	12	320	16	3				1017.1	16.0	14.8
2	12	21	44.208	23.742	112.525	PC	12	315	17	3				1017.1	16.1	14.9
2	12	22	44.250	23.587	112.323	PC	12	325	17	3				1016.9	16.0	14.8
2	12	23	44.292	23.460	112.085	PC	12	315	20	3				1016.5	16.3	15.0
2	12	24	44.333	23.330	111.840	PC	12	310	16	3				1016.2	16.2	15.2
2	13	1	44.375	23.183	111.607	PC	12	320	18	3			18.0	1015.5	16.6	15.3
2	13	2	44.417	23.040	111.373	PC	12	320	18	3			18.0	1015.0	16.5	15.4
2	13	3	44.458	22.897	111.140	CL	12	320	18	3			18.0	1014.4	16.8	15.6
2	13	4	44.500	22.750	110.888	CL	12	335	18	3			18.0	1014.9	18.0	16.5
2	13	5	44.542	22.607	110.650	CL	12	335	18				20.0	1015.1	18.5	16.8
2	13	6	44.583	22.460	110.410	CL	12	335	18	3	220	2	20.0	1015.5	18.8	17.0
2	13	7	44.625	22.312	110.172	CL	12	335	18	3	220	2	20.0	1016.1	18.9	17.0
2	13	8	44.667	22.173	109.908	CL	12	315	19	3			20.0	1016.1	18.1	15.3
2	13	9	44.708	22.023	109.655	PC	12	315	16	2			20.0	1016.0	18.6	15.8
2	13	10	44.750	21.930	109.487	PC	12	315	16	2			20.0	1015.8	19.1	16.8
2	13	11	44.792	21.762	109.238	CL	12	350	14	2			19.9	1014.1	19.4	17.0
2	13	12	44.833	21.605	108.997	CL	12	335	4	2			20.7	1014.2	19.8	17.2
2	13	13	44.875	21.428	108.688	PC	12	250	6	1			20.5	1013.3	20.0	17.7
2	13	14	44.917	21.352	108.560	PC	12	265	3	1			21.1	1012.7	20.2	18.6
2	13	15	44.958	21.213	108.315	PC	12		0	2			21.5	1012.2	20.5	18.7
2	13	16	45.000	21.090	108.118	PC	12		0	2			21.5	1012.7	21.0	18.7
2	13	17	45.042	20.935	107.788	PC	12		0	2			23.0	1013.1	22.0	19.0
2	13	18	45.083	20.873	107.598	PC	12	305	6	2			23.0	1013.5	22.0	19.0
2	13	19	45.125	20.732	107.347	PC	12	305	8	2			23.2	1013.9	21.5	19.9
2	13	20	45.167	20.505	107.203	PC	10	20	4	2			21.6	1013.8	20.5	19.6

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR	Julian Day (Ship)	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
2	13	21	45.208	20.252	107.142	C	12	45	4	1				1014.2	20.8	20.0
2	13	22	45.250	20.063	106.968	C	12	350	6	1.5				1014.0	21.1	20.2
2	13	23	45.292	19.960	106.720	C	12	355	10	2				1013.6	21.2	20.2
2	13	24	45.333	19.865	106.463	C	12	335	12				22.3	1013.5	21.4	20.5
2	14	1	45.375	19.765	106.215	C	12	335	12	2	210	2	22.3	1012.9	21.6	20.8
2	14	3	45.417	19.637	105.973	C	12	340	11	2	210	2	22.3	1012.1	22.0	21.3
2	14	4	45.458	19.502	105.720	C	12	335	10	2	210	2	22.9	1012.0	23.2	22.5
2	14	5	45.500	19.395	105.475	C	12	0	11	2	210	2	22.9	1012.3	22.8	20.5
2	14	6	45.542	19.320	105.270	C	12	30	6	2	210	2	22.9	1013.1	23.0	21.0
2	14	8	45.625	19.078	104.783	C	12	92	3	2	270	2	25.8	1014.9	23.2	19.8
2	15	17	47.000	18.957	104.392	PC	8	260	3	0	290	1		1012.3	27.2	24.1
2	15	18	47.042	18.768	104.403	PC	8	260	3	0	290	1	26.1	1012.7	19.9	15.9
2	15	19	47.083	18.620	104.403	PC	8	290	4	0	290	1	26.1	1013.0	24.6	23.6
2	15	20	47.125	18.517	104.433	PC	10	340	8	0	290	1	26.2	1013.8	24.5	23.2
2	15	21	47.167	18.287	104.485	PC	10	340	9	0	290	1	26.0	1014.1	24.0	22.5
2	15	22	47.208	18.027	104.493	PC	10	340	8	0	290	1	26.0	1014.8	24.0	22.5
2	15	23	47.250	17.788	104.470	PC	10	330	6	0	290	1	25.6	1014.5	24.0	22.3
2	15	24	47.292	17.555	104.503	PC	12	330	5	1			26.0	1014.8	24.2	22.9
2	16	1	47.333	17.313	104.532	PC	UR	335	7	1	285	2	25.2	1014.8	24.2	22.7
2	16	2	47.375	17.070	104.558	PC	UR	330	9	1	285	2	25.2	1014.5	24.0	23.0
2	16	3	47.417	16.828	104.598	PC	UR	330	11	1.5	285	2	25.2	1014.2	23.9	22.9
2	16	4	47.458	16.587	104.633	PC	UR	330	10	1	290	2	25.2	1014.3	23.8	22.8
2	16	5	47.500	16.340	104.673	PC	UR	25	6	1	290	2	25.2	1014.5	23.8	22.6
2	16	6	47.542	16.097	104.713	C	UR	25	6	1	290	2	27.5	1014.8	24.0	22.8
2	16	7	47.583	15.857	104.748	C	UR	30	6	1	290	2	27.5	1015.8	24.5	22.8
2	16	8	47.625	15.617	104.792	C	UR	60	5	1	300	2	27.4	1016.4	26.8	24.0
2	16	9	47.667	15.355	104.857	C	UR	60	5	1	300	2	27.4	1017.0	27.7	24.5
2	16	10	47.708	15.130	104.887	C	UR	60	5	1	300	2	27.3	1016.5	28.0	25.0
2	16	11	47.750	14.912	104.903	PC	UR	60	5	1	310	3	25.9	1016.0	27.4	24.5
2	16	12	47.792	14.653	104.913	C	UR	75	5	1	355	2	26.3	1014.9	26.9	24.3
2	16	13	47.833	14.362	104.932	C	UR	45	4	1	355	2	26.3	1014.0	26.9	24.3
2	16	14	47.875	14.088	104.993	C	UR	30	4	1	355	2	26.3	1013.2	27.8	24.3
2	16	15	47.917	14.083	105.000	C	UR	355	8	1	355	2	27.3	1012.2	28.8	24.7
2	16	16	47.958	14.008	104.987	C	UR	350	9	1	355	2	27.3	1012.3	28.3	25.4
2	16	17	48.000	14.010	104.987	PC	UR	350	8	1	340	2	27.3	1012.2	28.5	25.7
2	16	18	48.042	13.765	104.988	PC	UR	350	7	1	340	2	27.3	1012.5	26.8	24.8
2	16	19	48.083	13.495	104.987	C	UR	20	8	1	340	2	27.3	1012.7	26.0	24.5
2	16	20	48.125	13.227	104.992	C	UR	17	10	1	340	2	27.4	1013.8	25.8	23.8
2	16	21	48.167	13.017	105.010	C	UR	23	12	1	340	2	27.4	1014.1	26.0	24.4
2	16	22	48.208	12.765	105.012	PC	UR	23	12	1	340	2	27.2	1014.5	26.0	24.4
2	16	23	48.250	12.500	104.995	PC	UR	25	11	1	340	2	27.5	1014.0	26.0	24.3
2	16	24	48.292	12.245	105.007	PC	UR	40	10	1	340	2	27.5	1013.8	26.0	24.0
2	17	1	48.333	12.000	105.000	PC	UR	30	10	1	320	2	27.4	1013.3	25.9	24.0
2	17	2	48.375	12.008	105.000	PC	UR	30	10	1	320	2	27.3	1012.9	25.6	23.7
2	17	2	48.417	12.010	105.000	PC	UR	30	10	1	320	2	27.3	1012.1	25.5	23.6
2	17	3	48.458	12.030	104.998	PC	UR	30	8	1	310	2	27.3	1012.6	25.3	23.7
2	17	4	48.500	12.033	104.998	PC	UR	30	8	1	310	2	27.3	1012.2	25.8	24.0
2	17	5	48.542	12.023	104.997	PC	UR	30	8	1	310	2	27.3	1012.1	25.8	23.6
2	17	6	48.583	11.993	105.000	PC	UR	60	10	1	310	2	27.3	1013.9	25.8	23.7
2	17	7	48.625	11.948	105.027	PC	UR	50	14	2	310	2	27.3	1015.1	26.8	24.0
2	17	8	48.667	11.735	105.170	PC	UR	45	18	2	310	3	27.3	1015.8	28.0	25.0
2	17	9	48.708	11.507	105.290	PC	UR	40	18	2	310	3	27.3	1015.1	28.2	25.0
2	17	10	48.750	11.260	105.372	C	UR	40	18	2	310	3	27.4	1014.9	28.0	25.0

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
2	17	11	48.792	11.010	105.418	C	UR	40	18	2	80	3.5	27.3	1013.9	27.4	24.6
2	17	12	48.833	10.755	105.503	C	UR	45	18	2	110	4	27.3	1012.6	27.2	24.8
2	17	13	48.875	10.497	105.562	C	UR	55	14	2	110	4	27.3	1012.0	27.0	24.1
2	17	14	48.917	10.500	105.568	C	UR	50	17	2	40	4	27.7	1010.6	28.4	24.7
2	17	15	48.958	10.495	105.598	C	UR	55	16	2	40	4	27.7	1010.3	28.7	24.8
2	17	16	49.000	10.493	105.602	PC	UR	55	14	2	40	4	27.5	1010.8	27.8	24.7
2	17	17	49.042	10.502	105.585	PC	UR	60	14	2	40	4	27.5	1011.3	27.0	23.8
2	17	18	49.083	10.448	105.542	PC	UR	60	13	2	40	4	27.5	1011.7	26.6	24.0
2	17	19	49.125	10.195	105.577	PC	UR	50	13	2	40	4	27.5	1012.2	26.7	24.0
2	17	20	49.167	9.967	105.775	PC	UR	60	16	2	40	4	27.9	1012.8	26.8	24.0
2	17	21	49.208	9.728	105.858	PC	UR	50	17	2	40	4	27.8	1012.9	26.5	24.1
2	17	22	49.250	9.490	105.973	PC	UR	65	20	3			27.5	1012.5	26.4	24.0
2	17	23	49.292	9.252	106.080	PC/R	UR	65	20	3			27.4	1012.5	25.8	24.2
2	17	24	49.333	9.013	106.160	PC	12	60	14	2.5	95	4	27.4	1011.8	25.8	24.2
2	18	1	49.375	8.770	106.242	PC	12	50	15	2.5	95	4	26.3	1011.0	25.5	24.0
2	18	2	49.417	8.532	106.273	PC	UR	55	16	2.5	95	4	26.2	1010.9	25.5	23.8
2	18	3	49.458	8.292	106.403	PC	UR	55	16	2.5	95	4	25.9	1010.3	25.2	23.8
2	18	4	49.500	8.050	106.453	PC	UR	55	18	2.5	100	4	25.9	1010.3	25.3	23.8
2	18	5	49.542	8.027	106.447	PC	UR	75	17	2.5	100	4	25.6	1010.9	25.0	23.5
2	18	6	49.583	8.028	106.448	PC	UR	75	16	2.5	100	4	25.6	1011.7	25.5	23.4
2	18	7	49.625	7.972	106.488	PC	UR	70	16	2.5	100	4	25.6	1011.8	26.0	23.9
2	18	8	49.667	7.992	106.460	PC	UR	70	18	3	100	4	25.8	1012.8	25.8	23.8
2	18	9	49.708	7.998	106.463	PC	UR	70	18	3	100	4	25.9	1012.7	25.9	24.0
2	18	10	49.750	8.003	106.465	PC	UR	70	17	3	100	3	26.0	1012.1	26.2	24.2
2	18	11	49.792	7.998	106.452	PC	UR	70	18	3	100	3	26.0	1011.4	26.4	24.3
2	18	12	49.833	8.002	106.423	PC	UR	70	16	2	100	4	26.1	1010.9	27.0	25.0
2	18	13	49.875	8.005	106.433	PC	UR	60	17	2	100	4	26.0	1010.2	27.0	24.0
2	18	14	49.917	8.010	106.422	PC	UR	60	16	2	90	4	26.1	1009.5	27.8	24.6
2	18	15	49.958	8.018	106.422	PC	UR	80	15	2	90	4	26.1	1009.8	27.2	24.6
2	18	16	50.000	8.015	106.430	PC	UR	80	12	2	90	4	26.2	1010.4	26.3	24.0
2	18	17	50.042	8.002	106.470	PC	UR	80	13	2	90	4	26.2	1011.1	25.8	23.6
2	18	18	50.083	7.998	106.472	PC	UR	80	14	2	90	4	26.2	1011.9	25.7	23.8
2	18	19	50.125	7.998	106.475	PC	UR	80	14	2	90	4	26.2	1012.2	25.7	23.8
2	18	20	50.167	8.000	106.468	C	UR	80	14	2			26.2	1013.0	25.7	23.9
2	18	21	50.208	7.798	106.577	C	UR	65	16	2			26.2	1012.9	25.5	23.6
2	18	22	50.250	7.588	106.722	C	UR	65	16	3			26.2	1012.8	25.4	23.5
2	18	23	50.292	7.373	106.855	C	UR	65	16	3			26.3	1012.3	25.2	23.4
2	18	24	50.333	7.158	106.980	C	UR	60	16	3			26.3	1011.9	25.2	23.0
2	19	1	50.375	6.940	107.093	C	UR	60	16	2.5	85	4	26.0	1011.0	25.2	23.2
2	19	2	50.417	6.720	107.207	PC	UR	60	18	2.5	85	4	26.0	1010.5	25.2	23.0
2	19	3	50.458	6.508	107.320	PC	UR	60	18	2.5	85	4	26.1	1010.5	25.3	22.9
2	19	4	50.500	6.302	107.450	PC	UR	60	16	2	90	4	26.1	1010.5	25.2	23.0
2	19	5	50.542	6.135	107.583	PC	UR	60	15	2	90	4	26.1	1010.8	25.2	23.0
2	19	6	50.583	6.023	107.625	PC	UR	70	16	2	90	4	25.6	1011.4	25.2	22.9
2	19	7	50.625	6.032	107.605	PC	UR	70	16	2	90	4	25.6	1012.2	25.2	22.9
2	19	8	50.667	5.868	107.707	PC	UR	70	16	2	90	4	25.6	1012.0	26.1	23.9
2	19	9	50.708	5.670	107.825	PC	UR	70	18	3	120	4	25.6	1012.2	26.1	23.9
2	19	10	50.750	5.472	107.967	PC	UR	60	18	3	120	4	25.6	1012.5	26.5	24.0
2	19	11	50.792	5.292	108.055	PC	UR	60	18	3	120	4	25.6	1012.1	26.5	24.0
2	19	12	50.833	5.095	108.215	PC	UR	75	14	3	85	4	25.6	1011.2	26.2	23.8
2	19	13	50.875	4.892	108.330	PC	UR	70	18	2	85	4	25.6	1010.3	26.0	23.8
2	19	14	50.917	4.683	108.453	CL	UR	65	16	2	85	4	25.6	1009.8	26.0	23.8
2	19	15	50.958	4.493	108.558	CL	UR	65	16	2	85	4	26.2	1009.5	26.0	23.8

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
	(Ship)															
2	19	16	51.000	4.300	108.673	PC	UR	60	16	2	80	4	26.2	1009.8	25.8	23.4
2	19	17	51.042	4.300	108.673	PC	UR	60	16	2	80	4	26.1	1009.9	25.6	23.6
2	19	18	51.083	4.030	108.848	PC	UR	70	15	2	60	4	26.1	1010.4	25.5	23.4
2	19	19	51.125	4.015	108.843	PC	UR	70	15	2	60	4	26.1	1011.2	25.5	23.6
2	19	20	51.167	4.017	108.822	PC/R	UR	70	16	2	60	4	26.0	1011.8	25.5	23.6
2	19	21	51.208	4.025	108.843	CL	UR	70	15	4			26.0	1012.0	25.5	23.5
2	19	22	51.250	3.980	108.773	CL	UR	70	15	4			26.0	1012.0	25.5	23.5
2	19	23	51.292	3.970	108.750	CL	UR	65	12	4			26.0	1012.4	25.5	23.6
2	19	24	51.333	3.897	108.915	CL	UR	65	12	4			26.0	1011.8	25.3	23.6
2	20	1	51.375	3.695	109.047	CL	UR	75	11	2			26.0	1011.2	25.3	23.8
2	20	2	51.417	3.490	109.178	CL	UR	75	11	2			26.0	1010.9	25.2	23.4
2	20	3	51.458	3.280	109.307	CL	UR	65	14	2			26.0	1010.6	25.1	23.4
2	20	4	51.500	3.065	109.418	CL	UR	65	11	2			26.0	1011.0	25.0	23.2
2	20	5	51.542	2.853	109.597	PC	UR	65	11	2			26.0	1011.2	25.0	23.2
2	20	6	51.583	2.637	109.703	PC	UR	65	12	1.5	40	3	26.0	1011.6	25.1	23.5
2	20	7	51.625	2.423	109.832	PC	UR	65	10	1	40	3	26.0	1012.5	25.5	23.5
2	20	8	51.667	2.222	109.983	PC	UR	70	8	2			25.5	1013.0	25.5	24.2
2	20	9	51.708	2.007	110.127	PC	UR	75	10	2	350	2	25.5	1013.1	26.5	24.0
2	20	10	51.750	1.998	110.100	PC	UR	80	10	2	350	2	25.6	1012.9	26.2	24.0
2	20	11	51.792	1.997	110.127	PC	UR	90	10	2	350	2	25.9	1012.0	26.4	24.0
2	20	12	51.833	1.997	110.100	PC	UR	90	12	2	350	2	25.9	1011.3	26.8	24.0
2	20	13	51.875	1.997	110.112	PC	UR	95	11	2	350	2	25.9	1010.8	27.0	24.0
2	20	14	51.917	2.002	110.148	PC	UR	95	11	2	350	2	25.9	1010.5	27.0	24.0
2	20	16	52.000	1.725	110.142	PC	UR	75	10	1.5				1009.5	25.5	23.0
2	20	17	52.042	1.500	110.097	PC	UR	80	12	1	60	3	26.4	1010.1	25.3	23.0
2	20	18	52.083	1.265	110.065	PC	UR	70	10	1	60	3	26.4	1010.2	25.4	23.1
2	20	19	52.125	1.032	110.008	PC	UR	70	10	1	60	3	26.4	1011.1	25.4	23.6
2	20	20	52.167	1.002	109.998	PC	UR	120	8	1	60	3	26.4	1011.9	25.0	23.5
2	20	21	52.208	0.997	110.013	PC	UR	120	6	1	60	3	26.4	1012.9	25.1	23.5
2	20	22	52.250	1.002	110.020	PC	UR	125	6	1	60	3	26.4	1012.9	25.2	23.7
2	20	23	52.292	0.985	110.020	RW	6	140	4	1			26.4	1012.5	25.0	23.8
2	20	24	52.333	0.982	110.023	RW	7	180	8	1	40	3	26.5	1011.5	25.0	23.8
2	21	1	52.375	0.992	110.012	RW	5	180	8	1	40	3	26.4	1011.0	25.0	23.8
2	21	2	52.417	1.002	110.002	PC	10	180	10	1	40	3	26.3	1010.2	24.9	23.5
2	21	3	52.458	0.850	110.015	PC	10	180	8	1	40	3	26.6	1010.0	24.8	23.0
2	21	4	52.500	0.603	110.002	PC	12	180	9	1	140	1	26.6	1010.1	25.0	23.0
2	21	5	52.542	0.353	109.988	PC	UR	160	8	1	140	2	26.6	1010.5	25.0	22.8
2	21	6	52.583	0.103	109.988	PC	UR	170	8	1	140	2	26.6	1010.8	25.0	23.0
2	21	7	52.625	0.007	109.995	PC	UR	170	8	1	140	2	26.6	1011.8	26.0	23.5
2	21	8	52.667	-0.010	110.008	PC	UR	170	8	1	140	2	26.7	1012.0	27.0	23.9
2	21	9	52.708	-0.008	110.015	PC	UR	170	9	1	140	2	26.7	1012.7	28.5	24.7
2	21	10	52.750	-0.010	110.015	PC	UR	170	10	1	140	2	26.7	1012.8	28.5	24.7
2	21	11	52.792	-0.010	110.017	PC	UR	170	9	1	140	2	26.7	1012.5	28.3	24.4
2	21	12	52.833	-0.012	110.022	PC	UR	170	9	1	160	2	26.9	1012.0	28.0	24.2
2	21	13	52.875	-0.003	109.995	PC	UR	180	7	1	165	2	26.9	1011.4	27.3	24.0
2	21	14	52.917	-0.002	109.995	PC	UR	165	7	1	165	2	26.9	1011.0	27.0	23.9
2	21	15	52.958	-0.427	110.000	PC	UR	185	8	1	165	2	27.0	1010.0	26.0	23.2
2	21	16	53.000	-0.670	110.003	PC	UR	180	5	1	160	2	27.0	1009.9	25.9	23.9
2	21	17	53.042	-0.917	110.000	PC	UR	180	5	1	160	2	27.4	1010.1	25.5	23.8
2	21	18	53.083	-1.012	109.973	PC	UR	180	5	1	160	2	27.4	1010.7	25.4	23.2
2	21	19	53.125	-1.103	109.967	PC	8	180	9	1	160	2	27.4	1011.0	24.5	23.5
2	21	20	53.167	-1.302	109.980	RW	12	170	5	1	160	2	26.8	1012.2	24.7	23.4
2	21	21	53.208	-1.528	109.993	PC	12	170	5	1	160	2	26.3	1012.8	25.1	23.8

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
2	21	22	53.250	-1.748	110.005	PC	12	85	8	1	160	2	25.8	1012.9	25.0	23.5
2	21	23	53.292	-1.978	109.990	RW	12		0	0	160	2	25.8	1012.2	24.7	23.5
2	21	24	53.333	-1.992	109.960	RW	4	90	6	1	160	2	26.1	1012.0	24.5	23.5
2	22	1	53.375	-1.968	109.940	CL	10	115	7	0	160	2	26.0	1011.1	24.8	23.5
2	22	2	53.417	-2.107	109.912	CL/R	8	130	14	2	160	2	26.0	1010.5	24.6	23.5
2	22	3	53.458	-2.330	109.918	CL/R	8	80	4	4	160	2	25.5	1010.8	24.0	23.2
2	22	4	53.500	-2.552	109.955	PC	8	100	11	1	160	2	25.5	1010.4	24.8	23.4
2	22	5	53.542	-2.777	109.995	CL/R	8	100	13	1.5	160	2	25.3	1011.3	23.5	22.8
2	22	6	53.583	-3.007	110.025	CL/R	10	40	10	1.5	160	2	25.3	1012.0	24.1	23.5
2	22	7	53.625	-3.228	110.038	PC/R	10	95	14	1.5	160	2	25.3	1012.2	24.1	23.5
2	22	8	53.667	-3.493	110.045	PC	12	110	12	1.5	160	2	26.3	1013.0	26.7	24.2
2	22	9	53.708	-3.733	110.018	PC	12	110	12	1.5	160	2	26.3	1013.0	27.0	24.5
2	22	10	53.750	-3.973	110.080	PC	12	110	12	1.5	160	2	26.3	1013.0	26.9	24.6
2	22	11	53.792	-4.003	110.008	PC	UR	100	12	1.5	130	2	26.3	1012.9	26.8	24.2
2	22	12	53.833	-4.008	110.000	PC	UR	100	10	1	130	2	26.6	1011.5	27.3	24.9
2	22	13	53.875	-4.012	110.022	PC	UR	100	12	1.5	130	2	26.6	1011.1	27.0	24.5
2	22	14	53.917	-4.020	110.017	PC	UR	105	11	1.5	130	2	26.6	1010.2	27.0	24.5
2	22	15	53.958	-4.027	109.987	PC	UR	100	10	1.5	130	2	26.6	1010.0	27.2	24.3
2	22	16	54.000	-4.017	109.987	PC	UR	100	8	1	130	2.5	26.6	1010.1	27.1	24.4
2	22	17	54.042	-4.178	109.992	PC	UR	110	7	1	130	2	26.6	1010.3	25.7	23.9
2	22	18	54.083	-4.447	110.032	CL/R	8	115	12	2	130	3	26.6	1011.1	25.0	23.6
2	22	19	54.125	-4.705	110.008	CL/R	8	80	6	2	130	3	26.6	1011.9	24.7	23.8
2	22	20	54.167	-4.973	110.002	RW	8	140	6	2	130	3	26.6	1013.2	25.0	24.0
2	22	21	54.208	-4.973	110.002	CL	10	140	6	1	130	3	26.6	1013.5	25.0	24.0
2	22	22	54.250	-4.972	110.000	RW	8	75	12	1	110	4	26.6	1013.5	25.0	24.0
2	22	23	54.292	-4.972	110.000	CL	8	80	10	1	120	4	26.6	1012.8	24.8	23.9
2	22	24	54.333	-4.972	109.992	CL	8	100	6	1	120	4	26.4	1012.0	24.5	23.7
2	23	1	54.375	-5.018	109.977	CL	8	90	5	1	155	3	26.3	1011.2	24.7	23.7
2	23	2	54.417	-5.280	109.995	CL/R	6	110	7	1	155	3	26.5	1010.9	24.8	23.6
2	23	3	54.458	-5.537	110.000	CL/R		115	14	2.5	155	3	26.3	1010.1	24.0	23.5
2	23	4	54.500	-5.792	109.995	CL/R	7	105	14	2.5	155	3	26.3	1010.1	24.3	23.5
2	23	5	54.542	-6.000	109.990	CL/R	5	100	15	2.5	150	3	26.0	1010.5	24.5	23.9
2	23	6	54.583	-5.997	109.988	PC	12	120	15	2.5	150	3	26.0	1011.0	25.0	23.2
2	23	7	54.625	-6.117	109.985	CL	12	110	17	2.5	150	5	26.0	1011.2	25.2	23.1
2	23	8	54.667	-6.258	109.672	CL	12	110	10	2.5	150	5	26.1	1012.5	26.0	23.9
2	23	9	54.708	-6.417	109.508	CL	12	110	18	2.5	150	5	25.8	1012.5	26.2	24.0
2	23	10	54.750	-6.572	109.327	CL	12	110	18	2.5	150	5	25.7	1012.5	26.2	24.0
2	23	11	54.792	-6.690	109.142	PC	UR	100	15	3	130	5	25.6	1011.3	26.2	24.0
2	23	12	54.833	-6.853	108.952	PC	UR	95	14	3	130	5	25.8	1011.0	26.0	23.9
2	23	13	54.875	-6.993	108.778	PC	UR	100	12	3	130	5	26.3	1010.8	26.0	24.0
2	23	14	54.917	-7.142	108.607	PC	UR	85	13	3	130	5	26.3	1010.0	26.0	23.7
2	23	15	54.958	-7.290	108.428	PC	UR	90	12	3	130	5	26.3	1009.3	25.8	23.5
2	23	16	55.000	-7.427	108.258	PC	UR	70	11	2	130	5	26.3	1009.5	25.7	23.6
2	23	17	55.042	-7.562	108.078	PC	UR	100	12	3	130	5	26.2	1009.6	24.4	23.2
2	23	18	55.083	-7.712	107.867	CL	UR	90	12	2	130	5	26.2	1010.0	25.2	23.0
2	23	19	55.125	-7.878	107.655	PC	UR	100	12	2	130	5	26.2	1010.5	25.3	23.0
2	23	20	55.167	-8.000	107.500	PC	UR	100	12	2	130	5	25.9	1011.1	25.0	23.1
2	23	21	55.208	-7.985	107.578	PC	UR	100	12	2	130	4	25.8	1012.5	25.0	23.5
2	23	22	55.250	-8.000	107.500	PC	UR	100	8	3	130	4	25.6	1012.8	25.0	23.5
2	23	23	55.292	-8.000	107.493	PC	UR	110	12	3	130	4	25.9	1012.0	25.0	23.1
2	23	24	55.333	-8.000	107.495	PC	UR	100	12	2	130	4	25.9	1012.0	25.0	23.0
2	24	1	55.375	-8.015	107.475	PC	UR	105	12	2	130	4	25.9	1010.9	25.1	25.9
2	24	3	55.417	-8.082	107.397	PC	12	110	10	2	130	4	25.9	1010.2	25.1	24.9

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
2	24	4	55.458	-8.280	107.250	PC	12	105	12	2	130	4	25.9	1010.0	25.1	23.0
2	24	5	55.500	-8.462	107.090	PC	UR	100	11	2	130	4	25.9	1010.9	24.6	23.0
2	24	6	55.542	-8.600	106.905	PC	UR	90	11	2	130	4	25.9	1010.9	24.5	22.3
2	24	7	55.583	-8.748	106.708	PC	UR	100	10	2	130	4	25.9	1012.0	24.8	22.7
2	24	8	55.625	-8.892	106.498	CL	UR	115	11	1	130	5	25.9	1012.5	25.0	23.0
2	24	9	55.667	-9.027	106.320	CL	UR	115	11	1	130	5	25.9	1013.0	25.3	23.4
2	24	10	55.708	-9.177	106.118	PC	UR	115	11	1	130	5	25.9	1013.0	26.0	23.5
2	24	11	55.750	-9.327	105.910	CL	UR	115	12	1	130	5	25.9	1013.1	25.8	23.5
2	24	12	55.792	-9.467	105.685	CL	UR	105	14	2	130	5	25.9	1012.5	25.9	23.4
2	24	13	55.833	-9.607	105.512	CL	UR	110	15	3	130	6	26.0	1011.9	26.0	23.3
2	24	14	55.875	-9.758	105.308	CL	UR	110	15	3	130	5	25.8	1010.8	25.9	23.5
2	24	15	55.917	-9.905	105.092	CL	UR	115	16	3	130	5	25.8	1010.5	25.6	23.3
2	24	16	55.958	-9.942	105.110	CL	UR	115	15	3	130	5	25.8	1011.2	25.3	23.5
2	24	17	56.000	-10.002	105.003	PC	UR	120	20	2	130	5	26.1	1010.3	25.1	23.2
2	24	18	56.042	-10.018	104.997	PC	UR	120	22	2	130	5	26.1	1010.7	25.1	23.2
2	24	19	56.083	-10.180	104.990	PC	UR	110	20	2	130	5	26.1	1011.6	25.0	22.9
2	24	20	56.125	-10.418	104.993	PC	UR	110	20	3	130	5	26.1	1012.0	25.0	22.7
2	24	21	56.167	-10.657	105.028	PC	UR	105	20	3	130	5	25.8	1013.0	25.0	22.7
2	24	22	56.208	-10.905	105.025	PC	UR	105	20	3	130	5	25.6	1013.5	24.9	22.5
2	24	23	56.250	-11.157	104.993	PC	UR	105	20	3	130	5	25.5	1013.6	24.7	22.2
2	24	24	56.292	-11.385	104.988	PC	UR	110	21	3.5	140	6	25.5	1012.9	24.7	22.3
2	25	1	56.333	-11.633	104.987	PC	10	95	22	5	140	6	25.6	1012.8	24.5	22.0
2	25	2	56.375	-11.878	104.997	PC	10	115	21	5	140	6	25.6	1012.0	24.2	21.8
2	25	3	56.417	-12.005	104.993	PC	UR	115	20	5	140	6	25.6	1012.2	23.9	21.2
2	25	4	56.458	-12.015	104.978	PC	UR	115	18	4	140	6	25.6	1012.6	24.0	21.1
2	25	5	56.500	-12.020	104.978	PC	UR	115	18	3	120	6	25.6	1012.9	24.3	21.9
2	25	6	56.542	-12.022	104.975	PC	UR	115	17	3	120	5	25.3	1013.7	24.2	21.8
2	25	7	56.583	-12.032	104.972	PC	UR	115	17	3	120	5	25.3	1014.2	24.2	21.6
2	25	8	56.625	-12.037	104.975	PC	UR	110	16	4	120	5	25.4	1015.1	24.6	21.1
2	25	9	56.667	-12.157	104.975	PC	UR	100	17	3.5	150	8	25.4	1015.1	25.2	21.3
2	25	10	56.708	-12.392	104.992	PC	UR	100	22	3.5	150	8	25.4	1015.1	25.2	21.3
2	25	11	56.750	-12.643	104.995	PC	UR	100	20	3.5	150	8	25.4	1015.1	25.3	21.5
2	25	12	56.792	-12.882	105.002	PC	UR	100	18	3.5	150	6	25.4	1014.5	25.0	21.0
2	25	13	56.833	-13.120	105.040	PC	UR	100	22	4	150	6	25.4	1014.1	25.0	20.5
2	25	14	56.875	-13.358	105.023	PC	UR	100	22	4	150	6	25.4	1013.5	25.0	20.8
2	25	15	56.917	-13.610	105.013	PC	UR	100	17	3	150	5	25.3	1013.2	24.6	21.0
2	25	16	56.958	-13.862	104.998	PC	UR	90	17	3	150	5	25.3	1013.1	24.5	21.3
2	25	17	57.000	-14.000	105.002	PC	UR	110	18	3	150	5	25.3	1013.3	24.6	21.3
2	25	18	57.042	-14.047	105.018	PC	UR	100	17	3	140	5	25.3	1013.3	24.3	21.8
2	25	19	57.083	-14.278	105.008	PC	UR	100	20	3	140	5	25.3	1014.1	24.3	21.3
2	25	20	57.125	-14.553	105.005	CL	UR	100	22	3	140	5	24.9	1014.9	24.3	21.8
2	25	21	57.167	-14.803	105.020	PC	UR	105	20	3	140	5	24.8	1015.3	24.1	21.2
2	25	22	57.208	-15.057	105.010	PC	UR	105	20	3	140	5	24.9	1015.4	24.0	21.5
2	25	23	57.250	-15.295	104.998	PC	UR	105	20				24.7	1015.0	23.9	21.1
2	25	24	57.292	-15.542	104.993	PC	UR	110	20	3	220	5	24.9	1015.6	24.0	21.0
2	26	1	57.333	-15.788	104.993	PC	10	95	20	4	220	5	24.9	1015.2	24.0	20.8
2	26	2	57.375	-15.998	104.997	PC	10	100	18	4	220	5	24.9	1014.8	24.0	21.5
2	26	3	57.417	-16.002	104.988	CL	10	110	19	3	210	5	24.8	1014.7	23.9	21.3
2	26	4	57.458	-16.008	104.993	PC	UR	110	20	3	210	5	24.8	1014.6	23.8	20.9
2	26	5	57.500	-16.020	104.982	PC	UR	110	22	3	210	5	24.8	1015.0	23.8	
2	26	6	57.542	-16.045	104.942	CL	UR	110	18	3	210	5	24.8	1015.1	23.8	19.2
2	26	7	57.583	-16.017	104.968	CL	UR	80	14	2.5	210	5.5	24.8	1015.8	23.4	21.4
2	26	8	57.625	-16.002	104.950	PC	UR	95	20	2.5	150	5.5	24.8	1016.5	23.5	20.8

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR	Julian Day (Ship)	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
2	26	9	57.667	-16.220	104.977	PC	UR	95	23	4	150	5	24.4	1015.9	23.7	20.5
2	26	10	57.708	-16.453	104.990	PC	UR	95	23	4	150	5	24.5	1016.2	23.9	21.3
2	26	11	57.750	-16.693	104.997	PC	UR	95	22	4	150	5	24.5	1015.9	23.9	20.7
2	26	12	57.792	-16.933	105.000	PC	UR	100	21	3	200	4	24.5	1015.0	23.9	21.3
2	26	13	57.833	-17.183	105.025	CL	10	100	19	5	200	3	24.4	1014.5	23.9	20.6
2	26	14	57.875	-17.413	105.010	CL	10	105	19	5	160	6		1014.0	23.1	20.4
2	26	15	57.917	-17.643	105.008	CL	UR	110	21	5	160	6	24.5	1013.8	23.0	21.0
2	26	16	57.958	-17.872	105.008	PC	UR	105	15	4	200	6	24.5	1014.0	22.9	20.7
2	26	17	58.000	-18.018	104.987	PC	UR	110	16	4	200	6	24.5	1014.7	23.0	20.9
2	26	18	58.042	-18.023	104.992	PC	UR	110	15	4	200	6	24.5	1014.9	23.4	20.8
2	26	19	58.083	-18.232	105.008	PC	UR	110	20	4	200	7	24.5	1014.9	23.5	20.9
2	26	20	58.125	-18.493	104.983	PC	UR	105	16				24.5	1015.7	23.7	21.0
2	26	21	58.167	-18.750	104.988	PC	UR	110	16				24.5	1016.2	23.7	21.2
2	26	22	58.208	-18.977	105.065	PC	UR	110	16				24.5	1017.2	23.7	21.2
2	26	23	58.250	-19.225	105.060	PC	UR	120	16				24.6	1017.5	23.7	21.5
2	26	24	58.292	-19.472	105.038	PC	UR	110	20	1	130	5	24.6	1016.8	24.0	21.3
2	27	1	58.333	-19.713	105.013	PC	10	110	16	2	130	5	24.9	1016.5	24.0	21.8
2	27	3	58.375	-19.957	105.002	PC		95	14	2	130	4	25.0	1015.9	23.7	21.8
2	27	4	58.417	-20.007	104.995	PC	10	100	14	2	200	5	25.0	1015.5	23.6	21.8
2	27	5	58.458	-19.982	104.988	PC	10	110	12	2	200	5	24.3	1015.8	23.8	21.8
2	27	6	58.500	-19.963	104.980	PC	10	80	12	2	200	5	24.3	1015.7	23.3	22.0
2	27	7	58.542	-19.952	104.968	PC	10	90	12	2	200	5.5	24.3	1016.0	23.4	21.8
2	27	8	58.583	-19.940	104.957	PC	UR	95	14	4	200	5	24.9	1016.5	23.8	21.5
2	27	9	58.625	-19.940	104.935	PC	UR	90	16	4	200	5	24.9	1016.7	23.9	21.1
2	27	10	58.667	-19.992	104.935	PC	UR	80	14	2.5	200	5	24.9	1017.0	24.2	22.0
2	27	11	58.708	-20.262	104.952	PC	UR	60	12	2.5	200	5	24.9	1017.5	24.8	22.2
2	27	12	58.750	-20.487	104.967	PC	UR	85	12	2	200	5	25.1	1017.0	25.0	22.0
2	27	13	58.792	-20.743	104.980	PC	UR	95	14	2.5	200	5	25.1	1016.6	25.8	22.5
2	27	14	58.833	-20.980	104.992	PC	UR	110	10	2	200	5	25.2	1016.4	24.2	22.0
2	27	15	58.875	-21.228	105.003	PC	UR	120	8	1.5	200	4	25.2	1015.8	24.5	22.1
2	27	16	58.917	-21.472	105.015	PC	UR	100	10	1.5	210	5	25.2	1015.5	24.0	22.0
2	27	17	58.958	-21.692	105.010	PC	UR	100	10	1	210	5	25.2	1015.0	24.8	22.9
2	27	18	59.000	-21.955	105.008	PC/R	5	70	18	2	210	5	24.7	1014.5	23.9	22.8
2	27	19	59.042	-22.007	105.010	PC/R	5	95	15	2	210	5	24.7	1015.0	23.5	22.6
2	27	20	59.083	-22.080	105.035	PC	12	100	20	2	210	5	24.9	1015.1	24.5	22.8
2	27	21	59.125	-22.318	105.000	PC	12	100	20	2	210	5	25.5	1016.1	24.5	22.8
2	27	22	59.167	-22.567	104.997	PC	12	100	14	2	210	5	25.5	1016.9	24.2	22.5
2	27	23	59.208	-22.803	105.033	PC	12	100	16	2	210	5	25.5	1017.2	24.5	22.5
2	27	24	59.250	-23.053	105.020	PC	12	95	14	2	200	5	25.5	1016.7	24.5	22.7
2	28	1	59.292	-23.303	105.013	PC	12	90	14	2	200	5	25.2	1016.3	24.4	22.2
2	28	2	59.333	-23.538	105.010	PC	12	90	12	2	200	5	25.5	1016.3	24.2	22.2
2	28	3	59.375	-23.802	105.003	PC	12	75	11	2	200	5	25.5	1015.8	24.2	22.1
2	28	4	59.417	-24.045	104.997	PC	12	85	11	1.5	200	4.5	25.5	1015.8	24.2	21.7
2	28	5	59.458	-24.292	104.990	PC	12	85	9	1.5	200	4.5	25.5	1016.2	24.0	21.8
2	28	6	59.500	-24.537	104.982	PC	12	70	9	1.5	200	4.5	25.5	1016.0	24.0	21.4
2	28	7	59.542	-24.783	104.985	PC	12	60	10	1.5	200	4.5	25.9	1016.8	24.0	21.4
2	28	8	59.583	-24.995	104.995	PC	UR	40	8	1.5	200	4.5	26.0	1017.4	24.3	21.7
2	28	9	59.625	-24.992	104.990	PC	UR	40	8	1.5	200	4.5	26.1	1018.2	24.1	21.7
2	28	10	59.667	-24.980	104.962	PC	UR	40	8	1.5	200	4.5	26.2	1018.8	24.6	21.7
2	28	11	59.708	-24.968	104.968	PC	UR	40	7	1.5	200	3.5	26.2	1018.9	25.0	22.2
2	28	12	59.750	-24.962	104.972	PC	UR	25	6	1	200	4	26.2	1019.0	25.8	22.2
2	28	13	59.792	-24.955	104.950	PC	UR	40	4	1	200	4	26.2	1018.6	27.2	23.5
2	28	14	59.833	-24.953	104.955	PC	UR	50	5	1	200	4	26.2	1017.9	26.9	23.6

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR	Julian	Decimal	Decimal	PRESENT	VIS	WIND DIR	WIND SPD	SEA WAVE	SWELL DIR	SWL HGHT	SST	BAROM	AIR T	AIR T
	(Ship)		Day	Lat	Long	WEATHER	NM	deg,true	knts	HGHT, ft	deg	ft	deg C	mb	dry	wet
2	28	15	59.875	-25.035	105.105	PC	12	70	4	0	200	4	26.1	1017.3	26.5	23.5
2	28	16	59.917	-25.127	105.347	PC	UR	40	4	1	200	4	26.1	1017.0	26.3	22.5
2	28	17	59.958	-25.185	105.392	PC	UR	40	5	1	200	4	26.1	1017.2	27.8	23.5
2	28	18	60.000	-25.197	105.497	PC	UR	50	4	1	200	4	27.3	1017.3	26.0	22.5
2	28	19	60.042	-25.358	105.708	PC	UR	65	2	1	200	4	27.3	1017.9	25.2	22.0
2	28	20	60.083	-25.485	105.950	PC	UR	310	3	1	200	4	26.6	1018.5	24.7	21.8
2	28	21	60.125	-25.655	106.182	PC	UR		0	1			26.6	1018.9	24.7	21.5
2	28	22	60.167	-25.678	106.420	CL	UR		0	1			26.6	1019.2	24.5	21.5
2	28	23	60.208	-25.845	106.703	CL	UR		0	1			26.5	1019.3	24.7	21.5
2	28	24	60.250	-25.940	106.900	C	UR		0				26.8	1019.3	24.9	21.8
3	1	1	60.292	-26.062	107.142	PC	UR		0				26.6	1019	25	22
3	1	2	60.333	-26.183	107.372	PC	UR		0				26.6	1019	25	22.1
3	1	3	60.375	-26.308	107.620	PC	UR	155	6				26.6	1018.5	25	22.8
3	1	4	60.417	-26.437	107.855	PC	UR	145	10	1	200	4	26.6	1018.5	24.8	22.5
3	1	5	60.458	-26.545	108.083	PC	UR	145	10	1	200	5	26.6	1018.5	24.8	22
3	1	6	60.500	-26.692	108.137	PC	UR	145	8	1	200	5	26.6	1018.1	24.8	21.5
3	1	7	60.542	-26.820	108.502	PC	UR	145	8	1	200	5.5	26.6	1019.9	24.9	21.9
3	1	8	60.583	-26.945	108.845	PC	UR	130	6	1	200	5	26.6	1020.1	25.3	21.8
3	4	19	64.000	-27.213	109.343	PC	UR	101	10	1.5	120	4	26.5	1020.2	25	21
3	4	20	64.042	-27.245	109.067	PC	UR	101	14	1.5	120	4.5	26.5	1020.5	24.7	21
3	4	21	64.083	-27.353	108.845	PC	UR	101	14	1.5	120	4.5	26.3	1021.2	24.7	21
3	4	22	64.125	-27.395	108.572	PC	UR	90	13	1.5	120	4.5	26.3	1021.5	24.7	21
3	4	23	64.167	-27.445	108.305	PC	UR	90	14	1.5	120	4.5	26.3	1022	24.3	20.2
3	4	24	64.208	-27.495	108.047	PC	UR	105	24	3.5	200	4.5	26.3	1021.9	23	21
3	5	1	64.250	-27.545	107.782	PC	UR	85	19	2.5	120	3	26.1	1021.8	24.1	20.8
3	5	2	64.292	-27.590	107.525	PC	UR	90	19	2.5	120	3	26.1	1021.8	24.1	20.7
3	5	3	64.333	-27.638	107.265	PC	UR	110	19	2.5	120	3.5	26.1	1021.4	24	20.8
3	5	4	64.375	-27.690	107.003	PC	12	100	17	2.5	120	3	25.6	1021	24.1	20.5
3	5	5	64.417	-27.725	106.738	PC	12	100	21	3.5	120	3	25.4	1020.7	24	20.2
3	5	6	64.458	-27.765	106.478	PC	12	80	18	3.5	120	3	25.4	1020.8	24	20.1
3	5	7	64.500	-27.803	106.222	PC	UR	80	18	3.5	120	3	25.5	1021	23.5	20.2
3	5	8	64.542	-27.850	105.965	CL	9	120	20	3.5	120	4	25.9	1021.8	22.7	20.1
3	5	9	64.583	-27.895	105.703	CL	11	120	15	3.5			25.9	1022.2	22.6	20.1
3	5	10	64.625	-27.925	105.440	PC	UR	110	20	4.5			25.7	1022.3	23.4	20.1
3	5	11	64.667	-27.965	105.178	PC	UR	110	16	4.5			25.7	1023	23.9	20.4
3	5	12	64.708	-28.000	105.012	PC	UR	110	15	3.5			25.7	1023.5	24.8	20.7
3	5	13	64.750	-28.008	105.008	PC	UR	110	14	3.5	200	2	25.6	1023.3	25	20.1
3	5	14	64.792	-28.003	104.975	PC	UR	120	14	3.5	200	2	25.6	1022.8	25.2	21.6
3	5	15	64.833	-27.988	105.018	PC	UR	120	15	3.5	200	2	25.6	1022.7	25.6	20.9
3	5	16	64.875	-27.990	105.007	PC	UR	110	14	3			25.8	1022	25.2	20.6
3	5	17	64.917	-28.000	104.997	PC	UR	120	15	3			25.8	1021.2	24.6	20.9
3	5	18	64.958	-27.993	104.967	PC	UR	110	14	3			25.8	1021.1	24.2	21
3	5	19	65.000	-28.152	104.950	PC	UR	115	17	3	135	4	25.6	1020.8	26	24
3	5	20	65.042	-28.432	104.992	PC	UR	100	16	1.5	160	3.5	25.1	1021.3	23.1	21
3	5	21	65.083	-28.693	104.997	PC	UR	100	20	1.5	160	3.5	25	1021.8	23.3	20
3	5	22	65.125	-28.907	104.963	PC	UR	100	16	1.5	160	3.5	24.9	1022.6	23.3	20.1
3	5	23	65.167	-29.157	105.012	PC	UR	120	16	1.5	160	3.5	24.8	1023	23.1	21
3	5	24	65.208	-29.397	105.025	PC	UR	115	13	1.5	210	2	24.8	1023.2	23	21
3	6	1	65.250	-28.635	105.008	PC	UR	90	16	1.5	200	2.5	24.6	1023.3	22.9	20.7
3	6	2	65.292	-29.865	1104.995	PC	UR	80	16	1.5	210	2.5	24.6	1022.7	23.1	20.9
3	6	3	65.333	-30.010	104.972	PC	UR	80	14	1.5	210	2.5	24.6	1023.2	23	20.9
3	6	4	65.375	-29.988	105.005	PC	UR	85	15	2.5	210	2.5	24.8	1022.2	22.9	20.8
3	6	5	65.417	-30.073	104.982	PC	UR	100	20	3	210	3	24.8	1021.5	23.1	20.8

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D (Ship)	HR	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	6	6	65.458	-30.337	104.973	PC	UR	100	17	3	210	4	24.9	1021.8	23	20.3
3	6	7	65.500	-30.583	104.975	PC	UR	100	16	2.5	210	4	24.7	1022	22.9	20
3	6	8	65.542	-30.833	104.977	PC	UR	100	16	2.5	210	4	24.2	1022.9	22.7	20
3	6	9	65.583	-31.100	104.985	PC	UR	100	14	1.5	200	4.5	24.3	1023.2	23	19.8
3	6	10	65.625	-31.323	104.977	CL	UR	85	12	1.5	200	5	24.5	1024	22.9	19.8
3	6	11	65.667	-31.538	104.983	PC	UR	75	16	2.5	200	5	24.1	1024.3	23	19.7
3	6	12	65.708	-31.803	104.995	PC	UR	80	16	2.5	200	4.5	24.1	1024.4	23.2	19.7
3	6	13	65.750	-31.998	105.007	PC	UR	95	14	2	200	4.5	24.1	1024.2	23	19.6
3	6	14	65.792	-32.022	105.010	PC	UR	90	12	2	200	5	24.1	1024.1	24.2	20.2
3	6	15	65.833	-31.958	105.003	PC	UR	85	10	2	200	5	24.1	1023.5	23	19.3
3	6	16	65.875	-31.987	104.985	PC	UR	70	12	2.5	200	5	23.8	1022.5	24.5	20
3	6	17	65.917	-31.985	104.993	PC	UR	75	12	2.5	200	5	23.8	1021.9	24.4	20.1
3	6	18	65.958	-31.982	104.952	PC	UR	85	11	2.5	200	5	23.8	1021.2	24.4	19.7
3	6	19	66.000	-31.980	104.938	PC	UR	85	10	2.5	200	6	23.8	1021.1	24.3	19.8
3	6	20	66.042	-31.982	104.927	PC	UR	85	10	2	200	5	23.7	1021.5	22.5	19.1
3	6	21	66.083	-31.958	104.920	PC	UR	90	10	2	200	5	23.7	1021.8	21.8	19
3	6	22	66.125	-31.988	104.917	PC	UR	95	12	2	200	5	23.7	1022.2	21.8	19
3	6	23	66.167	-31.990	104.905	PC	UR	90	8	2	200	4	23.7	1023	21.9	19
3	6	24	66.208	-32.140	104.898	PC	UR	90	8	1.5	200	4	23.7	1023	21.9	18.9
3	7	1	66.250	-32.380	104.947	PC	UR	85	8	1	210	3.5	23.7	1023.2	21.7	18.9
3	7	2	66.292	-32.615	104.983	PC	UR	60	7	1	210	3	23.7	1023.1	21.7	18.9
3	7	3	66.375	-33.088	104.990	PC/L	UR	75	15	1.5	210	3	23.7	1022.3	20.6	19.2
3	7	4	66.417	-33.322	104.992	PC	12	35	19	2.5	210	3	22.7	1021.8	20.5	18.8
3	7	5	66.458	-33.557	105.005	PC	12	65	12	2	210	3	22.3	1021.8	20.5	18.5
3	7	6	66.500	-33.793	105.008	PC	UR	75	12	2	210	3	22.2	1021.8	20.8	18.8
3	7	7	66.542	-33.998	104.998	PC	UR	50	10	2			22.3	1022.5	20.5	18.5
3	7	8	66.583	-33.995	104.987	CL	10	50	10	2	80	3	22.3	1023.2	20.6	18.3
3	7	9	66.625	-33.978	104.997	CL	9	55	12	2.5	70	3.5	22.3	1023.3	20.1	18.6
3	7	10	66.667	-34.260	104.988	PC	10	45	11	2	75	3.5	22.3	1023.8	21.8	18.9
3	7	11	66.708	-34.508	104.990	PC	UR	35	12	2	75	3	22.4	1024	22.1	19.2
3	7	12	66.750	-34.770	105.002	PC	UR	55	14	2	210	3	22.4	1023.5	21.2	19
3	7	13	66.792	-35.022	105.003	PC	UR	45	13	2	210	3	22.4	1023.8	21.1	18.9
3	7	14	66.833	-35.267	105.002	PC	UR	40	12	2	75	3	22.4	1023.5	21.6	18.6
3	7	15	66.875	-35.510	105.022	PC	UR	40	11	2	75	3	21.6	1023.2	21.2	18.9
3	7	16	66.917	-35.768	105.008	PC	UR	20	11	2	55	3	21.7	1022.9	21	18.8
3	7	17	66.958	-36.000	105.000	PC	UR	5	10	2	5	4	21.7	1022.5	23	19.8
3	7	18	67.000	-35.998	105.025	PC	UR	5	10	2	5	4	21.7	1022.1	23.2	19.5
3	7	19	67.042	-35.983	105.040	PC	UR	5	10	2	20	4	21.4	1022.5	22.5	19.8
3	7	20	67.083	-35.987	105.008	PC	UR	5	10	2	20	4	21.4	1022.3	20.7	18
3	7	21	67.125	-35.987	105.002	PC	UR	5	10	2	20	4	21.4	1023	20.7	18.5
3	7	22	67.167	-35.963	105.042	PC	UR	20	8	2	20	4	21.3	1023.2	20.7	18.7
3	7	23	67.208	-35.953	105.020	PC	UR	20	10	2	20	4	21.3	1023.3	20.7	19
3	7	24	67.250	-36.020	105.018	C	UR	20	12	1	220	2.5	21.3	1023.3	20.8	19.6
3	8	1	67.292	-36.268	105.018	PC	UR	15	12	1	220	2	21.3	1022.9	20.5	19.3
3	8	2	67.333	-36.535	105.012	PC	UR	10	12	1	230	2	21.3	1022.8	20.2	19.3
3	8	3	67.375	-36.792	105.003	PC	UR	5	10	1	230	2	21.3	1022.1	20.1	19
3	8	4	67.417	-37.042	105.002	PC	UR	5	9	1	230	2	19.4	1021.5	19.7	18.8
3	8	5	67.458	-37.292	105.007	PC	UR	5	9	1	230	2	19.4	1021	19.5	18.8
3	8	6	67.500	-37.547	105.015	PC	UR	350	11	1	230	2	19.1	1020.8	19.2	18.5
3	8	7	67.542	-37.805	105.017	PC	UR	350	12	1	230	2	19	1020.8	19	18.5
3	8	8	67.583	-38.005	104.993	PC	UR	350	14	1	230	2	23.9	1020.5	20.3	18.7
3	8	9	67.625	-38.005	104.993	PC	UR	340	14	1	230	2	23.9	1020.5	20.3	18.5
3	8	10	67.667	-38.003	104.992	PC	UR	340	15	2	230	3.5	23.9	1020.2	19.4	18.5

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D (Ship)	HR	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	8	11	67.708	-38.132	104.993	PC	UR	345	14	2	230	3.5	23.9	1020.1	23.8	20.8
3	8	12	67.750	-38.377	105.010	PC	UR	335	16	2	210	2		1020	20.3	18.8
3	8	13	67.792	-38.655	104.975	PC	UR	335	18	2	220	3		1019.3	23.1	20.2
3	8	14	67.833	-38.908	105.002	PC	15	330	18	2	220	3		1018.6	23	20
3	8	15	67.875	-39.163	105.012	PC	UR	335	16	2	210	4		1017.5	21.5	19.9
3	8	16	67.917	-39.402	104.982	PC	UR	325	18	2.5	300	4	18.3	1016.5	21.2	19.3
3	8	17	67.958	-39.638	104.998	CL/R	8	325	22	3.5			17.9	1015.2	19.9	18.8
3	8	18	68.000	-39.888	105.012	CL/R	4	325	19	4			17.3	1014.8	19.4	18.5
3	8	19	68.042	-39.993	105.000	CL/R	4	315	17	4			17.2	1014	18.1	17.8
3	8	20	68.083	-39.985	105.002	CL/R	3	245	18	4			17.3	1014.2	16.3	15.9
3	8	21	68.125	-39.997	105.042	CL	3.5	245	16	4			17.1	1014.9	16.3	15.3
3	8	22	68.167	-40.002	105.060	CL	3	245	17	3	215	3	17.1	1015	16	14.9
3	8	23	68.208	-40.022	105.055	CL	4	245	20	3	215	3	17	1014.5	15.5	14.6
3	8	24	68.250	-40.033	105.062	CL/L	5	240	24	3	210	3	17	1014.6	15.3	14.5
3	9	1	68.292	-40.038	105.070	CL	6	225	22	2.5	210	2	17	1014.5	15.2	14.1
3	9	2	68.333	-40.090	105.065	PC/L	8	225	24	3	210	2	17	1014.1	15	13.9
3	9	3	68.375	-40.255	105.105	PC/L	8	220	26	4.5	210	4	17	1013.5	14.5	13.5
3	9	4	68.417	-40.450	105.092	CL/R	8	220	29	5	210	4	16.5	1013.2	14	13.2
3	9	5	68.458	-40.658	105.055	CL/R	8	220	29	5	210	4	16.3	1013	13.7	13
3	9	6	68.500	-40.858	105.017	CL	8	205	32	7			16.2	1012.8	13.2	12.5
3	9	7	68.542	-41.048	105.005	CL/R	8	200	38	11			16.2	1013.8	13	12
3	9	8	68.583	-41.210	105.022	CL/R	1.5	190	42	11			16	1015.5	12.7	11.9
3	9	9	68.625	-41.335	105.008	CL/R	1.5	180	38	13.5			16	1016.5	12.4	11.5
3	9	10	68.667	-41.365	105.045	CL/L	4	180	38	13.5			15.9	1016.6	12.5	10.9
3	9	11	68.708	-41.447	105.045	CL	5.5	180	39	13.5			15.6	1017.5	12.4	10.4
3	9	12	68.750	-41.542	105.048	CL	7	170	39	15			15.5	1019.5	13.1	11
3	9	13	68.792	-41.687	105.063	CL	5.5	160	34	13.5			15.3	1020.6	12.8	10.2
3	9	14	68.833	-41.897	105.030	PC	7	155	33	13			15.3	1020.9	13	10
3	9	15	68.875	-42.042	104.997	PC	9	160	35	13.5			15.3	1021.2	13	10.1
3	9	16	68.917	-42.200	104.978	CL	10	175	33	12			14.9	1021.2	12.2	10
3	9	17	68.958	-42.307	105.002	CL	10	170	23	10			15.3	1022.1	12	9.8
3	9	18	69.000	-42.465	104.997	CL	UR	154	28	9			15.4	1023	12	9.5
3	9	19	69.042	-42.648	104.968	CL	UR	170	21	9			15	1024	11.8	9
3	9	20	69.083	-42.723	104.967	CL	10	160	23	9			14.7	1024.1	11.3	8.5
3	9	21	69.125	-42.918	104.950	CL	10	160	22	8			14.6	1025.1	11	8
3	9	22	69.167	-43.087	104.957	CL	10	155	23	8			14.6	1025	10.8	7.9
3	9	23	69.208	-43.253	104.968	PC	10	160	16	7.5			14.5	1025.1	11.1	8
3	9	24	69.250	-43.432	104.972	CL	11	150	21	8			13.7	1025.3	10.2	7.6
3	10	1	69.292	-43.613	104.975	CL	10	165	12	8			13.7	1025.4	9.9	7.1
3	10	2	69.333	-43.787	104.985	CL	10	185	14	7			13.4	1025.1	10	7.2
3	10	3	69.375	-44.007	104.995	PC	10	180	12	5			13.7	1024.7	9.8	7.2
3	10	4	69.417	-44.013	105.000	PC	10	175	12	6			13.6	1024.5	9.7	7.2
3	10	5	69.458	-44.038	105.010	PC	10	225	10	6			13.6	1024.7	9.8	7.1
3	10	6	69.500	-44.025	105.017	PC	10	190	10	4	120	4	13.6	1023.8	9.8	7.3
3	10	7	69.542	-44.028	105.033	CL	UR	195	7	2.5	115	4	13.6	1023.6	10	7.4
3	10	8	69.583	-44.022	105.042	CL	UR	240	8	3	85	4	13.6	1023.2	10.5	7.6
3	10	9	69.625	-44.020	105.047	PC	UR	260	8	2	85	5	13.6	1023	10.2	8
3	10	10	69.667	-44.123	105.037	PC	UR	235	10	2	85	5	13.6	1022.2	11.3	8.2
3	10	11	69.708	-44.367	105.027	PC	UR	235	11	1.5	100	4.5	13.3	1021.8	10.2	8.4
3	10	12	69.750	-44.613	105.032	PC	UR	300	10	2	90	4	12.5	1020.8	13.8	10.1
3	10	13	69.792	-44.860	105.030	PC	UR	290	16	2	90	4	12.3	1019.5	14.1	10.6
3	10	14	69.833	-45.103	105.055	CL	UR	295	20	3	100	3	12.4	1018.4	13.2	10.6
3	10	15	69.875	-45.325	105.035	CL	6	295	17	2	210	3	12.8	1017.1	12.4	10.5

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	10	16	69.917	-45.588	104.997	CL	UR	300	17	2	260	6	11.8	1016.2	12.2	10.5
3	10	17	69.958	-45.853	104.973	CL	UR	280	18	2	260	6	11.9	1015	12.1	10.5
3	10	18	70.000	-46.015	104.995	CL	UR	300	15	3	260	6	11.9	1013.8	10.8	9.7
3	10	19	70.042	-46.055	104.995	CL	UR	300	22	3	260	6	11.9	1012.8	11	9.8
3	10	20	70.083	-46.020	105.057	CL	10	295	22	4	260	5	11.9	1012.3	11.7	10
3	10	21	70.125	-46.187	105.040	CL	10	310	24	4	260	5	11.8	1012	11.8	10.3
3	10	22	70.167	-46.432	105.037	PC	10	320	24	4	260	5.5	11.8	1010	11.7	10.5
3	10	23	70.208	-46.652	105.037	PC	10	310	24	4	260	5.5	11.8	1009.1	11.7	10.5
3	10	24	70.250	-46.888	105.023	PC	8	310	20	3	260	5	11.8	1007.8	11.7	10.5
3	11	1	70.292	-47.170	105.002	CL	10	315	20	3	260	4	11.8	1006.8	11.5	10.1
3	11	2	70.333	-47.415	104.990	CL	10	260	21	3	260	4	11.8	1005.2	9.7	8.8
3	11	3	70.375	-47.642	105.008	CL	10	240	14	3	260	4	11.8	1004.7	9.2	7.8
3	11	4	70.417	-47.873	105.002	CL	10	255	19	3	260	4	10.5	1004	9.2	7.8
3	11	5	70.458	-48.003	105.002	CL	10	245	18	3	240	6	10.4	1004	8.8	6.1
3	11	6	70.500	-48.015	105.012	CL	10	245	16	3	240	6	10.4	1003.9	8.3	5.9
3	11	7	70.542	-48.027	105.027	CL	10	230	18	3	240	8	10.3	1004	8.2	5.4
3	11	8	70.583	-48.038	105.038	CL	10	220	14	3	240	8	10.2	1004.4	8.1	5.3
3	11	9	70.625	-48.045	105.047	CL	10	220	14	2	220	8	10.2	1004.2	8.1	5.2
3	11	10	70.667	-48.055	105.057	CL	10	220	13	3	235	8	10.3	1004.5	8.3	5.8
3	11	11	70.708	-48.065	105.077	CL	10	200	11	3	240	8	10.3	1004.5	8.7	5.9
3	11	12	70.750	-48.060	105.080	CL	10	205	10	2	240	8	10.3	1004.3	8.7	5.8
3	11	13	70.792	-48.077	105.088	CL	10	210	10	2	240	9	10.3	1004.1	8.6	5.8
3	11	14	70.833	-48.085	105.095	PC	UR	200	12	2	240	8	10.3	1003.9	8.7	5.8
3	11	15	70.875	-48.095	105.102	PC	UR	200	10	2	240	8	10.3	1004	8.8	6
3	11	16	70.917	-48.185	105.110	CL	UR	180	12	2	240	8	10.3	1003.5	8.6	6
3	11	17	70.958	-48.463	105.070	PC	UR	180	12	2	240	8	10.3	1003	8	6.4
3	11	18	71.000	-48.718	105.082	PC	UR	160	18	2	230	8	10.2	1003	8.4	6.5
3	11	19	71.042	-49.003	105.093	PC	UR	135	14	3	230	8	10.2	1003.1	8.2	6.4
3	11	20	71.083	-49.223	105.023	SQ	7	160	26	3	230	9	9.6	1004	7.4	5.6
3	11	21	71.125	-49.467	105.035	PC	10	155	24	3	230	9	9.2	1005	8	6.2
3	11	22	71.167	-49.720	105.037	PC	10	155	24	3	230	9	9.2	1006.1	7.8	5.2
3	11	23	71.208	-49.957	105.997	PC	10	150	20	3	230	9	9.2	1007	7.8	5.2
3	11	24	71.250	-50.028	104.967	PC	10	150	21	3	230	8	9.2	1008.1	7.5	5.3
3	12	1	71.292	-50.048	104.967	PC	10	160	18	3	230	7	9.2	1008.8	7.4	4.9
3	12	2	71.333	-50.138	105.003	PC	UR	170	20	3.5	240	8	9	1009.1	7.2	5.1
3	12	2	71.375	-50.347	105.058	PC	UR	155	18	3	240	7	9	1009.3	7	4.8
3	12	3	71.417	-50.608	105.013	PC	UR	170	16	3	240	6	9	1009.9	6.9	4.5
3	12	4	71.458	-50.862	105.010	PC	UR	160	14	3	240	6	9.3	1009.8	6.8	4
3	12	5	71.500	-51.113	105.012	PC	UR	155	11	2.5	180	4	8.6	1010	6	3.8
3	12	6	71.542	-51.365	104.997	PC	UR	180	11	2	180	4	8.4	1010.2	6.5	4
3	12	7	71.583	-51.618	105.000	PC	UR	180	7	2	190	6	8.4	1010	7	5
3	12	8	71.625	-51.852	105.018	CL	UR	195	12	2	230	5.5	8.4	1010.9	7	4.9
3	12	9	71.667	-52.025	105.045	CL	UR	200	10	2	240	6	8.4	1011.2	7.4	5.4
3	12	10	71.708	-52.030	105.068	CL	UR	195	10	2	215	5	8.4	1011.1	7.7	5.5
3	12	11	71.750	-52.035	105.068	CL	UR	200	8	2	220	5	8.4	1011.1	8.1	6
3	12	12	71.792	-52.043	105.013	CL	UR	200	7	1	225	8	8.4	1010.6	8.3	6.1
3	12	13	71.833	-52.062	105.022	PC	UR	210	8	1	225	7	8	1010.4	8.2	6.3
3	12	14	71.875	-52.015	105.030	PC	UR	240	6	1	220	7	8	1009.9	8.9	6.8
3	12	15	71.917	-52.045	105.028	PC	UR	240	8	1	220	6	8	1009.5	8.7	6.8
3	12	16	71.958	-52.038	105.038	PC	UR	260	9	1	220	5	8	1009.3	8.8	7.1
3	12	17	72.000	-52.155	105.028	CL/F	UR	265	12	1	220	5	8.3	1008.9	8.2	7.4
3	12	18	72.042	-52.395	105.057	CL	10	240	14	1	220	5	8.1	1008.4	7.5	6.9
3	12	19	72.083	-52.622	105.017	CL	10	215	16	1	220	5	8.1	1008	6.9	6

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	12	20	72.125	-52.932	105.010	CL	10	210	20	1	220	5	8.2	1008	6.8	6.1
3	12	21	72.167	-53.188	105.005	R	10	220	25	2	220	5	8.1	1008	6.8	5.8
3	12	22	72.208	-53.340	105.010	CL	10	210	26	3	240	5	8	1007.3	6.6	5.7
3	12	23	72.250	-53.578	104.993	CL	10	210	24	3	240	5.5	7.9	1007.5	6.4	5.5
3	12	24	72.292	-53.830	104.995	CL	8	220	25	3	240	6	7.3	1007.3	6.8	6
3	13	1	72.333	-53.993	105.002	CL	8	230	22	4	240	5	7.3	1007	6.9	6.2
3	13	2	72.375	-54.082	104.990	CL/R	7	230	23	4	240	5	7.3	1007.1	6.8	6.3
3	13	3	72.417	-54.095	104.990	PC	7	230	26	4	240	5	7.3	1007	6.4	5.6
3	13	4	72.458	-54.260	105.008	CL	7	200	20	5	240	5	7.5	1007	6.5	5
3	13	5	72.500	-54.455	105.043	CL	10	195	25	6	240	5	7.4	1007	5.8	4.5
3	13	6	72.542	-54.680	105.038	CL	12	200	29	8	240	5	7.4	1007.2	6	3.8
3	13	7	72.583	-54.903	105.035	CL	12	200	21	10	240	4	7.4	1007.9	5.7	3.9
3	13	8	72.625	-55.058	105.087	CL	12	200	20	9.5	230	5	7.4	1009.3	5.9	4.3
3	13	9	72.667	-55.168	105.093	CL	12	210	23	4	220	10	7.6	1008.8	5.8	3.1
3	13	10	72.708	-55.470	105.033	CL	12	225	19	4	200	10	7.5	1009	5.7	3.8
3	13	11	72.750	-55.747	104.970	CL	12	230	24	5	205	11	7.3	1008.8	5.8	3.5
3	13	12	72.792	-55.988	105.005	CL	10	240	26	5	205	5.5	7	1008.8	5.5	3.5
3	13	13	72.833	-56.010	105.027	CL	10	240	26	5	240	7	7	1008.7	5.8	3.5
3	13	14	72.875	-56.022	105.050	CL	10	240	26	5	240	7	7	1008.4	5.4	3.5
3	13	15	72.917	-56.047	105.020	CL	10	240	24	5	240	10	7	1008.4	5.1	3.5
3	13	16	72.958	-56.078	105.110	CL	10	250	28	5	240	10	7	1007.7	5.5	3.8
3	13	17	73.000	-56.100	105.127	CL/R	8	270	21	3	240	12	7	1007.1	5.7	4.6
3	13	18	73.042	-56.115	105.143	CL	8	285	24	3	250	10	7	1005.8	5.9	5.1
3	13	19	73.083	-56.113	105.145	CL/LCL/L	2	265	27	3	250	8	7	1005	7	6.7
3	13	20	73.125	-56.105	105.175	CL	4	260	35	5	220	8	6.9	1005.5	7.7	6.9
3	13	21	73.167	-56.182	105.187	CL/R	4	255	35	5	220	8	6.9	1005	7.8	7
3	13	22	73.208	-56.260	105.152	CL/R	6	250	30	5	230	8	6.8	1005.5	7.2	6.7
3	13	23	73.250	-56.427	105.130	CL/R	4	245	28	5	230	8	6.7	1005	7.4	6.8
3	13	24	73.292	-56.712	105.123	CL/L	7	250	27	4.5	235	8	5.9	1004.8	7.1	6.3
3	14	1	73.333	-56.960	105.068	CL/L	7	255	26	4.5	230	8	5.8	1003.5	6.9	6
3	14	2	73.375	-57.195	105.093	CL/L	7	260	25	5	230	8	5.8	1003	6.8	5.9
3	14	3	73.417	-57.428	105.110	CL/L	7	265	26	5	230	8	6.2	1002.6	6.4	5.8
3	14	4	73.458	-57.663	105.102	CL	7	270	23	5	230	8	6.3	1001.2	6.8	6
3	14	5	73.500	-57.905	105.070	CL/R	7	270	23	5	230	8	6	1000.9	6.5	5.9
3	14	6	73.542	-58.127	105.048	CL/R	8	280	24	5	230	10	6.3	1000	6.7	6
3	14	7	73.583	-58.357	105.010	CL/R	6	280	27	5	230	12	6	998.5	6.8	6
3	14	8	73.625	-58.548	104.997	CL/R	6	280	24	4	220	12	5.4	996.5	6.3	5.8
3	14	9	73.667	-58.790	104.978	F	1	280	24	3	220	10	5.2	993.7	6	5.6
3	14	10	73.708	-59.027	104.970	F	2	290	26	4	220	10	5.1	992.5	6.1	5.6
3	14	11	73.750	-59.255	104.980	F	1.5	300	25	4	260	10	4.9	990.5	6.2	5.8
3	14	12	73.792	-59.442	104.980	CL	3	300	25	4.5	260	10	4.9	987.8	6	5.5
3	14	13	73.833	-59.670	104.947	CL	4	300	27	5	250	8	4.9	984.4	6.1	5.6
3	14	14	73.875	-59.912	104.967	CL	4	310	28	5	260	10	3.4	981.5	6.1	5.6
3	14	15	73.917	-60.008	104.920	CL/R	5	310	32	11	270	15	4.3	978.8	6.3	5.6
3	14	16	73.958	-60.033	105.108	CL/R	2	320	37	10	270	15	4.3	975	6.6	5.9
3	14	17	74.000	-60.057	105.193	F/DR	1.5	300	34	10	270	15	4.3	973	6.3	5.9
3	14	18	74.042	-60.078	105.298	F/DR	2	300	36	10	280	15	4.3	972	6	5.5
3	14	19	74.083	-60.085	105.403	F/DR	1.5	305	33	10	280	13	4.3	970.9	5.8	5.4
3	14	20	74.125	-60.080	105.503	F	1.5	305	31	5.5	280	13	4.1	969.9	5.9	5.4
3	14	21	74.167	-60.065	105.585	F	1	300	29	5.5	280	13	4.2	968.5	5.8	5.5
3	14	22	74.208	-60.042	105.690	CL/F	1.5	290	30	5.5	280	13	4.2	968.1	5.2	5
3	14	23	74.250	-60.110	105.777	CL	2.5	285	26	5.5	280	13	4.4	968.1	5	4.9
3	14	24	74.292	-59.992	105.885	CL	3	250	22	5	290	15	4.6	968.4	4.5	4

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	15	1	74.333	-59.975	105.987	CL	3.5	235	26	5.5	290	13.5	4.4	968.3	3.5	3
3	15	2	74.375	-59.958	106.113	CL	4.5	225	23	5	290	12	4.4	968.8	3	2.6
3	15	3	74.417	-59.945	106.195	CL	5	224	23	5	290	12	4.4	970	2.9	2.1
3	15	4	74.458	-59.953	106.267	CL/S	5	225	32	6	220	12	4.5	971	2.4	2
3	15	5	74.500	-59.963	106.345	CL	8	225	30	6	280	15	4.5	972	3	1.7
3	15	6	74.542	-59.958	106.433	CL/S	8	240	35	6	280	15	4.5	972.9	3.7	1.2
3	15	7	74.583	-59.953	106.502	CL	8	235	25	6	270	15	4.5	973.7	3.5	1.3
3	15	8	74.625	-59.935	106.583	S	0.5	235	32	6	260	15	4.4	973.8	2.9	1.4
3	15	9	74.667	-59.913	106.642	SP	5	240	37	8	260	15	4.4	974.3	1	-0.1
3	15	10	74.708	-59.912	106.703	PC	6.5	245	38	10	300	15	4.4	975	0.9	-0.8
3	15	11	74.750	-59.940	106.807	PC	10	250	40	8	300	15	4.5	975.8	1.5	-0.4
3	15	12	74.792	-59.960	106.955	PC/S	1.5	245	40	25			4.5	976.5	-0.1	-0.5
3	15	13	74.833	-59.977	107.127	PC/S	4	235	37	24			4.5	977.1	0.3	-0.5
3	15	14	74.875	-59.993	107.243	PC	5	245	38	24			4.5	976.8	1.5	0.8
3	15	15	74.917	-60.002	107.380	PC/R	5	270	46	25			4.6	977.5	3.5	1.5
3	15	16	74.958	-60.025	107.527	PC	8	260	40	25			4.4	976.5	2	0.5
3	15	17	75.000	-60.043	107.655	PC	8	270	40	25			4.4	977	3	1.1
3	15	18	75.042	-60.057	107.718	F	1	260	35	25			4.1	976	1	0.4
3	15	19	75.083	-60.098	107.878	F/S	3	275	30	25			4.1	976	2.9	1.6
3	15	20	75.125	-60.177	108.080	CL	8	230	20	22			4.3	976.2	1.3	0.5
3	15	21	75.167	-60.150	108.080	PC	10	215	23	15			4.3	976.8	1	0
3	15	22	75.208	-60.150	108.365	PC	10	210	22	15			4.3	977	1.1	0.2
3	15	23	75.250	-60.170	108.602	PC	10	215	26	15			4.3	977	1.7	-1
3	15	24	75.292	-60.193	108.822	PC	8	215	24	15			4.5	977.5	0.5	-0.5
3	16	1	75.333	-60.225	109.025	CL/S	1.5	225	24	15			4.1	978.1	-1	-1
3	16	2	75.375	-60.252	109.212	PC	1.5	215	24	15			3.9	978.1	-1	-1.2
3	16	3	75.417	-60.273	109.405	PC	5	215	26	15			3.9	978.1	0.8	-1.2
3	16	4	75.458	-60.305	109.588	PC	5	210	25	15			3.9	977.8	0.8	-0.5
3	16	5	75.500	-60.320	109.773	PC	8	210	26	15			3.9	978.2	0.3	-0.3
3	16	6	75.542	-60.375	109.945	PC	8	220	20	12			3.6	978.4	1.8	-0.6
3	16	7	75.583	-60.425	110.085	PC	8	205	20	10			3.7	979.5	-0.5	-0.7
3	16	8	75.625	-60.477	110.228	SQAL	0.5	210	30	6.5	250	5.5	3.8	979	0.4	
3	16	9	75.667	-60.512	110.357	PC/S	6	210	26	6	250	6	4.2	979.5	0	
3	16	10	75.708	-60.550	110.487	PC/S	1.5	235	25	6	250	7	4.4	980	-0.5	
3	16	11	75.750	-60.547	110.518	PC	10	215	23	6	230	8	4.5	980	0.5	
3	16	12	75.792	-60.548	110.568	PC	15	225	30	6	225	9	4.5	979.9	0.4	
3	16	13	75.833	-60.547	110.598	PC	15	230	26	6	225	9	4.5	980	-0.1	
3	16	14	75.875	-60.565	110.617	PC	15	215	30	6	220	9	4.5	979.9	0.4	
3	16	15	75.917	-60.567	110.642	PC	15	215	30	5	215	9	4.5	980.1	0	
3	16	16	75.958	-60.570	110.647	CL	15	225	30	5	215	9	4.5	980	0.9	
3	16	17	76.000	-60.572	110.670	CL/S	3	200	38	7	215	12	4.3	979.8	-1	
3	16	18	76.042	-60.592	110.747	CL	3	220	38	7	220	12	4.3	979.5	-0.1	
3	16	19	76.083	-60.647	110.830	CL	3	215	27	7	220	12	4.3	979.9	0.3	
3	16	20	76.125	-60.727	110.997	PC	10	215	30	7	220	10	4.1	979.5	-0.5	
3	16	21	76.167	-60.687	110.968	PC/S	2	210	27	7	220	10	4.4	979	-1.5	
3	16	22	76.208	-60.718	111.057	PC	10	210	26	7	220	10	4.1	978.5	-0.2	
3	16	23	76.250	-60.737	111.128	PC	10	220	22	7	220	10	4.1	978	-0.5	
3	16	24	76.292	-60.745	111.188	PC	8	220	37	12			4.1	978	-0.5	
3	17	1	76.333	-60.783	111.253	PC	5	210	22	12			4.5	977.8	-0.8	
3	17	2	76.375	-60.807	111.337	PC	5.5	220	28	12			4.5	977.5	-0.7	
3	17	3	76.417	-60.833	111.417	PC/S	6	220	24	12			4.5	977.5	-1	
3	17	4	76.458	-60.862	111.493	PC	4	180	22	10			4.4	977.8	-0.5	
3	17	5	76.500	-60.892	111.577	PC	6	180	28	10			4.5	977.8	0.8	

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	17	6	76.542	-60.923	111.658	PC	8	200	25	10			4.7	978.3	0.2	
3	17	7	76.583	-60.952	111.722	PC	8	195	28	10			4.4	978.8	0.2	
3	17	8	76.625	-60.972	111.788	PC	11	180	24	3.5	220	8.5	4.2	979.5	0.9	
3	17	9	76.667	-61.000	111.857	PC	8	180	27	3	220	9	4.1	980.2	-0.8	
3	17	10	76.708	-61.057	111.918	PC	10	195	17	4	200	8	4.2	981.2	0	
3	17	11	76.750	-61.063	112.000	PC	9	185	23	4	200	7	4.2	982.1	1	
3	17	12	76.792	-60.853	112.043	PC	9	190	22	3.5	220	8.5	4.4	982.8	1.2	
3	17	13	76.833	-60.562	111.950	PC	UR	195	24	3.5	220	9	4.5	982.8	1.9	
3	17	14	76.875	-60.285	111.935	PC	UR	190	24	3.5	220	8.5	4.2	983.9	2.1	1
3	17	16	76.958	-59.762	111.845	CL	UR	180	26	5	230	8	4.3	985.2	4	0.7
3	17	17	77.000	-59.498	111.788	CL	UR	170	26	5	230	8	4.3	986.3	3	1
3	17	18	77.042	-59.255	111.607	PC	UR	190	25	4	230	8	4.4	987	0.9	-0.1
3	17	19	77.083	-58.988	111.585	PC	UR	165	20	2	230	7	4.6	987.8	1.7	0.1
3	17	20	77.125	-58.738	111.562	S	0.2	165	28	2	230	7	5.2	989	0.8	
3	17	21	77.167	-58.488	111.538	PC	11	200	20	2	230	7.5	5.1	989.9	1.2	
3	17	22	77.208	-58.243	111.528	PC	11	185	32	2.5	230	7.5	4.9	990.5	1.2	
3	17	23	77.250	-58.000	111.510	PC	11	195	26	2.5	230	7.5	4.9	991	2	0.2
3	17	24	77.292	-57.890	111.590	PC	UR	195	28	3	220	8	4.9	991.4	2	0.5
3	18	1	77.333	-57.955	111.907	PC	8	195	30	4	220	10	5	992.9	1.8	0.4
3	18	2	77.375	-57.988	112.013	PC	8	180	25	4	220	10	5	993.7	1.6	0.8
3	18	3	77.417	-58.003	112.078	PC	8	185	22	4	220	10	4.9	994.4	1	0
3	18	4	77.458	-58.030	112.165	PC	6	190	26	4	220	10	5	995.3	2	1
3	18	5	77.500	-58.048	112.227	CL	5	190	28	4	220	10	5	996.5	1.5	0.5
3	18	6	77.542	-58.052	112.277	CL	6	190	26	4	220	8	5	996.8	2	0.5
3	18	7	77.583	-58.070	112.312	CL	6	220	24	12			5	997.9	3.8	1.8
3	18	8	77.625	-58.090	112.370	CL	8	225	26	10			4.9	998	2	0.4
3	18	9	77.667	-58.110	112.368	CL/R	5	220	30	10			4.7	999	2.3	1.2
3	18	10	77.708	-58.127	112.398	CL	8	205	22	9			4.9	999.8	3.2	2
3	18	11	77.750	-58.043	112.137	CL	8	200	20	9			4.8	1000	3.1	1.7
3	18	12	77.792	-57.988	111.982	CL	8	210	24	9			4.8	999.2	2.8	0.6
3	18	13	77.833	-58.008	112.032	CL	8	210	22	8			4.9	999.8	2.6	0.4
3	18	14	77.875	-58.028	112.058	CL	8	210	25	8			5	1000.5	2.8	0.7
3	18	15	77.917	-58.052	112.090	CL	8	210	23	8			5	1000.7	2.8	0.5
3	18	16	77.958	-58.085	112.123	CL	8	210	20	6			5	1000.9	3	1
3	18	17	78.000	-58.117	112.160	CL	8	235	28	8			5	1001.5	4.9	2.2
3	18	18	78.042	-58.148	112.185	CL	8	215	24	8			4.3	1001.3	4.9	1.9
3	18	19	78.083	-58.158	112.202	CL	8	220	17	8			4.3	1001.7	4.7	1.8
3	18	20	78.125	-58.172	112.277	CL	8	210	18	3	195	8	4.8	1001.8	3	1.1
3	18	21	78.167	-58.157	112.263	CL	10	230	15	3	195	8	4.9	1002	2.7	1
3	18	22	78.208	-57.987	111.980	CL	10	230	12	2	190	6	4.9	1001.4	3.2	1.2
3	18	22	78.250	-57.997	112.003	CL	10	230	13	2	190	6	4.9	1001.3	3.1	1.3
3	18	23	78.292	-58.022	112.083	CL	10	260	16	2	190	6	4.9	1001.2	3.1	1.4
3	18	24	78.333	-58.020	112.078	CL	10	260	10	2	190	5	4.9	1000.9	3	1
3	19	1	78.375	-58.028	112.117	CL	10	265	14	2	190	5	4.9	1000.2	3.2	1.5
3	19	2	78.417	-58.028	112.135	PC	10	270	11	2	190	5	4.9	999.5	3	1.3
3	19	3	78.458	-58.053	112.348	CL	10	280	12	2	190	4	4.9	998.3	3.2	2.7
3	19	4	78.500	-58.065	112.790	CL	10	330	14	2	190	4	4.9	997	4	3.1
3	19	5	78.542	-58.055	113.277	CL	10	355	20	2	190	4	5.5	994.8	5.8	4.9
3	19	6	78.583	-58.042	113.753	CL/R	8	355	20	2	190	4	5	993.2	6	5.2
3	19	7	78.625	-58.042	114.253	CL	6	15	18	2	190	4	5.7	991.4	6.1	5.5
3	19	8	78.667	-58.043	114.725	F	1	0	16	2	190	4	4.9	989	6.9	6.4
3	19	9	78.708	-58.063	115.183	F	1.5	325	16	2	335	4.5	4.8	988.6	6.2	5.9
3	19	10	78.750	-58.070	115.597	F	1.5	305	20	2	320	4	4.4	987.3	5.8	5.4

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR	Julian Day (Ship)	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	19	11	78.792	-58.085	116.067	F	1.5	275	23	2	285	5	4.4	989.2	5.2	5.1
3	19	12	78.833	-58.067	116.400	F	1.5	265	26	2	290	4	4.5	988.5	5.5	5.5
3	19	13	78.875	-58.070	116.713	CL	6	260	26	2	290	4	5.1	989.1	5.6	5.1
3	19	14	78.917	-58.053	117.195	CL	6	245	23	4	290	4	5.2	989.8	5.6	5
3	19	15	78.958	-58.015	117.607	CL	6	255	21	3	300	4	5.1	990.3	5.6	4.9
3	19	16	79.000	-57.992	118.052	CL/R	2	255	20	4	300	4	4.9	990.9	4	3.9
3	19	17	79.042	-57.980	118.432	CL	5	270	20	4	300	4	4.8	991.5	4.1	3.9
3	19	18	79.083	-57.980	118.835	CL	5	270	22	4	300	3	4.8	991.5	4	3.8
3	19	19	79.125	-57.992	119.223	CL	6	270	17	4	300	3	4.4	991.8	4.4	3.9
3	19	20	79.167	-58.005	119.618	CL	6	300	11	1.5	300	5	4.4	991.8	4.2	4
3	19	21	79.208	-57.913	119.622	F	1	310	18	1.5	300	5	4.2	991	4.2	4.2
3	19	22	79.250	-57.913	119.522	F	2	320	17	2	300	5	4.2	991	4.6	4.4
3	19	23	79.292	-57.917	119.618	CL/R	4	325	22	2	290	5	4.2	990.5	4.9	4.7
3	19	24	79.333	-57.912	119.623	CL/R	5	320	22	3	290	4	4.2	989.7	5.3	5.1
3	20	1	79.375	-57.902	119.667	PC	7	300	24	2.5	290	4.5	5.1	989.5	5.1	4.9
3	20	2	79.417	-57.903	119.687	CL	6	300	17	3	290	4	5.1	989.5	5.2	4.8
3	20	3	79.458	-57.908	119.718	PC	7	305	20	3	290	4	5.1	989.6	5.1	4.8
3	20	4	79.500	-57.908	119.735	PC	7	305	18	3	290	4	5.1	989.3	6.7	5.2
3	20	5	79.542	-57.898	119.743	PC	7	305	15	3	290	4	5.1	989.7	6.8	5.4
3	20	6	79.583	-57.892	119.760	PC	4.5	305	15	3	290	4	5.1	989.8	6.9	5.6
3	20	7	79.625	-57.882	119.817	CL	4.5	305	15	3	290	4	3.8	990	5	4.6
3	20	8	79.667	-57.888	119.865	CL	3.5	285	12	2	290	4	3.9	991	5.1	4.9
3	20	9	79.708	-57.870	119.997	CL	9	240	18	2	290	4	4	992.5	4.8	4.2
3	20	10	79.750	-57.673	120.345	CL	11	250	20	2.5	295	5	3.9	992.8	5.8	4.2
3	20	11	79.792	-57.463	120.585	CL	8	250	18	2.5	300	7	3.9	994.9	5	4.3
3	20	12	79.833	-57.340	120.785	CL	8	230	24	3	300	7	3.9	996.2	4.5	3.9
3	20	13	79.875	-57.212	120.967	CL	6	225	26	3.5	290	7	4	998.8	4.7	4.1
3	20	14	79.917	-57.025	121.182	CL	7	230	26	3	290	11	4	1000.5	3.9	3.5
3	20	15	79.958	-57.003	121.222	CL	6.5	245	28	4	290	11	4	1002.1	4	3.5
3	20	16	80.000	-56.988	121.227	CL	7	235	21	4	290	12	4	1003	4.1	3.7
3	20	17	80.042	-56.947	121.347	CL	8	250	22	4	290	8	4	1004.2	4.1	3.6
3	20	18	80.083	-56.918	121.415	CL	6	265	18	4	290	8	4.2	1004.2	5	4.5
3	20	19	80.125	-56.948	121.277	CL	4	240	12	4	290	8	4	1005	6.2	5.7
3	20	20	80.167	-56.983	121.203	CL	4	280	25	4	290	8	3.9	1004.8	5	4.7
3	20	21	80.208	-56.973	121.227	CL	6	280	20	4	290	8	3.9	1004.8	4.9	4.6
3	20	22	80.250	-56.972	121.277	CL	8	290	22	4	290	8	4	1004	5.4	4.9
3	20	23	80.292	-56.990	121.308	CL	8	295	20	4	290	8	4.1	1004	5.7	5.1
3	20	24	80.333	-56.967	121.353	CL	10	300	20	4	290	8	4.1	1003.2	5.7	5
3	21	1	80.375	-56.962	121.368	CL	10	300	20	4	290	8	4.1	1002.5	5.9	5.1
3	21	2	80.417	-56.958	121.400	CL	10	310	22	4	290	8	4.1	1001.5	5.9	5.2
3	21	3	80.458	-56.932	121.432	CL/R	8	310	25	4	290	8	4.2	1000.1	6.2	5.8
3	21	4	80.500	-56.857	121.492	CL/R	8	315	29	4	290	8	4.3	998	6.2	5.8
3	21	5	80.542	-56.745	121.608	CL/R	8	310	34	6	290	8	4.3	998.5	6.4	6
3	21	6	80.583	-56.640	121.737	CL/R	6	310	34	6	290	8	4.5	998.5	6.5	6.1
3	21	7	80.625	-56.457	121.980	CL	5	310	34	10	290	5	4.5	998.1	7	6.3
3	21	8	80.667	-56.397	122.052	CL/R	1	300	31	10	290	5	5.5	997.4	7	6.5
3	21	9	80.708	-56.298	122.163	CL/R	1	300	31	11	290	5	5.5	997.8	7	6.4
3	21	10	80.750	-56.183	122.075	F/R	1.5	290	28	11	290	5	5.5	998	7.2	6.9
3	21	11	80.792	-56.123	122.210	F/L	1.5	290	28	11	290	5	5.6	998.4	7.3	7
3	21	12	80.833	-56.077	122.312	F/L	1.5	290	27	10	290	6	5.8	999.1	7.2	7
3	21	13	80.875	-56.035	122.413	CL	4	290	24	9	290	6	5.8	999.1	7.2	7
3	21	14	80.917	-55.993	122.470	CL	3	290	24	8	290	6	5.8	1000.1	7.1	7
3	21	15	80.958	-55.992	122.530	PC	7	280	24	5.5	290	6	5.8	999.8	7.2	6.8

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
(Ship)																
3	21	16	81.000	-55.983	122.568	F	0.5	290	18	4	290	8	5.8	1000.6	7.1	6.9
3	21	17	81.042	-55.975	122.618	PC	6	290	18	2	290	6	5.8	1000	7.1	6.7
3	21	18	81.083	-55.963	122.653	CL	8	300	17	2	290	7.5	5.9	999.9	7	6.8
3	21	19	81.125	-55.970	122.650	F	0.3	305	18	2	290	7.5	5.9	999.9	7.1	6.9
3	21	20	81.167	-55.968	122.675	F	0.2	310	22	2	290	8	5.9	999	7.2	6.9
3	21	21	81.208	-55.963	122.683	CL/R	4	310	20	2	280	7	5.9	998.2	7.8	7.3
3	21	22	81.250	-55.938	122.680	CL/R	4	325	18	2	280	7	5.9	997.5	7.2	6.9
3	21	23	81.292	-55.960	122.852	CL	4	325	20	2	280	7	5.9	996.6	7	6.8
3	21	24	81.333	-55.920	122.955	CL/L	1.5	310	26	3	285	7	5.8	995.5	7.1	7
3	22	1	81.375	-55.807	123.137	CL/L	3.5	300	26	3.5	280	8	5.9	995.2	7.6	7.1
3	22	2	81.417	-55.740	123.283	CL/L	4	295	23	4	280	8	5.9	995.6	7.6	7.1
3	22	3	81.458	-55.567	123.478	CL	6	300	24	3	280	7	5.9	995.1	7.7	7.2
3	22	4	81.500	-55.458	123.637	CL	6	300	21	3	280	6	6.3	995	7.8	7.3
3	22	5	81.542	-55.333	123.792	CL	6	305	20	3	280	6	6.6	995.2	7.8	7.4
3	22	6	81.583	-55.207	123.942	CL	6	310	20	3	280	4	6.7	994.5	7.7	7.2
3	22	7	81.625	-55.045	124.170	CL/R	5	305	16	3	280	4	6.7	994.5	7.5	7
3	22	8	81.667	-54.898	124.370	CL	7	290	16	8	280	3	6.6	993.5	7.8	7.2
3	22	9	81.708	-54.740	124.585	CL	7	295	19	8			6.5	993.3	7.7	7.2
3	22	10	81.750	-54.558	124.757	CL	7	300	19	8			6.7	994	7.7	7.3
3	22	11	81.792	-54.368	124.897	F/L	1.5	295	17	8			6.9	993.9	7.8	7.5
3	22	12	81.833	-54.180	125.050	CL	10	290	13	7	270	4	7.1	994.1	7.9	7.5
3	22	13	81.875	-54.008	125.267	PC	9	295	14	5	275	4	7	993.9	7.9	7.5
3	22	14	81.917	-53.963	125.297	PC	9	285	13	3	285	5	7.1	993.3	8	7.4
3	22	15	81.958	-53.942	125.325	PC	10	285	12	3	285	5	7.1	993.1	8	7.4
3	22	16	82.000	-53.977	125.362	PC	10	295	6	3	285	4	7.1	992.5	8.2	7.5
3	22	17	82.042	-53.970	125.412	PC	10	345	8	2.5	285	4.5	7.1	991.3	8.5	7.8
3	22	18	82.083	-53.967	125.432	PC	10	345	8	2.5	285	4.5	7.1	991	8.1	7.5
3	22	19	82.125	-53.970	125.467	F	0.5	345	8	2.5	285	4.5	7.1	990.5	7.8	7
3	22	20	82.167	-53.973	125.485	F	2	350	9	2	285	5	7.1	990	7	6.6
3	22	21	82.208	-53.883	125.623	CL	3	350	9	2	285	5	7.1	989	6.7	6.3
3	22	22	82.250	-53.657	125.812	CL	5	20	5	1	290	5	7.1	988.2	6.9	6.7
3	22	23	82.292	-53.478	125.973	CL/F	4	30	6	1	290	5	7.1	987.1	6.9	6.7
3	22	24	82.333	-53.318	126.118	CL/F	0.5	5	8	1	300	4	6.9	987.1	7.2	7
3	23	1	82.375	-53.182	126.220	CL	4.5	280	14	1	300	4.5	7.6	986.8	8	7.5
3	23	2	82.417	-52.968	126.405	PC	8	290	12	1	300	4.5	7.9	985.9	7.8	6.9
3	23	3	82.458	-52.760	126.600	PC	UR	295	12	2	300	5.5	7	985.1	7.7	6.9
3	23	4	82.500	-52.552	126.835	PC	UR	305	14	1	300	4	7.1	984.8	7.4	6.8
3	23	5	82.542	-52.358	127.075	CL	UR	320	13	1	300	4	7.1	983.7	7.8	7
3	23	5	82.583	-52.155	127.300	PC	UR	320	16	1	300	4.5	7.2	983.7	8	7.2
3	23	6	82.625	-52.000	127.518	CL/R	UR	320	16	1.5	320	4	7.2	982.5	8.1	7.3
3	23	7	82.667	-51.975	127.527	CL	8	325	16	1.5	320	4.5	7.8	981	8.5	8
3	23	8	82.708	-51.972	127.527	PC	8	325	25	6			7.8	981	8.4	7.8
3	23	9	82.750	-51.850	127.710	PC	10	305	24	6			7.8	980	9	7.6
3	23	10	82.792	-51.638	127.935	CL/L	8	305	26	6			7.8	979.1	9.2	7.9
3	23	11	82.833	-51.543	128.048	CL/R	3.5	285	25	7			8	979.1	7.2	6.4
3	23	12	82.875	-51.283	128.373	CL/R	4	285	25	6			8.2	979.6	7.8	6.9
3	23	13	82.917	-51.162	128.532	CL	5	215	32	7			8.3	982.5	8.1	6.9
3	23	14	82.958	-50.995	128.713	PC/R	10	230	28	9			8.4	985	6.3	5.2
3	23	15	83.000	-50.852	128.880	PC	10	245	31	13			8.6	987	6.6	5.2
3	23	16	83.042	-50.733	129.040	PC	10	245	27	10			8.6	989	6.4	4.9
3	23	17	83.083	-50.618	129.218	PC	10	245	28	11			8.5	990.5	7	
3	23	18	83.125	-50.502	129.388	PC	10	235	30	10			8.5	992	7	4.6
3	23	19	83.167	-50.385	129.560	PC	10	250	26	10			8.6	993.2	6.8	5

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	23	20	83.208	-50.253	129.713	PC	10	240	27	10			8.6	995.8	6.8	5.4
3	23	21	83.250	-50.132	129.883	PC	10	230	29	12			8.6	996.7	6.9	4.9
3	23	22	83.292	-50.028	130.047	PC/R	10	250	27	12			9.3	998.6	5.9	4.5
3	23	23	83.333	-50.035	130.085	PC	10	250	32	15			9.3	998.5	6.5	4.3
3	23	24	83.375	-50.040	130.107	PC/H	10	260	33	13.5			9.3	999.8	6	4.6
3	24	1	83.417	-50.278	130.555	PC	10	230	30	15			9.3	999.9	6	4.8
3	24	2	83.458	-50.075	130.235	PC	8	240	33	12			9.3	1000.9	5.9	3.9
3	24	3	83.500	-50.073	130.280	PC	10	235	30	15			9.3	1001.6	6.3	4.1
3	24	4	83.542	-50.075	130.332	PC	10	240	26	12			9.3	1003	6	4.5
3	24	5	83.583	-50.077	130.385	PC	10	215	24	12			9.3	1004	6.1	4.7
3	24	6	83.625	-50.073	130.458	PC	12	230	28	12			9	1005.2	6	4
3	24	7	83.667	-50.073	130.517	PC	UR	220	28	12			9.1	1006.8	5.1	3.8
3	24	8	83.708	-50.043	130.547	PC	10	215	28	12			9.2	1007.5	5.4	4
3	24	9	83.750	-50.023	130.448	PC	UR	210	26	12			9.2	1009.1	6.3	4.3
3	24	10	83.792	-49.993	130.100	PC	UR	210	30	11			9.3	1010	7.2	5.3
3	24	11	83.833	-49.970	129.948	PC	8	225	28	11			9.3	1010.8	6.7	4.7
3	24	12	83.875	-49.835	129.775	PC	UR	230	28	10	240	5	9.2	1012.1	7.6	5.2
3	24	13	83.917	-49.618	129.643	PC	UR	220	27	12	230	6	9.2	1013.1	6.5	4.5
3	24	14	83.958	-49.367	129.558	PC	8	215	27	9	240	6	9.1	1014.9	6.9	5.1
3	24	15	84.000	-49.147	129.352	PC	UR	220	25	7	240	5	9.2	1015.1	7.2	4.8
3	24	16	84.042	-48.977	129.258	PC	UR	240	25	8	240	5	9.5	1014.5	7.5	5
3	24	17	84.083	-48.968	129.627	PC	UR	220	27	8	240	5	9.3	1015.9	7.5	5
3	24	18	84.125	-48.987	129.940	PC	10	225	25	8	240	5	9.3	1017.3	6.1	4.6
3	24	19	84.167	-49.007	130.023	PC	10	225	28	8	230	5	9.2	1020.1	6.1	4.5
3	24	20	84.208	-49.008	130.043	PC	10	215	30	6	240	8	9.2	1020.5	7	4.8
3	24	21	84.250	-49.018	130.062	PC	10	220	26	5	240	8	9.2	1021.2	7.4	4.8
3	24	22	84.292	-49.018	130.082	PC	10	220	23	5	240	8	9.2	1022.5	7.5	5.5
3	24	23	84.333	-49.032	130.082	PC	10	210	22	5	240	7	9.2	1023.1	7.9	6.2
3	24	24	84.375	-49.055	130.228	PC	10	240	22	4.5	240	6	9.2	1023.1	8.1	6.9
3	25	1	84.417	-49.013	130.333	PC	9	240	22	4.5	240	7	9.2	1024.3	8.5	7.2
3	25	2	84.458	-48.762	130.268	CL	10	235	22	4.5	240	6	9.3	1024.3	8.9	7.8
3	25	3	84.500	-48.505	130.265	CL	10	240	23	4	250	5	9.9	1025.6	9	8
3	25	4	84.542	-48.252	130.258	CL	8	225	26	4	250	5	10	1026.3	8	7.5
3	25	5	84.583	-47.955	130.242	CL	8	235	22	4	250	5	10	1027.3	9	7.8
3	25	6	84.625	-47.767	130.235	PC	UR	235	23	4	250	5	9.9	1028.5	8.8	7
3	25	7	84.667	-47.547	130.218	PC	UR	220	19	3	250	5	10.5	1029.5	9	8.3
3	25	8	84.708	-47.290	130.163	PC	10	230	20	2	250	5	10.3	1030.2	9.2	8.1
3	25	9	84.750	-46.982	130.068	PC	10	230	20	2	250	4	10.6	1031	9.5	7.8
3	25	10	84.792	-46.723	130.032	PC	UR	265	22	2	235	5	10.6	1031.5	9.4	8
3	25	11	84.833	-46.490	130.060	PC/L	UR	220	17	2	240	5	10.6	1032.2	9	8.2
3	25	12	84.875	-46.233	130.013	PC	UR	205	17	2	240	6	11.1	1032.8	9.2	8.5
3	25	13	84.917	-46.007	130.017	PC	UR	240	14	2	240	6	11.2	1032.8	10.2	8.5
3	25	14	84.958	-46.023	130.032	PC	UR	225	14	2	240	6	11.2	1032.3	10.2	8.5
3	25	15	85.000	-46.030	130.033	PC	UR	220	15	2.5	240	7	11.2	1032.3	9.9	8.2
3	25	16	85.042	-46.037	130.037	PC	UR	225	10	1.5	240	6	11.2	1032.3	10	8.3
3	25	17	85.083	-46.042	130.040	PC	UR	240	11	1	240	8	11.2	1032.7	9.9	8.2
3	25	18	85.125	-45.815	129.968	PC	UR	245	7	1	240	6	11.3	1033	10	8.8
3	25	19	85.167	-45.552	129.968	PC	UR	300	7	1	240	6	11.5	1033.8	10	8.8
3	25	20	85.208	-45.290	129.978	PC	UR	245	5	1	240	6	11.7	1034.2	10	9
3	25	21	85.250	-45.027	129.985	PC	UR	245	6	1	240	6	11.9	1034.5	10.3	8.4
3	25	22	85.292	-44.763	129.985	PC	10	220	6	1	240	6	12	1034.4	9.7	8.2
3	25	23	85.333	-44.505	129.973	PC	UR	195	6	1	240	5	12	1034.1	9.5	8.5
3	25	24	85.375	-44.263	129.992	PC	UR	220	6	1	230	4	12.3	1033.3	10	7.5

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	26	1	85.417	-44.007	130.000	PC	UR	40	8	1	190	5	12.5	1033.3	10.7	8.6
3	26	2	85.458	-44.008	130.002	CL	UR	30	8	1	200	7	12.5	1033.2	10.8	8.2
3	26	3	85.500	-43.987	129.992	CL	UR	30	4	1	200	7	12.5	1032.9	10.5	7.9
3	26	4	85.542	-43.948	119.982	CL	UR	45	2	0.5	200	7	13.1	1033	10.8	8.4
3	26	5	85.583	-43.928	129.945	CL	UR	340	4	1	220	6	13	1033	10.2	8
3	26	6	85.625	-43.902	129.938	CL/R	10	50	10	0.5	220	6	12.8	1033	10	8.5
3	26	7	85.667	-43.890	129.943	CL	12		0	0	210	3	12.5	1033.2	9	8
3	26	8	85.708	-43.853	129.935	PC	12		0	0	210	3	12.6	1033	10.5	8.8
3	26	9	85.750	-43.630	129.920	CL	12		0	0	210	3	13.6	1032.2	10.9	8.8
3	26	10	85.792	-43.403	129.897	CL	12	45	8	1	220	3	14.1	1032	10.4	8.8
3	26	11	85.833	-43.135	129.983	CL	UR	65	8	1	215	3	14.2	1031.3	11.9	8.7
3	26	12	85.875	-42.893	130.008	CL	UR	70	9	1	220	3	13.7	1030.4	12.1	8.9
3	26	13	85.917	-42.638	129.978	CL	UR	75	11	1	220	3	15.1	1029.8	12.5	9
3	26	14	85.958	-42.387	129.980	PC	UR	80	11	2	220	3	15.6	1028.4	12.9	10
3	26	15	86.000	-42.133	129.987	CL	UR	120	13	2	230	4	15.4	1027.8	14	11.4
3	26	16	86.042	-41.995	129.992	CL	UR	75	12	2	230	4	16	1027.5	13	10
3	26	17	86.083	-41.982	129.973	CL	UR	80	15	2	230	4	16	1027.3	13	10.1
3	26	18	86.125	-41.968	129.953	CL	UR	70	16	2	230	4	16	1027.1	13.2	10.5
3	26	19	86.167	-41.748	129.943	CL	UR	65	16	1	220	3	15.6	1026.3	13.6	10.8
3	26	20	86.208	-41.492	129.943	PC	UR	80	13	1	35	2	15.5	1026.5	13.7	11.2
3	26	21	86.250	-41.233	129.952	CL	UR	90	12	2	35	2	15.6	1026.6	13.6	11.1
3	26	22	86.292	-40.973	129.962	CL	UR	90	14	1	35	2	16	1025.3	14.2	11.5
3	26	23	86.333	-40.717	129.972	CL	UR	95	12	1	35	3	16	1024	14.5	11.6
3	26	24	86.375	-40.460	129.990	CL	UR	85	15	1.5	35	4	16.6	1022.5	15.1	11.7
3	27	1	86.417	-40.197	130.002	CL	UR	95	14	1.5	45	3.5	16.6	1022.1	15.2	12.5
3	27	2	86.458	-40.002	129.993	CL	UR	105	15	2.5	95	6	16.9	1021.5	14.8	12
3	27	3	86.500	-39.997	129.982	CL	UR	100	17	2.5	100	6	17	1020.9	14.8	12.2
3	27	4	86.542	-39.983	129.948	CL	UR	100	13	2	100	6	17	1021.2	14.8	12
3	27	5	86.583	-39.983	129.932	CL	UR	100	16	2	100	6	16.9	1021.2	14.8	11.7
3	27	6	86.625	-39.990	129.915	CL	UR	100	14	2	100	6	16.9	1021.5	14.9	12
3	27	7	86.667	-39.977	129.872	CL	UR	110	12	2	100	6	16.8	1021.2	14.8	12.2
3	27	8	86.708	-39.977	129.855	CL	UR	95	14	2	100	6	16.6	1021	15	12.5
3	27	9	86.750	-40.000	129.812	CL	UR	115	12	2	80	5	16.5	1021.9	15.9	12.3
3	27	10	86.792	-39.987	129.818	PC	UR	105	8	1	80	5	17	1020.7	15.3	12.5
3	27	11	86.833	-40.012	130.065	PC	UR	105	10	1	80	5	16.9	1020.5	16.2	13
3	27	12	86.875	-40.010	130.050	PC	UR	100	10	1.5	90	5	17	1019.8	18.2	13.9
3	27	13	86.917	-39.995	139.985	PC	UR	100	10	1.5	90	5	17	1018.9	17.8	13.8
3	27	14	86.958	-39.992	130.027	PC	UR	100	8	1.5	90	5	17	1018.2	17.4	13.8
3	27	15	87.000	-40.002	130.007	PC	UR	85	7	1	80	5	17.1	1018.1	18.8	14.8
3	27	16	87.042	-39.993	129.980	PC	UR	90	4	1	80	5	17.1	1018.3	20.5	15.7
3	27	17	87.083	-39.995	129.960	PC	UR	65	8	1	80	5	17.1	1017.9	20	14.8
3	27	18	87.125	-39.957	129.970	PC	UR	30	3	1	80	8	17.1	1017.9	15.1	13
3	27	19	87.167	-39.752	130.175	PC	UR	30	4	1	80	8	17	1018	15	12.9
3	27	20	87.208	-39.562	130.380	PC	UR	345	4	1	70	8	16.3	1018.3	15.2	12.7
3	27	21	87.250	-39.382	130.643	PC	10	340	6	1	70	8	16.8	1017.9	15.5	11.8
3	27	22	87.292	-39.117	130.890	PC	10	10	5	1	80	8	16.8	1017.5	15.5	12.6
3	27	23	87.333	-39.027	131.152	PC	10	290	6	1	80	7.5	17	1017.1	16	13.1
3	27	24	87.375	-38.855	131.397	PC	UR	270	8	1	75	8	18.3	1017.8	16.2	12.7
3	28	1	87.417	-38.680	131.642	PC	UR	280	7	1	80	7	18.9	1017.3	16.7	12.8
3	28	2	87.458	-38.517	131.908	PC	UR	290	9	1	80	7	18.5	1017.3	16.6	13
3	28	3	87.500	-38.350	132.170	CL	UR	295	9	1	80	7	18.4	1016.9	16.8	13.5
3	28	4	87.542	-38.198	132.418	PC	UR	285	9	1	80	6	18.4	1017.5	17	14.2
3	28	5	87.583	-38.030	132.683	PC	UR	275	12	1	80	5	18.3	1017.2	17.2	14.5

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	28	6	87.625	-37.850	132.937	PC	UR	270	13	1	80	5.5	18.8	1017.5	17.8	15
3	28	7	87.667	-37.662	133.188	PC	UR	280	13	1	80	5.5	18.5	1018	18	15
3	28	8	87.708	-37.488	133.428	PC	UR	270	11	1	80	5.5	19.1	1018.1	18	15.1
3	28	9	87.750	-37.268	133.280	PC	UR	290	11	1	80	5	18.8	1019.2	18	15.3
3	28	10	87.792	-37.250	133.325	PC	UR	290	11	1	80	5	18.8	1019.4	18.3	15.2
3	28	11	87.833	-37.243	133.328	PC	UR	285	11	1	85	4	18.9	1019.5	19	16.1
3	28	12	87.875	-37.237	133.325	PC	UR	285	11	1	95	4	18.9	1019	19.1	16.5
3	28	13	87.917	-37.232	133.382	PC	UR	260	10	1	95	4	18.9	1018.9	19.2	16.4
3	28	14	87.958	-37.152	133.327	PC/L	8	170	14	2	100	6	18.9	1019.5	18	17
3	28	15	88.000	-36.920	133.167	PC/L	9	175	15	2	110	4	18.7	1019.6	18.1	17
3	28	16	88.042	-36.687	133.002	PC/L	UR	195	11	1	110	4	19.3	1020	18.2	16.8
3	28	17	88.083	-36.472	133.048	PC/L	8	150	18	1	100	4	19.3	1020.5	17.5	15.7
3	28	18	88.125	-36.258	133.253	PC/L	7	155	20	1	100	4	20.1	1022	17.5	16.2
3	28	19	88.167	-36.052	133.477	CL/L	5	150	21	1.5	100	4	20.6	1022.8	17	16.5
3	28	20	88.208	-35.847	133.687	CL	7	145	23	1.5	100	4	20.3	1023	17.4	16.2
3	28	21	88.250	-35.510	133.888	CL	8	145	21	2	100	3.5	20.4	1023	17.6	16.3
3	28	22	88.292	-35.425	133.095	CL/L	8	145	22	2	100	3.5	20.4	1023.9	17.7	16.4
3	28	23	88.333	-35.218	134.313	CL	8	140	24	3	100	3.5	20.7	1023.7	18.2	16.5
3	28	24	88.375	-35.033	134.487	CL	8	140	25	2.5	100	4	20.8	1023.9	19	16.7
3	29	1	88.417	-34.795	134.710	CL	8	135	26	4	110	4.5	21.7	1023.9	19.1	16.9
3	29	2	88.458	-34.588	134.903	CL	7	120	27	5.5	110	6	21.9	1024	19.3	16.9
3	29	3	88.500	-34.373	135.005	PC	7	130	30	5	110	8	22.1	1024	19.8	16.8
3	29	4	88.542	-34.165	135.310	CL	7	130	29	5	110	8	22.4	1024.1	20.5	17.6
3	29	5	88.583	-33.963	135.512	CL	7	125	32	5	110	8	22.4	1024.5	20.8	18
3	29	6	88.625	-33.768	135.708	CL	7	120	29	5	110	8	21.9	1025	20.8	18.2
3	29	7	88.667	-33.565	135.907	CL	8	110	29	5	110	7	23	1025.2	20	18.4
3	29	8	88.708	-33.365	136.100	CL	6	105	32	7			22.5	1025.5	20.1	18.6
3	29	9	88.750	-33.177	136.277	PC	10	115	25	7			22.3	1025.8	20.5	18.9
3	29	10	88.792	-32.957	136.480	PC	10	120	28	8			22.7	1025.8	21	19.2
3	29	11	88.833	-32.758	136.682	PC/L	9	110	24	8			23.2	1025	21.2	19.4
3	29	12	88.875	-32.557	136.867	PC	8	95	26	5.5	100	8	23.1	1024	21.8	19.5
3	29	13	88.917	-32.350	137.058	PC	9	105	27	5.5	100	8	23.1	1023.3	22.1	20
3	29	14	88.958	-32.142	137.267	PC	10	100	26	5	100	10	23.4	1023.1	22.8	19.8
3	29	15	89.000	-31.932	137.488	PC	UR	85	32	5	100	10	23.3	1022	23.2	19.5
3	29	16	89.042	-31.747	137.610	PC	UR	100	27	5	100	11	23.3	1022.1	23	20
3	29	17	89.083	-31.635	137.802	PC	UR	80	29	5	100	12	23	1022.2	23.3	19.7
3	29	18	89.125	-31.518	138.007	PC	UR	95	27	5	100	10	23.1	1021.9	23	19.6
3	29	19	89.167	-31.325	138.202	PC	UR	90	30	5	100	13.5	23.4	1022.5	22.8	20
3	29	20	89.208	-31.135	138.395	PC	10	90	32	4	100	12	24.1	1022.8	23	20
3	29	21	89.250	-30.942	138.588	PC	10	85	32	4	100	12	23.7	1022.9	23.1	19.8
3	29	22	89.292	-30.760	138.780	PC	10	90	30	4	100	12	23.9	1022.9	23.2	20
3	29	23	89.333	-30.533	138.870	PC	10	80	28	5	120	8	23.9	1021.9	23.2	20.5
3	29	24	89.375	-30.350	139.097	CL	10	80	30	5	120	10	24.3	1021.9	23.5	19.9
3	30	1	89.417	-30.160	139.332	CL	8	95	26	4.5	120	9	24.5	1021.5	23.7	20.5
3	30	2	89.458	-29.960	139.510	PC	8	90	30	4.5	120	9	24.8	1020	23.9	21.2
3	30	3	89.500	-29.755	139.680	PC	8	80	28	5	120	13.5	24.7	1018.7	23.8	21.4
3	30	4	89.542	-29.557	139.868	CL	8	80	28	5	120	12	24.8	1018.3	23.5	21
3	30	5	89.583	-29.400	139.997	CL	8	80	32	5	120	12	24.8	1018.2	23.8	21.5
3	30	6	89.625	-29.215	140.165	CL	8	80	28	5	120	10	24.9	1018	23.9	22
3	30	7	89.667	-29.028	140.335	PC	8	70	30	5	110	10	25	1019	24	22
3	30	8	89.708	-28.958	140.573	PC	8	80	28	6	110	10	25.3	1019.5	24.6	22.5
3	30	9	89.750	-28.687	140.652	PC	8	70	26	6	110	10	25.4	1018.9	24.5	22.7
3	30	10	89.792	-28.490	140.833	CL/R	2	75	28	6.5	110	8	25.1	1018.9	24.4	23

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
3	30	11	89.833	-28.305	140.988	PC	7	60	27	7	95	7	25.2	1018.1	24.8	23.1
3	30	12	89.875	-28.152	141.140	PC	8	60	24	5.5	110	9	25.2	1017.8	25.1	23.5
3	30	13	89.917	-27.955	141.292	CL	8	50	23	5	100	7.5	25.5	1017.1	25.5	23.7
3	30	14	89.958	-27.760	141.490	CL/L	6	60	21	3.5	90	6.5	25.5	1016.2	25.8	23.8
3	30	15	90.000	-27.560	141.677	CL/L	6	60	21	3.5	90	7.5	25.5	1015.3	25.5	23.9
3	30	16	90.042	-27.362	141.842	CL	8	55	20	4	90	7	25.7	1014.5	25.8	24
3	30	17	90.083	-27.178	142.010	PC	10	50	15	2.5	80	7	25.4	1015.1	25.4	23.5
3	30	18	90.125	-26.978	142.178	PC	10	65	18	3	90	6	25.9	1015	26	24
3	30	19	90.167	-26.767	142.348	CL	10	35	17	3	90	6	26	1014.9	26	24
3	30	20	90.208	-26.603	142.608	TSTM	10	40	13	3	90	6	26	1015.8	26.3	24.5
3	30	21	90.250	-26.458	142.608	TSTM	10	30	18	3	90	6	26	1015.8	26.2	24.4
3	30	21	90.292	-26.257	142.767	PC	10	20	16	2	100	3	26.6	1015.2	26.1	24.3
3	30	22	90.333	-26.058	142.922	PC	10	20	16	3	100	3	26.8	1015.2	24.5	22.5
3	30	23	90.375	-25.862	143.097	PC	10	20	10	2	100	3	26.6	1016.1	25.2	23.4
3	30	24	90.417	-25.668	143.247	PC/R	10	320	12	2	100	3	26.9	1016.8	23.8	22.7
3	31	1	90.458	-25.468	143.387	PC/R	10	25	13	2	100	3	27	1015	24.2	22.8
3	31	2	90.500	-25.275	143.535	PC	10	35	15	2	110	3	27	1014.7	25.3	23.9
3	31	3	90.542	-25.063	143.692	PC	9	40	15	2	110	4.5	27.1	1014.9	25.3	24
3	31	4	90.583	-24.870	143.860	PC	10	0	10	2	110	5	27.3	1014.5	26	24
3	31	5	90.625	-24.700	144.022	PC	UR	355	10	2	110	5	27.1	1014.7	26	24
3	31	6	90.667	-24.505	144.172	PC	UR	355	12	2	110	5	27.1	1015.1	26.1	24
3	31	7	90.708	-24.308	144.380	PC	UR	350	16	2	110	5	27.1	1015.5	26.5	24
3	31	8	90.750	-24.092	144.578	PC	UR	345	17	2	110	5	27	1015.9	26.3	24.2
3	31	9	90.792	-23.937	144.713	PC	UR	10	20	2	110	5	27.2	1015.1	26.4	24.4
3	31	10	90.833	-23.678	144.938	PC	UR	355	17	2	110	4	27.2	1015.2	27.7	24.8
3	31	11	90.875	-23.483	144.110	PC	UR	345	16	2	110	4	27.5	1015	26.4	24.9
3	31	12	90.917	-23.278	145.267	PC	UR	345	14	2	105	4	27.5	1014.8	26.9	24.9
3	31	13	90.958	-23.090	145.447	PC	UR	335	15	2	105	4	27.6	1014.8	27	25
3	31	14	91.000	-22.902	145.592	PC	UR	340	11	2	110	4	27.7	1014.1	27.9	25.2
3	31	15	91.042	-22.790	145.618	PC	UR	340	11	2	110	4	27.7	1014.9	27.9	25.3
3	31	16	91.083	-22.820	145.647	PC	UR	340	11	2	110	4	27.7	1014.7	28	25.4
3	31	17	91.125	-22.725	145.733	PC	UR	330	10	1	110	4	27.7	1014.7	27.8	25
3	31	18	91.167	-22.508	145.877	PC	UR	330	10	1	120	3	27.7	1015.2	27	24.7
3	31	19	91.208	-22.297	146.017	PC	UR	330	10	1	120	3	27.6	1016	26.9	24.7
3	31	20	91.250	-22.082	146.152	PC	UR	310	10	1	120	4	27.6	1016.3	26.8	24.8
3	31	21	91.292	-21.873	146.297	PC	UR	320	5	1	120	4	27.6	1016.8	26.8	24.8
3	31	22	91.333	-21.577	146.450	PC	UR	320	6	1	120	4	27.6	1017.2	26.7	24.8
3	31	23	91.375	-21.465	146.625	PC	UR	0	4	1	120	3	27.7	1016.7	26.7	24.7
3	31	24	91.417	-21.270	146.768	PC	UR	10	3	1	120	3	28	1016.5	26.5	24.5
4	1	1	91.458	-21.107	146.913	PC	UR	355	2	1	120	2.5	27.5	1015.9	26.4	24.5
4	1	2	91.500	-20.942	147.050	PC	9	350	2	1	110	2.5	28	1015.9	26.3	24.8
4	1	3	91.542	-20.775	147.178	PC	UR	30	4	1	110	2.5	28	1015.4	26.3	24.6
4	1	4	91.583	-20.612	147.310	PC	UR	25	6	1	110	2	28.1	1015.5	26.3	24.6
4	1	5	91.625	-20.450	147.443	PC	UR	45	6	1	110	2	28.2	1015.8	26.3	24.5
4	1	6	91.667	-20.293	147.590	PC	UR	65	9	1	120	2	28.2	1016.2	26.2	24.3
4	1	7	91.708	-20.127	147.720	PC	UR	85	7	1	120	2	28.2	1016.8	26.5	24.3
4	1	8	91.750	-19.957	147.878	PC	UR	90	10	1	120	2	28.1	1016.8	26.8	24.9
4	1	9	91.792	-19.873	147.925	PC	UR	90	6	1	140	2	28.2	1016.8	27.7	25.2
4	1	10	91.833	-19.715	148.048	PC	UR	85	10	1	140	2	28.3	1016.6		
4	1	11	91.875	-19.645	148.093	PC	UR	70	12	1	145	3	28.4	1016.3	28.2	25.2
4	1	12	91.917	-19.565	148.140	PC	UR	80	10	1	120	2.5	28.4	1015.8	28.8	25.3
4	1	13	91.958	-19.492	148.222	PC	UR	90	12	1	120	3.5	28.5	1015.1	28.5	24.9
4	1	14	92.000	-19.487	148.230	PC	UR	100	10	1	120	4	28.5	1014.6	28.9	25.7

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D (Ship)	HR	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	1	15	92.042	-19.463	148.262	PC	UR	100	10	1	125	4	28.6	1014.8	28	24.8
4	1	16	92.083	-19.438	148.285	PC	UR	90	14	1.5	110	4	28.5	1014.2	28	25
4	1	17	92.125	-19.288	148.408	PC	UR	90	13	1.5	110	3	28.6	1014.8	28.7	25.1
4	1	18	92.167	-19.137	148.535	PC	UR	80	16	1.5	110	3	28.7	1015	27.9	25
4	1	19	92.208	-18.988	148.662	PC	UR	100	15	1.5			28.7	1015.5	28	25.1
4	1	20	92.250	-18.833	148.785	PC	UR	100	13	1	140	4	28.7	1016.2	27.4	25.2
4	1	21	92.292	-18.680	148.910	PC	UR	95	15	1	140	4	28.7	1015.9	27.4	25.1
4	1	22	92.333	-18.522	149.038	PC	UR	105	13	1	140	4	28.7	1016.2	27.3	25.1
4	1	23	92.375	-18.377	149.148	PC	UR	90	17	1	140	4	28.6	1015.8	27.4	25
4	1	24	92.417	-18.225	149.270	PC	UR	90	16	1	140	3.5	28.6	1015.1	27.2	22.5
4	2	1	92.458	-18.052	149.388	PC	UR	95	17	2	140	3.5	28.7	1014.4	27.3	25
4	2	2	92.500	-17.940	149.482	PC	UR	110	20	2.5	140	4	28.6	1013.8	27.2	25
4	2	3	92.542	-17.820	149.600	PC	UR	100	18	2.5	140	3	28.6	1013.2	27	24.8
4	2	4	92.583	-17.742	149.683	PC	UR	120	20	2.5	140	3	28.6	1013	28.6	25
4	7	1	97.458	-17.375	149.563	PC	6	90	20	1	25	3	28.6	1011.2	27	25
4	7	2	97.500	-17.157	149.472	PC	8	85	21	2	25	3.5	28.3	1010.9	27.5	25
4	7	3	97.542	-16.917	149.388	PC	8	85	19	2	25	3.5	28.4	1010.2	27.6	25.3
4	7	4	97.583	-16.735	149.212	PC	8	60	20	2	25	4	28.4	1010	27	24.3
4	7	5	97.625	-16.770	149.303	PC	8	60	20	2	25	4	28.4	1010.2	27.3	25.3
4	7	6	97.667	-16.628	149.238	PC	10	80	21	2	180	4	28.3	1010.8	27.8	25.5
4	7	7	97.708	-16.407	149.132	PC	UR	80	18	2	180	4	28.3	1011.3	27.2	25
4	7	8	97.750	-16.183	149.033	PC	UR	200	12	2	30	4	28.3	1010.2	27.8	25.3
4	7	9	97.792	-15.985	148.918	PC	UR	80	20	2	30	4	28.3	1011.5	27.9	25.2
4	7	10	97.833	-15.745	148.802	PC	UR	75	18	2	25	3	28.3	1011.9	28	25.2
4	7	11	97.875	-15.558	148.712	PC	UR	75	18	2	30	3	28.4	1011.1	27.8	25
4	7	12	97.917	-15.353	148.600	PC	UR	75	15	2	35	3	28.5	1011.1	27.3	25.1
4	7	13	97.958	-15.133	148.497	PC	UR	70	16	2	30	3	28.5	1010.4	28.8	25.7
4	7	14	98.000	-14.907	148.352	PC	UR	70	16	2	30	3	28.5	1009.8	29.2	25.4
4	7	15	98.042	-14.688	148.323	PC	UR	75	14	3	30	3	28.6	1008.9	28.6	25.3
4	7	16	98.083	-14.482	148.242	PC	UR	110	12	2	65	4	28.6	1009.4	28.8	25.7
4	7	17	98.125	-14.272	148.088	PC/R	UR	110	12	2	65	4	28.7	1009.7	29.2	26.2
4	7	18	98.167	-14.077	147.952	PC	UR	90	14	2	70	4	28.6	1009.8	27.8	25
4	7	19	98.208	-13.882	147.808	PC	UR	90	13	2	70	4	28.5	1010.1	27.7	25.1
4	7	20	98.250	-13.687	147.672	PC	UR	90	18				28.6	1011.1	27.8	25
4	7	21	98.292	-13.487	147.532	PC	UR	95	13				28.5	1012	26.5	24.9
4	7	22	98.333	-13.307	147.417	PC	UR	97	12				28.5	1011.7	27.1	25
4	7	23	98.375	-13.085	147.235	PC	UR	105	15	4	90		28.5	1011.2	27.5	25.5
4	7	24	98.417	-12.887	147.113	PC	UR	110	13	4			28.5	1010.5	26.9	25.1
4	8	1	98.458	-12.670	146.988	PC	UR	100	15	4			28.5	1009.9	26.8	25.1
4	8	2	98.500	-12.480	146.825	PC	8	125	15	4			28.6	1009.8	27.1	25.2
4	8	3	98.542	-12.207	146.713	PC	10	125	15	3.5			28.5	1009.1	27.1	25.5
4	8	4	98.583	-12.113	146.597	PC	10	115	16	3.5			28.5	1008.8	27.8	25.5
4	8	5	98.625	-11.935	146.463	PC	10	115	16	4			28.6	1008.8	27	25
4	8	6	98.667	-11.743	146.330	PC	UR	110	12	3			28.7	1009.4	27	24.9
4	8	7	98.708	-11.523	146.190	PC	UR	115	14	3			28.7	1009.8	28	25.5
4	8	8	98.750	-11.327	146.060	PC	UR	110	20	3.5			28.4	1010.1	28.1	25.8
4	8	9	98.792	-11.127	145.928	PC	UR	105	18	3.5			28.6	1010.5	28.8	26
4	8	10	98.833	-10.920	145.802	PC	UR	115	14	3.5			28.6	1010.1	28.9	26.4
4	8	11	98.875	-10.713	145.670	PC	UR	95	21	3.5			28.6	1009.5	28.5	26
4	8	12	98.917	-10.502	145.550	CL/R	8	75	36	4			28.6	1008.8	25.9	24.5
4	8	13	98.958	-10.320	145.435	CL	10	85	12	2.5			28.5	1008.4	25.6	24.2
4	8	14	99.000	-10.123	145.308	CL	10	95	9	2			28.5	1007.8	26.2	24.6
4	8	15	99.042	-10.013	145.232	CL/R	3	80	7	2			28.5	1008.2	25.1	24.3

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D (Ship)	HR	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	8	16	99.083	-10.027	145.247	CL/R	4	10	8	2			28.5	1008.9	24.8	23.5
4	8	17	99.125	-9.998	145.242	CL	8	90	4	2			28.5	1008.9	25.2	24.3
4	8	18	99.167	-9.832	145.142	CL/R	8	120	8	2			28.5	1009	26.2	24.8
4	8	19	99.208	-9.637	145.017	PC	10	115	7	1			28.5	1009.2	26.5	24.6
4	8	20	99.250	-9.447	144.878	PC	8	350	7	2			28.5	1009.3	27	25
4	8	21	99.292	-9.292	144.755	PC	8	0	6	2			28.5	1010	26.9	25.1
4	8	22	99.333	-9.070	144.605	PC	8	350	8	2			28.5	1010.2	27	25.1
4	8	23	99.375	-8.877	144.475	PC	8	70	6	2			28.5	1010	27	25.1
4	8	24	99.417	-8.673	144.345	PC	8	105	7	2			28.4	1009.7	26.9	25.1
4	9	1	99.458	-8.470	144.217	PC	UR	100	15	2.5			28.5	1008.2	27.1	25.2
4	9	2	99.500	-8.272	144.083	PC	UR	115	13	2.5			28.4	1007.9	27.2	25.4
4	9	3	99.542	-8.070	144.965	PC	8	95	12	3			28.3	1007.9	26.9	24.9
4	9	4	99.583	-7.865	143.837	CL/R	8	85	19	4			28.3	1007.9	26	24.8
4	9	5	99.625	-7.658	143.705	CL	8	80	8	2			28.3	1008.2	26	25
4	9	6	99.667	-7.445	143.565	PC	UR	50	10	2			28.2	1009.1	27	25
4	9	7	99.708	-7.237	143.427	PC	UR	70	10	2			28.1	1009.3	27	25
4	9	8	99.750	-7.045	143.277	PC	UR	65	12	2.5			28.1	1009.9	27.4	25.1
4	9	9	99.792	-6.858	143.152	PC	UR	65	10	2.5			28.2	1010	27.5	25.2
4	9	10	99.833	-6.637	143.007	PC	UR	65	10	2			28.2	1009.5	27.8	25.2
4	9	11	99.875	-6.430	142.887	PC	UR	65	10	2			28.2	1008.8	28	25.7
4	9	12	99.917	-6.232	142.750	PC	UR	70	10	2.5			28.3	1008	28.8	25.6
4	9	13	99.958	-6.018	142.613	PC	UR	70	10	2.5	35	2	28.3	1007.3	28.9	26
4	9	14	100.000	-5.813	142.478	PC	UR	90	10	2	40	2	28.4	1006.5	29.1	26.1
4	9	15	100.042	-5.595	142.352	PC	UR	100	9	2	75	2	28.3	1006.2	29	26.4
4	9	16	100.083	-5.387	142.222	PC/R	UR	100	11	1	80	2	28.2	1006.5	27.3	25.7
4	9	17	100.125	-5.175	142.093	PC	UR	105	12	1	80	2	28	1006.7	26.8	25
4	9	18	100.167	-5.007	142.002	PC/R	10	70	12	1	80	2	28	1007.5	26.4	25.1
4	9	20	100.250	-4.892	141.905	PC	9	75	16	2	80	2	28.2	1008.5	26.1	25
4	9	21	100.292	-4.695	141.782	PC	9	70	12	2			27.6	1009	26	24.9
4	9	22	100.333	-4.503	141.642	PC	8	65	12	2			27.3	1009.1	26	24.8
4	9	23	100.375	-4.300	141.538	PC	8	40	14	2			27.1	1009.3	25.9	24.8
4	9	24	100.417	-4.107	141.397	CL/R	7	55	18	2.5			27	1008.8	25.8	24.3
4	10	1	100.458	-3.928	141.238	CL/L	7	60	18	2.5			27.1	1008.4	25.1	24.5
4	10	2	100.500	-3.740	141.102	CL	9	45	17	2.5			26.9	1008.1	26	24.6
4	10	3	100.542	-3.550	140.990	PC	9	50	14	2.5			26.8	1008	26	24.5
4	10	4	100.583	-3.382	140.825	PC	8	35	12	3			26.8	1008	25.8	24.2
4	10	5	100.625	-3.200	140.690	PC	10	40	16	3			26.8	1008.7	25.8	24
4	10	6	100.667	-2.995	140.582	PC	UR	40	16	3			26.8	1009.4	26	24
4	10	7	100.708	-2.808	140.443	PC	UR	40	18	3			26.8	1010.2	25.8	23.8
4	10	8	100.750	-2.610	140.305	PC	UR	45	16	3			26.3	1010.7	25.9	24
4	10	9	100.792	-2.415	140.188	PC	UR	45	16	3			26	1010.5	25.8	23.9
4	10	10	100.833	-2.215	140.057	PC	UR	45	16	3			25.9	1010.1	25.9	24
4	10	11	100.875	-2.010	139.978	PC	UR	50	12	2.5			25.8	1009.7	26	24.2
4	10	12	100.917	-1.785	139.985	PC	UR	70	14	3			25.8	1008.5	26.3	23.9
4	10	13	100.958	-1.840	139.962	PC	UR	75	13	2.5			25.8	1007.8	25.8	23.6
4	10	14	101.000	-1.825	139.993	PC	UR	60	15	3			25.9	1007.1	27.2	24.5
4	10	15	101.042	-1.807	139.995	PC	UR	75	16	3.5			25.8	1007.1	25.8	23.8
4	10	16	101.083	-1.847	140.013	PC	UR	70	17	2			25.8	1007.5	25.7	23.8
4	10	17	101.125	-1.835	140.017	PC	UR	70	18	2			25.8	1007.9	25.3	23.9
4	10	18	101.167	-1.843	139.975	PC	UR	75	14	2			25.8	1008.5	25.1	23.3
4	10	19	101.208	-1.702	139.930	PC	UR	80	12	2			25.8	1008.9	25.2	23.7
4	10	20	101.250	-1.470	139.948	PC	UR	75	14	2			25.6	1010	25.2	23.9
4	10	21	101.292	-1.248	139.965	PC	UR	70	14	2			25.5	1010.5	25.1	23.8

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	10	22	101.333	-0.998	139.968	PC	UR	70	14	2.5			25	1010.4	25	23.8
4	10	23	101.375	-0.752	139.997	PC	UR	70	10	2.5			25.4	1010.2	25	23.8
4	10	24	101.417	-0.530	139.983	PC	UR	85	10	2.5			25.3	1009.8	24.8	23.9
4	11	1	101.458	-0.300	139.987	PC	UR	75	11	2.5			25.2	1009	24.8	23.9
4	11	2	101.500	-0.058	139.990	PC	UR	75	10	2.5			25.2	1009	24.8	23.8
4	11	3	101.542	0.003	139.993	PC	UR	75	10	2.5			25.1	1009	24.8	23.7
4	11	4	101.583	0.020	139.982	PC	UR	80	14	2			25.1	1008.9	25	24
4	11	5	101.625	0.173	139.933	PC	UR	75	12	2			25.1	1008.8	24.8	24
4	11	6	101.667	0.410	139.868	PC	UR	85	10	2			25.1	1009.8	24.8	24
4	11	7	101.708	0.650	139.800	PC	UR	85	10	2			25.1	1009.8	25	24
4	11	8	101.750	0.907	139.787	PC	UR	70	10	2			25.3	1010	25.7	24.8
4	11	9	101.792	1.152	139.837	PC	UR	80	16	2			25.6	1010	26.1	25
4	11	10	101.833	1.385	139.932	PC	UR	75	14	2			25.9	1009.2	26.9	25.1
4	11	11	101.875	1.620	139.988	PC	UR	75	14	2			26.1	1008.8	27.1	25.8
4	11	12	101.917	1.840	140.668	PC	UR	75	16	2.5	10	4	26.4	1007.4	27.9	24.6
4	11	13	101.958	1.858	140.083	PC	UR	65	16	2.5	20	4	26.4	1006.2	28.1	25.9
4	11	14	102.000	1.992	140.137	PC	UR	75	14	2.5	25	4	26.5	1005.9	29	26
4	11	15	102.042	2.252	140.242	PC	UR	60	13	2	25	3.5	26.7	1006.1	27.7	25.1
4	11	16	102.083	2.480	140.343	PC	UR	65	14	2	40	3	26.8	1005.9	28	25.5
4	11	17	102.125	2.708	140.435	PC	UR	60	14	2	40	3	26.8	1006.5	27.5	25.2
4	11	18	102.167	2.940	140.533	PC	UR	70	15	2	40	3	26.9	1007.1	27	25.1
4	11	19	102.208	3.170	140.630	PC	UR	70	20	2	40	3	26.9	1007.7	26.7	25
4	11	20	102.250	3.400	140.723	PC	UR	60	17	2	40	3	26.8	1008.1	26.6	25
4	11	21	102.292	3.608	140.805	PC	UR	60	17	2	40	3	26.8	1008.9	25.9	25
4	11	23	102.333	3.903	140.907	PC	UR	50	18	2	40	3	26.9	1009	27	25.5
4	11	24	102.375	4.098	140.998	PC	UR	80	16	2	35	3	26.9	1008.4	27.1	25.3
4	12	1	102.417	4.328	141.097	C	UR	80	15	2	35	3	26.9	1008.2	27.1	25.2
4	12	2	102.458	4.563	141.190	C	UR	70	16	2	35	3	27	1007.4	26.9	25.1
4	12	3	102.500	4.798	141.273	PC	UR	65	15	2	35	3	26.9	1007	26.8	25.2
4	12	4	102.542	5.042	141.385	PC	UR	45	15	2	35	3	26.9	1007.2	26.5	25
4	12	5	102.583	5.280	141.477	CL	8	45	15	2	35	3	26.9	1007.5	26.8	25
4	12	6	102.625	5.518	141.575	CL	8	45	15	2	35	3	26.7	1007.9	26.8	25
4	12	7	102.667	5.758	141.685	CL	12	45	15	2	35	3	26.7	1008.8	26.4	25
4	12	8	102.708	5.997	141.788	CL	12	60	16	2	25	4	26.7	1009.3	26.9	25
4	12	9	102.750	6.192	141.883	PC	12	55	11	2	25	5	26.7	1009.9	27.8	25.1
4	12	10	102.792	6.472	142.005	PC	UR	55	13	2	25	5	26.7	1009.8	27	25.2
4	12	12	102.875	6.690	141.998	PC	UR	60	14	2	25	5	26.8	1009.5	28	25.5
4	12	13	102.917	6.725	142.042	PC	UR	55	16	2.5	25	5	26.7	1008.6	28	25.1
4	12	14	102.958	6.958	141.953	PC	8	50	21	2.5	30	5	26.8	1007.8	27.6	25
4	12	15	103.000	7.208	141.863	PC	10	60	17	3	25	5	26.7	1007.1	28	25
4	12	16	103.042	7.443	141.785	PC	10	45	19	4	35	5	26.8	1007.4	27.5	24.8
4	12	17	103.083	7.675	141.702	PC	UR	50	18	4	35	5	26.8	1007.3	27	24
4	12	18	103.125	7.905	141.618	PC	UR	50	20	4	35	5	26.8	1008	26.2	23.8
4	12	19	103.167	8.140	141.538	PC	UR	50	20	4	35	5	26.8	1008.8	26	24
4	12	20	103.208	8.372	141.455	PC	UR	40	24	4	35	4	26.7	1009.2	25.9	23.8
4	12	21	103.250	8.598	141.363	PC	UR	40	24	4	35	4	26.6	1010.2	25.5	23.1
4	12	22	103.292	8.830	141.265	PC	UR	40	24	3	35	4	26.6	1011	25.8	23.9
4	12	23	103.333	9.077	141.190	PC	UR	45	26	4	35	4	26.5	1011	25.3	22.9
4	12	24	103.375	9.273	141.073	PC	UR	45	21	4	35	4	26.5	1011	25	22.7
4	13	1	103.417	9.500	141.000	PC	UR	40	23	4			26.2	1010.8	24.8	22.8
4	13	2	103.458	9.728	140.913	PC	UR	40	24	4			26	1010.4	24.6	22.5
4	13	3	103.500	9.962	140.823	PC	UR	45	20	4			25.8	1009.8	24.1	21.9
4	13	4	103.542	10.192	140.735	PC	UR	45	20	4			25.4	1009.5	24	21.8

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	13	5	103.583	10.432	140.645	PC	UR	60	19	4			25.4	1009.5	24	21.6
4	13	6	103.625	10.660	140.562	PC	UR	60	19	4			25.4	1010.2	24	21.5
4	13	7	103.667	10.900	140.473	PC	UR	60	19	4			25.4	1010.8	24	21.4
4	13	8	103.708	11.095	140.423	PC	UR	65	17	6			25.4	1012.3	24.2	21.9
4	13	9	103.750	11.378	140.313	PC	UR	45	20	6			25.4	1012.3	24.3	22.1
4	13	10	103.792	11.557	140.248	PC	UR	50	22	6			25.3	1012.5	24.5	21.9
4	13	11	103.833	11.682	140.217	PC	UR	50	22	6			25.3	1012.8	24.4	21.1
4	13	12	103.875	11.988	140.107	PC	UR	70	18	5			25.3	1012.2	24.5	21
4	13	13	103.917	12.107	140.108	PC	UR	70	17	4.5			25.3	1011.3	25.2	21.5
4	13	14	103.958	12.132	140.062	PC	UR	75	15	4.5			25.4	1010.9	25.8	21.8
4	13	15	104.000	12.375	139.973	PC	UR	60	16	4			25.4	1010.9	25.9	21.9
4	13	16	104.042	12.623	139.907	PC	UR	60	16	4			25.4	1010.8	28.5	23
4	13	17	104.083	12.865	139.828	PC	UR	60	16	4			24.9	1011.2	25.5	21.1
4	13	18	104.125	13.105	139.743	PC	UR	60	17	4			24.9	1011.9	24.8	21
4	13	19	104.167	13.343	139.660	PC	UR	60	16	4	330	2	24.8	1012.9	23.8	20.8
4	13	20	104.208	13.580	139.582	PC	UR	45	18	4			24.8	1013.8	23.7	21
4	13	21	104.250	13.815	139.490	PC	UR	55	16	3			24.8	1014.2	24.1	20.8
4	13	22	104.292	14.048	139.392	PC	UR	45	16	3			24.7	1014.9	23	20
4	13	23	104.333	14.275	139.275	PC	UR	45	16	3			24.2	1015	22.9	19.5
4	13	24	104.375	14.477	139.227	PC	UR	50	12	3			24.2	1014.8	22.6	19.4
4	14	1	104.417	14.728	139.122	PC	UR	55	12	3			24.2	1013.8	22.5	19.5
4	14	2	104.458	14.970	138.998	PC	UR	45	10	3			24	1013.1	22.1	19.3
4	14	3	104.500	15.200	138.913	PC	UR	45	10	3			24	1012.8	22.1	19.4
4	14	4	104.542	15.448	138.828	PC	UR	50	10	3			24	1012.8	21.9	18.9
4	14	5	104.583	15.693	138.728	PC	UR	65	7	3			23.8	1012.8	21.8	18.8
4	14	6	104.625	15.912	138.653	PC	UR	55	7	3			23.4	1014	22	18.7
4	14	7	104.667	16.147	138.568	PC	UR	45	7	2	120	2	23.5	1014.2	22	18.2
4	14	8	104.708	16.382	138.480	PC	UR	50	8	3	330	3	23.5	1015.1	22	18.7
4	14	9	104.750	16.615	138.383	PC	UR	60	5	2	340	4	23.5	1015.6	22.2	19
4	14	10	104.792	16.877	138.280	PC	UR	45	9	2	340	5	23.8	1015.3	22.4	19.1
4	14	11	104.833	17.120	138.202	PC	UR	55	6	2	340	5	23.8	1016.2	23	19.3
4	14	12	104.875	17.362	138.095	PC	UR	60	6	1.5	350	2.5	23.6	1014.8	23.4	19.3
4	14	13	104.917	17.600	137.998	PC	UR	40	6	2	350	2.5	23.6	1013.9	21.1	19.8
4	14	14	104.958	17.852	137.932	PC	UR	55	7	2	340	3	24.2	1012.9	23.8	19.9
4	14	15	105.000	18.097	137.847	PC	UR	55	6	2	345	3	24.3	1012.9	24	20.1
4	14	16	105.042	18.345	137.770	PC	UR	50	12	1	350	3	24.4	1012.4	23.8	20
4	14	17	105.083	18.585	137.633	PC	UR	50	10	1	350	3	24.3	1013.2	23.6	19
4	14	18	105.125	18.850	137.522	PC	UR	60	10	1	330	4	23.4	1013.2	23.6	19
4	14	19	105.167	19.103	137.448	PC	UR	60	8	1	330	3	23.9	1013.8	22.5	17.8
4	14	20	105.208	19.345	137.363	PC	UR	90	8	1			23.6	1014.8	22.4	19
4	14	21	105.250	19.588	137.287	PC	UR	75	8	1			23.7	1015.2	22.5	19
4	14	22	105.292	19.835	137.198	PC	UR	65	6	1			23.3	1016	22.2	18.8
4	14	23	105.333	20.085	137.103	PC	UR	75	8	1			23	1016	22.2	18.7
4	14	24	105.375	20.350	136.995	PC	UR	65	8	1			23.1	1015.5	22	18.4
4	15	1	105.417	20.577	136.903	PC	UR	65	8	1.5			23.1	1015	22.1	18.4
4	15	3	105.458	20.815	136.793	PC	UR	50	7	1.5			22.1	1014.8	21.9	18.2
4	15	4	105.500	21.048	136.718	CL	10	85	6	1.5			22.1	1014.5	21.5	18
4	15	5	105.542	21.290	136.605	CL	10	80	4	1.5			22.2	1015	21.4	18
4	15	6	105.583	21.520	136.515	CL	10	110	2	1			22.1	1015.5	21.4	17.9
4	15	7	105.625	21.757	136.418	PC	UR	180	5	1	45	2	22.1	1016	21.4	18.1
4	15	8	105.667	21.993	136.323	CL	UR	0	5	1	50	2	22.2	1016.5	21.8	18.5
4	15	9	105.708	22.230	136.227	CL	UR	20	5	1	50	2	22.1	1016.7	20.5	17.9
4	15	10	105.750	22.467	136.122	PC	UR	85	6	1	50	1.5	22	1016.3	21	17.9

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	15	11	105.792	22.708	136.028	PC	UR	150	8	1	50	1.5	22.1	1016.1	21	18.1
4	15	12	105.833	22.947	135.913	PC	UR	130	6	1	10	2	21.9	1016.1	21.6	18.3
4	15	13	105.875	23.203	135.840	PC	UR	135	6	1	10	2.5	21.7	1015.6	22.4	18.8
4	15	14	105.917	23.447	135.747	PC	UR	145	5	1	10	2	21.9	1015.2	22.9	19
4	15	15	105.958	23.690	135.653	PC	UR	165	3	1	20	2	21.8	1014.9	21.5	18.9
4	15	16	106.000	23.933	135.557	PC	15		0	1	30	2	21.7	1014.6	21	18.4
4	15	17	106.042	24.188	135.447	PC	14	180	5	1	30	2	21.7	1014.3	20.8	18.3
4	15	18	106.083	24.427	135.342	PC	14	180	6	1	30	2	21.7	1014.1	21.8	19.2
4	15	19	106.125	24.673	135.262	PC	14	200	6	1	30	2	21.6	1014.5	21.7	18.9
4	15	20	106.167	24.918	135.172	PC	12	205	6	1	30	2	21.2	1014.8	21.4	18.5
4	15	21	106.208	25.160	135.068	PC	17	195	5	1	30	2	21.1	1015.1	20.3	18.3
4	15	22	106.250	25.403	134.963	PC	12	75	3	1	30	2	21.2	1015.5	19.2	17.8
4	15	23	106.292	25.652	134.863	PC	12	170	6	1	35	2	20.7	1015.2	19.7	18.1
4	15	24	106.333	25.898	134.762	PC	UR	190	10	1			21	1015.1	19.4	18.2
4	16	1	106.375	26.152	134.680	PC	UR	190	10	1			20.9	1014.9	19.5	18.4
4	16	2	106.417	26.400	134.577	PC	UR	185	6	1			20.6	1014.2	19.2	18.3
4	16	3	106.458	26.648	134.478	PC	UR	210	10	1			20.6	1014	19.4	18.2
4	16	4	106.500	26.893	134.367	PC	UR	210	13	2			20.3	1013.5	19.7	18.2
4	16	5	106.542	27.142	134.267	PC	UR	215	14	2			19.7	1013.1	19.8	18.1
4	16	6	106.583	27.403	134.182	PC	UR	215	14	2			20.2	1013.3	19.7	18.2
4	16	7	106.625	27.653	134.087	PC	UR	215	16	2			20.1	1013.5	19.6	18.3
4	16	8	106.667	27.785	133.942	PC	UR	200	16	3			20.1	1013.9	19.3	18.3
4	16	9	106.708	28.150	133.862	PC	UR	210	17	3			20.1	1014.2	19.7	18.5
4	16	10	106.750	28.400	133.755	PC	UR	210	17	3			20.3	1014.2	19.7	18.3
4	16	11	106.792	28.652	133.650	PC	UR	220	16	3			20.3	1014.7	19.7	18.2
4	16	12	106.833	28.903	133.547	PC	7	230	15	3			19.5	1014.6	18.2	17.5
4	16	13	106.875	29.120	133.467	PC	UR	215	14	2.5			19.6	1013.9	19.8	18.1
4	16	14	106.917	29.388	133.352	PC	8	225	20	2.5			19.5	1013.2	19.4	18
4	16	15	106.958	29.628	133.240	PC	10	230	16	2			19.4	1012.8	20.3	18.5
4	16	16	107.000	29.895	133.153	PC	10	240	13	2			19.6	1012	18.8	16.9
4	16	17	107.042	30.152	133.057	PC	UR	240	13	2			19.5	1011.8	19.8	18.4
4	16	18	107.083	30.402	132.945	PC	UR	250	13	2			19.7	1012.1	20.1	17.5
4	16	19	107.125	30.645	132.830	PC	UR	255	14	2	250	3	19.6	1012.2	19.3	17
4	16	20	107.167	30.888	132.720	PC	UR	245	14	2	240	2.5	19.3	1012.8	19	16.7
4	16	21	107.208	31.135	132.620	C	UR	245	14	2	245	2.5	19.4	1013.7	18.7	16.2
4	16	22	107.250	31.378	132.523	PC	UR	235	12	2			19.3	1014	18.5	15.8
4	16	23	107.292	31.618	132.425	PC	UR	260	12	2			18.9	1014.1	18.3	15.8
4	16	24	107.333	31.860	132.330	PC	UR	235	11	2	245	3	18.7	1014.1	18.1	15.9
4	17	1	107.375	32.097	132.227	PC	UR	240	11	1.5	270	4	18.7	1014	18	15.8
4	17	2	107.417	32.340	132.133	PC	UR	240	11	1.5	270	4.5	17.9	1014	17.9	15.8
4	17	3	107.458	32.587	132.020	PC	UR	240	11	1.5	270	5.5	18.3	1013.8	17.5	15.2
4	17	4	107.500	32.832	131.903	PC	UR	240	11	1.5	270	5	17.8	1013.3	17.2	15.2
4	17	5	107.542	33.085	131.812	PC	UR	225	8	2	270	5	18	1013.3	17	15.4
4	17	6	107.583	33.332	131.712	PC	UR	220	8	2	260	6.5	17.2	1013.3	16.8	15.1
4	17	7	107.625	33.597	131.610	PC	UR	215	10	2	260	7	17.3	1013.9	16.8	15.3
4	17	8	107.667	33.875	131.470	PC	UR	220	9	2	240	6	17.3	1014.9	17	15.6
4	17	9	107.708	34.090	131.362	PC	UR	195	12	2	240	6	17.3	1015.9	17.4	15.8
4	17	10	107.750	34.340	131.248	PC	UR	210	13	2	240	6	17.3	1016.2	17.3	15.9
4	17	11	107.792	34.468	131.192	PC	UR	200	12	2	240	6	17.3	1016.4	17.5	15.9
4	17	12	107.833	34.847	131.025	PC	UR	190	11	2	260	6	16.2	1016.8	17.8	16.4
4	17	13	107.875	35.092	130.925	PC	UR	190	8	2	260	6	15.8	1016.5	18.2	16.8
4	17	14	107.917	35.342	130.820	PC/H	12	185	10	2	260	6	15.5	1016.1	19.8	17
4	17	15	107.958	35.600	130.708	PC	12	170	9	2	250	5	15.7	1015.8	17.7	14

RITS/CO2 FEBRUARY-APRIL 1989 NOAA SHIP DISCOVERER

MN	D	HR (Ship)	Julian Day	Decimal Lat	Decimal Long	PRESENT WEATHER	VIS NM	WIND DIR deg,true	WIND SPD knts	SEA WAVE HGHT, ft	SWELL DIR deg	SWL HGHT ft	SST deg C	BAROM mb	AIR T dry	AIR T wet
4	17	16	108.000	35.832	130.613	PC	UR	160	11	2	250	6	15.4	1015.8	19.9	17.7
4	17	17	108.042	36.075	130.517	PC	UR	155	10	2	250	8	15.4	1015.3	19.8	17.5
4	17	18	108.083	36.308	130.368	PC	UR	170	11	2	250	6	15.5	1015.5	19.3	17.5
4	17	19	108.125	36.553	130.263	PC	UR	160	11	2	240	6	14.7	1015.2	17.2	15
4	17	20	108.167	36.800	130.158	PC	UR	160	12	2	240	6	14.2	1015.9	16	15
4	17	21	108.208	37.045	130.052	PC	UR	160	12	2	235	4.5	14.7	1016.1	16.1	14.8
4	17	22	108.250	37.288	129.947	C	UR	160	11	2	240	4.5	14.5	1016.5	15.3	14.8
4	17	23	108.292	37.535	129.848	PC	UR	170	13	2	240	5	13.4	1016.2	14.7	14.2
4	17	24	108.333	37.772	129.748	F	1	170	13	2	240	5	13.6	1016.1	14.2	13.9
4	18	1	108.375	37.995	129.652	F	1	160	13	1	240	5	13.6	1016	14.5	14
4	18	2	108.417	38.218	129.553	F	1	170	15	1	240	4.5	14	1016	14.3	13.9
4	18	3	108.458	38.443	129.457	F	1	165	14	1	225	4.5	13.4	1015.4	14.2	13.8
4	18	5	108.500	38.668	129.360	F	0.5	170	16	1	225	4	13.2	1015.2	14	13.5
4	18	6	108.542	38.880	129.280	F	0.5	175	17	1	225	4	13.1	1015	13.3	12.9
4	18	7	108.583	39.097	129.210	F	0.3	170	16	1	225	3	13	1015.2	13.3	12.9
4	18	8	108.625	39.307	129.142	F	1	175	16	1	230	4	13	1015.3	13.7	13.2
4	18	9	108.667	39.552	129.058	F	10	140	20	1	230	4	13	1015.3	13.9	13.3
4	18	10	108.708	39.808	128.968	CL	10	170	17	1	230	4	13	1014.9	14.2	13.5
4	18	11	108.750	40.018	128.893	CL	10	170	17	3	230	4	13	1015.7	14.6	13.6
4	18	12	108.792	40.317	128.772	CL	10	170	16	2	210	4	13.4	1015.5	14.2	13.4
4	18	13	108.833	40.575	128.655	CL	9	175	18	2	190	3	12.1	1015.8	14.1	13.4
4	18	14	108.875	40.838	128.485	F	2	150	20	2	200	3	11.7	1015.4	13.8	12.9
4	18	15	108.917	41.088	128.365	F	1	160	17	2	195	3	10.9	1014.4	13.4	12.8
4	18	16	108.958	41.307	128.265	F/L	0.5	170	15	2	195	3	10.8	1013.8	13.6	12.7
4	18	17	109.000	41.532	128.155	F/L	0.5	170	15	2	210	3	10.9	1013.7	13.3	12.6
4	18	18	109.042	41.737	128.058	F/L	0.5	175	17	2	215	3	10.8	1013.2	12.7	12.1
4	18	19	109.083	42.180	127.850	F	1.5	178	17	2	215	3.5	10.6	1012.2	13	12.2
4	18	20	109.125	42.403	127.745	F	0.5	175	14	2	215	3.5	10.6	1012.2	12.9	11.8
4	18	21	109.167	42.625	127.630	F	1	170	17	2	215	3.5	10.5	1012.2	12.5	11.8
4	18	22	109.208	42.625	127.630	F	1	175	14	2	215	3.5	10.5	1012.1	12.1	11.7
4	18	23	109.250	42.848	127.522	F	0.8	175	12	2	215	3.5	10.5	1012	12.1	11.7
4	18	24	109.292	43.075	127.420	F	2	175	18	2	215	3.5	10.9	1011.9	12.1	11.8
4	19	1	109.333	43.327	127.305	F,R	5.5	180	16	2.5			11	1011.9	12.6	12
4	19	2	109.375	43.575	127.210	F,R	6.5	190	16	2.5	200	3	10.8	1011.2	12.3	11.9
4	19	3	109.417	43.837	127.105	CL	8	195	18	2.5	190	3.5	10	1010.8	11.9	11.4
4	19	4	109.458	44.068	127.007	CL	8	180	20	2.5	190	4	9.9	1010.9	12	11.2
4	19	5	109.500	44.322	126.888	CL	6	180	20	2.5	190	4	9.9	1010.4	11.7	10.8
4	19	6	109.542	44.563	126.778	CL,F	1	170	18	2.5	190	4	9.8	1010.5	11.2	10.9
4	19	7	109.583	44.742	126.718	CL,F	0.5	170	17	2.5	175	4	9.8	1010.7	11	10.7
4	19	8	109.625	45.043	126.547	F	1	170	19	6			9.8	1010.7	10.9	10.6
4	19	9	109.667	45.242	126.458	F	1	165	19	6			9.8	1011.1	11.4	11
4	19	10	109.708	45.452	126.325	F	1	170	18	6			9.8	1011.2	11.7	11.1
4	19	11	109.750	45.675	126.210	F	1	175	20	6			9.8	1011.2	11.8	11.3
4	19	12	109.792	45.927	126.070	F	2	165	17	5			10.4	1011.3	12.4	11.8
4	19	13	109.833	46.187	125.962	F	2	170	18	6			10.4	1011.5	12.3	11.8
4	19	14	109.875	46.435	125.818	F	4	160	19	6			10.2	1011.2	12.8	11.8
4	19	15	109.917	46.688	125.690	F,CL	5	160	19	5			10.1	1011.3	12.4	11.8
4	19	16	109.958	46.937	125.565	F,CL,R	2	150	18	3			9.7	1011.3	11.8	11
4	19	17	110.000	47.188	125.453	R,CL	3	150	17	4			9.8	1010.9	11.8	11
4	19	18	110.042	47.447	125.343	CL	4	150	17	4			9.8	1010.4	11.7	11
4	19	19	110.083	47.682	125.228	CL	5	155	20	4			10.1	1009.9	11.6	11
4	19	20	110.125	47.927	125.097	CL	8	150	19	4			8.7	1009.7	11.5	10.8
4	19	24	110.292	48.282	124.157	PC	10	120	9				8.1	1008.4	10.8	9.8

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