

# STAFF NOTES

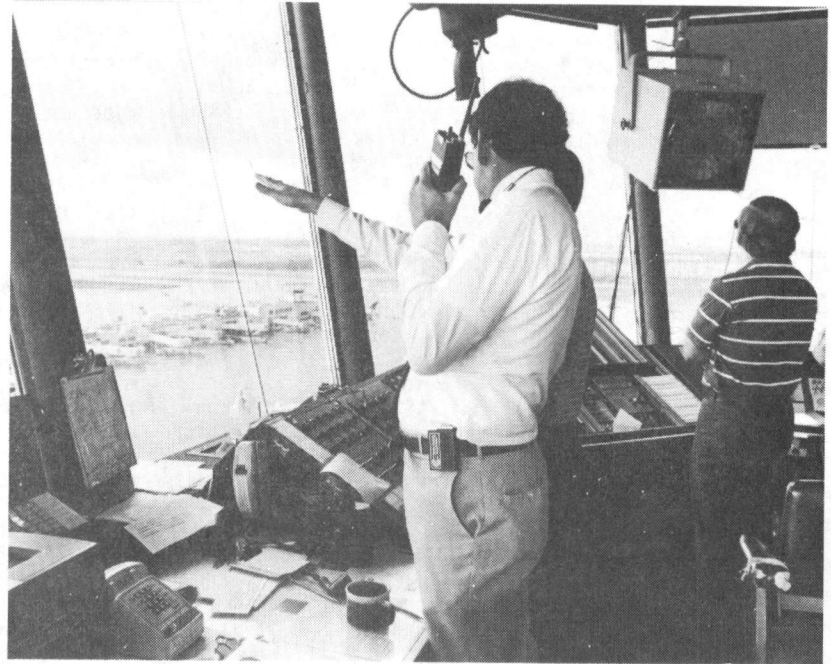
NATIONAL CENTER FOR ATMOSPHERIC RESEARCH

Vol. 19, No. 34

31 August 1984

CLAWS:

GETTING A GRIP  
ON MICROBURST  
FORECASTING



*After receiving radar observations from scientists at NCAR's Marshall site, John McCarthy (in Stapleton's control tower) points to an area of the runway where a microburst is suspected. (Photo by Charles Semmer.)*

Aircraft safety is the real translation of CLAWS--Classify, Locate, Avoid Wind Shear--a recently completed program of NCAR and the Federal Aviation Administration (FAA) at Denver's Stapleton International Airport. The program concentrated on detection and forecasting of microbursts, violent downward and outward rushes of air that are a serious hazard for low-flying aircraft or aircraft that are taking off or landing. Caused by convective storms, microbursts are held responsible for air disasters that have claimed almost 500 lives and caused over 200 injuries in the last 20 years.

One of the main reasons for CLAWS was to put to practical use the knowledge about microbursts and wind shear obtained from the Joint Airport Weather

Studies (JAWS) project, also conducted at Stapleton, in the summer of 1982. CLAWS' specific goals were to provide pilots with real-time advisories, to develop procedures for using the information provided by Doppler radars, and to verify microburst forecasting techniques.

"Basically, we put the program together and obtained funding in one week," said CLAWS director John McCarthy of the Atmospheric Technology Division (ATD). Denver is a high-risk area for microbursts, he said, and the program was stimulated by a near-accident of a United 727 jet on 31 May. The aircraft lost lift and struck an antenna on takeoff from Stapleton. Fortunately, it was able to return to the airport and land safely with no injuries.

---

This Week in *Staff Notes* . . .

CLAWS  
Announcements

Visitors  
Library News

Job Openings  
Calendar Notes

---

One of NCAR's Doppler radars and one of NCAR's aircraft were monitoring the area and collecting data at that time because several projects were still under way. "We gathered a full data set on the wind shear conditions during the United jet incident and confirmed that a microburst was associated with it," said John. "The FAA heard about this, contacted NCAR, and asked if we could do a comprehensive study. We happened to have one radar [the CP-2 at NCAR's Marshall Site] available." Because of the increased awareness of microburst wind shear hazards after the United incident, CLAWS was organized immediately in an attempt to protect Stapleton. "I've never seen NCAR and the government move so quickly," said John.

All of the JAWS staff participated in CLAWS, as well as technicians, scientists, and support scientists from ATD's Field Observing Facility and Research Aviation Facility, the Convective Storms Division (CSD), and the Program for Regional Observing and Forecasting Services (PROFS) of the National Oceanic and Atmospheric Administration. John McCarthy and James Wilson (ATD) were the principal investigators. "A lot of people put in a lot of time on very short notice," John stressed. "There was a real staffing crunch, especially because the other field experiments were just ending and people had already put in a lot of time. CSD and PROFS really helped." John also credited Vincent Lally (ATD) for naming CLAWS, JAWS, and other past programs with equally creative acronyms.

CLAWS ran daily for 45 days, from 2 July to 15 August, from 11:00 a.m. to 8:00 p.m. There were always two meteorologists in the Stapleton tower and two at the Marshall radar. The Marshall scientists would radio the airport with the radar observations, and the airport scientists would analyze this information, combine it with other data obtained at the tower, and then give hazardous weather advisories to the air traffic controllers. The controllers would then radio the pilots with the advisories. "One unexpected result," said John, "was that the program increased the efficiency of operations for the controllers in that it decreased delays due to weather."

---

*Staff Notes* is published weekly by the Publications Office of the National Center for Atmospheric Research, P.O. Box 3000, Boulder, Colorado 80307.

Writer/Editor: Lucy Warner  
Writer: Reed Glenn  
Production Assistant: Amy Stevens

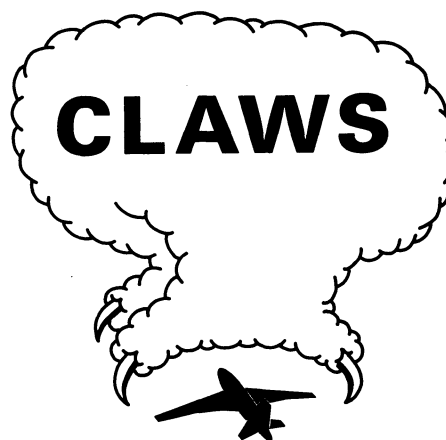
Copy deadline is 5:00 p.m. on Tuesday for publication on Friday. Office: Mesa Laboratory room 259.  
Phone: 303-497-1173.

---

According to preliminary results, the program forecast 42 microbursts and 32 gust fronts. (A gust front is the leading edge or outflow from a thunderstorm.) Because of these real-time forecasts there were numerous runway changes and delayed departures and landings--all of which increased safety for the aircraft.

"For the first time there was a truly operational component to a program," said John. "Not only were we testing ideas, but we were getting feedback and making adjustments--right in the operations environment in real time." John contrasted this with the development of the low-level wind shear alert system (LLWAS), which was developed over a two-year period, more or less in a vacuum. That system turned out to be difficult to use and not very operationally effective. "With CLAWS we were trying to evolve a prototype system for Denver in the operational setting, and it was enormously effective. Everyone seemed very pleased," John continued. "The pilots liked the microburst advisories and the controllers benefited from the wind shift advisories. In the last two hours of the project Don Engen, the FAA administrator, visited the project at the tower. He said he was very pleased with the project and that FAA hoped to continue the CLAWS research." John too is optimistic about the continuation of the CLAWS program as a follow-up to JAWS, whose data analysis will continue another two years.

"The program represents just one side of the things NCAR is doing," said John, "but it is noteworthy because the payoff is so significant. We're really pleased with how it's gone. The program has had an obvious, tremendous impact." ●RG



## ANNOUNCEMENTS

### EAC NEWS

*Watch for Details on the Recreational Discount*

Next week, the Employee Activities Committee (EAC) will distribute flyers with details and applications for the NCAR corporate discount at Boulder's recreational facilities. To introduce staff members to the facilities available, the EAC has arranged an NCAR evening at South Boulder Recreation Center (1360 Gillespie Drive); from 6:00 to 8:00 p.m. on Sunday, 9 September, NCAR staff may use the Rec Center at no charge.

*Fall FAC*

This year's fall FAC (a staff party; the initials stand for Friday Afternoon Club), which is sponsored by the EAC, will be held on Friday, 14 September. Once again the FAC will feature three races up the NCAR hill: a bicycle race, a foot race, and the division relay race.

In the foot and bicycle races this year, official timers will record only the times of the first three male and female finishers; if you want to be sure to be timed, enlist a friend to time you. The division relay race will be governed by three rules: (1) every team must include participants of both sexes, (2) the team's division director (or a stand-in, if necessary) must run the last leg of the race, and (3) anyone who wishes to participate must be allowed to. There are no restrictions on the number of members on a team. Each team (there will be ten, including ones from the Director's Office and UCAR) should have a race organizer to help plan strategy and to register the team with the EAC race coordinator.

The coordinator is Holly Howard (ML room 214, ext. 1323); anyone planning to race in any event must register with her by Friday, 7 September.

*Softball Tournament*

The Research Aviation Facility (RAF) and the EAC are cosponsoring a round-robin softball tournament to be held from 8:00 a.m. to 5:00 p.m. on Saturday, 29 September, at the RAF softball field at Jefferson County Airport. (This has been changed from the original date of 22 September.) The tournament is open to NCAR employees and their spouses. Individuals wishing to play will be placed on a team or may organize their own teams before signing up.

Teams must have nine or more players, 90% of whom must be NCAR personnel or their spouses; at least three women must be on each team. The games will end after one hour or seven innings, whichever comes first. All participants must play at least

three innings (unless the game is stopped by the time limit). In the round-robin type of play no team will be eliminated, and points will be awarded for wins and ties.

The EAC will provide free alcoholic and non-alcoholic beverages throughout the day. Charcoal grills will be hot and ready for those wishing to cook their own lunch and dinner.

Interested individuals and teams should contact Darrel Baumgardner, ext. 1054; Craig Walther, ext. 1051; or Bill Dawson, ext. 1064.

### REMINDER FROM PAYROLL

Alice Hayne, NCAR's payroll administrator, would like to remind all employees that properly completed time cards are due on her desk (55A) no later than noon on the Monday preceding each payday. Employees who submit time cards after this deadline must pick up their paychecks in person in Alice's office after 7:00 a.m. on payday (every other Friday), as these checks will not be deposited into their accounts.

### DEADLINE FOR COMMITTING FY 84 FUNDS

Fiscal year 1984 purchase requisitions (PRs) or requests for contract action (RCAs) should be sent to the Contracts Office no later than 24 September 1984. Any PRs or RCAs delivered after that date may not be committed as 1984 funds. For further information, call Landis Parsons, ext. 8867.

### TRAVEL ALLOWANCE INCREASES

Effective 1 September, the per diem allowance that covers meals and incidental expenses while staff members are traveling on NCAR business will increase from \$24 to \$26. The new rate will apply to any travel on or after that date. For more information on how to calculate this and other travel expenses, see Section 6 of the *UCAR Manual*.

### GOURMET CLUB

The NCAR Gourmet Club is starting the 1984-85 season. An organizational meeting to plan menu themes and essentials of running the dinners will be held on Friday, 21 September, at 7:00 p.m. in the Damon Room. Current, past, and new members are invited to the meeting. Please bring an appetizer, fruit, or drink to share. For further information contact Jane Massie (665-6904), Reiko Raese (ext. 1647), or Steven Massie (ext. 1404).

#### CAFETERIA NEWS

The Wednesday lunch special for next week (5 September) will be chicken pot pie with a small salad, fruit compote, and a 25¢ drink, all for \$2.75.

The breakfast special for next week will be huevos rancheros with coffee or tea for \$1.75.

The winner of this week's free lunch is:

LEO DONNER

Each week a free lunch is awarded to the person whose name is drawn from a container of signed lunch receipts in the Mesa Laboratory Cafeteria. The winner's name will be posted in the cafeteria above the container, and it will also appear in *Staff Notes*. Winners must collect their free lunches within a week of the publication of their names in *Staff Notes*.

#### SOFTBALL HIGHLIGHTS: WHERE'S THE BEER?

Where's the Beer? opened the fall softball season with a 13-11 victory against Diamond Lumber and Lace. The Beer walked away with the game in the bottom of the last inning after being down 11-2. The victory was inspired by Stan Tyler's

home run and excellent fielding by Tom Bogdan and Gail Moran. Christine Guzy scored the winning run on a well-hit ball by Marsha Sime.

Where's the Beer? would like to welcome Christine Guzy, Stan Tyler, Ted Ressel, and Randy Curtis to the team and say goodbye to Peter Cargill, Vic Pizzo, and Bob McManus.

Where's the Beer? plays Sunday nights at Stazio Ballfields, 38th Street and Colorado Avenue. Game times vary; call Joan Thieke, ext. 1544, for each week's schedule. A team party starts 30 minutes before game time. Everyone is welcome.

#### VISITORS

Mary Kokoski, U.S. Department of Labor. Field of interest: Climate change and economic activity. 5-7 September. ML room 320, ext. 1620.  
--Michael Glantz, Advanced Study Program

Jean-Jacques Morcrette, University of Lille, France. Field of interest: Improving parameterization of the radiative transfer in large-scale numerical models of the atmosphere. 1 September 1984 - 31 August 1985. ML room 503, ext. 1639.  
--Stephen Schneider, Advanced Study Program

# LIBRARY NEWS

August 31, 1984

## FOUND BOOK!!

The book "The Brightest Stars" by Cornelius de Jager was found in the Mesa Library's book return bin on Monday August 20. It has a call number label on its spine, and a card pocket on the back cover. Please contact Gayl Gray X1180 to retrieve this mystery book!

## NEW JOURNAL SUBSCRIPTIONS

NASA TECH BRIEFS. Quarterly.  
UNIX REVIEW. Monthly.  
ALPES NEWSLETTER. Monthly.  
PLANT PHYSIOLOGY. Monthly.  
BIWEEKLY LIST OF PAPERS ON RADIATION CHEMISTRY AND PHOTOCHEMISTRY.

## LIBRARY SERVICES

### COMPUTER LITERATURE SEARCHING - SUPERINDEX

The Library can now access an online data base which answers science reference questions. Superindex contains the back-of-the-book indexes of over 2000 important science books. Inputting terms describing your question yields references within specific books which discuss your subject. The Library has ascertained that it has the majority of the Superindex books pertinent to NCAR subject areas.

For a demonstration call Gayl Gray at X1180.

\* \* \*

My acquisitions recommendation is: \_\_\_\_\_

for the Mesa, RL-6, RL-3, MAR, or RAF Library. (Circle one) Name: \_\_\_\_\_

\* \* \*

The following material will be displayed in the Mesa Library Aug. 31 - Sept. 7, and in the RL-6 Library Sept. 7 - Sept. 14. New acquisitions announced last week (Aug. 24) are presently on display in the RL-6 Library through Sept. 7. You may reserve them during display for subsequent checkout.

NCAR members located off the Mesa site may borrow new books, reports, and microfiche by checking the item of interest below and returning to Gayl Gray.

## NEW BOOKS

New books for the Mesa and the Branch Libraries are in the following list.  
REference material does not circulate.

FLOOD. Clark, C., 1982.	CALL NUMBER
THE VISUAL DISPLAY OF QUANTITATIVE INFORMATION. Tufte, E.R., 1983.	GB1399 C55 1982
THE PLANETARY PRODUCT IN 1980. Block, H., 1981.	HA31 T79 1983 c.2 RL-6
VIBRATIONAL INTENSITIES IN INFRARED AND RAMAN SPECTROSCOPY. Person, W., 1982.	HC59 B5828 1980
ENERGETIC ION COMPOSITION IN THE EARTH'S MAGNETOSPHERE. Johnson, R., 1983.	QC454 V5V52 1982
CLIMATIC CHANGE IN LATER PREHISTORY. Harding, A.F., 1982.	QC809 M35E54 1983
CONFERENCE ON RADAR METEOROLOGY PREPRINTS. AMS, 1984.	QC884.2 C5C55 1982 c.2 RL-6
WEATHER AND CLIMATE OF THE SELWAY-BITTERROOT WILDERNESS. Finklin, A., 1983.	QC973.5 A512 22nd 4c.
ANTHROPOGENIC COMPOUNDS. Anliker, R., 1984.	QC984 I3F53 1983
THE BOUNDARY ELEMENT METHOD FOR ENGINEERS. Brebbia, C.A., 1980.	QD31 H335 v.3 1980 pt.c
ACID RAIN AND TRANSPORTED AIR POLLUTANTS: IMPLICATIONS FOR PUBLIC POLICY.	TA335 B73 1980 RL-6
United States. Office of Technology Assessment., 1984.	TD196 A25A3 1984
POWER-TRANSISTOR AND TTL INTEGRATED-CIRCUIT APPLICATIONS. Norris, B., 1977.	TK7871.92 P68 1977 MAR
ULRICH'S INTERNATIONAL PERIODICALS DIRECTORY. 1984.	Z6941 U5 1984 v.1-2 REF

# JOB OPENINGS

August 29, 1984

*NCAR is an equal opportunity/affirmative action employer.*

Salaries for new employees and for current employees receiving reassignments will be between the range minimum and maximum shown for each job. Specific starting salaries are determined by comparing the applicant's qualifications with the job requirements and assessing expected performance levels.

## ADMINISTRATIVE SECRETARY - #0298

ATD - Director's Office

Non-Exempt Range: 27, \$1,255 - 1,630/month

DUTIES: Types memos, letters, reviews, reports and technical manuscripts using a word processing system; transcribes dictation from dictating machine; takes shorthand as necessary; performs general office work, such as answering phones, copying, maintaining supplies, and running errands; files all incoming and outgoing correspondence; handles confidential and sensitive documents involving salaries, personnel and budgetary information; in absence of administrative assistant, makes travel arrangements including the making of reservations, maintains the director's calendar, handles the mail logs, monitors schedule of ATD conference room; and keeps up-to-date on NCAR policies as they pertain to ATD.

REQUIRES:

- Knowledge in standard office procedures
- Skill in maintaining files
- Skill in following procedures
- Skill in setting priorities and meeting scheduled deadlines
- Skill in usage of correct English grammar, punctuation and spelling
- Skill in effective oral and written communication
- Skill in accurate typing
- Skill in working with word processing equipment
- Willingness to work on a variety of tasks simultaneously
- Skill in working with many interruptions
- Demonstrated skill in establishing and maintaining good working relationships with people

Debi Koepke, X8728

## ELECTRONICS TECHNICIAN II - #0305

CSD - Microphysics Section

Non-Exempt Range: 29, \$1,519 - 1,973/month

DUTIES: Under the general supervision of an engineer or more senior technician, participates in field experiments in and away from the Boulder area which will include: preparing equipment for transport or installation, assisting in the

installation service and removal of tower mounted equipment, transporting equipment to field sites and collecting scientific and engineering data following practices for maintaining data integrity. Fabricates and assembles new or modified electronic or mechanical components or assemblies needed to support these field installations which may include work with bench lathes, drill presses and other machine tools in working with wood, sheet metal and other materials. Designs, tapes and assembles printed circuit boards as well as experimental circuits or complete prototypes according to engineering instructions, technical manuals and knowledge of systems, components and functions. Performs preventive and corrective maintenance and servicing of electronic components, circuits and complete units. Tests, aligns, adjusts and calibrates equipment, maintaining documentation of all efforts and changes. Maintains knowledge of and performs duties according to established safety standards and follows applicable rules and regulations such as FCC standards, Colorado driving laws and regulations. Assists in maintaining electronic parts inventory and in conducting periodic equipment inventory. Trains others regarding operations and capabilities of instrumentation/equipment.

REQUIRES:

- Skill in digital electronics such as would usually be acquired through 2 years of formal education in digital electronics with 1 year of practical experience OR 3 years of practical experience in a digital design environment OR a similar combination of education and experience
- Demonstrated skill in solder and wire wrap techniques as well as skill in the application of electronic and/or mechanical properties in the assembly of instrumentation and equipment
- Skill in diagnosing and repairing faults in sophisticated digital electronic equipment and in using and caring for electronic test equipment
- Skill in reading electronic schematics, blueprints and layouts as well as sufficient skill in drafting to document design efforts
- Skill in designing and laying-out printed circuit boards

- Skill in taking initiative in completing tasks and in organizing work in an efficient and effective manner
- Effective oral and written communication skills
- Current valid Colorado driver's license and the ability to qualify for and obtain a GSA driver's license (to qualify, applicants cannot have more than 2 moving violations in the past 3 years)
- Knowledge of microprocessors, CMOS and TTL technology, data collection procedures and standards, and of electronic parts standards and specifications
- Physical ability to lift 50 lbs. and willingness to work on equipment which is mounted on towers
- Willingness to participate in field trips away from Boulder, lasting up to 2 months or more

ALSO DESIRED, BUT NOT REQUIRED:

- Knowledge of microcomputer operating systems with an understanding of some programming language
- Familiarity with analog interfaces to digital circuits

Nancy Lippincott, X8729

#### PROJECT MANAGER - #0287

UCAR - UNIDATA Program  
 Exempt Range: 79, \$38,400 - 57,600/yr.  
 DUTIES: UNIDATA is a one-year project with the major purpose of developing the functional design for a university-wide interactive data processing and analysis system. Under the administrative supervision of the Director of UCAR Projects, provides overall project management and ensures that the UNIDATA system is responsive to the needs of the academic community. Develops and maintains close working relationships with the SCD and ATD Divisions at NCAR and collaborates with their work on computer communications and field communications systems. Develops and maintains close relationships with key academic groups with large requirements and/or significant technical experience in the UNIDATA area and ensures that the UNIDATA project develops as a community activity. Translates community requirements as gained from questionnaires into priorities for practical implementation. Organizes technical working groups with the goals of development and documentation of system design criteria as input to Phase II of the project - the implementation and testing of prototype systems in the academic environments. Participates as one of the key leaders in at least one of the technical subgroups. Supervises the UNIDATA staff in ways consistent with UCAR policies and with its equal employment opportunity and affirmative action programs. May prepare technical status reports for the President and Board of Trustees of UCAR.

REQUIRES:

- Master's degree in meteorology, related field or equivalent combination of education and experience
- Skill in project management
- Skill in budget planning and management
- Skill in technical writing
- Skill in developing and maintaining effective and diplomatic working relationships with diverse communities

- Expert knowledge in at least one of the following technical areas and working knowledge in the others:
  - a. research and teaching use of meteorological data
  - b. data communications
  - c. software systems and meteorological applications
  - d. graphics display and workstation systems

NOTE: This position is for a term of approximately one year, with the possibility of extension.

Nancy Lippincott, X8729

#### SECRETARY - #0299

UCAR - Projects Office  
 Non-Exempt Range: 26, \$1,141 - 1,482/month  
 DUTIES: Provides secretarial support to the UCAR Projects Office. Assists in the arrangements for UCAR project meetings, including advance preparation of materials, travel and lodgings as well as providing support during the meetings. Performs general office work such as answering telephones, photocopying, distributing mail, assisting in the maintenance of files and records, and maintaining office supplies. Prepares typewritten drafts and final copies of letters, memoranda, meeting minutes, reports, routine UCAR forms and other material from written or transcribed material. Maintains a working familiarity with the organization, its policies and procedures.

REQUIRES:

- Skill in accurate typing at approximately 60 WPM
- Skill in use of current office practices and procedures
- Skill in exercising initiative and judgment with regard to scheduling work priorities
- Demonstrated skills in learning an organization's policies and procedures quickly and efficiently
- Thorough knowledge of English grammar, spelling, and composition
- Skill in exercising judgment and professionalism in dealing with a wide variety of individuals, in person and over the telephone
- Skill in performing multiple tasks with accuracy and thoroughness
- Demonstrated skill in establishing and maintaining an effective and pleasant working relationships with office colleagues
- Skill in handling confidential information
- Willingness/desire to learn word processing skills

ALSO DESIRED, BUT NOT REQUIRED:

- Experience on an NBI word processor

Nancy Lippincott, X8729

**SECRETARY - #0303**

ACAD - Division Office

Non-Exempt Range: 26, \$855.75 - 1,111.50/month  
(.75 FTE)

DUTIES: Types letters, memoranda and miscellaneous correspondence for Director and Deputy Director for Administration; types manuscripts involving scientific equations and symbols on an as needed basis; makes travel arrangements for the Director and Deputy Director; distributes seminar notices on a regular basis to an established mailing list; updates mailing list; performs general secretarial duties to include filing, answering phones, taking messages, copying for the Division Office and the Director's Office, ordering supplies, and distributing reports and time cards. Substitutes for other secretarial staff during absences. Provides support to the Administrative Assistant.

REQUIRES:

--Accurate typing of approximately 60 wpm  
--Demonstrated skill in spelling, punctuation and grammar

--Skill in working with frequent interruptions

NOTE: This position is for a one year term with the possibility of extension.

Debi Koepke, X8728

**SYSTEMS PROGRAMMER III - #0283**

SCD - IOS System Software

Exempt Range: 62, \$29,499 - 44,249/year

DUTIES: Performs system generation and maintains back-up systems for the IOS system. Provides service on a daily basis as a consultant in solving problems presented by users and Operators.

Monitors IOS system behavior on a daily basis, discussing perceived problems with other IOS Group members and the IOS Group head and taking such action as is proper to insure efficient operation. Collaborates with Operations Department personnel in solving software related operational difficulties. Codes and implements necessary local modifications. Maintains IOS system logs. Cooperates with the Consulting Office on user problems. Gathers the accounting information produced by system operation and modifies the system to produce additional information as requested by SCD management and the Accounting Section of SCD. Implements software as necessary to prevent any interactive users from running large computer time programs to the detriment of the system's interactive response. Sets up system parameters so that certain systems or processor packages have restricted use, e.g., compilers/loaders are to be made available to in-house users only. Assists with the maintenance of RSCS and Uninet software on the IOS.

REQUIRES:

--M.S. in computer science, mathematics, engineering or physical sciences or equivalent experience

--Demonstrated skill in programming, particularly in the systems area, including a variety of hardware systems, which would typically be

acquired through four to eight years of systems programming experience

--Demonstrated skill with a VM operating system

Debi Koepke, X8728

**SYSTEMS PROGRAMMER III - #0284**

SCD - Communications

Exempt Range: 62, \$29,499 - 44,249/year

DUTIES: Performs system generation and maintains back-up systems for the communications systems. Provides service on a daily basis as a consultant in solving problems presented by users and Operators. Monitors communications system behavior on a daily basis, discussing perceived problems with other Communications Group members and the Communications Group head and takes action as is proper to insure efficient operation. Collaborates with the Operations Department personnel in solving software related operational difficulties. Codes and implements necessary local modifications. Cooperates with the Consulting Office on user problems. Gathers the accounting information produced by system operation and modifies the system to produce additional information as requested by SCD management and the Accounting Section of SCD. Assists with the maintenance of RSCS and Uninet software on the IOS.

REQUIRES:

--M.S. in computer science, mathematics, engineering or physical sciences or equivalent experience

--Demonstrated skill in programming, particularly in the systems area, including a variety of hardware systems, which would typically be acquired through four to eight years of systems programming experience

--Knowledge of an IBM operating system, the RSCS remote job entry and IBM communication protocols

Debi Koepke, X8728

**SYSTEMS PROGRAMMER III - #0296**

SCD - Systems Department

Exempt Range: 62, \$29,499 - 44,249

DUTIES: Under the administrative supervision of the Group Head or the Assistant Systems Group Manager for Large-Scale systems, concentrates programming experience into specialized skill areas such as design, formulation, and implementation of complex computer system software programs. May be responsible for maintenance of large portions of the CRAY software system. Designs, codes and performs check out of software system elements; reviews hardware capabilities and new technological changes; determines cost and quality choices as a basis for measuring the feasibility of various system software design approaches; prepares and submits proposals for new or revised system software design, formulates design specifications; writes general and/or detailed flow charts for major new or revised software systems; provides coding, check out, maintenance and documentation of any software system designed for NCAR or furnished



by vendors. Renders services on a daily basis as a consultant in solving CRAY related problems presented by users, Operations or engineering (both local, field or customer, and vendor). Supervises employees in ways consistent with UCAR policies and with its equal employment opportunity and affirmative action programs.

## REQUIRES:

- Master's degree in computer science, mathematics, engineering, or a related physical science OR the equivalent combination of education and experience
  - Demonstrated expert knowledge in the design, formulation and implementation of complex computer system software programs
  - Expert knowledge of CRAY software systems. This includes knowledge of the following: CRAY CPU assembly languages and FORTRAN language, hardware architecture and timing characteristics; CRAY channel characteristics and interface requirements; Data General NOVA assembly language and hardware architecture; Inter-System Communication Protocol between the CRAY computer system and the Network System Corporation Hyper-Channel; CRAY Channel Interface and Channel Interface Unit hardware, firmware, programming techniques, timing characteristics and software
  - Working knowledge of various hardware (digital and analog) logic symbol representations and knowledge of Boolean algebraic equation equivalents required to comprehend the hardware logic and electronic diagrams, prints, and schematics of various computer systems
  - Extensive skill in field and systems engineering and systems analysis such as would usually be acquired through 4-6 years of diverse programming experience including experience with a wide variety of computer hardware systems and equipment including troubleshooting, systems design and configuration
- Nancy Lippincott, X8729

TECHNICAL COORDINATOR - #0288

UCAR - UNIDATA Project

Exempt Range: 63, \$35,399 - 53,099/year

DUTIES: UNIDATA is a one-year project with the major purpose of developing the functional design for a university-wide interactive data processing and analysis system. Under the general supervision of the UNIDATA Project Manager, integrates the technical and engineering aspects of system design. Assesses community software status with respect to routines currently available and routines requested from the UNIDATA program as high priority and undertakes to develop one high-priority software routine into a transportable code. Leads the development of the functional requirements for the UNIDATA software shell and blocks out its elements, at least conceptually. If feasible, develops prototype programs. Works with other technical subgroups to assure that the software concepts are commensurate with the other technical aspects. Maintains close liaison with NCAR's communications program or software

development as appropriate. Participates as one of the key leaders in at least one of the technical subgroups.

## REQUIRES:

- Master's degree in meteorology with experience in computer applications, master's degree in computer science with experience in meteorological applications or the equivalent combination of education and experience
  - Expert knowledge and skill in software systems and data communications
  - Working knowledge of graphics display and workstation systems
  - Skill in technical writing
  - Skill in project task planning
  - General knowledge of research and teaching use of meteorological data and software applications
- NOTE: This position is for a term of approximately one year, with the possibility of extension.
- Nancy Lippincott, X8729

CASUALSTUDENT ASSISTANT II - #0300, #0301, #0302  
(3 Positions)

ATD - FOF

Flat Rate: \$6.65/hour

DUTIES: Provides technical assistance in the computer processing and analysis of meteorological data acquired by radar, aircraft and surface stations. Assists in the archiving, cataloguing and general documentation of data sets. With the aid of project scientists, develops and documents software needed to carry out detailed analyses of radar, aircraft and surface data. Carries out and summarizes results of specific data analysis tasks. Acquires understanding of existing data processing software sufficient to run and maintain software. Provides assistance in transporting tapes and other materials to and from NCAR work sites.

## REQUIRES:

- General knowledge of computers
- Basic programming skills in FORTRAN sufficient to develop, debug and document programs
- Willingness to pay close attention to detail, appreciating the importance of accuracy and exactitude
- Must be enrolled for credit in an accredited secondary or post secondary school, college or university; or in a trade school which has received a Certificate of Approval from the Colorado State Board for Community Colleges and Occupational Education
- Willingness to work up to 20 hours per week during periods school is in session and full-time during breaks
- Current valid Colorado driver's license and the ability to qualify for and obtain a GSA driver's license (to qualify, applicants cannot have more than 2 moving violations in the last 3 years)
- Background in physical sciences, engineering or math sufficient to understand data processing and analysis tasks

ALSO DESIRED, BUT NOT REQUIRED:

--Knowledge of CRAY I, VAX 11/780 and PDP 11/60  
systems

NOTE: These positions are for a one year term,  
with the possibility of extension

Nancy Lippincott, X8729

# CALENDAR NOTES

September 3rd through September 10th

MONDAY, September 3rd

HOLIDAY

TUESDAY, September 4th

OPEN

WEDNESDAY, September 5th

- ASP Seminar -- Cumulus Convection in Jupiter's Tropics -- Carol Stoker, ASP

3:30 p.m.  
NCAR Mesa Lab, Main Seminar Room

THURSDAY, September 6th

- Climate Club -- Global Atmospheric Measurements of Methane and Carbon Dioxide -- Paul Steele, NOAA/GMCC

1:30 p.m.  
NCAR Mesa Lab, Main Seminar Room

- HAO Seminar -- Theory and Electrostatic Structure of Rotational Discontinuities in a Collision-Free Plasma -- Dong-Jinn Wang, Dept. of Physics, Dartmouth College

3:30 p.m.  
NCAR Mesa Lab, Main Seminar Room

FRIDAY, September 7th

OPEN

MONDAY, September 10th

OPEN

---

Calendar Notes announcements may be mailed to Holly Hatton, ML 140. Wednesday at 12 Noon is the deadline for items to be included in the Calendar Notes.