



The CEDAR Post

Quarterly (or as needed) Newsletter for the
CEDAR AERONOMY COMMUNITY

No. 9

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Newsletter Circulation:

Our mailing list now includes over 650 scientists in the
U.S. and abroad

Steering Committee Activities

The CEDAR Science Steering Committee (CSC) met at the University of Michigan on 27 April 1989 to review the CEDAR program in the light of the actual versus the proposed funding levels. Detailed reports of progress made in the various areas of CEDAR activities (i.e., spectrometry, interferometry, Lidar, IS radar, MS radar, etc.) were heard by the committee. Presentations of the CEDAR program have also been made at meetings of the Committee for Solar Terrestrial Research (CSTR), the NASA UARS science team, and at NSF. An effective liaison mechanism for our sister NSF initiative in magnetospheric and solar-terrestrial research, GEM, has been established.

CEDAR Awards for FY 1989

The CEDAR proposals submitted in response to the last review cycle were evaluated by the standard NSF mail-in review process. The process was an exceedingly competitive one, with the incremental funding available (\$400K) oversubscribed by about a factor of ten. The following is a list of the continuing and new awards that have been made to date with the incremental CEDAR funds:

1. Continuations:

- Development of a new IR optical interferometer (Sivjee and Espy)
- Development of an imaging Fabry-Perot (Wickwar and Sica)
- CHARM campaign (Kerr)
- CHARM campaign (Smith)
- CHARM campaign (Roessler)
- Modeling of mesospheric winds (Fesen)
- Global wind analysis (Miller)
- Global wind analysis (Richards)
- Partial reflection radar (Hines)
- Sondrestrom Radar and optical upgrade (Kelly)
- Millstone Hill radar and optical upgrade (Foster)
- Svalbard observatory upgrade (Deehr)

2. New awards:

- AIDA campaign (Adams)
- AIDA campaign (Kieffaber)
- AIDA campaign (Djuth)
- AIDA campaign (Avery)
- Development of 2nd near-IR interferometer (Niciejewski)
- Development of imaging CCD Fabry-Perot (Killeen)
- Arecibo Observatory Lidar (Hines)
- Jicamarca Computing upgrade (Farley)

A further proposal cycle will occur later this year. See your favorite NSF Program Director for details.

1989 Summer CEDAR Meeting Update

We have a total of 67 graduate students registered for the CEDAR summer meeting. Most of these have requested travel support from NSF. Obviously, this is the meeting to attend to meet the future leaders and shakers of the field! The number of non-student registrants is now 90, giving a total of 157.

There are 17 workshops planned for this meeting, including the two-day workshop on 20-21 June on Solar Variability/QBO/Weather. For that smaller meeting, there are 25 registrants to date. The other workshops are listed below together with a short description and schedule information. Due to the press of workshops, we will be meeting on Saturday afternoon, much to the disgust of many. Maybe next year we will reduce the number of plenary sessions from 4 to 3 to allow for more workshop time (and maybe more free time). Please feel free to give your comments, critical or otherwise, to your favorite CSC member.

The half-day raft trip on the Poudre near Ft. Collins has proved to be popular with about 57 persons expressing interest. Unfortunately, the raft company can only accomodate about 42 persons. Those anxious to go should get their money to Barbara Emery (HAO/NCAR) as soon as possible to avoid disappointment.

So far 23 people have signed up for the 26 available poster slots on Saturday morning. This is a good opportunity to demonstrate your work to the community. *Please submit an author list and title to Barbara Emery, or at least reserve a slot at the earliest opportunity.* If we get more than 26, it is quite probable that we may have a second poster session on Tuesday morning.

Please note that the NBS building has now been renamed by congress and is now NIST (National Institute of Standards and Technology). The CEDAR sessions will be in the same building as last year - just a different name.

WORKSHOPS

List of CEDAR summer workshops now planned

Workshop Type: I - Project Initiation

II - Preliminary Results

III - Scientific Yield

1. Solar variability/QBO/weather (I), June 20-21.
Mechanisms for tropospheric effects of solar variability and the quasi-biennial oscillation (B. Tinsley and S. Avery).
2. Equatorial Dynamics (I/II), Sat. p.m.
F-region equatorial dynamics using San Marco, airglow, and the ALTAIR radar near Kwajalein. First discuss results of August 1988 Kwajalein Initiative, and then discuss 1990 campaign which will include rockets (Mike Mendillo).
3. Twilight Studies (II), Thurs. p.m. Use of twilight airglow measurements to deduce atmospheric composition (Bill Sharp).
4. New High Latitude Radar (I), Sat. a.m. A new incoherent scatter radar is considered for the polar cap area, possibly at Resolute Bay, Canada (Rich Behnke).
5. LTCS (I/II/III), Thurs. p.m. and Fri. p.m.
Lower Thermospheric Coupling Study based on periods of September 1987 and December 1988 (Jeff Forbes).
6. HLPS (II/III), Mon. p.m. and Tue. p.m.
High-Latitude Plasma Structures. Interest in on the cascading from large to small scales in plasma structures (Sunanda Basu).
7. Lidar (I), Mon. p.m. Review the current status of lidar facilities and discuss possible multi-Lidar campaign activities (Chet Gardner and John Meriwether).

8. AIDA Act '89 (II), Sat. p.m. Show-and-tell session for March-May 1989 campaign and future plans (Colin Hines).
9. AIDA Act'91 (I), Mon. p.m. Plans for 1991, possibly investigate thin strata in the D and lower E regions (Colin Hines).
10. GISMOS (II/III), Sat. p.m. Study of the ionospheric and thermospheric response to large values of the IMF, such as those observed during the January 12-17, 1988 storm, as well as the storms of July 22-23, 1983 and March 13-15, 1989. (Roberta Johnson and Odile de la Beaujardière)
11. GEMINI (I), Sat. a.m. General Excitation Mechanisms in Nightglow. Limb scanning measurements of mesopause between 260 and 800 nm using sounding rockets from White Sands in 1992. Introduction to program and invitation to participate in ground campaign. (Richard Link)
12. CHARM (II), Tues. p.m. Collaborative Balmer H_{α} , Incoherent Scatter Radar and Modeling of the coupled exosphere/ionosphere. (Bob Kerr and Fred Roessler)
13. Incoherent Scatter Pots-pourris (I), Fri. p.m. What constitutes a storm alert and what the radar community can contribute to GEM (Rich Behnke)
14. ARIA (I), Sat. a.m. Project to investigate local atmospheric response to auroral inputs using sounding rockets and ground-based observations (Andrew Christensen)
15. Auroral Arc Emission Studies (II), Fri. p.m., Composition measurements derived in aurora from optical and incoherent scatter techniques. Will discuss Feb. '88 and Feb. '89 campaigns (G. Swenson and J. Hecht)
16. MAPSTAR (II), Mon. p.m., Middle Atmosphere Periodic Structure Associated Radiances. Look at wave-like structures in OH and OI airglow from campaign in Colorado from May-July 1988. (E. Dewan)
17. Detector Advances (I), Thurs. p.m., Will look at the advances in technology in

making detectors for optical instruments in imaging, spectroscopy and interferometry. (G. McCormac and T. Killeen)

CEDAR Prize Lecturer

Dr. Arthur Richmond has been selected as the CEDAR Prize Lecturer for 1989. Art's recent work has led to the development of a technique to synthesize experimental data from disparate sources into a usable form for incorporation into numerical models. This kind of approach will be important for many CEDAR campaigns and activities. Congratulations to Art who will receive two free tickets to the CEDAR banquet!

***** The CEDAR LOGO *****

White smoke at last from the steering committee -- WE HAVE A LOGO! Please see the frontispiece to this edition of the CEDAR Post.

CEDAR Data Base News

The CEDAR data base committee would like YOUR input on the following three critical data base issues. The committee will formulate policy based on your response (or if you delay, without it!)

1. Should the data base allow measurements from CEDAR campaigns to be submitted on a proprietary basis? Should a campaign be able to share data only among a set of "official" participants for a period? If so, how long should the period be - 6 months, 1 year, 2 years?

2. Presently a data supplier has the express written right to be offered co-authorship when his/her data is used in reports, papers, etc. Should the language of the "Rules of the Road" be made stronger to guarantee explicitly the right of a data supplier to withdraw his/her data from a

work when the data supplier feels it is not being correctly used?

3. Do you already use a data format supported by the Space/Atmospheric Science community, such as the NASA CDF format? If such is the case, we can work with you to develop a "black box" between your format and the NCAR/IS CEDAR format. We want to know what formats are actually being used by CEDAR scientists.

Thanks you for your help! Please send or phone in your input BEFORE THE CEDAR MEETING to:

Bob Sica (801) 750-2937.
(801) 750-2992 (FAX)
7245::SEEK (SPAN)
seek@usu.bitnet

Steering Committee Membership

The current Steering Committee membership is as follows. The rotation date for each member is given in parentheses with rotation occurring at the time of the respective CEDAR summer meeting.

| | |
|------------------|----------------------------------|
| T. L. Killeen | (U. of Michigan, 1990) - chair |
| W.E. Sharp | (U. of Michigan, 1989) - v-chair |
| C. S. Gardner | (U. of Illinois, 1991) |
| M. J. Mendillo | (Boston U., 1990) |
| J. E. Salah | (MIT-Haystack, 1990) |
| J. W. Meriwether | (AFGL, 1991) |
| C. O. Hines | (Arecibo-Cornell, 1991) |
| G. G. Sivjee | (Embry-Riddle, 1991) |
| ex-officio: | |
| G. J. Romick | (NSF-Aeronomy) |
| R. Behnke | (NSF-UAF) |
| B. A. Emery | (HAO-NCAR) |

Two additional CSC members will be appointed at the 1989 summer meeting. While only one member is rotating off the committee (Bill Sharp), the two appointments will allow for a 3-year term for all future appointments, with three committee members rotating off each year. The procedure for these appointments will be as before - i.e., nominations and volunteers are sought and appointment made from a list by the cognizant NSF Program Directors for Aeronomy and Upper Atmosphere Facilities. At the summer meeting, a chairman-elect will be named to replace Tim Killeen at the 1990 summer workshop.

INCOHERENT SCATTER WORLD DAYS PRELIMINARY SCHEDULE

Below is the proposed Coordinated World Day Calendar for the incoherent scatter radars - see Vincent Wickwar for further details. The observation periods begin and end at 16:00 UT. However, the URSI incoherent scatter working group (ISWG) has strongly urged that these observations be extended at the beginning or end to include 14:00 local time on both the first and last days.

The general criteria used in creating the Calendar are as follows:

- IMP-8 located in the solar wind
- Schedule observations within one week of new moon
- Limit to one long campaign per season
- Start observations on Monday or Tuesday

More specific criteria, based on individual requests or on efforts to avoid time conflicts, are as follows:

- January 1990 GISMOS already appeared in 1989 calendar
- June 1990 GITCAD and SUNDIAL and equinox LTCS are part of long-term scientific plan

- Avoid long campaign in March 1990 because of long GISMOS campaign in January and the long CHARM campaign in February 1990.

Any suggestions or comments/requests for changes should be addressed to Vincent Wickwar (CASS, Utah State University). The schedule will be finalized in mid-July.

In addition to the campaigns listed in the calendar, there should be another one on the response of the magnetosphere and upper atmosphere to geomagnetic storms. It is

expected that there will be several storms, such as the one that occurred in March 1989, during the next three years. Because of their unpredictability, they cannot be placed on the calendar. However, at an ISWG meeting held at the COSPAR last summer, representatives of each radar agreed that it would be possible, in principle, to turn on their radars in response to an appropriate alert. See IS Pots-pourris working group for further details.

Proposed Incoherent Scatter World Day Calendar

| Period | IMP-8 | New Moon | Coordinated Period | Days | Campaign |
|--------|-----------------|----------|-------------------------|------|-----------|
| 1 | 24 Jan - 29 Jan | 26 Jan | 25 Jan - 29 Jan Thu-Mon | 4 | GISMOS |
| 2 | 16 Mar - 21 Mar | 26 Mar | 19 Mar - 20 Mar Mon-Tue | 1 | |
| 3 | 23 Apr - 27 Apr | 25 Apr | 23 Apr - 28 Apr Mon-Sat | 5 | LTCS |
| 4 | 18 May - 22 May | 24 May | 21 May - 22 May Mon-Tue | 1 | |
| 5 | 25 Jun - 29 Jun | 22 Jun | 25 Jun -29 Jun Mon-Fri | 4 | GTCD/SNDL |
| 6 | 20 Jul - 25 Jul | 22 Jul | 23 Jul - 24 Jul Mon-Tue | 1 | |
| 7 | 20 Sep - 26 Sep | 19 Sep | 24 Sep - 25 Sep Mon-Tue | 1 | |
| 8 | 16 Oct - 22 Oct | 18 Oct | 16 Oct - 17 Oct Tue-Wed | 1 | |
| 9 | 10 Nov - 16 Nov | 17 Nov | 12 Nov - 13 Nov Mon-Tue | 1 | |
| 10 | 17 Dec - 18 Dec | 17 Dec | 17 Dec - 18 Dec Mon-Tue | 1 | |
| 11 | 11 Jan - 17 Jan | 15 Jan | 12 Jan - 17 Jan Sat-Thu | 5 | LTCS |

Requests for 1991: January LTCS; March Equinox GITCAD/SUNDIAL; GISMOS

1989 CEDAR MEETING AGENDA

THURSDAY
22 June 1989
Tutorial # 1 (at NIST)

8:30 a.m. Welcome
Tim Killeen - 5 min
HAO/NCAR introduction - 15 min.
NSF Peter Wilkniss - 25 min
Introductions;
Students
CEDAR post docs;
CEDAR prize lecture;
CEDAR logo)

10:15-10:45 BREAK

10:45-11:45 Syun-Ichi Akasofu
"Auroral phenomena and morphology"

11:45-12:30 CEDAR Postdoc presentations (2)

12:30-2:00 LUNCH (Adjourn to NCAR)

2:00-5:30 Workshops (NCAR)

FRIDAY
23 June 1989
Tutorial #2 (at NIST)

8:30-9:30 a.m. Don Farley
"Radio science techniques"

9:30-10:30 Sica/Emery CEDAR Data base
"Cedar Database #2 progress report"

10:30-11:00 BREAK

11:00-11:30 John Lynch (NSF-Polar Programs)
"Aeronomy in the US Antarctic Research Program"

11:30-12:00 D. Albritton
"NOAA Aeronomy Laboratory:
past and future"

12:00-12:30 Colin Hines
"AIDA results"

12:30-2:00 LUNCH (Adjourn to NCAR)

2:00-5:30 Workshops (NCAR)

SATURDAY (at NIST)
24 June 1989

8:30 - 11:00 CEDAR poster session (overlap
of times intentional)

10:00- 12:00 CEDAR workshops (project
initiation)

12:30 - 2:00 LUNCH (Adjourn to vicinity)

2:00 - 5:30 Workshops (NIST)

SUNDAY
25 June 1989

RAFT TRIP (organized activity, Emery)
Hiking, Mountain scenic drives, Picnic etc. (all
do-it-yourself)

MONDAY
26 June 1989
Tutorial # 3 (at NIST)

8:30-9:30 Paul Hays
"Fabry-Perot interferometer
capabilities for upper atmosphere
measurements"

9:30-10:00 Skip Reber
"UARS and CEDAR"

| | | | | | |
|-------------|---------------------------------------------------------------------------|--|--|-------------|--------------------------------------------------------------------------|
| 10:00-10:30 | Paul Hays "The MELTER initiative" | | | | the lower atmosphere" |
| 10:30-11:00 | BREAK | | | 9:30-9:50 | Gerald Romick "NSF funding and CEDAR future plans" |
| 11:00-11:20 | Andrew Christensen "Airglow observations from the RAIDS satellite" | | | 9:50-10:10 | Richard Behnke NSF "CEDAR facilities: present and future development" |
| 11:20-11:40 | Frank Marcos "Density Measurements in the Lower Thermosphere with ADS" | | | 10:10-10:40 | BREAK |
| 11:40-12:10 | Herbert Carlson "Air Force and CEDAR" | | | 10:40-11:00 | Tim Killeen "CEDAR policy matters" |
| 12:10-12:30 | Art Richmond CEDAR prize lecture | | | 11:00-11:45 | CEDAR Public Forum (Killeen) |
| 12:30-2:00 | Lunch (Adjourn to NCAR) | | | 11:45-12:30 | Lunch (Adjourn to vicinity or NCAR) |
| 2:00-5:30 | Workshops (NCAR) | | | 12:30- 3:00 | Workshop activity (NCAR) |

TUESDAY
27th June 1989
Tutorial #4 (at NBS)

8:30-9:30 Dr. Murray Salby, "Dynamics of

CEDAR June 22-27, 1989 Workshop Program

There are generally 3-4 meeting rooms available at any one time, both at NCAR and at NIST (formerly NBS). The Saturday sessions are at NIST and the others are at NCAR.

| Thurs | Fri | Sat | Mon NCAR | Tues NCAR NCAR | NIST NCAR |
|-----------------------------------|-----------------------------------------------|-------------------------------|-----------------------------------------------------------|--------------------------|--------------|
| AM 2 hrs. | | | | | |
| GEMINI New IS location ARIA | | | | | |
| PM 3.5 hr. | PM 3.5 hr. | PM 3.5 hr. | PM 3.5 hr. | PM 2.5 hr. | |
| LTCS Twilight Det Adv | GISMOS Aur Arc Em IS POT (3:30-5:30) | GISMOS Equ Dyn AIDA '89 | CHARM MAPSTAR HLPS AIDA '91 (2-3) Lidar (3-5) | CHARM MAPSTAR HLPS | |