The Advanced Study Program

Al Cooper
ASP Retreat
25 August 2004
# Agenda - morning

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<th>Time</th>
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| 8:30 – 9:15 | Objectives, history, and role of the ASP  
Roles of postdocs and graduate fellows in ASP  
Roles of senior personnel in ASP |
| 9:15 – 10:00 | Postdoc issues:  
- Acclimatizing / orientation  
- Resource needs  
- Mentoring  
- Professional development  
- Dealing with three sites  
- Appointments outside the ASP  
- Issues from the broader community  
- Other? |
| 10:00 – 10:15 | break |
| 10:15 – 11:00 | Program components: discussion  
- Thompson Lecture Series  
- Seminar Series  
- Research Reviews  
- Tea  
- Social events  
- Research Planning Meetings  
- Annual “review” |
Agenda - morning

11:00 – 11:30 GRA issues
   - Interactions with other students
     Science discussions
     Teas
     Socials
   - Mentoring
   - Writing skills
   - Appointments outside the ASP
   - Other

11:30 – 12:00 Smaller group discussions, continuing into lunch

12:00 – 1:00 Lunch as a group
Agenda - afternoon

1:00 Other ASP Roles
   Senior visitors
   Short courses/colloquia
   The Early Career Scientist Assembly (ECSA);
       the EC faculty forum
   The NCAR Scientist Assembly (NSA)
   Interactions with Divisions and Programs
       contributions to programmatic goals
       fellow selection process
       monitoring fellow progress
   The proposed Faculty Exchange Program

2:30 Break

3:00 Planning Discussion
   ASP in the ASET Laboratory - the Reorganized NCAR
       evolving roles
       potential growth
       continuing physical separation
   New Initiatives

4:00 Wrap-up
   Summarize
   Identify action items

4:30 Adjourn
Objectives of the Retreat

- Review program objectives
- Review what we do; suggest changes
- Consider the broader role of the ASP at NCAR
- Develop lots of ideas, some of which are good
- Get to know each other
Introductions:

- **The ASP Office:**
  - Maura Hagan, Director for now
  - Barb Hansford, Administrator
  - Scott Briggs, Admin Assistant
  - Barb Petruzzi, Admin Assistant
  - Garth D’Attillo, System Administrator

- **Postdocs**
- **Grad Fellows**
- **Senior Visitors**
- **Other personnel**
Origin of the ASP

- Founded in 1964 by Phil Thompson
- Purposes:
  - “to draw into the atmospheric sciences additional talented and highly trained people from the mother sciences of mathematics, physics and chemistry”
  - prevent stagnation, anticipate and plan for change
  - incubate ideas and new areas
  - promote interactions among scientists -- young with experienced, and among those from different disciplines
- Mechanisms:
  - postdocs and senior visitors
  - “clubs”
The Present ASP Mission:

Broadly Defined:
“To help NCAR (and the scientific communities it serves) prepare for the future.”

Program Objectives
- To help develop the careers of young scientists
- To direct attention to developing areas of science needing special emphasis
- To help promote new science initiatives
- To encourage interactions with universities
- To promote continuing education at NCAR
Program Components

- The Postdoctoral Fellowship Program
- The Geophysical Turbulence Program
- The Annual Summer Colloquium and other seminars, workshops, and educational activities
- The Graduate Fellowship Program
- Support for groups representing NCAR scientists
- Visitors and Senior Research Associates
Objectives of the Postdoctoral Fellowships:

• To maintain a flow of recent PhDs through NCAR;
• To develop their independence and broaden their perspectives;
• To familiarize them with NCAR and especially with NCAR technology;
• To foster good contacts with universities;
• To promote new scientific directions.
Unique Aspects of the Postdoctoral Fellowships

- The postdoc bears full responsibility for selection of research topic and approach;
- Our primary objective is the continued education and career development of the postdoc;
- We emphasize originality, initiative, independence, and breadth;
- We encourage unconventional topics and approaches;
- We pay special attention to the development of career skills.
Grad Student Characteristics - Atm Sci

- 24% female
- 27% not US citizens
- 1% black, 1% Hispanic, 0.2% American Indian, 5% Asian
- 41% are in “Research Universities”, 15% in “Doctoral Universities”, 15% in “Masters Universities”, 29% in other categories like “Specialized University” - in the Carnegie classification of American universities. This is quite similar to the distribution of all science graduate students.

Postdoc Characteristics - Atm Sci

- 98 postdocs in “atmospheric science” departments (1997) vs 57 in 1990
- Number advertised in AMS: about 10 in the past year
- 37% not US citizens
- 90% supported by Federal government research grants
Former ASP Fellows now Faculty

95 are or have been faculty members. 56 listed in Curricula in Atmos. Sci. Some examples:

- Brian Hoskins
- Chris Bretherton
- James O'Brien
- James Coakley
- Murry Salby
- Richard Sommerville
- Leo Donner
- William Blumen
- Larry Mahrt
- Steven Schneider
- Raymond Shaw

- Eric Barron
- Dale Durran
- Brian Fiedler
- Ralph Keeling
- Larry Mahrt
- Sharon Nicholson
- Lynn Russell
- Bjorn Stevens
- Greg Hakim
Former ASP Postdocs Now NCAR scientists

- **Senior Scientists:**
  - Gordon Bonan
  - Byron Boville
  - Michael Coffey
  - William A. Cooper
  - Ronald Errico
  - G. Brant Foote
  - Peter Gilman
  - Michael Glantz
  - Wojciech Grabowski
  - Richard Katz
  - Jeffrey Kiehl
  - Joe Klemp

- **Senior Scientists:**
  - Margaret LeMone
  - Linda Mearns
  - William Randel
  - Phillip Rasch
  - Roy Rasmussen
  - Raymond Roble
  - Richard Rotunno
  - Anne Smith
  - Piotr Smolarkiewicz
  - Joseph Tribbia

- **Scientists III:**
  - Frank Bryan
  - Chris Cantrell
  - Peter Hess
  - Wen-Chau Lee
  - William Skamarock
  - Tammy Weckwerth

- **Scientists I and II:**
  - Marika Holland
  - Arturo Lopez Ariste
  - Daniel Marsh
  - Rebecca Morss
  - Jim Smith
Program Components

• The Postdoctoral Fellowship Program
• The Geophysical Turbulence Program
• The Annual Summer Colloquium and other seminars, workshops, and educational activities
• The Graduate Fellowship Program
• Support for groups representing NCAR scientists
• Visitors and Senior Research Associates
Postdoc Issues

• Postdoc issues:
  Acclimatizing / orientation
  Resource needs
  Mentoring
  Professional development
  Appointments outside the ASP
  Issues from the broader community
    authorship, child care, benefits, ...
  Other
Plan re mentoring committees (a suggestion)

• For each postdoc, “appoint” three scientists to be the mentoring committee
  - Postdoc to suggest
  - ASP to coordinate and spread out appointments
  - Perhaps, don’t include those with close working relationships
• “Task”: eat lunch together or otherwise meet with each postdoc, monthly
• One serves as “lead” who is contact to ASP:
  - Be sure meetings are held
  - Discuss any issues that arise, follow up
• Suggested change last time: groups of postdocs
Other issues re mentor relationships?

• Better contact between ASP and scientists involved
• Discuss with divisions the problems associated with programmatic approaches, e.g., initiatives
• More opportunities to meet informally with NCAR scientists?
Postdoc appointments outside ASP

- Issue: nature of postdoc position
- How can we make better contact with other postdocs?
- “Postgraduate scientist” position
“COSEPUP” report:

• “Postdoc” should involve continuing education and career development
  - Not research for another scientist
  - Need policies and mutual understanding
  - Facilitate transition to independence
• Temporary appointment - time limit
• Compensation/benefits
Resources

- Library section on academic careers:
  - Postdoc education report
  - “Tomorrow’s Professor”
  - “Putting Your Science to Work”
  - “First Things First”
  - Etc
- ASP files:
  - Successful job applications; start-up packages
  - Successful proposals
- Web site resources:
  - Links to job information
  - Material from the proposal-writing workshop
  - Guide for postdocs from outside the U.S.
- Postdoc Network, Tomorrow’s Professor list server
-- Break Time --
Regular Events:

- Thompson Lecture Series
- Seminar Series
- Research Reviews
- Tea
- Social events
- Research Planning Meetings
- Annual “review”
Thompson Lectures

- Can support about 3 per year
- Process:
  - Collect Suggestions for Lecturers
    - Visitors you would like to meet with
    - Consider potential for interactions
    - Should be prominent scientist
  - Discuss / vote / agree
  - Appoint organizing committees
Seminars

- Objective: present general-interest talks on areas of research having broad interest
- About once per month (Wed AM?)
- Process:
  - Need coordinator
  - Solicit suggestions
  - Decide / coordinate schedules
Research Reviews

• **Present format:**
  - Two talks each two weeks
  - 30 min with questions
  - Designed for broad scientific audience

• **Goals:**
  - Educate each other in science topics
  - Learn about new areas of research
  - Develop opportunities for collaboration
  - Generally, get to know each other

• **Q:** is it worthwhile? Suggestions?
• **Use of teleconference facilities?**
Other

• Tea (time?) – sites?
• Research Planning Meetings
• Regular meetings of director with postdocs (3 mo)
• Annual “review” – how to treat this?
• Social events (intermittent)
GRA issues

- Interactions with other students
  - Science discussions
  - Teas
  - Socials
- Mentoring
- Writing skills
- Appointments outside the ASP
- Other
Goal of the next section:

- What would you like to see changed? Identify some ideas for further discussion. Brainstorming approach, with minimal criticism of ideas: get many, then filter.
- Examples:
  - Career development ideas (like CU course, proposal writing workshop, training in communication, consideration of alternate careers in science, steps to promote mentoring, ...)
  - Opportunities for science discussion: perhaps ASP role for NCAR, using opportunity of expansion
  - (Thompson lectures: a good example from an earlier retreat)
Next Session:

- Follow-up Discussion from groups
- Consider also a broader role of ASP at NCAR:
  - Geophysical Turbulence Program, NAP, etc.
  - Senior visitors
  - Short courses
  - Roles wrt Divisions/Programs:
    - Mentor relationships; interactions with scientists
    - Contributions to programmatic goals
    - Selection of Fellows
    - Monitoring of progress
    - Relationships to ECSA/NSA
  - Role as a stimulant to science discussion?
  - Sabbatical Exchange, ECS workshop, forum discussions
Relationships with NCAR
Divisions/Programs

• ASP postdoc program:
  - no separate science agenda
  - “supportive” of divisions, while being dependent on divisions
  - This postdoc philosophy sometimes conflicts with programmatic goals of divisions and initiatives
  - How can we better address the need to contribute and be relied upon?
  - Does this have budget implications in the new move toward initiatives?
Ways to Support Science Discussion and Reflection?

• Sponsor short courses:
  - Satellite data access
  - Data mining, GIS, wavelets, genetic algorithms, for example
  - Instrumentation and use of measurements
  - Opportunities from GPS technology
  - Data assimilation with unconventional data or satellite data

• Promote informal meetings to discuss science:
  - Lunch with a topic
  - NCAR-wide “tea” with introduction of visitors
  - Special space that promotes interactions
  - Collaboration tools
Suggests from NCAR Scientists?

- Mentor relationships; interactions with scientists
- Selection of Fellows
- Monitoring of progress
- Relationships to ECSA/NSA
Planning:

• Handle the split among three sites?
  - Do we need some presence at all sites?
  - Should we have part of meetings at CG?
  - Is there an enhanced need for communication? (newsletter, or equivalent of the daily bulletin?)
  - Can we promote web-based interactions more? For research reviews, seminars, or even tea?
  - Are there facility needs?
Goals for the Next Year (2002)

- Re-establish the Grad Fellowship Program - √
- Seek ways of enhancing ASP interactions with the mentors of postdocs (√)
- Become more active with the ECSA and in mentoring for all early-career scientists (√)
- Develop some stimulating forum-style discussions -
- Establish a means for semi-social interaction with all NCAR scientists -
- GTP: help promote programmatic goals, and promote growth in the long-term visitor program (√)
- Aid NAP and perhaps data assimilation to grow as focus groups for the organization -
- Establish a sabbatical exchange program (√)
- Conduct a workshop for early career scientists and junior faculty to promote interaction and the evolution of ideas for collaboration v
Issue #1: Graduate Fellowships

- **Status:** small special-purpose program
- **The problems:** isolation; too ad hoc; ...
- **Change underway:**
  - Change to groups of ~4 each year, in related studies linked to the colloquium;
  - Institute new programs for the grad fellows;
  - Relax restrictions (but keep 3-year max term).
Issue #2: GTP

- Status: group, mostly NCAR, that promotes attention to geophysical turbulence through workshops and some projects.
- The problem: Some conflict between two visions for GTP:
  - (a) a group that uses the program to conduct community programs for informational purposes and to develop collaborations where suitable;
  - (b) a group that advocates and organizes a programmatic approach to the outstanding problems in geophysical turbulence.
Issue #3: Expanded ASP Role

• Status: ASP has emphasized standard components of the program for many years
• The opportunity: Can we be a more stimulating influence, promote career development at all levels, and help enable those interactions that spawn creativity?
• Possible mechanisms: more involvement with all early-career scientists; more stimulating visitors; more attention to providing a focal point for intellectual interaction.
Follow up / summarize / finish
The Future of the ASP

- **Sabbatical Exchange Program:**
  - Encourage more NCAR scientists to visit universities.
  - ASP role: facilitator
  - Modest funding and joint support
  - Especially seek exchanges
Rationale for new activities in ASP

• NCAR has new recognition of the need to:
  - revitalize, stay abreast of developments
  - develop career paths for our staff
  - contribute to geoscience education

• Our Mission: “prepare for the future”

• ASP is inherently interdisciplinary and interdivisional

• We have past successes in these areas
  - prominent senior visitors (esp. in turbulence)
  - mentoring “base” from which to build
  - general acceptance of our interdivisional status
The Future of the Postdoc Program

• more attention to mentoring
  - better involvement with mentor-scientists and divisions
  - assistance and support for the ECSA
  - attention to postdocs outside the ASP
• expansion in scope
  - computer science
  - engineering
  - geoscience education
• emphasis on under-represented groups:
  - continued/increased support for SOARS
  - visits+ to develop new connections
  - be aware of candidates
• more influence outside NCAR
Vision:

• A program that:
  - challenges the institution and the field
  - promotes career development at all levels
  - fosters all aspects of diversity
  - spans disciplinary and institutional boundaries
  - provides an intellectual center attracting the thoughtful
  - focuses on educational and intellectual values (complementing programmatic efforts)
  - welcomes and supports the unconventional
  - enables the interactions that spawn creativity
The Future of the ASP

- **Short-Colloquia and Short Courses**
  - Objectives:
    - broaden institutional perspectives
    - stimulate collaborations with new groups
    - provide continuing-education opportunities
  - either: Introducing NCAR to developments:
    - in emerging scientific and technical areas
    - data mining, nanotechnology, GIS, GPS soundings, data assimilation, “collaboratories” ...
  - or: Fulfilling continuing-education functions:
    - genetic algorithms
    - wavelets
    - emerging data analysis techniques
    - satellite data opportunities
The Future of the ASP

• Career-Development and Mentoring Roles beyond the postdocs:
  - Some recent roles:
    • the Early Career Scientist Assembly
    • mentoring plans for early-career scientists
    • coordination of the search for new Scientists-I
    • proposal-writing workshops
  - ECSA activities:
    • family issues program
    • mentoring discussion
    • promotion-and-advancement program
    • invitations to scientific leaders, as in Thompson Lectures
    • links to the NSA
The Future of the ASP

• **Senior Visitor Program:**
  - Why in ASP:
    • Historically successful
    • Especially valuable in GTP
    • Niche: emphasize those who are:
      - stimulating and challenging, esp. re priorities and plans
      - broad, with wide contacts; interests that span divisions
      - likely to have fruitful interactions with ASP
  - Examples: Jerry Mahlman, Jeff Anderson, Guy Brasseur
  - new title to indicate special role and expectations
  - new funds