Non-NSF Funding at NCAR in FY 1999
Report to the University Relations Committee
April 25, 2000

Introduction

This report summarizes NCAR's expenditures of non-NSF funding in FY 1999 and the preceding four years. In FY 1999, total NCAR spending for science and facilities amounted to $92.9 million; NSF funds amounted to $59.7 million or 64.3% of the total while non-NSF sources, almost exclusively other federal agencies, accounted for the remaining $33.2 million or 35.7%. That portion of NCAR expenditures supported by non-NSF funds is described below in the three project categories used in past reports: "major," "facilities," and "scientific." The definitions of these categories can be found on page 5.

Criteria for Approval of Non-NSF Funding

Beginning in mid-FY 1993, UCAR began using a more specific and extensive set of criteria for assessing proposals seeking additional non-NSF funding for the National Center. These criteria are intended to ensure that non-NSF funded activities are appropriate to the mission of NCAR, and that such funding is not obtained through unfair competition with universities.

The criteria have been incorporated into internal policies and procedures for the development of NCAR proposals. These policies, procedures, and guidelines regarding NCAR proposals for non-ATM funding reflect requirements of the NSF/UCAR Cooperative Agreement, improvements recommended by the University Relations Committee (URC), and internal refinements. The final criteria, approved by all reviewers, including NSF-ATM and the URC, are listed below.

Criteria for Proposals for Non-NSF Funded Activities

The first two criteria must be met in all cases.

1. Explain why the proposed activity is appropriate for the National Center and supports the mission of NCAR. This means that it must support the research, facilities, education and/or leadership objectives of NCAR and be supportive of and complementary to the university atmospheric and related scientific community.
3. Explain how the proposed activity would involve significant and meaningful collaboration involving NCAR and university colleagues, and/or provides direct support for students, visitors, education-related activities, or community workshops. (If the proposed activity does not involve collaboration with universities, explain why not.)

4. Explain how the activity would contribute to the development or support of community facilities, community models, or other community projects such as field programs, and as such would have demonstrable benefit to the community.

The next criterion must be met and described to justify proposed cosponsorship.

5. Explain how the activity would support and enhance the regular NSF-sponsored NCAR program, thereby leveraging regular NSF resources. (Be specific about cosponsorship of facilities and describe whether the amount of cosponsorship has already been allocated for the purpose described in the proposal. Incremental facility use, specific to the proposal, will be charged to the funding agency, unless the proposed activity directly supports an ATM area of interest and ATM approves full or partial cosponsorship.)

The recent review panel for UCAR found these criteria to be an excellent means for evaluating non-NSF projects.

**URC Review of Non-Base Funded Proposals**

Beginning in FY 1993, a URC subcommittee was appointed to conduct a bi-annual review of documentation for all NCAR proposals submitted within the previous six months. This review process has continued and provides a method by which the URC verifies NCAR’s compliance with the criteria. To date, various concerns have been voiced, but generally almost all proposals have been found to be compliant with the criteria.

**Trends in Non-NSF Funding at NCAR**

Table 1 and Figures 1 and 2 demonstrate the trends in NSF and non-NSF funding at NCAR from FY 1994 through FY 1999. (Figures starting from FY 1978 are available upon request.) The increase in NSF Funding beginning in FY 1995 is largely explained by the implementation of the Climate Simulation Laboratory (CSL). The decrease in FY 1997 of total Non-NSF funding flow-through funding is primarily due to the transfer of the High Resolution Dynamics Limb Sounder (HIRDLS) hardware program to the University of Colorado. Although NCAR received a $4
### Table 1

**Non-NSF Funds as Percent of NSF Funding**
**FY 1995 - FY 1999**
**($000)**

<table>
<thead>
<tr>
<th></th>
<th>(1) Total Non-NSF Funding /1</th>
<th>(2) Flow-Thru /2</th>
<th>(3) Non-NSF Less Flow-Thru</th>
<th>(4) NSF Funding /3</th>
<th>(5) Percent Non-NSF to NSF /4</th>
<th>(6) Percent Non-NSF to NCAR Total /4</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 1995</td>
<td>30,865.7</td>
<td>3,178.3</td>
<td>27,687.4</td>
<td>63,096.9</td>
<td>43.9</td>
<td>30.5</td>
</tr>
<tr>
<td>FY 1996</td>
<td>34,556.8</td>
<td>3,151.2</td>
<td>31,405.6</td>
<td>63,305.5</td>
<td>49.6</td>
<td>33.2</td>
</tr>
<tr>
<td>FY 1997</td>
<td>31,907.0</td>
<td>2,765.0</td>
<td>29,142.0</td>
<td>63,963.8</td>
<td>45.6</td>
<td>31.3</td>
</tr>
<tr>
<td>FY 1998</td>
<td>31,208.3</td>
<td>1,079.0</td>
<td>30,129.3</td>
<td>64,076.8</td>
<td>47.0</td>
<td>32.0</td>
</tr>
<tr>
<td>FY 1999/5</td>
<td>33,174.8</td>
<td>1,161.7</td>
<td>32,013.1</td>
<td>59,778.2</td>
<td>53.6</td>
<td>34.9</td>
</tr>
</tbody>
</table>

1. Total Non-NSF Funds = Total Non-NSF Expenditures
2. "Flow-thru" funds includes payments to NCAR subcontractors including universities.
3. Includes both NSF Regular Funds and NSF Special Expenditures from NSF for NCAR.
   Excludes NSF Special Funds for UCAR projects.
4. Percentages are computed excluding Non-NSF flow-through.
5. A technical accounting event involving the purchase of major computing equipment that was not accepted by the year end influences the amount of NSF funds expended in FY 1999.
Figure 1
NCAR Funding History
NSF vs. Non-NSF

Dollars ($M)

Fiscal Year

NSF Funds
Non-NSF Funds

Figure 2
Percent of Non-NSF to NSF Funds
FY 1995 to FY 1999
Table 2 and Figures 3 and 4 show trends in non-NSF funding based on the three classifications of "major," "facilities," and "scientific" projects. This classification permits more direct comparison with university programs and consideration of issues concerning support of the community or competition.

In FY 1999, 60% of non-NSF expenditures were for major projects. These projects involve large field efforts or the development of major hardware such as satellite instrumentation or other large group efforts. Projects in this category in FY 1998 involve annual expenditures ranging from $10K for a program that may be winding down to over $6M for the FAA Program. Expenditures increased from last year by almost 9%, from $18.1M to $19.7M. This change is primarily due to NCAR’s participation in the Indian Ocean Experiment (INDOEX), supported by NASA.

In FY 1999, 19 programs were classified as major. These include:
- Participation in the Indian Ocean Experiment (INDOEX)-NASA
- PEM Tropics Mission - NASA
- Earth Observing System (EOS) - NASA
- Measurements of Pollution in the Troposphere (MOPITT) - NASA
- High Resolution Dynamics Limb Sounder (HIRDLS) - NASA
- Upper Atmosphere Research Satellite (UARS/SOLSTICE) - NASA
- Terminal Area Surveillance (TASS) /Aviation Weather Development Program (AWDP) - FAA
- Forecast Systems Laboratory (FSL) Cooperative Agreement - NOAA
- Solar Maximum Mission (SMM) - NASA
- SOHO Spacecraft - NASA
- TIMED Mission - NASA
- Project for the Augmentation of Rain in Coahuila (PARC) - Mexico
- Evaluation of TECOM - Army/DOD
- Science Coordination in Support of the U.S. Weather Research Program (USWRP)
- A Consortium of the Application of Climate Impact Assessments (ACACIA)
- NASA’s Aviation Safety Program

In FY 1999, 11% of non-NSF expenditures were for facility projects. These are projects directed toward the development, acquisition, or deployment of community facilities - either observational or computational. Efforts in this category in FY 1998 involve annual expenditures ranging from $1K to $550K. Total expenditures increased from $3.0M in FY 1998 to $3.6M in FY 1999, primarily due to an Air Force project to fabricate a multi-channel GPS dropsonde data system in ATD.
community field programs and community model development and validation.

**Table 2**

**Analysis of FY 1999 Increase in Expenditures from FY 1998 of 8 Percent ($000)**

<table>
<thead>
<tr>
<th>Item</th>
<th>FY 1998</th>
<th>FY 1999</th>
<th>%Exp</th>
<th>Change</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Non-NSF Expenditures</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>18,055</td>
<td>19,740</td>
<td>60%</td>
<td>1,686</td>
<td>9.3%</td>
</tr>
<tr>
<td>Facility</td>
<td>3,044</td>
<td>3,784</td>
<td>11%</td>
<td>740</td>
<td>24.3%</td>
</tr>
<tr>
<td>Science</td>
<td>10,109</td>
<td>9,651</td>
<td>29%</td>
<td>-458</td>
<td>-4.5%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>28,164</td>
<td>33,175</td>
<td>100%</td>
<td>1,227</td>
<td>4.4%</td>
</tr>
<tr>
<td><strong>Less Flow-Through</strong></td>
<td>-1,079</td>
<td>-1,162</td>
<td>100%</td>
<td>-83</td>
<td>7.7%</td>
</tr>
<tr>
<td><strong>Net Total</strong></td>
<td>27,085</td>
<td>32,013</td>
<td></td>
<td>4,929</td>
<td>18.2%</td>
</tr>
<tr>
<td><strong>NSF Funds</strong></td>
<td>64,077</td>
<td>59,775</td>
<td></td>
<td>-4,302</td>
<td>-6.7%</td>
</tr>
<tr>
<td>% Net/NSF Funds</td>
<td>42.3%</td>
<td>53.6%</td>
<td></td>
<td>11.3%</td>
<td></td>
</tr>
</tbody>
</table>
Figure 3
NCAR Non-NSF Funds By Project Type
FY 1994 - 1998

Figure 4
NCAR Non-NSF Funds by Project Type
Percent of Total Dollars by Project Type
Table 3 examines the benefits provided to universities and the community in the 74 proposals submitted in the Science category in FY 1999. One primary benefit was counted per proposal and additional benefits were counted as secondary. Benefit categories were numbered 1 through 6. If the proposal indicated there was a university co-investigator in an NCAR proposal (category 1), it was counted as primary in line 1 and all additional benefits were listed as secondary. However, if the first category was not mentioned, but the second category was, it was counted as primary on line 2, and any additional benefits were listed as secondary. If the first and second categories were not listed, but the third was, it was counted as primary on the third line and so on. The secondary benefits of a single proposal may be counted in more than one area. Of the 74 science proposals, 57 included either a university co-investigator, direct university collaboration or were for NCAR participation in a university-led program.

Table 3

**Benefit to Universities and the Community**

*Science Proposals Submitted in FY 1999*

<table>
<thead>
<tr>
<th>Benefit Category</th>
<th>Primary Benefit</th>
<th>Secondary Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. University Co-Investigator on an NCAR Proposal</td>
<td>14</td>
<td>9</td>
</tr>
<tr>
<td>2. Direct University Collaboration on an NCAR Proposal</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>3. NCAR Participation as a Co-I on a Non-NCAR Proposal</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>4. Community Availability of Model, Data Set, Instr. Dev., etc.</td>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td>5. Support of Visitor, Post Doc, Grad Student</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>6. Workshop with University Participation</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

No. = 74
Table 4 presents a five-year history of NCAR proposal submissions by category. The science category includes proposals that benefit the community through participation in and support of community field programs and as members of science teams. This category also includes projects that support community model development and validation, such as the MM5, CCM3, CSM and TIME-GCM, and Earth System Modeling as well as projects that support instrumentation development.

Table 4

NCAR Proposal Submission Distribution

<table>
<thead>
<tr>
<th></th>
<th>Facility Science Develop.</th>
<th>Facility Use</th>
<th>Major</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY 1999</td>
<td>74</td>
<td>10</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>FY 1998</td>
<td>102</td>
<td>13</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>FY 1997</td>
<td>94</td>
<td>11</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>FY 1996</td>
<td>61</td>
<td>10</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>FY 1995</td>
<td>65</td>
<td>9</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

Based on Advance Notices Received and Submitted FY99
Does not include proposals for NSF special funds or proposals under $25K.
Use of NCAR Non-NSF Funds

Non-NSF supported programs provide funds to augment NCAR's research programs and, in some cases, also provide direct support of a university research program. Within NCAR, non-NSF funds support research staff, equipment or facility purchases, travel and indirect costs.

Many of the non-NSF funded programs at NCAR within the "science" category support NCAR-university research collaborations, as indicated earlier in Table 3. Development of the NCAR Community Climate Model, the MM5, and the TIME-GCM has been supported with outside funds. Facility development and acquisition have been possible with the use of non-NSF funds in the Atmospheric Technology Division and the Scientific Computing Division; in FY 1999, $3.6M was expended for this purpose.

Competition with Universities

The criteria described earlier are intended to provide assurances that non-NSF funded activities at NCAR are appropriate and do not compete unfairly with universities. It is intended by the NCAR Director and UCAR policy that proposals be evaluated and proposed cosponsorship be justified very early in proposal development. This evaluation begins with the investigators and the respective divisions. If the division director considers a prospective program appropriate, a completed Advance Notice form that indicates how the criteria are met is submitted to the NCAR Director's Office for review and approval. The proposal process continues to include evaluation by peers, approval by the respective NCAR division director, and careful evaluation of the program by the NCAR Director, Associate Director, and the Budget and Planning Office. Finally, when determined to be consistent with the criteria, the proposal is submitted and simultaneously reported by the NCAR Director to the NSF/ATM Program Official for review and approval.