

2003 Report on the Status of Academic Geoscience Departments

By

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EXECUTIVE SUMMARY

The 10th survey of academic geoscience departments was conducted by the AAPG Research Committee. The current survey had a response rate of about 18%. This year's study suggests that there has been a decrease in department size as measured by both the number of faculty positions and students (total, undergraduate, graduate). Graduate students account for ~38% of the student population. The number of doctoral candidates as a percentage of graduate student population has increased. Foreign students account for nearly 29% of the graduate student population. These students represent approximately 36% of the Ph.D. candidates and 22% of the Masters candidates. This represents a significant increase over last year. The top three reported academic strengths are environmental geology, stratigraphy, and hydrogeology. The department strengths continue to reshuffle. Environmental geology replaced stratigraphy as the most often reported departmental strength. Only six departments report petroleum geology as a strength. The average research funding was \$256,000, with 90% having been obtained from government agencies. Normalized results indicate that the petroleum industry (including petroleum research) accounts for ~17% of graduate hiring. This is a sharp decrease from the last survey. The percentage of graduates obtaining jobs in the environmental sector increased, accounting for more than 55% of the reported job placements.

INTRODUCTION

The AAPG (American Association of Petroleum Geologists) Research Committee began an annual survey of geoscience departments in 1992. Initially the survey was limited to North America. In 1993 the survey was expanded to include a more international sampling. In 1999 the survey was conducted jointly with the American Geological Institute (AGI). Complications developed as a result of the change in format and a two year hiatus developed. This work represents the second survey following the re-initiation of the survey. With this re-initiation there were several changes.

- The survey was limited to the United States and Canada.
- The survey included departments without graduate programs. (Prior surveys focused only on those departments with an active graduate program.)
- The survey was conducted via e-mail.

The purpose of the survey continues to be to determine trends in:

Department size,
Student populations,
Technical strengths,
Post-graduation employment, and
Research funding levels.

The results of this current survey are distributed to members of the AAPG Research Committee, AAPG's Executive Board, as well as to all departments initially surveyed, independent of whether they respond or not. A brief summary report is also presented to the full AAPG membership in the form of an article in the *Explorer*.

Approximately 18% of the departments surveyed responded to this year's call for information. This is the same response rate obtained in last year's survey, but remains significantly lower than that obtained prior to the hiatus, which had approached 60%. It is hoped that the response rate will begin to return to prior levels after it becomes clear that the survey will occur annually permitting the identification of trends and may serve as a viable benchmarking tool.

DEPARTMENT DEMOGRAPHICS

As in the past, this survey examines two primary measures of geoscience department size: number of faculty positions and number of students. An examination of the data reveals that the number of faculty positions (Professors, Associated Professors, Assistant Professors, and Instructors/Lecturers) ranges in from 2 to 40 (Figure 1). This range is slightly greater than that observed last year. The actual median number of faculty positions (10.0) per department is down slightly from prior years (Figure 2).

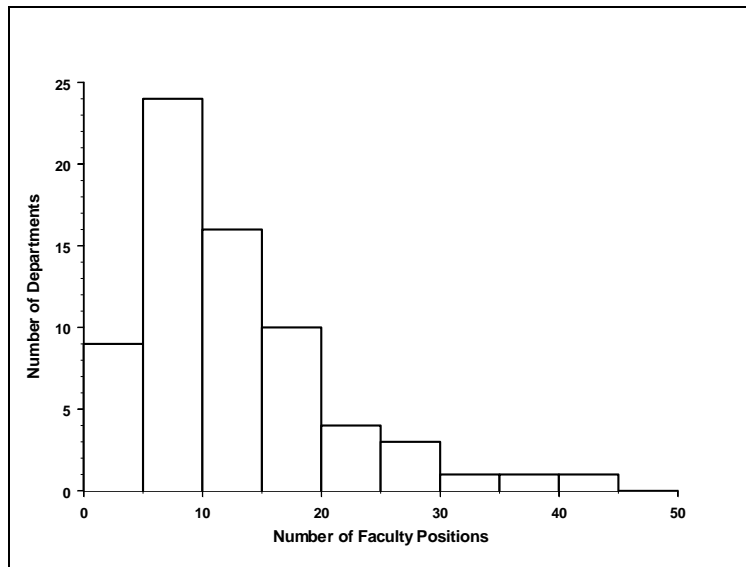


Figure 1. Department size based on the number of faculty positions.

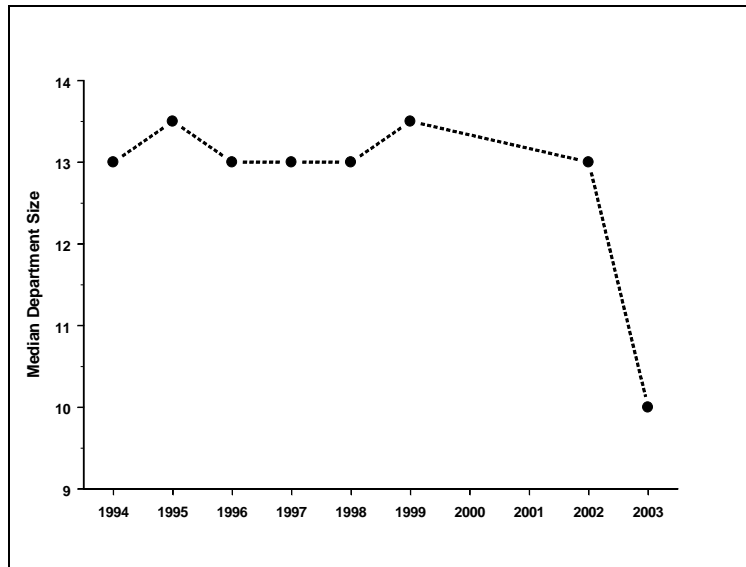


Figure 2. Temporal trend in median number of faculty positions per department.

A further examination of these data reveals that about three-quarters of the faculty positions are held by either Professors or Associate Professors (Figure 3). This is a slight increase from last year's survey (68%) but remains lower than that of prior surveys which typically ran about 80%.

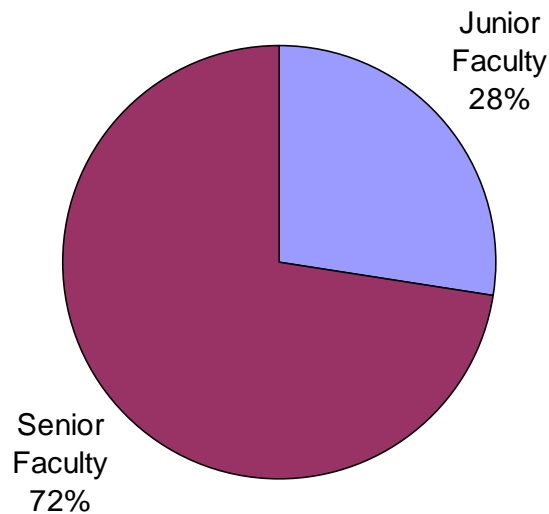


Figure 3. Senior vs. junior faculty positions.

An examination of the number of students reveals that the total number of geoscience students enrolled in North American geoscience departments range from 6 to 183 (Figure 4), with a median department size of 42.5. This continues the previously observed trend toward smaller departments (Figure 5).

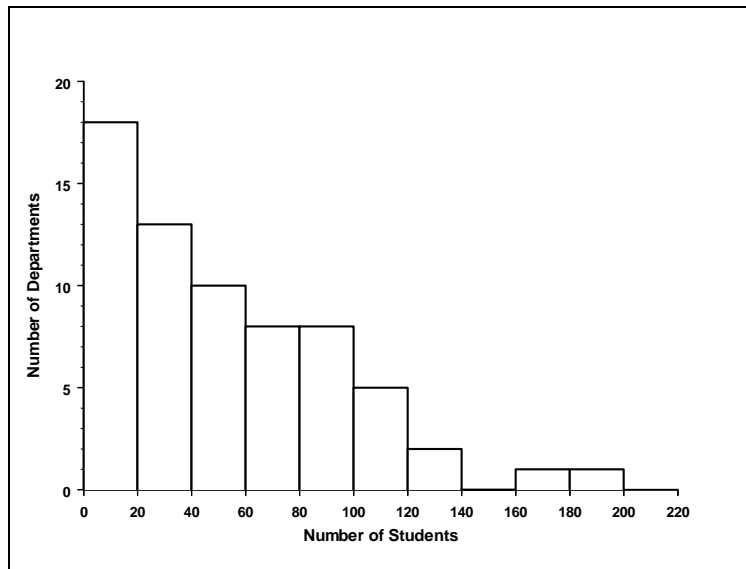


Figure 4. Department size based on total student population.

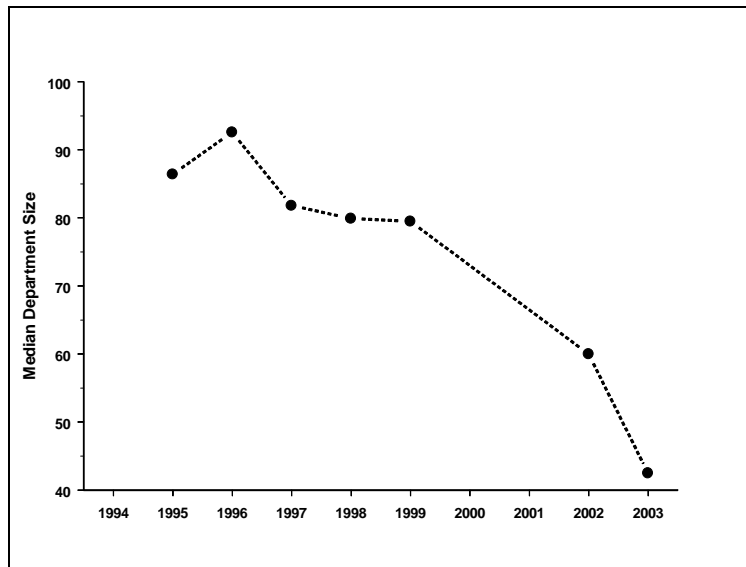


Figure 5. Temporal trend in the median number of students per department.

The number of undergraduate and graduate students in reporting geoscience departments is presented in Figures 6 and 7, respectively. Undergraduate departments ranged in size from 1 to 90 students, with a median size of 25.0. The median department size is down from the last year (39), which was also lower than the previous reporting period (53.0). The number of graduate students ranged upward to 117². The median number of graduate students was 23. This is an increase from last year (20.0).

² Two-thirds of the reporting departments included a graduate program.

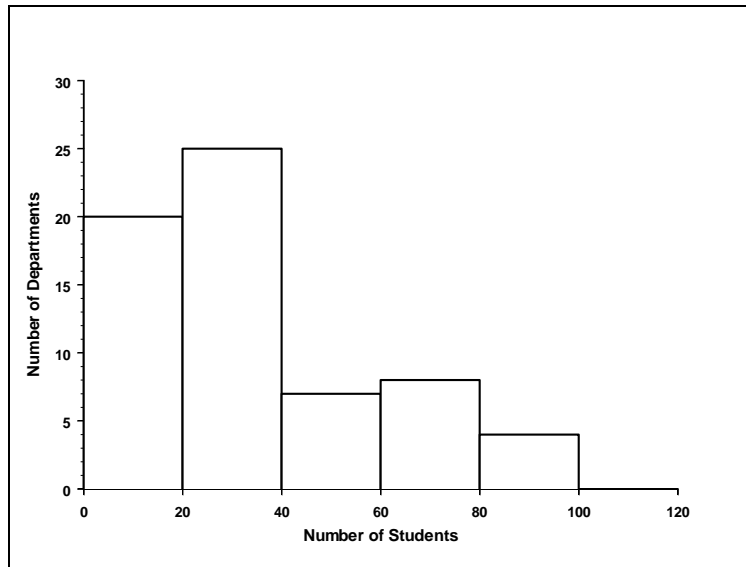


Figure 6. Department size based on undergraduate student population.

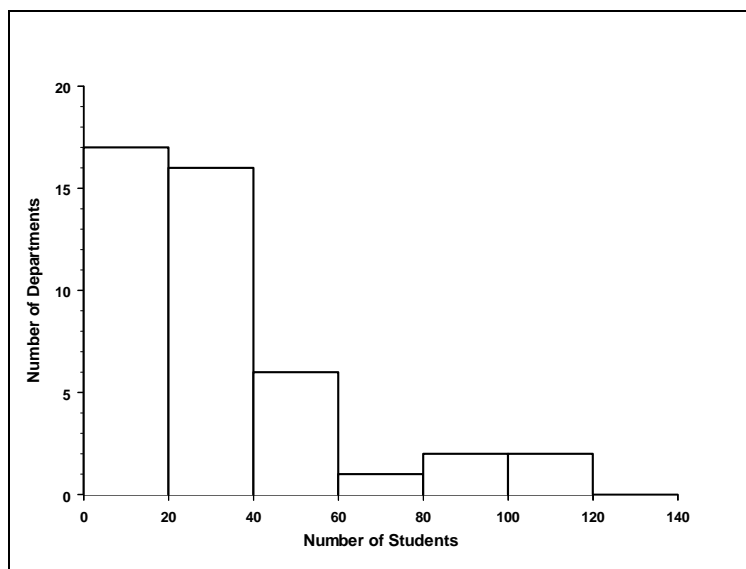


Figure 7. Department size based on graduate student population.

A further examination of the data revealed that graduate students represent about 38% of the student population (Figure 8). This is about the same as last year, which was the first year that departments lacking graduate programs were included in the survey. There has, however, been a shift in the nature of the graduate student population. The relative number of Ph.D. candidates compared to Masters candidates has increased since the last year. Foreign students account for 36.2% and 21.7% of the Ph.D. and Masters candidates, respectively. These percentages are significantly greater than that of last year (27.3% and 14.9%, respectively).

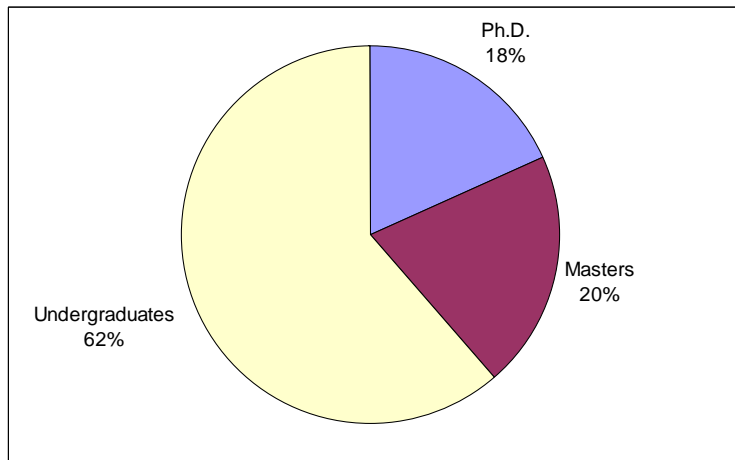


Figure 8. Nature of the student population.

ACADEMIC STRENGTHS

Responding departments were asked to declare their academic strengths. The top three department strengths are reported in Figure 9. These data continue to reveal changes in primary academic strengths. The three most often reported department strengths are environmental geology, stratigraphy, and hydrology. This represents a minor reshuffling of the three top strengths. Minor reshuffling occurred throughout the listing. The most significant change was the decrease in the number of departments reporting marine geology as a core strength. Within the current survey only six departments reported petroleum geology as a departmental strength.

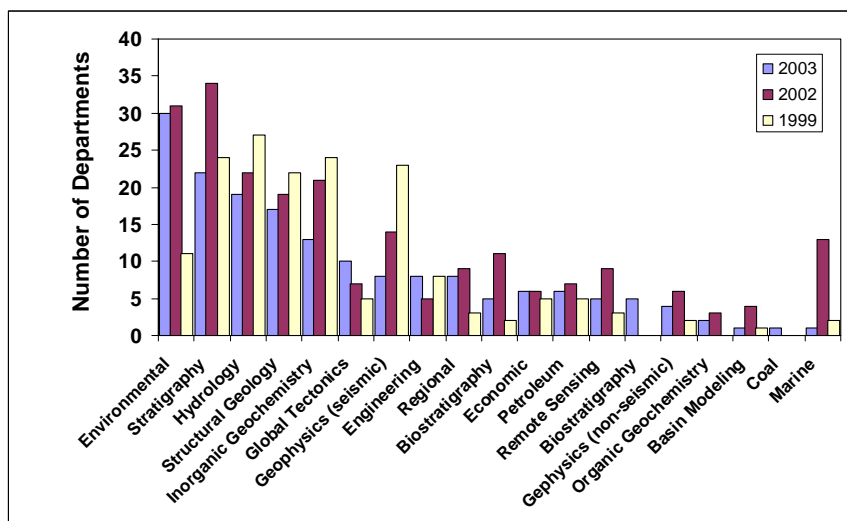


Figure 9. Top three reported academic strengths.

Several departments listed “other” as a major academic strength. These strengths are detailed in Table 1.

Table 1
“Other” Listed Department Strengths

Astronomy	Igenous petrology	Planetary geology
Earth material science	Liminology	Quaternary geology
Geomicrobiology	Mineralogy	Surficial geology
Geomorphology	Neotectonics	Volcanology
GIS	Paleontology	Water quality

The number of departments reporting regional geology as a departmental strength is down from prior years. This has resulted in fewer areas being cited in this study. Those areas that were reported are presented in Table 2.

Table 2
Areas of Regional Strengths

Africa	Illinois	Precambrian Minnesota
Atlantic Canada	Minnesota	Trans-Pecos, Texas
California	Oklahoma	Washington

RESEARCH SUPPORT

Research funding levels are presented in Figure 10. Departmental funding ranged upward to \$19,000,000. The median research funding level was \$256,000.

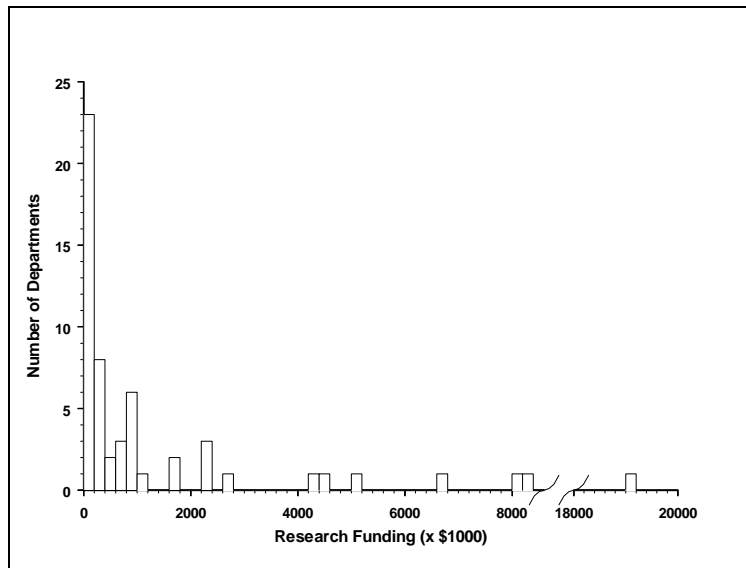


Figure 10. Funding levels.

Approximately 90% of the funding was derived from governmental agencies. The relative contribution from government sources was the same as last year, which was slightly higher than in prior years (1994-85%, 1995-84%, 1996-85%, 1997-88%, 1998-87%, 1999-80%).

EMPLOYMENT TRENDS

This year's data clearly indicates that among those students finding employment within the geosciences³ most are finding employment in the environmental sector (Figure 12). The petroleum industry (including petroleum related research) accounts for ~17% of those finding employment. An examination of temporal trends (Figure 13) reveals a continued increase in the environmental sector and a significant decrease in the petroleum sector.

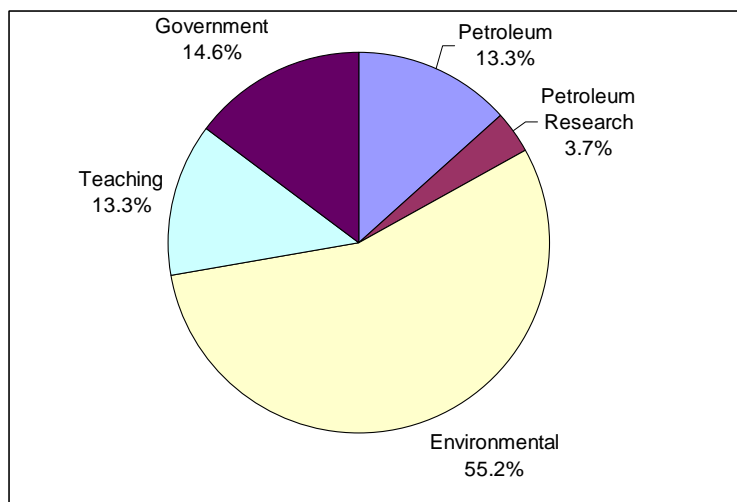


Figure 12. Post-graduation activity in North America. (Data have been normalized to exclude non-geoscience employment.)

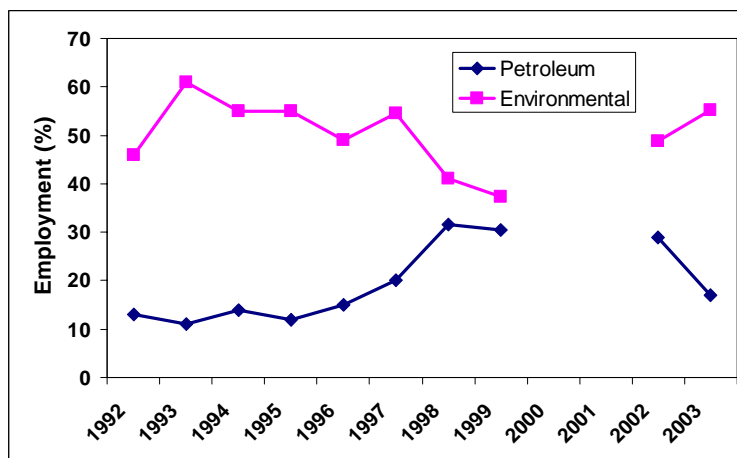


Figure 13. Temporal trends in geoscience graduate employment in North America. (Data have been normalized to exclude non-geoscience employment.)

³ All data are normalized to take into consideration the inconsistent reporting of employment outside of the geosciences.