Geoscience Canada

Geological Education -
Student Enrollment: Report on Results of 1992-93 Questionnaire

A. E. Beck

Volume 20, numéro 2, june 1993

URI : https://id.erudit.org/iderudit/geocan20_2fea01

Aller au sommaire du numéro

Éditeur(s)

The Geological Association of Canada

ISSN

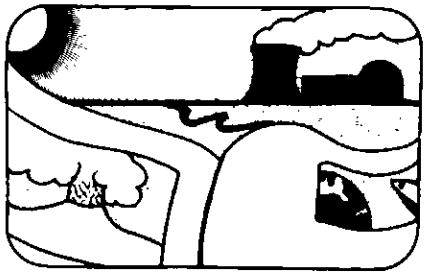
0315-0941 (imprimé)
1911-4850 (numérique)

Découvrir la revue

Citer cet article

Beck, A. E. (1993). Geological Education -: Student Enrollment: Report on Results of 1992-93 Questionnaire. *Geoscience Canada*, *20*(2), 78–81.

Features



Geological Education

Student Enrollment: Report on Results of 1992-93 Questionnaire

A.E. Beck
Department of Geophysics
University of Western Ontario
London, Ontario N6A 5B7

For nearly 20 years, the Council of Chairs of Canadian Earth Science Departments (CCCESD) has been collecting data on student enrollment, faculty and support staff numbers and, for the last ten years, graduations. These data are published in the annual report of the Canadian Geoscience Council, but this year the executive — H.E. Hendry (Chair), J.A. Colwell (Treasurer), J.M. Dixon, G.A. McBean, M. Rocheleau (Members) with A.E. Beck (Executive Secretary) — felt the data should be more widely and more easily accessible through Geological Association of Canada publications.

It is pleasant to report, for a change, that at least as far as student interest is concerned, things are looking up. Before further comment on the data, however, it is perhaps worth pointing out some of the difficulties faced by universities in general, and geoscience departments in particular, in collecting and interpreting these data.

First, there are so many questionnaires to be filled out these days that we rarely get a 100% response. In particular, the geophysics and oceanography groups were not quizzed in 1990 and 1991, which led to an apparent very significant decrease in faculty and postdoctoral associate numbers. The data set has been "repaired" for those two years by using the data from the years immediately preceding and following; hence the difference you may notice in the pattern when compared with earlier plots.

Second, this year we did not make a conscious effort to collect data on adjunct professors. The reason for this is that the conditions under which the appointments are made vary enormously from university to university, as do their duties and contributions to their departments. For example, 160 adjunct professors are listed in the 1991 Directory of Geoscience Departments in North America; some are double listed in two departments within the same university, some are members of more than one university, and the number of 160 does not include other types of university association such as "co-operating faculty".

Third, counting the number of students who are supported is also difficult. When the registration data were first collected, most universities had full-year courses and those who were registered in October remained on the record until the end of the academic year, whether they passed or failed. Over the years, there has been a proliferation of half-courses, many of which started out as simply two halves of a previous full-year course so that a student who wants to register in the second-term course would have to have a credit in the first-term course. Now that is no longer necessarily true and one has to ask the question, "If one is collecting data in November on student registrations, will there be the same number registered in second-term courses as first-term courses?" The picture is further compli-

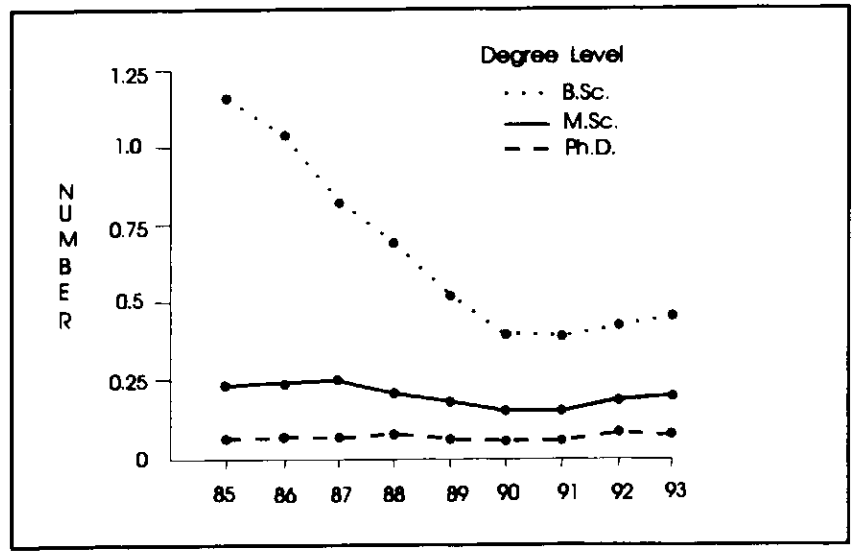


Figure 1 *Number, in thousands, of B.Sc. (≥ year 2), M.Sc. and Ph.D. registrants in Canadian university earth science departments from 1973-74 to 1992-93.*

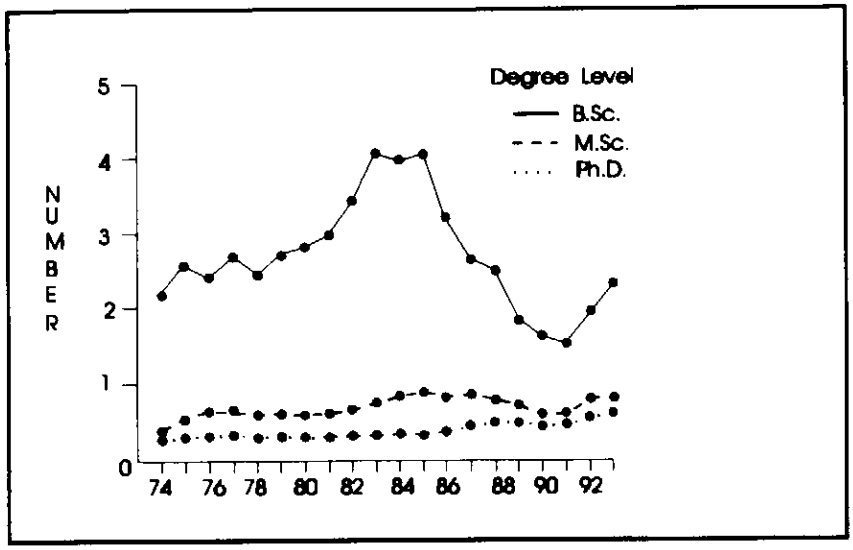


Figure 2 *Number, in hundreds, of students who graduated from Canadian university earth science departments for each academic year from 1984-85 to 1992-93.*

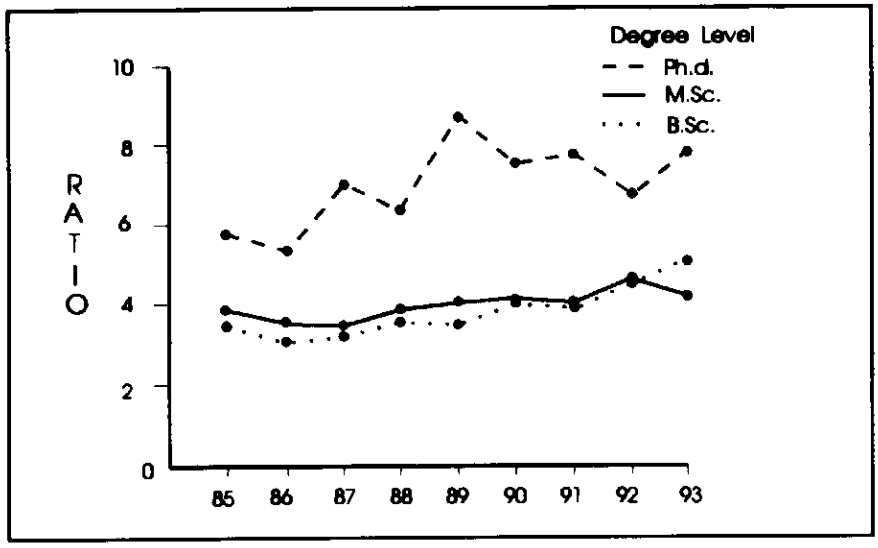


Figure 3 *Ratios of numbers of registered to graduated students each year; on average, a macro-indicator of time in the system (see text).*

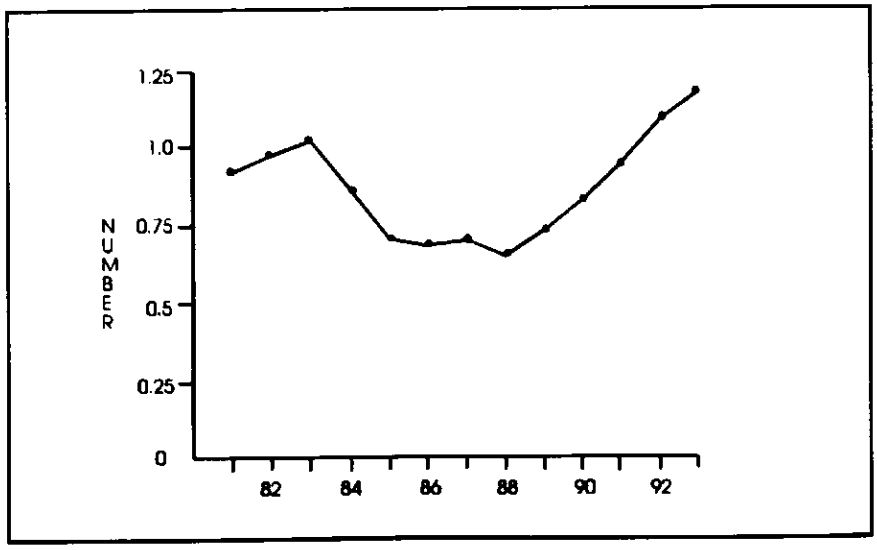


Figure 4 *Number, in ten thousands, of registrants in service and pre-year 2 courses offered by Canadian university earth science departments.*

cated at many universities because it is now easy for a student to drop a course without penalty; very often the deadline for a full-year course will be in January, whereas the deadline for a first-year half-course might be late in November.

Fourth, even counting faculty and postdoctoral associates is not as easy as it was in the past. A number of departments share a faculty member or a postdoctoral associate who happens to have skills that cross an administrative boundary. This is one of the pleasurable difficulties faced by those collecting data: the recognition that administrative boundaries are set for administrative convenience and that where education or science dictates the boundaries should be crossed, they are indeed crossed. In fact, one of the really encouraging things about these difficulties is that they demonstrate the ability of the university earth sciences community to respond to clearly perceived needs by introducing new programs to provide the geoscientist of tomorrow with the education and skills needed to tackle the problems of the future; problems where we need flexible minds capable of dealing with the complex variables — spanning a number of basic and more traditional disciplines — of natural systems.

The number of students registered in declared B.Sc. programs in the geosciences (post year 1 numbers) is showing a marked increase (Fig. 1), but this increase occurs largely in the geological engineering programs and newly developing environmental science programs with an earth science emphasis. The numbers of graduate students at each level continues to climb slowly, as can also be seen from Figure 1. Figure 2 shows the annual numbers of students who have graduated since 1985 (the CCCESD did not start collecting data on the numbers graduated — at least in a systematic way — until 1985). The numbers being graduated at each level show a smaller increase, principally because of the time lag between entry and leaving, so that, at the moment, we are dealing principally with those who entered the system three or more years ago, at the time of our minima. However, it must be pointed out that it is painfully obvious to those who are just graduating that too many of them do not obtain positions which make use of their basic university education, let alone some of the specialties they may have been trained for. Figure 3 shows the ratio of

registered to graduated students, each of which, averaged over a period of time, is a measure of time in the system. The data for B.Sc. were plotted to validate this. The fact that the ratio is marginally less than 4 in the 1980s is due to the fact that, at that time, there were several three-year B.Sc. graduations, while more recently, that ratio rises above 4 because of the increasing number of registrants during the last few years. There is a heartening increase in the number of service course registrants (Fig. 4), which numbers now surpass our previous peak around 1980. Once again, much of this increase is due to an interest in environmental aspects of the earth sciences. Although this will not lead to a large number of environmental geoscientists, perhaps it augers well for a public that has a better appreciation of the contribution that the earth sciences can make to solving environmental problems.

The picture is not quite so rosy when it comes to dealing with faculty and staff. Figure 5 shows the picture for the last 15 years. The faculty numbers have not changed much over the last half decade or so, but the support staff required to support these people and the postdoctoral associates, most of whom are on "soft" funds, has shown a marked decline. Most of the decrease occurs in the technical areas, with administrative support having remained relatively constant. The picture is even clearer from Figure 6, which plots the ratio of support staff to those whom they are expected to support. Both faculty and postdoctoral associates have been included since both categories, of course, require support and particularly at the technical level. The decreasing ratio is mainly a result of decreases in university funding, but also partly due to more use of technology by the faculty.

Work on the data base for Ph.D. and M.Sc. thesis titles, as well as putting together the information on physical geography registrations, is proceeding very slowly.

The decline in student interest in science at a time of decreasing support for universities has started to have a major effect on university structure. The situation in Nova Scotia has long caused concern, but the first reporting department to this Council to disappear was the Department of Geology at Mount Allison; the geologists are now incorporated in a Department of Physics, Engineering and Geology (undoubtedly to be called PEG). There are a very few students progressing through the old programs offered by Mount Allison, but within two years the last Honors Geology graduate there will be through. As of 1 July this year, the Departments of Geophysics and Geology at the University of Western Ontario will be metamorphosed into a Department of Earth Sciences. There is little doubt that by the turn of the century there will be significantly fewer earth science departments in Canada than there are now. This is not necessarily a bad thing, provided challenging programs are offered offered and standards are maintained by those who remain.

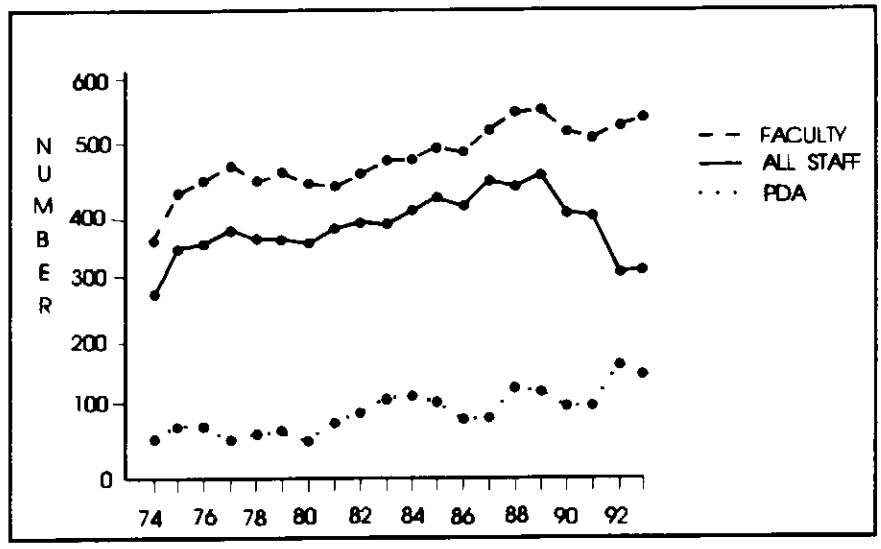


Figure 5 *Numbers of faculty and university funded support staff in Canadian university earth science departments, from 1973-74 to 1992-93.*

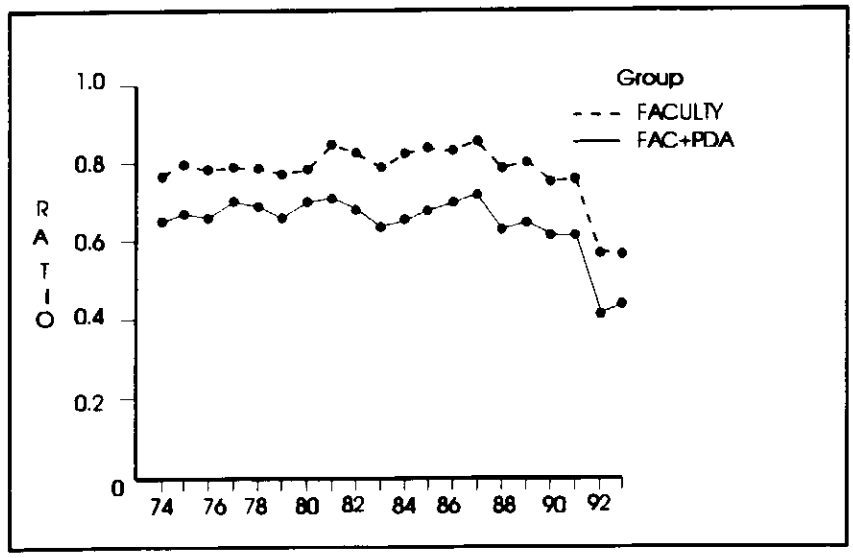


Figure 6 *Ratios of university supporting staff to those they support in Canadian university earth science departments from 1973-74 to 1992-93.*

Table 1 Graduate Students by Discipline Area and Region (1992–1993).

DISCIPLINE AREA	PROGRAM		REGION				
			ATLANTIC	ONTARIO	QUEBEC	WEST	NATIONAL
Environment	Registered	M.Sc.	2	61	17	2	82
		Ph.D.	2	26	4	2	34
	Graduated	M.Sc.	0	11	3	0	14
		Ph.D.	0	3	2	0	5
Geochemistry	Registered	M.Sc.	4	54	12	9	79
		Ph.D.	2	47	18	6	73
	Graduated	M.Sc.	1	14	6	2	23
		Ph.D.	1	2	3	1	7
Geography (Physical)	Registered	M.Sc.	0	1	0	0	1
		Ph.D.	0	4	0	0	4
	Graduated	M.Sc.	0	1	0	0	1
		Ph.D.	0	1	0	0	1
Geological Engineering	Registered	M.Sc.	57	11	32	12	112
		Ph.D.	24	8	17	6	55
	Graduated	M.Sc.	2	3	5	1	11
		Ph.D.	1	1	3	3	8
Geology	Registered	M.Sc.	60	153	69	131	413
		Ph.D.	41	131	65	86	323
	Graduated	M.Sc.	19	47	13	34	113
		Ph.D.	4	15	5	10	34
Geophysics	Registered	M.Sc.	12	20	14	47	93
		Ph.D.	5	26	6	48	85
	Graduated	M.Sc	2	12	3	5	22
		Ph.D.	0	3	2	12	17
Oceanography	Registered	M.Sc.	21	0	3	33	57
		Ph.D.	27	0	1	36	64
	Graduated	M.Sc.	9	0	0	3	12
		Ph.D.	6	0	0	3	9
TOTAL	Registered	M.Sc.	156	300	147	234	837
		Ph.D.	101	242	111	184	638
	Graduated	M.Sc.	33	88	30	45	196
		Ph.D.	12	25	15	29	81

NOTE: Only Physical Geography numbers reported by CCCESD members are shown (see text).