

INTERDEPARTMENTAL

Geophysics Program Box 351650

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TO: Marsha Landolt, Dean and Vice Provost
Graduate School

FROM: J. Michael Brown, Chair
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SUBJECT: Response to the Review Committee report on the Earth Sciences

I have read the report by the Committee for the Review of the Departments of Atmospheric Sciences, Geological Sciences, Geophysics Program, and the School of Oceanography, chaired by Professor Ernest Henley (hereafter CRES). The report was made available to all faculty and students in Geophysics. They were invited to comment to me on any aspect of the report. Several responses have been received.

In general, the report provides a broad overview of all four earth science units and identifies issues that are of concern in these units. It gives a fair assessment of activities and issues within Geophysics. The review committee should be commended for the excellent job in preparation of this document.

Several specific recommendations in the report that have impact on Geophysics are further discussed below.

Earth Science Facilities

CRES endorses the Ocean Facilities Master Plan and suggests that a new Earth Science Building be sited in the southwest campus. This would put the three currently upper campus units in closer proximity to Oceanography and thus could engender their greater collaboration with faculty in Oceanography. However, Geophysics faculty have stronger and very productive ties with science and engineering units on upper campus. This proposed move is not supported by Geophysics.

The deplorable condition of Johnson Hall is emphasized in CRES. The report by the College Council (following the last unit review of Geophysics) also singled out the same issue and stated (April 7, 1992) that "College plans for new construction in the earth sciences address this need and deserve University support." Those plans were for a new Earth Science Building having about a quarter of the space as assignable classrooms. If that had been built, Johnson Hall would have been available for renovation as office space for Math and Applied Math. This outstanding concentration of math and science

units within short walking distance would have provided a world-class scholarly environment.

The impact of the decision to abandon the Earth Science Building continues to plague us. Strategic thinking, necessary to maintain the quality of Geophysics, is hitting a wall of intractability. We do not have the class or lab space to teach new undergraduate courses. It is simply impossible to provide new faculty with start-up laboratories in Geophysics. I can not imagine how we will either recruit or retain quality faculty if no credible solution emerges soon. I strongly recommend that the concept of a new Earth Science Building on upper campus be resurrected.

Retirements

Five Geophysics faculty are 60 or over. Several faculty members, having well-funded and active research programs, are ready to retire now. Other currently active faculty have indicated an intention to wind down their research by not taking on any new graduate students.

We face an immediate crisis. With just 10.4 faculty FTEs in Geophysics, we can not run the unit. With unfilled retirements and fewer faculty, there is inadequate support for either new or continuing students (26 of 32 students have RAs). We will not be able to teach either the current curriculum or an expanding undergraduate set of courses.

Even prior to a full development of a strategic plan, our expectation is that new hires will contribute greatly to the evolving mission. We are aware of the need to develop new strengths that better met missions in the College of Arts and Sciences. Geophysics is undertaking strategic planning this year. However, any change in direction will require adequate faculty strength. Thus, Geophysics needs immediate protection. We must refill positions resulting from retirements. This runs counter to the College policy to delay approval for new searches following retirements. Geophysics has an excellent record in hiring outstanding scientists who are also excellent teachers

Salaries

CRES stresses the serious problem in the Earth Sciences with regard to salaries. I have, in separate memos, documented the Geophysics-related situation. In summary, salaries here at the full professor level lag the official university comparison group in Geophysics by 58%. In addition, while we rank among the top ten Geophysics programs, only a few in the comparison group are at this level of excellence.

Other Strategic Issues

The report notes that enhanced cooperation should be encouraged between Geology and Geophysics. The Chair of Geology and I have met and identified immediate action to be taken. (1) The Graduate Admissions and Curriculum Committees will hold joint meetings this year. (2) Seminar coordination will be improved. (3) a joint committee will consider the reorganization of courses for non-majors. (4) We will also undertake joint considerations of possible new Masters Degrees.

CRES argues that the Earth Science units should be more cognizant of major "Big Science" funding directions. They point to Astrobiology as one recent example.

Geophysics is strongly supporting the Astrobiology UIF and hopes to participate in the filling of a new position in planetary evolution.

In addition, two major national initiatives have significant impact on Geophysics and Geology. We plan to be closely associated with both. Both have developed so quickly that they were not part of the Self-Study Documents prepared nearly a year ago.

- (1) The USGS Advanced Seismic Network (\$31M) has already gone through congressional budget authorization. This program is designed to address issues of seismic hazards through the updating of regional seismic networks. The Pacific Northwest Seismic Network run in Geophysics will be one of the major recipients of new funding.
- (2) The NSF Major Research Facilities Initiative (MRI) EarthScope (\$74M) is currently in OMB prior to going to congress next year for anticipated funding in 2001. This is the first "Big Science" initiative in the EAR directorate and significantly changes the environment in the solid earth sciences (currently funded at \$101M/year). The single largest project is USArray, which will undertake high-density seismic mapping of the Earth. Geophysics is well positioned to participate and prosper in this new funding environment. In addition, large parts of Geology (tectonics, structure, petrology, and geomorphology) should also see significant new opportunities for research.

New Geophysics Degree

A report of an ad hoc committee in Geophysics (prepared by 6 faculty members during the summer 1999) recommends that Geophysics immediately initiate an effort to launch a new undergraduate major. As a department, we would offer innovative undergraduate science education featuring solid fundamentals in math, physics, and chemistry and upper division courses that are experiential and environmentally focused. At the junior level students would engage in significant field projects that would require acquisition of data, analysis, and interpretation. Examples include setting up a portable seismic array or collecting GPS data on a glacier on Mt Rainier, or working with space or planetary probes. The senior capstone courses would focus on study of material motivated by the observations. Strategic planning in Geophysics is therefore focussed on developing this framework. The degree of participation by other Earth Science Units remains to be determined.