Overall Plan

Since the College of Oceanic and Atmospheric Sciences does not have a traditional departmental structure, most of the academic and administrative guidelines are inherent in the college structure and few adjustments were needed. Graduate program and class size are within the guidelines, except for the Geophysics degree. An abbreviated Category 1 proposal has been recently approved that combines three of the COAS degrees (Oceanography, Atmospheric Science, and Geophysics) into a single degree of Ocean/Earth/Atmospheric Sciences, with areas of concentration. This alignment mirrors the newly-approved “breadth” courses that will be required of all COAS graduate students. The three-course sequence consists of Fluid Earth (both ocean and atmospheric dynamics), Biogeochemical Earth, and Solid Earth. An integrated syllabus has been developed, and the sequence will begin Fall 2010. Prior to the formal start of the academic year, there will be a one-week field course that will take incoming graduate students around the Northwest to observe some of the Earth system processes that will they encounter later in the classroom.

Faculty from COAS, Geosciences (in the College of Science), the College of Agricultural Sciences, and the College of Forestry have been exploring new structures and curricular programs that could place OSU at the forefront of Earth system science. One group has been exploring the concept of a new College of Earth Sciences that would initially incorporate COAS and Geosciences, but with a clear path to include terrestrial ecosystems as well as human systems in a comprehensive program of teaching and research in the fundamental Earth sciences. The new College would blend an Earth systems research institute (relying on a COAS-like funding model) and a school of Earth and Environmental Sciences. Faculty would have joint appointments in both elements, with position descriptions that reflect the expectations of each faculty member. There are several important issues that need to be resolved, but the consensus is that the new College would build new and compelling teaching programs, attract the best young scientists, and develop new areas of research and collaboration.

A separate faculty group has been developing a structure for an undergraduate program in Earth science, which would have several areas of concentration. It would be built from existing Geosciences majors (Geology and Geography), and recommendations contained in a report from an Earth System Science Curriculum committee in 2008. The new Earth Science option would have several senior capstone requirements, such as a year-long senior seminar, and an experiential learning component – thesis for research-oriented students, internship for “work ready” students, and supervised off-campus group project. Initially, faculty from COAS and Geosciences would be involved in
development of new courses, delivery of the coursework, and program and career advising, but faculty from other ESS units would also participate as the program matures. A Category 1 proposal is being considered for submission in fall 2010.

A third faculty group has developed a “two-center” concept for the Earth system science. The first center would focus primarily on federal funding opportunities to integrate the Earth science disciplines (including the human dimension) to develop and test models and scenarios. It would integrate data sets from across the disciplines, and its models would combine complex, biophysical processes and human/social processes. The second center would be funded primarily by the private sector through grants and contracts to utilize the models from the first center to forecast the socioeconomic and environmental consequences of political and economic policies and human activities. It would also elucidate areas in greatest need of fundamental research. In essence, the first center would build up the foundational knowledge of the Earth system and the second center would build up the translational knowledge. As with the new College, a detailed implementation plan remains to be developed, but the concept will strengthen Earth system science at OSU.

Alignment with Academic and Administrative Guidelines

As seen in the attached organization chart for COAS, our present structure meets the guidelines, and no changes were required.

Realigning our graduate degrees was done in consultation with the Dean’s Advisory Committee (which consists of representatives from each discipline group, professional faculty, technical staff, classified staff, and students). Each discipline provided input, and
consensus emerged to submit an abbreviated Category 1 proposal to combine Oceanography, Atmospheric Science, and Geophysics into a single Ocean/Earth/Atmospheric Sciences degree. There are no budget implications for this realignment.

The concepts for a new College of Earth Sciences and for a two-center Earth System Science Institute will continue to be developed by groups of faculty from the ESS division and from other relevant units. Several options continue to be explored, and there is not yet an implementation plan or any analysis of budget implications. An undergraduate concentration in Earth system science could proceed regardless of the eventual administrative structures that emerge from these larger discussions in the ESS division and the University as whole.