UNIT PRODUCTIVITY AWARDS PROGRAM
WESTERN KENTUCKY UNIVERSITY

AWARD APPLICATION FORM

Proposals must not exceed 8 pages in length (minimum 11 point font), excluding annual Year-End Progress Report. Academic departments within the Division of Academic Affairs are eligible to apply for Unit Productivity Awards. Generally, departments are restricted to submitting a single application per academic year; exceptions may be made with prior approval of the College Dean for those departments housing multiple programs that are independent in terms of faculty, curriculum, and administrative structure.

Name of Department: Geography and Geology

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<th>Department Head Name:</th>
<th>David J. Keeling</th>
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<td>Campus Address:</td>
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Date Submitted: July 9, 2010

Describe the nature of the department’s initiatives to address any or all of the divisional priorities below during the most recent academic year. Indicate the nature of the unit’s notable achievements and best practices, and include data on measurable outcomes and indicators of success. Initiatives related to Strategic Goals 1 and 2 will be weighted more heavily than others in award decisions.

Strategic Goal 1. Increase Student Learning.

Evidence of exemplary student achievement in developing socially- and culturally-responsible citizens.

In recent years, the Department has established an “Environment and Sustainable Development” focus in its Geography major, and inaugurated a new interdisciplinary Minor in Sustainability in Fall 2009. Throughout the various curricula offerings, faculty have become more intentional about incorporating themes and examples of social and cultural responsibility, especially as this relates to human-environment interaction, so that students will be better prepared to address such challenges after graduation. The Department offers courses such as Environmental Ethics, the Geography of Social Collapse, the Geology of National Parks, Alternatives in Sustainability, Geophysics, and other appropriate themes.

- Geography (Environment and Sustainability) major Joey Coe has been awarded a Moe Udall Scholarship for the 2nd successive year.
- Sara Ferguson and Patrick Stewart (Sustainability majors) completed internships with the WKU Sustainability office. In addition, the Department recognized Sara as the Ronald Dilamarter Outstanding Geography Senior in large part due to her very active work on campus and in the community on sustainability issues.
- For many years, geology faculty and students have been active in outreach to the regional P-12 schools. This past year, faculty and students worked with about 1,500 area 4th and 5th graders with hands-on activities, presentations, participation in ScienceDay/Science Showcase events, and assemblies. Teaching materials were provided to P-12 teachers through Science Alliance grants as part of this regional outreach. Apart from introducing students to geology, the goal of this outreach is to prepare potential future WKU students to think about social and cultural issues, to build knowledge and awareness of geological principles and concepts, to develop an understanding of earth materials and processes, and to increase scores on science-related assessments.
- The M.S. in Geoscience is a research thesis-based 30-hour program that aims to engage students in critical social, economic, and community issues at a variety of scales. Through coursework and thesis research, students are encouraged to become socially and culturally responsible citizens by addressing issues of importance to society in local environments and beyond. This past academic year, student theses addressed the Kentucky Mesonet, ethnic changes in Bowling Green, watershed conditions in the Upper Green River, fresh water challenges in the Bahamas, regional drought policies, historical changes in Mammoth Cave, and agricultural contaminants in soil water, among other themes. With
52 research theses completed since Fall 2001, the Department is a leader in Ogden College and across campus in graduate research.

- MS Geoscience graduate Ronnie Leeper’s thesis on land cover and soil moisture in Western Kentucky has been published as a monograph in the *Publications in Climatology* series supported by the University of Delaware.
- Students studying GIS and planning researched, analyzed, and photographed 47 properties as part of a class project supported by the Kentucky Heritage Council and Bowling Green city planners. Supervised by historic preservationist Miranda Clements and geography instructor Will Blackburn, the students’ research will help planners determine which properties should be included in the National Register of Historic Places.

### Evidence of increased student learning through student engagement activities.

Department faculty are innovative in engaging students both in and beyond the classroom. The Department aims to engage every major in mentored research, whether as part of a grant-funded project or as a supervised independent project. In addition, students are actively encouraged to seek out and participate in internship experiences.

- Meteorology major Kyle Mattingly was awarded an E.F. Hollings Scholarship with NOAA.
- Three Meteorology majors and one Geoscience student received prestigious NWS S.C.E.P Internships.

- Each academic year, the Department generates approximately 200 credit hours in supervised, independent research and internships. This past academic year, for example, 20 students completed internship or practica experiences with, among others, WKU’s Office of Sustainability, local and regional television and radio stations, the National Weather Service, the Kentucky Mesonet, local and regional businesses, and county governments.
- In addition, 42 student independent research projects were supervised by department faculty, addressing such issues as: sediments in the Green River; GIS and tornadoes; hydrology; cave management; gamma ray characterization; the Rietveld method; petrogenesis of lava flows; and soil moisture impacts.
- As discussed in the previous section, many geology majors give generously of their time assisting with P-12 outreach activities for area 4th and 5th graders. This type of active engagement with the principles and concepts of geosciences beyond the classroom has translated in a higher level of learning in the advanced courses for these students.
- The Department engages about 25-30 qualified students each academic year in grant-support research. Projects such as the Kentucky Mesonet, the USDA Soil Moisture program, the China Environmental Health Program, the Cave Mapping program, the Kentucky Climate Center, the NASA Coastal Forest Ecosystem, among others provided excellent opportunities for students to engage in research on issues important to our community and beyond.

- Jane Marie Wix completed an Honors Thesis: “Constructing a Flash Flood Climatology of the Appalachian Mountains: Focus on Eastern Kentucky and West Virginia Summer Season Rain Events.”
- Undergraduates Ronson Elrod and Jeremy Goldsmith were co-authors with faculty on a publication that addressed storm-water remediation in the community.
- Undergraduate Monica Motley co-authored a publication with faculty and staff that addressed evaporation from agricultural waste lagoons.
- Geoscience graduate student Ted Baker published research with faculty on water quality in karst areas.

Details of recent student publications are available online at: [http://www.wku.edu/geoweb/info/stupubs.htm](http://www.wku.edu/geoweb/info/stupubs.htm)

### Evidence of graduates’ achievement of QEP learning goals and student learning outcomes.

Many faculty use “comfort” and “knowledge” or baseline surveys in their courses to evaluate and quantify student learning. Some faculty also use Google Earth (particularly in the general education) to provide a setting for the physical environments studied, along with more reflective questions to encourage greater introspection on personal attitudes about learning. A key goal of the Department for the 2009-2010 academic year has been to engage students more effectively in learning beyond the traditional classroom environment. This strategy advances QEP initiative one: to ensure that students can demonstrate their capacity to apply knowledge and training in their discipline to address relevant societal concerns. This goal is reached by focusing on three parallel processes: (1) creating opportunities for independent, supervised research outside the classroom; (2) supporting student attendance at local, regional, national,
and international workshops and conferences; and (3) providing field camp and study abroad opportunities that engage students in communities other than their own. A third important goal focused on the enhancement of programs and courses to support WKU’s mission of “preparing students for success in a global society.” The Department continued also to focus attention on strategies to: (a) ensure that students can demonstrate an understanding of their opportunities as responsible citizens living and working in a global society (QEP goal 3), and (b) ensure that students can demonstrate an understanding of the diversity of peoples, ideas, and cultures (QEP goal 2).

1. Inquiry and Analysis
2. Critical Thinking
3. Creative Thinking
4. Written Communication
5. Oral Communication
6. Quantitative Literacy
7. Information Literacy
8. Teamwork
9. Problem Solving
10. Civic Knowledge and local-global engagement
11. Intercultural competence
12. Ethical Reasoning
13. Skills for lifelong learning
14. Integrative Learning

The Department’s application of QEP learning goals and other assessment measures of learning outcomes is summarized in this table. Utilizing various pre- and post-course assessment methodologies, as well as other measures of learning through engagement, faculty are focusing on the key indicators of learning outcomes. One important measure is how well students apply discipline-based knowledge to academic activities beyond the classroom. The Department actively encourages and supports student participation in conferences, workshops, and other learning experiences.

- Two graduate and two undergraduate students participated in the 15th International Congress of Speleology in Kerrville, Texas.
- Two students presented research papers at the 2009 Geological Society of America meeting in Portland, Oregon.
- Geology major Stuart Kenderes awarded 1st place in the undergraduate Science Education section of the annual Kentucky Academy of Science conference, and geology major Kristin Leftwich was awarded 1st place in the Geology section.
- Five meteorology students presented their research at the annual SEDAAG conference in Knoxville, TN.
- Geology major Matt Downen presented his research at the annual Posters at the Capitol event in Frankfort.
- Five meteorology students, along with staff, post-doctoral students, and faculty, presented their research at the 90th annual meeting of the American Meteorological Society in Atlanta.
- 14 students (11 undergraduates) presented their research at the WKU Research Conference in March. Geoscience graduate student Ann Epperson won the graduate social science division of the WKU Student Research Conference.
- Three students presented their research at the annual conference of the Association of American Geographers in Washington, D.C.

- The first six students in the new B.S. Meteorology program graduated in May. Astrid Gonzalez was awarded a full scholarship to study meteorology in the Ph.D. program at Penn State University, and Anthony Bedel (4.0 at WKU) will study climate in the Ph.D. program at Georgia State. Three other meteorology graduates were hired into fulltime positions as a result of NWS internships. Four GIS students received ESRI scholarships, marking the ninth year in a row that the Department has been successful with these competitive awards.
- Geoscience graduate Maj. Jason Finley was awarded an Environmental Public Health Leadership Institute Fellowship by the Centers for Disease Control.

Evidence of exemplary student engagement/achievement in international activities.

The Department continues to take a leading role in providing international learning opportunities for students both within the Department and from across the WKU campus and beyond. Over 350 students have enrolled in study abroad and field camp programs offered by the Department over the past eight years. The Department offers a regular study abroad curriculum, with programs offered either in Winter and Summer, or occasionally both semesters.

- Fourteen geology majors studied the geology and natural history of the Bahamas islands during a Winter term study abroad field course led by Dr. Fred Siewers.
- Geography (Environment and Sustainability) major Joey Coe, twice a Moe Udall Scholarship winner, participated
in WKU’s inaugural Semester at Sea program in Fall 2009, and played a significant role in developing and implementing the $100 solution aimed at low-cost, high-impact environmental programs.

- Students and staff from the Hoffman Institute participated in a workshop and exchange signing ceremony at Shilin Stone Forest in southwest China.
- Graduate student Josh Brewer and Hoffman Assistant Director Pat Kambesis participated in a 10-day mapping project in Gunung Mulu National Park in Sarawak, Borneo.
- Geoscience Graduate student Dustin Winchester was awarded a KIIS Scholarship to study in Argentina during the summer 2010 session.
- Geoscience graduate student Erin Greunke organized and convenes the first WKU Study Abroad and Global Learning Symposium in April as part of her M.S. thesis and Leadership Studies projects, with seven students presenting their service learning and research outcomes from study abroad programs. Geology students Heather Williams and Courtney Elder presented their research from the Geology of the Bahamas program.
- Eight students from the Marketing and Economics programs participated in a study abroad to Egypt in January lead by Huda Melky, with geography and culture lecture support from Dr. David Keeling.
- Sustainability major Joey Coe was selected as a finalist for the 2010 Pickering Foreign Affairs Fellowship funded by the U.S. Department of State.

Strategic Goal 2. Grow a High-Quality, Diverse and Engaged Student Body.

*Evidence and success of efforts to improve retention and completion. Consider as appropriate: numbers of majors, minors, and graduates; student success in general education or major/minor courses; contributions to diversity.*

At the conclusion of the academic year, the Department had 270 total majors and minors enrolled, an increase of 24.4 percent over Fall 2001. A new B.S. in Meteorology and a new B.S. in Geographic Information Science were established in Fall 2007, both with rigorous Math, Physics, Computer Science, and other supporting requirements. These programs are the only ones of their kind in the Commonwealth and are unique in the region. The Meteorology program currently has 33 majors enrolled, and it is attracting approximately 20 highly qualified and motivated new students (both freshman and transfer) each Fall. The program graduated in first six majors in Spring 2010. The GIS major currently has 11 majors enrolled, with a further 30 students enrolled in the GIS Certificate program.

- The Department awarded 14 GIS Certificates this year, with 153 total certificates awarded since Fall 2001.
- As a consequence of improved advising, a more structured sequence of course offerings, and new, innovative courses, the Department delivered 3,639 credit hours of upper-division courses for the academic year, a 13 percent increase on a rolling nine-year average. The Department also delivered 571 credit hours of graduate coursework, the highest academic year total in over 15 years.
- The Geology program recorded its highest number of credit hours in ten years, with 1,519 delivered in the Spring 2010 semester. The number of geology majors has doubled since Fall 2001 (now at 67 total majors), in part because of a wider variety of program options (two B.S. and two B.A. program options), more full-time faculty, and more innovative coursework. On average, nine geology degrees have been awarded each year over the past nine years, with 12 degrees awarded during the 2009-2010 academic year.
- The Geography, Geology, Meteorology, and Geoscience clubs play important roles in the recruitment, retention, and development of students. These student-led organizations provide mentoring, peer support, research opportunities, seminars, and field-trip experiences for members. For example, Geology Club students raised money and fostered interest in their activities through rock and gem sales, seminars, and tee-shirt sales, and regularly attended annual regional and national geology meetings and conferences. Additionally, this year both undergraduate and graduate geology students helped to run the state-wide National Geographic Bee for grades 4-8 (organized by the Kentucky Geographical Alliance), with faculty and students involved in administering the event. The Bee was held for the seventh consecutive year at WKU, with 100 students and about 150 parents and teachers in attendance. Faculty are also active in the Kentucky Society of Professional Geologists, developing statewide initiatives to introduce students to the geological sciences. Four faculty are engaged in the Kentucky Geographical Alliance (which has received ongoing NGS funding of $50,000 each year), the Science Alliance, and SkyTeach respectively; these initiatives are designed to help
improve the content knowledge of K-12 teachers and to improve the geoscience knowledge base of students preparing to attend Kentucky universities. The Department remains hopeful that initiatives such as these will help to attract more students to the geosciences in the future. Finally, the Department continues to offer non-traditional courses in partnership with other programs to appeal to a wider cross-section of the campus community. The Center for Cave and Karst Studies summer program (now in its 32nd year) offered 8 different courses centered on Mammoth Cave  

- Geology major Stuart Kenderes received the Mary Angela Norcia Award from the WKU Student Government Association in recognition of campus leadership and for exemplifying “The Spirit Makes the Master.”

Contributions and initiatives to innovative/alternative delivery, including interdisciplinary programs, distance learning, and/or Honors College.

The Department has developed several online general education courses to meet distance learners needs at extended campus sites and around the region. During the academic year, 108 students enrolled in these online courses. As part of an agreement with KCTCS, the Department also developed online versions of the four courses required to earn the GIS Certificate. Twenty-seven students enrolled in web-based GIS courses during the academic year. Finally, the Department has developed a series of hybrid online courses to help the Owensboro regional campus expand its program offerings. In Spring 2010, Environmental Planning and Environmental Law and Policy were offered, with 43 students enrolled.  

- The Department partnered with Leadership Studies for the 2009 summer session to offer Contemporary Leadership Issues in the Sciences, with six students enrolled.  
- General Education Honors courses are offered regularly by the Department, with 120 students enrolled during the academic year. Honors students also took advantage of HEEC opportunities and conducted independent research for credit with faculty mentors in the Department.  
- Each semester, the Department partners with the History and Political Science departments to team teach the interdisciplinary Latin American Studies general education course that is the foundation course for the Minor in Latin American Studies.

Evidence and success of efforts to provide effective, systematic and improved advising of students.

Graduating seniors rate Department advising in the annual WKUSES survey as above average, and comments from the senior exit surveys suggest that faculty overall do a good job of advising. However, there is always room for improvement, and one of the key areas of concern is a general failure by students to follow the proposed course of study advised by the faculty. This often creates situations where students cannot enroll in a required support course in a timely fashion. To address this and other advising challenges, the Department instituted a program leader structure this past academic year, with each of the four major programs represented by a faculty member. In addition, the Department Head advises all majors and minors, is responsible for approving their program of study, and makes decisions on course substitutions where appropriate.  

- Improved advising is helping overall retention and graduate rates. For Fall 2010, 96% of students enrolled in the Spring semester as majors or minors have re-enrolled for the Fall. Those students who have not yet enrolled either have holds on their account because of a failure to pay tuition and fees from the Spring semester, or they flunked the Spring semester and likely have dropped out of WKU. As of July 1, 2010, the Department had 10 students not enrolled for the Fall 2010 semester because of poor grades in Spring 2010.

Strategic Goal 3. Enhance Academic Excellence through Premier Faculty and Staff.

Contributions to enhancing university diversity goals in hiring.

The Department did not hire any new faculty in the 2009-2010 academic year. In searching for the three tenure-track faculty that took up their appointments on August 15, 2009, faculty actively recruited minorities, women, and other unrepresented groups through personal contacts, discipline-based organizations, and other avenues. The Department appointed Dr. Margaret Gipshover, Dr. Xingang Fan, and Dr. Jason Polk from national searches. The Department Head serves on the Board of Councilors of the American Geographical Society, which actively works to identify individuals
Evidence of exemplary faculty achievement and recognition.

The Department comprises 18 award-winning and productive Ph.D. faculty and seven instructors, with the latter carrying a heavy teaching load and contributing in critical ways to the growth and retention of program majors. Faculty have regularly been recognized for exemplary performance within Ogden College and beyond:

➢ Dr. Chris Groves was recognized as Ogden College’s Outstanding Public Service Scholar for 2009-2010.

This award recognized Dr. Groves’ contributions to community and society through his work on the China Environmental Health Program and through his ongoing research and service in the cave and karst community. Over the past few years, Dr. Groves has worked with NGO partners “A Child’s Right” and with Circle of Blue to address water resource challenges in southwest China. His work in China and elsewhere has been recognized by UNESCO and has helped to provide clean drinking water for thousands of children and adults.

Faculty continued to contribute to their disciplines through service on editorial and advisory boards. This year:

➢ Dr. Peggy Griphover and Dr. Tom Bell were named co-editors of FOCUS on Geography, an international journal of the American Geographical Society. Dr. Bell is an Adjunct Professor in the Department.

➢ Dr. Rezaul Mahmood was appointed as Editor of ‘Earth Interactions’, a peer-reviewed journal jointly published by the American Geophysical Union, the American Meteorological Society, and the Association of American Geographers.

➢ Dr. Josh Durkee was appointed administrator of the international CLIMLIST for climatologists.

In addition, Dr. Aaron Celestian continued as a member of the editorial board of the American Mineralologist journal, Dr. John All continued as contributing editor to the Open Remote Sensing Journal, Dr. Fred Siewers edited the Proceedings of the 14th Symposium on the Geology of the Bahamas and Other Carbonate Regions, and other faculty served as manuscript reviewers and served in various positions in professional organizations.

➢ During the academic year, faculty actively sought internal and external funding to support research activities, enhance equipment and facilities, and to support professional development opportunities for themselves and for students.

➢ External grants worth about $4.44 million were awarded to department faculty this academic year as principals, co-principals, consortia members, or as supporting staff. Faculty submitted grant applications in excess of $15 million during the academic year.

➢ Contributions to the intellectual development of students, the community, and other scientists are a key element of WKU’s broader mission and department faculty and students conduct applied and basic research in the local, national, and international arena. The publication of research results is critical to the ongoing growth of knowledge and it is a central component of WKU’s expectations for Ph.D. faculty.

➢ During the recent academic year, faculty and students published 35 articles and other items in outlets as varied as the International Journal of Climatology, FOCUS on Geography, Progress in Human Geography, Journal of Hydrologic Engineering, Journal of Environmental Quality, and the International Journal of Coal Geology.

➢ Kentucky State Climatologist Emeritus Glen Conner published a chapter in a new book titled Historical Climate Variability and Impacts in North America. He was also awarded honorary member status by the Association of State Climatologists in July, 2009, in recognition of his service to state climatology.

➢ Dr. Josh Durkee’s climate research was featured in news articles published in the Brazilian press.

➢ Dr. David Keeling had nine Op Eds on geographic issues published nationally and internationally in media such as Pravda, Washington Times, Hawaii Reporter, and the San Francisco Chronicle.

➢ Dr. Jun Yan’s research paper "Visual Data Mining in Spatial Interaction Analysis with Self-Organizing Maps" won the 2009 Michael Breheny Prize for the Best Paper in the International Journal of Environment and Planning B

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out of all the papers published in the journal in 2009.
Department faculty continued to serve the College and University through committees, task forces, and other leadership roles, including contributions to the Honors College, Leadership Studies, Department Heads Advisory Council, curriculum committees, University Senate, and various ad-hoc committees.

- Dr. Aaron Celestian was selected as the first Director of the Advanced Materials Institute in Ogden College.
- Dr. Greg Goodrich received the Alliance Award from the Kelly Autism Program.
- Dr. Lee Florea passed the ASBOG examination to become a Registered Professional Geologist in Kentucky (joining Drs. Ken Kuehn and Mike May as licensed for the public practice of geology in the Commonwealth).

**Noteworthy professional development efforts directed at achieving departmental priority goals.**

The Department aspires to be the leading geosciences group in the Commonwealth of Kentucky and surrounding region. A key goal of the Department, in harmony with the broader mission of WKU, is to expand its regional and international reach and to provide new teaching, research, and service opportunities for faculty and students. Professional development activities are an important component of this goal, and during the academic year faculty attended conferences, participated in workshops, and enrolled in formal and self-study courses to improve their skills.

- Dr. John All spent a year in Nepal at Tribhuvan University on a Fulbright Scholarship developing a remote sensing laboratory and continuing research on climate change impacts.
- Dr. Chris Groves participated in the Chinese Flagship language program, enrolling in Elementary Chinese.

- Faculty and students gave approximately 80 academic and community talks during the academic year, including presentations at universities, workshops, and conferences across the United States, in Latin America, China, and Europe. In addition, faculty and staff visited more than 20 overseas locations for professional development, research, study abroad programs, professional study tours, meetings, and collaborative activities with other institutions (including the Bahamas, Botswana, Nepal, Canada, Argentina, Belize, China, Borneo, Jamaica, Haiti, Slovenia, Belgium, France, and the United Kingdom). Indeed, the Department has led the university over the past decade in Study Abroad program development and participation, with ten faculty leading over 350 students to more than a dozen destinations around the planet, and it has the most globally focused faculty in the Commonwealth; they have visited over 130 countries on research and lecture trips in recent years! This Department personifies WKU’s aspirations for international reach.

**Strategic Goal 4. Improve the Quality of Life in Kentucky and Beyond.**

**Evidence of contribution to regional stewardship priorities, including outreach and partnerships with P-12 schools, business, industry, government, community agencies, and other postsecondary institutions.**

Refer to the first section (Strategic Goal 1) for details about P-12 outreach in the geosciences. Department faculty are very engaged in a learning and research partnership with Mammoth Cave National Park, with the Director of the Mammoth Cave Center for Science and Learning partly funded by WKU and a member of the Department’s faculty.

- The Kentucky Mesonet is a network of automated weather and climate monitoring stations being developed by the Kentucky Climate Center at Western Kentucky University to serve diverse needs in communities across the Commonwealth of Kentucky; approximately 50 stations are active in the network. The Kentucky Mesonet provides outreach to local communities, enhancing quality of life for people throughout the Commonwealth. Outreach starts by working with local officials and stakeholders to identify sites that meet scientific criteria and provide added community benefits. Mesonet data are easily accessible and can be used to improve local forecasts and severe weather warnings, aid emergency response efforts, enhance agricultural productivity, assist local utility providers, and support business and industry. The Kentucky Mesonet partners with other universities in the Commonwealth to enhance research and data application opportunities.

- Officials of a UNESCO review panel rated the Hoffman Institute-led “Global Study of Karst Aquifers and Water Resources” project “excellent” for its recent efforts to improve research collaboration between scientists around the world working on water resource challenges.

- Kentucky Mesonet data enables statewide first responders to become more effective when faced with emergencies.

- Faculty and students remain active in the community, both locally and beyond, and were featured over 100 times in media print, in online articles, on WKYU FM radio, and on local television programs. Faculty are regularly called upon to
provide expert commentary and analysis on earthquake risks, weather events, globalization, water resources, and other issues of interest to the local community.

**Demonstrable positive impacts of departmental efforts on the educational, social, cultural or economic development needs of communities within its reach.**

- The Kentucky Mesonet reached 50 active stations, and received a 'Best of Kentucky Technology' Award from the Commonwealth for “Best Application Serving Public Agencies.”
- The Kentucky Climate Center, housed in the Department, is the State Climate Office for Kentucky recognized by the American Association of State Climatologists. As a member of the National Climate Services Partnership, the Kentucky Climate Center is a partner with the National Climatic Data Center, the Midwestern Regional Climate Center, and the National Weather Service.
- Data from the Kentucky Mesonet are available in every K-12 classroom throughout the Commonwealth to support science and math education. Faculty and students in Kentucky's eight public universities are charter members of the Kentucky Mesonet Consortium, which is a statewide entity formed to leverage the value of the Mesonet for the benefit of the citizens of Kentucky. It is dedicated to promoting education outreach, delivering public service, and facilitating both basic and applied research. Lessons plans for K-12 teachers are available on the Mesonet website.
- The Kentucky Climate Center partnered with the Kentucky Division of Emergency Management to host the 2010 Kentucky Weather Conference that aimed to provide emergency managers with critical weather information.

**Strategic Goal 5. Enhance the Financial, Physical and Resource Capacities of the University.**

**Evidence of increased resource efficiency and responsible management of resources.**

The Department completed a detailed internal review of room-use efficiency. Course offerings now are distributed across all available time slots, with a 20 percent increase in courses available after 3 pm each day. The Department has taken advantage of larger rooms available in the new Snell Hall complex and offered several courses this past year accommodating 100 or more students. Growing demand for GIS courses and associated lab time has exceeded the capacity of the existing GIS lecture/lab room IE 301. GIS software has been made available on other computers in order to relieve pressure on IE 301, but the Department desperately needs another 20-seat instructor lab for GIS courses.

- The Department has reduced its reliance on paper resources through more efficient management of printing and copying. Faculty have been encouraged to provide more resources online through Blackboard and to pay more attention to wasteful printing. Overall, paper and copier use has been reduced this past year by 8 percent.
- Faculty have increased their efforts to improve energy efficient, paying more attention to turning off lights and unplugging equipment when not needed. However, the EST building is horribly inefficient in air circulation, heating, and cooling, and significant energy resources are wasted each year because WKU has been unwilling to address long-term maintenance problems with the building’s HVAC system.
- Although the Department only receives a budget of $500 per faculty each year for professional development support, it has been able to provide far more financial support for faculty attendance at conferences in part because of cost savings in other areas, but also because of the efforts of faculty to bring in grant and other funds to the department.

**Evidence of enhanced resource capacity as a result of departmental efforts.**

- Several Department faculty are very active in seeking external funding for research, student support, and equipment. Internal grants have also provided resources to support P-12 earth science education initiatives, study abroad programs, and field camps. In addition, the Department’s incentive shares distribution from external grants has proved crucial in providing additional resources for student research, professional development activities, and additional equipment.
- Active fundraising efforts include the annual alumnie GEOGRAM newsletter, targeted letters to alumni to support specific program needs, and outreach to potential corporate supporters. In 2009-2010, the Department earned $ 40,000 from interest on capital, alumni contributions, and in-kind donations. Student and faculty research, study abroad, professional development, and field camp activities were supported by $25,000 in funding from the Department’s foundation account.