Preamble
The Department of Earth and Atmospheric Sciences (EAS) was established in the School of Science (now known as the College of Science) in 1967. From its inception, the department has been extremely active in conducting disciplinary and interdisciplinary research, fostering engagement and outreach programs, and developing undergraduate and graduate programs that inspire students and prepare them to meet the needs of our changing world. Our faculty and staff provide expertise in diverse areas, including Tectonics, Geophysics, Historical Geology, Atmospheric Dynamics and Chemistry, Environmental Geosciences, Biogeochemistry, Climate Change, Geoscience Education, Planetary Sciences, and many other areas. EAS has a uniquely qualified faculty and is well positioned to lead discovery and learning in the earth, atmospheric and planetary sciences.

In implementing our 2003-2008 strategic plan, planned faculty growth and a substantial increase in joint appointments focused EAS research in several key strategic areas that addressed grand challenge problems; our work has had high visibility and impact. As a result, our level of external funding for research and education programs has more than doubled. Our students are highly valued by employers, and our alumni are making significant contributions in business, industry, education, state and federal agencies, academia, politics, and the space program. We are excited at the continued increase in impact and quality of EAS, but recognize additional and emerging opportunities to improve and change.

Following the success of our previous strategic plan, in 2009 we used a faculty retreat and the efforts of a set of working groups to develop a new strategic plan for EAS. This process highlighted areas of change and improvement that are critical to meet the goals and aspirations of our students, faculty, staff and alumni. The resulting strategic plan outlines the goals and actions we will pursue over the next 5 years to build upon our successes and develop and evaluate new initiatives in discovery, learning, and engagement. Our plans dovetail with the key themes of the strategic plans of the College of Science and the University, ensuring that we will contribute to the larger goals of the institution. Implementing this plan in a challenging fiscal environment will involve considerable creativity, flexibility, and above all the coordinated efforts of all members of the EAS community: students, staff, faculty, alumni, employers and friends. Our goals are ambitious, but we have shown in the past that we are capable of amazing change and achievement.

Mission
The mission of the Department of Earth and Atmospheric Sciences is to serve diverse populations in Indiana, the United States, and the world through discovery that expands the frontiers of knowledge in basic and applied Earth, atmospheric and interdisciplinary sciences, learning that fosters the sharing of
knowledge and the growth of tomorrow’s leaders, and engagement that promotes the application of knowledge:

**Discovery:** The Department creates and fosters a community of scholars in which some of the world’s best minds generate scientific knowledge at the leading edge of Earth, atmospheric, and interdisciplinary scientific inquiry, and explore applications of this knowledge to societal challenges.

**Learning:** The Department develops and provides innovative, diverse, learner-centered environments that launch tomorrow’s leaders in the Earth and atmospheric sciences and that develop scientifically literate citizens. It distributes knowledge to an audience of peers and citizens through academic literature and diverse professional activities.

**Engagement:** Through its programs of outreach and professional service, the Department helps put knowledge to work to create new opportunities that advance our society, improve K-16 science education, and solve a variety of scientific and social problems related to the Earth and atmospheric sciences.

In its commitment to these activities, the Department:

- Engages in scientific research recognized worldwide for its excellence.
- Fosters independence, critical thinking, creativity, teamwork, and life-long learning both inside and outside the University community.
- Recruits and retains a student body with strong academic and leadership potential.
- Enhances Earth and atmospheric science education and research through involvement on and beyond the campus.
- Broadens and deepens the educational and research climate by increasing the diversity of our faculty, staff, and students.
- Provides leadership and support in the application of new scientific knowledge to the betterment of the State, Nation, and World.
- Fosters the development of scientific leaders and a scientifically literate citizenry by providing leadership and support within the State for K-16 science education.
- Leverages the expertise and experience of alumni and strategic partners to enhance the educational and research environment, and to raise significant private funding

**Vision**

EAS will be recognized internationally for outstanding contributions in our focus areas for disciplinary and interdisciplinary research, as well as for improving society through the application of new scientific knowledge and innovative educational programs.

**Characteristics:**

- World-class faculty and staff.
- Internationally recognized for field-defining research in key focus areas.
- Highly interactive research clusters involving faculty, research staff, and students.
- Students who have a deep understanding of the essential content, the principal modes of inquiry, and the ethical issues of their chosen areas of Earth and atmospheric sciences, who have strong communication and critical thinking skills, and who are equipped to be global citizens and leaders.
- Involvement in research as part of the educational experience at all levels.
• Freedom of inquiry, ethical behavior, and a dedication to human and intellectual diversity as integral and essential parts of the learning environment.
• State-of-the-art infrastructure and technical support enabling faculty, staff, and students to realize their full potential in discovery, learning, and engagement.
• A model outreach program supporting and enhancing K-16 science education in the Earth and atmospheric sciences throughout the State.
• Engagement within and beyond the University community promoting science literacy and an appreciation of the value of science.
• Partnerships with state and national constituencies using scientific discoveries to address societal needs.

Goals
To achieve the Department’s vision we will employ strategies that target crosscutting needs as well as our specific goals:
  • Launching Tomorrow’s Leaders
  • Discovery with Delivery
  • Meeting Global Challenges

Key metrics have been identified that include both measures of achievement of the strategy, and measures of progress toward the associated goal. The strategies are linked by a set of overarching principles that are essential to all Departmental activities.

Overarching Principles:
• Faculty excellence. Faculty of the highest academic and professional stature and achievement are a foundation for all Departmental endeavors.
• Excellence in discovery. Excellent research programs in focus areas are central to our mission in discovery, and underlie Departmental efforts in learning and engagement.
• Excellence in learning. Forefront curricula for majors, and introductory courses providing extensive knowledge for students from other disciplines, are crucial elements of the Department’s learning programs.
• Diversity. A diverse population of students, faculty, and staff enriches a community in which all members strive for excellence.
• Staff excellence. A highly qualified and motivated staff is essential for success in all Departmental missions.
• State-of-the-art facilities. Excellent facilities are a key foundation for discovery and learning in the Earth and atmospheric sciences.
• Resources. Funding from government, corporate, and private sources is essential to support all of our strategies.

Crosscutting Strategies
Underlying all of our efforts in discovery, student success and engagement are the need to ensure that we respond to opportunities to hire new faculty on the basis of a plan that integrates the key goals of the department, and that we continue to enhance development of an encouraging, nurturing,
energizing, and supportive work and cultural environment for all faculty, staff, and students to excel in their pursuits.

**Strategies**
1. Develop a faculty hiring plan during Spring 2010 that is based on enhancing our research and that anticipates teaching needs to support programs for our majors.
2. Develop and begin implementation of a departmental diversity plan during Spring 2010.

**Metrics**
- Development of an EAS faculty hiring plan in Spring 2010
- Development and initial implementation of a departmental diversity plan in Spring 2010

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**Launching Tomorrow’s Leaders**

**Vision:**
We aspire to create a vibrant learning environment in which students acquire essential knowledge and skills for their future careers through diverse experiences, including field, laboratory and modeling studies, independent and group research, challenging and novel coursework, internships, clubs, presentations, study abroad, and international collaboration. We will produce exceptionally marketable graduate and undergraduate students who have the knowledge and experiences to thrive in a diverse range of careers, and will provide enhanced support for the development of faculty. EAS also seeks to contribute to the broad science education of all Purdue University students, tomorrow’s leaders, who will be equipped to make well-informed decisions on local to global challenges such as energy, climate change, and protecting our environment.

**Goal 1. Produce a flexible, vibrant undergraduate program that produces graduates ready to meet tomorrow’s global challenges**

**Strategies**
1. Establish a new undergraduate program centered on interdisciplinary Environmental and Earth Systems Sciences by Fall 2010, and evaluate and consider revisions to our Geology and Geophysics curriculum, with a goal of doubling the undergraduate enrollment in Earth Science and interdisciplinary areas in EAS by 2012.
2. Continue to promote and adapt the Atmospheric Science undergraduate program to stay competitive with new regional programs at other institutions
3. Improve the overall undergraduate experience in EAS
   - Review aspects of the undergraduate experience that extend beyond traditional coursework (e.g., clubs, research opportunities, service learning, learning communities, internships, study abroad), and design and implement improvements in response to key findings of the review.
   - Consider a requirement that all majors have a research or capstone experience, either as independent research with a faculty member, or a meaningful research or capstone experience within a course in EAS.
   - Develop a more explicit honors program in EAS, and continue to build the EAS presence in the College of Science honors program
4. Develop and implement a new EAS undergraduate recruitment plan, including an updated website that illustrates the quality of our undergraduate programs and their benefits to prospective students.

5. Find funding sources to increase the number of undergraduate scholarships in EAS as well as for current and new programs to enhance the success and retention of these students.

6. Evaluate the possibility of sponsoring an annual career fair that includes traditional as well as non-traditional employers of EAS graduates.

Metrics
- Development and implementation of new and revised curricula
- Development and implementation of an explicit honors program in EAS
- Development and implementation of an undergraduate recruitment plan, including an updated EAS website design for enhancing recruitment during Spring 2010
- Number of undergraduate majors enrolled and graduates per year.
- Percentage/number of majors continuing on to second year, third year, and who graduate within four years, five years, and six years
- Number of undergraduate students participating in recognized service learning projects
- Number of EAS majors participating in study abroad
- Number of students participating in undergraduate research classes or projects, having internships, and/or involved with Science-based learning communities
- Number of students enrolled in courses or working in a group with a community-based project, including those in another country
- Number of undergraduate scholarships given in EAS, including those that meet our commitment to the Access & Success Campaign
  - Number of Presidential and Trustees Scholarships
  - Number of Emerging Urban Leaders Scholarships
  - Number of other types of Scholarships
- Percentage of graduates gainfully employed in their respective fields, and outside their fields

Goal 2. Promote knowledge of the Earth and Atmospheric Sciences among undergraduate and graduate students campus-wide.

Strategies
1. Increase the enrollment and visibility of the EAS Great Issues courses that meet the College of Science new curriculum requirements.

2. Complete development of additional Great Issues courses as a significant contribution to the new College of Science curriculum and a valuable integrative interdisciplinary experience for science students, including areas such as energy, climate change and natural hazards.

3. Involve key alumni, from the industries and other entities/agencies most impacted by the Great Issues Courses, in the development and review of these courses, bringing in real-world input to create the most state-of-the-art courses.

4. Increase the number of students served by our service course portfolio, and conduct routine formative evaluations of course content and offerings to maximize the value of these courses to the broader University community.

5. Evaluate opportunities to develop or enhance courses taken as science electives by students in the Colleges of Science and Engineering, to expose these students as early as possible to opportunities to pursue their interests through Earth and Atmospheric Sciences.
6. Increase the assignment of teaching resources to courses where student demand is exceeding capacity.

**Metrics**
- Number of students enrolled in EAS Great Issues courses
- Number of students enrolled in EAS Service courses
- Percentage of students earning grades of A, B, or C in service courses, course evaluation scores, teaching awards

**Goal 3. Increase the quality, diversity and number of graduate students in EAS**

**Strategies**
1. Increase the number and diversity and improve the quality of graduate students
   - Promote the successes of graduates and the excitement of our science through an upgraded EAS website and recruiting materials, including provide examples of what current students are doing in order to convey that similar opportunities exist for future students
   - Continue to work on construction of regular recruiting relationships with “feeder” universities and colleges, particularly those institutions employing our graduates as faculty or with whom we have active research and teaching collaborations, and institutions that traditionally serve underrepresented groups (e.g. historically black colleges and universities, Tribal universities and colleges)
   - Significant recruiting efforts by faculty will be recognized as a component of total effort
   - Identify funding sources to increase graduate fellowships; encourage faculty to develop and submit a proposal for an EAS-driven IGERT
   - Increase the number of externally-funded RA positions, gift-funded fellowships, and TA positions (through growth in our undergraduate teaching)
   - Seek private funding for the new Emerging Urban Leaders undergraduate scholarships, thus increasing our pipeline of a diverse, highly accomplished group of undergraduate students potentially interested in our graduate programs.
   - We will strive for more international collaboration in graduate education, using both internal resources and an increased emphasis on external funding such as NSF international supplements.
   - Grad committee will be charged with evaluating cost benefit analysis of recruitment spending and encourage faculty to continue using one on one recruitment as a means of attracting students.
   - Develop a mentoring and professional development plan for post-doctoral scholars in the department that is consistent with the NSF requirements and that provides enhanced and more explicit approaches to incorporate post docs in to the department culture and mission
   - Pursue funding for one or more endowed post doctoral positions that will focus on research and possibly include a teaching component.
   - Establish expectations for scholarly activity (formal and informal research presentations, peer-reviewed manuscript publication) by graduate students, and strive to provide and promote venues for such activity within Purdue (e.g., participation in seminar groups, paper reading groups).
2. Establish and strengthen professionally-oriented masters programs.
   - Explore developing an innovative professional master’s degree program and seek external support for this initiative from federal agencies, alumni and corporate partners. Such a program would involve research, but not necessarily a thesis, and an internship. It may be structured such that it could be an attractive 4+1 or 3+2 option for our undergraduates.
   - The professional master’s program development will explore the potential of online, remote access as a means of engaging students out of state and in other countries, which could substantially increase enrollment in the program.
   - Evaluate the possibility of sponsoring an annual career fair that includes traditional as well as non-traditional employers of EAS graduates.

Metrics
- Development and implementation of a graduate recruiting plan that leads to increases in the number and quality of applications
- Number of students entering and completing our graduate programs
- Incoming student special skills, accomplishments, test scores, diverse backgrounds
- Development and implementation of a mentoring plan for post-doctoral students
- Number of proposals for graduate student training programs submitted and awarded
- Number of NSF, NASA, EPA and other externally-funded graduate student fellowships and assistantships
- Number of publications by our graduate students tracked through two years past EAS graduation
- Number of graduate students participating in recognized service learning projects
- Number of science graduate students who travel abroad for professional activities
- Graduate and post-doctoral student numbers and retention rates, including specifically women and underrepresented groups
- Annual expenditures for scholarships to increase diversity and number of Emerging Urban Leaders Scholarships
- Percentage of applicants, interviews, offers, and yields from women and underrepresented groups
- Number of graduates in high profile positions in academia, government and industry/business

Goal 4. Promote teaching excellence in EAS faculty.

Strategies
1. Faculty will involve more undergraduates in research as a result of disseminating best practices for faculty mentoring of undergraduate researchers, increased awareness of the value of undergraduate research for students, and increased recognition for the teaching load associated with undergraduate research.
2. Consider developing a research basics class that will prepare students to get involved in research projects. Encourage faculty to apply for NSF REU supplements.
3. Expand pilot program of research-based laboratory course for undergraduates into other more traditional labs, applying for resources to do so through NSF-CCLI grants
4. Increase the involvement of faculty in the Teaching Academy mentoring programs
The merit process will provide tangible rewards for excellence in teaching, and we will identify and work to remove any disincentives for faculty work on quality undergraduate education.

**Metrics**
- Number of faculty supervising undergraduate researchers or developing undergraduate research-based courses
- Number of faculty involved in Teaching Academy mentoring programs
- Number of students participating in undergraduate research
- Number of faculty who receive service learning development grants or CCLI grants
- Number of faculty selected for Purdue’s Community of Service Learning Faculty Fellows Grant Program

**Goal 5. Provide an environment that fosters faculty development**

**Strategies**
1. In addition to the PAC process, the department will develop and implement a mentoring plan for faculty that includes internal and external mentors, and which covers the range of faculty responsibilities.
2. The department will develop a more explicit approach to faculty development, including leadership development, increased information on non-traditional funding sources, support for collaborations with targeted international partners (sister university program), and development of a process for making teaching assignments that are matched to faculty needs and interests as well as student demand.
3. Provide semester summaries of faculty teaching, research, and service loads, to encourage and recognize faculty development and the diverse contributions of faculty to our missions.
4. Continue to nominate our faculty for awards in national and international scientific societies.
5. Search for private funding in support of endowed professorships and early career faculty positions.

**Metrics**
- Development and implementation of a faculty mentoring plan in Spring 2010
- Faculty retention rates, including specifically women and underrepresented groups
- Number of faculty and staff, including specifically women and underrepresented groups, participating in personal, professional, and leadership development training
- Number of faculty and staff listing engagement, public policy, and diversity activities in the annual performance review
- Climate surveys, including the percentage of staff, students, and faculty who rate the overall climate as good or higher
- Number of women and underrepresented faculty in leadership positions

**Discovery with Delivery**

**Vision**
We will be a department where scientific innovation, strong synergies among faculty, and leadership in the global research community are core values that lead to high impact discoveries with fundamental implications for the broad science community and the needs of society. We will provide a vibrant research environment free of barriers to faculty achievement in disciplinary and cross-disciplinary discovery that will launch, nurture, and promote the careers of the next generation of leaders in science and society.

**Discovery**

The Department of Earth and Atmospheric Sciences has had tremendous success in strengthening its research programs in three key areas (Geodynamics and Active Tectonics, GAT; Atmosphere/Surface Interactions, ASI; Climate and Extreme Weather, CLEW: Appendix I) that grew out of the Department’s 2003-08 strategic plan and the 2004 external review. During this period the Department has been successful in the recruitment of excellent faculty (including many interdisciplinary scientists with partial appointments in EAS), increasing extramural support in discovery (more than doubling annual research expenditures), and elevating the caliber of our scientific output (EAS faculty authored 1/3 of Purdue-affiliated papers appearing in the journals *Science* and *Nature* during 2007-2009). A key goal of reducing our dependence on TA support through increased extramural funding and federally-funded scholarships has also been met in these past years. Despite these successes, the Department still faces significant challenges as we attempt to achieve our vision. Although the GAT, CLEW, and ASI focus areas have been effective tools for recruitment and collaboration within the Department, across Purdue and globally, there is additional potential to develop large-scale synergies within and across focus areas and increase the visibility and stature of these groups outside of Purdue. Realizing these opportunities will require internal adjustments in the organization, administration, and policies of the Department as well as investment in the department targeted at retention and support of promising junior faculty and recruitment of senior faculty who are leaders in their fields.

**Goal 1. Enhance the International Impact and Recognition of EAS research programs.**

Through preeminence of our research enterprise in key scientific areas of the Earth, Atmospheric, and Planetary Systems we will enhance the international impact and reputation of EAS.

**Strategies**

1. Consolidate our departmental focus areas around the existing expertise and cross-disciplinary activities of the faculty to maximize collective strength, synergy, and visibility. Efforts will include renaming of CLEW to Clouds Climate and Extreme Weather (CCLEW), formalization of a growing area of strength into a new focus area of Geochemical and Biogeochemical Cycles (GBC), and establishment of interdisciplinary focus groups in Mathematical Geophysics, Planetary Science, and Geoscience Education.

2. Leverage focus areas and groups, particularly those which are well-established and have strong leadership at the senior faculty level, to develop one or more EAS-led centers that generate departmental recognition and provide stable, recurring funds for practical and innovative research though some combination of federal, foundation, state, and corporate support.
3. Emphasize open-rank hiring of the best faculty to maximize opportunities and address weaknesses within and across focus groups and campus communities. We will partner with University programs to include underrepresented groups in targeted recruitment efforts.

4. Increase potential gift support that could be used in support of endowed chairs, institutional post-docs, graduate scholarships, and/or a visiting scholars program.

5. Increase overall efficiency of departmental operations and equity of work in ways that support the pursuit of innovative research, including:
   - Establish formal minimum expectations for faculty contributions in the areas of discovery, learning, and engagement.
   - Develop a culture of faculty mentoring for early, middle, and late career faculty that supports and provides incentives for faculty to meet and exceed expectations.
   - Provide institutional accommodation (e.g., teaching and service relief) to support innovative research endeavors.
   - Allocate departmental financial and space resources with consideration of verifiable, data-driven metrics in order to efficiently promote the research enterprise.
   - Encourage, support, acknowledge, and reward the public dissemination of research

**Metrics**
   - Total number of publications in high impact journals per faculty member per year
   - Average impact factor of journals in which publications appear
   - Sum of citations and h-factor index across all faculty
   - Number of faculty awards from scientific societies, foundations, and agencies
   - Departmental faculty retention rate
   - Number of named centers directed by EAS faculty
   - Number of faculty serving on the editorial board for tier-I international journals, officers of scientific societies, and proposal review panelists

**Goal 2. Double research funding over the next 5 year period**

Extramural funding is one important measure of the success of the research enterprise in EAS and, although we have made great strides in research expenditures since the implementation of our last strategic plan, we lag behind our peer institutions given the faculty size. Attainment of our vision of international leadership in discovery requires increased postdoctoral, research graduate student, and technical infrastructure which all require increased external funding. A doubling of our research expenditures by 2014, a goal in keeping with Purdue University Strategic Plan, will support our progress towards achieving this vision. Many of the strategies introduced under goal 1 will also contribute to this goal, and additional strategies include:

**Strategies**
1. Promote, facilitate and reward the pursuit of large EAS-led, multi-investigator projects by:
   - Encouraging and supporting regular focus group meetings and seminars that increase the degree and scale of interaction within and among groups.
o Providing extra administrative support and teaching relief for faculty involved in large proposal development and the leadership or administration of large projects.

o Committing to departmental investment, and lobbying for higher-level university investment, in support of large projects and extramurally-funded centers. Such investment could include allocation of future faculty lines, allocation of space, and access to existing support infrastructure.

2. Increase capacity and efficiency of the EAS business office (BO) or participate in a University mechanism to expand BO capacity.

3. Build on EAS’s role as the “interdisciplinary department” within the College of Science through increasing our involvement with, and leadership role in, interdisciplinary centers (e.g., PCCRC, C4E) and facilities (e.g., PRIME Lab, State Climatologists Office). As a component of this effort we must ensure that mechanisms are developed and in place to document these efforts and their contributions to the department, college, and university.

Meeting Global Challenges

Vision: Our faculty, staff and students will enthusiastically share their knowledge across the greater Purdue University community, K-16 students and teachers of Indiana, our alumni, and the general public, thereby establishing a global network of scientists and allowing citizens to meet critical challenges facing society. The Department of Earth and Atmospheric Sciences will engage diverse populations of learners through collaborative interactions on and beyond the campus, providing leadership and training for science education and the application of new scientific knowledge that will allow our alumni, friends, and the state of Indiana to meet global challenges through mutually beneficial interactions. We expect that by increasing the visibility of EAS-related research, increased opportunities for funded research and entrepreneurship will result.

Goal 1: Increase the Department’s engagement within the University.

Through engagement within the University, the visibility of the department will increase, which will result in an increase in the number of high-quality students enrolled in the department. Strategies that are in addition to those in the Launching Tomorrow’s Leaders and Discovery with Delivery sections that help achieve this goal are:

Strategies

1. Increase the number of interdisciplinary BS degrees awarded with EAS as the primary or supporting areas
2. Increase the number of EAS continuing education opportunities, including summer programs

Metrics
Goal 2: Increase the Department’s engagement with K-16 teachers and students and the general public to foster greater interest in science.

Strategies

1. Increase media coverage and the number of public lectures by EAS faculty
2. Increase EAS faculty, staff and student participation in K-16 student groups/clubs and activities such as science fairs
3. Expand subject matter and pedagogical workshops, seminars, and continuing education opportunities for in-service teachers
4. Continue to grow teacher support through activities such as equipment loan programs, professional consultations and resource identification and sharing
5. Continue to seek private foundation funding in support of strategic programs.

Metrics

- Number of public lectures, determined by annual faculty impact statements
- Number of mass media interactions, as determined by annual faculty impact statements
- Number of instances of EAS faculty, staff and student involvement with K-16 student groups/clubs and activities such as science fairs
- Number of K-16 teachers, schools and students impacted by outreach programs, workshops and seminars

Goal 3: Increase the Department’s engagement with decision-makers and policy stakeholders external to the University.

Strategies

1. Increase the availability and utilization of research data produced by EAS
2. Increase EAS faculty interaction with professional societies, including editorships, committees, and panels
3. Increase EAS faculty interaction with policy stakeholders external to Purdue

Metrics

- Number, size and usage statistics of EAS data sets that are publicly-accessible via web-based data portals
- Number of EAS faculty serving as editors of professional society journals or on professional society committees
- Number of EAS faculty contributing expert testimony, reports, etc. to policy stakeholders (e.g., legislators, government agencies)
Appendix I.

The Climate and Extreme Weather (CLEW) research group seeks to understand and predict the physical and statistical behavior of extreme weather and climate events. Specific objectives include monitoring and detection, prediction (incorporating new observations, statistical techniques), and modeling the dynamics of the phenomena that lead to extreme events. Transmission of global climate forcing to daily and local scale weather and extremes are considered in these predictive models, as well as the reverse feedback from the local scale to the climate scale.

The Geodynamics and Active Tectonics (GAT) research group investigates the dynamics of the processes that shape our planet, from the motion of tectonic plates, the development of mountain ranges and oil-bearing sedimentary basins, to the triggering of earthquakes. To do so, we use a combination of modern observational techniques (e.g., cosmogenic isotopes, space geodesy, basin analysis) and develop theoretical models that integrate these observations in consistent physical frameworks.

The Atmosphere Surface Interaction (ASI) group focuses on fundamental issues in climatic, environmental, geological, and ecological studies requiring an in-depth knowledge of the rates and forms of exchange of chemical species, mass, and energy between the atmosphere and the earth’s surface. Knowledge of the mechanisms governing atmosphere-surface interactions is essential to our understanding of both modern and geologic record and will permit us to speculate about how perturbations to the earth system are potentially mitigated or amplified by feedbacks within that system.