



Undergraduate Research Opportunities in EAS (Fall 2009)

(this page will be updated weekly)



1. Climate modeling of the past, present, and future. predicting and finding solutions to global warming. See Prof. Matt Huber (huberm@purdue.edu)
2. Studies of Long Range Transport of atmospheric bromine using satellite remote sensing data. We need help from a student to conduct a study of the relationship between trajectory models and satellite maps of BrO in the atmosphere in the Arctic. See Prof. Paul Shepson (pshepson@purdue.edu) <http://www.chem.purdue.edu/shepson/>
3. Analysis of Indiana high impact climatology in collaboration with national weather service. See Prof. Dev Niyogi (dniyogi@purdue.edu) <http://landsurface.org> <http://iclimate.org>
4. We need undergraduates to help study how forest encroachment into grasslands impacts how fast microbes degrade soil organic matter and convert it to atmospheric CO₂. This is laboratory work (and possibly field work) and will be done in collaboration with a graduate student. Expect to work about 10 hrs per week. See Prof. Tim Filley (filley@purdue.edu) <http://www.purdue.edu/eas/biogeochem>.

5. Visualization of Earth History (and even other planets)

In conjunction with Purdue's computer science students, we have produced a powerful "TimeScale Creator", a free JAVA package (www.tscreator.org) under the auspices of the Subcommittee on Stratigraphic Information (stratigraphy.science.purdue.edu) of the International Commission on Stratigraphy (www.stratigraphy.org). This package and its large datasets enables on-screen exploration and creation of charts of any portion of the geologic time scale from an extensive suite of global and regional events in Earth History.

The databases and visualization package are envisioned as a convenient reference tool, chart-production assistant, and a window into the geologic history of our planet. It is being used by geologists, teachers and major petroleum companies.

In the past two years, Purdue students have made datapacks for major impact craters, dinosaurs, Middle East geology, NorthSea-Arctic-Russia-Alaska oil basins, evolution of marine life, New Zealand fossils and time-slices, human civilization episodes, Gulf of Mexico petroleum geology, Mars/Moon history and other fascinating topics. We are striving to eventually include details for all regional geologic histories, evolution of life, and Earth's changing environments.

Student assistants are paid from donations by major petroleum companies, British/Australian/New Zealand geologic surveys, and the non-profit "Geologic TimeScale Foundation". We can provide you with personal office space and computer. Individual or student teams have presented their datasets at international meetings, and have received first-place awards in recent years at Purdue's undergraduate research fair. We may even sponsor travel to other countries to work with their geologic surveys.

Please visit Jim Ogg (jogg@purdue.edu); EAS – Civil Eng. Room 2273 or 2245; x-40257 or -48681; home 743-0400) to get a "tour" of this international project and how you can play an active role.

6. Opportunity:

Celery Bog Nature Area Website Update: Several years ago a group of EAS students created a web site for a local nature area, focusing on the geology and hydrogeology of the area. The site is still used by a wide range of people, and the West Lafayette Parks and Recreation Dept would like the site to be updated. One or more students could work on this volunteer project to update and improve the web site (<http://www.purdue.edu/eas/geomorph/celerybog/>) Please contact Jon Harbor for more information (jharbor@purdue.edu).