

# **UCSD StudentTECH 2012**

## **Advanced Technology for Middle and High School Students**

Sponsored by the San Diego Supercomputer Center, University of California, San Diego

### **Extreme Weather: Learn What, How and Why Things Move, Erupt and Bubble on Planet Earth**

Monday- Friday, Aug 6 – Aug 10, 2012

Class meets at the University of California, San Diego from 8:30am- 3:00pm daily.

### **Things That Go Bump, Whoosh, Snap, Burp and Crack In the Night – What Moves, Erupts, Burps, Bubbles and Erupts on Planet Earth**

#### **Course Overview:**

Join us for this virtual workshop to explore the world's volcanoes, trenches, fault lines and physical phenomenon. We will use free open source computer mapping software, ArcGIS Online, to explore geospatial datasets collected by real world scientists. In this class, more aptly called a "fun" shop than a workshop, we will create beautiful maps and explore the tallest mountains on Earth and the deepest canyons on the ocean sea floor. We will create visual displays of the patterns and processes of Extreme weather events that have occurred all around the world. We will explore a sampling of Earthquakes, Tsunamis, Volcanic Eruptions, Tornado Alley in the US, Monsoons along the Equator, and Weather Phenomenon like El Nino and La Nina that affect all of our daily lives. Each day will build on technical skills, with the week ending in a student created map gallery and presentation. Each student will build and collate a portfolio to take home and share with others.

Students will be introduced to many of the basic techniques of computer mapping and learn how to query, arrange and visually manipulate geospatial data sets. By asking scientific questions, students will follow a wonderful path of discovery all about our magnificent Earth, including the volcanic eruption in Iceland that grounded all air traffic in Europe for days, the tsunami that swept across the Atlantic Ocean and another that impacted Japan, Earthquakes that have spewed the inner contents of the Earth far and wide, Earthquakes that shake and move our planet on a daily basis. Students will build skills, knowledge and map images that display the magnitude and sheer power of the Earth we live on.

At the end of these exciting intensive workshops, students can expect to have generated their own map collection of Extreme Weather and Physical Phenomenon, choosing from a variety of data options such as California Earthquakes, Pacific Rim Ring of Fire, Tornado Alley in the US, Tsunami Events Past and Predicted, Volcanic Episodes Around the World, and Wet and Wild Monsoon Patterns of the Equator.

What you can expect from this workshop:

- \* Dedicated and knowledgeable instruction, from an experienced computer mapping specialist and Physical Geography Instructor.
- \* In depth tutorials and attention to the exciting techniques that blend the art and science of computer mapping.
- \* Increased knowledge of digital techniques that make beautiful maps that tell a story about our wonderful world.
- \* An original map layout to print and add to a personal portfolio to take home at the end of the week.
- \* A whirlwind tour of Extreme Weather and Physical Geography of Our Planet from your Virtual Desktop!
- \* A whole lot of fun and bit of a challenge too!

Five days of intense, fun workshops will include detailed instruction on the basics of computer mapping, geospatial

data sets, technology related to student presentations, art skills of beautiful cartography and the real world methods of studying the Physical Geography of our Planet Earth.

All workshops will be using ArcGIS Online, an open source mapping software.

Following is a list of the workshop events including a summary of the themes, tools and techniques that will be covered:

**Monday, Aug 6, 2012 – Extreme Weather.** Students will begin learning the basic navigation and cartography skills of ArcGIS Online software. Students will work with datasets collected by real world scientists and explore volcanoes, earthquakes, tornadoes and violent storms generated at sea that hit the coast with terrific forces.

**Tuesday – Wednesday, Aug 7-8, 2012 –What Moves the Earth?** To build upon basic skill and refine mapping expertise, students will explore shake maps of Earthquakes, simulations of tsunamis, satellite images of damages done by Earthquakes around the world, historic paths of Tornado Alley and examine the physical Earth processes that contribute to these phenomenon. Students will create visual displays of the relationship between Earth events, tectonic plates, fault lines, ocean currents, weather patterns and the events that make headlines in our worldwide newspapers.

**Thursday, Aug 9, 2012 –Physical Geography in Our Daily Lives.** We will tour the world and explore further the most extreme physical disasters and use real world techniques and tools to study the clean up, disaster relief and preventive measures that scientists use to help keep us safe. Students will explore data sets from around the world and focus on their own particular area of interest.

**Friday, Aug 10, 2012- Maps As Tools of Science.** Using favorite data sets from the week's adventures, students will create a final map layout showing any aspect of Earth Science and Physical Geography that interests them. Students will use PowerPoint and create a 3-5 minute presentation on their chosen topic. Students will upload their presentations to YouTube and share with the class.

**Prerequisites:**

- Must be a current middle or high school student in grades 7-10.
- Minimum level of computer proficiency – comfortable navigating Windows Explorer, Surfing the Web, Creating folders and saving data to folders.
- Interested in exploring planet earth, extreme weather, computer mapping, and artistic expression through maps!

**Course fee: \$225.00. Registration deadline: June 15, 2012. Space is limited to 19 participants.**

Please visit our web site for additional information and an application

<http://education.sdsc.edu/teachertech>



## Extreme Weather

August 6-10, 2012

### Applicant Information:

Name: \_\_\_\_\_  
Last First Middle

Mailing address: \_\_\_\_\_  
Street Address or Post Office Box City/State Zip

Telephone: \_\_\_\_\_ Email: \_\_\_\_\_

Date of birth: \_\_\_\_\_ Age as of June 30, 2012: \_\_\_\_\_

Gender: \_\_\_\_\_ Male \_\_\_\_\_ Female

San Diego County Middle or High School: \_\_\_\_\_  
School name District

Grade completed by June 2012: \_\_\_\_\_

Email: (optional) \_\_\_\_\_

### Parent or Legal Guardian Information (if applicant is under 18): (Please Print)

Name: \_\_\_\_\_

Mailing address: \_\_\_\_\_  
Street Address or Post Office Box City/State Zip

Telephone: (Home) \_\_\_\_\_ (Work) \_\_\_\_\_

Email: (Please Print) \_\_\_\_\_

**Course fee: \$225.00**

**Please make your check or money order payable to UC Regents and submit both payment and application in a single envelope to the following address:**

Ange Mason  
Attn: Student Summer Workshops  
San Diego Supercomputer Center  
University of California, San Diego  
9500 Gilman Drive, Mail Code 0505  
La Jolla, CA 92093-0505

If you have any questions regarding this workshop or the application process, please contact Ange Mason via phone at 858 534-5064 or email at [amason@ucsd.edu](mailto:amason@ucsd.edu).