TECHNICAL TOUR TO THE SLAC NATIONAL ACCELERATOR LABORATORY

IN MENLO PARK, CALIFORNIA

About SLAC

SLAC National Accelerator Laboratory is one of 10 Department of Energy (DOE) Office of Science laboratories and is operated by Stanford University on behalf of the DOE. Since its opening in 1962, SLAC has been helping create the future. SLAC built the world's longest particle accelerator, discovered some of the fundamental building blocks of matter and created the first website in North America.

SLAC's revolutionary X-ray laser is revealing intimate details of atoms and chemical reactions and making stop-motion movies of this tiny realm, with the goal of doing the same for living cells.

Top-notch researchers are working to discover new drugs for healing, new materials for electronics and new ways to produce clean energy and clean up the environment.

Facilities

FACET - FACILITY FOR ADVANCED ACCELERATOR EXPERIMENTAL TESTS

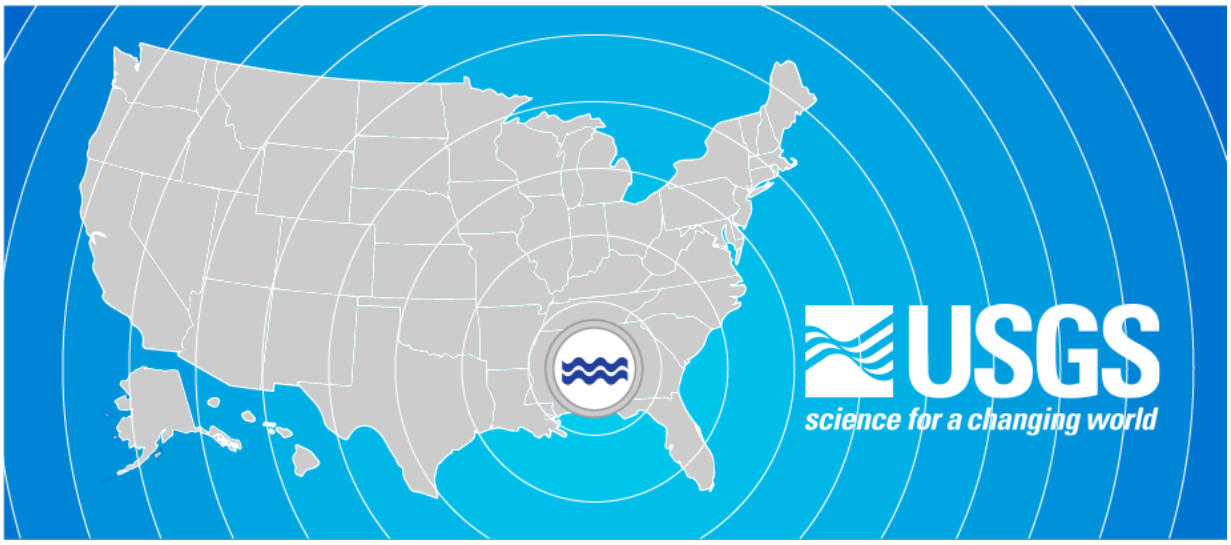
LCLS - LINAC COHERENT LIGHT SOURCE

LSST - LARGE SYNOPTIC SURVEY TELESCOPE

SSRL - STANFORD SYNCHROTRON RADIATION LIGHTSOURCE

SSRL provides extremely bright X-rays that scientists use for a wide range of research that probes matter on the scales of atoms and molecules. Studies target advances in energy science, human health, environmental cleanup, nanotechnology, novel materials and information technology, among others. As one of five light sources funded by the U.S. Department of Energy Office of Science, SSRL enables research that benefits every sector of the American economy.

TECHNICAL TOUR TO UNITED STATES GEOLOGICAL SURVEY IN MENLO PARK, CALIFORNIA



Created by an act of Congress in 1879, the United States Geological Survey (USGS) has evolved over the ensuing 138 years, matching its talent and knowledge to the progress of science and technology. The USGS mission is to serve the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life. As the Nation's largest water, earth, and biological science and civilian mapping agency, USGS collects, monitors, analyzes, and provides science about natural resource conditions, issues, and problems.

This technical tour will allow participants to visit three of the main laboratories and centers at USGS.

1- Earthquake Laboratory:

Laboratory samples, such as a 2,400 pound (1,100 kilogram) granite block containing a 6-foot (2 meter)-long fault surface, are instrumented with sensors to study how earthquakes start and stop. The steel loading frame is used to force the diagonal fault surface to slide against a matching block. By obtaining precise information on how a model earthquake propagates along the simulated fault, scientists are learning about the dynamic processes that control energy release and ground shaking during earthquakes. The geometry of this apparatus mimics that of strike-slip faults, such as the San Andreas Fault in California.

2- Rock Physics Laboratory:

A major goal of the rock physics laboratories of the Earthquake Science Center at the USGS Menlo Park facility is to improve our understanding of the physics of earthquake faulting. In the

rock deformation laboratory, the temperatures, confining pressures, fluid pressures, and strain rates can be duplicated at the depths at which earthquakes nucleate. Measurements of the failure strengths frictional behavior, permeability and wave speeds of natural and analogue fault-zone materials are incorporated into computer models of earthquake and fault systems to improve their accuracy and predictive power. Here, scientists analyze core and cuttings obtained from scientific fault-zone drilling projects worldwide, with current emphasis on those derived from the San Andreas Fault Observatory at Depth (SAFOD).

2- Data Acquisition Center:

The USGS Northern California Seismic Network (NCSN) in Menlo Park is classified as a major application that operates a real-time seismic network that monitors earthquake activity throughout central and northern California. The NCSN is a component network of the Advanced National Seismic System (ANSS), which integrates global, national, and regional USGS seismic networks into a coordinated earthquake detection, analysis, and reporting system. NCSN provides critical real-time information on earthquake activity that serves the emergency response community, national, state, and local governments, and the public. ANSS also provides information on ground and building response that is used by the engineering and building code communities to fortify structures to resist earthquake shaking.

At this stop you will visit the data acquisition and processing center for the USGS Northern California Seismic Network (NCSN). You will learn about various types of seismic instrumentation used to record earthquakes, how the data are transmitted from remote locations to the NCSN, and the various steps of automated processing. We will discuss how seismologists locate earthquakes and compute magnitudes, focal mechanisms, and products such as ShakeMaps, Did You Feel It maps, and ENS, earthquake notifications service. There is a possibility for discussing Earthquake Early Warnings and obstacles to its implementation.