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USGS Western Region Headquarters

Marina Park, California









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science for a changing world















Anna Exbo

Commissioner
California State Lands

USGS
U.S. Geological Survey

Suzanne Mills

1st Dist. Director
Regional Manager

USGS
U.S. Geological Survey

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science for a better world



Anna Eshoo
Congresswoman
California District 14
SS





3-D Landscapes

KSU Geology Dept. &
ENGIS Cooperative

State University: Geology 137
Applications of GPS/GIS Mapping





Suzanna Brooks
San Jose State University
Geology Department















Geokids

J.D. 'Doug'
Bullington

President, National Academy of Sciences

USGS

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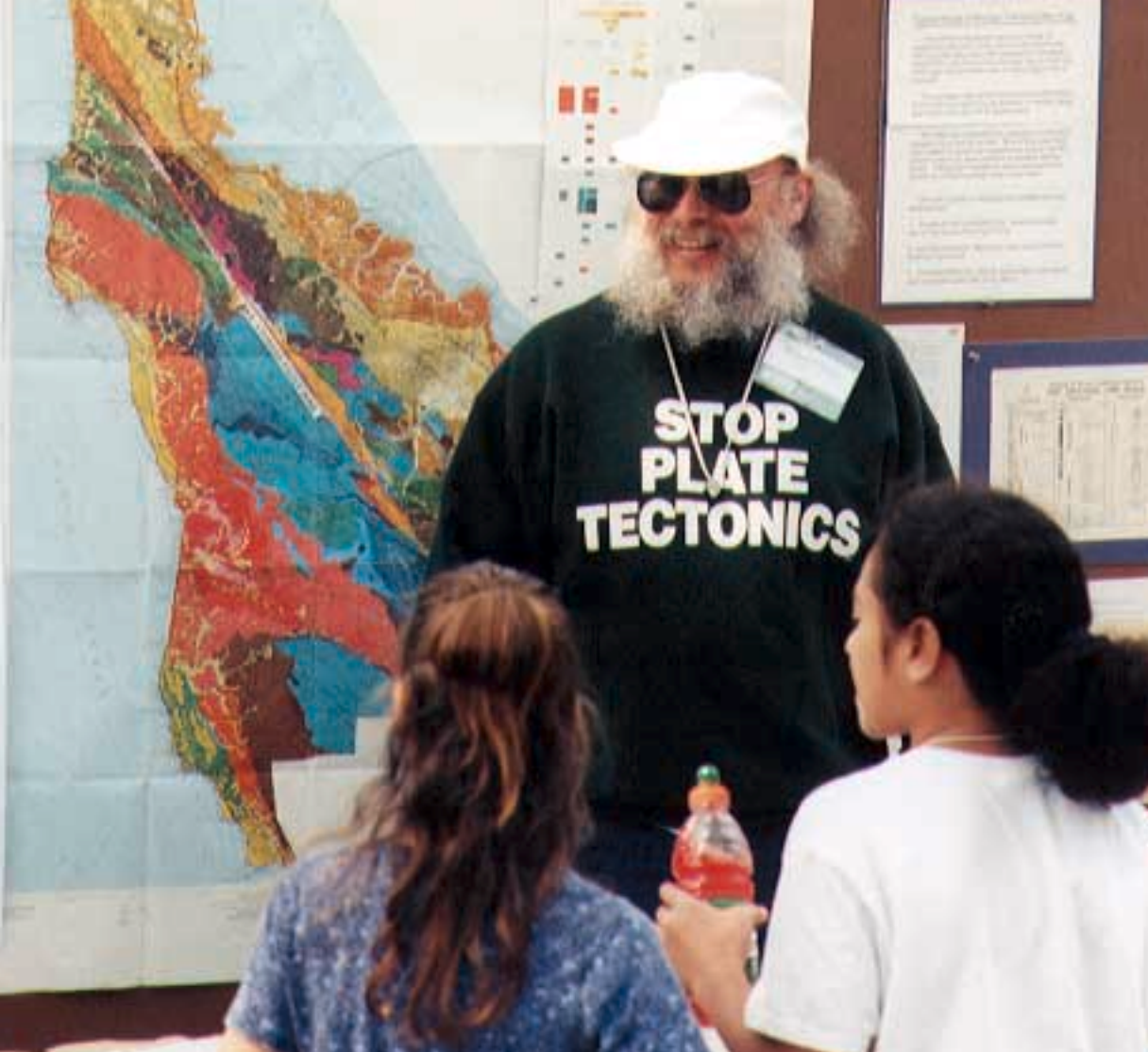
ER SERVICE
Y THE USGS

DERMENTS, PUZZLERS,
HOW COMES, AND
OUR BEST TO
IT ALL.....

TIME? FORGOT
TANT QUESTION?

. US AT

ist@usgs.gov









During the last eruption, the Mount Rainier eruption led to the greatest number of deaths in the United States. Over 100 people died, and the eruption led to the largest eruption in the United States of America, leading to the first ever evacuation order.

Mount Rainier National Park
Spokane, WA 99201

Are you at risk?

The greatest threat to the people who live in the Mount Rainier National Park area is the possibility of a future eruption. The eruption could lead to the loss of life and property.

Volcanic ash can be a major hazard. It can be carried for miles and settle on the ground. It can be inhaled and cause respiratory problems. It can also cover crops and buildings.



What Do Scientists Expect from Mount Rainier in the future?



The best guess for predicting the type and size of future events is the volcano's eruption history. The history can tell us about the frequency of events and the size of the eruptions.

Lava flows will move and they will be hot. They will also be very dangerous. They will also be very dangerous. They will also be very dangerous.

How Will Scientists Respond to Future Unrest at Mount Rainier?



Scientists are monitoring the volcano today to detect changes in the volcano's behavior. They are using a variety of instruments to monitor the volcano's activity.

Scientists from the U.S. Geological Survey and the University of Washington will be working together to monitor the volcano's activity.

Protect your Family from Hazards Posed By Mount Rainier

Learn

Learn about the hazards posed by Mount Rainier. Learn about the hazards posed by Mount Rainier.

Plan

Have an evacuation plan. Have an evacuation plan.

Inquire

Find out what you need to do. Find out what you need to do.



LASSEN
VOLCANIC
NATIONAL
PARK





THE GEYSERS: ELECTRICITY FROM HOT ROCKS!



Volcanoes? Volcanic Rocks?













TRUCK
hs of 100 feet

... ..



EARTHQUAKE-INDUCED LIQUEFACTION
What is Liquefaction? How does it happen? What are the effects? How can we prevent it?

WHAT IS LIQUEFACTION?
Liquefaction is a process that occurs in saturated soils during an earthquake. The intense shaking causes the soil particles to lose contact with each other, and the water between them is forced out. This results in a loss of soil strength and the soil behaves like a liquid.

WHAT DOES LIQUEFACTION DO?
Liquefaction can cause a variety of problems, including:
- Settlement of foundations
- Lateral spreading of soil
- Uplift of structures
- Failure of embankments
- Failure of pipelines

LIQUEFACTION PREVENTION
There are several ways to prevent liquefaction, including:
- Soil compaction
- Drainage
- Vibration
- Grouting

Cone Penetration Testing
Demonstrations at
11:00 and 1:00

CONCRETE
11:00
1:00













USGS CD ROMS

Microbial F. Engle









USGS
science for a changing world

Extreme sciences

ABLE
NATION OF

USGS

Ability
opportunity

why it's
great
to work for USGS

- BENEFITS
- FLEXIBLE WORK ENVIRONMENT
- OPPORTUNITIES FOR GROWTH
- RECOGNITION FOR ACCOMPLISHMENTS

the USGS offers

nationwide opportunities in

- biology
- hydrology
- geology
- cartography
- geophysics
- information technology
- business management
- administration
- and more...



























Subsurface Exploration Unit













OPTICAL
BACKSCATTER
SENSOR (OBS)

ELECTRO
MAGNETIC (EM)
CURRENT METER

ACQUA
MELPAC

























Clean is Clean?

and the President National Research Program: Water Resources Division, North Park

Quality

As society "moves green" and increasingly values a clean environment, the demand for the highest quality water has increased. In addition, the growing concern about the safety of drinking water has led to a growing demand for higher quality water. This has led to a growing demand for higher quality water. This has led to a growing demand for higher quality water. This has led to a growing demand for higher quality water.



Historical Water Purification



Continuity & Time-Tested Methods
The water purification process is a complex one, involving many steps. The most common method is the use of chlorine, which has been used for over 100 years. Other methods include boiling, distillation, and reverse osmosis.

Modern Concepts and Equipment
Modern water purification systems use a variety of technologies, including ultraviolet light, ozone, and activated carbon. These systems are designed to remove a wide range of contaminants, including bacteria, viruses, and chemicals.

Water Quality
Water quality is a complex issue, involving many factors. The most common factors are pH, hardness, and total dissolved solids. Other factors include the presence of bacteria, viruses, and chemicals.

What's in...	Chlorination	UV	RO	Other
Drinking Water	40,000	10,000	1,000	1,000
Swimming Pool	10,000	10,000	1,000	1,000
Industrial Water	100	100	1,000	1,000
Pharmaceutical	100	100	1,000	1,000
Food Processing	100	100	1,000	1,000
Medical Water	100	100	1,000	1,000
Lab Water (WFI)	100	100	1,000	1,000









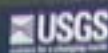
1. As the symbol is called, place a marker on the corresponding symbol on your map.*

2. When you have placed 5 markers on your map,

3. Call out "TOPO"

* One token per call - If orchard is called, and you have 2 or more orchards, please place one token in one of the orchards.

REST
ROOMS



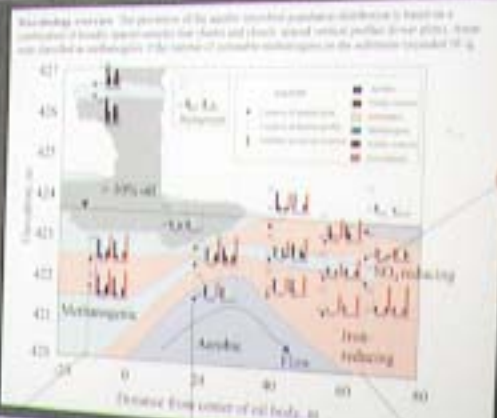
Chemical and Physical Controls on Shifts in Microbial Populations in an Aquifer Contaminated with Crude Oil

Barbara Bekins, Isabelle Cozzarelli, E. Michael Gadsby, Ean Warren, Mary Ellen Tuccillo

Abstract: To understand the spatial distribution of microbial populations in an aquifer contaminated with crude oil, we measured the spatial distribution of microbial populations in an aquifer contaminated with crude oil. We measured the spatial distribution of microbial populations in an aquifer contaminated with crude oil. We measured the spatial distribution of microbial populations in an aquifer contaminated with crude oil.



The spatial distribution of microbial populations in an aquifer contaminated with crude oil is controlled by chemical and physical factors. The spatial distribution of microbial populations in an aquifer contaminated with crude oil is controlled by chemical and physical factors. The spatial distribution of microbial populations in an aquifer contaminated with crude oil is controlled by chemical and physical factors.



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Conclusions: The spatial distribution of microbial populations in an aquifer contaminated with crude oil is controlled by chemical and physical factors. The spatial distribution of microbial populations in an aquifer contaminated with crude oil is controlled by chemical and physical factors.

















