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Owner:	Todd Numan	Approval:	Michael Labosky

Fact Sheet: Earthquakes

An earthquake is a sudden and rapid shaking of the ground caused by shifting of plates deep underneath the earth's surface. Earthquakes can happen without warning and result in personal injuries and damage to property and roads.

While they can happen anywhere, areas at higher risk for earthquakes include Japan, Nepal, India, Ecuador, the Philippines, Pakistan, El Salvador, Mexico, Turkey, Indonesia and in the US; California, Oregon, Washington, Alaska, Hawaii, Puerto Rico, and the Mississippi Valley.

Some conditions arising in the aftermath of earthquakes can be almost as devastating as the seismic event itself—sometimes more so—and can take many different forms.

- **Landslides and [Avalanches](#):** Earthquakes can dislodge or weaken soil, snow and rock on hillsides.
- **Floods:** Earthquakes may cause damage to dams or trigger landslides into lakes and rivers that in turn overflow their banks.
- **Fires:** Following an earthquake, damage to power and gas lines can spark fires; if water mains have been ruptured, it may be difficult to extinguish fires.
- **Soil Liquefaction:** Shaking water-saturated, granular soil transforms it from a solid to a liquid, causing buildings or bridges built on it to tilt or sink.
- **Tsunamis:** Undersea earthquakes and earthquake-triggered landslides into the sea, can trigger a tsunami such as the wave in 2004 that swept across the Indian Ocean and killed nearly one quarter million people.
- **Societal Impacts:** Conditions after an earthquake may include a disruption of basic services (electricity, fresh water, and telecom) and widespread disease that result in additional loss of life. Damage to property and infrastructure could result in a lengthy and expensive rebuilding period.

Personal Protective Equipment / Disaster Supply Kit

When preparing your supplies for travel in earthquake prone areas, determine what you can purchase locally versus carry in checked baggage to your destination and review [TSA travel guidelines](#)

- International SOS Travel Card
- Flashlight and extra batteries
- A first aid kit
- A whistle
- NOAA Weather Radio with public alert feature

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- Non-perishable Food and Water for 3 days - Water-purification tablets or a back-country filtering device can be helpful in case water supplies are contaminated.
- Power chargers (car phone and/or solar)
- Extra clothes and blankets
- Basic personal care & hygiene items
- Pocket knife and can opener
- [Personal Survival Kit](#)

Preparation and Training

- Determine your escape routes and evacuation meeting locations from buildings or outdoor locale.
- Complete the Field Research Safety and Emergency Preparedness Planning documents, including emergency contact lists.
- Prepare your disaster supply kits (go bag) for travel pack and car.
- It is recommended you take courses in: [Basic First Aid](#) or [Wilderness First Aid](#)

General Safety – In the event of an earthquake

- If you are **INDOORS** -- STAY THERE! Get under a desk or table and hang on to it ([Drop, Cover, and Hold on!](#)) or move into a hallway or against an inside wall. STAY CLEAR of windows, fireplaces, and heavy furniture or appliances. GET OUT of the kitchen, which is a dangerous place (things can fall on you). DON'T run downstairs or rush outside while the building is shaking or while there is danger of falling and hurting yourself or being hit by falling glass or debris.
- If you are **IN BED**, stay in bed, and cover your head and neck with a pillow. People get injured when they get up and move around.
- If you are **DRIVING** -- stop, but carefully. Move your car as far out of traffic as possible. DO NOT stop on or under a bridge or overpass or under trees, light posts, power lines, or signs. STAY INSIDE your car until the shaking stops. When you RESUME driving, watch for breaks in the pavement, fallen rocks, and bumps in the road at bridge approaches. Stay away from downed powerlines. If a power line falls on your vehicle, do not get out. Wait for assistance.
- If you are **OUTSIDE**, first drop then crawl towards open space if you can – stay away from building exteriors, overhead power lines, trees and anything else that may fall on you.
- If you're **NEAR THE SHORE**, and you feel a strong or long lasting earthquake, or the water suddenly draws back from the beach, tsunami waves may arrive within minutes. As soon as it is safe to move, go immediately to higher ground or inland away from the coast.
- If you are **NEAR WATERWAYS**: Earthquakes can turn soil to quicksand, particularly along current or former river channels. Be vigilant near riverside tracks where bank

undercuts may be created or enlarged. Rivers may change course or disappear and flash floods may now be an issue even without heavy rainfall.

- If you are in a **MOUNTAINOUS AREA** or near unstable slopes or cliffs-- watch out for falling rocks, landslides, trees, and other debris that could be loosened by quakes. During the winter or when above the snowline, consider the avalanche risk.

Emergency Response

- Expect aftershocks to follow the main shock of an earthquake. They can occur minutes later to days after the initial quake.
- If you are in a damaged building, when shaking stops go outside and quickly move away from the building. Do not enter any damaged buildings until the all clear has been given.
- If you can smell or hear a gas leak, do not use any electrical appliances because even a tiny spark could ignite the gas. Quickly get outside and move away from the structure. Report the leak to the fire department.
- Inspect all bridges thoroughly prior to crossing. If in doubt, don't use them and consider an alternative option.
- Communicate via text messages as they may be more reliable than phone calls.
- If you are trapped under debris:
 - Do not light a match.
 - Do not struggle or kick up clouds of dust.
 - Cover your mouth with a handkerchief or clothing.
 - Tap on a pipe or wall so rescuers can locate you. Use a whistle if one is available. Shout only as a last resort. Shouting can cause you to inhale dangerous amounts of dust.

References and Additional Resources

- California Earthquake Authority: [Staying Safe Where the Earth Shakes](#)
- [Ready.gov - Earthquakes](#)
- USGS: [What should I do during an earthquake?](#)
- Victoria State Emergency Service: [What to do in an Earthquake](#)
- Wilderness Magazine: [Backcountry Earthquakes](#)
- Woods Hole Oceanographic Institution: [Earthquakes](#)