

**Disaster**

**Preparedness**

**Roger Hunt (K7MEX)**

# Handouts

## Q/A

**By failing to prepare,  
you are preparing to fail**

**Benjamin Franklin**



**Why bother  
preparing?**

**The government will  
come & save me**

**Prepare for what?**

**What kind of disaster?**

# **Types of disasters**

**Earthquakes**

**Landslides**

**Floods**

**Tornadoes**

**Tsunamis**

**Avalanches**

**Wildfires**

**Hurricanes**

**Volcanoes**

**Primary  
natural disaster  
threat in Oregon**

**Earthquake**

**Huh?**

**There's no major  
earthquake fault line  
in Oregon**



# **San Andreas Fault**

**Maximum magnitude  
of about 8.0 to 8.1**

**Fault Lines**

**vs.**

**Subduction Zones**

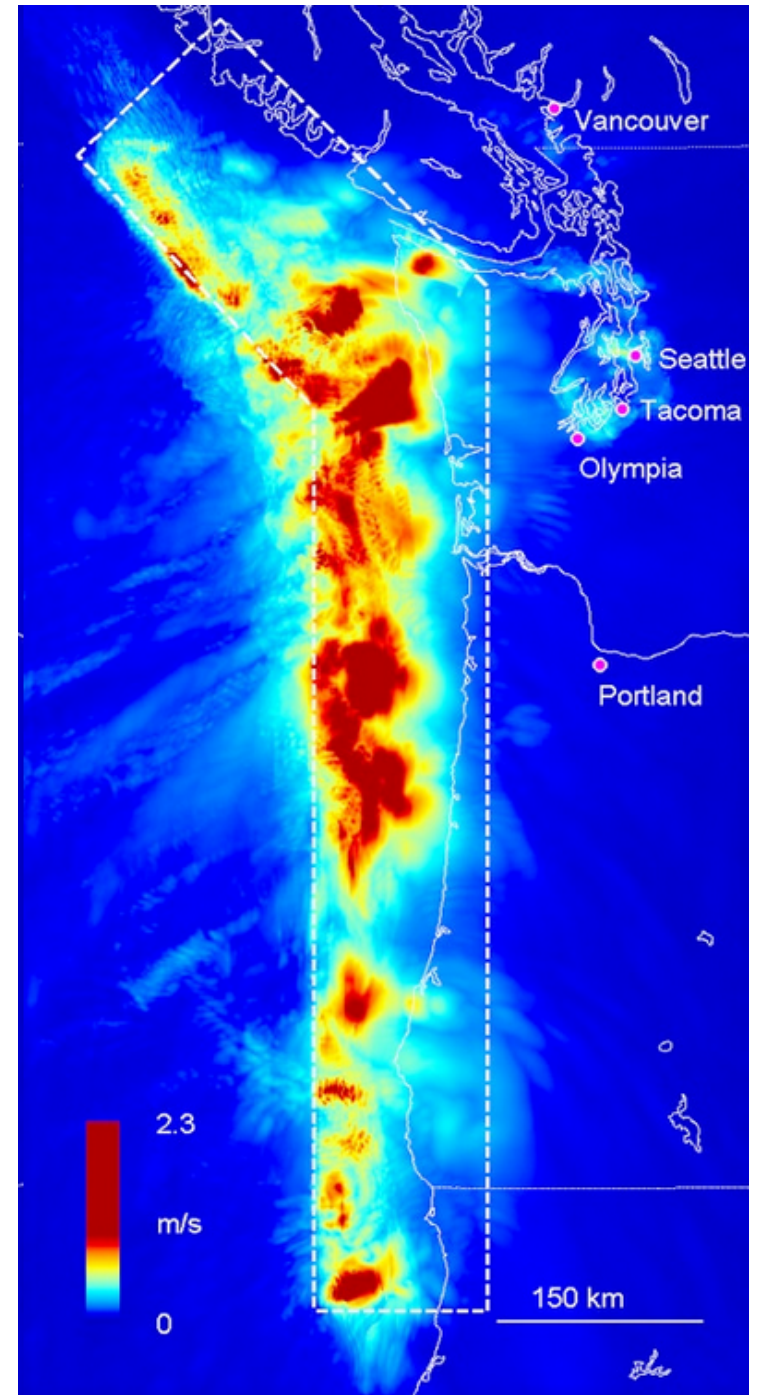
**Subduction Zones  
are way worse than  
Fault Lines**

**Only subduction zones  
produce earthquakes  
greater than M8.5**

**Oregon has a  
subduction zone**

**Until 1970,  
no one knew  
it existed**

# Cascadia Subduction Zone

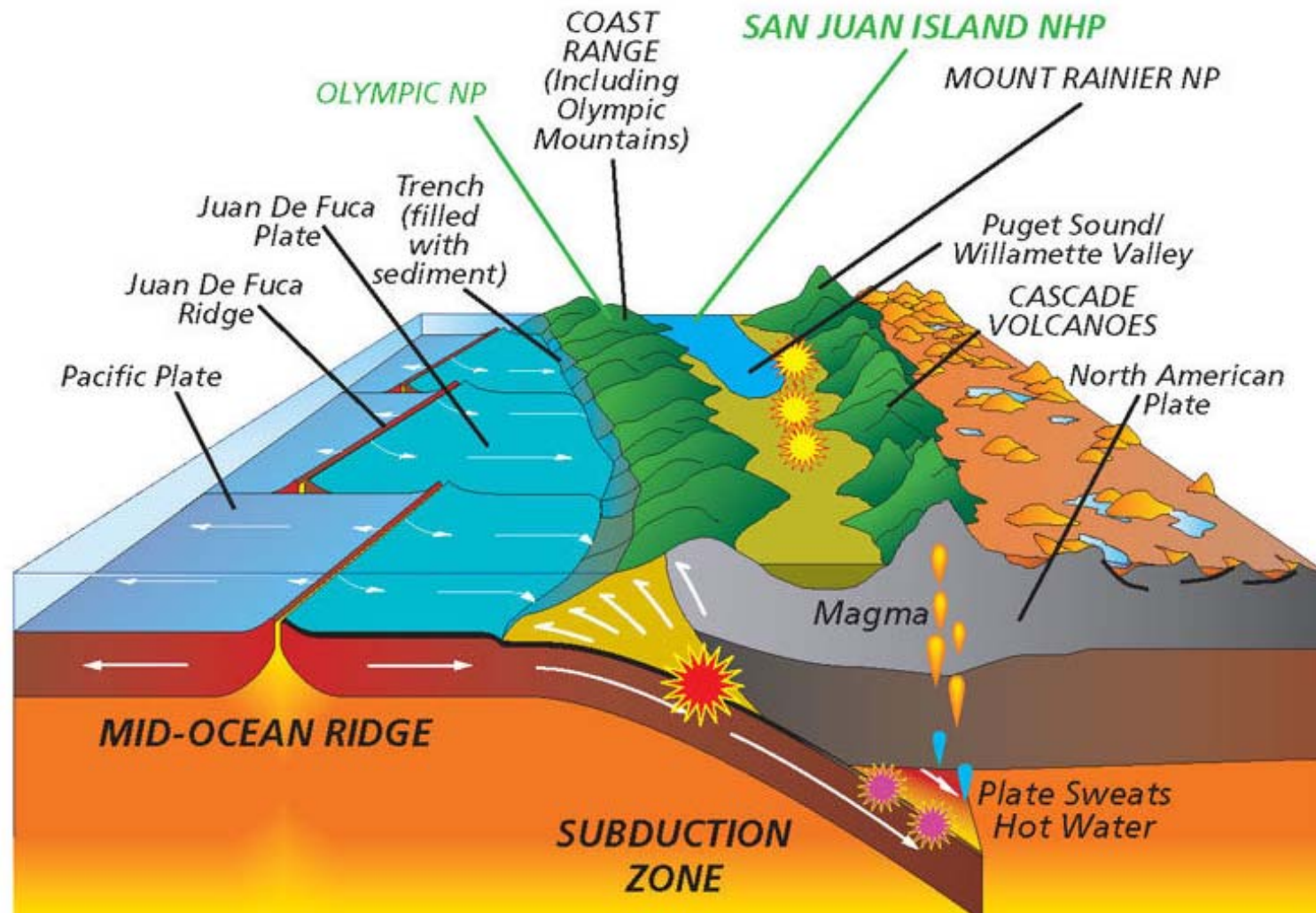


**Cascadia Subduction Zone  
has produced many M9  
earthquakes in the past**

**Maximum magnitude of 9.3**



# Cascadia Subduction Zone



**Great article**

**The Really Big One**

**July 20, 2015**

**The New Yorker**

**Kathryn Schulz**

# **Cascadia Subduction Zone**

**It *will* be the worst  
natural disaster in the  
history of North America**

**The CSZ will deliver a huge M9.0 earthquake for 3-5 minutes, causing widespread devastation**



# And a major tsunami along the coast





# **FEMA projects**

**nearly 13,000 people will die,  
another 27,000 will be injured**

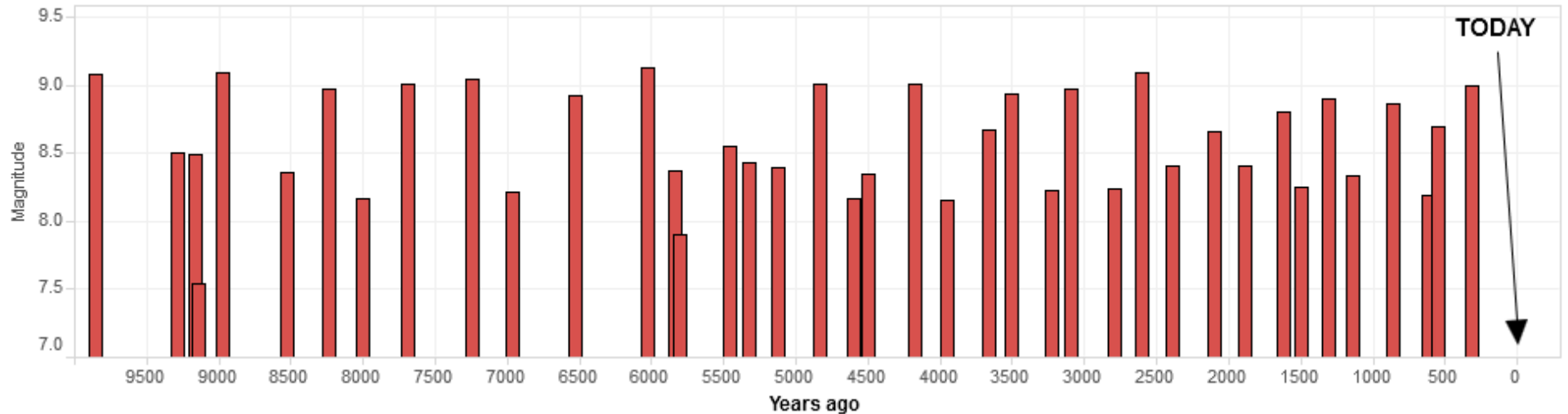
**What are the odds  
it will occur?**



**100%**

# CSZ Earthquakes

Average quake is every 246 years



**It's been 317 years  
since the last one**

**The odds of the big  
Cascadia earthquake  
happening in the next fifty  
years are 37%**



**So I survive  
the Big One**

**Now what?**

# **Loss of Utilities**

**Assume you will lose every  
service to your house**

**Anything that arrives or leaves  
by wire or pipe**

**Power**

**Natural gas**

**Water**

**Phone**

**Sewer**

**Cable & Internet**

# **Estimates for CSZ Service Restoration**

**Electricity: 1-3 months**

**Water & sewer: 1-12 months**

**Why not just leave the area?**





**Many of Portland's roads, built on fill and alluvial deposits, will crack and sink**

**Most of the area's bridges will collapse,  
and nearly all bridge ramps**



**Most of Portland's road-clearing equipment  
is stored beneath the Fremont Bridge ramps**

# **Oregon Office of Emergency Management**

**“In Oregon, 399 bridges would have totally or partially collapsed under an M 9.0 Cascadia Subduction Zone earthquake, and 621 bridges would have been heavily damaged.”**

**In short, bridges, highways, and  
railroad lines may not be passable**

**“Life is going to be very, very  
different for many, many years.”**

**Paul Mather  
ODOT Highway Division**

**You probably wouldn't  
be able to buy gas anyway**

## **Most of Oregon's fuel is stored next to the Willamette River**



**atop vulnerable fill and alluvial deposits**

**Most fuel gets there by a single 1960's pipe from Washington which crosses beneath the Columbia River**

**Portland International Airport sits on the  
kind of loose fill that turns into jelly  
in an earthquake  
(a phenomenon known as *liquefaction*)**

**FEMA's primary emergency response  
airport is in Redmond, 145 miles away**

**So Portland area residents  
might assume they  
aren't going *anywhere*  
for awhile**



**Where you going to live?**

**Will my house survive?**

**Wood-frame houses  
generally fare relatively  
well in earthquakes,  
especially newer homes**

**Walking sideways is the problem with most homes**  
**Anchoring them down often costs less than \$5,000**



**What if your house  
is not liveable?**

**You might need a second house,  
one with rubber wheels,  
springs or shock absorbers**

**It's called an RV**

**And an RV has its own power,  
water, sewer, etc.**

**So how do you  
survive for weeks  
on your own?**

**You need:**

**Water**

**Food**

**Means for cooking**

**Backup power**

# **Other stuff:**

**Personal Hygiene Items**

**Medicine**

**Clothing**

**Tarps & plastic sheeting**

**Candles, lanterns, flashlights**

**Emergency radios**

**First aid kit**



**Things to think about**

**Water**

# Stock of water bottles



# Water containers

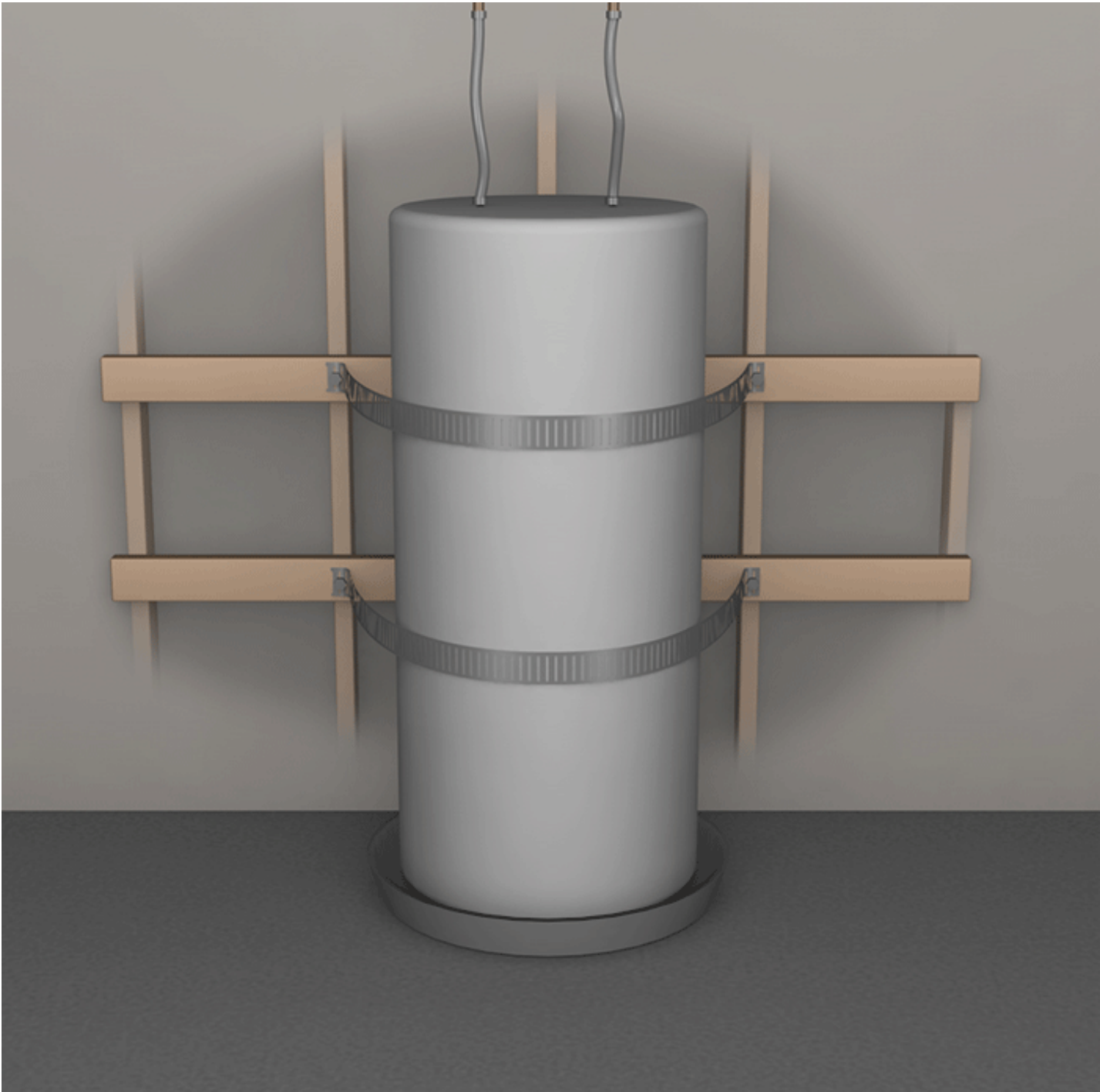


# Water barrels



# **Our water supplies**

- (2) 7-gallon blue water containers**
- (2) 55-gallon water barrels**
- 70-gallon water tank in RV**
- 74-gallon water heater**



# **Backup water resources**



# 5-gallon buckets with lids





# Water filtration bucket

**ESP Water Products**

**Outback Plus Mini**

**6-12 Gallons Per Day**

**4-stage filtration system**

**Removes 99.9999% bacteria**



# Sawyer mini water filters



**Similar to *LifeStraw*  
but more versatile**



# Toilet with no water or sewer



## Bucket toilet seat

**Food**

**Where you going to buy food?**



# **Oregon Office of Emergency Management**

**“No deliveries of food/water  
for weeks/months”**





**Some food stores  
may be a  
pile of rubble!**

**You need  
emergency  
food supplies!**

# **Food Priorities**

**Consume refrigerated and  
frozen foods first**

**Consume food supplies  
from your pantry**

**Consume stored  
emergency food supplies**

# **Emergency Food Supplies**

**Canned goods**

**Food bars**

**Freeze dried meals**

**Dehydrated meals**

# **Emergency food deception**



# Costco.com



**ARK 390 Food Supply  
\$115 with free shipping**

# Walmart.com



**Augason 30-day supply  
\$90-115 with free shipping**

**Cooking**



**Camp stove & propane cylinders**



# Backup cooking equipment

Coleman bottle top stove  
16-oz. propane bottles



Gerry stove & fuel



Lots of matches

**Backup power**

**Solar power & inverters**

**Batteries & small inverters**

**Generator**



# **Solar power**

**Expensive & complex**

**Would it survive a  
M9 earthquake?**

# **Small inverter & car battery**

**Okay for small loads**

**Will it run your refrigerator?**

**Do you need a sine wave output?**

# Generators

**Does your generator  
run on gasoline?**

# “Shelf life” of gasoline



# Propane or dual-fuel generators



**Sportsman 4000w  
GEN4000LP propane generator  
\$269-365**

# Honda EU2000



**can be converted to dual fuel**

**100 lb.  
Propane  
tanks**





**Propane has about 20%  
less energy than gas**

**6 gallons of propane  
=  
5 gallons of gasoline**

# Setting up your generator

**Only operate your  
generator outside**

# **Generator option 1**

**Run extension cord inside**

**Power only a couple  
necessary devices**

# **Generator option 2**

**Home with a  
transfer switch panel**

**Have power partially  
available throughout house**

# **Generator option 3**

**Turn off master breaker in power panel**

**Shut off all 240V devices**

**Shut off unneeded 120V devices**

**Use a home-made suicide cable**

**Have power available throughout house**



**PELIGRO!**  
**LOS CABLES ELECTRICOS**  
**PUEDEN SER PELIGROSOS**  
 Si una persona puede provocar INCENDIOS o  
 LA MUERTE por DESCARGA ELECTRICA.  
 Siempre por adelantado AMBOS LADOS y  
 Sigue todas las direcciones.

**ANTES DEL USO:**

- Mantén lejos de agua.
- No utilice cuando esté mojado.
- Manténgalo a salvo y alejado de mascotas, niños y ancianos.
- No use si el cable está dañado.
- No use si el cable está dañado.

**ANTES DEL SOBRECARGAMIENTO:**

- Desconecte el cable y no lo utilice con ningún otro aparato.
- No permita ni coloque objetos sobre el cable.
- No utilice sobre un cable.

**DESPUES DEL USO:**

- Tome el cable por el extremo superior de aislamiento.
- Limpie cualquier parte del cable con un paño seco.
- Limpie inmediatamente cuando se lo use.
- No almacenarlo en un lugar húmedo.

**ADVERTENCIA:**  
 Este producto contiene sustancias químicas.  
 Algunos de estos químicos pueden ser dañinos para la salud o el medio ambiente.  
 Evite la inhalación, ingestión o contacto con la piel.  
 Lave las manos después de manejar.  
**NO quite esta etiqueta.**

**DANGER | ELECTRICAL**  
**CORDS CAN BE HAZARDOUS**  
 If one person can cause FIRE or DEATH by  
 ELECTRICAL SHOCK.  
 Please Read BOTH SIDES Carefully and  
 Follow All Directions.

**BEFORE USE:**

- Keep Away From Water
- DO NOT USE WHEN WET
- Keep Children and Pets Away From Cord
- Do Not Plug One Extension Cord into Another
- AVOID OVERHEATING: Unplug Cord and Do Not Cover it With Any Material
- Do Not Chew, Drag or Pull (Watch Chew Cord)
- Do Not Walk on Cord

**AFTER USE:**

- Grab Cord by the Insulation, Never the Bare Wire
- Always Store Cord Fully Unwound
- Always Unplug When Not in Use
- Do Not Plug into Power Strips
- Do Not

**WARNING:**  
 This product contains chemicals, including lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. Wash hands after handling.  
**DO NOT REMOVE THIS TAG**

200 17480  
 160watts • 15Amp • 120V  
 WASHING MACHINE  






# **Emergency Lighting**

**Flashlights**

**Candles**

**Propane lanterns**

**Lantern pole**

# **Camping Supplies**

**10'x10' shelter**

**Sleeping bags**

**Folding camp table**

**12V portable shower**

**12V-powered cooler**

# **Other supplies**

**Lots of batteries**

**Toilet paper**

**Paper towels**

**etc., etc., etc.**

# **Extra quantities of normal supplies**

**Double up on household supplies**

**E.g., toilet paper or paper towels**

**Where do you keep your  
emergency supplies?**

**If possible,  
store in a secure shed**

**Food needs to be kept  
in a cool environment**

# **Bug out totes**

**Numerous emergency supplies**

**Dehydrated foods & food bars**

**Cash**

# **Personal Safety**

**Generators and food supplies  
increase your popularity**

**How are you going to  
protect your stuff?**

# **Emergency Communications**



# Battery-operated AM/FM radio

## Backup crank radio



# **Amateur radio**

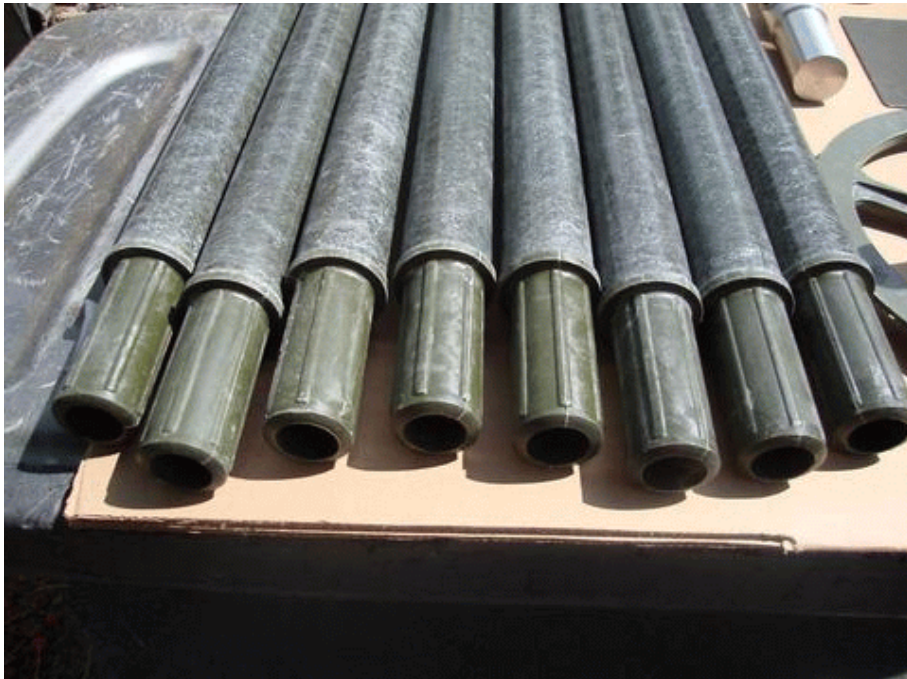
# 12-volt power usage

## Importance of voltage up-converter



# Emergency antenna

Antenna mast poles  
Base plate for antenna mast



**Be Prepared**