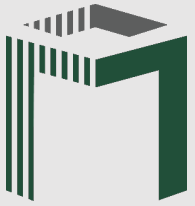




Motus Insurance Services Presents

# **CALIFORNIA SHAKIN'** with Dr. Lucy Jones

Please wait for the program to begin.

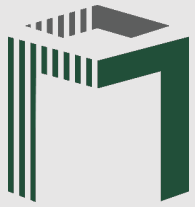


# **Quick overview** of the Motus HOA “opt-in” earthquake program

1) Why it was created

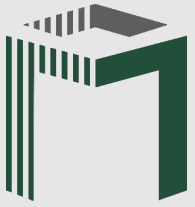
2) Problems the Motus program solves

# Master HOA Earthquake Policies: Boards are not buying them



## Why?

- Not required by law, not required by lenders & not required by associations documents
- Tough on budgets
- Large deductibles
- Divisive within communities
- HOA earthquake policies rates have been increasing the last three years



# As a Result...

**Over 30,000 association boards choose NOT to purchase a policy**

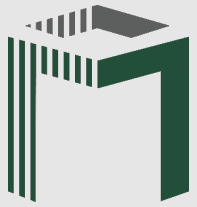
Those associations that do buy earthquake coverage often buy partial coverage



This leaves each unit owner with a **large special assessment** exposure



# Why is Special or Loss Assessment coverage so important?

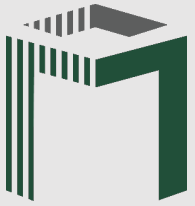


The California courts have ruled that when an HOA does not buy earthquake insurance, all unit owners will be equally responsible for all damages.

A) This will be paid through special or loss assessment

Special assessments will cover damages to:

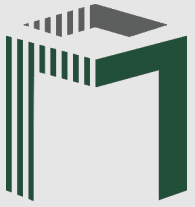
- 1) All common areas and non-residential structures
- 2) residential buildings
- 3) most likely unit interiors
- 4) Foundations & Underground pipes



# Desert Horizons HOA

Let's take a look at one of our existing clients, Desert Horizons HOA

- 1) They used to have an HOA earthquake insurance but dropped it 5 years ago due to costs
- 2) This means they are depending on large special assessments paid by individuals and HOA loans to rebuild
- 3) They enrolled in the Motus program in 2018



# Desert Horizons Case study

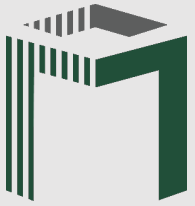
Desert Horizons is one of the over 30,000 communities in California that did not purchase an HOA earthquake policy

## **Desert Horizons Exposure**

Total Insurable value: \$251,000,000

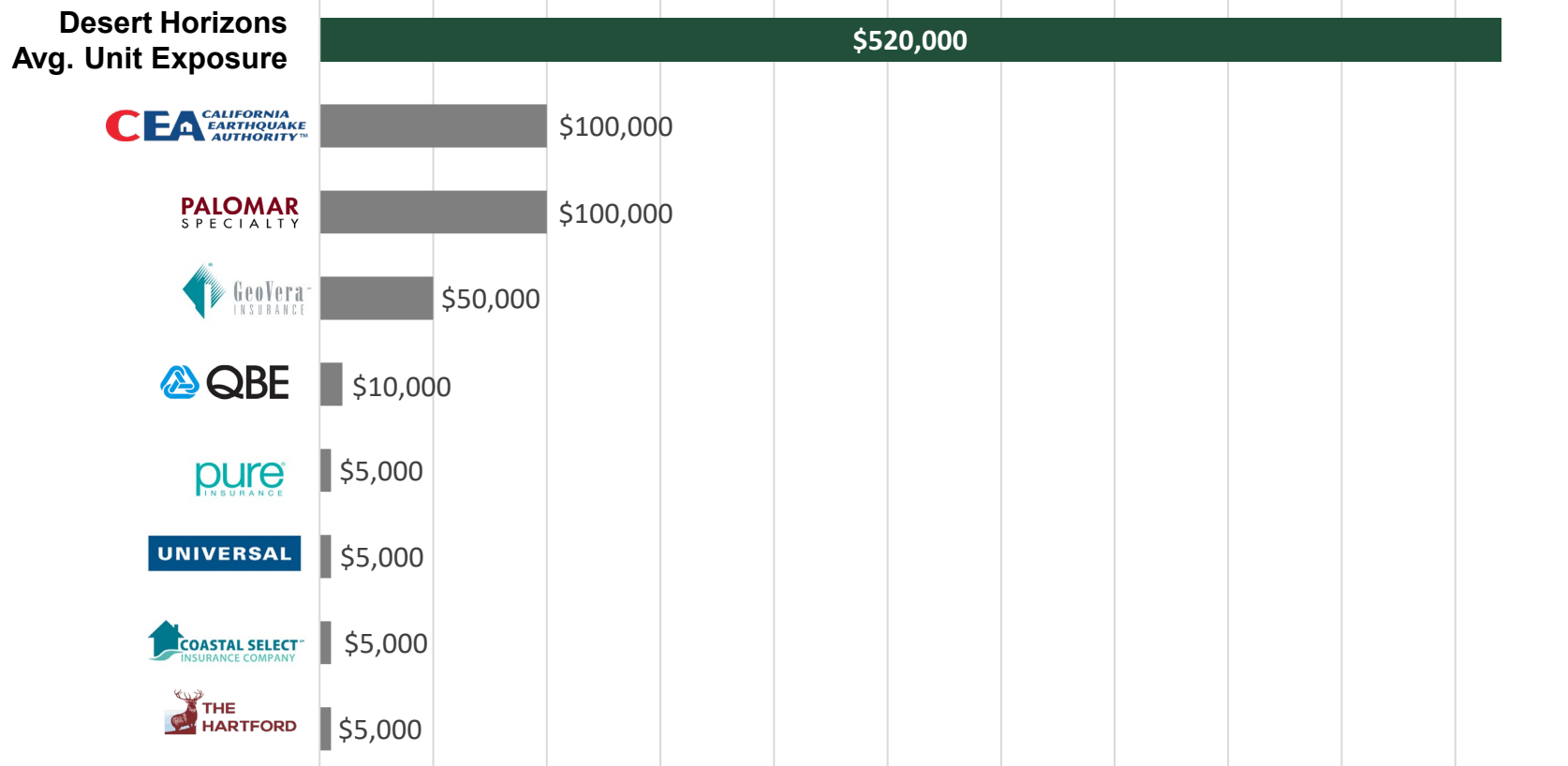
Number of units: 488

Unit owner's special assessment exposure: \$520,000

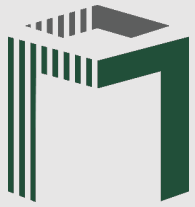


# Desert Horizons Case Study

Unit owners at Desert Horizons have an average special assessment exposure of \$520,000...but the most coverage they could purchase was \$100,000 – with critical exclusions like foundations, common areas, and garages

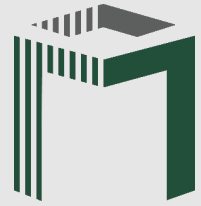


# Other insurance problems for individuals



- Critical exclusions – All the individual insurance options have exclusions like foundations, common areas, garages and underground pipes
- Narrow language: Unit interior is not combined with Loss Assessment coverage
- Pricing 5-8 times more expensive than single-family homes

# Motus Proposal for Desert Horizons

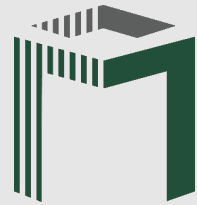


Unit-owner Policy Overview	
Loss Assessment Coverage	\$520,000 (combined)
Your Residential Building	\$520,000 (combined)
Other Residential Buildings	\$520,000 (combined)
Your Unit Interior	\$520,000 (combined)
Deductible	10%
<b>Coverage Enhancements</b>	
Common areas / amenities	Yes
Foundations	Yes
Non-Residential Structures (like a clubhouse)	Yes
Parking Garages / Structures	Yes
Underground Plumbing / Utilities	Yes
Pool / Spas	Yes
<div> Only the Motus Program can offer unit owners coverage of these exposures </div>	
<b>Other Policy Details</b>	
Guaranteed Cash if HOA Does Not Rebuild	Yes
Ordinance and Law (Coverage A)	\$520,000
Increased Cost of Compliance (Coverage C)	\$52,000
<b>Annual Premium</b>	<b>\$1,956 (\$163/month)</b>

## Customize Your Coverage

Each owner can purchase a custom level of loss assessment / interior coverage based on their unique exposure. Selection options are below (higher limits are available).

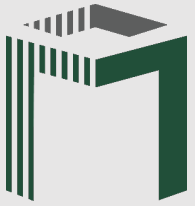
Coverage Level	Annual Premium
\$250,000	\$1,458
\$500,000	\$1,914
\$640,000	\$2,402



# Motus vs. the CEA Alternative

Unit-owner Policy Overview	Motus Option	Government (CEA) Option
<b>Annual Premium</b>	<b>\$1,956 (\$163/month)</b>	<b>\$1,999 (\$167/month)</b>
LOSS ASSESSMENT COVERAGE	\$520,000 (combined)	\$100,000 (max)
Your Residential Building	\$520,000 (combined)	Included
Other Residential Buildings	\$520,000 (combined)	Excluded
Common areas / amenities	\$520,000 (combined)	Excluded
UNIT INTERIOR COVERAGE	\$520,000 (combined)	\$100,000 (max)
Deductible	10%	10%
<b>Coverage Details</b>		
Foundation	Yes	No
Parking Garages / Structures	Yes	No
Underground Plumbing / Utilities	Yes	No
Pool / Spas	Yes	No
<b>Other Policy Details</b>		
Guaranteed Cash if HOA Does Not Rebuild	Yes	No
Ordinance and Law (Coverage A)	\$520,000	\$0
Increased Cost of Compliance (Coverage C)	\$52,000	\$10,000

# Desert Horizons Program Results



**101** unit owners enrolled,

representing over **20%** of the HOA

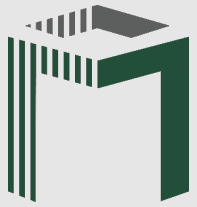
Average coverage of **\$440,000**

for a total of over **\$44,000,000** of  
new capital available to help rebuild

(NOTE: the statewide average take-up for CEA-type products is 5%...if 5% of owners had purchased the CEA's maximum special assessment coverage, the total capital available to rebuild would have been ~\$2.4 million)



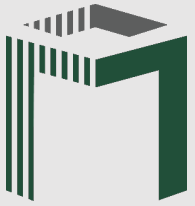
# Why were the individual products so bad, before Motus?



The individual products available to unit owners, before Motus, were only meant to **supplement a full coverage HOA policy not replace one.**

**Said another way,** when a board only buys partial HOA coverage or no HOA earthquake coverage, not one unit owner can fully insure themselves against earthquake damages.

**This is why** the department of insurance approved of the HOA “opt-in” earthquake program in 2017. Now unit owners can access full coverage and commercial pricing directly from the top HOA carriers in the world... on their own.



# Meet Our Insurers

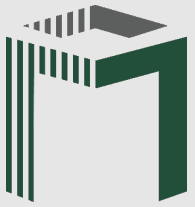
- Motus only works with the top “A” rated, admitted carriers in California



**Palomar**



# Motus HOA “opt-in” program made simple



- 1) We solve a very big problem for unit owners living in associations that do not buy HOA earthquake insurance or only buy partial coverage
  
- 1) We do not break the HOA budget; we keep earthquake insurance elective. A win for the boards. Billing done between unit owners and the insurance company



# California Shakin'

Living with earthquakes in the Golden State

Dr. Lucy Jones

Founder and Chief Scientist, Dr. Lucy Jones Center for Science & Society  
Research Associate, California Institute of Technology

Caltech

# Northridge Meadows Apartment complex



# Today's outcomes

1

You will understand why the West Coast has earthquakes

2

You will know how earthquakes cause damage

3

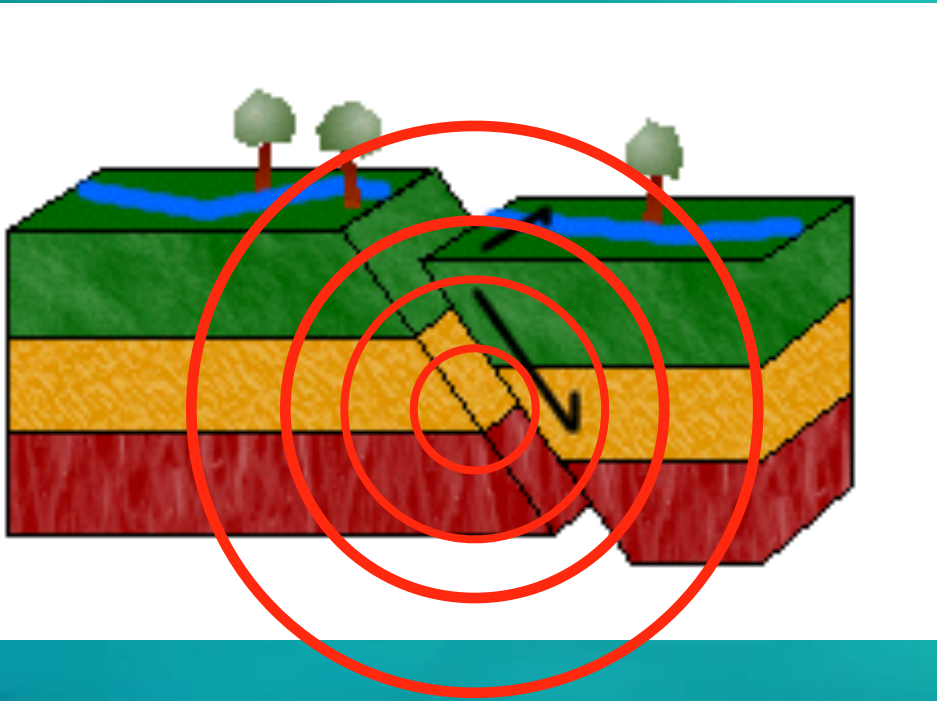
You will know which types of buildings have the most problems in earthquakes

4

You will be able to help your community become better prepared for the inevitable earthquakes in our future.



# What is an earthquake?



Kobe, Japan  
M7.2, 1995





# Fault offsets

New  
Zealand  
2017





Imperial  
Valley  
1940





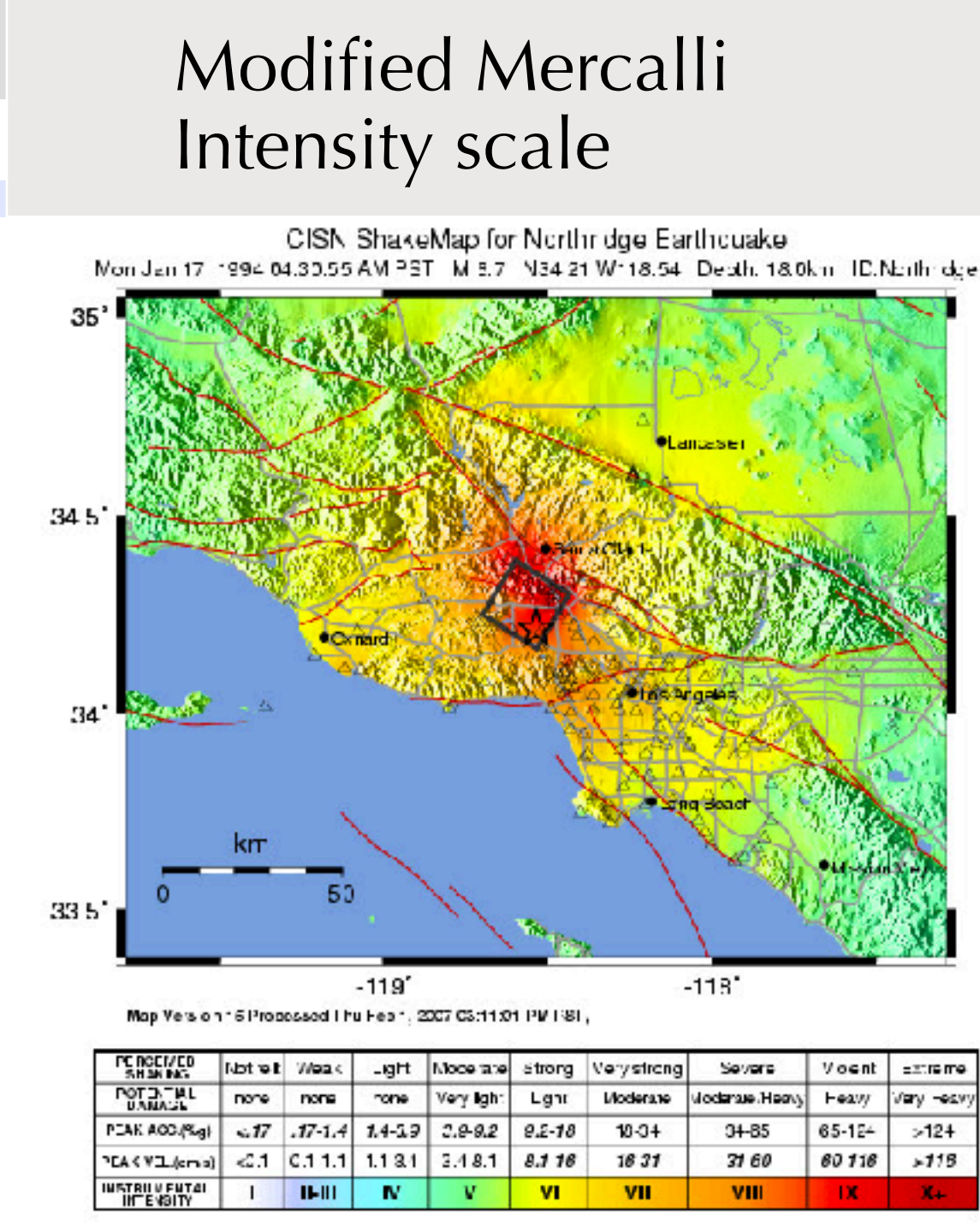
# Fault offset cannot be stopped

- California State law
- Passed in 1978
- Prohibits building across an active fault
- Does not remove buildings already there

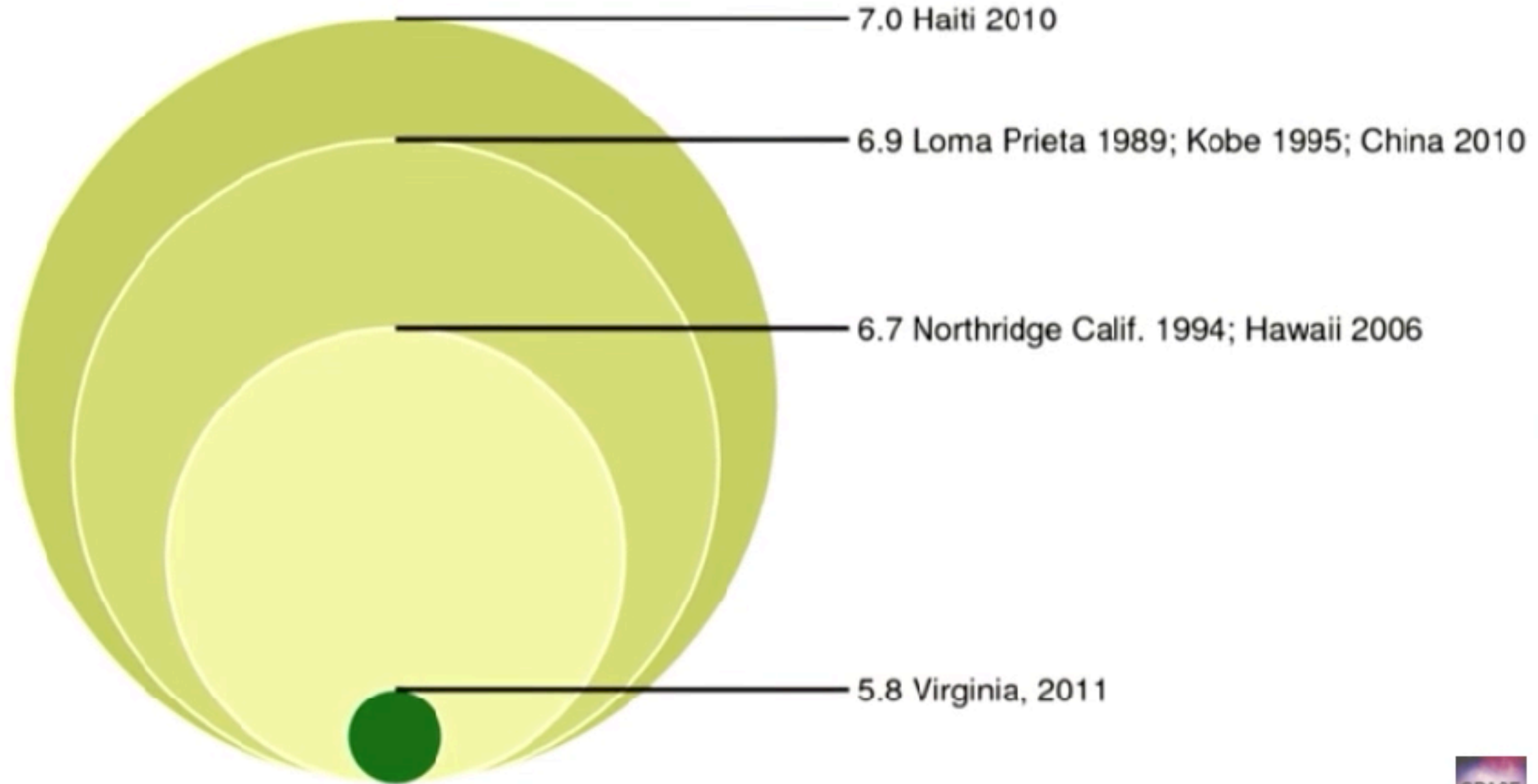


Sylmar 1971

Intensity	Shaking	Description/Damage
I	Not felt	Not felt except by a very few under especially favorable conditions.
II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
III	Weak	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
IV	Light	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
VI	Strong	Felt by all, many frightened. Some heavy furniture moved; some fallen plaster. Damage slight.
VII	Very strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
VIII	Severe	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
IX	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

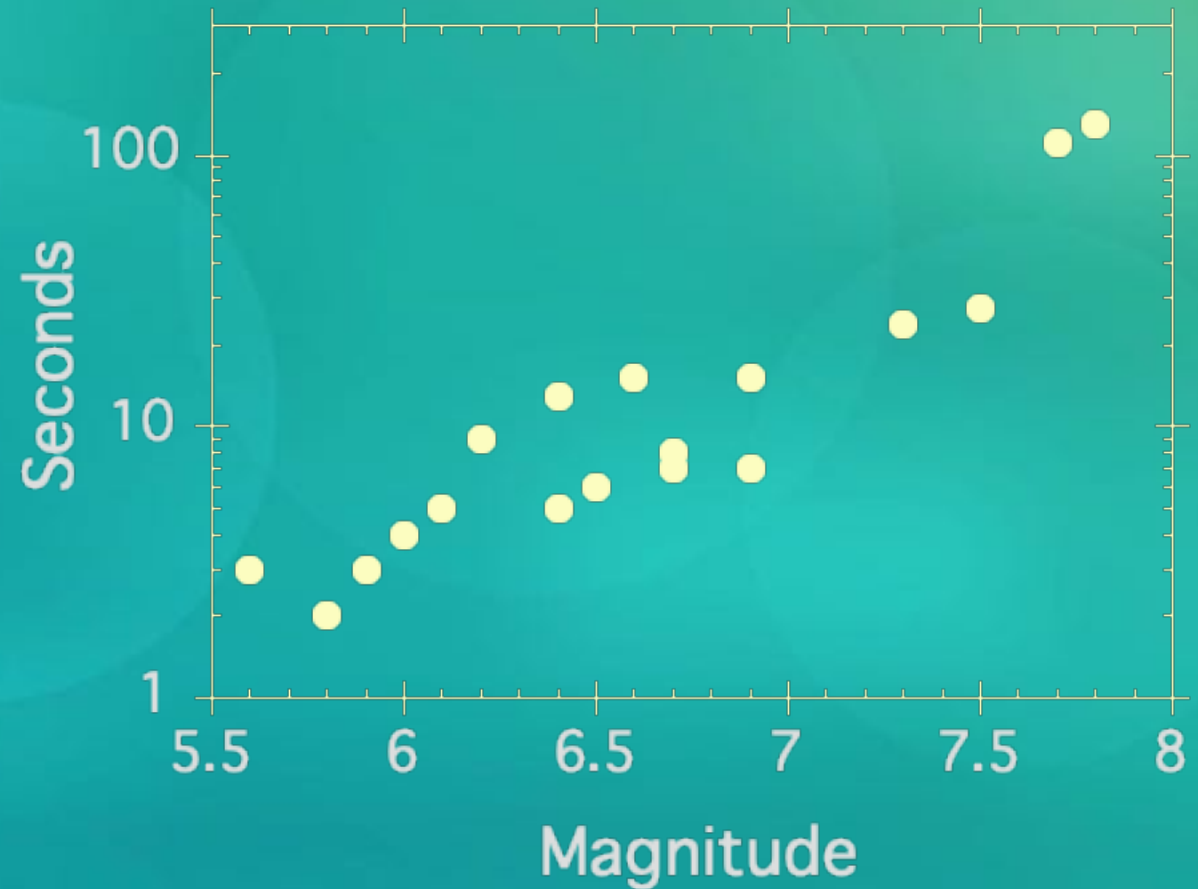
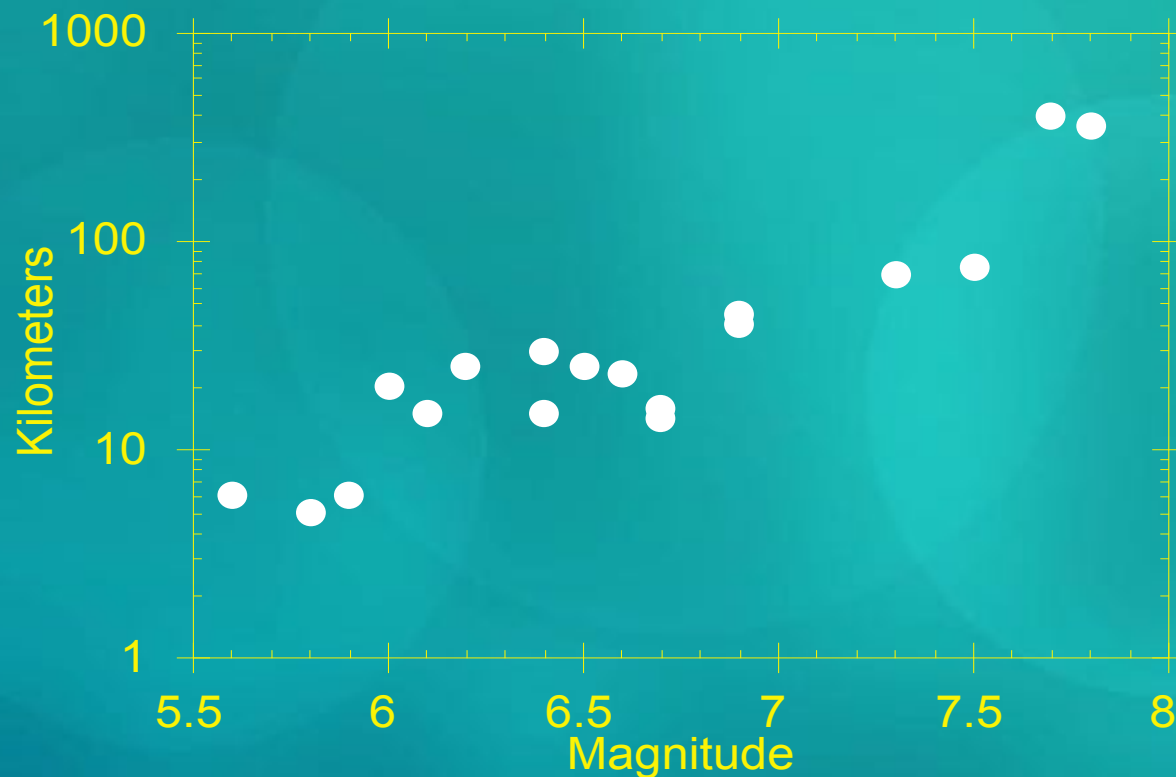


# Comparison of Recent and Historic Earthquakes by Energy Release



# What is different about a big earthquake?

- Bigger earthquakes on longer faults





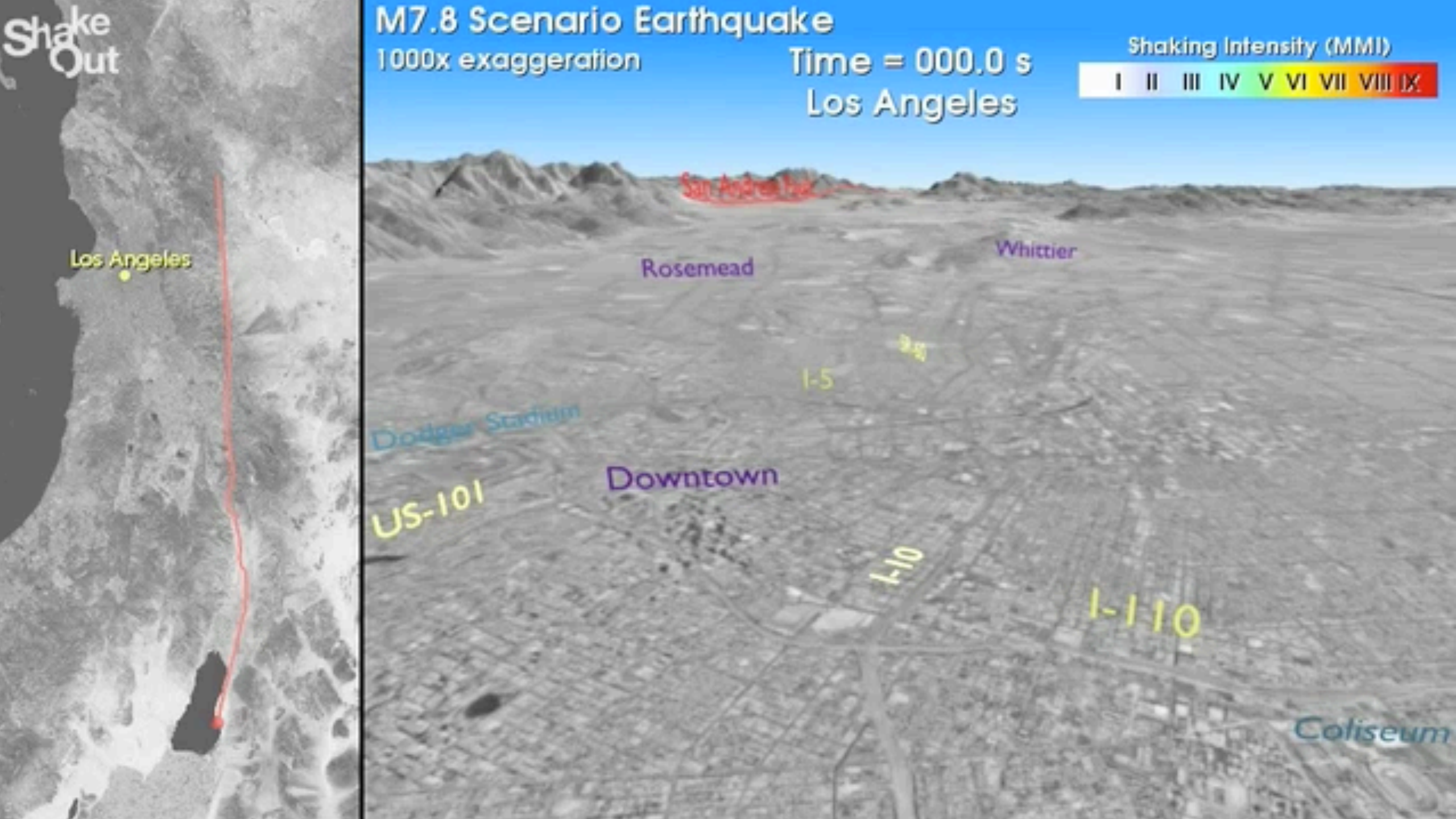
## M7.8 Scenario Earthquake

1000x exaggeration

Time = 000.0 s  
Los Angeles

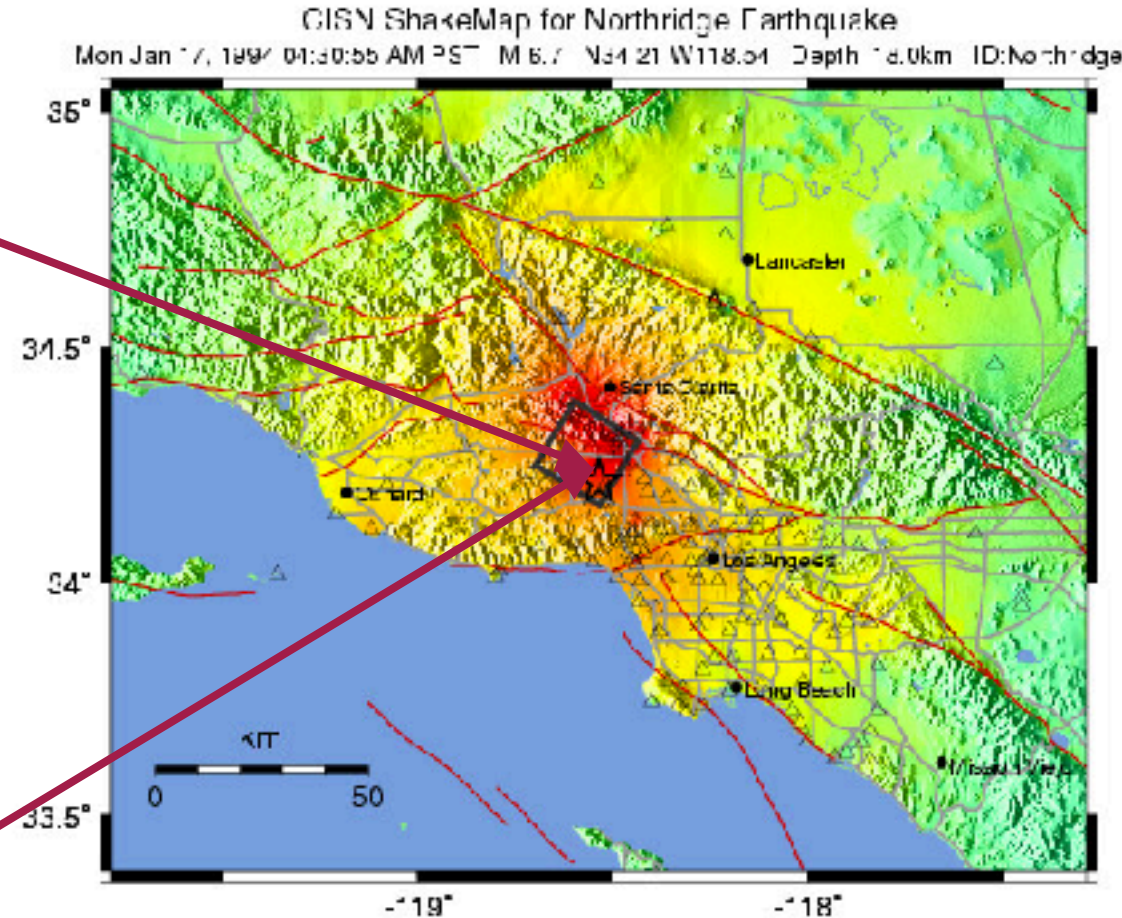
Shaking Intensity (MMI)

I II III IV V VI VII VIII IX



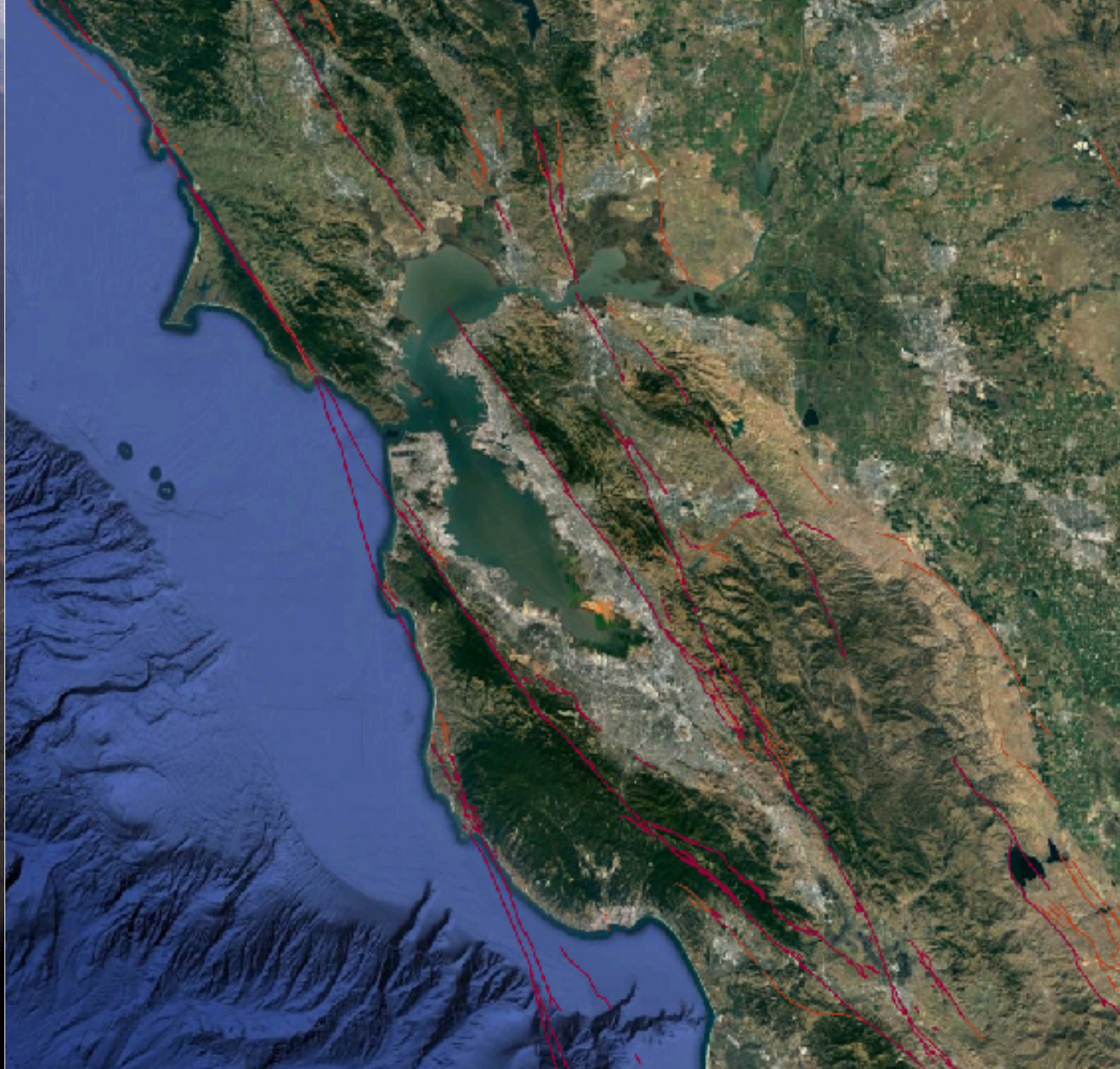


# Most damage at Intensity IX



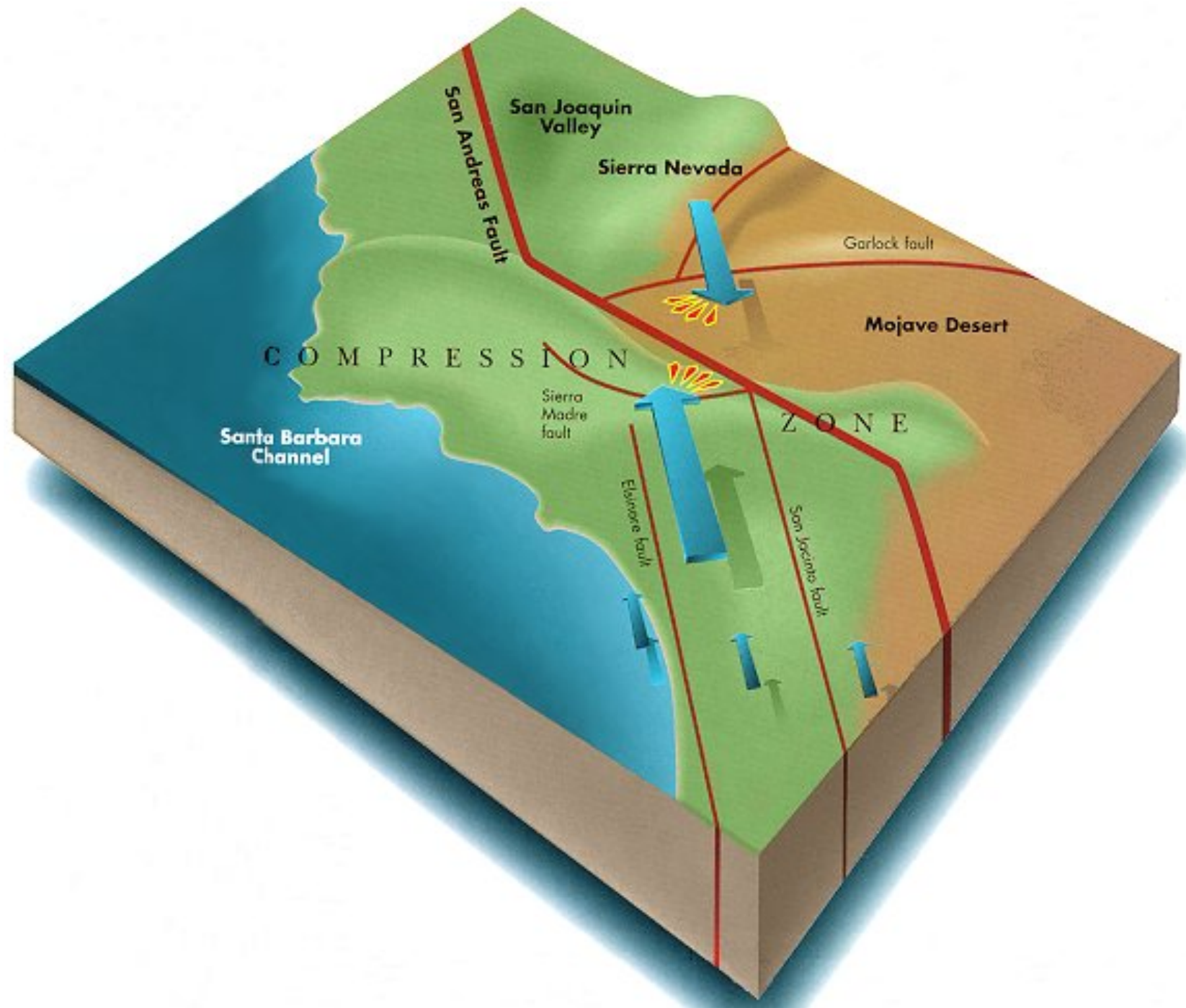
PERCEIVED SHAKING	Not felt	Weak	Light	Moderate	Strong	Very strong	Severe	Violent	Extreme
POTENTIAL DAMAGE	none	none	none	Very light	Light	Moderate	Moderate/Heavy	Heavy	Very heavy
PEAK ACC (mg)	<.17	.17-1.4	1.4-5.9	5.9-9.2	9.2-18	18-34	34-65	65-124	>124
PEAK VEL (cm/s)	<0.1	0.1-1.1	1.1-3.4	3.4-8.1	8.1-18	18-37	37-80	80-175	>175
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	XI







# Big Bend of the San Andreas Fault





# Cucamonga Fault

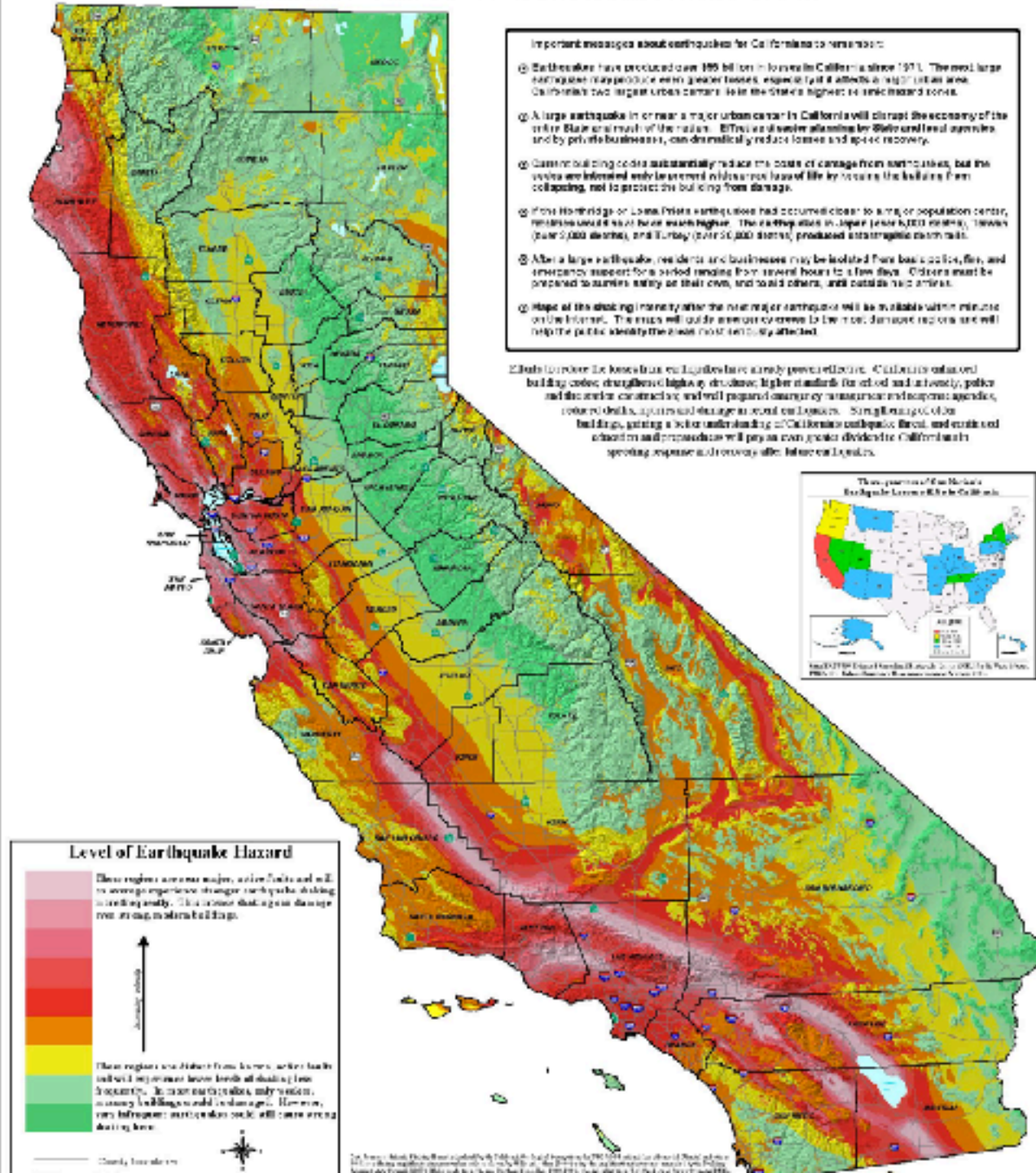




# Seismic Hazard Maps

- Time-independent rates expressed as a 30 or 50 year probability
- Take all the known faults, predict magnitude by length
- Estimate shaking from magnitude

Courtesy of California Geological Survey & U. S. Geological Survey



# The Resilience Equation

$$\text{Risk} = \text{Hazard} \times \text{Exposure} \times \text{Fragility} \div \text{Response} \div \text{Recovery}$$

Hazard = what the earth does to us: faulting, volcanoes...



Exposure: Extent & density of built environment



Fragility: Structural weaknesses



Response



Will to recover



# Evolutionary constraints on human intelligence

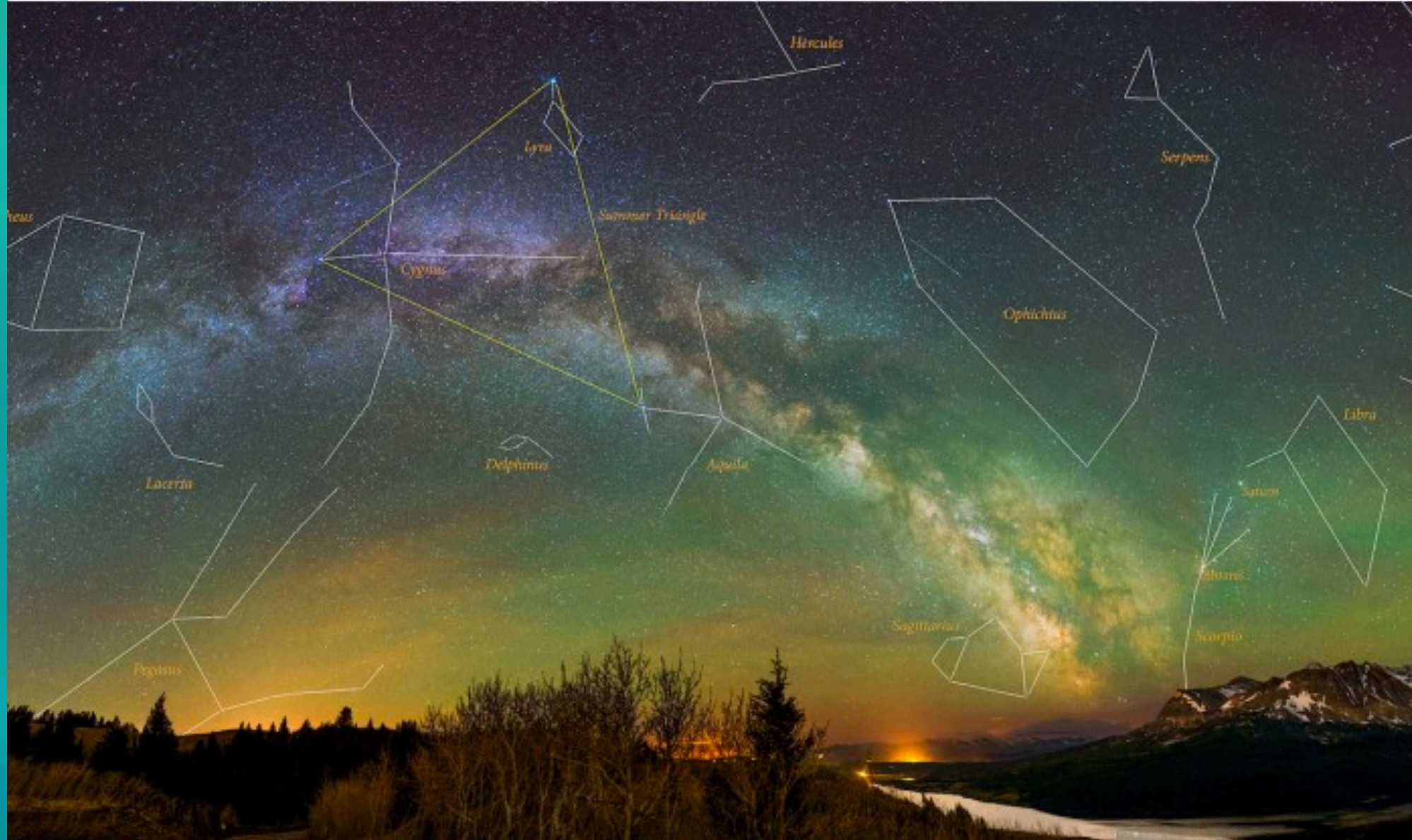
- Our intelligence evolved to make us safer in a primitive world
- Creating patterns to theorize about the risks



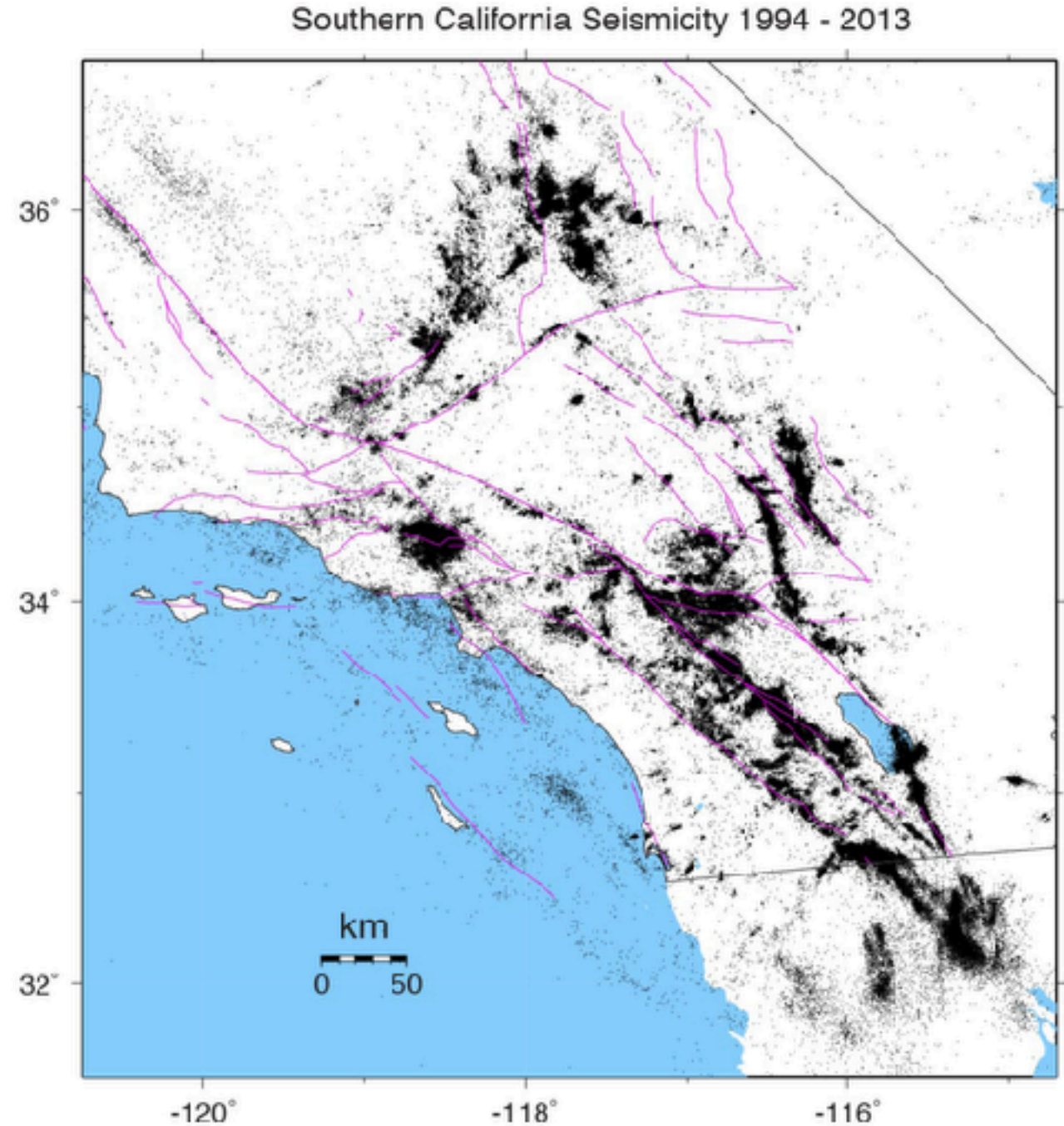


# Finding patterns

Dis-aster =  
Ill-starred

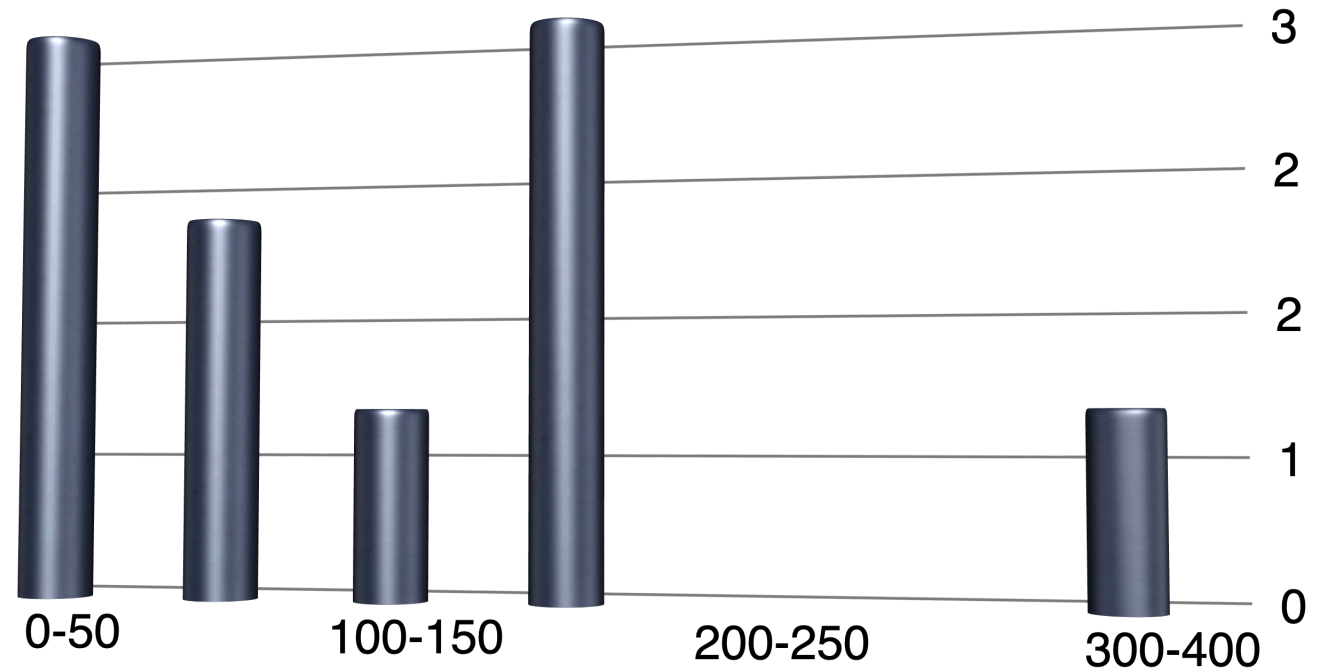


700,000 +  
earthquakes  
were recorded  
in Southern  
California in the  
last 40 years





What we  
don't know  
is when



Years between big quakes on central San Andreas  
fault at Frazier Park

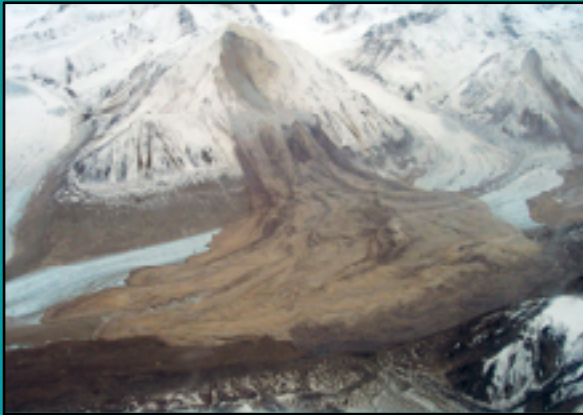
Scharer et al, 2017



# The Resilience Equation

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Hazard = what the earth does to us: faulting, volcanoes...



Exposure: Extent & density of built environment



Fragility: Structural weaknesses



**Too late to change!**

March 11,  
2011  
Tohoku  
M9.0

Lesson 1:  
Mitigation  
works





# Shaking: New buildings

- In worst earthquake, 90% probability of not collapsing
- 10% probability of collapse = 10% of new buildings collapsing





# Christchurch 2010





Christchurch,  
Feb 22, 2011



# Christchurch 2015





More  
problems  
in older  
buildings



Unreinforced  
masonry



Soft first story



Non-ductile concrete



Pre-1994 steel  
moment frame

# The Resilience Equation

$$\text{Risk} = \text{Hazard} \times \text{Exposure} \times \text{Fragility} \div \text{Response} \div \text{Recovery}$$

Hazard = what the earth does to us: faulting, volcanoes...



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Fragility: Structural weaknesses

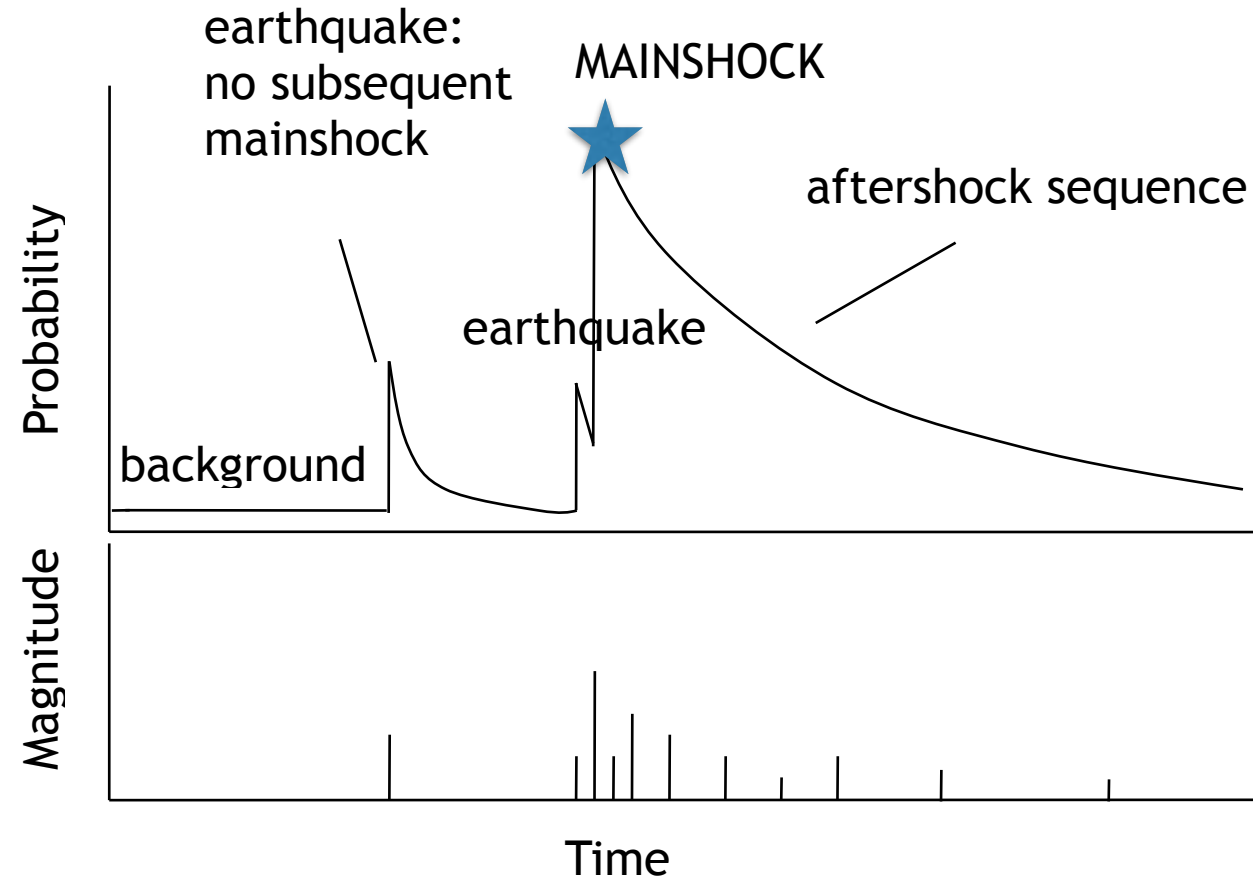


Response





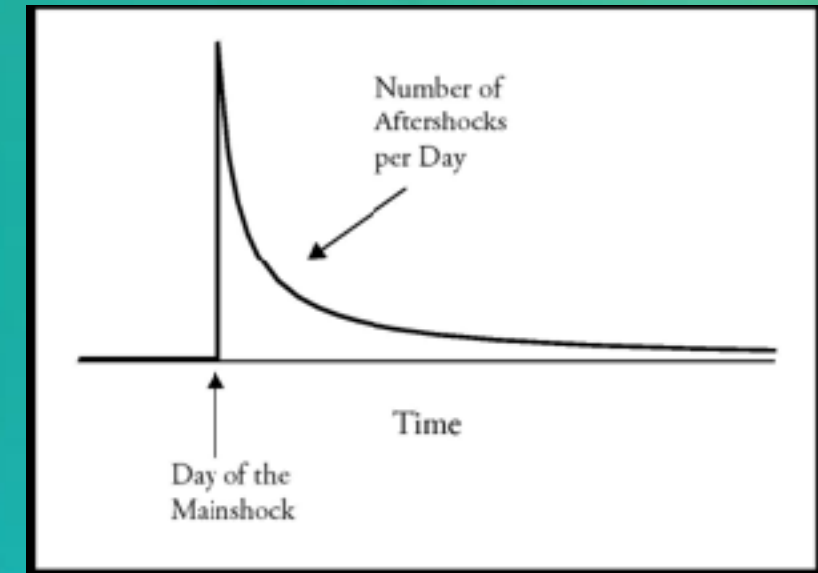
# Earthquake triggering



Aftershocks/Foreshocks > 50% of all events in California

# ■ Aftershock behavior

- The number dies off as one over time.
- Small quakes are much more common than large ones. For each unit of magnitude, we have 10x as many events.
- Productivity of an aftershock sequence is very variable. The mean value of the largest aftershock is 1.2 units below the mainshock.
- 5% of the time, the largest aftershock is bigger and then we change the name of the first quake to “foreshock.”

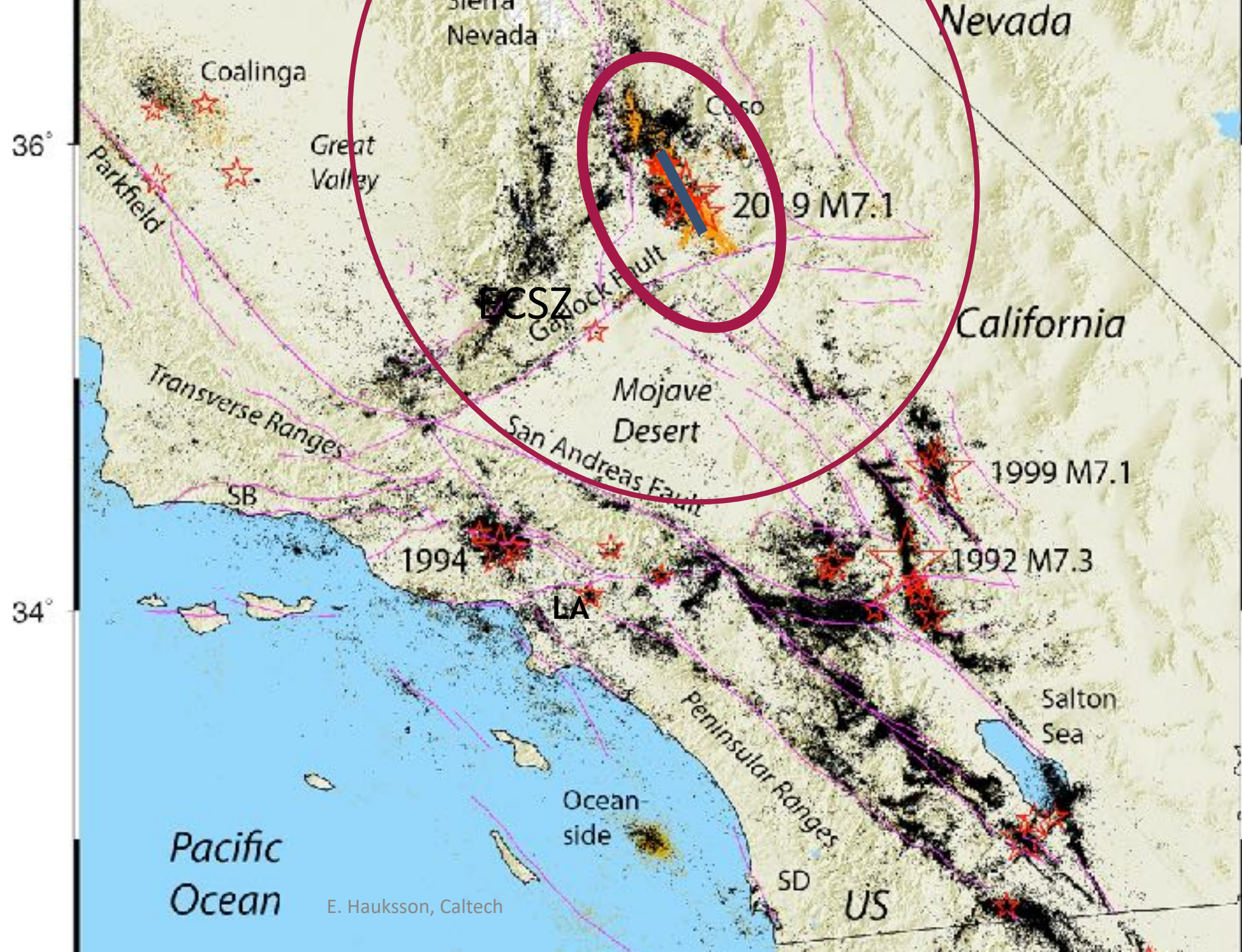




# Spatial distribution of aftershocks

Aftershocks =  
within 1  
fault length

Triggered  
earthquakes =  
within 3-4 fault  
lengths

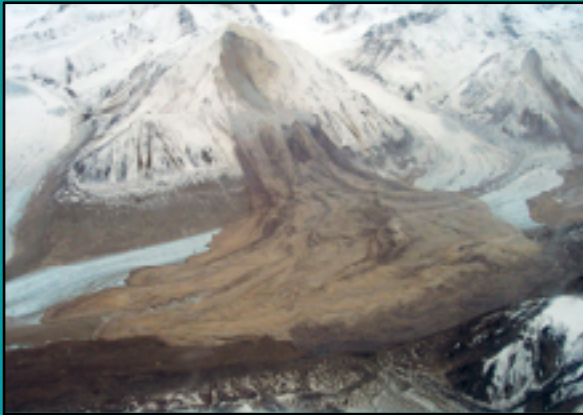




# The Resilience Equation

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Response



Will to recover

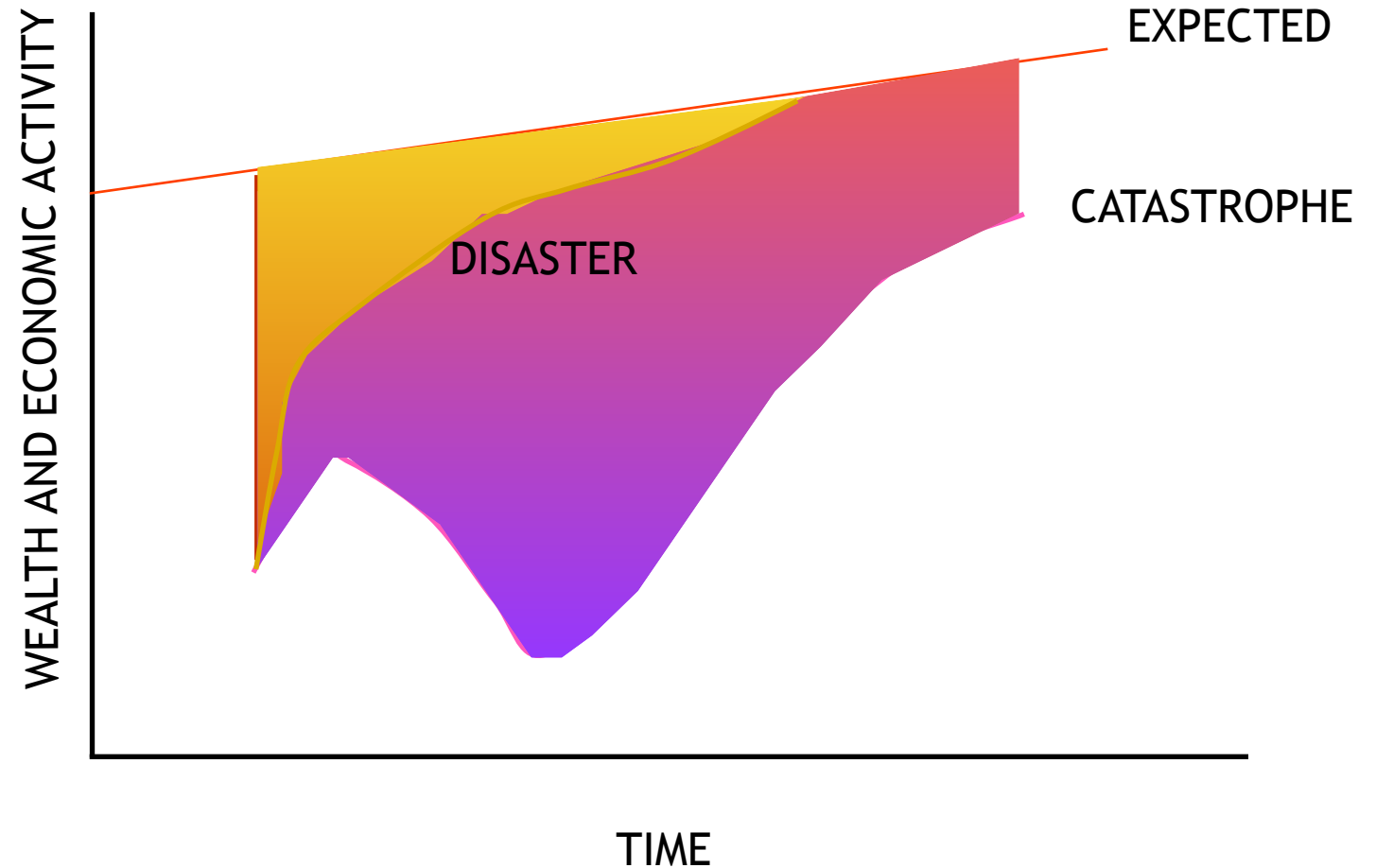
# SOCIAL REPERCUSSIONS





# How do we speed up recovery?

- Mitigation prevents damage, reducing need for response
- Planning improves response and recovery
- Quick influx of money





An aerial photograph of New York City, showing the dense urban landscape of Manhattan and the surrounding areas. The Hudson River is visible in the upper left, and the New York City skyline, including the Empire State Building, is prominent in the center. The image is used as a background for the text.

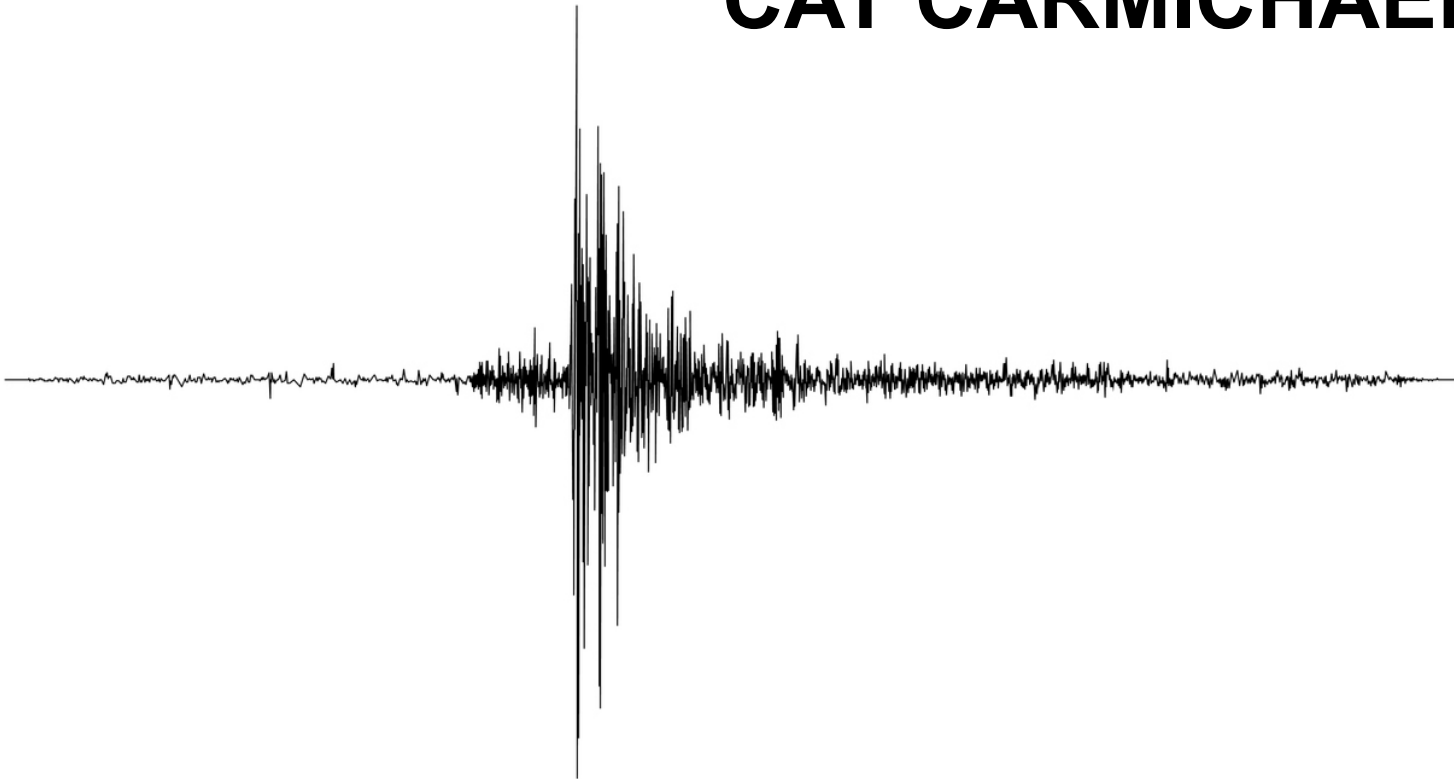
# Disaster Resilience:

A society that functions after the disaster



# **EARTHQUAKE RESILIENCY BEFORE AND AFTER**

**ADRIAN J. ADAMS, ESQ.  
CAT CARMICHAEL, PCAM**



# LIABILITY

Every owner is equally liable for cost of repairs—even if their unit is not affected.





# BEFORE AN EARTHQUAKE

Boards can (and should) take steps to reduce potential damage (both physical and financial)

Managers can and should advise boards to transfer risk to third parties



# INVESTIGATE

Use experts verify your building complies with the earthquake safety measures (Business Judgment Rule)

- Gas shutoff valves
- Water heater straps
- Post reinforcements
- Balcony inspections



2025 Deadline

# GOVERNING DOCUMENTS

## Legal Review

- **Duty to insure**
- **Rebuilding provision**
- **Reserve funding**
- **Power to borrow**
- **Power to dissolve HOA**





# INSURANCE

- Walls-in coverage?
- CGL for fire
- Earthquake insurance?
- For water damage
- Owner insurance?
- HO-6 for condos



# **NO INSURANCE**

**If the association does not have earthquake insurance:**

- **Large special assessments**
- **Borrowing (debt service)**
- **Possible dissolution-do they?**



# **BORROWING MONEY LENDERS or FEMA?**

- **Board power to borrow money?  
(membership vote required?)**
- **25 units or more (reduces risk)**
- **<10% delinquency >60 days past due**
- **Owner/tenant occupancy less than 50%**
- **First FEMA applications more likely to succeed**





# BOARD CHECKLIST

- Community manager
- Insurance agent
- Legal counsel
- Banker
- Disaster relief agencies
- Reserve fund liquidity





ADRIAN J. ADAMS, ESQ  
CAT CARMICHAEL, PCAM

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