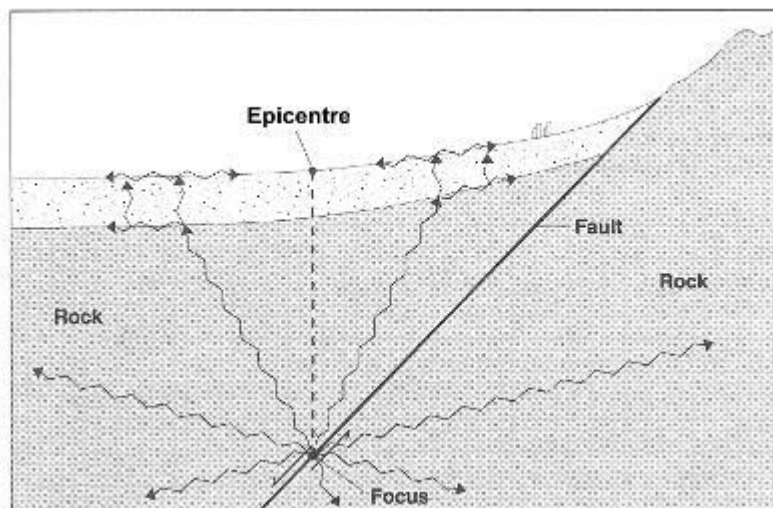


A SIMPLE EXPLANATION OF EARTHQUAKE MAGNITUDE AND INTENSITY



(using the Feb. 28, 2001 Nisqually, Washington earthquake to illustrate)

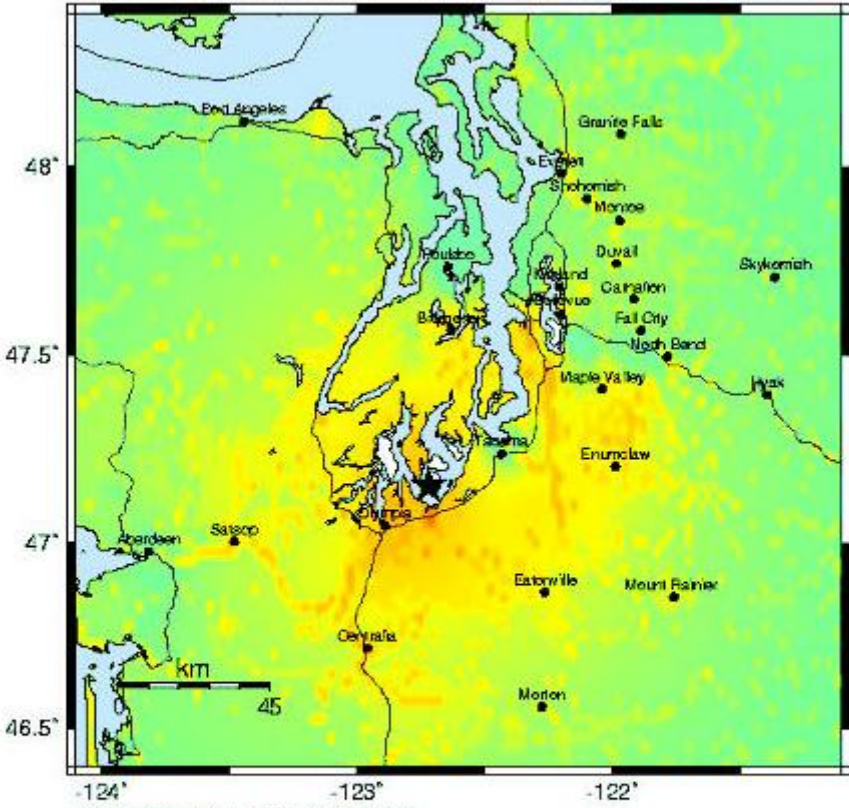
Everybody is familiar with an earthquake being reported as "Richter Magnitude such-and-such", but few people know what that actually means. The Magnitude of an earthquake is a measure of its energy released at the earthquake's focus- at the precise point where a fault has ruptured. The focus may be many kilometres below the surface of the earth. It was about 53 km below the surface in the Nisqually earthquake. The point on the surface directly above the focus is called the epicentre. Seismographs are used to measure an earthquake's seismic waves, and from that information seismologists can determine the location of the focus, the epicentre and the magnitude.



Although Charles Richter developed the popular scale for describing magnitude, there are different ones in use today. These are still popularly referred to as "Richter" scale measurements, and the modern idea is similar. The important thing about magnitude is that an earthquake only has one of them! You cannot correctly say: "The quake was magnitude 6.8 in Seattle but was only magnitude 5 in Vancouver because of the distance from the epicentre."

If the maps are made quickly enough, they can help emergency responders react to areas that need help most. Today, automated "shake maps" are being made in some areas of the US, and their usefulness is being evaluated. Below is the shake map for the Nisqually earthquake, from the University of Washington.

PNSN Rapid Instrumental Intensity Map Epicenter: 17.6 km NE of Olympia, WA
 Wed Feb 28, 2001 10:54:00 AM PST M 6.8 N47.15 W122.72 ID:0102261854



PROCESSED: Tue Mar 6, 2001 06:49:13 PM PST

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.(g)	<0.17	0.17-1.4	1.4-3.9	3.9-9.2	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	8.1-16	16-31	31-60	60-115	>115
INSTRUMENTAL INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+