MODIFIED MERCALLI SCALE

The severity of an earthquake can be expressed in terms of both *intensity* and *magnitude*. However, the two terms are quite different, and they are often confused.

Magnitude is related to the amount of seismic energy released at the hypocenter of the earthquake. It is based on the amplitude of the earthquake waves recorded on instruments which have a common calibration. The magnitude of an earthquake is thus represented by a single, instrumentally determined value. The scale commonly used to measure the magnitude of an earthquake is the Richter Magnitude Scale.

Intensity is based on the observed effects of ground shaking on people, buildings, and natural features. It varies from place to place within the disturbed region depending on the location of the observer with respect to the earthquake epicenter. The Modified Mercalli Intensity Scale is used to equate a number with the observable, experienced effects caused by an earthquake. For more information, see: https://earthquake.usgs.gov/learn/topics/mercalli.php

In Santa Cruz County, we use the Modified Mercalli Intensity Scale for efficient and standardized reporting of earthquake damage. Instead of using vague and subjective descriptions like "major", "minor" or "heavy", a Mike-Mike value is reported. This value is quick and simple to communicate over the air and equates to an objective, standard level of observed damage as defined in the scale below.

To use: Match the damage you observe to the descriptions below. Then report the "Mike-Mike" number as follows:

<YourCallSign> <YourVicinity> <Mike-Mike-#> <YourCallSign>

Example (with fictitious call sign of Herman Munster and fictitious city of Xanadu):

W6XRL, Ben Lomond, Mike-Mike-4, W6XRL

Mike-Mike Value	Intensity	Shaking	Description / Damage (USGS)
Mike-Mike-1	I	Not Felt	Not felt except by a very few under especially favorable conditions.
Mike-Mike-2	II	Weak	Felt only by a few persons at rest, especially on upper floors of buildings.
Mike-Mike-3	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.
Mike-Mike-4	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.
Mike-Mike-5	V	Moderate	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
Mike-Mike-6	VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.

Mike-Mike-7	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.
Mike-Mike-8	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.
For completeness, Intensity levels IX and X are shown below. But we typically report a maximum of Mike-Mike-8, since anything beyond that constitutes major damage and the likely response would be the same.			
Mike-Mike-8	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.
Mike-Mike-8	X	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.