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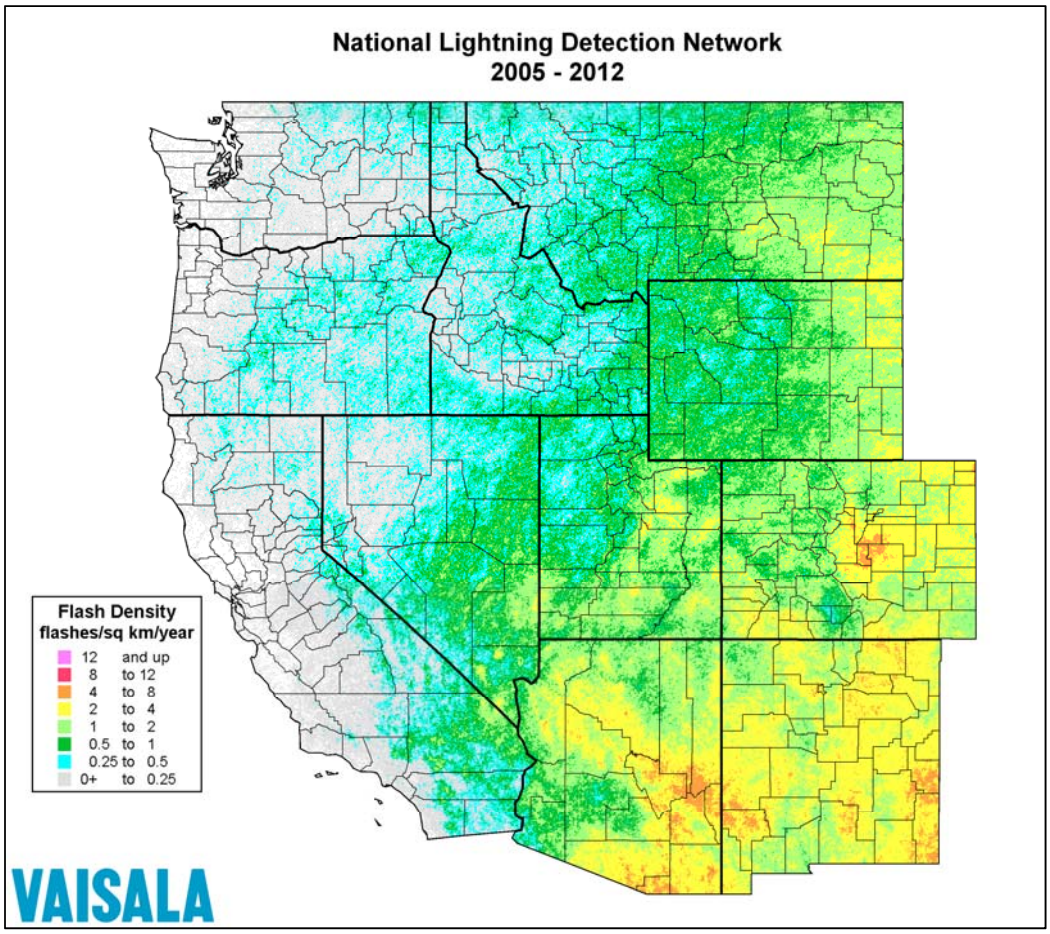
For Immediate Release June 2013

Western U.S. Lightning Data from National Lightning Detection Network

Lightning frequency

The following map shows cloud-to-ground flash density for eight years in the western states. There is a great deal of detail to be found within this map at 2-kilometer (1.24 mile) resolution. The highest average lightning frequency is in New Mexico, Arizona, and Colorado. The highest density exceeds eight flashes per square kilometer per year in at least one grid square in each of these states. Less frequent lightning is shown to the north and west, where there is cool to cold ocean waters offshore and sinking motion that inhibit deep convection along the coast. In interior locations, there is inadequate low-level moisture due the due to blockage by mountain ranges along the west coast. Storms on the southeast Plains occur in May and June, but most of the thunderstorms in other regions occur during July and August as the southwest monsoon sends deep moisture to the north and west from the Gulf of Mexico at middle levels of the atmosphere, and from the Gulf of California at lower levels. Most of the lightning in this region starts around mid-day over the higher terrain and moves outward to lower elevations in the afternoon and early evening. Storms in eastern Montana and southwest Arizona linger to near midnight after they move off the mountains.



Lightning fatalities

For the entire U.S., 34 people were killed by lightning per year from 2003 to 2012, for a total of 345 during these ten recent years. The number of flashes and fatalities are shown by state in the following table. An average of ten times as many people are injured sufficiently to require medical attention as the number of fatalities. It is apparent that Colorado has many more fatalities than other western states. More details on area-weighted flash densities and population-weighted fatality rates are at www.lightningsafety.noaa.gov.

State	Flashes in 2012	Average Flashes 1997 to 2012	Fatalities 2003-2012	Fatality Rank 2003-2012
Arizona	565,170	643,743	8	14
California	74,271	84,490	7	17
Colorado	335,009	506,131	24	2
Idaho	47,594	80,563	1	40
Montana	201,582	347,203	3	35
Nevada	159,019	155,780	1	42
New Mexico	478,404	854,227	3	36
Oregon	28,362	51,954	0	50
Utah	160,227	242,192	9	13
Washington	35,042	21,418	0	52
Wyoming	148,754	291,409	4	32

Lightning insurance claims

According to the Insurance Information Institute and State Farm Insurance, 186,000 insurance claims were paid for lightning losses in the U.S. in 2011, at an average of $5112 per claim for a total of about one billion dollars from this source alone – see www.vaisala.com/nldn30. There are substantial additional impacts of lightning in a very wide variety of avoidance and mitigation expenses.

Lightning safety

Safety from lightning involves being inside a large substantial building or a fully-enclosed metal-topped vehicle in the presence of lightning. In the U.S., 99% of lightning deaths in recent years occurred outside of these two safe locations. A simple rule to use for reaching these safe places is “When thunder roars, go indoors.” A substantial expansion on this lightning safety information is located on www.lightningsafety.noaa.gov.