

**Data on solar flares striking earth from 1859 to through 2016**

**Prepared by Brian Kelleher between January 15 and 23, 2017 in preparing a press release  
Attached to a January 24, 2017 press release**

In starting my research on flare frequency from various sources, I first took note of the following major flare events through 1960 starting with the Sept 1859 Carrington Event: Dec 1862, Feb 1872, Nov 1882, Mar 1894, Oct 1903, Sep 1909, Mar 1918, May 1921, May 1932, Apr 1937, Mar 1940, Sep 1946, Jul 1959, and Nov 1960.

Relying mostly on NASA data along with other sources, I took note of the following primarily monster solar flares (highlighted in bold) that struck earth during the period of accelerated warming (category-X solar flares are the most powerful of the four categories with an X2 being twice as powerful as an X1): **Aug 1972 4 giants; July 1978 two giant Xs; June 1982 X12; Dec 1982 X10.9 and X12.1; Apr 1984 X13; May 1984 X10; Feb 1986 X3 and X1; Mar 1989 two X15s; Aug 1989 X15 and X20; Oct 1989 X13, X2.9, X5.7; May 1990 X9.3; Jun 1991 four X12s; Nov 1997 X9.4 and X2.6; May 1998 X2; and Aug 1998 X1; Jun 2000 X1; July 2000 X1 and X5; Apr 2001 X2.3; Jul 2002 X7, X2, and X3; May 2003 X1.3 and X3.6; Jun 2003 X1.6, X1.3 X1.7; Oct 2003 X1.1, X17.2, and X10; November 2003 X8.3, X2.7, X3.9 and X28+; Nov 2004 X2 and X2.5; Jan 2005 X1.2, X3, and X7; Dec 2006 X9, X6, X3 and X1.5; Feb 2011 X2; Mar 2012 X5; Jul 2012 X1.4; Oct 2013 X2.1; Nov 2013 X3.3, X1.1 and X1.1; Jan 2014 X1; Mar 2014 X1; Sep 2014 X1.6; Nov 2014 X1.6; Dec 2014 X1.8; Mar 2015 X2.** There were no X category events recorded in 2016.

For events since 2000, I used SpaceWeatherLive.com and Spaceweather.com Time Machine and checked against NASA data.