Comparing Magnitudes & Energy Released

2008 Sichuan

- Magnitude 8 on the Richter scale recorded

- Energy released:

$$\boldsymbol{\log E = 11.8 + 1.5M}$$

$$\log E = 11.8 + 1.5(8)$$

$$\log E = 23.8$$

$$\boldsymbol{E = 10^{23.8}}$$

The energy released by this earthquake was $\boldsymbol{10^{23.8}}$ ergs

2010 Haiti

- Magnitude 7 on the Richter scale recorded.

- Energy released:

$$\boldsymbol{\log E = 11.8 + 1.5M}$$

$$\log E = 11.8 + 1.5(7)$$

$$\log E = 22.3$$

$$\boldsymbol{E = 10^{22.3}}$$

The energy released by this earthquake was $\boldsymbol{10^{22.3}}$ **ergs**

Comparing Intensities

2008 Sichuan Earthquake ($M_1 = 8$) vs 2010 Haiti Earthquake ($M_2 = 7$)

- Intensity compared: $10^{M_1 - M_2} = 10^{8-7} = 10$

The Sichuan Earthquake was **10 times more intense** than the 2010 Haiti Earthquake.

Comparing Impact

2008 Sichuan Earthquake

- Almost 90,000 people were counted as dead or missing and presumed dead in the final official Chinese government assessment
- The officially reported total killed included more than 5,300 children, the bulk of them students attending classes.
- In addition, nearly 375,000 people were injured by falling debris and building collapses.
- Hundreds of dams, including two major ones, were found to have sustained damage.

Source:
https://www.britannica.com/event/Sichuan-earthquake-of-2008

Comparing Impact

2010 Haiti Earthquake

- One million were left homeless in the immediate aftermath.
- Figures released by Haitian government officials at the end of March placed the death toll at 222,570 people, though there was significant disagreement over the exact figure, and some estimated that nearly a hundred thousand more had perished. In January 2011, Haitian officials announced the revised figure of 316,000 deaths.
- In Port-au-Prince(capital) the cathedral and the National Palace were both heavily damaged, as were the United Nations headquarters, national penitentiary, and parliament building.

Source:
https://www.britannica.com/event/2010-Haiti-earthquake