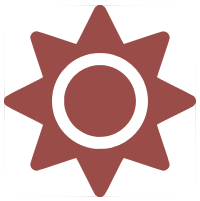
THE CAUSE

The global average temperature is influenced by three main factors:



INSOLATION

the amount of solar radiation that reaches our atmosphere

PARTICULATES

e.g. from volcanoes, blocking solar radiation from entering our atmosphere

GREENHOUSE GASES

e.g. CO_2 and methane, trapping solar radiation within our atmosphere

As one might expect, the more solar radiation that reaches our atmosphere, enters it, and gets trapped within it, the hotter our average temperature becomes. All three of these factors work together to maintain the delicately balanced climate necessary to sustain much of Earth's life.

So what's to blame for our current warming?

Over time, insolation is pretty predictable. The sun's output follows an 11-year solar cycle, and the amount that reaches our surface depends only on our orbit and axial tilt – also very predictable things by now, if clothing store prices are anything to go by. The effects of increased insolation are obviously quite hard for us to prevent, but thankfully they are short-lived and not responsible for our current warming trend.

The amount of particulates in the Earth's atmosphere, from things like volcanic eruptions, is much less predictable, and can have more noticeable consequences. At an extreme level, the volcanic eruption of Huaynaputina in 1600 caused the coldest year in six centuries, leading to the Russian famine of 1601-03 which killed two million people. Lucky for us again, beyond these short timescales, eruptions don't factor into our calculations.