

# APOCALYPSE SOMETIME? THE RISK OF AN ASTEROID STRIKE

KITE & KEY  
MEDIA

## [SCRIPT]

You gotta hand it to the human race. We picked a great neighborhood.  
Weather's just right.  
No nosy neighbors.  
Plenty of room to go outside and stretch your legs.  
And, hey, it's about as safe as neighborhoods come.  
Well ... most of the time.

## [OPENING SEQUENCE]

We don't mean to alarm you, but the  
world may end on October 26, 2028...



This wasn't the first time that the [apocalypse was prematurely declared](#). Europeans expected a world-ending flood on February 20, 1524, based on the calculations of the German mathematician Johannes Stöffler. The panic was so widespread that it even led to a surge in boat sales. In 1910, a French astronomer rattled the world by predicting that the return of Halley's Comet would release poison gas into the atmosphere and end all life on the planet. After it failed to occur, the *Chicago Tribune* ran the headline: "We're Still Here."



HALLEY'S  
COMET

...is what you may have heard if you were listening to the news in March of 1998.<sup>i</sup>

That's when astronomers found a half-mile wide asteroid that looked like it was headed for Earth. Now, that's only a fraction of the size of the asteroid that took out the dinosaurs...

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...but that probably wasn't much comfort when the *New York Times* reported that it would "not necessarily be severe enough to wipe out the human race."<sup>ii</sup>

We were lucky. Further calculations revealed that the asteroid in question wasn't destined for Earth after all. But the topic still weighed heavily on people's minds that year.

How could it not? Hollywood released not one, but two asteroid movies in 1998. In *Deep Impact*, an asteroid took out most of the East Coast. In *Armageddon*, the future of humanity hinged on Bruce Willis and Ben Affleck – which, honestly, may have been the more terrifying scenario.

1998 was also the year that NASA created a program to systematically track what are called NEOs – Near-Earth Objects – that come within 30 million miles of Earth's orbit around the sun.<sup>iii</sup> That may not sound close, but in the context of space ... let's just say you'd want those asteroids to use their turn signals.

Why were we so slow to reckon with the threat? Obviously, better technology helped make these efforts more plausible, but another impediment to progress was that the public often regarded the threat as too silly to take seriously. Frustrated NASA scientists frequently spoke of the difficulty presented by what they called "the giggle factor".



### 'Giggle factor' is no laughing matter to scientists

FRASCATI, Italy -- The first step in confronting the risks of an asteroid striking the Earth is to get people to listen with a straight face, experts say. Changing that was one of the goals of a meeting recently between government leaders and scientists on asteroid-related risks.

The fact that NASA took it so seriously underscores an important point: This threat is not just a creation of Hollywood. Most of us know about the massive asteroid that hit Mexico about 66 million years ago and took out the dinosaurs – although we might not know the terrifying details. One author described it as "a rock larger than Mount Everest hit[ting] Planet Earth traveling twenty times faster than a bullet."<sup>iv</sup>

Fewer of us, however, know about other, more recent occasions, on which Earth has taken a beating.

In 1908, an asteroid exploded over the Tunguska region of Siberia with the same force as the volcanic eruption at Mt. St. Helens.<sup>v</sup> Thankfully it took place over a remote area, so its main impact was flattening half a million acres of trees – on a different path, it could have destroyed a major city.

In 2013, another asteroid blew apart 14 miles over the Russian city of Chelyabinsk – with the force of 440,000 tons of TNT.<sup>vi</sup> It blew out windows over 200 square miles.

And it's not just Russia. On New Year's Day 2022, an unexplained shock wave that hit Pittsburgh was believed to be part of an asteroid that either exploded or vaporized over the city.<sup>vii</sup>



Why does Russia seem to be such a big target for asteroids? Simple: It's a big target in general. At over 17 million square kilometers, Russia is the world's largest country, nearly double the size of runner-up Canada. Geography actually provides some measure of safety where asteroids are concerned. Only about one percent of the world's land has a significant human presence, which means the odds of an asteroid hitting a remote area or landing in the ocean are much higher than the odds of it taking out a major population center.

On one hand, we've been very lucky. Humanity has never yet faced a doomsday asteroid – a challenge that, for the vast majority of human history, we would've been totally powerless against. In fact, up until recently, we couldn't even track them well. The first time that scientists correctly predicted when and where an asteroid would strike Earth ... wasn't until 2008.<sup>viii</sup>

Don't worry. It was harmless.

On the other hand ... we know that luck won't last forever. The most recent research estimates that massive impacts of the kind that killed the dinosaurs happen about every 250 million years, on average.<sup>ix</sup> But smaller strikes are far more common. NASA says they could happen "at any time."<sup>x</sup>

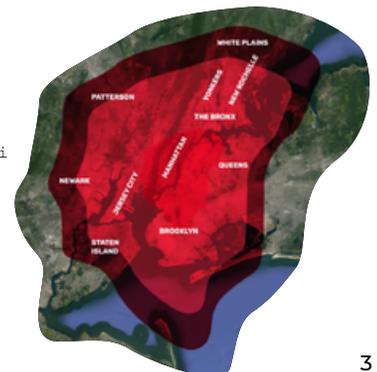
And the potential consequences could be disastrous. Last year, a report from the White House Science & Technology Council modeled what an asteroid of the type that exploded over Tunguska could do if its ultimate destination was New York City.



CHESAPEAKE BAY

In fact, the United States has been the site of significant asteroid strikes in the past – it just happened before there was any such thing as the United States. The East Coast's Chesapeake Bay was formed by an asteroid strike approximately 35.5 million years ago (the crater is underwater – and nearly as deep as the Grand Canyon). Further west, a piece of an asteroid struck in the desert of northern Arizona around 50,000 years ago. Thanks to its recency and the desert's dry conditions, it remains perhaps the best-preserved impact crater on the planet – and is operated as a tourist attraction by the family that owns the land.

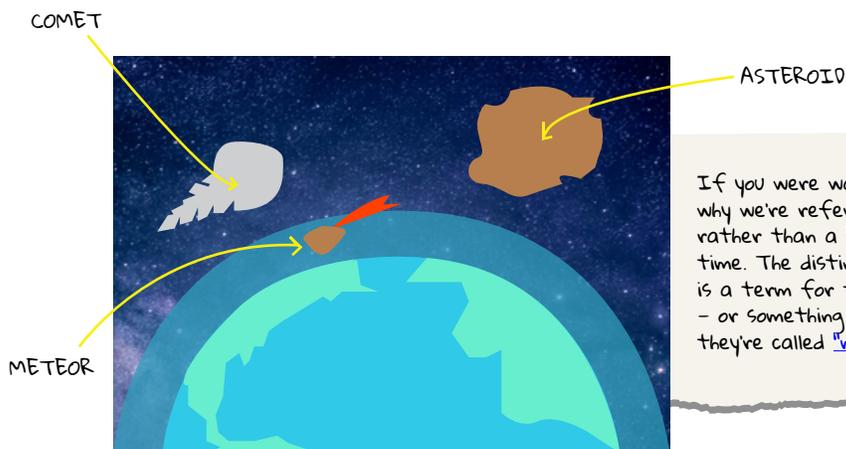
This was the result.<sup>xi</sup>



So, we've got two problems: how to find these asteroids and how to stop them. And the news on both fronts is ... mixed.

When it comes to detection, the good news is that NASA has found over 90 percent of the massive objects that could pose potentially catastrophic danger to the planet if they were ever headed for us. The ... less-than-good news is that, of the smaller objects that could devastate cities or even entire regions, they've only found about 40 percent so far.<sup>xii</sup>

Now, this isn't because NASA's asleep at the switch. This is incredibly hard work. The **asteroid that exploded over Chelyabinsk**, for instance, couldn't be found because it was coming from the direction of the sun. Any telescope pointed towards it would literally have melted.<sup>xiii</sup>



If you were watching the news in 2013, you may be confused about why we're referring to the object in Chelyabinsk as an "asteroid" rather than a "meteor," which is how it was widely described at the time. The distinction means less than you might think: "Asteroid" is a term for the small, rocky objects in space. When these objects - or something similar, like a comet - enter Earth's atmosphere, they're called "meteors".

While our technology is getting better, there's one step in particular scientists think is necessary to keep us safe: an infrared telescope launched into space for the sole purpose of asteroid detection.<sup>xiv</sup> That would allow us to see a vast array of objects that currently avoid detection.

Which ... yeah, feels worth doing.

Of course, that leads to the question of what we do when we ... [gulp] find a problem. In late 2021, NASA took an initial step with the launch of DART, an experiment that will "see if intentionally crashing a spacecraft into an asteroid is an effective way to change its course."<sup>xv</sup>

If DART's mission succeeds, it will give rise to what the astronomer Carl Sagan referred to as the "Deflection Dilemma": any technology sophisticated enough to steer an asteroid away from Earth could also conceivably be used to steer it towards a specific target on Earth.



That's NASA's actual description of it.

That's how awesome their jobs are.

Oh, also, the asteroid in question is not a threat. But, whatever, still kick-a\*\*.

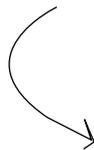
Of course, there's always the chance that we have too little time – or an asteroid is simply too big – to take any but the most extreme measures.

And, yes, we're here to report that NASA is actually exploring the feasibility of planting a nuclear weapon inside a killer asteroid.<sup>xvi</sup> The technology isn't there yet and it's still nothing more than a proposal. But it's an actual scenario some of the world's best scientists are considering.

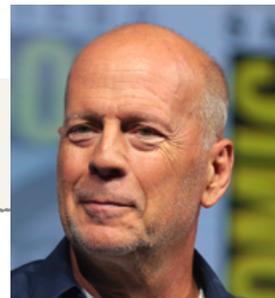
The bottom line: The better we get at seeing what's coming at us, the more likely that we'll never have to face choices that hard.

Otherwise, the odds only increase that someday humanity will face a crisis almost too dire to contemplate..

...having to rely on Bruce Willis and Ben Affeck.



If we ever have to call on Bruce Willis to save the planet ... don't count on him to pick up the phone. NASA invited the actor to attend the DART launch, but [he declined](#).



[END SCRIPT]

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- iii [Twenty Years of Tracking Near-Earth Objects](#) – NASA/JPL-Caltech
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- v [Tunguska Revisited: 111-Year-Old Mystery Impact Inspires New, More Optimistic Asteroid Predictions](#) – NASA

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- vii ["Did a Meteor Explode Over Pittsburgh?"](#) (Azi Paybarah) – *New York Times*
- viii ["We Saw It Coming: Asteroid Monitored From Outer Space to Ground Impact"](#) – Sandia National Laboratories
- ix [Dark Primitive Asteroids Account For a Large Share of K/PG-scale Impacts on the Earth](#) (David Nesvorny, William F. Bottke, Simone Marchi) – Icarus
- x [Planetary Defense Frequently Asked Questions](#) – NASA
- xi [Report on Near-Earth Object Impact Threat Emergency Protocols](#) – National Science & Technology Council
- xii [Double Asteroid Redirection Test \(DART\) Mission](#) – NASA
- xiii [End Times: A Brief Guide to the End of the World](#) – Bryan Walsh, Pg. 49
- xiv [Finding Hazardous Asteroids Using Infrared and Visible Wavelength Telescopes](#) – National Academies of Sciences, Engineering, and Medicine
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- xvi [An Innovative Solution to NASA's NEO Impact Threat Mitigation Grand Challenge and Flight Validation Mission Architecture Development](#) – NASA

IMAGE CREDITS: Andrzej Wojcicki (Getty) // Jean-Jacques Boissard // Johannes Stöffler // Gage Skidmore // USA TODAY // FreeWorldMaps.net // United States Department of the Interior // Michael Hall (The Virginian-Pilot); U.S. Geological Survey // Aleksandr Ivanov // Jeremy Thomas (Unsplash) // Bill Ingalls, Johns Hopkins APL/Ed Whitman (NASA)