

Our Lack of Focus on Near-Earth Objects Could Lead to Earth's Destruction

By Gary Deel, Ph.D., JD

Faculty Director, School of Business American Public University

On December 3, 1941, the Honolulu Star-Bulletin, then one of the largest newspapers in Hawaii, published an article with a headline that read "HOUSE VOTES ANTI-STRIKE BILL." The article was referring to legislation about labor unions that was under consideration in Congress.

Four days later, Japan attacked Pearl Harbor and killed more than 2,400 people, thrusting the United States into World War II. In hindsight, American involvement in the war was inevitable, but readers of the Star-Bulletin might not have thought so just days earlier.

On September 11, 2001, the New York Times ran several stories on the front page, including articles on the stem cell debate, economic stimulus discussions, and pre-election reports. Hours after that day's paper hit New York City streets, 19 terrorists hijacked four American commercial airliners. Two of the planes flew into the Twin Towers in lower Manhattan, killing more than 2,700 people and bringing down both skyscrapers. A third plane was intentionally crashed into the Pentagon in Northern Virginia and approximately 300 other passengers died when the fourth hijacked plane crashed into a field in Pennsylvania when passengers tried to subdue the hijackers.

Looking back, it is clear that anti-American threats from the Middle East deserved more attention and concern than they were getting at the time. But even if we could have gone back in time to warn of the 9/11 attacks, who would have believed us?

One morning recently before writing this article, I logged on to CNN.com. Its top stories included reports by the Centers of Disease Control and Prevention about rat lungworm infections, the death of a Mount Everest climber, more tornados in the Midwest, and coverage of the buildup to the 2020 presidential election primaries.

However, what are we not paying enough attention to today? How different might tomorrow's headlines be?

The Threat of Near-Earth Objects

Near-Earth objects, or NEOs, are comets and asteroids whose orbits at various times bring them into relative proximity with the Earth. Many of these objects will never collide with the Earth, but some of them pose incredibly dangerous threats to our planet.

Interestingly, our planet is actually struck by NEOs all the time. The Earth plows through tons of space rock, metal and ice each day. However, this debris is usually so small that we never even notice it as it burns up in the atmosphere.

Occasionally we see these object burn up at night as shooting stars.

That said, most NEOs are harmless. We need concern ourselves only with objects large enough to survive atmospheric entry. And even for the big NEOs, many will never cross our planet's orbit at all. Others cross our orbit, but not at the same times and places where our planet happens to be, so there is no risk of collision. But what about the large NEOs that do cross our orbit at potentially threatening periods?

We need only look at history to understand the potential consequences of such an event. It is a well-established fact that the extinction of the dinosaurs was the result of [a giant asteroid about 10 km \(6.2 miles\) in diameter striking the Earth near the Gulf of Mexico some 66 million years ago](#). This asteroid is estimated to have hit the Earth with the force of five billion megatons of TNT.

Consider more recent events. In 1908, an asteroid approximately 120 feet (36.5 meters) in diameter entered the atmosphere and exploded over Eastern Siberia, creating the [Tunguska Crater](#). The detonation leveled almost 800 square miles (2071 square kilometers) of forest, and had the explosive force of 10 to 15 megatons of TNT.

And in 2013, just six years ago, [an asteroid about 65.5 feet \(20 meters\) in diameter detonated about 18 miles above Russia](#). It exploded with the force of 400 to 500 kilotons of TNT, injured 1,500 people, and damaged more than 7,000 buildings.

The important thing we've learned from history and geological research is that these events happen with consistent, though imprecise regularity. The next major event is not a matter of if but when.

What Are We Doing About NEOs?

Congress has tasked NASA and our nation's space resources with finding these potentially dangerous NEOs before it's too late. At this point, the [NEO search program](#) has discovered and catalogued thousands of these objects.

The NEO search program has catalogued about 1,000 objects that are 1 km (.6 miles) or larger in diameter. These giant asteroids are the harbingers of extinction. Experts estimate that this represents roughly 90% of all such similar-size NEOs, which means that roughly 100 of these objects are still unaccounted for.

The program is also working to catalogue objects that are 460 feet (140 meters) in diameter or greater, a much more numerous group. These are the Tunguska-size rocks. Some 7,000 such objects have been catalogued, with many, many more still predicted to exist.

Most of these NEOs appear to pose no imminent threat to the planet. However, more than 1,700 objects have been labeled as potentially threatening. If we find a threatening NEO with enough advance notice, there are steps we can take to avoid disaster. We could use rockets to push or pull them out of the way. We could even blow them up a la the movie "[Armageddon](#)." The key is finding them early.

NASA Federal Budget Is Too Small to Deal with NEOs

But NASA and its subsidiary programs, including the NEO search program, receive [less than one-half of one penny of the federal tax dollar](#). By comparison, government-subsidized health insurance programs receive about 25 cents on the dollar, Social Security receives another 25 cents, and 15 or so cents is allocated to the military-industrial complex.

There is no denying that these programs are worthy of our attention and support. Affordable health care is important, as is national security. But if another major NEO impact occurs, does any of that really matter?

Think about it. Imagine you're told today that an asteroid is going to collide with Earth next week and if we don't prevent it, every human being will perish. How worried are you then about the immigration crisis? Or your medical bills? Or war in the Middle East? Suddenly, our collective poor prioritization comes clearly into focus. Must we wait until it's too late to recognize that?

A Renewed Emphasis on the Long Game

As humans, it is in our nature to worry about immediate threats and to neglect the longer term concerns, even if they are inevitable.

Unfortunately, the threat of NEOs is not something about which we have the luxury of procrastination. With thousands of potentially threatening NEOs that we *do* know about, and thousands more that we *don't*, the actual risks to civilization are unquantifiable.

Even if the likelihood of a devastating impact in the near-term is low, the eventuality of another major threat to our planet – like that which killed off the dinosaurs – is inexorable. If we don't give NASA the financial support it needs, every bit of history, science, technology, art, music and progress that we've made could be completely wiped out. The human project could be over in an instant.

We need a renewed focus on the long-term perspectives that ensure the survival of our species and our planet. I urge everyone to support political and social leaders who advocate greater funding for NASA and who recognize the importance of what our nation's space resources do. If we're going to overcome the threat we face from NEOs, we must give this threat the attention and concern it truly deserves.

About the Author

Dr. Gary Deel is a Faculty Director in the School of Business at American Public University. He holds a JD in Law and a Ph.D. in Hospitality/Business Management. Gary also holds a Bachelor's Degree in Space Studies and is an avid student of the astronomical sciences.