Asteroids and Climate Crisis

By Clark M. Thomas

Moviegoers are thrilled or excited by fictional splashy disasters. Formula plots allow for thrilling moments of plot-advancing pain preceding the inevitable victory of good over bad, as we humans experience it. Consider all the "Earth vs. space aliens" scenarios, wherein heroic earthlings inevitably vanquish or repel evil aliens at the last minute. Two classic thrillers are Orson Wells' *War of the Worlds* whopper, and the recent *Independence Day* cliché.

That's not to say all potentially Earth-destroying enemies are easy to dispatch. In *Star Wars* the cold-blooded obliteration of Princess Leia's peaceful home planet, Alderaan, by the Death Star is shown.[1] Here we are being excited, but not thrilled. If we are wise we viscerally feel the obscenity of total obliteration by the Death Star as a metaphor for potential global thermonuclear war.

The important variable that separates threats by fictional evil aliens from real threats emanating from industrial activities is the return state of our biosphere. In the movies, after "the bad guys are driven out of town," cyclical biospheric life *returns to the historical normal*.

In contrast, after we humans are forced to confront real climate disasters of our own making, the historical normal will be nothing like the emerging permanent normal. In a worst case scenario we become our own dinosaur-killing asteroid.

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[1] https://en.wikipedia.org/wiki/Alderaan

What about actual asteroids? On any list of things that *could* obliterate our squishy species should be another dinosaur-killing rock 10 kilometers across.[2] If "that were all," then the battered biosphere would somewhat return to the recent climate cycle following a period of dark and cold winters. Many species would vanish, and possibly our own,[3] but the climate would stay stable.

For some time scientists have debated relative effects of the giant "dinosaur asteroid" versus the ongoing Deccan Traps (volcanic eruptions in what is now today's western India). Most recent theory has poisonous volcanic fumes weakening dinosaurs and many other species – followed by that surprise space rock.[4]

A modern analogy would be unforeseen, accelerating climate crisis emerging from acute overpopulation with rising levels of per-capita expected affluence – and a surprise global nuclear war. This double punch would put a quick end to Earth's killer-apes "human experiment." Accelerating climate change alone could produce the same outcome, though not as fast. Either end-days scenario is not only possible, but highly likely. Flip your coin to design a future with no future for our species.

Whereas the many and bewildering currents of global climate change are likely leading to unforeseen destruction of advanced sentience – these diverging and converging currents are hard to grasp within everyday historical consciousness:

For example, invention of the Haber-Bosch process in the early 20th century allowed for industrial nitrogen fixation.[5] Fertilizers made from this science, along with the so-called Green Revolution begun in the 1940s are responsible for about half of the world's population boom since then.

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[2] https://www.psi.edu/epo/ktimpact/ktimpact.html

[3] http://www.bbc.com/future/story/20190730-the-animals-that-will-survive-climate-change

[4] http://astronomy-links.net/dinosaurs.pdf

[5] https://www.thoughtco.com/overview-of-the-haber-bosch-process-1434563

Imagine how easy it would now be to start seriously countering dangerous climate change if our thin biosphere only had half as many resource-hungry people (assuming families everywhere now practice serious birth control). Of course, who is going to make a superhero action movie about artificial fertilizer?

In sharp contrast, the idea of a splashy end to us all, brought about by a huge space rock, is "thrilling" to encounter deep inside the darkest places of our consciousness. Omnicidal perversity is precisely why the killer astroid thesis gets so much exposure at the expense of real threats, even though another impactor of sufficient size is statistically unlikely to hit for millions of years.

Let us now look at the latest bit of specious fancy regarding asteroid impacts. This one comes with technical commentary by the famous (or infamous) Dr. Neil deGrasse Tyson:

In the August 6, 2019 edition of England's *Daily Express* there is an eye-catching article on large tsunamis associated with even modest asteroids hitting the ocean.[6] The real physical science is explained by Dr. Neil deGrasse Tyson, and a careful reading of

[6] https://www.express.co.uk/news/science/1161599/asteroid-tsunami-nasa-neil-degrasse-tyson-apophis-pacific-ocean-santa-monica-spt

this article has some value. However, most people won't read this article with a "science eye." Nor do most people ever read ANY science article with a science eye.

Above is the artist's illustration for this article. I enjoy the two fiery companion meteors hitting the gigantic breaking wave, a wave that is much higher than what Dr. Tyson said would be generated by a more likely asteroid, the diameter of which would be measured in meters, not in kilometers. The beach buildings illustrated here are so tiny that they are hard to see!

A tsunami of that size could be generated only by an asteroid nearly the mass of what obliterated the large dinosaurs, and if it hit deep water in the local ocean. Such events are estimated to occur once about every 100 million years.

The key difference between a surprise asteroid tsunami and the emerging global climate crisis is not in the effects of a large cresting wave. The difference is in how relentlessly accelerating climate warming, with loss of all ice, will yield average ocean levels two-thirds the height of this illustrated wave crest: W*e are talking about permanent ocean levels, not just one-time waves.*

After the world's ice melts it will take many thousands of years for enough CO2 to be recaptured to allow thick polar caps to redevelop, and for the oceans to retreat back to levels we take for granted today.

Even though the great polar ice caps will eventually return, millions of innocent species will be lost forever.

By then all humanity will be beyond history, except maybe for curious space aliens discovering our hardened time capsules stored inside lunar lava tubes.[7] Will these alien detectives perceive us as having been extremely brilliant, or extremely clueless?

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[7] http://astronomy-links.net/million.years.anthropology.pdf