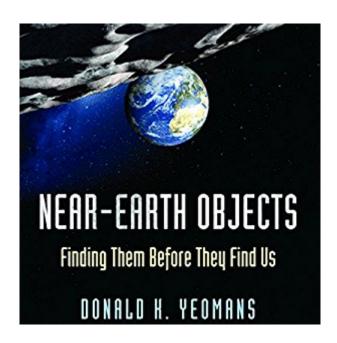
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Near-Earth Objects: Finding Them Before They Find Us





Synopsis

Of all the natural disasters that could befall us, only an Earth impact by a large comet or asteroid has the potential to end civilization in a single blow. Yet these near-Earth objects also offer tantalizing clues to our solar system's origins, and someday could even serve as stepping-stones for space exploration. In this book, Donald Yeomans introduces listeners to the science of near-Earth objects - its history, applications, and ongoing quest to find near-Earth objects before they find us. In its course around the Sun, the Earth passes through a veritable shooting gallery of millions of nearby comets and asteroids. One such asteroid is thought to have plunged into our planet 65 million years ago, triggering a global catastrophe that killed off the dinosaurs. Yeomans provides an up-to-date and accessible guide for understanding the threats posed by near-Earth objects, and also explains how early collisions with them delivered the ingredients that made life on Earth possible. He shows how later impacts spurred evolution, allowing only the most adaptable species to thrive - in fact, we humans may owe our very existence to objects that struck our planet. Yeomans takes listeners behind the scenes of today's efforts to find, track, and study near-Earth objects. He shows how the same comets and asteroids most likely to collide with us could also be mined for precious natural resources like water and oxygen, and used as watering holes and fueling stations for expeditions to Mars and the outermost reaches of our solar system.

Book Information

Audible Audio Edition

Listening Length: 4 hours and 21 minutes

Program Type: Audiobook

Version: Unabridged

Publisher: Audible Studios

Audible.com Release Date: November 14, 2012

Language: English

ASIN: B00A7G76FO

Best Sellers Rank: #87 in Books > Audible Audiobooks > Science > Astronomy #2741 in Books > Science & Math > Astronomy & Space Science > Astrophysics & Space Science #4883 in Books > Science & Math > Astronomy & Space Science > Astronomy

Customer Reviews

This book is jam-packed with useful and interesting information about asteroids and comets, whose significance is multifold. Thus, these objects are primordial, preserving in their composition the

conditions of the very beginning of our solar system; they were almost certainly instrumental in bringing the essential ingredients of life - water and carbon-based organic molecules - to Earth; and what they giveth they also taketh away, since they are probably responsible for mass extinctions on this planet. The emphasis of the book is on those asteroids and comets that regularly or occasionally come into the vicinity of Earth's orbit, thereby posing a potential threat to our own continued existence. For me the most salient point made by the book - and repeatedly so - is that the most dire threat to Homo sapiens comes from long-period comets, since, even though they become "near-Earth objects" with far less frequency than asteroids, they tend to give us very little advance warning of their trajectory or even existence. Thus, if one happened to have our name on it, there would likely be insufficient time for us to prepare an adequate defense against it. Add to that fact that these objects will be traveling much faster than a typical in-coming asteroid and can also be huge, and you have the makings for humanity's ultimate catastrophe. Although Yeomans makes no bones about this sobering situation, his remarks throughout the book tend to be on the positive side. What he emphasizes is that, given a robust enough program of detecting near-Earth objects, we are in a position to defend against the vast majority of them even with present-day technology. Indeed, the achievements of the Spaceguard program and others in a very short period of time have been utterly impressive.

The premise of this book by Jet Propulsion Laboratory scientist Donald H. Yeomans is that of all of the threats to life on this planet, perhaps the most significant is a mass extinction coming from either a comet or asteroid impact. This seems all the more real because of the Chelyabinsk, Russia, event on February 15, 2013. In "Near-Earth Objects: Finding Them Before They Find Us" Yeomans offers a general audience an introduction to the science of near-Earth objects--especially the history, applications, and ongoing quest to find these celestial objects before they hit Earth. I was introduced to this reality twenty years ago at the annual meeting of this professional society when a noted scientist gave a presentation entitled "Chicken Little Was Right." He claimed that humans had a greater chance of being killed by a comet or asteroid falling from the sky than dying in an airplane crash. This is true, especially as one projects the risk over a very long period of time. Mathematical calculations confirm that every person alive today faces 1 chance in 5,000 that he or she will be killed by some type of extraterrestrial impact during his or her lifetime since several thousand meteorites, comets, and asteroids cross Earth's orbit, and many small pieces enter the atmosphere every day. One need only look at the craters on the Moon, and such wonders as Meteor Crater in Arizona, to verify the fact that solar system bodies make fine targets for comets and asteroids. More

than ever before, as Yeomans's makes clear, throughout history asteroids and comets have struck Earth with destructive consequences.

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