

Apocalypse Denied: Near-Earth Objects and the Human Race

Introduction

Near-Earth objects (NEOs) are a growing threat to our planet. These celestial bodies, which include asteroids, comets, and meteoroids, have the potential to impact Earth with devastating consequences. In recent years, there have been a number of close calls, and scientists warn that it is only a matter of time before a major impact event occurs.

In this comprehensive and authoritative book, Pasquale De Marco explores the risks posed by NEOs and examines the ways in which we can defend ourselves from these cosmic threats. Drawing on the latest scientific research, Pasquale De Marco provides a detailed overview of the science of impact, the

environmental consequences of impact, and the human response to the NEO threat.

Pasquale De Marco also discusses the cultural impact of impact events, from their portrayal in mythology and religion to their role in art and literature. The book concludes with a call for continued vigilance and international cooperation in the face of this global threat.

Whether you are a scientist, a policymaker, or a concerned citizen, this book is essential reading for anyone who wants to understand the risks posed by NEOs and the steps that must be taken to protect our planet.

In clear and accessible prose, Pasquale De Marco explains the complex science of impact and the challenges involved in defending Earth from NEOs. Pasquale De Marco also provides a wealth of fascinating information about the history of impact

events, the cultural significance of NEOs, and the importance of NEO research.

This book is a must-read for anyone interested in the future of our planet.

Book Description

In the vast expanse of the cosmos, a silent threat looms, one that could bring about the end of civilization as we know it. Near-Earth objects (NEOs) are celestial bodies, including asteroids, comets, and meteoroids, that pose a significant risk to our planet.

With the potential to impact Earth with devastating consequences, NEOs have been responsible for some of the most catastrophic events in our planet's history. The Tunguska Event of 1908, which flattened millions of trees over an area of 2,000 square kilometers, is a chilling reminder of the destructive power of these cosmic wanderers.

And yet, despite the clear and present danger, the threat posed by NEOs has been largely ignored by governments and the general public alike. This book seeks to change that.

In **Apocalypse Denied**, Pasquale De Marco takes a comprehensive look at the risks posed by NEOs and examines the ways in which we can defend ourselves from these cosmic threats. Drawing on the latest scientific research, Pasquale De Marco provides a detailed overview of the science of impact, the environmental consequences of impact, and the human response to the NEO threat.

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Apocalypse Denied is an essential read for anyone who wants to understand the risks posed by NEOs and the steps that must be taken to protect our planet. Whether you are a scientist, a policymaker, or a

concerned citizen, this book will open your eyes to the growing threat of NEOs and the urgent need for action.

Chapter 1: A Looming Threat

Near-Earth Objects: What Are They

Near-Earth objects (NEOs) are celestial bodies that orbit the Sun and come within 120 million miles of Earth's orbit. This includes asteroids, comets, and meteoroids. Asteroids are rocky bodies that range in size from a few feet to hundreds of miles across. Comets are icy bodies that have a tail of gas and dust that streams behind them as they approach the Sun. Meteoroids are small pieces of rock or metal that are typically less than a yard across.

Although NEOs are a natural part of our solar system, they pose a significant threat to life on Earth. An impact by a NEO could cause widespread devastation, including:

- **Crater formation:** The impact of a NEO can create a crater that is miles wide and deep. This can displace large amounts of earth and rock,

causing landslides, tsunamis, and other geologic hazards.

- **Shock waves:** The impact of a NEO can also generate powerful shock waves that can travel through the Earth's atmosphere and crust. These shock waves can cause widespread damage to buildings and infrastructure.
- **Firestorms:** The impact of a NEO can also create firestorms that can spread for miles around the impact site. These firestorms can destroy forests, crops, and homes.
- **Climate change:** The impact of a NEO can also have a significant impact on the Earth's climate. The dust and debris from the impact can block sunlight, causing a cooling effect. This can lead to changes in precipitation patterns, sea levels, and agricultural yields.

The threat posed by NEOs is real and growing. In recent years, there have been a number of close calls, including the impact of a small asteroid in Chelyabinsk, Russia, in 2013. This asteroid exploded in the atmosphere, causing widespread damage.

Chapter 1: A Looming Threat

The Risks of Near-Earth Objects

Near-Earth objects (NEOs) are a significant threat to our planet. These celestial bodies, which include asteroids, comets, and meteoroids, have the potential to impact Earth with devastating consequences.

The risks posed by NEOs vary depending on their size, composition, and velocity. A small NEO, even one just a few meters in diameter, could cause significant damage if it impacted a populated area. A larger NEO, such as an asteroid a few kilometers in diameter, could cause regional or even global devastation.

The impact of a NEO could cause a number of catastrophic effects, including:

- **Widespread destruction:** The impact of a large NEO could create a crater miles wide and unleash a shockwave that could devastate entire cities.

- **Tsunami:** If a NEO impacts the ocean, it could generate a massive tsunami that could inundate coastal areas.
- **Earthquakes:** The impact of a NEO could trigger earthquakes that could cause widespread damage and loss of life.
- **Climate change:** The impact of a NEO could release large amounts of dust and debris into the atmosphere, which could block sunlight and cause global temperatures to drop.
- **Extinction:** The impact of a NEO could cause the extinction of numerous species, including humans.

The risks posed by NEOs are real and significant. While we cannot predict exactly when the next major impact event will occur, we can take steps to prepare for and mitigate these risks.

One important step is to improve our ability to detect and track NEOs. By identifying NEOs early, we can

have more time to develop and implement strategies to deflect or destroy them before they impact Earth.

Another important step is to develop technologies that can be used to deflect or destroy NEOs. These technologies include kinetic impactors, which are spacecraft that are designed to collide with NEOs and knock them off course, and nuclear weapons, which can be used to vaporize NEOs.

Finally, it is important to raise public awareness about the risks posed by NEOs and to encourage governments to take action to address these risks. By working together, we can protect our planet from the devastating consequences of a NEO impact.

Chapter 1: A Looming Threat

Historical Impacts and Close Calls

The history of Earth is marked by a series of devastating impacts by near-Earth objects (NEOs). These impacts have had a profound effect on the evolution of life on our planet, and they continue to pose a significant threat today.

One of the most famous impact events in history is the Chicxulub impact, which occurred 66 million years ago. This impact, which is believed to have been caused by a comet or asteroid approximately 10 kilometers in diameter, is widely believed to have caused the extinction of the dinosaurs and many other species. The impact also triggered a series of global environmental changes, including a period of intense cooling and darkness.

Another well-known impact event is the Tunguska event, which occurred in 1908 over Siberia. This

impact, which is believed to have been caused by a small comet or asteroid, caused a massive explosion that knocked down trees and damaged buildings over an area of hundreds of square kilometers. The Tunguska event is a reminder that even relatively small impacts can have a devastating effect.

In addition to these two major events, there have been numerous other impact events throughout history, both large and small. These impacts have caused widespread damage and loss of life, and they have had a significant impact on the course of human history.

In recent years, there have been a number of close calls between Earth and NEOs. In 2004, a small asteroid known as 2004 FH passed within 42,000 kilometers of Earth. This was the closest known approach of an asteroid of this size in recorded history. In 2013, a larger asteroid known as 2013 TX68 passed within 17,000 kilometers of Earth. This was the closest known

approach of an asteroid larger than 1 kilometer in diameter in recorded history.

These close calls are a reminder that the threat of impact is real and ever-present. While we cannot predict when the next major impact will occur, we can take steps to mitigate the risks. By detecting and tracking NEOs, we can give ourselves time to prepare for potential impacts. We can also develop technologies to deflect or destroy NEOs that are on a collision course with Earth.

The study of historical impacts and close calls is essential for understanding the risks posed by NEOs and for developing strategies to protect our planet from these threats.

This extract presents the opening three sections of the first chapter.

Discover the complete 10 chapters and 50 sections by purchasing the book, now available in various formats.

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