

In 2019, after reading the book "Target Earth" I decided to make an instrumental album with soundscapes. After my father bought an ARP-AXXE synthesiser in 1980, I was already intrigued by electronic sounds. When I heard the LPs Spiral and China by Vangelis, I had the wish to make such an album myself.

However, it took until 2020 before I actually started doing this. I have been playing in a hard-rock band as a guitarist for years, but the past three years I recorded three albums as a voice actor with the help of some musical friends. Poems spoken on our own music.

Something completely different.

Cubase and many VST plugins enabled me to compose and record the music for "Target Earth". In the last year I even used AI for three songs.

The titles are explained in the attached booklet, but I want to highlight two songs.

80.000 kms is the only song where I used my (heavy) guitar. It is the fastest and most powerful song on the album. I was inspired by Hans Zimmer's sounds for the movie Inception.

The final song (2255) starts with birds but after a while you hear comets hitting the earth. Also pay attention to the SOS sent into space, but in the end planet Earth is destroyed. I hope you like this 58-minute piece of music.

All tracks written, mixed and mastered by Martin Mens at the Human Sound studio. Sleeve design and art-work by Martin Mens and AI.

Special thanks to My parents, Joke Pors for her patience, Marcel Chretien for his valuable musical support, Hans Zimmer and Vangelis for their inspiration.

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The album cover art features a dramatic space scene. At the top, the title "TARGET EARTH" is written in a bold, red, metallic font with a slight 3D effect. Below the title, a large, glowing orange and red comet or asteroid streaks across the dark void of space, leaving a long, fiery trail. In the lower half of the image, the blue and white horizon of the Earth is visible, showing swirling cloud patterns. At the bottom center, the name "MARTIN MENS" is displayed in a blue, stylized, blocky font with a subtle glow.

TARGET EARTH

MARTIN MENS

1. Target Earth (4:37)

The earth has always been a target of asteroids and comets. This has influenced the evolution of life on earth. An example is the extinction of the dinosaurs millions of years ago. About every 100,000 years the earth is hit by a large asteroid.

After reading the novel "Target Earth" by Duncan Steel (2000), I decided to turn this into music.

2. Comet Halley (4:00)

It is sometimes simply Halley, officially designated 1P/Halley. It is a short-period comet visible from Earth every 75–79 years. Halley is the only known short-period comet that is regularly visible to the naked eye from Earth, and thus the only naked-eye comet that can appear twice in a human lifetime.

It last appeared in the inner parts of the Solar System in 1986 and will next appear in mid-2061.

3. Oort Cloud (3:30)

Comets have an elliptical orbit, which is sometimes so eccentric that it is almost parabolic. The Dutch astronomer Jan Hendrik Oort deduced from these orbits in 1950 that long-period comets originate from a large cloud at about 10,000 astronomical units from the sun (1 AU = mean distance Earth-Sun or about 150 million km). This cloud is called the Oort cloud.

Occasionally such an orbit is disturbed and the comet enters a highly eccentric orbit that brings it close to the Sun. The existence of this cloud is hypothetical and therefore not yet proven.

13. Starreign (4:00)

(Aka) meteor shower is a celestial event in which a number of meteors are observed to radiate, or originate, from one point in the night sky. These meteors are caused by streams of cosmic debris called meteoroids entering Earth's atmosphere at extremely high speeds on parallel trajectories. Very intense or unusual meteor showers are known as meteor outbursts and meteor storms, which produce at least 1,000 meteors an hour.

14. Perseids (4:40)

Every (northern) summer the earth travels through the Perseids-Meteor shower, this is a cloud of dust particles left behind by the Swift-Tuttle comet. The name Perseids is derived from the constellation Perseus that can be found on the northeastern starry sky around midnight. The meteor shower apparently has its origins in this constellation. Many dust particles then collide with the atmosphere of the earth and cause a light line in the sky for a short time. We call this phenomenon a falling star or meteor. The Perseid activity gradually rises from a few copies per night at the end of July, to many dozens of stars per hour around the maximum in the morning of 13 August. To observe these meteors, no telescope or binoculars is needed: it is sufficient to look with the naked eye in the direction of the constellation Perseus. Most Perseids can be seen from dark places outside the urban areas, each time from midnight.

15. 2255 (4:33)

William Whiston, professor at the University of Cambridge in 1696, claimed that a comet in 2255 would cause the end of the world. The comet Halley would either hit the earth or he will pull the earth out of his orbit, so that the earth comes dangerously close to the sun and will scorch in the sunwood.

11. Albedo (3:29)

From Latin albedo = 'whiteness'. It is the fraction of sunlight that is diffusely reflected by a body. It is measured on a scale from 0 (corresponding to a black body that absorbs all incident radiation) to 1 (corresponding to a body that reflects all incident radiation).

Surface albedo is defined as the ratio of radiosity. The proportion reflected is not only determined by properties of the surface itself, but also by the spectral and angular distribution of solar radiation reaching the Earth's surface. These factors vary with atmospheric composition, geographic location, and time (see position of the Sun). While bi-hemispherical reflectance is calculated for a single angle of incidence (i.e., for a given position of the Sun), albedo is the directional integration of reflectance over all solar angles in a given period.

The term albedo was introduced into optics by Johann Heinrich Lambert in his 1760 work *Photometria*.

12. 80,000 kms (3:59)

The speed of a comet can vary from 3,000 km/h (almost one kilometer per second) to more than 100,000 km/h (28 km/s) and as a comet approaches a star, it accelerates. As comets approach the star, ice particles evaporate and form a tail. The average speed is 80,000 km per hour.

4. Cosmic Zoo (3:58)

The earth is part of a cosmic zoo. The telescopes of astronomers produce images with bizarre phenomena far into the universe. Comets have forms from a dog bone to peanut and consist of a few or groups of boulders or ruins, which tumbles and often have complicated rotation axes.

5. SL9 (3:05)

2001 SL9 is a sub-kilometer asteroid and binary system, classified as near-Earth object of Apollo group discovered on 18 September 2001. It measures approximately 960 meters in diameter, while its 2001-discovered minor-planet moon has an estimated diameter of 200 meters. Although SL9 is classified as a near-Earth object, it does not pose any threats. It has never, nor will it ever in the next century, come closer than 15,000,000 km from Earth or Venus. However, the asteroid would make a good target for a spacecraft flyby.

6. Sunstorm (3:51)

A geomagnetic storm, also known as a magnetic storm, is a temporary disturbance of the Earth's magnetosphere caused by a solar wind shock wave and/or cloud of magnetic field that interacts with the Earth's magnetic field. The disturbance that drives the magnetic storm may be a solar coronal mass ejection or a co-rotating interaction region (CIR), a high-speed stream of solar wind originating from a coronal hole. The frequency of geomagnetic storms increases and decreases with the sunspot cycle.

7. Wirtanen (3:03)

46P/Wirtanen is a small short-period comet with a current orbital period of 5.4 years. It was the original target for close investigation by the Rosetta spacecraft, planned by the European Space Agency, but an inability to meet the launch window caused Rosetta to be sent to Churyumov–Gerasimenko instead. It belongs to the Jupiter family of comets, Wirtanen was discovered photographically on January 17, 1948, by the American astronomer Carl A. Wirtanen. Its diameter is estimated at 1.2 kilometres. In December 2019, astronomers reported capturing an outburst of the comet in substantial detail by the TESS space telescope.

8. Io (moon of Jupiter) (5:07)

Io or Jupiter I, is the innermost and third-largest of the four Galilean moons of the planet Jupiter. Slightly larger than Earth's moon, Io is the fourth-largest moon in the Solar System, has the highest density of any moon, the strongest surface gravity of any moon, and the lowest amount of water of any known astronomical object in the Solar System. It was discovered in 1610 by Galileo Galilei and was named after the mythological character Io, a priestess of Hera who became one of Zeus's lovers.

With over 400 active volcanoes, Io is the most geologically active object in the Solar System. This extreme geologic activity is the result of tidal heating from friction generated within Io's interior as it is pulled between Jupiter and the other Galilean moons—Europa, Ganymede and Callisto.

Io's surface is also dotted with more than 100 mountains that have been uplifted by extensive compression at the base of Io's silicate crust. Some of these peaks are taller than Mount Everest, the highest point on Earth's surface.

9. Dimorphos (3:10)

Dimorphos is a natural satellite or moon of the near-Earth asteroid 65803 Didymos, with which it forms a binary system. The moon was discovered on 20 November 2003 by Petr Pravec in collaboration with other astronomers worldwide. Dimorphos has a diameter of 177 meters across its longest extent and it was the target of the Double Asteroid Redirection Test (DART), a NASA space mission that deliberately collided a spacecraft with the moon on 26 September 2022 to alter its orbit around Didymos. Before the impact by DART, Dimorphos had a shape of an oblate spheroid with a surface covered in boulders but virtually no craters. The ESA mission Hera is planned to arrive at the Didymos system in 2026 to further study the effects of DART's impact on Dimorphos.

10. Triton (3:18)

Triton is the largest natural satellite of the planet Neptune, and was the first Neptunian moon to be discovered, on October 11, 1846, by English astronomer William Lassell. It is the only large moon in the Solar System with a retrograde orbit, an orbit in the direction opposite to its planet's rotation. Because of its retrograde orbit and composition similar to Pluto, Triton is thought to have been a dwarf planet, captured from the Kuiper belt. At 2,710 kilometers in diameter, it is the seventh-largest moon in the Solar System and larger than Pluto. Triton is one of the few moons in the Solar System known to be geologically active (the others being Jupiter's Io and Europa, and Saturn's Enceladus and Titan). As a consequence, its surface is relatively young, with few obvious impact craters. Triton has a surface of mostly frozen nitrogen, a mostly water-ice crust, an icy mantle and a substantial core of rock and metal. During its 1989 flyby of Triton, Voyager 2 found surface temperatures of $-235\text{ }^{\circ}\text{C}$ and also discovered active geysers.