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Gaia, The Mother

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In the Western world, our concept of the **creation** of the Earth (and everything is based on the beginning (Genesis 1) of the Hebrew Torah (Bible):

1 In the beginning, God made the heavens and the earth.

2 The earth was without shape and it was empty. Deep water covered the earth and everywhere was dark. The Spirit of God moved above the water.

3 God said, *'There will be light!'*

And there was light.

4 God saw that the light was good.

He separated the light from the dark.

5 God called the light *'day'*. He called the dark *'night'*.

Evening passed and then it was morning.

That was the first day.

6 Then God said, *'A wide space will appear between the waters. So, the waters will separate into two places.'*

7 So God made a wide space. He separated the water under the space from the water that was above it.

And what God said happened.

8 God called the wide space *'sky'*.

Evening passed and then it was morning.

.....

And the Creation goes for days... Near the end of the week God creates **Adam**, the **Man**, the **male**, and is happy. But then God has second thoughts, and he pulls out a rib from the thorax of Adam and he creates **Eve**, the **female**, but the **Untermensch**, the **subservient**, the **slave**, the **maid**... And Abrahamic religions are not alone: (too) many other faiths, religions, creeds put the male first and above.

Except those who worship(ped) **Gaia**...



c. Majestic Dragonfly

Wikipedia has a long entry on **Gaia, the Goddess:**

In Greek mythology, **Gaia** (/ˈɡeɪə, ˈɡaɪə/; from Ancient Greek Γαῖα, a poetical form of Γῆ *Gē*, "land" or "earth"), also spelled **Gaea** /ˈdʒiːə/, is the personification of the Earth and one of the Greek primordial deities. Gaia is the ancestral mother—sometimes parthenogenic—of all life. She is the mother of Uranus (the sky), from whose sexual union she bore the Titans (themselves parents of many of the Olympian gods), the Cyclopes, and the Giants; as well as of Pontus (the sea), from

whose union she bore the primordial sea gods. Her equivalent in the Roman pantheon was Terra.

Etymology

The Greek name Γαῖα (*Gaia*) is a mostly epic, collateral form of Attic Γῆ (*Gê*), and Doric Γᾶ (*Gã*, perhaps identical to Δᾶ *Dã*), both meaning "*Earth*". The word is of uncertain origin. Robert S. P. Beekes suggested a Pre-Greek origin. In Mycenaean Greek *Ma-ka* (transliterated as *Ma-ga*, "Mother Gaia") also contains the root *ga-*.

Mythology

Hesiod

Hesiod's *Theogony* tells how, after Chaos, "*wide-bosomed*" Gaia (Earth) arose to be the everlasting seat of the immortals who possess Olympus above. And after Gaia came "*dim Tartarus in the depth of the wide-pathed Earth*", and next Eros the god of love. Hesiod goes on to say that Gaia brought forth her equal Uranus (Heaven, Sky) to "*cover her on every side*". Gaia also bore the Ourea (Mountains), and Pontus (Sea), "*without sweet union of love*" (i.e., with no father).

Afterwards with Uranus, her son, she gave birth to the Titans, as Hesiod tells it:

She lay with Heaven and bore deep-swirling Oceanus, Coeus and Crius and Hyperion and Iapetus, Theia and Rhea, Themis and Mnemosyne and gold-crowned Phoebe and lovely Tethys. After them was born Cronos (Cronus) the wily, youngest and most terrible of her children, and he hated his lusty sire.

According to Hesiod, Gaia conceived further offspring with her son, Uranus, first the giant one-eyed Cyclopes: Brontes ("*Thunder*"), Steropes ("*Lightning*"), and Arges ("*Bright*"); then the Hecatonchires: Cottus, Briareos, and Gyges, each with a hundred arms and fifty heads. As each of the Cyclopes and Hecatonchires were born, Uranus hid them in a secret place within Gaia, causing her great pain. So, Gaia devised a plan. She created a grey flint (or adamantine) sickle. And Cronus used the sickle to castrate his father Uranus as he approached his mother, Gaia, to have sex with her. From Uranus' spilled blood, Gaia produced the Erinyes, the Giants, and the Meliae (ash-tree nymphs). From the testicles of Uranus in the sea came forth Aphrodite.

By her son, Pontus, Gaia bore the sea-deities Nereus, Thaumas, Phorcys, Ceto, and Eurybia.

Because Cronus had learned from Gaia and Uranus that he was destined to be overthrown by one of his children, he swallowed each of the children born to him by his Titan older sister, Rhea. But when Rhea was pregnant with her youngest child, Zeus, she sought help from Gaia and Uranus. When Zeus was born, Rhea gave Cronus a stone wrapped in swaddling-clothes in his place, which Cronus swallowed,

and Gaia took the child into her care. With the help of Gaia's advice, Zeus defeated the Titans. But afterwards, Gaia, in union with Tartarus, bore the youngest of her sons Typhon, who would be the last challenge to the authority of Zeus.



Birth Erichthonios Staatliche Antikensammlungen 2413.jpg

GAIA (Gaea) was the goddess of the earth. She was one of the primordial elemental deities (*protogenoi*) born at the dawn of creation. Gaia was the great mother of all creation--the heavenly gods were descended from her through her union with Ouranos (Uranus) (Sky), the sea-gods from her union with Pontos (Sea), the Gigantes (Giants) from her mating with Tartaros (the Pit), and mortal creatures born directly from her earthy flesh.

Gaia was the chief antagonist of the heavenly gods. First, she rebelled against her husband Ouranos (Sky) who had imprisoned several of her giant-sons within her womb. Later when her son Kronos (Cronus) defied her by imprisoning these same sons, she sided with Zeus in his rebellion. Finally, she came into conflict with Zeus

for she was angered by his binding of her Titan-sons in Tartaros. She birthed a tribe of Gigantes (Giants) and later the monster Typhoeus to overthrow him, but both failed in their attempts.

In the ancient Greek cosmology earth was conceived of as a flat disk encircled by the river Okeanos (Oceanus), and encompassed above by the solid dome of heaven and below by the great pit (or inverse dome) of Tartaros. Earth supported the seas and mountains upon her breast.

In Greek vase painting Gaia was depicted as a buxom, matronly woman rising from the earth, inseparable from her native element. In mosaic art, she appears as a full-figured woman, reclining on the earth, often clothed in green, and sometimes accompanied by troops of Karpoi (Carpi, Fruits) and Horai (Horae, Seasons).

In classical art Gaia was represented in one of two ways. In Athenian vase painting she was shown as a matronly woman only half risen from the earth, often in the act of handing the baby Erichthonius, a future king of Athens, to Athena to foster. In mosaic representations, she appears as a woman reclining upon the earth surrounded by a host of Carpi, infant gods of the fruits of the earth.

Cult:

Gaia was worshiped under the epithet "*Anesidora*", which means "*giver of gifts*". Other epithets were Calligeneia, Eurusternos, and Pandôros.

In ancient times, Gaia was mainly worshiped alongside Demeter and as a part of the cult of Demeter and does not seem to have had a separate cult. Being a chthonic deity, black animals were sacrificed to her:

[Sacrifices to the gods as witnesses of an oath:] *Bring two lambs: let one be white and the other black for Gaia (Earth) and Helios (Sun).* [N.B. Chthonic Gaia receives a black animal, heavenly Helios a white one.]

Temples:

Gaia is believed by some source to be the original deity behind the Oracle at Delphi. It was thus said: "*That word spoken from tree-clad mother Gaia's (Earth's) navel-stone [Delphoi].*" Depending on the source, Gaia passed her powers on to Poseidon, Apollo, or Themis. Pausanias wrote:

Many and different are the stories told about Delphi, and even more so about the oracle of Apollo. For they say that in the earliest times the oracular seat belonged to Earth, who appointed as prophetess at it Daphnis, one of the nymphs of the mountain. There is extant among the Greeks an hexameter poem, the name of which is Eumolpia, and it is assigned to Musaeus, son of Antiophemus. In it the poet states that the oracle belonged to Poseidon and Earth in common; that Earth gave her oracles herself, but Poseidon used Pyrcon as his mouthpiece in giving responses. The verses are these: "*Forthwith the voice of the Earth-goddess uttered a wise word, And with her Pyrcon, servant of the renowned Earth-shaker.*"

They say that afterwards Earth gave her share to Themis, who gave it to Apollo as a gift. It is said that he gave to Poseidon Calauria, that lies off Troezen, in exchange for his oracle.

Apollo is the best-known as the oracle power behind Delphi, long established by the time of Homer, having killed Gaia's child Python there and usurped the chthonic power. Hera punished Apollo for this by sending him to King Admetus as a shepherd for nine years. Gaia or Ge had at least three sanctuaries in Greece which were mentioned by Pausanias. There was a temple of Ge Eurysternos on the Crathis near Aegae in Achaia with "*a very ancient statue*":

It is a journey of about thirty stades [from the stream of Krathis (Crathis) near the ruins of Aigai (Aegae) in Akhaia] to what is called the Gaion (Gaeum), a sanctuary of Ge (Earth) surnamed Eurysternos (Broad-bosomed), whose wooden image is one of the very oldest. The woman who from time to time is priestess henceforth remains chaste and before her election must not have had intercourse with more than one man. The test applied is drinking bull's blood. Any woman who may chance not to speak the truth is immediately punished as a result of this test. If several women compete for the priesthood, lots are cast for the honor.

Pausanias also mention the sanctuary of Ge Gasepton in Sparta, and a sanctuary of Ge Kourotrophe (Nurse of the Young) at Athens. Aside from her temples, Gaia had altars as well as sacred spaces in the sanctuaries of other gods. Close to the sanctuary of Eileithyia in Tegea was an altar of Ge; Phlya and Myrrhinos had an altar to Ge under the name Thea Megale (Great goddess); as well as Olympia which additionally, similar to Delphi, also said to have had an oracle to Gaia:

On what is called the Gaion (Gaeum, Sanctuary of Ge) [at Olympia] is an altar of Ge (Earth); it too is of ashes. In more ancient days they say that there was an oracle also of Ge (Earth) in this place. On what is called the Stomion (Mouth) the altar to Themis has been built.

Her statues were naturally to be found in the temples of Demeter, such as the Temple of Demeter in Achaia: "*They [the Patraians of Akhaia (Achaia)] have also a grove by the sea, affording in summer weather very agreeable walks and a pleasant means generally of passing the time. In this grove are also two temples of divinities, one of Apollon, the other of Aphrodite . . . Next to the grove is a sanctuary of Demeter; she and her daughter [Persephone] are standing, but the image of Ge (Earth) is seated.*" The Temple of Zeus Olympios in Athens reportedly had an enclosure of Ge Olympia:

[Within the sanctuary of Zeus Olympios in the lower town of Athens:] Within the precincts are antiquities: a bronze Zeus, a temple of Kronos (Cronus) and Rhea and an enclosure of Ge (Earth) surnamed Olympia. Here the floor opens to the width of a cubit, and they say that along this bed flowed off the water after the deluge that occurred in the time of Deukalion, and into it they cast every year wheat mixed with honey . . . The ancient sanctuary of Zeus Olympios the Athenians say was built by Deukalion (Deucalion), and they cite as evidence that Deukalion lived at Athens a grave which is not far from the present temple.

In Athens, there was a statue of Gaia on the Acropolis depicting her beseeching Zeus for rain as well as an image of her close to the court of the Areopagos in Athens,

alongside the statues of Plouton and Hermes, "*by which sacrifice those who have received an acquittal on the Areopagos*".

Modern ecological theory

The mythological name was revived in 1979 by James Lovelock, in *Gaia: A New Look at Life on Earth*; his Gaia hypothesis was supported by Lynn Margulis. The hypothesis proposes that living organisms and inorganic material are part of a dynamical system that shapes the Earth's biosphere and maintains the Earth as a fit environment for life. In some Gaia theory approaches, the Earth itself is viewed as an organism with self-regulatory functions. Further books by Lovelock and others popularized the Gaia Hypothesis, which was embraced to some extent by New Age environmentalists as part of the heightened awareness of environmental concerns of the 1990s.



c. Amazon.com

On June 26th, 2019, in ThoughtCo., deTraci Regula published an article **Gaia: The Greek Goddess of the Earth:**

The culture of Greece has changed and evolved many times throughout its history, but perhaps the most famous cultural era of this European country is Ancient Greece when Greek gods and goddesses were worshipped throughout the land. The Greek Goddess of the Earth, Gaia, is considered the mother of all life yet many have not heard of her.

Legacy and Story

In Greek mythology, Gaia was the first deity from whom all others sprang. She was born of Chaos, but as Chaos receded, Gaia came into being. Lonely, she created a spouse named Uranus, but he became lusty and cruel, so Gaia persuaded her other children to help her subdue their father. Cronos, her son, took a flint sickle and castrated Uranus, throwing his severed organs into the great sea; the goddess Aphrodite was then born of the mixing of the blood and foam. Gaia went on to have other mates including Tartarus and Pontus with whom she bore many children including Oceanus, Coeus, Crius, Theia, Rhea, Themis, Mnemosyne, Phoebe, Tethys, the Python of Delphi, and the Titans Hyperion and Iapetus.

Gaia is the primal mother goddess, complete in herself. The Greeks believed that an oath sworn by Gaia was the strongest since no one could escape from the Earth herself. In modern times, some earth scientists use the term "*Gaia*" to mean the complete living planet itself, as a complex organism. In fact, many institutes and scientific centers around Greece are named after Gaia in honor of this tie to the earth.

Temples and Places of Worship

Although there are no existing temples to the Greek Goddess of the Earth, Gaia, there are many great art pieces in galleries and museums across the country depicting the goddess. Sometimes depicted as half-buried in the earth, Gaia is portrayed as a beautiful voluptuous woman surrounded by fruits and the rich earth that nurtures the plant life.

Throughout history, Gaia was primarily worshipped in open nature or in caves, but the ancient ruins of Delphi, 100 miles northwest of Athens on Parnassus mountain, was one of the primary places she was celebrated. The people who would travel there in the times of ancient Greece would leave offerings on an altar in the city. Delphi served as a cultural meeting ground in the first millennium B.C. and was rumored to be the sacred place of the earth goddess.

Traveling to Delphi

Unfortunately, the city has been in ruin for most of the modern era, and there are no remaining statues of the goddess on the grounds. Still, people do come from near and far to visit this sacred site during their travels to Greece. When planning to travel to Greece to see some of the ancient sites of worship for Gaia, fly into

the Athens International Airport (airport code: ATH) and book a hotel between the city and Mount Parnassus. There are a number of excellent day trips around the city and short trips around Greece you can take if you have some extra time during your stay, too.



c. The Walters Art Museum

And on April 7th, 2021, in *Nautilus*, Hope Jahren published a superb essay:
Gaia, The Scientist:

There exists a social hierarchy within science that strikes people who are not mixed up in it as ridiculous. It goes like this: Mathematicians are superior to Physicists, who are, in turn, superior to Chemists, who are of course, superior to Biologists. There's also a pecking order *within* each of these disciplines. Take biology, for example: Geneticists are superior to Biochemists, who are superior to Ecologists. The system breaks down when we come to sociology, psychology, and anthropology

and devolves into a debate as to whether the social sciences are really sciences after all.

Scientists arguing about whether a science qualifies as Science is more common than you might think. Zoom in, and you'll see scientists arguing about who does (and doesn't) qualify as a Scientist. Within the last five decades or so, it is generally accepted that more and more women have become Scientists, which implies that if we look back in time, there were fewer and fewer. This ultimately begs the question: ***Who was the first Woman Scientist?***

Was it Marie Curie? She discovered the element radium, and later polonium, near the end of the 19th century. Does she count? After all, she viewed *herself* as more of an Artist: "*The scientific history of radium is beautiful. And this is proof that scientific work must be done for itself, for the beauty of science,*" she wrote in 1921.

Was it Émilie du Châtelet? She formulated the existence of infrared energy. Does she count? She apologized often for not knowing how to say what she wanted to say. "*I use everyday words here in contravention with propriety but cannot avoid the too-frequent return of the same word because, technically, there are both things and not-things that we call Fire,*" reads a footnote on the very first page of her dissertation, written in 1758.

Was it Hypatia of Alexandria? She developed the mathematical technique of long division, which was cutting technology during the fifth century A.D. Does she count? Hypatia taught men of great influence and highest government, and was eventually stripped, stoned, torn to pieces, and burnt to ashes for her trouble. Suidas, the 10th-century author of the first encyclopedia, devoted most of Hypatia's entry to the debate over whether she died a virgin.

Was it the Neanderthal female whose name has been lost to time? Who collected herbs and berries and could distinguish East from West, ripe from rotten, medicine from poison? Does she count? She didn't publish her results, but we do have her bones, and we use them to argue over her "*cognitive capacities*" in the pages of Nature.

I've been told, more times than I can count, that these women shouldn't count. That Marie Curie was mostly following her husband's lead. That Émilie du Châtelet was a party-girl who slept with Voltaire and had a knack for translation. That Hypatia's father Theon (or her brother Epiphanius, or the bishop of Ptolemais, or ...) was the original author of her work. That I am prone to anthropomorphizing trees and seeds and Neanderthals. That my personal agenda makes me see Science everywhere, even in the places where it's not.

But certain questions still nag me. Now that I've learned and practiced both, why doesn't cooking count as chemistry? Why doesn't sewing count as geometry? Is gardening so different from botany? Does budgeting not involve math? Were my

four grandmothers scientists, the ones who produced enough from too little, refining their techniques as they went along, working and working, in between babies, in between wars, in between being born and being dead?

Why doesn't their laborious trial and error, across generations, involving known and unknown materials, practices, procedures count as the scientific method? Because it produced only food, clothing, shelter, babies and love, and not publications? What if the first woman scientist was simply the first woman? Was it Eve herself? Was she an horticultural ophiologist? An experimental theologian? Does she count? No, she was just a stolen rib, a spare part. She was born to be a helpmeet, to supply what the beasts of the field and the fowls of the air could not, in sorrow and pain. She was to be ruled over. She was to be cleaved to. And in the end, she was excluded.

This last year the earth itself seemed to stop in its tracks as COVID-19 suspended our collective animation. We waited for it to run its course, then for a cure, then for a vaccine. We are still waiting for some kind of ending and for some kind of beginning of what we hope will resemble the past. Quietly and in the background, our planet has circled the sun more-or-less the same way it has done for the last billion years, and we now find ourselves facing our second Earth Day distanced from each other and from the things we used to do.

Some things will be the same: We will tell each other the story of Gaia, the woman who is much more than a Woman. She is the docile Earthmother who generously balances and protects the environment and all its inhabitants. She is our New-Age Eve—one who never screwed up—a goddess that can be worshipped by atheists. Above all, she is a nursery-rhyme for grown-ups, charming us away from the empty space where our own efforts should be.

In my 41st year I read Hesiod's original eighth-century B.C. story of Gaia. By then I was myself a mother and a stranger in a strange land, and still questioning whether I was a Scientist, or if I ever really could be. Through my reading, I discovered the real Gaia, and will never believe in the fairy tale again.

The real Gaia emerged spontaneously out of the chaos. First in the universe—she *was* the universe—until her brothers Tartarus and Eros followed her. Later, while her other younger siblings were squabbling about who was to be Day and who was to be Night, Gaia began her work, and her work was creating.

Gaia was a hard worker and she created almost everything. She eventually gave birth to 20 children—all of them destined to become gods—but during her early career, she labored alone. She brought forth the Sky and the Sea all by herself, in an attempt to build an ever-sure abiding-place for her future family. She was careful to fashion Uranus as her equal, and then took him as her mate.

After a little coaching by Eros, and a lot of work by Gaia, Uranus found himself the father of duodecaplets: six daughters and six sons. At this point in the story, Uranus completely lost his mind. Not at all ready for fatherhood, Uranus shoved all 12 children back inside Gaia, and then rejoiced at her groaning. Gaia responded by inventing the atom, then the elements, and then from them she invented rock and quartz and flint. She then set about to forge a terrible sharp weapon.

Upon its completion, she showed the weapon to her sons and asked which one of them would use it to punish their father? Her youngest and most loyal son, Cronos, volunteered. When Uranus next came close, Cronos reached out and viciously maimed Uranus, and blood gushed across the earth.

Out of nostalgia, or perhaps just frugality, Gaia collected the blood and created from it a great number of Nymphs, and then taught them to differentiate oak trees from ash. Gaia's love for Uranus was over, though they had 12 children in common plus any number of step-monsters and giants. She would, nonetheless, live to know the sorrow of watching her favorite son grow into a violent bully like his father.

Her heart having been broken by Uranus, Gaia turned to her second creation, Pontus, and started over. With him she had five children: three great, proud boys and then two little girls—one sweet and one sour. Their oldest, Nereus, was a Golden Boy, kind and gentle, lawful and honest. A sea nymph rewarded him for his goodness by giving him 50 daughters, each of whom grew into a skilled craftswoman, not unlike her grandmother.

Gaia then turned her attention to her daughter Rhea, who needed her help badly, in the form of protection from Gaia's son, Cronos. Rhea had already given birth five times, and each time, Gaia attended her daughter as midwife. After each of these babies had dropped from Rhea's womb and onto Gaia's knees, Cronos grabbed them and swallowed them. One after the other, he had destroyed his children, unable to endure the idea of them growing into beings that might not obey him. Gaia fled with the desperate Rhea, to a far-away land, where she birthed her grandson, Zeus. With mother and baby safely hidden in the woods, Gaia returned to Cronos carrying a stone swaddled in a blanket, which he immediately thrust down into his belly. As the years rolled on, Cronos repented his actions, but it was too late. Gaia had raised Zeus, nourishing him on the idea that it was his destiny to vanquish his father—a feat he ultimately accomplished using firearms borrowed from his uncles.

After all her children had grown up and left home, Gaia found lasting comfort with Tartarus. The oldest of her friends, he had emerged from Chaos just after her, and so had watched her working these many eons, out of the depths of his own exile. Gaia and Tartarus had one son, Typhoeus—a nervous, troubled boy who could not stop his feet from moving and heard voices in his head. He was subject to fits of wild and confused fury, from which only his father could talk him down.

Having pursued her career to its fullest, Gaia sank contentedly into retirement. She blessed her own work and then set aside all toil. She handed the keys of Olympus to her favorite grandchild Zeus and wished him the best of luck. And that is where Gaia's real story ends.

I know that the above story isn't real. Similar to how I don't believe there was a perfect garden or breathing dust or magic tree or talking snake or poison apple. No, I don't believe in one-eyed giants or three-headed dogs or winged witches or flying horses. But I do believe in second chances at love, and tragedy during childbirth, and mothers that protect and fathers that abuse, and sons that grow to hate their mothers, and good men who know the value of daughters, and failure that comes too early and success that comes too late and to somebody else. I believe in knowing the difference between an oak tree and an ash tree. But most of all, I believe in women who work and follow no one.

Hesiod's untrue story has led me to a deeper truth: that Gaia was a Scientist, that I am a Scientist, that you might be a Scientist too. That we have always been and that we may all dare to count. That maybe it's not selfish cupidity that limits the application of the title. Maybe, like Ptolemy's Earth-centric model of the universe, we set it up wrong from the start. Maybe the only real way to identify a Scientist is when we see the joy and frustration and late nights and failed attempts, and glowing pride unspoken whenever we offer each other a view of something private and beautiful.

This is a remarkable Essay!



Mother Goddess sculpture from Madhya Pradesh or Rajasthan, India, 6th-7th century, in the National Museum of Korea, Seoul

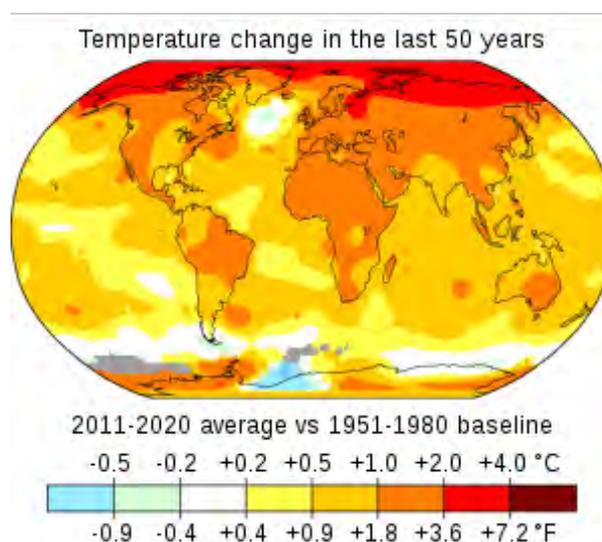
But these days Gaia would be worried, sad, angry when looking at our planet. For millennia she watched the transformations that humans -the last species to run the planet- brought selfishly; she was silent but had doubts. But during the last two centuries things went from minor to major, and now border on catastrophic; the common name is ***climate change***. For (the delusion of) *power, greed, ignorance, stupidity*, and worse, every instant there is more frightening, and comes closer to us.

Wikipedia has a very comprehensive entry on **Climate Change**. Here is the Introduction:

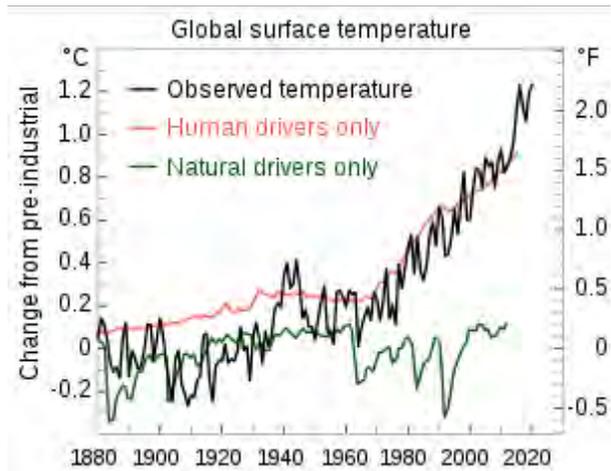
Climate change includes both **global warming** driven by human emissions of greenhouse gases and the resulting large-scale shifts in weather patterns. Though there have been previous periods of climatic change, since the mid-20th century humans have had an unprecedented impact on Earth's climate system and caused change on a global scale.

The largest driver of warming is the emission of greenhouse gases, of which more than 90% are carbon dioxide (CO₂) and methane. Fossil fuel burning (coal, oil, and natural gas) for energy consumption is the main source of these emissions, with additional contributions from agriculture, deforestation, and manufacturing. The human cause of climate change is not disputed by any scientific body of national or international standing. Temperature rise is accelerated or tempered by climate feedbacks, such as loss of sunlight-reflecting snow and ice cover, increased water vapor (a greenhouse gas itself), and changes to land and ocean carbon sinks.

Temperature rise on land is about twice the global average increase, leading to desert expansion and more common heat waves and wildfires. Temperature rise is also amplified in the Arctic, where it has contributed to melting permafrost, glacial retreat and sea ice loss. Warmer temperatures are increasing rates of evaporation, causing more intense storms and weather extremes. Impacts on ecosystems include the relocation or extinction of many species as their environment changes, most immediately in coral reefs, mountains, and the Arctic. Climate change threatens people with food insecurity, water scarcity, flooding, infectious diseases, extreme heat, economic losses, and displacement. These impacts have led the World Health Organization to call climate change the greatest threat to global health in the 21st century. Even if efforts to minimize future warming are successful, some effects will continue for centuries, including rising sea levels, rising ocean temperatures, and ocean acidification.



Average surface air temperatures from 2011 to 2020 compared to a baseline average from 1951 to 1980 (Source: NASA)

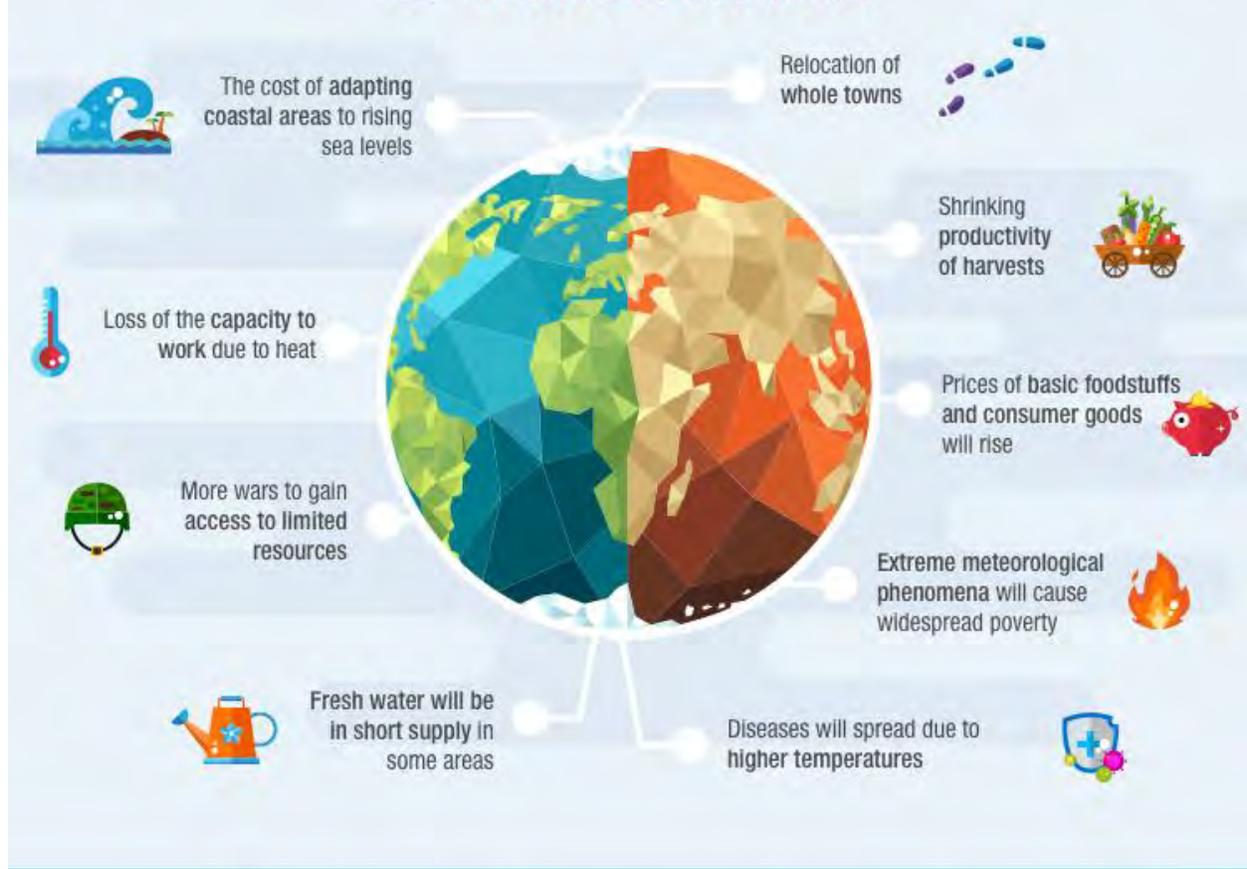


Observed temperature from NASA versus the 1850–1900 average as a pre-industrial baseline. The main driver for increased global temperatures in the industrial era is human activity, with natural forces adding variability.

Many of these impacts are already felt at the current level of warming, which is about 1.2 °C (2.2 °F). The Intergovernmental Panel on Climate Change (IPCC) has issued a series of reports that project significant increases in these impacts as warming continues to 1.5 °C (2.7 °F) and beyond. Additional warming also increases the risk of triggering critical thresholds called tipping points. Responding to climate change involves mitigation and adaptation. Mitigation – limiting climate change – consists of reducing greenhouse gas emissions and removing them from the atmosphere; methods include the development and deployment of low-carbon energy sources such as wind and solar, a phase-out of coal, enhanced energy efficiency, reforestation, and forest preservation. Adaptation consists of adjusting to actual or expected climate, such as through improved coastline protection, better disaster management, assisted colonization, and the development of more resistant crops. Adaptation alone cannot avert the risk of "*severe, widespread and irreversible*" impacts.

Under the 2015 Paris Agreement, nations collectively agreed to keep warming "well under 2.0 °C (3.6 °F)" through mitigation efforts. However, with pledges made under the Agreement, global warming would still reach about 2.8 °C (5.0 °F) by the end of the century. Limiting warming to 1.5 °C (2.7 °F) would require halving emissions by 2030 and achieving near-zero emissions by 2050.

SOCIAL AND ECONOMIC IMPACT OF CLIMATE CHANGE



c. Iberdrola

On April 15th, 2021, Google Earth released a new Timelapse feature that shows chilling effects of climate change; you can (must) watch it on clicking on the last reference.

Indeed, **Gaia** would be devastated....

Acknowledgements

This rant was triggered by the deafness of the governments, the malfeasant greed of the wealthy puppet masters who buy these political decision makers, and the dire consequences that affect the poor, the minorities, the vast mass of our kin living in the *developing* world, and -eventually- all of us -especially our children and the next generations. I used a few sources (including Wikipedia), and listed them.

References

<https://en.wikipedia.org/wiki/Gaia>

<https://www.thoughtco.com/greek-mythology-gaia-1525978>

<https://nautil.us/issue/99/universality/gaia-the-scientist>

https://en.wikipedia.org/wiki/Climate_change

<https://www.cnn.com/2021/04/15/tech/google-earth-timelapse/index.html>