

YOU MATTER TO HIM

WORLDS WITHOUT NUMBER: GOD'S INFINITE CREATION

Excerpts of General Conference Remarks by Elder Dieter F. Uchtdorf

"You Matter to Him," October 2011 & "Receiving a Testimony of Light and Truth," October 2014

"It was less than a century ago that most astronomers assumed that our Milky Way galaxy was the only galaxy in the universe. They supposed all that lay beyond our galaxy was an immense nothingness, an infinite void — empty, cold, and devoid of stars, light, and life.

"As telescopes became more sophisticated, astronomers began to grasp a spectacular, almost incomprehensible truth: the universe is mind-bogglingly bigger than anyone had previously believed, that the heavens are filled with numberless galaxies, unimaginably far away from us, each containing hundreds of billions of stars.

"The immensity of the universe didn't suddenly change, but our ability to see and understand this truth changed dramatically. And with that greater light, mankind was introduced to glorious vistas we had never before imagined.

"And while we may look at the vast expanse of the universe and say, 'What is man in comparison to the glory of creation?' God Himself said we are the reason He created the universe!

"The Lord doesn't care at all if we spend our days working in marble halls or stable stalls. He knows where we are, no matter how humble our circumstances. He will use — in His own way and for His holy purposes — those who incline their hearts to Him.

"God knows that some of the greatest souls who have ever lived are those who will never appear in the chronicles of history. They are the blessed, humble souls who emulate the Savior's example and spend the days of their lives doing good.

"His work and glory — the purpose of this magnificent universe — is to save and exalt mankind. In other words, the vast expanse of eternity, the glories and mysteries of infinite space and time are all built for the benefit of ordinary mortals like you and me. Our Heavenly Father created the universe that we might reach our potential as His sons and daughters.

"This is a paradox of man: compared to God, man is nothing; yet we are everything to God. While against the backdrop of infinite creation we may appear to be nothing, we have a spark of eternal fire burning within our breast. We have the incomprehensible promise of exaltation — worlds without end — within our grasp. And it is God's great desire to help us reach it.

"You are not invisible to your Heavenly Father. He loves you. He knows your humble heart and your acts of love and kindness. Together, they form a lasting testimony of your fidelity and faith.

"Be assured that if you but hold on, believe in Him, and remain faithful in keeping the commandments, one day you will experience for yourself the promises revealed to the Apostle Paul: 'Eye hath not seen, nor ear heard, neither have entered into the heart of man, the things which God hath prepared for them that love him.

"Brothers and Sisters, the most powerful Being in the universe is the Father of your spirit. He knows you. He loves you with a perfect love.

"God sees you not only as a mortal being on a small planet who lives for a brief season — He sees you as His child. He sees you as the being you are capable and designed to become. He wants you to know that you matter to Him."

THE MILKY WAY GALAXY

OVERHEAD VIEW DIAGRAM

1 NPP Blue Marble / Earth
~0 light-years
(Earth; NPP satellite ~800 km above)

2 Rho Ophiuchi
390 light-years

3 L1527 & Protostar
460 light-years

4 Ring Nebula
2,300 light-years

5 Pillars of Creation
6,500 light-years

6 Crab Nebula
6,500 light-years

7 Cosmic Cliffs /
Carina Nebula
7,600 light-years

8 AG Carinae
20,000 light-years

9 Westerlund 2
20,000 light-years

10 Sagittarius C
25,000 light-years
(~300 light-years from center)

11 Cosmic Reef
(NGC 2014/2020)
163,000 light-years
(Large Magellanic Cloud)

12 Tarantula Nebula
(30 Doradus)
170,000 light-years
(Large Magellanic Cloud)

13 NGC 1556
57 million light-years

14 Webb's First Deep Field
(SMACS 0723)
4.6 billion light-years

INNER RIM OF
ORION ARM

ORION
ARM

PERSEUS ARM

OUTER ARM

GALACTIC
CENTER
300 light-years
from center

SAGITTARIUS ARM

NORMA ARM

LARGE MAGELLANIC CLOUD
(Dwarf Galaxy)
~163,000–170,000 light-years
from Earth

Orbiting the Milky Way

NGC 1556
57 million light-years

14 Webb's First Deep Field
(SMACS 0723)
4.6 billion light-years



NOTE

The following information was contributed by a local member of The Church of Jesus Christ of Latter-day Saints.

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For the Church's official site, visit churchofjesuschrist.org.

NPP BLUE MARBLE

The Blue Marble (Suomi NPP) image is one of the most iconic portraits of Earth ever created. Unlike the famous Apollo photograph from 1972, this modern Blue Marble is a composite of dozens of satellite images collected by NASA's Suomi National Polar-orbiting Partnership (Suomi NPP) satellite, which orbits about 512 miles (824 km) above Earth. More than just a beautiful picture, it is a powerful reminder of the uniqueness, beauty, and fragility of our home in the vastness of space.

1. Every person on Earth is somewhere in this image.
More than 8 billion people, every city, every nation, every mountain, and every ocean all exist on this single, beautiful blue world.
2. It's not a single photograph.
The image is a carefully crafted mosaic of dozens of cloud-free satellite images, seamlessly combined to create one realistic portrait of Earth.
3. The satellite circles Earth 14 times every day.
Orbiting about 512 miles (824 km) above the surface, Suomi NPP images the entire planet every 24 hours while monitoring weather, oceans, vegetation, wildfires, sea ice, and more.
4. Earth's atmosphere is astonishingly thin.
The delicate blue halo surrounding the planet is our atmosphere. If Earth were the size of an apple, the breathable atmosphere would be thinner than the apple's skin.
5. Every cloud is real.
The swirling white patterns are actual weather systems captured from space, including storms that can span thousands of miles across the oceans.
6. Earth is a living planet.
The vibrant greens reveal forests and vegetation powered by photosynthesis. NASA's instruments can even measure how actively plants are growing, helping scientists monitor forests, crops, and droughts.
7. Our planet is uniquely colorful.
Deep blue oceans, brilliant white clouds, green forests, brown deserts, and bright polar ice make Earth unlike any other known world in our Solar System — a direct result of abundant liquid water and life.
8. Antarctica is one of Earth's brightest features.
Fresh snow reflects up to 90% of incoming sunlight, helping regulate Earth's climate by reflecting enormous amounts of solar energy back into space.

9. Earth remains the only known inhabited world.

Despite the discovery of thousands of exoplanets, Earth is still the only known planet with stable oceans of liquid water, an oxygen-rich atmosphere, and abundant life.

10. The Blue Marble changes every day — but its message never does.

Clouds, storms, sea ice, vegetation, and seasons are constantly changing, making every new Blue Marble unique. Yet each image offers the same profound perspective: from space there are no visible political borders — only one interconnected world, reminding us that everyone and everything we know shares this small, fragile home suspended in the darkness of space.

The Sacredness of Home

After looking outward at stars, nebulae, and galaxies, the Blue Marble brings our attention back to Earth. From space, the borders that divide nations disappear, leaving one small, beautiful world surrounded by darkness.

This image of Earth reminds us that our planet is not merely a place we happen to occupy; it is our home and part of God's plan for His children. We have been given the responsibility to care for one another and to exercise stewardship over the earth. The Blue Marble therefore carries a deeply human message: despite our differences, every person we know lives on this same fragile world. Seeing Earth from space can inspire gratitude for God's creation and a greater desire to treat both the earth and its inhabitants with care.

L1527 PROTOSTAR

The L1527 Protostar is one of the most iconic images captured by the James Webb Space Telescope because it reveals a star at the very beginning of its life. Located about 430 light-years away in the Taurus Molecular Cloud, L1527 offers a rare glimpse into the processes that eventually create stars, planets, and solar systems. In many ways, this remarkable object provides a window into what our own Sun and Solar System may have looked like 4.6 billion years ago.

1. You're watching a star being born.
L1527 is a protostar, meaning it has not yet become a true star. Nuclear fusion has not fully begun, and it is still growing by pulling in gas and dust from its surroundings.
2. It's a cosmic newborn.
At only about 100,000 years old, L1527 is an infant by stellar standards. Compared to our 4.6-billion-year-old Sun, it's essentially a baby star.
3. This may be a glimpse of our own origins.
Astronomers believe the Sun passed through a stage much like L1527 billions of years ago, making this image a possible portrait of our Solar System's earliest chapter.
4. The famous butterfly shape isn't the star.
The striking hourglass appearance is actually light escaping through cavities carved into the surrounding cloud by powerful jets and stellar winds — not the star itself.
5. The dark band is a future planet factory.
The narrow dark lane across the center is a protoplanetary disk of gas and dust that may eventually form planets, moons, asteroids, and comets.
6. The protostar is still growing.
Gravity continues pulling material inward through a process called accretion, steadily increasing the star's mass as it evolves toward becoming a mature star.
7. Even baby stars launch powerful jets.
Long before fusion begins, L1527 ejects high-speed bipolar jets that blast away surrounding gas and dust, carving enormous cavities that stretch for great distances.
8. Webb sees what visible-light telescopes cannot.
Hidden behind thick dust, L1527 is nearly invisible in ordinary light. The James Webb Space Telescope's infrared vision penetrates much of that dust, revealing structures never seen before.

9. The ingredients for future worlds are already present.

The surrounding cloud contains water ice, carbon-rich molecules, methanol, and other complex compounds that may one day become part of planets — and potentially provide some of the chemical building blocks for life.

10. This is the opening chapter of a future solar system.

L1527 captures one of the briefest and most important stages in stellar evolution. Every mature star, every planetary system, and perhaps every inhabited world begins in a dusty cocoon like this one. The image is more than a portrait of a young star — it's a glimpse into the process that ultimately gave rise to Earth and everything on it.

The Beginning of a Journey

L1527 gives us a glimpse of a star before it has even fully become a star. It is still gathering material, developing, and moving toward what it will eventually become.

The L1527 image offers a beautiful way to think about our own spiritual lives. We are not finished products. Just as L1527 is in an early stage of a much longer process, we are also here to learn, grow, develop, and become more like our Heavenly Father and Jesus Christ. The gospel teaches that eternal life is not simply about where we are now, but about what we are becoming. L1527 reminds us that beginnings matter — and that God sees the potential in something long before its final form is visible.

RING NEBULA

The Ring Nebula (M57) is one of the most famous objects in the night sky and one of the finest examples of a planetary nebula — the glowing shell of gas left behind when a Sun-like star reaches the end of its life. Located about 2,600 light-years from Earth in the constellation Lyra, the Ring Nebula offers a remarkable glimpse into the distant future of our own Solar System and the ongoing cycle of stellar death and rebirth.

1. It is a preview of our Sun's future.

In about 5–7 billion years, the Sun is expected to shed its outer layers and create a planetary nebula remarkably similar to the Ring Nebula before ending its life as a white dwarf.

2. It isn't actually a ring.

Although it appears circular from Earth, the Ring Nebula is a three-dimensional barrel- or football-shaped cloud. We happen to be looking almost directly down one end, creating the illusion of a glowing ring.

3. A tiny white dwarf powers the entire nebula.

At the center lies a white dwarf — the exposed core of the original star. Though only about the size of Earth, it contains roughly 60% of the Sun's mass and emits intense ultraviolet radiation.

4. The central star is extraordinarily hot.

The white dwarf has a surface temperature of about 120,000 Kelvin (over 215,000°F or 120,000°C) — more than 20 times hotter than the surface of the Sun.

5. The nebula is still expanding.

The glowing shell of gas is moving outward at about 20–30 kilometers (12–19 miles) per second, slowly dispersing into interstellar space as it grows larger every year.

6. Every color reveals a different element.

The nebula's brilliant colors are produced by glowing gases energized by ultraviolet light: oxygen creates blue-green hues, hydrogen glows red, and nitrogen appears orange, revealing the chemical elements forged inside the dying star.

7. James Webb revealed extraordinary hidden detail.

The James Webb Space Telescope uncovered thousands of delicate filaments, dense knots of gas, molecular hydrogen, and complex carbon-rich molecules that previous telescopes could not resolve.

8. It is much larger than it appears.

The bright ring spans about one light-year across. If placed at the center of our Solar System, it would extend far beyond Pluto's orbit.

9. It is enriching the galaxy with the building blocks of life.

The expanding cloud contains carbon, oxygen, nitrogen, and other heavy elements that will eventually become part of new stars, planets, and perhaps even living organisms.

10. It beautifully illustrates the Universe's cycle of renewal.

The Ring Nebula is a reminder that nothing in the cosmos is wasted. Rather than exploding as a supernova, this Sun-like star gently returned its enriched material to space, where it will help create future generations of stars and planetary systems. In a very real sense, the carbon in our bodies and the oxygen we breathe were forged by ancient stars that ended their lives much like the Ring Nebula, making it both a spectacular celestial object and a glimpse into our own distant future.

A Glimpse of Our Future

The Ring Nebula gives us an extraordinary glimpse of what may eventually happen to our own Sun. A star similar to ours has reached the end of its life, shed its outer layers, and left behind a white dwarf surrounded by an expanding shell of gas.

The Ring Nebula reminds us of the temporary nature of mortal existence and the importance of looking beyond the present moment. It does not diminish the beauty or meaning of life; instead, it deepens our appreciation for it. We know from the gospel that mortality is a part of a much larger eternal plan. Looking at a dying star can therefore encourage us to use our mortal years wisely and to remember that our ultimate destiny is not defined by the physical limits of mortality.

PILLARS OF CREATION

The Pillars of Creation, located within the Eagle Nebula (M16), are among the most iconic images ever captured by a telescope. These towering columns of gas and dust are one of the Milky Way's most active stellar nurseries, where new stars and future planetary systems are taking shape. The Pillars offer a remarkable glimpse into one of the Universe's greatest cycles of creation and renewal.

1. They are giant stellar nurseries.

The Pillars are immense clouds of cold hydrogen gas and cosmic dust, where gravity is collapsing material to form new stars deep within their dense interiors.

2. They are unimaginably large.

The three main pillars rise 4–5 light-years high. If one replaced our Solar System, it would extend beyond the distance to Proxima Centauri, our nearest neighboring star. Even the vast Oort Cloud would be only about the size of one of the largest pillars.

3. Hundreds of new stars are being born inside.

Hidden within the dark clouds are numerous protostars — young stars still wrapped in cocoons of gas and dust that will eventually become fully formed stars with their own planetary systems.

4. Webb revealed a hidden universe.

The James Webb Space Telescope's infrared vision penetrates much of the dust, exposing hundreds of previously unseen newborn stars, delicate filaments, shock waves, and jets that Hubble could not detect.

5. The Pillars are slowly being destroyed.

Powerful ultraviolet radiation and stellar winds from nearby massive stars are steadily eroding the pillars, sculpting their dramatic shapes while blasting gas and dust back into space.

6. Their lifetime is surprisingly short.

Although they appear timeless, astronomers estimate the Pillars may survive for only a few hundred thousand more years — a brief moment compared with the billions of years many stars will live.

7. Our Solar System may have begun in a place like this.

Scientists believe the Sun formed 4.6 billion years ago inside a giant molecular cloud similar to the Pillars of Creation, making this image a possible glimpse into our own distant origins.

8. The ingredients for planets — and life — are already here.
The clouds contain hydrogen, carbon, oxygen, silicon, water ice, and complex organic molecules that will eventually become new stars, planets, oceans, atmospheres, and perhaps even living organisms.
9. You're looking thousands of years into the past.
The Eagle Nebula lies about 6,500–7,000 light-years away, so the light reaching Earth today began its journey long before the invention of the telescope.
10. They beautifully capture the Universe's cycle of renewal.
The Pillars of Creation show one of nature's greatest paradoxes: the same forces that destroy these towering clouds also trigger the birth of new stars and planetary systems. Every generation of stars enriches the cosmos with the elements needed for the next, making places like the Pillars the birthplace of future worlds — and perhaps future life itself.

God's Work Takes Time

The Pillars of Creation appear almost timeless, yet they are changing and may eventually disappear as radiation and stellar winds reshape them. Hidden within them, however, new stars are being born.

This is a beautiful reminder that God's work often unfolds over periods far longer than human experience. We frequently want immediate answers, immediate growth, and immediate results, while creation itself teaches patience. The Pillars remind us that something may be changing even when we cannot see the change happening. Just as new stars are developing inside clouds of dust and darkness, spiritual growth can take place quietly within us. God's purposes do not depend upon our ability to see the entire process at once.

CRAB NEBULA

The Crab Nebula (M1) is one of the most famous and intensively studied objects in the night sky. It is the expanding remnant of a massive star that exploded in A.D. 1054, leaving behind one of the most extreme objects in the Universe — a rapidly spinning neutron star. Located about 6,500 light-years from Earth, the Crab Nebula offers astronomers an extraordinary laboratory for studying supernovas, neutron stars, and the cosmic recycling that creates the building blocks of future stars, planets, and life.

1. People actually witnessed this star explode.

The supernova of A.D. 1054 was so brilliant it was visible in broad daylight for nearly a month and remained visible in the night sky for almost two years. Chinese, Japanese, and Middle Eastern astronomers carefully recorded the event.

2. A city-sized object remains at its center.

The explosion left behind the Crab Pulsar, a neutron star only 20–25 kilometers (12–16 miles) across, yet containing more mass than our Sun.

3. It spins 30 times every second.

The Crab Pulsar rotates about 30 times per second, sweeping beams of radio waves, visible light, X-rays, and gamma rays across space like a cosmic lighthouse.

4. Its matter is almost unimaginably dense.

If you could bring a teaspoon of neutron-star material to Earth, it would weigh billions of tons—more than the weight of many mountains.

5. The explosion is still racing outward.

Nearly 1,000 years later, the Crab Nebula continues expanding at about 1,500 kilometers (930 miles) per second, and astronomers can actually measure its growth over time.

6. The dead star powers the entire nebula.

Much of the Crab's brilliant glow comes not from the original explosion, but from the immense energy released by the rapidly spinning pulsar, which drives a wind of particles moving close to the speed of light.

7. Every color reveals newly forged elements.

The glowing filaments contain hydrogen, oxygen, sulfur, carbon, silicon, iron, and other heavy elements created inside the original star and scattered into space by the supernova.

8. Webb uncovered remarkable hidden detail.

The James Webb Space Telescope revealed intricate filaments of dust and gas, providing new insights into how supernovas create and distribute the raw materials for future stars and planets.

9. It became the first object in the famous Messier Catalog.

In 1758, Charles Messier mistakenly thought the Crab Nebula was a comet. To avoid future confusion, he began compiling a catalog of fuzzy deep-sky objects—making the Crab Messier 1 (M1), the first entry.

10. It shows how the Universe creates new worlds.

The Crab Nebula is a spectacular example of cosmic renewal. The heavy elements forged inside the exploded star will eventually become part of new stars, new planets, and perhaps even living organisms. The iron in our blood, calcium in our bones, and oxygen we breathe were created by ancient stellar explosions like this one, making the Crab Nebula a powerful reminder that the death of one star helps make future worlds—and life itself—possible.

From Death to New Creation

The Crab Nebula provides a powerful lesson in how something that appears to be an ending can contribute to a new beginning. A massive star died in a spectacular explosion, yet the elements forged within that star were scattered into space, eventually becoming part of the raw material from which future stars, planets, and perhaps life itself can form.

This is a striking reminder that death is not the end of God's purposes. The gospel teaches that through Jesus Christ, death itself has been overcome and resurrection is possible. In that regard, the story of the Crab Nebula serves as a profound natural metaphor: what looks like destruction can become part of a greater process of creation, renewal, and continuation.

AG CARINAE

AG Carinae is one of the most extraordinary stars ever discovered. It belongs to a rare class of massive stars called luminous blue variables — giant stars living on the brink of self-destruction. If AG Carinae replaced our Sun, its blinding light and intense radiation would overwhelm the entire Solar System, while the vast nebula it has expelled would stretch about five light-years across, extending beyond our nearest stellar neighbors. It is a breathtaking reminder that the universe's most beautiful objects are often its most powerful.

1. It shines brighter than one million Suns.

AG Carinae is one of the brightest known stars in the Milky Way, radiating more than one million times the Sun's luminosity.

2. It's a true stellar giant.

Born with an estimated 70 times the Sun's mass (and still retaining roughly 50–70 solar masses), AG Carinae is among the most massive stars known.

3. It lives on the edge of destruction.

The star exists near the Eddington Limit, where outward radiation pressure nearly equals gravity. This delicate balance makes AG Carinae extremely unstable and prone to violent eruptions.

4. It is literally blowing itself apart.

AG Carinae ejects enormous amounts of gas through powerful stellar winds moving at hundreds of kilometers per second, shedding material equivalent to several Suns during its lifetime.

5. Its beautiful nebula is its own discarded atmosphere.

The glowing shell surrounding the star was created about 10,000 years ago when AG Carinae violently expelled its outer layers. The nebula spans about five light-years, larger than the distance from the Sun to our nearest stellar neighbors.

6. It can't decide what kind of star it wants to be.

Over years to decades, AG Carinae dramatically expands and contracts, causing its size, surface temperature, and appearance to change — a hallmark of luminous blue variable stars.

7. Webb revealed a hidden masterpiece.

The James Webb Space Telescope uncovered intricate filaments, arcs, and clumps of warm dust invisible to Hubble. Together, Webb and Hubble reveal both the glowing gas and cooler dust, providing the most complete view ever of AG Carinae's violent past.

8. It spins incredibly fast.

Rotating at more than 200 km/s (125 mi/s), AG Carinae's rapid spin weakens gravity's grip on its outer layers, making the star even more unstable.

9. Its life will end in a spectacular supernova.

Although only a few million years old, AG Carinae is nearing the end of its life. Sometime within the next tens of thousands to perhaps a million years, it is expected to explode as a supernova, possibly leaving behind a neutron star or black hole.

10. It helps build future worlds—and life itself.

Every eruption enriches space with heavy elements such as carbon, oxygen, and nitrogen. When AG Carinae finally explodes, those elements will seed future generations of stars, planets, and potentially living organisms. In a very real sense, stars like AG Carinae are among the cosmic forges that make life possible.

The Power of Creation

AG Carinae reminds us that God's creations are not merely beautiful — they are powerful, dynamic, and governed by laws far beyond our own scale of experience. A star millions of times brighter than the Sun, living on the edge of destruction and returning its elements to space, can inspire humility before our Creator.

The heavens testify that God is a God of order, purpose, and creation. As we contemplate AG Carinae, we can remember that the same God who governs the life and death of a massive star also knows and values each of His children. The universe may be unimaginably vast, but its vastness does not make us insignificant in God's sight.

SAGITTARIUS C

Sagittarius C (Sgr C) is one of the most extreme star-forming regions in the Milky Way. Located about 25,000 light-years from Earth, only a few hundred light-years from the center of our galaxy, it exists in an environment of intense gravity, powerful magnetic fields, dense gas, and energetic radiation. Revealed in stunning detail by the James Webb Space Telescope, Sagittarius C offers an extraordinary look at how stars are born under some of the harshest conditions in the galaxy.

1. It lies near the heart of the Milky Way.
Sagittarius C is located only a few hundred light-years from the Galactic Center, placing it in one of the most crowded and energetic regions of our galaxy.
2. Webb pierced an invisible wall of dust.
Thick clouds of dust hide Sagittarius C from visible-light telescopes, but the James Webb Space Telescope's infrared vision reveals thousands of stars and intricate structures that were previously invisible.
3. It's a stellar nursery under extreme conditions.
Massive clouds of gas are actively forming new stars despite being surrounded by intense radiation, strong magnetic fields, and violent turbulence unlike the relatively calm environment around our Sun.
4. It contains a giant protostar still growing.
One of Webb's most remarkable discoveries is a protostar more than 30 times the mass of the Sun, still gathering gas as it evolves into a massive star.
5. Young stars are carving tunnels through space.
Powerful jets and stellar winds from newborn stars blast through the surrounding clouds, creating glowing cavities, shock waves, and towering structures of gas and dust.
6. The neighborhood is incredibly crowded.
The density of stars near Sagittarius C is far greater than in our region of the Milky Way. If you lived there, the night sky would be filled with countless brilliant stars.
7. Magnetic fields help shape the landscape.
Enormous thread-like magnetic structures weave through the region, influencing how gas moves, where stars form, and how the entire cloud evolves.
8. It is a laboratory for understanding galactic centers.
Because Sagittarius C is relatively nearby, astronomers use it to study the extreme environments found near the centers of galaxies throughout the Universe.

9. Star formation is surprisingly difficult there.

Despite containing vast amounts of gas, the intense turbulence and radiation actually make it harder for clouds to collapse into new stars, making Sagittarius C an important puzzle for astronomers.

10. It reveals the remarkable resilience of creation.

Sagittarius C demonstrates that new stars can form even in one of the most hostile environments in the Milky Way. Amid crushing gravity, powerful magnetic fields, and intense radiation, nature continues to create new suns and future planetary systems, offering a glimpse of how our galaxy may have looked during its more active youth.

Creation in the Midst of Extremes

Sagittarius C lies near the turbulent center of the Milky Way, where intense radiation, powerful magnetic fields, dense gas, and enormous gravitational forces create an environment very different from our own. Yet even there, new stars are forming.

God's creative work is not limited to places that appear peaceful or comfortable. Sometimes creation occurs in the midst of extraordinary difficulty. That idea resonates with the gospel experience of mortality: growth does not require perfect circumstances. In fact, some of our greatest spiritual development may occur through adversity, uncertainty, and challenge. Sagittarius C can remind us that even in an environment that seems hostile, creation continues — and God's purposes continue as well.

WESTERLUND 2

Westerlund 2 is one of the youngest and most spectacular massive star clusters in the Milky Way. Located about 20,000 light-years from Earth within the Gum 29 Nebula, it is home to some of the hottest, brightest, and most massive stars known. Revealed in remarkable detail by the Hubble Space Telescope and the James Webb Space Telescope, Westerlund 2 provides astronomers with an exceptional laboratory for studying how massive stars form, shape their surroundings, and ultimately enrich the galaxy with the elements needed to build future stars, planets, and life.

1. It's a cosmic nursery only about 2 million years old.
Compared to our 4.6-billion-year-old Sun, Westerlund 2 is practically a newborn. Most of its stars formed only about 2 million years ago, making it one of the youngest massive star clusters in the Milky Way.
2. It contains some of the hottest stars in our galaxy.
Many of its stars are rare O-type giants, with surface temperatures exceeding 40,000°C (72,000°F) — more than seven times hotter than the Sun's surface.
3. Some stars shine more than a million times brighter than the Sun.
These stellar powerhouses flood the surrounding nebula with intense ultraviolet radiation, making Westerlund 2 one of the most luminous young clusters in the Milky Way.
4. Its stars are sculpting the surrounding clouds.
Powerful stellar winds racing at millions of kilometers per hour blast away gas and dust, carving enormous bubbles, pillars, and cavities into the surrounding nebula.
5. James Webb revealed thousands of hidden stars.
While Hubble showcased the cluster's brilliant blue stars, the James Webb Space Telescope peered through thick dust with infrared light, uncovering thousands of previously invisible young stars still in the process of forming.
6. It's filled with future supernovae.
Many of Westerlund 2's most massive stars will exhaust their fuel and explode as spectacular supernovae within the next few million years, enriching space with the elements needed for future stars and planets.
7. It lies inside the giant Gum 29 Nebula.
The cluster is embedded within Gum 29, a vast cloud of glowing hydrogen, gas, and dust spanning hundreds of light-years where new generations of stars continue to be born.

8. It's helping create the ingredients for life.

The cluster's massive stars are forging heavy elements such as carbon, oxygen, silicon, and iron. When these stars explode, those elements become part of future stars, planets, and perhaps even living organisms.

9. It offers a glimpse of our own origins.

Astronomers believe the Sun was likely born in a star cluster, though a much less extreme one. Studying Westerlund 2 helps scientists understand how massive stars influence the birth of neighboring stars and planetary systems.

10. It reveals the power of stellar ecosystems.

Located about 20,000 light-years from Earth, every observation is a glimpse 20,000 years into the past. If you could stand near Westerlund 2, the sky would blaze with dozens of brilliant blue-white stars, their intense radiation and powerful winds continually reshaping the surrounding nebula. Westerlund 2 is one of the Milky Way's finest examples of nature's ability to build —and transform —entire stellar ecosystems.

Becoming Part of Something Greater

Westerlund 2 is a young, powerful cluster whose massive stars are shaping the enormous cloud around them while creating and distributing the elements that will eventually become part of future stars and planets.

This star cluster provides a beautiful picture of interdependence and purpose. The stars do not exist in isolation; each affects its surroundings, and material from one generation becomes part of another. The gospel likewise teaches that we are part of a larger family and an eternal plan. Our choices influence other people, just as the stars influence the environments around them. Westerlund 2 can therefore remind us that we were not created merely to exist independently, but to grow, contribute, bless others, and ultimately become part of something far greater than ourselves.

COSMIC CLIFFS IN THE CARINA NEBULA

The Cosmic Cliffs are one of the most breathtaking images ever captured by the James Webb Space Telescope. Although they resemble towering mountains at sunset, they are actually the illuminated edge of a vast cloud of gas and dust within the Carina Nebula (NGC 3324) — a spectacular stellar nursery where new stars are being born. Located about 7,600 light-years from Earth, this scene captures one of nature's greatest cycles: the birth of stars, planets, and ultimately the ingredients for life.

1. They're not mountains—they're a giant wall of gas and dust.
The "cliffs" are the edge of an enormous molecular cloud sculpted by intense radiation from nearby massive stars. Their mountain-like appearance is simply a trick of perspective.
2. The cliffs are an astonishing 7 light-years tall.
If one of these cliffs replaced the distance from the Sun to Proxima Centauri, our nearest stellar neighbor, it would extend even farther.
3. This is one of the Milky Way's great stellar nurseries.
Hidden within the clouds are hundreds of newborn stars, with many more still forming as gravity compresses the surrounding gas into future suns and solar systems.
4. Webb revealed an invisible universe.
Using infrared vision, the James Webb Space Telescope pierced the dust to reveal countless young stars, glowing jets, delicate filaments, and intricate structures that Hubble could not see.
5. Massive stars are carving the landscape.
Powerful ultraviolet radiation and stellar winds from giant stars just beyond the image are slowly eroding the cloud, sculpting the dramatic cliffs like cosmic sandblasters.
6. The glowing "mist" is gas escaping into space.
The golden wisps rising above the cliffs are streams of gas and dust being blasted away through a process called photoevaporation, driven by intense stellar radiation.
7. Baby stars announce their birth with powerful jets.
Tiny red streaks scattered throughout the image are high-speed jets launched by newborn stars, traveling hundreds of thousands of miles per hour and stretching for light-years.

8. The raw ingredients for planets—and life—are here.
The cloud contains hydrogen, carbon, oxygen, silicon, water ice, and complex organic molecules that can eventually become planets, oceans, atmospheres, and perhaps even living organisms.
9. Our Solar System may have formed in a place like this.
Astronomers believe the Sun was born 4.6 billion years ago inside a giant molecular cloud much like the Cosmic Cliffs, making this image a possible glimpse into our own distant origins.
10. You're witnessing creation and destruction at the same time.
The same radiation that erodes these towering clouds also compresses nearby gas, triggering the birth of new stars. The Cosmic Cliffs beautifully capture the Universe's ongoing cycle of destruction, renewal, and creation — where one generation of stars helps give rise to the next.

The Work of Creation

The Cosmic Cliffs offer a beautiful reminder that creation is an ongoing process. Within these enormous clouds of gas and dust, new stars and future planetary systems are forming, even as powerful radiation simultaneously reshapes and destroys portions of the surrounding cloud.

This view can deepen our understanding of the scriptural idea that God's work is centered on creation, growth, and progression. The universe is not a static place; it is filled with processes that transform one thing into another. Looking at the Cosmic Cliffs reminds us that God is also interested in our development — that we, like the stars and worlds around us, are part of a creation that is still unfolding.

COSMIC REEF

The Cosmic Reef is one of the most spectacular images ever captured by the Hubble Space Telescope. Released in 2020 to celebrate Hubble's 30th anniversary, it combines two neighboring nebulae — NGC 2014 and NGC 2020 — located in the Large Magellanic Cloud, a satellite galaxy of the Milky Way about 163,000 light-years from Earth. This breathtaking scene captures both the birth and death of stars, revealing the dynamic processes that continually reshape the universe.

1. It looks like an underwater coral reef—but it's in another galaxy.
The colorful clouds resemble a vibrant coral reef, earning the nickname "Cosmic Reef." In reality, they are immense clouds of glowing gas and dust located 163,000 light-years away in the Large Magellanic Cloud.
2. It was chosen to celebrate Hubble's 30th anniversary.
NASA and ESA unveiled the Cosmic Reef in 2020 as Hubble's official anniversary image, showcasing three decades of revolutionary discoveries and stunning cosmic photography.
3. It captures both stellar birth and stellar death.
Within a single image, massive young stars are forming while older, dying stars are blasting away their outer layers — revealing multiple stages of the stellar life cycle at once.
4. A rare Wolf-Rayet star powers the brilliant blue bubble.
The striking blue nebula (NGC 2020) surrounds an extremely hot Wolf-Rayet star, whose fierce stellar winds have blown an enormous bubble into the surrounding gas.
5. The glowing pink cloud is a giant stellar nursery.
The large pink region (NGC 2014) contains clusters of massive newborn stars whose intense ultraviolet radiation causes surrounding hydrogen gas to glow.
6. Massive stars are sculpting the entire landscape.
Powerful stellar winds and radiation carve towering pillars, ridges, and cavities throughout the nebula, constantly reshaping the surrounding clouds of gas and dust.
7. Every color tells a scientific story.
The image combines multiple scientific filters to map different elements: blue represents oxygen, red traces hydrogen, and green highlights sulfur, revealing the chemistry of the nebula.
8. The scene spans hundreds of light-years.
The Cosmic Reef is so vast that our entire Solar System would be an invisible speck within it, emphasizing the immense scale of star-forming regions.

9. It is helping build future stars, planets, and life.

Massive stars forge heavy elements deep within their cores and return them to space through stellar winds and future supernova explosions. Those elements will become part of new stars, planets, and potentially living organisms.

10. The Cosmic Reef showcases the Universe's great cycle of renewal.

This remarkable image captures one of nature's grandest processes: giant clouds give birth to stars, those stars reshape and enrich their surroundings, and the recycled material eventually forms the next generation of stars, planets, and perhaps even life itself. It is both a breathtaking work of cosmic art and a powerful reminder of how the Universe continually renews itself.

Creation and Renewal

The Cosmic Reef beautifully illustrates the LDS principle that creation involves both beginnings and endings. In this single scene we see young stars being born while older stars are shedding material back into space. The universe continually recycles the elements from one generation of stars into the next.

Such renewal reminds us that God's creations are purposeful and interconnected. What appears to us as destruction may become part of something new. Likewise, the gospel teaches that endings can become beginnings and that through Jesus Christ, renewal and transformation are possible. The Cosmic Reef invites us to see creation not as a single completed event, but as an ongoing testimony of God's power to bring new life from what has come before.

NGC 1566

NGC 1566, better known as the Spanish Dancer Galaxy, is one of the most beautiful spiral galaxies in the nearby universe. Located about 60 million light-years away in the constellation Dorado, it is a classic grand-design spiral galaxy, famous for its elegant arms, brilliant central core, and active supermassive black hole. It offers astronomers one of the best opportunities to study how galaxies grow, evolve, and create new generations of stars.

1. It earned one of astronomy's most poetic nicknames.
NGC 1566 is called the Spanish Dancer Galaxy because its sweeping spiral arms resemble the flowing dress of a flamenco dancer in mid-spin.
2. It has one of the most perfect spiral patterns known.
As a grand-design spiral galaxy, NGC 1566 displays two remarkably symmetrical spiral arms. Only a small percentage of spiral galaxies exhibit such a striking and well-organized structure.
3. A supermassive black hole powers its brilliant heart.
Hidden at the galaxy's center is a supermassive black hole containing millions of times the Sun's mass. As it consumes gas and dust, it creates one of the brightest and most active galactic nuclei in the nearby universe.
4. Its core can brighten dramatically.
Unlike most galaxies, the nucleus of NGC 1566 can change in brightness over months or years as the black hole's feeding rate increases or decreases, making it one of the nearest highly variable active galaxies.
5. Its spiral arms are giant stellar nurseries.
The glowing blue arms are filled with enormous clouds of gas and dust where thousands of new stars are continually forming, giving the galaxy its brilliant appearance.
6. Dark dust paints the galaxy like brushstrokes.
Intricate lanes of cosmic dust weave through the spiral arms, outlining their graceful structure while hiding — and helping create — the next generation of stars.
7. It has witnessed multiple stellar explosions.
Several supernovae have been observed in NGC 1566, allowing astronomers to study how massive stars end their lives and enrich their galaxies with heavy elements.

8. Webb reveals what visible light cannot.

While Hubble showcases the galaxy's spectacular stars and spiral arms, the James Webb Space Telescope peers through the dust to uncover hidden star-forming regions and the complex environment surrounding its central black hole.

9. We see it almost face-on.

Because NGC 1566 is viewed nearly from above, astronomers enjoy an exceptional view of its magnificent spiral architecture — something we can never see for our own Milky Way from inside it.

10. It offers a glimpse of our own galaxy's story.

Although the Milky Way has a different spiral structure, studying NGC 1566 helps astronomers understand how spiral galaxies evolve, how stars are born, and how supermassive black holes influence the growth of entire galaxies. Every image of NGC 1566 is also a journey through time — the light reaching Earth today began its 60-million-year voyage when dinosaurs had only recently disappeared from our planet.

The Grandeur of God's Creations

NGC 1566, with its enormous spiral structure, countless stars, active center, and graceful arms, reminds us that the Milky Way is not the only magnificent galaxy in existence.

NGC 1566 expands our understanding of the scriptural declaration that God's works are without number. We often think of creation in terms of our own world, but the universe reveals a scale of creation almost beyond comprehension. Yet the doctrine of the Restoration teaches that humanity has a place within God's eternal purposes. The more we learn about galaxies like NGC 1566, the more reason we have to approach God's creations with humility, wonder, and gratitude rather than assuming that what we see around us represents the limits of His work.

RHO OPHIUCHI

The Rho Ophiuchi Cloud Complex is one of the most beautiful and scientifically important star-forming regions in the night sky. Located only about 390 light-years from Earth, it is the closest major stellar nursery, where hundreds of young stars and future planetary systems are taking shape. Its colorful clouds, dark dust lanes, and brilliant stars make it a favorite target of both professional astronomers and astrophotographers, while offering an extraordinary glimpse into how stars — and perhaps life itself — begin.

1. It's the closest major stellar nursery to Earth.

At just 390 light-years away, Rho Ophiuchi is our nearest large region of active star formation, giving astronomers a front-row seat to the birth of new stars.

2. Hundreds of baby stars are hidden inside.

Buried within the dense clouds are hundreds to thousands of young stars, many still wrapped in thick cocoons of gas and dust as they continue to grow.

3. Its spectacular colors tell a scientific story.

The vivid colors reveal different physical processes: blue is starlight reflected by dust, red is glowing hydrogen gas energized by nearby stars, and dark brown or black marks dense clouds where future stars remain hidden.

4. The darkest regions are the most active.

What appear to be empty black clouds are actually the densest parts of the nebula, rich with gas, dust, and newborn stars invisible to ordinary telescopes.

5. Our Solar System may have begun in a place like this.

Astronomers believe the Sun formed 4.6 billion years ago inside a giant molecular cloud very much like Rho Ophiuchi, making this region a glimpse into our own cosmic origins.

6. Webb reveals an invisible universe.

The James Webb Space Telescope uses infrared light to peer through the dust, uncovering hidden stars, brown dwarfs, protoplanetary disks, and powerful jets that cannot be seen in visible light.

7. Even baby stars are surprisingly powerful.

Many young stars launch high-speed jets of gas that carve tunnels and shock waves through the surrounding cloud, helping shape the stellar nursery as new stars continue to form.

8. Future solar systems are already taking shape.
Around many of these newborn stars are protoplanetary disks — vast spinning disks of gas and dust where planets, moons, asteroids, and comets are beginning to form.
9. The ingredients for life are already present.
The cloud contains water ice, carbon monoxide, methanol, formaldehyde, and other complex organic molecules — the raw materials that can eventually become planets and perhaps even living organisms.
10. It offers a glimpse into the future of countless worlds.
This immense cloud contains enough material to create hundreds of new stars and thousands of future planets. Every star in the night sky — including our own Sun — was born inside a dark cloud like Rho Ophiuchi, making this remarkable region a window into the ongoing creation of new solar systems throughout our galaxy.

Where New Worlds Begin

Rho Ophiuchi is a stellar nursery filled with young stars, developing planetary systems, and the raw materials from which future worlds may emerge.

This invites reflection on the doctrine that God's work is centered on His children and on the creation of worlds where His purposes can unfold. We cannot know the eternal purposes of every star or planet, but we can recognize in Rho Ophiuchi a universe filled with order, growth, and possibility. The sight of stars forming within a cloud of dust can also remind us that great things may begin in places that initially appear dark or unfinished. In the gospel, God repeatedly takes what is incomplete and helps it become something greater.

TARANTULA NEBULA

The Tarantula Nebula (30 Doradus) is the largest and most active star-forming region in the Local Group of galaxies. Located about 161,000 light-years from Earth in the Large Magellanic Cloud, it is an enormous stellar nursery where thousands of new stars are being born while massive older stars shape the surrounding clouds through powerful winds and supernova explosions. Revealed in breathtaking detail by the James Webb Space Telescope, the Tarantula Nebula offers astronomers an extraordinary glimpse into how the most massive stars form and how galaxies evolved in the early universe.

1. It's the largest stellar nursery in our cosmic neighborhood.
The Tarantula Nebula is the largest and most active star-forming region in the Local Group of galaxies. If it were as close as the Orion Nebula, it would dominate our night sky and even cast visible shadows.
2. It's located in another galaxy.
The nebula lies about 161,000 light-years away in the Large Magellanic Cloud, a satellite galaxy orbiting the Milky Way, making it one of the nearest giant star factories beyond our own galaxy.
3. It contains some of the most massive stars ever discovered.
At its center is the R136 star cluster, home to stars more than 150–200 times the mass of the Sun — among the most massive stars known.
4. Thousands of stars are being born right now.
Dense clouds of gas and dust are continuously collapsing to form new stars, making the Tarantula Nebula the busiest stellar nursery in our galactic neighborhood.
5. Its "spider legs" are sculpted by stellar storms.
Powerful stellar winds and intense ultraviolet radiation from massive young stars carve the nebula's intricate web-like filaments, creating its striking spider-like appearance.
6. It's a factory for future supernovae.
Many of its giant stars will exhaust their fuel within a few million years and explode as supernovae, enriching space with the heavy elements needed to build future stars, planets, and life.

7. James Webb revealed a hidden universe.
Using infrared vision, the James Webb Space Telescope pierced the nebula's dust, uncovering thousands of previously invisible newborn stars, protostars, and intricate structures hidden from visible-light telescopes.
8. It offers a glimpse of the early universe.
Because the Large Magellanic Cloud contains relatively few heavy elements, the Tarantula Nebula resembles the kinds of star-forming regions that were common when the universe was much younger.
9. It contains enough material to create millions of Suns.
The nebula holds hundreds of thousands of solar masses of gas and dust — enough raw material to form vast numbers of new stars over millions of years.
10. It demonstrates the universe's remarkable cycle of creation.
Spanning more than 1,000 light-years, the Tarantula Nebula is so immense that light itself takes over a thousand years to cross it. Within this colossal cloud, thousands of stars are being born while others race toward spectacular supernova explosions. Massive stars forge elements such as carbon, oxygen, silicon, and iron before returning them to space, providing the building blocks for future stars, planets, and potentially life itself.

The Immensity of God's Work

The Tarantula Nebula is so enormous and active that it challenges our ability to comprehend its scale. Thousands of stars are being born, massive stars are reshaping the surrounding cloud, and future supernovae will return elements to space.

In the Tarantula Nebula we begin to sense how God's creations are innumerable, yet the Restoration teaches that God is personally concerned with His children. The combination of cosmic immensity and personal divine concern is one of the most humbling ideas in the gospel: the God who governs worlds without number also knows each of us individually. The Tarantula Nebula inspires both awe at God's greatness and gratitude for His personal love.

WEBB'S DEEP FIELD

Webb's First Deep Field is humanity's deepest and sharpest infrared view of the distant universe. Centered on the massive galaxy cluster SMACS 0723, about 4.6 billion light-years away, the image uses gravitational lensing to reveal thousands of galaxies. Released as the James Webb Space Telescope's first full-color image, it demonstrates Webb's ability to explore the earliest chapters of cosmic history and the evolution of galaxies across billions of years.

1. It's an incredibly tiny window into the universe.
The area imaged is only about the size of a grain of sand held at arm's length, yet it contains thousands of galaxies, revealing just how densely populated the universe is.
2. Almost every bright object is an entire galaxy.
Unlike many night-sky images where most bright points are stars, nearly every luminous speck in Webb's First Deep Field is a galaxy containing millions to hundreds of billions of stars.
3. You're looking more than 13 billion years into the past.
Some of the faintest galaxies appear as they existed when the universe was only a few hundred million years old, making the image one of humanity's deepest views into cosmic history.
4. It achieved in hours what once took weeks.
Webb created this breathtaking image with only about 12½ hours of observations. Similar deep-field images from Hubble required weeks of exposure time, highlighting Webb's extraordinary power.
5. Nature provided a giant cosmic magnifying glass.
The foreground galaxy cluster SMACS 0723 acts as a gravitational lens, bending and magnifying the light from galaxies billions of light-years farther away.
6. The curved arcs are distant galaxies stretched by gravity.
The glowing arcs surrounding the galaxy cluster are distant galaxies whose light has been distorted by gravity, providing a striking demonstration of Einstein's theory of general relativity.
7. One image spans billions of years of cosmic history.
Nearby galaxies, the foreground galaxy cluster, and some of the earliest galaxies ever observed all appear together, allowing astronomers to study the universe across vast stretches of time in a single image.

8. Webb sees what Hubble could barely detect.
Its large mirror and infrared instruments reveal galaxies hidden by dust and detect extremely faint, distant objects that were beyond the reach of previous space telescopes.
9. It captures galaxies in every stage of evolution.
The image includes elegant spiral galaxies, merging galaxies, and tiny irregular galaxies that are still assembling, providing a snapshot of how galaxies grow and change over billions of years.
10. It opened a new era of exploration.
If a single grain of sand held at arm's length covers this tiny patch of sky, the entire sky could contain hundreds of billions —perhaps even trillions —of galaxies. Released on July 11, 2022, Webb's First Deep Field immediately demonstrated capabilities beyond expectations and marked the beginning of a new chapter in exploring the earliest galaxies, black holes, and the history of the universe.

A Universe Beyond Our View

Webb's First Deep Field reveals thousands of galaxies within a tiny patch of sky, many of them showing us light that has traveled for billions of years.

This image is a powerful invitation to humility. What we can see is astonishing, yet it represents only a tiny portion of God's creations. The Restoration teaches that God's works extend far beyond what humanity can currently comprehend. As our instruments become more powerful, the universe does not become smaller; our awareness of how much we do not yet understand grows. This can be a valuable spiritual lesson as well. Faith does not require us to believe that we already understand everything. Instead, the vastness of creation can encourage us to remain teachable, curious, humble, and willing to continue seeking greater light and knowledge.