

# Joe Kittinger: An Unsung Hero

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Written by Ned Jensen

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Special thanks to Colonel and Mrs. Kittinger for their contributions to the manuscript and providing photographs from their personal archive.

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Yuri Gagarin



Neil Armstrong



Alan Shepard

## Introduction



John Glenn



Sally Ride

Space exploration has many heroes. If you were asked to name a few, you might mention Yuri Gagarin, the first person to travel into space, or Neil Armstrong, the first person to walk on the moon. Or you might name Alan Shepard, John Glenn, or Sally Ride, all well-known American astronauts. But you probably would not include Joe Kittinger on your list. He is an unsung hero. However, many people regard Joe as a true pioneer of space exploration.



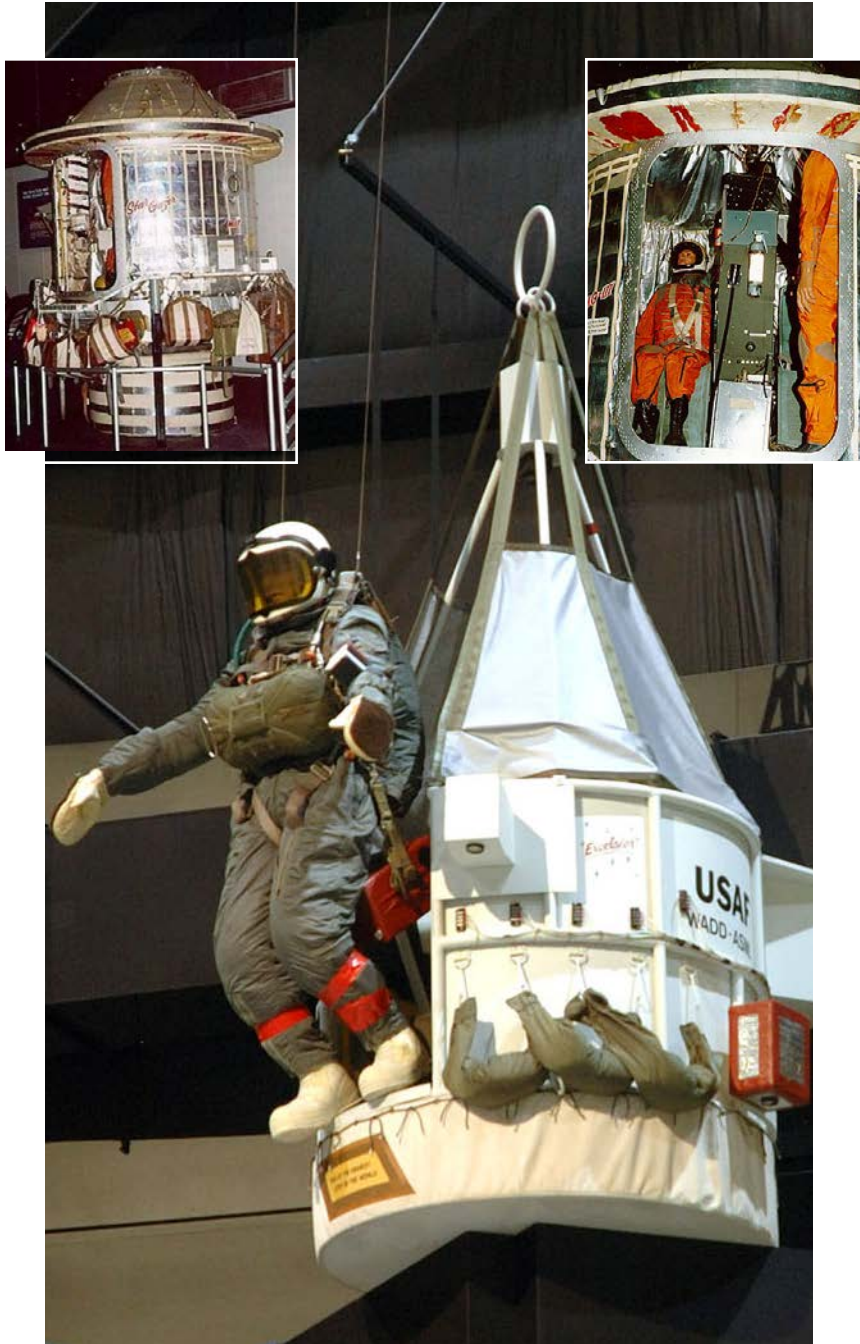
Joe Kittinger was neither an ordinary space explorer nor an actual astronaut or **cosmonaut**. However, what Joe did probably took more courage than that of any astronaut who climbed into a space shuttle or capsule and rocketed into space. What did Joe do that was so extraordinary? Let's find out.



## Jumping Joe

Before humans were zooming into space in rocket-propelled capsules, Joe Kittinger was flying high-altitude balloons into the very edge of space. It was all part of a U.S. Air Force project called *Project Manhigh*. The project's purpose was to test what would happen to humans who spent a long time in conditions similar to those found in outer space. In June 1957, Joe made his first balloon flight into the **stratosphere** and reached an **altitude** of 29,565 meters (97,000 ft). He was aloft for almost seven hours. The information gathered from high-altitude balloon flights by Joe and others was **invaluable** to NASA's planning for the first human space flights.

Later, Joe was the engineer for *Project Excelsior*, a U.S. Air Force project to develop safe ways to escape from high-altitude aircraft and spaceships. In August 1960, a year before Russian cosmonaut Yuri Gagarin became the first person considered to travel into space, Joe Kittinger accomplished an equally incredible feat. He rode in a balloon filled with helium gas to a distance of 31,333 meters (102,800 ft) above Earth. A typical passenger jet flies at about 9,144 meters (30,000 ft) above Earth. Joe went more than three times higher than passenger jets fly—in a balloon!



Okay, so that's pretty incredible, isn't it? But get this—next, Joe stepped out of the balloon! At 31,333 meters (102,800 ft) above Earth, he stepped out of the open **gondola** into the emptiness of space. He wasn't going for a space walk. Instead, he jumped out and began falling back to Earth.

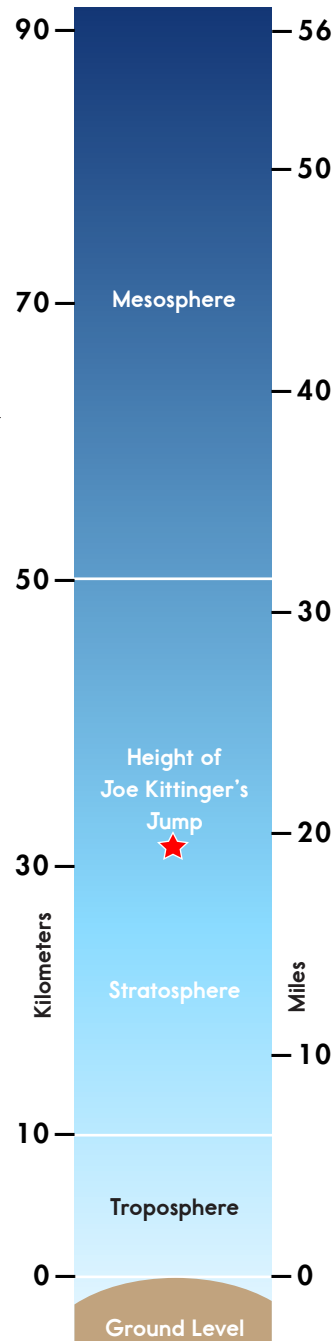


### Do You Know?

Joe piloted 93 different types of aircraft that included planes and balloons. He flew 5,300 hours in jet-plane flight and about 1,000 hours flying combat missions. He parachuted 101 times, with three of those jumps from balloons at very high altitude.



Before we learn what happened to Joe, let's think about conditions at 31,333 meters (102,800 ft) above Earth. At that altitude, the air is very thin, which makes it next to impossible to inhale enough oxygen with each breath. Joe carried a supply of oxygen, which allowed him to breathe comfortably. However, it is also incredibly cold that high above Earth. At the 32-kilometer (20 mi) distance Joe traveled in his balloon, he was deep into a layer of the atmosphere called the *stratosphere*. This layer stretches from 9.5 to 48 kilometers (about 6–30 mi) above Earth. So Joe was floating well into the stratosphere, where temperatures can be as low as  $-68$  degrees Celsius ( $-90^{\circ}\text{F}$ ).



To keep himself warm in these **hostile** conditions, Joe wore several layers of clothing. He also needed to wear a special pressurized suit to prevent his body from exploding and his blood from boiling. The danger of this happening was



Joe enters the balloon gondola in a pressurized suit.

caused by the low-pressure conditions of space, where very little air exists. In space, pressure inside the body is much greater than the pressure from the outside atmosphere, which pushes against the body. This can happen starting

at an altitude of 18,900 meters (62,000 ft), which is known as Armstrong's Limit. Despite all the measures taken to keep Joe safe, he experienced pain in his right hand when the pressurized glove he wore developed a leak and lost pressure.

## Math Minute

When Joe jumped from his high-altitude balloon at 31,000 meters, he was in a free fall for 4 minutes and 36 seconds before his parachute opened. He was at 5,500 meters when the chute opened. What was his average speed in meters per second during his free fall?

Answer: about 95 meters per second

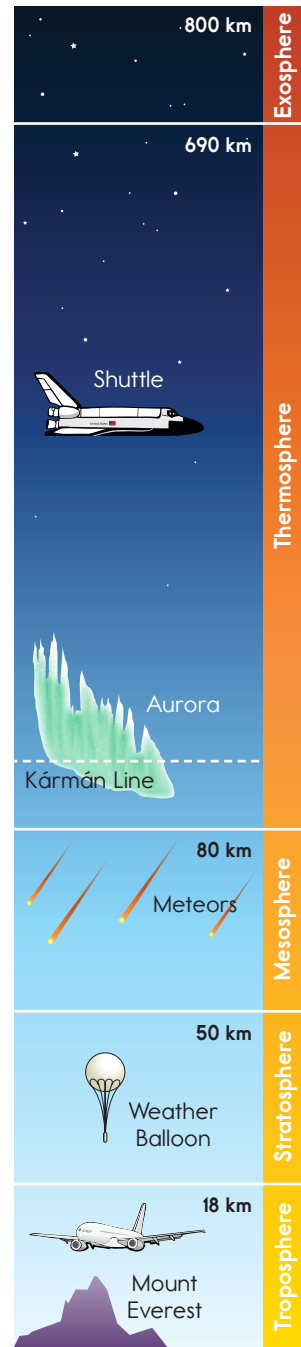
Let's continue to follow Joe in his amazing fall through the atmosphere. He was being pulled by gravity back home to Earth. As he fell, his body **accelerated**, reaching speeds of over 965 kilometers (600 mi) per hour. Some experts say he even may have broken the sound barrier. If so, he was the only person ever to break the sound barrier unaided or unprotected by any sort of craft for over fifty years.



After falling for 16 seconds, Joe's small, 1.8-meter (6 ft) diameter drogue parachute opened and slowed his fall. A drogue parachute is **elongated** and thinner than a regular parachute. This design stops the parachute from being torn apart during high-speed falls from high altitudes. Joe fell for another 4 minutes and 36 seconds before his main parachute opened, allowing him to drift slowly down to Earth. Joe had proven that a human could survive in near spacelike conditions outside a spacecraft or aircraft after an emergency escape.

You might ask whether Joe was really in space—technically speaking, he was not. Space really does not have a well-defined border. It's not like stepping across the border of one country into another. The atmosphere just keeps getting thinner and thinner as you move away from Earth.

However, many scientists define the border of space—called the *Kármán Line*—as 100 kilometers (62 mi) above Earth. So it would appear that Joe didn't actually reach true outer space. Nonetheless, he was high enough to experience conditions similar to those in space. And remember, he wasn't even inside a spaceship. Joe's daring jump set an altitude record for a parachute jump that remained unbroken until 2012.



## Wowser!

Felix Baumgartner, an Austrian skydiver, broke Joe Kittinger's record for speed in 2012. Felix jumped out of a gondola 39,045 meters (128,100 ft) above Earth's surface. His free fall lasted for 4 minutes and 22 seconds—16 seconds less than Joe's jump in 1960. He reached a speed of 1,342 kilometers (833.9 mi) per hour, about 97 kilometers (60 mi) per hour faster than the speed of sound. Joe and Felix worked together for years to prepare Felix for the jump. Joe watched from the control room, speaking to Felix during his journey back to Earth.



## Joe Sets Another Record

Joe was more than a guy who jumped out of balloons. He was also a highly skilled pilot with a love of flying that began early in his life. Born in 1928 in Tampa, Florida, Joe spent his early years growing up around Orlando, Florida. You might say he was **obsessed** with flying. He read everything he could find about flying and pilots, and he built many model airplanes.



Joe spent his teenage years hanging around a local airport and persuading pilots to give him free plane rides. By age 17, he had flown his first solo flight. Joe joined the U.S. Air Force after two years of college and soon became a test pilot, flying experimental and fighter aircraft.

### Do You Know?

The city of Orlando, Florida, built a park by the airport where Joe used to hang out so other kids could have a place to watch planes take off and land. The park was named Colonel Joe Kittinger Park.



Joe dreamed about flying a Piper Cub when he was a teenager.

In 1955, Joe went from piloting airplanes to piloting balloons. He had made several high-altitude balloon flights and balloon jumps before his record-setting flight and jump in 1960.



In one of those earlier jumps, Joe's drogue chute opened only 2 seconds after he jumped from the



gondola, instead of after 16 seconds as it was supposed to. A cord from the chute wrapped around his neck and sent him into a **near-fatal** downward spiral. Joe became unconscious during the violent spinning. But luckily, his

safety chute opened automatically and slowed his fall, allowing him to float safely down to Earth.

You might think that this experience would have caused Joe to think about changing his career, but it didn't. He stuck with the project and made other flights, which led to his record-setting balloon flight and jump.



Joe posing with his jetfighter

After setting the world record for his high-altitude parachute jump, Joe went to Vietnam and flew combat missions. He served three combat tours during the war and flew a record-breaking 483 flight missions. In 1972, on his 483rd flight, his luck ran out when he was shot down. That became his last flight in combat.



### Think About It

Imagine being a prisoner for nearly a year and not being allowed to be around other prisoners. What would you do during your time in confinement to keep your mind occupied?

Joe was able to eject from his crashing jet and parachute safely to Earth. Unfortunately, he landed behind enemy lines, 30 miles northwest of Hanoi, North Vietnam, and was captured immediately. For the next 11 months, Joe was a prisoner of war held by his captors in the infamous “Hanoi Hilton” prison. Joe was placed in **solitary confinement** for 30 days. During his time as a prisoner, Joe occupied his mind by planning every detail of a balloon flight around the world—a flight that no human had accomplished.



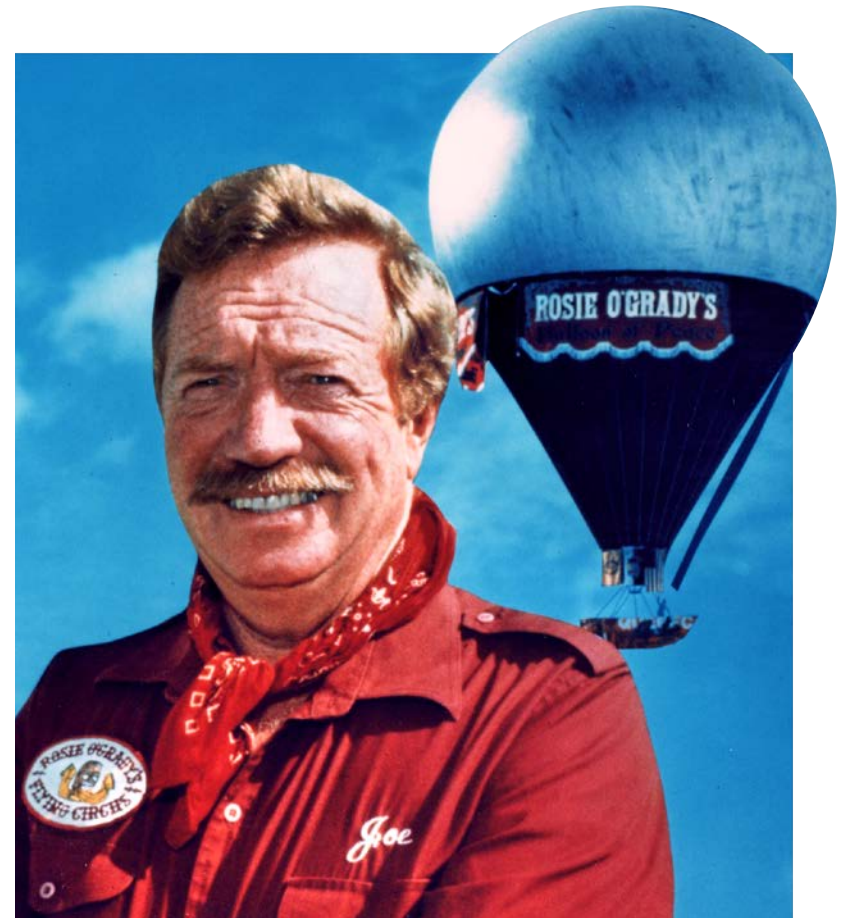
## More Records for Joe

After retiring from the Air Force in 1978, Joe continued his work in **aeronautics**. He also added to his other record-setting accomplishments by flying lighter-than-air balloons. He entered many competitions around the United States. Five years after his retirement from the Air Force, Joe set yet another record. He flew a helium-filled balloon from Las Vegas, Nevada, to Franklinville, New York—a distance of 3,220 kilometers (2,000 mi). It took him 72 hours to fly the record-setting distance.

Joe flew this balloon from Las Vegas, Nevada, to Franklinville, New York.



In 1984, at the age of 56, Joe decided to go for another record. No one had flown a balloon alone across the Atlantic Ocean—all the more reason for Joe to try it. On September 14, 1984, he took off from the state of Maine and drifted eastward. Almost 84 hours and 5,633 kilometers (3,500 mi) later, he landed his balloon in Italy. Joe had set another record.



Joe with the helium-filled balloon he flew across the Atlantic





## Conclusion

The dictionary defines a hero as someone who commits an act of bravery or who shows great courage when undertaking a task. Based on this definition, Joe is certainly a hero. Many heroes in fields like exploration become well known, with their names appearing in the news and in textbooks. Joe Kittinger is not a name that comes to mind in connection with space exploration. In this sense, Joe is an unsung hero. His early work with high-altitude balloons was not undertaken for the purpose of setting records, but rather for the benefit of pilots and astronauts.



Colonel Joe Kittinger, right, with President Eisenhower, center, after receiving the Harmon trophy.

Despite being relatively unknown to the general public, Joe was recognized for his outstanding accomplishments. U.S. President Dwight D. Eisenhower awarded him the Harmon Trophy after Joe set the record for a high-altitude jump. Joe received many other awards and honors for his military, ballooning, and parachuting achievements, including the Silver Star, Distinguished Flying Cross, and Purple Heart. Joe is a man of extraordinary courage and bravery who made important contributions to the field of space exploration.

## Glossary

<b>accelerated</b>	increased in speed (p. 11)
<b>aeronautics</b>	the work or study of flight (p. 19)
<b>altitude</b>	the measure of distance above Earth (p. 6)
<b>cosmonaut</b>	a Russian term for a space traveler (p. 5)
<b>elongated</b>	long in comparison with its width (p. 12)
<b>gondola</b>	a boat-like enclosure (p. 8)
<b>hostile</b>	unfriendly (p. 10)
<b>invaluable</b>	so helpful that it cannot be priced (p. 6)
<b>near-fatal</b>	almost resulting in death (p. 16)
<b>obsessed</b>	completely occupied with thinking about something (p. 14)
<b>solitary confinement</b>	imprisonment with no interaction with other people allowed (p. 18)
<b>stratosphere</b>	a layer of the sky that is between 9.5 and 48 kilometers (6–30 mi) above Earth's surface (p. 6)

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