



MADAME MARS WOMEN AND THE QUEST FOR WORLDS BEYOND

www.madamemarsfilm.com

Humans are on their way to Mars. In pop culture, media and virtual reality, we're already there. Mars represents our next giant leap into space, a new world to visit and explore, perhaps even our future planetary home.

*As a new space age dawns, have women come far enough
to go farther than they ever have before?*

Overview:

In our first space age, we watched as buff-bodied astronaut heroes and can-do men in mission control got us to the moon and back, while space exploration remained an impossible dream for women.



Original Mercury Astronauts

Before affirmative action policies, the few women who managed to find positions in the aerospace industry faced formidable and unrelenting workplace challenges. Before STEM education efforts, there were few opportunities and little or no encouragement for girls who yearned to someday explore space. Now, nearly half a century since humans left Earth orbit, a new space age has begun. How can we ensure that women play integrated roles in current and future space exploration efforts worldwide, not only as high profile astronauts, cosmonauts, and taikonauts, but as skilled members of the global “village” it will take to make all of this happen?

Madame Mars: Women and the Quest for Worlds Beyond reframes the story of space exploration as a feminist issue, connecting the original space age that denied opportunities to women, to current Mars initiatives that still lack a full commitment to diversity, and argues for a more inclusive spacefaring future. *Madame Mars* is populated by accomplished, intelligent and curious women who not only share the dream of finding one's own place in space, but also a commitment to the ensuring that humanity will represent itself accurately and completely as we take our next big step out into the universe.



NASA Astronaut Yvonne Cagle and "Future Martian"

As a transmedia production, *Madame Mars* uses documentary storytelling, global online outreach and interactive participation to tap into public enthusiasm over proposed human missions to the red planet, to highlight past accomplishments and future opportunities for women in the aerospace arena, and to ask what more we can do to inspire and prepare girls for careers in space science and tech.

Film Outline:

Act One: MEN IN SPACE

"We have no existing program concerning women astronauts nor do we contemplate any such plan."

- NASA response sent to girls who inquired about how to become an astronaut

Space dreams were abundant among girls who grew up during the first space age, but those who wanted to participate found few – if any – doors open to them. Not only was the astronaut corps off-limits, but the whole arena of space science and tech remained an exclusive boys' club. "What about women?" an audience member asks famed rocket scientist **Wernher von Braun** at a 1974 lecture, where he describes NASA's plans to send men to Mars on the heels of Apollo. "The libbers will see to it," he jokes. He wasn't serious but he was right: the feminist movement, emerging just as the Apollo era ended, led to Title IX, an expanded focus on STEM education, and increased opportunities for women to pursue careers in space science and tech.

When she was told girls couldn't be engineers, former beauty queen **Donna Shirley** refused to take "no" for an answer. As one of NASA's first female engineers, she confronted unrelenting workplace sexism at the Jet Propulsion Laboratory as she guided – and eventually led – efforts to land the first rover on Mars. Her activities and decisions – as when she insisted the rover be named for a woman – unsettled the male status quo, but because of her persistence and determination, in 1997 **Sojourner Truth** became the first female to land on Mars. At last, women had a footprint on another world.

Act Two: MARS OR BUST

"When people go to another world, one of two extraordinary things is going to happen: either you're going to find extraterrestrial life, and you'll answer the question whether or not we're alone in the universe, and unambiguously, or if it's not there, you become the origin of life on another world. It's hard to know what is the more profound outcome."

- Lynn Harper, NASA astrobiologist

As the drive to land humans on Mars picks up steam, the still-unanswered question of whether we will find life there or become life there intensifies. Veteran planetary scientist at NASA Ames Research Center **Carol Stoker's** career in robotic exploration of Mars has convinced her that we must know if Martians exist before we go there ourselves. She played a key role in the 2009 Phoenix mission that came tantalizingly close to finding evidence of present-day microbial life on Mars. "I hope the Martians show up," muses SETI Institute senior scientist **Margaret Race**, "but if not, it's ours to step out into, ours to explore."

Among those already packing for Mars is **Kenya Armbrister**, one of over 200,000 who applied to join the controversial one-way Mars One mission. Now one of 100 finalists, she has an excellent chance to join the first four-person crew to go to Mars – perhaps even to become the first human to step on Mars – but she laments how her new-found fame has affected her life on Earth, in particular her inability to sustain an intimate relationship because she may leave Earth forever. Kenya meets NASA's Earthbound-but-still-hopeful **Yvonne Cagle**, who has never been able to use her astronaut wings, and the two share a torch-passing moment. Kenya is leaving, in fact, but not for Mars. As the Mars One timeline keeps slipping, Kenya's commitment to Mars One may be ebbing as well. As she heads to Belgium to live with her new boyfriend while simultaneously preparing for round 3 of the Mars One competition, she's far from certain she's ready to leave Earth behind forever.

Act Three: MARS NEEDS WOMEN

"It's not about just going to Mars; it's about the evolution of humanity."

- Susan Ip-Jewell, Mars Without Borders

While the first missions to land humans on Mars are likely decades in the future, virtual opportunities to explore the red planet abound. In the Challenger Learning Center at Chabot Space and Science Center, entire families can go on a "Mini Mission to Mars" any Saturday afternoon. As the virtual journey begins, some wonder why we aren't on Mars yet, while others recognize that if we'd gone to Mars just after Apollo, as we'd initially planned, women would not have been allowed to join the effort. Even as NASA beauty contests to crown the "Queen of Outer Space" slowly gave way to affirmative action programs and more women in professional positions, their numbers remained small. As a young scientist at NASA Ames, **Carol Stoker** found no role models: "It was not uncommon," she said, "to find myself the only woman in a room full of 300 men." **Donna Shirley** recalls the first meeting she attended where all participants were women. That's progress, she says – but have we come far enough?

"If we really want to succeed...it has to be space without borders," says space doctor **Susan Ip-Jewell**, who looks for routes into space outside of established agencies like NASA. She trains for life on Mars in "analog" environments on Earth; her experiences in remote desert locations have



Susan Ip-Jewell exploring "analog Mars"

convinced her that women may be better suited to Mars habitation than men, but she's also learned that old values still hold sway. As the virtual mini mission lands on Mars, humans contemplate the realities of living on another planet, not only the physical challenges of high radiation, low atmospheric pressure, and scarcity of water and oxygen, but the interpersonal challenges of living together anywhere. If the goal is to go to Mars – and worlds beyond – we must first break down barriers on Earth.

Film Summary:

Human exploration of Mars is becoming an increasingly reachable goal. Have gender barriers broken by women in the first space age enabled women to pursue opportunities in upcoming Mars missions, or will lingering sexist ideas and discriminatory practices deny women full participation in current and future space age exploration efforts?

What is the face of future space exploration? A woman taking the first step on Mars, while women working in mission control cheer her on? Women in labs, at computers, in boardrooms, whose research and decisions will guide us toward a more inclusive space future? Girls in classrooms – and outside of them – who are confident, ambitious and ready for futures as space explorers, planetary scientists, engineers, computer programmers and more?



Female astronaut on Mars (NASA simulation)

As our next space age begins, the need is clear to create new models for space exploration and to expand the roles, not only for those who travel in space and eventually settle on other worlds, but also for the ground-based scientists and technicians so vital to the success of any off-Earth mission.