

Search...

ARCHIVE SHOP MEMBER SERVICES EMAIL UPDATES ABOUT AIR & SPACE

Smithsonian magazine | goSmithsonian | Smithsonian Channel | Smithsonian Institution

Home | History of Flight | Flight Today | Military Aviation | Space Exploration | Subscribe

SPACE EXPLORATION

# First Steps

As Chinese astronauts prepare for their first spacewalk, a NASA veteran describes what's in store for them.

By Leroy Chiao  
airspace.com, September 18, 2008



The author, wearing a Russian Orlan spacesuit, prepares to venture outside the International Space Station in January 2005.

(NASA)

Sometime next week, three astronauts will emerge from a bus to the applause of a small crowd of VIPs waiting at the base of the main launch pad at the Jiuquan satellite launch complex in central China. They will wave and smile for photographs, turning their heads as much as the built-in helmets in their pressure suits allow. Taking one last look around, they will walk into the gantry elevator that leads to the top of their rocket.

As each astronaut carefully shimmies through the top hatch of the Shenzhou 7 spacecraft descent module and slides into his launch couch, he will, for what seems like the ten thousandth time, think through every detail of the strap-in and launch procedures. Then he will wait.

At liftoff, flames will erupt from the base of the Long March 2F and the quiet stillness of the Gobi Desert will be shattered briefly as the rocket rises off the pad to begin China's third manned space mission.

Coming off the high of the Beijing Olympics, this flight will be another milestone for the nation's young space program. Not only will it be the first to carry three people (previous Shenzhou missions carried one and two astronauts, respectively), it will be the first to add the drama of a spacewalk, or extravehicular activity (EVA).

I've been looking forward to that day for more than two years. In September 2006, I was the first American invited to visit the secretive Astronaut Research and Training Center of China (ACC) in Beijing. I spent a full day with Chinese astronauts Yang Liwei and Fei Junlong and the center director. Even then, technicians were well into preparing the EVA suit and procedures for the Shenzhou 7 spacewalk, and the building that houses the water tank

ARTICLE TOOLS

Font	Email
Print	Comments
RSS	Yahoo! Buzz

### Great Hero Yang

James R. Hansen

In 2003, China's first astronaut stepped out of his space capsule and into the limelight.

### Project 921

Joe McDonald

Russia and the United States have held the inside tracks in the space race. In the stretch, here comes China.

MOST POPULAR

VIEWED EMAILED

1. Airliner Repair, 24/7
2. Airmail Odyssey: 1918-2008
3. A Ride in the Boeing 40C
4. Accidental Classic
5. The Shuttle Mission No One Wants
6. Tales of the F-14
7. Air America's Black Helicopter
8. The Last to Die
9. Live and Let Fly
10. Restoration: *The Memphis Belle*

Advertisement

Performance capabilities subject to change without notice.

Advertisement

IN THE MAGAZINE



Search...

ARCHIVE SHOP MEMBER SERVICES EMAIL UPDATES ABOUT AIR & SPACE

Smithsonian magazine | goSmithsonian | Smithsonian Channel | Smithsonian Institution

Home | History of Flight | Flight Today | Military Aviation | Space Exploration | Subscribe

SPACE EXPLORATION

# First Steps

As Chinese astronauts prepare for their first spacewalk, a NASA veteran describes what's in store for them.

By Leroy Chiao  
airspacemag.com, September 18, 2008



The author, wearing a Russian Orlan spacesuit, prepares to venture outside the International Space Station in January 2005.

(NASA)

(Page 2 of 2)

When Zhai, tethered to the Shenzhou spacecraft, makes his way out of the hatch into open space, he may pause, just for a moment, to behold the surreal view of Earth. According to Chinese media reports, he will set up video cameras so the world can share in the experience.

Down here on the ground, I will perform a small ritual in my thoughts—same as I did before each of my own EVAs—for the crew's good luck. Then I will sit back and watch this exciting and important first, and quietly cheer on my brothers in space.

1 | 2

ARTICLE TOOLS

Font	Email
Print	Comments
RSS	Yahoo! Buzz

### Great Hero Yang

James R. Hansen

In 2003, China's first astronaut stepped out of his space capsule and into the limelight.

### Project 921

Joe McDonald

Russia and the United States have held the inside tracks in the space race. In the stretch, here comes China.

MOST POPULAR

VIEWED EMAILED

1. Airliner Repair, 24/7
2. Airmail Odyssey: 1918-2008
3. A Ride in the Boeing 40C
4. Accidental Classic
5. The Shuttle Mission No One Wants
6. Tales of the F-14
7. Air America's Black Helicopter
8. Live and Let Fly
9. The Last to Die
10. Restoration: *The Memphis Belle*

Advertisement

Advertisement

IN THE MAGAZINE

## Comments

### Post a Comment

Name: *(required)*

Email: *(required)*

Comment:



### November 2008

- Fly Us to the Moon
- Airliner Repair, 24/7
- Top NASA Photos of All Time
- Restoration: *The Memphis Belle*
- Accidental Classic
- How Things Work: The Ouija Board
- Toy Story

[View Table of Contents](#)

### NEW WORLDS



### Confidence Booster

This little known Apollo artifact caused astronauts to rest a little easier.

### NEED TO KNOW



### When did the term "jet lag" first come into use?

And has anybody found a cure?



### RECENT ISSUES

[View Full Archive](#)



Nov 2008



Sep 2008



Jul 2008

### NEWSLETTER

Sign up for regular email updates from *Air & Space* magazine, including free newsletters, special offers and current news updates.

#### Subscribe Now

### ABOUT US

*Air & Space/Smithsonian* magazine has been delighting aerospace enthusiasts with the best writing about their favorite subject since April 1986. As an adjunct of the Smithsonian Institution's National Air and Space Museum, *Air & Space* matches the grand scope of the Museum, encompassing every era of aviation and space exploration. With stories that range from the Wright Brothers to the design of NASA's next lunar lander, *Air & Space* emphasizes the human stories as well as the technology of aviation and spaceflight.

### EXPLORE OUR BRANDS

[About Air & Space](#) | [Contact Us](#) | [Advertising](#) | [Reader Panel](#) | [Subscribe](#) | [RSS](#)

[Copyright](#) | [Privacy Policy](#) | [Site Map](#)

used for EVA training was under construction ([see video here](#)).

Now, as launch day approaches (the window opens September 25), three Chinese astronauts—Zhai Zhigang, Liu Boming, and Jing Haipeng—are in final preparations for the flight. Zhai, a 41-year-old air force officer, has been selected to make China’s first 40-minute spacewalk, most likely a couple of days into the flight.

What will it be like? As a veteran of six EVAs (four in the American spacesuit and two in the Russian Orlan suit), I can offer my perspective. As China does not yet have a space station, this first EVA will be conducted from the cramped quarters of the transport vehicle, just as the first Russian and American spacewalks were 40 years ago. The Shenzhou’s upper (living) module will serve as the airlock where Zhai and Liu will don their spacesuits. Jing will assist, and during the EVA will monitor the events carefully from the descent module.

The airlock will be cramped and tight. By all accounts, the Chinese suit is based on the Russian Orlan. Indeed, some reports indicate that one of the two spacesuits to be used on this flight will be an Orlan. Once suited up, the astronauts will hear the loud, reassuring whir of the fan as it blows oxygen over their faces. They will find it easier to move about in the cramped airlock than it was in the water tank during training, but the pressurized suits themselves will be much more stiff. They will be surprised at how much strength it takes to break the pressure seal of the hatch, as the last bit of air pressure—which doesn’t even register on their sensitive gauge—and the stickiness of the compressed rubber O-rings conspire to hold it in place. Once the seal is broken, Zhai and Liu might see small paint flecks and bits of dust get sucked out into the vacuum of space as the hatch finally yields.

## Comments

### Post a Comment

Name: *(required)*

Email: *(required)*

Comment:



### November 2008

- Fly Us to the Moon
- Airliner Repair, 24/7
- Top NASA Photos of All Time
- Restoration: *The Memphis Belle*
- Accidental Classic
- How Things Work: The Ouija Board
- Toy Story

[View Table of Contents](#)

### NEW WORLDS



### Confidence Booster

This little known Apollo artifact caused astronauts to rest a little easier.

### NEED TO KNOW



### When did the term “jet lag” first come into use?

And has anybody found a cure?



**RECENT ISSUES**

[View Full Archive](#)



Nov 2008



Sep 2008



Jul 2008

**NEWSLETTER**

Sign up for regular email updates from *Air & Space* magazine, including free newsletters, special offers and current news updates.

**Subscribe Now**

**ABOUT US**

*Air & Space/Smithsonian* magazine has been delighting aerospace enthusiasts with the best writing about their favorite subject since April 1986. As an adjunct of the Smithsonian Institution's National Air and Space Museum, *Air & Space* matches the grand scope of the Museum, encompassing every era of aviation and space exploration. With stories that range from the Wright Brothers to the design of NASA's next lunar lander, *Air & Space* emphasizes the human stories as well as the technology of aviation and spaceflight.

**EXPLORE OUR BRANDS**

[About Air & Space](#) | [Contact Us](#) | [Advertising](#) | [Reader Panel](#) | [Subscribe](#) | [RSS](#)

[Copyright](#) | [Privacy Policy](#) | [Site Map](#)