NASA and SpaceX launch 4 more crew to the space station

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The SpaceX taxi service from the Space Coast took flight again Wednesday with NASA's Crew-5 mission to the International Space Station.

The four-person crew from NASA, Japan and Russia hitched a ride in the Crew Dragon Endurance spacecraft atop a Falcon 9 rocket that lifted off from KSC's Launch Pad 39-A just after noon.

"That was a smooth ride," said Crew-5 commander and NASA astronaut Nicole Mann. "You've got three rookies that are pretty happy to be floating in space right now and one veteran astronaut who's pretty happy to be back as well."

Once again, SpaceX was able to recover its first-stage booster on recovery ship Just Read the Instructions in the Atlantic while the spacecraft made it to orbit.

Mann is joined by fellow NASA astronaut and pilot Josh Cassada and Roscosmos cosmonaut Anna Kikina—all three flying for the first time—plus Japan Aerospace Exploration Agency (JAXA) astronaut Koichi Wakata, who is making his fifth trip to space having flown on several space shuttle missions and one Russian Soyuz spacecraft.

With roughly a 29-hour ride before arriving to the ISS, the crew could be seen clapping hands and throwing fist pumps as a plush Albert Einstein doll floated about the cabin.

"We're experiencing Einstein's happiest thoughts," said Cassada explaining Einstein had a brainstorm that a person in freefall would not feel their own weight. "We call this little guy our freefall indicator. We're here to tell you there's plenty of gravity up here. In fact, that's what's keeping us in orbit right now and preventing this trip on a Crew Dragon from being a one-way trip."

The launch is the second of three from the Space Coast this week following a Tuesday night Atlas V liftoff and a planned SpaceX Falcon 9 launch Thursday from neighboring Cape Canaveral Space Force Station.

Weather has been near perfect all week.

"It was picturesque, you know with the blue sky, the blue background, a beautiful day here in Florida," said NASA commentator and astronaut Bob Behnken, who flew on the first crewed Dragon flight Demo-2 back in May 2020. "The only thing I wish was that I was there with them because the one place that it's better to watch the launch from than right here at the Kennedy Space Center is onboard the rocket ship."

The quartet woke up at 4:30 a.m., suited up around 8 a.m. and walked out for last chance goodbyes with family before heading out to the launch pad in a trio of white Teslas, each featuring custom license plates that read "BLA5TOFF." Mann and Cassada led the way after arriving to the pad doing what commentators called the "rocket recline" looking up at the rocket before heading up the launch tower to board the spacecraft.

They made their entrance and took the two middle seats as commander and pilot just after 9:15 a.m. followed by mission specialists Kikina and Wakata. With 2 1/2 hours before liftoff, Mann and Kikina broke into ear-to-ear smiles with all four trading off a series of fist bumps while secured in their seats.

During an initial hatch closing procedure before 10:30 a.m., teams identified potential foreign object debris—a hair—in the seal, and cleaned it out followed by a second closure and good side-hatch leak check.

"It's really important that that area is super pristine," Behnken said. "That hatch is going to be closed for six months as they make their way into orbit and then that won't get open until they come back aboard the recovery ship."

The closeout team left the tower and the crew access arm has swung

away from the capsule allowing the arming of the capsule's launch escape system and then propellant load.

"Crew-5 is go for launch," Mann said with just under an hour before liftoff.

Mann is the first woman to command a Crew Dragon flight, and will also be the first Native American woman to fly into space.

"She's very excited about flying in space," said NASA Commercial Crew Program manager Steve Stich after a Launch Readiness Review on Monday. "It's very exciting for Commercial Crew to have our fist female commander in our program and we're very excited to fly Anna Kikina."

Kikina is the first cosmonaut to ride on a Crew Dragon.

"We just continue what was started many years ago in 1975 when Apollo-Soyuz crew worked together," said Sergei Krikalev, executive director for Human Space Flight Programs with Roscosmos during a post-launch press conference. "Now we continue our cooperation."

Crew-5 marks the fifth rotational mission to the ISS that sends up four astronauts at a time for six-month stays on board. SpaceX and Boeing with its CST-100 Starliner were contracted under NASA's Commercial Crew Program to provide the service flights ending NASA's reliance on rides from Russia during the decade after the end of the Space Shuttle Program in 2011.

"SpaceX has really been inventive, creative," Nelson said. "They've been a good partner for NASA and it shows that this commercial public-private partnership is actually working."

SpaceX sent its first Crew Dragon with passengers on a test flight with

NASA astronauts Behnken and Doug Hurley less than 2 1/2 years ago, and has also since flown missions with civilians among its four Crew Dragon spacecraft so that Crew-5 marks the eighth capsule flight now having taken 30 people into space. Crew Dragon Endurance is making its second flight having also launched on the Crew-3 mission in 2021.

Boeing's Starliner has yet to fly its first humans, but could be making that trip by February 2023 so that the Crew-5 members will get to welcome them on board during their stay. Until Boeing's Starliner is certified, SpaceX is on tap to continue the twice-a-year rotational flights with Crew-6 slated to arrive in March 2023.

When Crew-5 arrives, targeting arrival Thursday at 4:56 p.m., the ISS population will grow to 11 until the four members of Crew-4 who have been on the ISS since April will return home with a splashdown off the coast of Florida as early as next week.

"We're looking forward to another handover mission," said NASA's International Space Station manager Joel Montalbano. "This handover between the two crews will be about five days. Once we get on orbit and get moving we'll be able to refine the landing time for Crew-4."

Crew-5 is slated to stay on board about 150 days, he said, with more than 230 experiments on tap of human research, commercialization and technology development.

Kirt Costello, NASA's chief scientist for the ISS program said 76 are new investigations to the space station. He highlighted three including a custom-fitted bio monitoring suit to investigation astronaut cardiorespiratory health, a "gut on a chip microbiome study" with 10 different species of bacteria that have a role of human health, and the return of a 3D human tissue printing experiment that will among its goals print tissue "used for organ repair and hopefully one day

transplantation."

With less than a week since Hurricane Ian passed right between launch pads 39-A and 39-B, Kathy Lueders, NASA's associate administrator for the Human Exploration and Operations Mission Directorate praised those who put in extra effort to pull off Wednesday's launch.

"These are real human endeavors and there's a team here that had to recover from the hurricane last week, get back, get the Kennedy Space Center back open, get things cleaned up, get us ready to go," she said. "The fact that we're here today is a testimony to all that work that that team did."