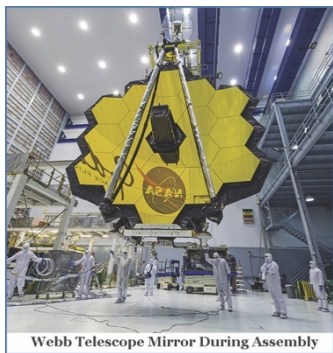


Science and Digital Briefs

By Shopper Editor Dave Bunting

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James Webb Telescope Opening Its Eye

NASA's new space telescope opened its huge, gold-plated, flower-shaped mirror Saturday, the final step in the observatory's dramatic unfurling.

The last portion of the 21-foot mirror swung into place at flight controllers' command, completing the unfolding of the James Webb Space Telescope.

"I'm emotional about it. What an amazing milestone. We see that beautiful pattern out there in the sky now," said Thomas Zurbuchen, chief of NASA's science missions.

More powerful than the Hubble Space Telescope, the \$10 billion Webb will scan the cosmos for light streaming from the first stars and galaxies formed 13.7 billion years ago. To accomplish this, NASA had to outfit Webb with the largest and most sensitive mirror ever launched — its "golden eye," as scientists call it.

Webb is so big that it had to be folded origami-style to fit in the rocket that soared from South America two weeks ago. The riskiest operation occurred earlier in the week, when the tennis court-size sunshield unfurled, providing subzero shade for the mirror and infrared detectors.

Flight controllers in Baltimore began opening the primary mirror Friday, unfolding the left side like a drop-leaf table. The mood was even more upbeat Saturday, with peppy music filling the control room as the right side snapped into place. After applauding, the controllers immediately got back to work, latching everything down. They jumped to their feet, exchanged high-fives and cheered from behind masks when the operation was finally complete 2½ hours later, doing their best to remain socially distant because of the global surge in COVID-19 cases.

"We have a deployed telescope on orbit, a magnificent telescope the likes of which the world has never seen," Zurbuchen said, congratulating the team. "So how does it feel to make history, everybody? You just did it."

His counterpart at the European Space Agency, astronomer Antonella Nota, noted that after years of preparation, the team made everything look "so amazingly easy."

"This is the moment we have been waiting for, for so long," she said.

Webb's main mirror is made of beryllium, a lightweight yet sturdy and cold-resistant metal. Each of its 18 segments is coated with an ultra thin layer of gold, highly reflective of infrared light. The hexagonal, coffee table-size segments must be adjusted in the weeks ahead so they can focus as one on stars, galaxies and alien worlds that might hold atmospheric signs of life.

"It's like we have 18 mirrors that are right now little prima donnas all doing their own thing, singing their own tune in whatever key they're in, and we have to make them work like a chorus and that is a methodical, laborious process," operations project scientist Jane Rigby told reporters.

Webb should reach its destination 1 million miles away in another two weeks; it's already more than 667,000 miles from Earth since its Christmas Day launch. If all goes well, observations will begin this summer.

Includes excerpts from the [Associated Press](#)

Info: shpr.fyi/webbopeneye



Low Lake Mead restricts water use

For the first time in history, the Bureau of Reclamation, the federal agency that oversees operations on the Colorado River, declared a water shortage at Lake Mead.

For 20 years, the Colorado River, which supplies water to 40 million Americans, has been losing water consistently and rapidly. Now, with Lake Mead levels at their lowest on record, mandatory water restrictions will be put in place starting in 2022 for Arizona, Nevada, California and Mexico.

According to the 2019 Drought Contingency Plan, if Lake Mead levels are at or below 1,075 feet, Tier 1 water restrictions are put in place, meaning 512,000 acre-feet of water would stay at the lake and not flow into Arizona.

This is the lake's lowest level since Hoover Dam was built.

It has fallen 140 feet since 2000 — nearly the height of the Statue of Liberty from torch to base — exposing a bathtub ring of bleached-white embankments.

As of Aug. 16, 2021, the lake level was just shy of 1,068 feet, which is below the threshold for restricting water flow to the Colorado River, Arizona and California.

As of Jan. 9, 2022, the lake level is down a foot more at 1,067 feet, 162 feet below full pool level of 1,229 feet.



Farmers in Pinal County, Arizona, which is between Phoenix and Tucson, will be directly impacted by the shortage. Sixty-five percent of their water that comes from the CAP will be cut next year and potentially the year after, too.

For the second time in a decade, Californians will face mandatory restrictions governing their outdoor water use as the state endures another drought and voluntary conservation efforts have fallen short.

The rules adopted Tuesday by the State Water Resources Control Board are fairly mild—no watering lawns for 48 hours after a rainstorm— and could take effect as soon as the end of the month. Scofflaws could face \$500 daily fines for letting sprinkler water hit a sidewalk.

The action comes as Californians have failed to meet a call for a voluntary 15% reduction in water use compared to last year. Between July and November, the state's water usage went down just 6%.

Includes excerpts from [phys.org](#)

Info: shpr.fyi/meadthirsty



Washington December Crab Harvest 4.69 million pounds

Some 60 vessels in Washington's oceangoing crab fleet worked through a stormy December to bring in more than 4.69 million pounds of Dungeness in a strong start to the annual harvest.

For fishers, processors and retailers, this is a welcome change from the past six years when the season hasn't started until Dec. 31 or later because of the lack of meat in the crabs or the presence of domoic acid, a marine biotoxin.

The Dungeness crab, as well as shrimp and razor clams, have benefited from improved ocean conditions of the Northwest coasts with strong cold-water upwellings of the past year bringing nutrients and helping to strengthen the base of the marine food web.

Includes excerpts from the [Seattle Times](#)

Info: shpr.fyi/crabharv

*Dave Bunting, Jan. 10, 2021
References in links below items.
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daverant.com*