Weather delays launch of Europe's Jupiter mission by 24 hours (Update)

April 13 2023, by Juliette Collen

The ESA's JUICE spacecraft is to embark on an eight-year odyssey to investigate Jupiter's icy moons.

The launch of the European Space Agency's JUICE mission, which aims to discover whether Jupiter's icy moons are capable of hosting

extraterrestrial life, was postponed on Thursday for 24 hours due to bad weather.

The launch was called off just minutes before the planned lift-off at 1215 GMT from Europe's spaceport in Kourou, French Guiana, because of the threat of lightning in the cloudy skies overhead.

The next attempt will take place at 1214 GMT on Friday, the European Space Agency said.

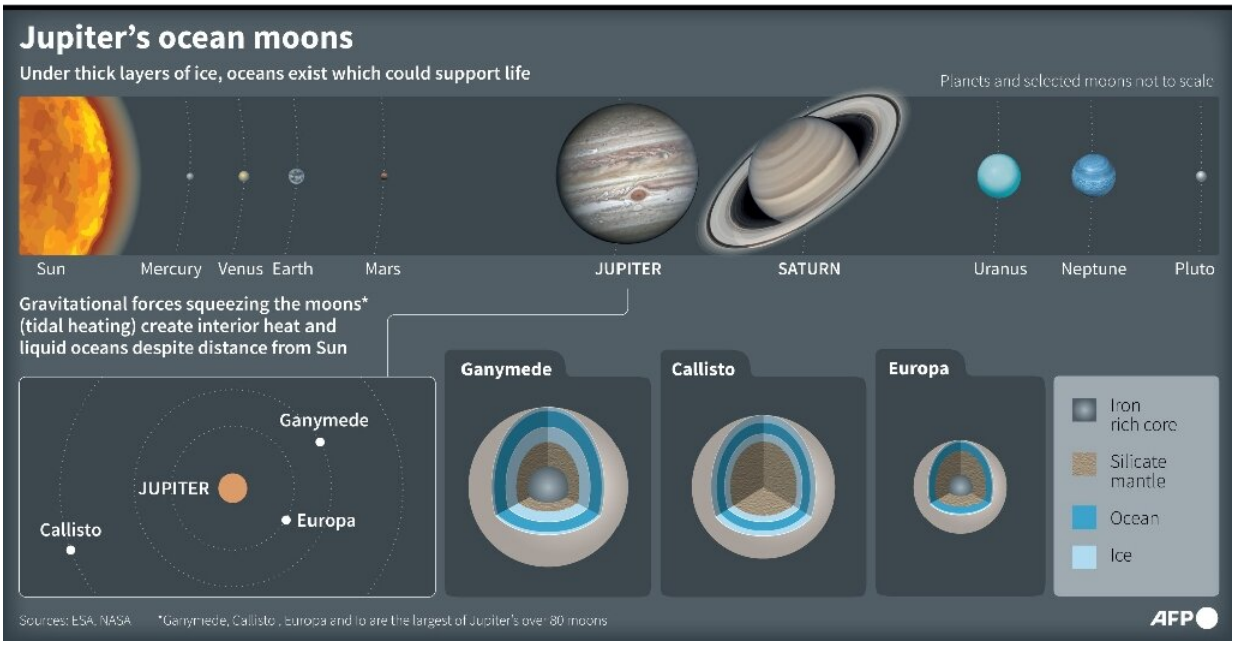
Stephane Israel, the CEO of French firm Arianespace which provided the Ariane 5 rocket, said that with just minutes to spare, "a large mass of clouds approached and we absolutely could not proceed with the launch due to the risk of lightning".

For lift-off to go ahead, three parameters must get the green light: the launcher, the probe and the weather—which was "the final suspense," he told AFP.

While the winds are expected to allow a green light on Friday, the risk of lightning will be monitored "until the last moment," he added.

Unlike most launches, JUICE has a launch window of a just a single second because of the specific trajectory it is aiming for.

The delay was announced to the Jupiter control room in Kourou, where many people, including Belgium's King Philippe, had gathered to watch the launch.



Jupiter's moons, Ganymede, Europa and Callisto, which will be explored by the ESA's mission JUICE.

Liquid water oceans

If the weather permits a launch on Friday, the JUpiter ICy Moons Explorer (JUICE) is still on track to arrive at the gas giant in July 2031.

The uncrewed, six-tonne spacecraft will investigate Jupiter's icy moons, which were first discovered by astronomer Galileo Galilei more than 400 years ago.

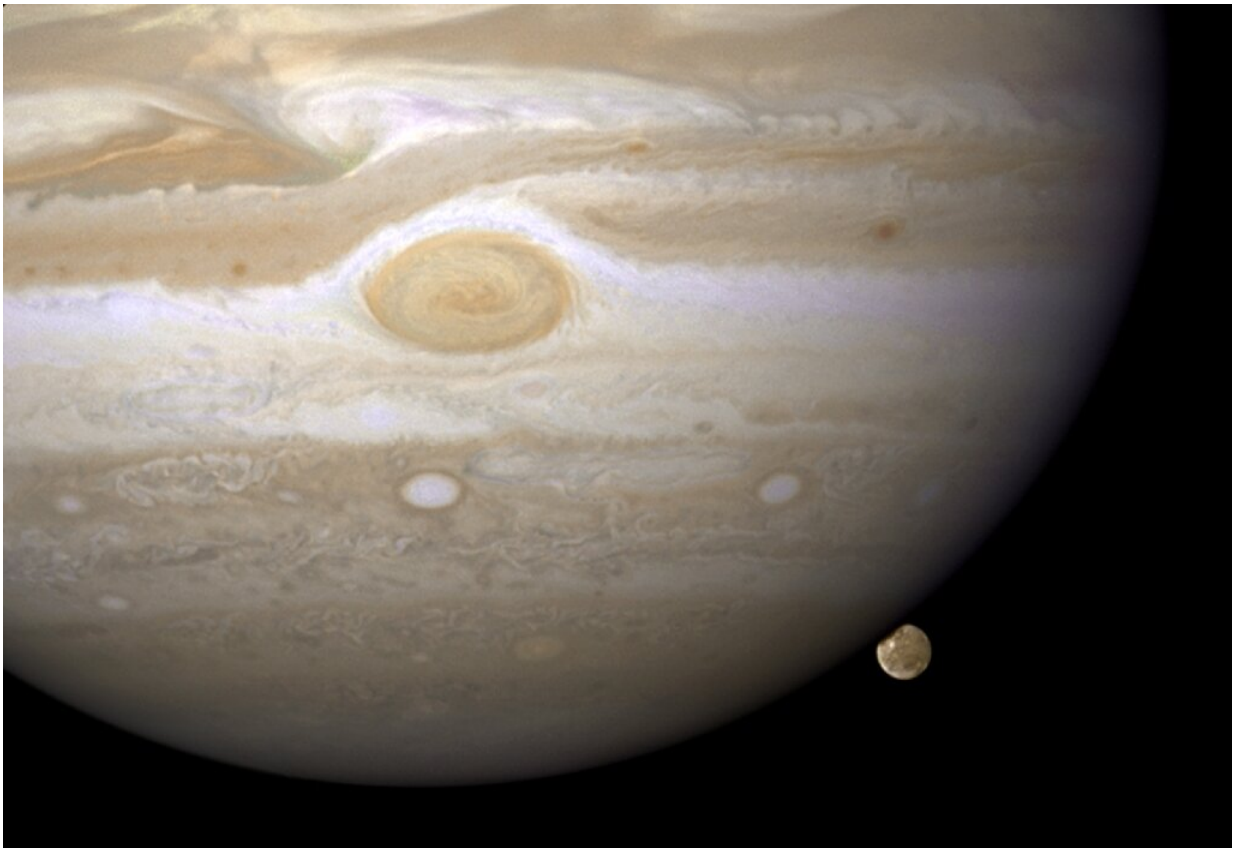
The discovery of huge oceans of liquid water—the main ingredient for life as we know it—kilometers beneath their icy shells has made them prime candidates to potentially host life in our celestial backyard.

Once launched, JUICE will take a long and winding path to Jupiter,

which is some 628 million kilometers (390 million miles) from Earth, using other planets for a gravitational boost along the way.

First, it will do a fly-by of Earth and the Moon, then will slingshot around Venus in 2025 before swinging past Earth again in 2029.

Once the probe arrives in 2031, it will need to very carefully hit the brakes to enter Jupiter's orbit.



The moon Ganymede lurks behind the gas giant Jupiter in a Hubble telescope image from 2008.

From there, JUICE will focus on Jupiter and its three icy, ocean-bearing moons Europa, Ganymede and Callisto.

Its 10 scientific instruments—including an optical camera, ice-penetrating radar, spectrometer and magnetometer—will analyze the local weather, magnetic field, gravitational pull and other elements.

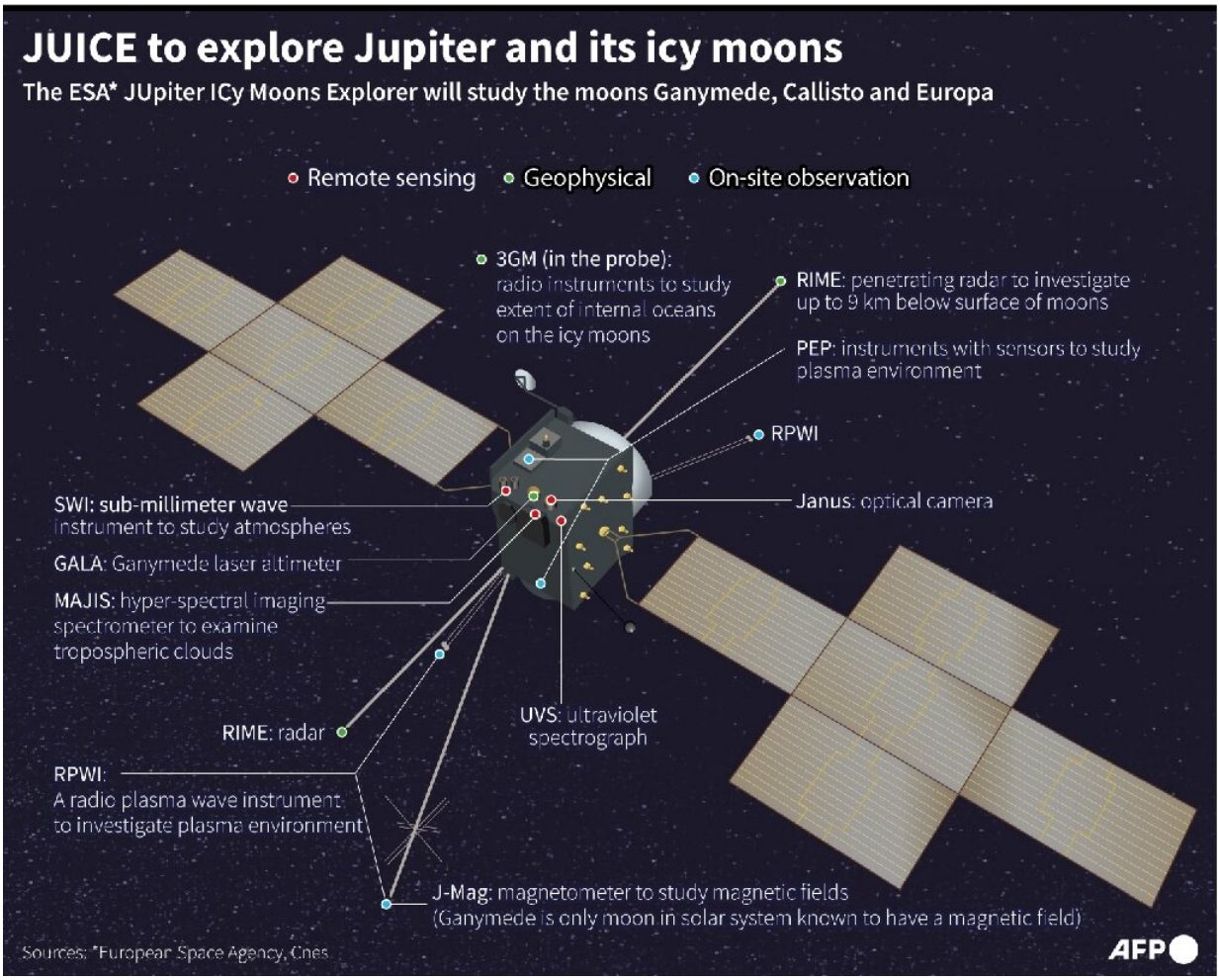
It also has a record 85 square meters of solar panels to collect as much energy as possible near Jupiter, where sunlight is 25 times weaker than on Earth.

Philippe Baptiste, head of France's CNES space agency, said it was "the most complex probe ever sent to Jupiter".

First in another moon's orbit

JUICE will then set its sights on Ganymede, the Solar System's largest moon and the only one that has its own magnetic field, which protects it from radiation.

In 2034, JUICE will slide into Ganymede's orbit, the first time a spacecraft will have done so around a moon other than our own.



JUICE will use its 10 scientific instruments to inspect Jupiter and its icy moons.

The mission will not be able to directly detect the existence of alien life, but instead aims to establish whether the moons have the right conditions to harbor life.

If there is life in these buried oceans, scientists theorize it would likely be primitive microbes like bacteria, which are capable of surviving on Earth in such extreme environments.

Europa, another prime candidates for alien life, will be investigated by NASA's Europa Clipper mission, which is scheduled to launch in October 2024.

The postponement of the 1.6 billion-euro ($1.7 billion) JUICE mission comes during a crisis for European space efforts, after Russia pulled its Soyuz rockets in response to sanctions over the war in Ukraine.

Combined with repeated delays to the next generation Ariane 6 rockets and the failure of Vega-C's first commercial flight last year, Europe is struggling to launch its missions into space.

The JUICE mission is expected be the second-last launch for Ariane 5 before it is replaced by the Ariane 6.