

Image: Lisa Pathfinder ready for launch

December 1 2015



Credit: ESA–M. Pedoussaut, 2015

Final preparations are under way at Europe's Spaceport in Kourou, French Guiana, for the launch of LISA Pathfinder, ESA's technology demonstrator that will pave the way for detecting gravitational waves from space. Liftoff is planned at 04:15 GMT (05:15 CET) on 2 December.

In this image, taken with an ultra-wide angle fisheye lens on 19 November, the spacecraft is hidden from view, encapsulated in the 'upper composite' of its Vega rocket. Only the aerodynamic fairing at the top of the fully assembled launcher is visible, while the lower stages are hidden by the movable access platform.

The hose is part of the air conditioning system that regulates the environment inside the fairing.

Vega will place LISA Pathfinder into an [elliptical orbit](#) around our planet. Then, the spacecraft will use its own propulsion module to raise the highest point of the orbit in six stages. The last burn will propel the spacecraft towards its [operational orbit](#), around a stable point called L1, some 1.5 million km from Earth towards the Sun.

Once on its final orbit, LISA Pathfinder will test key technologies for space-based observation of [gravitational waves](#). These ripples in the fabric of spacetime are predicted by Albert Einstein's general theory of relativity but have not yet been directly detected.

To demonstrate the fundamental approach that could be used by future missions to observe these elusive cosmic fluctuations, LISA Pathfinder will realise the best free-fall ever achieved in space. It will do so by reducing all the non-gravitational forces acting on two cubes and monitoring their motion and attitude to unprecedented accuracy.

On 2 December, ESA will cover the launch live on www.esa.int from 03:50 GMT (04:50 CET). The media briefing, held at the European Space Operations Centre in Darmstadt, Germany, will also be livestreamed from 05:45 GMT (06:45 CET).

Provided by European Space Agency

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