

Science Focus

HAWKING'S FINAL THEORY

How strange, new discoveries could finally prove we live in a hologram



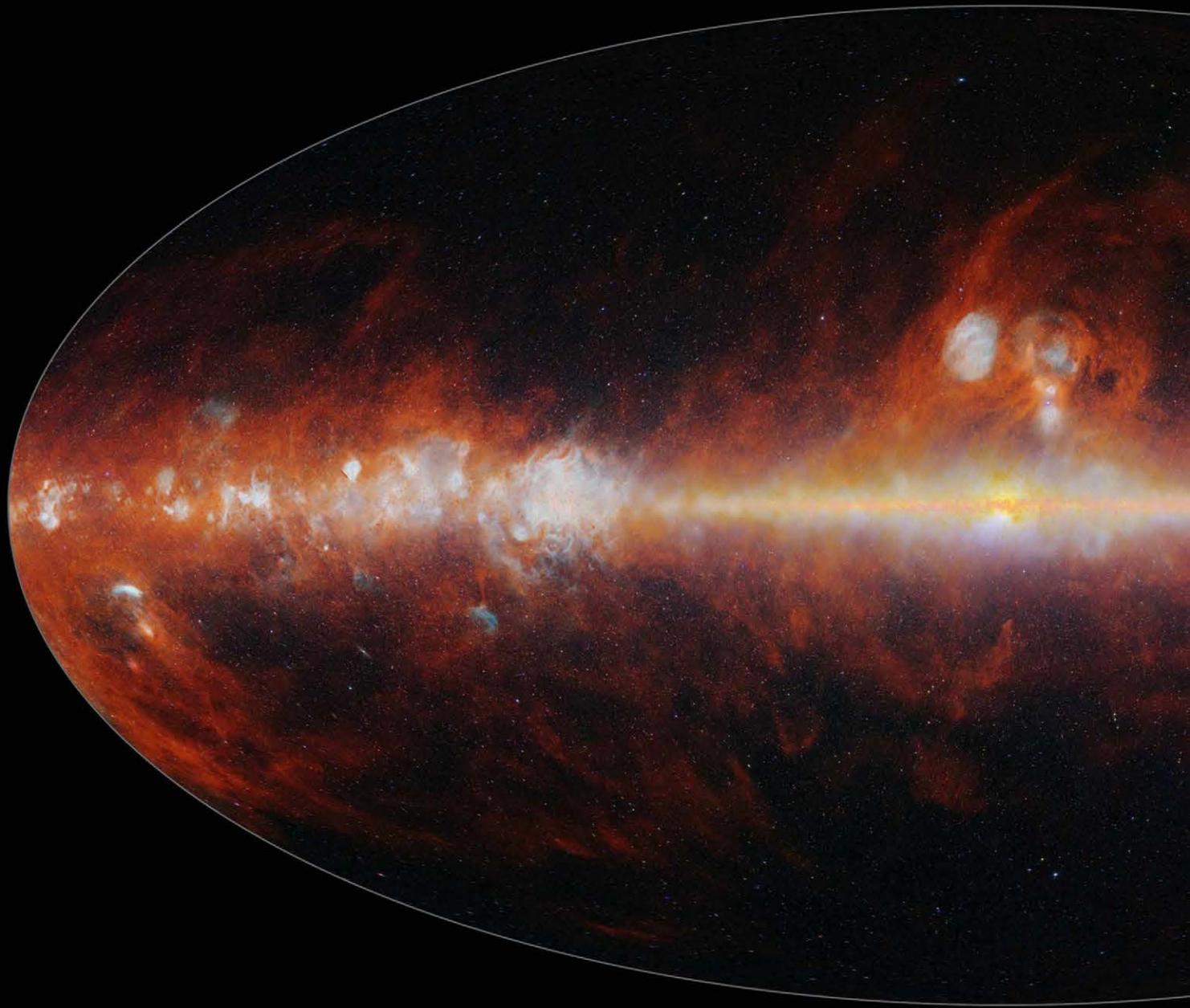
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EYE OPENER

Seeing red

This is the first full map of the entire sky, as seen by NASA's SPHEREx space telescope. Alongside glittering green and white stars, it shows red swathes of cosmic dust, as well as swirling blue clouds of hot hydrogen gas.

SPHEREx (Spectro-Photometer for the History of the Universe, Epoch of Reionization and Ices Explorer) launched a year ago, in March 2025, on a mission to track and survey hundreds of millions of galaxies, and explore the origins of the Universe.

It'll do that by observing the phenomenon known as redshift. As the Universe expands, light travelling across it stretches into longer wavelengths. The longer the light waves get, the more they shift towards the red end of the spectrum, hence the term. Astronomers hope to use this data to estimate how far different cosmic objects have drifted from each other since they and the Universe came into being.

It's also worth noting that this isn't just one map. It's actually 102 maps that have been stitched together. That's because SPHEREx produces its maps using six detectors, each of which is fitted with a 17-colour gradient filter that isolates 102 wavelengths of infrared light ($6 \times 17 = 102$). Though these waves of infrared light are invisible to the human eye, they're the ideal wavelength for spotting distant galaxies that have been heavily redshifted.

NASA/JPL-CALTECH

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