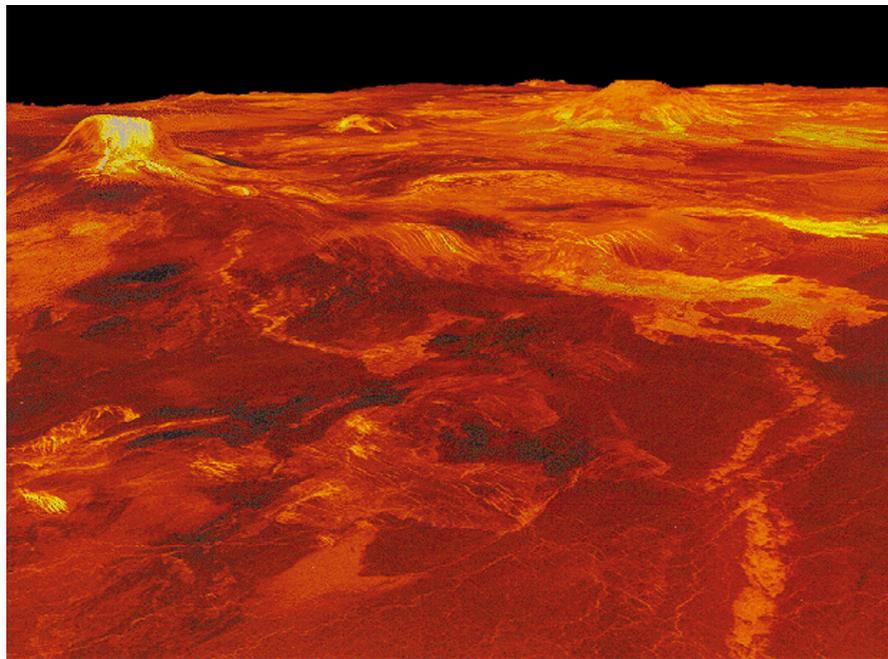


# Venus's voyeurs

**Pictures of far-off planets sent back to Earth by spacecraft allow us all to be armchair explorers. The rendering of these images in a form that we can see involves choices that would be familiar to any traditional landscape painter.**



Perspective view of volcanoes at Western Eistla Regio on Venus: from the Magellan mission in 1991.

## Martin Kemp

When images of Jupiter, beamed back by a 'suicide probe' from the spacecraft Galileo, were published in Britain in *The Independent* newspaper on 7 June 1997, the text began: "It may look like a Turner painting...". We may recall that Turner himself in the early nineteenth century was striving to express the awesome infinity of a scale-less cosmos characteristic of Romantic science, art and literature.

Spectacular examples of what appear to be sublime landscapes seen with our normal visual apparatus are provided by the views of Venus generated from the huge quantities of data transmitted from the Magellan spacecraft in 1991–94.

Such is the nature of the atmosphere of Venus that it cannot be penetrated by rays within the normal visible spectrum. The 'visual' technique involved synthetic aperture radar scanning, in which a radar beam was directed diagonally downwards and sideways from Magellan's rapid path. The sideways look, akin to that of side-scan sonar in oceanic surveys, was complemented by radar altimetry, using a beam pointed directly downwards.

Some of the effects of 'seeing' by radar are visually anomalous. For example, highly reflective surfaces return little or no reflections directly back to the laterally positioned transmitter/receiver, and therefore register

as 'black' — in contrast to their reflective lustre when viewed by the eye in normal lighting conditions.

**To achieve the beautiful landscapes, those synthesizing the images from the side-scans and altimetry need to take a series of overtly pictorial choices which affect every aspect of the rendering — from the basic decision to map the data using orthodox perspectival scaling, to detailed choices of what 'false colours' should be used and how they are to be modified by distance.**

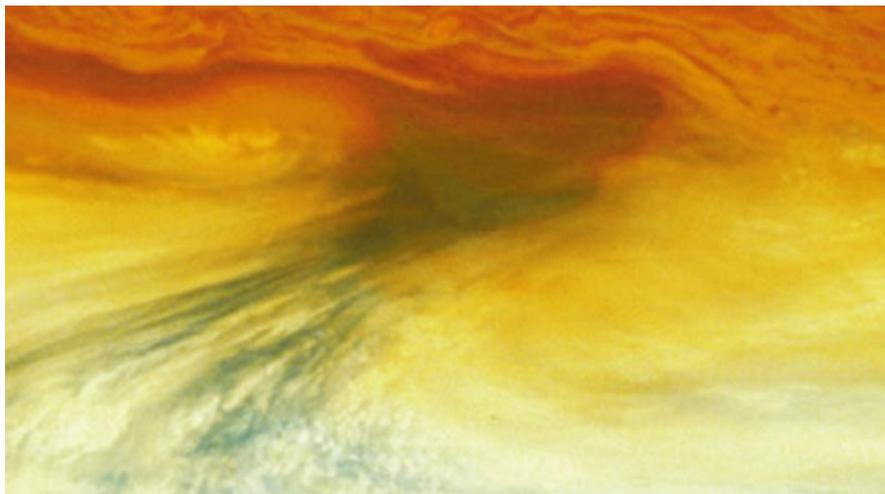


Image of the atmosphere of Jupiter provided by the Galileo spacecraft.

The resulting pictures are masterpieces by largely anonymous masters of extra-terrestrial landscape painting. The picturesque and sublime beauties of our 'sister' planets are revealed according to the same kinds of pictorial rendering that have come to certify the visual delights of our terrestrial habitat.

But why are these images produced, when our scientific understanding of the planets does not appear to be significantly advanced by such seductive extravagance?

I think there are various reasons. One relates to the human impulses of those who undertake incredible journeys of exploration. The naming of the craft 'Magellan', after the great Renaissance voyager, provides a strong clue. The desire of intrepid explorers, ancient and modern, to see the wonders of the newly discovered terrains with their own eyes is irresistible.

Another explanation lies in the satisfying of the voracious public need for pictures of discoveries within a culture that demands cascades of visual novelty.

A related reason is that the enormous budgets for space exploration need to be justified by space agencies and their political masters. Some kind of spectacular public output is required if the enterprises are to continue.

The professional explorers and the public audience share a series of predilections long built into our visual culture. We become by electronic proxy armchair tourists and aesthetic voyeurs in extraordinary voyages of stellar exploration. □

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