A Catastrophic Global Event on Venus

Our quest for knowledge about our world and our origins has driven us further afield, to explore with space probes and satellites our nearest neighbours. Invariably, our inquisitiveness has uncovered some surprises — for preconceived theories. Now it is Venus' turn.

It has been reported as a result of the Magellan mission that the record of impact craters on Venus is unique among the terrestrial planets.[1] Fully 84 per cent of the craters are in pristine condition, and only 12 per cent are fractured (see Figure 1). 'Remarkably', only 2.5 per cent of the craters and crater-related features are embayed by lava, although it is obvious that intense volcanism and tectonism have affected the entire planet. Furthermore, the spatial, topographic and elevational distribution of the craters is consistent with a random distribution, including random variations.

Efforts to simulate and model the production of what is observed on the surface of Venus have resulted in some startling conclusions. The constraints imposed by the cratering record strongly indicate that Venus experienced a global resurfacing event, when the planet suffered a catastrophic tectonic upheaval that resulted in its surface being totally recovered in volcanic rock. The present crater population has accumulated since then and remains largely intact. That is why planetary geologists have concluded that this catastrophic global resurfacing event occurred relatively recently, but in the uniformitarian time-scale that means about 300 million years ago. This global resurfacing event is also said to have ended 'abruptly' in less than 10 million years, followed by a 'dramatic' reduction of volcanism and tectonism.

In their report on their findings, the researchers insisted that neither the present level and style of geologic activity on Venus nor anything less than global resurfacing could have produced the observed cratering record. The sheer scale of such global resurfacing would have required planet-wide tectonism and deformation coupled with massive volcanism — outpourings of lavas akin to the so-called 'flood basalts' of the 'large igneous provinces' here on the Earth produced by mantle 'superplumes'. Of significance are the mechanisms suggested for this global resurfacing event on Venus — crustal recycling via rapid plate tectonics and whole-mantle convection — and the additional comparison with Mars, where the scale of mantle convection is said to have resulted in complete mantle overturn and enhanced magmatic activity that triggered the catastrophic release of subsurface water, producing great outflow channels, violent flooding

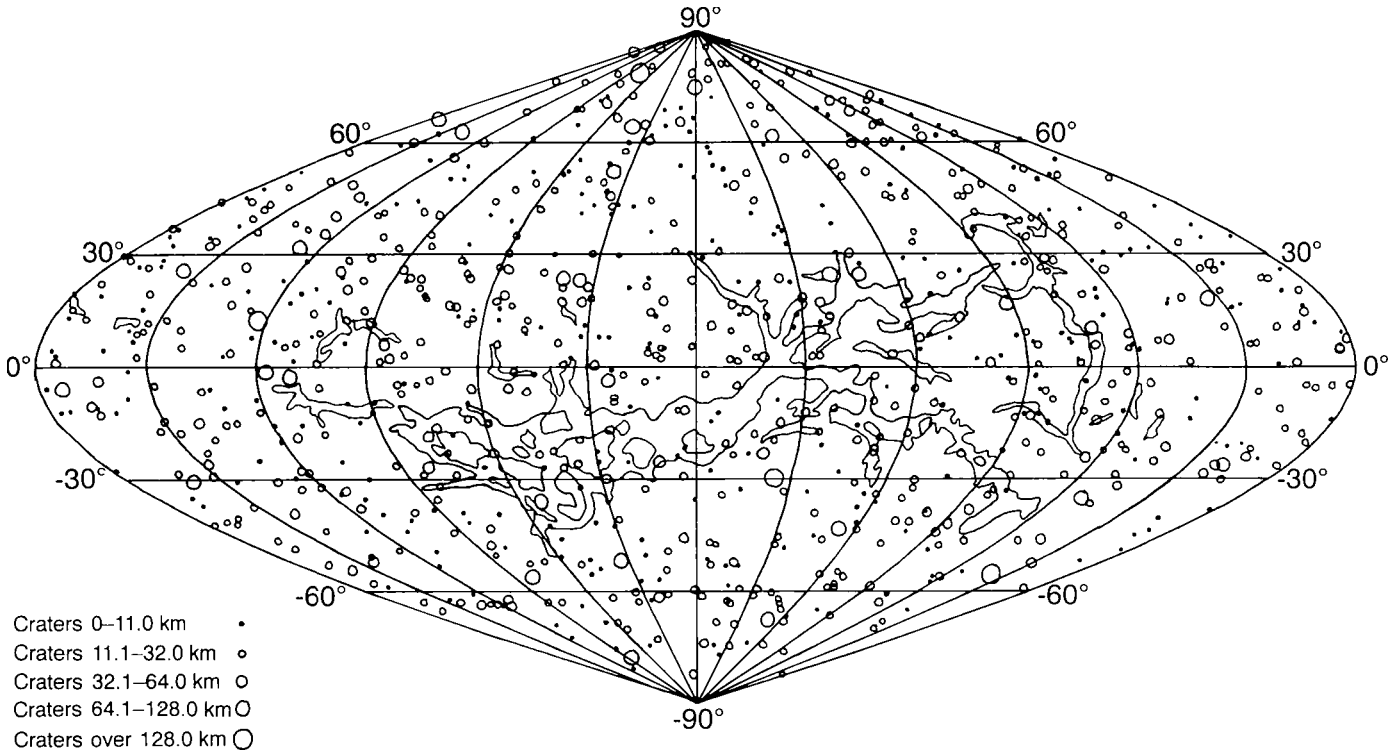

Figure 1. *Map in sinusoidal equal-area projection showing the sizes and distribution of the 932 impact craters on 98% of Venus' surface. Sizes of symbols are scaled to crater diameter categories, but not to the map. The shaded areas indicate fracture belts of concentrated extensions.*

and a temporary vast ocean.

Of course, all of this sounds familiar. Catastrophic plate tectonics has recently been proposed as a viable model for earth history (within a biblical framework),[2] a model which also involves planet-wide tectonism and deformation, crustal recycling (subduction), whole-mantle convection and overturn, massive (enhanced) magmatic/volcanic activity, catastrophic release of subsurface water and violent flooding. It is thus encouraging that geologists are increasingly faced with evidence of catastrophism, not only on the Earth, but on our planetary neighbours, Mars and now Venus. Yet because of their uniformitarian, millions-of-years mindset they fail to accept a global watery catastrophe such as the biblical Flood on a planet (Earth) that is still 70 per cent covered by water. Perhaps their recognition of global tectonic catastrophes on Mars and now Venus will eventually persuade them to accept catastrophic plate tectonics here on the Earth, particularly given the similarities in the abundant evidence that is here closer to hand, and therefore potentially even more convincing.

REFERENCES

1. Strom, R. G., Schaber, G. G. and Dawson, D. D., 1994. The global resurfacing of Venus. **Journal of Geophysical Research, 99**(E5):10,899–10,926.
2. Austin, S. A., Baumgardner, J. R., Humphreys, D. R., Snelling, A. A., Vardiman, L. and Wise, K. P., 1994. Catastrophic plate tectonics: A global Flood model of earth history. *In:* **Proceedings of the Third International Conference on Creationism**, R. E. Walsh (ed.), Creation Science Fellowship, Pittsburgh, Pennsylvania, pp. 609–621.

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QUOTABLE QUOTES: Subjectivity in Science

'Perceptions, prejudices and preconceptions are as much a part of science as they are of other aspects of life. The donning of a white lab coat does not endow the wearer with supernatural powers of objectivity. '

'People can torture their data until it confesses, and go far beyond the notion of objective enquiry in the attempt to confirm a hypothesis. '

'David Kavanagh, department head in the Faculty of Psychology at the University of Sydney agrees. "There is a need for scientists to be educated in how perception plays a role in their work. . . . They should be aware of the potential for errors to creep in because of their wish to find a particular result. " '

Simms, R., 1995. Subjectivity entrenched in science. **Lab News**, April 1995, p. 10.

QUOTABLE QUOTE: Cosmology

' "Observational cosmology is different from anything I've ever done in that very, very basic things are simply not known, " said the University of Washington's Christopher Stubbs. "Even the alleged facts contradict each other. " '

Cole, K. C., 1995. Cosmos yields its past. **The West Australian**, Monday April 3, 1995, 'Earth 2000', p. 6.