

Interactive comment on “GAIA 5.0 – A five-dimensional geometry for the 3D visualization of Earth’ climate complexity” by Renate C.-Z.-Quehenberger et al.

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This discussion paper offers an introduction to the concept and delivery of an ambitious digital science-art representation of the Earth’s ‘climate complexity’; Gaia 5.0. The title of the work is itself a play on themes – Gaia, representing the Lovelock and Margulis’ concept of Earth as a living organism; and 5.0 variously alluding to the five-dimensional geometry of the conceptualized Earth system; but also an echo of the next generation of Web 3.0, Web 4.0 .. and so on.

The visualization itself is appealing, and sets the concept for the idea in the realms of mathematical geometry, with its use of changing graphical/wire-frame representations

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around a changing planet Earth; but the clarity of the visual piece contrasts with the dense and cryptic text of the accompanying paper. The paper reads as a philosophical piece drawing on theoretical mathematical geometries and – at least to this geoscientist – is almost impenetrable, with allusions to concepts that it is assumed are familiar to the reader, rather than explained.

As an essay, I find it hard to see how this will be accessible to the diverse audience one might expect of the readership of ‘geoscience communications’. I indicate a few references in the text that I struggled to understand. I am sure that the authors could address the readability/accessibility of this contribution with just a little consideration to the clarity of the introductory elements of the paper.

Concepts and statements that need a little more explanation (examples) Line 11 – ‘underlying higher level space grid’ Line 14 – subscendent space configuration Line 103 ‘pseudo-4-dimensional Minkowski-spacetime paradigm’ Line 154 ‘lack of the human ontologic position as manifest in the absence of recognition .. etc’ Line 163 ‘hyper-Euclidian model of the hypersphere’ Line 183 ‘chiral movement of the 5-dimensional space’ – where has the fifth dimension come from; what does it represent?

Other comments Line 33 – it seems to be a very bold claim that the SciArt project was the culmination of the 70 year old campaign? Lines 118 – 124 and 131 – 135 are repeated in the text. Line 246 ‘in contrast to planar geoscience models’ – not sure what you are referring to here; but geoscientists (operating in deep time) have come up with many creative ways of conceptualizing at least a 4D Earth system (with time as the 4th dimension), and of representing this information in 2D visualisations. Perhaps you mean meteorological models here?

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