

Astrobiology News January 2018: Astrobiology, the Anthropocene, and the “Sapiozoic”

My apologies that this month’s news will be brief, as I’m preparing to attend the Luther Seminary Convocation on Faith and Science in St. Paul this week, where I’ll be presenting, leading workshops, and helping to promote the book Michael announced last month – *Interactive World, Interactive God: The Basic Reality of Creative Interaction*.

You may have heard the term “Anthropocene” coined as a suggestion that human influence on the biosphere has placed us in a new geologic epoch. In a 2017 SETI talk ¹, astrobiologist David Grinspoon discusses whether we may in fact be on the cusp of a new eon, the “Sapiozoic”, and how what is happening on Earth might be applicable elsewhere in the cosmos. Does life become integral to the way a planet functions? After all, we are not the first species to dramatically alter the Earth – oxygen-producing cyanobacteria did that at the beginning of the Proterozoic eon!

David identifies four kinds of planetary “catastrophes” (where catastrophe may mean a transformational change, not necessarily a disaster). The first two of these are unintentional: (1) random events (for example, asteroid impacts), and (2) biological (as when photosynthesis became dominant). The last two are driven by cognitive changes: (3) inadvertent catastrophes (such as the use of technology with unintended consequences, which might solve local survival problems, but cause major global changes), and (4) intentional planetary changes (such as fixing the ozone problem, or transforming global energy systems.)

Will Earth be fundamentally changed by the Anthropocene, and can we pass to the “Eon of Wisdom” (Sapiozoic)? This question is closely related to questions with which SETI struggles, namely, how long do civilizations last? What would be the qualities of a techno-civilization protecting its biosphere? The effects of human civilization on Earth’s climate, both today and projections into the future, can inform the search for plausible “technosignatures” that might be observed on exoplanets with the next generation of space telescopes.

A recent white paper to the National Academy of Sciences suggests one such technosignature could be evidence of terraforming via spectral features of greenhouse gases on planets outside their stars' habitable zones, and proposes that the NASA Astrobiology Institute should establish a focus group comprised of multidisciplinary scholars interested in studying Earth's future, which would include astrobiologists as well as experts from various other communities such as climate change and geoengineering².

David ends his SETI talk with a quote from Martin Luther King Jr.:
"If we are to have peace on Earth, our loyalties must become ecumenical rather than sectional, our loyalties must transcend our race, our tribe, our class, and our nation; and this means we must develop a world perspective." What might the "Eon of Wisdom" look like? I encourage CLP signatories to reflect on this question! I think it's a natural fit to the 2018 Evolution Weekend theme: Our Shared Humanity.

Until next month,

Grace

¹ The Anthropocene: What Now? – David Grinspoon (SETI Talks 2017)
<https://www.youtube.com/watch?v=DV3ZDcYYPZw>

² <https://arxiv.org/ftp/arxiv/papers/1801/1801.00052.pdf>