Exploring the safe and just operating space in an inhomogeneous world

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The Anthropocene has become reality during the 20th century, implying that our species is pressuring the Earth's ecosystems on a global scale. In the meantime, the challenge of eradicating poverty has not yet ceased to exist. Effectively dealing with these issues requires us to better understand the driving forces, feedback loops and tipping elements in the whole Earth system, constituted by natural and social components. To take a step forward in this direction, we refine an existing conceptual coevolutionary model of social and ecological domains (COPAN:EXPLOIT) by introducing inhomogeneities in the properties of local renewable resource stocks that are abstracted from real-world data. We then propose an analytical framework, 'the safe and just space'- plot, which aligns with the current debate on how to simultaneously stay within planetary boundaries (Rockström et al., 2009) and at the same time ensure that social foundations are met (Raworth, 2012). This plot presents a practical tool for jointly studying global socio-ecological models as well as real-world observations. First results from comparing the model outputs with real-world data indicate that the current state of the world is neither particularly safe nor particularly just.

References:

Rockström, Johan, et al. "A safe operating space for humanity." Nature 461.7263 (2009): 472-475.

Raworth, Kate. "A safe and just space for humanity: can we live within the doughnut?" Oxfam Discussion Papers (2012): 1-26.