MMM SEMINAR SERIES

Society as a Complex System
Seeking a Safe and Just Operating Space for Humanity

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The concept of planetary boundaries around a safe operating space for humanity in the coming century has proved a useful framing of the problems of global sustainability. Originally defined in terms of the biophysical state of the planet, where a safe operating space is taken as the late Holocene climate, the concept has been extended to a safe and *just* operating space by defining some essential social attributes and freedoms that bound an acceptable society, for example through the UN's sustainable development goals. The problem we face is that the processes that define biophysical and societal 'safety' are deeply interconnected and should be understood as attributes of a single complex system.

In this talk we first discuss the key attributes of complex systems-emergence and self organisation-as they apply to simple systems and then to the human-earth system, defined as the intersection of the biophysical world and human society. We contrast the pre- and post-industrial world and show how a strong attractor controlled the relationship between population and per-capita wealth until the industrial revolution but that this changed fundamentally 200 years ago. We go on to construct a conceptual dynamical systems model of the post-industrial world, highlighting the links and feedbacks between population, economy, societal state and our impact on the biosphere. This model highlights the key role played by urbanisation and inequality in societal transformation. Finally, we ask what this model can tell us about the current trajectory of the human-earth system and whether a safe and just operating space is an attractor for the system.

This seminar will be webcast live at:
http://ucarconnect.ucar.edu/live
Recorded seminar link can be viewed here:
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Thursday, 23 February, 2017, 3:30 PM
Refreshments 3:15 PM
NCAR-Foothills Laboratory
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