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After all, what does "far from equilibrium" mean?

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In geomorphology, we often state that the respective system under study is “far from equilibrium”. But what does this mean? And which equilibrium is meant at all, as there exists a rather confusing multitude of equilibrium concepts in geomorphology? Equilibrium concepts still play a paramount role, which has long been stated as disproportional to their respective scientific usefulness and value, and often equilibrium concepts are even used in combination with the notions of complexity, self-organisation and non-linearity. However, these concepts are contrasting and cannot be unified.
In this presentation, the different concepts of equilibrium in physics and geomorphology will be detailed, in order to outline their incompatibility and the need for a paradigm of self-organisation within geomorphology. The background for these thoughts is given by the “theory of dissipative structures” of Ilya Prigogine. It will be suggested to regard geomorphic forms as dissipative structures which are the result of the self-organisation of dissipative systems. By definition, these systems are far from thermodynamic equilibrium, show positive feedbacks and are non-linear. Applying this systems understanding to geomorphic systems would thus result in many open questions such as in how far we can predict, manage, and engineer complex geomorphic systems. These implications will be discussed briefly.