

WHOI talk April 10, 2014, Peter Haff, Duke University

Title: Humans and Technology in the Anthropocene

Abstract

The hallmark of the Anthropocene is a global humans-plus-technology system—the technosphere. The technosphere is emergent and is not under human control. We attempt a physical analysis of the dynamics of this system. An earth-system-view of the Anthropocene may avoid some of the limitations inherent in attribution of global change solely to “human impact”. Some aspects of relevant technospheric dynamics, such as its complexity and high rate of change, are supported by a basic physical property of technology— that it is in essence a solids-based phenomenon. Also, the fact of organization places demands on any dynamical system, and these can be expressed in terms of specific rules that govern the behavior of the technosphere and its human parts. One consequence of such rules is that purpose emerges as a physical property of most dynamical systems. The purpose that humans impute to themselves is not necessarily the same as the purpose (that would be) imputed to them by technology. The rules of organization also suggest that attempts to alter the dangerous course of current technospheric behavior (e.g., unsupportable destruction of natural capital) require collective human action that, however, is susceptible to cooption by the technosphere for its own (metabolic) ends.