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Some advantages of the notion of “Critical Zone” for Geopolitics

Bruno Latour*

Sciences Po, 27 Rue Guillaume, Paris 07, France

Abstract The relatively new concept of “critical zones”, much like that of the “Anthropocene”, signals an interesting twist in the ways to approach life-sustaining systems on Earth and thus a new way to understand the prefix “geo” in geopolitics. Some advantages of the notion for political sciences are listed.

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My interest in geoscience comes from the common prefix “geo” that *geography*, *geophysics* and many other associated disciplines share with *geopolitics*.

Politics is defined here as the “*progressive composition of the common world*”¹. Such a definition implies that there is no world that is already common to begin with (contrary to the older argument that since Nature is the same for all, agreement would come automatically by sharing Nature’s laws); it also implies that this commonality has to be *composed* (that is, pieced together, element after element, through many travails and conflicts); it also means that it is “progressive” in the sense that it gives a direction forward, it is open to debate and it is slow because it depends on bringing many incommensurable interests, values and entities together in a common *modus vivendi*². Defined in that sense the word “politics” is not limited to humans but includes all the elements or entities deemed part of the composition of the common world. This is what allows one to speak, for instance, of the “politics of the soil” because

* Corresponding author. Tel.: 33-(0) 45 49 72 51.

E-mail address: bruno.latour@sciencespo.fr

the world to consider is made just as much out of humus as it is made out of EU subsidies for maize, fermentation in the gut of earthworms, pluviometry or the consumers' appetite for “bio” food.

I take “critical zone” to mean a *spot on the envelope of the biosphere* (Gaia's skin in Lovelock's parlance) which extends *vertically* from the top of the lower atmosphere down to the so-called sterile rocks and *horizontally* wherever it is possible to obtain reliable data on the various fluxes of ingredients flowing through the chosen site (which in practice generally means water catchments)³. “Ingredients” here does not mean only chemicals or physical elements since “EU legislation”, “agricultural practices” or “land tenure” might be part of the data to recover from the study just as well as the amount of nitrates.

In the eye of an outsider, what are the advantages of the notion of critical zones for geopolitics?

The notion of critical zone has the first advantage of *parsing* into much smaller pieces the idea of “the living planet”. It can be as small as a garden or as large as the Amazon basin. By its leopard skin nature, the very way in which critical zone specialists try to compare and assemble their findings offers a much more realistic picture of a political process (in the sense just defined) than the idea of “planetary politics”. While it is impossible for people to grasp what it is to take up responsibility for the stewardship of the whole planet, it is much easier to see where one stands in relation to a critical zone of variable dimensions.

This first advantage is potentialised by another feature of the notion: critical zone *redistributes* the fluxes and cycles of the many entities going through the field study in such a way that the human agent is not unified but is rather seen as acting in many different ways. “It's not the human that we are considering, it's his action”⁴. For instance deforestation, a change in agricultural practice or in EU subsidies may be connected, at the mouth of the water catchment, with changes in the content of nitrates, of calcium as well as with changes in the extent of biodiversity, fish or number of tourists having filled out a questionnaire. So, instead of an agent, “The Human”, acting “On Nature”, we recover from the studies multiple tracers of heterogeneous agencies mixed together in wildly different combinations. This situation not only allows many different disciplines to collaborate, it also opens politically many alternative courses of action that the face-to-face of Human and Nature does not allow. In that sense, the notion of the critical zone is much less paralyzing for politics than that of the Anthropocene⁵.

Another advantage of the notion is that it has the word “critical” in it, meaning that under stress it may break down entirely or shift to another state, while the word “zone” implies that it traces something like a border (vertically as well as horizontally). The two words together are a useful change from the notions of “land” or “territory” which are either too legal (or administrative) in their delineation or too spatial (in the common sense of Euclidian space)⁶. To study, to live, to own, to survey or to police a critical zone is not at all the same thing as to study, live, own, survey or police a piece of land or a territory⁷. While the territory could not suddenly disappear under stress, the critical zone could “become critical” (in engineering parlance) and be ruined. Thus the notion entails an attention, a capacity to feel what happens and the necessity to be cautious, careful, clever and informed in a way that would be different if the zone was just a chunk of “space”. Literally the critical zone engages all its inhabitants in a narrative of history, crisis, conflicts and transformations that differs totally from what it used to be when someone was talking proudly of having one's feet firmly “on the soil”⁸.

So, even more than the concept of Anthropocene, that of critical zone modifies the notion of space that had been enshrined in the notion of Nature as well as in the older divides between human and

physical geographies. While space, in earlier times, was what could be surveyed by a detached human gaze (or by the “view from nowhere” favored by older views of science), critical zones define a set of interconnected entities in which the human multiform actions are everywhere intertwined. While such had already been the case in geography, even there the idea was nonetheless to *layer* human transformation of space and landscape *on top* of a layer called “physical” and which was supposed to remain fairly stable or at least unconnected with human action deemed to be at a different scale (in time and space). It is precisely this idea of *layered dimensions* that seems to disappear and that gives critical zone its originality. To trace the nitrogen cycle might bring you just as quickly to enter a (human made) factory as following (nature made) calcium release from rock would lead you to study some regulations imposed by forest engineers who had read new textbooks on soil management⁹. And what is so interesting is that such a narrative could allow natural scientists to connect differently with the alternative views that other people have on the same land¹⁰.

But there is another more philosophical advantage I wish to underline in conclusion: the notion of critical zone, because of the number of disciplines involved in monitoring the chunk of land they explore together, help *resists* the temptation to think that we are dealing with a “unified system”. The great geopolitical fallacy of political ecology is that the Earth is a whole where “everything is connected” and if only we could bring together the boxes representing the “natural” elements with the “social” ones, we would have unified the question and could zoom in from the larger scales to the smaller ones. The problem of such a view is that it imports a technical metaphor (mechanical or cybernetic) that implies (most of the time surreptitiously) the hidden presence of an *engineer* at work who has devised the whole as a system of which we see only the parts. But there is no engineer at work and thus the relations between elements cannot be that of the parts with a whole. Hence a scientific qua political puzzle that should not be solved too quickly by jumping at the idea that we are dealing with a system¹¹. Thus, it is much easier to realize the necessity of *composing the common world* because of the sheer difficulty of gathering the various ingredients that make up a critical zone.

As well as the idea of a system, it is actually the very distinction between planes or layers (one natural and stable, the other human and active or historical) that the notion of critical zone is throwing into doubt, water catchment after water catchment. Not only are the human multiform behaviors fully immersed in the field study, but so are the findings of “critical zonists” (if there is such a term) who are themselves part and parcel of the zone in which they intervene by making it visible through monitoring instruments and models¹². Gone is the idea of a disinterested distant gaze. Actually, given the importance of monitoring instruments to follow the constant transformations of highly stressed zones, we find ourselves collectively thrown in a situation that resemble more that of intensive care units that are so familiar to physicians and surgeons. In this sense specialists of critical zones are an interesting hybrid between natural scientists and physiologists. The zone will become more or less “critical”, that is, equipped with instruments, feedback loops, warnings, and monitoring of all sorts, depending on the presence, investment and actions of the *scientists themselves*. In that sense “critical zonists” are fully active members of that new geopolitics. A situation that might make some scientists wary, as if they had lost some of their objectivity; and yet is a clear marker of this geostory on which we (humans and non-humans alike) seem to be all embarked¹³.

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References

- ¹ Bruno Latour. *Politics of Nature: How to Bring the Sciences into Democracy* (translated by Catherine Porter). Cambridge, Mass: Harvard University Press, 2004.
- ² Walter Lippmann. *The Phantom Public*. New Brunswick: Transactions Publishers, 1925 [1993].
- ³ Brantley, SL, Goldhaber, MB, Ragnasdottir, KV. Crossing disciplines and scales to understand the critical zone. *Elements* 2007;3(5):307-314.
- ⁴ Yves Godd ris (personal communication, 16-05-2014).
- ⁵ Christophe Bonneuil, and Jean-Baptiste Fressoz. *L’ v nement anthropoc ne : La Terre, l’histoire et nous*, Paris: Le Seuil, 2013.
- ⁶ Mike Crang & Nigel Thrift, *Thinking Space (Critical Geographies)*, London: Routledge, 2000.
- ⁷ Stuart Elden. *The Birth of Territory*. Chicago: The University of Chicago Press, 2014.
- ⁸ Burns H. Weston, and David Bollier. *Green Governance: Ecological Survival, Human Rights, and the Law of the Commons*. Cambridge: Cambridge University Press, 2014.
- ⁹ Alain Ruellan. *Des sols et des hommes. Un lien menac *. Paris: IRD Editions, 2010.
- ¹⁰ Eduardo Kohn. *How Forests Think: Toward an Anthropology Beyond the Human* Berkeley: University of California Press, 2013.
- ¹¹ Bruno Latour. *Reassembling the Social. An Introduction to Actor-Network Theory*. Oxford: Oxford University Press, 2005.
- ¹² Charles D. Keeling. "Rewards and Penalties of Recording the Earth." *Annual Review of Energy and Environment* 23 (1998): 25-82.
- ¹³ Bruno Latour. "War and Peace in an Age of Ecological Conflicts." *Revue Juridique de l’Environnement* 1 (2014): 51-63.