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Invited Review Paper

International law for the Anthropocene? Shifting perspectives in regulation of the oceans, environment and genetic resources

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ABSTRACT

This article reviews the potential implications of the Anthropocene for the future development of international law in general, and for its distinct fields of the law of the sea, environmental law, and rules governing genetic resources in particular. Stability is deeply embedded in the fundamentals of international law, where it operates on two levels. One is the conscious objective of working towards legally guaranteed stability in international relations, in turn prone to frequent political change. The other level of stability is implied: it is the assumption, based on human experience so far, of the relatively stable circumstances of the late Holocene. The onset of the Anthropocene and the changes introduced in that underlying element of stability entail the potential for an unprecedented type of tension in inter-state relations. This may spill over to and aggravate existing tensions between the territorial integrity of states and territorial claims, coupled with the fact of immense geopolitical differences, on the one hand, and sovereign equality of states as the founding postulate of international law, on the other. The international legal order will always be in search of stability and, ultimately, solutions to facilitate peace and prevent conflict. However, with a fundamental change of the context in which international law operates – and with the challenges increasingly recognized as the consequences of natural, not only political, change – new legal axioms will have to evolve.

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1. Introduction

The *Anthropocene* is a concept that has spread rapidly in recent years. Initially an informal scientific term proposed to indicate that human imprint on the Earth system may have already reached a geological magnitude (Crutzen and Stoermer, 2000; Crutzen, 2002), the Anthropocene hypothesis is now under scrutiny within stratigraphy. In 2009, the International Commission on Stratigraphy established the *Anthropocene Working Group*,[1] in order to examine whether, based on stratigraphic evidence, the Earth may be undergoing a shift from the Holocene Epoch and entering a new interval of geological time—the Anthropocene. Findings of the Anthropocene Working Group are expected in 2016.

The Holocene, comprising the past 11,700 years,[2] has been characterized, especially in its later stage, by the longest relative stability in environmental conditions on the Earth since the appearance of *Homo sapiens* some 200,000 years ago. Unlike the Holocene, however, the Anthropocene is seen as thoroughly characterized by change, uncertainty and, probably, considerable instability in the behaviour of the Earth system (Zalasiewicz et al., 2012; Williams et al., 2015).

What is fundamentally new in the Anthropocene concept is its focus on the role of humans in the destabilization of the *Earth system*, and not just the human impact on the environment, as in various earlier approaches (Hamilton and Grinevald, 2015).[3] The Anthropocene concept offers a broad framework for bridging the perceived divide between *nature* (the Earth system we find ourselves in) on the one hand, and *humans* (and the political world we have created), on the other.

The Anthropocene hypothesis has already passed beyond the boundaries of natural science, emerging as a new way of understanding the human role and the implications of our actions for the world we live in and its future. Among the many societal consequences (Dalby, 2009; Tickell, 2011), there arises the question of possible implications for international law on the horizon of this convergence of geological epochs (Vidas, 2010, 2014; Falk, 2010).

This article first reviews some general aspects of international law and the potential implications of the Anthropocene for its development. We then ask: how does international law – in particular the law of the sea, environmental law, and rules governing genetic resources – relate, and might respond, to the challenges likely to appear with a shift from the Holocene to the conditions of the Anthropocene?

2. International law and the Anthropocene: introductory considerations

2.1. International law: basic features and tensions

International law is, unlike national law, marked by the sovereignty of its principal subjects, *the States*[4]; each of these is a sovereign possessing supreme authority within its own jurisdiction. No legal authority or power – no legislator or ruler – is by itself hierarchically above any member of that key group of subjects of international law. Thus, international law is based on the principle of *sovereign equality* of states in their mutual relations (see Tomuschat, 2001; Kokott, 2011); this principle is reflected in Article 2(1) of the UN Charter and is in the fundaments of the United Nations.

Due to the lack of a legislative process as known within the national legal systems of individual states, international treaties – in practice, the most frequently used source of international law[5] – are negotiated by states themselves; and states become bound by treaties only with their explicit consent, through ratification, accession or other procedural means.[6] Likewise, a state must give its acceptance in order to be subjected to the jurisdiction of an international court or arbitral tribunal in any given case, whether by accepting the jurisdiction in advance for some types of cases, or subsequent to the emergence of an individual case. State *consent* and *reciprocity* are among fundamental ingredients of international law. Nonetheless, the explicit consent of all states is not required for, e.g. the emergence of a universal customary law rule, in turn binding on all states. Moreover, while international law as a 'horizontal' legal system rests upon the logic of reciprocity (Simma, 2008, p. 6), which is inherent in the law of treaties in general, some treaties, as in the sphere of human rights, may contain obligations that are not subject to reciprocity.[7]

Each state has its own *territory* over which it exercises sovereignty. Rules of international law about the acquisition of territory and its spatial extension (also maritime and aerial), as well as about the delimitation of boundaries between states, apply equally to all states. And yet, on the geopolitical map of the world, states are profoundly different. This is clearly seen already from the size of their territory – from the biggest (Russia, with over 17 million sq.km) to the smallest (Monaco, less than 2 sq km) – as well as population size, ranging from China and India (with 1.36 and 1.26

[1] On the Anthropocene working group, see at: http://quaternary.stratigraphy.org/workinggroups/anthropocene/.

[2] The lower boundary of the Holocene, as formally accepted and ratified through stratigraphic process in 2008. The lower boundary for the late Holocene is currently proposed at 4200 years BP (Walker et al., 2012).

[3] Hamilton and Grinevald (2015) explain that 'the Earth as a total complex "ecosystem", including the global climate system, is a very recent interdisciplinary and paradigmatic concept developed in the 1980s and 1990s', and officially adopted by the major international scientific cooperation programmes only in the early 2000s.

[4] Other subjects of international law, including international organizations and, sometimes, also individuals and their associations, are all indirectly or directly related to the state as the principal subject of international law. In general, subjects of international law may be defined as 'entities which are capable of possessing international rights and duties'; see Brownlie's Principles of Public International Law (Crawford, ed., 2012), 115–126 pp.; Oppenheim's International Law (Jennings and Watts, eds, 1992), 119–120 pp.; and Walter, 2007.

[5] An authoritative statement of the sources of international law is found in Article 38(1) of the Statute of the International Court of Justice. The Statute is an integral part of the UN Charter, and the Court is the principal judicial organ of the UN.

[6] International treaties may bind two or more states, and can therefore be bilateral or multilateral. However, rules inscribed in the provisions of international treaties can reflect customary law. Customary international law and general principles of law – the other two main sources of international law stated in Article 38(1) of the ICJ Statute – can be binding on all states and thereby can have universal application (Charney, 1993).

[7] On aspects of reciprocity in environmental treaties, see Section 4 below.