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Homo SapiensSapiens Progressive Defaunation During The Great Acceleration: The Cli-Fi Apocalypse Hypothesis

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ABSTRACT

This paper is meant to study the apocalyptic scenario of the at the perspectives of the Great Acceleration. the apocalyptic scenario is not a pure imagination of the literature works. Instead, scientific evidences are in favour of dramatic change in the climatic conditions related to the climax of Man actions. the modelling of the future climate leads to horrible situations including intolerable temperatures, dryness, tornadoes, and noticeable sear level rise evading coastal regions. Going far from these scientific claims, *Homo Sapiens Sapiens*extended his imagination through the Climate-Fiction (cli-fi) to propose a dramatic end. Climate Fiction is developed into a recording machine containing every kind of fictions that depict environmental condition events and has consequently lost its true significance.

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Introduction

The Great Acceleration may be considered as the Late Anthropocene in which Man actions reached their climax to lead to dramatic climatic changes paving the way for a possible apocalyptic scenario threatening the existence of the humanity. So, the apocalyptic scenario is not a pure imagination of the literature works. Instead, many scientific arguments especially related to climate change are in favour of the apocalypse1. As a matter of fact, the modelling of the future climate leads to horrible situations including intolerable temperatures (In 06/07/2021, Kuwait recorded the highest temperature of 53.2 °C), dryness, tornadoes, and noticeable sear level rise evading coastal regions. These conditions taking place during the Great Acceleration would have direct repercussions on the human species. Considering that the apocalyptic extinction had really caused the disappearance of many stronger species including dinosaurs, Homo Sapiens Sapiens extended his imagination though the Climate-Fiction (cli-fi) to propose a dramatic end due to severe climate conditions intolerable by the humankind. The mass extinction of animal species has occurred several times over the geological ages. Researchers have a poor understanding of the causes and processes of these major crises1. Nonetheless, whatever the cause of extinction, the apocalyptic scenario has always been present in the geological history. For example, dinosaurs extinction either by asteroids impact or climate changes could by no means denies the apocalyptic aspect2.At the same time as them, many animal and plant species became extinct, from marine or flying reptiles to marine plankton. This biological crisis of sixty-five million years ago is not the only one that the biosphere has suffered. It was preceded and followed by other crises which caused the extinction or the rarefaction of animal species. So, it is undeniable that many animal groups have disappeared. It is even on the changes of fauna that the geologists of the last century have based themselves to establish the scale of geological times, scale which is still used. But it is no less certain that the extinction processes, extremely complex, are far from being understood. We must first agree on the meaning of the word "extinction", namely on the apocalyptic aspect of the concept. It is quite understood that, without disappearances, the evolution of species could not have followed its course. Being aware that the apocalyptic extinction had massacred stronger species that had dominated the planet, Homo Sapiens Sapiens has been aware that the possibility of apocalyptic end at the perspective of the Anthropocene (i.e., Great Acceleration) could not be excluded. This conviction is motivated by the progressive defaunation in some regions3and the appearance of alien species in others related to change of mineralogy and geochemistry4 leading to a climate change

during the Anthropocene. These scientific claims fed the vast imagination about climate change to set the so-called cli-fi. The concept of the Anthropocene is the new geological era which begins when the Man actions have reached a sufficient power to modify the geological processes and climatic cycles of the planet5. The Anthropocene by no means excludes the possibility of an apocalyptic horizon, namely in the perspectives of the Great Acceleration. On the contrary, two scenarios do indeed seem to dispute the future of the Anthropocene, with a dramatic cross-charge. The stories of the end of the world are as old as it is, as the world is the origin of these stories. However, these stories of the apocalypse have evolved over time and, since the beginning of the 19th century, they have been nourished particularly by science and its advances. These fictions have sometimes tried to pass themselves off as science. This is the current vogue, called collapsology6. This end is more than likely cli-fi driven7and it may cause the extinction of the many species including the Homo Sapiens Sapiens. In this vein, Anthropocene defaunation has become an ultimate reality8. More than one in eight birds, more than one in five mammals, more than one in four coniferous species, one in three amphibians are threatened. The hypothesis of a hierarchy within the living is induced by the error of believing that evolution goes from the simplest to the most sophisticated, from the inevitably stupid inferior to the superior endowed with an intelligence giving prerogative to all powers. Evolution goes in all directions and pursues no goal except the extension of life on Earth. Evolution certainly does not lead from bacteria to humans, preferably male and white. Our species is only a carrier of the DNA that precedes us and that will survive us. Until we show a deep respect for the biosphere particularly, and our planet in general, we will not become much, we will remain a predator among other predators, the fiercest of predators, the almighty craftsman of the Anthropocene. To be in the depths of our humanity, somehow giving back to the biosphere what we have taken from it seems obvious. To stop the sixth extinction of species, we must condemn our anthropocentrism and the anthropization of the territories that goes with it. The other forms of life also need to keep their ecological niches. According to the first, humanity seems at first to withdraw from the limits of the planet and ultimately succumb to them, with a loss of dramatic meaning. According to the second, from collapse to collapse, it is perhaps another humanity, having overcome its demons, that could come. Climate fiction is a literary sub-genre dealing with the theme of climate change, including global warming. The term appears to have been first used in 2008 by blogger and writer Dan Bloom. In October 2013, Angela Evancie, in a review of the novel Odds against Tomorrow, by Nathaniel Rich, wonders if climate change has created a new literary genre. Scientific basis of the apocalyptic scenario in the perspective of the Anthropocene

Global warming

All temperature indices are in favour of a global warming (Fig.1). According to the different scenarios of the IPCC9, the temperatures of the globe could increase by 2 °C to 5 °C by 2100. But some scientists warn about a possible runaway of the warming which can reach more than 3 °C. Thus, the average temperature on the surface of the globe has already increased by more than 1.1 °C since the pre-industrial era. The rise in average temperatures at the surface of the globe is the first expected and observed consequence of massive greenhouse gas emissions. However, meteorological surveys record positive temperature anomalies which are confirmed from year to year compared to the temperatures recorded since the middle of the 19th century. Climatologists point out that the past 30 years have seen the highest temperatures in the Northern Hemisphere for over 1,400 years. Several climatic centres around the world record, synthesize and follow the evolution of temperatures on Earth. Since the beginning of the 20th century (1906-2005), the average temperature at the surface of the globe has increased by 0.74 °C, but this progression has not been continuous since 1976, the increase has clearly accelerated, reaching 0.19 °C per decade according to model predictions. Despite the decline in solar activity, the period 1997-2006 is marked by an average positive anomaly of 0.53 °C in the northern hemisphere and 0.27 °C in the southern hemisphere, still compared to the normal calculated for 1961-1990. The ten hottest years on record are all after 1997. Worse, 14 of the 15 hottest years are in the 21st century, which has barely started. Thus, 2016 is the hottest year, followed closely by 2015, 2014 and 2010. The temperature of tropical waters increased by 1.2 °C during the 20th century (compared to 0.5 °C on average for the oceans), causing coral reefs to bleach in 1997.

In 1998, the period of Fort El Niño, the prolonged warming of the water has destroyed half of the coral reefs of the Indian Ocean. In addition, the temperature in the tropics of the five ocean basins, where cyclones form, increased by 0.5 °C from 1970 to 2004, and powerful cyclones appeared in the North Atlantic in 2005, while they were more numerous in other parts of the world. Recently, mountains of studies focused on the possible scenario of climate change and the potential worldwide repercussions including hell temperatures and apocalyptic extreme events10 , 11, 12.

Melting of continental glaciers

As a direct result of the global warming, melting of continental glaciers has been recently noticed13. There are approximately 198,000 mountain glaciers in the world; they cover an area of approximately 726,000 km2. If they all melted, the sea level would rise by about 40 cm. Since the late 1960s, global snow cover has declined by around 10 to 15%. Winter cold spells in much of the northern half of the northern hemisphere are two weeks shorter than 100 years ago. Glaciers of mountains have been declining all over the world by an average of 50 m per decade for 150 years. However, they are also subject to strong multi-temporal variations which make forecasts on this point difficult according to some specialists. In the Alps, glaciers have been losing 1 meter per year for 30 years. Polar glaciers like those of Spitsbergen (about a hundred km from the North Pole) have been retreating since 1880, releasing large quantities of water. The Arctic has lost about 10% of its permanent ice cover every ten years since 1980. In this region, average temperatures have increased at twice the rate of elsewhere in the world in recent decades. The melting of the Arctic Sea ice has resulted in a loss of 15% of its surface area and 40% of its thickness since 1979. The record for melting

arctic sea ice was set in 2017. All models predict the disappearance of the Arctic Sea ice in summer within a few decades, which will not be without consequences for the climate in Europe. The summer melting of arctic sea ice accelerated far beyond climate model predictions. Added to its direct repercussions of coastal regions flooding, melting of continental ice leads to radical climatic modifications in favour of the apocalyptic scenario.

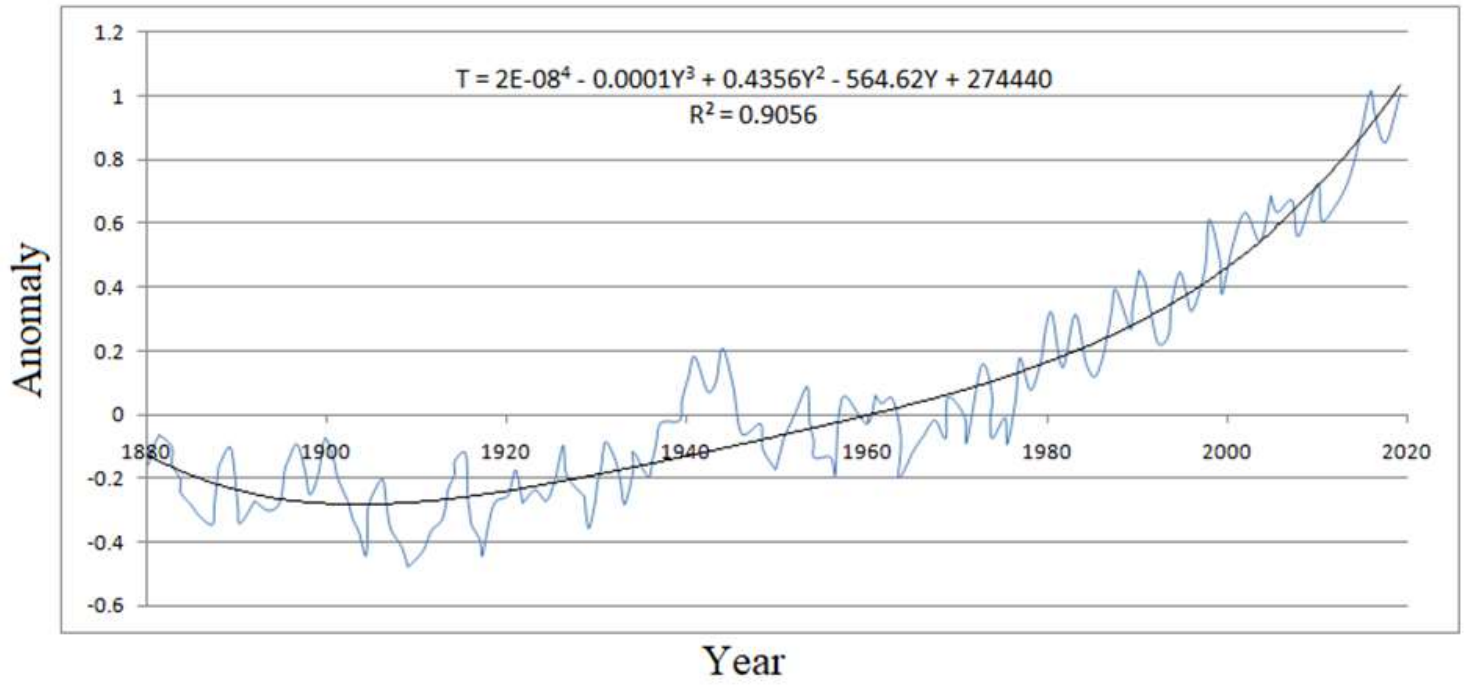

Fig.1 Evolution of temperature anomaly from 1880 to 2020: the apocalyptic scenario

Sea level rise

As a direct result of the melting of continental glaciers, sea level rise has been worldwide recorded14 ,15. The average level of the oceans has risen by 22 cm since 1880 and 2 cm since the year 2000 because of the melting of the glaciers but also with the thermal expansion of the water. In the 20th century, the sea level rose by around 2 mm per year. From 1990 to 2017, it reached the relatively constant rate of just over 3mm per year. Several sources contributed to sea level increase including thermal expansion of water (42%), melting of continental glaciers (21%), melting Greenland glaciers (15%) and melting Antarctic glaciers (8%). Since 2003, there has always been a rapid rise (around 3.3 mm / year) in sea level, but the contribution of thermal expansion has decreased (0.4 mm / year) while the melting of the polar caps and continental glaciers accelerates. Since most of the world's population is living on coastal regions, sea level rise represents a real threat for the humanity, not excluding the apocalyptic scenario.

Multiplication of extreme phenomena and climatic anomalies

On a human scale, an average of 200 million people is affected by natural disasters each year and approximately 70,000 perish from them. Indeed, as evidenced by the annual reviews of disasters and climatic anomalies, we are witnessing significant warning signs. It is worth noting that these observations are dependent on meteorological survey systems that exist only in a limited number of countries with statistics that rarely go back beyond a century or a century and a half. In addition, scientists are struggling to represent the climatic variations of the last two thousand years which could serve as a reference in the projections. Therefore, the exceptional nature of this information must be qualified a little. Indeed, it is still difficult to know the return periods of climatic disasters in each region. But over the last century, the climate system has gone wild. Indeed, everything suggests that the climate is racing. Indeed, extreme events and disasters have become more frequent. For instance, less than 50 significant events were recorded per year over the period 1970-1985, while there have been around 120 events recorded since 1995.

Drought has long been one of the most worrying environmental issues. But while African countries have been the main affected so far, the whole world is now facing increasingly frequent and prolonged droughts. Chile, India, Australia, United States, France and even Russia are all regions of the world suffering from the acceleration of the global drought. Droughts are slowly evolving natural hazards that can last from a few months to several decades and affect larger or smaller areas, whether they are small watersheds or areas of hundreds of thousands of square kilometres. In addition to their direct effects on water resources, agriculture and ecosystems, droughts can cause fires or heat waves. They also promote the proliferation of invasive species, creating environments with multiple risks, worsening the consequences on ecosystems and societies, and increasing their vulnerability. Although these are natural phenomena, there is a growing understanding of how humans have amplified the severity and impacts of droughts, both on the environment and on people. We influence meteorological

droughts through our action on climate change, and we influence hydrological droughts through our management of water circulation and water processes at the local scale, for example by diverting rivers or modifying land use. During the Anthropocene (the present period when humans exert a dominant influence on climate and environment), droughts are closely linked to human activities, cultures, and responses. From this scientific overview, it may be concluded apocalyptic scenario is not only a literature genre inspired from the pure imagination. Instead, many scientific arguments are in favour of this dramatic destiny of Homo Sapiens Sapiens.

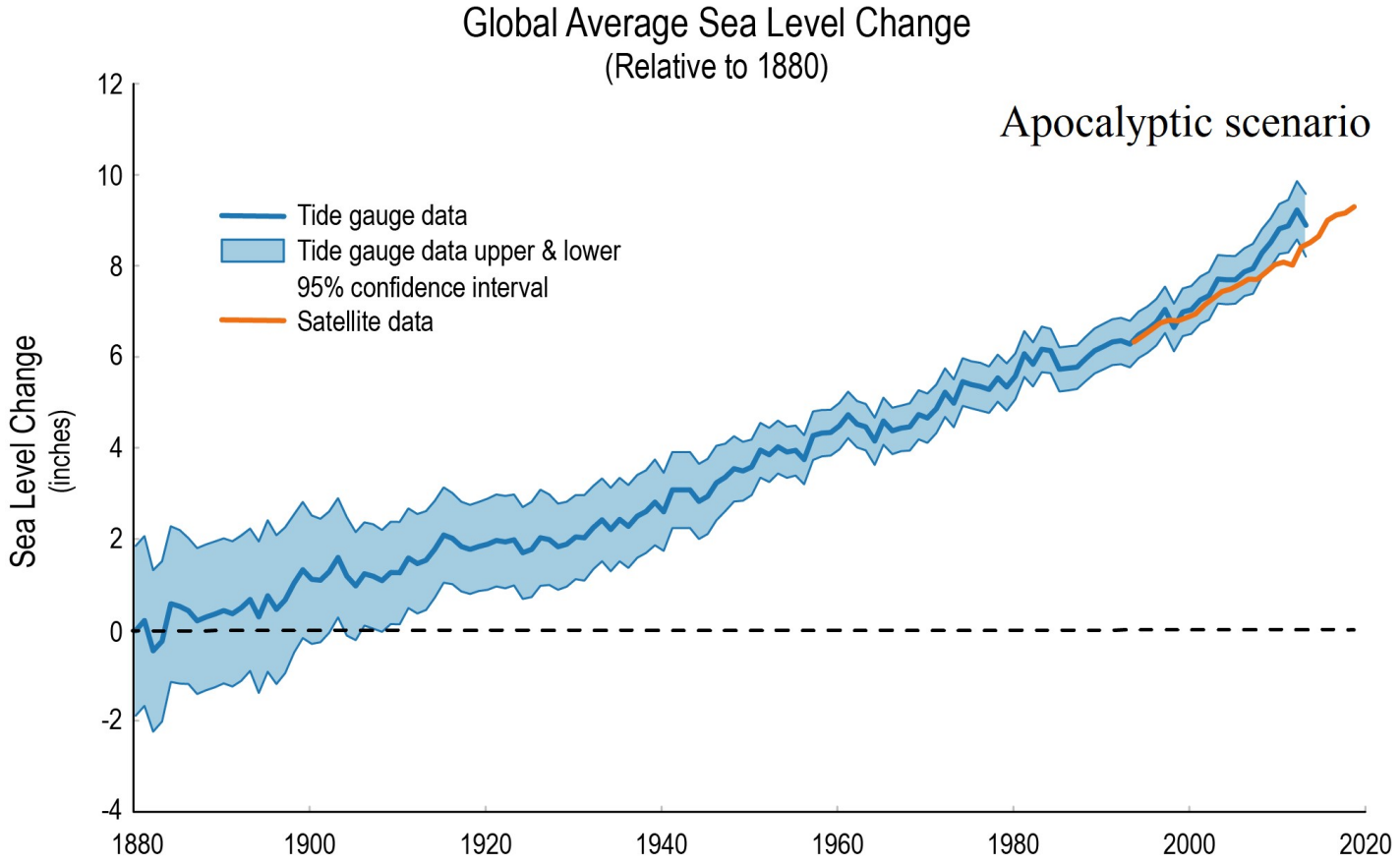

Fig.2. Sea level rise from 1880 to 2020: a possible apocalyptic scenario (www.globalchange.gov, 2021)

Apocalyptic genre in recent writing

As the original landmark of apocalyptic writing, we must place the destruction of the Temple of Jerusalem in 587 BC and the Exile in Babylon. Occasion of a religious and cultural crossing with imprescriptible effects, the Exile brought about a true rebirth, characterized by the maintenance of the essential ethical, even cultural, of a national religion, that of Moses, kept as pure as possible on a foreign land and by the reinterpretation of this fundamental heritage by the archaic return of what was very old, both national traditions and neighbouring cultures. More precisely, it was the place and time for the rehabilitation of cultures and the melting pot for recasting ancient myths. This vast infatuation with Antiquity, remarkable even in the vocabulary used, was not limited to Israel: it even largely reflected a general trend. The long period that preceded throughout the 7th century BC and until 587, like that prior to the edict of Cyrus in 538 BC, was that of restorations and rebirths, of returns to distant sources and cultural crossings. In the biblical literature of this period, one is struck by the almost systematic link between, on the one hand, a very sustained mythical reinvestment even in form and, on the other, the frequent use of biblical archaisms. The example of Shadday, a word firmly rooted in the Semites of the Northwest and epithet of El in the oldest layers of the books of Genesis and Exodus, is most eloquent. This term reappears precisely at the time of the Exile as a designation of the divinity of the Patriarchs and of the God of Israel; Daily, ecological catastrophes now describe the normal state of societies exposed to "risks", in the sense that Ulrich Beck gives to this term: "the risk society is a society of catastrophe. The state of emergency threatens to become a normal state there1". Now, the "threat" has become clearer, and catastrophic "exceptions" are proliferating as quickly as species are disappearing and climate change is accelerating. The relationship that we have with this worrying reality, to say the least, is twofold: on the one hand, we know very well what is happening to us; on the other hand, we fail to draw the appropriate theoretical and political consequences. This ecological duplicity is at the heart of what has come to be called the "Anthropocene", a term coined at the dawn of the 21st century by Eugene Stoermer (an environmentalist) and Paul

Crutzen (a specialist in the chemistry of the atmosphere) in order to describe an age when humanity would have become a "major geological force" capable of disrupting the climate and changing the terrestrial landscape from top to bottom. If the term “Anthropocene” takes note of human responsibility for climate change, this responsibility is immediately attributed to overpowering: strong as we are, we have “involuntarily” changed the climate for at least two hundred and fifty years. Therefore, let us deliberately change the face of the Earth, if necessary, install a solar shield in space. Recognition and denial fuel the signifying machine of the Anthropocene. And it is precisely what structures eco-apocalyptic cinema that this article aims to study. By "eco-apocalyptic cinema", we first mean a cinematographic sub-genre: eco-apocalyptic and post-eco-apocalyptic films base the possibility (or reality) of the end of the world on environmental grounds and not, for example, on damage caused by the possible collision of planet Earth with a comet. Post-apocalyptic science fiction (sometimes abbreviated as "post-apo" or "post-nuke") is a sub-genre of science fiction that depicts life after a disaster that destroyed civilization: nuclear war, collision with a meteorite, epidemic, economic or energy crisis, pandemic, alien invasion.

Conclusion

Climate and politics have been linked together since Aristotle. With Montesquieu, Ibn Khaldûn or Watsuji, a certain climatic determinism is attributed to the character of a nation. The break with modernity made the climate an object of scientific knowledge which, in the twentieth century, made it possible to document, despite the controversies, the climatic changes linked to industrialization. Both endanger the survival of human beings and ecosystems. Climate ethics are therefore looking for a new relationship with the biosphere or Gaia. For some, with the absence of political agreements, it is the beginning of inevitable catastrophes. For others, the Anthropocene, which henceforth merges human history with natural history, opens onto technical action. The debate between climate determinism and human freedom is revived. The reference to the biblical Apocalypse was present in the thinking of thinkers like Günther Anders, Karl Jaspers or Hans Jonas: the era of the atomic bomb would mark an entry into the time of the end, a time marked by the unprecedented human possibility of 'total war and annihilation of mankind. The Apocalypse will be very relevant in describing the chaos to come if our societies continue their mad race described as extra-activist, productivist and consumerist. In dialogue with different theologians and philosophers (such as Jacques Ellul), it is possible to unveil some spiritual, ethical, and political resources that the Apocalypse offers for thinking about History and human engagement in the Anthropocene. What can a theology of collapse mean at a time when negative signs and dead ends in the human situation multiply? What then is the place of man and of the cosmos in the Apocalypse according to Saint John? Could the end of history be a collapse? How can we live in the time we have left before the disaster? Answers to such questions remain unknown and no scientist can predict the trajectory of this Great Acceleration taking place at the Late Anthropocene.

When science cannot give answers, Man tries to infer his destiny for the legend, religion and the fiction. Climate Fiction is developed into a recording machine containing every kind of fictions that depict environmental condition events and has consequently lost its true significance. Aware of the prospect of ecological collapse additionally as our apparent inability to avert it, we tend to face geology changes of forceful proportions that severely challenge our ability to imagine the implications. Climate fiction ought to be considered an important supplement to climate science, as a result, climate fiction makes visible and conceivable future modes of existence inside worlds not solely deemed seemingly by science, however that area unit scientifically anticipated. Hence, this chapter, as part of the book itself, aims to contribute to studies of ecocriticism, the environmental humanities, and literary and culture studies.

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