



ВОПРОСЫ ИСТОРИИ, ТЕОРИИ И МЕТОДОЛОГИИ

DOI: 10.22363/2313-2272-2017-17-4-449-459

“NEW CATASTROPHISM” AND THE FUTURE: THE DEMAND FOR NON-LINEAR KNOWLEDGE*

S.A. Kravchenko, A.E. Perova

Moscow State Institute of International Relations
(MGIMO University)
prosp. Vernadskogo, 76, Moscow, 119454, Russia
(e-mail: sociol7@yandex.ru, aeperova@yandex.ru)

Abstract. The article analyzes the phenomenon of ‘new’ catastrophes determined by the specifics of contemporary vulnerabilities, i.e. the growing structural dysfunction of the complex system of society and/or techno-natural system. The authors show that this dysfunctionality is caused by both human activities and the system’s internal reflexivity; it depends on system’s ability to bear external and internal burdens of emergent and turbulent nature, which implies the uncertainty of catastrophes. The article emphasizes that the majority of ‘new’ disasters manifest in ‘liquid’ forms, which leads to the growth of permanent uncertainties in all spheres of life, while there are obvious limitations in the use of modern scientific knowledge for managing complex vulnerabilities. Many scientific innovations within the paradigm of ‘new catastrophism’ aim to study the emerging social-natural realities to find ways to minimize vulnerabilities. The authors show such ways on the example of new sociological approaches to the analysis of climate changes, ‘dead land’, ‘dead water’, and ‘normal accidents’. The efficiency of such approaches is determined by the integration of social and natural sciences achievements and by interdisciplinary efforts to develop principles of non-linear knowledge. However, the weakness of these approaches is determined by the focus on principles of formalism and pragmatism that limit the potential of the humanities. The authors call for a humanistic turn that would combine scientific, social and humanitarian knowledge, and allow to overcome ideology and practices of anthropocentrism so as to ensure a new humanism necessary to minimize consequences of ‘new’ catastrophes and to develop the humanistic strategy for the future.

Key words: ‘new catastrophism’; vulnerability; ‘liquid’ catastrophes; ‘normal’ accident; climatic turbulence; future; non-linear knowledge; scientific ‘non-knowledge’; anthropocentrism

To define the possible future we are to consider such realities as ‘new’ catastrophes. The term ‘new catastrophism’ was introduced in the natural sciences in the 1970s, when researchers predicted ‘suspended’ catastrophes caused by the drift of continents, shifts of tectonic plates, an earthquakes [18. P. 43–48]. Later these ideas entered sociology due to the development of the complex social-natural reality and ‘rediscovery’ of space

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The research was supported by the Russian Science Foundation. Project No. 16-18-10411.

and time, nature and society, as well as the future. J. Urry said: “I examine a new trend in thinking about the future of societies, which I term the ‘new catastrophism’” [28. P. 36]. The essence of this trend is in the increase of potential catastrophes within complex systems that “generally do not move towards equilibrium”, although “the equilibrium models are dominant in most economic system analyses”. Minor actions within a complex society can cause avalanche-like consequences: “systems are characterized by a lack of proportionality, or ‘non-linearity’ between apparent ‘causes’ and ‘effects’”; “movement from one stage to another may be rapid, with almost no stage in between”; “food and water security are increasingly significant” [28. P. 41—43]. Traditional threats are limited in space and time, their tragic consequences, according to P. Sorokin, are ‘educators’ for there are always sufficiently effective means to overcome them [26]; ‘new’ catastrophes manifest themselves globally and in “timeless time” [7. P. xl]. And what is most important — scientists have just begun to understand the ways to manage them and minimize their consequences. Thus, it is obvious that it is necessary to apply non-linear knowledge including the emerging scientific ‘non-knowledge’ [5. P. 115].

VULNERABILITIES OF COMPLEX SYSTEMS AS CHALLENGES

In the most general sense, a vulnerability means an increasing structural dysfunction of a society’s complex system (social-cultural order) and/or the techno-natural system (nuclear power plants, climate, water systems, atmosphere) that under the influence of *external* activities of people (that may seem ‘inconsequential’) can reveal its internal causality, its own ‘will’, a sort of reflexivity that is destructive for society. In real life, this phenomenon manifests itself in a potential threat of a catastrophe, sometimes on a global scale, or social fears about emerging uncertainties [16. P. 150]. A vulnerability presupposes the catastrophe’s uncertainty in time and space, as it may happen or not. It is impossible to determine spatial and temporal scale of the disaster for everything depends on lots of factors including the system’s ability/inability to bear external and internal burdens of emergent and turbulent nature. The majority of ‘new’ catastrophes manifest themselves in ‘liquid’ forms [1] as vulnerable complex systems with evident and latent consequences. These consequences are acute today and will be such in the future if the current pragmatic trend of social development persists.

‘New’ catastrophes are most evident in the vulnerabilities of complex social and techno-natural systems, whose functionality implies nonlinearity between possible (external and internal) causes of a potential catastrophe and its consequences. Ch. Perrow metaphorically named today’s vulnerabilities ‘normal accidents’, i.e. accidents and disasters caused not by ineffective management, but by everyday functioning of complex technical systems that periodically fail ‘normally’: serious incidents are inevitable even with the best management and full attention to safety [21]. In the book *The Next Catastrophe: Reducing Our Vulnerabilities to Natural, Industrial, and Terrorist Disasters*, he argues that vulnerabilities are becoming more complex: “concentrations of hazardous materials, populations, and economic power in our critical infrastructure make us more vulnerable to natural disasters, industrial/technological disasters, and terrorist attacks” [22. P. vi]. At the same time, Perrow stresses that there are potential catastrophes, not

accidents caused by human errors: “Normal Accident Theory (NAT) argued that if we had systems with catastrophic potential that might fail because of their sheer complexity and tight coupling, even if everyone played as safe as is humanly possible, these systems should be abandoned” [22. P. xxii]. Perrow is concerned with the population growth in ecologically and technologically dangerous areas, where the industrial extraction of natural resources is combined with the development of agriculture, fisheries, social and cultural infrastructure. A significant part of the population lives in houses that do not meet the standards for hazardous areas. People do not have an opportunity to evacuate in case of a disaster and often do not have information about potential catastrophes.

Perrow insists on minimizing the threats and consequences of vulnerabilities by developing new approaches to the management of emerging complex systems, such as dispersal of power and population in the areas of ‘normal accidents’, coordination and co-operation of intelligence services to deal with security issues and to prevent terrorist threats by closing “all the holes in our open society” [22. P. 127]. However, it is impossible to eliminate all ‘normal accidents’ for they are attributes of complex social-technical systems: “We are not safe. Nor can we ever be fully safe, for nature, organizations, and terrorists promise that we will have disasters evermore. Let us minimize their consequences by minimizing the size of our vulnerable targets” [22. P. 325]. It is not a ‘bright’ future, but obviously there are no simple solutions to complex problems; the main challenge of ‘normal accidents’ is not in the catastrophes they are, but in their liquid nature which ‘liquid fears’ [3].

The liquidity of ‘new’ catastrophes is obvious in climate and atmosphere vulnerabilities, such as global warming, periods of abnormal heat, sharp frosts, and the so-called ‘extreme weather events’ (floods, droughts, storms, tropical cyclones, tornadoes, devastating fires, strong snowfalls). A good example is hurricane Katrina, which struck New Orleans and other US coastal settlements in 2005, when the dams protecting the city (70% of them were below sea level) were destroyed. But it was not a ‘traditional’ flood: the water carried pesticides, oil, fertilizers and other pollutants. Thus, a group of scientists initiated the *Sociology of Katrina* as a “perspective on a modern catastrophe” [6]. In particular, they note that ‘new’ catastrophes lead not only to negative natural but also social consequences, i.e. to the emergence of a ‘damaged community’ with a loss of trust and social capital, with fragmented social groups and broken social relations, both personal and institutional [27. P. 405]. In addition, the ozone layer in the stratosphere is constantly changing, with its area decreasing/increasing under the temperature fluctuations. The greenhouse effect is associated with the ocean acidification caused by the ingress of carbon dioxide into the seawater from the atmosphere that determines chemical reactions, which leads to liquid degradation of corals and mollusks, as well as water pollution by algae.

The most obvious indicator of the vulnerability of the climate system is global warming. This phenomenon has long been a controversial issue for scientists and the public. In 2016, the World Meteorological Organization (WMO) confirmed this vulnerability: the warming continued with a new temperature record set at 1.1 °C compared to the pre-industrial period; the melting of ice caps at the poles leads to the global sea level rise (since the beginning of the XX century it rose by 20 cm) [30. P. 8]. Hence, the floods at coastal lands and deltas are inevitable. Ch. Perrow points out that water-

related disasters are the most persistent, they reproduce ‘normal accidents’: “great rivers and coasts have the most temperate climates, the fisheries, and the transportation... We keep the water away with human constructions, such as dams and dikes and levees, and when these fail there is a disaster. But it is unrealistic to expect to keep the people from water; salt or fresh, it is lifeblood for most of the people on the earth. But we can limit the concentrations and thus defend them better” [22. P. 15].

J. Urry proposed an interpretation of global warming as “a simplifying term since what may happen in different parts of the world may be very different, with possibly significant cooling occurring in some places. Indeed the problem of the term ‘warming’ stems from the sheer difficulty in predicting long-term future climates” [28. P. 23]. It seems that this is a sociological interpretation of the vulnerabilities of the climate system for it emphasizes turbulence, unpredictability of climate changed and possible unintended consequences of innovative human activities. Urry also notes the interdependence of climate changed and the future of humankind, and calls to the study of complex causes of vulnerabilities in the climate system that “make ‘climate’ the key category of the twenty-first century” [28. P. 24].

‘New’ catastrophes have also emerged in the food system. Therefore, it is important to control the nutrition determined by global agribusiness, whose functionality is predisposed to ‘normal accidents’ in the form of an increasing production of genetically modified products. To minimize the potential catastrophes we should reject the obsolete dogma: more food — the better. The main thing is quality of nutrition: it should ensure physical and spiritual health and empower people with energy to overcome the emerging vulnerabilities [35. P. 249]. In the XX century, the distribution of traditional food began to change rapidly. For instance, in China, where most families did not eat meat and milk for centuries, meat and dairy products are becoming common. In the country with billions of people, this trend means significant changes in the food market and certain deterioration of the environment for cattle breeding has the most indubitable effect on greenhouse gas emissions (cows are the main source of methane).

Vulnerabilities of food are pre-conditioned and determine ‘new’ catastrophes in the planet’s key resources — soil and water [25]. The ‘dead land’ is soil saturated with chemicals, the water becomes ‘dead’ due to the lack of oxygen determined by a variety of contaminants. The possibilities of biosphere to renew land and water are huge, but they are shrinking due to the “collateral damage” of the extensive innovative activities that Z. Bauman calls “existential insecurity, those ubiquitous accompaniments of life in the ‘liquid modern’ world” [2. P. 62]. The growing need for land accompanied by the extermination of flora and fauna to develop plantations and mineral deposits ‘allows’ to consider fertile lands as spaces that should be used for the man’s benefits. In the same way, water is also ‘dying’ — rapidly and a liquid manner. The evidences of ‘dead water’ can be found on an area exceeding 245,000 km² (the area larger than the UK). Water resources become vulnerable due to hypoxia, i.e. the lack of oxygen necessary to sustain life, slowing down the cycle necessary to renew water and enrich it with oxygen. About two thirds of the world population (about 4 billion) already suffer from a serious shortage of clean water at least a month a year, half of them live in India and China [20]. Only 0.007% of global water supplies are suitable for agriculture and human life though about 70% of the Earth is covered with water [10]. Water is a serious geo-

political resource, ‘white oil’ or ‘blue gold’, and the security of many countries depends on external water resources, the import of water or the division of common river basins [14. P. 132—135].

The ‘collateral damage’ plays a key role in producing ‘new’ water disasters. People discharge industrial waste into water resources, ‘kill’ water with plastic in the world ocean. S. Sassen mentions massive oceanic cycles that became the meeting place for most of the waste in the ocean. All kinds of fluid pollution of soil and water are also associated with a garbage culture — “a form of culture of the universal risk society” [31. P. 217], in which the production of waste or garbage becomes a predominant form of production — informational and technical. There are discourses on vulnerable existential security that “systematically form the objects about which they speak” [8. P. 112]. As a result, a controlled disposal of garbage does not keep up with the dumps growing near megacities.

FUTURE THROUGH NON-LINEAR KNOWLEDGE

In Western culture, scientific rationality introduced the principles of formal rationality and pragmatism, which stimulated active and uncontrolled use of the planet’s resources for the sake of ‘universal prosperity’, primarily to satisfy the ever-increasing material needs of the people. These principles were based on the linear knowledge according to which the consumption growth determines its capabilities and trends for the future. However, by the 1970s the issue of sufficiency of resources, especially under the population growth, arose together with the ideas of ‘new’ catastrophes introduced by *The Club of Rome*, an international organization established to study global problems and their consequences for the future. After the report *Limits to Growth*, there were studies to give recommendations on how to overcome or at least to minimize the unintended negative consequences of social development [19].

At the beginning of the XXI century, it became clear that the consumer future as ‘full of wealth’ was an utopia, and that we need a fundamentally different knowledge, primarily because society and nature had already formed a unique and complex social-natural reality, and the linear idea ‘to take more from nature — to produce more — to increase consumption — to improve living’ had lost its functionality. J. Urry was among the first to lay the foundations for non-linear knowledge about the future by proposing “complexity and resource turns”. The new social-natural reality has brought new vulnerabilities, uncertainties and turbulence, which, however, does not involve general disorder: “Complexity authorizes ‘scientific’ accounts of unpredictable but nevertheless strangely ordered... For example, turbulent flows of water and air, which appear chaotic, are highly organized” [29. P. 19, 21]. In the new reality, there are non-linear correlations between the past, present and future: “Minor changes in the past are able to produce potentially massive effects in the present or future. Such small events are not ‘forgotten’. To express this point rather simply, there is no consistent relationship between the cause and the effect of some event. Rather, relationships between variables can be non-linear with abrupt switches occurring, so the same ‘cause’ can in specific circumstances produce quite different kinds of effect” [29. P. 23]. This implies that in the complex social-natural reality it is necessary to take into account the potential of even ‘insignificant factors’ to develop non-linear knowledge about ‘new’ catastrophes and their impact on the future.

Urry writes: “I embed society, and hence sociology, as a subject within the analyses of climate change, and more generally within a world of objects, technologies, machines and environments. A strong claim is made here that the social and the physical/material worlds are utterly intertwined and the dichotomy between the two is an ideological construct to be overcome”. It appears that a paradigm of knowledge is required in the form of “a post-carbon sociology and, much more importantly, a post-carbon society” [28. P. 8, 16]. This knowledge cannot prevent ‘new’ catastrophes, but it can lay foundations to study their nature and minimize their negative consequences. Urry realistically predicts that his ideas of a resource turn and post-carbon future will entail scientific and political conflicts with “very significant causes”: “carbon military-industrial complexes in many major industrial economies, especially the US” were formed; “there is no single ‘science’ of climate change... this fragmentation of science slowed down understanding of how climates worldwide could in fact be changing”; thus, he suggests “inter-connection of sociology with the various physical and environmental sciences” [28. P. 22, 23]. We also believe in a new interdisciplinary science that will combine efforts of scientists in search of ways to neutralize negative effects of ‘new’ catastrophes [17].

Urry mentioned that unlike previous catastrophes that did not actually affect the future, ‘new’ catastrophes assume non-linear development in space and time, which is expressed in gaps of continuity, interdependent multiple disasters in climate, food, water and energy systems. At the same time, “when change happens, it may not be gradual but occur dramatically, at a moment, in a kind of rush” [28. P. 42]. This involves taking into account both specifics and interdependence of ‘new’ catastrophes in different spheres of life to understand the fragility of the chosen strategy for the future.

We should emphasize that the resource turn focuses on social and natural consequences of ‘new’ catastrophes and is crucial for developing non-linear knowledge about complexity of social vulnerabilities. In particular, they can be caused by environmental inequalities associated with changes in the status of nature as acquiring societal character (it becomes man-made). Such processes divide people into those who live in environmentally friendly settings, and those who are forced to live in the health vulnerable environment [13]. Most such places previously were suitable for people, but changed ecologically under the influence of “collateral damage”. M. Foucault considers modern enclaves “places without a place, that exist by themselves, that are closed in on themselves” [9. P. 26]. Such a “place without a place” becomes one of the ‘new’ catastrophes. Thus, without a study of environmental inequalities it is impossible to develop a strategy for the possible and attractive future.

An important contribution to the non-linear knowledge theory was made by A. Giddens: he believed that the pending hazards for the future did not arise suddenly or spontaneously, as it may seem at first sight, but were a result of pragmatic, mercantile activities of people who exploited nature for a considerable period of time without taking into account its environmental sensitivity. He provides an interpretation of these man-made dangers as a “Giddens’s paradox”, according to which the “end of nature” has come — the material world is no longer external for a man; the traditional division of natural and social environment lost its sense. When there was no single social-natural

reality, the natural challenges/dangers affected the normal course of life only in the present. Now the situation has radically changed, as the challenges come mainly from the people and take a form of pending hazards that non-linearly affect the future of the social-natural reality as a whole. However, linear thinking and linear knowledge survived, which leads to the distorted perception of contemporary challenges: “people find it hard to give the same level of reality to the future as they do to the present” [11. P. 2]. It concerns both everyday and global environmental problems: economic and political elites are well aware of possible negative consequences of their policy regarding nature, but mercantile considerations stop them from changing their usual behavioral patterns. The outdated linear knowledge is dangerous for the future as it latently produces climatic changes that are possibly irreversible.

According to U. Beck, non-linear knowledge includes scientific non-knowledge. For instance, during the Chernobyl disaster, “the nuclear explosion was accompanied by an explosion of non-knowledge... What used to count as knowing is becoming non-knowing, and non-knowing is acquiring the status of knowledge” [5. P. 116]. Such explosions of non-knowledge occur more or less regularly not only in natural or technical, but also in social sciences: previously ‘universal’ knowledge in the form of a ‘true’ paradigm is “becoming obsolete”. However, scientific non-knowledge is not an ignorance, it is acceptance of the fact that we do not know much about the complex social-natural reality and ‘new’ catastrophes. O.N. Yanitsky notes that we live in the social-bio-technosphere with unclear laws [32]. Today’s scientists have to be creative innovators to choose data and to consider non-knowledge — all sorts of unusual situations within complex systems, taking into account that real life is even more complex, and there are even hypothetically non-predictable situations.

Beck develops the ideas of scientific non-knowledge in *Metamorphosis of the Modern World*. He believes in possible transition to another path of development of human civilization and to another future. This possibility is still unclear, but can be summarized as follows: in today’s world, there are more and more non-linear transformations in the form of metamorphosis that cannot be conceptualized in terms of change, evolution, revolution, etc., previously used in social sciences. Metamorphoses radically destabilize the social-natural reality and cause shocks that undermine the anthropological constants of our existence and understanding of the world and its future: what yesterday was unthinkable is a reality today and an opportunity in the future. For instance, climate change is an agent of the metamorphosis: “rising sea levels are creating new landscapes of inequality — drawing new world maps whose key lines are not traditional boundaries between nation-states but elevations above sea level. It creates an entirely different way of conceptualizing the world and our chances of survival within it... ‘What world are we actually living in?’ My answer is: in the metamorphosis of the world” [4. P. 14—15].

Beck emphasizes the non-linearity of knowledge even in relation to his own theorizing: “The theory of metamorphosis goes beyond theory of world risk society: it is not about the negative side effects of goods, but about the positive side effects of bads” [4. P. 15]. At the same time, Beck introduces the idea of ‘emancipating catastrophism’, which takes into account “positive side effects of global risks”, and criticizes the pessi-

mism of traditional approach to disasters. “We all know that the caterpillar will be metamorphosed into a butterfly. But does the caterpillar know that? That is the question we must put to the preachers of catastrophe. They are like caterpillars, cocooned in the worldview of their caterpillar existence, oblivious to their impending metamorphosis. They are incapable of distinguishing between decay and becoming something different. They see the destruction of the world and their values, whereas it is not the world that is perishing, but their image of the world. The world is not perishing, as the preachers of catastrophe believe, and the rescue of the world, as invoked by the optimistic advocates of progress, is not imminent either. Rather, the world is undergoing a surprising, but understandable, metamorphosis through the transformation of the reference horizon and the coordinates of the action” [4. P. 26]. Finally, Beck describes the future of mankind in the ‘metamorphic’ world: “It would be no less misguided to equate the metamorphosis of the world with a change for the better. Metamorphosis of the world says nothing about whether a given transformation is for the better or the worse. As a concept, it expresses neither optimism nor pessimism about the course of history. It does not describe the decline of the West, nor does it suggest that all will be for the best. It leaves everything open and points us towards the significance of political decisions” [4. P. 29].

What are these important scientific and political decisions about the future? We believe that synthesis of natural, social and humanitarian knowledge would result in a humanistic turn in the form of a humanistic paradigm for the analysis of new complex social, technical and natural realities [15]. The representatives of the Enlightenment, in contrast to religious humanism as ‘imperfect’ and ‘outdated’, introduced secular humanism asserting the self-worth of worldly existence and the dominant role of reasoning and rationality. They claimed the need to overcome all forms of ‘unfreedom’ for an individual was ‘the yardstick of all things’ whose omnipotence of intelligence should produce goodness and morality. Rational and pragmatic principles of the humanism of the Enlightenment (largely preserved so far!) latently set the grounds for anthropocentrism and ‘new’ catastrophes. Anthropocene in the broadest sense is not only the influence of man on nature, but also an inevitable change in the environment of the man, which affects the conditions of human life. First, it reveals itself in the deterioration of the quality of life in cities in terms of environment. The so-called ‘end of nature’ or ‘post-natural era’ is embodied in anthropogenic violence caused not only by human activities, but also by the development of technologies [23]. ‘New’ catastrophes change the face of the planet liquidly destroying and undermining the established ecological and social balances. This process has developed since the beginning of the anthropocene, and now turns into an uncontrolled one. However, its consequences are not always extremely destructive for the process is ambivalent: disasters can teach, provide valuable experience to scientists, help to unite efforts of the society, make people think about the future of our planet. For example, the *Rio Declaration on Environment and Development* adopted at the United Nations conference in 1992, calls for the sustainable development through education and collective responsibility for the ecosystem of the planet [24].

We believe that it is time to rediscover humanism from the standpoint of principles adequate to the current social-natural realities and non-linear knowledge. The humanistic turn rejecting the ideas and practices of anthropocentrism claims the need to reconsider

problems of interaction and competition of humanistic systems. In some cases, there is a rapprochement, even intersection and interference of certain humanistic views and practices. However, there cannot be linear trends — only borrowing of minor principles. Thus, attempts to integrate Russian and Western humanistic systems in the form of “reunification with the civilized humanity” undertaken in the 1990s, cannot be considered successful: “it became clear that the West stands for not only a household comfort and a kind of pacified well-being, but also for a certain view of things, which in the light of the Russian experience often seems superficial, inadequate, insincere, and in recent years to a large extent absurd. The Russian society has disagreed with it on many key issues, primarily such as understanding freedom, the meaning of life, the essence and purpose of democracy, gender roles, multiculturalism, etc.” [12. P. 129—130]. Today the country is reviving its own humanistic system as a backbone basis of the Russian civilization. It can become a significant factor in managing ‘new’ catastrophes and shaping the strategy for the future. At the same time, both Russians and global community have to organize humane life forms reflecting the new complex social-natural realities.

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DOI: 10.22363/2313-2272-2017-17-4-449-459

«НОВЫЙ КАТАСТРОФИЗМ» И БУДУЩЕЕ: ВОСТРЕБОВАННОСТЬ НЕЛИНЕЙНОГО ЗНАНИЯ*

С.А. Кравченко, А.Е. Перова

Московский государственный институт
международных отношений (университет)
Министерства иностранных дел Российской Федерации
просп. Вернадского, 76, Москва, 119454, Россия
(e-mail: sociol7@yandex.ru, aeperova@yandex.ru)

В статье рассматривается характерный для современности феномен — так называемые «новые» катастрофы, суть которых авторы видят в специфике нынешних уязвимостей, трактуемых как нарастание структурной дисфункциональности сложной общественной модели и/или техно-природной системы. В статье показано, что данная дисфункциональность обусловлена как внешней деятельностью человека, так и внутренней рефлексивностью самой системы, а потому зависит от множества факторов, включая потенциальную способность системы выдерживать внешние и внутренние нагрузки эмерджентного и турбулентного толка, что и детерминирует неопределенность

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Статья подготовлена при финансовой поддержке РНФ, грант № 16-18-10411.

нынешних катастроф. Авторы утверждают, что большинство «новых» катастроф проявляется в «текучих» формах, что ведет к возрастанию уровня неопределенности во всех сферах человеческой жизнедеятельности, при этом существенно сокращаются и возможности использования современного научного знания для управления и контроля сложных уязвимостей. Тем не менее, многие научные новации последних десятилетий нацелены на изучение становящихся сложными социально-природных реалий, нахождение путей минимизации уязвимостей, что авторы подтверждают примерами новейших социологических подходов к анализу климатических турбулентностей, роста масштабов регионов с так называемой «мертвой землей» и «мертвой водой», а также «нормальных катастроф». Сила этих новых подходов — в интеграции достижений социальных и естественных наук, в стремлении ученых на междисциплинарной основе разработать принципы нелинейного знания. Однако у них есть и ограничения, и главная их слабость — в чрезмерной фокусировке на принципах формализма и прагматизма, в умалении возможностей гуманитарного знания. В связи с этим авторы выступают за гуманистический поворот, предполагающий синтез естественнонаучного, социального и гуманитарного знания, который позволит преодолеть доминирующую идеологию антропоцентризма и дать новый импульс развитию гуманизма, столь необходимый для минимизации эффектов «новых» катастроф и выработки гуманистической стратегии будущего.

Ключевые слова: «новый катастрофизм»; уязвимость; «текущий» катастроф; «нормальная» катастрофа; климатические опасности; будущее; нелинейное знание; научное «незнание»; антропоцентризм