

Jelena Mrgić, PhD  
Department of History  
University of Belgrade  
jmrpic@f.bg.ac.rs

Ориганалан научан рад  
Примљен 10.01.2016  
Прихваћен 15.01.2016

## Skyscapes and Sky Events – Geography of Uncertainties in the Balkans (17<sup>th</sup>–18<sup>th</sup> centuries)\*

*Abstract: This paper presents narrative sources from the Balkans, in order to supplement and confirm the established chronology of astronomical phenomena during the 17<sup>th</sup> and 18<sup>th</sup> centuries. Leaving aside the history of physics, this reconstruction is more about social and cultural history of this region. Chroniclers, known and anonymous, either copied these records from older authors or they wrote as eyewitnesses of the sky events. The effort is made to contextualize them into their cultural and social background, detecting the connections – historical, empirical, conceptual, theoretical, symbolic, and experiential, between the natural phenomena they witnessed and described, and their living and working circumstances. Without the wide use of the printing press, the data from these manuscripts were seeded much slower than in the rest of Europe, and while the impact of the observed phenomena remains largely unknown, comparison of sentiments with the European contemporaries is possible.*

**Key words:** comets, auroras, skyscapes, sentiments, Southeast Europe.

---

\* This paper results from the following projects: *Settlements and Population of the Serbian Lands in the Late Middle Ages (14th and 15th centuries)*, (no. 177010) and *Christian Culture in the Balkans in the Middle Ages: Byzantine Empire, the Serbs and the Bulgarians from the 9th to the 15th century* (no. 177015), supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia.

All translations of sources from Serb./Croatian to English are done by the author, and edited, as well as the article, by Vesna Jevtić, to whom goes our gratitude, again.

It is difficult to make a more significant contribution to the history of uneasy sentiments, namely, of anxiety and fear, after the seminal works of Jean Delumeau for the Western Europe<sup>1</sup>, and Radivoj Radić and Dionysios Stathakopoulos for the Byzantine Empire.<sup>2</sup> The following text would like, nevertheless, to add some previously disregarded testimonies from the ‘waning of Middle Ages’, the seventeenth and the eighteenth centuries, and from a lesser explored region, such as Central Bosnia and Venetian Dalmatia. The universality of human nature makes it easier to detect and understand the degrees of anxiety, and how the expressed or suppressed discomfort, condensed in the *breviloquentes* notices, depended on the conjunction of other life circumstances. The global network and the social media even today may spread numerous anti-scientific interpretations, and it was not amusing to be informed that one of the ‘doomsday’ cults had used the passing of the Hale-Bopp comet in 1997 to commit a massive suicide as the way to ‘teleport’ themselves onto the comet.<sup>3</sup> Another, but similar hysteria occurred in Belgrade, during the total solar eclipse on August 11, 1999, because it followed shortly after the NATO bombing was over, and as Daniel Defoe (1660–1731) had beautifully coined in his novel, ‘the fears of the people were young, and they were strangely increased’ by, in this case, a periodic astronomic event, quite regularly occurring.<sup>4</sup> To add to this all ‘nouvelle vague de peur’, the chemtrails should be mentioned – these are daily phenomena in the sky, the result of jet airplanes engine design, however, no lesser number of conspiracy theories exist, even among the scientific community in the World Wide Web.<sup>5</sup> Therefore, each age, even this age of reason and science and a post-digital era, has its own *designed* anxieties, dreads and uncertainties, and being aware of our own irrational side, this should increase the understanding of the past cultures and their fears.

Types of sources included into this discussion are diverse and stem from different cultural and social environments. There are several chronicles of the Franciscan friars, written in the monasteries in Makarska, Fojnica and Kreševo, which incorporated the notes on sky events and the thoughts and feelings they provoked in the people.

<sup>1</sup> Delumeau, Jean, *La Peur en Occident (XVe–XVIIIe siècles), Une cité assiégé*, Paris 1978; Serbian edition: Delimo, Žan, *Strah na Zapadu (od XIV do XVIII veka), Opsednuti grad*, transl. Sremski Karlovci – Novi Sad 2003. (Further: Delimo, Ž., *Strah na Zapadu...*)

<sup>2</sup> Radić, Radivoj, *Strah u poznoj Vizantiji (1180–1453)*, vols. I-II, Beograd 2000; Stathakopoulos, Dionysios, *Famine and Pestilence in the Late Roman and Early Byzantine Empire – A Systematic Survey of Subsistence Crises and Epidemics*, Ashgate 2003.

<sup>3</sup> Photos made of the Hale-Bopp comet by the Hubble satellite - <http://hubblesite.org/newscenter/archive/releases/1997/08>; about the cult: <http://www.space.com/19931-hale-bopp.html> (accessed on November 29, 2016).

<sup>4</sup> An excellent text on the occasion of the 10<sup>th</sup> anniversary of the event, with references to mass media reports – Ćirković, Milan M., *Totalno pomračenje uma*, at: <http://pescanik.net/totalno-pomračenje-uma/>, posted 13.08.2009. (accessed on November 30, 2016).

<sup>5</sup> See: <http://science.howstuffworks.com/transport/flight/modern/what-are-chemtrails.htm> (accessed on November 30, 2016).

Sarajevo's chronicle of Bašeski is also filled with valuable information, and allows another possible reading of these phenomena, not just geographically but culturally. A range of mostly anonymous copyists of the Orthodox manuscripts left numerous marginal notes on the sky events. The friars, the Muslim scribe, the monks – they all were vigilant observers of the heavenly dome, not to miss the 'signs' conveying some messages to the feeble humans on Earth. However, more than the question of the Author, one faces a dire shortage of evidence to paint a more contextual picture and a full-scale analysis regarding the questions of Audience – who read it, or who had heard of it, and by what way, further, to discuss the varieties of *printed/elite vs. popular/oral culture* in this region, or the breadth of social network for disseminating the information on celestial and more Earthly events. Though more often not backed up with direct evidence, one has to suppose that the sharing of information happened in the *shared places*, urban and rural – church services, market places, gatherings at the taverns, fairs and street processions etc.<sup>6</sup> The text will strive not be a simple catalogue, though preserved notes of both periodic and non-periodic comets, and auroras, prove to be fully in concordance with the contemporary European astronomical results. In most cases, these celestial events were interpreted as 'omens', precursors, portents of the forthcoming events, or they appeared simultaneously with the troubles on Earth, thus increasing the dread and uncertainties even more. The material is, unfortunately, too scarce to testify of a particular 'comet hysteria', which shook the 17<sup>th</sup> century Europe, where hundreds of broadsheets (posters) advertised the approaching doom and urged for repentance and soberness of the Christians. It is estimated that since the first printed record on the comet appearance in 1531, each newly observed 'wonderful star' became the object of one or several printed broadsheets, among which some 200 refer to the exceptional comet of 1680. These posters consisted of artistic presentation of visual experiences, i.e. shapes in the celestial dome, sometimes over a city landscape, followed by a shorter or longer text description.<sup>7</sup>

Some sixty years ago, Nenad Janković published an article, in which he identified twenty comets mentioned in the old Serbian marginal notes and chronicles, from 1456 to 1806, and a book on popular beliefs of astronomical events. The latter presented some evidence from Serbian folk poems and chronicles which ascribed to comets the great changes, deaths and plague,<sup>8</sup> i.e. the usual context, but none addressed the fear

---

<sup>6</sup> Burke, Peter, *Popular Culture in Early Modern Europe*, London 1978, 23ff; Burke, Peter, *Junaci, nitkovi i lude – narodna kultura predindustrijske Evrope*, transl. and comm. B. Auguštin – D. Rihtman-Auguštin, Zagreb 1991.

<sup>7</sup> Véron, Philippe – Tammann, Gustav, *Astronomical Broadsheets, Forerunners of the IAU Circulars*, European Southern Observatory, journal *The Messenger*, vol. 16, 1979, online: <https://www.eso.org/sci/publications/messenger/archive/no.16-mar79/messenger-no16-4-6.pdf> (accessed on November 28, 2016).

<sup>8</sup> Janković, Nenad Đ., „Komete u srpskim zapisima i letopisima”, *Istorijski časopis* V, 1954–1955, pp. 373–385; (Further: Janković, N., „Komete...“); Janković Nenad., „Astronomija u predanjima,

that the Earth might be scorched by the flaming star. Besides the astral phenomena, the paper will give forth the evidence on several volcanic eruptions, thus filling the void for the Balkan Peninsula and the possible environmental and climate impact of volcano eruptions, as we have already addressed the problem in a paper some ten years ago about the eruption of Vesuvius in 1631 AD.<sup>9</sup> In the meantime, M. Radovanović and R. Popović had discussed the aspect of Krakatau eruption of 1883 with regard to the documents from the Serbian state<sup>10</sup>, and A. Mikhail dedicated an article to the Laki eruption of 1783 and the Ottoman Egypt.<sup>11</sup>

### A terrifying tailed star arose for six months

The earliest 17<sup>th</sup> century reference of a sky event in the 17<sup>th</sup> century Balkans is found in the chronicle of Fra Nikola Lašvanin (ca. 1703– d. 1750) from the monastery of Fojnica in the Central Bosnia, which incorporated numerous historical records he found in the library. One of these ‘celestial news’ probably originated in the chronicle compiled by Pavao Ritter Vitezović (1652–1713), a Croatian scholar, but another, still unknown, source of historiographical accounts should not be excluded, since the world chronicle of Antun Vramec (1538–1588), which Vitezovic had used, went only as far as 1578 AD. Dating it wrongly, in 1617 instead of 1618, the note went as following:

“Smutnje velike nastāše u češkoj zemlji zarad vire, odkud nastāše vojske i mloga prolitja krvi. Koje durahu za 30 godina, što zlamenova jedna repata zvizda koja iza sebice izhodi za 30 noći.”

[Great turbulences occurred in the Czech land on the ground of religion, and thereon, many armies had risen and plenty of blood had been shed. Which endured through thirty years, and this had been forecasted by a tailed star which came out for thirty nights.]<sup>12</sup>

običajima i umotvorinama Srba”, *Srpski etnografski zbornik*, vol. 43, *Život i običaji narodni* 28, Beograd 1951, comets, str. 124–128.

<sup>9</sup> Mrgić, Jelena, “Pade prah sa nebesa na zemlju” – Erupcija Vezuva 1631 i balkanske zemlje” [“Ashes fell from the sky to the land” – The Vesuvius Eruption of 1631 AD and the Balkan lands], *Balkanica* XXXV (2004), 223–238; available online: [https://www.academia.edu/759815/Ash\\_fell\\_from\\_the\\_skies\\_to\\_the\\_earth\\_The\\_eruption\\_of\\_the\\_Vesuvius\\_in\\_1631\\_AD\\_and\\_the\\_Balkan\\_lands](https://www.academia.edu/759815/Ash_fell_from_the_skies_to_the_earth_The_eruption_of_the_Vesuvius_in_1631_AD_and_the_Balkan_lands) (November 28, 2016). (Further: Mrgić, J., “Pade prah...”)

<sup>10</sup> Radovanović, Milan; Popović, Radomir, „Geographical-historical analysis of the impact of the 1883 eruption of Krakatau volcano on weather in Serbia”, in: *Istorija i geografija – susreti i prožimanja*, Beograd 2014, pp. 595–610.

<sup>11</sup> Mikhail, Alan, „Ottoman Iceland: A Climate History”, *Environmental history*, 20-2, 2015, pp. 262–284.

<sup>12</sup> Lašvanin, Fra Nikola, *Ljetopis*, trans. and comm. I. Gavran, Sarajevo 1981, p 142. (Further: Lašvanin, Fra Nikola, *Ljetopis...*) The chronicle of Pavle Ritter Vitezović – *Kronika aliti spomen vsega svieta vikov*, continued the one written by Anton Vramec, from 1578 to 1696, in the first edition, but the second edition, published after Vitezović’s death, covered the period till 1744. Ritter Vitezović was

The phenomenon in question was named ‘the angry star’ due to its long tail and reddish light, and it had drawn great attention throughout Europe, being visible to the naked eye for many months. The overall impression, from Sicily, to Germany, to England, was that its ominous character was a herald of bloody wars. There is no precise time frame in Fra Lašvanin’s Chronicle, certainly because he had not found it in his source to copy from, but the broadsheets and narratives from Europe testified to not one, but three comets, the second and the third taken together as one and the brightest, i.e. the most terrifying. The ‘great comet’ of AD 1618 was recorded to last from November 18<sup>th</sup> to December 19<sup>th</sup> in the Northern Hemisphere, as far as Persia to the east of Europe, while in the contemporary astronomical accounts, it refers to *C/1618 Q1, VI* and *WI*, the first one appeared on ca. August 17<sup>th</sup>, the second was visible in the morning sky during November and December, as well as the third, from the late December. Quite elaborate was the essay of John Bainbridge (1582–1643), ‘Doctor of Physicke, and louer [lawyer] of the Mathematicks’, who not only described the comet, but gave a multilevel explanation, including some fortunate ‘morall’ predictions for the British Empire.<sup>13</sup> Another doctor and astronomer was the German, Paul Hintzsch, who wrote a tractate on the observed celestial event with great detail to the position and appearance thereof. This comet appeared one year after the first centennial of Luther’s reformation (1517, i.e. 1617), but was nevertheless used to forewarn people to ‘reform’. The great turbulences in the whole of Europe, from Sweden to Spain, England to Transylvania, entangled not only religious wars, Protestant vs. Catholic, but the combustion of clashed dynastic, personal, constitutional interests, and led to transformed states. The devastation of towns, countryside and people in Bohemia and German lands were huge, so the memory and legacy of these conflicts was persistent and large.<sup>14</sup> Delumeau’s view was that in this period, it was

---

using the library of polyhistor J.W. Valvasor, possibly also the ones in Vienna, and he even collaborated with the Count Marsigli in demarcation work after the Karlowitz Peace Treaty – Klaić, Vjekoslav, *Život i djelo Pavla Rittera Vitezovića (1652–1713)*, Zagreb 1914. Further, the Franciscan monasteries had an obligation to write accounts of events, therefore, several chronicles were preserved in the Bosnian custodia – I. Gavran, *Uvod*, 11–12ff; Zirdum, Andrija, „Franjevački ljetopisi u Bosni i Hercegovini”, *Croatia Christiana Periodica*, 9, 15, 1985, pp. 43–64.

<sup>13</sup> Mortimer, Geoffrey, “Did Contemporaries Recognize a ‘Thirty Years War’?,” *The English Historical Review*, 116, 465, 2001, pp. 124–136; Stoyan, Ronald, *Atlas of the Great Comets*, Cambridge University Press 2015, pp. 66–69; Bainbridge, John, *An Astronomical Description of the late Comet from the 18 of Novemb. 1618. to the 16 of December following. With certain Morall Prognosticks or Applications drawne from the Comets motion and irradiation amongst the ceestiall Hieroglyphics*, London 1619, p. 42, online: <http://quod.lib.umich.edu/e/eebo/A01933.0001.001?rgn=main;view=fulltext> (November 27, 2016).

<sup>14</sup> Hintzsch, Paul, *Hypographe: Flagelli Saturni & Martis. Das ist: Beschreibung des erschrecklichen Cometsterns, welcher im Octobri, Novembri und Decembri des 1618....*, published in Leipzig by N. & C. Nerlich in 1619, online: Ohio State Library, <https://library.osu.edu/blogs/rarebooks/2008/10/28/the-great-comet-of-1618/> (November 28, 2016); Parker, Geoffrey. (ed.), *The Thirty Years’ War*, Routledge – London, Second edition 1997.

the Protestant ‘printing propaganda’ which persistently traumatized already frightened people with the ‘obvious’ signs of the Apocalypse – stars, comets, earthquakes, fires..., and presented the Pope as the Antichrist himself, while, on the other hand, he interpreted the Catholic reaction as ‘putting out the fire’, stressing the individual responsibility and not the Judgment day for all.<sup>15</sup>

The close occurrence of the following two comets attracted more attention in the Balkan lands. The first appeared on December 15<sup>th</sup>, 1664 and as fra Pavle Šilobadović eye witnessed in his monastery in Makarska, he wrote down the following lines:

“Meseca prosinca 15. ukaza se jedna zvizda čudnovata prid sobom nosi kako rađe vele duge, a ona nije svitla, nego tavana i duga, traje do 20. siječnja.” [On December 15, a strange star appeared casting before it others, but it was not shiny, but dark and long, and this lasted till January 20<sup>th</sup>, 1665.]<sup>16</sup>

An earlier occurrence would be described in the chronicle used by fra Lašvanin, dating one ‘tailed star’ in September, and the other one in December:

“Miseca rujna izađe zvizda repatica i idaše od sivera k jugu i bi mlogo dana. Druga izajde na početku 10-bra (decembra) i idaše od istoka ka zapadu noseći prid sobom rep kakono jedan barjak.” [In the month of September a tailed star arose and traveled from north to the south for many days. The second one appeared at the start of December and this one went from east to west, casting a tail like a flag].<sup>17</sup>

Janković found it mentioned in “Zbornik mitropolita Mihaila”, where the event was dated on December 5, but had lasted for many days.<sup>18</sup> This comet was quite famous in Europe, because several great mathematicians, physicists and astronomers dated its first appearance on November 17, 1664, and among them were Giovanni Domenico Cassini in France, Johannes Hevelius in Poland, Isaac Newton and Robert Hook in England, and Christiaan Huygens in Holland. It was the brightest in December, and then faded away by February.<sup>19</sup>

The following year, fra Lašvanin recorded that another ‘tailed star’ had shown, moving from east to west, but the news is connected to a weather event:

“Po mladome Božiću izajde treća repatica i idaše od istoka k zapadu za sobom rep noseći. I tada pade velik snig po svoj Bosni. Poče padat na 2. aprila i pada pet dana i pet noći. I pade oko tri aršina i ne mogaše se proprtiti od sela do sela.” [After the young Christmas (of 1665), the third tailed star arose and went from east to west, carrying its tail. And then a heavy snow fell all over Bosnia. It started snowing on April 2, and continued for five days and five nights. And it amounted to almost

<sup>15</sup> Delimo, Ž., *Strah na Zapadu...*, str. 319–323.

<sup>16</sup> „Kronaka O. Šilobadovića o četovanju u Primorju (1662–1686)”, prir. fra S. Zlatović, *Starine JAZU*, 21 (1889), str. 97.

<sup>17</sup> Lašvanin, Fra Nikola, *Ljetopis...*, str. 228.

<sup>18</sup> Janković, N., „Komete...”, str. 379–380.

<sup>19</sup> *Atlas of Great Comets*, pp. 72–74.

three *arshins* (ca. 2.4 m) and the village could not make a snow path to the next village.]<sup>20</sup>

Since occurrence of the late season snow is not at all unusual in Central Bosnia, a mountainous region, the actual sensation here was its abundance and the incapability of villagers to get out to their neighbors, so that they were cut off, isolated for five days. Had this endured, it would have meant a disaster for the folk. The same source reports on two more comets that year, but it was confused with the aforementioned year of 1618. This new one, which appeared in 1665, round Easter in Europe, from March 27<sup>th</sup> to April 20<sup>th</sup>, provoked another ‘comet hysteria’, and seemed to foretell the great plague in London, as the famous Daniel Defoe (1660–1731) remarked in his historical reconstruction, a novel named “A Journal of The Plague Year”. He masterly painted the atmosphere in the metropolis:

“... But I must go back again to the beginning of this surprising time; while *the fears of the people were young, they were increased strangely by several odd accidents...* I shall name but a few of these things; but sure there were so many, and so many wizards and cunning people propagating them, that I have often wondered there were any (women especially) left behind. In the first place, *a blazing star or comet* appeared for several months before the plague, as there did the year after, another, a little before the fire. The old woman, and the phlegmatic hypochondriac part of the other sex, whom I could almost call old women too, remarked, especially afterward, though not till both those judgment were over, that those two comets passed directly over the city, and that so very near the houses, that it was plain they imported something peculiar to the city alone: that the *comet before the pestilence* was of a faint, dull, languid color, and its motion very heavy, solemn, and slow; but that the *comet before the fire* was bright and sparkling, or, as other said, flaming, and its motion swift and furious; and that, accordingly, one foretold a heavy judgment, slow but severe, terrible, and frightful, as was the plague. But the other foretold a stroke, sudden, swift, and fiery, as the conflagration was; nay, so particular some people were, that as they look upon that comet preceding the fire, they fancied that they not only saw it pass swiftly and fiercely, and could perceive the motion with their eye, *but even they heard it*; that it made a rushing mighty noise, fierce and terrible, though at a distance, and but just perceivable.”<sup>21</sup>

<sup>20</sup> Lašvanin, Fra Nikola, *Ljetopis...*, str. 229. *Arshin* (*arşin*) as an Ottoman measure of length varied in time, in regard to activity: a common, a tailor’s measure of cloth, or a builder’s measure of a plank or a wall, and architectural cubit, between 60 and 78.5 centimeters – see, in detail: Özdural, Alpay, “Sinan’s Arsin: A Survey of Ottoman Architectural Metrology”, *Muqarnas XV* (1998), pp. 101-115.

<sup>21</sup> *Atlas of Great Comets*, 72–74; first edition: Defoe, Daniel, *A Journal of the Plague Year, Or, Memorials of the Great Pestilence in London, in 1665*, T. Tegg – London 1722; I used the edition: *Defo’s History of the Great Plague in London – A Journal of the Plague Year...*, edited, with an introduction and notes by Byron Satterlee Hurlbut, Boston and London 1895, 21–22ff, comments – 286ff; available at: <https://archive.org/stream/defoeshistorygr00hurlgoog#page/n4/mode/2up> (November 29, 2016).

One cannot escape the mild irony and a bit of mocking weaved into these lines of Defoe, stressing the ‘peculiarity’ of some people who even had *heard a comet passing* over the city, all this in the times when the scientific revolution was well under way in England. This vigorous intellectual, entrepreneur, intelligence agent... mirrored *l’esprit du temps* in his diverse and still not fully acknowledged literary legacy.<sup>22</sup>

A short marginal note from a liturgical book in the Monastery of Ravanica (Vrdnik) on Fruška Gora Mountain, gave evidence of a ‘sky omen’ just before Easter, March 22, in 1668. The scribe put it in the context of the ‘infidel reign’ of the Sultan Mehmed IV (1648–1687) over Srem (Sirmium) and other lands, and the harsh winter time of that year. One has to have in mind that the greatest dearth and hunger was always at the end of winter and just before the spring, when almost all supplies in the households were already eaten. The note explicitly mentioned the multitude of deaths, and then it continues to report on the observed ‘sign’ in the night sky:

“Pisa se sii minej v carstvo Ismailjevo, pri cari sultan Mehmed. V tuže zimu mnog lov po zemljah lovi, i mnozi človeci umreše od zime i leda i snega i vode i mraza i divjii zveri. I pred Vskresenije javi se znamenije na nebesi ot zapada prostrto jako kopje do polu neba, širinom jako duga, i ne krivo jako duga, n jako kopje pravo i prebist 5 ili 6 dani v večeri javlja se.” [This menaion is written in the Empire of Ismail (Ishmael), during the reign of sultan Mehmed. That winter the hunts were plenty, and many people died of cold and ice and snow and water and frost and wild beasts. And before Easter, an omen appeared in the sky like a spear from the west to the middle of the sky dome, broad like a rainbow, though not curved as a rainbow, but straight as a spear, and it kept its appearances for five or six days in the evening.]<sup>23</sup>

This comet has been observed from Brazil, over Lisbon to Bologna, were Casini made a record of it on March 10<sup>th</sup>,<sup>24</sup> but it would be necessary to pay attention to the first part of this account. From the second half of the 17<sup>th</sup> century, or precisely from ca. 1645 to 1717, solar activity was at its lowest point and this period is termed the *Maunder Minimum* in historical climatology, as the coldest stage of the ‘Little Ice Age’ (ca. 1550– ca. 1850). This time was marked by increased year round coldness and wetness, with high variability in weather patterns, especially in the prime

<sup>22</sup> Former Yugoslav school curriculum included his novel “Robinzon Kruso”, and other novels were translated, such as “Život, pustolovine i gusarski podvizi čuvenog kapetana Singltona”, and lately “Godina kuge” (1994), “Ogled o poslovima” (2010), “Politička istorija Đavola : antička i savremena, u dva dela” (2013), “Opšta istorija gusara : od njihovog uspona na ostrvu Providens do piščevih dana, 1-2” (2014) – see: *The Defoe Society*, with bibliography, see: <http://www.defoesociety.org/defoe.html> (December 2, 2016).

<sup>23</sup> Stojanović, Ljubomir, *Stari srpski zapisi i natpisi I*, Sr. Karlovci – Beograd 1929, p. 401, no. 1636. The reference of many hunts could be perhaps attributed to the same sultan, Mehmed IV, who was exquisite rider and hunter, hence his byname Avcý (“The Hunter”).

<sup>24</sup> Janković, N., „Komete...”, str. 380.



vegetative season April to September, putting the extra pressure to food production. As Ibrahim Pečević (1572–c.1649) recorded as eyewitness in Istanbul, the Bosphorus strait was frozen during the winter of 1620/1621, which speaks clearly about prolonged freezing temperatures, so that even the swift currents like those in the strait were put under the ice blanket.<sup>25</sup> Sultan Mehmed IV (1649–1687) conducted extensive war campaigns against the Venetian Republic (1645–69), the Austrian Empire in Transylvania (1657–64), the Polish-Lithuanian Kingdom (1672–76), the Russian Empire (1677–81), and since 1683, the Holy League War (till his deposition in 1687). Though not unsuccessful, except the last campaign, immense army provisions and the state command economy had strained the treasury to the limit, with food scarcity even in the capital – Istanbul, while the sultan himself resided in Edirne.<sup>26</sup> Closer to the region of Srem, there were troubles, violence and urban unrests against the extraordinary tax levies, food shortages and high food prices, *akçe* devaluation, and local *ayans*, which occurred three times in *şehir* of Sarajevo – in 1635, in 1650, and in 1682. The ‘pale horse’ of plague appeared several times in the Balkans, as the ‘faithful’ follower of army troops and malnutrition: 1640, 1643, 1648, 1653, and 1674.<sup>27</sup>

In the last decade of the reign of Mehmed IV, in 1680, fra Lašvanin inserted the notice from the chronicle of Ritter Vitezović, which stated: “Za šest miseci izhodila je jedna strašna zvizda repatica” [‘A terrifying tailed star arose for six months’].<sup>28</sup> The comet was discovered by Johann Gottfried Kirch, thus it was named after him – *C/1680 VI Kirch*, and he sighted it with a telescope on November 14<sup>th</sup>, but it quickly developed a visible tail, and became brighter and brighter during the forthcoming months, with an even more impressive tail. Its brightness and size induced the peak of the ‘comet hysteria’ in Europe, with over two hundred broadsheets just in the German lands.<sup>29</sup>

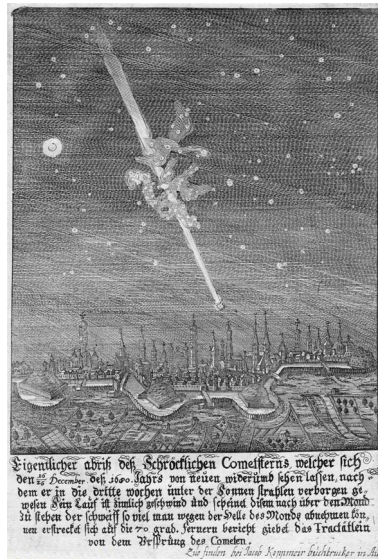
<sup>25</sup> Luterbacher Jürg et al., “The Late Maunder Minimum (1675–1715) – A Key Period for Studying Decadal Scale Climatic Change in Europe”, *Climatic Change*, 49, 2001, pp. 441–462; Pečević, Ibrahim Alajbegović, *Historija 1576–1640*, prev. F. Nametak, Sarajevo 2000, str. 316–317.

<sup>26</sup> A nice overview of theoretical framing of these issues, in: Rose, Christopher, “Ottoman Historiography and the Seventeenth Century Crises or Where is the Ottoman Empire in the Great Divergence Debate”, available at: [http://www.academia.edu/11872316/Ottoman\\_Historiography\\_and\\_the\\_Seventeenth\\_Century\\_Crisis\\_or\\_Where\\_is\\_the\\_Ottoman\\_Empire\\_in\\_the\\_Great\\_Divergence\\_Debate](http://www.academia.edu/11872316/Ottoman_Historiography_and_the_Seventeenth_Century_Crisis_or_Where_is_the_Ottoman_Empire_in_the_Great_Divergence_Debate) (November 30, 2016). On the ‘decline’ and ‘anti-decline’ thesis in the Ottoman studies, see: Sajdi, Dana, “Decline, its Discontents and Ottoman Cultural History: By Way of Introduction”, in: *Ottoman Tulips, Ottoman Coffee – Leisure and Lifestyle in the Eighteenth Century*, ed. Dana Sajdi, Tauris Academic Studies – London/New York 2007, pp. 1–40.

<sup>27</sup> “Mehmed IV”, in: *Encyclopedia of the Ottoman Empire*, eds. Gabor Agoston – B. Alan Masters, Infobase publishing 2009, pp. 370–371, 462–463; Skarić, Vladislav, *Izabrana djela 1 – Sarajevo i njegova okolina od najstarijih vremena do austrougarske okupacije*, Sarajevo 1985, str. 104–105, 110, 125ff; Hrabak, Bogumil, “Kuzne rednje u Bosni i Hercegovini 1463–1800”, *Historijski zbornik*, 7, 1981, str. 5–41.

<sup>28</sup> Lašvanin, Fra Nikola, *Ljetopis...*, str. 151.

<sup>29</sup> *Atlas of Great Comets*, pp. 78–81.



This example here is from Augsburg, with the cityscape, the rooftops in the lower part of the graphic, and the text was the following:

“Eigentlicher abriß deß Schröcklichen Cometsterns, welcher sich dem 16/26 December deß 1680. Jahr von neuen widerumb sehen lassen, nach dem er in die dritte wochen unter der Sonnenstrahlen verborgen gewesen. Sein Lauf ist zimlich geschwind und scheint disem nach über den Mond zu stehen der schweiff so viel man wegen der Helle des Mondes abnehmen können erstreckt sich auf die 70 grad. Fernen bericht giebet das Tractätlein von dem Ursprung des Cometen. Zue finden bei Jacob Koppmeir buchtrucker in Aug”.

[The true depiction of the terrible comet star, which appeared again on 16/26 December, of the year 1680, after it had been hidden behind the Sun’s beams for three weeks. Its movement is quite fast and it seems as if to stand above the Moon. The tail is hard to estimate, because of the brightness of the Moon stretches, but seems to stretch over 70 degrees. More of this is reported in the small leaflet on the origin of comets. This is obtainable at Jacob Koppmeir, book printer in Aug(sburg).]

Therefore, the citizens of Augsburg could witness the ‘terrible comet-star’ over their city from the 16<sup>th</sup> (New Style 26<sup>th</sup>) December, moving very fast, and as if standing above the moon, and in the end line, the printer, Jacob Koppmeir, seized the opportunity to advertise another text on the origin of the comets. Other printed reports contained similar epithets, implying great fear and bewilderment.<sup>30</sup> On the other hand, one of the most significant philosophers in the age of Enlightenment,

<sup>30</sup> Many visual images are presented in: Schechner Genuth, Sara, *Comets, Popular Culture, and the Birth of Modern Cosmology*, Princeton University Press 1997.

Pierre Bayle (1647–1706), dedicated an extensive tractate against the presage of comets, eclipses and other appearances, dismantling piece by piece, i.e. fact by fact the common ignorance and popularity of astrology, untying the ‘connections’ between the earthly and celestial events, ‘fortunes’ and ‘misfortunes’.<sup>31</sup>

The famous Halley comet got its name after the professor of astronomy Edmond Halley (1656–1742) who not only spotted it first, on August 23<sup>rd</sup>, 1682, but also calculated its periodicity on every 75 years, claiming that it was the same comet which appeared in 1531, 1607 and 1682. He charted its orbit round the Earth, as he did for other 24 in the catalogue he printed in 1702, applying the theory of his friend and colleague Sir Isaac Newton, and predicted its return in 1758. All around Europe and way across the Atlantic Ocean in North America, astronomers recorded its passing over the sky dome.<sup>32</sup> In the Balkan lands, there are two recordings, one which N. Janković found in the chronicle of episcopo Jefrem Janković in Baranja. He described it as a great star with a broom-like tail, visible from the December 10<sup>th</sup> until Christmas, but more importantly, as a precursor of great troubles for the Turks and, alas, the great migration of the Serbian people.<sup>33</sup> The identical political context is brought forth by Fra Lašvanin, though his source dated it back to August, and gave a more precise location for the forthcoming ‘evil’:

“Miseca kolovoza poče izhoditi druga zvizda repatica, koja tursku veliku vojsku i obsidanje bečko zlamenovaše.” [In the month of August another tailed star began to rise, which presaged the great Ottoman war and the siege of Vienna].<sup>34</sup>

The ‘Viennese years’ (*bečke godine*), referring to the War of the Holy League (1683–1699) would be mentioned widely across the Southeast Europe like the demarcation period, as a symbol of conjugation of all evils – war, hunger, pestilence and massive death. The army campaigns – Ottoman, Venetian, and Habsburg, the last went as far as Skopje, Sophia, and Sarajevo, the plague epidemics was full scale, cutting the supply lines and trade routes, making the famine so unbearable, which led to numerous cases of cannibalism. Massive exodus of the Serbian people in 1690 to the north of the Rivers Sava and Danube, got them wandering into the ‘promised’ land which turned out to be much worse than the ‘homeland’. The biased narration of the chronicles is confirmed with the ‘objective’ facts, ‘hard’ data from geo-sciences, which testify to the coldest climate period, the coldest and wettest autumns,

<sup>31</sup> Bayle, Pierre, *Various Thoughts on the Occasion of a Comet*, transl. and comm. Robert C. Bartlett, State University of New York Press 2000; see: Pierre Bayle, in: *Stanford Encyclopedia of Philosophy* – <https://plato.stanford.edu/entries/bayle/> (December 5, 2016).

<sup>32</sup> *Atlas of Great Comets*, pp. 90–95; Sergeant, David, *The Greatest Comets in History – Broom Stars and Celestial Scimitars*, Springer Science 2009, 34–36ff. (Further: Sergeant, D., *The Greatest Comets...*) One of the peculiarities of the Halley’s life is his well-intended but long-term devastating endeavor to introduce goats to the island of Trinidad, with great ecological implications.

<sup>33</sup> Janković, N., „Komete...”, str. 381.

<sup>34</sup> Lašvanin, Fra Nikola, *Ljetopis...*, str. 151.

winters and springs. Research of existential crises in this region would be one of the most important tasks to conduct, offering multiple choices for comparative analysis with other European lands at the same or different time. The issues one faces, such as the variety of coping mechanisms, the change of food production and nutrition, the socio-natural interplay etc., would yield significant results of this important, yet disproportionately neglected period in regional history.<sup>35</sup>

The successor of Fra Šilobadović in Makarska, fra Nikola Gojak proved to be an attentive observer of the enfolding events in his long lifetime. He recorded several ‘appearances’, such as the two *auroras* (northern lights), first on December 16<sup>th</sup>, 1737, and on February 3<sup>rd</sup>, 1750:

“Uvečer oko 2 ure noći bi vedrina i vidi se u haeru u zapad stvar čudnovata, to jest vidi se ahrija [aerija – vazduh, nebo] sva carljena koliko ogan, i mnoga nika po istomu zlamenja pak se razdili na troje, jedan dio osta po sridi pram Splitu, drugi pođe put Fara a treći planini. Mnogi mnoga rekoše a sam Bog zna šta će biti.” [In the evening (on December 16<sup>th</sup>), at about 2 o’clock in the clear sky, there was a strange thing to see, red as a flame, sprinkling others, then it split in three parts, the one in the middle towards Split, the other toward Hvar, and the third went to the mountain (Biokovo).]

“Adi 3. Febraro 1750 – Uvečer oko 2. ure noći ukazaše se dva žestoka finomena, obba od planine, jedan od Vošca, drugi od Vrulje. Sam Bog zna šta će biti... Kada su se vidila ona 2 fenomena na 3. veljače onda je izgorio grad Biać u Bosni, i sve što se je u gradu našlo ali Turci izbigoše a da budu i oni izgorili to bi srića bila!” [On February 3, 1750, in the evening, at about 2 o’clock, two fiery phenomena appeared, both from the mountain, one from Vošac (peak of the Mt Biokovo, 1.422 m), and the other from Vrulja. Only God knows what will happen... When those two phenomena were seen on February 3, the town of Bihać in Bosnia was burnt, and everything in it, but the Turks escaped, oh and it would have been good that they did not.]<sup>36</sup>

Even though many people offered many opinions on the meaning of this scarlet sky, fra Gojak refrained himself from presaging the God’s manifestation, as he did on other ordeals he had witnessed and written about. His personal attitude to the Turks reflects the usual paradigm against the ‘enemies of the Christians’, but in his writing, fra Gojak often complained about food shortages occurring when the trade networks were cut off with Herzegovina, due to the plague epidemics. The Franciscan

<sup>35</sup> A selection of literature: Lašvanin, Fra Nikola, *Ljetopis...*, str. 151–168; Mrgić, Jelena, “Osećanja i osećajnost prema prirodi u franjevačkim hronikama”, in: *Bosanski ban Tvrtko „pod Prozorom u Rami”*, ed. Tomislav Brković, Prozor – Sarajevo – Zagreb 2016, str. 805 (Further: Mrgić, J., “Osećanja i osećajnost...”); Popović, Dušan. J., *Velika seoba Srba 1690: Srbi seljaci i plemići*, Beograd 1954; *Patrijarh srpski Arsenije III Čarnojević i velika seoba Srba 1690. godine: zbornik radova o tristagodišnjici velike seobe Srba*, Beograd 1997; Luterbacher et al., o.c.

<sup>36</sup> *Makarski ljetopisi 17. i 18. stoljeća*, ed. A. Soldo, Split 1993, str. 111, 140 (Further: *Makarski ljetopisi...*); Lisac, Inga –Marki, Antun, “The auroral events observed from Croatia and a part of surrounding countries”, *Geofizika*, 15, 1998, str. 53–68. As Soldo already commented, the fire in Bihać happened much earlier, on September 7<sup>th</sup>, 1749 – o.c., note 264, p. 231.

monastery was very well connected in the community of Makarska and with other churches nearby and afar, and the news travelled. Further, the printing news appeared also very early, since he inserted the latest description of the great Lisbon earthquake of 1755 in the Italian language, probably taking it from a leaflet. Where this leaflet, or a broadsheet, was pinned in the city – in the tavern, or at a public place, it is not known.<sup>37</sup>

The bright and multicolored comet at the Christmas time of 1743, which lasted till mid-February 1744, attracted attention of all mentioned chroniclers – Franciscans Lašvanin and Gojak, and also by a monk in the monastic community of Ravanica (Vrdnik), but this time without any interpretations.<sup>38</sup> As Janković observed, the plague and small-pox epidemics which occurred with a ‘tailed star’ allegedly in 1739, might just be wrongly dated, since no other records in Europe testify to it. Nevertheless, the ‘conjunction’ of comets with sickness and mortality is quite typical and omnipresent in that time, and remained in the popular culture. Not only that stratum of people, the semi-literate, the poor, the ‘oppressed’, but even the natural philosophers ‘warned’ about the possibility that a comet might have impacted the Earth, or brought devastation in other possible ways.<sup>39</sup>

The next famous comet, Messier’s of 1769<sup>40</sup>, caught attention of the other two ‘skygazers’ in Bosnia – fra Marijan Bogdanovic (c. 1720 – d. 1772) in the Franciscan monastery in Kreševo, and the scribe Mula Mustafa Bašeski (1747–1804) in Sarajevo. Both wrote down the description with somewhat similar and different purposes, with which we dealt in another article.<sup>41</sup> The Franciscan friar was educated in Naples, and it perhaps might be supposed that Aristotle’s *Meteorologica* would have been included in the curriculum there, however, his first recording is too short to deduce anything past ‘only God knows’ explanation:

<sup>37</sup> *Makarski ljetopisi...*, str. 163; Mrgić, “*Osećanja i osećajnost...*”, str. 1.

<sup>38</sup> Lašvanin, Fra Nikola, *Ljetopisi...*, str. 185; *Makarski ljetopisi...*, str. 126; Stojanović, Ljubomir, *Stari srpski rodoslovi i letopisi*, Beograd 1927, str. 318; Janković, N., „Komete...”, str. 383. The comet was named after the Swiss astronomer Philippe-Loys de Chéseaux, who spotted it on December 13, 1743 – *Atlas of great comets*, p. 96.

<sup>39</sup> Barnett, Lydia, “Between Pleasure and Terror: Enlightenment Science and Maupertius’ Letter on the Comet”, *Architectural Theory Review*, 20–1, 2015, pp. 30–45. This astronomer and mathematician in his letter in 1742 forewarned that a future comet might break the planet into pieces or make a global ignition which would kill all humankind. I would like to express my gratitude to dear friend and colleague, Prof. Dr Dionysios Stathakopoulos (Senior Lecturer in Byzantine Studies, King’s College, London) for providing this text for me.

<sup>40</sup> Sergeant, D., *The Greatest Comets...*, pp. 121–123.

<sup>41</sup> Mrgić, Jelena, “A Polyphony of Stories from 17th and 18th-century Southeastern Europe”, *Godišnjak za društvenu istoriju*, 22-2, 2015, pp. 7–24.

“Mensis Septembris ... nec novalia ulla in mundo vera videntur, praeter magnum cometam, qui his diebus in Zodiaco per 20 dies, potius noctes aparuit q[uo]ndam vero portendit solus Deus scit.”<sup>42</sup>

Bašeski's note was a bit longer:

“On 24 rebiu-ahir (August 28, 1769) a tailed star appeared near the constellation of Vlašić [*Pleiades*], in the sign of Virgo, on the day of the death of Miriam [the Assumption of Mary]. Its trail increased every evening. It would appear at 3 or 4 hour, and later on, it was visible until dawn.”<sup>43</sup>

If the comet left them almost undisturbed, that was not the case with the next “apparition” in 1770, about which Fra Marijan recorded:

“Die 18 (Januarii) post horam cum dimidia noctis valde coelo sereno talis rubedo in aere apparuit velut ignis, ut multos terrefecisset, et hoc inter Saraevum velut, Traunik, Foinizam, et Cressevum, ut apparebat, sanguine protracta; cuius occasione, et Cometae apparentis in medio Septembris p(luri)bus noctis multi multa divinant, Mossolmani praesertim a Moskovitis jam in Koççin debelati contra se haec omnia mon(s)tra explicant, quot totum eventus dilucidabant.”<sup>44</sup>

[On January 18<sup>th</sup>, round half past one in the night, in the clear sky such redness like fire appeared, which made many people shake with fear, and it seemed as if a blooded curtain was put all over the skies above Sarajevo, Travnik, Fojnica and Kreševo. This time, as in the middle of September, when the comet appeared during many nights, many people offered many prophecies, Muslims above all, who take those sings as bad omens, because the Muscovites won them at Hotin. It all will be revealed later.]

This time, the friar connected the scarlet aurora with the last year's great comet in mid-September. It is further added that the Russians, i.e. the Muscovites fought the Ottoman armies successfully at Hotin (Khotin). The battle occurred in September 1769, and the news was brought back from the River Dniester to Bosnia. The vast floodplains, reeds and mud, the desperation and the return home – it was the starting point of the great novel “The Fortress” (1970) by Mehmed Selimović.

Bašeski also put it down in his *mecmua*, but he did not link it with any interpretation:

“21. Ramazana (18. I 1779) ili 8. siječnja, 30. dan Zemherija, u petak naveče pojavila se sa sjevera crven, koja bi se sve do osam sahata u noći čas pokazivala, čas opet gubila. Poslije pokazivanja ostalo bi samo bijelo svijetlo. Neka je znano da nije pocrvenjelo cijelo nebo, ali je crven bila kao krv.”

<sup>42</sup> Jelenić, Julijan, „Ljetopis franjevačkog samostana u Kreševu”, *Glasnik Zemaljskog Muzeja*, 29, 1917, str. 45. (Further: Jelenić, J., „Ljetopis...”)

<sup>43</sup> Bašeskija, *Ljetopis*, transl. and comm. M. Mujezinović, Sarajevo 1987, 2nd edition, 88. (Further: Bašeskija, *Ljetopis...*)

<sup>44</sup> Jelenić, J., „Ljetopis...”, str. 48.

[On the Friday evening of 21th of Ramadan, or January 8<sup>th</sup>, a red color appeared from the north, blinking until the eighth hour into the night. After the apparition, only a white light remained. Let it be known that not all the skies were reddened, but still, it was of a blood red color.]<sup>45</sup>

Writing his personal journal, which would be read at the evening gatherings of *ulema*, and would also be his legacy, Bašeski felt that he had to give a written testimony, as a part of his official duty as a scribe, and member of the high, literate culture in Sarajevo. However, as Tatjana Paić-Vukić stressed, numerous books are found to be in the possession of not only ulema members, but also merchants, artisans, members of dervish orders and the military.<sup>46</sup>

The aurora event was also observed over the whole Northern Hemisphere, while the most intense sightings were in Denmark and Scandinavia as expected, though it showed all the typical forms in southern areas as well – the arc, rays including the *rapid rays* of which Bašeski wrote, patches and the corona. The colors reported from Central Europe were mostly intense red, changing from white to red rapidly, and also yellow, green and violet, and several visual images were printed with the description of this phenomenon.<sup>47</sup>

## The Sky Turned Black and It Rained Ashes

The same chroniclers recorded the aftermaths of several volcanic eruptions, which helped to corroborate the date and the quantities of emitted materials in the atmosphere. Although the most violent in modern history, the eruption of Vesuvius of 1631, was well recorded in Italy and in the Balkans, as we analyzed a decade ago in a paper<sup>48</sup>, it is interesting to observe that this massive and destructive event was long remembered and the information thereof circulated among people of science in Europe. As for the Balkan sources, the one following the infamous 1631 is the one in 1701, which is found only in fra Lašvanin Chronicle:

“na 10. feburara pade oko Mostara mutna kiša s lugom; i posli, na misc dana, mogaše se luga namest po kamenju.” [On February 10, muddy rain with ashes fell

<sup>45</sup> Bašeskija, *Ljetopis...*, str. 89.

<sup>46</sup> Filan, Kerima, „Life in Sarajevo in the 18th century (according to Mulla Mustafa’s mecmua)”, in: *Living in the Ottoman Ecumenical Community – Essays in Honor to Suraiya Faroqhi*, eds. Vera Constantini and Markus Koller, Brill Leiden / Boston 2008, pp. 317–346; Paić-Vukić, Tatjana, „Extant Private Libraries of Oriental Manuscripts from Bosnia: Reserach Possibilities”, *GAMER*, 1-1, 2012, pp. 143–154.

<sup>47</sup> Schröder, Wilhelm, “The development of the aurora of 18 January 1770”, *History of Geo- and Space Sciences*, 1, 2010, pp. 45–48, [www.hist-geo-space-sci.net/1/45/2010/](http://www.hist-geo-space-sci.net/1/45/2010/) (December 5, 2016); Lisac, Inga –Marki, Antun, o.c.

<sup>48</sup> Mrgić, J., “Pade prah...”, str. 223–238.

near the town of Mostar; the ashes could be swept from the rocks even for a month afterwards.]<sup>49</sup>

The friar was not an eyewitness himself, yet he was informed of this phenomenon which took place in Herzegovina, where other Franciscan monasteries existed. Nevertheless, the date is wrong, since according to the preserved historical records, the eruption did happen that year, but later, on July 1<sup>st</sup>, 1701 with a high score in Dust Veil Index (3), which is by two marks lower than the 1631 eruption.<sup>50</sup>

The next evidence is more valuable, because it was made by the witness, fra Nikola Gojak, who recorded in his chronicle in the entry for May, 1737:

“Od 25. Aprila ne vidi se kapi dažda, apaka danas učini široko aliti levanter i slidi sve di continuo i toliki bi velik vitar da učini toliko *žestoke tmnine* svuda, apaka na 21. i 22. istoga *pade lug aliti pepel carn iz ajerah baš kano garevina* i ovi se vitar rasta brez dažda.”

[Since April 25, there was not a drop of rain, but the *scirocco* or *levante* started to blow for days, and it brought heavy darkness all over and everywhere, and on 21<sup>st</sup> and 22<sup>nd</sup> this month black ashes fell from the air (skies) as dark as tar, and the wind arose without any rain.]<sup>51</sup>

This particular Vesuvius eruption was quite well recorded by knowledgeable persons in the town and the Kingdom of Naples – the king’s personal doctor and a professor of medicine, Francesco Serao (1702–1783) wrote and printed a detailed description the following year<sup>52</sup>, while The Royal Society of London published two witness accounts. The first was written by Nicolas Michael d’Aragono, Prince of Cassano, the fellow member, who conducted and described 25 experiments with residues of lava and rocks, trying to determine the smell, the taste, the temperature, the chemical composition and the effects of the vapors and liquids, with which he even killed a dog! In his own words:

“This present Year 1737, to the Month of May, the Mountain was never quiet: Sometimes emitting great Quantities of Smoak, at other Times red-hot Stones; which, for want of sufficient impelling Force, fell on the same Mountain. But in order to a clear Idea of all the Circumstances prefacing the impending Eruption, it is requisite to know, that in the Beginning of May, a Smoak only was seen to

<sup>49</sup> Lašvanin, Fra Nikola, *Ljetopis...*, str. 168.

<sup>50</sup> Eruptive history of Vesuvius, *Global Volcanism Program*, Smithsonian Institution, National Museum of Natural history, – <http://volcano.si.edu/volcano.cfm?vn=211020> (December 5, 2016).

<sup>51</sup> *Makarski ljetopisi...*, str. 110.

<sup>52</sup> Serao, Francesco, *Istoria dell’incendio del Vesuvio accaduto nel mese di maggio 1737*, Napoli 1738. This book was quite influential, because he was the first to refuse the theory of ‘Diluvial waters’ springing underneath, and used the term *lava* for the rolling of melted sand and rocks. He was widely praised by Sir William Hamilton, one of the founders of the modern volcanology in the second half of the 18<sup>th</sup> century.



issue from the open Mouth at the Top: and from the 16<sup>th</sup> to the 19<sup>th</sup>, subterraneous rumbling Noises were heard.

On the 19<sup>th</sup>, Fire was seen to burst out in thick black Clouds; and on the same Day there were several loud Reports, returning quicker towards the Evening: and still more on Sunday Night, when there constantly appeared a very great Smoak mixed with Ashes and Stones; and the Neighbourhood felt some Shocks, like those of a weak Earthquake.

On Monday the 20<sup>th</sup>, at 13 h, the Mountain made so loud an Explosion that the Shock was strongly felt not only in the Neighbourhood, but also in the Cities twelve Miles round. Black Smoak, intermixed with Ashes, was seen suddenly to rise in vast curling Globes, which spread wider as it moved farther from the Bason. The Explosions continued very loud and frequent all this Day, shooting up very large Stones through the thick Smoak and Ashes, about a Mile high, to the Horror of the Beholders, and Danger of the neighbouring Buildings...

These impetuous Expulsions of Fire continued till Tuesday, when the Eruption of the melted Matter, the Flashes, and thundering Noise ceased; but a strong SW (Southwest) wind arising, the Ashes were carried in great Quantities to the utmost Boundaries of the Kingdom: in some Places very fine, in others as coarse as Ischian Sand.”<sup>53</sup>

The second report was given by an anonymous Englishman, who felt little sympathy for religious rituals of the Neapolitans and mockingly described the public processions, while he himself posing as a daredevil, set out towards the mountain, going around it and recording the damage done to the vineyards and crop fields. The said gentleman wrote:

It (Mt Vesuvius) gave us Strangers constant Entertainment, by shewing us what it could do, as well as great Satisfaction to the People of Naples, who, whilst it continues burning more or less without ceasing, are under no Apprehension (and I believe with good Reason) of an Earthquake: But we little thought of being invited to a Sight, *Quad nunquam vidimus & nunquam videbimus*; for by all the Accounts of the Living, there has not been any Eruption in their Remembrance near so violent nor so furious; and Authors mention none to this Degree later than above 100 Years ago. On Friday, May 17, 1737, N.S. I observed, as far as I could see round, that the Mountain was covered with white Ashes a great Way down, as it hath been with Snow in the Winter, which I could not find any Body here, or at Barra near Portiche, take any Notice of; though I should be apt to think for the future, that it might be a Fore-runner; for I had never seen any Thing like it...

On Saturday night (May 18) this great Phenomenon began, and increased so much on Sunday, that it brought half the People out to gaze at it, with great Variety (no Doubt) of Passions and Ratiocinations. There were certainly, amongst some, treat

---

<sup>53</sup> *An Account of the Eruption of Vesuvius in May 1737 – by Nicholas Michael d’Aragona, Prince of Cassano, and F.R.S. Translated from the Italian, by T.S. M.D. F.R.S.*, No. 455, p. 237, November 1739, pp. 670–677. (*Phil. Trans.* 1739, 41, 452–461, pp. 237–252; doi:10.1098/rstl.1739.0037)

Apprehensions, by their being employed in Processions, visiting their Churches, and exposing their Images of the Virgin Mary; but I looked upon them as very ungrateful to their Patron [St Januarius] in having any Dread, when they even boast, that he has never failed delivering them from their greatest Distresses; but by the terrible Havock I have observed in their Country, as well as what has been made by this last Eruption, I find he hath always left them in the Lurch; However, as I had not lost a Grain of the Faith I ever had in that Saint,

I very boldly set out on Monday about two Hours before Sun-set. It was a melancholy Sight, to see the Road full of Numbers of poor Wretches, flying as from Sodom. I stopped on the Way to observe the vast Clouds of Smoak, which was thrown up in a prodigious Column, to an Height not to be guessed at, which, by its gentle Waving and Undulation, was a most beautiful Sight; and when it had mounted so high, that it had lost the Force of the Protrusion, it was carried by the Wind a vast Way...

We returned to Portiche, where we supped, and got home, much fatigued, by 2 in the Morning. The Fury of this Eruption was at its Height this Night, as to burning; but the next day (Tuesday) the Columns and Bouillons of Smoak were as great, and thrown out with as much Violence, which, as the Wind sat, carried it's Destruction, not of the large massy metallic Bodies, but of infinite Quantities of Ashes and Cinders, all that Day, and Part of the Night. Through the Columns of Smoak was a continued Lightning, the most beautiful Sight imaginable.<sup>54</sup>

All of these documents agree that the eruption started on May 19<sup>th</sup>, when the summit exploded and the emission of gasses, ashes in tall pillars of fumes erected, and it continued on 20<sup>th</sup>. The three torrents of lava flows damaged Torre del Greco at the southwest slope of the Vesuvius Mt., and DVI was estimated to be at the value of 3. In contrast to the preserved written evidence on 1631, this Vesuvius eruption was closely followed by the natural philosophers, while their discourse, conduct and writing were in full accordance with the scientific age. However, the behaviour of the Neapolitan people showed little if any changes – public processions with statues of Virgin Mary and the patron saint – St Gennaro, fleeing from the city, and massive panicking.<sup>55</sup>

Last evidence from the 18<sup>th</sup> century Balkans is the one that fra Andrija Ivičević in his chronicle in Makarska recorded as a strange ‘darkness’ which lasted from 20<sup>th</sup> June till 23<sup>rd</sup> July in 1783, and the Sun was totally invisible, i.e. covered by this darkness which, he added, were not harmful.<sup>56</sup> This could not be attributed to Vesuvius, but to another famous volcano – the Icelandic Laki. This particular eruption was not

<sup>54</sup> *An Account of the Eruption of Vesuvius, May 18, and the following Days, 1737, N.S. by an English Gentleman at Naples to his friends in London.* Ibid., p. 252, Dated Naples, August 30, 1737 (= *Phil. Trans.* 1739, vol. 41, No. 452-461, pp. 252-261 (doi:10.1098/rstl.1739.0038)).

<sup>55</sup> The most relevant sources and literature on 1631 eruption is cited in: Mrgić, J., “Pade prah...”

<sup>56</sup> *Makarski ljetopisi...*, str. 311.

only extremely strong and destructive, but its consequences for the European climate were felt and described by the contemporaries. From 8<sup>th</sup> June 1783 to 7<sup>th</sup> February 1784, i.e. 8 months of eruption with the second largest basaltic lava flow in history, Laki volcano had emitted such a great quantity of sulphuric particles, with DVI of 4 and with eruption columns of 10 km high for the first three months. As Thoradson in his research showed, by June 26<sup>th</sup>, the whole Europe was covered by haze, because the emitted material made a cloud all over Northern and Western Europe, reaching far as the East, and making impacts to the weather conditions. Namely, the July temperatures were record high, while the winter 1783-84 was the coldest in decades in Europe and North America. More importantly, the observed phenomenon of “dry fog”, “sun smoke” and “haze” was recorded in Sweden, Denmark and German lands, to which we now add this “darkness” from the Adriatic region.<sup>57</sup> According to historical climatology research of Vladan Ducić, the winter of 1783-84 was cold, while the coldest decade in the 18<sup>th</sup> century was the one from 1781 to 1790, with 5 cold winters, as compared to Western Europe with three, while in Eastern Europe there were as many as seven!<sup>58</sup>

Weaving the fabric of history, again with loose ends and missing parts for the Balkan lands, still proves that it is worth the trouble, adding to the amount of general and more detailed knowledge on the daily circumstances of living. Faced with a constant scarcity of evidence, written and printed, the text could not fully present an in-depth analysis in the way of modern narratology. Nevertheless, whenever the author is known, it is attempted to give as much as possible on the backgrounds, his education, motives to leave a written record, and what was the discourse of the text. Furthermore, it is also important to collect all the broken pieces and put them in the larger frame of the European history during the 17<sup>th</sup> and 18<sup>th</sup> history, pointing at similarities and peculiarities of the multilingual and multicultural environments, from Venetian Makarska, over Ottoman Bosnia, to Habsburg region of Srem (after Karlowitz Peace Treaty, 1699). It remains our hope that similar endeavours would be taken by our fellow colleagues, with greater collaboration between different disciplines.

---

<sup>57</sup> Thordarson, Thorvaldur –Self, Stephen, „Atmospheric and environmental effects of the 1783–1784 Laki eruption: A review and reassessment”, *Journal of Geophysical Research*, 108, 4011, 2003, doi:10.1029/2001JD002042.

<sup>58</sup> Ducić, Vladan, *Rekonstrukcija klimata u Srbiji u predinstrumentalnom periodu*, Magistarski rad u rukopisu, Beograd 1995, str. 100–105.

### Sources and literature

- An Account of the Eruption of Vesuvius in May 1737* – by Nicholas Michael d’Aragona, Prince of Cassano, and F.R.S. Translated from the Italian, by T.S. M.D. F.R.S., No. 455, p. 237, November 1739, p. 670–677. (*Phil. Trans.* 1739, 41, 452–461, pp. 237–252; (doi:10.1098/rstl.1739.0037).
- An Account of the Eruption of Vesuvius, May 18, and the following Days, 1737, N.S.* by an English Gentleman at Naples to his friends in London. *Ibid.*, p. 252, Dated Naples, August 30, 1737 (= *Phil. Trans.* 1739, vol. 41, No. 452–461, pp. 252–261 (doi:10.1098/rstl.1739.0038).
- Bainbridge, John, *An Astronomicall Description of the late Comet from the 18 of Novemb. 1618. to the 16 of December following. With certain Morall Prognosticks or Applications drawne from the Comets motion and irradiation amongst the celestially Hieroglyphics*, London 1619, online: <http://quod.lib.umich.edu/e/eebo/A01933.0001.001?rgn=main;view=fulltext> (November 27, 2016).
- Barnett, Lydia, “Between Pleasure and Terror: Enlightenment Science and Maupertius’ Letter on the Comet”, *Architectural Theory Review* 20–1 (2015), 30–45.
- Bašeskija, *Ljetopis*, transl. and comm. M. Mujezinović, Sarajevo 1987, 2nd edition.
- Bayle, Pierre, in: *Stanford Encyclopedia of Philosophy* – <https://plato.stanford.edu/entries/bayle/> (December 5, 2016).
- Bayle, Pierre, *Various Thoughts on the Occasion of a Comet*, transl. and comm. Robert C. Bartlett, State University of New York Press 2000.
- Burke, Peter, *Popular Culture in Early Modern Europe*, London 1978 (= Burke, Peter, *Junaci, nitkovi i lude – narodna kultura predindustrijske Evrope*, transl. and comm. B. Auguštin – D. Rihtman- Auguštin, Zagreb 1991.)
- Ćirković, Milan M., *Totalno pomračenje uma*, at: <http://pescanik.net/totalno-pomracenje-uma/>, posted 13.08.2009. (accessed on November 30, 2016).
- Defoe, Daniel, *A Journal of the Plague Year; Or, Memorials of the Great Pestilence in London, in 1665*, T. Tegg – London 1722 (= *Defo’s History of the Great Plague in London – A Journal of the Plague Year....*, edited, with an introduction and notes by Byron Satterlee Hurlbut, Boston and London 1895, <https://archive.org/stream/defoeshistorygr00hurlgoog#page/n4/mode/2up> (November 29, 2016).
- Delumeau, Jean, *La Peur en Occident (XVe –XVIIIe siècles) – Une cité assiégé*, Fayard / Paris 1978 (= Serbian edition: Delimo, Žan, *Strah na Zapadu (od XIV do XVIII veka) – Opsednuti grad*, transl. Z. Stojanović, Izdavačka knjižarnica Zorana Stojanovića, Sremski Karlovci – Novi Sad 2003.)
- Ducić, Vladan, *Rekonstrukcija klimata u Srbiji u predinstrumentalnom periodu*, Magistarski rad u rukopisu, Beograd 1995.
- Filan, Kerima, „Life in Sarajevo in the 18th century (according to Mulla Mustafa’s mecmua)”, in: *Living in the Ottoman Ecumenical Community – Essays in Honor to Suraiya Faroqhi*, eds. Vera Constantini and Markus Koller, Brill Leiden / Boston 2008, 317–346.

- Hintzsch, Paul, *Hypographe: Flagelli Saturni & Martis. Das ist: Beschreibung des erschrecklichen Cometsterns, welcher im Octobri, Novembri und Decembri des 1618...*, published in Leipzig by N. & C. Nerlich in 1619, online: Ohio State Library, <https://library.osu.edu/blogs/rarebooks/2008/10/28/the-great-comet-of-1618/> (November 28, 2016).
- Hrabak, Bogumil, “Kužne rednje u Bosni i Hercegovini 1463–1800”, *Historijski zbornik* 7 (1981), 5–41.
- Janković, Nenad Đ., „Komete u srpskim zapisima i letopisima”, *Istorijski časopis* V (1954–1955), 373–385.
- Janković, Nenad Đ., *Astronomija u predanjima, običajima i umotvorinama Srba*, Srpski etnografski zbornik vol. 43, Život i običaji narodni 28, Beograd 1951.
- Jelenić, Julijan, „Ljetopis franjevačkog samostana u Kreševu”, *Glasnik Zemaljskog Muzeja*, 29, 1917.
- Klaić, Vjekoslav, *Život i djelo Pavla Rittera Vitezovića (1652–1713)*, Zagreb 1914.
- Kronaka O. *Šilobadovića o četovanju u Primorju (1662–1686)*, prir. fra S. Zlatović, *Starine JAZU* 21 (1889).
- Lašvanin, Fra Nikola, *Ljetopis*, trans. and comm. I. Gavran, Sarajevo 1981.
- Lisac, Inga –Marki, Antun, “The auroral events observed from Croatia and a part of surrounding countries”, *Geofizika* 15 (1998), 53–68.
- Luterbacher Jürg et al., “The Late Maunder Minimum (1675–1715) – A Key Period for Studying Decadal Scale Climatic Change in Europe”, *Climatic Change* 49 (2001), 441–462.
- Makarski ljetopisi*, ed. J. A. Soldo, Split 1993.
- Mehmed IV, in: *Encyclopedia of the Ottoman Empire*, eds. Gabor Agoston – B. Alan Masters, Infobase publishing 2009, 370–371, 462–463.
- Mikhail, Alan, „Ottoman Iceland: A Climate History”, *Environmental history* 20-2 (2015), 262–284.
- Mortimer, Geoffrey, “Did Contemporaries Recognize a ‘Thirty Years War’?,” *The English Historical Review* vol. 116, no. 465 (Feb., 2001), 124–136.
- Mrgić, Jelena, “A Polyphony of Stories from 17th and 18th-century Southeastern Europe”, *Godišnjak za društvenu istoriju* 22-2 (2015), 7–24.
- Mrgić, Jelena, “Osećanja i osećajnost prema prirodi u franjevačkim hronikama”, in: *Bosanski ban Tvrtko „pod Prozorom u Rami”*, ed. Tomislav Brković, Prozor – Sarajevo – Zagreb 2016, 799–812.
- Mrgić, Jelena, “Pade prah sa nebesa na zemlju” – Erupcija Vezuva 1631 i balkanske zemlje’ [“Ashes fell from the sky to the land” – The Vesuvius Eruption of 1631 AD and the Balkan lands], *Balkanica* XXXV (2004), 223–238; available online: [https://www.academia.edu/759815/Ash\\_fell\\_from\\_the\\_skies\\_to\\_the\\_earth\\_The\\_eruption\\_of\\_the\\_Vesuvius\\_in\\_1631\\_AD\\_and\\_the\\_Balkan\\_lands](https://www.academia.edu/759815/Ash_fell_from_the_skies_to_the_earth_The_eruption_of_the_Vesuvius_in_1631_AD_and_the_Balkan_lands) (November 28, 2016).
- Özdural, Alpay, “Sinan’s Arsin: A Survey of Ottoman Architectural Metrology”, *Muqarnas* XV (1998), 101–115.
- Pačić-Vukić, Tatjana, „Extant Private Libraries of Oriental Manuscripts from Bosnia: Research Possibilities”, *GAMER* 1-1 (2012), 143–154.

- Parker, Geoffrey. (ed.), *The Thirty Years' War*, Routledge – London, Second edition 1997.
- Patrijarh srpski Arsenije III Čarnojević i velika seoba Srba 1690. godine : zbornik radova o tristagodišnjici velike seobe Srba*, Beograd 1997.
- Pečevića, Ibrahim Alajbegović, *Historija*, transl. and comm. F. Nametak, vol. I, Sarajevo 2000.
- Popović, Dušan. J., *Velika seoba Srba 1690 : Srbi seljaci i plemići*, Beograd 1954.
- Radić, Radivoj, *Strah u poznoj Vizantiji (1180–1453)*, vols. I-II, Stubovi kulture – Beograd 2000.
- Radovanović, Milan –Popović, Radomir, „Geographical-historical analysis of the impact of the 1883 eruption of Krakatau volcano on weather in Serbia”, in: *Istorija i geografija – susreti i prožimanja*, Beograd 2014, 595–610.
- Rose, Christopher, “Ottoman Historiography and the Seventeenth Century Crises or Where is the Ottoman Empire in the Great Divergence Debate”, available at: [http://www.academia.edu/11872316/Ottoman\\_Historiography\\_and\\_the\\_Seventeenth\\_Century\\_Crisis\\_or\\_Where\\_is\\_the\\_Ottoman\\_Empire\\_in\\_the\\_Great\\_Divergence\\_Debate](http://www.academia.edu/11872316/Ottoman_Historiography_and_the_Seventeenth_Century_Crisis_or_Where_is_the_Ottoman_Empire_in_the_Great_Divergence_Debate) (November 30, 2016)
- Sajdi, Dana, “Decline, its Discontents and Ottoman Cultural History: By Way of Introduction”, in: *Ottoman Tulips, Ottoman Coffee – Leisure and Lifestyle in the Eighteenth Century*, ed. Dana Sajdi, Tauris Academic Studies – London/New York 2007, 1–40.
- Schechner Genuth, Sara, *Comets, Popular Culture, and the Birth of Modern Cosmology*, Princeton University Press 1997.
- Serao, Francesco, *Istoria dell'incendio del Vesuvio accaduto nel mese di maggio 1737*, Napoli 1738.
- Sergeant, David, *The Greatest Comets in History – Broom Stars and Celestial Scimitars*, Springer Science 2009.
- Skarić, Vladislav, *Izabrana djela I – Sarajevo i njegova okolina od najstarijih vremena do austrougarske okupacije*, Sarajevo 1985
- Stathakopoulos, Dionysios, *Famine and Pestilence in the Late Roman and Early Byzantine Empire – A Systematic Survey of Subsistence Crises and Epidemics*, Ashgate 2003.
- Stojanović, Ljubomir, *Stari srpski rodoslovi i letopisi*, Beograd 1927.
- Stojanović, Ljubomir, *Stari srpski zapisi i natpisi I*, Sr. Karlovci – Beograd 1929.
- Stoyan, Ronald, *Atlas of the Great Comets*, Cambridge University Press 2015.
- Thordarson, Thorvaldur –Self, Stephen, „Atmospheric and environmental effects of the 1783–1784 Laki eruption: A review and reassessment”, *Journal of Geophysical Research*, vol. 108, 4011 (2003), doi:10.1029/2001JD002042.
- Véron, Philippe – Tammann, Gustav, *Astronomical Broadsheets, Forerunners of the IAU Circulars*, European Southern Observatory, journal The Messenger, vol. 16, 1979, online: <https://www.eso.org/sci/publications/messenger/archive/no.16-mar79/messenger-no16-4-6.pdf> (accessed on November 28, 2016).

## Резиме

Др Јелена Мргић

### Небески крајолици и појаве – географија стрепњи на Балкану (17–18. век)

Премда су фундаменталне студије, Делимоова за Западну Европу, и Статакопулосова за рано и Радићева за позно Византијско царство, предочиле врсте извора и методологију истраживања, остало је простора и за нека нова, односно, запостављена сведочанства са Балкана, од млетачке Макарске, преко Османске Босне и Србије, до Хабсбуршке Фрушке горе и Срема. Делићи њихових прича о „земаљским данима” и „жестоким феноменима на небесима”, иду у прилог већ осликаних пејзажа велике nelaгодности и стрепњи којима су људи на овим просторима били притиснути. Мање су речита њихова „гонетања”, и чак ниједно није у складу с новим научним теоријама Њутна и Хејлија, али не треба пресликавати очекивања савременог човека. Тај исти данас посматра „харповано” небо кемтрејлсима, и зазира од помрачења Сунца. Чудесна светлост комета и аурора била је лепа за гледати, а захваљујући одсуству штампе и постера са страхотним приказима ових појава, наши посматрачи су ипак били поштеђени те велике хистерије и паничних реакција, за разлику од протестаната и католика у остатку Европе. Вести су овде путовале спорије, кружиле на окупљању писмене и урбане елите, али и на местима укрштања и заједништва са плебсом у гостионицама, на пијацама, на панађурима, а ту су и трговци који су путовали и причали. Тема је далеко од потпуног приказа, и радујемо се сличним подухватима колега из других дисциплина.

**Кључне речи:** комете, Југоисточна Европа, небески крајолици, аурора