

# Capturing Extraordinary Multisensory Experiences in Writing: Reports on Natural Disasters in an 18th Century Newspaper Corpus

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Received 2023-07-24; accepted 2024-04-17; published Online First 2024-05-24.

## Abstract

The article examines reports of natural disasters in the 18th century Austrian newspaper "Wienerisches Diarium" to gain insights into how people captured the extraordinary sensory experiences of such events in written form. By analysing a digitised corpus of over 300 newspaper issues, the study identifies 302 text passages referring to natural disasters, among them 285 news reports, and explores textual traces of (multi)sensuality present within this material. The close reading and semantic annotation of the textual findings reveals that comparisons to familiar sensations are commonly used to convey the sensory experiences of natural disasters, allowing readers to (better) relate to and understand the extreme events. At the same time, touch and vision constitute the most frequently mentioned senses, while smell and taste only play a minor role in early modern disaster depiction. In addition, the study finds that earthquakes and volcanic eruptions are more likely to include multisensory descriptions compared to other types of disasters. These and further findings shed light on when and how (multi)sensory impressions of disasters were conveyed in written form within early modern news.

**Keywords:** natural disasters, multisensuality, sensory experiences, news reports, historic newspapers, early modern period, text annotation, close reading, distant reading

## 1. Introduction

Our perception and understanding of the world is, among other factors, shaped by a complex interplay of sensory information we receive through our sensory organs, with perception per se being defined as “the process or result of becoming aware of objects, relationships, and events by means of the senses” (American Psychological Association, 2018). Hence, as Velasco and Obrist (2021, p. 1) state, „[o]ur life experiences are multisensory in nature.” Nevertheless, specific (multi)sensory experiences, i.e. situations where one perceives a certain event through one or more of their senses, seem to leave a more profound and long-lasting impression in both individual and collective memory than others. Among them are extreme situations of natural disasters which, according to Knez et al. (2021), tend to linger in affected persons’ minds and may even lead to sensory-perceptual re-experiencing: persons with first-hand experience, who were evacuated from a fire catastrophe in Sweden, “saw the fire, heard its sound, and smelled it more one year after than respondents with second-hand experience” (Knez et al., 2021, p. 6). A similar longevity of natural disaster perceptions has been witnessed by Slowikowski and Motion (2021, p. 88), who interviewed survivors of an Australian bushfire ten years after the catastrophe and state the following about their participants: “Many were able to recount explicitly what they heard, felt, and saw with clarity.” Based on such observations, natural calamities seem to constitute a special case of multisensory experiences.

Studies on contemporary disaster perception, as carried out by Knez et al. (2021) or Slowikowski and Motion (2021), have the advantage of being able to conduct direct interviews with observers, allowing researchers to gather firsthand accounts of people’s sensory impressions. In contrast, investigations focused on early modern representations of natural catastrophes must solely rely on written sources, e.g. newspapers, diaries or archival records, that have been preserved over time. One of these sources, namely the 18th century Austrian newspaper “Wien[n]erisches Diarium” (since 1780: “Wiener Zeitung”<sup>1</sup>), is the focus of the paper at hand. By taking a corpus-based look at this historic periodical, the contribution aims to investigate written representations of natural calamities in early modern news reports and yield corpus-based insights into how people at the time perceived and dealt with disasters on a sensory as well as linguistic level.

To this end, the “Wien[n]erisches Diarium”, which was founded in 1703 by the Viennese printer Johann Baptist Schönwetter, offers an ideal starting point as it constituted the most important publicly accessible source of information within the Habsburg monarchy in the 18th century and reached a broad readership (Reisner & Schiemer, 2016, p. 91). Additionally, to draw a parallel between past and present, readers nowadays can also easily access the early modern newspaper since it has already partly been digitised and is available in

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<sup>1</sup> With the exception of specific quotations, the two newspaper titles are used synonymously.

searchable and reliable full text: Within the prototypical web-application “Wienerisches DIGITARIUM” (<https://digitarium.acdh.oeaw.ac.at>, Resch & Kampkaspar, 2020a) users can read and query over 300 of the newspaper’s issues, which sum up to around 6.000 pages (~ 3 mio. tokens) and are evenly distributed over the time period from 1703 to 1799. To ensure the high quality of this digital corpus, the provided full texts were created with the help of an AI model that was specifically trained for the 18th century “Wiener Zeitung” (Resch & Kampkaspar, 2020b) through the transcription platform Transkribus (<https://readcoop.eu/de/transkribus>). In addition, the output of the automatic text recognition process was checked manually and, if necessary, corrected, before all created full-texts were semantically enriched with structural and typographical annotations and encoded in XML according to the well-recognised TEI-P5 standard (<https://tei-c.org/guidelines/p5/>). Within the “DIGITARIUM”, this data can now both be searched and downloaded by interested researchers and readers in general.

## **2. Methodological approach**

### ***2.1. Identification of relevant text passages and subcorpus creation<sup>2</sup>***

The described digital corpus acts as the starting point of the investigation, as it allows for the combination of an efficient distant reading and a detailed close reading (cf. Zeppezauer-Wachauer, 2020): Through full text search queries using selected keywords, namely both natural disaster-specific (e.g. “Erdbeben” ‘earthquake’, “Wolkenbruch” ‘cloudburst’, “Flut” ‘flood’) and more general terms (e.g. “Unglück” ‘misfortune’, “Schrecken” ‘horror’, “Katastrophe” ‘catastrophe’) as well as their graphematic and grammatical variants (e.g. “Catastrophen” ‘catastrophes’, “Fluth” ‘flood’), mentions of natural catastrophes can be detected even when they are brief and/or widely scattered throughout the historic material.<sup>3</sup> Following an iterative and explorative approach, the text passages found are then used for both further analysis and identification of new search terms, as schematised in Figure 1.

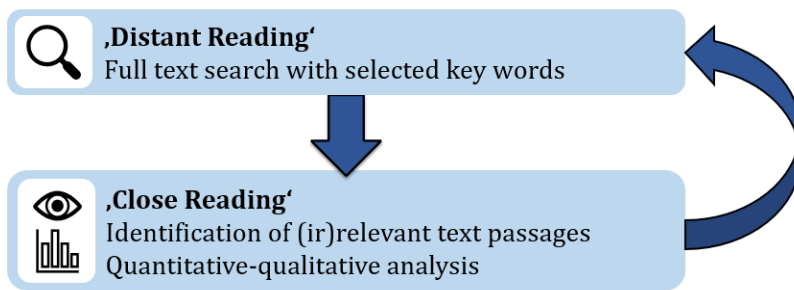
The depicted process was repeated until saturation (cf. Saunders et al., 2018), meaning that no new relevant text passages appeared any more and the findings compiled could be considered representative. Through this combination of close and distant reading, also denoted as ‘scalable reading’ (cf. e.g. Zeppezauer-Wachauer, 2020; Mueller, 2023), 302 text passages referring to natural disasters could be identified within the “Wien[n]erisches DIGITARIUM”.

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<sup>2</sup> For a more detailed view on this step cf. Rastinger and Resch (2023).

<sup>3</sup> On a technical level, these searches were conducted by using the search engine NoSketchEngine (<https://www.sketchengine.eu/nosketch-engine>) and the Corpus Query Language (CQL, <https://www.sketchengine.eu/documentation/corpus-querying>).

These findings range from one sentence to four pages in length and depict a variety of natural disasters, most commonly thunderstorms (99 cases), storms (75 cases) and earthquakes (64 cases), but also floods (40 cases), vermin plagues (14 cases), volcanic eruptions (9 cases), droughts (7 cases), landslides (3 cases), fogs (2 cases) and other natural extreme events.<sup>4</sup>



**Figure 1: Schematic representation of the methodological approach**

Furthermore, in analysing the data, it becomes evident that references to natural disasters in the early modern “Wiener Zeitung” were highly prevalent: 163 of 339 newspaper issues, i.e. almost every second newspaper issue, include at least one text passage about a natural catastrophe which indicates that these events represented a popular topic in early modern press (cf. also Lauer and Unger, 2008, p. 22). In addition, references to natural disasters do not only appear in news reports, but are also present in other text types, like advertisements (12 cases, 4 %), reader’s letters (3 cases, 1 %) or death lists (2 cases, 1 %). Still, news reports clearly predominate with a share of 94 % (285 cases) and tend to be the most extensive and descriptive form of disaster representation, which is why the continuing focus of this paper is put on them.

## ***2.2. Text annotation and analysis***

In a next step, a close reading and quantitative-qualitative analysis was conducted for all 285 collected disaster reports. Hereby, the focus was put especially on multisensory perceptions of natural calamities, by asking the following three research questions:

- 1) How frequently and in which context(s) are (multi-)sensory aspects part of early modern disaster reports?

<sup>4</sup> It should be noted here that a single passage can describe several types of natural disasters, for example by addressing two events that happen in parallel and/or merge into one another.

- 2) Which linguistic means are used to convey the (multi-)sensory experiences of natural disasters via written text?
- 3) Are certain (combinations of) senses dominant in 18th century disaster depiction and/or linked to specific types of catastrophes?

To answer these questions, each newspaper report was—in addition to a repeated close reading—manually annotated for explicit mentions of sensory experiences within the annotation platform CATMA (Computer Assisted Text Markup and Analysis, <https://catma.de>, Gius et al. 2023):

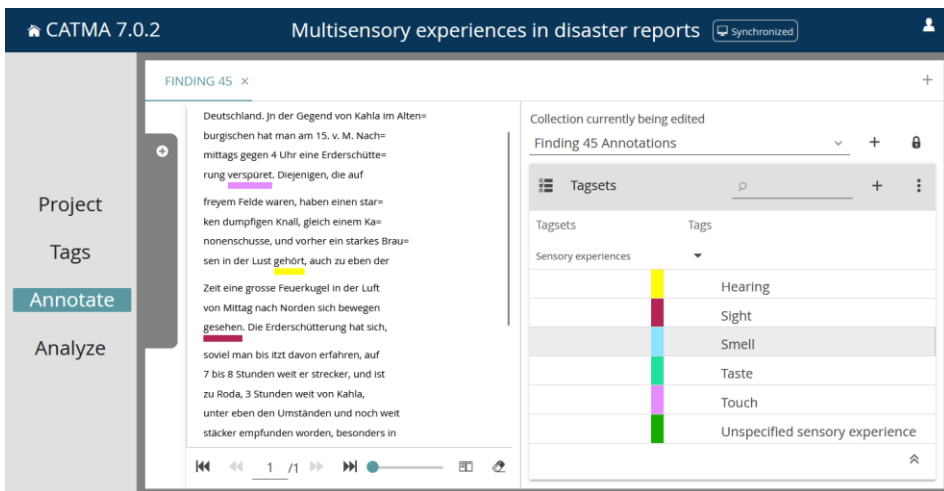


Figure 2: Annotation of sensory experiences in an exemplary finding in CATMA

Concretely, the annotation tagset was based on the concept of the five main human senses—audition, vision, gustation, olfaction, and touch—and accordingly distinguished between the following six annotation tags: (1) sight, (2) hearing, (3) smell, (4) taste, (5) touch and (6) unspecified sensory experience (e.g. “es ist wahrgenommen/bemerkt worden” ‘it was perceived/noticed that’). Although these labels respond to relatively clearly distinguishable categories, it has, in practice, proven difficult to clearly define the beginning and end of one sensory experience, i.e. one annotation. Hence, to avoid skewing the results, quantitative analyses of sensory experiences focus on the number of *different* senses involved per text, meaning each different tag was counted only once per newspaper report.

### 3. Results

#### *3.1. Addressing the inarticulability of unprecedented natural events*

After having established the methodological framework of the investigation, the following chapters shed light on the insights gained through this approach. This chapter, in particular, delves into one recurring theme that emerged from the analysed news reports—namely the emphasis on the singularity and extremity of the natural disasters reported on. This emphasis on the events' exceptional nature frequently intertwines with the concept of a collective (sensory) memory shared by the affected communities or humanity as whole, as illustrated by the following four examples:

- (1) „weil man sich nicht zu entsinnen weiß, daß man jemals von dergleichen Phänomenis in hiesigen Landen etwas gespühret habe“ ‘because one does not remember that one has ever felt something of such phenomena in this country’ (WD 17.12.1755, p. 2)<sup>5</sup>
- (2) „ein so gewaltiger Wolkenbruch [...], als man bey Menschen Gedenken allda nie gesehen hat“ ‘a downpour so powerful [...] than has ever been seen there in human memory’ (WZ 25.06.1785, p. 3)
- (3) „solche Hagelsteine, die bey Menschen Gedenken in hiesigen Gegenden gesehen zu haben, sich niemand erinnern kann“ ‘such hailstones, which, in human memory, no one can recall ever having seen in these local regions’ (WD 16.06.1773, p. 6)
- (4) „dieser Nebel ware so dick / und finster / daß man seines geichen bey Menschen=Gedächtnuß in alhiesiger Stadt nicht gesehen hat“ ‘this fog was so thick and dark that one like it has not been seen in human memory in this city’ (WD 13.02.1732, p. 4)

This highlighted exceptionality of natural catastrophes can go so far that the written medium of the newspaper reaches its limits—for instance, when the misfortune resulting from a disaster is ‘not to be overlooked and described’ (“nicht zu übersehen und zu beschreiben”, WZ 12.09.1789, p. 3) or ‘indescribably great’ (“unbeschreiblich groß”, WD 25.07.1750, p. 6). In some cases, writers even explicitly express a need for more textual space to fully convey a catastrophic event. On the 19th of November 1727, for example, a report about a flooding in Naples discloses its incompleteness by stating that, to describe the full calamity and its consequences, multiple newspaper sheets would be necessary (“und es ohnedem alles zu beschreiben mehrer Bögen erfordern wurde”, WD 19.11.1727, p. 9). As these exemplary findings showcase, the unprecedented nature of natural catastrophes is often emphasized within the “Wien-

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<sup>5</sup> Citations of examples adhere to the following scheme: abbreviated newspaper title (WD = „Wien[n]erisches Diarium” / WZ = “Wiener Zeitung”) TT.MM.YYYY, page(s).

[n]erisches Diarium” and the reported situations tend to be depicted as situations that go beyond the realm of human experience<sup>6</sup> and communicability.

### ***3.2. Making sense of natural catastrophes through comparisons***

Although natural disasters were of extraordinary character and transcended the previous world of experience, they still had to be put into writing to be communicated to the readers of the “Wiener Zeitung”—and this included the (often unusual) sensory impressions associated with them. One linguistic device that writers seem to have regularly resorted to for this purpose were comparisons: To make the extraordinary occurrences of natural disasters ‘sensible’ through written words, parts of them were linked to ordinary aspects of everyday life. This practice can, for instance, be seen when it comes to describing the sound of an earthquake:

- (5) “Morgen ein wenig nach 10. Uhr verspührte man hier einen gewaltigen Stoß von Erd=Beben mit einem Getöse, **als wann eine Kutsche über die Gassen fährt.**“ ‘In the morning, a little after 10 o'clock, there was a tremendous earthquake with a roar, **as if a carriage were ferrying through the streets.**’ (WD 12.09.1744, p. 9; emphasis: NCR)
- (6) “man hörte ein unterirdisches Getös, Sausen, und Brausen, **welches einern in Sude brudelnden Wasser ähnlich schiene**“ ‘one heard a subterranean roaring, whirring, and bubbling, **which seemed similar to water boiling in a brew**’ (WD 27.02.1768, p. 19; emphasis: NCR)

While one text passage likens an earthquake’s sound to the noise of a carriage rolling down the street (1), the other compares it to the acoustic experience of water bubbling and simmering during cooking (2). Both comparisons draw upon well-known everyday occurrences, capturing the auditory sensations that likely were part of daily life in the 18th century. By employing such relatable sensations, the texts may have evoked a sense of familiarity and understanding and allowed early modern readers to better grasp the events detailed in the newspaper reports.

This strategy for capturing sensory experiences of natural disasters in writing is not exclusively found with regard to the acoustic perception of earthquakes. The anonymous writers represented in the “Diarium” made use of the same linguistic device when they tried to communicate, amongst other things, the soundscape (7) or appearance (8) of volcanic eruptions to the reading public. Here, the auditory experience is, for instance, described as a volley of muskets

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<sup>6</sup> A similar reaction can be observed in the 21st century, when an Australian firefighter interviewed about his experience of the 2003 Cranberra bushfire states: “I have never experienced anything like this” (Slowikowski & Motion, 2021, p. 89).

(7) and the visual impression is associated with a burning and glowing stove (8), thereby being linked to man-made items and/or the familiar place of one's home:

(7) „Gestern Morgens und verwichene Nacht hat man das gewöhnliche Brüllen im Berg nicht gehört, **welches am besten einer Salve aus Musqueten kan verglichen werden.**“ ‘Yesterday morning and last night, the usual roar in the mountain, **which can best be compared to a volley of muskets**, was not heard’ (WD 18.12.1751, p. 2; emphasis: NCR)

(8) „Die Schiffleute wollen versichern, daß sie die Spitze des obbemeldeten Berges fast mehr als 80. Italiänische Meilen weit auf der See, **gleich einem brennenden, und glüenden Ofen**, bey der Nacht wahrgenommen“ ‘The shipmen wish to affirm that they have perceived the top of the above-mentioned mountain nearly more than 80 Italian miles away at sea, **like a burning, and glowing stove**, by night.’ (WD 18.12.1751, p. 1; emphasis: NCR)

Furthermore, the same mechanism of explanation is also used for other aspects of natural disasters, like their temporal or spatial scope. For example, familiar frames of reference are deployed when the duration of an earthquake is measured in prayers (9) or the unusual dimension of hailstones is related to the size of chicken eggs and walnuts (10):

(9) “Das ganze Erdbeben dauerte ein Vater unser lang“ ‘The whole earthquake lasted for one Lord's Prayer’ (WD 02.03.1768, p. 5)

(10) „eine so unerinnerliche Menge von Schlossen, durchaus in Grösse der Hühner=eyer und welschen Nuß“ ‘such an unrememberable quantity of hailstones, quite in the size of chicken eggs and walnut’ (WD 25.07.1750, p. 5)

Here and in the examples before, bodily knowledge about ordinary life is utilized to comprehend the extraordinary experiences of earthquakes, hail storms and other natural catastrophes. Strikingly, this early modern practice of connecting familiar and unfamiliar sensory experiences shows strong similarities to contemporary ways of dealing with disasters, as investigated, amongst others, by Slowikowski and Motion (2021). Using oral history methodology, the two researchers conducted interviews with survivors of the Cranberra Firestorm of 2003, a catastrophic bushfire in Australia, to gain insights into how individuals were able to create meaning from a catastrophe. What they found was that, similar to the writers of the “Wien[n]erisches Diarium”, the survivors of the Cranberra Firestorm repeatedly resorted to metaphors, similes and comparisons to communicate their perceptions to the interviewer(s). One participant, for instance, compared the sound of an approaching fire to the sound of an express train,<sup>7</sup> while other interviewees, some with army experience, associated

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<sup>7</sup> „At this stage we could hear the fire coming; it sounded like an express train—an increasingly loud roar from the north-west.” (Slowikowski & Motion, 2021, p. 91)



the entire scene of the natural disaster with a war zone (Slowikowski & Motion, 2021, p. 89–90), consistently drawing on experiences familiar to them.

According to Slowikowski and Motion (2021, p. 84), this behaviour can be linked to Karl Weick's (1993) concept of 'sensemaking': "when people are faced with new or novel situations, they search for patterns of similarity in structures or systems with which they are familiar, looking for common ground in order to map them onto an unprecedented event that many have not experienced before. This process helps to bring clarity and allows people to make sense of what happened". Expanding on this idea, Slowikowski and Motion (2021) especially emphasize the role of sensory experiences by speaking of 'embodied sensemaking' to integrate the idea that individuals heavily rely on their senses to interpret, process and memorize experienced (disastrous) events. Going back to the examples from the "Wien[n]erisches Diarium" discussed in this chapter, it becomes evident that the comparisons observed in the early modern newspaper can also be interpreted as a manifestation of embodied sensemaking: in parallel to interviewees deploying "metaphors to embody their experience and to present those who were listening [...] with a way to understand more fully what it was like to be in the bushfire" (Slowikowski & Motion, 2021, p. 90), newspaper writers sought for known aspects within the unknown and relied on existent bodily knowledge to render extraordinary natural events relatable for their readers.

### ***3.3. Distinguishing between different senses***

As the previous chapter has tried to show, sensory experiences play a central part in 18th century disaster representation and prove vital to early modern sense-making. At the same time, however, not all senses are equally present in the investigated news texts, as the analysis of assigned annotation tags demonstrates (see Figure 3).

Emerging as the most prevalent sense, touch (e.g. 11) accounted for approximately 33 % of all documented sensory experiences. This observation indicates a pronounced reliance on tactile perceptions when communicating natural disasters. Sight (e.g. 12) closely followed, representing 32 % of the recorded experiences and underscoring the pivotal role of visual imagery in reporting on disaster situations.<sup>8</sup>

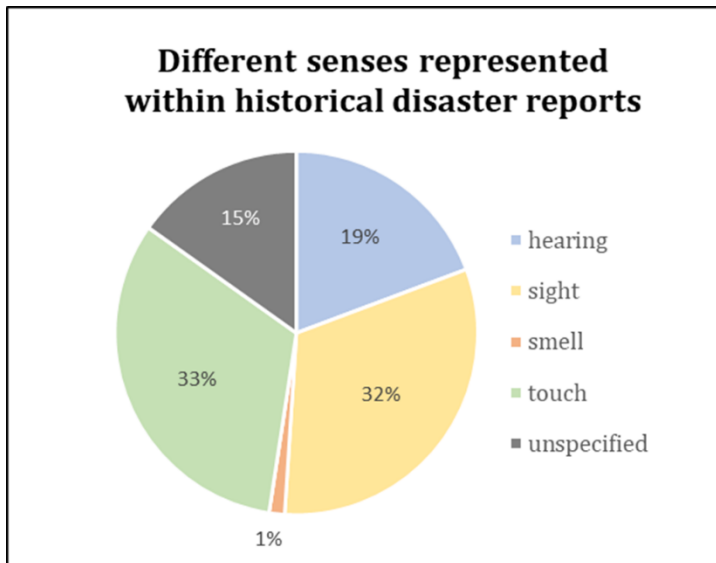
(11) "Heute Morgen 41. Minuten nach 2. Uhr verspürten wir eine heftige Erderschütterung; ein geringerer Stoß gieng eine Viertelstunde vorher, den

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<sup>8</sup> It should be noted that this can also include the absence of visual impressions, i.e. not being able to see, as given in the following report where a catastrophic event is marked by darkness: „so war die Luft des Morgens nach 8. Uhr [...] so dunkel, daß man fast einander nicht sehen, noch erkennen konnte“ 'the air in the morning after 8 o'clock [...] was so dark that it was almost impossible to see or recognise each other' (WD 10.12.1755, p. 1).

nur wenige bemerkten: desto gewaltiger war die zweyte Bewegung.“ ‘This morning, at 41 minutes past 2 o'clock, we felt a violent earth tremor; a lesser shock occurred a quarter of an hour before, which only a few noticed: the more violent was the second movement.’ (WD 02.03.1768, p. 4)

- (12) “Auf dem reissenden Strom sah man Menschen und Vieh und eine Menge Geräthschaften treiben.” ‘On the raging river one could see people and cattle and a lot of equipment floating.’ (WZ 29.07.1789, p. 2)



**Figure 3: Representation of different senses within the text corpus<sup>9</sup>**

Further, auditory and unspecified perceptions played a substantial role, comprising 19 % and 15 % of the sensory experiences reported in historical news texts. Examples for such findings are given in (13) and (14):

- (13) „Mitten in dem Lärmen, welches ein solches Unglück verursachte, hörte man das ängstliche Heulen und Wehklagen so vieler Unglückseligen, welche zu dem Himmel schrien“ ‘In the midst of the noise caused by such a calamity, one heard the fearful howling and wailing of so many wretched, crying out to heaven’ (WD 15.12.1755, p. 1)

- (14) „Die noch ganz junge Brut der Heuschrecken, welche in hiesiger Gegend, und gegen denen Gränzen wahrgenommen worden, fängt nunmehr an das Getreide zu verderben“ ‘The still very young brood of grasshoppers,

<sup>9</sup> Note that, as explained before, each category was counted at most once per newspaper report.

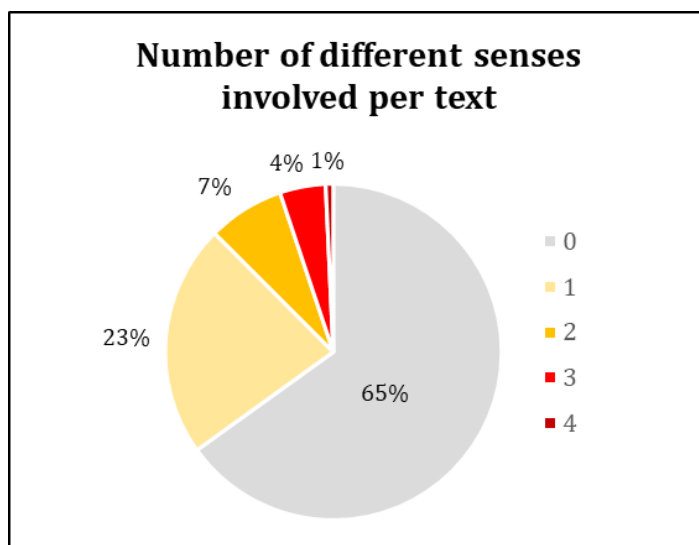
which has been observed in this area and towards the borders, is now beginning to spoil the grain.’ (WD 30.07.1749, p. 4)

Notably, not all senses have been equally evident on a textual surface level as touch, audition and vision. In contrast to these three categories, which each account for 19–33 % of all identified sensory experiences, only two references to smell (1 %, e.g. 15) and no mentions of taste could be found within the analysed material. This hints at the fact that olfactory and gustatory perceptions were either less prominent when experiencing natural disasters or considered less central when writing about such situations in the 18th century “Wiener Zeitung”. Hence, in sum, the investigation indicates that different sensory modalities hold varying importance in the early modern perception and/or (written) representation of natural catastrophes.

(15) „während der Bewegung empfanden die Fischer einen unerträglichen Gestank, dergestalt, daß ihnen übel, und so zu Mute ward, als wann sie in eine Ohnmacht sinken sollten“ ‘the fishermen felt an unbearable stench, such that they felt sick and as if they were about to faint’ (WD 10.12.1755, p. 10)

### ***3.4. Capturing multiple different sensory impressions in a single text***

Another aspect that varies within the text corpus, besides the number of occurrences per annotation category, is the number of different senses each text references, as evidenced by Figure 4:



**Figure 4: Number of different senses involved per text (including unspecified perceptions)**

Generally, most examined disaster reports taken from the “Wien[n]erisches Diarium”, namely 177 cases (65 %), do not explicitly involve sensory perceptions. These texts, although often much more extensive, frequently follow the scheme of the two examples below:

- (16) „Laut Briefen aus Nantes hätte man auf denen Küsten von Bretagne einen schwären Sturm gehabt / wodurch die Schiffe Le=Souverain de Nantes / und der Atlas de Bordeaux von St. Domingo kommend / verunglückt / auch einige vom Volk ertrunken wären.“ ‘According to letters from Nantes, there had been a heavy storm on the coasts of Brittany / as a result of which the ships Le-Souverain de Nantes / and the Atlas de Bordeaux coming from St. Domingo / had been wrecked / and some of the people had drowned.’ (WD 29.10.1740, p. 4)
- (17) “Aus der Schweiz / von dem 18. Juny. Daß zu Basel ein starkes Donnerwetter gewesen; welches in ein Haus geschlagen / und selbiges ganz eingäschert“ ‘From Switzerland / on the 18th of June. That there was a strong thunderstorm in Basel; which struck a house / and completely burnt it down’ (WD 22.06.1715, p. 8)

This tendency could potentially be explained by the fact that early newspapers understood themselves as information media which primarily served to communicate facts (Schröder, 2017, pp. 168–169). As a consequence, their focus may have typically lied more on the outcome of natural disasters, e.g. in the form of material damages or human injuries, than on the process of their perception. Still, as depicted in Figure 4, the “Wiener Zeitung” contains various disaster reports that appear to break with these contemporary newspapers norms by featuring textual representations of (multi)sensory experiences: not only does the close-read corpus contain 61 findings (23 %) which involve one sense, but it also includes 34 cases (12 %) where sensations of multiple different senses are captured within one single text. Specifically, two (7 %), three (4 %) and even four (1 %) different senses can be witnessed to occur in one individual disaster report. An example for such textual traces of multisensuality is given in (18):

- (18) „In der Gegend von Kahla im Altenburgischen hat man am 15. v. M. Nachmittags gegen 4 Uhr eine Erderschütterung verspüret. Diejenigen, die auf freyem Felde waren, haben einen starken dumpfigen Knall, gleich einem Kanonenschusse, und vorher ein starkes Brausen in der Luft gehört, auch zu eben der Zeit eine grosse Feuerkugel in der Luft von Mittag noch Norden sich bewegen gesehen.“ ‘In the region of Kahla in Altenburg, an earth tremor was felt on the 15th of last month in the afternoon at about 4 o'clock. Those who were in the open field heard a strong muffled bang, like a cannon shot, and before that a strong roar in the air, and at the same time a large fireball was seen moving in the air from noon to the north.’ (WZ 09.11.1785, p. 8)

Here, the (partially simultaneous) perception of three different senses is recounted: an unspecified observer or observing group encounters the tactual sensation of an earth tremor, a sound similar to a cannon shot and the visual imagery of a flying fireball. This text extract, again using the linguistic device of comparison, as well as similar accounts showcase how news reports in the 18th century “Wiener Zeitung” have utilized sensory descriptions to immerse readers in the reported events by stimulating their different senses.

At the same time, the distribution shown in Figure 4, as well as the examples given so far, raise an important question: In which cases do newspaper reports break with implicit norms and focus on the sensory perception of natural disasters instead of their consequences, thus explicitly integrating multiple different senses? Two factors that do *not* appear to be decisive for a text’s explicit depiction of multisensuality are, first, the place where the natural disaster occurred and, second, the time when it was reported: on the one hand, the texts involving multisensory experiences describe events happening in various countries in and outside Europe, without a clearly discernible spatial pattern, and on the other hand, they are spread over a wide time range, with the earliest example dating back to the 22<sup>nd</sup> of September 1708 and the latest finding stemming from the 12<sup>th</sup> of September 1789.

One factor that has, however, emerged as central to the textual representation of multisensuality in disaster reports is the type of natural catastrophe being reported on. As Figure 5 demonstrates, different kinds of calamities within the text corpus entail, on average, a varying number of senses involved:

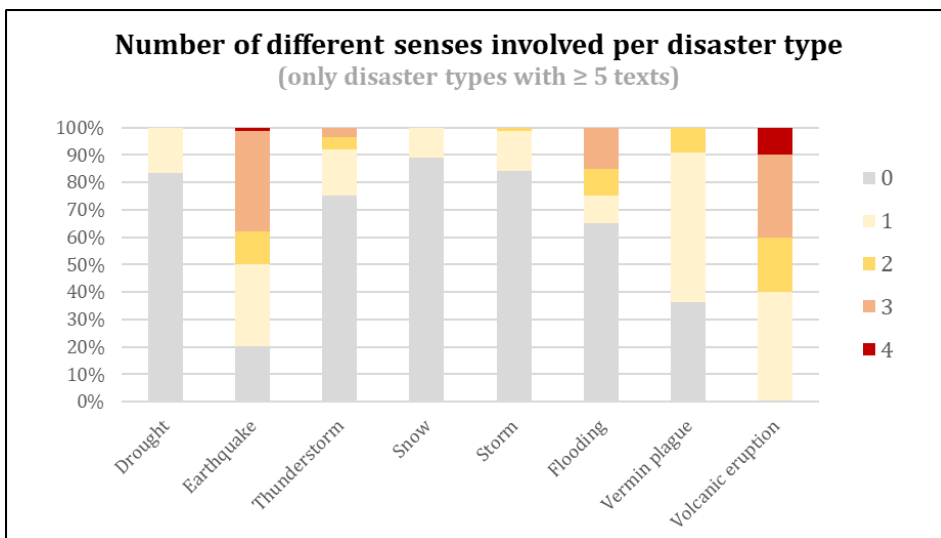


Figure 5: Number of different senses involved per disaster type

For almost all types of catastrophes, the majority of reports references zero to one senses, specifically 100 % for droughts, 92 % for thunderstorms, 100 % for snowfalls, 99 % for storms, 75 % for floodings, and 91 % for vermin plagues. Conversely, textual traces of multisensuality can only seldom be found in these categories: the two kinds of catastrophes with the highest values are floodings, accounting for ten texts (25 %) involving two or more senses, and vermin plagues, where one report (9 %) integrates two different senses into one report.

In contrast, earthquakes and volcanic eruptions show a significantly different pattern: (almost) the majority of the reports about them, i.e. 50 % and 60 % respectively, include textual traces of multisensuality. Moreover, they stand as the sole disaster types that are described referencing four different senses in a single text and contribute to a total of 73 % of all multisensory evidence shown in Figure 5.

One possible explanation for this stark deviation could be that earthquakes and volcanic eruptions were perceived as (even) more extraordinary than other disasters and, in turn, needed further explicit accounts of sensory experiences and comparisons to everyday life so that readers could understand and relate to them. Within in the 18th century “Wiener Zeitung”, this notion is supported by the fact that reports about earthquakes or volcanic activity especially often include comparisons (cf. Chapter 3.2), while other types of catastrophes, e.g. thunderstorms, sometimes even occur as familiar reference points. In a report from Naples in 1751, for instance, the sound of the erupting Italian volcano Vesuvius is being conveyed by comparing it to the, seemingly better-known, sound of thunder:

- (19) „Heute den 6. um 8. Uhr Morgens, hörte man in dem Berge ein Gebrülle, **als eines entfernten starken Donners**, diese hielt bis gegen 11 Uhr an“ “Today, the 6th, at 8 o'clock in the morning, a roar was heard in the mountain, **as of a distant strong thunder**, which lasted until about 11 o'clock.” (WD 11.12.1751, p. 2; emphasis: NCR)

Another reason why representations of volcanoes, such as Vesuvius, were more frequently enriched with multisensory descriptions may have been the general fascination with volcanoes in the 18th and 19th century—since, according to Pyle (2017), writing about the sensory perceptions of volcanoes comprised a frequent practice at the time. The Italian volcano Vesuvius, for instance, exerted a strong attraction on scientists, travellers, writers and artists alike: “many accounts capture a picture of the state of the volcano at the time of the visit, and a sense of the author’s own perceptions and expectations of the wonder or horror that awaited them” (Pyle, 2017, p. 12). The same applies to other volcanoes, like Krakatoa in Indonesia, whose eruption in 1883 reached people (almost) all over the world (Priewe, 2023).

Reports of earthquakes have also achieved a remarkable reach in early modern times, particularly the Lisbon earthquake. The event, which happened on November 1st 1755, garnered international attention and news about it spread far beyond the borders of the directly affected regions, as already discussed in various studies, e.g. by Breidert (1994), Löffler (1999), Lauer and Unger (2008), Rigby (2015), Koopmans (2018), and Kotschar (2021). Rigby (2015, p. 26), similar to Borsch and Carrara (2016, p. 2) and Borsch (2018, p. 20), argues that the significant media reaction to earthquakes is rooted in their fundamental nature:

earthquakes most surely count among the most unsettling of natural hazards [...]. Occurring without any discernible warning, even a small tremor shatters our everyday assurance that, however uncertain the rest of our existence might seem, one thing we can rely upon is the solidity of the ground beneath our feet.

Further reinforcing this hierarchy of perceived severity, the investigated “Wiener Zeitung” itself contains a passage where earthquakes are explicitly assigned a special status within the group of natural disasters. In an appendix detailing an earthquake in Foggia, Italy, one encounters the following introductory statement:

(20) “UNfehlbar / und gewiß ist es / daß unter der so zahlreichen Menge deren Strafen / womit der gerechte Zorn GOTTes die von dem menschlichen Geschlecht empfangene Beleidigungen zu rächen pflaget / **das Erdbeben das erschrocklichste seye / dann dieses verwirret die Sinnen** / raubet das Leben [...] / verwüstet die vornehmste Habschaften / und ansehnlichste Güter / und verursacht bey denen Menschen / daß sie um sich selbstens zu erretten / ihre nächste Anverwandte und ihre liebste Freunde verlassen / und augenblicklich in Vergessenheit setzen. ‘It is infallible and certain that among the numerous punishments with which the righteous wrath of God avenges the insults received by the human race, **the earthquake is the most shocking, for it confuses the senses**, robs the life, devastates the noblest possessions and most respectable goods, and causes people to abandon their closest relatives and dearest friends in order to save themselves, and to forget them immediately.’ (WD 09.05.1731: 9, emphasis: NCR)<sup>10</sup>

Here, earthquakes are considered the most devastating form of natural disasters, which is justified, among other things, by their ability to confound the human senses, ultimately resulting in a frightening failure of perception and comprehension. This conceptualisation of earthquakes, as well as the other aspects discussed so far, might have contributed to the fact that writers of the “Wiener Zeitung” drew a much more differentiated sensory picture of earth-

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<sup>10</sup> As can be seen from this example, religious patterns of interpretation also play an important role in the processing of natural disasters; cf. Rastinger and Resch (2023).

quakes and volcanic eruptions than of other catastrophes. However, to establish clear causal connections, further empirical investigations into early modern disaster depiction are needed.

#### 4. Conclusion and outlook

In summary, the 18th century Austrian newspaper “Wien[n]erisches Diarium” frequently depicts natural disasters as singular events beyond human experience and communicability, while, simultaneously, also exhibiting ways of ‘making sense’ of these exceptional phenomena. Especially explicit accounts of sensory experiences as well as comparisons to ordinary everyday life are utilized to understand the extraordinary and convey earthquakes, hailstorms, floodings and other catastrophes via written words. By resorting to familiar frames of references, writers enable their readers to immerse in and relate to events potentially unfamiliar to them. This practice may be especially frequent in German-language newspapers, since Priewe (2023, p. 413), in comparing international reports on the eruption of the Indonesian volcano Krakatoa in 1883, observes that German newspapers tend to use more figurative language compared to newspapers from other countries.

At the same time, indications of a more general validity of the study’s findings can be found in form of parallels between early modern and modern sense-making practices. Similar to the writers of the 18th century “Wiener Zeitung”, English-speaking survivors of 21st century natural disasters also resort to the linguistic devices of metaphors, similes and comparisons to express their sensory perceptions (Slowikowski & Motion, 2021). This suggests that humans across different eras and countries share similar coping mechanisms, when confronted with novel and overwhelming events, and underscores Slowikowski and Motion’s (2021) concept of ‘embodied sensemaking’, according to which familiar bodily knowledge is used to interpret and comprehend unprecedented experiences, like natural catastrophes.

Furthermore, the investigation revealed that different sensory modalities are represented to varying degrees in early modern newspaper accounts. While touch, sight, and audition are the senses most frequently referenced, little to no textual traces of smell and taste can be found within the “Wiener Zeitung”. Moreover, it appears to make a significant difference what type of natural disaster is being reported on. In contrast to most types of cataclysmic events, e.g. floodings, vermin plagues or storms, which rarely include descriptions of (multi)sensory experiences, earthquakes and volcanic eruptions stand out as particularly multisensual events, as they repeatedly led writers to reference multiple different senses within a single text. Revisiting the concept of ‘embodied sensemaking’ (Slowikowski & Motion, 2021) once more, this could have possibly happened because earthquakes and volcanic eruptions were less intu-



itively understandable and, to that extent, required more sensory descriptions (and comparisons) to become comprehensible.

As these findings illustrate, examining sensory perceptions in early modern, written texts—even if such impressions appear less frequently than in targeted oral interviews—can offer valuable knowledge about human responses to natural disasters. Understanding these historical perspectives, in turn, may provide useful insights into the ways we, as a society, continue to grapple with and communicate the impacts of natural calamities. Corpus-based investigations of historical disaster discourses not only enhance our understanding of the past, but also have the potential to inform strategies for communication and preparedness in the face of future disasters.

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