INSTITUT DE FRANCE
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Comptes Rendus

Géoscience

Sciences de la Planète

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Volume 354, Special Issue S2 (2022), p. 391-415

Published online: 21 October 2022
Issue date: 17 January 2023

https://doi.org/10.5802/crgeos.149

Part of Special Issue: The Mayotte seismo-volcanic crisis of 2018-2021 in the Comoros archipelago (Mozambique channel)

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Les Comptes Rendus. Géoscience — Sciences de la Planète *sont membres du Centre Mersenne pour l'édition scientifique ouverte*
www.centre-mersenne.org
e-ISSN : 1778-7025

Comptes Rendus
Géoscience — Sciences de la Planète
2022, Vol. 354, Special Issue S2, p. 391-415
https://doi.org/10.5802/crgeos.149

The Mayotte seismo-volcanic crisis of 2018-2021 in the Comoros archipelago (Mozambique channel) / *La crise sismo-volcanique de 2018-2021 de Mayotte dans l'archipel des Comores (Canal du Mozambique)*

Mayotte's seismo-volcanic "crisis" in news accounts (2018–2021)

La crise sismo-volcanique de Mayotte dans la presse (2018–2021)

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Abstract. Mayotte's seismo-volcanic crisis gave rise to extensive media coverage in the local, regional and national daily press. Analyzing the *news narratives* allows us to bring to light the representations that readers are confronted with when they try to inform themselves about the situation. This article brings together the sciences of risk, language and communication in order to analyse these *pluri-vocal* narratives, in which the scientific community is given pride of place. It shows how the voices of the main actors (the inhabitants, the administrative and scientific authorities) are put on the stage, conveying differing representations, differing forms of explanation and contributing to an effect of "enunciatory muddling". It aims to provide food for thought for people called upon to intervene in the media, in Mayotte or elsewhere.

Résumé. La crise sismo-volcanique de Mayotte a donné lieu à une large couverture médiatique dans la presse quotidienne locale, régionale et nationale. L'analyse de ces *récits médiatiques* permet de mettre en lumière les représentations auxquelles les lecteurs sont confrontés lorsqu'ils tentent de s'informer sur la situation. Cet article associe les sciences du risque, du langage et de la communication afin d'analyser ces récits *à plusieurs voix*, dans lesquels la place accordée à la communauté scientifique apparaît centrale. Il montre comment les paroles des principaux acteurs (la population, les autorités administratives et les scientifiques) sont mises en scène, véhiculant des représentations qui empruntent à différentes formes et fonctions de l'explication et contribuant à un effet de « brouillage énonciatif ». Il vise ainsi à nourrir la réflexion des personnes conduites à intervenir dans les médias, à Mayotte ou ailleurs.

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Keywords. Seismo-volcanic crisis, Mayotte, Press narratives, Risk communication, Public information, Explanation, Uncertainty.

Mots-clés. Crise sismo-volcanique, Mayotte, Récit médiatique, Communication des risques, Information des populations, Explication, Incertitude.

Published online: 21 October 2022, Issue date: 17 January 2023

1. Introduction

The news accounts that the media builds around events such as health crises, earthquakes, volcanic eruptions, tsunamis, and so on, contribute to how the main actors—including the populations exposed to the event—perceive, interpret and react in the face of risk [Coleman, 1993, Quarantelli, 2002, Wachinger et al., 2013]. The local and national media constitute a privileged source of information, in particular in crisis situations when people are searching for information to help them decide upon a course of action to protect themselves and their close ones [Burkhart, 1990, Allan et al., 2000, Scanlon, 2007]. Furthermore, the media are closely followed by crisis management teams, impacting upon their communication strategies [Fisher III, 1994, Rodriguez et al., 2007]. Further still, many studies have shown that the adequate informing of populations nowadays constitutes one of the principal levers by which to progress towards more efficient risk management [Courant et al., 2021]. Thus, news reports, and notably *real time* news reports in the daily media, constitute an important, but still understudied, object of research for risk specialists.

What scientists have called the Mayotte seismo-volcanic "crisis" gave rise to wide media coverage not only in the local daily press, but also in the regional, national and, less extensively, international press. The present article is the result of interdisciplinary work bringing together earth sciences, risk sciences and language and communication sciences. It relates the observation, description and analysis of published news reports concerned with Mayotte's seismo-volcanic "crisis". The analysis of the news reports on this event brings to light the *representations* that readers of the press are confronted with when they try to inform themselves about the situation. This study tackles the question of how populations at risk are kept abreast of events. It complements the recent works carried out by Fallou et al. [2020] on how Mayotte's inhabitants seized upon social media in order to overcome the sense of a lack of information at the start of the crisis, and by Devès et al. [2022] on the discrepancy that exists between the information published by those in charge of the monitoring and management of risk and the general expectations of populations at risk.

Section 2 relates some elements of the political and societal context of the "crisis". Section 3 presents the theoretical and methodological background to the analysis: the choice of "discursive moments" and the analysis of "small corpora" to analyze items in current news affairs as well as elements of reflection on the news accounts. Section 4 aims to acquaint the reader with the corpus and to shed light on some of its key properties, and in particular the explicative aim of these accounts. Section 5 gives an overview of the various forms and functions of explanation that have been mobilized, to the extent that "to tell is to explain," "the act of narrating (being) an ordering of the real, designed to understand it" [Arquembourg and Lambert, 2005, p. 7]. Section 6 concludes with lessons that can be learnt from analysis of the news accounts, in the hope of feeding reflection on the part of those led to intervene in the media or in response to the media, in Mayotte or in the framework of other similar events.

2. Political and social context of the seismo-volcanic "crisis"

We shall first relate some elements of the political and social context that contributed to the transformation of a seismo-volcanic phenomenon with, so far—and as discussed below—relatively minor consequence, into a crisis for Maore society. Geoscientists are accustomed to speaking of seismic-volcanic "crises", although the use of the term "crisis" is not always relevant to disaster risk management definitions. However, in the case of Mayotte, the observed activity did indeed give rise, at least initially, to a crisis situation that required the intervention of the authorities in charge of civil protection and crisis management.

The activity started on the night of 10 to 11 May 2018 with an earthquake of magnitude ML 4.3 felt by the population. Seismicity intensified on 15 May 2018 with several earthquakes of magnitude >4, all

largely felt, and an event of magnitude ML 5.8 (MW 5.9) [Lemoine et al., 2020]. Although diminishing over time, seismic activity has continued since and is still active at the time of writing. Prior to May 2018, regional instrumental seismicity was known to be moderate [Roulle et al., 2019] but the ability to identify and precisely locate the earthquakes was hindered by a lack of proper instrumentation. The geodynamic context of the zone had been little studied and there were large uncertainties about the nature of the seismicity, its cause and its possible evolution.

The earthquakes affected a vulnerable territory. Mayotte, which became a French Department in 2011, is marked by great poverty and high social inequality [Roinsard, 2014]. In a population of 256,000, 77% live under the poverty line and over 30% are unemployed, 48% are foreign (and often undocumented), 30% have no access to clean drinking water, and four in ten live in informal housing [INSEE, 2021 with data of 2017]. Mayotte's multiculturalism is a wealth that can prove difficult to manage for the authorities whose duty is to inform the widest possible public: 45% of the population is from the Comoros [INSEE, 2021], and while French remains the official language, about 37% of the population do not speak it [INSEE, 2021]. Oral culture is the dominant one and the commonly spoken languages are Shimaore and Shibushi. Ninety-five percent of the population is Muslim [Ministère des Outre-Mer, 2016] and there is no real integration between the traditional culture of the villages and the more westernized culture of large cities [Lambek, 2018]. The relationship with state authorities is also complicated by the island's colonial past and by a sense of disappointment among the population, who expected more rapid changes to bring the island up to French standards after departmentalization in 2011 [Roinsard, 2019]. Since then, Mayotte has been regularly shaken by social crises. Widespread strikes and roadblocks had been marring everyday life on the island for several months when the seismic crisis began [Roinsard, 2019, Mori, 2021]. Lastly, the absence in living memory of seismic and volcanic events in Mayotte meant that part of the inhabitants were relatively naïve about such risks [although people coming from the neighboring Comoros islands might have experienced previous seismic and volcanic crises as four eruptions occurred in 2005, 2006 and 2007, see Morin et al., 2016].

Although the earthquakes were of moderate intensity, they affected vulnerable buildings, and their repetition caused the appearance of cracks, leading some municipalities to close schools [Sira et al., 2018]. Local observers reported strong anxiety among inhabitants, many people leaving their houses to sleep outside [Mori, 2021, Fallou and Bossu, 2019, Fallou et al., 2020]. They also testified to a general feeling of confusion linked to the unfamiliar nature of the hazard and to a lack of public information. The mobilization of scientists, whom the state tasked with finding an "explanation" for the tremors felt by the inhabitants, was made more complicated by the distance from mainland France (where most of the expert earth-science institutions are located) and by the red tapism around the raising of funds necessary for scientific instrumentation in the zone [Devès et al., 2022]. It would take a whole year before the official declaration of the discovery of the largest underwater eruption ever recorded, at around 30 miles off the Mayotte coast. During this lapse of time, rumors circulated [Fallou et al., 2020] and both the people and their representatives became impatient, criticizing a "chaotic" and sometimes contradictory communication [cf. the questions addressed to the government by the Mayotte deputy in Ali, 2018, as well as the open letter addressed to the authorities and the scientists by a citizens' collective in February 2019, Picard, 2019]. The official announcement of the creation of a Scientific Network for Volcanological and Seismological Monitoring in Mayotte (REVOSIMA: Réseau scientifique de surveillance volcanologique et sismologique de Mayotte), which was tasked with improving the state of knowledge, and monitoring and identifying risks linked to this unusual seismo-volcanic activity, finally took place one year and four months after the start of the seismic "crisis" in August 2019, during a visit from the Minister of the Overseas (article in the *Journal de Mayotte*, 27-08-2019). At the time of writing, REVOSIMA is still active, and in spite of significant effort and constant progress regarding instrumentation and knowledge (reported in the other articles in this same issue), uncertainties remain strong, in particular concerning the possible evolution of the activity [Feuillet et al., 2021].

The initial communication crisis seems to have eased in part nowadays. This is probably, as Devès et al. [2022] suggest, due to the combination of sev-

eral factors: better organization of communication—likewise made more consistent by scientific advances, the perceived decline in seismic activity, and the gradual disinterest of the inhabitants in a hazard whose manifestations are rare and indirect. But the scientists and the civil services are still regularly taken to task, especially on social media [see the recent commentaries by members of the Facebook STTM group reported on by Devès et al., 2022].

3. An interdisciplinary approach to media accounts

The approach adopted here is based on a theoretical and conceptual background borrowed from the sciences of language and communication (Section 3.1). This underpins the choice of categories of analysis: the notions of narrative (Ricoeur) and discursive formation (Foucault), borrowed from philosophy, those of polyphony, dialogism and spheres of language activity, reworked on the basis of the work of Bakhtin and Voloshinov [Todorov, 1981], as well as that of social actor, borrowed from *Critical Discourse Analysis* [Fairclough, 2003, Van Leeuwen, 2009]. This also determines the methodological approach adopted for the collection (Section 3.2) and analysis of data (Section 3.3). Interdisciplinarity relies on the fact that risk sciences are necessary to understand the context of production of the media discourses. The work on a media corpus has to be completed by a work on a "reference corpus". The latter aims at documenting and understanding contextual elements (which can be scientific, historical, political, sociological). Such an understanding is essential to a sound analysis of media discourses. Working in interdisciplinarity also led us to reexamine concepts and notions that were used differently in our core disciplines. Hence, we explored the role and function of explanation, risk and uncertainty, both in the discourse of the daily press but also in the speech of social actors (as it is reported by the press).

3.1. *Theoretical positioning*

Unlike historical accounts and novelistic narratives, news reports are not produced in line with an end that is already known [Arquembourg and Lambert, 2005, Moirand, 2021]. They are in a state of constant reconfiguration, following the evolution of the media event they are recounting—and this is especially true in the case of Mayotte, where the origin of the earthquakes felt by the inhabitants was demonstrated by scientists over a year after the first events. Indeed, media reports "exist only in the state of a puzzle, scattered fragments posted from day-to-day on various platforms and then loosely assembled in reference to headlines or the use of a few enunciatory indexes" [Arquembourg, 2011, p. 37]. Rather than a coherent system that can be grasped as a whole, news reports correspond more to a succession of "discursive moments," that is to say, "the sudden appearance in the media of an intense and diverse discursive production regarding a single event [⋯]," which allows for the "constitution of a corpus upon other bases besides sociological characteristics" [Moirand in Charaudeau and Maingueneau, 2002, p. 389; Moirand, 2007, p. 4].

For discourse analysts who specialize in sciences of language—beyond the reflections initiated by, among others, Foucault [1969, pp. 44–54] on "discursive formations," which are still at the center of theoretical debates in the domain—the media constitutes places where different spheres of language activity come together [Moirand et al., 2016]. In a single article, the reader is effectively confronted with comments from local inhabitants, from scientists, from administrative and/or political authorities and from journalists. Now, each of these communities constitutes a distinct community of experience, which is also a community of interpretation and, ultimately, a distinct discursive community [cf. Devès, 2018, on the different discourses referring to the notion of disaster/catastrophe]. The scientific event constituted by the discovery of Mayotte's underwater volcano has thus given rise to *a polyphonic text*, in which there has been a mixing and even an interpenetration of the voices of actors who belong to different discursive communities. Discourse analysis allows, then, for an exploration, not only of the meaning that the words take on in their co-texts and contexts, but also of the social and even political meaning that they take on for the actors whose comments are reported. To put it another way, analysis of the news reports allows for clarification of the "verbal" behavior of the social actors such as it is "shown" in the media.

Following the work of Fairclough [2003] and Van Leeuwen [2009] in *Critical Discourse Analysis*, we prefer to speak here of "represented dis-

courses" or "representations of discourses" rather than "reported discourses" [Petitclerc and Schepens, 2009]. The discourses of social actors are more "represented" here: it is often a question of short fragments of speech juxtaposed in the press, whereas they have been uttered in diverse locations and in situations that sometimes predate the publication date of the newspaper. These words, signposted by quotation marks, give a particular structure to the press text. To speak of "represented discourses" is to admit that those who have drafted the articles are those who have chosen to "stage" them by extracting them from the context and co-texts in which they were uttered (the situation, the moment, and sometimes the place), and by placing them anew on the space of the page with titles, subtitles and inter-titles, together with the infographics, photos, maps, and so on, that sometimes accompany them.

The co-texts of reported words (and which are therefore "shown" as exterior to the author of the article) constitute a means of access to representations of the discursive communities who are present. They function as indexes for contextualization, which allow the situation in which they have been spoken to be inferred. Over the long duration of the event, they thus constitute *an inter-discursive memory* of the interpretation of the events on the basis of references and quotations borrowed from earlier discourses, and notably from discourses on events of the same type [Moirand, 2007, pp. 114–150].

3.2. *Data collection*

Since May 2018, and despite the concurrence of the health crisis linked to Covid-19, the local, regional and national media have continued to offer regular coverage of the events linked to the scientific, political and administrative management of the seismo-volcanic crisis in Mayotte. The research team of the MAY'VOLCANO project[1] (which the authors are part of) was thus able to assemble a large database of non-specialist press articles written in French, from which we have extracted the corpus used here.

At the time of writing, the MAY'VOLCANO corpus comprises 365 articles published between May 10, 2018 and May 1, 2021. It thus covers the first three years of seismo-volcanic activity and contains the entirety of articles published by six French-language daily papers that address different readerships:

- *Le Figaro* and *Le Monde* are national daily papers addressed primarily to a public in mainland France; *Le Figaro* is the national paper that has devoted the highest number of articles to the seismo-volcanic crisis in Mayotte. *Le Monde*, though less verbose, is the most read payment-access newspaper in France and the most widely available abroad.
- Narrowing down to the Indian Ocean, *Le Journal de l'île de la Réunion* and *L'Express de Madagascar,* address the inhabitants of the French island of Réunion and Madagascar respectively. *Le Journal de l'île de la Réunion*, whose readership has been mindful of seismo-volcanic risk due to the very active volcano of Piton de la Fournaise, has dedicated extensive coverage to the seismo-volcanic crisis in Mayotte; furthermore, Réunion island also hosts the prefecture of the Indian Ocean Zone which in turn includes the prefecture of the Mayotte *département*,[2] and it constitutes a logistical way-station for civil protection between mainland France and Mayotte. *L'Express de Madagascar* with text in both French and Malagasy, has also covered the events widely and is one of the most read newspapers in the region.
- Narrowing further to Mayotte itself, the corpus is constituted of the publications of the *Journal de Mayotte* and *Mayotte la 1ère*. *Le Journal de Mayotte* is among the most read French-language publications on the island. It is also the one that has published most on the subject of the "crisis" that we are working on. *Mayotte la 1ère* is a radio station, an online newspaper and a television channel that broadcasts content in French and in Shimaore. A branch of the public service, it offers news with no subscription fee and has

[1] The research project entitled MAY'VOLCANO is funded by the Centre des Politiques de la Terre with the support of Université Paris Cité, Sciences Po and ANR. It is an interdisciplinary project dedicated to the study of the circulation of knowledge between scientists, risk and crisis management actors, the media, and the population of Mayotte during the ongoing seismo-volcanic crisis.

[2] In France, prefectures are administrations that belong to the Ministry of Interior and act as local government.

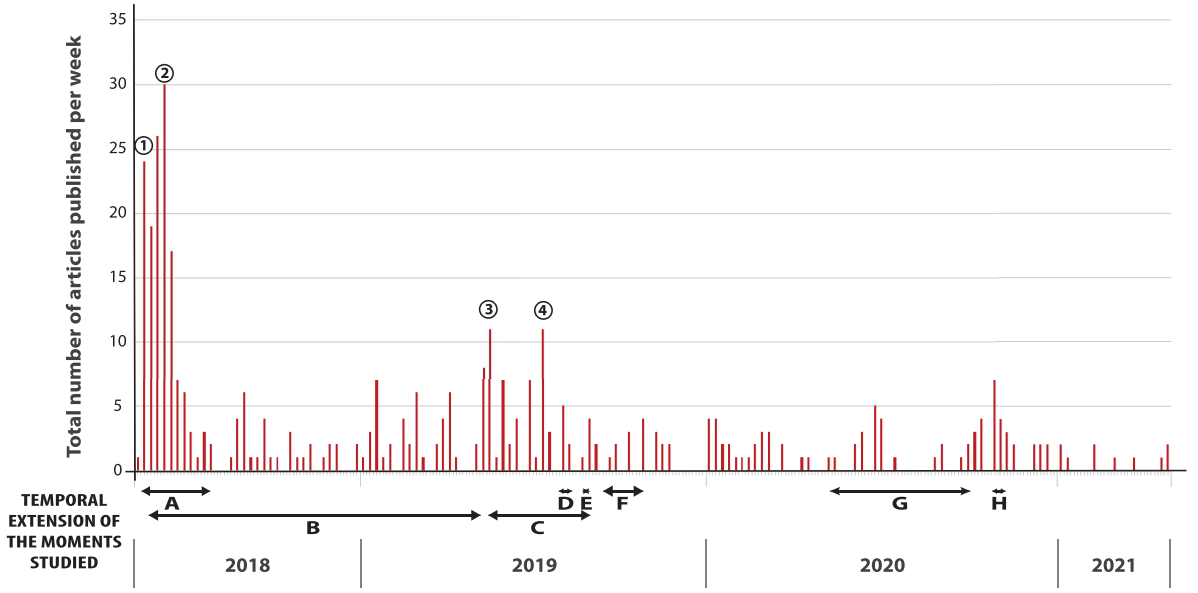

Figure 1. Histogram representing the number of articles published per week between May 10, 2018 and May 1, 2021 in newspapers from the MAY'VOLCANO corpus. Black arrows beneath the histogram indicate the temporal extension of the moments studied (Table 1). The numbers under each event show: (1) The week marked by the occurrence of the strongest earthquake during the crisis (magnitude 5.8), which gave rise to intensified seismicity monitoring and the issuing of security instructions; (2) The arrival in Mayotte of the inter-ministerial mission of experts to take stock of the seismic activity and its associated risks; (3) The "discovery" of the "new volcano"; (4) The announcement of the MAYOBS 3 Oceanographic campaign among articles that still concerned the discovery of the volcano (with, in particular, the publication of a series of four articles in *Le Monde* that same week).

a wide audience in Mayotte, notably through other local newspapers.

3.3. *Analysis through "discursive moments"*

Rather than carry out exhaustive statistical analysis of the MAY'VOLCANO corpus, we have chosen here to focus on the media coverage of key moments during the seismo-volcanic "crisis". Indeed, what was particular to this event was how it set in for a long duration. It comprises a series of distinct "discursive moments" which are most pertinently analyzed independently of one another (Figure 1). Analysis through "moments" also allows the media accounts to be studied in their evolution over time.

The discursive moments under study are eight in number. They have been defined on the basis of the work carried out by Devès et al. [2022], which led to the identification of the social actors implicated in the experience and the management of the crisis and the events that marked the first three years of seismo-volcanic activity. The whole corresponds to a corpus of 244 articles (out of the 356 articles of the MAY'VOLCANO corpus) (Table 1).

Press interest in the subject of the seismo-volcanic crisis in Mayotte shows variation over time in keeping with the local, regional and national integration of the newspapers under consideration (Figure 2). During the first three years of the crisis, the local press published approximately six times more articles than the regional press, and almost ten times more than the national press.

The number of articles published is especially high at the start of the seismic crisis, when the number of felt earthquakes was at its highest, that it to say, between May and June 2018 (moment A). This is the only period that can truly be qualified as a "crisis" to the extent that the social actors do effectively at-

Table 1. Presentation of the eight moments studied

(A)	First months of seismic crisis	133 articles from May 10, 2018 to July 26, 2018: *le Journal de Mayotte* (76 articles), *Mayotte la 1ère* (26), *l'Express de Madagascar* (12), *le Journal de l'Île de la Réunion* (9), *Le Figaro* (8), *Le Monde* (2)
(B)	Volcanic hypothesis and subsidence data predating the discovery of the volcano	29 articles from May 24, 2018 to May 10, 2019: *le Journal de Mayotte* (15 articles), *Mayotte la 1ère* (3), *le Journal de l'Île de la Réunion* (4), *L'Express de Madagascar* (3), *Le Figaro* (3), *Le Monde* (1)
(C)	Discovery of the volcano	51 articles from May 16, to August 30, 2019: *le Journal de Mayotte* (22 articles), *Mayotte la 1ère* (16), *l'Express de Madagascar* (3), *le Journal de l'Île de la Réunion* (1), *Le Monde* (6), *Le Figaro* (3)
(D)	Press conference to the local representatives	7 articles from July 31 to August 9, 2019: *le Journal de Mayotte* (3 articles), *Mayotte la 1ère* (3), *Le Figaro* (1)
(E)	Visit from the minister of the overseas	5 articles from August 27 to 30, 2019: *le Journal de Mayotte* (2 articles), *Mayotte la 1ère* (1), *l'Express de Madagascar* (1), *le Journal de l'Île de la Réunion* (1)
(F)	Scientific press conference at the Institut de Physique du Globe de Paris	5 articles from September 4, to October 26, 2019: *le Journal de Mayotte* (2 articles), *Le Figaro* (2), *Le Monde* (1)
(G)	MAYOBS 13-1 and MAYOBS 13-2 oceanographic campaigns	6 articles from May 4 to September 28, 2020: *le Journal de Mayotte* (3 articles), *Mayotte la 1ère* (1), *le Journal de l'Île de la Réunion* (1)
(H)	"Volcano week" and installation of the first alert siren in Dembeni	8 articles from October 28 to November 3, 2020: *le Journal de Mayotte* (4 articles), *Mayotte la 1ère* (4)

test to a crisis experience, which led the Mayotte administration to activate a "crisis cell". Reading the articles (prior to systematic thematic analysis) reveals that, throughout this period, the media accounts focus on: the unprecedented character of the seismic crisis, which was of unexpected intensity and duration for this region; the disquiet of the inhabitants; the measures taken by the authorities—in particular the Mayotte prefecture; and the difficulties experts had when it came to "explaining" the phenomenon. The local newspapers follow the communiqués from the prefecture attentively [daily news "updates" over the first months, Devès et al., 2022], and regularly publish lists of the earthquakes' characteristics (magnitude, location), as well as security instructions.

In the long term, the seismic activity (and notably the number of felt earthquakes) diminishes from June 2018 onwards. Even though it was to increase again at different moments, for the next three years it was never to reach the same level as at the start of the seismic crisis [cf. Figure 3 in Devès et al., 2022]. From June 2018 onwards, the number of articles per week also trails off and a progressive shift in the themes treated can be observed: the specific issues involved in managing the seismic crisis give way to the question of the origin of this unusual activity (moment B). Only the local press continues to regularly follow the situation updates from the experts in charge of monitoring the seismicity, which are relayed by the prefecture on a regular basis. The articles published between September 2018 and the announcement of the "discovery of the underwater volcano" in May 2019 relay the hypotheses given by the scientists and examine new observations enabled by GPS and seismic data [Briole, 2018, Cesca et al., 2020], as well as the organization of the first "Tellus-

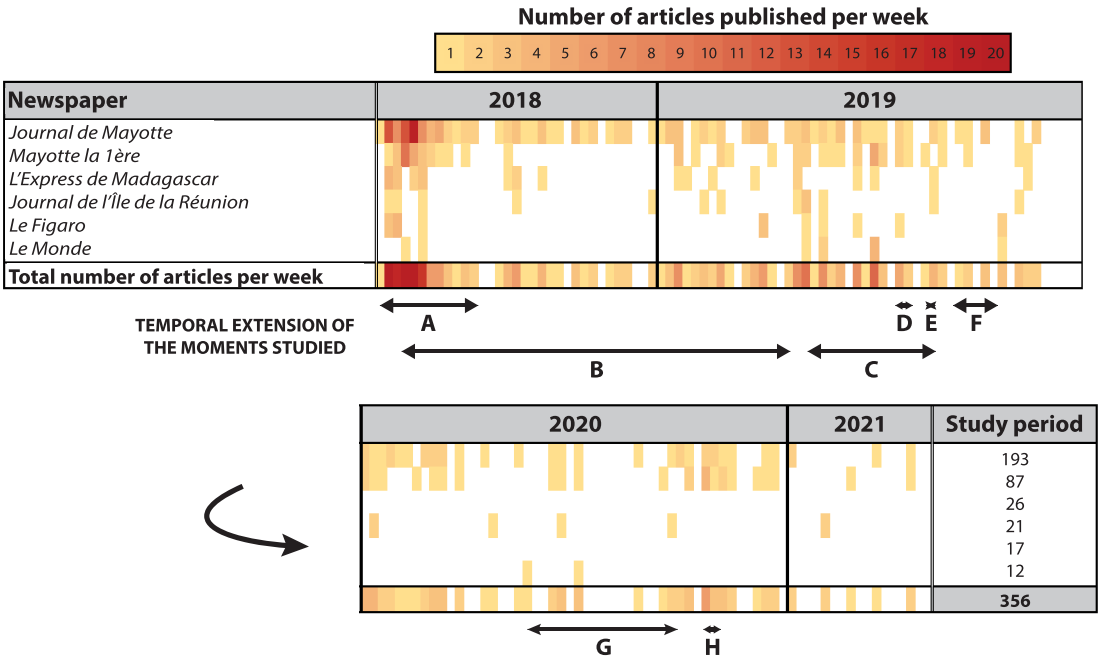

Figure 2. Number of articles published per week and per newspaper between May 10, 2018 and May 1, 2021. The figures in the right-hand column indicate the full number of articles published per newspaper over the entirety of the study period. In total 356 articles were published.

Mayotte" scientific campaigns, but also the discovery of dead fish coming from the deep-sea by Mayotte fishermen.

The announcement of the discovery of the volcano in May 2019 (moment C) is the event that received the second most coverage in the media. It closes the narrative arc, opened a year earlier, which examined the cause of the seismicity and underlined the unprecedented and mysterious character of the phenomenon. It is the occasion, for the national newspapers in particular, to cast a retrospective eye over the year that has passed. The evidence for the volcanic origin of the activity opens at last new horizons of questioning, relative to the knowledge, the uncertainties and the means to be implemented so that a phenomenon qualified as "exceptional" may be studied, but also relative to the risks and opportunities associated with the presence of a volcanic zone in such close proximity to the island. Since the time of the "discovery" of the volcano, Mayotte has been spoken of more frequently in the national and international press, which sends back a "positive image" of the French *département*. In the local press, the journalists' accounts started to oscillate between an account of the disquiet produced by the discovery of a volcano so close to the island and the hope that this might offer a different image of Mayotte to the one thus far conveyed by the media (notably by the media in mainland France). The article published in the *Journal de Mayotte* on May 20, 2018, for example, carries the following headline: "*Le volcan, nouvelle vitrine de Mayotte*" ("Volcano, the new Mayotte showcase"). The extraordinary mobilization that this natural phenomenon provoked was to generate genuine enthusiasm, as much within the scientific community as among the services of the state and in the press—which, we may recall, would still be covering the subject three years after the start of the crisis, even though the seismic activity was no longer hampering the everyday life of the inhabitants, and this in spite of the spate of large-scale health and social crises.

The ensuing media coverage appears to follow the rhythm of the communications as orchestrated by the authorities: press conferences organized by the prefecture intended for local agents (an example of moment D), a bimonthly and then monthly publication of REVOSIMA bulletins from August 2019 on-

wards, declarations from the government regarding actions undertaken and the various means mobilized (example of moment E), a scientific conference aiming to take stock of the state of knowledge (example of the conference organized by REVOSIMA in October 2019, moment F), and lastly, the publication of official communiqués concerning the successive scientific campaigns organized by the prefecture and/or organizations in partnership with REVOSIMA (example of moment G). An awareness week called "the volcano week" organized in October 2019 was followed in some depth by the local press (moment H).

The health crisis linked to Covid-19 has probably affected media coverage. A visible effect of the Spring 2020 lockdown can be observed. Since the start of 2021, media coverage has been chiefly local, and articulated around communiqués to do with scientific campaigns. The national newspapers have nevertheless been publishing overviews, in particular on their "science" pages.

More widely, it has been observed that the national press has shown a fairly minor interest in the subject of the seismo-volcanic "crisis" in Mayotte, which seems to be driven essentially by the unprecedented character of the phenomenon and of the scientific means mobilized in order to study it. The national daily papers react more to events on a national scale (inter-ministerial communiqués announcing the discovery of the volcano, a scientific conference organized at the Institut de Physique du Globe de Paris) than to events of a more local scale (there was no publication on the occasion of the visit by the Minister of the Overseas announcing the creation of REVOSIMA, nor was there any publication concerning the awareness events organized during the "volcano week"). A large portion of the articles published by these daily newspapers feature in the "Science" pages (which are not a daily column), which tends to accentuate a more scientific treatment of the subject to the detriment of information about the monitoring and management of risk, which are crucial for the Mayotte inhabitants. The regional press dedicates more words to the seismo-volcanic "crisis" than does the national press, but still far fewer than the local press. Nevertheless, it does show itself to be more sensitive to the ultramarine issues, relaying for example information concerning governmental visits and announcements or concerning organizational issues to do with monitoring. As for the local press, it has been following the evolution of the situation very closely, with the *Journal de Mayotte* and *Mayotte la 1ère* publishing several articles per day during the more intense moments of the three years studied.

4. Observing the corpus for a better understanding

In order to study the *representations* conveyed by the daily press regarding the seismo-volcanic "crisis" in Mayotte, we begin by identifying the different actors who are present, how they are designated, the syntaxico-semantic place they occupy in the narrative, as well as the words that are attributed to them (Section 4.1). This identification shows the polyphonic character of the news accounts, which we discuss in Section 4.2. In the remainder of the article, we illustrate the results of the analysis using extracts from the corpus, in which we underline those elements that refer back to the *three discursive communities* identified, and we indicate in bold the *connectors* and *lexical words* that allow for a semantic interpretation of the "micro-narratives" identified throughout the article.

4.1. *The three main discursive communities "represented"*

Extracts from the corpus illustrate "the place" that the media accounts attribute to the actors and what they say:

(1) "Since Thursday, several seismic tremors have been felt in a number of localities of the Mayotte *département*," the prefecture **explains** in a communiqué, but "at this stage, no damage has been observed in the wake of these low-intensity tremors."[3]

Today, fresh earthquakes have been felt, one of which registered a magnitude of 4.6 and another a magnitude of 5.1. On social

[3]We underline those elements that refer back to the *three discursive communities* identified, and we indicate in bold the *connectors* and *lexical words* that allow for a semantic interpretation of the "micro-narratives" identified throughout the article.

media, many Mahorais have **gone into a panic** about these tremors.[4]

[*Le Figaro*, 14-05-2018, moment A]

(2) **There is no risk** of a tsunami **but** emergency teams are ready to be dispatched from Paris and from Reunion Island where tents and medication are stocked. […]

But the watchword is to reassure the population. "On the global scale, these are micro-phenomena, underlines Etienne Guillet [cabinet director of the prefecture]. The cluster of earthquakes is "**apparently** linked to the East-African rift" and to "a sliding of tectonic plates." **There is no risk of subduction, therefore there is no risk of a tsunami** […] **Potentially**, a plate may have splintered," he adds, while some inhabitants see this as a divine punishment and a number of people on the internet say they have been unable to sleep.

"A fear in the stomach has set in" observes Muriel Lignon, a teacher […]

[*Le Figaro,* 21-05-2018, moment A][5]

(3) "Following the conclusions of the governmental mission that went to Mayotte at the behest of the prefecture, France's Central Bureau for Seismology (BCSF) and the National Network for Seismic Monitoring (RENASS) have engaged a mission from the Group for Macroseismic Intervention (GIM) on the Mayotte island from June 11 to 15" **explains** the prefecture in a communiqué.

[*L'Express de Madagascar*, 13-06-2018, moment A][6]

Three main discursive communities are represented here: Mayotte's inhabitants, the political and administrative authorities (foremost among them the prefecture plays a pivotal role), and the scientists. These three communities are called upon to communicate with one another throughout the event, but each of them occupies a different discursive "place". Mayotte's inhabitants "gets in a panic" on Twitter and in the remarks reported by the journalists, while the scientists "try to understand" and the prefecture "tries to reassure" the population. The "subject" position in the sentence, in French, does not imply that one is the "agent of an action": the administrative authorities and the scientists "act", while the inhabitants are asked to "give feedback" to the authorities and "follow" instructions relayed by local journalists, thus casting them in the position of "counter-agent" (drawing on the theory of the US semantician Fillmore [1968, 1972], that is to say, on the orders of an agent representing authority.

Furthermore, not all social actors play the same role in the circulation of discourses. The Mayotte prefecture constitutes a locus of intermediate discourse between the central power (Paris) and the local administrators (nominated or elected), between the ground-level observations, the results of the scientific missions, the rumors that circulate on social media, and the words of the islanders and media. The local journalists also occupy a specific position, both interested parties in the crisis and authors of the narratives that speak of it. This position allows them to position themselves as "mediators" of the crisis. This is the case of the journalists of the *Journal de Mayotte* (designated by "us") who, at the height of the seismic

[4]« De nombreuses secousses sismiques ont été ressenties depuis jeudi dans plusieurs localités du département de Mayotte », explique la préfecture dans un communiqué, mais « à ce stade aucun dégât n'a été constaté suite à ces secousses de faible intensité ». Aujourd'hui de nouveaux séismes ont ainsi été ressentis, dont un de magnitude 4.6 et un autre de magnitude 5.1. Sur les réseaux sociaux, de nombreux Mahorais s'affolent de ces secousses. [*Le Figaro*, 14-05-2018, moment A].

[5]Il n'y a pas de risques de tsunami mais des équipes de secours sont prêtes à être dépêchées depuis Paris et la Réunion où des tentes et des médicaments sont stockés. […] Mais le mot d'ordre est de rassurer la population. « On est dans des micro-phénomènes à l'échelle géologique, souligne Etienne Guillet [directeur de cabinet du préfet]. L'essaim de séismes est « lié à priori au rift est-africain » et à « un glissement de plaques ». Il n'y a pas de risques de subduction donc pas de risque de tsunami […] C'est potentiellement une plaque qui se serait scindé », détaille-t-il, alors que certains habitants y voient une punition divine et que de nombreux internautes signalent avoir perdu le sommeil. « On a la peur dans le ventre qui s'est installé » livre Muriel Lignon, professeur […] [*Le Figaro,* 21-05-2018, moment A].

[6]« Suite aux conclusions de la mission gouvernementale qui s'est rendu à Mayotte à la demande du préfet, le Bureau Central Sismologique Français (BCSF) et le Réseau National de Surveillance Sismique (RENASS) engagent une mission du Groupe d'Intervention Macrosismique (GIM) sur l'île de Mayotte du 11 au 15 juin » explique la préfecture dans un communiqué. [*L'Express de Madagascar*, 13-06-2018, moment A].

crisis, attempt to forge a link between their readers (designated by "you") and the "state services":

(4) "First-hand accounts of earthquakes in Mayotte are multiplying. The strongest was stressed on Thursday night—Friday morning at about 2.20 am, but many of **you** informed **us** of other tremors last night.

The prefecture has confirmed to **us** that no less than 13 tremors have been registered in Mayotte these last two days. The strongest was magnitude 4.5 and the epicenter was located 35 miles East of Mamoudzou. This event was too weak to generate the slightest fear of a tsunami, **the state services** have reassured…"

[*Le Journal de Mayotte*, 12-05-2018, moment A][7]

The national, regional or local integration of the newspapers influences the diversity of actors who are "on the scene" and the way in which they are represented. It may thus be noted that the national daily papers report more frequently what is said by actors in mainland France, or actors operating on the national level of crisis or risk management. This is even more visible after "the discovery of the volcano" when the articles focus on the scientific dimension. The local press seems to report comments by a wider diversity of actors, and notably those local actors who are sometimes forgotten by the national press (local representatives, associations or personalities). The regional and national newspapers are confined to a commentator role and base their accounts on testimonies taken from the local press, on the content of AFP dispatches, and on interviews with authorities and scientists present in mainland France.

4.2. *A polyphonic discourse*

Readers of these news accounts often find themselves confronted with many voices: those of the different discursive communities whose words are being reported. This is visible in extracts 1, 2 and 4. The following extract, the account of the visit to Mayotte by the Minister of the Overseas, also illustrates this:

(5) Yesterday in Mayotte, the Minister of the Overseas, Annick Girardin, indicated as a preamble to the announcement of measures for the development of the territory that the series of tremors felt there over the last few days **"does not seem to present any risk of damage on land, nor of a tsunami in the sea."**

A hundred or so micro-tremors, "about fifteen of which were stronger than magnitude 3.0," have been recorded in Mayotte since Thursday, indicated the prefecture of the ultramarine *département* on Monday.

The minister, who has herself felt some tremors since her arrival on Sunday, recognized that the event could "be a source of worry for citizens."

"**I want to share with you the most recent information we** have from the **Bureau for Geological and Mining Research (BRGM)**. This cluster of tremors is being felt in spite of its low intensity because it is located 35 miles from the coast and its point of origin is not very deep," she **explained**.

"It doesn't **seem to present any risk of damage on land, nor of a tsunami in the sea**, and **should not at present be stronger** than level 5 on the BRGM scale," she added.

The minister asked the prefecture to "provide daily information on the evolution of the phenomenon and **to anticipate any foreseeable** risk to the population," she further added.

[*L'Express de Madagascar* 16/05/2018, moment A][8]

[7] « Les témoignages liés à des tremblements de terre se multiplient à Mayotte. Le plus fort a été souligné dans la nuit de jeudi à vendredi vers 2h20 du matin, mais vous avez été nombreux à nous faire part d'autres secousses la nuit dernière. La préfecture nous confirme que pas moins de 13 secousses ont été enregistrées à Mayotte ces deux derniers jours. La plus forte était d'une magnitude de 4,5 et l'épicentre a été localisé à 55 km à l'est de Mamoudzou. Un événement trop faible pour générer la moindre crainte de tsunami, rassurent les services de l'Etat… ». [*Le Journal de Mayotte*, 12-05-2018, moment A].

[8] La ministre des Outre-mer Annick Girardin a indiqué, mardi à Mayotte, en préambule à l'annonce de mesures pour le développement du territoire, que la série de séismes ressentis ces derniers jours sur place « ne présente a priori pas de risques de dégât sur terre, ni de tsunami en mer ». Une centaine

The very functioning of the press text, which is determined by constraints of place and by the necessity of giving an account of the plurality of viewpoints, leads to the juxtaposition of different discursive genres that in turn include first-hand testimony, research discourse, the discourse for the relaying of scientific findings, and the discourse of the administrative and political authorities. In extract 5, for example, we can see the minister taking up "the explanation" by BRGM in order to "share it" with her audience and reassure them. But the linking-up of discourses borrowed from different spheres of language activity demands an attentive reading, which is not always practiced. Even though this juxtaposition intends to give an account of the reality of the situation—that of the existence of a diversity of actors and viewpoints—it tends to thrust the comments from the different actors onto a single plane and thus contributes to the "muddling" of communication,[9] particularly at times of crisis when uncertainties run high and when opinions diverge and even contradict one another.

de micro-séismes, dont « une quinzaine avec des magnitudes supérieures à 3.0 », ont été enregistrés depuis jeudi à Mayotte, a indiqué lundi la préfecture du département ultramarin. La ministre, qui a eu elle-même l'occasion de ressentir les secousses depuis son arrivée dimanche, a reconnu que l'événement pouvait « être une source d'inquiétude pour les citoyens ». « Je veux partager avec vous les dernières informations que nous avons du Bureau de recherches géologiques et minières (BRGM). Cet essaim de séismes est ressenti malgré sa faible intensité car il est situé à 50 kilomètres des côtes et que son origine est assez peu profonde », a-t-elle expliqué. « Il ne présente a priori pas de risques de dégât sur terre, ni de tsunami en mer et ne dépasserait pas jusqu'à présent le niveau 5 sur l'échelle du BRGM », a-t-elle ajouté. La ministre a demandé à la préfecture de « produire une information journalière sur l'évolution du phénomène et d'anticiper tout risque prévisible pour la population », a-t-elle précisé. [*L'Express de Madagascar* 16/05/2018, moment A].

[9] We are borrowing this image from Varga [2020], who used it in the context of the Covid-19 health crisis, and, in a somewhat different sense, regarding controversies between scientists participating in television broadcasts (see also Moirand [2021]). In the case of Mayotte, we have come across few controversies between scientists, at least as mentioned in the media. In the texts from the corpus, we read rather a kind of "enunciatory muddling" [see Lejeune [2005], and Léglise and Garric (editors) [2012], "L'intensification du brouillage énonciatif dans *le Monde*," pp. 68–70], and which here results in the juxtaposition of comments from different social actors who are not to be "seen," in contradistinction to the television broadcasts and certain social media.

5. Accounts with an explicative aim

The preceding accounts show a prefect, a deputy prefect and then a minister who "explain" the state of the situation or the "latest information" produced by the scientists, as well as journalists who try to provide "explanations" to the questions from their readers and even to anticipate these queries. These few examples illustrate an observation that can be generalized for the full corpus studied, and which accords with the observation by Arquembourg and Lambert [2005] quoted in the introduction: in recounting what was happening in Mayotte, the journalists set about "explaining," that is to say, they strive to give meaning to the events and to the comments made by the different actors. Furthermore, the situation is qualified in turn by the actors themselves as "unknown," "unprecedented," "exceptional," "never before observed," these being a host of modalities that, referring neither to the facts nor to specialist knowledge, invite people to seek out explanations. It will also be remarked that, with their explicative aim (Section 5.1), the news reports on the seismo-volcanic "crisis" in Mayotte draw on different forms of explanation (Section 5.2), without managing to account for the uncertainties specific to the crisis situation and to the very notion of "risk" mobilized by the actors.

5.1. *Different forms of explanation*

Explanation has many semantic facets which correspond to different activities dependent on the actors who are implicated in the press narratives. A social actor can reply to one explicit request for information (e.g. in the summary of a press conference or an information meeting). One might also participate in a dialogue between one who does not know and one who is in a position of "knowing" (implicit expectation of explanation). A scientist might also seek to anticipate the requests of his audience or readership.

We can observe here that the media accounts very frequently refer the reader to what has been said by the scientific community. The scientific community even appears to be particularly central. This is linked in part to the fact that comments from other communities who are present, on this occasion those of the authorities, who try to "explain" the situation and to "justify" the decisions they take, themselves borrow

from the field of scientific discourse. This is all the more so given how, in Mayotte, the seismo-volcanic activity is perceived only in an indirect manner. Certainly the islanders feel the strongest earthquakes and can observe other manifestations like gas release and dead fish, but it is principally by means of scientific instruments and interpretations that the situation comes to be "told." In fact, the authorities themselves necessarily draw on arguments and lines of argumentation produced by the scientists.

The studies carried out in the field of the relaying of scientific findings have led to an updating of the prototypical forms and functionings of "explanation" [Claudel et al., 2008, Moirand, 2003, 2008b,a, von Münchow and Rakotonoelina, 2010]. Press texts give rise to different verbal constructions in relation to "explanation":

X explains Y (one fact "explains" another fact)

Y is due to X (one fact is due to another fact)

Z (the journalist) tells the public that S (the scientists) explain that X would be due to Y,

Etc.

Forms such as these can be identified in the studied articles, in particular the moment C relative to the discovery of the volcano, which comes to close a year of questioning as to the "causes" of the seismicity:

(6) A scientific mission has drawn attention to the formation of an underwater volcano some 35 miles east of Mayotte and two miles deep. **This allows for an explanation** for the earthquakes that have been observed on this French island in the Indian Ocean for a year now, with more than 1800 tremors of magnitude 3.5 or higher, the strongest being 5.8. The size of the volcano "has been assessed at 2600 feet in height with a base of 2 $\frac{1}{2}$ to 3 miles in diameter. The 6500-feet plume of volcanic fluids does not reach the surface of the water," explain the scientists, who speak of an "exceptional geological phenomenon."

[*Le Figaro*, 27-05-2019, corpus C][10]

(7) The scientists have been mobilized in order to **treat, analyze and interpret** the multitude of data gathered during these last months. This operation will necessitate in-depth work in order to evaluate **the risks** occasioned for Mayotte in matters of seismic risk, volcanic risk and tsunami risk.

[*Le journal de Mayotte*, 16-05-2019, corpus C][11]

But, for the media audience, to "explain" refers most often to a didactic situation in which "someone explains something to someone else" (which corresponds to a dissymmetry in knowledge), or else someone asks for "an explanation" (often with regard to a specialist word or a new object"), or explanation for behavior ("why should one stay at home when there are earthquakes?"), or else advice on what to do if such and such should happen. In the information narrative, the request is not necessarily worded in this way, but the journalist often anticipates questions from the readership (which falls under a dialogism that is said to be "interactional"), as indeed do the specialists in charge of disseminating scientific findings in their speeches: "What is a seismograph? A seismograph is...," "What should we do if there is an earthquake or if there is a tsunami? Well, one should not run outside... one should..."

To explain "to the other" (a word, steps to be taken, a scientific discovery, etc.) implies a dissymmetry in knowledge between the one who is asking for explanations and the one who is providing the explanations,[12] the forms of explanation hinging then on

[10] Une mission scientifique a mis en évidence la naissance d'un volcan sous-marin à 50 km à l'est de Mayotte et à 3500 mètres de profondeur. Ceci permet d'expliquer les séismes constatés sur cette île française de l'océan Indien depuis un an, avec plus de 1800 secousses de magnitude supérieure ou égale à 3,5, dont la plus forte a été de 5,8. La taille du nouveau volcan « est évaluée à 800 mètres de hauteur avec une base de 4 à 5 km de diamètre. Le panache des fluides volcaniques de 2 km de hauteur n'atteint pas la surface de l'eau », expliquent les scientifiques qui parlent d'un « phénomène géologique exceptionnel ». [*Le Figaro*, 27-05-2019, corpus C].

[11] Les scientifiques sont mobilisés pour traiter, analyser et interpréter la multitude de données acquises durant ces derniers mois. Cette exploitation nécessitera des travaux approfondis pour évaluer les risques induits pour Mayotte en matière de risque sismique, risque volcanique et de tsunami. [*Le journal de Mayotte*, 16-05-2019, corpus C].

[12] This dissymmetry harks back to the one that exists between layperson and expert, see thus e.g., the definition that Roqueplo [1997] gives for the expert: "someone who must take a decision wishes to do so in full knowledge of the facts. He appeals therefore to a person or to an institution that he deems competent in the domain of this decision, so that it will provide him with these facts in full or in part." See also Léglise and Garric [2012] on the

comparisons, analogies, metaphors, and so on. In the following extract, the scientist quoted begins by giving a scientific explanation, but ends with another "image" that is closer to the non-expert audience:

(8) "Often, when the magma has found its path, which is the case for our new volcano, there is no seismicity under the volcano. The magma continues to flow freely. It follows its course and it does not fracture the rock, she [the scientist] explained.

Furthermore, she confirmed that Mayotte was still sinking and moving. "There is a draining of the reservoir and, at the same time, of the magma, which is rising to the surface. **It's like** squeezing a toothpaste tube deep down, and the lava comes out.

[*Le Figaro*, 31-07-2019, corpus C][13]

This form of comparison is typical of the forms used by scientific journalists, but nor do scientists hesitate to use them in press conferences, or in Frequently Asked Questions (like those offered by the prefecture of Mayotte in May 2019).[14]

But the juxtaposition of these two forms of explanation (the relation between two facts that have been observed, measured or modeled vs. explanation with a didactic aim) in the press texts also contributes to the "enunciatory muddling" mentioned above:

(9) • Where has Mayotte's subsidence got to?

At the current time, the island of Mayotte "has sunk five inches since July," indicates Nathalie Feuillet, the delegation head onboard the Marion Dufresne and a physicist from the observatories at the Paris Globe Institute for Physics. This shift is rapid and on a geological scale. "These movements **could be explained** by the draining of a deep reservoir, some 25 miles down," the geologist continues. […]

• What have the seismometers installed out at sea revealed?

[…] As soon as it [the Marion Dufresne vessel] arrived in the zone, the seismologists picked up the eight devices set out on the ocean floor to analyze their data. […] It transpires that the epicenters are not located between 20 and 40 miles from Mayotte as they have believed over this last year, but only six miles from our island! […] "The new 2500-feet-high volcano indicated by an arrow forms **a limited cluster about half a dozen miles from Petit Terre**" indicates Nathalie Feuillet. Still, there is no cause for panic, because while they are closer in "epicentral" distance, **that is to say**, horizontally, they are further away than previously thought in "hypercentral" distance, **that is to say**, in depth. […]

These new data reinforce the fascinating character of this unusual natural phenomenon. To such an extent that it would not be surprising to see researchers from the world over showing up soon, attracted by this major scientific case. A rather unexpected form of tourism for Mayotte, but which won't do any harm.

[*Le Journal de Mayotte*, 17-05-2019, corpus C][15]

discourse of experts and expertise.

[13]« Souvent, quand le magma a trouvé son chemin, ce qui est le cas pour notre nouveau volcan, il n'y a pas du coup de sismicité sous le volcan. Le magma continue de s'écouler tranquillement, il suit son chemin et ça ne fracture pas la roche, a-t-elle expliqué. Elle a par ailleurs confirmé que Mayotte continuait à s'enfoncer et à se déplacer. « On a le vidage du réservoir et en même temps du magma qui sort à la surface. C'est comme si on appuyait sur un tube de dentifrice en profondeur, la lave sort. [Le Figaro, 31-07-2019, corpus C].

[14]https://www.mayotte.gouv.fr/content/download/14333/108957/file/FAQ_mai2019-2.pdf.

[15]Où en est l'enfoncement de Mayotte ? A l'heure actuelle, l'île de Mayotte « s'est enfoncée de 13 centimètres depuis juillet », indique Nathalie Feuillet, cheffe de mission à bord du Marion Dufresne et physicienne des observatoires à l'Institut de physique du Globe de Paris. Ce déplacement est rapide à l'échelle géologique. « Ces mouvements pourraient être expliqués par la vidange d'un réservoir profond, à environ 40 km de profondeur » poursuit la géologue. […]—Qu'ont révélé les sismomètres installés au large ? […] Dès son arrivée sur zone [le bateau Marion Dufresne], les sismologues ont relevé les huit appareils disposés au fond de la mer pour en analyser les données. […] Il en ressort que les épicentres ne sont pas situés entre 30 et 60 km de Mayotte comme on l'a cru depuis un an, mais à seulement 10 km de notre île ! […] « Le nouveau volcan de 800 m de haut indiqué par une flèche forme un essaim restreint à une dizaine de km de Petite Terre » indique Nathalie Feuillet. Toutefois pas de panique car s'ils sont plus proches en distance « épicentrale », c'est-à-dire à l'horizontale, ils sont plus loin que prévu en distance « hyper-

This extract brings on to the same place the scientific explanation (*epicentral* or *hypercentral distance*) and didactic explanation (*that is to say*…), the consequences in terms of risk and fascination for the volcano, which might attract tourists, without letting uninitiated readers perceive the difference in status of these explanations in terms of scientific robustness and in terms of consequences for life on Mayotte.

Other forms of explanation also arise from the media narratives we have studied. This is the case below, in the article that gives an account of a *Journal de Mayotte* interview with the Civil Protection mission dispatched to Mayotte in June 2018. The questions here correspond to other representations of explanation, because they ask those in charge of the delegation dispatched from mainland France at the behest of the prefecture, not to explain what might occur, but to "explain themselves" on what they have come to do in Mayotte:

(10) To begin with, what is civil protection? […] What exactly have you come to do in Mayotte? […] Do you plan to look again at the cartography of the marine submersion made in 1984? Does your calendar have to adapt to the one for the scientific discoveries around the volcano? Have you carried out observations on the cracks in buildings? Is there any risk of a tsunami, in the wake of a collapse or subsiding on the east of the island? What is the current state of the "PREPARETOI*" plan? […] What is the main risk to be taken in account right now in Mayotte?

[*Le Journal de Mayotte*, 03-06-2019, corpus C]

*Acronym for *Prévention et Recherche Pour l'Atténuation du Risque Tsunami dans l'Océan Indien*.

If, with regard to the "meaning" of *explanation*, we begin by consulting, as linguists most generally do, what a commonly used dictionary says, for example *Le Petit Robert de la langue française* (2012, p. 983), we find, as a first acceptation of "*expliquer*," "*faire connaître ou comprendre*" ["to make known or understood"], as a second acceptation, "*rendre clair, faire comprendre*" ["to make clear, understood"], and only as a third acceptation, "*faire connaître la raison, la cause de (qqch). Expliquer un phénomène. Expliquer pourquoi*" ["to make known the reason, the cause of (something). To explain a phenomenon. To explain why"]. But we find no example borrowed from the discourse of science. We cannot therefore trust in the high frequency of this verb identified in the media by lexicometric software to interpret the meaning of its use. Only analysis of "close" and "remote" co-texts allows us to give "a meaning" to the requirements of explanation for extract 10, in which there is no trace of the signifier "*expliquer*/explain," but which ends with a request for explanation as to the nature of the risk.

5.2. *Speaking of risk and uncertainty*

Over the course of the explanations relayed in the corpus we can see relations emerging between verbs that account for the activity of the researchers (treating, analyzing, interpreting, assessing, ...) and the notion of risk. This notion appears essentially in the remarks made by the authorities (the Prime Minister, the Minister of the Overseas, the prefect and the elected representatives of the island (deputy, senator and mayors of the *département*). From the viewpoint of the state services, "quantifying risk", "risk assessment" or even "appropriating the culture of risk" is an indispensible precondition for any efficient action in matters of "reduction of risk of catastrophe" (the terminology used accounts very well for the prevalence of the notion). But it extends also to the activities of the scientists, to the extent that it is thanks to science that one can hope to be able to understand and assess risk. It will be noted, however, that the notion of risk remains absent from the remarks made by lay people. What is verbalized by the inhabitants of Mayotte, at least through the channel of the press, is not so much the apprehension of risk as the disquiet felt in the face of a new threat.

Studying the corpus shows that, having perceived the disquiet among the population, the response

centrale », c'est-à-dire en profondeur. […] Ces nouvelles données renforcent le caractère fascinant de ce phénomène naturel hors norme. A tel point qu'il ne serait pas étonnant de voir débarquer prochainement des chercheurs du monde entier, attirés par ce cas scientifique majeur. Un tourisme assez inattendu pour Mayotte, mais qui ne ferait pas de mal. [*Le Journal de Mayotte*, 17-05-2019, corpus C].

adopted by the public authorities, but also by journalists, consists of "explaining" in order to reassure. Thus, for example, we can read:

(11) "First-hand accounts of earthquakes in Mayotte are multiplying. The strongest was stressed on Thursday night–Friday morning at about 2.20 am, but many of you informed us of other tremors last night. […] This event was too weak to generate the slightest fear of a tsunami, **the state services have reassured**.

This series of tremors, the number of which might seem overwhelming, has not caused any damage, and at present there is no need to fear a stronger earthquake. […] In this precise case, **the prefecture assures** that the magnitude is too weak to generate "violent" aftershocks, or else this would be due to another event.

[*Le Journal de Mayotte*, 12-05-2018, moment A][16]

These few lines show the embarrassment generated by the uncertainty as to the origin of the tremors: "the prefecture 'assures that' ..." is contradicted by the use of the conditional and the introduction of an eventuality that refers to a threat of the unknown: "or else this would be due to another event."

In each case, the scientific explanation is supposed to function as a defense against unrest, as the following extract shows:

(12) **Many irrational reactions, faced with which the BRGM explains** that while the seismicity in this region is still at the present time **fairly poorly understood**, the distancing of Madagascar from the East-African shore (from which it has detached) is continuing, causing a widening of the East-African rift which is continuing out at sea, "by utilizing the fracture system of the Davie ridge."

A phenomenon that "seems to be progressing toward the south-east, that is to say, towards the Comoros and Madagascar. It is probable that this phenomenon is reactivating the ancient faults in these two sectors, and in particular the **submeridian faults parallel to the East African Rift and the Davie Ridge"**

[*Le Journal de Mayotte*, 23-05-2018, moment A][17]

What raises a question here is the contrast that is being made between the comments from the scientific expert (the BRGM) who "explains," and "the irrational reactions" of the population at risk. The disquiet of the inhabitants and the comprehension of the geodynamic context of the zone are thus placed on a single plane, as though the emotion kindled by feeling earthquakes could be absorbed, or offset, by turning to a higher rationality, that of scientific explanation. Furthermore, this is a rationality whose foundations are not provided, because the knowledge is here delivered without anyone knowing what allowed it to be established and validated, nor what the uncertainties correlative to its constitution might be.

It will be remarked more generally that in the explanations given in the news accounts studied there is an absence of any nuance specific to scientific discourse. Indeed, scientific deontology prefers that the presentation of what is known should be made with regard to what is not known. Turning to the notion of uncertainty allows for a more precise delimitation of the limits of a given knowledge and for an account of the existence of irreducible gray zones in knowledge. We distinguish *a minima* between two types of

[16] Les témoignages liés à des tremblements de terre se multiplient à Mayotte. Le plus fort a été souligné dans la nuit de jeudi à vendredi vers 2h20 du matin, mais vous avez été nombreux à nous faire part d'autres secousses la nuit dernière. […] Un événement trop faible pour générer la moindre crainte de tsunami, rassurent les services de l'État. Cette série de secousses qui peut impressionner par leur nombre n'a pas causé de dégâts, et il n'y a pas à craindre de tremblement de terre plus fort l'heure actuelle. […] Dans ce cas précis, la préfecture assure que la magnitude est trop faible pour générer des répliques « violentes » ou alors ce serait dû à un autre événement. [*Le Journal de Mayotte*, 12-05-2018, moment A].

[17] Beaucoup de réactions irrationnelles, en face desquelles le BRGM explique que si la sismicité dans cette région demeure à ce jour assez mal connues, l'éloignement de Madagascar de la côte est-africaine africaine (d'où elle s'était détachée) se poursuit provoquant l'ouverture du rift Est-Africain qui se poursuit en mer, « en utilisant le système de failles de la ride de Davie ». Un phénomène qui « semble progresser vers le sud-est, c'est-à-dire vers les Comores et Madagascar. Il est probable que ce phénomène remette en activité les anciennes failles de ces deux secteurs, et en particulier les failles subméridiennes parallèles au rif Est-Africain et à la ride de Davie » [*Le Journal de Mayotte*, 23-05-2018, moment A].

uncertainty: instrumental incertitude, linked to the imprecision inherent in any instrument or method of measure, which is in part quantifiable, and epistemic incertitude, linked to the limits intrinsic to any knowledge, and which could never be quantified because it touches on the domain of what is not yet known. From the scientific point of view, the beginning of the seismic crisis in Mayotte is marked by great uncertainties that are both instrumental and epistemic. It will be noted, however, that these two types of uncertainty are explicitly distinguished neither by the journalists nor by the actors from whom certain comments are borrowed. This contributes to a "muddling" of the explanation:

(13) The epicenter of the current earthquakes is located in the sea, some 30 to 40 miles off the Mayotte coast, estimates the BRGM. A tremor of higher magnitude than those already observed **cannot be ruled out**", **even if** the probability of an earthquake of much higher force **is unlikely**. "At [magnitude] 6, we would indeed have greater damage," Étienne Guillet, cabinet director of the prefecture recognized on Monday morning during a meandering discussion with worried inhabitants [...]

But the watchword is to reassure the population. "On the global scale, these are micro-phenomena, underlines Etienne Guillet. The cluster of earthquakes is "apparently linked to the East-African rift" and to "a sliding of tectonic plates." **There is no risk of subduction therefore there is no risk of a tsunami** [...] **Potentially**, a plate may have splintered," he adds, while some inhabitants see this as a divine punishment and a number of people on the internet say they have been unable to sleep.

[*Le Figaro*, 22-05-2018, moment A][18]

The statement that "a tremor of higher magnitude cannot be ruled out" sends a message of alert that is hardly softened by the more technical—and less emotionally marking—statement that "its probability" remains "unlikely." Especially as the next part of the explanation ventures a paradoxical image that binds the idea of "micro-phenomena" to the idea of a potential rupture of the tectonic plate on which the island of Mayotte sits, a plate which we may suppose to be of dimensions that have nothing microscopic about them.

Instrumental incertitude, being very technical by its nature, rarely becomes an object of discussion in the general media. We can, however, find some examples. The *Journal de Mayotte* comes back to the polemic around the detection of the earthquakes:

(14) **Divergences in the Localization of Earthquakes between Different Operators: the BRGM Explains Itself** [headline]

Enthusiasts of the app receive data, almost in real time, on the daily tremors in Mayotte. Magnitude, epicenter, depth ... almost nothing escapes the web users. But sometimes there is divergence in the data.

This was the case on Tuesday May 22, when a new tremor was felt at 15:37. The prefecture reports that, "the Bureau of Geological Research (BRGM) recorded a new tremor at 15:37 felt by the population at a magnitude of 5.0 with an epicenter located 30 miles to the east of Mamoudzou.

On the smartphones, the "quake" application showed for that same time a comparable magnitude, of 5.1, but for an epicenter 20 miles from Mayotte, thus much closer to our island. Data issued by the USGS, United States Geological Survey.

The divergences show up in red and blue on a seismicity map published by the BRGM on its site [...]. It can be seen that the blue points symbolizing the epicenters are much

[18] « L'épicentre des séismes actuels est situé en mer, vers 50 à 60 km au large de Mayotte, estime le BRGM. Une secousse de magnitude supérieure à celles déjà observées ne peut être exclue », même si la probabilité d'un séisme nettement plus puissant est peu probable. « À 6 [de magnitude, NDLR], on aurait effectivement plus de dégâts », reconnaît lundi matin Étienne Guillet, directeur de cabinet du préfet lors d'une discussion à bâtons rompus avec des habitants inquiets [...] Mais le mot d'ordre est de rassurer la population. « On est dans des micro-phénomènes à l'échelle géologique », souligne Étienne Guillet. L'essaim de séismes est « lié a priori au rift est-africain » et à « un glissement de plaques. Il n'y a pas de subduction donc pas de risque de tsunami [...] C'est potentiellement une plaque qui se scinderait », détaille-t-il alors que certains habitants y voient une punition divine et que de nombreux internautes signalent avoir perdu le sommeil. [*Le Figaro*, 22-05-2018, moment A].

more dispersed than those of the BRGM, which explains this as follows: "The USGS uses remote seismic stations, the closest of which is 400 miles from Mayotte and up to 3000 miles away. The seismic phases are difficult to visualize on these remote stations for magnitudes lower than 4.5. This results in greater incertitude than is to be seen with the dispersion of epicenters on the map."

On its side, the BRGM carries out localizations with four stations: those of Kaweni and Iloni, 30 miles from the epicenter, and those of Madagascar and Kenya. The low distance of the Mayotte stations heightens the precision of the localizations (points in grey and red on the map), "but we are limited by the visualization of signals on the remote stations (KIBK in Kenya, 750 miles away). We only localize in this way those tremors of a magnitude higher than 4.2–4.3. The smaller tremors are caught by the Mayotte stations but do not allow for reliable localization.

[*Le Journal de Mayotte*, 23-05-2018, moment A]

This long explanation, which is almost cut and paste, undoubtedly conveys a real difficulty in translating the experts' remarks for a wider audience. Indeed, many questions arise which are not explicitly explained: what is a seismic phase? Why are many stations used? Why is the distance between them so important?

The diminishing seismic activity (which was accompanied by an exit from the emergency experience and from crisis communication), progress in scientific knowledge (with, notably, the discovery of the volcanic source of the activity), and the organization of the actors in an organized network for monitoring with a coordinated communication strategy (via the REVOSIMA), have allowed for the progressive emergence of more structured and coherent media narratives in matters of explanation, notably on the scientific side. But in spite of the first scientific campaigns, and notably those of May 2019 that led to the announcement of the "discovery of the new volcano," the "lack of information" is still "giving rise to some disquiet" among inhabitants:

(15) Fresh lava flow and earthquakes closer than thought [...]

"Nothing is being hidden" assure the Mayotte prefecture in concert with its cabinet director. **While this detail is important, the lack of information, above all on social media, is giving rise to some disquiet and even to conspiracism of all kinds**. The Marion Dufresne thus hosted local representatives on Tuesday morning, and press delegations in the afternoon, for a "transparency" operation. But transparency is not always synonymous with omniscience and many questions remain unanswered, generating frustration, starting with the scientists themselves [...]

And the prefecture has as many of these unanswered questions as the journalists.

"Even more still" notes the new prefect [...]

We respond to a risk when we are aware of it" says Jean-François Collombet.

[*Le journal de Mayotte*, 01-08-2019, sous-corpus D][19]

It is the case, then, that the rigorous application of the scientific approach brings as many "unanswered questions" as responses, and "discovering" the volcano is insufficient when it comes to characterizing the threats that its presence causes to weigh down on the island. In this sense, the advance in knowledge shows itself to be frustrating for the inhabitants, for the authorities, and for journalists alike. The prefect's words sum up very well the situation of the powerlessness of the public authorities, who can hardly move forward in the definition of a strategy for protecting the population because "we respond to a risk when we are aware of it."

[19]Une nouvelle coulée de lave et des séismes plus proches qu'on ne le pensait [...] « On ne cache rien » assurent de concert le préfet de Mayotte et son directeur de cabinet. Si la précision est utile, c'est que le manque d'informations, surtout sur les réseaux sociaux, suscite quelques inquiétudes voir complotisme de tout poil. Le Marion Dufresne a donc accueilli mercredi matin les élus du département, et l'après-midi la presse, pour une opération de « transparence ». Mais transparence ne rime pas toujours avec omniscience et de nombreuses questions restent en suspens, générant de la frustration, à commencer par les scientifiques eux-mêmes. [...] Et des questions en suspens, la préfecture en a autant que les journalistes. h« Voire plus encore » note le nouveau préfet [...] On répond à un risque quand on le connaît » dit Jean-François Collombet. [*Le journal de Mayotte*, 01-08-2019, sous-corpus D].

The expression of incertitude in the news accounts thus shifts from the questions of the "cause of the seismicity" toward that of possible scenarios and risks. One will note that, in both cases, the scientific community remains central in the news accounts, because only the scientists harbor the means to reduce these uncertainties.

6. Discussion

The study undertaken here on six non-specialist French-language newspapers would gain additional depth by including further local, regional and national daily papers in the corpus, perhaps even others written in other languages, and further media such as television, radio, or social networks. To the extent that a large number of Mayotte's inhabitants neither read nor understand French, analysis of the corpus informs us only as to representations circulating in the newspapers studied, and not those circulating among the Mayotte population. The non-specialist daily press nevertheless remains a firm candidate for studying representations conveyed by the media as a whole, especially given the tendency for almost instantaneous relaying of news broadcast from one media to another, whether this be the press, television, radio or internet [Cagé et al., 2017]. This is why the corpus retained here seems to us to be sufficiently representative of the French-language media narratives that circulated on the seismo-volcanic "crisis" in Mayotte during the period of time studied, that is to say, between spring 2018 and spring 2021.

With regard to the representation of social actors in the media accounts, three discursive communities are foregrounded here and the place ascribed to each of them is different: people "endure and get into a panic," while the authorities "take measures" and "strive to reassure," but often under the cover of what the scientists are "striving to understand." This observation is coherent with the previously conducted research, which shows the media putting on stage "officials [who] must be careful about issuing warnings because of the danger of panic" and "victims [who] will be dazed and confused, perhaps in shock, and must be cared for by others" [Scanlon, 2007, p. 416]. Even if, in the case of Mayotte, no disaster crisis in the strict sense came about, one can nevertheless notice strong similarities in the way the actors are represented. Indeed, these representations are deemed "inaccurate, biased and often exaggerated" by specialists in research on catastrophes [Rodriguez et al., 2007, p. 482]. Such representations merely corroborate certain myths already circulating in society, largely deconstructed by the social sciences, but which persist in spite of everything [Mileti, 1999]. Quarantelli [2008] thus reminds us that panic is such a rare phenomenon in emergency situations that it becomes hard for researchers to study it, adding that the populations affected, rather than becoming confused, passive and irrational, are on the contrary extremely pragmatic and proactive in the face of danger. He also underlines that the representations that western societies have of catastrophe are largely inspired by those circulating in the media, because catastrophes are, *in fine*, fairly rare in these societies. Thus, media narratives contribute to the reinforcement of such myths. In the case of Mayotte, the words of the different actors, selected and rearranged by the journalists, are inserted into a narrative that undeniably echoes this.

We have also shown that the scientific community occupied a particular place among the actors put on the stage in these media narratives: it appears to be far more central. The CNRS ethics committee (COMETS) made a similar observation concerning scientific communication during the health crisis linked to Covid-19 [Lettelier et al., 2021]. But has the scientific community taken full measure of its "centrality," especially when what is at stake is an event said to be "natural"? In our western democracies, the scientific system for validating evidence is one of the levers upon which officials ground the legitimacy of the decisions they take [Jasanoff, 2005]. Opinions held by officials thus tend to refer the listener or reader systematically to what has been said by the scientific community, which places the latter implicitly in a situation of a third-party guarantee, if not for the truth, then at least for the fairness of the opinions held. This effect is even stronger in the case of Mayotte given that the seismo-volcanic activity only manifested itself indirectly, and the "new volcano" has been visible only through instrumentation and scientific interpretation. But scientific discourse in itself does not say very much about decision-making. The basis of a decision is, further to elements of scientific evidence, those elements of context and situation that are not the province of science. All the

more so when uncertainty runs high, which is the case here. The narratives that tend, then, to maintain confusion between "what is scientific" and what is not do a disservice to the decision-making process as a whole [see the discussion on this topic engaged by Devès et al., 2022, which concerns communication from state officials in the framework of the Mayotte crisis].

The analysis comprehensively highlights the temporal difference that exists between the practices of the different actors, not only among themselves, but also with the media. The discursive moments studied fall under the "hot news" timeframe [Pilmis and Rouquette, 2016], a journalistic temporality that does not correspond to the temporalities of scientific research, of monitoring, or even risk and crisis management. Media demand, which is very strong when the seismic crisis was at its height, forces the actors to express themselves in the here and now, even when they have nothing (by their own standards) new to say. As Fallou et al. [2020] have underlined for the case of Mayotte, but other authors too with regard to other crises, it nevertheless remains crucial that actors, and the authorities in particular, should express themselves promptly so as not to allow space for rumor to gather [Lagadec, 1993, Scanlon, 2007]. We have been able to glimpse this here: what is at stake is to express oneself while trying to avoid contradictions, which cannot fail to emerge as awareness about the situation becomes more precise. Through their construction, based as we have seen on the juxtaposition of remarks made by different actors, the news accounts tend to highlight these possible contradictions. Platt [1999] goes so far as to assert that media enthusiasm for extreme situations contributes, by putting local protagonists in the spotlight, to a politicization of the situation in a way that is not helpful while preventing the actors from reacting correctly.

Reviewing the corpus has revealed that most of the accounts studied had an explicative aim. This is not so surprising when one considers that, faced with the threat of catastrophe, which is often perceived (as we have said) as threatening the social fabric, journalists, and in particular local journalists who are in the front line, contribute through their accounts to maintaining the bond between individuals and the group. Many contributions have shown the importance of the media in the face of a risk of catastrophe (the media play the role of sounding the alarm but also of transmitting information about zones affected, the localization and distancing of danger, and for each of these reasons give life to the bond between the individual and the group, etc.) [Scanlon, 2007]. In the case of Mayotte, a similar tendency can be observed at the height of the seismic crisis at the level of the local press. We have also seen how journalists mean to contribute to "reassurance" in order to avoid panic, which translates into a wish to "rationally" express what is happening by turning to scientific arguments. The influence of the major myths mentioned above is here met again.

Besides the incompatibility between this stance and the reality described by the analysis of real catastrophes [Quarantelli, 2008], analysis reveals a number of factors inherent to press writing that are liable to contribute to a "muddling effect" on explanation; an effect that is all the more present in that often one skims over the zone of the page or screen, rather than reading in depth:

- A first factor is the one introduced by recourse to scare quotes to represent the speech of different actors. It translates into a polyphony that is sometimes hard for the reader to decipher insofar as these are often fairly short segments borrowed from different discursive formations which are almost juxtaposed. This way of structuring the news account contributes to the placing of the opinions of different actors on a single plane, be they first-hand testimony of something felt, the announcement of a measure for civil protection, or the sharing of scientific results. Indeed, the opinions held by the different actors when speaking to journalists refer implicitly to their own value systems, references and practices. But the journalists do not always translate these implicit meanings, and sometimes do not even perceive them. The fragmentation of the meaning of the original words into a plurality of decontextualized extracts makes them lose their own specific value, which might for one person strive to articulate a subjective truth, and which might for another describe a factual truth or a piece of scientific evidence.
- A second "muddling" factor is the use of

specialist terms without necessarily defining them or placing them in their context. Thus, we have been able to highlight on several occasions how hard it has been to translate certain terms of scientific concepts. The concept of "risk," of "seismic constellation," of "intensity" or even the explanation of uncertainties linked to the spatial arrangement of seismic networks, are typical examples from the corpus studied.

- A third "muddling" factor is the superimposition of different forms of explanation. Didactic explanation superposes onto scientific explanation or explicative argumentation, and comparisons that are supposed to facilitate comprehension are not always pertinent for readers who are often far removed from the images of mainland France, and which are chosen by editors and scientists who in some cases are far removed from everyday life in Mayotte.
- A fourth "muddling" factor is the treatment of uncertainties themselves. The sharing of uncertainty is complicated by the very structure of the media account. The fragmentation of scientific speech hampers the development of a well-supported line of scientific argumentation. Another limit is the difficulty of transcribing the difference between what is known and what is not, between what is due to an epistemic incertitude and what is due to an instrumental incertitude. And the multiplicity of expressions of uncertainty, a polysemic term if ever there was, does not help to clarify the sentiment.

But one might equally see in "this muddling" (the term is not a pejorative one) an inevitable tendency of media communication, and even of political communication, which borrows from social media as much as from science, to the point of giving rise to an inevitable "permeability of borders between the ordinary and the specialized in both genres and discourse" [Rakotonoelina, 2014]. What is being sought here is to show how an account of the "instant" is being constructed (rather than a retrospective account that could be given in a few years' time) of the birth of a submarine volcano near Mayotte and what this has provoked in terms of changes in Mayotte's history. While the narrative is developed on the basis of the words of different social actors, its finality is to inform about what is being said and done by representatives of the different discursive formations implicated in the narrative at the x moment when the newspaper comes out.

What analysis has confirmed, regardless of the references in use [from the perspective of the work on the enunciation of analysis of French discourse, Chauvin-Vileno and Rabatel 2006; and/or that of *Critical Discourse Analysis*—Petitclerc and Schepens, 2009], is that these narratives of information, which could be extended to news programs on local and regional television stations, "are not organized by the descriptions of an end that is known by the narrator, but under the control of the situation of utterance, which is in the course of occuring at the moment when the narrator is speaking, filming or writing. This anchorage in the situation of enunciation explains in part the disintegration of accounts of events that seem to have no end, if not that the media stops speaking about them" [Arquembourg, 2011, pp. 40–41]. And yet these narratives may be merely provisional, to the extent that work on the event [Londei et al., 2013] "is ongoing, which leads the narrative to reemerge and to become extended later on" adds Arquembourg [2011, pp. 40–41], who suggests distinguishing between two types of media narrative in accordance with their different temporalities [Arquembourg, 2011, p. 41]: "finished accounts that bring about a retrospective return to the facts and deeds, and which are oriented toward a past that is more or less close" and "emerging narratives, which offer an account of what is taking place and which are oriented both toward the future and toward the horizon of an account yet to come." This remains a project for the future, notably in reference to newspapers and monthly magazines, the science pages of daily newspapers, and some television programs and webinars on the submarine volcanism near Mayotte.

We have also brought to light how, in something of a contrast with the health crisis due to Covid-19, no polemic was "shown" here between scientists, nor among or with other actors, which changes considerably the structure of these narratives, hence the apparent juxtaposition of words from the three discursive formations; formations which do not seem to be in a debate either mutually or internally. And yet the

past seismo-volcanic crises, foremost among them the eruption of the Soufrière in Guadeloupe in 1976 [Devès et al., 2016], have shown that the domain of earth sciences has not been free of controversy. Was Mayotte spared this by what was ultimately a very moderate scale of impact on the everyday life of the inhabitants? And what might happen were some of the danger scenarios envisaged come to pass?

7. Conclusion

Analysis of news accounts from the daily press on the seismo-volcanic "crisis" in Mayotte has enabled us to explore the forms of the media narratives emerging in a context marked by great uncertainties that were both scientific and political.

We have shown the important place taken by three main discursive communities: the scientists, the authorities, and the population at risk, as well as the role played by myths circulating in our western societies regarding the role played by the different parties in a situation, if not of catastrophe, then at least of crisis. We have highlighted the importance of the scientific community in these accounts, even though this sometimes occurred very much against its will. We have underscored some of the difficulties presented by the differences in temporality between the timeframe of the media (especially the daily outlets) and the timeframe of scientific research, of the monitoring or the management of risk and crisis. We have shown that, although all news accounts tend to adopt an explicative aim, the various discursive communities rely on differing forms of explanation, which can contribute to an effect of 'enunciatory muddling'.

But we have not exhausted the data from the different discursive moments that we collected and further work is in course to complete the analysis. Apart from the work on uncertainty that we have sketched out here and which would benefit from additional study, it has emerged that re-contextualizing the different moments of time and place of the daily papers retained for analysis would be helpful, in keeping with what has been proposed by, for example, Idelson [2007] on the treatment of the Chikungunya crisis in Reunion, Mauritius and the Seychelles. On the one hand, it will be a matter of differentiating between the newspapers retained in accordance with their distance from Mayotte, questioning journalists on the priorities they set for themselves at the start of the event and throughout its evolution, and questioning Mayotte's inhabitants in person (interviews had been planned, but the Covid-19 crisis has led to their postponement for the time being), because, beyond the discursive communities and the discourses they speak, one might equally examine the way in which these same communities function as "interpretative communities" [Idelson, 2011]. This could be useful for scientific missions sent to the Indian Ocean, or elsewhere in the world. Indeed, as discussed earlier, all actors do not share a similar interpretative framework. Efficient risk communication relies on the ability of the ones who "communicate" i.e., the scientists and the authorities to understand these differing frameworks.

Conflicts of interest

Authors have no conflict of interest to declare.

Authors' contributions

MHD and SM were responsible for the conceptualization of the study, the administration of the project, the methodology and the writing of the document. MHD and GR were responsible for the design of the MAY'VOLCANO corpus, GR and LV for collecting the press articles and LV and MHD for validation. MHD selected the corpus studied here. MHD and SM undertook the formal analysis together. MHD and LV worked on the figures.

Acknowledgements

This research has been supported by the IdEx Université de Paris (Université Paris Cité), Centre des Politiques de la Terre, ANR-18-IDEX-0001. The authors would like to thank Robin Lacassin, Sandrine Reboul-Touré, Pascal Brunner, Emilie Née, all members of the MAY'VOLCANO team, for their thoughtful comments on the original version of the paper, and Adrian Price for translating in English the French version of the paper.

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