

# What can we learn from a crisis management exercise ?

## Trusting social media in a french firefighters' department

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### ABSTRACT

This paper sets out the methodology and the temporary results of an ongoing research project on the use of social media in crisis management (in France). It discusses the benefits and limits to use an emergency crisis exercise for research purposes. It describes an observation protocol and a coding method that could be replicated to survey further exercises. Some possible processing of the observation data is exposed, and further visualizations of the data are still in progress. One of the first analytical results tackles the way Var's firefighters consider social media information. For now, social media seem to be regarded as questionable because they do not easily fit into the organizational routine. At the same time, the awareness of the need to use social media is quite strong. On the analytical level, the paper tries to use sociological concepts to describe and explain some results.

### Keywords

Social Media, crisis management exercise, firefighters, methodology

### INTRODUCTION

ISCRAM community is of course convinced by the usefulness of social media for EM (emergency management), and bunch of experiments and papers focus on how to really use them, integrate them and to make the most of it (especially with the help of computer-assisted methods). Yet, a lot needs to be done on "what information do emergency dispatchers and first responders really need" (Kropczynski et al. 2018, 2). Beyond the nature of the needed information, this paper focuses on how disturbing it can be for an emergency organization to concretely use new sources of information. All emergency managers are not still convinced that social media information is trustworthy ; even if social media trustworthiness strongly depends on the quality of the data (Tapia et al. 2013), we argue that in our case (a French firefighters' department) a questionable statute is still given to social media data. This un-trustworthiness relies as much on professionals doubt as on organizational routine.

Our research question fits into the agenda set by Elbanna et. al: "much of the research in the area has focused on public use of social media during an emergency as well as how emergency agencies benefit from the data and information generated by this process. However, there is little understanding of what are the operational implications of this public use on emergency management agencies and how does social media either positively or negatively impact these operations" (Elbanna et al. 2019, 112). Using a more sociological analytical framework, this paper tends to show that apart the quality of social media data and the efficiency of technical tools to process them, organizational features may also affect the propensity of emergency professionals to use social media. The paper builds on a collective observation of a crisis management exercise in France.

The paper consists of four sections. Section 1 frames the state of the art. Section 2 presents the exercise objectives and conditions: the exercise was organized by the Var's firefighters' department (France) and is part of a larger research project funded by the French Research Agency. Section 3 describes the observation protocol, building on previous observations made during the European Union Sequana exercise (for the 100-year flood). Section 4 puts forward some temporary results: data analysis is still on progress, as 2 more exercises, some workshops and interviews are to be made with other institutional partners. Section 5 discusses the methodological implications of the use of a simulation for research purposes and proposes to analyse social media as organizational resources. Section 6 draws some conclusions and perspectives that this ongoing project can offer.

## STATE OF THE ART

A lot of research has been done on the potential use of social media for crises management (see for example the survey of ISCRAM proceedings from 2004 to 2011, (Grant and Jongejan 2011). Literature first focused on the use of social media by citizens to help each other and how social media could lead to “collective intelligence”, and then on organizational use of social media to communicate to the public, to use citizen-generated content as a new source of information (Denis and Hughes 2012; Starbird and Stamberger 2010) or to better communication between crisis professionals and organizations (Grant et al. 2013; Vieweg et al. 2010). We propose a non-exhaustive state of the art regarding the obstacles in the use of social media by emergency services in order to frame our observations and discuss our first results.

### Organizational and professional grounds of social media trust

A positive attitude towards the use of social media has been observed by several studies, either the US (San et al. 2013) and Europe (Reuter et al. 2016; Rizza and Pereira 2014). Indeed, emergency professionals and citizens can use social media instead of traditional media when the latter not available, especially during the beginning of a crisis (Aupetit and Imran 2017). However, studies on the social media use in emergencies has also observed several obstacles: data quality (Tapia et al. 2011, 2013), the credibility of this kind of information (Castillo et al. 2011; Mendoza et al. 2010), the lack of training and guidelines (Hiltz et al. 2014) or the lack of organizational procedures to help managing such information (Kaufhold and Reuter 2017) or unintended consequences of such uses (Rizza et al. 2014). In accordance with those findings, the paper tries to use pragmatic sociological concepts to emphasize the organizational and professional features that can explain the lack of trust towards social media information. The concept of “interestement work” (Akrich et al. 1988; Latour 2005) – the fact that the interest of actors into a new device or procedure is the result of an organizational work that need to be cared of – and the concept of “trials” (Boltanski 2011; Dodier 2005) – which are moments where actors question the factuality of what they are facing to, moments where they mobilize their capacity to critic the reality – are used to describe the partial integration and use of social media information. They provide internalist explications of what is observed: the (lack of) trust is not what explain but is what need to be explained.

## EXERCISE OBJECTIVES AND CONDITIONS

### General objectives

The researchers team had two main objectives during the crisis management exercise. The first one was to observe how the Firefighters' crisis management integrate (or not) the citizen, both as an information source – especially through social media – and as stakeholders or participants into the management crisis (either as already reckoned volunteers and already organized and identified helpers, or as spontaneous helpers). Secondly, it was to prepare the second year of the research project (called MACIV -*Management of Citizens and Volunteers: social media in crisis situations*), bringing necessary elements to the realization of a new crisis management prototype in the R-IO-Suite software (Benaben et al. 2016)<sup>1</sup>. Indeed, exercises 2 and 3 will partly focus on the capacity of the prototype to improve the citizens integration into the crisis management by improving social media data computer-processing.

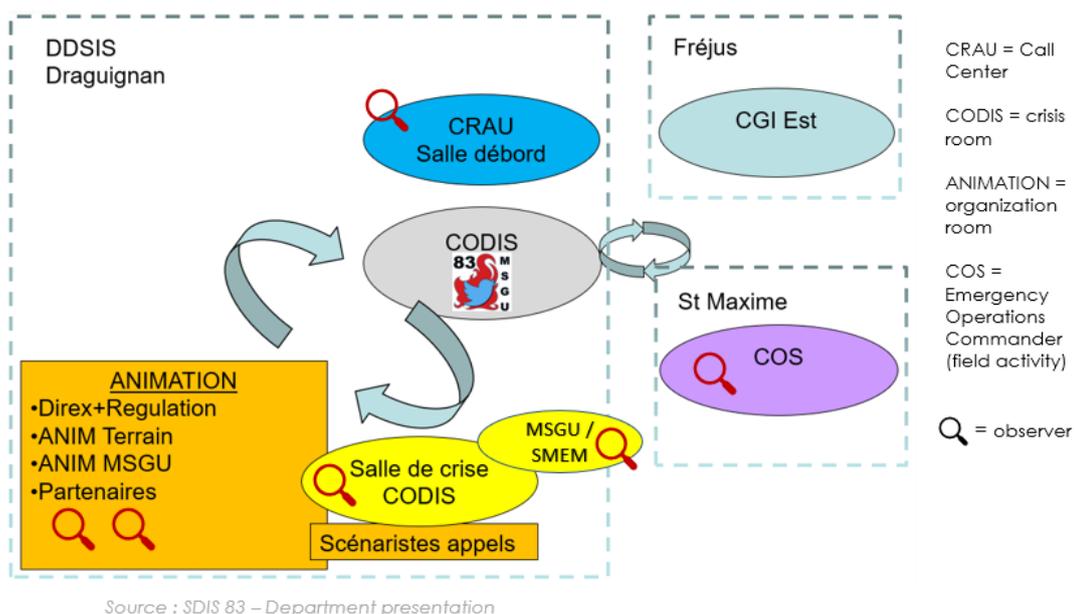
The observation was supposed to focus on three main elements: social media as information source, citizen initiatives during crisis, communication towards citizens. Actually, the exercise was organized in such a way that only the first element (social media as information source) was observable.

<sup>1</sup> Here is an online presentation of the R-IO Suite : <https://research-gi.mines-albi.fr/display/riosuite/r-IOSuite+Home>

### Simulation configuration

The *SDIS 83* is the Var's firefighters' department and the simulation was based on a flood scenario in Sainte-Maxime area (south of France)<sup>2</sup>. This firefighters' department is one of the most involved and advanced in France into the use of social media and citizen-generated content for crisis management. The aim of the simulation was to perform their organizational line about social media. The exercise lasted 2 hours (with 2 hours debriefing), took place in several rooms on October 2018. Six researchers-observers were situated into those rooms (see figure 1):

- First there was the CRAU (Centre de Réception des Appels d'Urgence), which is the Department Call Centre, where emergency calls are treated: one observer was here at the beginning of the exercise.
- Then there was the CODIS (Centre Opérationnel Départemental d'Incendie et de Secours), which is the Department Crisis Room, the place where firefighters try to anticipate major interventions. They also give information to public authorities, and they monitor and advice the firefighters' field activity. In this crisis room, there was a special team (2 persons) dedicated to the monitoring of social media, called the MSGU team, (which is the French acronym for Social Media for Emergency Management, SMEM). One researcher was dedicated to observing the MSGU team while another one observed the whole crisis room.
- Firefighters' field activity was also simulated. This activity is supervised by a special officer, the COS, (Commandant des Opérations de secours), the Emergency Operations Commander. One observer was there too.
- Finally, there was the organization room where people simulated external roles (like the public authority, the VISOV – Volontaires Internationaux en Soutien Opérationnel Virtuel – which is the volunteer's association monitoring social media to help first respondents – like the VOST, Virtual Operation Support Team) and oversaw the scenario proceedings. Two researchers where here.



**Figure 1. Var's firefighter's department and observers' position**

As usual in this firefighter's department, simulation scenario was based on emergency phone calls to which the players must react (see figure 2). In this simulation, a specific social media scenario was added, consisting in a list of tweets (see figure 3): the social media team of the organization room (composed by one VISOV member and one social media analyst of the firefighters' department) "published" them. The Twitter platform was not used: simulated tweets were sent by WhatsApp to the MSGU/SMEM team located in the crisis room. Some tweets were fake or rumor and some contained information that no emergency phone calls could provide (according to the scenario).

<sup>2</sup> SDIS stands for *Service départemental d'Incendie et de Secours* (Local Fire and Emergency Department)

**SCENARIO ICM 28 NOVEMBRE 2018 - SME**

		Communes	Adresse à donner	Appel à formuler	Intonation animateur	
PHASE 1	Simultané	9N00	inter 1 NP SME	13 avenue saint euepy residence la riviera SME	1 m d'eau dans la cave	normal
		9N02	inter 2 PR SME	carrefour market avenue du 8 mai 1945 SME	0.5 m d'eau au niveau de l'administration bcp de matériel informatique	stressé
		9N04	inter 3 NP SME	15 rue jules michalet SME	cabanon de jardin qui flotte	normal
		9N06	inter 4 RA SME	impasse etienne SME	2p personnes dans une vi avec de l'eau au niveau des portieres	paniqué
		9N08	inter 5 NP SME	residence du golf avenue saint euepy SME	chat dans un arbre dans une propriété ne peut plus descendre à cause de l'eau	normal
		9N10	inter 6 PR SME	1 chemin du preonill devant residence les platanes SME	arbre couché sur vp	stressé
		9N10	inter 7 RA SME	58 rue du plan chantier naval tosato SME	1 famille de 4 personnes sur le toit d'un mobil home à la dérive	paniqué
		9N12	inter 8 PR SME	pizzeria da pino avenue general leclerc SME	1 personne à mobilité réduite avec l'eau arrivant au niveau des portes du restaurant	stressé
		9N14	inter 9 PR SME	GB distribution route du plan de la tour SME	arbre menaçant de tomber sur 1 garage	stressé
	9N15	inter 10 RA SME	centre de compostage route du plan de la tour SME	accès impossible ; le propriétaire ne répond pas aux appels	paniqué	
	9N16	inter 11 NP SME	residence le port marine avenue georges pompidou SME	un réfrigérateur pour sa voiture qui commence à être entourée par les eaux	normal	
	9N18	inter 12 RA SME	chemin de basse SME	1 vl emportée par les eaux avec 1 personne sur le toit	paniqué	
	9N20	inter 13 NP SME	18 chemin du preonill residence le maxime	plus d'électricité sur l'ensemble Dans la residence	normal	
	9N22	inter 14 NP SME	parking a cote du leader price route du plan de la tour SME	aire évacuée mais les caravanes commencent à flotter	stressé	
	9N24	inter 15 RA SME	acces domaine les restanques SME	1 voiture dans le fossé et sous les eaux phares allumés	paniqué	
	9N26	inter 16 PR SME	LIDL route du plan de la tour SME	quai de livraison inondé	stressé	
	9N26	inter 17 PR SME	maison de retraite des opalines SME	plus d'électricité dans l'ensemble de la maison de retraite	stressé	
	9N28	inter 18 NP SME	4 chemin du preonill residence le soupion SME	eau dans le garage	normal	
	9N29	inter 19 NP SME	menuiserie DAVID route du plan de la tour SME	eau dans la reserve ; mobilier non touché	stressé	
		9N30	inter 20 NP PTR	12 allée du bois d'icard PTR	la requérante ne voit plus les poules dans son poulailler	paniqué
		9N34	inter 21 NP SME	IGE immobilier rue gabriel péri SME	plus d'électricité	stressé
		9N36	inter 22 PR SME	garage peugeot route du plan de la tour SME	risque de pollution eau menace stock d'huile et de solvant	stressé
		9N38	inter 23 NP SME	laboratoire beausset avenue jean jaunes SME	10cm dans le jardin	normal
		9N40	inter 24 PR SME	entrée chemin des saquedes SME	arbres couchés sur vp circulation bloquée	normal
		9N41	inter 25 NP SME	20 avenue du 8 mai 1945 residence sainte maxime plage SME	fuite niveau du skydome	normal
		9N42	inter 26 NP SME	entreprise gobino chemin des virgiles SME	10 cm d'eau dans la serre	stressé
		9N43	inter 27 RA SME	chemin du bouillonnet SME	un agriculteur dans le champs qui est monté sur un pylone erdf champs complètement inondé avec fort courant	paniqué
		9N44	inter 28 NP PTR	camping la laune PTR	camping vide de tout occupant avec 20cm d'eau à l'intérieur de ce dernier	normal
		9N45	inter 29 PR SME	pharmacie du preonill avenue george pompidou SME	arbre qui menace de tomber sur la pharmacie	stressé
9N46	inter 30 NP SME	33 avenue georges pompidou residence les terres marines SME	l'eau de la piscine deborde	normal		
9N47	inter 31 NP PTR	chemin de cros d'entassy PTR	route coupée par la montée du ruisseau	normal		

Figure 2. Emergency phone calls scenario

Date JMMMAA A	Nom	Heure du tweet/post	CONTENU TWEET/POST/IMAGES/VIDEOS	Liens URL	Lieu(x) concerné(s)	Département	Carto	Remarque(s)	Heure de l'input
11/28/2018	Alban	9h04	Fermeture Carrefour Market	<a href="https://drive.google.com/file/d/1B55UV_LHM7fzXbfp_cu8SN-Qe-sI7S1/view">https://drive.google.com/file/d/1B55UV_LHM7fzXbfp_cu8SN-Qe-sI7S1/view</a>	Ste Maxime	83	Photos		9h04
11/28/2018	Léa	9h04	Inondation Rue Michelat	<a href="https://drive.google.com/file/d/1nIMyQDQFKQNSwCaav8151x-K5jM1ie8/view">https://drive.google.com/file/d/1nIMyQDQFKQNSwCaav8151x-K5jM1ie8/view</a>	Ste Maxime	83	Photos		9h04
11/28/2018	Alban	9h06	Impasse Etienne, "gens qui vont mourir"	<a href="https://drive.google.com/file/d/15vuHG3y4EK0pWwM4ZwY10g8WtXMD-r1/view">https://drive.google.com/file/d/15vuHG3y4EK0pWwM4ZwY10g8WtXMD-r1/view</a>	Ste Maxime	83	Photos	URGENT	9h06
11/28/2018	Thomas	9h09	Camping, Propriétaire sur le toit avec sa famille	<a href="https://drive.google.com/file/d/1OavVfskcy6e6sMR0JDf0r1z8N83Dadi/view">https://drive.google.com/file/d/1OavVfskcy6e6sMR0JDf0r1z8N83Dadi/view</a>	Ste Maxime	83	Photos	URGENT	9h09
11/28/2018	Thomas	9h12	Résidence les platanes	<a href="https://drive.google.com/file/d/1Q40_Q1bJCdxSt0m5r8b20PQqdo0pC57/view">https://drive.google.com/file/d/1Q40_Q1bJCdxSt0m5r8b20PQqdo0pC57/view</a>	Ste Maxime	83	Photos		9h12
11/28/2018	Thomas	9h20	Résidence du Port, Eau qui monte	<a href="https://drive.google.com/file/d/1B1WbODCl-y-SzI2Qzq78CDnR6bz-It/view">https://drive.google.com/file/d/1B1WbODCl-y-SzI2Qzq78CDnR6bz-It/view</a>	Ste Maxime	83	Photos		9h20
11/28/2018	Alban	9h20	Inondation parking d'une carrosserie	<a href="https://drive.google.com/file/d/1M1Jip3_rfm764mZc4cXK5JmW6mP8w1V/view">https://drive.google.com/file/d/1M1Jip3_rfm764mZc4cXK5JmW6mP8w1V/view</a>	Ste Maxime	83	Photos		9h20
11/28/2018	Thomas	9h19	Route Plan de la tour, Caravane qui flotte	<a href="https://drive.google.com/file/d/1uQo78DjYnaMTq6DFSLR3VmnL4NWM6d/view">https://drive.google.com/file/d/1uQo78DjYnaMTq6DFSLR3VmnL4NWM6d/view</a>	Ste Maxime	83	Photos		9h22
11/28/2018	Thomas	9h24	Chemin Basse, voiture emportée par l'eau, 1 eps sur le toit	<a href="https://drive.google.com/file/d/1M1Jip3_rfm764mZc4cXK5JmW6mP8w1V/view">https://drive.google.com/file/d/1M1Jip3_rfm764mZc4cXK5JmW6mP8w1V/view</a>	Ste Maxime	83	Photos	URGENT	9h24
11/28/2018	Alban	9h26	Fermeture Lidl	<a href="https://drive.google.com/file/d/1bRLVl1Leb2Bzr-E4uTzWYfzV6zAqk/view">https://drive.google.com/file/d/1bRLVl1Leb2Bzr-E4uTzWYfzV6zAqk/view</a>	Ste Maxime	83	Photos		9h26
11/28/2018	Alban	9h21	Résidence du Soupion, inondation garage	<a href="https://drive.google.com/file/d/1SInkGQZtwgk_8wVcUllqg8F8F0ySg/view">https://drive.google.com/file/d/1SInkGQZtwgk_8wVcUllqg8F8F0ySg/view</a>	Ste Maxime	83	Photos		9h28
11/28/2018	Thomas	9h29	Mer déchaînée	<a href="https://drive.google.com/file/d/1J5P6uhN-FISn-Kj-1pxMRX39e11HfzD/view">https://drive.google.com/file/d/1J5P6uhN-FISn-Kj-1pxMRX39e11HfzD/view</a>	Frejus / St Raphael	83	Photos		9h29
11/28/2018	Léa	9h31	Rumeur Belmondo mort	<a href="https://drive.google.com/file/d/1ga6B7MFCp3L6urPm0ZJDCq11R/view">https://drive.google.com/file/d/1ga6B7MFCp3L6urPm0ZJDCq11R/view</a>	Ste Maxime	83	Rumeur		9h31
11/28/2018	Léa	9h32	Rumeur Belmondo mort	<a href="https://drive.google.com/file/d/1uWwhfKTAQ5YA4oLW4caNWeNWLc8XsG/view">https://drive.google.com/file/d/1uWwhfKTAQ5YA4oLW4caNWeNWLc8XsG/view</a>	Ste Maxime	83	Rumeur		9h32
11/28/2018	Thomas	9h29	Inondation jardin, beausset	<a href="https://drive.google.com/file/d/1DhrvagXPtAcYBISDCKXV-na5Q-CDKf/view">https://drive.google.com/file/d/1DhrvagXPtAcYBISDCKXV-na5Q-CDKf/view</a>	Ste Maxime	83	Photos		9h38
11/28/2018	Léa	9h35	Chemin Saquedes, arbre sur la route	<a href="https://drive.google.com/file/d/1KZPXijmTKqUWXXqpc-ERMSUv5H1WwW/view">https://drive.google.com/file/d/1KZPXijmTKqUWXXqpc-ERMSUv5H1WwW/view</a>	Ste Maxime	83	Photos		9h40
11/28/2018	Léa	9h43	Rumeur Belmondo mort	<a href="https://drive.google.com/file/d/1ti12bxxVE-JOORw04dn7b7Ys4gV78a/view">https://drive.google.com/file/d/1ti12bxxVE-JOORw04dn7b7Ys4gV78a/view</a>	Ste Maxime	83			9h43
11/28/2018	Léa	9h44	Camping La Laune, inondation	<a href="https://drive.google.com/file/d/1pgtqAW11PzyhqwepPqX7C7bX5QmZpUble/view">https://drive.google.com/file/d/1pgtqAW11PzyhqwepPqX7C7bX5QmZpUble/view</a>	Ste Maxime	83	Photos		9h44
11/28/2018	Thomas	9h47	Route coupée à Plan de la tour	<a href="https://drive.google.com/file/d/1HdHvQzW-xz2uMhIDNDmUQrMQL7V58l/view">https://drive.google.com/file/d/1HdHvQzW-xz2uMhIDNDmUQrMQL7V58l/view</a>	Plan de la Tour	83	Photos		9h47
11/28/2018	Léa	9h49	Résidence Hélios, Eau dans caves	<a href="https://drive.google.com/file/d/1CrUou-dDNWk0At6k3s3OnmsXhm9pMh/view">https://drive.google.com/file/d/1CrUou-dDNWk0At6k3s3OnmsXhm9pMh/view</a>	Ste Maxime	83	Photos		9h49
11/28/2018	Alban	9h49	Chevaux en difficulté	<a href="https://drive.google.com/file/d/15oEE2Ccu1W3LburpqbC7z6-xMGPtYsx/view">https://drive.google.com/file/d/15oEE2Ccu1W3LburpqbC7z6-xMGPtYsx/view</a>	Plan de la Tour	83	Photos		10H06

Figure 3. Tweets scenario

**OBSERVATION PROTOCOL**

Regarding the observation protocol, we used a method that was freely adapted from the observation made during the *Sequana Exercise* by the Euridice research Consortium (November and Créton-Cazanave 2017). The 6 researchers had the same observation grid, with a timesheet (in order to compile observation lines after the simulation) and a very simple codebook was used, in order to facilitate the data exploration. As the researcher team was interdisciplinary (3 social scientists, 3 computer scientists) and as each researcher had in own specific agenda (beyond the shared general objectives), the choice was made to adopt a descriptive codebook rather than an analytical one.

For each observation line, the observer had to code:

- Whether the observation concerned the players during the exercise, the organization team or the debriefing (*universe*)
- What were the protagonists involved in the interaction observed (*type*)
- If the interaction observed occurred through social media or not (*activity*)
- Whether the interaction was about an information coming from social media (*information nature*)

Observation was made during the simulation and during the debriefing. After the simulation, we made a compilation of each observer's data. To keep it readable, there is an *ad hoc* table sheet for each observer (Animation 1, Animation 2, CODIS, MSGU, CRAU, COS), as figure 4 shows. Further visualizations of the data (e. g., by a time line or by social media inputs) are still in progress.

1	Description	Heure	Univers	Type	Activités	Nature de l'information
1	Mot de présentation de Pasquini : dans cet exercice 'ils associent 2 manœuvres CODIS et CGI. Ils parlent des chercheurs (MACIV) : pour lui, on cherche à aider avec des solutions informatiques et orga pour une meilleure prise en compte des initiatives citoyennes. Exemple : "Inondation à sainte-maxime, imaginez qu'un mouvement citoyen appelle à venir avec des raquettes qui viennent aider". "on va avoir une crise dans la crise", il va falloir la gérer selon lui : détecter tous les petits signaux pour mieux gérer la suite. Il précise que la thématique MSGU est importante dans l'exercice. Il y a un VISOV (LMO), qui va faire arriver des inputs RSN en plus des canaux habituels. "On va mettre en pression le CODIS". "Merci de jouer le jeu, merci d'avoir monté l'exercice dans un temps record, pour la construction de tous les flux". "Jean-Luc, tu as la manœuvre" (commandant qui gère la salle animation). L'ambiance semble sereine, tout le monde a l'air d'être très habitué à ce type d'exercice.	28/11/2018 09:06	Animation	Hors RSN	Pro-Pro	Non-MSGU
2	Premier appel du CODIS au COD : informe qu'on est passé en altere rouge. Le commandant demande si c'est Dragon 06 qui a appelé. Celui qui a répondu n'est pas sûr	28/11/2018 09:08	Exercice	Hors RSN	Institutionnels - Professionnels	Non-MSGU
3	Deuxieme appel : OPE (Laurent) dit : "Une inter qui tombe".	28/11/2018 09:08	Exercice	Animation	Pro-Pro	Non-MSGU
4	commandant : s'ils vous demandent, les dragons restent sur leur base.	28/11/2018 09:12	Animation	Hors RSN	Pro-Pro	MSGU
5	La Cadre MSGU (FAPA) dit à OPE (Laurent) "Des que tu as la rue Michelet, tu me dis il y a un tweet de prévu"	28/11/2018 09:12	Animation	Hors RSN	Pro-Pro	MSGU
6	OPE (Laurent) à la salle : "j'ai un sauvetage qui tombe : 2 personnes à sauver dans une VL blanche, eau jusqu'aux portières"	28/11/2018 09:13	Animation	Hors RSN	Pro-Pro	Non-MSGU
7	OPE (Laurent) appelle le Commandant plusieurs qui ne répond pas tout de suite. Sur un des tableaux blancs, on note la première intervention et les moyens engagés	28/11/2018 09:14	Animation	Hors RSN	Pro-Pro	Non-MSGU
8	À priori il ont un logiciel pour faire des faux tweets (en fait, ce n'est pas d'eux, ils ont eu de l'aide extérieure, voir le debrief). Eux ils ont un faux compte tweet-exercice pour faire de la com' descendante. Ils jouent à la fois l'information au public + prise en compte (ou pas) des tweets des gens. Le VISov expliquent à un pompier comment ils fonctionnent : le système des classeurs et le fait qu'au-delà de transmettre les infos, ils font des points avec les pompiers via Whatsapp ou autre. Expliquent aussi comment ils se répartissent les missions entre VISOV en fonction du nombre de volontaires : c'est soit par type de RSN, soit par secteur, soit par inter.	28/11/2018 09:16	Animation	Hors RSN	Pro-Pro	Non-MSGU
9	OPE (Laurent) dit qu'il y a un inter qui vient de tomber, il l'imprime (j'ai par la suite arrêté de noter systématiquement l'annonce des inter, qui est récurrent pendant tout l'exercice, sauf quand un élément nouveau ou pertinent apparaissait). Cadre MSGU (FAPA), qui gère les input RSN, le note et regarde sur sa fiche excel si elle doit déclencher un tweet. Ils se répètent la priorité de l'événement pour être sûr d'en être au même point : "c'est ça c'est la PR".	28/11/2018 09:21	Animation	Hors RSN	Pro-Pro	MSGU
10	Sur les tableaux, ils suivent l'affectation des moyens engagés : tel camion, ou telle équipe là ou là, puis clôture d'une intervention et les moyens sont à nouveau mis à disposition.	28/11/2018 09:21	Exercice	Hors RSN	Pro-Pro	Non-MSGU
11	Autre inter qui tombe : 6613	28/11/2018 09:22	Exercice	Autre	Autre	Non-MSGU
12	La Cadre MSGU (FAPA) fait les inputs tweet-tableaux	28/11/2018 09:23	Animation	Hors RSN	Autre	MSGU
13	on en est à l'inter de 9h18 (selon le scénario)	28/11/2018 09:25	Exercice	Hors RSN	Pro-Pro	Non-MSGU

Figure 4. Observation grid

It important to note that players were aware that this exercise was meant to make observable their use of social media contents. Thus, it cannot be excluded that they had paid more attention than usual to social media information. Indeed, players were aware that some information could only be available on social media. We will discuss later the methodological implications of the use of a simulation for research purposes.

## TEMPORARY RESULTS

As mentioned previously, the results presented here are temporary: possible data processing of the observation is presented, and some analytical perspectives are suggested. These feedbacks must be confirmed or disconfirmed with interviews with the players and the organizers involved in the simulation, and with a comparison with the two next exercises.

The main general conclusion that can be highlighted so far concerns the social media as a new information source for emergency managers. Even if the Var's firefighter's department is one of the most involved in the use of social media (only a few French departments, out of around a hundred, have a MSGU/SMEM team), this integration can be considered as *partial*. Indeed, the incorporation of social media into the organizational routine is not yet established or stabilized. This partial or proto-integration can be explained by three main elements. First, social media information is not yet considered as trustworthy as more classical information sources are. Information provided by social media still has a "questionable statute", especially compared to information coming from emergency phone calls or institutional partners. Secondly, this lack of trust can explain, to a high degree, moments of organizational hesitation, fuzziness or uncertainty observed during the simulation. However – and this is the

third point – all these moments are not explained by this questionable statute. Some institutional and professional dynamics, proper to the observed organization, that reinforce these organizational hesitation or uncertainty.

#### **A questionable statute for information collected on social media**

This questionable statute was obvious during the afternoon debriefing: players and organizers explained that they had to acculturate themselves to social media and that this acculturation was still an ongoing process (Azzouz 2012). For SDIS members, social media information is not trustworthy enough. This lack of trust is not unfounded: it is based on their everyday work and personal experience. Building on Giddens' work, one can say that social media for emergency management is not yet an "expert systems", i.e. a socio-technical or institutional system that people trust because "it works", but without fully understanding them – a trust backed by their everyday experience (Giddens 1990). In their everyday work, firefighters are confronted to social media information that does not "work" enough. They cannot rely on it without providing an extra task. Social media information is not good enough yet (and this goodness is determined by several factors, among them the fact that the information is actionable or not, Kropczynski et al. 2018), which can explain this untrustworthiness (Tapia et al. 2013).

Nevertheless, Var's firefighters are quite aware of the need to consider information coming from social media. Indeed, during the afternoon debriefing, they remind themselves that in a 2014 real crisis a very important information was only available on social media. This event seems to act like a trigger of this awareness. Following the Actor Network Theory, one could say that there is still a need for an "interessement work" (Akrich et al. 1988). The "interessement work" is a phase in an innovation process which strengthens the association between actors and a new tool or technique (leading to support the structure of the network they form). Actors need to be interested into using or adopting a new device or technology, and this process need to be cared of (Latour 2005). For now, the MSGU/SMEM team of the Var's firefighters' department seems to shoulder this work, with the support of the VISOV. A more systematic organization of this "interessement work" would be welcome to strengthen the awareness around the use of social media. A last hint regarding this social media questionable statute was the discussion –during the debriefing – on the necessity to precise, for each information, whether it is coming from social media. Of course, this would introduce an asymmetry between social media information and other sources of information. This would reinforce the questionable statute of social media information. It appeared to SDIS members that once checked, an information did not need to be tagged as coming from social media. One can interpret this decision as a normalization of the social media as a valuable information source.

#### **...generating moments of hesitation and fuzziness**

This questionable statute generated moments of hesitation and fuzziness during the simulation. These are moments where players weren't sure about an information, were wondering if it was accurate or not, etc. During these moments they try to reduce uncertainty, a process which can define risk management (Borraz 2007; Borraz et al. 2007). In these moments, actors mobilized their capacity to doubt or to criticise what they are confronting to (Boltanski 2011).

This result can be illustrated thank to the observation grid. Until now, the exploration of the observation data has been basic and needs to be more systematic. With the observation grid, it is possible to trace (more or less precisely due to a time artefact of the observation grid) the circulation process of a social media information : from the tweet-input by the organization room, to its processing by the crisis room (and especially the SMEM/MSGU team), to its operationalization (or not) on the "field" (= has the information lead to a ground intervention ? an exploratory mission ?). Several social media inputs can be studied. I will elaborate on one example about the "Belmondo's death case" which was a simulated tweet saying that Belmondo (a very famous French actor) died during the flood. According to the scenario this information was supposed to be false, but the players were not aware of it.

INPUT	ANIMATION 1	ANIMATION 2	CODIS	MSGU	COS	CRAU	
Belmondo	FAPA et LMO se demandent si il faut envoyer la rumeur en disant que c'en est une. LMO décide de ne rien mettre (rumeur en question: Scapip - mort de JP Belmondo) LMO dit "C'est pas une rumeur c'est un fake" [Quelle différence y voit-il ? Un plus évident que l'autre ? Après quelques discussions entre chercheurs, il semble que l'usage du terme "fake" soit destiné à une fausse information diffusée intentionnellement, là où une "rumeur" est une information incertaine, à vérifier, diffusée sans mauvaise intention. Distinction qu'il peut être intéressant de confirmer, mais qui semble en effet faite par les VISOV.]	28/11/2018 09:43	VISOV (LMO): 28/11/2018 09:38 "j'injecte 4 d'affilié dont un sur la rumeur", en parlant d'input RSN, donc soit du tweet ici ou des commentaires dans la salle Whatsapp.	28/11/2018 09:56 pasquini demande au CODIS s'ils avaient des infos sur Belmondo et le cos a répondu "non vous pouvez contredire". Pasquini décide d'appeler directement la commi de la prefecture pour l'affaire Belmondo. "il devait pas jouer, mais il va jouer"	Rumeur belmondo est mort dans l'inondation d'après les VISOV. Demande de confirmation sur WA de cette info par les VISOV, ça a l'air d'être une rumeur	28/11/2018 09:40	
	LMO et FAPA s'étonnent que Loic soit au taquet sur WA pour demander à vérifier la rumeur sur Belmondo	28/11/2018 09:44			Rumeur de belmondo mort retwitté également (Correspond sans doute à la propagation de la rumeur)	28/11/2018 09:41	
	Sur WA, indication par la cellule MSGU qu'ils ne traitent pas l'information pour Belmondo car pas + d'infos.	28/11/2018 10:01			"On ne parle pas de belmondo"	28/11/2018 09:59	
					Msg sur WA aux VISOV "Pas de réaction sur belmondo de notre part" Officier "Ca va ça se passe bien ?" "On a toujours la rumeur sur belmondo et les gens descendent dans les caves". "Quelle drôle d'idée, pourquoi est-ce qu'ils descendent dans les caves, ils devraient monter au grenier"	28/11/2018 10:02	
							28/11/2018 10:14

Figure 5. Belmondo case and related observation lines

Figure 5 gives a compilation of the observation lines mentioning the “Belmondo’s death case”. In the table, column 1 gives the studied social media input, and the 6 other columns give the observation lines related to this input for each observer. Each observation line is stamped with the date and time. Thus, one can follow, approximately, the reaction time for considering the information, and how the information has been dealt with. Here only 2 minutes separate the input by the VISOV (ANIMATION 2; 9:38 am) from its observable consideration by the MSGU team (MSGU; 9:40 am). In that case, it is because no other source had confirmed or given more detail about this information that the decision is made to not react (CODIS; 9:56 am). The MSGU team lets the VISOV (played by the organizational team) know this decision (ANIMATION 1; 10:01). As no field action is undertaken, nothing appears in column COS. As this information was not foreseen by the phone calls scenario, nothing appears in column CRAU.

The same processing could be done for all the simulated tweets and for which the observations lines are precise enough (here is one of the drawbacks of the method). According to the first exploration of the data, the observation grid enables to follow the “checks and balances” process used by the players to validate or trust a social media information. A useful concept from the pragmatic sociology can be heuristic here: the “credibility trials” (a specific case of “trials”, the explained concept in section 2). This concept is useful to describe the process and the steps to which an information is submitted to in order to be declared accurate. For instance, it was used to explain how and when a whistle-blower would be found reliable (Chateauraynaud and Torny 1999). It was also used to describe the checks a call taker makes before considering a phone call as serious (Boullier 1994). More recently, it was used to describe the steps a plaintiff (complaining for police violence) must face in order to be authorized to sue a policeman (Moreau de Bellaing 2016). At each step of the “credibility trials”, the information, the whistle-blower, the plaintiff can be declared not reliable. The general principle is that there is a presumption of un-credibility: each trial must be positive to clear this presumption.

Thanks to the observation made at the Call Centre and the crisis room we can compare the processing of social media information and emergency phone calls information. One strong hypothesis suggested by the data so far is that the “credibility trials” are more complicated for social media information than for emergency calls information. Several facts tend to confirm this hypothesis.

Firstly, it seems that the MSGU/SMEM team (located inside the crisis room) only considered a social media information if it was also supported by a less questionable information source. For example, the same information (children stuck in a bus) reached to the crisis room both by an emergency phone call and a tweet. Nevertheless, the tweet came with a photo of a minibus, and not a bus, whereas the phone call mentioned a bus. For a while, credibility was given to the phone call, and the crisis room advised the firefighters to look for a bus first, and in a second time for a minibus (at that moment in the crisis room, whether the tweet and the phone call referred to the same event but with different descriptions of it, or if they respectively matched a specific event was not clear). Actually, the scenario talked about a minibus: the tweet was given credit only when another phone call clearly announced that it was a bus and not a minibus.

Secondly, in the organization room, people in charge of pushing tweets tended to “worsen” some information in order to prevent the MSGU/SMEM team from ignoring them. Another strategy was to post them a second time, to put some pressure on the MSGU/SMEM team. This was the case, for instance, for an information saying that water was entering some buildings cellars. According to the scenario, this information should have come from an

emergency phone call and from a tweet. But as the organization team had the feeling that social information was not considered enough, they decided to cancel the phone call and to only give this information through Twitter. They also decided to add a new information in order to make the firefighters react: the fact that some people were on site (and so hypothetically in danger).

Finally, observations of the firefighters' field activity tend also to support the hypothesis of stronger "credibility trials" for social media information. If the Emergency Operations Commander was to receive any information coming from the social media, he systematically sent a reconnaissance mission and not a direct mission (i.e. with specific means). The commander used another mission to check whether the social media information was correct before dedicating specific resources to this information. This was the case for the flood cellars. Firefighters on ground explained that, during the simulation, the information they were given was only that "there were people on site". But whether they were in danger was not clearly said. And as there was already some firefighters in the area (for another case), the commander asked them to check the situation on their way back.

Thus, these initial elements enable to put forward the hypothesis of stronger "credibility trials" for social media information. More in-depth analysis must be done, notably with a systematic comparison with the processing of other information sources.

### **...reinforced by institutional and professional dynamics**

Some institutional and professional dynamics, proper to this Firefighters' department, reinforced the moments of organizational hesitation or uncertainty due to the questionable statute of social media information. One can formulate the hypothesis that those more general dynamics could have limited the propensity of the players to take into account an information coming from social media. Two examples can be given here.

First, the organization team, during the simulation, was surprised because they thought – during the exercise – that social media information was not considered at all or very little by the MSGU/SMEM team. Apparently, this perception would come from the delay between a field intervention (once an information is checked) and its "creation" into the SDIS' information system (which was the only way, theoretically, for the organization team to know what action had been taken in response to an information). Actually, firefighters on the field explained that this delay was due to practical difficulties and not to the undervaluing of social media. They gave the example (during the debriefing) about a case with two boys on a zodiac boat: it was the social media input which have triggered a field intervention (not the re-posting of the information by the animation team), even if this intervention was computationally "created" later. Apparently, this delay is not due to the questionable statute of the social media. Indeed, it was also the case for other missions. It is a problem well known by the SDIS' members: operational staff gives priority to emergency actions and not to the "creation" of these actions into the information system.

The second example is also related to this "acknowledgment" issue. The acknowledgement is the action of confirming that an information is taken into account, well received. It concerned the communication between VISOV and the MSGU/SMEM team. The VISOV representative noticed that it was not possible for him to know whether the information he had gave to the MSGU team was really received (even if this information was not meant to trigger any action). This could explain some re-postings of an information which could eventually disturb the MSGU team. During the debriefing, the firefighters and the VISOV agreed that this "acknowledgment" could be a good practice.

## **DISCUSSION**

### **Is a crisis management exercise a sociological experiment?**

At this stage of the study, a temporary conclusion can be made about the consideration of social media information. In this French firefighters' department, a questionable statute is given to information coming from social media. Even if firefighters are quite aware about the benefits and the need to consider this new information source, they are reluctant to fully trust it. This lack of trust seems strongly determined by the variable quality of social media information (Kropczynski et al. 2018; Tapia et al. 2013). For now, these emergency managers are on an ongoing process of acculturation to social media. As Kaufhold and Reuter observed at the Frankfurt Fire Departement, "progressive organizational culture is required to enable a successful integration of social media" (Kaufhold and Reuter 2017, 607).

Nevertheless, one needs to be careful about these temporary results. This was a crisis management exercise and if an observation was to be made during a real crisis, things would have probably happened in a different way. Maybe the consideration given to social media information would have been less important.

This leads to question the value of crisis management exercise for research purposes. Simulation cannot be a replication of the social reality. It cannot be easily a social laboratory as too many variables are excluded (Guggenheim 2012). Organizing a simulation specifically to make observable what the researcher would like to observe can lead to the misinterpretation of the data. This is not to say that what happens during an exercise is not real and senseless (both for researchers and professionals). As Katz showed, it is not because a situation is altered or even triggered by the researcher or the experiment that what is observed is not real or research relevant (Katz 1983). However, one needs to be careful, as researcher, to not over-interpret some results as many variables are flattened during an exercise. The MACIV research project has two forthcoming exercises to run. It could be a good opportunity to work more on the epistemological implications of crisis management exercise as research tool (and to propose some guidelines for further research).

### **Social Media: a new form of capital/resource for emergency professionals?**

One could also learn more about the way that the consideration of social media information as new resource is going to re-shape (or not) the role of every entity of the emergency management. When one looks at the Var's SDIS, for instance, one can observe that there is a valuation of some members with what one may call a lower "firefighter capital/resources" but a stronger "social media capital/resources". Indeed, the MSGU/SMEM team mainly consists of firefighters situated at a low rank of the symbolic firefighter hierarchy. Their social media skills gave them the opportunity to be given a specific role (social media analyst) in the organization. As the sociology of organization shows, the adoption of a new technology or tool within an organization is the opportunity for some actors to gain prestige or to value under-estimated skills (Chiapello and Gilbert 2013).

More generally, into the emergency management field there is a new type of actor – VOST/VISOV – getting power by being in an intermediary position between citizens and institutional and professional actors. Like at the Frankfurt Fire Department, at the Var's firefighters' department, "spontaneous volunteers and social media communities are valued as important stakeholders in overcoming emergencies or large-scale-disasters, but due to limited resources, it is impossible to moderate them all" (Kaufhold and Reuter 2017, 609). Moreover, "additional research is required concerning the optimal implementation and evaluation of VOST (609). Can we describe them as a "sequential marginal actor" (Crozier and Friedberg 1977), a concept used to explain the power a person can get from belonging to two environments (here emergency field and social media) that usually do not meet? Beyond the potential gain of power for this type of actor (individually or as a group), the effects of this in-between position are to be studied. Do the VOST/VISOV act as an "intermediary" or "mediator" actor as defined in the Actor Network Theory (Latour 2005)? According to the ANT, an intermediary actor or entity does not alter what is exchanged between two entities whereas mediator do affect the exchange. Knowing whether virtual volunteers act like a simple filter – intermediary actor – or like an active filter – mediator – (and if so, what would be the nature and the effect of this alteration?) is a stimulating research track.

Thus, more investigations could be undertaken on to whom social media and citizen-generated content are beneficial. Because the integration of social media information within the emergency management does not simply and automatically lead to citizens empowerment. Like in every process or system where an agency is given to citizens, this agency is driven by professional or semi-professional actors who can use it as a new resource.

### **CONCLUSION**

This paper sets out the methodology and the temporary results of an ongoing research project. It discusses the benefits and limits to use an emergency crisis exercise for research purposes. The described observation protocol, and the presented coding could be replicate to survey further exercises and simulations. Some possible processing of the observation data has been exposed and further visualizations of the data (e. g., by a time line or by social media inputs) are still in progress.

One the first analytical results tackles the way Var's firefighters consider (or not) social media information. For now, social media seem to be regarded as questionable because they do not easily fit into the organizational routine. The comparison between emergency phone calls processing and the social media processing should be pursued.

On the analytical level, the paper tries to use sociological concepts (from the Actor Network Theory and from sociology of organization) to describe and explain some results. The concept of "credibility trials" was used to describe the specific processing of social media information: as observed actors confer a questionable statute to social media, the "credibility trials" are more important than for the other information sources.

On the practical level, the location of the MSGU/SMEM team in the firefighter's crisis room and not in the Call Centre is an issue. This organizational feature contributes to distinguish social media information from more classical information sources. This spatial layout reinforces the cognitive distinction between social media and other information sources. The involved firefighters explained this choice by the double role they give to the MSGU/SMEM team : to report some emergency events (just like emergency phone calls) and to improve the situation awareness of the crisis room (Endsley 1995). Clearly, the situation awareness is for now favoured. Exercises 2 and 3 of the MACIV project (with other institutional partners) might give some useful comparison and feedbacks on that matter.

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