Natural Hazards Research Australia

Community experiences of the Mid North Coast Floods: A social media analytics approach

Final report

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We acknowledge the Traditional Custodians across all the lands on which we live and work, and we pay our respects to Elders both past, present and emerging. We recognise that these lands and waters have always been places of teaching, research and learning.

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Executive summary

This research examines how communities experienced and responded to the 2025 Mid North Coast floods by analysing social media activity surrounding the event. Drawing on publicly available posts and comments from Facebook, Instagram and X, the project explores how residents communicated, interpreted warnings and coordinated practical decision-making. The analysis provides insight into both the benefits and limitations of social media as a disaster communication ecosystem. The project focuses on several interconnected aspects of community response.

It investigates how flood warnings were perceived, interpreted and acted upon, paying particular attention to the relationship between official emergency messaging and community-led information sharing. We found that third-party intermediaries emerged as highly influential actors in shaping how residents understood and responded to evolving risks. Their prominence is amplified by platform algorithms that reward highly engaging content and, in some cases, incentivise commercially motivated actors to compete with official agencies for attention during disasters.

The study also examines how people navigated evacuation decisions, sought route information and coped with delays and inconsistencies across emergency systems, revealing how social media became a tool for coordination, reassurance and critique. Findings show that social media communication during the floods was characterised by a strong reliance on peer-to-peer exchanges and intermediary pages, alongside selective engagement with formal emergency authorities. While official posts were valued for authoritative information, users frequently turned to conversational threads and locally focused pages to clarify whether warnings applied to them.

At the same time, the study highlights challenges created by information overload, fragmented information systems, inactive or under-maintained official accounts, and platform algorithms that disadvantage posts directing users off-platform to agency-controlled disaster apps and maps, ultimately weakening the visibility of official messages and strengthening engagement-optimised intermediaries.

Overall, the results suggest that emergency management agencies and authorities must adapt their strategies to a social media environment that is increasingly shaped by opaque algorithms. To improve effectiveness, agencies should strengthen locally targeted messaging, maintain active and trustworthy platform presences, collaborate carefully with influential intermediaries, and reduce reliance on off-platform calls to action where possible. Doing so will help ensure that agencies remain authoritative voices in social media discussions that can provide accurate, timely information that is visible to communities navigating the complex circumstances of natural disasters in Australia.

End-user statement

Mike Wassing, NSW State Emergency Service Commissioner

The 2025 Mid North Coast and Hunter floods caused extensive damage to homes, businesses and infrastructure. In some locations floods were at the highest level ever recorded, including at Taree where the Manning River surpassed a century-old record.

During the floods NSW SES responded to more than 8,895 incidents and issued more than 1,200 warnings. Recovery for many of these communities is ongoing and will take many years.

This research provides valuable insights into in the efficacy of social media and provides an opportunity to enhance future messaging, flood preparedness, response and recovery.

Partnering with communities, to be well prepared and have access to the latest information and warnings during incidents will remain a key focus for the NSW SES.

NSW SES would like to thank the members of flood-impacted communities who shared their experiences of the floods with the researchers. It is through learning from community experiences and working together that we grow our collective capability to improve community safety before and during disasters, and to recover afterwards.

Mike Wassing AFSM

Commissioner

Introduction

In May 2025, the New South Wales Mid North Coast was subject to over 530 flood warnings for the region, with 70 being at the Emergency Warning level. This included significant flood warnings for the Macleay, Hastings and Manning rivers. On 21 May, residents in the low-lying areas at Macksville, Wauchope, East Bellingen, parts of Gloucester, Paterson were asked to evacuate their homes. During the floodings, the Manning River at Taree broke an almost 100-year record as it passed 6 metres. Subsequently, over 5,000 houses lost power, and more than 100 schools had to be closed temporarily. Multiple farms in the Barrington area were destroyed and five people were killed.

The Mid North Coast floods occurred only a few weeks after Ex-Tropical Cyclone Alfred, which affected large parts of Northern New South Wales. In contrast to the Cyclone, which had been anticipated for a several days, the floodings left residents and emergency management agencies (EMA) little time to prepare. Consequently, the role of social media as fast and widely accessible communication channels was critical in making sense of the disaster and organisation of evacuation and recovery efforts. The Mid North Coast floods therefore constitute an important case study for understanding how communities in the affected areas perceived and responded to the disaster in a social media environment that is increasingly characterised by "algorithmic audiencing" (i.e., the automated curation of social media content based on advertising potential), a wide net of semi-private group structures among Australian communities, and user-induced misinformation, all posing significant challenges to effective disaster communication.

Against this backdrop, this project investigates the ways in which social media platforms shape community experiences and responses to the Mid North Coast floods. Methodically, the project combines social media analytics data collection techniques and qualitative data analyses to explore seven prominent themes: (1) *sources and perceived reliability of flood warning information*, (2) *community understanding and interpretation of flood warnings*, (3) *decision-making processes regarding evacuation responses*, (4) *communication channels used during flood events*, (5) *trust and confidence in emergency services and authorities*, (6) *challenges faced during evacuation*, and (7) *recommendations from the community for improving warning systems*. These themes reflect pressing concerns of Australian EMA and provide an opportunity to extend existing social media crisis communication frameworks if we understand the impacts of public social media feeds that are no longer organised through a predictable social graph but operate based on opaque algorithms.

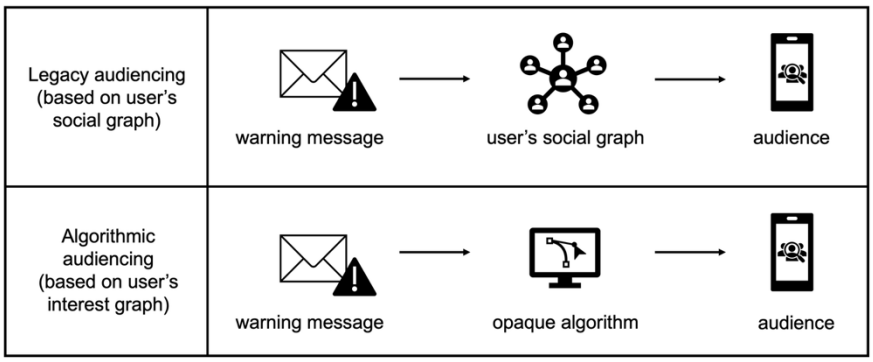
Through an account-based data collection of 18 EMA profiles, we collected 29,679 user comments across the social media platforms Facebook, Instagram and X. Our analysis reveals that trust and confidence in EMA and authorities was widely visible with positive engagement. We found that Bureau of Meteorology, NSW State Emergency Service and Facebook pages that aggregate official warnings provided key information to the public. At the same time, we found a tendency among EMA to direct users off the social media platforms towards apps and crisis maps, hosted on their own websites. This leads to a dilemma: It lets EMA control their messaging better than on social media platform, but it may hurt the performance of their social media posts because social media platforms punish accounts that direct users away too frequently.

This dilemma attracts commercially motivated third parties, such as incident update pages or "weather influencers" to enter the disaster communication discourse. These emerging actors behave diametral to EMA: they aggregate and repurpose official information to create user engagement directly on social media platforms and through this, get rewarded by social media algorithms with high reach. We discuss strategy and policy implications of theses dynamics and contrast them with resources available to EMA and their relevance at different levels of social media governance (i.e., regional, state, national). The learnings from this project are essential for EMA to remain trusted actors in contemporary social media environments and to maintain the capability to effectively distribute critical information to Australian communities.

Background

Social media are essential for Australian communities to prepare, respond and recover from natural disasters, serving both as channels for EMA to broadcast critical disaster information (Yoo et al., 2024), and as a place for community-led grassroots communication and coordination (Chu et al., 2021). In recent years, Australian EMA and authorities have made significant investments in creating a presence on social media and to build social capital through regional, statewide, and national profiles on multiple platforms (Fischer-Preßler et al., 2023). However, despite these intensified institutional efforts, reaching Australian communities with the right message at the right time before, during, and after a natural disaster remains a persistent challenge (Abbasi et al., 2024). This is because social media platforms constantly change and adapt the ways in which content, including warning messages, are being distributed among users.

One of the most impactful technological changes to social media architectures happened only recently. Most contemporary social media platforms no longer disseminate content based on a user's social graph (i.e., the accounts a user follows or subscribes to), but based on a user's interest graph (i.e., topics that a user has previously engaged with). The latter can be referred to as "algorithmic audiencing", which means that content is being distributed through opaque algorithms with *"the aim to increase user engagement and marketability for targeted advertising."* (Riemer & Peter, 2021, p. 409). The impact of algorithmic audiencing on disaster communication is of particular importance, because it removes the ability for EMA to reliably reach an audience in times of crisis. Figure 1 provides an illustration of algorithmic audiencing in disaster communication and how it compares to previous ways of message amplification in social media.



1 LEGACY AUDIENCING VS ALGORITHMI AUDEINCING IN SOCIAL MEDIA DISASTER COMMUNICATION

While prior research often assumes that emergency warnings and risk communications are distributed in relatively linear ways (Mousavi & Gu, 2024; Yoo et al., 2024), moving from agencies to affected communities, this assumption no longer reflects reality in a social media environment that is governed through algorithmic audiencing (Ciriello et al., 2025). The algorithms of Facebook, X or TikTok may boost or restrain emergency warnings depending on how much engagement they generate, rather than on their informational value or the size of the author's social graph. This raises serious concerns for natural disaster response: critical alerts may fail to surface, misinformation may spread faster than verified content, and unequal engagement across platforms may exacerbate vulnerabilities (Pirasteh et al., 2025). For communities confronting disasters such as the Mid North Coast floods, these dynamics create profound risks, as warning messages must compete with content amplified by opaque algorithmic systems that privilege engagement over accuracy.

One development in response to algorithmic audiencing is that communities who want to receive locally relevant information reliably retreat to semi-private groups, in which content is distributed more reliably compared to public social media feeds (Marx et al., 2024). Alas, the semi-private nature of these groups often excludes EMA, authorities, and researchers from contributing to or understanding the discourse within communities, creating new challenges for effective disaster communication. Consequently, it is imperative to explore the consequences of algorithmic audiencing for natural disaster communication and develop new strategies to reliably distribute

critical information to communities amid their evolving usage patterns. For these reasons, we investigate the recent Mid North Coast floods as a relevant case study in which top-down disaster communication met community-led coordination and response in an algorithmically-mediated social media environment.

Research approach

The Mid North Coast floods entailed disaster-related conversations on major social media platforms. In comparison to previous disasters such as Ex-Tropical Cyclone Alfred (#CycloneAlfred) or the 2011 Queensland floods (#qldfloods), no clear hashtag transpired for this disaster. Since several regions were affected with different severity, the Mid North Coast floods were characterised by high uncertainty about which regions were affected, how severe and who would need to evacuate when. This ambiguity resulted in community-led discussions on social media and reactions to warning messages from responsible EMA and authorities.

Data collection

We collected data from Facebook, Instagram and X. The data was collected using a self-developed crawler based on an established Social Media Analytics framework (Stieglitz et al., 2018). For this project, we employed an account-based tracking to extract publicly available user comments related to the Mid North Coast floods. This means we first identified 18 relevant social media accounts who authored warning messages, collected all their posts and the respective comments. Figure 2 provides an overview of the analysed accounts and posts/comments collected per platform.

Account name/platform	**Facebook**	**Instagram**	**X**
BoM	posts collected	posts collected	no relevant posts
Australian Red Cross	posts collected	posts collected	post with no comments
Energy Networks Australia	No account	No account	last posts from 2024
Green Cross Australia	No account	No account	replies are closed
National Emergency Management Agency (NEMA)	posts collected	posts collected	last posts from 2024
NSW Reconstruction Authority	posts collected	posts collected	last posts from February
Fire and Rescue NSW	posts collected	posts collected	posts collected
NSW Rural Fire Service	posts collected	posts collected	last post 2021
NSW State Emergency Service	posts collected	posts collected	n/a
Department of Planning and Environment	n/a	no posts in May	n/a
Department of Customer Service	No account	No account	n/a
NSW National Parks and Wildlife Service	posts collected	No account	n/a
NSW State Forests	posts collected	posts collected	last post 2020
NSW Incident Alerts	posts collected	not active	last post 2022
NSW Health	posts collected	no relevant post	last post 2024
RSPCA NSW	posts collected	posts collected	last post 2024

2 OVERVIEW OF THE ANALYSED ACCOUNTS AND POSTS/COMMENTS COLLECTED PER PLATFORM

The automated data collection was supplemented by manual observations of public Facebook Groups and Facebook event pages for which an automated data export was not feasible. Data were collected for a time period surrounding the floods development and impact, namely from 16/05/2025 to 25/05/2025. The dataset includes a total of 29,679 user comments coming from 858 warning message posts. This dataset covers a representative sample of user comments reflecting their perception of warning messages in relation to the Mid North Coast floods.

Data analysis

In this research project, we qualitatively examined user comments in relation to seven predefined themes: (1) *sources and perceived reliability of flood warning information*, (2) *community understanding and interpretation of flood warnings*, (3) *decision-making processes regarding evacuation responses*, (4) *communication channels used during flood events*, (5) *trust and confidence in emergency services and authorities*, (6) *challenges faced during evacuation*, and (7) *recommendations from the community for improving warning systems*. Comments were read by one researcher and allocated to one of the above themes. One comment could speak to multiple themes. If a comment did not fit any of the themes, they were classified as "other". Cases in which the allocation was unclear were discussed with another researcher until they reached an agreement. After mapping the comments to the themes, we created a theme description and, after a discussion among the research team, selected two anchor examples (i.e., user comments) that represented the discourse in relation to the theme.

All researchers involved in the analysis took notes while reading and allocating the comments and browsing each platform, which often involved an observation of how discussions evolved and how comments related to the original warning message. These observations inform the findings through an interpretation of user comments beyond their contents, considering a comment's context, timing and platform characteristics.

Research findings

During the Mid North Coast floods, the communication efforts of EMA and authorities showed a fragmented coverage across the analysed social media platforms. Facebook clearly functioned as the main channel, since almost every agency maintained an active presence and posted relevant information there. In practice, it became the central hub for crisis communication. This is also the platform where unofficial accounts sharing flood warnings got the most traction. Instagram showed partial and inconsistent activity, with some agencies posting while others had no account, were inactive or shared content that generated little engagement. This pattern suggests that Instagram is used more for visibility and branding rather than as a core emergency tool. X was the least used platform among the three. Only a small number of agencies posted relevant content, and many accounts appeared dormant, with their most recent updates dating back months or even years.

In some cases, public replies/comments were even disabled, which reduced opportunities for interaction. Across platforms, the absence of accounts or inactive profiles points to broader structural gaps and resource scarcity in the governance of social media. Overall, the results indicate a Facebook-centric communication strategy in which Instagram offers limited amplification and X is becoming increasingly marginal, which may unintentionally exclude audiences and age groups who use other platforms (e.g., TikTok, Reddit) while navigating a natural disaster.

Sources and perceived reliability of flood warning information

Across the public feeds of Facebook, Instagram and X, residents relied on a small set of highly visible information sources, yet their confidence in those sources varied. The Bureau of Meteorology (BoM), the State Emergency Service (SES), Fire and Rescue NSW and large Facebook pages such as NSW Incident Alerts emerged as core reference points. BoM warnings were widely circulated and often treated as authoritative, but users also questioned their timing and clarity, especially when rainfall totals or warning categories felt disconnected from what they were experiencing locally. SES communications were generally appreciated for their practical focus, while NSW Incident Alerts became an important intermediary that amplified official warnings and updates. This combination produced an information ecosystem where trust existed, but it was conditional and frequently negotiated in real time by users comparing official statements with on-the-ground observations.

One striking pattern is that 54% of all analysed comments occurred on posts from NSW Incident Alerts, a Facebook page that does not represent an official EMA. This concentration of public engagement on an unofficial intermediary suggests that residents may perceive such pages as faster, clearer or more locally relevant than formal government channels. At the same time, it raises important risks for disaster communication. When a non-official actor becomes the primary arena of discussion, authorities lose direct control over how warnings are framed, debated and amplified. Information may still be accurate, but it is filtered through an algorithmic and commercial social media environment where sensational content can travel more quickly than careful guidance. The reliance on NSW Incident Alerts therefore reflects a vulnerability in institutional communication capacity: in moments of high uncertainty, the public may gravitate not to the most authoritative source, but to the one that feels most present and conversational. Figure 3 provides an overview of the sources for the 5 most engaging warning messages for number of comments and number of shares in the dataset.

Account	**number of comments**	**Account**	**Most number of shares**
NSW Incident Alerts	≈2,200	NSW Incident Alerts	≈3,600
Fire and Rescue NSW	≈1,700	NSW Incident Alerts	≈2,500
NSW Incident Alerts	≈1,500	NSW Incident Alerts	≈2,200

NSW Incident Alerts	≈1,100	Fire and Rescue NSW	≈2,100

3 OVERVIEW OF THE SOURCES FOR THE 5 MOST ENGAGING WARNING MESSAGES FOR NUMBER OF COMMENTS AND NUMBER OF SHARES

Incidents of late, vague or seemingly contradictory information weakened confidence in some official sources and opened space for alternative interpretations. Posts that questioned whether forecasts were "too late," or that criticised perceived inconsistencies, often generated high engagement. In those threads, users negotiated credibility collectively: some defended emergency agencies, others voiced scepticism and many looked to intermediary pages or local authorities as more responsive and place-specific. These interactions suggest that reliability during floods is socially constructed, emerging from dialogue between authorities, intermediaries and residents rather than from formal warnings alone. Figure 5 shows an example where a resident laments missing engagement from official EMAs.

Ruth B******

Can I just say there is a little town called Woodville in NSW not once has any SES services asked if we need anything nor are they mentioned we are cut off in three different directions some milk and bread for a few families would be nice. And before anyone has a go at me SES in the old days would know the places cut and go around and ask if people needed anything. What happened to those days

4 EXAMPLE OF RESIDENTS COMPLAINING ABOUT MISSING ENGAGEMENT

Community understanding and interpretation of flood warnings

Community members did not receive flood warnings passively. They actively interpreted, questioned and translated the messages into their own local realities. While many residents responded quickly and took warnings seriously, others struggled to determine whether the alerts applied to them, what level of risk they faced, and when action was required. Confusion centred particularly on severity labels, vague timelines and geographic references framed around rivers or local government areas rather than specific towns. Visual cues such as hazard emojis or general phrases like "watch and act" did not always clarify the message. Residents sometimes struggled to determine whether official messages applied to their specific town, especially when communication was framed in administrative categories such as local government areas (LGAs) rather than in names of place or towns that residents are familiar with. An example is shown in Figure 5.

Sh**** Sm*****

What about taree

NSW Reconstruction Authority

*Hi Sh****, yes, Taree is part of MidCoast LGA so is included in the Natural Disaster Declaration*

5 EXAMPLE OF RESIDENT BEING UNSURE ABOUT WHETHER THEIR TOWN IS PART OF THE "LGA"

One strategy residents used to make sense of warnings was to supplement official information with local, lived data. People reported rainfall totals from their properties, described water levels on nearby roads, and uploaded photos or short clips to illustrate changing conditions. These posts were not framed as challenges to authorities, but as attempts to translate broad warnings into meaningful, place-specific insights. Through this process, communities effectively co-produced situational awareness, treating local knowledge as an important validation tool. Figure X shows an example where residents share precise rainfall measurements to help others gauge the seriousness of the situation in their own areas. Figure 6 shows an example of residents adding local detail as a way of making warnings more meaningful.

Bo**** ***** Wa*****

290mm since 9am yesterday in Wauchope

Vi**** St*****

195 ml at Bundook near Gloucester

6 EXAMPLE OF RESIDENTS ADDING LOCAL DETAIL

The data also reveal moments in which confusion or frustration shaped interpretation. Some residents questioned why recorded rainfall totals did not align with what they experienced on the ground, or why warnings appeared late relative to visible flooding. Others expressed uncertainty about whether their town was covered when warnings from the Bureau of Meteorology referenced only river catchments or administrative regions. These interactions demonstrate how residents actively negotiate meaning, filling gaps with discussion and debate when clarity is lacking. Figure 7 shows an example in which a user publicly reasons through these ambiguities and challenge aspects of the message to better understand their personal level of risk.

Sa**** ****

Why does the rainfall recorded get registered on the date when it is measured at 9am…?

7 EXAMPLE OF A RESIDENT QUESTIONING THE WEATHER FORECAST METHODS

Decision-making processes regarding evacuation responses

Residents' evacuation decisions unfolded as an ongoing negotiation between official guidance, local knowledge and personal risk tolerance. Warnings rarely triggered automatic compliance. Instead, people weighed them against what they could see outside, what neighbours reported and how difficult evacuation would be for their families, pets and livelihoods. Some chose to leave early, others waited for confirmation and some remained until floodwaters or road closures forced decisions. In these conversations, evacuation emerged as a process shaped by uncertainty, changing information and the practical constraints of mobility and distance.

A recurring pattern involved residents adapting travel and evacuation routes in real time, often using Facebook threads as collective navigation tools. People discussed which highways were still open, whether detours were safe and how far floodwaters had advanced along particular corridors. These exchanges reveal how evacuation decisions were deeply logistical: families weighed long detours against the risk of staying put, sometimes choosing arduous journeys simply to ensure safety. Figure 8 shows this dynamic where users describe rerouting long distances and making difficult but deliberate choices to keep moving despite uncertainty.

Ma**** W*****

My husband and I were stuck in Port Macquarie, only 2 hrs from home in Raymond terrace but couldn't go any further. We made the decision to take the very long way home back to Coffs Harbour then down through the New England via Tamworth to get hour. An arduous 15 hr trip but at least we got home safely. 🙏

8 EXAMPLE OF A RESIDENT DESCRIBING THEIR EVACUATION CHOICE

Alongside travel decisions, residents also engaged emotionally and morally with evacuation behaviour, especially when others appeared to ignore safety advice. Threads discussing people driving through floodwaters, for instance, became spaces where anger, judgement and public reminders of risk were voiced. These reactions show that evacuation is interpreted as a collective responsibility that affects rescuers and communities. In these moments, social media functioned as a site where norms around "responsible behaviour" were debated and

reinforced, while simultaneously acknowledging fear and frustration. Figure 9 illustrates this pattern in which commenters condemn unsafe actions and appeal to community safety.

Li* *****

Some people just never learn maybe they are lacking a brain the the [sic] police and rescue services have to risk there [sic] lives to save them. How many times do people need to be told, stay safe everyone and don't become a victim. And thank you to all our Police SES and all other emergency services that are out there in this weather trying to keep everyone safe.

9 EXAMPLE OF A RESIDENT EXPRESSING ANGER ABOUT UNSAFE BAHEHAVIOUR

Communication channels used during flood events

During the Mid North Coast floods, social media functioned as a practical, real-time communication infrastructure for communities. Residents routinely turned to Facebook pages and comment threads to obtain updates on road closures, rising water levels, power outages and local service disruptions. These interactions show that social media was treated as a space where warnings could be translated into everyday decisions: Which road is safe? Where can I still travel? Who has received relief support? Information flowed continuously between authorities, intermediaries, and residents, creating a dynamic in which people sought clarity when formal alerts felt too general.

A prominent pattern involved the use of Facebook to crowdsource travel guidance and confirm infrastructure status. Community members posted questions about routes, medical appointments, and essential trips, inviting others to share recent observations and advice. These exchanges operated as informal backchannels that filled gaps left by weather maps and delayed updates received through EMA websites and apps. They also reveal a reliance on peer confirmation, where lived experience carried persuasive weight in decision-making. Figure 10 shows an example where a user seeks route advice for an upcoming specialist appointment, prompting others to respond with local insights about road conditions.

Co* *****

I have a specialist appointment in Maitland on Monday I am at Harrington which is the best route to get there

10 EXAMPLE OF A RESIDENT ASKING FOR ADVICE

Social media was also used to navigate bureaucratic and informational complexity around the disaster. Residents posted questions about how to apply for disaster relief, corrected each other when the wrong agency was named, and shared copied messages or links from other groups that contained relevant advice on road closures or council announcements. In doing so, they acted as intermediaries who translated fragmented institutional communication into more actionable guidance for peers. Figure 11 illustrates this practice where users exchange information on the correct pathway for relief claims.

St* ****

How do we claim?

Fi* ********

*[@St*** ****] Through Centrelink*

Be*** *****

*[@Fi*** ********] not Centrelink, Services NSW*

11 EXAMPLE OF RESIDENTS DISCUSSING THE CORRECT PATHWAY FOR RELIEF CLAIMS

Trust and confidence in emergency services and authorities

Trust in EMA and authorities during the Mid North Coast floods was visible, yet it was neither uniform nor unconditional. Many residents expressed appreciation for the dedication of SES volunteers, police and other responders, often framing them as heroic figures working under difficult conditions. At the same time, frustration surfaced when warnings felt late, vague or inconsistent with lived experience. This mix of gratitude and critique reveals a nuanced trust relationship: people valued the institutions tasked with protecting them, but they also actively evaluated how well those institutions communicated risk and supported decision-making.

Positive engagement frequently appeared around posts that highlighted on-the-ground work and volunteer commitment. Community members publicly thanked SES, acknowledged the risks responders took, and encouraged others to act responsibly to avoid placing additional strain on emergency workers. These moments helped build what might be described as moral solidarity, where trust was reinforced through narratives of service, sacrifice and care. Social media became a channel through which appreciation was collectively expressed and circulated, strengthening legitimacy during an ongoing crisis. Figure 12 shows one such example in which a commenter thanks SES.

St* *****

In the heart of the flood response, our gratitude runs deep. As we are bringing a tough week of flooding to a close … we extend a heartfelt thank you to the incredible NSW SES volunteers who are on the ground right now … Your dedication, courage and compassion make an extraordinary difference.

12 EXAMPLE OF RESIDENT EXPRESSING GRATIDUTE FOR EMERGENCY SERVICES

Alongside this support, there were also visible expressions of scepticism and disappointment directed toward government agencies and weather authorities. Some users complained about delayed alerts, questioned forecast accuracy or suggested that governments were underprepared and insufficiently responsive. These criticisms did not typically reject institutions outright. Instead, they reflected expectations about timeliness, clarity and accountability that residents felt were unmet. Trust was therefore negotiated in public view, shaped both by institutional performance and by peer discussion that amplified perceived shortcomings. Figure 13 shows a discussion where users criticise forecast reliability and challenge the value of warnings that arrive too late to be actionable.

Ma* *******

Because you haven't got a clue… great forecast re NSW trough and ur predicted 50–80mm falls.

Do* *****

I doubt anything will happen why because the government can't predict the weather at all

13 EXAMPLES OF RESIDENTS EXPRESSING THEIR SCEPTICISM

A smaller but visible strand of commentary drew on conspiracy narratives to explain the floods, often framing the disaster as intentional or politically orchestrated. These posts rejected scientific explanations and instead attributed extreme weather to "government-engineered" interventions. While numerically limited, these comments risk undermining trust in legitimate emergency communication by reframing warnings as part of a broader scheme. Figure 14 shows an example where a user claims the government is directly responsible through weather modification programs.

To*** *****

Your government has done this to you with their geoengineering/weather modification programs. Time we held these scumbags accountable!

14 EXAMPLE OF A RESIDENT BLAIMING AUTHORITIES FOR THE FLOODS

Challenges faced during evacuation

Evacuation during the Mid North Coast floods was marked by confusion, fragmented information and delays in support that left many residents feeling vulnerable. Social media users frequently reported difficulty identifying when to leave, which routes were safe and where official assistance could be accessed. These challenges were compounded by overlapping information systems, inconsistent updates across agencies and the rapid pace at which local conditions changed. In many cases, residents described feeling isolated or overlooked, particularly in smaller towns or areas cut off by multiple road closures.

One major source of difficulty stemmed from competing and poorly integrated digital tools. Residents described switching between disaster apps, Google Maps, live traffic dashboards, and council websites, only to find different information on each platform. Roads shown as open were sometimes impassable, while local detours were absent from state-level maps. This forced people to rely on guesswork or community conversations to patch together workable travel plans, increasing anxiety at exactly the moment when clear direction was needed. Figure 15 shows multiple examples of residents explicitly describing information overload and asking others to confirm whether their planned routes were actually safe to drive.

Ja*** *******

it's confusing. Ive got all the apps. Can anyone confirm for me ?? I'm planning to leave Port Macquarie for Sydney via south Grafton/Glen Innes etc. Can anyone please confirm that roads are open for the 9 hour trip? I'm travelling alone thx in advance

15 EXAMPLE OF A RESIDENT EXPRESSING CONFUSION

A second challenge involved delays and inconsistencies in support and warning delivery. Some residents reported long waits after calling emergency services, while others described warnings that arrived only after water levels had already risen dangerously. These experiences contributed to feelings of abandonment and frustration, especially among people who were geographically isolated or without reliable internet access. Social media became a space where these concerns were voiced publicly and where residents questioned why systems designed to help appeared slow or uncoordinated. Figure 16 captures such a moment, where a resident describes waiting two days for SES assistance while floodwaters surged rapidly around their home.

Am**** *****

SES came today to help me after calling two days ago… it's quite obvious there's a lot of devastation in MANY areas. House under water, pets swimming. It happened SO fast. Not a drop to hip height in 2 hours.

16 EXAMPLE OF A RESIDENT SHARING THEIR EXPERIENCE

Other exchanges show how residents debated responsibility when maps and apps tools failed to guide them during the Mid North Coast floods. Some commenters argued that government and emergency mapping systems were unreliable and actively directed people into dangerous areas. Others responded that drivers should exercise personal judgement and avoid risky routes even when maps suggested otherwise. The conversation shown in Figure 17 reveals a tension between expectations of technological accuracy and appeals to "common sense," highlighting how risk management is negotiated socially when official tools appear incomplete or misleading.

Na* ******** 

The maps are sending ppl on bad roads. We need our emergency apps to work.. sending people into dangerous situations.. yet everyone keeps saying to check live traffic n hazards near me

Br***

*@Na*** — regardless if maps sends someone onto a bad road, the driver chooses to continue driving through the poor conditions. The driver can choose to stop and turn around.*

Ly**

*@Na*** are you serious? Feel free to do better.*

17 EXAMPLE OF RESIDENTS DEBATING DISASTER MAPS VS PERSONAL JUDGEMENT

Recommendations from the community for improving warning systems

Residents used social media to offer practical suggestions for improving warning systems and disaster management. Many comments reflected thoughtful, experience-based proposals aimed at reducing confusion, improving evacuation timing and ensuring stronger protection in future events. The tone of these recommendations often combined frustration with a constructive orientation towards change. People clearly wanted systems that were clearer, more coordinated across agencies and local governments, and better adapted to on-the-ground realities.

A recurring theme involved calls for stronger physical and institutional preparedness. Some residents argued that infrastructure such as levee banks, drainage systems and flood barriers needed upgrading to match the increasing frequency and intensity of floods. Others urged governments to adopt firmer enforcement strategies, including penalties for people who ignored warnings or entered floodwaters, on the grounds that preventable rescues placed lives at unnecessary risk. These comments reflect an expectation that prevention and deterrence should be central elements of future flood management, rather than reactive emergency responses alone. Figure 18 illustrates such calls, where residents recommend structural investment and stricter rules to reduce future harm.

Su*** *****

Heavy fines for them. Putting other people lives in danger to save them.

Do*** ******_****

This is terrible, the government needs to build higher levee banks.

18 EXAMPLES OF RESIDENTS' DEMANDS

Another strand of recommendations focused on communication design and accessibility. Several residents questioned why warnings were concentrated in websites and apps that become unusable when power, internet and mobile reception fail. They advocated for redundant communication systems, including radio broadcasts, community notice networks and more targeted local messaging that specifies towns and neighbourhoods instead of broad regional categories. Although warnings from SES are localised to specific towns, social media users felt overwhelmed to find the warning relevant to them among all the other postings or consumed warnings through Facebook pages that aggregate warnings and through that take away the local focus (e.g., NSW Incident Alerts). These findings highlight a recognition that resilience depends on multiple, overlapping communication channels that can survive infrastructure disruption. Figure 19 shows an example of this reasoning, where a user criticises app-based alerts during outages and calls for simpler, more reliable ways of receiving updates.

Su*** ********

When you have no power, no internet, and no mobile reception it is totally useless to send people to apps for info. Listening to the radio for updates and… they tell you to go to the apps.

No

19 EXAMPLE OF A RESIDENT RAISING CONCERNS ABOUT APP-BASED ALERTS

Discussion

Community experiences during the 2025 Mid North Coast floods on social media

The findings from this research highlight both the strengths and the limitations of social media as a communication ecosystem during the Mid North Coast floods. Facebook, in particular, emerged as the dominant arena in which people accessed warnings, shared hyper-local observations, interpreted risks together and coordinated evacuation decisions. At the same time, much of this activity unfolded around third-party intermediaries such as the Facebook page NSW Incident Alerts, which attracted substantial engagement and often served as the first point of contact for residents seeking clarity.

This pattern shows that social media is deeply embedded in how communities experience and respond to disasters, but it also exposes a possible mismatch between institutional communication strategies, everyday user practices and the commercial orientation of platforms. EMA continue to rely on formal messaging formats, often leading users away from social media to app-based systems, whereas residents expect continuous interaction on the platform, place-specific guidance and validation from peers. In several instances, confusion, information overload, and delayed warnings eroded confidence, prompting residents to crowdsource navigation, compare contradictory advice or critique government performance.

Social media therefore functioned as both a lifeline and a site of contestation: it connected people to timely, practical information, yet it also amplified frustrations, highlighted system gaps and occasionally provided space for misinformation or conspiracy narratives. Understanding this dual role is essential for designing warning systems that are more responsive, more locally intelligible, and reconcile EMAs' need for a controlled information environment with the engagement and advertisement-driven calibration of social media algorithms.

The impact of algorithmic audiencing on disaster communication in social media

Our analysis of the 2025 Mid North Coast flood reveals how algorithmic audiencing reshapes who is heard during disasters, and with what consequences. EMA frequently directed users away from social media and toward external apps or official websites, a strategy grounded in institutional protocol but poorly aligned with contemporary platform logics. In an environment governed by interest-based distribution, such off-platform calls to action can reduce engagement on official posts, which in turn lowers their visibility. This is because social media platforms reward content that keeps users inside the feed and interacting, not content that diverts them elsewhere (Riemer & Peter, 2021).

Third-party actors have adapted to this reality far more effectively. During Cyclone Alfred, weather influencers (see Pirasteh et al., 2025), and during the Mid North Coast floods, pages such as NSW Incident Alerts, provided information in highly visual, responsive and sometimes controversial or provocative ways that generated sustained engagement and thus greater reach. These actors deliver disaster information in formats that match how people like to use social media, that is, interactive, emotionally resonant and easy to re-share. This positions them as central intermediaries in crisis communication, "translating" official warnings to social media audiences (Chu et al., 2021; Fischer-Preßler et al., 2023). Social media platforms reward these actors economically (e.g., through an ad-revenue share or content sponsorships), which leads to a commercialisation of disaster communication. While many create innovation and added value, for example, through new content formats and types of user engagement, it creates incentives to dramatise risk, amplify speculation or prioritise virality over accuracy, potentially contributing to fear, panic, and misinformation (Abbasi et al., 2024; Pirasteh et al., 2025).

Algorithmic audiencing therefore does not merely complicate warning message delivery during natural disasters. It systematically disadvantages official sources that prioritise off-platform authority and advantages actors who optimise for interaction, producing a communication landscape in which visibility is shaped less by public safety needs than by platform economics.

Implications

The findings from this research project about the 2025 Mid North Coast floods suggest a critical turning point for how EMA communicate during disasters. Social media clearly functioned as a central public infrastructure for information sharing, coordination and reassurance. Yet the systems and strategies currently used by EMA were sometimes misaligned with the realities of an algorithmically governed, engagement-driven social media environment. Residents increasingly rely on social media not simply to receive warnings from an EMA broadcast, but to interpret risk collectively, ask questions and verify relevance to their exact location. To remain visible, credible and effective, EMA must adapt to these evolving expectations and platform dynamics that disincentivise broadcasting and incentivise engagement. The following strategic priorities outline key shifts needed to strengthen disaster communication in future events.

Strategic priorities for social media crisis communication

The implications of these findings are significant. Visibility in social media crisis communication can no longer be assumed through posting to a public feed alone. The effectiveness of warning messages now depends heavily on how well agencies and authorities adapt to platform logics (specifically algorithmic audiencing), community expectations and the competitive environment shaped by third-party actors. To improve their communication strategies during disasters, EMA should consider:

1. **Balance automation with audience relevance**

   Automation helps EMA cope with resource constraints by pushing the same warning message across multiple regional profiles and platforms. However, our findings show that automated cross-posting often produced generic content that felt disconnected from local conditions and engagement norms on different platforms. This diluted community trust and reduced interaction. EMA should retain automation where necessary, but tailor message framing, visuals and geographic specificity to the local audience and the platform's content culture. Automation should support communication, not replace situational relevance.

2. **Reduce information overload and coordinate posting rhythms**

   The most active statewide accounts (e.g., BoM, SES NSW, Fire and Rescue NSW) produced high volumes of content during the floods. While largely effective, this contributed to information overload for some social media users, particularly when they were already navigating multiple apps, maps and feeds that displayed conflicting information. Over-posting risks causing audiences to disengage altogether. EMA should place greater emphasis on curated, summarised, clearly signposted updates and coordinate posting frequency across agencies to avoid overwhelming communities during high-stress moments.

3. **Eliminate "dead" or inactive accounts**

   We identified several EMA profiles that had not posted for long periods. During a disaster, inactive official pages create confusion and can erode perceived professionalism and reliability. Residents cannot easily distinguish dormant accounts from trusted ones, which fragments attention and increases reliance on unofficial intermediaries. EMA should either be reactivate and maintain existing accounts or formally decommission and redirect them to active channels to maintain clarity and confidence.

4. **Reduce off-platform calls to action and build engagement where communities already are**

   Directing users away from social media platforms to external websites or apps may make sense organisationally, yet it works against platform logics. Posts that divert users off-platform tend to get

punished by algorithms and therefore are shown to fewer people. This weakens official accounts over time and inadvertently strengthens commercially motivated intermediaries, such as weather influencers or Incident Alert pages, who optimise content for on-platform conversation, sharing and emotional appeal. EMA must rethink how they "compete" in this environment without sensationalising content. The key will be to design engaging, conversational updates that keep users interacting on the platform while still conveying accurate, actionable information and disaster apps and maps. This is critical: if public engagement shifts further toward commercially incentivised third-party actors, EMA risk losing authority, visibility and control over disaster communication narratives.

5. Integrate fragmented information systems across jurisdictions

   Residents repeatedly encountered conflicting information across emergency apps, council websites, state traffic systems and commercial navigation platforms. Roads marked "open" were sometimes inaccessible, and different tools provided incompatible guidance. These inconsistencies increased confusion and undermined trust. EMA should prioritise cross-system integration so that road closures, warnings and locality-specific updates align across jurisdictions and platforms. Improved technical interoperability would reduce uncertainty and improve residents' ability to make timely, safe decisions.

Taken together, these strategic priorities emphasise that improving natural disaster communication is not simply about producing more content. It is about aligning institutional communication practices with the social, technical and algorithmic dynamics of contemporary platforms. Agencies and authorities that recognise engagement as an operational necessity, while safeguarding accuracy and public trust, will be better positioned to reach communities in the moments that matter most.

Further reading

A growing body of academic research has begun to examine how emerging social media phenomena such as algorithmic audiencing shape crisis communication, community engagement and institutional response during disasters. These studies explore topics such as the affordances and limitations of platform algorithms, the emergence of bottom-up communication networks ("dark social"), and how misinformation can be combatted in theses contexts. Together, these literature recommendations provide useful insights into the challenges and opportunities of social media disaster communication outlined in this report.

- Abbasi, A., Dillon, R., Rao, H. R., & Liu Sheng, O. R. (2024). Preparedness and response in the century of disasters: overview of information systems research frontiers. Information Systems Research, 35(2), 460-468.
- Basyurt, A. S., Marx, J., Stieglitz, S., & Mirbabaie, M. (2022). Designing a social media analytics dashboard for government agency crisis communications. Australasian Conference on Information Systems, Melbourne, Australia.
- Fischer-Preßler, D., Marx, J., Bunker, D., Stieglitz, S., & Fischbach, K. (2023). Social media information governance in multi-level organizations: How humanitarian organizations accrue social capital. Information & Management, 60(7), 1-18.
- Marx, J., Bahl, R., & Sutanto, J. (2024). The role of "dark" social media in crisis management: A scoping review. Australasian Conference on Information Systems, Canberra, Australia.
- Marx, J., Blanco, B., Amaral, A., Stieglitz, S., & Aquino, M. C. (2023). Combating misinformation with internet culture: the case of Brazilian public health organizations and their COVID-19 vaccination campaigns. Internet Research, 33(5), 1990-2012.
- Mirbabaie, M., Bunker, D., Stieglitz, S., Marx, J., & Ehnis, C. (2020). Social media in times of crisis: Learning from Hurricane Harvey for the coronavirus disease 2019 pandemic response. Journal of Information Technology, 35(3), 195-213.
- Mirbabaie, M., Marx, J., & Reimann, A. (2022). Rumor correction in social media crisis communication: A case of connective sense-breaking. AIS Transactions on Human-Computer Interaction, 14(2), 150-184.
- Pirasteh, F., Bahl, R., & Marx, J. (2025) Algorithmic Audiencing in Natural Disaster Response: Evidence from Ex-Tropical Cyclone Alfred, Australasian Conference on Information Systems, Brisbane, Australia.
- Riemer, K., & Peter, S. (2021). Algorithmic audiencing: Why we need to rethink free speech on social media. Journal of Information Technology, 36(4), 409-426.
- Shahbazi, M., & Bunker, D. (2024). Social media trust: Fighting misinformation in the time of crisis. International Journal of Information Management, 77, 1-13.
- Truong-Ngoc, M., Marx, J., Mirbabaie, M. (2025). Digital activism triggered by climate-related crisis events: evidence from Australian bushfire seasons. European Conference on Information Systems, Amman, Jordan.

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References

Abbasi, A., Dillon, R., Rao, H. R., & Liu Sheng, O. R. (2024). Preparedness and Response in the Century of Disasters: Overview of Information Systems Research Frontiers. *Information Systems Research*, *35*(2), 460-468. https://doi.org/10.1287/isre.2024.intro.v35.n2

Chu, H., Liu, S., & Yang, J. Z. (2021). Together we survive: the role of social messaging networks in building social capital and disaster resilience among minority communities. *Natural Hazards*, *106*(3), 2711-2729. https://doi.org/10.1007/s11069-021-04562-7

Ciriello, R. F., Marx, J., Cheong, M., Mueller-Bloch, C., & Mathiassen, L. (2025). Decentralized Social Media. *Business & Information Systems Engineering*. https://doi.org/10.1007/s12599-025-00952-4

Fischer-Preßler, D., Marx, J., Bunker, D., Stieglitz, S., & Fischbach, K. (2023). Social media information governance in multi-level organizations: How humanitarian organizations accrue social capital. *Information & Management*, *60*(7), 1-18. https://doi.org/https://doi.org/10.1016/j.im.2023.103838

Marx, J., Bahl, R., & Sutanto, J. (2024). *The role of "dark" social media in crisis management: A scoping review*. *Australasian Conference on Information Systems* Australasian Conference on Information Systems, Canberra, Australia.

Mousavi, R., & Gu, B. (2024). Resilience Messaging: The Effect of Governors' Social Media Communications on Community Compliance During a Public Health Crisis. *Information Systems Research*, *35*(2), 505-527. https://doi.org/10.1287/isre.2021.0599

Pirasteh, F., Bahl, R., & Marx, J. (2025). *Algorithmic Audiencing in Natural Disaster Response: Evidence from Ex-Tropical Cyclone Alfred* Australasian Conference on Information Systems, Brisbane, Australia.

Riemer, K., & Peter, S. (2021). Algorithmic audiencing: Why we need to rethink free speech on social media. *Journal of Information Technology*, *36*(4), 409-426. https://doi.org/10.1177/02683962211013358

Yoo, C., Yoo, E., Yan, L., & Pedraza-Martinez, A. (2024). Speak with One Voice? Examining Content Coordination and Social Media Engagement During Disasters. *Information Systems Research*, *35*(2), 551-569. https://doi.org/10.1287/isre.2022.0121