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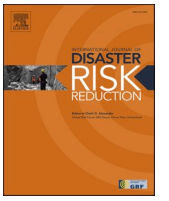

Driving behaviour during flood and bushfire emergency evacuations: Insights from observational and self-reported data

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ABSTRACT

Climate-related emergencies such as floods and bushfires are among the most prevalent natural hazards globally. During these events, individuals often drive to self-evacuate; however, doing so through floodwaters or bushfire-affected areas poses significant risks to both evacuees and emergency responders. Understanding the factors that influence driver decision-making in these situations is crucial, as it relates directly to pre-evacuation delays, compliance with evacuation orders, and the safety of volunteer rescue personnel. It also informs more effective risk communication and policy design. This study adopts a mixed-methods approach by integrating content analysis of self-recorded real-life driving videos with surveys and discrete choice experiments. It examines both strategic and operational dimensions of driver behaviour during flood and bushfire conditions. The video analysis captures driver actions, environmental cues, and emotional or verbal responses, while the choice experiment investigates how risk perception, environmental severity, social cues, and contextual factors shape the decision to proceed through hazardous routes. Findings suggest most participants prefer to avoid driving through flood or bushfire scenarios in hypothetical contexts. Environmental severity—such as floodwater depth or fire intensity—was the strongest deterrent. However, the perceived presence of other drivers emerged as a strong motivating factor. Observational data also show that driving mostly occurred when other vehicles were present. Younger and male participants reported greater willingness to drive in both hazards—a pattern also mirrored in the video observations. This dual-method approach offers new insights into emergency driving behaviour and holds practical value for shaping public messaging, emergency planning, and policy interventions during natural hazards.

1. Introduction

Driving through roads affected by floods or bushfires is an unsafe behaviour. Global statistics indicate that a significant proportion of fatalities during these events involve individuals attempting to drive through hazardous conditions. For instance, a study of flood fatalities in Texas, United States, from 1959 to 2009 found that 351 out of 440 flood deaths with known circumstances were vehicle-related [1]. Similarly, a study in Greece from 1970 to 2010 reported that 60 out of 151 outdoor flood deaths occurred in vehicles [2]. In the context of bushfires, data from Australia between 2010 and 2020 shows that 33 out of 65 deaths were vehicle related, 15 of which

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occurred when individuals were burnt while in their car (10 during late evacuations and five while firefighting) and four involved both vehicles and treefall.[1] As driving is a common method of evacuation in both flood and bushfire events [3,4], examining driver behaviour during these emergencies is essential. A better understanding of these behaviours can inform risk mitigation strategies and ultimately help save lives.

Understanding the factors that influence driver decision-making in these situations is crucial, as it relates directly to pre-evacuation delays, compliance with evacuation orders, and the safety of volunteer rescue personnel. Studies have shown that people often delay evacuation, which can result in rushed departures under hazardous, high-risk conditions, particularly when roadways are already compromised by fire or floodwaters [5–12,]. These delayed evacuations are commonly associated with underestimating the severity of the hazard and how quickly conditions can deteriorate [12,8].

In addition to endangering individuals, these behaviours place considerable strain on emergency services and volunteer rescuers [13–15]. Attempting to rescue stranded drivers during peak hazard conditions, when emergency services are under pressure to manage multiple priorities, can divert resources from other critical response efforts, such as protecting infrastructure, assisting vulnerable populations, and coordinating broader evacuation operations [16,17]. Therefore, exploring psychological, social, and contextual factors that influence decision-making under risk—including perceptions of threat, environmental severity, and social influences—is essential for developing targeted public education, warning messages, and interventions. These insights can contribute to safer evacuation practices and reduce the burden on emergency responders during disaster events.

Education and community preparedness play a vital role in equipping individuals with the knowledge and practical skills needed to modify risky behaviours [1,18–21]. However, despite sustained efforts through community campaigns aimed at increasing awareness, vehicle-related fatalities continue to be a recurring feature of these emergencies [22–29]. Before planning and designing effective interventions to mitigate risk and enhance public safety, it is essential to first investigate driver behaviour in such contexts [3,20]. Preparing communities for what they may encounter during these hazards and how they should respond appropriately, requires a deep understanding of the circumstances surrounding these events. Additionally, people's preferences and the factors that shape their decision-making and driving behaviour during emergency evacuations remain an important yet underexplored area [3,18,25,30].

Several studies have examined driver behaviour and risk perception in flood and bushfire contexts using both observational and interventional approaches. Observational studies have employed questionnaire surveys [25,31,32] and interviews [33] to describe driver behaviour, while interventional studies have used pre- and post-intervention surveys [34] and virtual reality (VR) experiments [35,36] to improve driver behaviour and enhance community safety. These studies provide valuable insights into risk perceptions, beliefs, and attitudes. However, they may not fully reflect real-time decisions, emotional responses, and behaviours as they occur under the situational pressures of actual emergencies.

Due to the ethical and logistical challenges of studying real-time emergencies, previous research on driver behaviour has relied on alternative data sources that lack the spontaneity and urgency of actual crises. With the growing use of social media platforms such as YouTube, it is possible to access real-life footage captured by individuals who have experienced these hazards firsthand. These videos present a unique opportunity to observe and analyse driver and passenger behaviour during genuine flood and bushfire scenarios. Social media research has emerged as a rapidly growing area in disaster science [37]; however, to the best of our knowledge, such footage has not been examined in prior research. This approach enables the observation of spontaneous behaviours and reactions under the pressure of real-world emergencies and aftermath of the actual event. This study employs content analysis [38] to explore what individuals experience during these events, providing insights into their decision-making processes and emotional responses. Moreover, public viewers' comments on these videos serve as a valuable source for examining public perceptions and emotional responses to driving behaviours during these events. To complement the content analysis of real-life footage, sentiment analysis [39] is employed to examine public viewers' comments, exploring how the public might emotionally process and perceive these behaviours, thereby providing insights into social perception.

In addition to observing driver behavioural patterns during actual emergencies, investigating the trade-offs between factors influencing drivers' decisions to drive or not drive through roads affected by floods and bushfires is critical. This study employs discrete choice modelling [40] to examine the interplay between key factors that predict driver behaviour and decision-making. Insights gained from the content analysis of self-recorded videos informed the design of a discrete choice experiment to assess drivers' willingness to drive in flood and bushfire emergencies.

This study aims to address the knowledge gap in driver behaviour during flood and bushfire emergencies by answering the following questions.

1. What observable behavioural patterns can be identified among drivers in flood and bushfire emergencies?
2. What are the key motivators influencing drivers' willingness to drive in flood and bushfire emergencies?

By integrating real-world observations with an analysis of factors influencing drivers' willingness to drive during flood and bushfire emergencies, this mixed-method study offers new insights into driver behaviour under extreme conditions. Content analysis of self-recorded videos provides access to authentic decision-making and emotional responses, contributing to a naturalistic understanding of human behaviour in context. To our knowledge, such footage has not previously been systematically analysed to extract driver behavioural patterns, nor have choice experiments been used to examine trade-offs between situational, psychological, and contextual

[1] https://riskfrontiers.com/insights/bushfire-deaths-in-australia-2010-2020/.

factors in these scenarios. The findings of this study have significant implications for risk communication, emergency planning, and policy development aimed at promoting safer behaviours in flood and bushfire emergencies.

2. Method

A mixed-method approach was employed in this research, integrating qualitative and quantitative methods. Content analysis was first conducted on self-recorded videos uploaded on YouTube (Appendix Table A1 and Table A2) that captured a first-person perspective of driving during flood and bushfire conditions, aiming to observe drivers' behavioural patterns in these emergencies. This was followed by sentiment analysis of public viewers' comments on the videos to explore audience reactions and perceptions. Insights from these analyses informed the development of two separate surveys for flood and bushfire, each comprising two parts: image-based questions and discrete choice experiments designed to assess willingness to drive through flood or bushfire conditions.

2.1. Content analysis of driving videos and sentiment analysis of public comments

To gain insights into people's driving behaviour during emergencies, content analysis was adopted as an initial phase. This well-established method in the social sciences [38] has been widely used to examine decision-making and emotional responses to risk in hazardous contexts, including risky driving behaviours and health-related decision-making [41–49]. However, to our knowledge, this is the first study to apply content analysis specifically to driving behaviour during natural hazards such as flood and bushfire emergencies.

Two databases of self-recorded driving videos were created for floods (Appendix Table A1) and bushfires (Appendix Table A2) to assess driving behaviour during these emergencies. To build these databases, a search query in the format "Driving through a flood in [COUNTRY NAME]" was used in YouTube platform for all the 195 countries, for example, "driving through a flood in Cyprus". The search results were filtered by relevance. Initially, 235 flood-driving videos and 135 bushfire-driving videos were collected. After removing videos that did not depict a first-person perspective of real-life driving through floods or bushfires, the final database comprised 183 flood videos and 116 bushfire videos (Supplementary material). The databases were last updated in August 2023.

Characteristics of the videos in the final database are illustrated in Table 1. While bushfire videos are longer on average (6′ 31″ for bushfire, 4′ 32″ for flood), the average duration of actual driving footage is greater in flood videos (3 '50″ for flood, 1' 12" for bushfire). This suggests that individuals perceive bushfires as a more imminent risk, leading them to stop recording after a shorter period. In terms of public engagement, flood videos received more views and likes on average, whereas bushfire videos had a higher average number of comments (574 for bushfire, 162 for flood).

Two structured coding protocols were developed and finalised following expert feedback (see Supplementary material) to guide the content analysis of videos. During the development phase, an initial round of video review was conducted to inform the selection of coding variables. To enhance clarity and consistency, each identifiable variable was accompanied by a representative example in the protocols to illustrate how it was operationalised. All videos were then manually coded in Excel by the first author, based on vehicle occupants' speech, visual attributes of the road and people, and the video description. Each variable was coded using three values for each variable: present (clear evidence of the behaviour), absent (clear absence of the behaviour), unidentifiable (unclear or impossible to determine the presence or absence of the behaviour). For non-English videos, verbal interactions were coded using YouTube-provided subtitles or transcripts; when these were unavailable, translations were performed using the Google Translate application. The datasets were constructed by coding the attributes and variables, as summarised in Table 2.

To identify patterns in the coded video content, decision tree analysis was performed using IBM SPSS Statistics version 28, employing the CHAID (Chi-squared Automatic Interaction Detection) algorithm. This method constructs a decision tree by recursively partitioning the data based on the most statistically significant predictors, as determined through chi-square tests. The approach enabled the identification of hierarchical relationships among variables and revealed an interpretable model of driver behaviours during emergency scenarios.

In addition to analysing video content patterns, sentiment analysis [39] was conducted on public viewers' comments associated with the self-recorded videos for both flood and bushfire conditions to explore how this content may influence public perception. Sentiment analysis has been widely applied in disaster-related research and other fields to assess public responses on social media [50–54,55,56]. This complementary analysis offered insights into public perceptions and emotional reactions related to emergency

Table 1
Video characteristics.

Variable	Flood					Bushfire				
	Mean	S.D.	Min	Max	Median	Mean	S.D.	Min	Max	Median
Total video length (minutes in decimals)	4.32	6.80	0.09	46.06	1.55	6.31	11.73	0.12	54.32	2.12
Video length while driving (minutes in decimals)	3.50	5.77	0.07	35.23	1.34	1.12	1.87	0.05	12.25	0.45
Number of views per video	238,223	863,951	20	6,725,094	2887	274,858	406,769	24	1,888,397	70,508
Number of likes	5439	42899	0	555000	21	3573	11200	0	93000	582
Number of comments	162	726	0	7872	3	574	1086	0	7594	85

Note: S.D. = Standard deviation, Min = Minimum, Max = Maximum.

Table 2
Attributes and variables used in the content analysis of self-recorded driving videos.

Attribute	Variable
Driver and vehicle characteristics	Driver's gender, Driver's age, Vehicle type, Presence of other vehicles on the road, Presence of passengers, Vehicle occupants' language
Road environment characteristics	Type of roadway, Surrounding terrain, Time of day, Weather conditions
Verbal interactions	Praying, Swearing, Help-seeking, Consoling vehicle occupants, Situation analysis and decision-making
Emotional reactions	Fear of damaging car engine, Fear of car explosion, Fear of injury or death, Fear of property loss, Fear of losing pets/animals, Fear of car accident due to limited sight, Fear of trees falling onto the road, Uncertainty, Hope of rescue, Laughter, Crying, Stress of decision-making
Physical effects and reactions	Scorching air, Hot vehicle, Water entering the car, Objects like trees crashing onto the car, Breathing difficulty, Vehicle instability
Characteristics of flood or bushfire	Fire sparkles, Fireballs, Ember attack, Smoke, Limited visibility, Water splashes, Water height, Water movement

driving behaviours during floods and bushfires. Viewer comments were collected using the YouTube Data API and analysed employing a DistilBERT model [57,58], which classified the comments into six emotional states: sadness, joy, love, anger, fear, and surprise. This method provided a nuanced understanding of audience attitudes toward real-life flood and bushfire driving scenarios.

2.2. Image-based surveys and discrete choice experiments

Two separate surveys were designed for flood and bushfire contexts, each comprising two parts: image-based questions using screenshots from self-recorded videos of actual past flood and bushfire events, and discrete choice experiments assessing willingness to drive through these hazardous conditions.

The first part of the surveys aimed to evaluate participants' risk perception and risk-taking behaviour. To design this section, five images from past flood events and five from bushfire events were selected from the self-recorded video dataset (Fig. 1, see also Tables A1 and A2 in the Appendix). Participants were asked to rate the perceived risk of driving in each scene on a scale from 0 (not risky at all) to 10 (extremely risky), in response to the question, "How risky do you think driving on this road would be?".

The second part of the surveys examined the trade-offs between various factors influencing the decision to drive through floods or bushfires, capturing behavioural preferences under hypothetical emergency scenarios. To predict participants' choices and willingness to drive in such conditions based on their attitudes and perceptions, joint discrete choice surveys [40] were designed with six attributes, each consisting of two levels. Under conditions of stress and high cognitive load, people's decision-making is more likely to rely on fast, intuitive processes, which can lead them to interpret complex conditions in simplified categories [59,60,61]. Therefore, we used binary levels in our experiment (e.g., high vs. low). The attributes included: perceived floodwater level or fire intensity (high or low), observing others driving through a flood or bushfire (yes or no), the driver's familiarity with the road (familiar or unfamiliar), perceived vehicle efficacy in navigating hazardous conditions (high or low), perceived time pressure to reach the intended destination (high or low), and the influence of passengers' viewpoint (encouraging or discouraging driving). The designed attributes and their corresponding levels are summarised in Table 3.

In designing the discrete choice surveys, for each survey a full factorial design was used, generating 64 unique scenarios based on all possible combinations of attribute levels. From these, 32 scenarios were selected according to two key criteria: ensuring representation of realistic decision-making situations and maintaining balance across attribute levels. [12] These scenarios were then organised into four blocks (a, b, c, d), each containing eight scenarios. Each participant was randomly assigned to one of the four blocks and responded to the eight scenarios within that block. For instance, scenario 8d refers to the eighth scenario in block (d). Fig. 2 illustrates example scenarios from the survey: scenario 4c from the flood condition and scenario 1b from the bushfire condition.

Two distinct samples for the flood and bushfire surveys were recruited from Australian residents through Qualtrics services, aiming to approximate proportional representation by state population, gender, and age.[13] Ethics approval for the study was obtained from UNSW Sydney. A total of 700 individuals completed the flood survey, and 550 completed the bushfire survey (Table 4). The flood sample comprised 39 % male and 60.7 % female respondents, and the bushfire sample included 42.7 % male and 57.1 % female. Both samples included participants across a wide age range, with the largest proportion aged 30–39 years (20.9 % flood survey and 22.6 % bushfire survey). Sample representations across Australian states were balanced, with New South Wales having the highest response rate (29 % flood and 28 % bushfire), followed by Victoria (24.6 % flood and 26.4 % bushfire). Most participants held a driver's license

[12] Scenarios were selected to reflect plausible situations that participants could realistically encounter, informed by a content analysis of real-world dashcam videos of past events, while ensuring that each attribute level appeared approximately equally across the selected scenarios. An example of an unrealistic scenario that is unlikely in real-world situations would be one in which the floodwater level is high, the driver is familiar with the road, the vehicle has low efficacy, time pressure is low, the passenger encourages driving, and no other drivers are observed on the road.

[13] The Australian population distribution was derived from the 2023 Australian Bureau of Statistics (ABS) data as follows: Gender—males (50%), females (50%); Age—18-24 (11%), 25-29 (9%), 30-39 (19%), 40-49 (16%), 50-59 (15%), 60-69 (14%), 70-79 (10%), 80+ (6%); State/Territory—New South Wales (28%), Victoria (25%), Queensland (20%), South Australia (7%), Western Australia (11%), Tasmania (3%), Northern Territory (3%), Australian Capital Territory (3%). While our samples did not perfectly match national proportions, they were carefully designed to capture diversity across key demographic dimensions and broadly reflect the adult Australian population.

Fig. 1. Images from past flood and bushfire events used in the surveys to assess participants' risk perception. Flood images: (F1) 2016, Houston, United States,[2] (F2) 2021, United Kingdom,[3] (F3) 2021, United Kingdom,[4] (F4) 2018, United States,[5] (F5) 2020, United Kingdom[6]; Bushfire images: (B1) 2022, Southwest Europe (Portugal),[7] (B2) 2017, California, United States,[8] (B3) 2020, Australia,[9] (B4) 2015, Fort McMurray, Alberta, Canada,[10] (B5) 2020, California, United States.[11]

[2] https://www.youtube.com/watch?v=R0gsydbQMdU.
[3] https://www.youtube.com/watch?v=Gh0tKhb5P5w.
[4] https://www.youtube.com/watch?v=p2_rOqIqTzA&t=512s.
[5] https://www.youtube.com/watch?v=N0wc8MnQgMw&t=288s.
[6] https://www.youtube.com/watch?v=a8TYLit80Ho&t=1s.
[7] https://www.youtube.com/watch?v=WFKTeNq_zGA.
[8] https://www.youtube.com/watch?v=qi6dAPBvyYU.
[9] https://www.youtube.com/watch?v=sh31knRtO7U.
[10] https://www.youtube.com/watch?v=or7tWjWI0ZA.
[11] https://www.youtube.com/watch?v=v5TZ6zilkk4.

(90.7 % flood and 93.5 % bushfire), indicating that their responses were informed by direct driving experience. Most participants lived in urban areas (68.9 % flood and 69.6 % bushfire) and did not consider their residences flood-prone or bushfire-prone (73 % flood and 75.5 % bushfire). A majority had lived in Australia their entire lives (74.9 % flood and 71.5 % bushfire), and English was the primary language at home for most participants (93.6 % flood and 94.4 % bushfire), indicating minimal language barriers to accessing emergency information. Only a small proportion reported experience working or volunteering with emergency services (16 % flood and 13.1 % bushfire), suggesting that the responses broadly reflect the perceptions of the general public rather than emergency professionals.

Data from the discrete choice experiments were analysed using the Appollo package in RStudio 4.2.0. The influence of demographic characteristics on both risk perception and willingness to drive was assessed using t-tests comparing mean scores from the five risk perception questions and the eight willingness to drive scenarios within each flood and bushfire survey. Effect sizes were calculated using Cohen's d, with 95 % confidence intervals for each mean comparison [62–64]. Additionally, responses to the image-based risk

Table 3
Choice set design for assessing willingness to drive through flood or bushfire conditions.

Alternatives	attributes	Levels
1. Driving through a flood or bushfire,	Perceived floodwater level or fire intensity	High, Low
2. Not driving through a flood or bushfire	Observing others driving through a flood or bushfire	Yes, No
	Driver's familiarity with the road	Familiar, Unfamiliar
	Perceived vehicle efficacy in navigating hazardous conditions	High, Low
	Perceived time pressure to reach the intended destination	High, Low
	Passenger's viewpoint	Encouraging driving, Discouraging driving

Fig. 2. Example scenarios of driving through floods and bushfires used in the surveys.

Table 4
Participants demographics for the flood (n = 700) and bushfire (n = 550) survey samples.

Participants demographics	Category	Flood sample		Bushfire sample	
		Count	%	Count	%
Gender	Male	273	39.0	235	42.7
	Female	425	60.7	314	57.1
	Prefer not to answer	2	0.3	1	0.2
Age	18–24	73	10.4	56	10.2
	25–29	61	8.7	47	8.6
	30–39	146	20.9	124	22.6
	40–49	128	18.3	77	14.0
	50–59	112	16.0	74	13.5
	60–69	108	15.4	105	19.1
	70–79	46	6.6	47	8.6
	+80	26	3.7	20	3.6
Holding a driver's license	Yes	635	90.7	514	93.5
	No	65	9.3	36	6.5
State or Territory	ACT	36	5.1	17	3.1
	NSW	203	29.0	154	28.0
	NT	3	0.4	3	0.6
	QLD	120	17.1	104	18.9
	SA	53	7.6	42	7.6
	TAS	37	5.3	17	3.1
	VIC	172	24.6	145	26.4
	WA	76	10.9	68	12.4
Area of residence	Urban	482	68.9	383	69.6
	Regional	200	28.6	154	28.0
	Remote	18	2.6	13	2.4
Living in flood-prone areas	Yes	189	27.0	135	24.5
	No	511	73.0	415	75.5
Living in Australia	Less than a year	9	1.3	11	2.0
	1–4	13	1.9	17	3.1
	5–9	24	3.4	18	3.3
	10–19	38	5.4	32	5.8
	20+	92	13.1	79	14.4
	All my life	524	74.9	393	71.5
Primary language spoken at home	English	655	93.6	519	94.4
	Other	45	6.4	31	5.6
Emergency services experience	Volunteer	62	8.9	35	6.4
	Employee	44	6.3	30	5.5
	Both	6	0.9	7	1.3
	None	588	84.0	478	86.9
Total		700	100	550	100

perception questions were examined in relation to participants' willingness to drive in floods and bushfires.

By integrating observational data from content analysis of self-recorded driving videos and sentiment analysis of public comments with self-reported data from image-based surveys and discrete choice experiments, this research employs a mixed-methods approach to examine both the tactical motivations for driving through floods and bushfires and the operational behaviours observed during these

events. The ultimate aim is to inform risk communication strategies that can help save lives during emergency evacuations.

3. Results

The results of content analysis of operational behaviour observations and surveys on self-reported motivations are presented in two subsections: 3.1 Content analysis of driving videos and sentiment analysis of public comments, and 3.2 Image-based surveys and discrete choice experiments.

3.1. Content analysis of driving videos and sentiment analysis of public comments

The content analysis results show that the United States and Australia were the top countries represented in both the flood and bushfire video datasets. The United States contributed 25 flood and 53 bushfire videos, while Australia contributed 12 and 30 respectively. The United Kingdom also had 12 flood videos, matching Australia's count. The Republic of Botswana ranked third for flood videos (6), and Canada ranked third for bushfire videos (11). The high numbers for the United States and Australia reflect the prominence of events such as the California wildfires and Australia's Black Summer (2019–2020) (see Table A1 and Table A2 in the Appendix).

In both the flood (N = 183) and bushfire (N = 116) datasets, most identifiable drivers appeared to be male (69.9 % in flood, and 58.6 % in bushfire videos), and younger drivers were more commonly observed when age could be determined[14] (62.8 % in flood, 39.7 % in bushfire). The majority of vehicles were private cars (86.3 % in flood, and 56.0 % in bushfire), with fire trucks also frequently appearing in bushfire videos (30.2 %). Other vehicles were often seen driving simultaneously (69.4 % in flood, 63.8 % in bushfire). Passengers were present in nearly half of the videos (47.5 % in flood, 44.0 % in bushfire), and when verbal interactions occurred, English was the most commonly spoken language (47.5 % in flood, 53.4 % in bushfire). Table 5 presents driver and vehicle characteristics identified from self-recorded driving videos during flood and bushfire events.

Weather patterns differed markedly between the two hazards, flood videos were mostly recorded during rainy conditions (60.7 %), whereas bushfire videos were overwhelmingly captured in clear or cloudy weather (98.3 %), reflecting the typically dry conditions associated with bushfire events. In contrast, only 1.7 % of bushfire videos showed rainy weather, while 38.8 % of flood videos occurred under clear or cloudy skies (Table S1, Supplementary material). Individuals also predominantly recorded themselves in urban or suburban settings (74.3 % for flood and 53.4 % for bushfire).

Verbal interactions (Table S2, Supplementary material) were generally limited in both flood and bushfire videos, with most behaviours either absent or unidentifiable. In flood-related videos, the most frequently observed verbal responses were analysing the situation and making decisions (n = 80; e.g., see Video 26 in Appendix Table A1) and swearing (n = 20; e.g., see Video 95 in Appendix Table A1). Other behaviours such as praying (n = 10), help-seeking (n = 4), and consoling vehicle occupants (n = 9) were present but relatively uncommon. Talking on the phone occurred in only two cases. In bushfire-related videos, analysing the situation and decision-making (n = 50; e.g., see Video 3 in Appendix Table A2) was again the most prominent behaviour, followed by swearing (n = 20) and praying (n = 12). Helping others (n = 11; e.g., see Video 29 in Appendix Table A2), an altruistic behaviour not observed in flood videos, was also evident. Consoling passengers and help-seeking were present in smaller proportions. Overall, these findings indicate that while both hazard contexts involved expressions of stress and situational assessment, bushfire scenarios appeared to elicit more instances of interactive and prosocial behaviours, such as helping others and consoling vehicle occupants.

In flood-related videos, emotional cues (Table S3, Supplementary material) ranged from stress and uncertainty to moments of humour. Notably, uncertainty (n = 46; e.g., see Video 53 in Appendix Table A1), laughter (n = 35; e.g., see Video 54 in Appendix Table A1), and stress related to decision-making (n = 34) were relatively common. Fewer videos contained explicit fears, such as fear of damaging the car engine (n = 21) and fear of injury or death (n = 13). Instances of crying (n = 3) were rare. In bushfire videos, uncertainty (n = 41; e.g., see Video 3 in Appendix Table A2) and stress related to decision-making (n = 28; e.g., see Video 103 in Appendix Table A2) were also prevalent. Expressions of fear were more varied and specific, including fear of injury or death (n = 19), loss of property (n = 7), car explosion (n = 5), or loss of pets (n = 1). Laughter and crying occurred less frequently in bushfire videos than in flood ones. Overall, these findings indicate that while stress and uncertainty were common across both hazards, bushfire scenarios revealed a broader spectrum of specific fears (Table S3, Supplementary material).

The most common physical experiences in flood-related videos (Table S4, Supplementary material), included water entering the vehicle (n = 20; e.g., see Videos 38 and 27 in Appendix Table A1) and unbalanced or floating vehicles (n = 18; e.g., see Video 3 in Appendix Table A1. More severe or specific observations, such as damage to the vehicle (n = 6) and damage to other vehicles on the road (n = 6) were infrequent. Rare events included trees or objects crashing into vehicles (n = 3) and heavy breathing (n = 3), possibly indicating physical distress or exposure to extreme heat. In bushfire-related videos, the most frequently observed physical impacts were scorching air (n = 32; e.g., see Video 27 in Appendix Table A2) and hot vehicle surfaces (n = 25; e.g., see Video 62 in Appendix Table A2), followed by breathing hardship (n = 11) and vehicle shaking (n = 6). Several extreme yet rare conditions were recorded in only one instance each, such as crashes due to limited visibility, other vehicles' tires popping, and injuries caused by fire. Overall, while physical impacts were observed in both hazard contexts, flood videos emphasized interactions with water and vehicle instability, whereas bushfire videos highlighted exposure to intense heat and breathing difficulties, with some rare but serious safety

[14] In the bushfire dataset, 52.6% of drivers could not be classified by age due to insufficient visual or auditory information and were therefore categorised as unidentifiable.

Table 5
Driver and vehicle characteristics.

Variable	Category	Flood (N = 183)		Bushfire (N = 116)	
		Count	%	Count	%
Driver's gender	Male	128	69.9	68	58.6
	Female	10	5.5	5	4.3
	Unidentifiable	45	24.6	43	37.1
Driver's age	Younger	115	62.8	46	39.7
	Older	10	5.5	9	7.8
	Unidentifiable	58	31.7	61	52.6
Vehicle type	Private car	158	86.3	65	56.0
	Bus	8	4.4	0	0
	Van	1	0.5	0	0
	Truck	12	6.6	0	0
	Fire truck	0	0	35	30.2
	Police car	0	0	1	0.9
	Sherrif car	0	0	1	0.9
	Unidentifiable	4	2.2	14	12.1
Other vehicles driving on the road	Yes	127	69.4	74	63.8
	No	56	30.6	42	36.2
Presence of a passenger	Yes	87	47.5	51	44.0
	No	49	26.8	16	13.8
	Unidentifiable	47	25.7	49	42.2
Vehicle occupants' language	English	87	47.5	62	53.4
	Other	22	12.0	11	9.5
	Unidentifiable	74	40.4	43	37.1

threats (Table S4, Supplementary material).

Visual observations in flood-related videos (Table S5, Supplementary material) indicate that floodwater height was most commonly moderate (n = 140), with fewer instances of minimal (n = 24) or severe (n = 19) levels. The water level was generally changing (n = 161) rather than consistent (n = 22), and moving water was far more frequently observed (n = 158) than still water (n = 25). Water splash was present in most flood videos (n = 134), and limited visibility due to environmental conditions was noted in 47 cases. In contrast, bushfire videos frequently depicted fire sparkles (n = 90), fireballs (n = 71), and smoke (n = 115), with ember attacks observed in 32 cases. Fire explosions were relatively rare (n = 3). Limited sight was noted in a majority of bushfire videos (n = 93), suggesting visual obstruction from smoke or fire-related elements. These observations illustrate distinct visual environments between flood and bushfire driving scenarios, with dynamic water features dominating flood scenes and intense fire-related phenomena characterising bushfire contexts. Overall, these observations confirm that bushfire and flood scenarios are highly dynamic, with conditions that can change rapidly and unexpectedly.

Decision tree analyses were conducted to examine associations among observed variables in the flood and bushfire driving video content. The presence of other vehicles driving through floodwater was significantly associated with the actual height of water that individuals chose to drive through ($\chi^2 = 25.403$, $p < .001$; Fig. 3). When no other vehicles were driving (Node 1), people were more

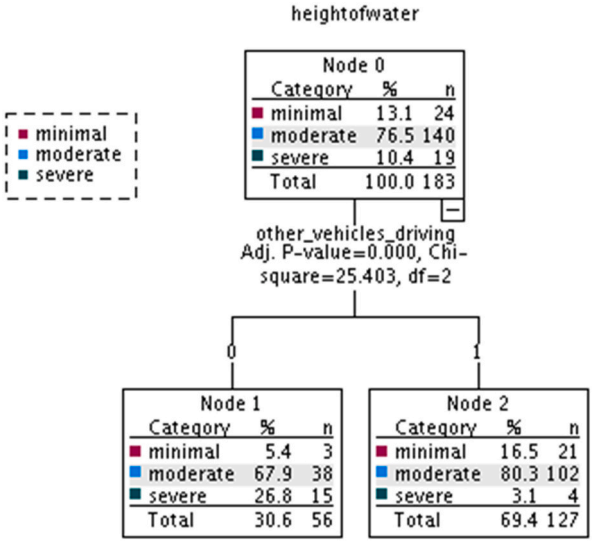

Fig. 3. Decision tree analysis of observed height of water based on the presence of other vehicles driving through floods.

likely to drive through deeper, severe water (26.8 %). Conversely, when other vehicles were driving (Node 2), people were more likely to drive through moderate (80.3 %) or shallower water (16.5 %).

The occurrence of praying, as observed in the videos, relates to participants' evaluation of the situation and their decision-making processes while driving through floodwater ($\chi^2 = 19.061$, $p < .001$; Fig. 4). Praying was more frequently observed when individuals appeared to engage in situational analysis (or when this behaviour was unidentifiable), occurring in about 10 % of cases, and almost never (1.1 %) when no situational analysis was apparent.

Moreover, swearing behaviour was associated with moments of visible uncertainty ($\chi^2 = 19.866$, $p < .001$) and rainy conditions ($\chi^2 = 8.475$, $p < .05$), as illustrated in Fig. 5. Swearing was more common when uncertainty was clearly expressed, whether present or absent (Node 1, 27.5 %). In contrast, it was less common when uncertainty was unidentifiable and the weather was rainy (Node 2, 4.5 %). Among those who did not express uncertainty in their verbal interactions or in the written video descriptions, swearing was more frequent when it was not raining (Node 3, 8.9 %), and was very rare during rainfall (Node 4, 1.3 %). This decision tree suggests that observed swearing tends to occur when uncertainty is expressed (whether present or absent), and in situations where there is no expression of uncertainty but also no rain, possibly reflecting a mismatch between expected and actual risk. This pattern indicates that drivers may be more emotionally reactive when confronted with unexpected flooding in seemingly safe (non-rainy) conditions.

Decision tree analysis of flood-related self-recorded video content revealed three dominant thematic patterns. In contrast, bushfire-related videos did not yield similarly consistent patterns. Since these videos reflect people's real-life experiences rather than planned communication, this difference may reflect the relative rarity or unfamiliarity of bushfire events and the diverse ways individuals respond to them. It suggests that bushfire experiences may be more heterogeneous and less easily categorised than flood-related behaviours when viewed through the lens of real-life, experience-based content.

Table 6 presents the average proportion of six basic emotions (sadness, joy, love, anger, fear, and surprise) identified through sentiment analysis of public viewers' comments on self-recorded driving videos using the DistilBERT model. These proportions represent the emotional tone expressed by viewers in response to flood and bushfire driving videos. In both contexts, joy (39.84 % for flood, 33.72 % for bushfire) and anger (32.16 % for flood, 35.44 % for bushfire) were the most dominant emotions, followed by fear (15.26 % for floods, 14.92 % for bushfires). Sadness was more prominent in bushfire comments (12.80 %) than in flood-related comments (9.38 %). Emotions such as love and surprise were relatively infrequent in both cases. These findings suggest that viewers' reactions are strongly tied to perceived threat, frustration, and relief, offering insights into public perceptions of risk and emotional engagement with disaster-related media content.

3.2. *Image-based surveys and discrete choice experiments*

The results of analysing responses to the imaged-based questions (rated on a scale from 0 to 10; see Fig. 1) and the discrete choice experiments (0 = decision not to drive, 1 = decision to drive; see Fig. 2) indicate that, on average, participants reported high risk perception (8.43 for floods, 9.13 for bushfires) and low willingness to drive during both flood and bushfire events (0.24 for floods, 0.28 for bushfires).

Mean comparisons based on participants' demographics characteristics (Table 7) show that flood risk perception was significantly higher among females than males ($t = 1.90$, $p < .05$, Cohen's $d = 0.15$, 95 % CI = [0.00, 0.30]), while no significant gender difference was found in willingness to drive in flood conditions. Older participants (aged 50 or more) perceived significantly higher flood risk than younger participants ($t = 2.36$, $p < .01$, Cohen's $d = 0.18$, 95 % CI = [0.03, 0.33]), whereas younger participants reported significantly higher willingness to drive in floods ($t = 5.87$, $p < .001$, Cohen's $d = 0.44$, 95 % CI = [0.29, 0.59]). There was no significant difference in risk perception between those living in or outside flood-prone areas; however, participants living in flood-prone areas reported significantly greater willingness to drive in floods ($t = 2.06$, $p < .05$, Cohen's $d = 0.18$, 95 % CI = [0.02, 0.35]).

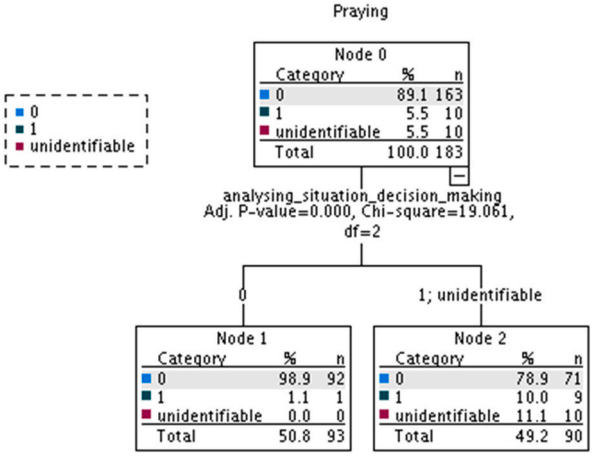

Fig. 4. Decision tree analysis of observed praying behaviour based on individuals' situation assessment and decision-making during floods.

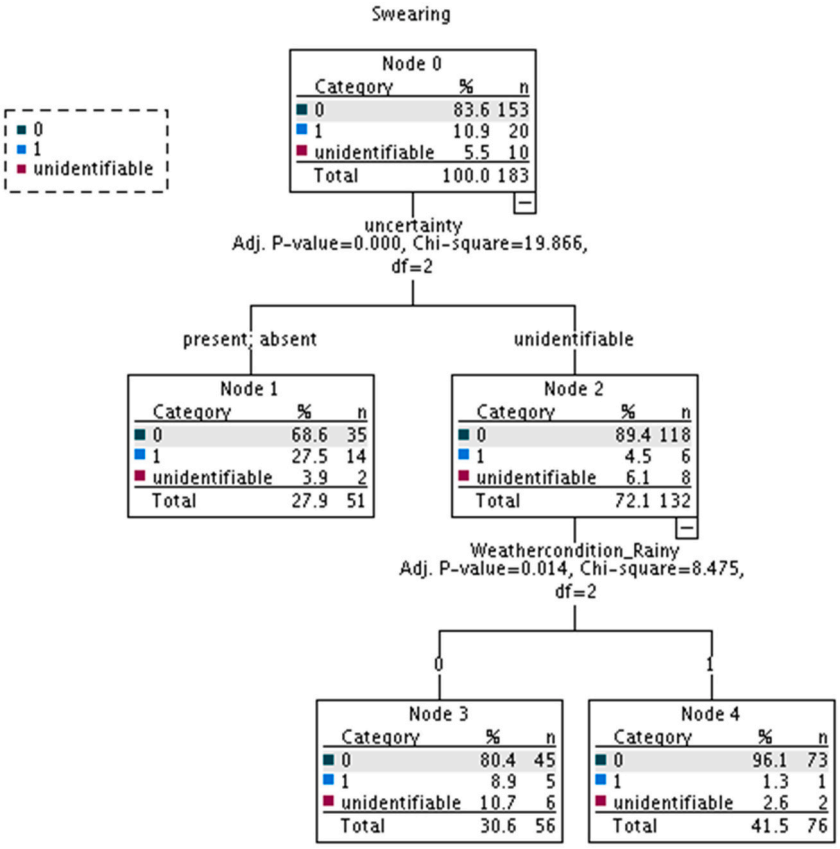

Fig. 5. Decision tree analysis of observed swearing behaviour based on video-coded uncertainty and weather conditions during floods.

Table 6
Mean proportion of emotions in comments on self-recorded driving videos.

	Emotions identified in comments on self-recorded driving videos					
Condition	Sadness (%)	Joy (%)	Love (%)	Anger (%)	Fear (%)	Surprise (%)
Flood	9.38	39.84	1.32	32.16	15.26	2.04
Bushfire	12.80	33.72	1.51	35.44	14.92	1.61

Participants from regional or remote areas perceived significantly higher flood risk ($t = 1.74$, $p < .05$, Cohen's $d = 0.14$, 95 % CI = [0.02, 0.30]) and were less willing to drive in floods ($t = 1.78$, $p < .05$, Cohen's $d = 0.14$, 95 % CI = [0.02, 0.30]). Similarly, those who have lived in Australia for more than 20 years reported significantly higher flood risk perception ($t = 2.82$, $p < .01$, Cohen's $d = 0.36$, 95 % CI = [0.13, 0.59]) and lower willingness to drive ($t = 2.89$, $p < .01$, Cohen's $d = 0.36$, 95 % CI = [0.13, 0.59]). Although higher risk perception and lower willingness to drive were reported among those who spoke English as their primary language at home, the differences were not statistically significant. Furthermore, participants without emergency services experience tended to report higher risk perception and lower willingness to drive; however, these differences were not statistically significant.

Although many of the observed effects were small (Cohen's $d < 0.2$), they remain noteworthy in the context of risk perception and hazard decision-making, where even subtle demographic differences can influence behaviour at a population level. This may contribute to reducing risky behaviours and ultimately saving lives [65]. The largest effects were observed for age differences in willingness to drive in floods ($d = 0.44$) and for years lived in Australia ($d = 0.36$), which fall in the small to moderate range [66] and suggest practically meaningful differences in hazard-related decisions.

Similar mean comparisons for the bushfire context (Table 8) indicated that females demonstrated significantly higher bushfire risk perception than males ($t = 2.03$, $p < .05$, Cohen's $d = 0.18$, 95 % CI = [0.01, 0.35]). Younger participants reported significantly greater willingness to drive through bushfires ($t = 1.94$, $p < .05$, Cohen's $d = 0.17$, 95 % CI = [0.00, 0.33]). No other differences in risk perception or willingness to drive were statistically significant. Overall, while risk perception was generally high and willingness to drive low across both flood and bushfire scenarios, demographic patterns were more pronounced in the flood context, with fewer statistically significant differences observed in the bushfire context.

Further analysis examined the relationship between risk perception and willingness to drive among participants (Fig. 6). Findings

Table 7
Mean comparisons of flood risk perception and willingness to drive by gender, age, area of residence, years of living in Australia, primary language at home, and emergency services experience.

	Participant characteristic	Flood risk perception						Willingness to drive in floods					
		Mean	S.D.	t-stat	p-value	Cohen's d	95 % CI for d	Mean	S.D.	t-stat	p-value	Cohen's d	95 % CI for d
1	Male	8.31	1.37	−1.90	<0.05	−0.15	[-0.30, 0.00]	0.25	0.27	0.54	NSS[a]	0.04	[-0.11, 0.19]
2	Female	8.51	1.21					0.23	0.23				
3	Younger	8.33	1.24	−2.36	<0.01	−0.18	[-0.33, −0.03]	0.28	0.26	5.87	<0.001	0.44	[0.29, 0.59]
4	Older	8.56	1.32					0.18	0.21				
5	Living in flood prone area	8.40	1.34	−0.38	NSS	−0.03	[-0.20, 0.13]	0.27	0.28	2.06	<0.05	0.18	[0.02, 0.35]
6	Not living in flood prone area	8.44	1.25					0.23	0.23				
7	Living in urban areas	8.37	1.29	−1.74	<0.05	−0.14	[-0.30, −0.02]	0.25	0.26	1.78	<0.05	0.14	[0.02, 0.30]
8	Living in regional or remote areas	8.55	1.23					0.22	0.22				
9	Living in Australia 20 years or more	8.49	1.21	2.82	<0.01	0.36	[0.13, 0.59]	0.23	0.24	−2.89	<0.01	−0.36	[-0.59, −0.13]
10	Living in Australia less than 20 years	7.97	1.64					0.32	0.29				
11	Primary language at home: English	8.44	1.28	0.72	NSS	0.11	[-0.19, 0.41]	0.24	0.25	−0.95	NSS	−0.15	[-0.45, 0.15]
12	Primary language at home: Other	8.29	1.31					0.28	0.26				
13	Experience in working with emergency services	8.36	1.35	−0.59	NSS	−0.06	[-0.26, 0.14]	0.27	0.30	1.36	NSS	0.15	[-0.05, 0.35]
14	No experience in working with emergency services	8.44	1.26					0.23	0.23				

[a] NSS = Not statistically significant; $p > .05$.

Table 8
Mean comparisons of bushfire risk perception and willingness to drive by gender, age, area of residence, years of living in Australia, primary language at home, and emergency services experience.

	Participant characteristic	Bushfire risk perception						Willingness to drive in bushfires					
		Mean	S.D.	t-stat	p-value	Cohen's d	95 % CI for d	Mean	S.D.	t-stat	p-value	Cohen's d	95 % CI for d
1	Male	9.04	1.03	−2.03	<0.05	−0.18	[-0.35, −0.01]	0.28	0.26	0.67	NSS[a]	0.06	[-0.11, 0.23]
2	Female	9.20	0.86					0.27	0.26				
3	Younger	9.07	0.99	−1.60	NSS	−0.14	[-0.30, 0.03]	0.30	0.26	1.94	<0.05	0.17	[0.00, 0.33]
4	Older	9.20	0.86					0.25	0.26				
5	Living in bushfire prone area	9.02	1.08	−1.37	NSS	−0.14	[-0.34, 0.05]	0.31	0.27	1.62	NSS	0.16	[-0.03, 0.36]
6	Not living in bushfire prone area	9.16	0.88					0.27	0.26				
7	Living in urban areas	9.09	0.94	−1.45	NSS	−0.13	[-0.32, 0.05]	0.29	0.27	1.30	NSS	0.12	[-0.06, 0.30]
8	Living in regional or remote areas	9.22	0.92					0.26	0.25				
9	Living in Australia 20 years or more	9.16	0.87	1.39	NSS	0.19	[-0.05, 0.43]	0.27	0.26	−0.69	NSS	−0.08	[-0.32, 0.16]
10	Living in Australia less than 20 years	8.95	1.29					0.29	0.25				
11	Primary language at home: English	9.14	0.94	1.01	NSS	0.19	[-0.18, 0.55]	0.27	0.26	−1.47	NSS	−0.29	[-0.65, 0.08]
12	Primary language at home: Other	8.97	0.92					0.35	0.29				
13	Experience in working with emergency services	9.11	1.11	−0.18	NSS	−0.02	[-0.27, 0.22]	0.26	0.28	−0.64	NSS	−0.08	[-0.33, −0.16]
14	No experience in working with emergency services	9.13	0.91					0.28	0.26				

[a] NSS = Not statistically significant; $p > .05$.

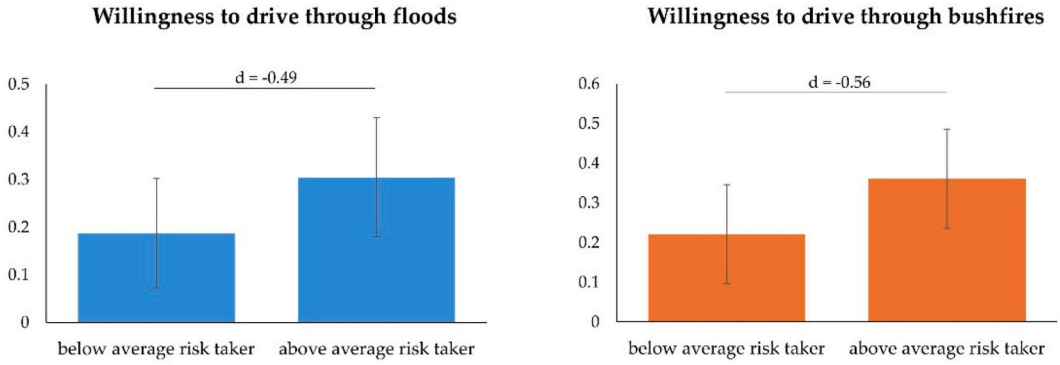

Fig. 6. Mean comparison of willingness to drive through floods and bushfires by risk-taking level. Effect sizes indicate moderate differences between groups (floods: Cohen's d = 0.49, 95 % CI = [0.34, 0.64]; bushfires: Cohen's d = 0.56, 95 % CI = [0.39, 0.73]).

showed that participants identified as above average risk-takers based on their responses to image-based risk perception questions exhibited significantly higher willingness to drive through both flood ($t = 6.39$, $p < .001$, Cohen's d = 0.49, 95 % CI = [0.34, 0.64]) and bushfire scenarios ($t = 6.34$, $p < .001$, Cohen's d = 0.56, 95 % CI = [0.39, 0.73]). According to Sawilowsky [66], these effect sizes fall in the moderate range, highlighting that risk-taking tendencies are associated with increased willingness to drive under hazard conditions.

Table 9 presents the results of binary logit models examining factors influencing participants' willingness to drive through floods and bushfires. Robust t-ratios were used to account for potential heteroskedasticity, and a threshold of 1.96 was applied to determine statistical significance at the 95 % confidence level. In addition to robust t-ratios, odds ratios (ORs) and the corresponding 95 % CIs are reported in Table 9. In both hazard contexts, the alternative-specific constants were negative and significant, indicating an overall reluctance to drive through these dangerous conditions when other factors are held constant. Environmental severity strongly reduced willingness to drive, as indicated by higher floodwater levels (robust t-ratio = −15.61, $p < .001$; OR = 0.13, 95 % CI = [0.102, 0.169]) and greater fire intensity (robust t-ratio = −16.88, $p < .001$; OR = 0.16, 95 % CI = [0.126, 0.194]); see Figs. 7 and 8). Social influence played an important role, as participants were more willing to drive when others were observed driving through the hazard (floods:

Table 9
Binary logit for Willingness to drive through floods and bushfires.

		Estimate	Std.err.	t-ratio(0)	Rob.std. err.	Rob.t-ratio (0)	p-value	OR	95 % CI for OR
Flood	ASC_ Willingness to drive through floods	**−1.64205**	0.110386	−14.8755	0.146427	−11.2141	<0.001	0.194	[0.145, 0.258]
	Floodwater level	**−2.02995**	0.090039	−22.5451	0.13008	−15.6053	<0.001	0.131	[0.102, 0.169]
	Others driving through floods	**0.942845**	0.078224	12.05316	0.118299	7.97003	<0.001	2.567	[2.036, 3.237]
	Familiarity with the road	**0.482625**	0.084371	5.720275	0.06385	7.558688	<0.001	1.620	[1.430, 1.836]
	Vehicle efficacy	**0.806989**	0.092067	8.765237	0.089449	9.021746	<0.001	2.241	[1.881, 2.671]
	Time pressure	0.079829	0.085028	0.938864	0.057895	1.378871	NSS[a]	1.083	[0.967, 1.213][b]
	Passengers' viewpoint	0.102364	0.09458	1.0823	0.092226	1.109916	NSS	1.108	[0.925, 1.327][b]
Bushfire	ASC_ Willingness to drive through bushfires	**−1.39962**	0.107001	−13.0805	0.135884	−10.3001	<0.001	0.247	[0.189, 0.322]
	Fire intensity	**−1.8542**	0.082192	−22.5595	0.10986	−16.8778	<0.001	0.157	[0.126, 0.194]
	Others driving through bushfires	**0.90389**	0.076603	11.79973	0.107445	8.412605	<0.001	2.469	[2.000, 3.048]
	Familiarity with the road	**0.623513**	0.082054	7.598771	0.069756	8.938543	<0.001	1.865	[1.627, 2.139]
	Vehicle efficacy	**0.296316**	0.089734	3.302146	0.076876	3.854485	<0.001	1.345	[1.157, 1.564]
	Time pressure	**0.122998**	0.082556	1.489881	0.0606	2.029685	<0.05	1.131	[1.004, 1.274]
	Passengers' viewpoint	**0.304671**	0.089834	3.391496	0.088839	3.429478	<0.001	1.356	[1.139, 1.614]

[a] NSS = Not statistically significant; $p > .05$.
[b] Not statistically significant (95 % CI includes 1).

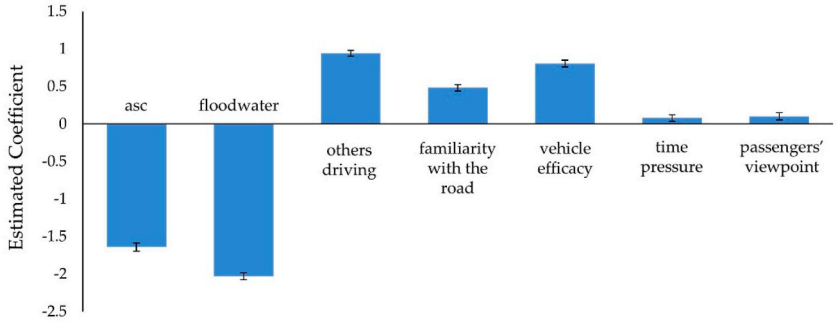

Fig. 7. Binary logit estimates for willingness to drive through floods.

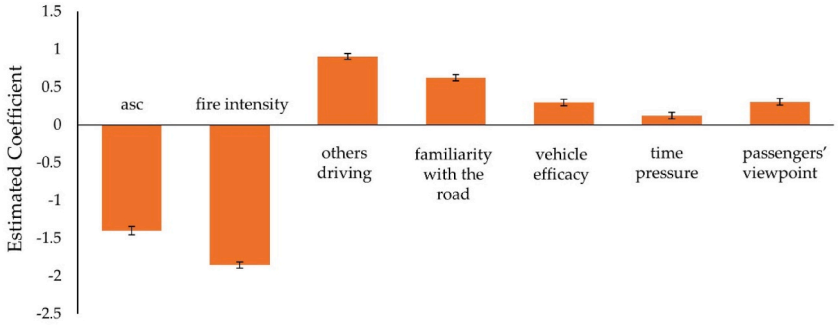

Fig. 8. Binary logit estimates for willingness to drive through bushfires.

robust t-ratio = 7.97, $p < .001$; OR = 2.57, 95 % CI = [2.036, 3.237]; bushfires: robust t-ratio = 8.41, $p < .001$; OR = 2.47, 95 % CI = [2.000, 3.048]). Familiarity with the road and confidence in the vehicle's efficacy also increased willingness to drive in both contexts, with stronger effects for vehicle efficacy observed in floods (robust t-ratio = 9.02, $p < .001$; OR = 2.24, 95 % CI = [1.881, 2.671]) and for familiarity with the road in bushfires (robust t-ratio = 8.94, $p < .001$; OR = 1.87, 95 % CI = [1.627, 2.139]). In the bushfire scenario, time pressure and passengers' viewpoint positively and significantly influenced willingness to drive, while these effects were weaker and not statistically significant in the flood context. These findings highlight that while risk severity deters driving behaviour, social and situational factors can encourage individuals to drive through hazards despite the risks.

4. Discussion and conclusion

Driving during emergency evacuations in natural hazards such as floods and bushfires is a common behaviour that places individuals at high risk. This study examined the behavioural and contextual factors influencing decisions to drive through floodwater and bushfire conditions during emergency evacuations, using both self-reported and observational data. By integrating these sources, the mixed-methods approach offers novel insights into real-time behaviours and perceived situational drivers of risk-taking in flood and bushfire emergency evacuation contexts. The ultimate aim is to inform the development of risk communication strategies and educational materials that enhance emergency preparedness and response.

Most participants reported in the self-reported survey that they would avoid driving through floodwater or bushfire conditions under hypothetical scenarios. The survey included six influencing factors, identified from the literature and supported by observational data: environmental cues such as floodwater depth or fire intensity [33,67,68,69]; the presence of other vehicles driving [33]; familiarity with the road [70]; vehicle efficacy [25,33,70]; passengers' viewpoints [71]; and time pressure to reach the intended destination [25,33,67]. Among these, environmental severity was the strongest deterrent to willingness to drive in both contexts, followed by the presence of other vehicles, which acted as a strong motivating factor. Observational data supported this trend, with most cases showing individuals driving simultaneously alongside other vehicles, reinforcing the role of peer behaviour in real-time decision-making. This is consistent with previous research on descriptive norms, which show that people tend to align their behaviour with that of others [72–75]. Accordingly, community campaigns can enhance communication of hazard severity through warning messages, real-time tools, and signage, reinforcing safer behaviour during emergencies. Targeted public messaging that explicitly addresses social influence is also needed to guide and encourage safer decision-making, even when others engage in risky behaviour under conditions of threat and uncertainty. For example, making safe behaviours more visible and normative through media, roadside messaging, and coordinated evacuation protocols may help counteract the tendency to 'follow others into danger'.

While environmental severity and the presence of other drivers were consistently influential across both hazards, the relative

importance of other factors varied. In flood contexts, individuals placed greater emphasis on vehicle efficacy, followed by road familiarity. In contrast, bushfire-related decisions were more strongly shaped by road familiarity, followed by passenger viewpoints, vehicle efficacy, and time pressure. This pattern aligns with observational data, where passengers were present in nearly half of the videos, suggesting that their presence may influence decision-making under pressure. These differences point to the distinct psychological and situational dynamics of each hazard and highlight the importance of tailoring preparedness and communication strategies accordingly. For example, flood risk communication could emphasise vehicle safety thresholds and the potentially misleading reassurance of route familiarity, while bushfire messaging might focus more on overreliance on familiar routes, the influence of passengers' viewpoint, and vehicle capability.

Demographic differences also emerged in the self-reported data. Males reported lower risk perception in both hazards, and younger participants reported lower risk perception in floods and higher willingness to drive through both flood and bushfire conditions. These patterns align with prior research, suggesting that male [70,76–78,29] and younger individuals [31,70,79] tend to engage more in risky driving behaviours. In the flood context, other demographic variables, such as area of residence and time spent in Australia, were also significant. Consistent with Ruin et al. [80], participants living in urban areas reported lower risk perception and greater willingness to drive through floods. Similarly, participants in flood-prone areas showed significantly higher willingness to drive, contrasting with Said [81], who found that while individuals with flood experience can be less risk-averse than others without any flood experience, those living in designated high-risk flood areas exhibited greater caution, likely due to frequent and direct exposure. A possible explanation for this discrepancy is that participants in our study were mostly from urban areas and may not have experienced recent severe flood events, resulting in lower perceived risk and potential normalisation of threat [82,83]. Additionally, participants who had lived in Australia for more than 20 years reported more risk-averse responses in the flood context. In contrast, bushfire risk perception is on average higher across all groups compared to flood risk perception, with only gender and age showing statistically significant differences; females perceived more risk, and younger participants were more likely to report willingness to drive. Observational data further support these findings, although driver identity was not always explicit, many self-recorded videos appeared to feature male and younger drivers, based on voice, visual cues, or video descriptions. This convergence between self-reported and observed data reinforces the interpretation that risk-taking during hazard-related driving is more prevalent among these demographic groups. To address this, community interventions could enhance risk perception and decision-making among males and younger groups by introducing mobile applications and community games simulating flood and bushfire evacuation scenarios. In addition, practical workshops that include mentorship and peer-led programs, and involve community members in designing messaging and preparedness programs could ensure content is engaging and relevant. Targeted messaging for at-risk groups, including residents in urban and flood-prone areas, and newer migrants, could further promote safer community responses during flood events.

Several behavioural patterns were identified in self-recorded videos of real-time driving through floods, revealing how individuals respond under pressure. Riskier decisions, such as driving through deeper floodwater, were more common when no other vehicles were present, likely due to the absence of visual or social cues to gauge water depth, which may increase uncertainty in decision-making. In contrast, the presence of other drivers appeared to normalise the act, reinforcing social influence [33]. This dual effect of peer presence, both protective and risk-reinforcing, highlights the complex role that social influence plays emergency driving decisions. In flood-related videos, praying was often observed during moments of analysis and decision-making, while swearing commonly occurred in response to uncertainty or when drivers faced unexpected risks, particularly when conditions (e.g., clear weather) seemed deceptively safe. These verbal and emotional cues reveal how people cope with stress and uncertainty while interpreting hazard signals and navigating high-stakes situations. In contrast, bushfire-related videos did not yield similarly consistent patterns, suggesting that bushfire experiences may be more varied and less systematically expressed across individuals. These observations highlight the need for public messaging that clarifies observing others take risks does not guarantee safety, and that seemingly manageable hazards (e.g., shallow floodwater or less intense bushfires on the road) can escalate rapidly. Educational programs should also provide guidance on managing stress and uncertainty while driving in hazardous conditions, supporting drivers to make more deliberate, informed decisions rather than relying solely on intuitive reactions under pressure.

Beyond the behaviours captured in the videos, public comments provide a window into how viewers process these events emotionally and socially after the fact. Joy and anger were the most frequently expressed emotions in both hazards, with joy more commonly associated with flood videos and anger more prominent in response to bushfire content. While the videos reflect raw, in-the-moment reactions such as fear or panic, comments tended to convey more reflective and socially constructed responses. Anger often emerged as frustration or criticism toward risky behaviour, while joy was tied to relief, admiration for survival or bravery, or even humour. Fear, though prevalent in the videos, appeared less in comments, possibly because viewers had already processed the threat, shifting toward emotions with clearer social focus, like blame or gratitude. These patterns underscore the role of social media in shaping public narratives and offer valuable opportunities to correct misinformation, reinforce safe behaviour, and foster community resilience through constructive dialogue. For example, public authorities and emergency management organisations could monitor social media to highlight and promote exemplary safe responses, while also identifying widespread misconceptions, emotional triggers, or risky narratives, and using these insights to develop targeted campaigns that correct misinformation and reinforce safe behaviours.

Targeted training tools need to be developed to improve drivers' decision-making under the extreme and stressful conditions of emergency evacuations [30]. Practical preparedness education should include advising individuals to avoid driving through roadways affected by hazards and emphasising the importance of evacuating early—before roads become impacted by floodwater or fire—to minimise exposure to hazardous conditions. In situations where individuals become trapped, recommended actions include, climbing onto the roof of the vehicle and contacting emergency services during floods, and getting below window level and covering the body with woollen blankets to reduce exposure to radiant heat during bushfires. These behaviours are reflected in flood and bushfire

preparedness scales developed by Fazeli et al. [19], underscoring their relevance in promoting safer evacuation practices. Enhancing people's knowledge and skills in these areas can contribute to the safety of both individuals and emergency services personnel and volunteers.

Taken together, these findings highlight the multifaceted nature of driving behaviour during flood and bushfire evacuations, shaped by environmental, social, and other influences. This is the first study to employ a mixed-methods approach, integrating observational data with self-reported motivations to provide a richer understanding of risk-related decision-making during these emergencies. While the observational data provide valuable insights into driving behaviours in real events, some drivers, passengers, vehicle characteristics, and verbal, emotional, or physical cues could not be identified due to the limitations of self-recorded videos. Nevertheless, these insights offer a crucial foundation for developing realistic simulations and experimental studies. By incorporating authentic behavioural patterns and emotional responses observed in real events, future studies could replicate the complexity of emergency situations in controlled settings, allowing for systematic examination of decision-making under pressure. Self-recorded videos also have potential for integration into educational and training programs, enhancing the realism and relevance of preparedness initiatives by providing concrete, real-world examples. While the self-reported survey samples broadly reflected the sociodemographic composition of the Australian population, there was slight overrepresentation of females, younger participants, and Australian-born respondents. As gender, age, and cultural and linguistic diversity (CALD) may influence risk perception and driving intentions, findings should be interpreted with caution when generalising. Future studies could address this limitation by targeting larger, more balanced samples or employing stratified sampling strategies to better align with national demographics. Finally, temporal differences between the observational and survey data, while complementary, represents a potential limitation for direct comparability. Future research could employ longitudinal designs, collect observational and survey data concurrently, or design driving simulations based on observational data to examine decision-making under controlled yet realistic conditions.

CRediT authorship contribution statement

Sara Fazeli: Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Taha H. Rashidi:** Writing – review & editing, Supervision, Resources, Project administration, Investigation, Funding acquisition. **Mohammad Mojtahedi:** Writing – review & editing, Supervision, Project administration, Investigation. **Milad Haghani:** Writing – review & editing, Supervision, Resources, Project administration, Methodology, Investigation, Funding acquisition, Conceptualization.

Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Milad Haghani reports financial support was provided by Australian Research Council. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ijdrr.2025.105905.

Appendix

Table A1
Self-recorded videos of driving through floods

	Title of the video	Video link	Post date	Country in which the video is captured
1	Dash cam shows driver skidding into Queensland floodwater	https://www.youtube.com/watch?v=tOFPoX61mOM	1-Mar-18	Australia
2	Man Drives Through Windscreen-High Floods on North Yorkshire Roads	https://www.youtube.com/watch?v=a8TYLit80Ho&t=1s	24-Feb-20	United Kingdom
3	Dashcam: Texas school bus swept away by floodwaters	https://www.youtube.com/watch?v=dL62BwZpKzI&t=4s	27-Oct-18	United States
4	self driving through flooded roads, i was shocked! | Tesla Autopilot FSD V10 in the UK	https://www.youtube.com/watch?v=UCZ56T16wvc	21-Dec-19	United Kingdom

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Table A1 (*continued*)

	Title of the video	Video link	Post date	Country in which the video is captured
5	STUPID IDEA !!!! DO NOT TRY THIS!! Driving on flooded roads	https://www.youtube.com/watch?v=N0wc8MnQgMw&t=288s	5-May-18	
6	Mumbai rains | Water flowing over car bonet | Courageous driver Mitsubishi Pajero Sport	https://www.youtube.com/watch?v=NBGX4AI-06s	5-Sep-17	India
7	SUV car crossing a flooded highway	https://www.youtube.com/watch?v=bGgJXgyLQOg	12-Nov-19	Philippines
8	Hummer Drives Through Deep Floodwater || ViralHog	https://www.youtube.com/watch?v=wkLbrzt3MLQ	24-Sep-19	United States
9	80 Series Landcruiser 4x4 Deep Water Crossing, NT	https://www.youtube.com/watch?v=0vpeyNig3xw	2-Jan-16	Australia
10	Suzuki Jimny Flood Run	https://www.youtube.com/watch?v=32KH17icAYA	9-Mar-15	
11	UK Floods - Driving Through Bonnet-High Floodwater Herefordshire	https://www.youtube.com/watch?v=p2_rOqIqTzA&t=512s	30-Jan-21	United Kingdom
12	Dash Cam from Derbyshire UK |Derbyshire is flooded and so is my car !	https://www.youtube.com/watch?v=cJDHcY3MYuA	17-Nov-19	United Kingdom
13	Welney flooding	https://www.youtube.com/watch?v=prf33-QXJRQ	5-Jul-14	United Kingdom
14	Hummer H1 FLOOD CROSSING! Search & Destroy H1 Tier 1 Hummer by EVS Motors Houston Flood Compilation	https://www.youtube.com/watch?v=AhTq_rOzxLA	27-Apr-16	United States
15	Alice Springs In Flood - Northern Territory	https://www.youtube.com/watch?v=THk4r-d-B0E	13-Nov-21	Australia
16	Man Drove His Car to Flooded Road in Germany - [84]	https://www.youtube.com/shorts/ymXR5zGWWwA	16-Jul-21	Germany
17	Death Valley is WRECKED	https://www.youtube.com/watch?v=Vn4IJFERCRM	11-Aug-22	United States
18	Jeep driving through flooded roads in Houston	https://www.youtube.com/watch?v=YIjW93M4gaE	28-Jan-17	United States
19	Driving through flooding from rain in Malaga, Spain	https://www.youtube.com/watch?v=EuGTmzXrucE	12-Oct-18	Spain
20	Flooding on Wrightson Rd Port of Spain	https://www.youtube.com/shorts/WlBfSgy-wTg	27-Jul-22	Spain
21	Houston Flood River Crossing in Jeep 37 inch tires, 6 inch lift	https://www.youtube.com/watch?v=R0gsydbQMdU	20-Apr-16	United States
22	Driving Through Flash Flood! Almost Lost It!	https://www.youtube.com/watch?v=Iq7drRNQECk	1-May-17	
23	Heavy Rain and FLOODING. Driving through DEEP water. Big Bear rain drive. 2-14-2019	https://www.youtube.com/watch?v=L0v_0vW9Evg	15-Feb-19	United States
24	Driving through Houston Flood	https://www.youtube.com/watch?v=q6sr5gGajfk	20-Sep-19	United States
25	Flooded highway driving in Saskatchewan Canada - 1084457	https://www.youtube.com/watch?v=vJq3rIzfs74	25-Nov-19	Canada
26	self driving behind a cyclist on a flooded road … this is crazy! - Tesla Autopilot FSD Model X UK	https://www.youtube.com/watch?v=aDRyCEzAW14	20-Feb-20	United Kingdom
27	Shocking dashcam footage of couple who drove through floodwater - 9 News Australia	https://www.youtube.com/watch?v=kJo9-zSUJMQ	18-May-22	Australia
28	How to drive through flooded area after a storm	https://www.youtube.com/watch?v=EFGZlIgACzY	16-Jul-21	Poland
29	Huracan owner loses his rear bumper and diffuser in flood water _ Lamborghini #shorts	https://www.youtube.com/shorts/TzIo08xfVuA	6-Jul-21	
30	Tesla VS 100 Year [85] Monsoon	https://www.youtube.com/watch?v=gd6oGafOW4Y	26-Jul-21	United States
31	Flooded Road | Tesla Model 3	https://www.youtube.com/watch?v=9_gQ07fVsSE	24-Jun-19	United States
32	Highway Underwater Semi in Flood	https://www.youtube.com/watch?v=QvgBCPaF8t8	27-Jul-19	United States
33	Driving through flood water … #shorts	https://www.youtube.com/shorts/8m6pJceEcHA	1-Sep-22	
34	Dallas TX Driver Risking going through 5.5 ft deep water	(408) Dallas TX Driver Risking going through 5.5ft deep water - YouTube	5-Mar-17	United States
35	Enjoying a Flooded Highway - No Worries in a Lifted Jeep Wrangler Rubicon	(408) Enjoying a Flooded Highway - No Worries in a Lifted Jeep Wrangler Rubicon - YouTube	6-Sep-14	United States
36	Brave Uber Driver Takes Car Through Flooded Underpass || ViralHog	(408) Brave Uber Driver Takes Car Through Flooded Underpass || ViralHog - YouTube	11-Aug-22	United States
37	Major Street Flood Rising Fast, Cars Stuck, Property Damage	(408) Major Street Flood Rising Fast, Cars Stuck, Property Damage - YouTube	7-Aug-20	United States
38	Mahindra Jeep wading through 4 ft flood water #ChennaiRains	(408) Mahindra Jeep wading through 4 ft flood water #ChennaiRains - YouTube	3-Dec-15	unidentifiable
39	Driving Through CRAZY Flooded Streets of Mexico!!	(408) Driving Through CRAZY Flooded Streets of Mexico!! - YouTube	28-Feb-22	Mexico
40	Crossing flooded river and bridge.	(408) Crossing flooded river and bridge. - YouTube	6-Jan-16	Australia
41	Driving through road flooded in Ireland	(408) Driving through road flooded in Ireland - YouTube	27-Feb-14	Ireland
42	How (not) to drive through floods, with Storm Jorje in Ireland many roads are under water.	(408) How (not) to drive through floods, with Storm Jorje in Ireland many roads are under water. - YouTube	1-Mar-20	Ireland
43	How to drive on local roads in flood in Ireland. Наводнение в Ирландии после доЖдя.	(408) How to drive on local roads in flood in Ireland. Наводнение в Ирландии после доЖдя. - YouTube	21-22nd of November 2017	Ireland
44	Raging Waterfalls Flood the Road || ViralHog	(408) Raging Waterfalls Flood the Road || ViralHog - YouTube	18-Feb-20	Australia
45	20151015 174818	(408) 20151015 174818 - YouTube	Oct 26, 2015	United States
46	Driving through Canvey Island flood - Part 1	(408) Driving through Canvey Island flood - Part 1 - YouTube	21-Jul-14	United Kingdom

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Table A1 (*continued*)

	Title of the video	Video link	Post date	Country in which the video is captured
47	Driving in a huge flood #shorts	(408) Driving in a huge flood #shorts - YouTube	24-Jul-22	
48	Driving through Canvey Island flood - Part 2	(408) Driving through Canvey Island flood - Part 2 - YouTube	21-Jul-14	United Kingdom
49	driving through flood Australia	(408) driving through flood Australia - YouTube	18-Mar-21	Australia
50	How to drive through a flooded track in outback Australia.	(408) How to drive through a flooded track in outback Australia. - YouTube	12-Mar-17	Australia
51	Tesla Model S "swimming" - raw video	(408) Tesla Model S "swimming" - raw video - YouTube	21-Jun-16	Kazakhstan
52	Driving Through Flash Floods!!!	(408) Driving Through Flash Floods!!! - YouTube	4-Aug-21	United States
53	Car Attempts Driving Through Flood | CHARGE!	(408) Car Attempts Driving Through Flood | CHARGE! - YouTube	11-Jun-16	unidentifiable
54	Driving through a flood in Bahrain	(408) Driving through a flood in Bahrain - YouTube	19-Dec-06	Bahrain
55	Driving through a flooded town in Bangladesh	(408) Driving through a flooded town in Bangladesh - YouTube	19-Sep-22	Bangladesh
56	Flooded Dirt Road Driving in Belize,	(408) Flooded Dirt Road Driving in Belize, - YouTube	23-Jun-20	Belize
57	Belize City Flooding	(408) Belize City Flooding - YouTube	19-Oct-15	Belize
58	Belize City Flood, October 18th, 2015	(408) Belize City Flood, October 18th, 2015 - YouTube	21-Oct-15	Belize
59	Buses Vs Floods Compilations	(408) Buses Vs Floods Compilations - YouTube	5-Apr-21	
60	Chevy Corvette Grand Sport gets ALMOST stuck in 696 flood in Michigan.	(408) Chevy Corvette Grand Sport gets ALMOST stuck in 696 flood in Michigan. - YouTube	15-Aug-14	United States
61	Flooding in Nata Botswana	(408) Flooding in Nata Botswana - YouTube	5-Feb-13	Republic of Botswana
62	Duba Plains Concession, Botswana - Driving through water! 2018 Sep. 08-09	(408) Duba Plains Concession, Botswana - Driving through water! 2018 Sep. 08-09 - YouTube	27-Sep-18	Republic of Botswana
63	Moremi Game Reserve, Botswana - Driving through deep water 2018 Sep. 05-07	(408) Moremi Game Reserve, Botswana - Driving through deep water 2018 Sep. 05-07 - YouTube	26-Sep-18	Republic of Botswana
64	Water Driving in Botswana	(408) Water Driving in Botswana - YouTube	14-May-17	Republic of Botswana
65	I Drove My Jeep Through A FLASH FLOOD!	(408) I Drove My Jeep Through A FLASH FLOOD! - YouTube	16-Aug-20	
66	Savute, Chobe National Park: Driving Through Water Fire and Sand	(408) Savute, Chobe National Park: Driving Through Water Fire and Sand - YouTube	2-Nov-14	Republic of Botswana
67	Land Rover driving over sand and water, Vumbura Plains, Botswana, 2015-10-01	(408) Land Rover driving over sand and water, Vumbura Plains, Botswana, 2015-10-01 - YouTube	25-Oct-15	Republic of Botswana
68	Car driving through flash flood in Sao Paulo, Brazil.	(408) Car driving through flash flood in Sao Paulo, Brazil. - YouTube	24-Oct-07	Brazil
69	Driving through a river to reach Gorom Gorom, Burkina Faso	(408) Driving through a river to reach Gorom Gorom, Burkina Faso - YouTube	24-Jul-07	Burkina Faso
70	Driving through Flooded Water - Driving in Floods	(408) Driving through Flooded Water - Driving in Floods - YouTube	31-Mar-17	United Kingdom
71	380 Bus Drives Through a Flood and Gets Flooded	(408) 380 Bus Drives Through a Flood and Gets Flooded - YouTube	26-Apr-12	United Kingdom
72	Landrover Defender Wading deep flood water	(408) Landrover Defender Wading deep flood water - YouTube	15-Jul-12	
73	Flash Floods Swamp Cars on California Highway (Storyful, Weather)	(408) Flash Floods Swamp Cars on California Highway (Storyful, Weather) - YouTube	17-Oct-15	United States
74	Hummer H1 Conquering The Floods In Houston || ViralHog	(408) Hummer H1 Conquering The Floods In Houston || ViralHog - YouTube	21-Apr-16	United States
75	Driving through flood water in Phnom Penh city June 26, 2018	(408) Driving through flood water in Phnom Penh city June 26, 2018 - YouTube	27-Jun-18	Cambodia
76	Lamborghini Driving In Flooded Road in Cambodia	(408) Lamborghini Driving In Flooded Road in Cambodia - YouTube	13-Oct-20	Cambodia
77	Serious Floods| Tiko-Douala-Mutengene-Cameroon CMCMCM 🌧 🌧 |God help Cameroon.	(408) Serious Floods| Tiko-Douala-Mutengene-Cameroon CMCMCM 🌧 🌧 |God help Cameroon. - YouTube	9-Jul-22	Cameroon
78	Philippines Driving (flood)	https://www.youtube.com/watch?v=HRoC4HBuWMw	19-Jun-22	Philippines
79	IRAN - Driving tour in [86] during the monsoon flooding | [86]	https://www.youtube.com/watch?v=n_tzMAQNH0E	4-Aug-22	Iran
80	Steve Driving Through Water To Get Chad.MOV	https://www.youtube.com/watch?v=p8gtgRntnK8	9-Sep-11	
81	driving through flood water vehicross 4x4	https://www.youtube.com/watch?v=JpefLje1Hs0	2-Jul-12	Ireland
82	Chinese EV car can drive in a flood no problem!!	https://www.youtube.com/shorts/yw3u7nueb9o	21-Jul-21	
83	Would you drive your car in water? (Flood in China, June 2016)	https://www.youtube.com/watch?v=GSiYFVy7EPc	26-Jun-16	China
84	Tesla in a flood while on autopilot ☔ Almost under water 😱	https://www.youtube.com/watch?v=u6jvByXjW2k	16-Jul-20	

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Table A1 (*continued*)

	Title of the video	Video link	Post date	Country in which the video is captured
85	Truck Driving on Flooded Roads Covers Car || ViralHog	https://www.youtube.com/shorts/v0EDSN4HKHo	7-Dec-21	Australia
86	Can a Electric Car drive through water? Of course they can!	https://www.youtube.com/watch?v=9K5mH-mOLuA	16-Mar-18	
87	Driving through a flooded road in Costa Rica	https://www.youtube.com/watch?v=htwc17PJPtY	12-Aug-14	Costa Rica
88	Driving through Costa Rica floods, November 2010, Part 1	https://www.youtube.com/watch?v=ZNjIMejv4ro	6-Nov-10	Costa Rica
89	Driving through Costa Rica floods, November 2010, Part 2	https://www.youtube.com/watch?v=jsssm2-hu14	7-Nov-10	Costa Rica
90	Driving through Ocean Park After Hurricane Fiona ◎ Puerto Rico PR Sept 19 2022	https://www.youtube.com/shorts/w2DTCt7r7W0	20-Sep-22	Puerto Rico
91	Cyprus monsoon driving flash flood	https://www.youtube.com/watch?v=WijEjlZx4fs	25-Jan-18	Cyprus
92	Dashcam footage driving into a flash flood	https://www.youtube.com/watch?v=potbd9SCBfE	3-Jun-13	
93	Floods in Czech republic - Prosek	https://www.youtube.com/watch?v=Ux_QTgKQf6I	1-Aug-19	Czech republic
94	How not to drive on a flooded road	https://www.youtube.com/shorts/_eZfBtIwBJo	11-Oct-22	
95	unbelievable weather in Phuket heavy flooding across the whole island	https://www.youtube.com/shorts/Fgdpp5w-PQw	16-Oct-22	Thailand
96	Driver loses control of car during flash flood	https://www.youtube.com/watch?v=y50dmIKvGic	12-Jul-13	United States
97	Driving tips for flooded roads #monsoonride #learndriving #shorts #ashortaday	https://www.youtube.com/shorts/G90U0unZ5rc	30-Jun-22	
98	VICTORIAN FLOODS/DRIVING THROUGH FLOODED VICTORIA/FLOODS HIT VICTORIA/ RAIN EVENT/VANLIFE	https://www.youtube.com/watch?v=ppmaUfLMWyw	13-Oct-22	Australia
99	Shocking dashcam footage of couple who drove through floodwater | 9 News Australia	https://www.youtube.com/watch?v=kJo9-zSUJMQ&t=1s	18-May-22	Australia
100	Fire Truck driving through flood - Longmont, Colorado, September 12, 2013	https://www.youtube.com/watch?v=mCJ0aqIygWE	14-Sep-13	United States
101	just driving through flood water on the polaris side by side to go check the creek	https://www.youtube.com/shorts/N3CVD8l7194	24-May-22	
102	Driving through a flooded village in Fiji	https://www.youtube.com/watch?v=b7ALx2i35G4	26-Jan-20	Fiji
103	Flooding in Nadi [87]	https://www.youtube.com/watch?v=nYT3wnjQimA	28-May-18	Fiji
104	Now this is what you call flooding in The Gambia	https://www.youtube.com/watch?v=pXwMeoCTIDM	15-Aug-20	Gambia
105	Driving Rome, GA: THUNDERSTORM & FLASH FLOODING	https://www.youtube.com/watch?v=en9EKb-eCqs	5-Sep-22	United States
106	Heavy Traffic Causes Accident On Madina – 37 Road As Accra Floods Again	https://www.youtube.com/watch?v=32CgW6oOs8s	22-May-22	Saudi Arabia
107	Driving in Flood water Rhodes Greece	https://www.youtube.com/watch?v=Cs9NoHze0ls	25-Feb-15	Greece
108	Driving Through Flooded Street In Tanteen Grenada	https://www.youtube.com/watch?v=cPCjQPunNj4	22-Aug-21	Grenada
109	Fast flooding drive along Central Province, Papua New Guinea	https://www.youtube.com/watch?v=GMEQ1wX7V_4	24-Jun-20	New Guinea
110	Driving Through Hurricane Matthew Flood Waters in Les Cayes, Haiti	https://www.youtube.com/watch?v=QacLitUAf7A	2-Nov-16	Haiti
111	Driving Thru Flash Flood in PAP, Haiti	https://www.youtube.com/shorts/HQXodq8rkFY	14-Apr-12	Haiti
112	Трасса М1 Колосово. Разворот на дороге М-1. Motorway M1 Belarus. Driving tour in Belarus. Road trip.	https://www.youtube.com/watch?v=AIQpdQZtEcQ	13-Oct-22	Belarus
113	Flood Vs Fortuner … Car Stuck in Rain | Prateek Rathee	https://www.youtube.com/watch?v=11h2mYRGLz4	26-Aug-20	India
114	H1 driving through flood waters	https://www.youtube.com/watch?v=ZZkLUs9ftO0	13-Sep-12	
115	Driving through flood waters Canterbury.	https://www.youtube.com/watch?v=GANuvKLbYjk	22-Jul-17	
116	Driving through flooded roads	https://www.youtube.com/watch?v=AwuZ3k1Aj8o	20-May-20	
117	Flash Floods In The Desert(Description tells more of the story)	https://www.youtube.com/watch?v=IwLOMJLTxCY	9-Jul-22	United States
118	Driving Northland's flood [88],	https://www.youtube.com/watch?v=DV8fL3RJ8ic	19-Jul-20	New Zealand
119	FLOOD DRIVE | HEAVY RAIN CAUSIING FLOODING ON MOLYNES ROAD | KINGSTON | JAMAICA | Sept 3, 2021	https://www.youtube.com/watch?v=0IS73fjz4rs	1-Oct-21	JAMAICA
120	TROPICAL STORM GRACE. Driving through the storm in Jamaica.JAMAICA VLOG	https://www.youtube.com/watch?v=kbHFt5lPHaw	19-Aug-21	JAMAICA
121	Driving Through the Floods | Rainy Season in Kenya	https://www.youtube.com/watch?v=wH7NjalMFWE	25-Apr-18	Kenya
122	HEAVY RAINS IN NAIROBI CITY KENYA/DRIVE THROUGH THIKA SUPERHIGHWAY AFTER PRESIDENTIAL ELECTIONS	https://www.youtube.com/watch?v=L5sj3lYCRAA	9-Sep-22	Kenya
123	Kuwait is sinking !! Millions of liters of water fell on cities	https://www.youtube.com/watch?v=XA2o8AyCgAg	3-Jan-22	Kuwait

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Table A1 (*continued*)

	Title of the video	Video link	Post date	Country in which the video is captured
124	Heavy Rain in Kuwait | Thunderstorm + Floods + Heavy Traffic | January 2, 2022	https://www.youtube.com/watch?v=YI4rXAaylvA	3-Jan-22	Kuwait
125	Flood in vientiane Laos [August 8, 2022]	https://www.youtube.com/watch?v=IJrE00v3MfU	8-Aug-22	Laos
126	See The Road In Raining Season, Monrovia Liberia	https://www.youtube.com/watch?v=8j3pG5gH7is	11-Jul-22	Liberia
127	Does a Model S stay dry in deep water?	https://www.youtube.com/watch?v=MrVhFuqmzTM	26-Jul-18	
128	Driving Through a Flood in Malaysia	https://www.youtube.com/watch?v=s7Ls-i0qeGM	25-Oct-21	Malaysia
129	Dashcam captures flash flood in California as driver flees in reverse	https://www.youtube.com/watch?v=48LEIlQUkS8	13-Jan-16	United States
130	Driving in Malta Rainfall | Lija Cemetery | Roads Flooded [EDITED]	https://www.youtube.com/watch?v=GJ5y2xDgatg	30-Mar-15	Malta
131	Corvette c7 z06 gets totaled by flood	https://www.youtube.com/shorts/5HjgQ7n02e4	13-Jan-21	
132	Flood after summer blizzard in Mongolia	https://www.youtube.com/watch?v=Huhbj0HMf10	10-Jul-11	Mongolia
133	Driving Morocco: Flooded N9 highway between Rissani and Merzouga	https://www.youtube.com/watch?v=B1q25F3I7AE	12-Jun-15	Morocco
134	Myanmar floods	https://www.youtube.com/watch?v=zBZs1w6uQvQ	15-Aug-19	Myanmar
135	Toyota Land Cruiser Crossing Deep Flood Water in Namibia | 2021	https://www.youtube.com/watch?v=xPXGMiF9CPE	18-Jan-21	Namibia
136	Semi Truck vs Flood	https://www.youtube.com/watch?v=PSgHfHI4kAg	14-Mar-14	
137	Driving through a flooded town in Northland, New Zealand | Stuff.co.nz	https://www.youtube.com/watch?v=WeSPaW7jV_w	25-Jul-22	New Zealand
138	Flooding North Island New zealand 2015 | Crazy driving in flood waters	https://www.youtube.com/watch?v=AX7ZPDsFsZ4	24-Jun-15	New Zealand
139	Crazy flooding along Tamaki Drive, Auckland, New Zealand	https://www.youtube.com/watch?v=WjTPBQ0zb18	30-Apr-16	New Zealand
140	Flooding in Taranaki, New Zealand August 19, 2022	https://www.youtube.com/watch?v=Vc5pAad7hUM	20-Aug-22	New Zealand
141	Driving a Car in the Flooded Streets of Bluefields, Nicaragua. KO NEWS EXCLUSIVE FOOTAGE	https://www.youtube.com/watch?v=L-0WPLnjJho	8-Jun-19	Nicaragua
142	Driving through floods on the road between Port Harcourt & Yenagoa in Nigeria	https://www.youtube.com/watch?v=rWHlg_kiamo	18-Jan-16	Nigeria
143	Rain in Oman - driving through flooded road with a splash	https://www.youtube.com/watch?v=xPXrnUDysso	6-Dec-12	Oman
144	Flood in Oman?	https://www.youtube.com/watch?v=hLacmkJ_W9k	14-May-17	Oman
145	Driving Through a Flood After a Rain Storm in Port Moresby, Papua New Guinea	https://www.youtube.com/watch?v=gsGTin_VZXM	22-Oct-19	New Guinea
146	Crossing flooded places in Papua New Guinea	https://www.youtube.com/watch?v=r9r3VFj7Byo	29-Aug-11	New Guinea
147	Driving Through River in Papua New Guinea	https://www.youtube.com/watch?v=p9uHS5NZITY	18-Aug-08	New Guinea
148	Papua New Guinea's Capital City Port Moresby flooded after a heavy downpour of rain	https://www.youtube.com/shorts/WwLP7A-lvUk	13-Nov-20	New Guinea
149	Driving Tour in Flood | Manila, Philippines | PH | ■HD■	https://www.youtube.com/watch?v=rvc5euQ8ke8	5-Sep-19	Philippines
150	Driving Through A Flood in Manila	https://www.youtube.com/watch?v=k7KJwfa-iEI	24-Sep-13	Philippines
151	The Legendary Toyota LandCruiser 80 Series Chest Deep Flood Drive	https://www.youtube.com/watch?v=fXGEFBbSUX0	27-Oct-20	
152	POLAND | Flood in Gorzów Wielkopolski #polska #flood #poland	https://www.youtube.com/shorts/5xke2pbN2yA	9-Sep-22	Poland
153	Portugal is Sinking! Crazy Flash Flood destroys Houses and Vehicles! 2022	https://www.youtube.com/watch?v=tSczAKL4AaM	11-Oct-22	Portugal
154	Heavy rain cause flooding in the city of Vila Real, Portugal - 3	https://www.youtube.com/shorts/XQ2TycdBHgA	19-Oct-22	Portugal
155	Driving around Qatar on a rainy and stormy days ….flooded streets	https://www.youtube.com/watch?v=LQ8dDT7wIjw	Oct 21, 2018	Qatar
156	Only in Russia: Driving a Car on the River	https://www.youtube.com/watch?v=m8s1nOe4Wis	4-Nov-13	Russia
157	Driving through flooded streets of Riyadh Saudi Arabia	https://www.youtube.com/watch?v=Hm98JssgZZ0	21-Aug-17	Saudi Arabia
158	Driving through flood water jeddah Saudi Arabia	https://www.youtube.com/watch?v=_8THdMe0Es	5-Dec-18	Saudi Arabia
159	Driving Into Flood Sri Lanka	https://www.youtube.com/watch?v=5KoKRbV05CE	27-Oct-21	Sri Lanka
160	Driving through East Central Sri-Lanka after a flood	https://www.youtube.com/watch?v=OGc_XeecsSE	6-Jun-13	Sri Lanka
161	Driving Through Floods in Sri Lanka (Honda Fit GP5)	https://www.youtube.com/watch?v=edfqZ-_aqHI	17-May-16	Sri Lanka
162	Land cruiser v8 tik tok Sri Lanka water flooding	https://www.youtube.com/shorts/gf4gebvT3wA	11-Oct-22	Sri Lanka
163	Whoaaaaa, Suriname Is Under Water, The Dangers Of The Rains!	https://www.youtube.com/watch?v=l4Fs-aSzLXw	26-May-21	Suriname
164	Serious Flooding In Suriname, Lots Of Rain!	https://www.youtube.com/watch?v=B35yZGE9zCQ	15-May-22	Suriname
165	Flooding on Wrightson Rd Port of Spain	https://www.youtube.com/shorts/WlBfSgy-wTg	Jul 27, 2022	Spain
166	Landcruiser driving through flash flood	https://www.youtube.com/shorts/R4hkFI3ClbE	5-Jan-20	Tanzania

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Table A1 (*continued*)

	Title of the video	Video link	Post date	Country in which the video is captured
167	Driving through the flood in Ubonratchathani | Thaizone	https://www.youtube.com/watch?v=XsE24kyS-AM	6-Oct-22	Thailand
168	Driving on flooded Thailand country road	https://www.youtube.com/watch?v=MMwyX3ipcWk	25-Sep-11	Thailand
169	Driving on flooded streets in Koh Samui, Thailand (April 1, 2017)	https://www.youtube.com/watch?v=XjwYbUrbqIA	6-Jan-17	Thailand
170	September 13, 2022 | Driving in Heavy Rain and Flood Today (Bangkok, Thailand)	https://www.youtube.com/watch?v=bemzYa414FI	14-Sep-22	Thailand
171	Driving through the floods in Caparo Valley road, [89]. (Video 3)	https://www.youtube.com/watch?v=2MMZ7eoyfKM	21-Jun-17	Trinidad and Tobago
172	Flooding All Over Trinidad. Trinidad Weather. Vehicle Swept Away	https://www.youtube.com/watch?v=DcuZeyO5nXA	26-Aug-22	Trinidad and Tobago
173	Rain Flooding Cocorite, St. James, Savannah Trinidad and Tobago JBorde.com	https://www.youtube.com/watch?v=v9QeBvl8B7E	16-Jan-20	Trinidad and Tobago
174	FLOODING IN PORT OF SPAIN: TRINIDAD NEWS	https://www.youtube.com/shorts/OLJuhhnuKPI	17-Jul-22	Trinidad and Tobago
175	Floods in Tunisia	https://www.youtube.com/shorts/TfGtc-kLEmg	19-Aug-19	Tunisia
176	FLOODING IN KAMPALA	https://www.youtube.com/watch?v=bjmmlqENj5s	21-Feb-21	Uganda
177	Severe Storm - Hail & Flash Flooding, Kampala, Uganda - August 29, 2014	https://www.youtube.com/watch?v=pycccJlDbzU	3-Sep-14	Uganda
178	Driving through flood water uk Iveco daily	https://www.youtube.com/watch?v=DBgDDiHeULQ	4-Mar-20	United Kingdom
179	Bus Becomes Flooded With Seawater as Storm Brendan Moves Across UK and Ireland	https://www.youtube.com/shorts/HV5eEm7fbtw	Jan 14, 2020	United Kingdom
180	How to drive through floods	https://www.youtube.com/watch?v=VA921P_jLAk	21-Aug-15	
181	Driving through flood water Port Vila, Vanuatu.	https://www.youtube.com/watch?v=dscJqPBiu4Y	8-Jul-22	Vanuatu
182	Cars Drive Through Floods In Vietnam	https://www.youtube.com/watch?v=bLOMnrU2cb4	23-Nov-18	Vietnam
183	Bus Drives Through Flooded Road In Vietnam	https://www.youtube.com/watch?v=Uj9YkbBbu_s	Dec 3, 2018	Vietnam

Table A2
Self-recorded videos of driving through bushfires

	Name of the video	Video link	Post date	Country in which the video is captured
1	Australia bushfires: 'It's like fireballs exploding in the air'	https://www.youtube.com/watch?v=Iaxc2RuRnCQ	12-Nov-19	Australia
2	Australian firefighters capture moment their truck is overrun by a bushfire	https://www.youtube.com/watch?v=Jvy2siEwOZ0	31-Dec-19	Australia
3	Father and son drive into a wildfire	https://www.youtube.com/watch?v=yXubO7VPow0	20-Aug-18	United States
4	Australia's Inferno: This Is What It Looks Like Driving Through a Raging Bushfire	https://www.youtube.com/watch?v=G_TLR_GeYiU	9-Nov-19	Australia
5	Dramatic Drive Through Australia's Inferno	https://www.youtube.com/watch?v=sh31knRtO7U	5-Jan-20	Australia
6	Man films drive out of Paradise as it burns to the ground	https://www.youtube.com/watch?v=CG8bzRKTo90	15-Nov-18	United States
7	Family drive through flames escaping California wildfire	https://www.youtube.com/watch?v=LtwutlbJQqI	10-Nov-18	United States
8	Firefighters drive through Tamarack wildfire as flames engulf them	https://www.youtube.com/watch?v=79RzvN4QvTc	25-Jul-21	United States
9	Driver captures apocalyptic scene driving through Hennessey Fire in Northern California	https://www.youtube.com/watch?v=O_ozcfDtZKA	22-Aug-20	United States
10	Dad sings to young daughter while driving through wildfire	https://www.youtube.com/watch?v=BYikUpSx0Ro&t=22s	11-Nov-18	United States
11	DRAMATIC: Firefighters drive through Gatlinburg wildfire	https://www.youtube.com/watch?v=H2ZaV5P74YM	6-Jan-17	United States
12	Firefighter Drives Through Oregon's Flaming Highway During a Wildfire - 1141776	https://www.youtube.com/shorts/AM1TxWFD1no	11-Sep-20	United States
13	Firefighters Take Daring Drive Through California Wildfire	Firefighters Take Daring Drive Through California Wildfire (youtube.com)	1-Nov-19	United States
14	Driving Through Planet Ranch Fire in Arizona || ViralHog	Driving Through Planet Ranch Fire in Arizona || ViralHog (youtube.com)	6-Jul-21	United States
15	Fort McMurray On fire - 2016 - Jeep Driving Through Forest Fire	Fort McMurray On fire - 2016 - Jeep Driving Through Forest Fire (youtube.com)	4-May-16	Canada
16	Driving through [90]	https://www.youtube.com/watch?v=ekwNPPdyfO0	21-Dec-19	Australia
17	Driving through forest fire Seattle	https://www.youtube.com/watch?v=Xg9ymEFtN5k	26-Sep-21	United States
18	Caught in a forest fire Driving from San Diego to Alaska	Caught in a forest fire Driving from San Diego to Alaska (youtube.com)	4-Dec-19	United States

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Table A2 (*continued*)

	Name of the video	Video link	Post date	Country in which the video is captured
19	Wildfire: Harrowing drive to escape forest fire; Get prepared for wildfire season – Compilation (two different situations in one video clip)	Wildfire: Harrowing drive to escape forest fire; Get prepared for wildfire season - Compilation (youtube.com)	10-Apr-17	United States
20	Wildfire: Harrowing drive to escape forest fire; Get prepared for wildfire season - Compilation	Wildfire: Harrowing drive to escape forest fire; Get prepared for wildfire season - Compilation (youtube.com)	10-Apr-17	United States
21	DRIVING THROUGH BUSH FIRES IN LITCHFIELD NATIONAL PARK	https://www.youtube.com/watch?v=Wci9ZO3s0qc	2-Sep-15	Australia
22	Firefighters Drive Into Huge Flames in Australia	Firefighters Drive Into Huge Flames in Australia (youtube.com)	Nov 10, 2019	Australia
23	Commuter drives through raging wildfire in California – dashcam video	Commuter drives through raging wildfire in California – dashcam video (youtube.com)	7-Dec-17	United States
24	Wildfire broke out along the railway in S China's Guangdong Province on Wed, causing traffic delays	Wildfire broke out along the railway in S China's Guangdong Province on Wed, causing traffic delays (youtube.com)	18-Feb-21	China
25	Dramatic video shows crews driving through California wildfire #shorts	https://www.youtube.com/watch?v=FRvHbOQd3qE	25-Sep-21	United States
26	California firefighters show what it's like driving through a wildfire	California firefighters show what it's like driving through a wildfire (youtube.com)	24-Aug-20	United States
27	Reporter films narrow escape from raging fires on motorway	Reporter films narrow escape from raging fires on motorway (youtube.com)	15-Jul-22	Portugal
28	California fires: 'Oh my God, please let me out of here': Woman drives through Malibu wildfire	California fires: 'Oh my God, please let me out of here': Woman drives through Malibu wildfire (youtube.com)	15-Nov-18	United States
29	Locals Drive Through DEADLY Turkey Wildfire	Locals Drive Through DEADLY Turkey Wildfire (youtube.com)	31-Jul-21	Turkey
30	Car Drives Through Northern California Wildfire	Car Drives Through Northern California Wildfire (youtube.com)	21-Aug-20	United States
31	Chalet Village Fire Gatlinburg Amazing "Escape From Hell" Full Length Video by Michael Luciano	Chalet Village Fire Gatlinburg Amazing "Escape From Hell" Full Length Video by Michael Luciano (youtube.com)	2-Dec-16	United States
32	Photographer records terrifying drive through California wildfire	Photographer records terrifying drive through California wildfire - YouTube	20-Aug-20	United States
33	Driving through forest fire	Driving through forest fire (youtube.com)	21-Sep-15	unididentifiable
34	Dramatic, heart-racing footage as firefighters escape incineration during California wildfire!	Dramatic, heart-racing footage as firefighters escape incineration during California wildfire! (youtube.com)	21-Sep-21	United States
35	Driver captures apocalyptic scenes during drive through California wildfire (two different situations in one video clip)	Driver captures apocalyptic scenes during drive through California wildfire (youtube.com)	22-Aug-20	United States
36	Driver captures apocalyptic scenes during drive through California wildfire	Driver captures apocalyptic scenes during drive through California wildfire (youtube.com)	23-Aug-20	United States
37	Motorist Witnesses Explosion Driving Through Oregon Wildfire	Motorist Witnesses Explosion Driving Through Oregon Wildfire (youtube.com)	9-Sep-20	United States
38	The stories behind the viral videos from Australia's bushfire crisis | Four Corners (five different situations in one video clip)	The stories behind the viral videos from Australia's bushfire crisis | Four Corners (youtube.com)	3-Feb-20	Australia
39	The stories behind the viral videos from Australia's bushfire crisis | Four Corners	The stories behind the viral videos from Australia's bushfire crisis | Four Corners (youtube.com)	4-Feb-20	Australia
40	The stories behind the viral videos from Australia's bushfire crisis | Four Corners	The stories behind the viral videos from Australia's bushfire crisis | Four Corners (youtube.com)	5-Feb-20	Australia
41	The stories behind the viral videos from Australia's bushfire crisis | Four Corners	The stories behind the viral videos from Australia's bushfire crisis | Four Corners (youtube.com)	6-Feb-20	Australia
42	The stories behind the viral videos from Australia's bushfire crisis | Four Corners	The stories behind the viral videos from Australia's bushfire crisis | Four Corners (youtube.com)	7-Feb-20	Australia
43	2015 Pinery Fire S.A - Fire trucks overrun by flames and go into burnover mode.	2015 Pinery Fire S.A - Fire trucks overrun by flames and go into burnover mode. (youtube.com)	7-Jul-16	Australia
44	Driver surrounded by smoke, flames as wildfire rages in BC	Driver surrounded by smoke, flames as wildfire rages in BC (youtube.com)	1-Jul-21	Canada
45	Australia fires: out of control bushfires continue to burn near Canberra	Lindt GOLD BUNNY - Golden Trail (youtube.com)	28-Jan-20	Australia
46	2019 Peregian Fires: One year on | 2020 Black Summer bushfires | ABC Australia	2019 Peregian Fires: One year on | 2020 Black Summer bushfires | ABC Australia (youtube.com)	9-Sep-20	Australia
47	Firefighter drives through huge flames	Firefighter drives through huge flames (youtube.com)	21-Oct-13	Australia
48	Bushfire from fire truck	Bushfire from fire truck (youtube.com)	28-Jul-20	Australia
49	Ember Attack	Ember Attack (youtube.com)	9-Oct-09	Australia

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Table A2 (*continued*)

	Name of the video	Video link	Post date	Country in which the video is captured
50	This is what it's like to drive through a bushfire	CIE_Urgent Ask_Horizontal 1 Minute (UNI472788) (youtube.com)	28-Nov-15	Australia
51	Watch this B.C. driver narrowly escape massive wildfire | CLOSE CALL #shorts	(389) Watch this B.C. driver narrowly escape massive wildfire | CLOSE CALL #shorts - YouTube	1-Jul-21	Canada
52	Family's Car Runs Out of Gas While Fleeing Wildfire	https://www.youtube.com/watch?v=G1GVAzdwHYo	10-Sep-20	United States
53	Near miss on the Route Fire, firefighters trapped	https://www.youtube.com/watch?v=d4lus6ePx8U	12-Dec-21	United States
54	Officer's Body Cam Captures Terrifying Moments During Wildfire Evacuations	https://www.youtube.com/watch?v=XdeJA-JBGFE	14-Oct-17	United States
55	Fire in Paradise (full documentary) | FRONTLINE	https://www.youtube.com/watch?v=F3OX1PR2SCM&t=266s	30-Oct-19	United States
56	The Scariest Day of my Life | [91] | [92]	https://www.youtube.com/watch?v=LzR1iBIttXU&t=1596s	5-Jan-20	Australia
57	Car drives through wildfires on motorway near Athens	https://www.youtube.com/watch?v=U0uTEVL8SaE	24-Jul-18	Greece
58	Escaping Flinders Chase Fire Storm || ViralHog	https://www.youtube.com/watch?v=Fa6o77ltr5U	15-Jan-20	Australia
59	Firefighters defend homes against raging bushfires near Bridgetown, Western Australia	https://www.youtube.com/watch?v=Dee9SPORrzo	7-Feb-22	Australia
60	Motorists stranded in Western Australia as roads cut off by fires | ABC News	https://www.youtube.com/watch?v=PFEqaEfODCQ	3-Jan-20	Australia
61	Dashcam Shows Before And After Of Australian Bushfires	https://www.youtube.com/watch?v=K0_rgWmY23Y	20-Feb-20	Australia
62	Terrifying video shows family's escape from Camp Fire in Paradise	https://www.youtube.com/watch?v=MvIWGjhhdEU	14-Nov-18	United States
63	Amateur footage: Russian rescuers caught in forest fire	https://www.youtube.com/watch?v=Vw_TRmZRGQY	3-Aug-10	Russia
64	Braving the blazes: dramatic footage of bushfires ravaging Australia's east coast (two different situations in one video clip)	https://www.youtube.com/watch?v=3dfPFxWTWF0	9-Nov-19	Australia
65	Braving the blazes: dramatic footage of bushfires ravaging Australia's east coast	https://www.youtube.com/watch?v=3dfPFxWTWF1	9-Nov-19	Australia
66	Firefighter films dramatic drive through raging blaze	https://www.youtube.com/watch?v=JY7qKUZSwfY	3-Dec-16	United States
67	Man Trying To Escape Wildfires As His Truck Melts Makes A Tough Decision Few Other People Would	https://www.youtube.com/watch?v=CNlZlUiCtXs	29-Jan-19	United States
68	Driving Through a Forest Fire on the Highway || ViralHog	https://www.youtube.com/watch?v=roGWaNGWf8o	20-Sep-22	Spain
69	Firefighters and civilians drive through flames as wildfires rage through Spain (two different situations in one video clip)	https://www.youtube.com/watch?v=XQ8M4wfonr8	22-Jul-22	Spain
70	Firefighters and civilians drive through flames as wildfires rage through Spain	https://www.youtube.com/watch?v=XQ8M4wfonr9	22-Jul-22	Spain
71	CALIFORNIA FIRE SCARY FOOTAGE, DAMAGE, CAUGHT ON CAMERA DECEMBER 2017 (five different situations in one video clip)	https://www.youtube.com/watch?v=hK6_DR26rpY	7-Dec-17	United States
72	CALIFORNIA FIRE SCARY FOOTAGE, DAMAGE, CAUGHT ON CAMERA DECEMBER 2018	https://www.youtube.com/watch?v=hK6_DR26rpY	7-Dec-17	United States
73	CALIFORNIA FIRE SCARY FOOTAGE, DAMAGE, CAUGHT ON CAMERA DECEMBER 2019	https://www.youtube.com/watch?v=hK6_DR26rpY	7-Dec-17	United States
74	CALIFORNIA FIRE SCARY FOOTAGE, DAMAGE, CAUGHT ON CAMERA DECEMBER 2020	https://www.youtube.com/watch?v=hK6_DR26rpY	7-Dec-17	United States
75	CALIFORNIA FIRE SCARY FOOTAGE, DAMAGE, CAUGHT ON CAMERA DECEMBER 2021	https://www.youtube.com/watch?v=hK6_DR26rpY	7-Dec-17	United States
76	Ring of fire surrounds NSW | Nine News Australia	https://www.youtube.com/watch?v=6pLilivjflk	5-Dec-19	Australia
77	Inside the Gosper's Mountain mega-fire - the biggest bushfire Australia's ever seen | ABC News	https://www.youtube.com/watch?v=SlGmatigAy4	26-Jul-20	Australia
78	Former fire chief delivers chilling bushfire warning to Australia's government | 7.30	https://www.youtube.com/watch?v=Kf00vJclEr0	7-Nov-19	United States
79	Harrowing Fort McMurray wildfire escape	https://www.youtube.com/watch?v=7E_OLgC4nV0	6-May-16	Canada
80	Special Report: Canada Wildfires	https://www.youtube.com/watch?v=GCAt5ssX_xY	10-May-16	Canada
81	Driving in Canada - apocalyptic drive through forest fire smoke	https://www.youtube.com/watch?v=_7lanuezdZo	23-Aug-21	Canada
82	Buildings destroyed after fast-moving wildfire forces evacuation of heat wave hot spot Lytton, BC	https://www.youtube.com/watch?v=QCk1H9Av1JQ	1-Jul-21	Canada

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Table A2 (*continued*)

	Name of the video	Video link	Post date	Country in which the video is captured
83	NSW Rural Fire Service: Gospers Mountain fire burnover 2019.	https://www.youtube.com/watch?v=th2fih9QRIQ	31-Dec-19	Australia
84	Driving through the Knysna fires	https://www.youtube.com/watch?v=WxAaCszGLcA	9-Jun-17	South Africa
85	Inside The Alberta Wildfires	https://www.youtube.com/watch?v=uOonSBiYx6k	10-May-16	Canada
86	Video shows people driving through flames in order to help friends escape Calwood Fire	https://www.youtube.com/watch?v=C29VCVcM3lU	22-Oct-20	United States
87	EU firefighters rally as wildfire burns in south of France	https://www.youtube.com/watch?v=KuE_T0j8ECA	14-Aug-22	France
88	Hundreds evacuated as Czech and German firefighters battle wildfire	https://www.youtube.com/watch?v=f59cjTIexcY	27-Jul-22	Czech Republic
89	Professional fire crews pitch in to help volunteers fight bushfires | 7.30	https://www.youtube.com/watch?v=HT9lBjuiTD8	12-Dec-19	Australia
90	Greek wildfire: "It felt like someone was … shooting at you"	https://www.youtube.com/watch?v=dL6X2xvpY68	24-Jul-18	Greece
91	Uttarakhand is Burning: Why Is India Witnessing So Many Forest Fires?	https://www.youtube.com/watch?v=8Y9dlSmpkC0	6-Apr-21	India
92	Family Shelters in Freezing Lake From California Wildfires	https://www.youtube.com/watch?v=3Cj8uI8oWMw	11-Sep-20	United States
93	The Monsoon Diaries - Driving Through a Bush Fire In Mauritius	https://www.youtube.com/watch?v=fHTm3PGp-UA	1-Sep-19	the Republic of Mauritius
94	Residents flee 'catastrophic' wildfire in Northern California	https://www.youtube.com/watch?v=BoQUalGOGWk	10-Nov-18	United States
95	Man Drives Through Fires on the Motorway Near Vagos, Portugal	https://www.youtube.com/watch?v=QAFHmokVnA0	17-Oct-17	Portugal
96	Wildfires spreading across Portugal's Algarve region | ITV News	https://www.youtube.com/watch?v=SWSrNPHi9O8	6-Aug-18	Spain
97	Californians flee flames in their cars (six different situations in one video clip)	https://www.youtube.com/watch?v=A7qFuwLnwF4	12-Nov-18	United States
98	Californians flee flames in their cars	https://www.youtube.com/watch?v=A7qFuwLnwF5	12-Nov-18	United States
99	Californians flee flames in their cars	https://www.youtube.com/watch?v=A7qFuwLnwF6	12-Nov-18	United States
100	Californians flee flames in their cars	https://www.youtube.com/watch?v=A7qFuwLnwF7	12-Nov-18	United States
101	Californians flee flames in their cars	https://www.youtube.com/watch?v=A7qFuwLnwF8	12-Nov-18	United States
102	Californians flee flames in their cars	https://www.youtube.com/watch?v=A7qFuwLnwF9	12-Nov-18	United States
103	Men record death-defying escape from wildfires with dogs	https://www.youtube.com/watch?v=5l6n86TUc2Y	16-Oct-17	United States
104	One Person's Narrow Escape From Raging California Inferno	https://www.youtube.com/watch?v=5MbEAskIpK0	15-Sep-15	United States
105	Major Bush Fire Affect Motorists In Caroni	https://www.youtube.com/watch?v=Rp6XXhvXCzQ	25-Jan-19	Venezuela
106	Forest fire. A small drive on the midway … Its dangerous. In Turkey	https://www.youtube.com/shorts/1xqJPmTVlq4	4-Aug-21	Turkey
107	'We went through hell': friends taking food to firemen find road blocked by Turkish wildfire	https://www.youtube.com/watch?v=wKmhqbBB6qQ	31-Jul-21	Turkey
108	Wildfires rip through the UK amid record-breaking heatwave	https://www.youtube.com/watch?v=zQ4wEx9v7_I	20-Jul-22	United Kingdom
109	Footage shows reality of driving through wild fire #canada #wildfire	Footage shows reality of driving through wild fire #canada #wildfire - YouTube	30-May-23	Canada
110	Drivers dodge flames and smoke from Nova Scotia wildfire DRAMATIC VIDEO	https://www.youtube.com/watch?v=XsC1AJpfv0g	30-May-23	Canada
111	Maui wildfires leave vacationing couple in tears	Maui wildfires leave vacationing couple in tears - YouTube	10-Aug-23	United States
112	Driving through a wildfire	Driving through a wildfire 🔥 - YouTube	8-Feb-23	Chile
113	Evacuation order in place as Northwest Territories fires rage: "Driving through flames"	Evacuation order in place as Northwest Territories fires rage: "Driving through flames" - YouTube	15-Aug-23	Canada
114	Devastating Hawaii wildfires leave 6 dead: Maui officials	Devastating Hawaii wildfires leave 6 dead: Maui officials - YouTube	10-Aug-23	United States
115	Hawaii wildfires: Flames engulf homes as west Maui residents forced to flee	Hawaii wildfires: Flames engulf homes as west Maui residents forced to flee - YouTube	10-Aug-23	United States
116	Maui wildfire evacuation caught on dashcam	Maui wildfire evacuation caught on dashcam - YouTube	11-Aug-23	United States

Data availability

Data will be made available on request.

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