The Impact of Climate Change on the Fire and Rescue Services

MSA WHITEPAPER

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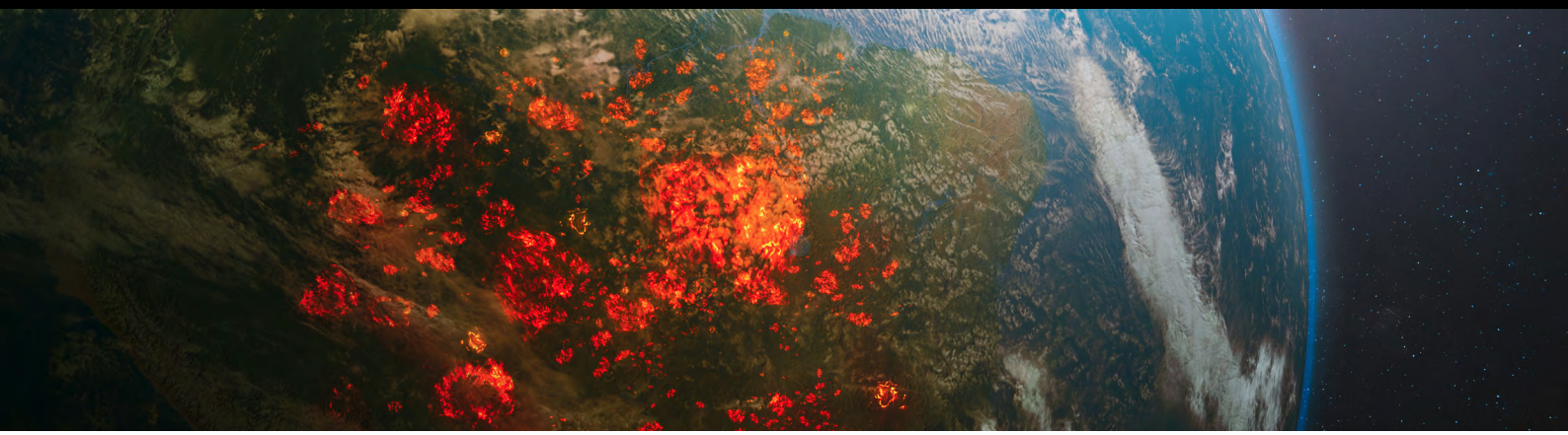

As our planet's climate increasingly reveals the devastating impact caused by human emissions of greenhouse gasses since the mid-20th century, life as we know it is changing on a global scale. Considered by many to be one of the defining issues of our time, climate change is not only an environmental problem. It is an economical, industrial, political and technological matter of increasing urgency, as is seen by its impact on the fire and rescue industry.

New hazards are emerging as both direct and secondary consequences of climate change, presenting critical and often unfamiliar challenges for first responders. Many researchers agree that as the planet grows warmer, fire and rescue departments will need to begin incorporating climate science into the way they work, from strategy and budgeting through to how they assess the safety of workers on the frontlines.

As such, the right equipment, training and awareness will be imperative to tackling the impact of climate change on the fire and rescue services. MSA Safety, the global leader in development and manufacture of fire helmets, fire protective clothing and breathing protection, has taken on the mission to create equipment just like this, fully prepared for a future affected by climate change, whilst also raising awareness for the road ahead.

ADAPTING TO CHANGE

Climate scientists predict that average temperatures will rise by 4°C globally by the year 2060. In some parts of the globe it is expected to rise even higher, such as in southern Africa where temperatures may increase by as much as 10°C[1]. Winters will grow wetter while summers become drier and the significant increase in climate-related disasters, which is already noticeable, is only the beginning.

Flooding, earthquakes, wildfires and cyclones are on the rise, and based on evidence that emergency services are increasingly called upon to aid and rescue in these dangerous scenarios, they need to be equipped with gear that is optimised and adaptable for new and potentially unexplored applications.

"The often unpredictable circumstances brought on by climate change in the modern world, under which the conditions of natural disasters and other hazards are becoming more common, will inevitably have serious implications for the safety and wellbeing of firefighters and other first responders," says Vincent Azibert, Global Product Group Manager First Responder Helmets.

"In order to combat this, fire and rescue services around the world will need to bring about significant changes. Fire brigades will need to optimise their equipment, buildings, fire engines and hoses to suit changing and pressing needs."

[1] *https://www.fbu.org.uk/publication/climate-change-key-issues-fire-and-rescue-service*

FIRE, WIND, EARTH AND WATER

It is becoming increasingly clear that 'fire season' is no longer just a season. Due to the effects of climate change, with the increase in temperatures and subsequent droughts, it is now a year-round phenomenon[2]. Wildland fires are not only becoming more numerous, they are also growing more violent and difficult for firefighters to control. Interventions are longer, more frequent and more deadly, with the additional danger of pollutants released into the air[3].

In the face of climate change, however, increased wildland fires are far from the only consequence affecting the fire and rescue services. A substantial increase of storms and cyclones is evidenced, for example, by the six major weather events of a category 3 or higher which took place in the North Atlantic in 2017[4]. Due to events like these, firefighters and first responders have been called upon more frequently to rescue people in exceptionally dangerous conditions, yet may not be properly trained or equipped to do so safely.

Increased temperatures are also famously causing ancient glaciers to melt and cause stress on the earth's crust, resulting in increased risk for natural disasters such as rock avalanches and powerful earthquakes[5]. In such events, it is the role of urban search and rescue teams to step in and save lives, often travelling great distances to provide urgent relief in dangerous conditions, which also require specialist training and gear to navigate.

Yet another effect of melting glaciers is the significant contribution to rising sea levels and the increased risk of flooding in oceans and rivers. In the UK alone, more than 5 million people now live and work in these flood risk areas[6] yet water rescue missions are mostly unexplored territory for local fire and rescue services and most equipment lacks the certification needed for use in water and on motorboats.

Climate change, of course, has already led many governments and businesses to take action. Innovative and more environmentally friendly alternatives to traditional technologies, such as electric vehicles, are the result of such initiatives. In fact, it is estimated that electric cars could account for 58% of all passenger car sales by 2040[7]. This poses a unique challenge for first responders, however, as electric vehicles contain high voltage cables that are extremely dangerous during road rescue operations, particularly in the poorly lit conditions of roads at night, which is when statistics suggest a majority of fatal accidents, take place[8].

THE WAY FORWARD

Working on the frontline to save lives under these conditions is becoming synonymous with putting yourself at physical risk of series or fatal injury.

First Responders must select head protection that can include hearing protection and face protection in order to be guarded against arc flash injuries and the extreme noise of some USAR operations. They also need to receive new training on how to handle unfamiliar risks, such as those posed by electric vehicles, for example, and a greater overall awareness of both the climate situation and its health implications for firefighters must be raised in all areas of the industry. Nevertheless, perhaps the most urgent manner in which climate change is affecting the fire and rescue services, and in which the industry in turn needs to respond, is the need for multi-functional equipment.

[2] *https://www.scientificamerican.com/article/firefighters-are-focused-on-flames-not-climate-change/*
[3] *https://ec.europa.eu/echo/what-we-do/civil-protection/forest-fires_fr*
[4] *https://www.statistiques.developpement-durable.gouv.fr/sites/default/files/2020-03/onerc_rapport_2018_evenements_meteorologiques_extremes.pdf*
[5] *https://www.nature.com/articles/s41598-018-30475-w*
[6] *https://www.fbu.org.uk/publication/climate-change-key-issues-fire-and-rescue-service*
[7] *https://www.elite-auto-actu.fr/actualite-auto/auto-electrique-hybride/2020/07/20/marche-de-la-voiture-electrique-en-pleine-expansion-dans-le-monde/*
[8] *https://safer-america.com/car-accident-statistics/#US*

A NEW ERA OF HEAD PROTECTION

MSA Safety's goal of equipping the emergency services with the gear they need to combat climate-related emergencies begin with their new GALLET F2XR helmet. The F2XR is tested and certified according to the applicable standards for wildland firefighting, technical rescue, urban search and rescue, climbing and water rescue. This demonstrates that it is possible to engineer integrated, adaptable and versatile equipment that is suitable to respond to a variety applications and needs – be it for professional or volunteer firefighters:

- EN16471 – Wildland Firefighting Helmet Standard
- EN16473 – Technical Rescue Helmet Standard
- EN12492 – Mountain Climbing Helmet Standard
- EN1385 – Helmets for Canoeing and White Water Sports
- PAS028 – Marine Safety Helmets (Tested for Water Rescue)

In the US, MSA's CAIRNS XR2 has been additionally NFPA1951-2020 certified for technical rescue in road traffic collisions.

The GALLET F2XR and any other firefighter helmets, which are fully prepared for a future affected by climate change, must incorporate key features and accessories that keep firefighters safe under these unique conditions. One of the major innovations introduced by MSA, for example, is the innovative L2XR integrated lighting system with dual beam, which has been developed to provide lighting during those longer and harder interventions that are a major consequence of climate change. Helmets should also include features to facilitate easy communications and to safeguard against both possible electric arcs and noise levels. They also need to be compatible with respiratory devices and goggles for protection in unpredictable environments.

With climate science at the forefront of fire and rescue strategy, MSA Safety believes that the emergency services can be well equipped for the future in a changing climate. Equipped, with both the suitable gear and technology, as well as the understanding and preparation necessary to tackle one of the greatest challenges of our time.

To find out more about MSA's GALLET F2XR, click here: *https://gb.msasafety.com/F2XR*

ABOUT
MSA – THE SAFETY COMPANY

MSA is the world's leading manufacturer and supplier of high-quality safety products and gas detection system solutions to protect people from hazards. MSA's versatile product portfolio ranges from simple to high-tech solutions. The range of technologies and products offered is unique in the world. MSA has over 40 international affiliates and 15 manufacturing sites around the world. We protect people in more than 140 countries.

We accompany you in your mission in firefighting, emergency response and search and rescue.

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