



ADMM Cybersecurity and  
Information Centre of Excellence

# Monthly Digest

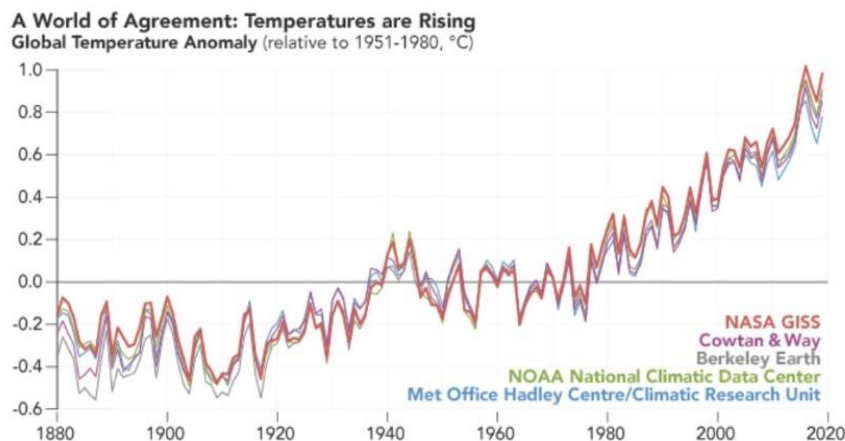
Issue 12/23 (December)

*A monthly round-up of significant news around the world*

## Climate Change

### Rising Temperatures and its Impact on Militaries

1. Climate change, as defined by the United Nations, refers to the “long-term shifts in temperatures and weather patterns.” In January 2023, the *Proceedings of the National Academy of Sciences* reported that all countries have seen a change in their climates in the past four decades. A Stanford study further reported that the average temperature of the Earth’s surface is approximately 1.1 degrees Celsius warmer than in the late 18<sup>th</sup> century at the beginning of the Industrial Revolution. A NASA study also found a rising trend in temperatures since the Second World War, with a steep increase since the 1980s.



*Earth Observatory, NASA (January, 2023)*

## **Multinational Response to Rising Temperatures**

2. Mitigating the impact of climate change requires a coordinated global response. In 2015, the Paris Climate Accord, a landmark multilateral agreement within the United Nations Framework Convention on Climate Change (UNFCCC), was established to combat climate change and facilitate efforts towards a sustainable low carbon future. The agreement aims to hold the increase in global average temperature to well below 2 degrees Celsius above pre-industrial levels, and to further pursue efforts to limit the temperature increase to 1.5 degrees Celsius above pre-industrial levels. The agreement has been pivotal in promoting a shared vision among countries to combat climate change and adapt to its effects.

3. More recently, the UNFCCC held the 28<sup>th</sup> United Nations Climate Change Conference in Dubai, commonly known as COP28, from 30 November to 12 December 2023. Building on the foundations laid by the Paris Climate Accord, COP28 was lauded as a major leap forward in international climate diplomacy as nearly every country in the world has agreed to “transition away from fossil fuels” for the first time in 28 years of climate negotiations. COP28 brought a wave of new international pledges, from reducing companies’ oil-and-gas emissions to how the world can better integrate actions on climate change and biodiversity loss.

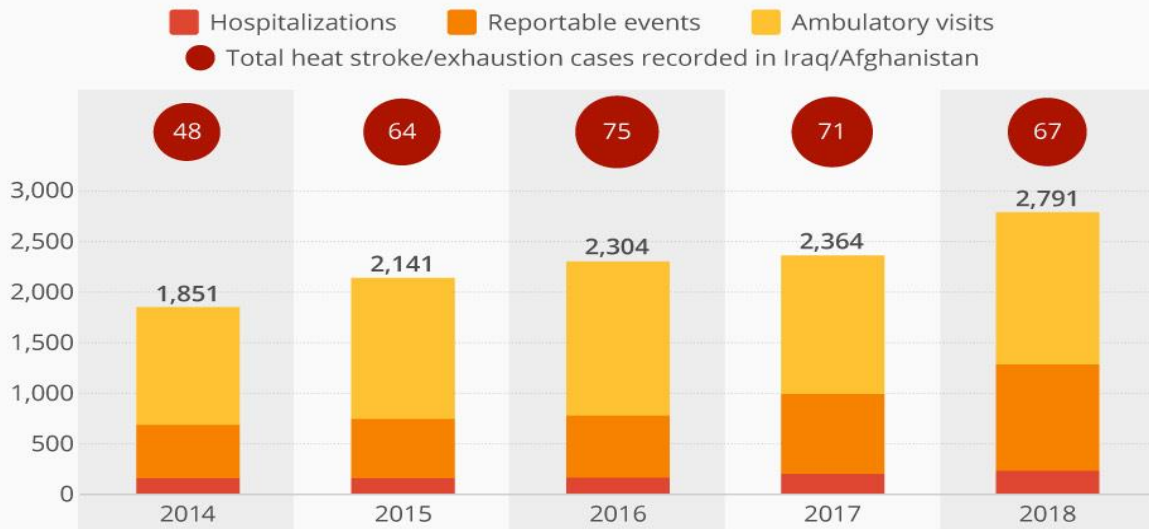
## **Impact of Rising Temperatures on Militaries**

4. Notwithstanding multinational efforts at limiting the extent of future global temperature rises, higher temperatures that the world already experiences today affect militaries’ warfighting capabilities and operational readiness. Frequent high temperatures reduce the number of training hours and increase the incidence of heat injuries. This disrupts military training, and affects army troops and military units most exposed to the heat. A study by the *Environmental Research Communications* published in July 2019 stated that by 2050, nearly every part of the US will face a significant increase in temperatures, even if some action has been taken to reduce greenhouse gas emissions. As average temperature rises, military training in previously “low risk” environments now carry a greater risk of heat injuries.

5. In the US military, from 2014 to 2018, there had been a growing trend of heat injury related incidents corresponding to the rising temperatures, such as heat strokes.

## The U.S. Military Is Experiencing More Heat-Related Illnesses

Total number of heat stroke/exhaustion cases in the U.S. military by year



Source: Statista Charts (2019)

6. In Australia, record high temperatures have led to heat waves across the country, with Sydney baking in 43 degrees Celsius in early December 2023, as reported by *The Guardian*. Climate change has a direct effect on the Australian Defence Force (ADF)'s operations. For example, the ADF has traditionally played a key role in disaster relief efforts for bush fires, and the higher frequency of bush fires had been costly for the ADF. In September 2023, the Australian Bureau of Meteorology declared an episode of El Niño and a positive Indian Ocean dipole, which will lead to warmer and drier conditions over the spring and summer months. This will further increase the likelihood of bush fires, and cause more draining of the ADF's resources.

## Mitigation Measures

### *Australia*

7. The ADF's Defence Strategic Review in 2023 included climate as a core national security issue, recognising that climate change will increase the challenges for Australia and the ADF. This includes having to deploy more resources for Humanitarian Assistance and Disaster Relief (HADR) efforts nationally and abroad. As part of the review, the ADF will now focus on regional HADR operations, while civilian agencies will take charge of responding to domestic natural disasters. Earlier in 2022, Australia also unveiled an electric Protected Military Vehicle (eMPV) to utilise cleaner energy for the ADF's operational needs.

## *France*

8. According to the *Climate and Defence Strategy* paper published in April 2022, the French military adopted measures to deal with the effects of climate change, such as accumulating knowledge from operating in extreme territories and repurposing such knowledge to facilitate training in high temperature environments. As France deals with more frequent dry spells and warmer temperatures, it also recognises that hostile climates will damage the long-term usefulness of its weapon systems, infrastructure, and electronics. Hence the French military conducts regular weapon maintenance and increased research and development into creating systems more resilient to high temperatures.

## *Singapore*

9. Singapore is a small maritime country, and rising temperatures affect the island state greatly. According to Singapore's National Climate Change Secretariat (NCCS), "the annual mean temperature has increased from 26.9 degrees Celsius to 28.0 degrees Celsius" from 1980 to 2020. This rate of increase may seem marginal, but illustrates a long-term climatic trend of rising temperatures. Singapore also experiences record high temperatures during strong El Niño episodes.

10. In response to higher temperatures, the Singapore Armed Forces (SAF) had to adopt measures to prevent heat injury cases while sustaining the tempo of its military training. The SAF has to ensure that its troops are given ample rest and acclimatise them to high-heat training environments. For instance, the SAF uses the Wet Bulb Globe Temperature (WBGT)<sup>1</sup> tool to assess heat stress level for its troops' training. The SAF has also set up the Heat Resilience and Performance Centre (HRPC) in January 2023, bringing together physiologists from Singapore's national universities, scientists and engineers from defence science organisations, and military practitioners to conduct research into preventing heat injuries.

11. In 2021, the SAF Sustainability Office set up the 2022 External Advisory Panel for Environmental Sustainability (EAPES) to advise on ways to tackle climate change. The Defence Science and Technology Agency (DSTA) leverages data analytics to study energy consumption patterns through smart metering systems. In 2022, one in four military camps were installed with solar panels, delivering 20-megawatt peak of energy. By 2025, two in three camps will have solar power, producing 50-megawatt peak of energy. Looking forward, the

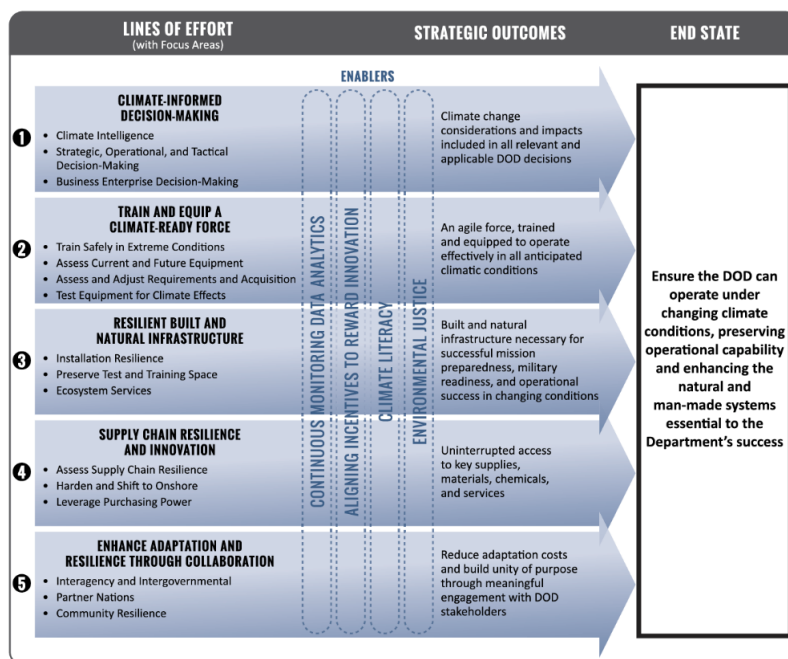
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<sup>1</sup> The WBGT is a composite measure that takes into account air temperature, humidity, wind and solar radiation. The reported WBGT is an average value over the past 15 minutes. Source: Meteorological Service of Singapore

GoGreener SAF movement aims to reduce overall carbon emissions by two-thirds by 2030, and halve the 2030 emissions by 2050, in line with Singapore’s Green Plan 2030.

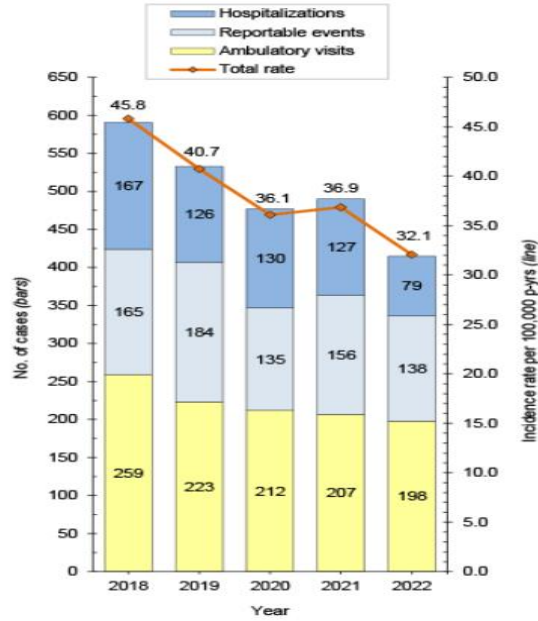
*The US*

12. The US has also been active in its climate change policies. With the world’s largest defence budget, the US has formulated longer-term plans to deal with the effects of climate change. For instance, it has developed a comprehensive strategic framework to facilitate climate-informed decision-making, and aims to reduce its military-related carbon footprint to a minimum.



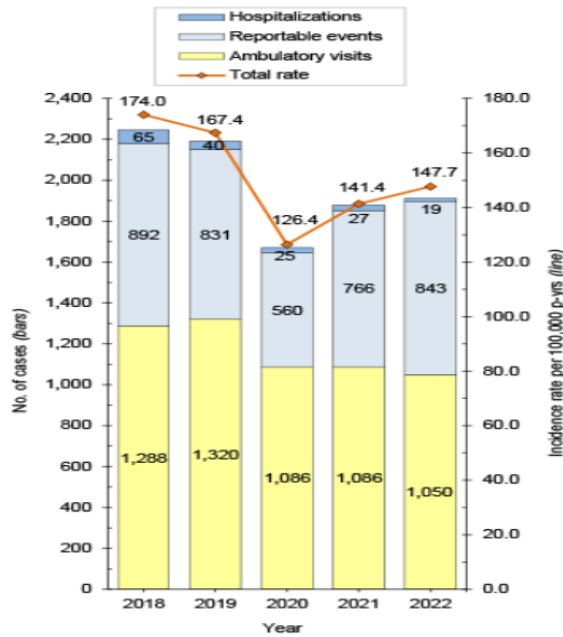
*Clingendael report on military capabilities affected by climate change*

13. With the US’ mitigating measures, the number of heat injury incidents, heat strokes and heat exhaustion has decreased from 2018, and is on a downward trajectory. The graphs below show the incident cases and the incidence rates of heat stroke and heat exhaustion, respectively.



Abbreviations: No., number; p-yrs, person-years.  
 \*Diagnosis codes were prioritized by severity and record source (heat stroke > heat exhaustion; hospitalizations > reportable events > ambulatory visits).

*Incident Cases and Incidence Rates of Heat Stroke, US Armed Forces, 2018-2022*  
 Source: Health.mil



Abbreviations: No., number; p-yrs, person-years.  
 \*Diagnosis codes were prioritized by severity and record source: heat stroke > heat exhaustion; hospitalizations > reportable events > ambulatory visits.

*Incident Cases and Incidence Rates of Heat Exhaustion, US Armed Forces, 2018-2022*  
 Source: Health.mil

## Conclusion

14. The escalating threats posed by rising temperatures transcend national borders. Countries need to work together to combat the effects of rising temperatures before they escalate into a global crisis. It is also imperative for militaries to integrate environmental considerations into operations planning. This will facilitate the safety, health, and effectiveness of military troops, and ensure that they remain robust in the face of the evolving threats arising from climate change.

# Terrorism

## Significant Terror Threats Approaching Year-End

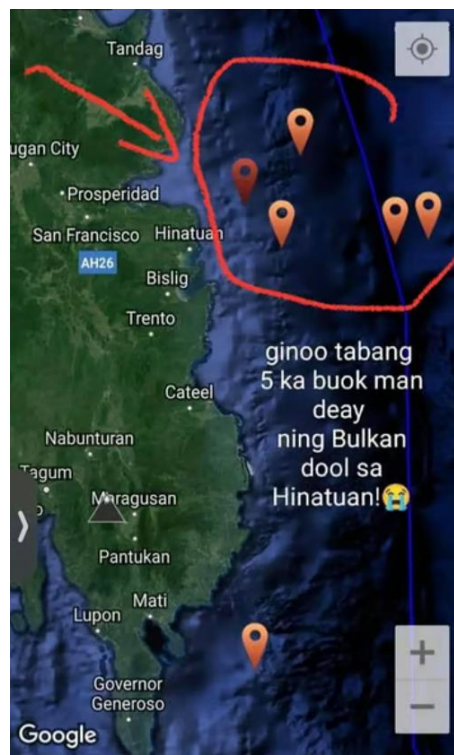
1. In the lead-up to the year-end holidays, authorities reported a heightened threat of attacks by extremists. On 21 November 2023, Indonesian authorities arrested individuals in Riau who were planning to carry out terror attacks during Christmas and the New Year.
2. On 3 December 2023, an improvised explosive device (IED) was detonated by pro-ISIS elements during a Catholic Mass held in Mindanao State University, Marawi City in the Philippines. The blast, for which ISIS later claimed responsibility, killed four and injured at least 50 others. Officials said that “foreign terrorists” were responsible for the attack, the largest since the August 2020 Jolo twin suicide bombings.
3. The Armed Forces of the Philippines (AFP) attributed the incident to a revenge attack against security forces following a recent spate of successful counter-terrorism operations in the southern Philippines. High-value targets, including incumbent IS-East Asia *emir* Abdulrah Sapal and his deputy Nasser Guinaid Saptullah, as well as prominent bombmaker Mudzrimar Sawadjaan, were decimated on 1 and 2 December 2023 respectively.



# Humanitarian Assistance and Disaster Relief

## Earthquake in Mindanao, Philippines

1. On 2 December 2023, a magnitude 7.6 undersea earthquake struck Mindanao, Philippines. A tsunami alert was issued on the same day, and more than 500 aftershocks were subsequently recorded. The earthquake triggered coastal evacuations in both the Philippines and in Japan.
2. On 4 December 2023, *The Straits Times* reported that the death toll from the powerful earthquake had risen to three, as frequent aftershocks sent residents fleeing into the streets. *SunStar* reported that amid the disaster, social media posts went viral that there were five active underwater volcanoes in Hinatuan, Surigao del Sur that had triggered the earthquake. The original post by a certain Facebook user Gil Tradoc was accompanied by a graphic showing the positions of these five volcanoes.



*Post circulating across social media that there were five active underwater volcanoes in Hinatuan, Surigao del Sur*

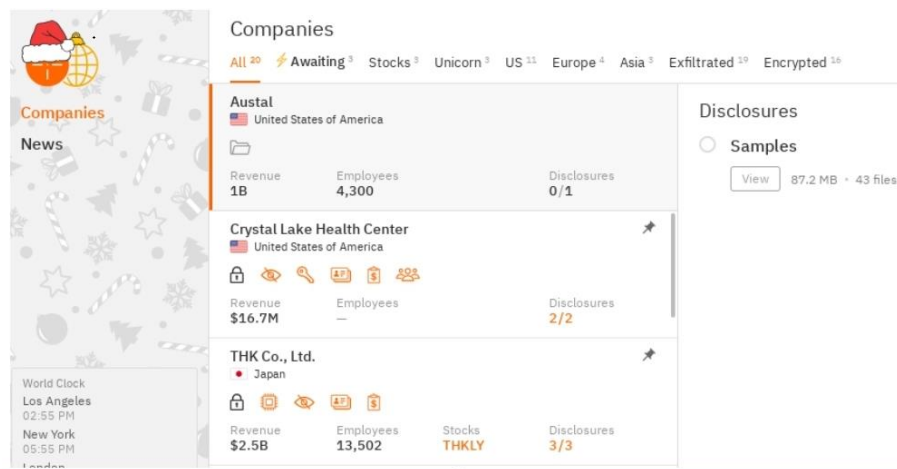
5. *SunStar* further reported that the Philippines Institute of Volcanology and Seismology (Phivolcs) in Davao region had refuted the post as false, citing

it as an example of how disinformation can cause mass hysteria and anxiety during natural disasters, and urged the public to rely on accurate information from the authorities. Phivolcs had earlier announced on its website that the earthquake was tectonic in origin as the province was located in a seismically active region in the archipelago. Earthquakes are common in the Philippines, which lies on the “Ring of Fire”, a belt of volcanoes circling the Pacific Ocean that is prone to seismic activity.

# Maritime Security

## Maritime Cyber Crimes

1. On 6 December 2023, *The Maritime Executive* reported that the cyber threat group Hunters International claimed that it had hacked Australian-owned defence shipbuilder Austal USA and “stole unspecified data”, in a list of new victims posted on Hunters International’s Dark Web site. This was the second cyber hacking incident on Austal USA since 2018.



*New victim claims on the threat group's online dashboard (Source: Hunters International)*

2. In response, Austal USA released a statement that it was aware of the breach and “no classified or personal data had been stolen”, and that the cyberattack had “no impact on operations”.

3. *The Maritime Executive* further reported that the Hunters International group focused on stealing data and using it to blackmail or pressure the victims. Earlier in the year, the Hunters International group had reportedly hacked a Beverly Hills plastic surgery clinic and released confidential photos of several patients.

4. Austal USA is working with the Federal Bureau of Investigation (FBI) and Naval Criminal Investigative Service (NCIS) to investigate the case.

## CONTACT DETAILS

All reports can be retrieved from our website at [www.acice-asean.org/resource/](http://www.acice-asean.org/resource/).

For any queries and/or clarifications, please contact ACICE at [ACICE@defence.gov.sg](mailto:ACICE@defence.gov.sg).

Prepared by:

**ADMM Cybersecurity and Information Centre of Excellence**

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