

Strategic Communications for Meteorological Service Singapore (MSS)

6 September 2023

Presented by:

Jason Evans Tan, Deputy Director, Corporate Communications
National Environment Agency

Agenda

1. Introduction – Communications For Meteorological Service Singapore (MSS)
2. Going Into The Mechanics
3. Strategies to Sustain Communications
4. Combating Fake News – Putting Your Message Across Effectively
5. On The Climate Change Front – What MSS Is Doing

1

Introduction - Communications for Meteorological Service Singapore (MSS)

Communications Objectives for MSS

- To reinforce MSS as the reliable national authority for weather and climate information
- To publicise our capabilities – the people in MSS and technology we use
- To profile MSS as an internationally recognised source of weather information and climate research

Communications for MSS

1. What are some of MSS' services?

- Daily weather forecasts
- Warnings of extreme weather: heavy rain, hot weather, dry spell, etc.
- Fortnightly weather outlook
- Regular climate trend and assessment reports
- Advisories and early warnings of hazards e.g. smoke haze, volcanic ash, earthquakes/tsunami

2. Who is the target audience for MSS?

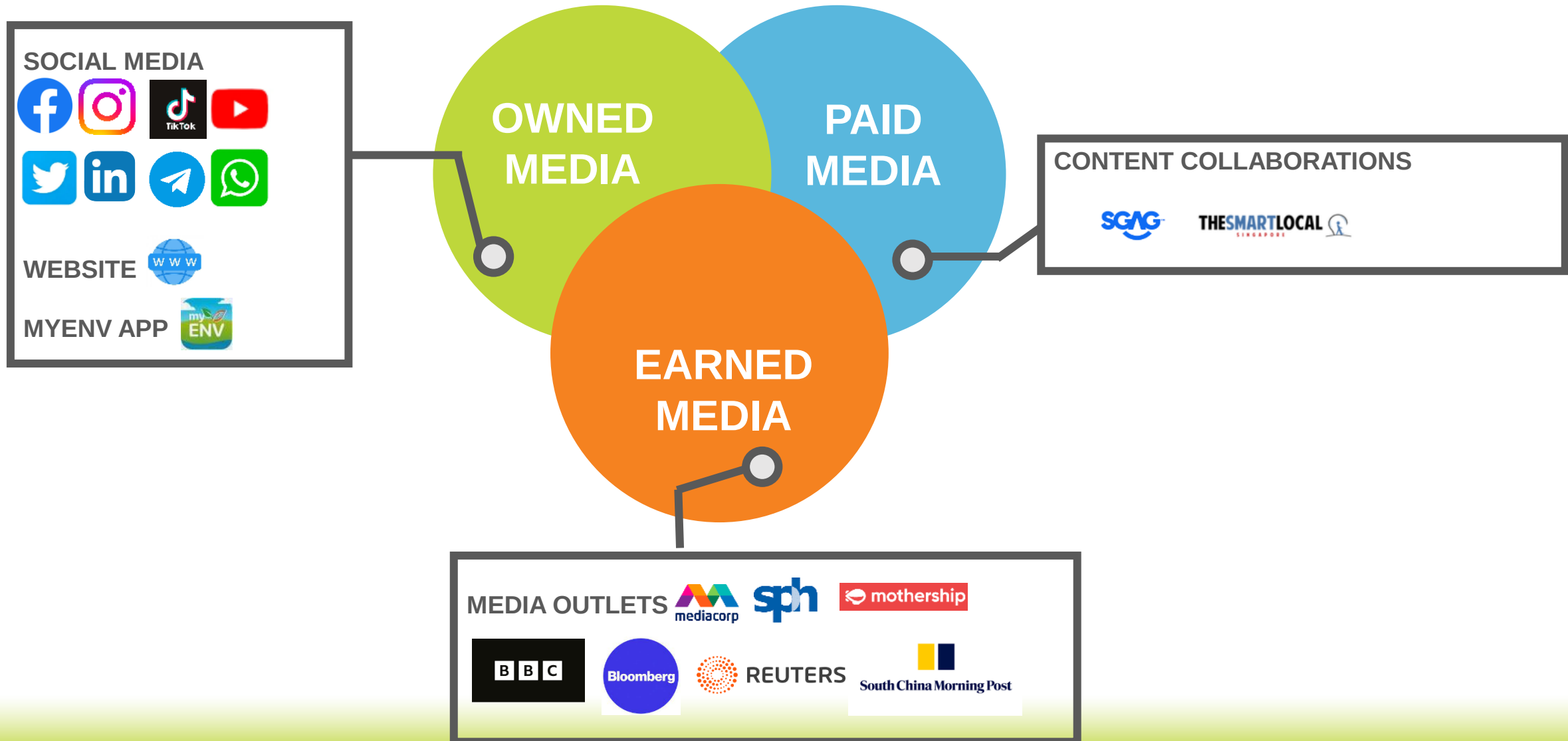
- Local : General public; government agencies; academics; media; leisure/business sectors
- Regional/International : National Met Services & related agencies, IOs, academics/researchers

3. What are some of the platforms to publicise products or showcase capabilities of MSS?

- NEA's Digital Platforms: NEA Corporate Website, MSS Weather Portal, myENV App
- Media Platforms: Print and Online articles, Broadcast (TV/Radio) reports
- Social Media Platforms: Facebook, Twitter, Instagram, Threads, YouTube, LinkedIn, TikTok, WhatsApp and Telegram

Communications for MSS

We leverage **owned**, **earned** and sometimes **paid** media



2023 – From first half of the year alone, MSS has already garnered close to 500 pieces of media coverage

2

Going Into The Mechanics

Heat Stress Advisory

What it is:

On 24 July, Singapore launched our very first Heat Stress Advisory (HSA) to help the general population make more informed decisions on undertaking prolonged outdoor activities, so that they can minimise the risk of heat stress and heat-related illnesses.

What we did:

1. Technical Media Briefing
2. Media release
3. Infographic
4. Anticipated media Q&As
5. Launch event at MSS' Central Forecast Office with Minister of Sustainability and Environment (MSE) Ms Grace Fu.

Managing Heat Stress

Heat stress occurs when our body is not able to cool itself sufficiently, and excess heat builds up, which may cause damage to the body. Warmer or more humid weather could lead to an increased risk of heat stress and related illnesses, such as heat cramps, heat exhaustion and heat stroke.

Heat Stress Advisory for General Population for Prolonged Outdoor Activities		
LOW HEAT STRESS WBGT(°C) < 31	MODERATE HEAT STRESS 31 ≤ WBGT(°C) < 33	HIGH HEAT STRESS WBGT(°C) ≥ 33
Activity: • Continue normal activities	Activity: • Reduce outdoor activities • Take regular breaks (indoors/under shade)	Activity: • Minimise outdoor activities; stay under shade where possible • Take more frequent and/or longer breaks (indoors/under shade)
Action: • Hydrate normally	Action: • Drink more fluids • Monitor body for signs and symptoms of heat-related illness	Action: • Drink more fluids • Monitor body for signs and symptoms of heat-related illness • Cool actively during breaks (e.g. sponging, pouring water over arms and legs)
Attire: • Wear normal attire	Attire: • Avoid multiple layers of clothing • Use an umbrella or wear a hat	Attire: • Avoid multiple layers of clothing • Use an umbrella or wear a hat • Wear lightweight and light-coloured clothing with thin and absorbent material

The Wet Bulb Globe Temperature (WBGT) provides an indication of heat stress by taking into account the combined effects of:

- Air temperature
- Humidity
- Wind speed
- Solar radiation

Effects Of Heat Stress Depends On The Individual

Personal factors such as our general health, level of activity and attire may also affect our risk level of heat stress. Hence, people more vulnerable to heat stress should exercise greater caution:

- Elderly
- Children and infants
- People who are ill, have recently recovered, or have chronic conditions
- Pregnant women
- People who recently travelled from cooler climates

This advisory is to help the general public plan their prolonged, outdoor activities. Those who are engaged in specific activities should refer to the respective sectoral guidelines. For example, outdoor workers should refer to guidelines from the Ministry of Manpower, and students should follow the guidance of their schools. These guidelines do not apply to the SAF and the Home Team, as they adopt a comprehensive set of heat injury prevention measures that factor in the heat acclimatisation level of servicemen, intensity of training activity, and on-site medical support during the conduct of training.

For updates, download the myENV app

Heat stress information is available at www.weather.gov.sg

Connect with us on www.nea.gov.sg

July 2023

National Environment Agency
Safeguard - Nurture - Clarify

Heat Stress Advisory

Media Coverage:

- Garnered widespread media coverage among all local media outlets. These included 2 live radio interviews with MSS’ experts.

சிங்கப்பூரில் இன்று அறிமுகமான வெப்பப் பாதிப்பு ஆலோசனை

சென்னை: 17 சூன் 2024



புட்டி, ஸ்கிரீன்

சிங்கப்பூரில் இன்று வெப்பப் பாதிப்பு ஆலோசனை அறிமுகமாகியது.

வெப்பப் பாதிப்பு (Heat Stress Level)	அறிமுகமான ஆலோசனை
தாழ்வு (Low)	• அதிகப்படியான தண்ணீர் குடிப்பது • வெப்பமான இடங்களைத் தவிர்க்குதல் • உடையில் மாற்றம்
நடுநிலை (Moderate)	• அதிகப்படியான தண்ணீர் குடிப்பது • வெப்பமான இடங்களைத் தவிர்க்குதல் • உடையில் மாற்றம் • உடையில் மாற்றம்
உயர்வு (High)	• அதிகப்படியான தண்ணீர் குடிப்பது • வெப்பமான இடங்களைத் தவிர்க்குதல் • உடையில் மாற்றம் • உடையில் மாற்றம் • உடையில் மாற்றம்

சென்னை: 17 சூன் 2024



更好规划户外活动 防暑指示助公众降低热损伤风险

林慧敏 报道

huanan@phs.com.sg

本地白天平均有43分钟时间的暑热压力指数为3级或以上。在这样的环境下，长时间进行户外活动，中暑风险较高。为保护人们免受高温天气，我国相关部门推出防暑指示，民众应更好规划户外活动，并采取防护措施，避免热损伤。

受气候变化影响，许多国家面临一种新挑战：极端天气日益严重。2013年至2022年，全球有记录以来最热的10年中，今年5月13日，突破纪录的3级或以上的高温天气。

为帮助公众应对高温天气，在热带地区，国家环境局制定高温天气的暑热指示（Heat Stress Advisory），列明如何规划户外天气预测活动，采取必要防护措施，以及接受适当的户外活动。

高温天气的暑热指示根据暑热压力指数（Heat Stress Index）的高低，分为三个等级：低、中度和高度。暑热压力指数是综合考虑气温、湿度、风速和太阳辐射等因素计算得出的综合指数。

暑热压力指数为3级或以上，则表示处于高温环境（Heat Stress）。本暑热指示旨在帮助公众了解，在户外长时间活动时，应采取哪些措施，以避免中暑风险，并可通过相关应用，查看这一指示。

本暑热指示与环保部长胡国海（17月13日）宣布的“热浪”（Heat Wave）本暑热指示一致，旨在帮助公众了解，在户外长时间活动时，应采取哪些措施，以避免中暑风险，并可通过相关应用，查看这一指示。



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The heat stress advisory comes as El Niño conditions, which are expected to bring warmer and drier weather, is expected to return. The heat stress level - indicated as low, moderate or high - is available on the myENV app and at weather.gov.sg. ST PHOTO: MARK CHONG

National heat stress advisory launched as world hots up

It offers a guide – with three colour-coded levels – for people engaging in prolonged outdoor activities

Joyce Teo
Senior Health Correspondent
and Sophie Lee Kien

Airport on Monday, Minister for Sustainability and the Environment Grace Fu said the advisory offers a guide to what people can do to protect themselves against the heat.

"If you are just walking from your home to the bus stop, it is probably not necessary to follow," she said. "If you are thinking about going out for a run or taking your family out for a picnic for some time, please check this information on myENV (app) before you

exhaustion or, in severe cases, heat stroke, which can be fatal, the agency said. Extreme heat can also affect people in other ways, as well as lead to long-term health issues.

Environmental heat stress is not one factor that can affect how hot a person can get. Two other key factors are one's attire and the activity that is being undertaken, said Associate Professor Jason Lee, director of the Heat Resilience and Performance Centre at the National University of Singapore. Yang Loo, Li School of Medicine. "So, if a person does not change his attire and activity and the heat stress level increases, his health risk will increase."

meant for the public as there are already separate guidelines for athletes, outdoor workers, students and Singapore Armed Forces personnel.

NEA and the Ministry of Sustainability and the Environment developed the heat stress advisory, in consultation with the Ministry of Health's (MOH) heat stress guidelines expert panel. Scientists around the world have sounded the alarm on the extreme heat that El Niño, together with global warming, will bring. The World Meteorological Organization has said that there is a 98 per cent likelihood that at least one of the next five years, and the



'Rakyat S'pura perlu dilengkapi maklumat tangani risiko tekanan haba'

Planning a workout outdoors? New service offers advisory to minimise risk of heat stress

The advisory is based on the Wet Bulb Globe Temperature, a widely-used indicator that reflects factors contributing to heat stress, such as air temperature and humidity.



A group of people walking near the Singapore River (ST Photo)

SINGAPORE: As Singapore continues to bask under scorching weather, authorities on Monday (Jul 24) launched a new service that will help people gauge the risks related to heat while carrying out outdoor activities.

There are three levels of risk of heat stress in the Heat Stress Advisory - low, moderate and high.

They are based on the Wet Bulb Globe Temperature, an internationally recognised indicator that reflects the main environmental factors contributing to heat stress, such as air temperature, humidity, wind speed and solar radiation, said the Ministry of Sustainability and the Environment (MSE) and the National Environment Agency (NEA) in a joint press release.

The advisory was developed in consultation with the Ministry of Health's heat stress guidelines expert panel.

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Annual Climate Assessment Report (ACAR)

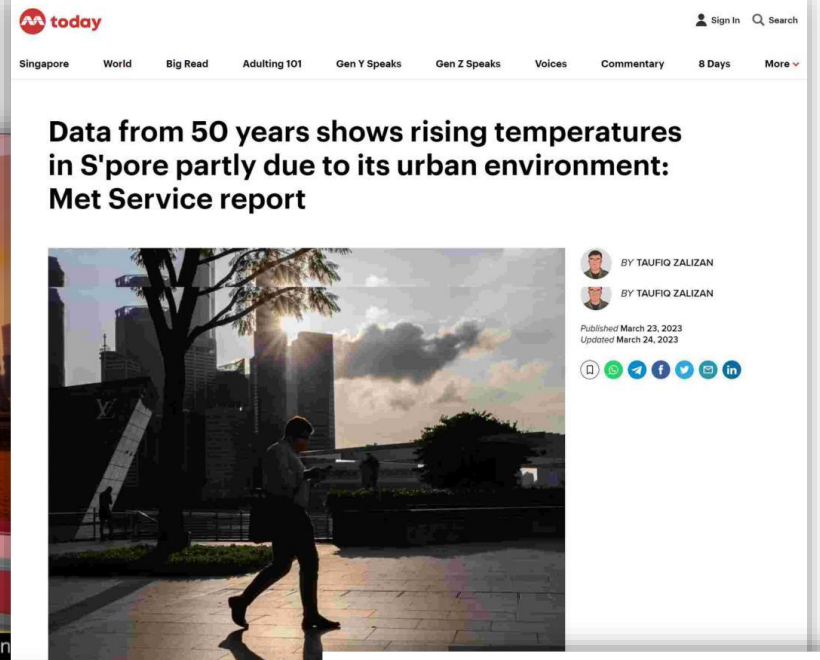
What it is:

A comprehensive report of the climatic features and notable weather events that Singapore experienced over the past year.

What we did:

- Shared key points of the report in an **'Editor's Note'** along with a copy of the report to media.
- **Pitched media interviews** with our spokespersons to mainstream media to interest them in covering the report.

Media Coverage:



Tahun 2022 paling basah bagi SG meski suhu meningkat



SINGAPURA: Dengan jumlah hujan yang turun lebih tinggi daripada purata bagi kebanyakan bulan, tahun 2022 merupakan tahun paling basah bagi Singapura yang turut menyaksikan paras suhu mencecah rekod baru dalam beberapa kategori.

Dalam laporan penilaian iklim tahunannya yang dikeluarkan pada Khamis (23 Mac), Perkhidmatan Meteorologi Singapura (Perkhidmatan Met) menyatakan bahawa purata tahunan hujan bagi 2022 adalah hampir 18.8 peratus melebihi purata jangka panjang - ditakrifkan sebagai tempoh 30 tahun antara 1991 dan 2020.

The urban heat island effect* is contributing to warmer temperatures in the city, with the mercury more than greener areas, a report found.

Follow us on Instagram and TikTok, and join our

- Temperature records spanning 50 years suggest that the urban heat island effect is one factor contributing to a trend of warming in Singapore.
- A report by the Meteorological Service Singapore shows that temperatures at relatively built-up Changi with the theory.
- A climate expert told TODAY that such data is consistent with a phenomenon called urban heat island effect.
- MSS' report also showed that the 10-year period from 2013 to 2022 was the warmest on record.
- 2022 was also among the wettest years since 1980.

Weather extremes in 2022



SIXTH WETTEST YEAR SINCE 1980

October was the year's wettest month, with total rainfall of 412mm - about twice the month's long-term average.

This exceeded the previous high of 389.3mm in 2011, making October 2022 the wettest October in the last four decades.

The highest daily total rainfall for the month was 138.1mm, recorded at Pasir Panjang.

Fortnightly Weather Outlook (FWO)

What it is:

Weather forecast for the fortnight is disseminated to media in an advisory every two weeks. The advisory will also provide a review of the recent weather.

What we do:

- Further publicise the weather outlook on our social media platforms.
- Present the fortnightly weather outlook as a video, to make it more interesting and to reach a wider audience.



National Environment Agency (NEA) January 16

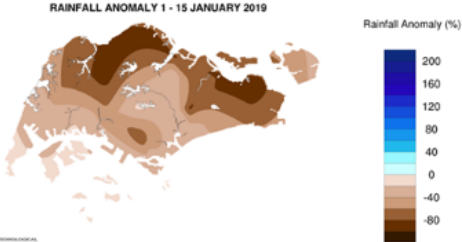
#SGWeather Fortnightly Weather Outlook: Occasionally windy with some warm days in the next fortnight and short-duration thundery showers on 4-6 days. Expect periods of showers, heavy at times on 1-2 days in 1st week, and passing showers on a few days in 2nd week.

...ore on <https://bit.ly/2MeYEzI>



NEA @NEAsg

#SGWeather Fortnightly Weather Outlook: Thundery showers expected in the 1st week of July, with gusty winds on a few days. Warm weather with afternoon thundery showers in the latter half of fortnight. Daily temp on most days between 24°C and 33°C.



RAINFALL ANOMALY 1 - 15 JANUARY 2019

Rainfall Anomaly (%)

200
160
120
80
40
0
-40
-80



Heat is on •
No respite from sweltering temperatures for next two weeks | A19

Drier weather for rest of July, with several warm nights

Ian Cheng
Correspondent

Expect weather that is drier than

average rainfall in the second half of July 2023," said MSS.
"For the month of July, the total rainfall is expected to be near average over most parts of the island."
Warm conditions are expected on most days in the next two weeks, with daily maximum temperatures ranging between 32 and 34 deg C, reaching a high of around 35 deg C on one or two days.
"Several nights may also be warm, particularly when the prevailing winds blow from the south-east or south, and bring warm and humid air from the sea," added MSS. "Night-time temperatures of around 28 deg C can be expected on these nights, particularly over the south-eastern parts of the is-

It's wet, wet, wet as monsoon surge pelts S'pore

Chin Hui Shan

Bring along your umbrella when you head out as the rainy weather is expected to stay.
The National Environment Agency (NEA) said on Facebook that periods of showers, heavy at times, were expected to continue over Singapore on Saturday because of another monsoon surge.
In some places, the daily tem-



Rainy weather set to stay for rest of December

Singapore records wettest October in 40 years

Some 412mm of rain was recorded last month, exceeding the previous October record of 389.3mm in 2011. The wet weather is set to continue into the first two weeks of November. ST PHOTO LIM YONGHAI



Following Singapore's wettest October in 40 years, the rainy spell is set to continue into the first two weeks of November, with thundery showers expected on most days.
Some 412mm of rain was recorded last month, exceeding the previous October record of 389.3mm in 2011, the Meteorological Service Singapore (MSS) said in its bi-monthly report on Tuesday. Based on the rainfall averaged across the island-wide stations with long-term records since 1861, October 2022 is the wettest October in four decades. A total of 27 rainy days were recorded at the Changi climate station, surpassing the previous record of 21 days observed in 1985 and 2003.
The weatherman said that over the course of this week, Singapore will experience some wet and windy mornings due to Sumatra squalls developing from the Strait of Malacca. In the second week of November, afternoon thundery showers can be expected on most days, and extending into the evening on a few days.
The report said that across the fortnight, the daily temperature

on most days is forecast to range between 24 deg C and 33 deg C, with the total rainfall set to be above average over most parts of the island.
The MSS said that in the last two weeks of October, Singapore and the surrounding region experienced inter-monsoon conditions. Tropical storms over the South China Sea and western Pacific Ocean resulted in the large-scale convergence of winds over Singapore in October.
The highest rainfall recorded last month was on the morning of Oct 5 at Pasir Panjang, when the daily total rainfall was 138.1mm. The lowest temperature recorded was on Oct 12 at Jurong Island, when the mercury fell to 23.9 deg C. There were 23 days in October when the daily minimum temperature was 24 deg C or below.

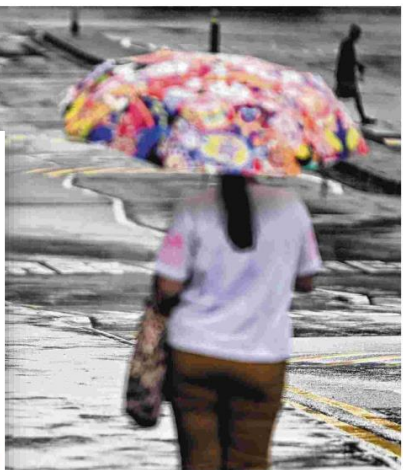
Weather

SINGAPORE

23/32°C

THUNDERY SHOWERS





ist monsoon is expected to continue into January. ST PHOTO: CHONG JUN LIANG

Hazards Monitoring: Risk & Impact Assessments of Hazards

What it is:

Provision of warnings and advisories of hazards in the Asia Pacific region, including seismic activity, tsunami threats, tremors, volcanic eruptions and haze.

What we do:

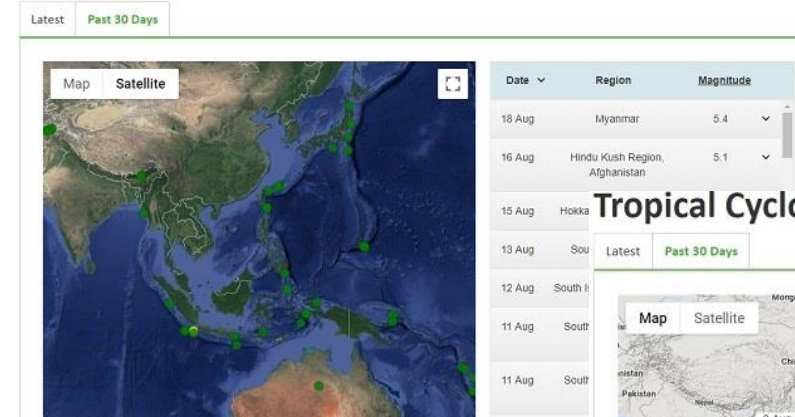
Geophysical Hazards

- **MSS' weather portal** is updated with information of hazards occurring around the region

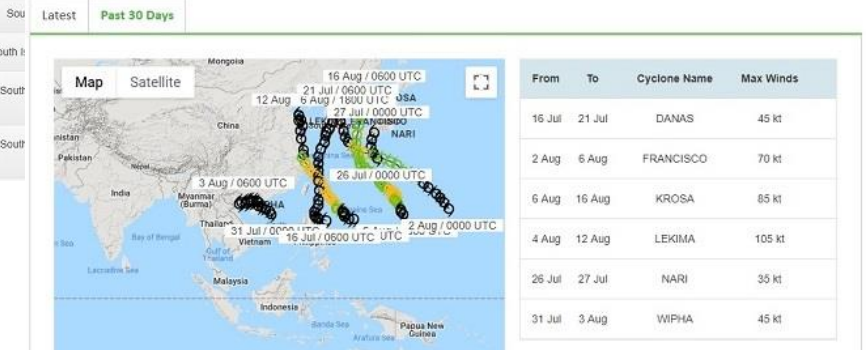
Haze

- **Daily media advisories and social media posts** to update on the haze situation in Indonesia and provide risk assessment if it would affect Singapore
- **Haze website** is regularly updated with the latest haze advisory and hotspot count

Regional Earthquake/Tsunami



Tropical Cyclone Information



MEDIA ADVISORY FOR IMMEDIATE RELEASE

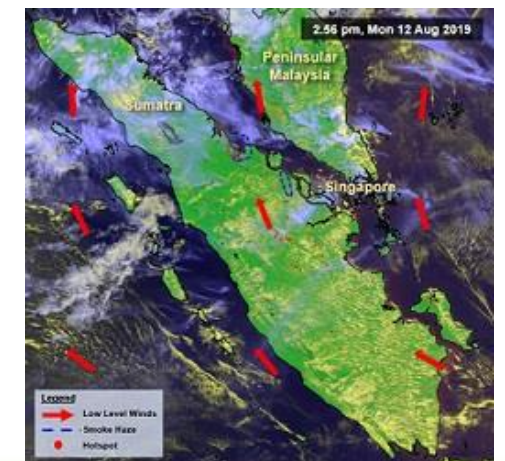
HAZE SITUATION UPDATE (12 AUGUST 2019)

Air Quality

The 1-hr PM_{2.5} concentration readings over the next 24 hours are expected to be in Band I (Normal). Overall, the PSI for the next 24 hours is forecast to be in the Moderate range.

Health Advisory

Given the air quality forecast for the next 24 hours, everyone can continue with normal activities. Persons who are not feeling well, especially the elderly and children, and those with chronic heart or lung conditions, should seek medical attention.



ASEAN Specialised Meteorological Centre (ASMC)

What it is:

- The ASEAN Specialised Meteorological Centre (ASMC) was established in January 1993 as a regional collaboration programme among the National Meteorological Services of ASEAN Member States. ASMC is hosted under MSS.

What we do:

- The main roles of ASMC are to undertake weather and climate research of relevance to the Southeast Asia region, and to monitor and assess land/forest fires as well as the occurrence of transboundary smoke haze affecting any country in the region;
- Through its website and communication with ASEAN Member States and the ASEAN Secretariat (as the Interim ASEAN Coordinating Centre for Transboundary Haze Pollution), ASMC provides regular updates on the regional weather and haze situation and outlook, satellite images, hotspot information, air quality information, etc.

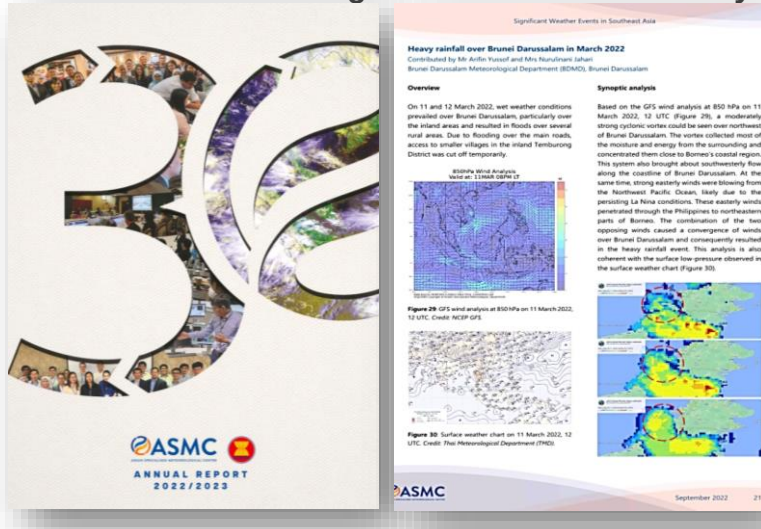
ASMC Publications and Communications

ASMC Bulletin (Sep)

- Articles on key weather events affecting the region, contributed by ASEAN member states
- Review and Outlook of Regional Climate and Haze

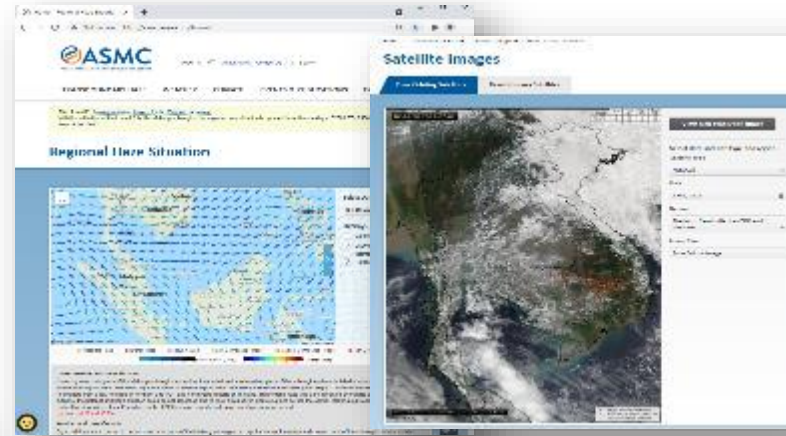
ASMC Annual Report (Mar)

- Key activities in the year
- Infographics/summary of products and services
- Status of the large-scale climate variability



ASMC Website

<http://asmc.asean.org>



Media Releases

MALAYSIA
Asean Specialised Meteorological Centre: Dry conditions developing across SE Asian region, including Malaysia

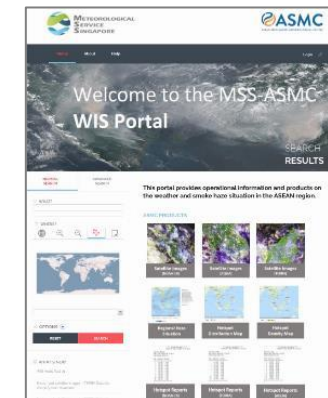


Fire hot spots, haze could occur this dry season in parts of Asean even as near-to-average rainfall expected



WMO Information System (WIS) data portal <http://wis.asmc.asean.org>

WMO Vegetation Fire and Smoke Pollution Warning Advisory System Website
<http://mss-int.sg/vfsp-was>



Social Media: Linkedin

Centre for Climate Research Singapore:

- With 1.1k followers
- We share CCRS' latest news, such as its services, activities and products.



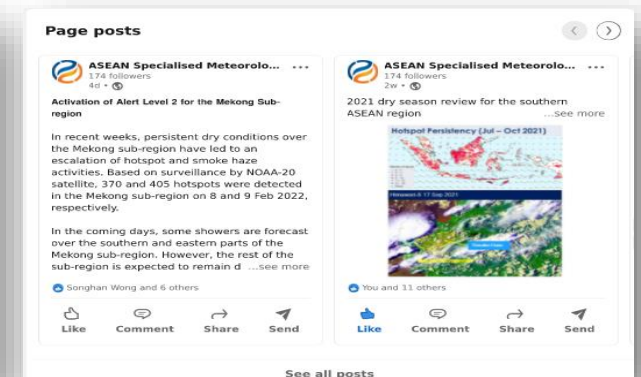
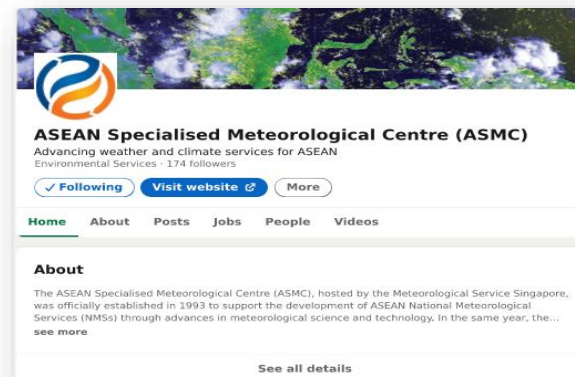
Top Linkedin post:
1.8k reached,
872 interactions
 (includes 829 views,
 36 likes, 5 shares,
 2 comments)



ASEAN Specialised Meteorological Centre:

- With 300 followers
- We post on the latest regional events, publications and transboundary haze alerts

Top Linkedin post:
695 reached,
250 interactions
 (includes 230 views,
 17 likes, 2 shares,
 2 comments)



Social Media: #WeatherWednesday

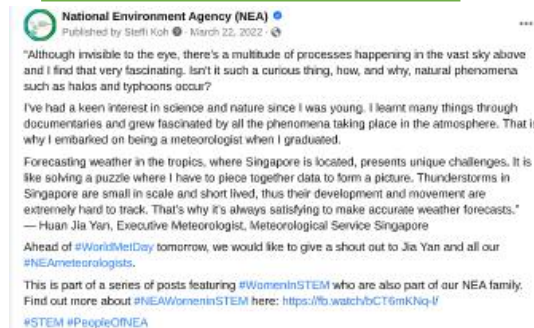
Comms Tactics:
Social media posts on Facebook, Instagram & Twitter.

NEA dedicates Wednesdays to interesting weather events or sightings on its social media pages, using a dedicated hashtag: #WeatherWednesday.

Outcome:

- Our #WeatherWednesday social media posts generally receive a good number of 'likes' from our followers.

Top Facebook post:
14k reached,
1k engagements
(includes 629 likes,
6 shares,
9 comments)



Top Instagram post:
14k reached,
1.4k interactions
(includes 1.4k likes,
31 saves, 3 shares,
3 comments)



Top Tweet:
20k impressions,
200 engagements



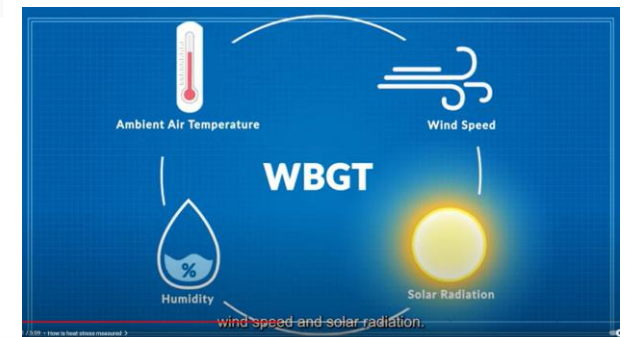
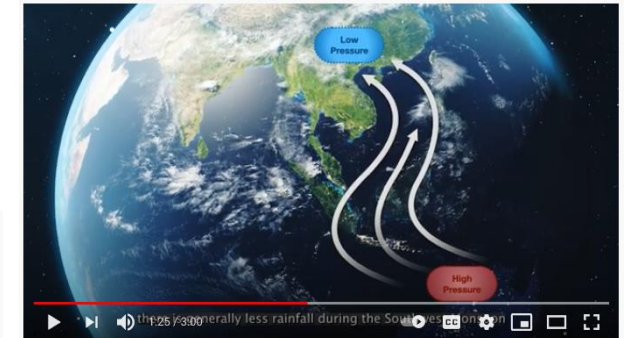
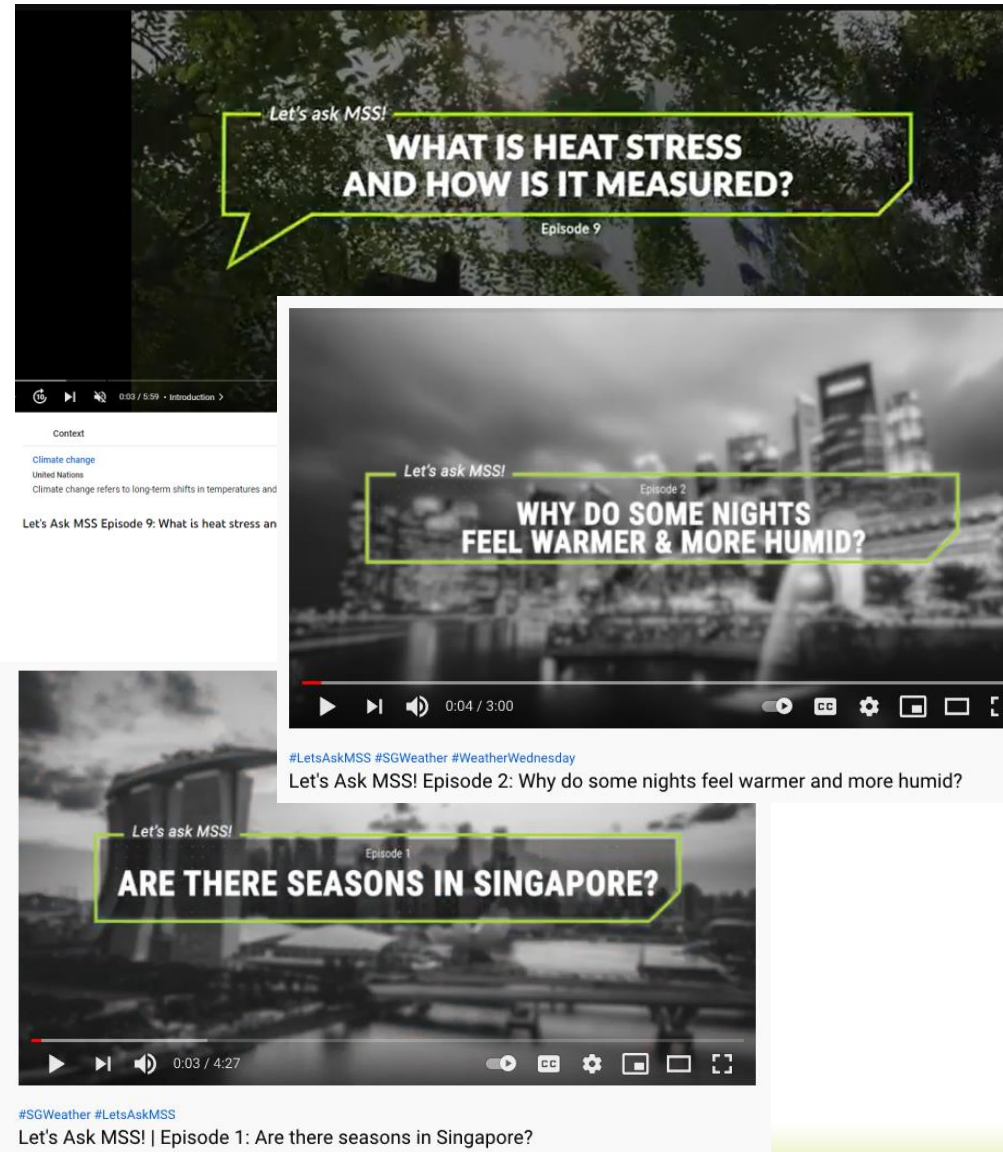
“Let’s Ask MSS” video series

What it is:

“Let’s Ask MSS” video series on MSS’ website, MSS’ & NEA’s Facebook, YouTube and LinkedIn.

What we do:

We recently launched a new video series to educate the public on MSS related topics such as rain, haze, seasonal weather, humidity etc. In the videos, we also address commonly asked questions.



3 Strategies to Sustain Communications

Communications Strategies for Meteorological Service Singapore

1. Leveraging opportunistic media pitches
2. Adding value to media stories from queries
3. Building an arsenal of narratives

Communications Strategies for Meteorological Service Singapore

1. Leveraging Opportunistic Media Pitches

- To continue to push out stories based on current trending topics in the media sphere.
- Our proactive opportunistic media pitches and social media posts have been well received and covered by media.

Past examples of media pitches covered by media include:

- a) Live interview with MSS' Deputy Principal Research Scientist, Dr Thea Turkington on the Annual Climate Assessment Report. (23 March)
- a) Live interview with MSS' Senior Research Scientist, Dr Muhammad Eeqmal Hassim on The Year in Review Report. (28 January)
- a) Feature on MSS' Executive Meteorologist, Tham Shu Jing, on the role of a meteorologist (2 January)



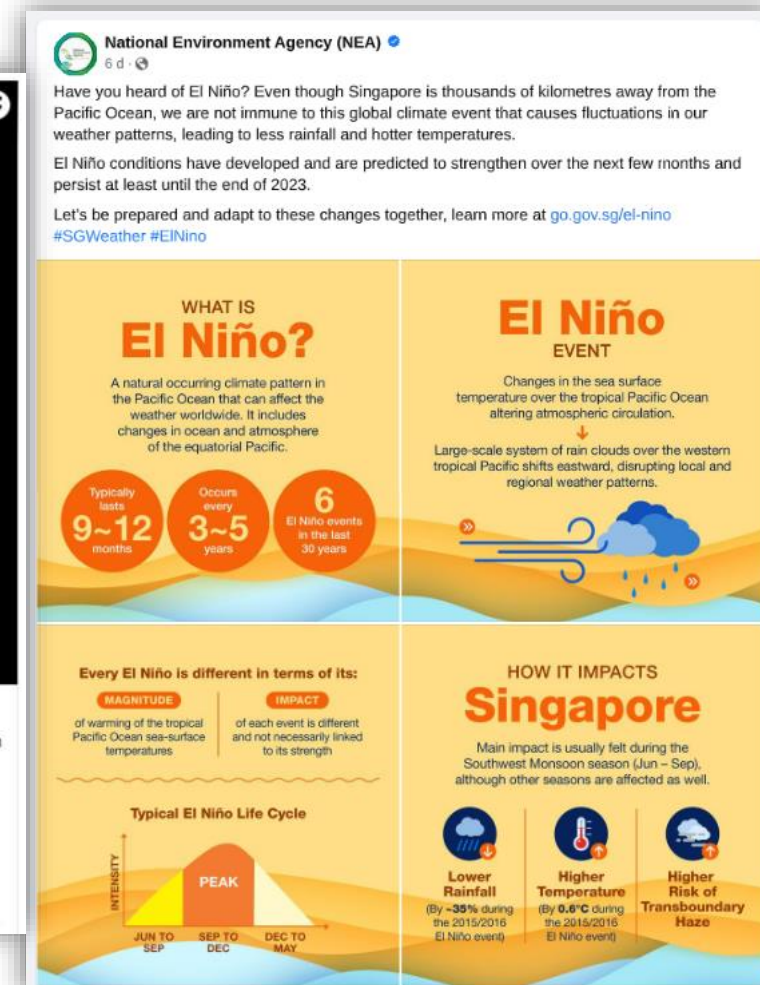
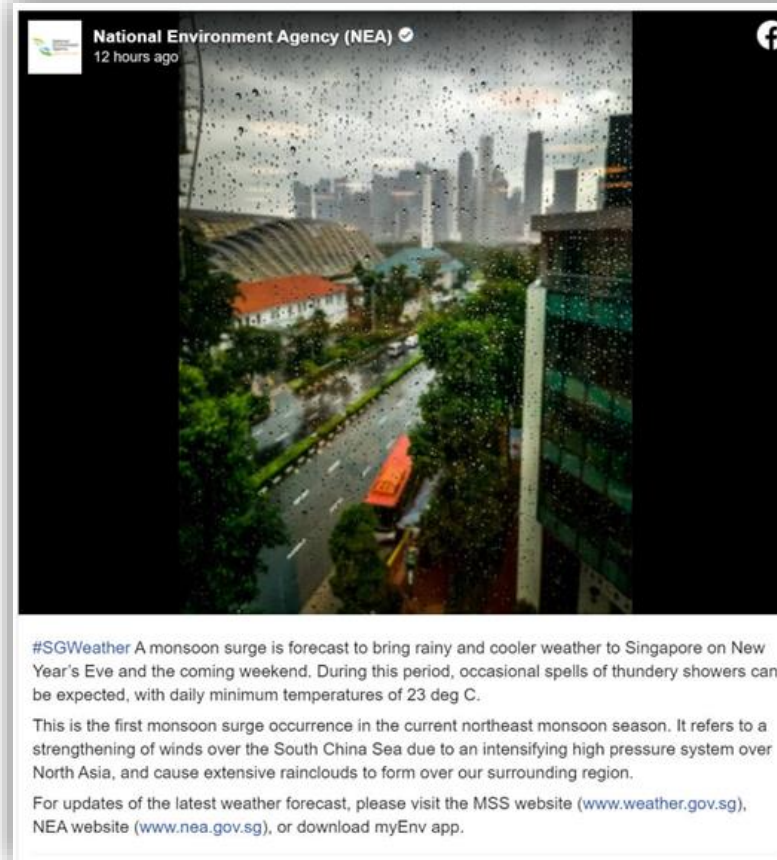
Communications Strategies for Meteorological Service Singapore

1. Leveraging Opportunistic Media Pitches

Instances where we anticipated an influx of media queries and produced social media posts for media to report off of. By doing so, we reduced the number of similar queries we had to process.

Past examples include:

- a) Update on El Nino forecast in Aug 2023
 - Created an educational post on El Nino and shared the forecast on our social media platforms with a link to our weather website for more details.
- b) Northeast monsoon surge in Jan 2022
 - Planned timely Facebook posts on the weather forecast
 - Shared the daily rainfall data in a Facebook post for media to report off of



Communications Strategies for Meteorological Service Singapore

2. Adding Value to Media Stories from Queries

- Redirect media to report information off of our readily available platforms to reduce clearing similar, statistic-type queries.
- Another example where we added value to a media story is this print article on storm chasing photographers in Singapore (28 April).



Spectacle in Singapore's skies

Mr Paul Lee, 44, co-founder of interest group SGStormTrackers, captured this shot of lightning striking close to Marina Bay in 2022. He is among a group of lightning chasers who track a storm to get that perfect photograph of lightning bolts across the skies. Whether rain or shine, there is lightning 175 days a year in Singapore. About 50 per cent of this activity occurs in April, May, October and November - months that fall between the two major monsoon seasons. PHOTO: COURTESY OF PAUL LEE

SEE THE BIG STORY • A3

Lightning chasers look to the skies for that perfect shot

Singapore's current inter-monsoon season is boom time, with higher lightning activity

Gabrielle Chan

Whether rain or shine, there is lightning streaking across Singapore's skies 175 days a year, or about half the number of days every year. Three avid photographers, who are part of an interest group called SGStormTrackers, have been carrying their cameras and chasing the perfect shot of lightning bolts across the skies.

One of them, Mr Wong Liang Piew, 47, said he started chasing lightning when he got his hands on the first camera that allowed photographers to capture lightning easily at night.

Mr Wong, who has been on a quest to capture lightning shots since 2004, said: "I love chasing lightning because the intensity of nature is frozen in a moment which our eyes cannot visualise."

SGStormTrackers members can count themselves lucky that they are in Singapore, which can stake a claim to being one of the lightning capitals of the world.

Mr Paul Lee, 44, and Mr James Gan, 54, together with Mr Wong, founded the group during the pandemic three years ago.

Now 120 members strong, the group usually meets every few months, said Mr Lee. "But lightning season has given us a reason to hang out with each other every weekend," he added.

Mr Lee said a big part of the fun he has chasing lightning comes from the planning and tracking of a storm.

He said: "On some special days

when the sky absolutely blows up, the scene is stunning beyond words. The sound, the huge flashes, the smell of the storm, the wind... it's unbelievable."

Novice shutterbugs keen to take photos of lightning can join their interest group, where experienced photographers can give them tips on the best conditions to shoot, such as location and wind direction, said Mr Gan, who uses two apps for storm chasing: Lightning Alarm and NEA's myENV mobile app.

myENV gives information about the movement of storm clouds over Singapore and the weather forecast, among other things.

In Singapore, about 50 per cent of a year's lightning days are in April, May, October and November - months that fall between the two major monsoon seasons.

The north-east monsoon blows from December to early March, and the south-west monsoon is from June to September.

The island gets warmer weather during inter-monsoon season, which, along with other conditions, results in more lightning activity, said the Meteorological Service Singapore (MSS), which falls under the National Environment Agency.

An MSS spokesman said that lightning strikes are produced by thunderstorm clouds, which occur when there is moisture in the air amid an unstable atmosphere.

Lightning can also strike even when there is no rain or thunderstorm clouds in the area. Although the bolts mostly strike within 6km of a thunderstorm cloud, lightning

strikes have been documented to occur more than 10km away, said the spokesman.

When people are outdoors and thunder is heard, they should seek shelter, he added.

He said: "People in open spaces as well as tall structures are more at risk of being struck by lightning. While outdoors and thunder is heard, seek shelter in a building or a car, and wait at least 30 minutes after the thunder is last heard before resuming outdoor activities."

Associate Professor Koh Tieh Yong from the Singapore University of Social Sciences said the reason for greater lightning activity outside a monsoon season is stronger solar radiation and light winds, making the atmosphere more conducive for the formation of thunderstorm clouds.

He said: "Strong solar radiation leads to higher surface temperatures, and hence the air is warmer and more buoyant."

He added that regional winds are light but often become more intense as well, due to the absence of monsoon systems.

Prof Koh, who is a weather and climate scientist, said the absence of such a large system gives way to smaller local weather systems such as land-sea breezes that spawn brief but strong local gusts.

With the predominance of smaller-scale weather systems such as thunderstorms during inter-monsoon season, energy within the system itself is more concentrated, he added.

"Up-and-down air movement is enhanced, causing stronger electrical charging as cloud droplets collide, resulting in more frequent lightning activity," he said.

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More showers forecast for next 2 weeks

Ang Qing

More showers will arrive in the next two weeks following the second driest February in the country since 1869, the Meteorological Service Singapore (MSS) said yesterday.

Temperatures, though, could still hit as high as 34 deg C on a few days.

On most days, the daily temperature will range between 24 deg C and 33 deg C.

"With the monsoon rain band forecast to lie closer to the equator in the coming fortnight, more showers can be expected compared to the second half of February," said MSS.

For the first few days of this month, generally fair and at times windy weather is forecast due to stable atmospheric conditions brought about by a mass of dry air over the South-east Asia region.

Dry and warm weather ahead

After two weeks of sustained showers and colder weather, Singapore will see more dry and warm weather in the coming weeks, said the weatherman last Friday.

The exceptionally wet weather in the first two weeks resulted in rainfall of 648.4mm, making it the second wettest January since rainfall records in Singapore began in

noons over the fortnight due to strong heating of land areas during the day.

Fair and occasionally windy conditions are forecast on some days.

While less rainfall is expected in the second half of the month than in the first, total rainfall for the month is forecast to be well above average.

More dry weather seen these two weeks but showers likely too

Ang Qing

Expect more dry and warm weather with some short thundery showers in the afternoon for the first two weeks of the month, said the weatherman yesterday.

In a statement, the Meteorological Service Singapore (MSS) said that temperatures are forecast to range between 24 deg C and 33 deg C on most days, with the mercury hitting 34 deg C on days with little or no rain.

Overall, total rainfall is expected to be below normal over most parts of the island in these two weeks.

The widespread rainy weather experienced in the first half of January was brought about by a surge of mass over the equatorial South-east Asia region. But windy conditions with passing showers can be expected on a few days as north-east winds strengthen over the

South China Sea.

In the following week, some short thundery showers in the afternoon into the evening are forecast because of strong solar heating of land areas, which creates a front that brings rain.

MSS said that last month was the second wettest January since rainfall records began in 1869. The highest recorded total rainfall for the month of January was 818.6mm in 1893.

The total rainfall recorded at Changi climate station for last month was 692.8mm, of which 648.6mm was recorded in the first two weeks. It beat the previous record in 1918 when the total rainfall was 634.5mm.

The widespread rainy weather experienced in the first half of January was brought about by a surge of mass over the equatorial South-east Asia region. But windy conditions with passing showers can be expected on a few days as north-east winds strengthen over the

stranded cars.

Flood warnings were triggered at five locations on New Year's Day. The wet weather was so persistent over the New Year week-end that national water agency PUB had to send its officers to help Singaporeans manage the flood risk from the rain. For example, officers helped residents in Mountbatten and Jalan Seaview to install inflatable flood bags to protect their homes.

It was exceptionally wet and cool in the first half of January. The lowest daily minimum temperature of 21.1 deg C was recorded at Newton on Jan 2.

In comparison, the second half of the month was generally warmer and drier, with short thundery showers over parts of the island in the afternoon on some days.

The monthly mean temperature of 26 deg C was also the lowest for January in the last 30 years.

aging@sph.com.sg

Communications Strategies for Meteorological Service Singapore

3. Building an Arsenal of Narratives

Issues at hand

- a) Meteorologists and Climate Research Scientists are experts in their own field, however, the range of questions asked by media usually span across different areas.
- b) Talking points prepared by different spokespersons for different opportunities can differ from previously prepared talking points.

Our Solution

We worked on a joint set of talking points which can be shared across both weather services and climate research departments. This ensures consistency in messaging across different media opportunities, and can be used as a reference document to help both teams prepare their talking points:

- This cleared set of talking points can be used at any time, for example, should media suddenly decide to ask about another topic at the interview.
- This will help spokespersons not get caught unaware and to be able to answer questions instead of deflecting.

4 Combating Fake News – Putting Your Message Across Effectively

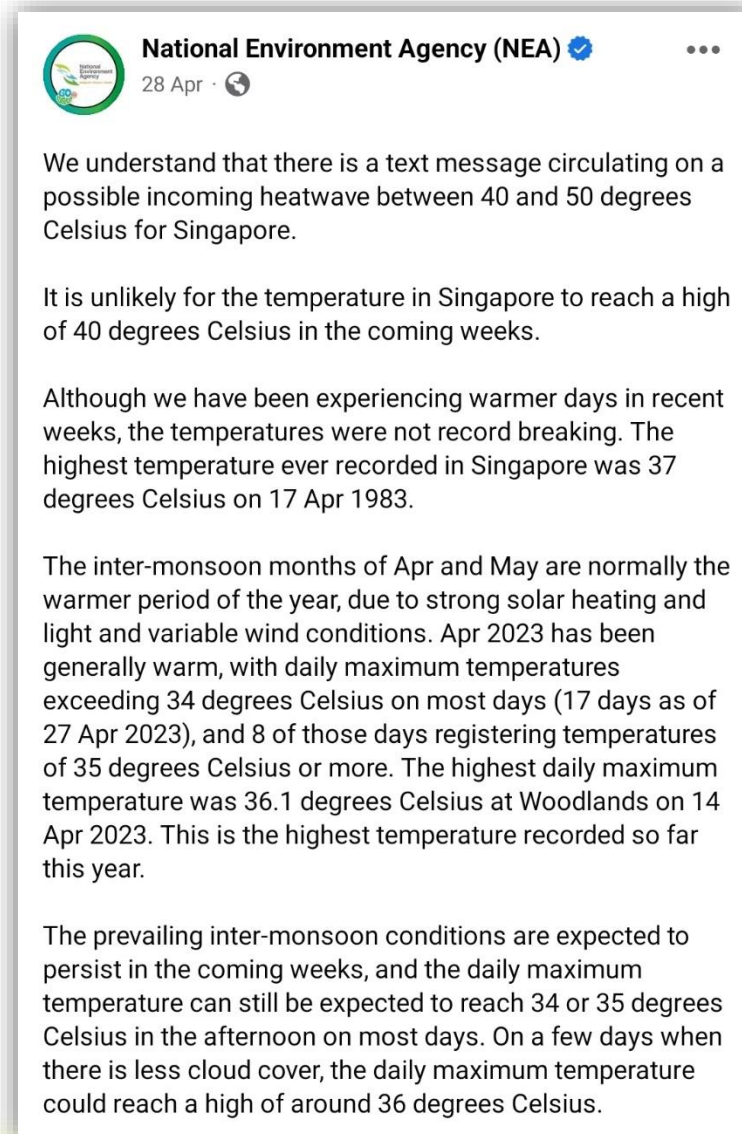
Social Media Post on Heatwave Danger Warning

The Fake News:

In April 2023, a “Heatwave Danger Warning” message circulated on WhatsApp informing Singaporeans to prepare for an incoming heatwave of 40-50 degrees Celsius.

What we did:

- A proactive post on our mobile messaging and social media channels to clarify that the statement was not true.
- By doing so, media did not have to reach out to us for a statement or to clarify if the text message was factual.



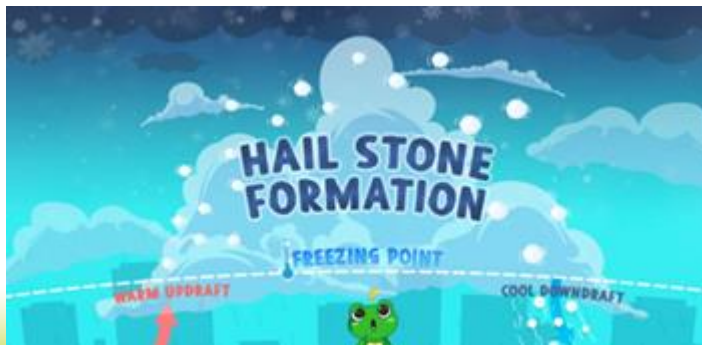
VOX Post on Hailstones caused by acid rain or cloud seeding

The Fake News:

Online speculation that hailstones observed over Singapore in 2013 was caused by acid rain or cloud seeding in Indonesia

What we did:

- We created a Vox page to clarify the formation of hailstones was not a result of cloud seeding.
- When necessary, we share the information from our Vox page across social media platforms to reach a wider audience.





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Do hailstones form as a result of acid rain or cloud seeding?

There has been some speculation that the hail (or "raining ice") observed over the western part of Singapore between 1pm and 4.30pm on 25 June 2013 could be caused by acid rain or cloud seeding in Indonesia. This is false.

Meteorological Service Singapore (MSS) had explained that hailstones are basically balls or lumps of ice that form within intense thunderstorm clouds, and they are different from acid rain, which is rain that contains higher than normal amounts of nitric and sulphuric acids.

In fact, hailstones are quite rare in the tropics because they usually melt as they fall from the clouds, before

gs of hailstones in Singapore occur every one to two years. More site at <http://www.nea.gov.sg/training-knowledge/weather->

Updated: 06/25/2013 17:23 | By Channel NewsAsia

From haze to hail

From haze to hail



Rain is neither toxic nor acidic, and not caused by cloud-seeding in Indonesia, says NEA

BY WOO SIAN BOON AND AMANDA LEE

5 HOURS 20 MIN AGO 25 JUN 2013

SINGAPORE – The rain that had fallen over parts of Singapore this afternoon (June 25) is neither toxic nor acidic, said the National Environment Agency (NEA).

It is also not due to cloud-seeding in Indonesia, said the NEA's meteorologist Patricia Ee in today's daily haze briefing. She said that rain clouds could not have crossed over from Indonesia as it is too far away.

After a dry spell lasting several days, rain fell in Singapore this afternoon, with reports of hailstones falling in western areas like Chua Chu Kang, Bukit Batok and Jurong East.

The promise of moderate to heavy thundery afternoon showers after a week of haze, brought another wee surprise - hail!

Many Channel NewsAsia users sent photos and even videos of the tiny ice pellets that rained down in various parts of Singapore, from Jurong to Bukit Batok, and Choa Chu Kang.

The National Environment Agency says the hail in Singapore was not caused by cloud-seeding in Indonesia, and the rain in other parts of the island is not toxic.

5 On the Climate Change Front – What MSS is Doing

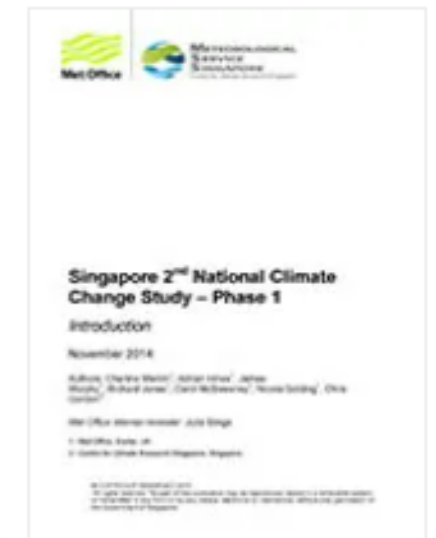
Singapore's Third National Climate Change Study

In 2015, Singapore's Second National Climate Change Study (V2) was published. Featuring the collaboration between scientists from MSS' Centre for Climate Research Singapore (CCRS) and the UK Met Office Hadley Centre, the study provided **an authoritative national perspective on future risks related to climate change, generating global climate model simulations, historical simulations, and future climate projections up to 2100** for Singapore and the surrounding region.

Since V2, significant advances in the science of global and local climate change projections have been made. CCRS will leverage these projections and the latest international scientific developments to deliver an update in the form of the Third National Climate Change Study (V3) in November 2023. V3 will which will provide the next generation of localised and high-resolution climate change projections until 2100 for Singapore.

Although V3 will only be out in end-November, we have already started planning the publicity for V3. Our publicity plan includes:

- Media Brainstorming Session
- Technical Media Briefing
- Launch Event + Public Briefing
- Media Materials (Press Release, FAQs, Infographics, Educational Videos, Social Media Posts).



Our Environment

Safeguard • Nurture • Cherish