

# OPTIMISING RESOURCES AT THE MUSEUMS TO CATER FOR CHANGES IN VISITOR ATTENDANCE DUE TO WEATHER CONDITIONS

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17 Feb 2023



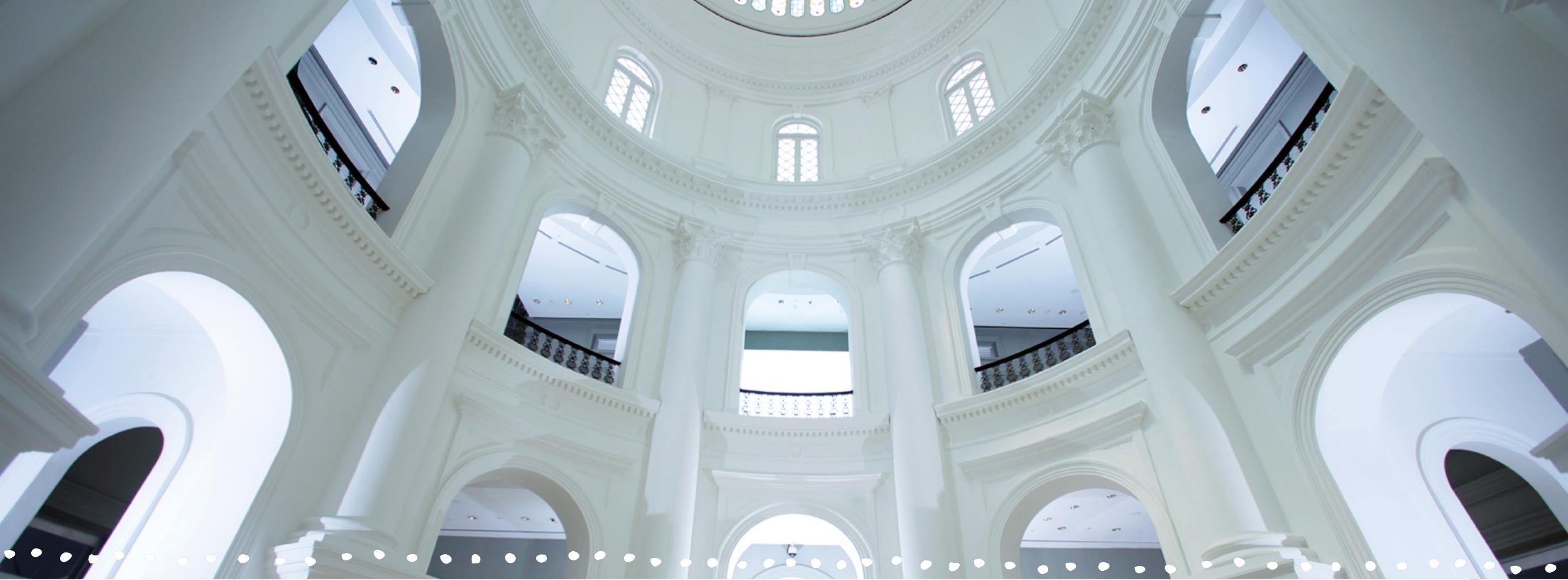
# AGENDA

Background

Key Findings

Recommendations

Other Considerations



# BACKGROUND

# PROBLEM STATEMENT

As attendance to places of interest is expected to be affected by weather conditions, we examined weather and attendance datasets to **identify periods of the year when the weather conditions would be associated with higher attendance**, to facilitate resource allocation.



30 Best Indoor Activities In Singapore

timeout.com/singapore/things-to-do/best-things-to-do-on-a-rainy-day-in-singapore

The best indoor things to do in Singapore on a rainy day

Rain or shine, the indoors are as fun as the great outdoors

Written by Cam Khalid, Cheryl Sekkappan & Izza Sofia Wednesday 7 December 2022

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Nothing better than a cold and rainy day in bed watching Netflix with a hot cup of tea in hand. Watching heartwarming movies while snuggling up in bed seems pretty ideal in the cool weather but what happens when cabin fever hits and you wish to do some activities but the rain is cramping your style? Here's a list of backup plans that you can enjoy while staying indoors in comfortable air-conditioning. They include indoor playgrounds, flower gardens, visiting museums and more. Scroll down for more great ideas to do in Singapore even when it's pouring outside.

RECOMMENDED: [101 best things to do in Singapore](#)



Photograph: William Cho

Get your culture fix at a museum

When it comes to museums in Singapore, there's more than meets the eye. With a broad spectrum of genres, spanning from state-of-the-art science, vintage memorabilia, cultural artifacts and historic treasures with interesting backstories, our museums feed curious minds.

10 Things to Do in Singapore When it Rains

What to Do on a Rainy Day in Singapore

littledayout.com/15-things-to-do-in-singapore-on-a-rainy-day/

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10 Things to Do in Singapore When it Rains

What to Do on a Rainy Day in Singapore

Sightseeing Singapore when it rains

theoccasionaltraveller.com/sightseeing-singapore-when-it-rains/

The Occasional Traveller

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SIGHTSEEING SINGAPORE WHEN IT RAINS: TIPS FROM A LOCAL

July 20, 2020 / Singapore / Leave a Comment

#1. Pop Into a Museum



Crystal Universe at ArtScience Museum

Singapore is home to plenty of museums and new exhibitions are always coming up throughout the year. One of the best ways to spend rainy days in Singapore is in a museum. We recommend larger museums such as National Museum of Singapore if you are interested in

5 Get a cultural fix at a museum



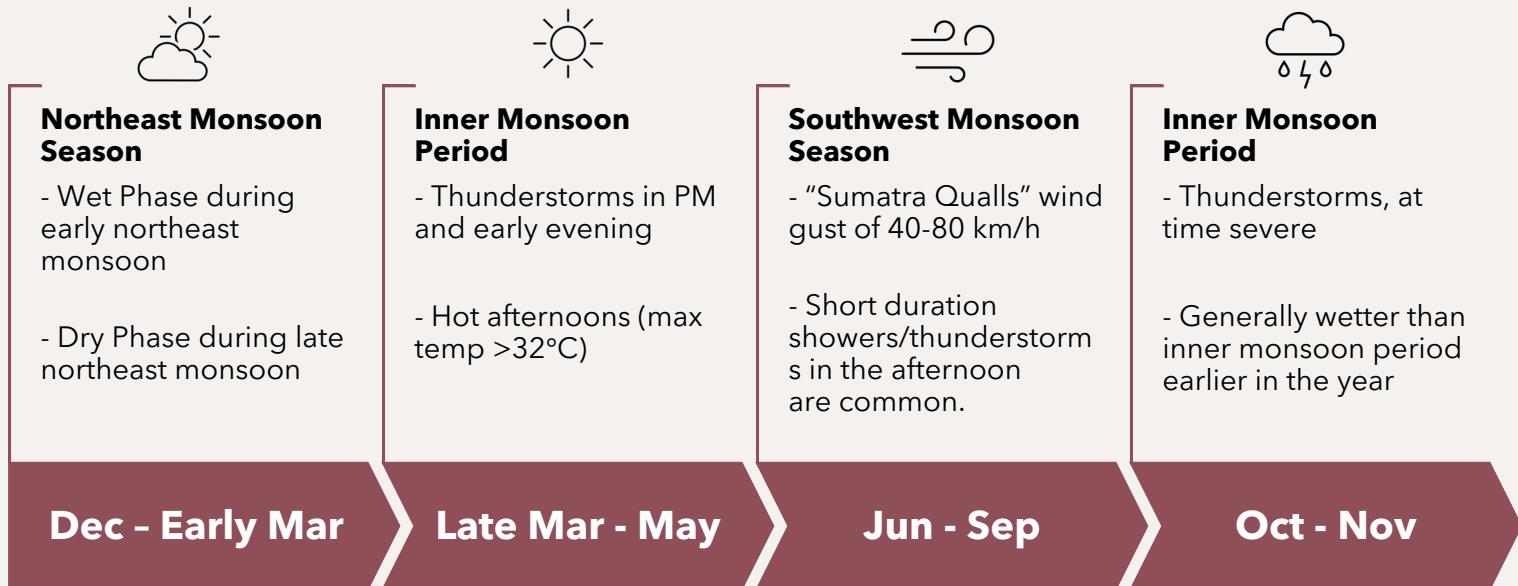
Singapore has a long list of superb museums that are all great for when the weather's fine (but even better for when it's raining). The 2 most popular are the Asian Civilisations Museum and the National Museum, which are both as comprehensive as the next and each cost around \$10 to get in. The former encompasses all corners of Asia, whilst the latter inevitably focuses more on

ARTSCIENCE MUSEUM

When it rains in Singapore, these are your best option to stay dry and learn about the local culture, and the ArtScience Museum is quite a popular one with both locals and tourists. The permanent exhibition Future World: Where Art Meets Science with its interactive digital art pieces by TeamLab is a favourite for the Instagram crowd and you've probably seen many of these pictures online already. In general the exhibitions at the ArtScience Museum tend to be more popular and accessible to the public, so it's a great way to entertain families as well.

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# BIG PICTURE



Indoor - Museums

**43,000**

Visitors per Month

Min: 0

Max: 195,000



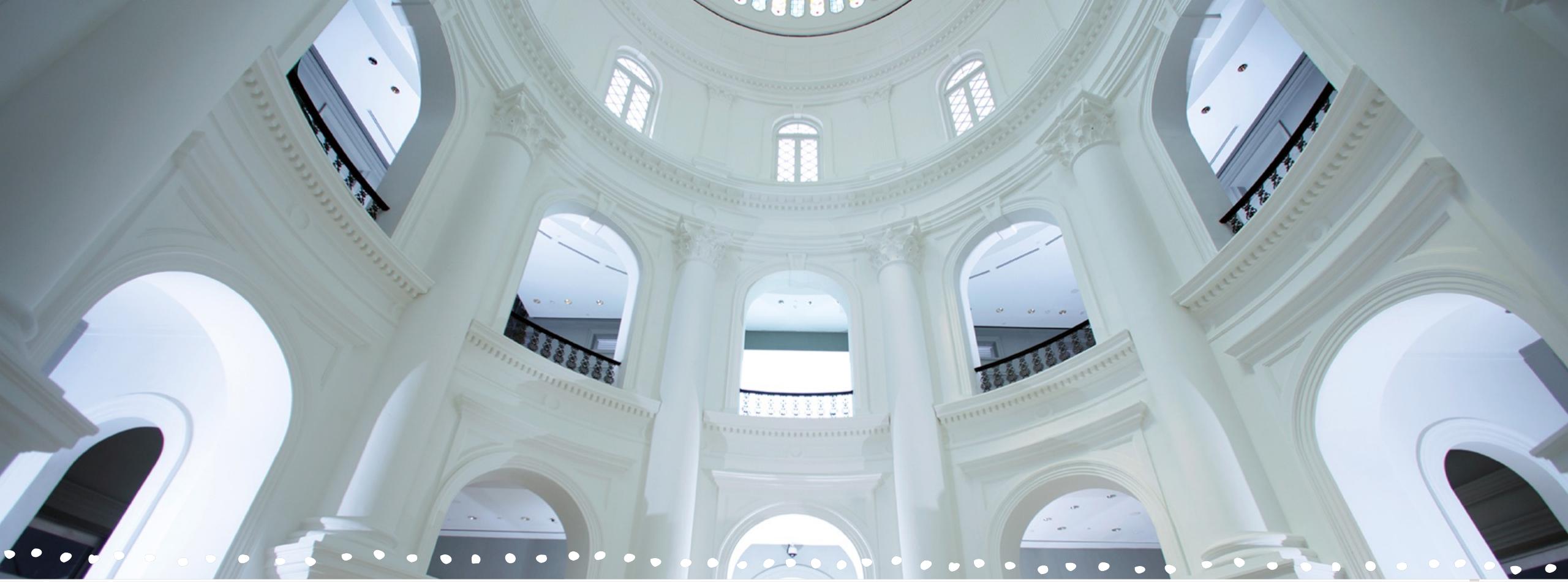
Outdoor - Zoo

**123,000**

Visitors per Month

Min: 0

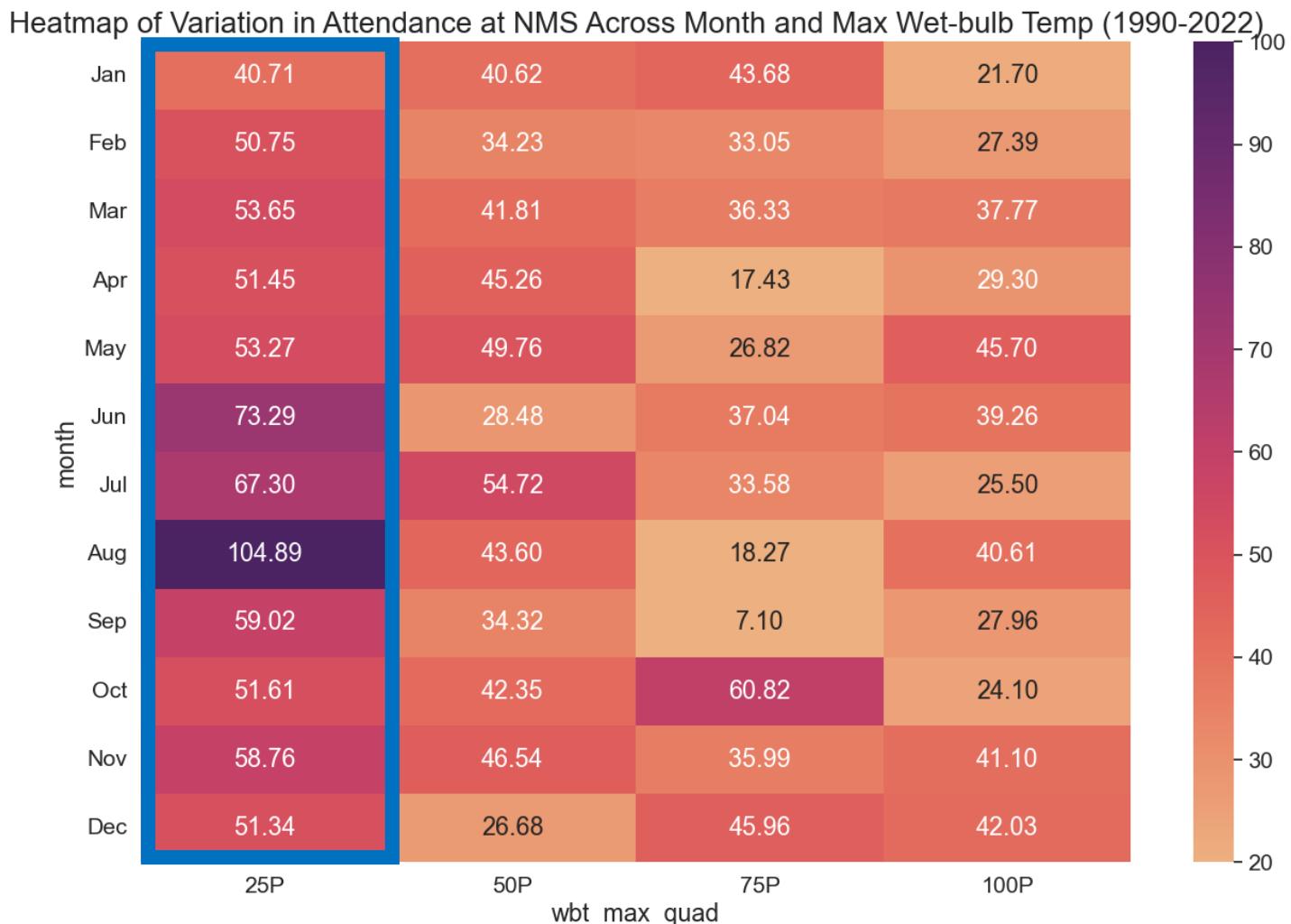
Max: 250,000



# KEY FINDINGS

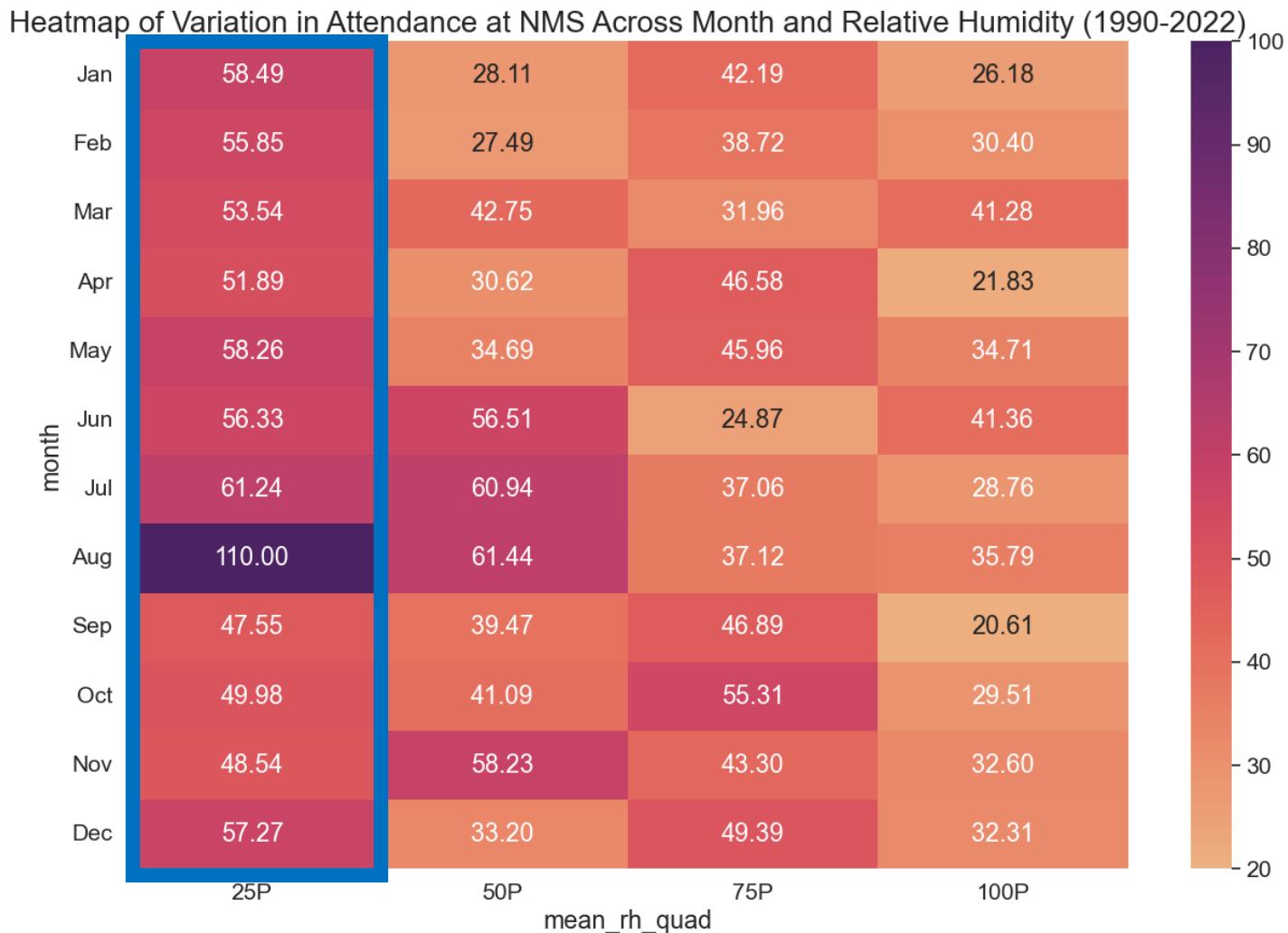
# LOWER WET-BULB TEMP, HIGHER MUSEUM ATTENDANCE

- Max wet-bulb temp in the lowest quartile (i.e. P25: 27.1°C) of historical temp generally correlated with higher attendance, especially in the months of Aug and Jun.



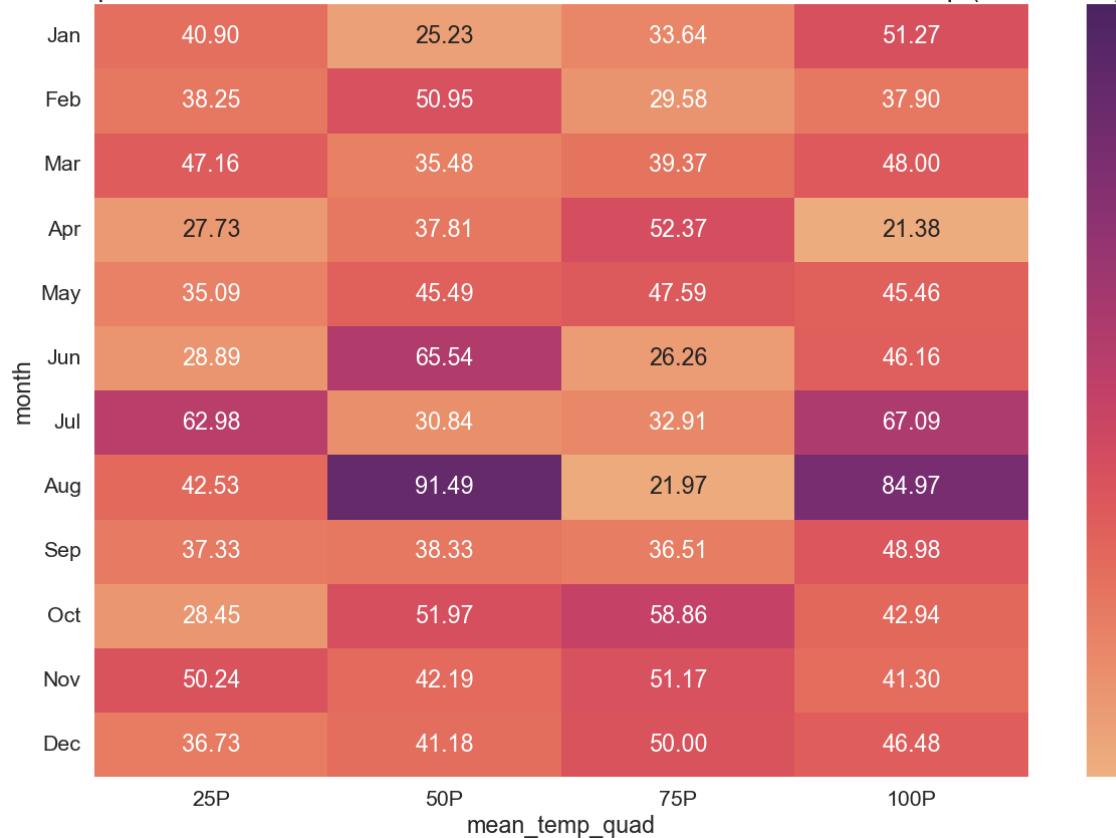
# LOWER RELATIVE HUMIDITY, HIGHER MUSEUM ATTENDANCE

- Mean relative humidity in the lowest quartile (i.e. P25: 79.7%) of historical relative humidity, generally correlated with higher attendance, especially in the month of Aug.



# NO CLEAR OBSERVATIONS FOR OTHER WEATHER ATTRIBUTES VIS-À-VIS MUSEUM ATTENDANCE

Heatmap of Variation in Attendance at NMS Across Month and Mean Air Temp (1990-2022)

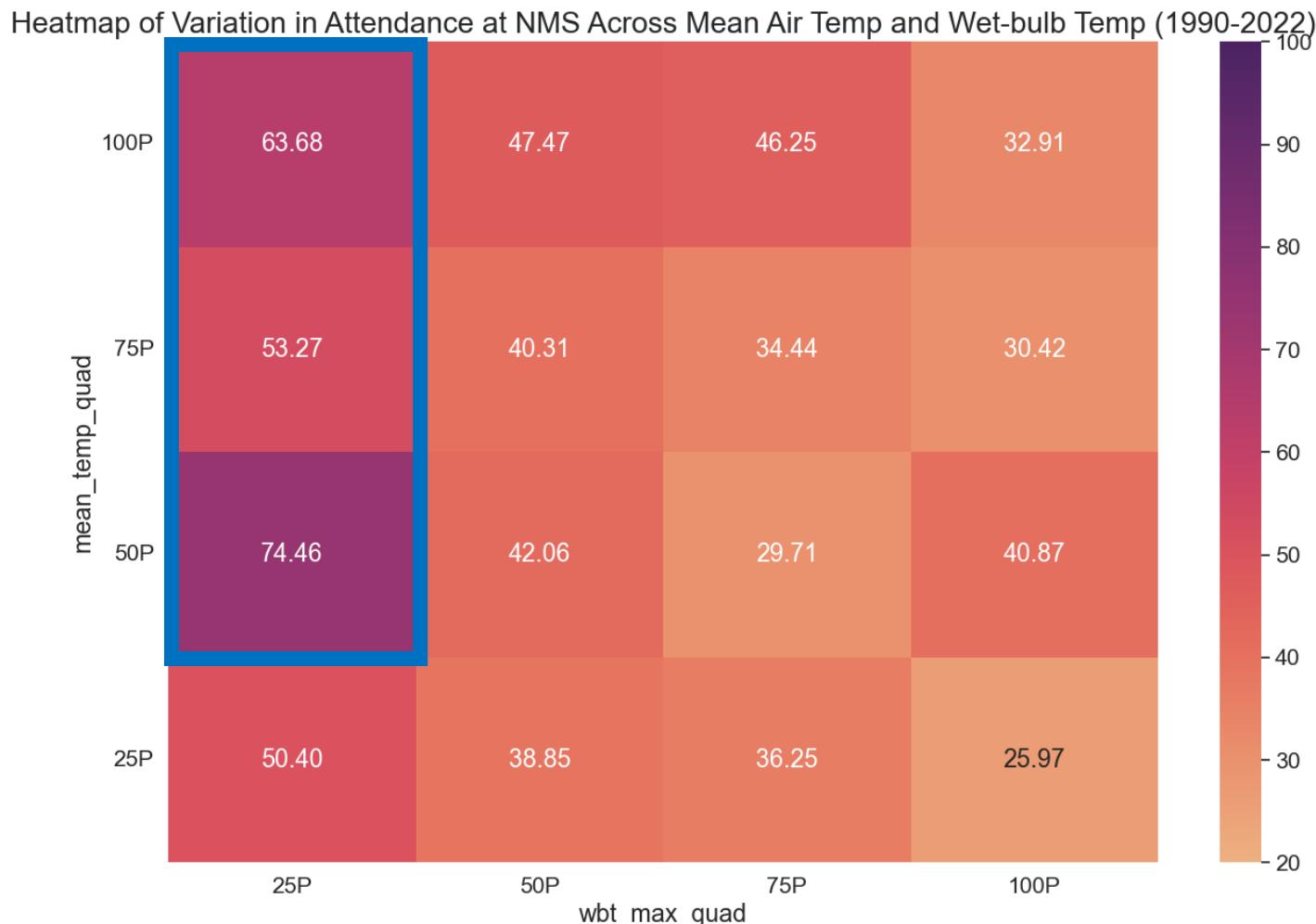


Heatmap of Variation in Attendance at NMS Across Month and Total Rainfall (1990-2022)



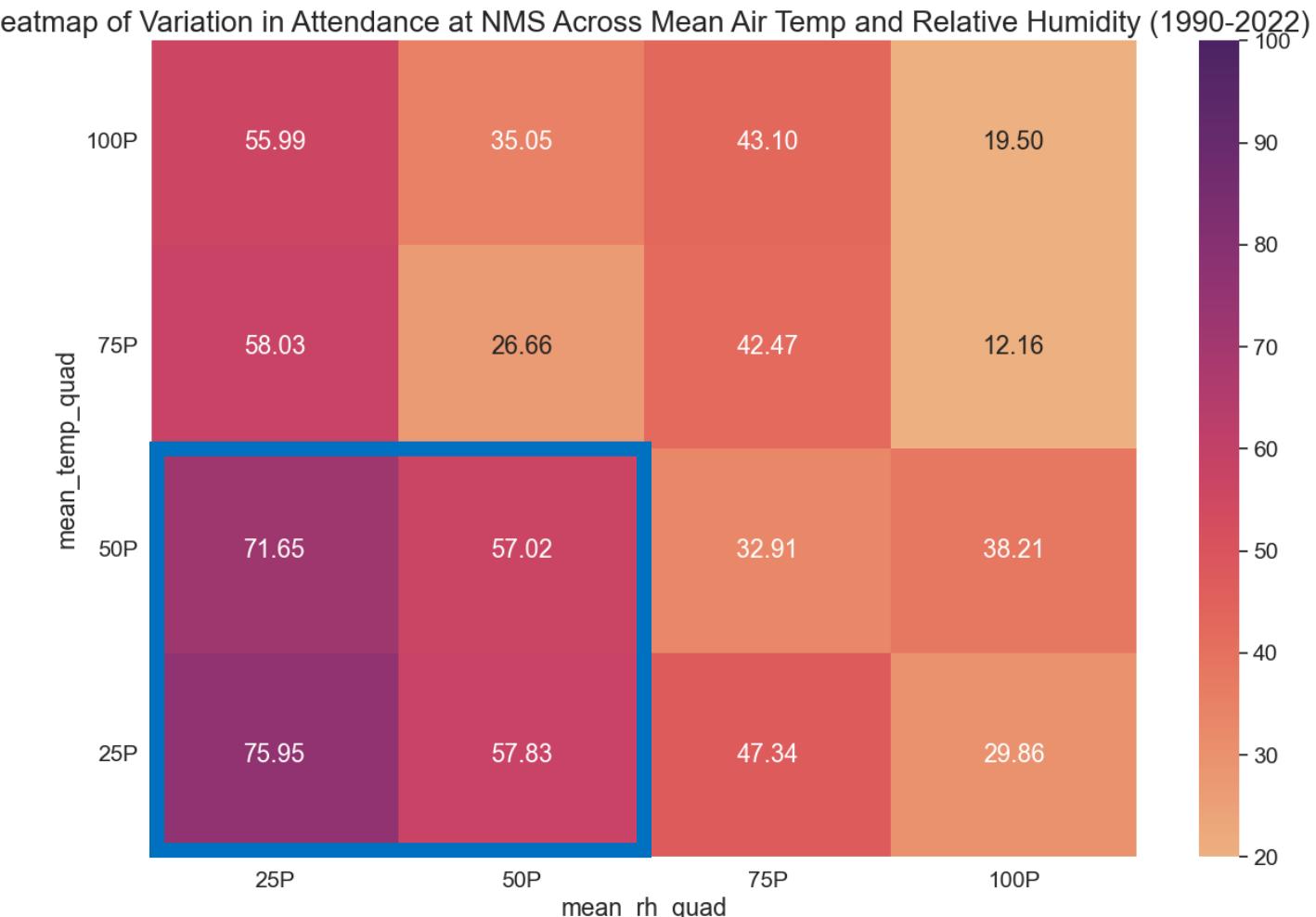
# MODERATE MEAN AIR TEMP COMPOUNDED BY LOWER WET-BULB TEMP = ATTENDANCE PEAKS IN JUN & AUG!

- Moderate air temperature (i.e. P50: 27.9°C) and lower than usual wet-bulb temp (i.e. P25: 27.1°C) associated with higher attendance.



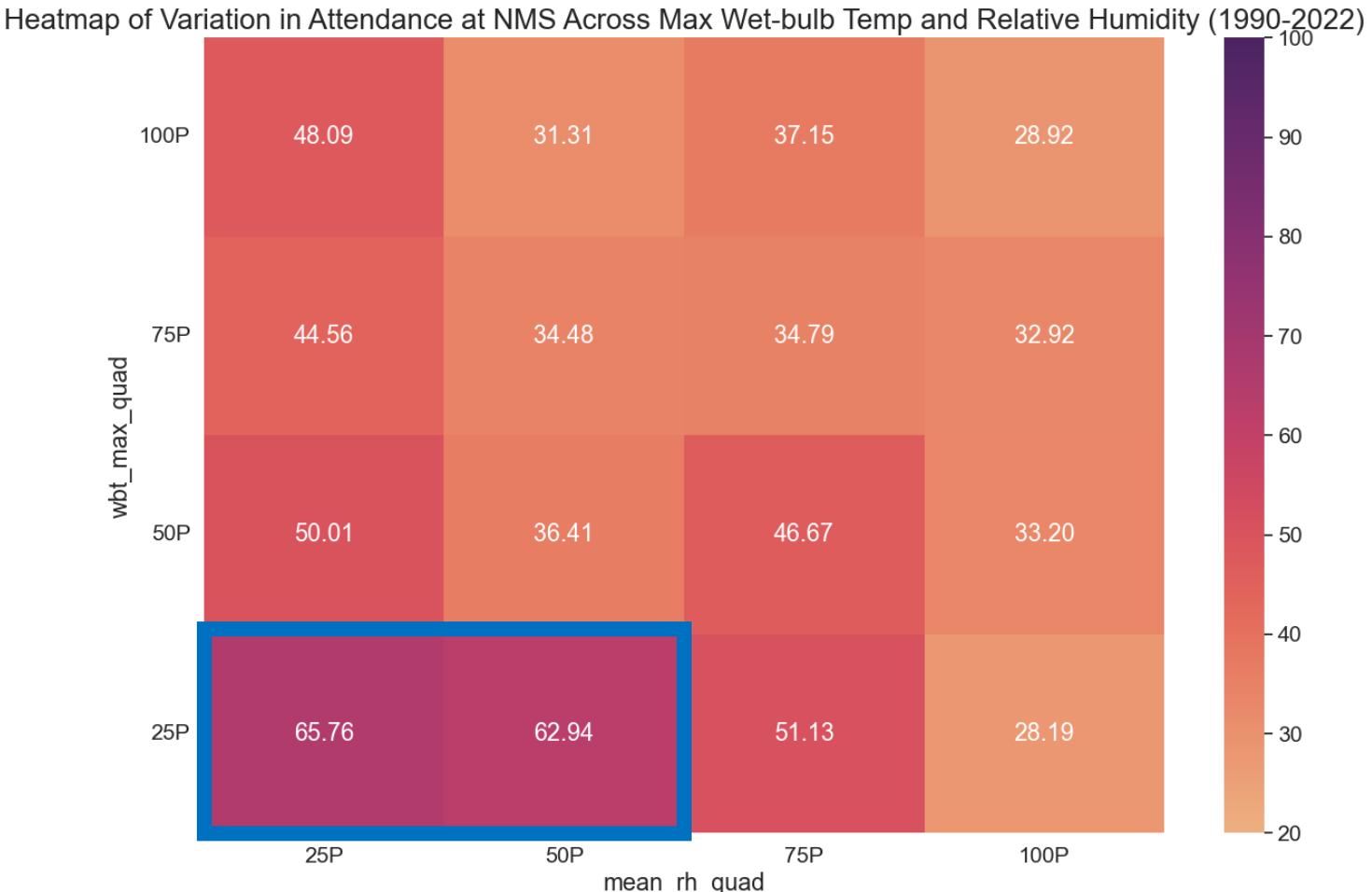
# LOWER MEAN AIR TEMP COMPOUNDED BY LOWER RELATIVELY HUMIDITY = ATTENDANCE PEAKS IN JUN, JUL, AUG!

- Lower mean air temperature (i.e. <P50: 27.9°C) and lower relative humidity (i.e. <P50: 82.4%) associated with higher attendance.



# LOWER WET-BULB TEMP COMPOUNDED BY LOWER RELATIVELY HUMIDITY = ATTENDANCE PEAKS IN JUN, JUL, AUG!

- Max wet-bulb temp in the lowest quartile (i.e. P25: 27.1°C) and low relative humidity (i.e. <P50: 82.4%) associated with higher attendance. This corroborates with the earlier findings.





# RECOMMENDATIONS

# TIPS FOR RESOURCE OPTIMISATION

Periods to step up resources:

- **LOWER MEAN AIR TEMP & RELATIVE HUMIDITY**

At **P50 and below** ( $27.9^{\circ}\text{C}$ ; 82.4%) likely to have higher attendance

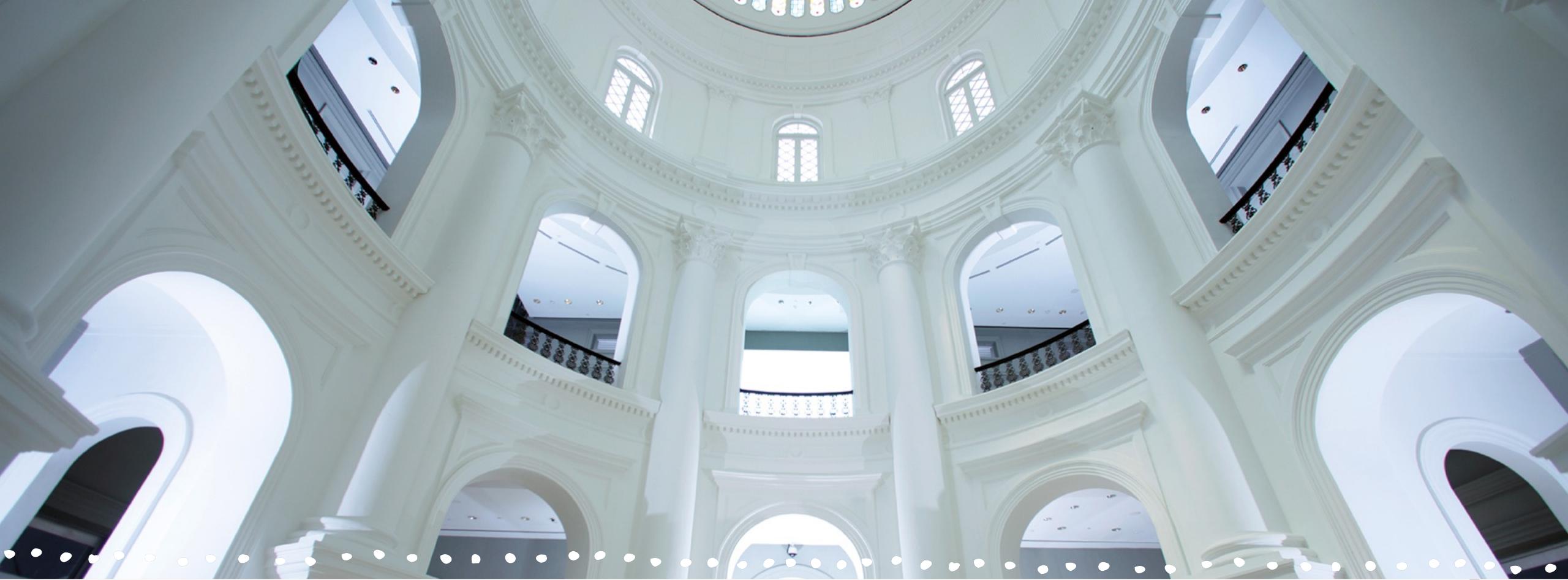
- **LOWER MAX WET-BULB TEMP & RELATIVE HUMIDITY**

At **P25** ( $27.1^{\circ}\text{C}$ ) likely to have higher attendance

- **MID-YEAR SEASON**

**Jun, Jul, and Aug** registered higher attendance when the combination of weather conditions above were observed

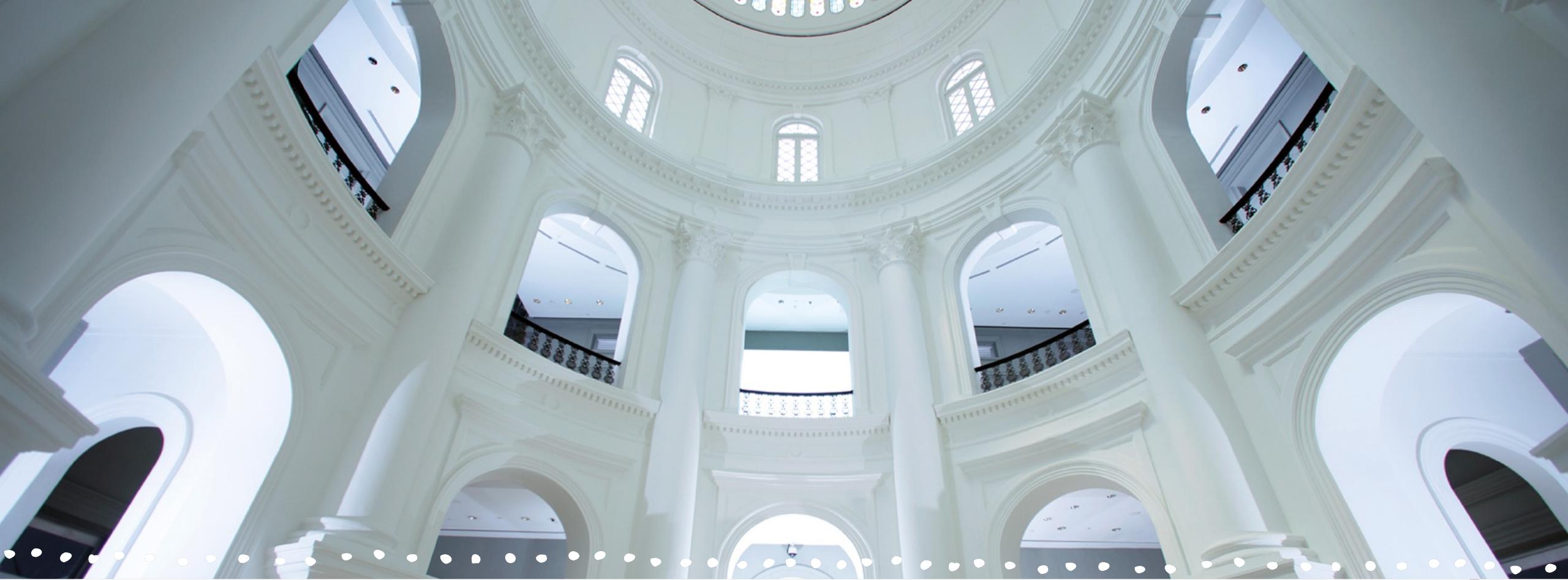




# CONSIDERATIONS & POSSIBLE FOLLOW-UPS

## OTHER COMPLEX CHANNELS THROUGH WHICH WEATHER CONDITIONS AFFECT ATTENDANCE FOR FURTHER EXAMINATION

- **ACCESSIBILITY:** Mitigating factors facilitating access to leisure activities under various weather conditions
- **INTRADAY DYNAMICS:** Time specific effects of weather in a day and individual responses
- **TICKETING/ PROGRAMMES:** Effects of time-limited exhibitions, themes, pre-paid bookings, etc.



THANK YOU!