

Extreme Weather Guidelines

Education and Engagement Centre, Botanic Gardens Greater Sydney

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Summary

It is the responsibility of the visiting group to identify if any of its participants have a health condition that would be adversely affected by weather condition and/or air quality. The visiting group is responsible for its participants health and safety and is required to withdraw some or all participants if necessary.

BGGS will cancel a program if – storms, lightning, high winds and poor air quality would endanger participants or if any warnings or orders to stay indoors are issued by Bureau of Meteorology (BOM), NSW Health or another public authority AND an excursion cannot be modified to run completely indoors.

BGGS will modify a program if – this can be done without the program itinerary being significantly affected, and the visiting group agrees. Decisions are based on BOM advice or health warnings to ‘at risk’ people e.g. those with Asthma.

What guidelines do we have in place already?

Safe Work Method Statements (SWMS): Working in Extreme Weather – DOC16/570313 states the following to mitigate risk:

Hot weather

- Avoid caffeine/alcohol
- Alter timetables or programs to avoid physical activity or exertion, and use shaded areas during hottest parts of the day where necessary
- Enact sun-smart principals of wide brimmed hat, sunscreen
- Monitor children’s movement and observe signs of exposure
- When exposure seems present, move the group into the shade or indoors to cool down
- Vary normal programs and locations using shady and cool outdoor areas
- Drink water and encourage participants to carry and drink water
- Take frequent water breaks for all activities

- If faintness occurs, participant to sit with head between legs and cool cloth on back of neck

Cold weather

- Appropriate clothing
- Monitor signs of exposure
- keep group moving
- when exposure seems present, move group indoors

High winds/storms:

- No activities under tree cover during high winds (over 65 km/h; severe weather warning).
- Consider cancelling or postponing planned program in severe weather or very high winds.
- If necessary, contact the Senior Arborist for advice

Lightning Storms

- Consider cancelling
- As distance between lightning and thunder shortens, move participants to safe, under-cover area
- Direct participants to hard top buildings, staying clear of windows, electricity outlets, pipes and metal fixtures
- Avoid water and objects that conduct electricity (umbrellas and metal fences)
- Where possible, do not stay in outdoor spaces near trees, power lines or fencing
- Avoid using mobile phones or land lines

Surrounding bushfires

- Assess the group for fitness and advise participants with low fitness or asthma not to take part in the activity
- Do not take the group too far into the garden/park from an evacuation site
- Monitor levels of smoke from surrounding areas and participant behaviour, take back indoors where necessary

Extreme rain with potential flash flooding

- Consider cancelling or postponing planned program if warnings are given for flooding potential
- Make all program staff aware of remaining risks or obstacles
- Consider varying programs and locations to avoid water areas
- Move to higher ground if caught in a severe event

On Visiting groups suggested risk assessment as found

<https://www.rbg Syd.nsw.gov.au/learn/risk-management>

Activity	Hazard Identification Type/Cause	Risk Assessment Use matrix	Elimination or Control Measures	Who	When
The hazards listed cover all outdoor activities	Fire/Bush fire	3	<ul style="list-style-type: none"> • BGCP Education Staff will monitor severe weather via Bureau of Meteorology weather alert and website. 	BGCP	24 hrs
	High wind		<ul style="list-style-type: none"> • On severe weather days and on Very High to Extreme fire danger days, the BGCP Education Staff may cancel or modify all excursions or education activities. 	BGCP	On the day
	Severe and inclement		<ul style="list-style-type: none"> • Weather conditions will be considered by BGCP Education 	BGCP	On the day

	weather events		<p>Staff before undertaking activities.</p> <ul style="list-style-type: none"> • In the event of inclement/dangerous weather during a lesson or activity the BGCP Education Staff will modify or stop the activity. • Activities under tree cover will not occur when high winds are over 65km/hr (severe weather warning). • In an emergency situation BGCP Education Staff and visiting school/group staff will follow the direction of on-site safety officer. • Participants will need to wear clothing suitable for the weather conditions on the day, for example raincoat, jacket, hat, covered shoes and sunscreen. 	<p>Safety Officer Teacher</p>	<p>On the day Prep & on the day</p>
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Decision Making Guidelines

The decision to cancel a program should be made by Learning Lead in consultation with Learning Manager.

NB: These are guidelines and may need to be adjusted based on the audience or specific program, e.g. BGGs may choose to modify an excursion at lower maximum temperature or lower wind speed for Early Childhood programs. Programs may not be cancelled when the weather meets the below criteria if there is an option to deliver a program completely indoors.

Not all weather conditions will be apparent the day prior and decisions may need to be made on the day to modify or cancel.

Extreme Weather	CANCEL excursion when forecast is for:	MODIFY excursion when forecast is for:	Source of updates/forecast	Time to check
Temperature	Less than 5°C maximum daily temperature OR Greater than 40°C maximum daily temperature	Less than 10°C maximum daily temperature OR Greater than 35°C maximum daily temperature	http://www.bom.gov.au/places/nsw/sydney/forecast/detailed/	10am the day prior
Snow and Ice	Snow or ice that makes travel to BMBG site dangerous	Snow or ice that makes movement around BMBG site dangerous	http://www.bom.gov.au/places/nsw/sydney/forecast/detailed/	10 am the day prior
High winds	Winds 50km/h or higher = 7 or more on the Beaufort Scale	Winds 39 km/h or higher = 6 or more on Beaufort Scale	http://www.bom.gov.au/places/nsw/sydney/forecast/detailed/	10am the day prior
Severe Thunderstorms	Severe Thunderstorm Warning or Hail Warning in vicinity, less than 30 mins since last lightning strike in vicinity	Any thunderstorm or hail warning in vicinity, less than 30 mins since last lightning strike in vicinity	http://www.bom.gov.au/places/nsw/sydney/forecast/detailed/ and hail warnings here http://www.bom.gov.au/nsw/warnings/	10am the day prior
Abnormally high tides or surf	NA – unless excursion needs foreshore access (RBG only)	Severe weather warning for tides/surf or any localised flooding/king high tides (RBG only)	http://www.bom.gov.au/nsw/warnings/	10am the day prior
Poor air quality	Site AQC = VERY POOR or HAZARDOUS or apparent air quality	Site AQC = POOR or apparent air quality is poor (eg. some smoke or smog is visible)	https://www.dpie.nsw.gov.au/air-quality/air-quality-	4pm day prior

	is very poor (eg. heavy smoke or smog is visible)		concentration-data-updated-hourly	
High rainfall	High 70-80% or Very High 90-100% chance of 100mm all day OR 50% chance of more than 30mm within 1 hour of excursion times OR previous rains have caused flooding of access roads or the excursion site.	High 70-80% or Very High 90-100% chance of 80mm all day OR 50% chance of more than 20mm within 1 hour of excursion times OR previous flooding on access roads has subsided but some excursion areas are still submerged.	http://www.bom.gov.au/places/nsw/sydney/forecast/detailed/	10am the day prior
Bushfires	Catastrophic fire danger rating for Greater Sydney region (ABG, BMBG) OR Watch and Act or Emergency Warning alert level from RFS for fires in the vicinity of the site.	Extreme fire danger rating for Greater Sydney region from BOM (ABG, BMBG)	For fire rating in Greater Sydney Region: https://www.rfs.nsw.gov.au/fire-information/fdr-and-tobans and for detailed location of fires: https://www.rfs.nsw.gov.au/fire-information/fires-near-me	10am the day prior
Assets	Effects of previous storms have damaged BGCP's assets and basic services cannot be provided e.g. power, water, lighting.	Effects of previous storms have damaged BGCP's assets and basic services cannot be provided e.g. power, water, lighting.		

View all current warnings for NSW: <http://www.bom.gov.au/nsw/warnings/>

References and Further Information

Air Quality

Info from DPIE: <https://www.dpie.nsw.gov.au/air-quality/activity-guide>

Air quality category	General health advice and recommended actions	
	Sensitive groups including:	Everyone else
Good	<ul style="list-style-type: none"> people with a heart or lung condition, including asthma people over the age of 65 infants and children pregnant women 	
Fair	<ul style="list-style-type: none"> NO CHANGE needed to your normal outdoor activities. 	<ul style="list-style-type: none"> NO CHANGE needed to your normal outdoor activities.
Poor	<ul style="list-style-type: none"> REDUCE outdoor physical activity if you develop symptoms such as cough or shortness of breath. Consider closing windows and doors until outdoor air quality is better. Follow the treatment plan recommended by your doctor. If you are concerned about symptoms call the 24-hour HealthDirect helpline on 1800 022 222 or see your doctor. In a health emergency, call triple zero (000) for an ambulance. 	<ul style="list-style-type: none"> NO CHANGE needed to your normal outdoor activities.
Very poor	<ul style="list-style-type: none"> AVOID outdoor physical activity if you develop symptoms such as cough or shortness of breath. When indoors, close windows and doors until outdoor air quality is better. Follow the treatment plan recommended by your doctor. If you are concerned about symptoms call the 24-hour HealthDirect helpline on 1800 022 222 or see your doctor. In a health emergency, call triple zero (000) for an ambulance. 	<ul style="list-style-type: none"> REDUCE outdoor physical activity if you develop symptoms such as cough or shortness of breath.
Extremely poor	<ul style="list-style-type: none"> STAY INDOORS as much as possible with windows and doors closed until outdoor air quality is better. If you feel that the air in your home is uncomfortable, consider going to a place with cleaner air (such as an air-conditioned building like a library or shopping centre) if it is safe to do so. Actively monitor symptoms and follow the treatment plan recommended by your doctor. If you are concerned about symptoms call the 24-hour HealthDirect helpline on 1800 022 222 or see your doctor. In a health emergency, call triple zero (000) for an ambulance. 	<ul style="list-style-type: none"> AVOID outdoor physical activity if you develop symptoms such as cough or shortness of breath. When indoors, close windows and doors until outdoor air quality is better. If you are concerned about symptoms call the 24-hour HealthDirect helpline on 1800 022 222 or see your doctor. In a health emergency, call triple zero (000) for an ambulance.
	<ul style="list-style-type: none"> STAY INDOORS with windows and doors closed until outdoor air quality is better and reduce indoor activity. If you feel that the air in your home is uncomfortable, consider going to a place with cleaner air (such as an air-conditioned building like a library or shopping centre) if it is safe to do so. 	<ul style="list-style-type: none"> STAY INDOORS as much as possible with windows and doors closed until outdoor air quality is better. If you feel that the air in your home is uncomfortable, consider going to a place with cleaner air (such as an air-conditioned building like a library or shopping centre) if it is safe to do so.

	<ul style="list-style-type: none"> • Actively monitor symptoms and follow the treatment plan recommended by your doctor. • If you are concerned about symptoms call the 24-hour HealthDirect helpline on 1800 022 222 or see your doctor. • In a health emergency, call triple zero (000) for an ambulance. 	<p>air-conditioned building like a library or shopping centre) if it is safe to do so.</p> <ul style="list-style-type: none"> • If you are concerned about symptoms call the 24-hour HealthDirect helpline on 1800 022 222 or see your doctor. • In a health emergency, call triple zero (000) f
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Who is affected by air pollution?

<https://www.health.nsw.gov.au/environment/air/Pages/who-is-affected.aspx>

Everyone can be affected by air pollution especially when exposed over prolonged periods of time. However, some groups of people may be more susceptible than others in regards to exposure to air pollution.

The following people are more likely to be affected:

- **People with asthma:** exposure to air pollution might worsen your symptoms or trigger asthma attacks. Use your reliever medicine and check you have an up to date [asthma action plan](#).
- **People with lung disease**, such as chronic bronchitis (also called chronic obstructive pulmonary disease or COPD): exposure to air pollution might worsen your symptoms. Use your reliever medicine and see your doctor if symptoms don't resolve.
- **People with cardiovascular (heart) disease:** exposure to air pollution might induce symptoms such as palpitations, chest pain or shortness of breath. If your symptoms persist or are severe, you should seek urgent medical advice from your doctor or nearest Emergency Department.

People can be more susceptible to some type of air pollution in certain life stages:

- **Unborn babies (pregnant women):** exposure to high levels of air pollution over longer time periods (ie weeks to months) may be linked to adverse pregnancy outcomes such as reduced birth weight or preterm birth.
- **Children are likely to be more vulnerable to exposure to air pollution compared to adults** for the following reasons:
 - Their lungs are still growing and developing
 - Their immune and metabolic systems are still developing
 - They suffer from frequent respiratory infections
 - They are more active outdoors than adults and therefore breathe in higher doses of outdoor pollutant
- However, most evidence suggests that this is more likely in situations when concentrations are elevated over long periods of time and not just over a few days. There is so far no evidence that short-term increases in air pollution have permanent effects on the developing lung. Some children are especially vulnerable. This includes children with underlying chronic lung conditions such as asthma and cystic fibrosis.
- **Older adults:** Older people are more likely to be affected by air pollution, perhaps due to generally weaker immune systems, or undiagnosed respiratory or cardiovascular health conditions.

PARTICLES PM10: Everyone, especially people with heart or lung disease should avoid outdoor exertion and stay inside as much as possible. If you have symptoms rest and use your reliever medicine. If symptoms persist, seek medical advice

PARTICLES PM2.5: Everyone, especially people with heart or lung disease should avoid outdoor exertion and stay inside as much as possible. If you have symptoms rest and use your reliever medicine. If symptoms persist, seek medical advice

Subscribe to air quality updates here: <https://www.environment.nsw.gov.au/aqms/subscribe.htm>

Severe Weather

Info from Bureau of Meteorology: http://www.bom.gov.au/weather-services/severe-weather-knowledge-centre/WarningsInformation_SW_SWW.shtml

What weather conditions are Severe Weather Warnings issued for?

Severe Weather Warnings are issued for:

- Sustained winds of gale force (63 km/h) or more
- Wind gusts of 90 km/h or more (100 km/h or more in Tasmania)
- Very heavy rain that may lead to flash flooding
- Abnormally high tides (or storm tides) expected to exceed highest astronomical tide
- Unusually large surf waves expected to cause dangerous conditions on the coast
- Widespread blizzards in Alpine areas

Warnings are issued with varying lead-times, depending on the weather situation, and range from just an hour or two to 24 hours or sometimes more.

Severe Thunderstorm

Info from BOM: http://www.bom.gov.au/weather-services/severe-weather-knowledge-centre/WarningsInformation_SW_STSW.shtml

How is a severe thunderstorm defined?


A severe thunderstorm is one that produces any of the following:

- Large hail (2cm in diameter or larger)
- Giant hail (5cm in diameter or larger)
- Damaging or destructive wind gusts (generally wind gusts exceeding 90 km/h)
- Heavy rainfall which may cause flash flooding
- Tornadoes

Most thunderstorms do not reach the level of intensity needed to produce these dangerous phenomena so the Bureau of Meteorology does not warn for all thunderstorms.

Bushfire

<http://www.bom.gov.au/nsw/forecasts/fire-danger-ratings.shtml> or <https://www.rfs.nsw.gov.au/fire-information/fdr-and-tobans>

FIRE DANGER RATING	WHAT YOU SHOULD DO
 <p>CATASTROPHIC</p>	<p>For your survival, leaving early is the only option.</p> <p>Leave bush fire prone areas the night before or early in the day – do not just wait and see what happens.</p> <p>Make a decision about when you will leave, where you will go, how you will get there and when you will return.</p> <p>Homes are not designed to withstand fires in catastrophic conditions so you should leave early.</p>
<p>EXTREME</p>	<p>Leaving early is the safest option for your survival.</p> <p>If you are not prepared to the highest level, leave early in the day.</p> <p>Only consider staying if you are prepared to the highest level – such as your home is specially designed, constructed or modified, and situated to withstand a fire, you are well prepared and can actively defend it if a fire starts.</p>
<p>SEVERE</p>	<p>Leaving early is the safest option for your survival.</p> <p>Well prepared homes that are actively defended can provide safety – but only stay if you are physically and mentally prepared to defend in these conditions.</p> <p>If you're not prepared, leave early in the day.</p>
<p>VERY HIGH</p>	<p>Review your bush fire survival plan with your family. Keep yourself informed and monitor conditions. Be ready to act if necessary.</p>
<p>HIGH</p>	
<p>LOW MODERATE</p>	

Heatwave

<https://www.health.nsw.gov.au/environment/beattheheat/Pages/people-most-at-risk.aspx>

People most at risk

Everyone needs to take care in hot weather but some people are at higher risk of heat illness, especially if they live alone or are socially isolated.

The following people are most at risk:

- People who are:
 - over the age of 75
 - infants and **young children**
 - overweight or obese
 - pregnant or breastfeeding
 - not very mobile
 - **not drinking enough water**
 - living by themselves or homeless
 - socially isolated
 - working in a hot environment (for example labourers, gardeners, fire fighters)
 - exercising vigorously in the heat
- People who have a chronic illness, for example*:

- heart disease
- high blood pressure
- diabetes
- cancer or kidney disease
- mental illness
- dementia
- alcohol and other drug use
- People who have an acute illness such as:
 - an infection with a fever
 - gastroenteritis (diarrhoea and/or vomiting)
- People who take certain medications (please see [a note on prescription medications](#)).

* These are only examples; there are many more conditions that may be affected in hot weather. If you are unsure whether you are at risk, discuss it with your GP

Supporting students during hot weather

Source: Department of Education <https://education.nsw.gov.au/student-wellbeing/health-and-physical-care/hot-weather>

Schools can support students and staff during hot weather.

The range of approaches includes:

- rotating class use of air-conditioned facilities where available
- varying normal teaching programs through the use of shady and cool outdoor facilities
- encouraging students to drink water and allowing drink bottles in the classroom
- using fans or other devices in an appropriate way to remain cool

Schools should consider:

- the extent to which outdoor activities and events are scheduled during peak UVR times such as scheduling sport in the mornings and swimming carnivals in the evenings
- the selection of venues and scheduling of time for physical activity, particularly during the summer months, to minimise exposure to UV Radiation
- the use of portable shade structures.

Parents can help by:

- sending their children to school with a water bottle
- packing a hat in your child's school bag
- applying sunscreen before they head off to school.

Rainfall

What does the possible rainfall amount mean? <http://www.bom.gov.au/NexGenFWS/rainfall-faq.shtml>

Possible rainfall: **5 to 10 mm**

The possible rainfall amounts help to show how rainfall might vary according to the type of weather in a given time. Both numbers relate directly to a chance of receiving at least that amount of rain.

The first number (5 mm in this example) represents a 50% chance of at least that amount of rain occurring.

The second number (10mm in this example) represents a 25% chance of at least that amount of rain occurring.

On days where we expect showers or thunderstorms, the possible rainfall amounts might be quite different, for example, 5 to 30 mm. When steady rainfall is expected over a wide area, the possible rainfall amounts might be similar, for example, 10 to 15 mm.

High Winds

Beauf. scale	Desc. term	Units in knots	Description on Land	Description at Sea
0	Calm	0	Smoke rises vertically	Sea like a mirror.
1-3	Light winds	10 knots or less	Wind felt on face; leaves rustle; ordinary vanes moved by wind.	Small wavelets, ripples formed but do not break: A glassy appearance maintained.
4	Moderate winds	11-16 knots	Raises dust and loose paper; small branches are moved.	Small waves - becoming longer; fairly frequent white horses.
5	Fresh winds	17-21 knots	Small trees in leaf begin to sway; crested wavelets form on inland waters	Moderate waves, taking a more pronounced long form; many white horses are formed - a chance of some spray
6	Strong winds	22-27 knots	Large branches in motion; whistling heard in telephone wires; umbrellas used with difficulty.	Large waves begin to form; the white foam crests are more extensive with probably some spray
7	Near gale	28-33 knots	Whole trees in motion; inconvenience felt when walking against wind.	Sea heaps up and white foam from breaking waves begins to be blown in streaks along direction of wind.
8	Gale	34-40 knots	Twigs break off trees; progress generally impeded.	Moderately high waves of greater length; edges of crests begin to break into spindrift; foam is blown in well-marked streaks along the direction of the wind.
9	Strong gale	41-47 knots	Slight structural damage occurs - roofing dislodged; larger branches break off.	High waves; dense streaks of foam; crests of waves begin to topple, tumble and roll over; spray may affect visibility.
10	Storm	48-55 knots	Seldom experienced inland; trees uprooted; considerable structural damage.	Very high waves with long overhanging crests; the resulting foam in great patches is blown in dense white streaks; the surface of the sea takes on a white appearance; the tumbling of the sea becomes heavy with visibility affected.
11	Violent storm	56-63 knots	Very rarely experienced - widespread damage	Exceptionally high waves; small and medium sized ships occasionally lost from view behind waves; the sea is completely covered with long white patches of foam; the edges of wave crests are blown into froth.
12+	Hurricane	64 knots or more	Very rarely experienced - widespread damage	The air is filled with foam and spray. Sea completely white with driving spray; visibility very seriously affected

Notes to call DoE

6. Contact

Director, School Policy and Information Management (02) 9244 5070.

Director, Work Health and Safety, phone (02) 9707 6226, regarding risk management and risk profiles for excursion venues.