

LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into the 2026 Summer Fires across Victoria

Melbourne – Friday 1 May 2026

MEMBERS

Ryan Batchelor – Chair

David Ettershank – Deputy Chair

Melina Bath

Gaelle Broad

Jacinta Ermacora

Wendy Lovell

Sarah Mansfield

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**Necessary corrections to be notified to
executive officer of committee**

WITNESS (*via videoconference*)

Matthew Collopy, General Manager, Environmental Prediction Services, Bureau of Meteorology.

The CHAIR: Welcome back to the proceedings of the Legislative Council Environment and Planning Committee's Inquiry into the 2026 Summer Fires across Victoria. We are joined online by our final witness of the day, a representative of the Bureau of Meteorology.

All the evidence that we take is protected by parliamentary privilege as provided by the *Constitution Act 1975* and the provisions of the Legislative Council standing orders. Therefore the information you provide during the hearing is protected by law. You are protected against any action for what you say during the hearing, but if you go elsewhere and repeat those same things, those comments may not be protected by this privilege. Any deliberately false evidence or misleading of the committee may be considered a contempt of Parliament.

All evidence is being recorded. You will be provided with a proof version of the transcript following the hearings. The transcripts will ultimately be made public and published on the committee's website.

Welcome. My name is Ryan Batchelor. I am the Chair of the committee and Member for Southern Metropolitan Region. I will just ask committee members to introduce themselves.

Gaelle BROAD: Hi. I am Gaelle Broad, Member for Northern Victoria Region.

Melina BATH: Good afternoon. Melina Bath, Eastern Victoria Region.

Wendy LOVELL: Wendy Lovell, Member for Northern Victoria Region.

John BERGER: John Berger, Member for Southern Metro.

Sarah MANSFIELD: Sarah Mansfield, Member for Western Victoria.

Rikkie-Lee TYRRELL: Rikkie-Lee Tyrrell, Member for Northern Victoria Region.

The CHAIR: And –

Jacinta ERMACORA: Jacinta Ermacora, Member for Western Victoria Region.

The CHAIR: Wonderful. Matt, if you could just state your full name and the organisation you are appearing on behalf of for the Hansard record, please.

Matthew COLLOPY: Sure. My name is Matthew Collopy. I am a General Manger for the Australian Bureau of Meteorology. Matt is fine, but for the record: Matthew Collopy.

The CHAIR: Thanks, Matt. We will hand over to you if you wish to make an opening statement or presentation, otherwise we will proceed to questions. I am in your hands.

Matthew COLLOPY: Sure. Thank you, Chair. I will make a short opening statement. As I said, I am a General Manager at the Australian Bureau of Meteorology. I am the senior executive officer responsible for the bureau's fire, heat and air quality, as well as the severe weather and flood functions, which provide fire, weather, storm and flood forecasts for emergency services and to the Australian community.

In broad terms, the bureau provides weather, climate and fire weather forecasting warning services under the *Meteorology Act 1955*. The specific responsibilities are for fire and other natural hazards as defined in the hazard services intergovernmental agreement, the so-called IGA, under which the bureau provides defined fire weather forecast, warning and briefing services. Bushfire response decisions sit with state and local governments, so we provide the weather and the information as such. The state agencies do the ratings, the bans and the response decisions.

The bureau provided a written submission which addressed inquiry terms of reference 1, 2, 8 and 11. I will just work through a very quick 2- or 3-minute summary of that written submission. The first one I would like to address is Australia's changing climate. Australia's climate is warming. The joint CSIRO and bureau *State of*

the Climate report from 2024 and the most recent *Annual Climate Statement* from 2025 show Australia's climate has warmed by an average of 1.59 degrees between 1910 and 2025, with most of that warming having occurred since 1950. The impacts of this warming have been an increase in extreme fire weather conditions and a longer fire weather season across large parts of the country, and this is particularly evident during spring and summer. It is associated with an earlier start to the southern fire weather season, including for Victoria.

In addition to those reports about Australia's changing climate, the national climate risk assessment, which was produced by the Australian Climate Service and contributed to by the bureau, shows that at all future global warming scenarios, and those included 1.5, 2 and up to 3-degree warming scenarios, the susceptibility to fire across southern and eastern Australia is projected to increase due to increases in heat and the frequency of heatwave conditions, along with more time spent in drought.

If I move from the climate projection information and climate change into the antecedent conditions, so these are the specific lead-in conditions to the 2025–26 summer in Victoria, the 2025 calendar year in Victoria was the eighth warmest on record, with widespread above average temperatures and below average rainfall across many districts. In addition to that 2025 calendar year, at the start of summer in 2025–26 parts of Victoria had multiple-year rainfall deficiency, so their rainfall deficiencies spanned back beyond 2025 into 2024 and 2023 before that.

If I now turn my attention to the preparation that the bureau was involved in with our emergency services partners, in the lead-up to summer 2025–26 the bureau supported Victoria's preparedness for the 2025–26 high-risk weather season through a range of long-range forecasts – these are multiweek, monthly and seasonal. Seasonal is normally a three-month forecast or outlook. Those outlooks include bushfire outlooks. We work closely with AFAC to provide the long-range forecast into the AFAC bushfire outlooks. Those outlooks were reinforced through our briefings, training and community information sessions. This preseason activity for Victoria included 25 seasonal outlook briefings and six fire weather training sessions for our Victorian emergency services management partners. The bureau also delivered community-based preparedness workshops, both individually and also jointly with the CFA. In addition, the bureau partnered with the National Emergency Management Agency, NEMA, to deliver an all-agency, including Victorian agencies, national preparedness summit. We provided some of the scenario inputs around weather, likely weather and climate conditions, and this included a range of severe weather, fire and flood exercises or scenarios.

In the shorter term, in the context of the lead-up to a severe weather event, let us outline the bureau's responsibilities in terms of weather, fire and flood. The bureau's role is obviously in the provision of forecast and warning services according to agreed and published service level specifications. In case of delivering fire, that is forecast warnings, incident weather forecasts, which are sort of point location forecasts for going fire events, so very important, as well as wind change charts that show the movement of critical wind changes during high-risk days. We also provide observations, public fire danger rating products and heatwave services, and these are provided and updated frequently throughout the fire weather season in a routine sense.

Specifically, across the 2025–26 season in Victoria, the bureau issued public fire weather warnings on 24 days across summer. We issued 402 bushfire-related incident weather forecasts – they are those point forecast locations for fires of concern – and 27 heatwave warnings. In addition to those warnings the bureau delivered, routinely, twice-daily detailed fire weather forecasts. That is updated twice a day. We also produced gridded forecast outputs, which are critical factors like wind, temperature and humidity. That is on a 6-by-6-kilometre, or in some cases a 3-by-3-kilometre, grid of hourly outputs of those key wind, temperature and humidity weather elements.

If I turn my attention now to the 9 January fire events, in terms of the timeline the bureau began alerting emergency management agencies to very hot conditions and significantly elevated fire weather risk from as early as 3 January, around six days before. This included the risk of dry lightning – that is lightning without significant rainfall – and the potential for a wind change to move through on that day. In the period from the 3rd through to the 11th that spans the lead-in and the critical fire days, the bureau provided 74 briefings to emergency management agencies. We also did a number of joint press conferences and through our own Facebook and other social media platforms a range of severe weather video explainers. These are specifically related to big events like that day on 9 January, and they were shared not only across the bureau's social media platforms but also with our partners. As this event evolved towards 9 January, this weather event, both the timing and the severity of the fire conditions became more and more certain and the fire danger ratings and the

heatwave conditions progressively escalated. As is normal for this type of event, we saw that culminate in extreme-to-catastrophic fire danger warnings going out in the days leading up to 9 January and also those wind change charts which support operations in the CFA and other emergency management partners. These warnings and wind change charts et cetera were updated throughout the event as it evolved.

The final point I would like to cover off is in terms of past review recommendations. Probably the most relevant that I will cover is the Royal Commission into National Natural Disaster Arrangements, which was set up in response to the extreme bushfire season of 2019–20. The bureau is responding to recommendations of relevance, including the bureau's support for aerial firefighting; the implementation of and then the education and materials related to the Australian Fire Danger Rating System, which is now the key national system that informs fire danger ratings; and also, through the expansion of the Australian Smoke Dispersion System, providing bushfire smoke forecasts.

In summary, the bureau provides preparedness and response services to Victorian emergency management agencies and to the Victorian community. That includes the frequently updated forecasts and warnings that I have spoken about and briefings like those that occurred across the 2025–26 summer season in Victoria. All of those functions are obviously aligned with our legislative role. In addition, the bureau continues to work with our emergency management partners, with whom we share very strong ongoing relationships, to deliver the response services but also in terms of improving the warning services through national coordination and improvements in science as well as system enhancements like the AFDR system. Hopefully that gives you a picture of the bureau's submission, and I am happy to answer any questions.

The CHAIR: Thanks very much, Matt. It is very useful. I want to just talk a little bit about how effective is the integration of the bureau's expertise and knowledge into the structures that exist, particularly in Victoria, on the preparedness front but also in the lead-up period to those days which are clearly going to be catastrophic. Can you speak to, from the bureau's perspective, how well those arrangements work?

Matthew COLLOPY: From the bureau's perspective, in the planning and longer term – I talked about pre-season activities – I think in that context there is always more you can do with the understanding of what to expect in the next three months; the education and training are so important, and there is likely more we can do. But I think we have definitely improved and have a more structured approach to how we try and do that jointly with the emergency management agencies, including the CFA.

In the shorter term, in the lead-in, the predictable weather window is that six, seven, maybe 10 days. When I say predictable, I mean the detail of wind changes and fire weather conditions. We work extremely well with emergency management agencies. We have embedded meteorologists – and hydrologists actually, when required – working very closely with and inside the operation centres of the agencies, and we have been doing that for over a decade. That is extremely valuable because not only do you get a direct input and you can provide tailored services but you get the insights coming the other way: this is what we are concerned about today; can you please feed that back to your fire experts and suchlike.

The CHAIR: So it is a two-way conversation.

Matthew COLLOPY: Yes, because fire can be so localised. There are impacts from geography, coastal and all sorts of other on-the-ground effects that those agencies have intelligence about, which helps our services.

The CHAIR: The other thing I just want to ask: would it be your evidence that our weather patterns in Australia across the board but particularly in Victoria are becoming more extreme? Are we seeing more weather extremes, and is that having an effect on the propensity for disasters in our natural environment?

Matthew COLLOPY: I mentioned the warming data from the *State of the Climate* and the annual climate statement. In addition to that, the national climate risk assessment looks at – we are looking at 1.5 or a bit more degrees worth of warming. The impacts of that, as I said, are recorded – longer fire seasons; the potential for more drought; the potential for more fire weather days of extreme or catastrophic nature, mostly to do with the increased heat – and for a number of other natural hazards there are known or modelled impacts in terms of the frequency and the severity. They are not all equal. Some have particular or expected frequency impacts, and others in terms of severity I can give examples of are cyclone and heavy rainfall.

The CHAIR: Thank you. Ms Bath.

Melina BATH: Thank you very much for this. In some of the submissions and testimonies and conversations that we have had the BOM would present, I believe, information to the ICC, incident control centre, at a local area, and then that ICC would relay that information out to the fireground, out to the volunteers or the firefighters on the fireground. In the conversations that I have had, sometimes there is a lag, and I want you to explain: what do you do? What is your rating or assessment on that? Because the wind has changed, and then the fireground volunteers are actually getting that information. That has an implication for the ability of that fireground's responders to respond. How can we truncate that and provide better information? Do you have an opinion on that, as BOM information?

Matthew COLLOPY: You mentioned that we provide information to those incident control centres. Then obviously there are their operational needs, and operational communication happens to communicate out to the fireground. We do not have the capability, and it is not our role, to inform the on-the-ground folks. Those people on the ground can use the bureau's app and the bureau's other outputs – the websites et cetera – with the observations but also the forecasts. They can directly do that, and those things are updated with very low latency. If you have got an observing system that has recorded a wind gust, it gets through to the website in minutes, not hours or longer, right? There are ways you can do that, but I would accept that it is definitely a challenge to get updated forecast information, and undoubtedly with a fast-moving wind change, by the time some information filters through, that wind change may have moved tens of kilometres.

Melina BATH: Thank you. My next question goes to fire behaviour. Often, not always but often, there are lightning strikes and you get forest fires, whether it be in state forests or national parks. But it seems to me – and please correct me, because this is what I am interested in – that BOM stations generally can be at airports, or towns or on planes, and they are not necessarily sitting on the top of a mountain in the Snowy River National Park, for example. Therefore there is a reliance on either interpolated data or modelled data rather than direct measurement in those fire-prone terrains. Can you speak to that? How can that be improved? What would that look like, because really the best information provides, the best response? I guess that is where I am heading to.

Matthew COLLOPY: Absolutely. Just on the lightning part, the lightning detection system actually measures that big electromagnetic pulse that comes off a lightning strike, and you can actually triangulate and figure out where that is, right? So that does not rely on an observing station at an airport or such like. But I do absolutely accept that the bureau has some 700 sites across Australia and it is a huge country. I do not know the exact number across Victoria, but there are certainly massive gaps obviously, and they are not perched on top of every mountain or in every valley. There are options and ways we attempt to address that. First of all, I mentioned this thing called an incident weather forecast, which is where we get a request from the CFA: 'We've got a fire at this location. Can we get a point forecast?' Right, so a key point in that is the information about the elevation, the slope and the orientation of where the fireground is, and then the best data we can provide in terms of forecasts and observations. There are interpolations and modelling built into that, but it does tailor down to that point location. The other thing we have available is what you call a portable automatic weather station, which is effectively a trailer with a weather station on it, but they are very limited. You cannot put one at every fireground in an event like what happened on 9 January.

Melina BATH: Okay. I will put some questions on notice, Chair. Thanks.

The CHAIR: All right. Thank you. Dr Mansfield.

Sarah MANSFIELD: Thank you. Thank you for appearing today and for your submission. I am interested to understand whether climate change is impacting your ability to make accurate forecasts, particularly when there are extreme conditions like some of those that we saw around 9 January and over the summer.

Matthew COLLOPY: With forecasts, we can think about the long-range forecasts or the shorter sort of four days out or five days out forecasts. If I address the long-term stuff first, our current technology and long-range forecast take into account updated ocean temperatures and all these things that are changing with climate. It does not rely solely on past events to inform what is expected, so that is a system that adapts to the changing climate. But with extremes, there is evidence that we do still struggle to pick those extreme events. But extreme events are more in the short term, and that is to do with what we expect our modelling to do at, say, four or five days out, right? In that context, the high end and very extreme events are almost certainly going to be harder to predict, given those peak values. Weather models and systems are set up and trained on a range of – by trained, I mean adjusted and calibrated – past events. They do tend to struggle to pick the extremely high-end events,

and that is sometimes where the human input from experienced meteorologists and the communication we have with emergency services and the CFA come in, because we have an experienced meteorologist who says, 'In these scenarios we expect the wind on that elevated ground to be higher than what the model expects.' There are challenges, and they are being potentially made worse by climate change. That human input and the communication are critical in trying to mitigate some of those challenges.

Sarah MANSFIELD: The other thing that is commonly put out there is that fires can create their own weather systems as well, and that can then add to the difficulty in predicting local weather conditions. Is that something that BOM grapples with?

Matthew COLLOPY: Absolutely. You are talking about the so-called pyrocumulonimbus, which is a thunderstorm effectively helped or created by the heat of the fire. If you can imagine, the heat of the fire creates a thunderstorm. That means the air above the ground is rising into the storm, and air rushes in from the surrounding areas and creates unusual or fire-driven wind patterns. There is a bit of a positive reinforcement of that because of the physics and all that. That is a known issue. It is one that we work very closely on and try to alert emergency services and the CFA to when we see the potential for those conditions. My final point on that is that a warming atmosphere has a greater capacity to store moisture, and moisture is a critical element in that thunderstorm process. More moisture means more chance of getting that so-called pyrocumulonimbus. That is a documented increased risk.

Sarah MANSFIELD: I might have one further question if we have got time.

The CHAIR: Yes, no worries. Mr Berger.

John BERGER: Thank you, Chair. Thank you, Matt, for your appearance this afternoon. On dry lightning, Matt, can you give us the circumstances which bring that about – and its prevalence?

Matthew COLLOPY: Sure. Think of a day when you have got one of those cloud bands that comes in from the north-west of the state. The base of the cloud might actually be up at about 3000 metres, or 10,000 feet, but above that you have got an unstable atmosphere from, say, 10,000 feet up to 30,000 feet. In that layer of cloud and instability you get ice and water. Ice and water in the same cloud create a potential for lightning. That happens in a normal thunderstorm, but a normal thunderstorm would have moisture extending all the way down to, say, 2000 feet above the surface. When you have got that big dry bit underneath the cloud band, any rain that falls out of the cloud mostly evaporates before it gets to the ground. You have got the lightning, but you have not got enough moisture to produce real rainfall on the ground. That is what we call dry lightning.

John BERGER: Okay. Rainfall patterns seem to have changed quite significantly over recent years. In regional Victoria, particularly in the west, parts are getting rain and other parts are missing out on it. They talk of rain shadows. Can you talk a bit about what that entails?

Matthew COLLOPY: Normally a rain shadow is a slightly smaller scale phenomenon. Let us say you had somebody with a significant mountain range, like the Otways or something like that, and they had a southerly airstream coming up under the Otways. When you look at the climate record and rainfall records you would probably find, say, with the Otway Ranges, that to the south on the coast there might be a really wet climate but that immediately to the north you might have a so-called rain shadow. That sort of phenomenon is definitely seen in our rainfall patterns across Victoria. You can in some cases, for example, the north-west of the state, get, because of the orientation of the coast and the general patterns across Victoria, less rainfall than some of those southern parts that see more frontal systems moving off Bass Strait and the Southern Ocean. For example, in a north-westerly airstream you have got to come down across all the dry parts of South Australia to get into the western Victoria part of the world. So you would see a sort of broader – I would not call that a rain shadow; I would just call that the climate reality of the geography of Victoria.

John BERGER: Weather patterns seem to have changed. I can recall a lot of rain used to come from the east through to the Central Highlands. It just does not seem to be the case anymore. What are the patterns, from your perspective, doing?

Matthew COLLOPY: From a general perspective, there is a trend in rainfall patterns over southern Australia of reduction. It is not consistent across the whole of the southern band of Australia, from south-

western WA through to, say, eastern Victoria, but there is a general reduction in winter rainfall in the lead-in to summer and such like. The pattern you are talking about, where you get the moist easterlies, is where you have got a big high sitting a long way south of Tasmania and it might be drawing moisture down off the Tasman Sea or even the Coral Sea/Tasman Sea. Some of those patterns depend on, as I said, how far north or south those ridges of high pressure are, and what we are seeing is more stable high-pressure ridges sitting over the continent and closer to the Australian continent, which in many cases mean slightly less rainfall in that easterly airstream.

John BERGER: Thank you. Thanks, Chair.

The CHAIR: Thank you. Ms Lovell.

Wendy LOVELL: Hi, Matt. Thank you. I am just wondering: what is your ability to give information on a really defined area of the state? I think, as you would realise, here in Victoria they tend to give warnings by fire districts. For instance, on 9 January we had a fire behaviour index of 99, which is one short of catastrophic, for the central fire district. The central fire district stretches from north of Kyneton to the Bass Strait, so Lorne and Wonthaggi are in that central fire district, and it is east of Ballarat to the west of Pakenham. Had it been one index higher, surely we could not have expected the whole of Melbourne, two of our largest regional cities and all of that area to leave the day before and to up and relocate, which is what catastrophic is – ‘Leave now’. I mean, yes, if you are on the Great Ocean Road or perhaps if you are in Warburton or Healesville, but if you are in Williamstown, which has the least tree coverage in the state, go to the beach. How can we more accurately give warnings for those sorts of areas?

Matthew COLLOPY: The information we provide to the CFA and to emergency services in general is in that gridded output that I talked about. We use that grid to do those fire danger ratings as well. That is all driven by the AFDRS, which has all the fuel types and the drivers and all other things, including weather. Weather is a critical part, but so are the fuels and such like, and they change across the landscape of a big district like the central one in Victoria. So we do provide that gridded 3-kilometre sort of view. But then in terms of public messaging – and this is something that is defined and obviously well and truly set before we go into a fire season – I mentioned those service level specification types of outputs. The way that service level specification works for fire is that all the weather and other information like fuel is run through the Australian Fire Danger Rating System, and then for each 3-by-3-kilometre grid cell, you produce a fire danger rating, an FDR. If more than 10 per cent of the district area is, say, catastrophic, then that is when we say there is a big enough risk, and the agencies will then decide whether to issue a catastrophic, extreme or whatever fire danger rating for that area. We do provide more detailed information, but the public messaging – and this is a real challenge for lots of different agencies – is that mix of clear and consistent information. I mean, if we gave the public every 3-kilometre grid cell, then it would be very difficult to message that consistently and clearly. I do not know that I have completely addressed the question, but hopefully that helps a bit.

The CHAIR: All right. Thank you. Ms Tyrrell.

Rikkie-Lee TYRRELL: No, pass. Thanks, Chair.

The CHAIR: Thank you. Ms Ermacora.

Jacinta ERMACORA: Hi. Thanks for attending today, and thanks for the work that you do. I understand that there are some real moving parts when it comes to climate change impacts, one of which is it is very difficult to predict rainfall and run-off, although is that the case all the time or just increasingly during climate change?

Matthew COLLOPY: Rainfall is one of the most variable in terms of time and spatially of all the parameters we aim to forecast. We can get recordings of 100 millimetres here and only 10 millimetres a few kilometres away, so there are massive variations in time and space. That certainly presents a challenge. The advances in weather modelling in what we call postprocessing, which is taking your weather model and trying to adjust it to the real world and what you observe on the ground, have helped to produce better rainfall forecasts. The bureau’s rainfall forecasts show a general improvement but with moments where we do really well and moments where we do not do as well. That is the reality of what we do, and that is why we provide ranges. We provide, you know, 2 to 10 millimetres or 10 to 50 millimetres, representing the uncertainty. While some people might find that a bit difficult, it is the truest representation of what we can provide in terms of accuracy.

In terms of climate change and if it is making that harder, like I said, extreme rainfall events in climate change scenarios are likely to become more of an issue, and therefore the research and the effort the bureau makes have to be geared towards those extreme events and how we do better at those. That is certainly absolutely front of mind for me. We are coming out of a high-risk weather season. Right, how do we now go back to the science and the improvements that we need to keep pressing on with? That is the reality of where we sit with rainfall. Run-off itself is also complicated in terms of flash floods and riverine floods, but from the bureau's perspective, we are responsible for riverine flooding. Our river models do take into account the soil moisture and all those antecedent conditions. But again, they are models, and no model is perfect. It attempts to predict and understand those things, but they always require further work and improvement.

Jacinta ERMACORA: Is it quite valid that most ordinary, non-scientific, non-Bureau of Meteorology people in our community expect that on a fire-risk day the most common scenario is a north-westerly followed by some form of southerly change? That is kind of the pattern of the day – is that common?

Matthew COLLOPY: Very common, yes. Having worked across South Australia, Victoria and also Western Australia, the southern frontal sort of systems that have usually multiple days of that northerly hot airstream ahead of the front and then a rapid change to a southerly are by far the riskiest fire days because of that build-up of heat ahead of the front and then the rapidly changing conditions and the wind increases associated with the frontal passage.

Jacinta ERMACORA: So is that the day you would usually likely predict would be catastrophic, or is it more likely that that last day before the change is the catastrophic one?

Matthew COLLOPY: Absolutely. Catastrophic days are very rare. We see a fair number of occasions during the summer where you have extreme ratings across several districts of Victoria or other states ahead of a significant front and then hot conditions, heatwave conditions. But the high-end catastrophic days are almost certainly associated with that type of event.

The CHAIR: All right. Thank you. Mrs Broad.

Gaelle BROAD: Thank you, Matthew. I am just interested – how far ahead can the BOM accurately predict the weather?

Matthew COLLOPY: Accurately in terms of detailed fire, rainfall or other conditions in our current outputs go out to seven days. The accuracy at day two, three and four is very good. As you go into day five, six and seven you see a bit of a change and a reduction in the skill. Then beyond day seven there is still some skill out to day 10. When I say some skill, that means better than picking a 50–50. So you are showing that you can do better than a 50–50 scenario. That is useful information, and often when we do briefings to emergency services we will say, 'Here's the detailed two- to three-day output and then the medium day four to day seven.' They understand that there is less certainty in there, and then we might give indicative information or a heads-up out to day 10. But our public products only go out to day seven, and that is intentional because of the measured accuracy of our forecasting systems.

Gaelle BROAD: I am interested – with V/Line train services there is a 'how often they are arriving on time'; does the BOM have a similar sort of retrospective record of how accurate you have been over the years?

Matthew COLLOPY: Yes, absolutely. We do publish maps of skill of some of our modelling. Some of the short-term data is very complicated because you are talking about all sorts of different weather elements at different timescales and suchlike, but we do provide some detailed stuff to emergency management partners and work with them post and pre-season about what our stats were over the past, say, year, or the summer or suchlike and allow them to provide feedback and give on-the-ground experience that may or may not match with the recorded accuracy of those things.

Gaelle BROAD: There has been some criticism of the accuracy of the BOM over time. Are you generally heading in the right direction?

Matthew COLLOPY: Yes. On notice I can provide some statistical information that we use in our annual report and the other reporting functions and website-type information we provide to the public. It shows a general increase in skill, and that is the same for a lot of national weather agencies. As the science and systems

improve you do see increased accuracy in temperature forecasts, rainfall forecasts and wind et cetera, and we hold ourselves to account to a service level that we set out to do.

Gaëlle BROAD: Thank you. In your submission you said by agreement with the fire agencies the embedded meteorologist provides the state control centre fire weather and heat intelligence briefings twice daily during the fire season. Is that ideal? Are you aiming for any additional increase in that frequency, or is that acceptable?

Matthew COLLOPY: That is what we do in normal contexts, like a routine situation. Having been in those centres myself during an event, there is near constant communication back and forth between that embedded meteorologist and the operations staff from CFA and other agencies that would be sitting around and with that person. As I think I mentioned before, in my career over 25 years, having that come into place 10 or 15 years ago, depending on which state you are in, was a huge step forward in the communication and the ability to get information directly into the hands of those that are making decisions.

The CHAIR: Dr Mansfield, one last question.

Sarah MANSFIELD: Thank you. In the Otways there were a number of difficult fire days, but there was also that significant rain event that caused flooding along the Great Ocean Road that seemed to catch those communities by surprise. The concentration of rain and volume of rain that fell there was quite unexpected. What factors from your perspective contributed to those extreme events happening basically concurrently?

Matthew COLLOPY: On notice I can provide – we did do some reports – some information about that exact event. But the basics are that we saw a number of days of that moist easterly and high moisture content airstream combined with thunderstorms, and we had alerted agencies to the potential for severe storms with heavy rainfall or extreme rainfall. Then with those flash flood catchments that are leading down from the Otways across the Great Ocean Road, that geography element was certainly a factor there, and those catchments and the locations that caused that near disastrous situation were very much flash floods. A flash flood is typically defined, and this is in the intergovernmental agreement, as areas that respond to rainfall in less than 6 hours. That was certainly less than 6 hours that those locations responded in, and it is always going to be very challenging for the bureau and emergency services to get those warnings out on time.

Sarah MANSFIELD: Thank you.

The CHAIR: Matt, thanks so much for the time you have taken this afternoon to give evidence to the committee. We really appreciate the expertise. You will be provided with a proof version of the transcript to review in about a week, and with that the committee's deliberations today are concluded.

Committee adjourned.