



MetService Briefing to Incoming Ministers

Shareholding Ministers

2 November 2020



Introduction to MetService

Congratulations on your new appointment.

This briefing is designed to introduce you to MetService and our contributions to New Zealand as a State-Owned Enterprise and the country's National Meteorological Service, as well as to highlight our highest priority issues that we expect to liaise with you on during your tenure as Minister.

We would appreciate if you would forward this briefing to the newly appointed Minister of Transport considering MetService's contributions to meeting the Ministry of Transport's statutory and regulatory obligations.

Our purpose at MetService is a simple one: we help people stay safe and make informed decisions, based on the weather. We fulfil this purpose as a commercially successful enterprise and passionate team of 300 employees.

We work hard to ensure everyone in New Zealand has access to timely, accurate weather information, be it through our website and app, or through radio, social media, television, print, or the forecasts we generate for our commercial customers. We are the option of choice for New Zealanders when it comes to accessing weather information with more than one million daily page views on our website.

MetService was formed as a State-Owned Enterprise in 1992 from the operational component of the Meteorological Service of New Zealand, which was part of the Ministry of Transport at the time. The climate and atmospheric research components became part of NIWA, a Crown Research Institute.

MetService's 300 employees includes a substantial team of professional meteorologists trained to international standards. We assist the New Zealand Government to meet its statutory and regulatory obligations related to meteorology, and provide a range of specialised services to support the transport sector.



The high-priority issues described in more detail in this briefing that we will be liaising with you on are:

- The importance of MetService's role as the Single Authoritative Voice for weather warnings for public safety
- Weather forecasts for the aviation industry and funding challenges from COVID-19
- Resilient weather forecasting and warning services and the need for earthquake strengthening of MetService's Wellington facilities

We look forward to welcoming you to MetService headquarters in Wellington in person to bring the content of this short briefing to life and to share our passion for keeping New Zealanders safe, based on the weather.

Statutory and Regulatory Obligations

MetService supports the Minister of Transport in meeting statutory and regulatory requirements associated with the Meteorological Services Act 1990¹ and New Zealand's obligations to the United Nations with respect to meteorology.

The Meteorological Services Act

New Zealand is a Member State of the World Meteorological Organization, a United Nations Specialized Agency that facilitates cooperation and data exchange between Member States.

The Meteorological Services Act requires the Minister of Transport to ensure the provision of a meteorological forecasting and warning service, as well as the collection of data required to support that service. In effect, the Act addresses New Zealand's obligation to the World Meteorological Organization to maintain a National Meteorological Service for the safety of life and property.

The Minister of Transport meets the requirements of the Act through a contract with MetService. The current contract has a 12-year term that ends in June 2027,

¹ <http://www.legislation.govt.nz/act/public/1990/0100/latest/whole.html>



and comprises around 40% of MetService's total revenue. In summary, the services provided by MetService under the contract are:

- Severe weather forecasts and warnings for New Zealand land areas
- Forecasts and warnings for marine areas, including coastal and inshore recreational areas, and the South Pacific high seas
- Operation of the Wellington Tropical Cyclone Warning Centre and the Wellington Regional Specialised Meteorological Centre, which are World Meteorological Organization regional support services
- Meteorological support for land-based and maritime Search and Rescue
- Other meteorological services as required to support the Government's response to unexpected events
- Representation of New Zealand at the World Meteorological Organization
- Operation of a national weather observing network to support weather forecasting and warning services (see map in Appendix)

The World Meteorological Organization stresses² that a key role of a National Meteorological Service is the provision of the Single Authoritative Voice for public information about severe weather. This minimises the chance of confusion amongst the public during severe weather events and ensures that warnings and other advice are provided at an appropriate professional standard.

MetService also plays a role in The National Civil Defence Emergency Management Plan Order 2015³, which sets out the roles and responsibilities of agencies involved in reducing risks and preparing for, responding to, and recovering from emergencies. MetService's obligations under the Plan include the monitoring, identification, and analysis of meteorological hazards and threats, and the issuing of associated hazard information.

2 <https://public.wmo.int/en/media/press-release/executive-council-supporting-global-agenda>

3 <http://www.legislation.govt.nz/regulation/public/2015/0140/latest/DLM6486453.html?src=qs%20>



Civil Aviation

Meteorological services for aviation play an important role in the safety of the transport system. For international aviation, these services are regulated by the International Civil Aviation Organization, a UN Specialised Agency similar to the World Meteorological Organization. The Civil Aviation Authority represents New Zealand at the International Civil Aviation Organization and is designated as New Zealand's Meteorological Authority with respect to civil aviation.

The Civil Aviation Authority ensures that New Zealand meets its obligations to the International Civil Aviation Organization for weather services within its area of responsibility through a Memorandum of Understanding with MetService. This memorandum grants MetService the right to charge users of the services – airlines operating internationally – following prescribed cost recovery guidelines.

MetService also supports the Civil Aviation Authority in its engagement with the International Civil Aviation Organization Meteorology Panel, which sets standards and procedures related to meteorological services for aviation.

How MetService Meets its Public Safety Responsibilities

Weather forecasting can take different forms depending on the provider and on the nature of the services. Where the stakes are high – e.g., warning services for public safety – forecasting is generally done within a National Meteorological Service setting using a complex mix of weather observations, computer models, and trained meteorologists with experience interpreting complex and at times conflicting data. MetService's forecasting operation makes use of:

- A national weather observing network (see map in Appendix), complemented by a global network of satellites for remote sensing of the atmosphere
- Global weather prediction models from leading international centres, combined with high-resolution local models managed by MetService
- A team of around 60 operational forecasters, trained to World Meteorological Organization standards, working 24/7 365 days a year



- Robust supporting infrastructure for IT services and communications

This reflects internationally accepted best practice in weather forecasting and is comparable to forecasting operations at MetService's equivalents in other countries such as the UK Met Office, the US National Weather Service, and the Australian Bureau of Meteorology.

MetService and NIWA

You will very likely have heard that there is competition between MetService and the National Institute of Water and Atmospheric Research (NIWA), with a degree of overlap in the services they offer. NIWA, a Crown Research Institute, is primarily research focused, whereas MetService is focused mainly on delivering weather forecasting services.

Over the past two decades, NIWA has developed a weather modelling capability to support its research programmes. More recently it has applied this model for commercial weather forecasting, complemented with a small forecasting team. Competition between the two agencies is mainly in commercial (business-to-business) services.

Other Services for the Transport Sector

Along with its contract with the Ministry of Transport for public safety services, and its international aviation services provided on behalf of the Civil Aviation Authority, MetService provides the following services in support of a safe and efficient transport sector:

- Weather services to support domestic aviation
- A road weather observing and forecasting service for the New Zealand Transport Agency to support management of the State Highway network
- Marine services for commercial shipping and ports



High-priority Issues

During your tenure we expect to be liaising with your teams and other relevant Ministries to address the following high-priority issues and welcome your support to resolve them.

Public Safety

The importance of MetService's role as the Single Authoritative Voice for weather warnings for public safety

Severe weather events that pose a threat to safety of life and property are the most important challenges for MetService. To maximise the benefit of the Ministry of Transport's contract with MetService, it is essential that information about severe weather is accurate, gets to the public in a timely and useful way, and is trusted by the public. That is the fundamental goal of the Single Authoritative Voice.

MetService's role as the Single Authoritative Voice rests solely on the strength of its market presence in New Zealand. While that has generally been effective in the past, this market is changing, with a growing media presence of other weather service providers.

We are exploring ways that we can protect MetService's role as the Single Authoritative Voice, without adversely affecting competition in the marketplace. We welcome the opportunity to brief you in more detail on the increasing risks to public safety and the activities we are planning to address this.

Aviation Funding

Weather forecasts for the aviation industry and funding challenges from COVID-19

The global downturn in the aviation sector has been a significant COVID-19 impact on MetService. Fewer flights – both domestic and international – led to a 20% reduction in MetService's aviation revenue for FY2019/20.

The services themselves are primarily fixed cost in nature and must be maintained to meet New Zealand's international obligations and to ensure that flights operating domestically having sufficient weather information to fly safely.



As a result, MetService's aviation business is projected to make a loss of approximately \$3M in FY20/21. In effect, MetService is subsidising the aviation sector and we expect that to continue for the duration of the pandemic.

At the same time, there are longer-term technological changes taking place within the International Civil Aviation Organization system that will affect MetService's cost recovery model over the next 5-10 years. We are looking at a range of options to reduce the cost of our aviation services without compromising safety, and we are also considering alternative cost recovery models that will better suit the future International Civil Aviation Organization system.

We will continue to work with the Ministry of Transport, the Civil Aviation Authority and the wider aviation sector to address these issues, and look forward to your support in this area.

Resilience

Resilient weather forecasting and warning services and the need for earthquake strengthening of MetService's Wellington facilities

Following on from the Christchurch earthquakes in 2010 and 2011, and subsequent Wellington earthquakes in 2016, MetService has been making a substantial ongoing investment to strengthen the resilience of its facilities and IT systems.

Engineering assessments undertaken in late 2019 have raised concerns regarding earthquake resilience of our head office facility in Wellington and two of our older radar towers at Wellington and Christchurch.

We are working with the Ministry of Transport towards funding bids for Budget 2021 to support seismic strengthening of those facilities, which are essential for delivery of services under the Ministry of Transport contract with MetService.

Other Potential Contributions

With very few exceptions, the services currently provided under the Ministry of Transport's contract with MetService are standard or recommended practices, explicitly or implicitly, in the World Meteorological Organization Technical



Regulations, their Annexes, or other regulatory documents. They constitute a “bare minimum” set for a National Meteorological Service. There is much more that MetService can do to benefit New Zealand, and we are exploring options for funding the following services through the appropriate agencies.

National Coastal Inundation Threat Forecasting and Emergency Response Modelling

New Zealand has about 15,000 km of coastline. MetService has a large oceanographic capability, which is currently devoted to research and commercial work.

In Earth’s warming climate, coastal inundation events (i.e., temporary sea level rise above normal levels in response to weather events) are likely to increase in severity and frequency. As New Zealand’s Single Authoritative Voice on severe weather, MetService is well positioned to provide a national coastal inundation threat forecast and warning service, building on existing services provided under MetService’s contract with the Ministry of Transport.

Pollution of the marine environment, particularly near the New Zealand coast, evokes a strong institutional and public response as occurred, for example, after the grounding of the *Rena* in October 2011. The real-time operation of national-scale hydrodynamic modelling for the area surrounding New Zealand, with an oceanographer on hand for emergency response would help keep the marine environment, and the coast, clean and green.

These two challenges – coastal inundation and coastal emergency response – rely on similar technical capabilities in oceanography. Together they would improve safety outcomes for the maritime community and people living in coastal areas, as well as helping to protect New Zealand’s coastal environment.

National Temperature Warnings

Sustained periods of unusually high or low temperatures have noticeable impacts on the New Zealand population, infrastructure, and productive sector. The last few summers are among the warmest on record: even island nations can have heatwaves. In Europe and North America, heat waves and cold snaps are correlated with increased human mortality and increased hospital



admissions respectively. A New Zealand study suggests that, in Canterbury, there is a correlation between hot days and hospital admissions.

The Ministry of Health's *Heat Health Plans: Guidelines*⁴ state *"Note that because New Zealand has no formal heat-related notification system, individual organisations will need to consider setting trigger levels, monitoring weather conditions and implementing Heat Health Plans as appropriate."* This is a big ask of any health organisation any time, let alone during a pandemic when its case load could change rapidly and unpredictably.

The absence of a formal heat-related notification system is unusual for a first-world country. Fortunately, the situation is fairly easily fixed. As New Zealand's Single Authoritative Voice on severe weather, MetService is well positioned to develop and deliver such a system. This would improve the knowledge and preparedness of health agencies with respect to heat waves or cold snaps, leading to better health outcomes for New Zealanders, particularly for vulnerable groups.

Improving Radar Coverage

In collaboration with the Ministry of Transport, MetService has expanded its weather radar network from four to nine sites over the past decade, with a tenth site near Dunedin under construction. Radar provides forecasters with more detailed information about weather systems and enables forecasts and warnings of severe thunderstorms within the coverage area.

Under your contract with MetService, over the next 3 years we will upgrade our oldest radars – Auckland, Wellington and Christchurch – to new technology to bring them up to the same standard as the rest of the network. The next phase in developing the network will be to fill remaining gaps in radar coverage of populated areas, including Southland, Nelson/Tasman, and parts of the central North Island, providing improved weather forecasts and severe weather warnings to better support safety of life and property in those regions.

4 <https://www.health.govt.nz/system/files/documents/publications/heat-health-plans-guidelines-dec18.pdf>



Appendix

MetService Weather Observing Network

