

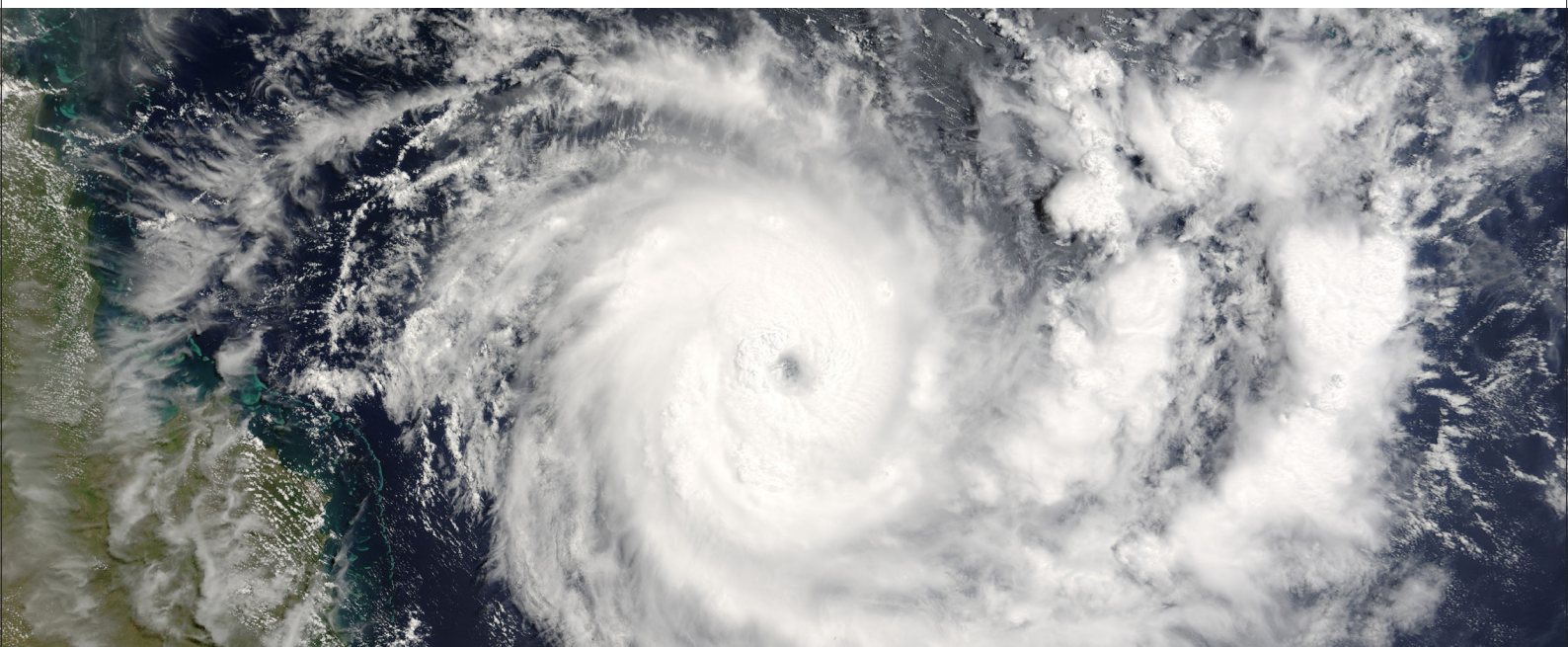
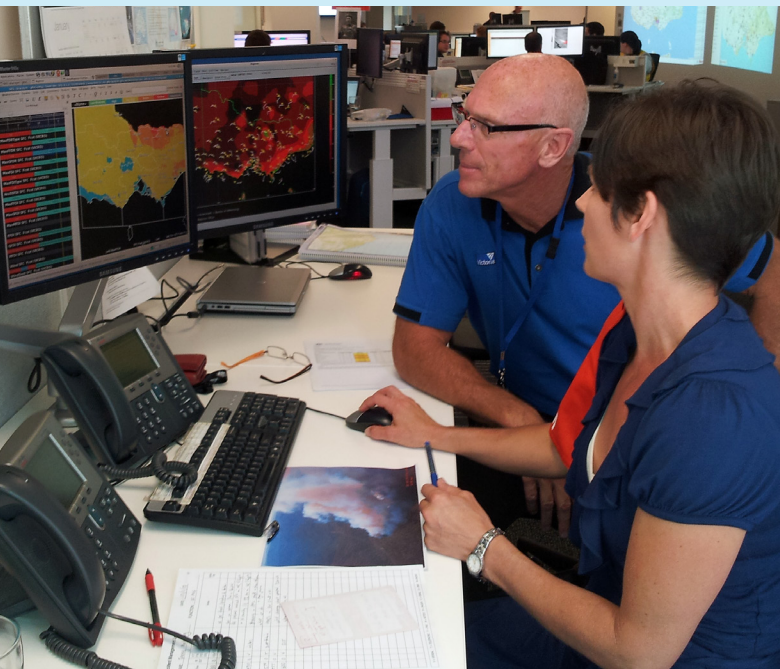


Australian Government
Bureau of Meteorology

Data and Information Framework

Data and Information Principles

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Data Information Framework document

Bureau of Meteorology
Tel: (03) 9669 4000
www.bom.gov.au

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The front cover includes an image of Tropical Cyclone *Ingrid*, Visible Earth © Jacques Descloitres, MODIS Rapid Response Team, NASA/GSFC —used with permission.

Image on pg 10 shows one of the earliest recorded weather observations under the Bureau's control - for the Swan River Colony (Perth, W. A.) in 1830. Courtesy of the National Archives of Australia (Perth Office).

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About this document

The Bureau of Meteorology's (the Bureau's) extensive meteorological, water and other environmental data and information assets are a critical national resource that must be managed effectively for current and future generations.

For this reason, we are committed to establishing and implementing a robust, principles-based data and information framework. This will enable us to realise our vision for leadership in data and information management and use.

This document introduces the Bureau's Data and Information Framework and establishes the key principles that will guide its further development and implementation.

Other key elements of the Framework will be further articulated in a series of related documents.

Our vision

The Bureau's vision is to be a nationally and internationally recognised leader in the management and use of data and information to support our mission.

About Us

The Bureau is Australia's national meteorological service and environmental intelligence agency.

Our mission is to provide all Australians with the information they need to manage and live within their natural environment. This encompasses the atmosphere, oceans, water and land.

We collect, manage, analyse, disseminate and preserve data and information of international significance to:

- monitor and report on current environmental conditions;
- analyse and explain trends in environmental data;

- provide forecasts, warnings and long-term outlooks on environmental phenomena; and
- promote greater public understanding and use of environmental intelligence.



Our extensive data and information assets are a critical national resource that must be managed effectively for current and future generations.

Why data and information matter to us

The Bureau is an information-rich organisation. Robust data and information management is essential to our operations.

Raw data, from simple point measurements to high volume spatial data, are collected and transformed into specialised information products and data services.

These underpin the delivery of essential information, forecast and warning services to the community, emergency services, and industry sectors, including agriculture, marine, aviation, minerals exploration and defence.

Raw data and its derived products also feed into the Bureau's climate, weather and water research activities. These inform public and policy responses to critical environmental issues such as climate variability and change.

Under the National Plan for Environmental Information Initiative, we are leading Australian Government efforts to improve the utilisation of environmental information.

We also utilise our data and other information (e.g., metadata) for a range of activities that enhance our operations, including verification and model development.

The Bureau is also committed to the maintenance of robust information management practices that support our accountability, privacy, Freedom of Information and protective security obligations.



The Bureau is leading Australian Government efforts to improve the utilisation of environmental information.

Our data and information

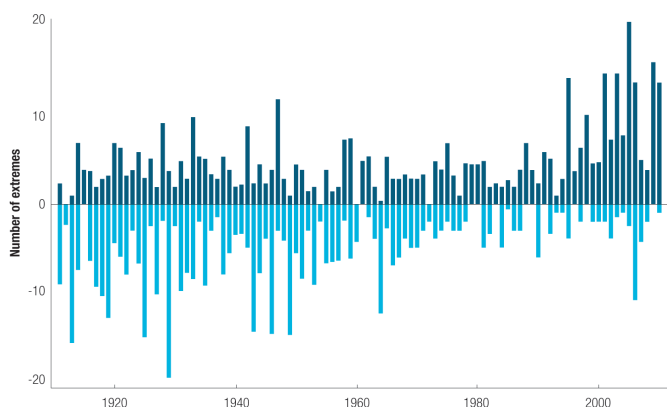
Reflecting our proud heritage of service since 1908, the Bureau is the custodian of Australia's largest and most diverse holdings of environmental data and information. Our major data holdings have enduring value to government, the community and researchers—local and international. They include:

- observations of environmental conditions at the surface, in the oceans and through the atmosphere. These observations include rainfall, temperature, humidity and wind;
- the Australian climate record;
- the Australian Climate Observations Reference Network—Surface Air Temperature dataset (ACORN-SAT);
- satellite data and imagery;
- space weather data;
- hydrological and flood data;
- sea level, tsunami and tidal data;
- forecasts, warnings and model outputs
- the Australian Hydrological Geofabric and water resource information, including Australia's national water accounts;
- research analysis, outputs and reports; and
- metadata essential to verifying and understanding observations.

The Bureau's environmental data and information are obtained from a variety of sources, including its surface, marine and air-observing networks. These are integrated with data and information from other meteorological agencies, international space-based observing networks and other providers such as water authorities. Data and information are managed in several architectural domains and information models. These include simple, real time, time series, multi-dimensional grid, image and spatial data, as well as non-digital data.

We proactively adapt to changing needs for data and information by embracing new technologies, incorporating new data streams and by future-proofing for new obligations.

The Bureau also generates and receives significant volumes of corporate business documents, email and other information. These records are essential to supporting our day-to-day business operations and for meeting Australian Government accountability, compliance and record-keeping requirements.



Our vision is to be a nationally and internationally recognised leader in the management and use of data and information

The Data and Information Framework

To achieve our vision and fulfil our mission, the Bureau has established a framework to govern and inform all aspects of data and information acquisition, management, use, access, archival and disposal.

The Framework (Figure 1) underpins and supports the achievement of the Bureau's priorities and strategies that impact and depend on the management of data and information through its lifecycle and in all its forms.

The Framework consists of the following key elements:

Data and information principles are high level, strategic, and enduring. They represent the Bureau's values and fundamental beliefs in relation to data and information.

- The principles are the foundation for innovation, leadership, and best practice. They have enduring value and frame the strategic development of the Framework's other key components.

Data and information strategies are more detailed, Executive-endorsed road maps. They set out what is needed to realise the Bureau's vision for environmental data and information management.

Policies are executive-endorsed rules and protocols that are practical in nature and direct how the Bureau manages its data and information assets.

- Policies govern and guide operations and decisions, harmonise practice, and achieve compliance and consistency in key areas, including: governance, security, generation, exchange, access, metadata, storage and archiving.
- A set of policies is being articulated, framed by the principles and mapped into the Framework.

Systems and tools provide the mechanisms, methodologies and procedures that facilitate implementation of the policies.

- A suite of systems and tools will be developed to facilitate the implementation of the Framework. These will be documented and regularly refined to ensure continued improvement.

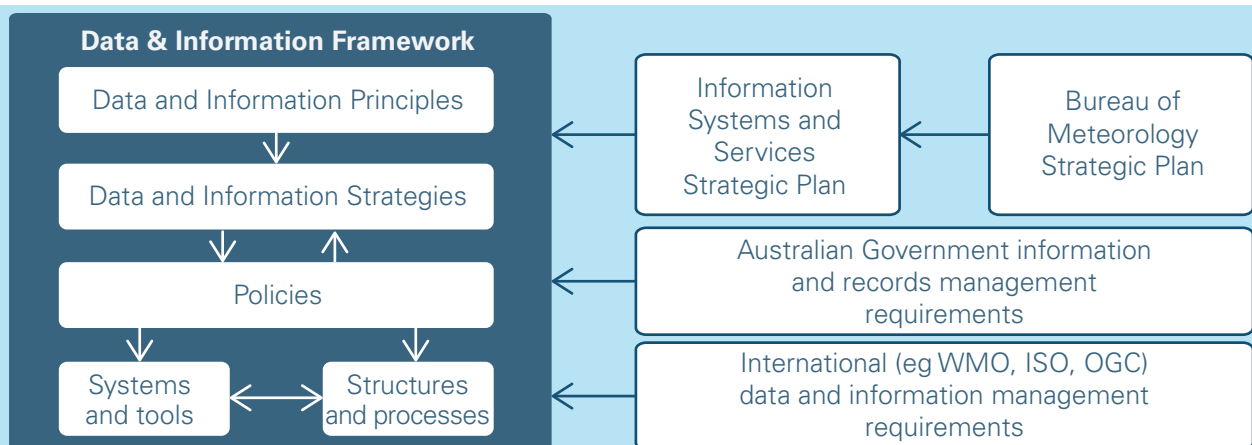


Figure 1 The Bureau's Data and Information Framework

Structures and processes define the organisation, coordination and governance elements of the Framework.

- Building a strong organisational structure and governance provides an effective and traceable environment for data and information management across the Bureau. This includes the decisions and actions on policy associated with data and information programmes and projects.

All Bureau initiatives involving data and information will conform to this Framework.

The key benefits of the Framework are: enhanced operational performance, improved business efficiency, better informed decision-making, risk mitigation and compliance with government information management requirements.

These benefits accrue through both:

- acquisition, management and use of data and information within the Bureau; and
- the added value and intelligence extracted through use and integration of Bureau data and information across government and the broader community.



We will ensure the Bureau is the trusted, authoritative and reliable source of environmental intelligence.

Our approach

The Bureau will lead by example in acquisition, management and utilisation of data and information. We will realise the opportunities our extensive data and information holdings present whilst engaging effectively with risk.

The Bureau aims to acquire once; use many; share widely and deliver value while managing securely and respecting privacy.

We will contribute to whole-of-government data and information policy by proactively engaging with lead agencies, and sharing our experiences in delivering value from data and information.

The overall value of Australia's environmental intelligence will be enhanced through integration of the Bureau's data and information with that of other agencies.

This approach is guided by the Bureau's responsibilities under the Commonwealth *Meteorology Act 1955*, *Water Act 2007* and other Australian Government requirements and directions. These include:

- *Archives Act 1983* (Cmth);
- *Freedom of Information Act 1982* (Cmth);
- *Privacy Act 1988* (Cmth);
- *Competition and Consumer Act 2010* (Cmth);
- [Protective Security Policy Framework](#) (Attorney General's Department);
- [Information Security Manual](#) (Australian Signals Directorate);
- [Principles on open public sector information](#) (Australian Information Commissioner);
- The Australian Government [Digital Transition Policy](#); and
- [National Archives of Australia](#) requirements and standards.

The Bureau also has important international data and information management obligations through:

- World Meteorological Organization (WMO) resolutions [25](#) and [40](#);
- [WMO Information System](#), [WMO Integrated Global Observing System](#);
- [Global Earth Observations \(GEO\) Data Sharing Principles](#); and
- [International Standards Organisation](#) and [Open Geospatial Consortium](#).



From meeting our obligations to applying the Data and Information Framework more broadly, we will demonstrate innovation and leadership nationally and internationally

Our data and information principles

Data and information are essential to fulfilling the Bureau's mission and obligations as Australia's national meteorological service and environmental intelligence agency.

In managing this mission-critical resource on behalf of the Australian community, the Bureau will be guided by the following high-level principles:

Strategic alignment

We will align the Data and Information Framework with the Bureau's wider strategic directions and key government and international initiatives.

Authoritative and trusted

We will ensure the Bureau is the trusted, authoritative and reliable source of environmental intelligence.

Deliver value

We will maximise the value of data and information by applying it to the needs of government, the community, industry and stakeholders.

Discoverable and usable

We will make data and information easily discoverable and usable over time.

Robust management and governance

We will apply strong standards-based governance and practices. We will achieve efficient, effective and secure management of data and information throughout its life.

Innovation and leadership

From meeting our obligations to applying the Data and Information Framework more broadly, we will demonstrate innovation and leadership nationally and internationally.

Date	Place	Time	Therm. Shade	Therm. in Sun	Maxima	Minima	Winds	Weather
18.30	Perth	off	58	—	30.37	—	SE	Fine light a
"	"	0.	55½	"	30.35	"	Eastly	do do
"	"	3 PM	55	"	30.35	"	Eastly	Cloudy br
"	"	night	49½	"	"	"	"	Fine
8	"	9 AM	55	"	30.32	"	NW	Fine moder
"	"	0	56	"	30.32	"	Westly	Fine
"	"	3 PM	64	"	30.32	"	Westly	"

Adopting these principles will ensure that data and information of enduring value is available for current and future needs.

Governance

Responsibility for the implementation and oversight of the Framework lies with the Bureau's Chief Information Officer (CIO). The CIO is also the Deputy Director (DDI) responsible for the Information Systems and Services (ISS) Portfolio and the ISS Division.

All functions and programs associated with information systems and services are consolidated within the ISS Division, from operational data and information management, through information technology infrastructure and services, systems development and maintenance, to digital delivery.

Within the ISS portfolio, Environmental Information Management has responsibility for Bureau-wide data and information policy, architecture, governance, standards, operations and management. Environmental Information Management provides direct support to the CIO in the implementation of the Framework.

The CIO, as a member of the Bureau's Executive, advises the Executive on the implementation and operation of the Framework and on the approval of data and information policies.

All new data and information initiatives will conform to this Framework.

The CIO also provides the focus for external engagement on data and information matters and the coordination of data and information-related matters across the Bureau.

A cross-program consultative committee, which is chaired by the CIO and consists of key senior executives, provides a high-level mechanism for communication, adoption and support of whole-of-Bureau Data Framework components developed by the Environmental Information Management program.



We will achieve efficient, effective and secure management of data and information through robust standards-based governance

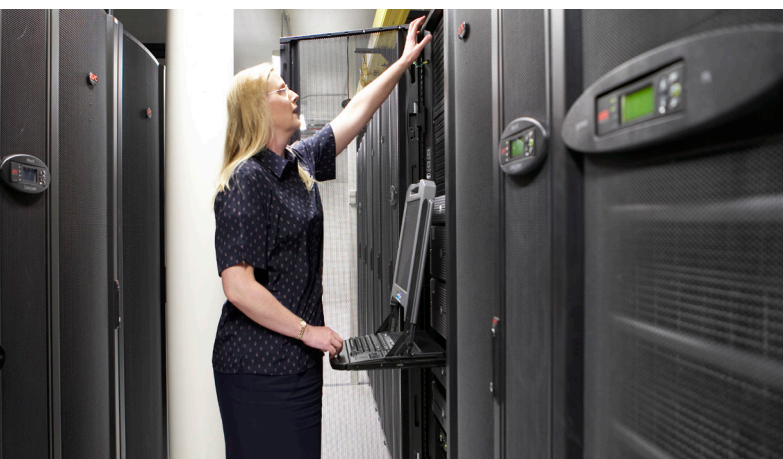
Implementing the Framework

Developing the Framework and establishing the high-level data and information principles is an important first step in implementing a holistic and fit-for purpose approach to managing the data and information assets of the Bureau to support its mission.

Key next steps, which will proceed under the leadership of the CIO and will be the focus of subsequent publications, include:

- preparation of an implementation plan for elaborating all the elements of the Framework and putting in place the mechanisms to oversee its implementation, operation and continuous improvement;
- development and promulgation of the data and information strategies that will provide a more technical articulation of the principles in the context of the overarching ISS Strategic Plan and the Bureau's ISS architecture; and
- reviewing and mapping the full suite of data and information policies that guide the Bureau's operations and decisions. These will be evaluated to assess their alignment with the principles and the extent to which they support the implementation of the ISS Strategic Plan.

In parallel with these key initiatives, the remaining elements of the Framework will be elaborated and mapped into the Framework. These are the systems, tools, structures, and processes that facilitate effective and efficient management, manipulation and use of data and information that encourage and underpin innovation and ensure traceability, transparency, and compliance.



These are the systems, tools, structures, and processes that ... underpin innovation and ensure traceability, transparency, and compliance.

Endorsement

This document was considered by the Bureau's Executive and originally approved by the Director of Meteorology on 5 September 2013.

This document will be reviewed and updated as required.