Australian Government

AUSTRALIA'S STATE AVIATION SAFETY PROGRAM

APRIL 2012

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Contributing Agencies

- Airservices Australia
- Australian Maritime Safety Authority
- Australian Transport Safety Bureau
- Bureau of Meteorology
- Civil Aviation Safety Authority
- Department of Defence
- Department of Infrastructure and Transport

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Contents

FOREWORD

The safety of the aviation industry is paramount to its ability to maintain the confidence of the travelling public as it continues to grow and to connect people, communities and nations.

Australia has an excellent aviation safety record with a mature regulatory framework and a broadly accepted and industry-supported safety culture.

Even a mature safety system must include processes for ongoing improvement. Continuing rapid advances in navigation and aircraft technology and the intense commercial pressures of the aviation industry require the continuing improvement and refinement of our aviation safety systems.

Australia supports the efforts of the International Civil Aviation Organization (ICAO) to establish Safety Programs for member States to better ensure effective integration of aviation safety standards and practices. This builds on the approach endorsed by ICAO to have air transport operators, airports, air navigation and maintenance service providers and other critical aviation operations establish comprehensive safety management systems to guide the management of the range of activities involved in ensuring safety.

Australia's State Safety Program plays an important part in identifying, monitoring and maintaining the effectiveness of the various elements of our safety systems. The Program identifies and describes current arrangements and outlines the steps we need to continue to take in order to respond to safety challenges in the future.

The history of Australia's formal oversight of its civil aviation operations dates back to the enactment of the *Air Navigation Act* by the Commonwealth Parliament in 1920.

Over the ensuing 90 years, regulatory oversight of the safety performance of civil aviation operations has required continual revision and modernisation in response to, and on occasion in anticipation of, a range of technological advances and changes in the operational environment.

Australia was a signatory to the Convention on International Civil Aviation (Chicago Convention) in 1944, and has been a member of ICAO since its establishment. From the outset, Australia has been an active participant in, and a strong supporter of ICAO's activities, demonstrating an ongoing commitment to the enhancement of the safety, security and environmental sustainability of civil aviation. As a large island nation, the availability of safe, regular and efficient air services within Australia and between Australia and the rest of the world is critical to our national interest.

A number of Australian Government agencies have responsibilities for aviation safety including the Department of Infrastructure and Transport, the Civil Aviation Safety Authority, Airservices Australia, the Australian Transport Safety Bureau, the Department of Defence, the Bureau of Meteorology and the Australian Maritime Safety Authority. These agencies have now produced the first revision of Australia's State Safety Program. I would like to acknowledge all of these agencies for their contributions to this Program and for their continuing commitment to aviation safety in Australia. The State Safety Program will be reviewed on a regular basis to ensure that it reflects evolving aviation safety standards and practices.

Mike Mrdak
Secretary
Department of Infrastructure and Transport
April 2012

INTRODUCTION

Annexes 1, 6, 8, 11, 13 and 14 to the Convention on International Civil Aviation (Chicago Convention) include the requirement for Contracting States to establish a State Safety Program (SSP), in order to achieve an acceptable level of safety in civil aviation. An SSP is a management system for the management of safety by each State.

SSPs are defined as integrated sets of regulations and activities aimed at improving safety. They include specific safety activities that must be performed by the State, together with regulations and directives to support fulfilment of the State's responsibilities concerning safe and efficient delivery of aviation activities in the State.

An SSP combines the elements of both the prescriptive and performance based approaches to the management of aviation safety and incorporates four key components:

- State safety policy and objectives;
- State safety risk management;
- State safety assurance; and
- State safety promotion.

Each SSP provides the monitoring and governance framework within which operators and service providers establish and maintain a Safety Management System (SMS). States are responsible, under the SSP, for the acceptance and oversight of service providers' SMS.

Regulation of aviation safety relies on a broad approach that includes planning and accountability at an organisational level as well as appropriate technical standards.

Aviation operators have a primary role in ensuring safety. The International Civil Aviation Organization (ICAO) has mandated that aviation operators implement satisfactory SMS', which seek to deliver a better safety culture across the board.

Broadly defined as a systematic approach to managing safety risks, an SMS encompasses organisational structures, policies and procedures. It is based on the idea that safety is best achieved through strong interwoven systems, rather than individual processes or practices. It is also underpinned by a philosophy of mutual responsibility and accountability, rather than relying solely on regulatory compliance.

In Australia, the Civil Aviation Safety Authority (CASA) is working with industry to embed an SMS culture in the aviation industry.

While much of the responsibility for implementing an SMS lies with industry, CASA recognises it must monitor and assess the effectiveness of these systems.

More broadly, the Australian Government and its agencies need to ensure the system of administering aviation safety remains coordinated and effective in managing both current and emerging risks, while accommodating growth and diversity in the industry. This is the purpose of Australia's SSP for aviation.

Australia has a comprehensive and robust safety system with highly regarded safety management and regulatory approaches. Australia's aviation safety framework involves interaction among various government agencies with identified statutory responsibilities, the aviation industry and other stakeholders, all operating in the wider context of Australia's commitments to ICAO's global focus on safe, efficient and environmentally sustainable aviation.

Australia's SSP is articulated here at a high level with reference to further, more detailed information about specific elements of the program which are the responsibilities of individual government agencies.

Australia's SSP will be reviewed and updated under the coordination of the Aviation Policy Group (APG), in consultation with the Australian Transport Safety Bureau (ATSB) and other relevant agencies. APG brings together the agency heads of the Department of Infrastructure and Transport, CASA, Airservices Australia (Airservices) and the Chief of Air Force on behalf of the Department of Defence (Defence). APG is chaired by the Secretary of the Department of Infrastructure and Transport, the Department of State for aviation in Australia.

This SSP is the first revision of the original SSP launched in January 2011.

1. STATE SAFETY POLICY AND OBJECTIVES

Safety Objectives

Ensure Australia's safety system as a whole works effectively and that key players, whether they are technical staff or senior management, are working together in the interests of safety.

Safety regulation will be robust and based on clear communication between government and industry. While the safety of the travelling public will be the first consideration, unnecessary or outdated impediments to industry's growth will be removed.

Ensure Australia's safety regulatory and investigatory agencies remain world leading and have the skills and capabilities to maintain safety and facilitate industry growth.

Regulation of safety will take account of international best practice and where possible Australian requirements will be aligned with relevant overseas practices.

Australian safety agencies will explore opportunities to adopt technologies which improve safety, are interoperable and harmonised to the greatest extent possible. Australia will ensure that the adoption of technology is consistent with that proposed by ICAO to develop global interoperable and harmonised technology growth paths.

Aviation safety does not stop at national boundaries and Australia will remain a key contributor on safety in international fora, particularly ICAO, and in the Asia Pacific region.

National Aviation Policy White Paper – Flight Path To The Future

On 16 December 2009 the Australian Government released the *National Aviation Policy White Paper – Flight Path to the Future*, a comprehensive document bringing together all strands of aviation policy into a single, forward-looking policy document.

The Aviation White Paper confirms that safety and security underpin the sustainability and growth of the Australian aviation industry and remain the highest priorities for the Australian Government. The paper identifies safety and security of the travelling public as the first priorities of the Australian Government for aviation.

The White Paper commits the Australian Government to maintaining Australia's safety record, strengthening aviation security systems and providing a policy framework for the development of the aviation industry at all levels – international, domestic, regional and general aviation. It sets out initiatives to ensure better planning and integrated development on and around airports and to lessen the adverse effects of aviation activity on the environment and communities.

The approach to aviation safety regulation, accident and incident investigation and air traffic management can be found in chapters 6 and 7 of the White Paper. The White Paper remains the guiding document for aviation policy settings within Australia.

The Aviation White Paper can be found at the Australian Government's Department of Infrastructure and Transport website:
www.infrastructure.gov.au/aviation/nap/index.aspx

Australian Airspace Policy Statement

The Australian Airspace Policy Statement reflects the Government's commitment to aviation safety, with safety of passenger transport services as the first priority in airspace administration. The Statement provides guidance to CASA, as the airspace regulator, on the administration of Australian airspace, together with the legislative and regulatory requirements of the *Airspace Act 2007* and the Airspace Regulations 2007.

The Statement identifies a number of the Government's airspace policy objectives including the need for effective cooperation between CASA and Australia's air navigation service providers.

The Australian Airspace Policy Statement can be found at the Australian Government's Department of Infrastructure and Transport website:
www.infrastructure.gov.au/aviation/airspace_reform/aaps.aspx

Australia's aviation safety performance

A safe and efficient aviation industry is critical to the Australian economy. Australian aviation, its airlines and its aviation agencies are highly regarded internationally. Each agency has, through legislation, compulsory reporting requirements to government and the Australian public.

Scheduled commercial passenger-carrying air services in Australia, termed regular public transport (RPT), have long been regarded as among the safest in the world. Accidents are rare in the RPT sector and studies undertaken by the ATSB have found that Australia is a world leader in aviation safety.

Australia collects a range of aviation activity and safety information to assess safety performance and trends, and to highlight areas of emerging risk. A key policy objective for Australia is the maintenance of positive trends in safety performance across the aviation sectors.

Trends in Australian aviation safety indicators show:

- In the period between 1968 and 2011 there were no fatal high capacity (above 38 seats) RPT accidents in Australia.

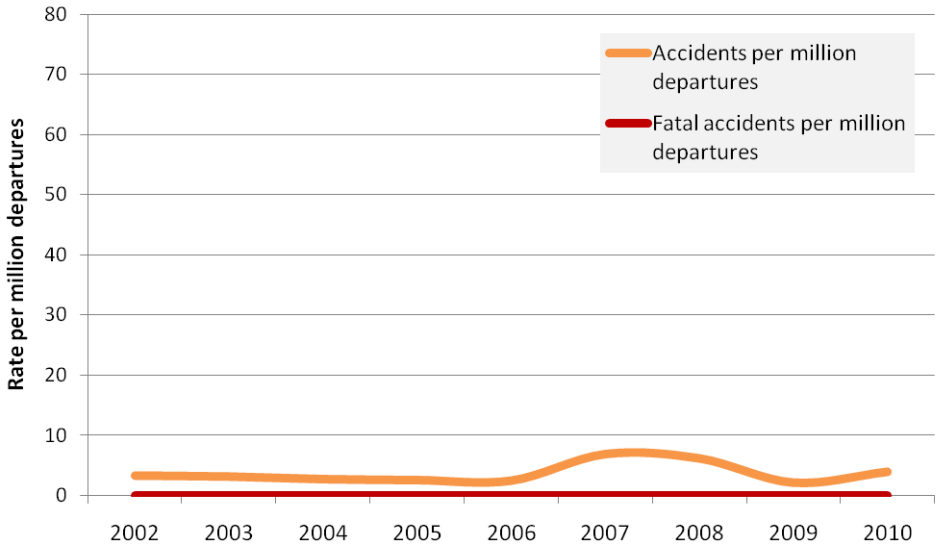


Figure 1.1 High capacity RPT occurrence statistics 2002 to 2010

- The accident rate for high capacity RPT operations (see Figure 1.1) has ranged from 2.0 to 6.8 per million departures between 2002 and 2010. The fatal accident rate for this category has remained at zero for the same period.

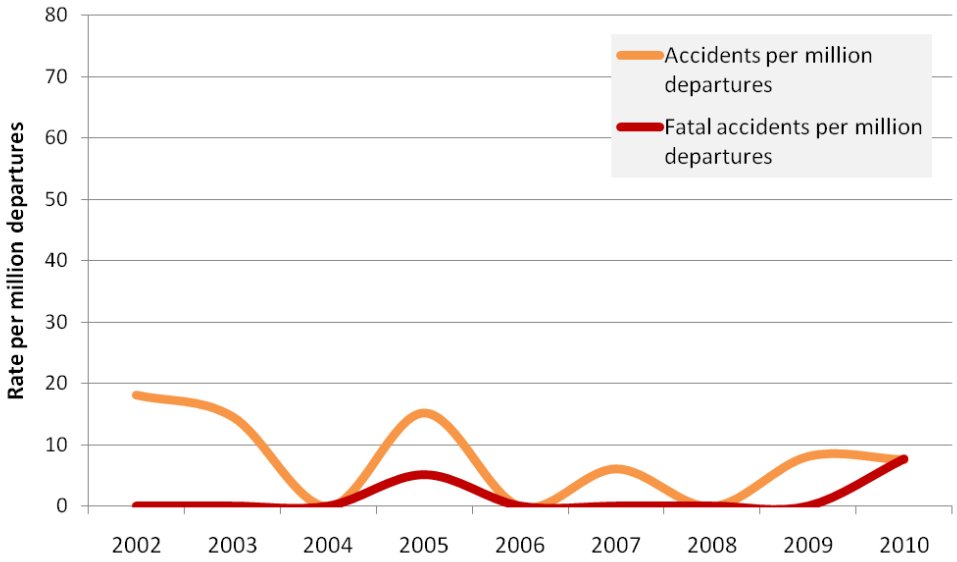


Figure 1.2 Low capacity RPT occurrence statistics 2002 to 2010

- The accident rate for low capacity RPT operations (see Figure 1.2 above) has ranged from 0 to 18.2 per million departures between 2002 and 2010. There have been two fatal accidents for this category in the period, one in 2005 and one in 2010. The 2010 accident involved a training flight in an aircraft used for low capacity RPT operations.

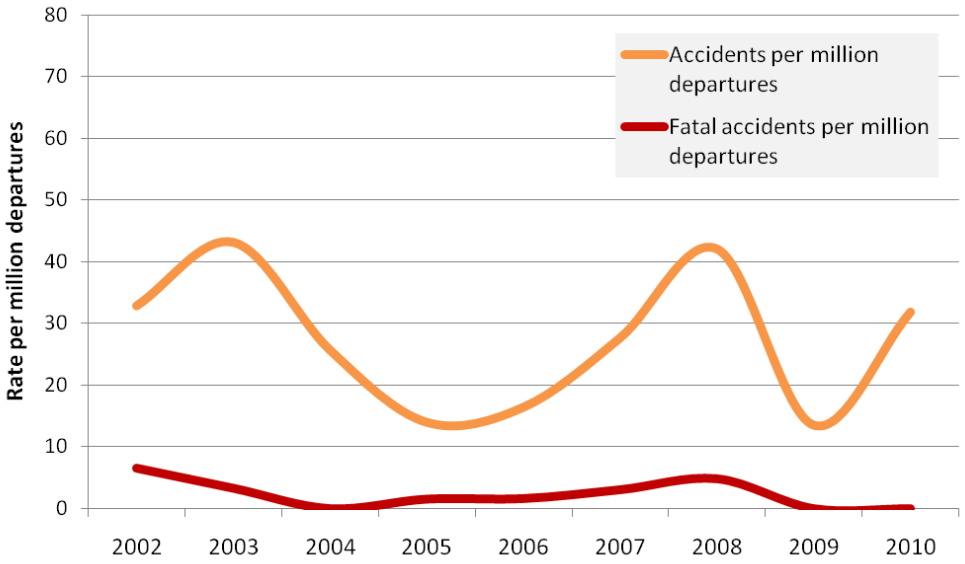


Figure 1.3 Charter occurrence statistics 2002 to 2010

- The accident rate for charter operations (see Figure 1.3 below) has ranged from 13.5 to 43.1 per million departures between 2002 and 2010. The fatal accident rate for this category has ranged from 0 to 6.6 per million departures for the same period. There were no fatal accidents in charter operations in 2009 and 2010.

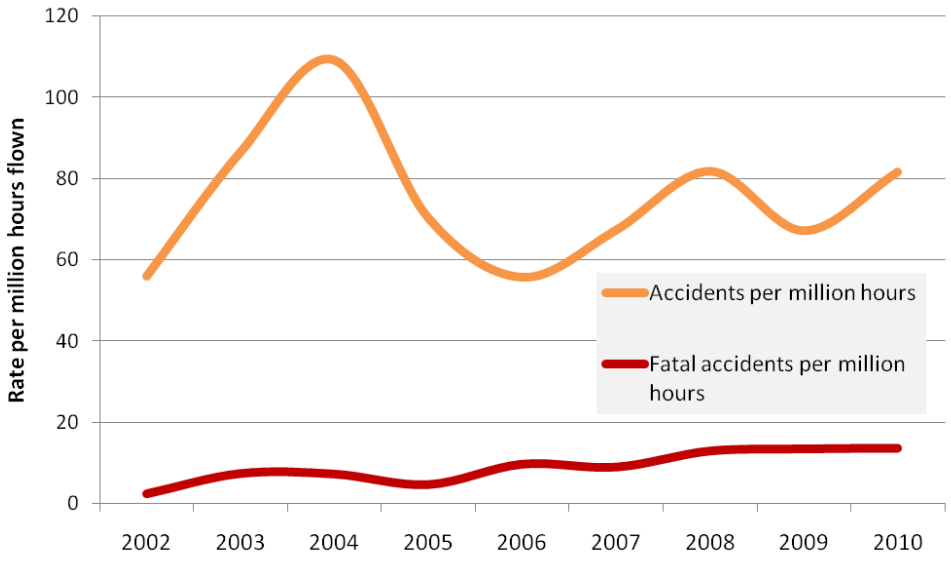


Figure 1.4 Aerial work occurrence statistics 2002 to 2010

- The accident rate for aerial work operations (see Figure 1.4 above) has ranged from 56.1 to 109.2 per million hours between 2002 and 2010. The fatal accident rate for this category has ranged from 2.4 to 13.6 per million hours for the same period.

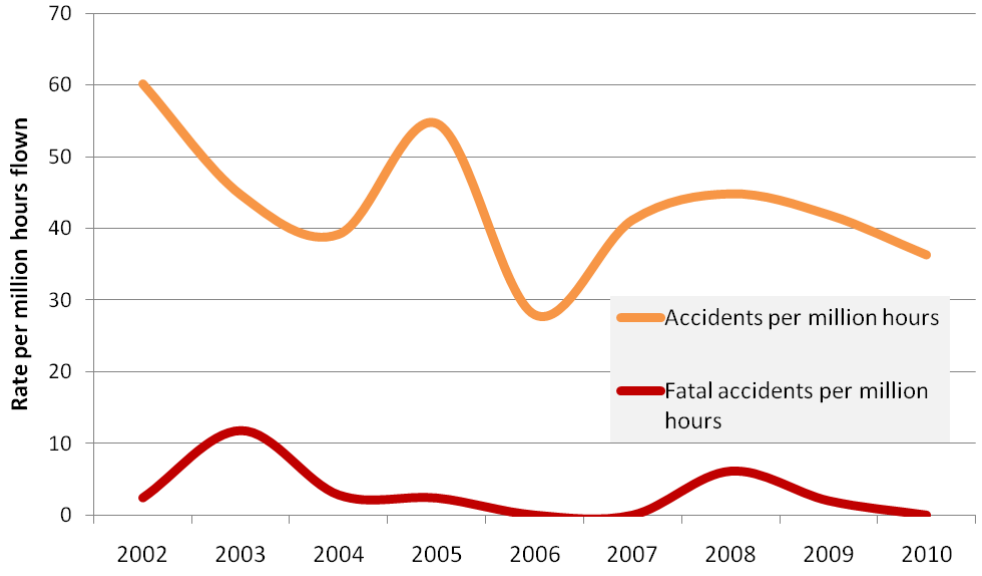


Figure 1.5 Training occurrence statistics 2002 to 2010

- The accident rate for training operations (see Figure 1.5 above) has ranged from 28.0 to 60.2 per million hours between 2002 and 2010. The fatal accident rate for this category has ranged from 0 to 11.8 per million hours for the same period.

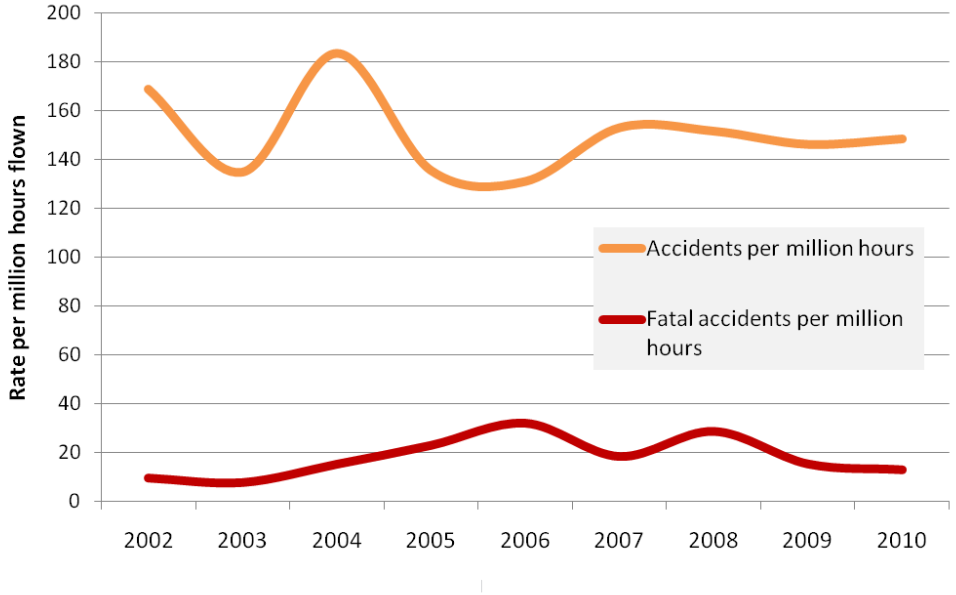


Figure 1.6 Private occurrence statistics 2002 to 2010

- The accident rate for private operations, including business operations, (see Figure 1.6 below) has ranged from 131.0 to 183.4 per million hours between 2002 and 2010. The fatal accident rate for this category has ranged from 7.8 to 32.1 per million hours for the same period.

Further information on Australia's safety performance is contained in Section 3: State Safety Assurance.

1.1 Australian aviation legislative framework

Australia's legislative system

The Australian Parliament has the power to make laws for aviation safety. Primary legislation made by the Parliament is referred to as an Act. Proposed Acts must be agreed to by both Houses of Parliament to become law.

Many Acts provide for the making of regulations or other instruments, referred to as delegated (or subordinate) legislation, to supplement key provisions of primary legislation. These legislative instruments can be authorised by

the Governor-General, the relevant Minister or an official empowered by an Act. The power to make delegated legislation is restricted by the scope of the power provided in the relevant Act. Delegated legislative instruments must be tabled in Parliament and are subject to Parliamentary disallowance.

A regulatory change may be initiated as a result of developments in government policy, in response to an identified safety need, or new or amended Standards and Recommended Practices (SARPs) issued by ICAO.

Australia is committed to developing its regulatory requirements in harmony with international best practice. Legislation and regulations are, as far as practicable, consistent with the standards and practices of leading international aviation regulatory authorities.

Generally, new or amended legislation or regulations are subject to public consultation in the development phase and cost-benefit impact assessments are prepared as part of the Parliamentary process through formal Regulation Impact Statements. Amendments to regulations and other legislative instruments are published in the Federal Register of Legislative Instruments.

All regulations and legislative instruments are available to the public free of charge on a dedicated Australian Government website:
www.comlaw.gov.au

Australian aviation legislation

The Australian Parliament has developed and promulgated a comprehensive legislative framework, applicable to the agencies established to manage the civil aviation system of Australia, and consistent with the Chicago Convention.

Australia ratified the Chicago Convention in 1947. The primary legislation in Australia that gives effect to the Convention is the *Air Navigation Act 1920*. This Act provides approval for the ratification of the Convention. The text of the Convention and amendments to it are included as schedules to the Act. The Department of Infrastructure and Transport is responsible for administering the *Air Navigation Act 1920*.

The *Air Navigation Act 1920* also contains a provision for regulations to be made for the purpose of carrying out, and giving effect to, the Chicago Convention and international standards and recommended practices contained in any Annex to the Convention. In practice, the *Air Navigation Act 1920* is an important element in international operations and approvals and in ensuring Australia's aviation laws are consistent with ICAO practices.

The *Civil Aviation Act 1988* establishes CASA as the air safety regulator, sets out CASA's governance arrangements, and provides that CASA shall perform its functions in a manner consistent with the obligations of Australia under the Chicago Convention and any other agreement between Australia and any other country or countries relating to the safety of air navigation.

The *Airspace Act 2007* confers additional regulatory responsibility on CASA for airspace and aims to ensure that Australian-administered airspace is administered and used safely, taking into account protection of the environment, efficient use of airspace, equitable access to that airspace for all users of airspace and national security.

The *Transport Safety Investigation Act 2003* establishes ATSB as the no blame investigator of aviation accidents and incidents, and aims to improve transport safety by providing for:

- the reporting of transport safety matters;
- independent investigations into transport accidents and other incidents that might affect transport safety;
- the making of safety action statements and safety recommendations that draw on the results of those investigations;
- publication of the results of those investigations in the interests of transport safety; and
- the protection of sensitive safety information.

The *Air Services Act 1995* establishes Airservices as the civil air navigation services provider and prescribes the functions, responsibilities and governance arrangements for the organisation.

The *Australian Maritime Safety Authority Act 1990* establishes the Australian Maritime Safety Authority (AMSA) as the national safety agency responsible for maritime safety, protection of the marine environment and aviation and marine search and rescue.

The *Meteorology Act 1955* establishes the statutory position of Director of Meteorology and the Bureau of Meteorology (BOM) as Australia's national weather, climate and water agency. It is an Executive Agency within the Sustainability, Environment, Water, Population and Communities Portfolio of the Australian Government. The Director of Meteorology is the designated Meteorological Authority for Australia, in accordance with the requirements of the Chicago Convention and BOM is the aeronautical meteorological service provider.

Aviation safety regulation

The civil aviation safety legislative system is also comprised of a range of subordinate legislation (such as regulations) which is supported by guidance material.

Subordinate Australian aviation legislation and aviation safety guidance material include:

- Air Navigation Regulations 1947 – which regulate a range of licence and approval conditions, on operators of international air services;
- Civil Aviation Regulations 1988 (CAR) and Civil Aviation Safety Regulations 1998 (CASR) – which provide the general safety regulatory controls in relation to aviation activities. These regulations set out in some detail the safety standards that are required in relation to airworthiness of aircraft, licences and ratings of operating crew and maintenance personnel, air traffic control, rules of the air, dangerous goods and many other safety issues;
- Air Services Regulations 1995 – which set out the functions of Airservices in relation to the provision of air traffic services, rescue and fire fighting services and aeronautical information services;
- Airspace Regulations 2007 – which enable CASA to perform the functions and exercise the powers in connection with the administration and regulation of Australian administered airspace;
- Transport Safety Investigation Regulations 2003 – which prescribes the accidents, serious incidents and incidents that must be reported to the ATSB;
- Civil Aviation Orders (CAOs) – which set out CASA's directions and instructions in matters of complex detail. They typically contain technical detail and requirements that complement the requirements set out in the relevant regulations;
- Airworthiness Directives (ADs) – which address unsafe conditions on aircraft and aeronautical equipment;
- Australian Technical Standard Orders (ATSOs) – which contain minimum performance standards for specified articles (i.e. materials, parts, processes and appliances) used on civil aircraft; and
- Manuals of Standards (MOS) – which comprise specifications (standards) made by CASA pursuant to the relevant regulations, of uniform application, determined to be necessary for the safety of air navigation.

CASA also issues a range of publications which are advisory rather than legislative in their nature and effect, such as:

- Civil Aviation Advisory Publications (CAAPs) – which provide guidance and information in a designated subject area, or show a method for complying with a related Civil Aviation Regulation. CAAPs should always be read in conjunction with the referenced regulations;
- Advisory Circulars (ACs) – which are intended to provide recommendations and guidance to illustrate a means (but not necessarily the only means) of complying with the regulations. ACs may explain certain regulatory requirements by providing interpretive and explanatory material; and
- Guidance Material (GM), e.g. Airworthiness Bulletins (AWBs) – which are made to inform the aviation industry, in a systematic way, of essential information not considered mandatory. The information contained in an AWB is for information only, and issued by CASA to disseminate information as quickly and as clearly as possible.

CASA also produces a number of procedural manuals, which provide guidance to CASA staff, delegates and authorised persons related to the procedural matters dealing with, amongst other things, the preparation, assessment and processing of applications for various certificates, authorisations, approvals, permissions and exemptions.
More about aviation safety regulations and guidance material can be found at:

Aviation safety regulation and policy
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_90900

Development of aviation safety regulations
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91289

CASA Manuals
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91264

1.2 Responsibilities and accountabilities

The Australian civil aviation safety system encompasses a number of government agencies with specific functions and responsibilities. The agencies responsible for managing aviation safety in Australia are:

- the Department of Infrastructure and Transport;
- the Civil Aviation Safety Authority (CASA);
- the Australian Transport Safety Bureau (ATSB),
- Airservices Australia (Airservices);
- the Australian Maritime Safety Authority (AMSA); and
- the Bureau of Meteorology (BOM).

Defence is responsible for military aviation and interacts with the civilian system as required, providing air traffic control and fire fighting services at a number of Defence and joint user airports.

With the exception of Defence and BOM, the organisations mentioned above are part of the portfolio responsibility of

the Minister for Infrastructure and Transport. BOM falls under the portfolio responsibility of the Minister for Sustainability, Environment, Water, Population and Communities.

Australian State Safety Program - Aviation Safety Agencies

This diagram shows Australia's international aviation safety regulatory context. The agencies in the middle of the diagram work co-operatively to promulgate the international standards from ICAO throughout the Australian aviation industry.

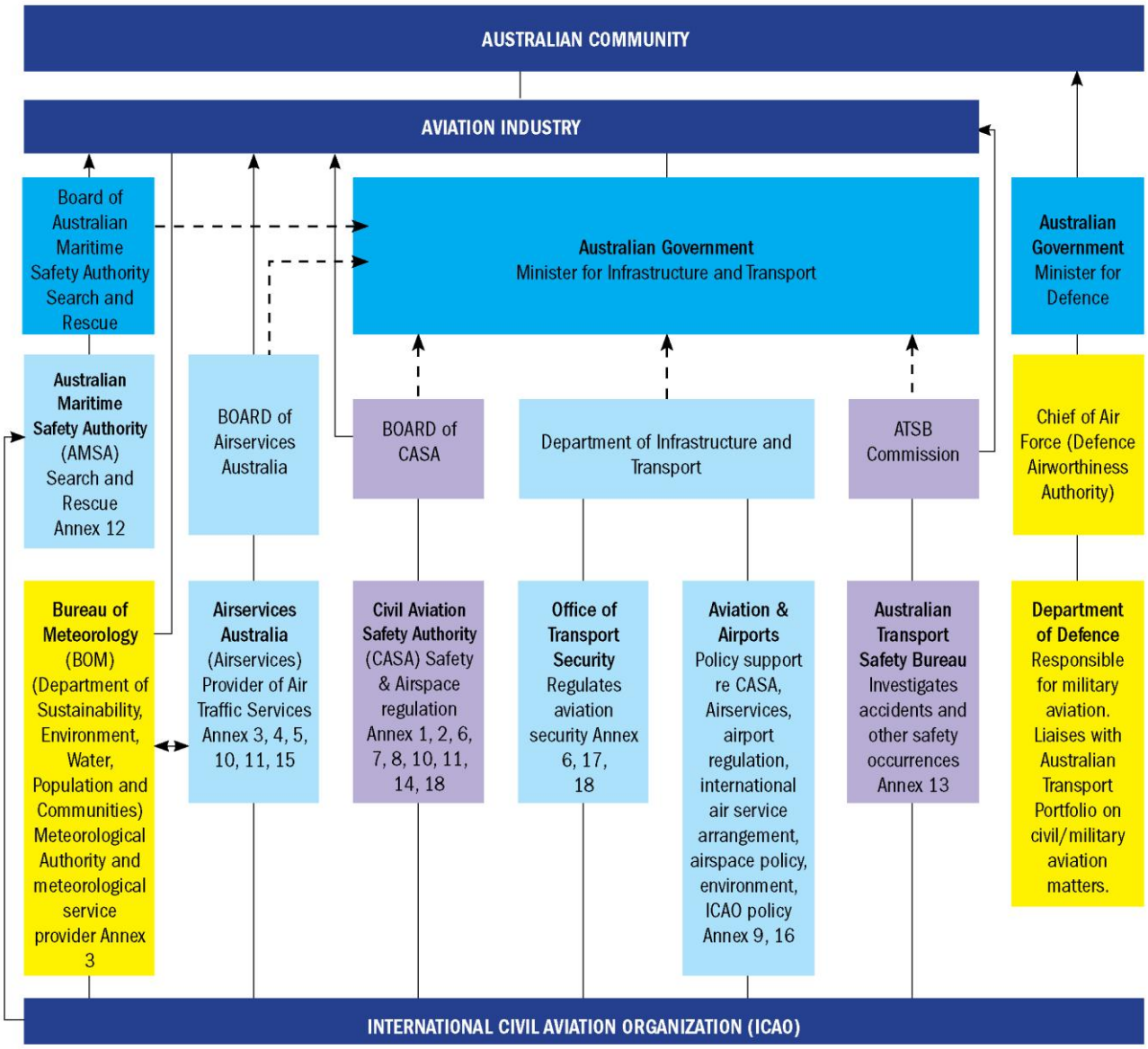


Figure 1.7: SSP Framework for the Australian Government's aviation system.

Minister for Infrastructure and Transport

The Minister for Infrastructure and Transport is responsible to Parliament and the Australian public for civil aviation matters, including safety and security.

Department of Infrastructure and Transport

The Secretary of the Department of Infrastructure and Transport, as head of the Department, has portfolio responsibility for providing support to the Minister for Infrastructure and Transport, including in relation to civil aviation issue

The Department of Infrastructure and Transport's functions include:

- policy development and coordination for aviation;
- developing and overseeing the implementation of regulatory arrangements for aviation security;
- performing regulatory functions in relation to aviation environmental issues, in particular aircraft noise;
- administering the Australian Government's interests in major airports;
- conducting research and economic policy analysis through its professional research bureau, the Bureau of Infrastructure, Transport and Regional Economics;
- administering a number of assistance programs to promote aviation safety in Australia and neighbouring regions; and
- coordination of Australia's engagement with ICAO.

The Department of Infrastructure and Transport is the coordinating point for ICAO purposes, and is responsible for the development and maintenance of this SSP document and for monitoring progress against and reporting on the associated implementation plan.

The Department of Infrastructure and Transport also has responsibility for providing policy advice to the Australian Government on aviation security, setting standards for aviation security measures, as well as testing, monitoring and evaluating compliance with those standards, policies and procedures. These functions are consistent with the *Aviation Transport Security Act 2004 a*nd the Aviation Transport Security Regulations 2005 which implement Australia's responsibilities under Annex 17 of the Chicago Convention. More information about the Department of Infrastructure and Transport can be found at:

About the Department
www.infrastructure.gov.au/department/about/about.aspx

Aviation and Airports Division
www.infrastructure.gov.au/aviation/

Office of Transport Security (OTS) (Department of Infrastructure and Transport)
www.infrastructure.gov.au/transport/security/index.aspx

Civil Aviation Safety Authority (CASA)

CASA is an independent statutory authority established in 1995 under the *Civil Aviation Act 1988* and is subject to the *Commonwealth Authorities and Companies Act 1997*. CASA is responsible for the safety regulation of both civil air operations in Australian territory and Australian aircraft operating outside Australian territory. CASA is also responsible for regulating aspects of the administration of Australia's airspace.

CASA's functions include maintaining, enhancing and promoting civil aviation safety by:

- developing and promulgating appropriate, clear and concise aviation safety standards;
- developing effective oversight, surveillance and enforcement strategies to secure compliance with aviation safety standards;
- issuing certificates, licences, registrations and permits;
- conducting comprehensive aviation industry surveillance, including assessment of safety-related decisions taken by industry management at all levels for their impact on aviation safety;
- conducting regular reviews of the system of civil aviation safety in order to monitor the safety performance of the aviation industry, to identify safety-related trends and risk factors and to promote the development and improvement of the system;
- conducting regular and timely assessment of international safety developments;
- improving the management and regulatory regime of Australian–administered airspace and the safety of airways, aerodromes and associated services;
- regulating drug and alcohol management plans and testing; and
- providing comprehensive safety education and training programs designed to encourage a greater commitment to high aviation safety standards and a better understanding of the need to comply with aviation safety requirements.

CASA is responsible for implementing Australia's obligations under Annexes 1, 2, 6, 7, 8, 10, 11, 14 and 18 of the Chicago Convention.

The CASA Board

CASA is governed by a five-member expert board which includes the Director of Aviation Safety as an ex-officio member. The Board is appointed by the Minister for Infrastructure and Transport. The Board operates at a strategic level with a particular focus on governance, while the Director is responsible for the day-to-day regulatory, corporate and operational decision making

The functions of the Board are to:

- decide the objectives, strategies and policies to be followed by CASA;
- ensure that CASA performs its functions in a proper, efficient and effective manner; and
- ensure that CASA complies with directions given to CASA under section 12B of the *Civil Aviation Act 1988*.

Director of Aviation Safety

The Director of Aviation Safety is appointed by the Minister for Infrastructure and Transport. The Director is responsible for the deployment of CASA resources, both financial and human, and as the primary holder of key regulatory decision-making powers, has the final authority over licences, certificates and approvals issued to air operators and other service providers. The Director is also responsible for regulating all Australian administered airspace. More information on CASA can be found at:

About CASA
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91621

The CASA Board
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_93342

The Director of Aviation Safety
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91668

Australian Transport Safety Bureau (ATSB)

The ATSB is Australia's independent no blame safety investigator, and operates under the *Transport Safety Investigation Act 2003*. Its function is to improve safety and public confidence in the aviation, marine and rail modes of transport through:

- safety data recording, analysis and research;
- independent investigation of transport accidents and other safety occurrences; and
- fostering safety awareness, knowledge and action.

The ATSB is responsible for Australia's system for mandatory reporting of all aviation safety occurrences. It also operates schemes for voluntary and confidential reporting of aviation safety concerns. Its analysis and research functions derive from this responsibility for the collection and management of aviation safety data.

The ATSB is responsible for the independent investigation of accidents and other safety occurrences involving civil aircraft in Australia, and taking part in the investigation of accidents and other occurrences involving Australian aircraft overseas.

Consistent with government policy, the ATSB's highest operational priority is to improve aviation safety through its investigation of accidents and other safety occurrences, with a particular focus on fare-paying passenger transport operations.

In discharging its third function of fostering safety awareness, knowledge and action, the ATSB identifies and publicises safety issues, and issues safety recommendations and advice to State aviation organisations and aviation service providers. It also works with all aviation participants to educate the broader public on matters relating to aviation safety.

The ATSB is responsible for implementing Australia's obligations under Annex 13 of the Chicago Convention.

ATSB Commission

The ATSB Commission is appointed by the Minister for Infrastructure and Transport and consists of a full-time Chief Commissioner (who is also Chief Executive Officer (CEO) of the ATSB) and two part-time commissioners. Additional part-time commissioners may be appointed where their expertise is required for a significant investigation. The Commission has a responsibility to work effectively with industry and other government agencies while retaining its operational independence.

Further information about the ATSB can be found under Section 1.3: Accident and Incident Investigation and at:

About the ATSB
www.atsb.gov.au/about_atsb.aspx

Airservices Australia (Airservices)

Airservices was established in 1995 to provide air traffic control management and related airside services

to the Australian aviation industry. Airservices is a Commonwealth authority with statutory responsibilities wholly owned by the Australian Government. It operates under the *Air Services Act 1995* and is also subject to the *Commonwealth Authorities and Companies Act 1997*.

Under the *Air Services Act 1995*, Airservices is responsible for:

- providing facilities to permit safe navigation of aircraft within Australian-administered airspace;
- promoting and fostering civil aviation in Australia and overseas;
- providing air traffic services, rescue and fire fighting services, and aeronautical information, radio navigation and telecommunications services to give effect to the Chicago Convention or for purposes relating to the safety, regularity or efficiency of air navigation;
- cooperating with the ATSB in investigations of aircraft accidents and/or incidents;
- acting to protect the environment from the effects of, or effects associated with, the operation of Commonwealth jurisdiction aircraft;
- performing functions prescribed by the regulations in relation to the effects of, and effects associated with, the operation of Commonwealth jurisdiction aircraft;
- performing any functions conferred under the *Air Navigation Act 1920*; and
- providing consultancy and management services relating to any of the above matters.

While Airservices is primarily a service provider, it is also tasked with carrying out its functions in a manner which supports the Government's policies with a focus on aviation safety. In this way, Airservices is an integral part of Australia's SSP. At the same time, as a service provider, Airservices operates under an SMS which is overseen by CASA.

Airservices is responsible for implementing Australia's obligations under Annexes 3, 4, 5, 10, 11 and 15 of the Chicago Convention.

The Airservices Board

Airservices is governed by a 10-person board appointed by the Minister for Infrastructure and Transport. The Airservices Board consists of a Chairperson, a Deputy Chairperson, the CEO and six other non-executive directors. Directors are appointed by the Minister on a part-time basis, other than the CEO, who is appointed by the Board. The Board is responsible and accountable for deciding the objectives, strategies and policies to be followed by Airservices and for ensuring that it fulfils its statutory functions in a proper, efficient and effective manner.

An important part of the governance process is the role of the independent safety adviser to the Board. This position is currently held by an international safety expert. This 'arm's length' process provides the Board with an independent view of the safety of Airservices operations.

Airservices Chief Executive Officer

The Board delegates responsibility for the management of the organisation to the CEO.

The CEO, in consultation with his executive managers (the Executive Committee) is responsible for the management of air traffic control services, radar, navigation and communication facilities within Australian administered airspace, and rescue and fire fighting services at certain airports. The Committee provides management advice to the Board; and its Safety, Environment, Remuneration, Air Traffic Control (ATC) Future Systems and Audit Committees.

More information about Airservices Australia can be found at:

About Airservices Australia
www.airservicesaustralia.com.au/aboutus/default.asp

Airservices Board
www.airservicesaustralia.com.au/aboutus/board.asp

Executive Committee
www.airservicesaustralia.com.au/aboutus/execcommittee.asp

Airservices Safety Policy
www.airservicesaustralia.com.au/aboutus/oursafety.asp

Airservices Safety Management System
www.airservicesaustralia.com.au/aboutus/sms.asp

Australian Maritime Safety Authority (AMSA)

AMSA is the national safety agency responsible for maritime safety, protection of the marine environment and aviation and marine search and rescue. It is a statutory authority established under the *Australian Maritime Safety Authority Act 1990*.

AMSA's services are mainly provided on a cost recovery basis from fee and levy revenue sources. It also receives Community Service Obligation funding from the Australian Government, specifically relating to aviation and maritime search and rescue operations and boating safety education.

AMSA's primary areas of responsibility to the aviation community include:

- meeting the requirements of Annex 12 of the Chicago Convention in operating the Australian Rescue Coordination Centre to coordinate the location and rescue of persons in maritime and aviation distress situations throughout the internationally agreed 53 million square kilometres area of the Australian search and rescue region; and
- providing two ground stations and a Mission Control Centre for the Cospas-Sarsat satellite distress beacon system.

As Australia's aviation search and rescue service provider, AMSA is an important part of Australia's aviation safety system.

As well as being responsible for the provision of aviation search and rescue (SAR) services, AMSA is also involved in coordinating search and rescue efforts in Australia. Depending on the circumstances, this can involve assistance from various organisations, such as the Australian Defence Forces, trained aviation organisations (Civil SAR Units), emergency medical helicopters, state police services, state emergency services, the Australian Communications and Media Authority (ACMA), airlines, the general aviation industry, volunteer marine rescue groups, BOM, the shipping industry and fishing cooperatives.

SAR authorities at both the federal and state levels comprise the National Search and Rescue Council, which has the role of formulating, discussing and ratifying national search and rescue policies.

AMSA Board

Management of AMSA is the responsibility of an eight-member board appointed by the Minister for Infrastructure and Transport. The Board includes the CEO and a Department of Infrastructure and Transport member. Members are drawn from industry, financial and government institutions, and bring appropriate skills and expertise to the conduct of AMSA's important commercial and safety maritime activities.

Chief Executive Officer

AMSA's CEO's role is to provide leadership and control of the agency. The CEO is appointed by the Minister for Infrastructure and Transport after receiving a recommendation from the Authority. The CEO manages the implementation of the statutory functions of AMSA in line with the strategic priorities set by the Board.

More information about AMSA can be found at:

About AMSA
www.amsa.gov.au/about_amsa/

AMSA Board and Executive
www.amsa.gov.au/About_AMSA/organisational_structure.asp

Bureau of Meteorology (BoM)

BOM is Australia's national weather, climate and water agency and operates under the authority of the *Meteorology Act 1955* and the *Water Act 2007*. It is an Executive Agency within the Sustainability, Environment, Water, Population and Communities Portfolio of the Australian Government. The Director of Meteorology is the designated Meteorological Authority in accordance with Annex 3 to the Chicago Convention. The Director of Meteorology also has an authorising function, set out in Regulation Part 120 of the *Civil Aviation Act 1988*, with respect to meteorological observations and forecasts used in civil aviation. BOM is the aeronautical meteorological service provider for Australia.

Functions provided by BOM relating to aviation services include:

- aeronautical meteorological observations;
- forecast and warning services for aviation;
- aeronautical climatological information;
- aviation meteorological research and development;
- quality management of aviation weather services;
- investigations into aviation weather-related incidents;
- liaison with the meteorological community and the aviation industry;
- training; and
- international participation in aviation meteorology through ICAO and World Meteorological Organization (WMO) fora.

A memorandum of understanding exists between BOM and Airservices to ensure coordination of meteorological responsibilities with respect to the Chicago Convention and the *Air Services Act 1995*. Weather observations, forecasts and reports for aviation in Australia are made under the authority of the Director of Meteorology.

Director of Meteorology

The Director of Meteorology is the Agency Head for BOM, appointed by the Minister for Sustainability, Environment, Water, Population and Communities. The Director is responsible to, and reports directly to, the Minister. The Director of Meteorology is a statutory role under the *Meteorology Act 1955* and meets the requirements of Annex 3 of the Chicago Convention.

More information about BOM may be found at:

About BOM
www.bom.gov.au/inside/index.shtml

Department of Defence

Defence is responsible for safety and airworthiness of military aviation systems.

Defence provides air traffic control services and supporting infrastructure, such as radar facilities, at military and certain joint user (civil/military) aerodromes. It therefore plays a role in Australia's aviation safety system.

In the context of Australia's civil aviation safety system, Defence liaises with the Australian transport portfolio on civil/military aviation matters, including management of joint user airports.

Defence, in collaboration with Airservices, is committed to improving civil and military aviation harmonisation and to enhancing airspace access arrangements, recognising both military and civil requirements. This includes having staff located in the CASA Office of Airspace Regulation and being a member of the Aviation Policy Group (APG) and Aviation Implementation Group (AIG) with the Department of Infrastructure and Transport, CASA and Airservices. More information about the Department of Defence can be found at:

About Defence
www.defence.gov.au/index.cfm

Coordination within Australia's aviation safety system

In addition to the legislative and organisational structures that identify agency responsibilities and accountabilities, there are a number of inter-agency links and relationships that ensure Australia has a cohesive and collaborative aviation safety system.

Aviation Policy Group

Inter-agency cooperation is essential to implementing and achieving consistent policy objectives across government agencies. The Aviation Policy Group (APG) was established to ensure effective working relationships across the four agencies involved in aviation policy, regulation and service provision. The APG brings together the agency heads of the Department of Infrastructure and Transport, Airservices, CASA and the Royal Australian Air Force (RAAF) on behalf of Defence.

The Chief Commissioner of the ATSB attends APG meetings as an observer as required, but is not a full member due to ATSB's status as the independent aviation safety investigator.

The APG, although not a decision-making body, provides a high-level forum for effective inter-agency policy coordination and for working through air traffic management and other strategic aviation cross-agency issues.

The APG plays a key coordinating role in overseeing Australia's SSP, the development and maintenance of this document and the associated implementation plan. APG also coordinates as necessary with other agencies, particularly the ATSB, in overseeing implementation of Australia's SSP to ensure proper consideration of any underlying risks to the effectiveness of the safety system.

Aviation Implementation Group

The Aviation Implementation Group (AIG) is a working group of senior officials comprising representatives from the Department of Infrastructure and Transport, CASA, Airservices and Defence. The AIG supports the APG in the implementation of cross-agency strategies. This group is chaired by the Department of Infrastructure and Transport.

The AIG also acts as a steering group in relation to ICAO matters bearing on the SSP. The AIG provides regular advice to the APG on developments within the SSP and provides guidance to the SSP Cross-Agency Team.

SSP Cross-Agency Team

The SSP Cross-Agency Team is chaired by the Department and is made up of representatives from CASA, Airservices, ATSB, AMSA and BOM. The Team is responsible for the development and continuing maintenance of the SSP document and for monitoring and reporting on SSP implementation and the indicators relating to levels of safety in the Australian aviation system.

Memoranda of understanding

Australia coordinates a range of aviation safety management issues between agencies through the establishment of formal documented arrangements called memoranda of understanding (MOU). MOUs aim to ensure responsibilities and communications protocols are clearly articulated between relevant agencies.

Figure 1.8 below outlines the key MOUs which form part of Australia's cooperative arrangements between aviation agencies.

ICAO Tripartite (CASA, Airservices, Department of Infrastructure and Transport)	Arrangements for Australia's participation in ICAO	
CASA / ATSB	Objectives include maximisation of aviation safety outcomes, enhancement of public confidence, adoption of systemic approaches, knowledge of the operations of each organisation's actions, and sharing data and other safety-related information.	CASA/ATSB MOU www.atsb.gov.au/media/1371655/mou_ atsb-casa.pdf
Airservices / ATSB	Outlines the respective roles and responsibilities of, and the relationship between, Airservices and the ATSB in relation to the investigation of aviation accidents and incidents and the exchange of safety information.	ATSB/Airservices MOU http://www.atsb.gov.au/media/1543248/mou%20between%20atsb%20and%20airservices.pdf
Defence / ATSB	Provides a framework to support cooperation between Defence and the ATSB in the investigation of transport safety matters.	Defence/ATSB MOU www.atsb.gov.au/media/47748/ATSB_DoD_MoU.pdf
Airservices / BOM	Sets out arrangements between the organisations for the provision of meteorological services in support of civil aviation.	
AMSA / Airservices	Defines the division of responsibilities between AMSA and Airservices as component organisations contributing to the national aviation SAR system.	
AMSA / ATSB	Defines the roles and relationships between the parties in carrying out their respective statutory functions of aviation search and rescue and accident investigations.	AMSA/ATSB MOU www.atsb.gov.au/media/47709/amsa.pdf
AMSA / ACMA	To facilitate a cooperative relationship between the parties in relation to support services for SAR operations. The MOU also sets out areas of cooperation and mutual interest in the administration of radio communications services in Australia.	

Figure 1.8: Memorandums of understanding relating to aviation safety

Other cooperative arrangements

Greater civil/military cooperation and harmonisation

Airservices and Defence are the two government agencies charged with the provision of air navigation services in Australia and together provide the air traffic services and infrastructure underpinning Australia's national Air Traffic Management (ATM) system.

The Australian Civil-Military Air Traffic Committee (AC-MAC) has been established to deliver a harmonised civil-military ATM system. The key deliverable has been the development of the joint operating concept document which covers:

- system interoperability requirements;
- systems sustainment and follow-up development;
- future service delivery methods and infrastructure;
- cooperative workforce planning;
- a sound governance framework;
- military principles, international civil treaties and global standards; and

- common operational and technical requirements (and any particular, unique Defence requirements).

Civil/military cooperation in search and rescue

AMSA and Defence have formalised a cooperative arrangement through a letter of promulgations. The letter promulgates the acceptance by Defence of the National Search and Rescue Manual (NATSARMAN) as the standard procedural guide for the conduct of search and rescue activities within the Australian search and rescue region (SRR), except for Joint Personnel Recovery (commonly known as Combat SAR). This acceptance makes NATSARMAN the primary document underpinning civil/military cooperation in search and rescue. The document also recognises the Australian National Search and Rescue Council as the sponsor of the NATSARMAN.

Common Risk Management Framework for airspace and airspace traffic management

The Common Risk Management Framework (CRMF) aims to ensure that the work of the agencies (Department of Infrastructure and Transport, CASA, Airservices and Defence) in relation to airspace and air traffic management is complementary and based on a shared sense of understanding and purpose, and a consistent approach.

The CRMF provides high level guidance to the agencies in conducting their risk management activities in relation to airspace and air traffic management without interfering with, or restricting, the performance of their respective roles.

More information about the CRMF can be found at:
www.infrastructure.gov.au/aviation/airspace_reform/aaps.aspx

International cooperative arrangements

Australia has entered into a range of bilateral agreements and arrangements, including Bilateral Air Services Agreements, which are economic in focus but include provisions for safety oversight, and specific Bilateral Aviation Safety Agreements (BASAs). BASAs are intended to provide more efficient and effective safety regulation, particularly in relation to aircraft certification and products. There are a range of other agreements and arrangements that generally relate to airworthiness certification requirements.

Australia and New Zealand have signed an agreement relating to mutual recognition of Air Operator Certification (Mutual Recognition with New Zealand). The legislation amended the *Civil Aviation Act 1988* and enables the mutual recognition of Air Operator Certificates (AOC) as issued by CASA in Australia and the Civil Aviation Authority of NZ (CAANZ).

More information about Mutual Recognition with New Zealand can be found at:
www.infrastructure.gov.au/aviation/legislation/amendment/index.aspx

Australia and the United States (US) have signed an agreement for the Promotion of Aviation Safety between Australia and the US (the Bilateral Aviation Safety Agreement). The Implementation Procedures for Airworthiness (IPA) under the Bilateral Aviation Safety Agreement provides for mutual recognition of aviation safety certification between the safety regulators of each country.

In 2009 an amendment to the IPA was proposed, the amendment came into effect on 21 September 2011 following entry into force by both governments.

Australia ratified Article 83bis of the Chicago Convention on 2 December 1994, which provides for agreements between ICAO Contracting States for the transfer of specified regulatory and oversight functions between the State of Registry and the State of the Operator. CASA are responsible for the administration of Article 83bis agreements.

1.3 Accident and incident investigation

The ATSB is responsible for meeting Australia's Annex 13 responsibilities for the notification and independent investigation of accidents and other safety occurrences involving civil aircraft in Australia and taking part in the investigation of accidents and other occurrences involving Australian aircraft overseas. Reported occurrences and the results of relevant ATSB safety investigations are provided to ICAO where required.

In accordance with the standards and recommended practices of Annex 13, the ATSB also, on request, assists its regional neighbours in the conduct of investigations through the provision of investigator expertise and technical facilities.

While maintaining an emphasis on systemic investigation of those occurrences that illustrate different dimensions of safety risk management, the ATSB aims to investigate all accidents and other significant safety occurrences to the extent necessary to inform future safety research and trend analysis.

The ATSB does not investigate for the purpose of apportioning blame or to provide a means for determining liability.

Reports of all ATSB investigations are made public. Central to the ATSB's investigation of transport safety matters is the early identification of safety issues in the transport environment. The ATSB prefers to encourage the relevant organisation(s) to initiate proactive safety action that addresses safety issues. Nevertheless, the ATSB may use its power to make a formal safety recommendation either during or at the end of an investigation, depending on the level of risk associated with a safety issue and the extent of corrective action undertaken by the relevant organisation.

When safety recommendations are issued, they focus on clearly describing the safety issue of concern, rather than providing instructions or opinions on a preferred method of corrective action. As with equivalent overseas organisations, the ATSB has no power to enforce the implementation of its recommendations. It is a matter for the body to which an ATSB recommendation is directed to assess the costs and benefits of any particular means of addressing a safety issue.

When the ATSB issues a safety recommendation to a person, organisation or agency, they must provide a written response within 90 days. That response must indicate whether they accept the recommendation, any reasons for not accepting part or all of the recommendation, and details of any proposed safety action to give effect to the recommendation.

The ATSB assesses safety action taken to address safety issues as:

- Adequately addressed
- Partially addressed
- Not addressed
- No longer relevant
- Withdrawn

In the cases where the ATSB issues a recommendation, the ATSB classifies the recommendation as follows:

- "Open" until a response is received.
- "Monitor" where the ATSB has decided to monitor the action stated in responses received on the recommendations.
- "Closed" where the ATSB has closed the recommendation.

About the ATSB
www.atsb.gov.au/aviation.aspx

1.4 Enforcement policy

CASA's primary function under the *Civil Aviation Act 1988* is to conduct the safety regulation of civil air operations in Australian territory and the operation of Australian aircraft outside Australian territory, by means that include developing effective enforcement strategies to secure compliance with aviation safety standards. CASA's first priority is to protect the safety of passengers who are least able to control the aviation-related risks to which they are exposed.

At the core of safety regulation is an authorisation regime for almost every aspect of aviation activity which involves the issue, by CASA, of licences, certificates, approvals and authorisations to industry personnel, operators, service providers and aerodromes.

CASA's Enforcement Manual outlines enforcement strategies for securing compliance with aviation safety standards. CASA has a range of enforcement options available to it, which include:

- counselling;
- issuing aviation infringement notices;
- requiring authorisation holders to be tested/examined;
- entering into enforceable voluntary undertakings with an authorisation holder;
- taking administrative action to vary, suspend or cancel an authorisation; and
- referring matters to the Commonwealth Director of Public Prosecutions with a view to the criminal prosecution of authorisation holders or others for offences under the civil aviation legislation.

CASA takes a holistic and coordinated approach to enforcement, utilising the most appropriate enforcement tool(s) having regard to the facts and circumstances of a particular contravention and the safety implications of the conduct involved. Appropriate enforcement options are identified and

exercised in accordance with the procedures set out in the Enforcement Manual which provides, amongst other things, that all enforcement decisions must be:

- procedurally fair;
- transparent to those involved;
- consistent, as between like circumstances; and
- subject to appropriate internal and external review.

There are a number of ways in which CASA is actively and directly involved in bringing about compliance with safety requirements, reflected in specified CASA safety and safety-related functions under Section 9 of the *Civil Aviation Act 1988*.

These include:

- encouraging acceptance of the aviation industry's obligation to maintain high safety standards through comprehensive safety education and training programs and accurate and timely aviation safety advice;
- conducting comprehensive aviation industry surveillance; and
- developing effective enforcement strategies.

It is recognised that authorisation holders need to use an SMS, which include remedial, corrective and preventive action, including via an internal reporting system (sCAAP SMS-1 (0) p45) to address safety deficiencies. If a deficiency involves a breach of the law, the procedures set out in the Enforcement policy will apply. Within the surveillance framework, an operational or technical matter may be able to be addressed and dealt with entirely through 'compliance-related' processes and this *may* potentially be extended to apply to allow service providers to deal with certain types of events within their SMS.

Enforcement Manual
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91291

1.5 International Best Practice

AMSA

AMSA is a permanent aviation member of the ICAO/IMO Joint Working Group on the Harmonisation of Search and Rescue (JWG). Through the membership of this international experts working group, AMSA not only contributes to the development of best practices in SAR but also utilises the meeting locations to exam the practices and procedures of foreign RCCs each year in order to benchmark the operation of Regional Coordination Centres (RCC) Australia against other first world agencies.

BoM

BoM has achieved ISO 9001:2008 quality management certification for the aviation weather services program and its specialist aviation forecasting units. There is active participation at WMO and ICAO meetings and working groups to continue to improve, develop and review aviation meteorological science, standards and practices. An ongoing competency program training and assessment program has also been implemented to meet WMO standards which will ensure that aviation weather forecasters maintain international best practice.

ATSB

The ATSB benchmarks against its counterpart agencies in other ICAO States through ongoing cooperation in investigation activities, as well as attendance at international fora and professional conferences, including meetings of the International Society of Air Safety Investigators

Airservices

Benchmarking activities are conducted by Airservices with other civil air navigation service organisations and air navigation service providers. Loss of Separation (LOS), Runway Incursion and Reduced Vertical Separation Minima (RVSM) are prime examples of topics addressed.

2. STATE SAFETY RISK MANAGEMENT

As detailed in Section 1, Australia has a comprehensive system of legislation and regulatory oversight that has provided effective aviation safety outcomes over many decades. However, a modern approach to aviation safety management necessitates a systematic approach to managing safety risks, encompassing organisational structures, policies and procedures – the SMS approach.

Safety risk management of the Australian aviation industry is a shared responsibility between industry and government aviation agencies.

Australia conducts comprehensive aviation industry surveillance, including the assessment of safety-related decisions taken by industry management at all levels for their impact on aviation safety. Australia conducts regular reviews of the system of civil aviation safety to continuously improve aviation safety and address safety issues.

The AS/NZS ISO 31000 Risk Management Standard provides guidance on how organisations can develop, implement and improve the way risk is managed. The Standard focuses attention on tackling organisational risk by identifying and treating both external and internal influences and factors that give rise to that risk. Each aviation agency has its own risk management framework based on the Standard.

CASA adheres to the principles outlined in AS/NZS ISO 31000 in overseeing safety risk management in the Australian aviation industry. CASA has a comprehensive approach to risk management which includes:

- a risk management policy and procedures; and
- a strategic risk management and internal audit plan which clearly identifies how key risks are to be identified, assessed and continually monitored and managed.

The CASA risk management process is fully integrated with the authority's corporate and business planning processes.

Monitoring industry management of aviation safety risks – the aviation safety oversight process – is a core function of CASA under the *Civil Aviation Act 1988*. A key component of CASA's corporate planning is the improvement of these risk monitoring processes.

Relevant regulations and Civil Aviation Orders have been amended to require appropriate sections of the aviation industry to implement SMS. CASA provides a range of support for the implementation of SMS including:

Safety Management Systems
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91430

Standards development manual (Annex 8A Safety Risk Management)
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91289

CASA is reviewing and refining the policies, processes and procedures used to ensure that the aviation industry is effectively managing aviation safety risks. This will include the development and use of a standard organisational approach to operational safety risk management and information risk management. This approach will promote greater consistency of safety risk management in the industry.

The ATSB, in carrying out its independent safety investigation role, also has regard to the agreed risk management standards. In determining the seriousness of safety issues identified in the course of an investigation, the ATSB assesses their systemic risk implications and encourages appropriate levels of safety action to mitigate the identified risk.

Within the portfolio agencies involved in airspace and air traffic management (Department of Infrastructure and Transport, CASA, Airservices and Defence), the CRMF aims to ensure that the work of the agencies is complementary and based on a shared sense of understanding and purpose, and a consistent approach.

More information about the CRMF can be found at:
www.infrastructure.gov.au/aviation/airspace_reform/aaps.aspx

2.1 Safety requirements for service providers' SMS

ICAO has mandated that aviation service providers implement SMS which seeks to deliver an improved safety culture. CASA is working with industry to embed an SMS culture in Australian aviation. While much of the responsibility for implementing SMS lies with industry, it is important that appropriate regulatory oversight is in place to monitor and assess the effectiveness of these systems.

CASA has mandated the requirement for the following civil aviation service providers to implement SMS.

- **Air Operators** – Civil Aviation Orders (CAO) 82.3 and CAO 82.5 require both high capacity and low capacity RPT operators to establish and maintain an appropriate organisation, with a sound and

effective management structure that uses an SMS approved by CASA. Information about CAO 82.3 and 82.5 can be found at:
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91053#part82

- **Air Traffic Service Providers** – CASR Part 172.145 provides that an air traffic service provider must have, and put into effect, an SMS that includes the policies, procedures, and practices necessary to provide the air traffic services covered by its approval safely. Information about CASR Part 172 can be found at: www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91027
- **Aerodromes** – CASR Part 139.900 provides that there must be an SMS for the service, in accordance with the standards or requirements in the Manual of Standards, including the policies, procedures and practices necessary to provide the service safely. Information about CASR Part 139 can be found at: www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91019
- **Maintenance providers** – CASR Part 145 has been made and includes a requirement that safety management and quality assurance systems be introduced to supplement the current provisions for quality control and internal audit.
- **Design organisations and manufacturers** – CASR Part 21 is being drafted to include a requirement for design organisations and manufacturers to maintain an appropriate SMS.
- **Flight training organisations** – CASR Part 141 is being drafted to include a requirement for flight training organisations' conduct of operations to include the requirement for safety management and fatigue management.

CASA has produced general advisory material about SMS as well as more specific information for operators to assist in developing an SMS manual. This material can be found at:

SMS guidance material
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91430

2.2 Agreement on service providers' safety performance

An important element of a mature system of safety management oversight is agreement between the safety regulator and service providers on the key performance indicators and expected level of performance to be achieved.

CASA is currently refining a framework for individual service provider agreements regarding the safety performance of SMS.

Safety Action: CASA will continue to build capacity to assist industry to fully implement SMS' and assess the effectiveness of SMS implementation and performance.

2.3 Case Study – coordination of safety risk management during naturally occurring risk events

THE CORDON CAULLE VOLCANIC ASH CLOUD – THE AUSTRALIAN EXPERIENCE 2011

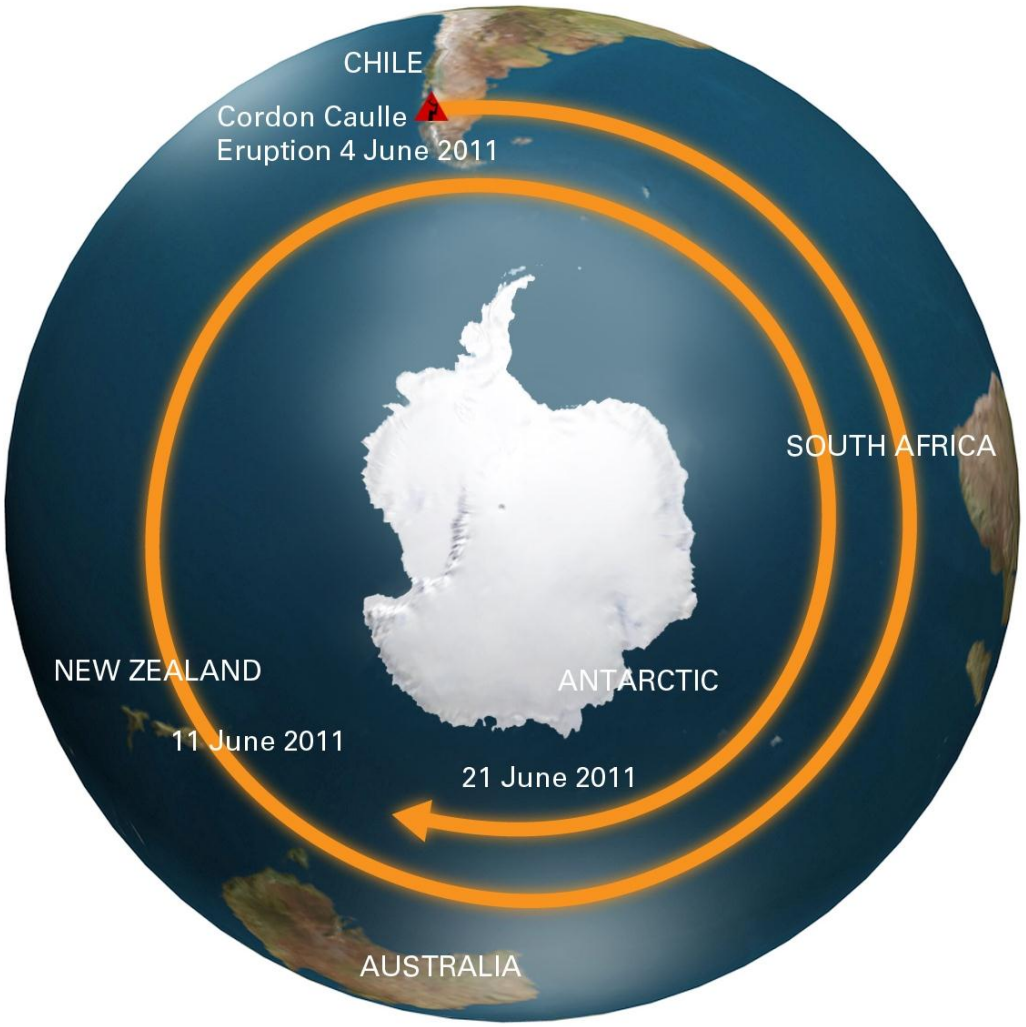
Background

Volcanic ash poses a significant threat to aircraft because once sucked into engines, it can be transformed into molten glass by the high temperatures and potentially causes an engine to fail.

The Cordon Caulle issue erupted on 4 June 2011. Part of the Puyehue Volcano in the north-west of Chile, this eruption sent ash into airspace over Uruguay and Brazil, causing flights to be cancelled from 4 June and affecting more than half of all flights in South America within 24 hours. According to Chilean authorities, an estimated one hundred million tons of ash, sand and pumice were ejected - displaying explosive power equivalent to 70 atomic bombs.

Whilst the event was noted by Australian safety agencies it was not considered a threat to Australian airspace at the time since volcanic eruptions to our near north were commonplace and the ash clouds rarely, if ever, affected Australian airspace.

Five days after the eruption, on Thursday, 9 June 2011, formal advice was issued by the Darwin Volcanic Ash Advisory Centre (VAAC) that a volcanic ash cloud from the Chilean Volcano of an intensity and at levels that were likely to affect operations in Australian airspace, was drifting towards continental Australia.



Graphic showing direction of ash cloud Australian Bureau of Meteorology © 2012.

From 11 June flights to and from Perth were disrupted by the approaching plume of ash, extending from 15,000 to 35,000 feet. Major effects over Australia were 11-15th June and 20-24 June. International flights were disrupted from 4 June (eruption) through to early July as the ash slowly dissipated.

Event response actions

The Darwin (VAAC) worked to determine the dimensions and velocity of the ash cloud, its projected path through Australian-administered airspace and to inform the Air Navigation Service Provider (ANSP), Airservices Australia.

Once the scale of the event was determined, Airservices Australia tasked their National Operations Centre (NOC) to coordinate the information distribution activity by and for all the stakeholder agencies (VAAC, Airservices' Air Traffic Control (ATC) Centres, the Civil Aviation Safety Authority (CASA) and the Australian Defence Force).

The NOC also established communication links with major airlines, both domestic and international to enable rapid dissemination of up-to-date information to all stakeholders. Cancellations started by June 15.

The NOC provided a coordination centre for information exchange between Government agencies and industry. The NOC also provided agency briefings at regular intervals (3 hourly during the peak of the event).

CASA also opened discussions with the New Zealand Civil Aviation Authority (CAANZ) to ascertain their likely reaction to the event and, given their greater experience with volcanic activity, to provide some insight into possible issues arising.

CASA did not close airspace nor create Danger Areas but utilised Notices to Airmen (NOTAMs) to rapidly disseminate accurate and timely information provided by the VAAC, in order to alert the industry to changes in conditions due to movement of the volcanic ash cloud.

Consistent with ICAO guidelines, CASA required airline operators to run individual risk assessment processes in accordance with their own Safety Management Systems concerning the decision to fly or not to fly. Australia's main domestic airlines chose different responses.

While Virgin Australia continued to operate some flights by operating at a lower altitude and using more fuel, Qantas and its subsidiary Jetstar cancelled more flights and for a longer period when the ash cloud started to move toward New Zealand. Flights to Perth, Adelaide, Hobart, Launceston, Melbourne,

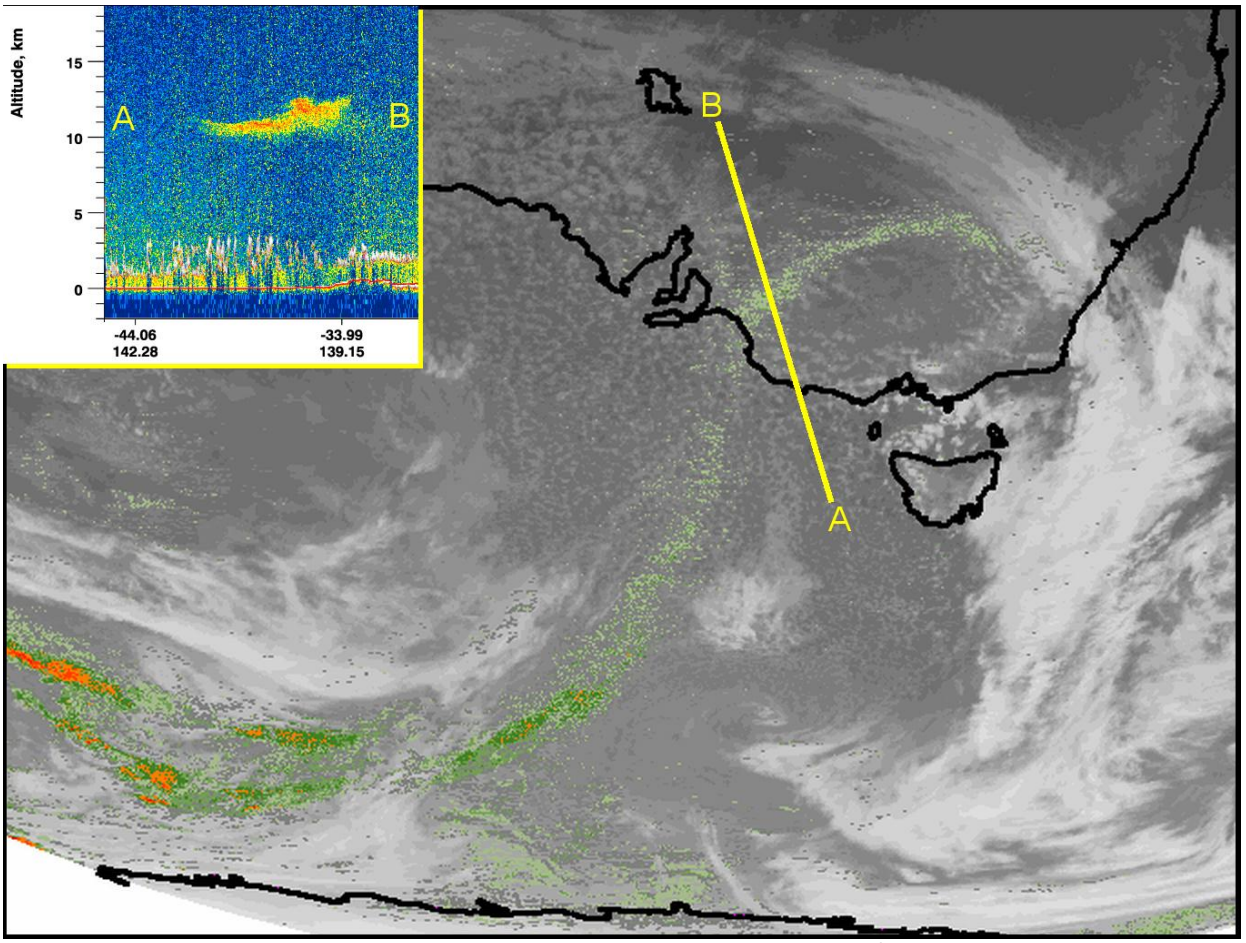


Image of Volcanic Ash Cloud provided by Japan Meteorological Agency (MTSAT), NASA/CNES (Caliop lidar data)

Sydney, Canberra, Newcastle, Wagga Wagga and Albury airports were cancelled or affected by the ash clouds. A total of 2262 flights were cancelled within Australian-controlled airspace during June and July as a result of the ash clouds. At some level, all airspace users were affected by these events.

CASA increased operational surveillance during the ash event to ensure Safety Management Systems' were adequate and being employed appropriately by operators.

Event response in New Zealand

The CAANZ worked cooperatively with airlines to manage the situation as best as they could. They have a sophisticated local system due to their own volcanoes, but this was also a new kind of event for them:

Wellington's first experience with an "old ash" event raised challenges around the high uncertainty in locating ash. The general operational approach was to:

- Like Australia, be evidence-based to the extent possible, with a strong focus on satellite imagery, pilot reports, and NZ-based LIDAR[1]
- Dispersion/trajectory models used as 1st guess indicator of visible ash, modified to account for observations
- Maintain close collaboration with the CAA where new information indicated changes to affected area

Other challenges faced during this event include:

- The need for 2 additional forecasting shifts (for each VAACs) to cope with the extra workload
- Decisions to raise or lower the forecast ash cloud across critical altitude thresholds, significantly affecting commercial aviation within NZ airspace – risk based approach adopted by CAA

[1] LIDAR (Light Detection And Ranging, also LADAR) is an optical remote sensing technology that can measure the distance to, or other properties of a target by illuminating the target with light, often using pulses from a laser. LIDAR can be used with a wide range of targets, including non-metallic objects, rocks, rain, chemical compounds, aerosols, clouds and even single molecules.

- Questions raised from within the commercial sector regarding the validity of observations used as the basis for changes to ash cloud position

Premises of risk based approach:

- accurate observation and remote sensing information of volcanic ash plume location and dimensions;
- accurate forecasts based on predictive models regarding the future location of the ash cloud(s) and its vertical and horizontal limits; and
- airlines making proper use of this information to plan and conduct their flights so as to avoid the cloud, where this can be done safely, or to cancel flights where this cannot be done.

Advantages of the risk based approach include:

- the NZ CAA is able to quickly respond to continuous change in the location and dimensions of the ash cloud;
- poses minimal disruption to air travel; and
- puts the responsibility for making operational judgements where it properly belongs – with the airline operator(s)

Issues for the future

The regulatory management of all types of aircraft operations in regard to flight in and around ash contaminated airspace has been identified as an issue requiring further consideration by Government aviation agencies, in consultation with industry.

The significant disruption to aviation has also given some urgency to the task of strengthening agency procedures and processes. To this end Australia is developing a Strategic Response Plan to respond to similar future events.

At the August 2011 meeting of the Australian Bureau of Meteorology's VAAC Vulcan-Aus Working Group it was agreed by the Australian and New Zealand representatives they would begin preliminary planning for a Regional Volcanic Ash Contingency Plan in accordance with the principles prescribed by ICAO.

The volcanic ash issue is prominent within ICAO and is being pursued by the International Volcanic Ash Task Force (IVATF) and its sub-group, the Volcanic Ash Challenge Team (VACT). Australia has high level representation on both groups. The determinations of these groups will inform the development of a Regional Contingency Plan as well as national planning.

3. STATE SAFETY ASSURANCE

Safety oversight based on an SMS approach is underpinned by a philosophy of mutual responsibility and accountability, rather than a more prescriptive approach aimed exclusively at regulatory compliance. It increases the responsibility on service providers, who have day-to-day control over the maintenance of a safe operating environment, to focus on safety throughout the organisation's structures, policies and procedures.

However, the Australian Government and its aviation agencies retain a critical role in maintaining quality assurance of the broader safety system. This includes safety oversight and data collection, analysis and exchange.

Australia's aviation agencies collect, analyse and report on a range of aviation safety data. This data is used within Australia's safety system to monitor trends in aviation safety and to identify areas where there may be safety issues to be addressed in the most appropriate ways.

3.1 Safety oversight

3.1.1 – Universal Safety Oversight Audit Program Continuous Monitoring Approach

Australia has demonstrated that it has a sound, systematic, coordinated national approach to managing civil aviation safety. The results of the ICAO Universal Safety Oversight Audit Program (USOAP) review of Australia's safety system in 2008 support this.

Australia's full USOAP report, including updates on Australia's corrective action plan, is available from ICAO's public website:

USOAP report
www.icao.int/FSIX/auditRep1_icvm.cfm

Australia has been implementing its Corrective Action Plan (CAP) to address the findings of the USOAP report. It has completed more than 90 per cent of the CAP to date. Australia is committed to addressing the findings of the report and will proactively ensure appropriate preparation for a Continuous Monitoring Approach.

Safety Action: Australia will continue to implement actions identified in the CAP and proactively identify areas of further improvement in safety oversight.

As Australia's aviation safety regulator, CASA is responsible for oversight of safety in the Australian aviation industry, and is therefore responsible for ensuring the SMS is effectively implemented in relevant organisations.

CASA's oversight of SMS' includes the following components:

- **qualified and trained technical staff** – with specific training in relation to SMS';
- **documented procedures and guidance** – for approval, surveillance and associated safety processes;
- licensing, certification, authorisation and approval; and
- **surveillance activities** – including regular, planned and unplanned audits and inspections, data collection and exchange, analysis, workflow management and information management.

3.1.2 – Operator Surveillance

CASA is currently responsible for overseeing the Australian operations of more than 70 foreign operators. Australians constitute more than 60 per cent of the passengers carried by these businesses, which operate under a Foreign Aircraft Air Operators Certificate. CASA performs en-route surveillance of these operators, as well as 'ramp' inspections when the aircraft are within Australia to ensure safety standards are met.

Safety Action: CASA will increase the assessment of potential new foreign aircraft operators in Australia and carry out inspections in accordance with safety targets.

Helicopters are usually high risk tasks and it is essential the regulator has the specialised capability to effectively oversee complicated machinery and highly qualified operators.

Safety Action: CASA will expand its helicopter surveillance activity and carry out inspections in accordance with safety targets.

The increasing growth of low cost operations as an alternative to traditional carriers in the Asia Pacific region and the offshore relocation of maintenance will present continuing challenges in ensuring compliance with safety regulations.

Safety Action: CASA will deploy appropriate resources to monitor offshore maintenance and low cost carrier operations.

3.2 Safety data collection, analysis and exchange

Australia's well established and comprehensive data collection and analysis system in relation to civil aviation includes a range of safety-related information.

As required by their respective legislative responsibilities, the ATSB, CASA and Airservices all capture and maintain various records relating to incidents, accidents and other safety-related data.

Where seen as necessary or desirable in the interests of aviation safety, data can be shared between agencies in line with protocols established through MOUs as described in Figure 1.8.

Accident and incident reporting

Reporting of aviation accidents, serious incidents and certain other safety occurrences to the ATSB is mandated through the *Transport Safety Investigation Act 2003* and Transport Safety Investigation Regulations 2003. Aviation safety accidents and other safety occurrences are categorised into Immediately Reportable matters and Routine Reportable matters.

In addition to the mandatory reporting of accidents and other safety occurrences, Australia has established a voluntary confidential reporting scheme for aviation, REPCON**,** which allows any person who has an aviation safety concern to report it to the ATSB confidentially. Protection of the reporter's identity is a primary element of the scheme.

Mandatory Reporting
www.atsb.gov.au/mandatory/asair.aspx

Voluntary Reporting
www.atsb.gov.au/voluntary/repcon-aviation.aspx

In line with Annex 13 to the Chicago Convention, the ATSB provides aviation accident and incident data to ICAO through the Accident/Incident Data Reporting (ADREP) system.

Publically available aviation occurrence data

By the end of 2012, the ATSB will make information from its aviation occurrence database available on the ATSB website for public use. Users will be able to search and export the data either selected or group according to a range of variables including occurrence type, date, location, highest injury level, aircraft and engine type, aircraft maximum weight category, manufacturer and model, operation type, and airspace.

The publically available database will not contain identifying information such as aircraft registration, owner name, or operator name. The database will cover the period from the introduction of the *Transport Safety Investigation Act 2003* in July 2003, to the present.

Other safety-related reporting and analysis

Australia's aviation agencies provide for a range of additional measures of data gathering, sharing and analysis.

Occurrence Reports maintained by Airservices, permit systemic analysis and trend monitoring. The MOU between the ATSB and Airservices for investigations and the exchange of safety information provides agreed processes for notification of these reports to the ATSB. Airservices also provides Occurrence Reports to CASA.

Industry is required to report to CASA major defects in aircraft and aeronautical products.
These are analysed by CASA as part of the Service Difficulty Reporting System to determine any response required, and trend information is also kept and analysed.

Service Difficulty Reports
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_90818

Data analysis and reporting

In addition to the ADREP reporting system, Australia also provides traffic exposure data to the ICAO Statistical Division to derive international trend level indicators related to safety.

Australia is also a strong supporter of the next stage of the USOAP – the Continuous Monitoring Approach (CMA) – and will engage with ICAO to progress the collection of safety data for the CMA.

ATSB

In addition to independent no blame investigation of transport accidents and other safety occurrences, the ATSB contributes to improved transport safety in Australia through safety data recording, analysis and research. Australia through the ATSB will continue its objective of identifying relevant safety issues rather than offering prescriptive solutions. This approach allows those who are best placed to take safety action to identify the most appropriate means of addressing the particular safety issue.

Safety Action: The ATSB Annual Report will include details of the number of safety issues identified and associated safety actions taken in response. It will also include a status report on any formal safety recommendations issued and indicate the extent to which the associated safety issue has been addressed by the relevant organisation or agency, and whether the recommendation remains Open or on Monitor, or has been closed.

The ATSB maintains a database in which all reported aviation occurrences are logged, assessed, classified and recorded. All ATSB statistics are incorporated in a report which encompasses a rolling 10-year reporting cycle. The data is updated on an annual basis with the latest results published on the ATSB's website within 90 days of the end of each 12-month period.

The report contains, inter alia, the following data:

- commercial air transport accident and fatal accident rates per million departures
- (including rates for sub-categories of commercial aviation);
- general aviation accident and fatal accident rates per million departures (and for subcategories of general aviation, accident and fatal accident rates per million hours flown); and
- commercial air transport and general aviation accidents, serious incidents and incidents by occurrence types.

This information forms the basis of indicators which can be used to measure performance against the objective of maintaining or improving the safety of Australia's aviation industry.

Based on this data and the results of its investigation program, the ATSB undertakes an appropriately scoped and discretely resourced research agenda which has been informed by analysis of its own safety data holdings and investigation findings, and by consultation with relevant stakeholders including other safety agencies, educational institutions and transport industry participants. The aim of this research is to monitor trends and developing safety issues to ensure that systemic hazards are identified and risks are managed both for the system as a whole and by individual service providers.

The ATSB also undertakes specific research and report activities where there may be value in further analysing particular types of occurrences or trends. These activities contribute to the national and international body of safety knowledge and foster action for the improvement of safety systems and operations.

More about Australian aviation data and safety information can be found at:

ATSB aviation statistical data
www.atsb.gov.au/aviation/aviation-statistics.aspx

Investigations & data analysis program
www.atsb.gov.au/research/investigations--data-analysis-program.aspx

ATSB completed research reports
www.atsb.gov.au/publications/publications-list.aspx?s=1&itemCount=20&publicationType=Research%20and%20Analysis%20Report

Bureau of Infrastructure, Transport and Regional Economics Aviation Statistics
www.bitre.gov.au/Info.aspx?NodeId=49

CASA

CASA maintains current information for all safety regulation activities that it conducts. CASA is currently evaluating options to improve its data collection and analysis capabilities.

CASA conducts a six-monthly AOC Holder Safety Questionnaire (AHSQ) in which AOC holders are required to provide data about their activities including types of aircraft operated, hours flown, categories of operations and factors that might impact safety.

More information about AHSQ can be found at:

AOC Holders safety Questionnaire
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_90346

The AHSQ process captures hazard identification and emerging risks information as well as operational information. This information supplements information received from other sources such as Service Difficulty Reports and is used to determine if there are specific safety risks or issues arising. This analysis may lead to CASA taking or requiring action to address any identified safety issues.

Joint Agency Safety Analysis Coordination Group (JASACG)

Since 2011, representatives from all Australian government bodies involved in the collection and analysis of aviation safety data have collaborated through the Joint Agency Safety Analysis Coordination Group. The group comprises specialist safety analysis staff from the ATSB, CASA, Airservices Australia, the Bureau of Infrastructure, Transport and Regional Economics, and the Directorate of Defence Aviation and Air Force Safety.

The role of the Joint Agencies Aviation Safety Analysis Coordination Group is:

- to facilitate the exchange of safety-related data and analyses between the agencies, for the sole purpose of improving aviation safety
- to identify joint safety analysis projects that utilise the combined capabilities of the joint agencies to produce outputs of safety benefit

The sole purpose for conducting safety data exchange and analysis through the Joint Agency Safety Analysis Coordination Group is to maintain strong stakeholder relationships where safety data and analyses can be shared and research and analysis efforts coordinated between Agencies to improve aviation safety. The establishment of this group will facilitate the data analysis and reporting function under this State Safety Program.

AMSA

AMSA provides monthly data on global activation of Emergency Locator Transmitters (ELTs), as detected by the Cospas Sarsat system, to the ICAO Integrated Safety Management Section to aid in Safety Trend analysis.

3.3 Safety-data-driven targeting of oversight of areas of great concern

The safety data collected by Australia's aviation agencies is regularly reviewed, analysed and reported for the purpose of identifying trends, emerging safety issues or assisting with addressing existing safety issues. A summary of how aviation agencies give effect to this follows.

CASA

Part of CASA's core function is the monitoring of safety performance and identification of safety related trends and risk factors, taking into account international safety developments. This includes risk review meetings at all levels of the organisation, including a safety review meeting involving all CASA executives during which domestic and international trends are discussed and decisions on changes to CASA's activities are made.

Safety Action: CASA will develop a systemic risk-based approach to surveillance activities which takes into account trend information, issues identified through surveillance information and information provided by individuals, industry or other agencies.

ATSB

As part of its research function, the ATSB is continuing to develop its aviation safety database to allow for regular analysis of emerging safety issues.

The findings of ATSB investigations are recorded in its database, along with evidence tables and, for safety issues, a risk assessment and associated industry or ATSB safety action. The ATSB annually documents the risks identified by investigations and the associated safety actions undertaken in the previous year.

For the aviation occurrence data, the ATSB produces regular statistics reports documenting the frequency of incidents, serious incidents, accidents, and fatal accidents for various operational types.

Each occurrence recorded in the ATSB database is coded as one or more 'occurrence types'. These occurrence types are used for quarterly analysis to identify emerging risks. When significantly more or less occurrences of a particular type are found from one quarter compared to the five year average, further investigation of the data is undertaken to discover why these differences have occurred. The ATSB has commenced systematically exploring each occurrence type for high capacity aircraft through a

data mining exercise to provide an indication of where safety risks reside.

By 2013, it is planned that the ATSB will have a potential consequence level assigned to every occurrence in its database. Combining the potential consequence levels with frequency of occurrences will provide an occurrence risk index which can be used for tracking areas within aviation where trends for increasing critical or significant risks are present.

4. STATE SAFETY PROMOTION

An effective program of safety promotion is critical in supporting the core operational objectives of Australia's SSP. A number of Australian Government aviation agencies undertake safety promotion as part of their mandated responsibilities.

4.1 Internal training, communication and dissemination of safety information

CASA has an established training and development schedule for all staff, with particular focus on technical training for safety staff, including in relation to SMS oversight. CASA's internal training program for safety staff comprises initial, recurrent and specialist modules. This includes a comprehensive induction program for new inspectorate staff, covering generic training for all functional streams on people management, audit, systems and tools, the regulatory environment and SMS. CASA also ensures training specific to the functional inspectorate stream (such as airworthiness, aerodromes and dangerous goods) is provided to staff on a systematic basis.

The ATSB is a Registered Training Organisation for the purpose of delivering its 18-month Diploma of Transport Safety Investigation. In addition to pre-requisite technical skills and industry experience, all ATSB investigation staff are expected to complete the 700-hour program. The ATSB also supports additional professional development opportunities including to allow staff to maintain their technical qualifications, to obtain knowledge and experience in emerging technologies and practices and to undertake tertiary study in fields relevant to the ATSB's functions.

The ATSB conducts internal briefings on the progress of investigations including emerging issues relating to resourcing and scope, stakeholder management and identified or potential safety issues.

CASA and the ATSB liaise regularly and formally meet biannually at an operational level under the terms of an MOU in relation to the progress of accident and incident investigations, safety actions, shared training opportunities and requests for information.

CASA and the ATSB offer programs of safety relevant training courses which are available to staff from other agencies with an involvement in transport safety, including state and territory police forces. These include aircraft accident investigation, human factors, new technologies, SMS and risk management training.

The ATSB advises CASA on a daily basis of occurrences that have been reported to the ATSB and the status of investigations. These are assessed and CASA takes action as appropriate and also notes any emerging trend information.

AMSA is a Registered Training Organisation under the National Training Framework, providing competency based SAR coordination training to AMSA, the Australian Defence Force and State and Commonwealth Police Forces.

More information about the AMSA Search and Rescue School can be found at:

AMSA Search and Rescue School
www.amsa.gov.au/Search_and_Rescue/Training_and_Education/National_Search_and_Rescue_School.asp

4.2 External training, communication and dissemination of safety information

CASA

CASA aims to achieve an informed and safety–motivated aviation community which addresses its safety responsibilities based on the analysis of emerging issues in the industry. As part of this approach CASA provides a range of educational and promotional material to the industry and the public including information about CASA programs and safety publications in a variety of forms and seminars. CASA also has an active group of aviation safety advisors available to provide assistance and advice, which gives effect to CASA's mandate under the *Civil Aviation Act 1988* to encourage a greater commitment to high aviation safety standards and a better understanding of the need to comply with aviation safety requirements. CASA also regularly publishes the magazine '*Flight Safety Australia'*.

More information about CASA's safety education and promotion can be found at:

Education and Safety Promotion
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91314

Flight Safety Australia
www.casa.gov.au/fsa/index.asp

CASA also publishes a range of manuals and guidance materials which are available to the public and industry. CASA manuals and guidance materials can be found at:

CASA Manuals
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91263

Additionally, CASA has developed a range of support tools for industry and its technical staff to ensure better understanding and integration of SMS principles including:

- a dedicated Safety Systems Branch which provides oversight and management of CASA's Safety Program; and
- publicly available guidance information on SMS', including a toolkit for operators comprising documents and DVDs covering best practice and requirements of organisations. CASA's approach to SMS surveillance can be found at:

Safety management: a toolkit for aviation
www.casa.gov.au/scripts/nc.dll?WCMS:STANDARD::pc=PC_91436

A key part of CASA's regulatory function includes communication with stakeholders and industry representatives through a variety of fora. These include the Standards Consultative Committee, Sport Aviation Forum, Regional Aviation Safety Forum and online discussion fora. Many service providers and industry associations are represented on these fora. CASA also publishes guidance material to support the regulatory development and implementation processes.

ATSB

The ATSB also has a responsibility for the communication and dissemination of safety information, particularly information drawn from the results of its investigations and its safety research and analysis.

The ATSB achieves this objective through the publication of its investigation and research reports, the development and delivery of targeted safety messages to service providers and their staff and through coordination with CASA in the development and delivery of safety messages.

The ATSB is committed to raising safety awareness of safety issues and facilitating safety action through a range of communication and education activities aimed at both the transport industry and the general public. It pays particular attention to developing and delivering targeted safety messages and ensuring that the outcomes of its investigations are communicated as relevant and practical options for improving the system of safety. The principal objectives of this work are to ensure that the results of investigations are clear and understandable and to maintain an appropriate level of industry and public confidence in the processes for review and improvement of safety.

The ATSB communicates its safety messages to a range of government and industry stakeholders through presentations at safety conferences and industry fora and meetings. It also develops safety articles for magazines such as CASA's 'Flight Safety Australia' and prepares media releases and conducts on-site media briefings and, for relevant high profile investigations, media conferences.

The ATSB provides timely information about significant activities and report releases to interested subscribers via email and Twitter[tm].

The ATSB offer places to the industry on safety relevant training courses as resources permit. These include human factors and accident site fundamentals training.

Importantly, the ATSB consults with directly involved parties on draft safety investigation reports before they are published as final reports to ensure the factual accuracy of the reports and to provide natural justice to the parties. At times, this may include consultation with service providers and agencies from other States in accordance with the provisions of Annex 13.

The ATSB's research and analysis reports and accident and incident investigation reports are available to the public and industry via the ATSB website. Safety Recommendations and Safety Advisory Notices arising from investigations, together with a range of other useful safety-related information, are also available on the website.

Airservices

Airservices' safety promotion activities have an internal and external focus. Airservices works with its customers through data exchange and industry fora to address safety issues of mutual concern. It also works with regulators to promote understanding of operational requirements and to develop training aids for pilots. Safety programs initiated and delivered by Airservices currently include:

- Runway Safety Group as an industry wide body;
- Local Runway Safety Teams at towered aerodromes;
- Safety Bulletins provided to industry to enhance awareness of important safety issues such as airport works, route reversals etc;
- Regular General Aviation (GA) Pilot Information Nights in Melbourne, Sydney and Brisbane;
- Annual Air Traffic Services /Airline Safety Forum; and
- WA Fly in Fly Out Forum.

Airservices also produces a range of safety communications media on Airservices-related functions and topics. These products are available to the aviation community through established liaison channels, safety magazines and newsletters and through the Airservices website. Examples of these products can be found at:

Airservices Safety Publications
www.airservicesaustralia.com/publications/safety-publications/

AMSA

AMSA has a responsibility for the communication and dissemination of safety information in relation to search and rescue, particularly information about the Cospas Sarsat satellite distress beacon detection system. AMSA attends regional airshows, fora, industry group meetings and other such events each year to provide information on current developments in search and rescue and the satellite detection of ELTs. AMSA also produces a range of safety communications media on search and rescue topics. These products are available to the aviation community through a web site and the Public Relations section and elements are included in safety magazines from time to time. Examples of this information can be found at:

www.amsa.gov.au/Search_and_Rescue/

AMSA maintains the National Registration Data Base for all Australian distress beacons, including ELTs and provides a free call telephone hotline for advice and registration of Cospas Sarsat approved satellite distress beacons. AMSA also provides an online self-help registration site for the registration of distress beacons. This can be found at:

www.amsa.gov.au/Search_and_Rescue/Distress_Beacons/

Appendix A: Acronyms and abbreviations

ACs	Advisory Circulars
ACMA	Australian Communications and Media Authority
AC-MAC	Australian Civil-Military Air Traffic Committee
ADs	Airworthiness Directives
ADF	Australian Defence Force
ADREP	Accident/Incident Data Reporting
AHSQ	AOC Holder Survey Questionnaire
AIG	Aviation Implementation Group
Airservices	Airservices Australia
AMSA	Australian Maritime Safety Authority
AOC	Air Operators Certificate
APG	Aviation Policy Group
AS/NZS	Australian/New Zealand Standard
ATC	Air Traffic Control
ATM	Air Traffic Management
ATSB	Australian Transport Safety Bureau
ATSOs	Australian Technical Standard Orders
AWBs	Airworthiness Bulletins
BASAs	Bilateral Aviation Safety Agreements
BOM	Bureau of Meteorology
CAANZ	Civil Aviation Authority of New Zealand
CAAPs	Civil Aviation Advisory Publications
CAOs	Civil Aviation Orders
CAP	Corrective Action Plan
CAR	Civil Aviation Regulations 1988
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations 1998
CEO	Chief Executive Officer
Chicago Convention	Convention on International Civil Aviation
CMA	Continuous Monitoring Approach
CRMF	Common Risk Management Framework
Defence	Department of Defence
GA	General Aviation
GM	Guidance Material
ICAO	International Civil Aviation Organization
MOS	Manual of Standards
MOU	Memorandum of Understanding
NATSARMAN	National Search and Rescue Manual
OTS	Office of Transport Security
RAAF	Royal Australian Air Force
REPCON	Aviation Confidential Reporting Scheme
RPT	Regular Public Transport
SAR	Search and Rescue
SARPs	Standards and Recommended Practices
SMS	Safety Management System
SRR	Search and Rescue Region
SSP	State Safety Program
USOAP	Universal Safety Oversight Audit Program
WMO	World Meteorological Organization

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