



Australian Government

Department of Climate Change, Energy, the Environment and Water Australian Antarctic Division

AAD STANDARD OPERATING PROCEDURE OPERATIONS MANUAL

Volume 5 – UAS standard operating procedures 2024-2025

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Version	Date	Changes
V1.0	September 2022	<p>Separate Chapter 13 UAS from Volume 5 Aviation SOP to stand-alone SOP, including re-writing and updating several sections. All section numbering has changed.</p> <p>Addition of sections 1 & 2, general introductory statements and sections common to all volumes of SOPs, including key contacts.</p> <p>Additions to section 3; 3.1, 3.2, 3.5, 3.6 and 3.10.</p> <p>Rewrite intro to section 4.</p> <p>Redraft Fig. 1.1 & Fig. 1.2.</p> <p>Update section 7.2.3 to reflect new CASA categories.</p> <p>Updates to section 8.3 to quantify proficiency requirements and RPAS maturity.</p> <p>Included weather minima in 8.1 as per CASA AC101-01 v4.0</p> <p>Added section 8.5.</p> <p>Updated section 9.</p> <p>Inclusion of Appendix A – RPA application for use template.</p>
V1.1 (UAS)	January 2023	<p>Minor typographical corrections throughout.</p> <p>Section 4.1 - Remove reference to CASA 96/17 (repealed) and replace with reference to MOS 2019.</p> <p>Update Section 9.1</p>
V2.0	August 2023	<p>Minor typographical corrections and update of references and contacts information.</p> <p>Section 4 - Updated with new information regarding the requirements to meet the Chicago Convention which currently prohibits UAS operations outside Territorial Waters (12nm).</p> <p>Section 8.1 – Operating conditions with regards to temperatures and wind speeds updated to align with Environmental drone policy.</p> <p>Appendix B – UAV ATRA form updated to include the Station of operation (this will be updated in the printed forms on the next print run).</p>
V3.0	August 2024	<p>Minor edits throughout to ensure references and links are correct.</p> <p>Change of Responsible Officer to Director of Aviation.</p> <p>Amendment of the requirements for recreational drone operators to hold CASA Operators Accreditation.</p>

		<p>Updated information on Flight Planning, Command and Control and operational requirements.</p> <p>Updated requirements for Aviation reporting requirements.</p> <p>Amendments to the Model Aircraft Preliminary Notification (Appendix C).</p> <p>Amendments to the UAS Post Flight Report (Appendix D).</p>
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Acronyms

AAD – Australian Antarctic Division	RPS – Remote Pilot Station
AAP – Australian Antarctic Program	SBP – AAD Senior Base Pilot
AAT – Australian Antarctic Territory	SL – Station Leader
AER – AAD Antarctic & Environmental Regulation	SLA – Service Level Agreement
AGL – Above ground Level	SOP – Standard Operating Procedure
AROC - aeronautical radio operator’s certificate	UAS – Uncrewed Aerial Systems
ASAC – Antarctic Science Advisory Committee	VL – Voyage Leader
ASPA – Antarctic Specially Protected Area	VLOS – Visual line of sight
ATEP Act – Antarctic Treaty (Environmental Protection) Act 1980	
ATRA – Air Task Risk Assessment	
ATSB –Australian Transport Safety Bureau	
AVCRM – Aviation Compliance Risk Management	
BoM – Bureau of Meteorology	
BVLOS - Beyond Visual Line-Of-Sight	
CASR – Civil Aviation Safety Regulations	
CASA – Civil Aviation Safety Authority	
COMNAP – Council of Managers of National Antarctic Programs	
CRP - DCCEEW Chief Remote Pilot	
DCCEEW – Department of Climate Change, Energy, Environment and Water	
DCRP – DCCEEW (AAD) Deputy CRP	
EIA – Environmental Impact Assessment	
EVLOS – extended visual line of sight	
FAA – Federal Aviation Administration (US)	
FL – Field Leader	
FROL - Flight Radiotelephone Operator License	
HIMI - Territory of Heard Island and McDonald Islands	
ICAO – International Civil Aviation Organisation	
MC – DCCEEW Maintenance Controller	
MTOW – Maximum Take-Off Weight	
OPSC – Station Operations Coordinator	
ReOC - RPL Operators Certificate	
RePL - Remote Pilot Licence	
RP – Remote Pilot	
RPA – Remotely Piloted Aircraft	
RPAS - Remotely Piloted Aircraft Systems	

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1 Introduction

There are many interchangeable terminologies for remotely piloted aircraft, based on use and type. For clarity, within this document the term Uncrewed Aircraft Systems (UAS) is used as an overarching reference to define any aircraft and its associated elements (e.g. Ground Control Station (GCS), command and control links, communications/datalinks, launch and recovery systems) that are operated with no pilot on board, including remotely piloted and autonomous aircraft systems (aeroplane, multi-rotor, powered lift, and airship), rockets and balloons.

The term **Remotely Piloted Aircraft (RPA)** is used to reference any uncrewed aircraft **used for a commercial, operational or scientific task**, other than a balloon or rocket, where the pilot flying is not on board the aircraft.

The term **Model Aircraft** is used to reference any uncrewed aircraft **used for sport or recreation purposes only**.

The operation of a RPA as part of an Australian Antarctic Program in the subantarctic, Antarctica or from the RSV *Nuyina* is viewed by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) as the same as an operation in Australia, and is subject to the same rules, regulations, and laws. That said, DCCEEW does not allow operations under the Excluded Category of RPA as defined by CASA, and all operators in all RPA classes are required to have a CASA issued Remote Pilot License (RePL) and be operating under a Remotely Piloted Aircraft Operator's Certificate (ReOC).

All aerial operations using UAS will be conducted in accordance with the conditions and limitations placed on the operator's ReOC and/or the conditions and limitations set out by the DCCEEW and the Australian Antarctic Division.

Fully autonomous UAS operations (i.e. those with no ability for the pilot to intervene in the conduct of the flight) are not permitted. Free balloon (other than Meteorological balloons) and rocket flight are not permitted. Tethered balloons and airships will be assessed on a case-by-case basis.

1.1 Purpose of this document

The instructions, procedures and information contained in this SOP has been devised to ensure legality, safety and standardisation in the conduct of operations. They are to be observed by all Australian Antarctic program (AAP) operating personnel. Personnel are reminded of their obligation to comply with the Civil Aviation Act, Regulations and Orders and such directives, aeronautical information and notices as issued in CASA and Airservices Australia publications.

1.2 Key messages

The SOP contained in this volume of the operations manual provides a framework for managing people, equipment and activities in remote and potentially dangerous environments. In planning activities with this document, it is essential that you seek clarification from the Director of Aviation, Operations and Logistics Branch if:

- there is any confusion at all in understanding these SOPs,
- you believe that any of these SOPs are being misinterpreted by AAP personnel, or
- you wish to seek a variation to any of these SOPs.

The Operations SOPs have been written to provide a clear and consistent framework for all Antarctic and sub-Antarctic operations. However, it is also understood that some flexibility needs to be offered for specific circumstances where standard operating procedures do not fit non-standard conditions or events. A variation to any of these SOPs may be provided if there is a justified reason. All variations to this SOP must be discussed with and agreed to by the Director of Aviation, Operations and Logistics Branch.

Feedback on the SOPs and this document will always be welcomed.

1.3 Audience

This document is intended for use by AAP personnel. It is focused towards the needs of UAS operators, station, field and voyage leaders, and head office personnel involved in UAS operations.

1.4 Relationship to other documents

This SOP is to be read in conjunction with the *AAD Operations manual*:

- *Volume 1: Station and field standard operating procedures*
- *Volume 2: Emergency response standard operating procedures*
- *Volume 3: Telecommunications standard operating procedures*
- *Volume 4: Shipping standard operating procedures*
- *Volume 5: Aviation standard operating procedures*
- ***Volume 5: UAS standard operating procedures (this document)***
- *Volume 6: Fuel transfer standard operating procedures*
- *Volume 7: Watercraft standard operating procedures*
- *Volume 8: COVID-19 Framework*
- *Volume 9: Supply Chain standard operating procedures*
- *Volume 10: Traverse standard operating procedures*

Where an external ReOC (to DCCEEW) holder's operator's manual conflicts with this SOP, this SOP takes precedence, unless the third party ReOC calls for a more conservative application of procedures than outlined here. If operations are required beyond the limitations of this SOP a risk assessment should be done to ensure activities proceed safely.

Table 1.1 Documents supporting this SOP

Serial	Document name	Description	Location
1	<i>AAD Operations manual volumes 1–10</i>	The <i>Operations manual</i> is divided into ten volumes that define the standard operating procedures for major operations undertaken by the Australian Antarctic Division	AAD intranet https://blizzline.antarctica.gov.au/antarctic-operations/operations-manual
2	<i>AAD Field manual</i>	Aide-memoire for field and survival training	Issued to every participant in the AAP
3	<i>AAD incident reporting database</i>	Lists incidents and safety concerns raised by AAD personnel and captures mitigating management actions	AAD intranet Intranet not available at field locations. At these locations, fill out a hard copy and email to Head Office for loading into IHIS or SIRUS. https://blizzline.antarctica.gov.au/health-safety/incident-management/incident-reporting/

4	<i>Part 101 (Unmanned Aircraft and Rockets) Manual of Standards 2019</i>	Prescribes standards for operating procedures of RPAS	Current version is available from the Federal Register of Legislation https://www.legislation.gov.au/Details/F2022C00594
5	<i>ADVISORY CIRCULAR AC 101-01 v6.0 - Remotely piloted aircraft systems - licensing and operations</i>	This AC was developed by the CASA to provide guidance to RPA operators, remote crew, manufacturers, and maintainers on the safe and legal operation of RPA in all classes of airspace.	https://www.casa.gov.au/sites/default/files/2022-09/advisory-circular-101-01-remotely-piloted-aircraft-systems-licensing-and-operations.pdf
6	<i>AAD Drug and alcohol management plan</i>	Sets out AAD policies on drug and alcohol management	https://blizzline.antarctica.gov.au/health-safety/policies-and-procedures/drug-and-alcohol-policies
7	<i>Flight Path Guidelines: Avoiding Wildlife in East Antarctica</i>	Details flight paths for fixed and rotary wing aircraft to avoid concentrations of wildlife.	AAD intranet
8	<i>Air transport of dangerous goods manual – AAD Rev 2 or later version</i>	Detailed description of the dangerous goods procedures for AAD aviation operations	Wilkins Aerodrome office, offices at Casey and Davis Plateau ski landing areas AAD aviation office AAD Intranet
9	<i>DCCEEW Operations Manual V2.4</i>	DCCEEW Remotely Piloted Aircraft (Drone) Operations Manual. This provides AAD stakeholders (e.g. SL, OPSC, VL, DVL) visibility of how the DCCEEW systems work. Whilst recognising that not all pilots will be operating under the DCCEEW ReOC, it provides a useful comparison.	Current version is available in AVCRM and can be obtained from the Office of the Chief Remote Pilot drones@dcceew.gov.au
10	<i>NOTOC's</i>	DCCEEW Notices to Crew (Remote Pilots) provide up to date information to remote pilots about risks and other relevant information	NOTOC's are issued by the Office of the Chief Remote Pilot, and are emailed to all Remote Pilots and must be read and acknowledged when logging into AVCRM
11	<i>DCCEEW Remotely Piloted Aircraft (Drone) Policy</i>	This policy provides the department's position on the use of RPA for official business. It outlines both the requirements for: i) departmental RPA operators; and ii) external contractors working on behalf of the department.	https://deptagriculture.sharepoint.com/sites/INTRA_DCCEEW/_layouts/15/viewer.aspx?sourcedoc={f1e7ad9e-f3ae-4755-a5a8-80112fcfe585}

2 Master contact list

2.1 Australian Antarctic Division /DCCEEW

Assistant Director Aviation Operations	Telephone: Mobile: Email:	(03) 6232 3436 (24hr. during season) aviation.operations@aad.gov.au
RPAS Deputy Chief Remote Pilot (AAD) Dr Doug Thost	Telephone: Mobile: Email:	(03) 6232 3545 0498 650 673 doug.thost@aad.gov.au drones@aad.gov.au
RPAS Senior Base Pilot (AAD) Dr Dan Wilkins	Telephone: Mobile: Email:	(03) 6232 3524 0438 197 866 daniel.wilkins@aad.gov.au
RPAS Senior Base Pilot (AAD) Simon Payne	Telephone: Mobile: Email:	(03) 6232 3245 0437 957 617 simon.payne@aad.gov.au
DCCEEW Chief Remote Pilot Dr Renee Bartolo	Telephone: Mobile: Email:	(08) 8920 1392 0404 868 981 renee.bartolo@dcceew.gov.au drones@dcceew.gov.au
DCCEEW RPA Compliance Manager Luke Horjus	Telephone: Mobile: Email:	0499 624 679 luke.horjus@dcceew.gov.au

3 Roles and responsibilities

The operation of UAS within the AAP are endorsed by a number of direct and indirect roles with varying accountabilities and responsibilities, which vary dependent on the type of uncrewed aircraft and whether it is operated under the DCCEEW ReOC or an external ReOC.

3.1 Operations Planners, AAD

The AAD Operations Planners are responsible for approving Projects within the AAP, based on advice received regarding the proposal from key individuals within both the AAD and DCCEEW, and subject to environmental approval. Following consultation and confirmation that a Project is supportable, Operations Planning are responsible for issuing a SLA for the Project. They ensure that all external operators hold the appropriate ReOCs, operator qualifications and/or approvals as required by the CRP and AAD for the operations they propose to undertake. Operations Planners will inform Station Leaders and Operations Coordinators of potential UAS operations as soon as possible as a part of the SLA development process. SLAs are planned to be finalized 6 weeks prior to project deployment.

All RPA proponents are required to provide a completed Appendix A – Application to use UAS in the AAP (contact the DCRP for an Excel template, or the online form at: <https://australianantarcticprogramspc.wufoo.com/forms/z10pbs650kzuche/>).

3.2 Antarctic & Environmental Regulation Officers, AAD

AER officers assess all activities in the Antarctic and the sub-Antarctic Territory for their environmental impacts, and issue an appropriate authorisation (or permit) prior to commencement of the activity (see section 6 and section 7.1). For Antarctica, this requirement is set out in the ATEP Act, and applies to tourism and non-government activities, as well as activities conducted within and on behalf of the AAP, such as science, recreation, commercial and operational activities.

3.3 DCCEEW Chief Remote Pilot

The DCCEEW Chief Remote Pilot (CRP) has overarching responsibility for all regulatory matters and management of enterprise risk on behalf of the Department in relation to RPA operations conducted under the DCCEEW ReOC. They are responsible for ensuring operations are conducted in compliance with all legislative and regulatory requirements.

3.4 DCCEEW Maintenance Controller

The DCCEEW Maintenance Controller (MC) is responsible for ensuring the maintenance of Remotely Piloted Aircraft Systems (RPAS) in accordance with the manufacturers specifications on behalf of the Department in relation to RPA operations conducted under the DCCEEW ReOC including the control of maintenance standards, scheduling and equipment logs.

3.5 DCCEEW Drone Policy & Compliance Manager

DCCEEW's Drone Policy & Compliance Manager is responsible for all operational matters and coordination of the RPAS program for the CRP and MC with SBP, RP and Observers on behalf of the Department in relation to RPA operations conducted under the DCCEEW ReOC.

3.6 DCCEEW Deputy Chief Remote Pilot (AAD)

The DCCEEW Deputy Chief Remote Pilot AAD (DCRP) is responsible for all operational matters relating to uncrewed aircraft operations within the AAP, authorised by the CRP as their delegate. They are responsible for supporting the CRP in operational matters and training affecting the safety of operations, and act in the role of CRP when delegated.

The role and responsibilities of the DCRP are to:

- Approve standard AAD operations (e.g. Excluding those that require an additional CASA, Airservices Australia or military approval) on behalf of the CRP.
- Actively develop and manage relationships with internal and external stakeholders to facilitate the safe operation of RPA to achieve work area business outcomes.
- Assist in the management of a digital record-keeping platform for pilot, fleet and mission management in accordance with CASA regulations.
- Develop checklists and procedures relating to flight operations.
- Conduct general pilot inductions.
- Conduct category class and Senior Base pilot training & proficiency checks and specialised training as approved by the CRP.
- Conduct category class training & proficiency checks
- Conduct specialised training as approved/delegated by the CRP
- Ensure all AAD RP are following the correct procedures and checklists for their authorised tasks.
- Report any compliance or safety issues immediately to the CRP.
- Abide by any conditions/restrictions placed on them by the CRP.
- Assist and advise Operations Planners when required as part of the SLA process.

3.7 AAD Senior Base Pilot

The AAD Senior Base Pilot (SBP) is responsible for supporting the DCRP in operational matters relating to uncrewed aircraft operations within the AAD.

The role and responsibilities of SBP are to assist the DCRP in:

- Approving standard operations (excluding those that require an additional CASA, Airservices Australia or military approval) on behalf of the CRP.
- Ensuring that all AAD remote pilots are following the correct procedures and checklists for their authorised tasks.
- Reporting any compliance or safety issues immediately to the CRP/DCRP.
- Conducting training & proficiency checks with AAD remote pilots
- Conducting specialised training as approved/delegated by the CRP
- Acting in the role of the DCRP when delegated.
- Abiding by any conditions/restrictions placed on them by the CRP/DCRP.

3.8 AAD Station Leader / Voyage Leader / Operations Coordinator / Field Leader

The AAD SL/VL/OPSC/FL is responsible for approving all UAS operations on a daily basis and for ensuring all the required permissions and approvals are in place prior to any flights being undertaken.

The role and responsibilities include:

- capturing planned recreational drone use during pre-departure training, briefings and meetings with station personnel (names passed on to Aviation Operations),
- ensuring all RPA operations are conducted in compliance with SLAs, SOPs and environmental permitting,
- ensuring all model/recreational drone flights are conducted in compliance with SOPs and the

environmental authorisation/permit,

- ensuring all UAS operators have provided/uploaded all required information prior to operations,
- ensuring CASA authorisations are in place prior to any RPA operations,
- ensuring all UAS operations are considered in daily operational planning and an Air Task Risk Assessment (ATRA) is conducted prior to any flight,
- ensuring all model/recreational preliminary notification and post flight reports are completed, and
- ensuring all necessary electronic and hard copy documentation, reports and ATRAs are provided to the Aviation Operations and Compliance as required under the Station Operations Coordination SOP (daily, weekly or seasonally to aviation.operations@aad.gov.au and aviation.compliance@aad.gov.au).

3.9 Remote Pilot in Command (RPIC)

For the purposes of this manual a 'Remote Pilot' includes a holder of a 'Remote Pilot License', 'UAV Controllers Certificate' or a model aircraft pilot.

The Remote Pilot of a UAS is responsible for:

- Notifying the Operations Coordinator at least 24 hours prior to planned missions,
- Being aware of current meteorological conditions and current geomagnetic conditions
- the safe operation of the UAS,
- acting in accordance with these SOPs,
- following the rules of the air as defined by CASA's legislation and these SOPs,
- complying with the conditions set out in their AAD environmental authorisation/permit,
- ensuring an ATRA is completed prior to any RPA operation,
- ensuring the job is approved in AVCRM prior to operation (DCCEEW RPs only)
- completing an operational log for all RPA operations,
- completing a remote pilot log for all RPA operations,
- Informing the SL/VL/OPSC/FL/CRP of any incidents, and
- ensuring they are fit for the scheduled duty.

3.10 RPA – external/international operator or research organisation

International programs participating within the AAP may hold certification under their respective civil aviation authorities (e.g. FAA or CAA). However, they must contact CASA (RPAS@casa.gov.au) for verification of equivalence of those certifications.

Operators are responsible for ensuring sufficient time is allowed for CASA to make their assessments. International operators may be asked to position their mission team in Australia with sufficient time to allow testing and demonstration flying, including emergency responses, before approval is granted.

The proponents will need to complete Appendix A – Application to use UAS in the AAP (contact the DCRP for an Excel template, or you can access the form online at: <https://australianantarcticprogramspc.wufoo.com/forms/z10pbs650kzuche/>).

If your intention is to fly a RPA owned/operated by your Project, you will need (as a minimum) to be operating under an Australian Civil Aviation Safety Authority (CASA) issued ReOC, with CASA licensed pilots and RPA.

If your flight profile falls outside the standard operating conditions for RPA operations (refer section 8) you

will need CASA approval for those operations (eg BVLOS operations, operations above 400 feet AGL). Any operations outside of the standard operating conditions will need to be assessed by AAD Operations Planning through the SLA process, as well as requiring a risk assessment (NOTE: regardless of the ReOC under which operations are being conducted, any operations outside of the standard operating procedures needs to be reviewed by the AAD DCRP).

If your RPA falls within the CASA definition of an excluded RPA (that is, <2 kg MTOW) you will still need to satisfy the requirements of having a ReOC/RePL, to meet DCCEEW operational requirements.

All UAS operators must ensure that they have applied for and received an environmental authorisation in accordance with the ATEP Act, prior to use of the UAS in Antarctica. For UAS use in the HIMI Territory, a permit allowing the activity must be issued prior to use.

4 Legislation

Australia has a long-standing territorial claim to a large part of East Antarctica. Even though this claim was effectively “frozen” by the 1959 Antarctic Treaty, the Australian Civil Aviation Act 1988 and Australian Civil Aviation Rules (CARs) apply over the Australian Antarctic Territory and territorial waters in the Southern Ocean. Territorial waters are defined by the United Nations Convention on the Law of the Sea as generally extending 12 nautical miles (22.2 km) from shore.

Areas outside territorial waters are termed the “High Seas” and the ICAO Rules of the Air contained in Annex 2 to the Convention on International Civil Aviation (Chicago Convention) apply. The Office of International Law of the Australian Commonwealth Attorney-General’s Department has recently (July 2023) confirmed that the conduct of operations by Australian aircraft, including remotely piloted aircraft (RPA), outside Australian territory and over the high seas, must be consistent with Australia’s obligations under the Convention and therefore in addition to the rules of the air specified in Annex 2, Australian RPA operating over the high seas must also comply with the requirements set out in the following articles of the Chicago Convention where applicable:

- Article 8 (Pilotless aircraft)
- Article 12 (Rules of the air)
- Article 20 (Display of marks)
- Article 29 (Documents carried in aircraft)
- Article 31 (Certificates of airworthiness)
- Article 34 (Journey log books)

CASA recognises that compliance with some of these requirements for RPA operations over the high seas is problematic, and effectively rules out the operation of RPAs outside of Territorial waters until CASA can identify ways in which effective compliance can be demonstrated.

The operation of any uncrewed aircraft within the AAP must comply with current Australian laws and regulations, available online (<https://www.casa.gov.au/search-centre/rules/part-101-casr-unmanned-aircraft-and-rockets>):

- Civil Aviation Act (1988) and Civil Aviation Regulations (1988),
- Civil Aviation Safety Regulations 1998 (CASR) Part 101 - Unmanned aircraft and rockets,
- Civil Aviation Safety Amendment (Remotely Piloted Aircraft and Model Aircraft—Registration and Accreditation) Regulations 2019
- Part 101 (Unmanned Aircraft and Rockets) Manual of Standards 2019.

4.1 Controlled and non-controlled aerodromes

One of the fundamental necessities is the separation of UAS and crewed aircraft. Part 101 (Unmanned Aircraft and Rockets) Manual of Standards 2019, Chapter 4 and Chapter 9.1 sets out the requirements for the operations of UAS near controlled and non-controlled aerodromes. Within the AAT there is no controlled airspace, however landing areas which constitute non-controlled aerodromes include:

- Wilkins
- Casey Ski Landing Areas
- Casey helipads
- Davis sea ice ski landing areas
- Davis plateau ski landing area (Whoop Whoop)
- Davis helipads
- Mawson sea ice ski landing area
- Mawson Plateau 'Rumdoodle' ski landing area
- Mawson helipads
- Macquarie Island helipads (Parks and Wildlife Service Tasmania permits also required)

A person must not launch or operate an RPA or Model Aircraft within 3 nautical miles (5.5 km) of the movement area of a non-controlled aerodrome if the person is aware that a crewed aircraft is operating to or from the aerodrome.

Operations of RPA or Model Aircraft in any airspace within the AAP must be separated either spatially or temporally from crewed aircraft operations, coordinated through both:

- the undertaking of an Air task Risk Assessment with either the Operations Coordinator or Station Leader prior to operations, and
- through the Communications Operators when undertaking the flight.

If a person controlling an uncrewed aircraft within 3 nautical miles (5.5 km) of a non-controlled aerodrome becomes aware that any crewed aircraft is operating to or from the aerodrome, or becomes aware of a crewed aircraft operating within 3 nautical miles of their location, then the person controlling the uncrewed aircraft is to:

- immediately ensure that the uncrewed aircraft is safely maneuvered away from the path of the crewed aircraft; and
- land the aircraft as soon as safely possible.

RPA and Model Aircraft may be operated within 3 nautical miles (5.5 km) of a non-controlled aerodrome where crewed aircraft are parked (but not operating) so long as:

- personnel, and parked aircraft are not overflowed, and
- the RPA or Model Aircraft maintains a 30 m lateral separation from personnel, and parked aircraft.

4.2 Operations near people

RPs must ensure an RPA is not operated within 30 m laterally of any person who is not directly involved in the control or navigation of the RPA. Persons being filmed or photographed are not considered essential to the control and navigation of the RPA and are not exempt from the 30 m requirement.

The DCRP may approve RPA operations within 30 m of people, but not closer than 15 m, subject to the following;

- The RPA used for the operation will be a very small or small RPA, and the RPA will be properly

maintained and serviceable.

- A risk assessment will be conducted for each operation.
- Consent must be obtained from all non-operating personnel affected by the operation of the RPA closer than 30 m to them.
- Operations closer than 15 m of non-operating personnel are NOT permitted.
- The Controller of the RPA must be properly trained in the management of the risk and must be current on the RPA.

Further details are available in the DCCEEW RPA Operations Manual, section 3.1.

5 Fitness for Duty

Remote Pilots or any other person involved in the operations of UAS are required to consider their fitness for duty prior to undertaking any operations, including but not limited to the following:

- fatigue,
- alcohol consumption,
- drugs and medication use,
- adversely affected by stress,
- mental fitness, and
- general wellbeing.

5.1 Fatigue management

Remote pilots are required to adhere to the AAD's Fatigue Management Standard, and ensure they are well rested prior to undertaking any UAS operations. This includes consideration of travel time to a location, the complexity and duration of an operation, the time of day, environmental conditions and any other factors that may impact the performance of a person operating a UAS.

Persons operating a UAS must not undertake any flights if, considering the circumstances of the operation, they have reason to believe that they are suffering from, or are likely to suffer from, fatigue that may impair their performance.

5.2 Alcohol consumption

Remote Pilots or any other person involved in the operations of UAS shall not perform their duties whilst under the influence of alcohol - blood alcohol level must be zero.

Alcohol must not be consumed less than 8 hours prior to UAS operations or during any period of an operation.

5.3 Drugs and medication

Remote Pilots or any other person involved in the operations of UAS shall not perform their duties whilst having consumed, used, or absorbed any drug, pharmaceutical or medicinal preparation (prescription or non-prescription) or other substance in any quantity that will impair their ability to perform.

It is their responsibility to advise the tasking officer (OPSC/SL/VL/FL) about any medication that they are taking that may negatively impact on their performance.

5.4 Drug and Alcohol Management Plan (DAMP)

As a 'safety-sensitive aviation activity', operators of a UAS must adhere to the AAD's DAMP and are

required to comply with any drug and alcohol testing requirements as directed. Once the operation of a UAS is identified the Remote Pilot will be required to undergo mandatory drug and alcohol testing and receive the AAD's DAMP briefing. This should be done prior to departure, but can be provided on station if required.

NOTE: Those people intending to operate a drone should indicate they require the 'safety-sensitive aviation activity' screening on their polar medical checklist, which will initiate the requisite drug screening.

6 Environmental considerations

Potential environmental impacts of UAS include noise, visual and physical impacts. The closer a UAS flies to wildlife, particularly to nesting or breeding areas, the greater the risk of noise impact and disturbance and consequent behavior modification. There is a risk that wildlife may perceive the UAS as a competitive or predatory threat. There may also be a temporary loss of aesthetic or wilderness values for other expeditioners during operation of UAS.

UAS may crash-land as a result of:

- pilot error (more likely when the pilot is inexperienced)
- loss of the command and control link
- loss of power (i.e. low battery temperature, battery exhaustion)
- mechanical malfunctions
- weather conditions (e.g. strong winds, which may be much stronger at altitude, particularly in the Antarctic)
- the effect of high magnetic variability near the pole on the navigation system for some models
- modification of the device.

A crashed UAS may cause physical harm to people, structures, flora and fauna. The greater the mass and velocity of the model aircraft, the greater the risk of harm through physical impact. Where elements of the UAS are irretrievable, contaminants, including metals, plastic, solder, batteries or fuel, may remain in the environment for an extended period, degrading very slowly in cold conditions.

See the *Environmental policy on UAS (drones)* (<https://intranet.antarctica.gov.au/environment/procedures-inc-sops/>).

7 Flight Planning and Operations

All UAS operations within the AAP must be appropriately planned and considered prior to deployment with:

- Proposed RPA activities having been agreed to in the development of the Project Service Level Agreements (SLA) by AAD Operations Planners, including the completion of Appendix A – Application to use UAS in the AAP (contact the DCRP for an Excel template, or you can access the form online at: <https://australianantarcticprogramspc.wufoo.com/forms/z10pbs650kzuche/>).
- Environment authorisation/permits issued by Antarctic and Environmental Regulation AAD, where necessary,
- CASA ReOC and RePL is sighted (recorded in AVCRM for DCCEEW operations),
- CASA RPA registration sighted (recorded in AVCRM for DCCEEW operations),
- CASA permissions/exemptions/approvals received (though AVCRM for DCCEEW operations),
- Recreational drone operators having completed all the requirements for and received their CASA

drone Operator Accreditation, which is required to be provided.

- 'Model Aircraft Preliminary Notification' for recreational flying completed and given to the relevant SL prior to any operations in Antarctica (Appendix C). These are provided to the SL or OPSC who will forward them to Aviation and Antarctic & Environmental Regulation.

The UAS operator must ensure that all requirements, including for flight crew and airworthiness certification, are met. The operator must coordinate with appropriate agencies or countries if required as soon as the decision is made to employ a UAS.

All AAP coordination must be conducted before deployment of the UAS. The project service level agreement must include planned routes, altitudes, times, targets, standard/non-standard operating conditions, experience levels of staff, and so on, before approval for UAS deployment.

The AAD operations planners are responsible for UAS projects and must inform the SL and OPSC on station of potential operations as soon as possible.

When on Station, the UAS project team leaders or recreational pilots must inform the OPSC as soon as practicable, and generally no later than 24 hours before planned operations for each mission. Specific flight profiles, routes and targets are approved by the OPSC during daily operations briefings to ensure there is no conflict with other flights or station operations.

An ATRA must be completed for all RPA operations and Model Aircraft flights (Appendix B).

7.1 Approvals required

UAS may not be used in Antarctica by AAP personnel without the following authorisations:

- Operational: Requests for UAS use by AAP participants are considered on a case-by-case basis. Reviews of proposed UAS operations must be based on guidelines for operationally and environmentally safe use of a UAS, informed by the ATRA process. For operations under the DCCEEW ReOC, the job must be approved in AVCRM.
- Environmental: Activities in the Antarctic (and at Heard and McDonald Islands) require an environmental authorisation and often a permit. Applicants will need to complete a standard Environmental Impact Assessment (EIA) and have their activity authorized.

Application forms are available on the AAD intranet (<https://www.antarctica.gov.au/about-antarctica/environment/environmental-impact-assessment-approvals-and-permits>). The Tasmanian State Government administers approvals (scientific.permits@dpipwe.tas.gov.au) for Macquarie Island.

Some uses of RPA may also require CASA approval (e.g. EVLOS, BVLOS).

In addition, UAS flight crews and their operations are also subject to daily approval by the Voyage Leader, Station Leader or Operations Coordinator (usually given in association with the completion of an ATRA).

7.2 RPAS Classification

The Civil Aviation Safety Authority (CASA) categorises RPAS based on three factors;

- intended use of the RPA,
- type of RPA, and
- take-off weight of the RPA,

with the principle determinant between categories being the risk to people and property.

7.2.1 Intended Use

If the uncrewed aircraft is to be used for **any commercial, scientific or government function, they are classified as a Remotely Piloted Aircraft (RPA)**. If the purpose is purely sport or recreation, CASA define uncrewed aircraft as Model Aircraft.

Model aircraft cannot be tasked or used for any commercial use (including research) or monetary reward. The intended operation and location also impact the classification of the RPA.

7.2.2 Type of RPA

Model Aircraft and RPA are classified into the following types:

- Multi-rotor helicopter - this type has more than one engine that rotates a propeller (rotor) in the horizontal plane. It takes off, lands, flies and hovers like a traditional 'single rotor' helicopter but has more than one rotor.
- Single-rotor helicopter - this type has one engine (rotor) and looks a bit like a traditional helicopter. It usually also has another rotor on the tail or end of the aircraft.
- Aeroplane - this type looks and flies like a regular plane - it has fixed wings. It also takes off and lands horizontally and can't hover.
- Power-lift - this type can take off and land vertically (straight up and down) like a helicopter, but can then move into forward flight like a traditional plane.
- Airship - this type is engine powered and is 'lighter than air' - it can be filled with a buoyant gas and usually 'floats' in the air.

7.2.3 Size Categories

Size	Weight
Micro	Up to 250 g
Very small	Between 250 g and 2 kg
Small	Between 2 kg and 25 kg
Medium	Between 25 kg and 150 kg
Large	More than 150 kg

7.3 UAS within the Australian Antarctic Program

For the operator of a UAS in the Australian Antarctic program (AAP) there are three tiers of governance that must be complied with in order to operate safely and correctly. These are;

- Civil Aviation Safety Authority (CASA),
- Department of Climate Change, Energy, the Environment and Water (DCCEEW), and
- Australian Antarctic Division (AAD).

In addition to the rules and regulations set out for the safe operation of a UAS, there are environmental authorisation and permitting requirements to be obtained prior to operations. These will vary depending on the classification of the UAS and the intended use and location of the operations.

The DCCEEW and AAD limits UAS operations within the AAP to those set out in Figure 1.

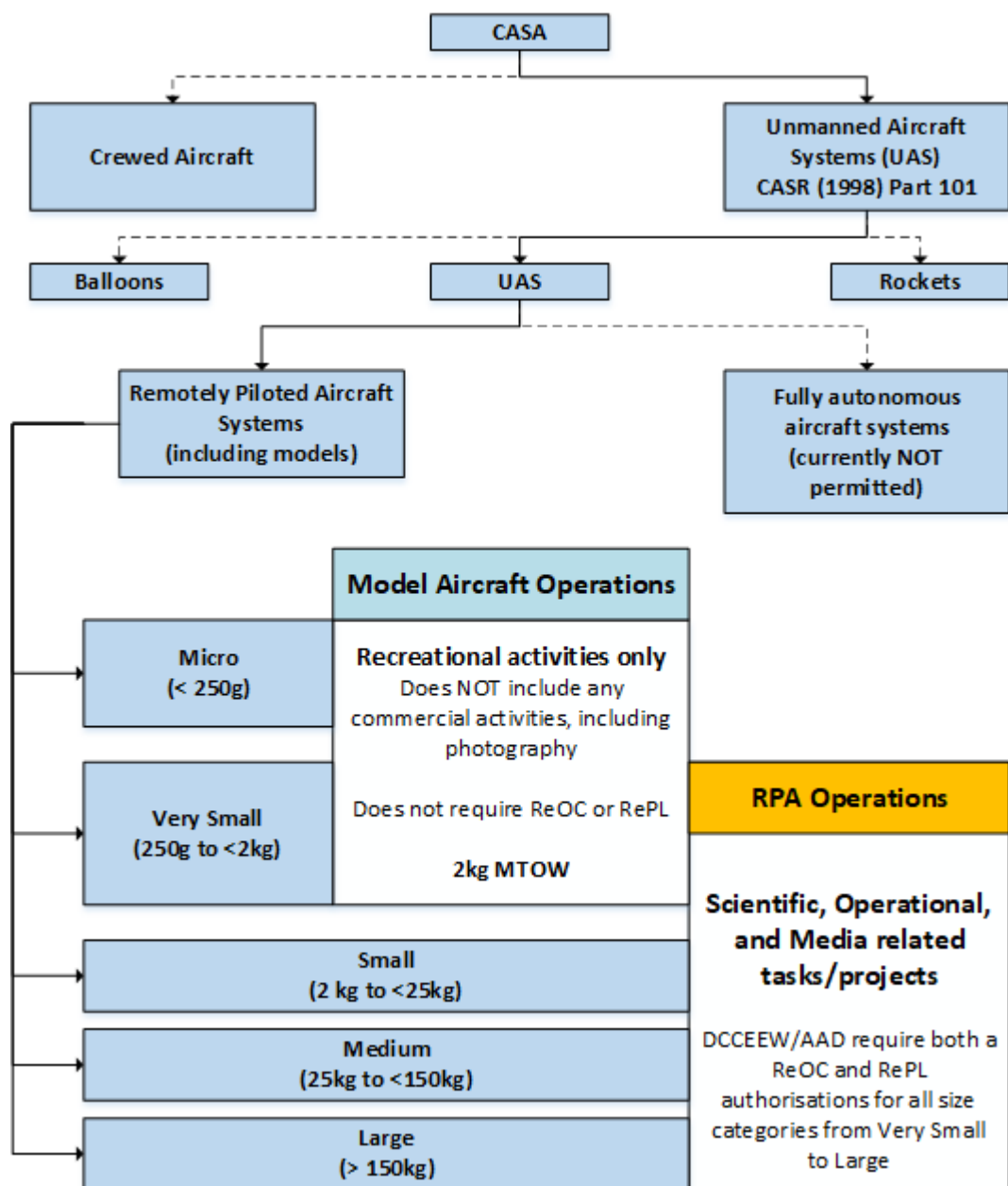


Figure 1. Operating UAS within the AAP. Solid lines indicate accepted UAS operations, whereas dashed lines indicate non-accepted UAS operations.

7.4 Flight Planning and Control

All uncrewed aircraft operations within the AAP must comply with:

- Australian legislated rules and regulations,
- Any conditions included on a RPA operator's certificate (ReOC) or Remote Pilots License (RePL), and
- Any conditions or requirements imposed on UAS operations by the DCCEEW and Australian Antarctic Division.

All aircraft movements, whether it be recreational or commercial, must be initiated by a task approval process, which includes a number of procedures and notifications to be undertaken pre-, during and post-flight to meet CASA, DCCEEW and AAD requirements, which are broadly broken into two categories (Figure 2);

- recreation / model aircraft, and
- RPA operations, either under the DCCEEW ReOC or an external ReOC.

7.4.1 Commercial RPA pre-departure requirements

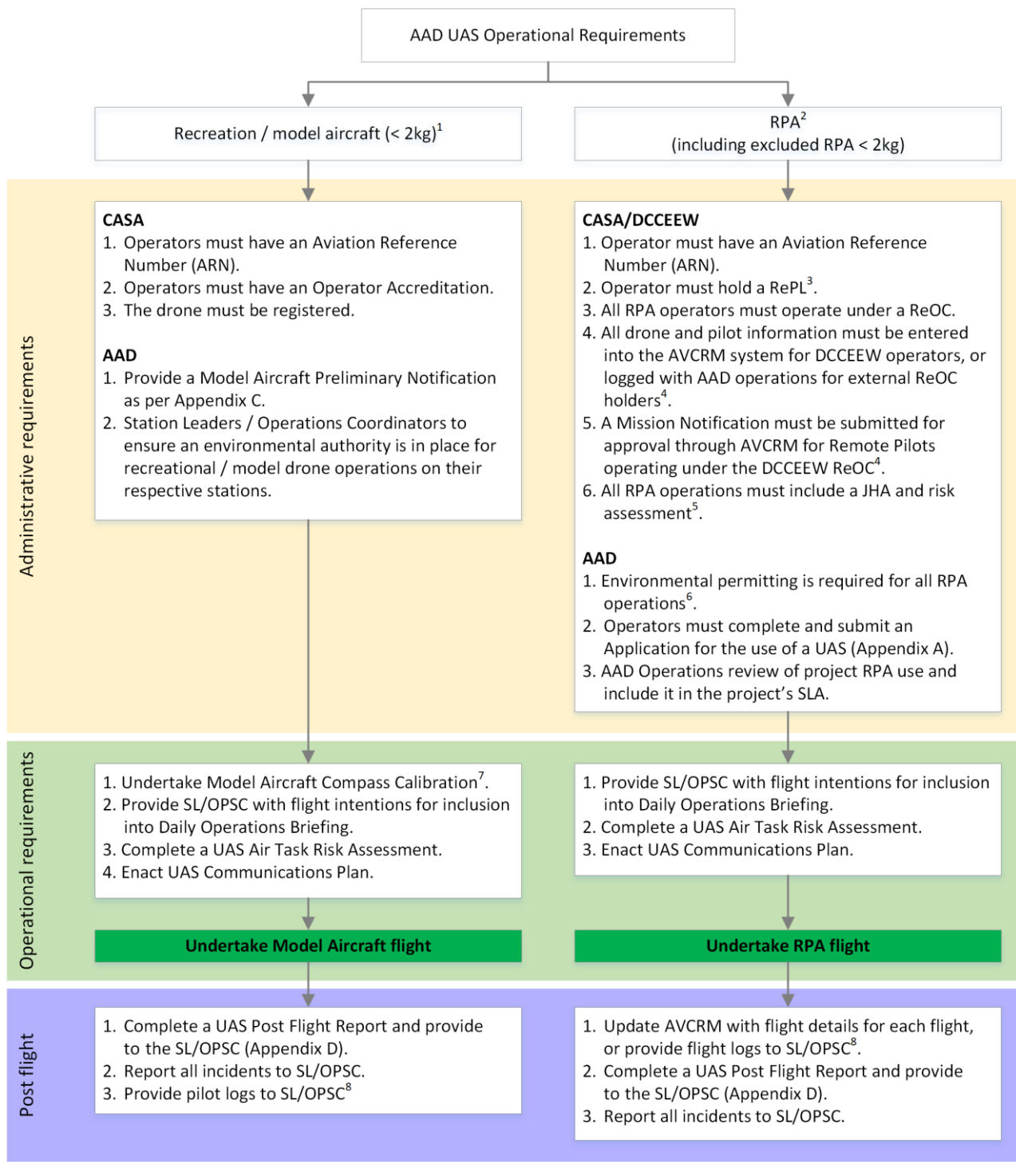
Before you conduct RPA operations in Antarctica, there are a number of things you need to do;

- Complete an Application for the use of uncrewed Aircraft Systems (UAS) in the Australian Antarctic Program and provide it to **drones@aad.gov.au** and **opsplanning@aad.gov.au** (refer to Volume 5, UAS SOP, Appendix A),
- If you are not operating under the DCCEEW ReOC, please provide copies of your RePL and ReOC to **drones@aad.gov.au**,
- In keeping with the DCCEEW Drone Policy, the AAD requires all RPA operations to undertake a Job Safety Assessment (JSA) to cover the intended RPA operations,
- AAD Operations Planning section shall reach out to approved projects to commence planning the logistics for your program. In consultation with you they will develop a **Service Level Agreement** outlining the support requirements for your project,
- For all RPA operations individuals / organisations must apply for an authorisation which is issued to individual projects / operators. The application process will require the completion of an **Environmental Impact Assessment (EIA)**, which can be located on the AAD internet (<https://www.antarctica.gov.au/about-antarctica/environment/>).

7.4.2 Recreational / model aircraft pre-departure requirements

Before you can fly a model aircraft or drone recreationally in Antarctica, there are a number of things you need to do;

- Ensure the drone you're planning on taking is suitable for Antarctica (e.g. capable of operating in GNSS assisted mode, meets the temperature and wind minimums),
- Register the drone with CASA,
- Get your drone Operator Accreditation from CASA,
- Provide copies of your drone Registration and Operator Certification to the AAD via email: **drones@aad.gov.au**,
- Inform your Station Leader of your intentions to operate a drone,
- Ensure you have downloaded and read the following documentation:
 - Operations Manual Volume 5 - UAS Standard Operations Procedure,
 - Drone Environmental Policy,
 - Recreational Drone Environmental Authority.



1. Recreational or Model Aircraft (< 2kg) operators are required to hold a CASA Operators Accreditation.
2. Under the Department of Climate Change, Energy, the Environment and Water, all RPA operations require pilots to hold a RePL and operate under a ReOC, regardless of the drone weight category. There are no exemptions under CASA's "Excluded RPA" category.
3. RePL must be suitable for the relevant RPA weight category, as identified on the license.
4. For DCCEEW staff operating departmental RPAs, all flight and RPA information is to be entered into AVCRM for approval. All flight notifications, flight and mechanical logs are also uploaded into AVCRM.
5. RPA operations are required by DCCEEW to undertake a JHA/Risk Assessment prior to operations.
6. Operational flights are covered under the AAD's Aviation IEE. All other flights (research, survey, commercial, etc), flights outside the Standard Conditions for safe drone operations or flights within ASPAs require a project specific environmental permit.
7. A compass calibration only needs to be completed once in Antarctica prior to drone use. If a drone can't calibrate it's compass or be operated in GPS mode, the pilot must hold an RePL or equivalent competency.
8. Flight logs will need to be provided to the OPSC/SL post flight. For AVCRM users this can be uploaded, for externals or model aircraft operators this can be provided directly.

Figure 2. Flow chart of AAD procedures for operating UAS within the Australian Antarctic Program.

7.4.3 Command and Control

- Prior to operating your drone in Antarctica (RPA or Model) you are required to seek approval for the flight(s). This is completed by the Station Leader or Operations Coordinator and is recorded along with all the other operational activities on station.
- Prior to operating your drone in Antarctica (or Macquarie Island for any RPA operations):
- Notify your Station Leader or Operations Coordinator that you wish to fly your drone. You will need to do this before every flight, ideally 24hrs in advance.
- For recreational drone operations;
 - Complete and provide a Model Aircraft Preliminary Notification to your Station Leader and send a copy to drones@aad.gov.au and eia@aad.gov.au (refer to Volume 5, UAS SOP, Appendix C).
 - Prior to your first flight you will need to ensure your drone's compass is calibrated to allow for GNSS assisted operations. If the calibration is unsuccessful, you will NOT be able to fly unless you hold a Remote Pilot License (RePL).
- Intended drone operations will be included in the daily planning and morning operations briefing.
- Complete an Air Task Risk Assessment (ATRA) with the Operations Coordinator or Station Leader prior to every flight(s) (an ATRA may cover a single or multiple flights in a day). Depending on when and where you're intending to fly, you may be required to notify station comms when you start and finish your flight(s). Approval may not be given if there's an operational reason not to, such as crewed aircraft operations. This will be at the OPSC / SLs discretion.

7.4.4 Operational Reporting

- On completion of your flight(s), you will need to provide the OPSC / SL with a UAS Post Flight Report (Volume 5, UAS SOP, Appendix D).
- Report any incidents or accidents to the OPSC / SL (see Section 9.1, Volume 5, UAS SOP).
- RPA operations are required to provide a copy of their Remote Pilot Logbook to the person responsible for issuing the ATRA approval (e.g. Station Leader / OPSC, Voyage Leader) on a weekly basis or as soon as reasonably practicable.

7.5 ReOC Records and reporting

From October 2020, all commercial operators are required to keep records of their operations to show they are complying with the drone safety rules. These records are set out in detail in Part 101 (Unmanned Aircraft and Rockets) Manual of Standards 2019, and include:

- Chief Remote Pilot records,
- RPAS Operational Release,
- RPAS Operational Log,
- Remote Pilot Logbook (for accumulated flight time operating RPA),
- RPAS Technical Log
- Records of Qualification and Competency, and
- Job Safety Assessments (JSA).

For RPs operating under DCCEEW's ReOC, these records will be managed and stored in AVCRM. RPA operations under an external ReOC will need to manage these records as per their organisation's and CRP's requirements. The AAD may request to see any records, including evidence of RP flight proficiency on type and currency, prior to any operations to ensure compliance.

The AAD requires copies of Remote Pilot Logbooks for each flight conducted to be provided on a weekly basis or as soon as reasonably practicable. These should be provided to the person responsible for issuing

the ATRA approval (eg Operations Coordinator on Station, Voyage Leader on vessel).

7.5.1 Remote Pilot Logbook

The RPA operator is responsible for ensuring Remote Pilot's maintain a Remote Pilot Logbook. These logs may be hardcopy or electronic, but must include:

- Information identifying each RPA operation, including the type, model and unique identification mark of each RPA that is flown by the remote pilot;
- Date, location and duration of each flight
- Accumulated flight time operating RPA
- Separate accumulated flight times for:
 - Visual Line of Sight
 - Extended Visual Line of Sight
 - Beyond Visual Line of Sight
 - Night operations
 - Simulated flight times (and associated RPA type)

For all flights conducted under the DCCEEW, these conditions are met through the assignment of flight logs and the additional relevant metadata to each job in AVCRM. The RP is responsible for ensuring that the information is submitted to AVCRM in a timely manner. SBP and DCRP's can assist with this process.

7.5.2 AVCRM

AVCRM is an online Risk, Compliance and Planning application designed for RPA operations, which allows Remote Pilots to create jobs for approval and store all necessary information. All pre and post flight checklists and logs are created and stored in the system for review by Chief Remote Pilots, Maintenance Controllers and Remote Pilots, allowing full visibility of all the necessary paperwork required.

The Department of Climate Change, Energy, the Environment and Water have adopted the use of AVCRM for all RPA operations conducted under the department's ReOC. Operators working under an external ReOC are not required to use AVCRM, but are required to provide their respective records and logs to the OPSC/SL post flight.

7.5.3 JSA / Risk Assessment

In keeping with the DCCEEW policy, the AAD requires all RPA operations to undertake a Job Safety Assessment (JSA) which includes a risk assessment to cover the intended RPA operations. This may form part of the AVCRM job approvals within the AVCRM program if required.

Model Aircraft and recreational drone use does not require a JSA to be completed.

As a minimum the JSA must consider:

- location and planned operations,
- proximity to persons both involved and not involved with the operation of the RPA,
- separation distances to wildlife and/or environmentally sensitive areas,
- suitable take-off and landing areas (including alternate landing area),
- obstacles (buildings, terrain etc.)
- possible radio interference (power lines, antennas, space weather, etc.)
- ability to maintain visual line of sight
- remote pilot's ability matches location/task
- crewed aircraft operations

- weather conditions suitable for flights,
- loss of control
- recovery of drone
- GPS / Compass calibration

7.5.4 Communications plan

Any planned UAS activity must be communicated.

In areas where there are no crewed air operations, in-person or email communications to appropriate station or field personnel may be the most appropriate level of communications.

In areas where there are crewed air operations or in areas where more than one national Antarctic program is carrying out operations and activities, a more detailed communications plan may be appropriate.

The communications plan must be completed by the UAS operator/pilot. Before any planned UAS operations, the Station Leader or Operations Coordinator must distribute the plan appropriately to advise other operators working in the same area as the proposed UAS operations.

If a planned UAS activity is cancelled, a cancellation notice must be issued as soon as cancellation is confirmed. The notice must be distributed to the same recipients as the communications plan.

The communications plan addresses:

- notifications to the SL/OPSC regarding proposed flights,
- daily Operations Briefing,
- methods of communications with Station Comms and/or Aircraft,
- schedule of communications with Station Comms (i.e. 5 min warning, just prior to launch and on landing), and
- radio frequencies/channels as required.

7.6 Aviation Reporting and Compliance for Drone Operations

The AAD has both internal (management, environmental, operational, contractual and safety) and external (CASA, BARS) reporting obligations and responsibilities for regulatory, compliance and assurance purposes.

Outlined below are the key aviation deliverables and time frames for documents that must be returned to the Aviation Section in Kingston (via email) to Aviation.Operations@aad.gov.au and Aviation.Compliance@aad.gov.au by the tasking officer at each operating node (Station Leader, Field Leader, Voyage Leader or Operations Coordinator). These are to be delivered electronically, with any hard copies (i.e completed booklets) returned to the Aviation section in Kingston once the tasking officer has returned to Australia.

Description	Timeline for delivery
Model Aircraft Preliminary Notification – confirming compass calibration has been completed (Vol 5 Aviation UAS SOP: Appendix C)	Prior to first recreational flight.
UAS Air Task Risk Assessment (ATRA) - (Vol 5 Aviation UAS SOP: Appendix B)	Within 36 hrs of completion
UAS Post Flight Report - (Vol 5 Aviation UAS SOP: Appendix D)	Prior to next UAS tasking or within 36 hrs of completion (whichever comes first)

Aviation Operations Log (or similar) –record of all UAS activities and flight hours per project or recreation. For every flight the log must include critical information, including date, project ID if not recreational, description of activity (including recreational drones), pilot, air task risk assessment number, departure time, arrival time. This is typically captured in the Operations Coordinators Log.	Weekly
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More information on the above required documents can be found in the *Station Operations Coordination SOP*.

8 UAS Operating Conditions

8.1 Standard operating conditions for all uncrewed aircraft

All uncrewed aircraft operated by AAP personnel must follow the standard operating conditions, unless otherwise permitted.

- The local Station Leader or Voyage Leader must approve any intention to fly an UAS (including model aircraft) on or near station. Final clearance for individual deployment must be given by the Station Leader, Voyage Leader, Field Leader, Wilkins Aerodrome Manager or Operations Coordinator (as applicable) as part of the daily air operations activity.
- All flights must have both a pilot and an observer in attendance. Appropriate personal protective equipment must be worn. The observer must maintain a lookout over the area for wildlife, people or other hazards, changing weather conditions and flight duration, and is responsible for monitoring signs of disturbance to any wildlife. The observer must maintain VHF radio contact with the station communications center if required. The pilot must not use a VHF radio while the uncrewed aircraft is airborne.
- All flights must have an onsite compass calibration completed before flight and be operated in GNSS assisted mode, unless pilot has a RePL, equivalent military qualification/endorsement or logged at least 10 hours from a licensed model aircraft organisation.
- Flights must maintain a distance of 30 m (laterally) from people, buildings, vehicles or boats, unless otherwise approved (eg for building roof inspections), in accordance with the DCCEEW operations manual.
- No flight is permitted over personnel not directly related to the operation of the aircraft.
- UAS must be of robust construction with suitable safety features for use in Antarctica. If operated over water, and in the absence of any other failsafe devices, the UAS must have a floatation device or alternative mechanism (such as a leash) to allow for recovery if it lands in the water.
- UAS must not fly within a radius of 3 nm (5.5 km) of any aerodrome, airfield, airport or helicopter landing site during crewed air operations. At all times pilots/observers must maintain radio communications with the station communications centre (when operational) on the air operations frequency, notifying commencement and cessation of flight(s).
- UAS operations must not operate within the environmental separation distances of static wildlife concentrations without prior authorisation (e.g. environmental approval as part of an ASAC-approved science project). Dynamic wildlife, in particular, birds on the wing, present a special case. UAS operations must be aborted if the birds present a significant risk of collision (e.g. bird attacking UAS).
- UAS operations must not occur within 100 m of any environmentally sensitive areas without prior authorization (e.g. Antarctic special protected areas or Antarctic special management areas).

- For VLOS operations, meteorological conditions must permit unaided visibility of the RPA, the surrounding airspace, and the ground beneath so that the remote pilot can avoid collisions and infringements of the regulations. The weather minima for VLOS RPA flight are as follows:
 - 5000 m visibility
 - clear of cloud
 - only by day.
- UAS operations are generally only permitted:
 - during daylight hours
 - in visual meteorological conditions
 - within visual line-of-sight of the RPA
 - below 121 m (400 ft) above ground level
 - operations must not occur in wind speeds greater than that which is specified by the manufacturer. If a manufacturer's maximum wind speed is not specified, the maximum operational wind speed shall be limited to 20 km/h (11 knots).
 - operations must not occur in temperatures lower than that which is specified by the manufacturer. If a manufacturer's minimum operating temperature is not specified, the minimum operating temperature shall be set at -10°C.
- RPA operations may be permitted;
 - extended visual line of sight
 - beyond visual line-of-sight,
 - above 121 m (400 ft) above ground level,
 - in conditions other than visual meteorological conditions and daylight hours,

given appropriate training and certification of both the operator and pilot in accordance with CASR 101 requirements, with permitting from Antarctic & Environmental Regulation and with the approval of the Station Leader.

8.2 Model Aircraft

The following applies to the use of Model Aircraft by people working within the AAP.

- Model Aircraft >2 kg MTOW are prohibited.
- Model rockets and balloons are prohibited.
- Model Aircraft may not be operated from any vessel under AAD operational control.
- Model Aircraft operations must adhere to the standard operating conditions (section 8.1).
- Model Aircraft with a MTOW of <250 g may be operated without CASA certification.
- Model Aircraft weighing >250 g and <2 kg MTOW may only be operated by pilots who can demonstrate a reasonable level of experience, evidenced by, but not limited to:-
 - Model club membership records
 - Log books detailing experience
 - Instructor records
 - Club member references.
- All intended Model Aircraft operations must be included in daily operations briefings beforehand.
- Model Aircraft may not be flown during crewed aircraft operations.
- An ATRA (Appendix B) must be completed before flying Model Aircraft.
- A 'Model Aircraft Preliminary Notification' (Appendix C) is submitted to the relevant Station Leader prior to the first flight in Antarctica.

- Following each flight, a 'Model Aircraft Post Flight Report' (Appendix D) is completed and provided to the OPSC/SL.
- Drones are not permitted to be operated using first person view (FPV) goggles or headsets due to the possibility of a loss of situational awareness. Operations must be conducted within visual line of sight (VLOS).

8.3 Remote piloted aircraft

The following applies to the use of RPAs within the AAP.

- Unless approved as per section 8.4, RPAS will be operated under the standard operating conditions (section 8.1).
- RPAS may only be operated by people or organisations that can demonstrate they meet the requirements under CASR 101, including:
 - Aviation Reference Number (ARN)
 - Remotely piloted aircraft operator's certificate (ReOC)
 - Remote pilot license (RePL)
 - RPAS operations manual
 - RPAS maintenance manual
 - RPA flight manual
 - Chief RPA remote pilot (CASA approval required)
 - RPAS maintenance controller (CASA approval required)
- Remote pilots must be certified with proficiency and currency in the type of aircraft to be operated. RPs should have a minimum of 10 hours on the type of RPA they propose operating, including a minimum of 5 hours in "manual" modes (eg DJI ATTI; Ardupilot Fly-by-wire, Stabilize; Arducopter ALT HOLD); not relying exclusively on GNSS and the autopilot to fly the RPAS. If operating from a ship at sea, RPs should have a minimum of 10 hours in manual modes.
- In the case of prototype, experimental, or research RPA for which no formal training is available, the services of the designers and the manufacturer's best qualified personnel must be used to brief and familiarise the RPA pilots with the aircraft, RPAS and ground control stations. In addition, existing RPA simulators and RPA aircraft of a similar nature must be used to train pilots prior to flying an RPA research vehicle.
- The RPAS should be "mature": that is, not operated "out of the box". The RPA maintenance release should record a minimum of 5 hours operating time in service, in various environmental conditions and modes of operation.
- The RPAS project team leader must inform either the Station Leader, Voyage Leader or Operations Coordinator no later than 24 hours prior to planned operations/mission.
- All RPAS operations must be included in daily operations briefings.
- All RPAS operations must have an air task risk assessment (ATRA) covering all aspects of the operation.
- All personnel involved with the operations of an RPA must comply with the AAD's DAMP and are required to comply with any drug and alcohol testing requirements as directed.
- The Ship's Master and Voyage Leader must approve any intention to fly an RPA from the RSV *Nuyina* or any other AAD-contracted vessel before any individual deployment. RPAS operations must be included as part of daily briefings.
- Remote pilots must have either an aeronautical radio operator certificate (AROC) or a flight radiotelephone operator license (FROL) to operate an aeronautical radio.
- Remote Pilot logs must be provided to the OPSC/SL/VL following any flights.

8.4 RPA operations outside of the standard operating conditions

Any RPA operations that fall outside of the standard operating conditions (section 8.1) must have specific approval from the Aviation Manager in Kingston, as well as a specific environmental authorisation/permit which is granted on a case-by-case basis. Any such operation must be in accordance with CASR Part 101.

8.4.1 Extended visual line-of-sight operations

Extended visual line-of-sight (EVLOS) is when the remote pilot does not have direct visual contact with the RPA but, with the assistance from trained RPA observers, can still ensure safe operation of the RPA and avoid collisions with other traffic. At all times, at least one of the RPA observers must have direct sight of the RPA and must be able to communicate with the remote pilot so they can manage the flight of the RPA and avoid collisions.

Remote pilots with a ReOC and the assistance of RPA observers may be given additional operational flexibility to operate in areas beyond the normal viewing distance of the remote pilot through a CASA EVLOS approval.

Approval for EVLOS operations must be obtained from CASA (unless operating under the DCCEEW ReOC – contact AAD DCRP). The risk assessment for the operation must include

- procedures for avoiding collisions
- aircraft size
- aircraft colour and markings
- aircraft aids to observation
- meteorological conditions and visibility, including background conditions (cloud /blue sky)
- the use of deployed observers (1 or more)
- operating range limits. Suitable radio equipment must be fitted so the RPA is under positive control at all times.

Electronic aids, such as on-screen or moving map displays are not an appropriate replacement for direct eye contact.

8.4.2 Beyond visual line-of-sight operations

A risk assessment and mitigation strategy must be submitted to CASA for RPA operations beyond visual line of sight (BVLOS). The application must pay particular attention to aircraft controllability, fail-safe mechanisms, collision risk mitigation, navigation accuracy and height keeping accuracy. CASA may apply conditions to an approval for BVLOS operations.

8.4.3 RPA operations near aerodromes

Any RPA operations within 3 nm (5.5 km) of an aerodrome must have permission from the Station Leader or the Operations Coordinator during daily briefings.

Concurrent crewed and uncrewed aircraft operations within 3 nm of each operation must be avoided unless a risk assessment shows adequate procedures for aircraft separation, such as aircraft tracking and reporting.

RPA operations must cease as soon as possible following any unexpected encounter within 3 nm of any crewed aircraft.

8.5 General warning – Multirotor operations

Operating certain off-the-shelf multi-rotors (MR) in Antarctica can pose a significant risk including fly-aways or loss of control. This can be attributed to the fact that there is a significant mismatch between the magnetic heading and GNSS derived heading due to proximity to the South Magnetic Pole, and/or their compass calibration routines and GNSS availability assumptions (eg single constellation receivers) are based

on non-polar conditions. Additionally, operating outside of manufacturers environmental recommendations for temperature (or operating before the MR has had an opportunity to equilibrate with its environment after rapid temperature changes – eg moving the MR from a warm to a very cold environment) can impact MEMS gyros used in MR flight controllers, since MRs are inherently aerodynamically unstable and cannot stay airborne without electronic stabilization.

Most manufacturers do not recommend polar operations. For example, the DJI M300 flight manual (p. 85, Flight Environment Requirements, 6) states that “The compass and GNSS will not work in Polar Regions. Fly carefully”. Similarly, the DJI M600 flight manual (p. 42, Flight Environment, 6) states “The Matrice 600 cannot operate in P-mode within the Earth’s polar regions”. Clearly, both RPA types have been shown to operate successfully in Antarctica, but their systems are more likely to be compromised, particularly with poor preparation, and inattention during set-up and operation.

If your application intends using any off-the-shelf multirotor platforms with manufacturers discouraging their use in polar regions, you must address the following:

1. PIC must demonstrate competency operating the RPA in Attitude (Altitude Hold or Stabilize modes) / Manual modes that do not rely on autonomous navigation other than low level stabilisation i.e. attitude/ altitude hold;
2. Application must indicate that visual line of sight and orientational awareness will be maintained at all times;
3. Perform a controlled test flight in Antarctica, outside protected areas (eg ASPA) but within permitted regions to test the feasibility of intended operations;
4. Application must address the limitations of autopilot modes including the inability to use fail-safes (e.g. return-to-launch) given they rely on nominal autonomous navigation routines.

8.6 Balloon operation

Balloon operations for sport and recreational purposes are prohibited.

Balloon operations for a research, science or other program must be assessed on a case-by-case basis with approval by the Aviation Manager in accordance with CASR Part 101.

8.6.1 Bureau of Meteorology

Conditions for the use of balloons by the Bureau of Meteorology must be covered by an exemption instrument issued by CASA under regulations 11.160 and 101.030 and sub-regulation 101.080 (1) of CASR (1998).

Balloon operations by the Bureau of Meteorology do not require formal approval from the AAD. Senior Bureau officers and the Station Leader must communicate with one another at the start of each season or on any change of personnel in these key positions to ensure continuity of communications and clear understanding of balloon release times and procedures.

Balloon launch timings must be discussed with the SL and/or the OPSC. If there are concurrent aircraft operations, launch timings must be discussed during the daily flight briefing.

Balloon launches must be announced on aircraft radio frequencies 5 minutes prior to release when aircraft are operating.

8.7 Rocket operation

All rocket operations are prohibited within the AAP.

9 Emergency procedures

The UAS mission plan must include information and procedures about planned emergency flight profiles if

the data link with the UAS is lost. Dependent on system capabilities, these profiles could include:

- UAS automated transit to a pre-designated recovery area followed by an automated recovery
- UAS automated transit to a pre-designated recovery area followed by activation of a flight termination system.

The UAS mission plan should detail the emergency procedures to be followed in the event of, for example:

- Low battery (UAS/RC)
- GNSS loss
- Loss of control
- Loss of RPA
- Loss of VLOS
- Crewed aircraft enters UAS flight area
- Person(s) not associated with operations enter flight area
- Radio (voice/data comms) failure
- engine failure

Generic DCCEEW emergency procedures can be found in section 2.4 of the DCCEEW RPA Operations Manual, with specific details in Appendix H of that document.

9.1 Accident / incident reporting

All accidents/incidents must be reported immediately to the -

- Voyage Leader, Station Leader or Operations Coordinator,

in addition to reporting to the -

- DCCEEW Chief Remote Pilot, and
- via the Departmental Incident reporting system accessible via intranet (search for IHIS on <https://blizzline.antarctica.gov.au/>).

All errors, failures, incidents and accidents must be recorded for analysis and evaluation.

In addition to the above Departmental reporting, new National reporting requirements for safety occurrences involving RPA took effect on 30 September 2021.

The Transport Safety Investigation Regulations 2021 require the reporting of certain transport safety occurrences to the ATSB as either immediately or routine reportable matters, and introduced updated requirements for operators of certain types of remotely piloted aircraft (RPA) to make reports to the ATSB (refer to <https://www.atsb.gov.au/reporting-requirements-rpa>).

In order to provide an efficient and effective safety framework, the regulations define two types of RPAs which are subject to specific reporting requirements.

Type 1 RPAs are those which are type certified, large (over 150 kg) or medium (25 kg to 150 kg) RPA.

Type 2 RPAs are those that are not Type 1, and are not an excluded or micro (under 250 g) RPA.

Type 1 operators are required to immediately report to the ATSB RPA occurrences involving:

- death or serious injury;
- accidents;
- loss of a separation standard with aircraft; and,
- serious damage to property.

Less serious incidents and occurrences are required to be reported to the ATSB **within 72 hours**.

Occurrences involving Type 2 RPAs generally only need to be immediately report to the ATSB if they involve death or serious injury, while less serious incidents and damage to the RPA will need to be reported within 72 hours.

Such events should be reported online in accordance with ATSB requirements (see website at <http://www.atsb.gov.au/>).

Appendix A. Application for the use of a UAS

This template is available as an Excel spreadsheet from the DCRP, or online at:

<https://australianantarcticprogramspc.wufoo.com/forms/z10pbs650kzuche/>

Application for the use of Uncrewed Aircraft Systems (UAS) in the Australian Antarctic Program

NOTES BEFORE YOU START

1. The operation of a RPA as part of an Australian Antarctic Project in Antarctica or on the RSV Nuyina is viewed by the Department of Climate Change, Energy, the Environment and Water (DCCEEW) as the same as an operation in Australia, and is subject to the same rules, regulations, and laws. The DCCEEW Chief Remote Pilot (CRP) has responsibility to monitor and maintain operational standards and supervise Remote Pilots who work under the authority of the Remote Operator Certificate (ReOC) of DCCEEW.

2. DCCEEW owns and operates a number of RPA with trained and licenced pilots that may be able to satisfy your mission requirements. Where this is not possible, the AAP may provide contracted RPA and operators that can accommodate your sensor(s) to achieve your aims.

3. This application aims to determine what type of data (eg physical, chemical, optical) you are collecting and how you propose collecting it.

4. If your intention is to fly a RPA owned/operated by your Project, you will need (as a minimum) to be operating under an Australian Civil Aviation Safety Authority (CASA) issued ReOC, with CASA licenced pilots and RPA. If your flight profile falls outside the standard operating conditions for RPA operations (refer AAP UAS Standard Operating Procedures Vol. 5, section 8) you will need CASA approval for those operations (eg BVLOS operations, operations above 400 feet AGL).

5. If your RPA falls within the CASA definition of an excluded RPA (that is, <2 kg MTOW) you will still need to satisfy the requirements of Note 4, to meet DCCEEW operational requirements (refer AAP UAS Standard Operating Procedures Vol. 5, section 7.3).

6. International programs participating within the AAP may hold equivalent certification to a ReOC or RePL under their respective civil aviation authorities (e.g. FAA or CAA). However, they must contact CASA (RPAS@casa.gov.au) for verification of those certifications (see <https://www.casa.gov.au/drones/drone-rules/travelling-your-drone> for links to further information).

7. International operators may be asked to position their mission team in Australia with sufficient time to allow testing and demonstration flying, including emergency responses, before approval is granted.

8. RPA activities in the Antarctic (and at Heard and McDonald islands) require an environmental authorisation and often a permit. Application forms are available on the AAP intranet (<https://www.antarctica.gov.au/about-antarctica/environment/environmental-impact-assessment-approvals-and-permits/>). The Tasmanian State Government administers approvals for Macquarie Island.

Please complete the following sheets: General, Pilot - Crew, RPA, Sensor.

Create a new sheet for each drone and sensor you intend to operate.

For the purposes of this application, "Sensor" refers to a sensor (like a camera or temperature probe etc) or a sampling device (like a water sampler)

Links

[CASA - The Civil Aviation Safety Authority](#)

AAD Standard operating conditions for RPA:

Operations are generally only permitted:

- during daylight hours
- in visual meteorological conditions
- within visual line-of-sight of the RPA
- below 400 feet (121 m) above ground level
- in maximum wind speeds of either 20 km/h (11 knots) or as per the manufacturer's specifications, whichever is lower.

RPA operations may be permitted;

- beyond visual line-of-sight,
- above 400 feet (121 m) above ground level,
- in conditions other than visual meteorological conditions and daylight hours,
- at wind speeds above 20 km/h (11 knots), providing that they are lower than the manufacturer's limitations given appropriate training and certification of both the operator and pilot in accordance with Civil Aviation Safety Regulations 1998, Part 101 requirements.

1. General

1.1	Science Project	
1.2	Science Project principal contact Science Project Technical contact (Name, email, phone)	1. 2.
1.3	Description of the data gathering aims of the flight/sensor/sampling device deployment	
1.4	Do you propose operating under the DCCEW ReOC?	YES NO (to 1.5)
1.5	Do you propose operating under another CASA issued ReOC?	YES (Attach a copy of the ReOC and evidence of Public Liability Insurance) NO (to 1.6)
1.6	Do you propose applying to CASA for recognition of your country's Civil Aviation certification?	YES (Be aware that applications with CASA can take time. Please advise us of your progress well in advance of any voyage deadlines) NO (RPA operations not permitted. Proceed to Sensor sheet)
1.7	Estimate of total number of missions during the Season, and possible mission duration.	<i>Example answer: 2-5 missions per day when in the ice of 5-20 minutes duration each</i>
1.8	Will your RPA be operating within Visual Line of Sight (VLOS)? (ie generally within a radius of 500m)	YES NO

1.9	Extended Visual Line of Sight ops. EVLOS	YES NO
1.10	Beyond Visual Line of Sight ops. BVLOS	YES NO
1.11	Night	YES NO

If you answered YES to 1.9, 1.10 or 1.11 we will require further information regarding your mission profile including CASA approval to undertake such operations

1.12	Additional notes or relevant information	
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2. Pilot/Crew Qualifications

2.1	Names of Pilot and Crew	1. 2. 3. etc...
2.2	Licences	<i>Attach CASA issued RePL and/or evidence of crew training for each pilot & crew member</i>
2.3	Do your pilots have previous experience operating the RPA in Antarctica?	1. 2. 3. etc...
2.4	If applicable, provide details of your pilots' experience operating at latitudes >60° N or S (ie cold weather, high magnetic inclination and declination, manual as opposed to automated flight)	1. 2. 3. etc...
2.5	Total hours flight time/Time on type (at time of application) for each nominated pilot	1. 2. 3. etc...

2.6	Additional notes or relevant information	
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3. RPA 1 description

3.1	RPA Manufacturer Enter "In-house" if you or your organisation have built the RPA	
3.2	RPA Model Provide URL if this is a commercially available RPA	
3.3	RPA Type eg multirotor (specify quad, hexa, octa), powered lift, fixed wing	
3.4	Date of purchase and Total hours on RPA airframe to be operated during season	Date of Purchase/Manufacture: Total Hours:Minutes on RPA airframe:
3.5	RPA registered with CASA	YES (Attach CASA registration) NO

3.6	RPA incorporated in Schedule 1 of ReOC	YES (Attach a copy of Schedule 1 in ReOC) NO
3.7	RPA insured (Public Liability)	YES (Attach Insurance Schedule) NO
3.8	Power type (eg LiPo battery, Heavy Fuel, Petrol, Hybrid)	<i>Example answer: Hybrid power with UL petrol motor generating power for LiPo batteries in flight</i>
3.9	If Battery: Type, Size, Cells	<i>eg LiPo, 5400 mAh, 6S</i>
3.10	Dangerous Goods Class(es)	<i>eg Class 9 Miscellaneous DG, Class 3 Flammable liquids</i>
3.11	Number of batteries, and battery Charging & equipment storage requirements (eg temperature sensitive)	<i>eg 12 x 5700 mAh batteries. Ambient store, do NOT freeze. Storage area for batteries and charging 1.0m x 1.0m desk/bench space. Set-up area 2.5m x 1.0m desk/bench space</i>
3.12	Size, Weight and number of transport containers for all RPA components.	<i>eg RPA Pelican case 1: 700 x 700 x 600mm; 20kg RPA Pelican case 2: 400 x 1200 x 600mm; 15kg Battery Pelican case 1: 400 x 300 x 250mm; 8kg (12 x 5700 mAh batteries)</i>
3.13	Size and Weight of RPA and payload (ready to fly)	
3.14	Radio operating frequencies used for Command/Control	<i>For example, 2.400 - 2.4835 GHz; 5.725 - 5.850 GHz</i>
3.15	Radio frequencies used for data transfer (if applicable)	
3.16	Has equipment previously been used in Antarctica?	
3.17	In the event of a ditching, will the RPA float?	<i>Note: this is obviously a consideration for operations at sea. Requirements for floatation may be tempered by reliability and failsafe mechanisms associated with the RPA type (eg multiple batteries, motors, IMUs etc), or the potential for float fitment to degrade flight performance.</i>
3.18	Proven low temperature operating limit	<i>Example answer: OEM data sheet lists as -10°C however we have modified battery with additional insulation, which combined with battery pre-warming allows ops down to -20°C</i>
3.19	OEM and/or demonstrated maximum wind speed operating limit	<i>Note: AAD Standard Operating Procedures impose an 11 knot (20 km/h, 5.6 m/s) maximum limit for RPA operations. Given appropriate certification, training, and operational experience, operations above this wind speed limitation may be permitted.</i>
3.20	Does your RPA rely on a magnetic compass for heading information?	<i>Note: Operations from the RSV Nuyina may not permit an accurate compass calibration, which precludes the majority of commercially available RPAs from operating in automated modes (eg waypoint flying) due to the high magnetic declination (60° to 80° W) and inclination in areas the ship will be transiting. Explain how you will overcome this limitation (for example: using manual flight modes only; using dual GNSS receivers for heading information).</i>

3.21	What GNSS constellation(s) does your RPA use for Automated flight modes?	
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3.22	Additional notes or relevant information	
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Remote Sensor/Sampling Device description

4.1	Sensor Type (eg Optical, 20 MP; or Meteorological, temperature, pressure RH; or physical sample, ice/snow. List all sensors to be used)	
4.2	Sensor is Commercially available	Make: Model: URL:
4.3	Sensor is developed "in-house"	<i>List any references to previous work. Include details of Size and Weight</i>
4.4	Sensor records data onboard	YES (To what type of media? eg micro SD card) NO (To 4.5)
4.5	Sensor transmits data to the RPA Ground Control Station	YES (Frequency used) NO
4.6	Sample type collected (if applicable)	
4.7	Sensor integration	<i>eg Connects directly to DJI M300; or HDMI, UART, RS-232, USB; male/female</i>
4.8	Sensor Power requirements	

4.9	Additional notes or relevant information	
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5. Attachments

**Please use this sheet to attach ReOC, RePL, schedule 1, and Insurance documents
Overseas qualifications and licences, if applicable**

6. Additional Information

Please use this sheet to attach any additional information you feel is relevant to your application. For example: photographs or detailed description of your "in house" drone or sampling device, details of field experience...

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Tasking considerations

- ☐ *Marginal and/or deteriorating weather*
- ☐ *Last minute decision to undertake task*
- ☐ *Unscheduled flight*
- ☐ *Ship movements influencing tasking*
- ☐ *Task occurs at very start or end of season*
- ☐ *Undue pressure to achieve outcome*
- ☐ *Task planned at limit of VLOS operations*
- ☐ *RPA equipment serviceability*
- ☐ *RPA pilot recency and qualifications*
- ☐ *RPAS reliability in Antarctic conditions*
- ☐ *Ground support personnel briefed*
- ☐ *Communications in place*
- ☐ *Fatigue justification noted in ATRA for tasks exceeding normal AAD 12 hour maximum*
- ☐ *Survival equipment – suitable for area of operation*
- ☐ *Field training meets AAD requirements*
- ☐ *If AAD project risk assessment provided, all risk minimization/ elimination controls in place*
- ☐ *Pilot briefed on project environmental requirements if applicable*
- ☐ *Special dispensations/exemptions are required for operations outside of Standard Operating Conditions (SOC)*
- ☐ *No conflict with crewed aviation tasks (ensure communications protocol clear if planning concurrent or staggered operations involving crewed flights in area)*
- ☐ *Kingston consulted if any task requirements unclear*

Additional tasking considerations and controls

POSSIBLE HAZARDS

External pressures

- ☐ *Ill-defined intent, aims, or objectives*
- ☐ *Over familiarity with supported personnel*
- ☐ *Poor communications Mission creep, amendments (informal and formal)*

Remotely piloted aircraft

- ☐ *Performance limitations of RPA*
- ☐ *Procedural limitations*
- ☐ *Configuration of RPA*

Crew

- ☐ *Suitability/Recency/Currency/Experience*
- ☐ *Pre and post fatigue levels/Task duration*
- ☐ *Distractions*
- ☐ *Fitness Level of anticipation and possible effects on judgement/performance*

Environment

- ☐ *Current and forecast weather (reliability of forecast?)*
- ☐ *Lighting/sun angle/visibility*
- ☐ *Comfort level/Circadian rhythm*
- ☐ *Obstacles/crevasses/sea ice thickness*

POSSIBLE CONTROLS

- ☐ *Reject task*
- ☐ *Clarify aims and objectives of task*
- ☐ *Determine what needs to be developed/ changed to control the hazard Adjust or limit the time of the task to achieve more favorable weather, lighting or crew rest*
- ☐ *Minimise the number of personnel exposed to the hazard*

Conduct Air OPS meetings well in advance of flights and involve all effected personnel

- ☐ *Avoid last minute changes to task*
- ☐ *Confirm support requirements for task*
- ☐ *Confirm the launch authority responsibility for the task*
- ☐ *Make plans for possible contingencies*
- ☐ *Gather information to minimise uncertainties*
- ☐ *Conduct a reconnaissance*
- ☐ *Rehearse procedures*
- ☐ *Ensure equipment is sufficient and serviceable for the task*
- ☐ *Determine what equipment is available to control hazards*
- ☐ *Identify maps and survival equipment needs*
- ☐ *Conduct additional training*
- ☐ *Communicate hazards and possible controls with supported party*
- ☐ *Confirm and review all applicable procedures and regulations*
- ☐ *Conduct thorough pre- and post-task briefing to examine hazards and the effectiveness of controls*

Appendix C. Model Aircraft Preliminary Notification

Prior to allowing any recreational flights, complete the following questionnaire for each Model Aircraft on station and return it to drones@aad.gov.au and eia@aad.gov.au.

Provide the following information for every Model Aircraft to be flown for recreational purposes.

Date:	Pilot name:
Name of spotter(s):	Pilot experience:
Model:	Manufacturer:
Weight with all accessories and fuel source fitted:	Fuel source: battery / petrol / other (please specify):
Dimensions (mm): H L W	GNSS system installed: Yes / No
Fixed wing or rotor:	Number of rotors:
Type of control link: Radio / Bluetooth / Wi-Fi / other (please specify):	Return To Home function installed: Yes / No
BEFORE FIRST FLIGHT IN ANTARCTICA. Compass Calibration achieved on site : Yes / No If no: Is operator licensed or experienced in operating without GPS operating? Yes / No	Has the Model Aircraft been modified: Yes / No. (If yes provide details below)
Pilot has read and understood the AAD Operations Manual – Volume 5 UAS Standard Operating Procedures: Yes / No	
Pilot has been issued with a CASA Drone Operator Accreditation: Yes / No. (Note: recreational drone operations can't be conducted without CASA Operator Accreditation. A copy of the certification will need to be supplied with this Preliminary Notification)	
Additional information:	

Appendix D. UAS/Drone Post Flight Report

The pilot of a recreational flight should complete the following report after each flight. A copy of the report should be provided to the Station Leader or operations coordinator as soon as it has been completed. The reports are to scanned and returned to aviation.operations@aad.gov.au and aviation.compliance@aad.gov.au.

Date of operations:	Air Task Risk Assessment number:
Pilot:	

Flight description:	
Weather conditions:	Wind speed and direction:
Temperature:	Visibility:

Flight Log – add additional pages if required			
Take-off time (hh:mm):	Location (lat, long):	Landing time (hh:mm):	Location* (lat, long):
Take-off time (hh:mm):	Location (lat, long):	Landing time (hh:mm):	Location* (lat, long):
Take-off time (hh:mm):	Location (lat, long):	Landing time (hh:mm):	Location* (lat, long):
Take-off time (hh:mm):	Location (lat, long):	Landing time (hh:mm):	Location* (lat, long):

** if landing location differed from take-off location*

Were there any operational, safety or environmental issues to report? Yes / No (If yes, please provide details):
Were there any serviceability issues with the aircraft?: Yes / No (If yes, please provide details):

Pilot Signature:	Date:
SL / OPSC comments:	
SL / OPSC Signature:	Date: