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## **IAATO Policies on the Use of Unmanned Aerial Vehicles (UAVs) in Antarctica**



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## Information Paper Submitted by the International Association of Antarctica Tour Operators (IAATO)

### **Summary**

This paper outlines discussions and policy evolution by IAATO membership regarding the use of Unmanned Aerial Vehicles (UAVs) during IAATO members' activities. The paper further notes the IAATO statement on the use of UAVs in Antarctica agreed at the recent IAATO Annual Meeting.

### **Background**

IAATO members are committed to advocate, promote and practice safe and environmentally responsible private-sector travel to the Antarctic. Industry peer reviewed policies, standard operating procedures, and guidelines have been the backbone of IAATO members operations in Antarctica. As far as is possible and practical, IAATO members strive to be proactive in the face of new management challenges and technological developments.

UAVs are freely available to the general public and becoming increasingly popular for recreational purposes. Technological advances in the capabilities and robustness of UAVs continue to change rapidly, and this has created management challenges across the globe, including amongst Antarctic tourism activities. .

In an Antarctic context, UAVs have the capability of being extremely useful to operators. For example UAVs can be used in the assessment of sea-ice conditions; crevasse reconnaissance; for outreach and education and for offering an unusual and potentially powerful perspective of the Antarctic environment. Equally, however, UAVs have the potential to cause more than a minor or transitory impact, particularly in wildlife rich coastal regions of Antarctica such as the Peninsula or Ross Sea areas. Their use could also undermine other visitor's wilderness experience if operated incorrectly or insensitively, and may generate waste if lost.

IAATO members adopted preliminary draft guidelines for the use of UAVs in May 2014 at the IAATO25 Meeting as a preliminary response to this pending management challenge,. Prior to the season, a media outreach campaign was launched aimed at potential IAATO members' clients to highlight the need to contact their operator prior to bringing a UAV with them, and noting that any activity in Antarctica needed to be authorised in advance of the activity occurring. Additionally the IAATO mandatory briefing, usually given by the Expedition Leader (EL), was updated to include reference on use of UAVs.

### **Update from 2014-15 season**

Throughout the 2014-15 season IAATO members reported back their experiences of UAV flights. A total of sixty eight UAV flights were reported; forty-four of these were in coastal regions and twenty-four took place in deep-field environments, including those coastal areas fringed by ice shelves. These reported flights were primarily for professional filming purposes, with a few for ice reconnaissance or in support of scientific research work. One UAV was lost in a crevasse at Waddington Bay from a commercial camera team travelling on board an IAATO member's yacht. In that instance, the UAV operator was an experienced professional UAV pilot cameraman. On a few occasions IAATO members reported clients arriving with personal UAVs, presumably unaware of the restrictions, and on one reported occasion had to stop a client conducting an unauthorised flight. No other significant incidents were reported.

### **Outcomes of IAATO26 Meeting, Rotterdam April 28-30**

The use of UAVs and operators' experiences were discussed in detail at the IAATO26 Meeting in Rotterdam 28-30 April and new policies were put in place for the 2015-16 season. The discussions took into account the increasing popularity of the devices and the potential for disturbance and undermining of other visitors' wilderness experience, noting the desirability of having a consistent policy approach to the management of UAVs. Notably, the discussions also took into account the potential value of UAV flights and highlighted the rapidly evolving technology behind UAVs.

### **IAATO Statement on the use of Unmanned Aerial Vehicles**

As a result of these discussions, the Members agreed to the following statement on UAVs and agreed to return to the discussions at the next Annual Meeting, IAATO27, in May 2016. For the purposes of this statement, commercial activity is understood to include pre-permitted/authorised professional film making, ice reconnaissance, etc. The ATCM and CEP are invited to take note of these policy developments.

#### ***IAATO Statement on the use of Unmanned Aerial Vehicles***

*The term Unmanned Aerial Vehicles (UAVs) is used for any remote piloted aircraft.*

*IAATO accept the general use of UAVs within their members' operations, provided the following criteria have been met:*

- *For the 2015–16 season, recreational UAV flights are not allowed in coastal areas;*
- *UAV flights for scientific or commercial purposes are allowed, if conducted with the permission/authorization from a competent authority;*
- *UAV flights are allowed at deep field sites, including coastal areas bound by ice shelves, if conducted with the permission/authorization from a competent authority.*

*Members who allow UAV flights should have Standard Operating Procedures in place that are specific to their operation.*

*Prior to conducting the activity, the use of Unmanned Aerial Vehicles (UAVs) must be included in the operator's permit/authorization conditions e.g. Advance Notification, Environmental Impact Assessment (EIA) and Waste Management Permit (WMP), where relevant.*

### **Points for Consideration for Operators' Standard Operating Procedures**

In addition, for those instances where UAV flights are allowed, Members agreed to provide the following information as points for consideration when setting up the activity.

1. *Legal requirements*
  - The tour operator and pilot must be familiar with, and adhere to, Antarctic Treaty and National legal requirements.
2. *Flight Operations and Piloting of UAVs*
  - All flights should be pre-approved by an authorized person/ EL.
  - UAV equipment should be inspected by an authorized person/EL to ensure that it meets the requirements outlined in the authorised operating procedures.
  - UAVs should be of robust construction with suitable safety features for use in Antarctica. If operated over water it should have a flotation device or alternative mechanism (such as a leash) to allow for recovery if it lands in the water.
  - UAV pilots should be able to demonstrate proficiency and experience in varied flying conditions.

- UAVs should not be operated in the immediate vicinity of a vessel if the vessel's radar is operational.
- Every flight should adhere to the individual Members Standard Operating Procedures and a risk assessment carried out in advance for the activity.
- Each flight should have a pilot and an observer (except during solo expeditions).
- Preflight planning should include identifying an alternate landing area away from the launch site should the launch site become unusable. The authorized person/EL should be made aware of the alternate landing site before the flight begins.
- A test flight should be undertaken to show the authorized person/EL that the equipment is fit for purpose, and the pilot is proficient in its operation and use in the Antarctic.
- Each flight should begin with an airborne test of the UAV and its systems in an area away from people and wildlife. This should include testing the UAV's failsafe systems for auto-return. (It is noted that south of 70 degrees, failsafe systems may be unreliable).
- The pilot should maintain visual contact with the UAV at all times.
- The observer should maintain a lookout over the area for wildlife, people or other hazards, change in weather conditions and is responsible for monitoring signs of disturbance by wildlife.
- The observer is responsible for maintaining VHF radio contact with the other staff (Authorized person/EL/Bridge/Communications team). The pilot should not use a VHF radio while the UAV is airborne.

### 3. *Flight restrictions*

- Flights should be conducted in fair weather, with a cloud base sufficiently high that visual contact can be maintained with the UAV at all times.
- Total flight durations should not exceed 15 minutes, and the pilot must have a way to monitor the flight battery voltage at all times during the flight. (It is noted that in colder conditions flight time will be controlled by battery life).
- Flights should not be started in winds exceeding the UAV manufacturers recommended maximum and should be aborted if winds exceed 25knots.
- The maximum altitude should not exceed 300 feet (90 meters) Above Ground Level (AGL) at any time.
- The maximum distance away from the pilot should not exceed 100 meters but never beyond visual contact of the observer.

### 4. *Environmental restrictions*

- UAVs must not be flown over or near to concentrations of wildlife on shore or at sea, or over concentrations of marine mammals and flying birds.
- UAVs must not be flown over Antarctic Specially Protected Areas (ASPAs).
- UAVs must not be flown over Antarctic Specially Managed Areas (ASMAs) unless the activity is specifically allowed in the ASMA Management Plan.
- UAVs must not be flown directly over designated Historic Sites and Monuments (HSMs).
- UAVs must not be flown in the vicinity of scientific stations without the permission of the Base Commander.
- If any wildlife indicates disturbance, unusual behavior, or interest in the UAV, the flight should be aborted immediately.
- In the event of a crash, every effort should be made to collect all the remains and evidence of the UAV, if safe to do so.

### 5. *Record Keeping*

- A log of flights must be maintained, including location, length of flight, weather conditions, any crashes or unexpected landings.
- UAV flights must be recorded on the PVR (post-visit report).

- Additional reporting to the operator's competent authority may be required under permit/authorization conditions.