

APPENDIX 2:

UAV PREFLIGHT AND POSTFLIGHT CHECKLIST — PRINTABLE

PREFLIGHT

- Check local regulations, airport proximity, and altitude restrictions before you arrive in the field.
- When relevant, work with local community members to describe what you will be doing and to answer questions.
- Ensure a spotter can come to the field site with you.
- When applicable, create your autonomous mission in the relevant software and perform a simulation.
- Check the planned flight area for obstacles, animals, and people.
- Evaluate wind speed, visibility conditions, and potential for inclement weather.
- Ensure adequate room for the UAV to safely take off and land.
- Inspect airframe and ensure propellers, engine, gimbal, and camera are attached.
- Test electrical connections.
- Check batteries to ensure they are fully charged and functional.
- Ensure camera or sensor batteries are also fully charged.
- Check that camera or sensor memory is present and has capacity.
- Ensure RC and telemetry systems are functioning.
- Perform brief test flight before starting intended mission.

POSTFLIGHT

- Power down UAV.
- Remove and safely store batteries.
- Check camera or sensor to ensure all required data have been collected.
- Make logbook entry.

PREFLIGHT CHECKLIST

This is a general checklist describing some best practices before beginning a UAV mission. Each UAV is different, and it is important to tailor your technical preflight checklist to whatever your individual setup requires.

This checklist was adapted from documents produced by the Humanitarian UAV Network,¹ Rob Thompson,² and Event38.³

BASICS

Practice extensively before you bring your UAV into the field. Learning to fly a UAV, while not difficult, is necessary to carry out useful—and safe—fieldwork. Find an area flight club or a mentor who is willing to train you. Keep a logbook of all your recorded flight hours.

PERMISSION

Before planning a mission or a project, ensure it is legal to fly a UAV in the area you plan to fly. Check national and local laws, and determine whether your mission will take place at the minimum distance away from controlled airspace. Formally request permission from local government and communities before flying over the airspace when possible. Verify what the maximum legal altitude limit is in the area where you are flying.

ENVIRONMENT

Ensure the site is away from large groups of people, utility wires, poles, low-hanging trees, and other obstacles. If possible, walk the site prior to the flight to get a sense of where you will be going. If not, try to evaluate it using existing imagery such as Google Maps.

Ensure there is enough space to safely launch the UAV without endangering yourself or colleagues. Ensure there is an adequate buffer zone between the UAV and potential onlookers.

Select a takeoff site that will permit you to maintain visible line of sight (VLOS) at all times or will ensure that flight beyond VLOS (if permitted by local regulations) can take place without the telemetry connection being obstructed.

SOFTWARE

If you are flying an autonomous mission, use the simulation feature of your software to do a virtual run-through of your flight before you actually take off. Ensure “fail-safe” options are functioning. Make sure you will be taking enough pictures or video to create the planned visual product.

HARDWARE

Ensure you have enough batteries on hand to carry out your planned flights, preferably with spares. Inspect UAV airframe for signs of damage or trouble.

Ensure the propellers are firmly attached to the motor, and that all sensors and batteries are properly fastened. Test all the UAV’s electrical connections, ensuring everything is plugged in and secured.

Ensure that your UAV is communicating with your radio controller. Ensure that all telemetry equipment is functioning properly.

Before embarking on a full mission, power up the UAV and hover at a low altitude to ensure everything is working appropriately.

CAMERA

Test photography equipment to ensure that it is working and firmly mounted to the UAV. Make sure that your camera settings are correctly configured for your mission and that the camera batteries are charged.

Ensure there is enough room on your memory storage medium to record your entire mission. If relevant, be sure to begin recording before you begin flying.

PUBLIC AWARENESS

If you are flying in a populated area, it is important to inform local residents about what will be happening in advance. Local radio, newspapers, fliers, and Internet communities are good ways to distribution information well in advance.

Optimally, meet with community representatives beforehand, and explain the mission, the technology, and why you are there. Try to give something back to the community, including photographs, maps, or perhaps flight training. Involve locals who have prior experience with UAVs.

If local residents express concern over privacy, listen to them. Figure out whether a compromise can be made. Offer to show them how the UAV works and what kind of images it takes. Work to remove identifiable information if requested and if reasonably possible.

INSURANCE

While UAV insurance is a new field, that is no excuse for failing to secure it. Some companies do provide insurance for UAVs, and you should be prepared to assume all liability for your actions. Some air organizations and networks, such as the Humanitarian UAV Network, will not work with operators who have not secured insurance.

IN-FLIGHT

Check local regulations pertaining to VLOS operations. If flight outside VLOS is permitted, ensure the UAV is in communication with the operator. If flight outside VLOS is not permitted, ensure the UAV remains within sight at all times. If possible, bring along a spotter who can keep an eye on the UAV, spot potential obstacles, and deal with warning away or talking to people who may approach you while you fly.

When landing, ensure there are no obstruction hazards, animals, or people in the vicinity of your intended landing location. Pay careful attention to the UAV during the landing process.

POSTFLIGHT

Shut down the UAV and disconnect the batteries. Turn off the transmitter, and power down the camera or sensors. Check the UAV for signs of damage or wear. Secure the aircraft, and ensure it is out of the way of bystanders.

Check the pictures and ensure that the UAV recorded what you set out to record. If not, consider redoing the mission.

Keep logbook entries recording your flight time and what you did.

ENDNOTES

- 1 "UAViators: Humanitarian UAV Network," UAViators, <https://docs.google.com/document/d/1av3GvsAQOxttCXXAgYCBf8tpv8lU-72P1u4voAQrhTNw/edit?pli=1>.
- 2 Rob Thompson Jr., "Play It Safe, UAV Operations Checklist For Beginners, Enthusiasts, and Professionals," LinkedIn, June 11, 2014, <https://www.linkedin.com/pulse/20140611174837-92630692-play-it-safe-uav-operations-checklist-for-beginners-enthusiasts-and-professionals>.
- 3 Kurt Scudder, "E382 Preflight Checklist," Event38, <http://event38.wikispaces.com/E382+Preflight+Checklist>.