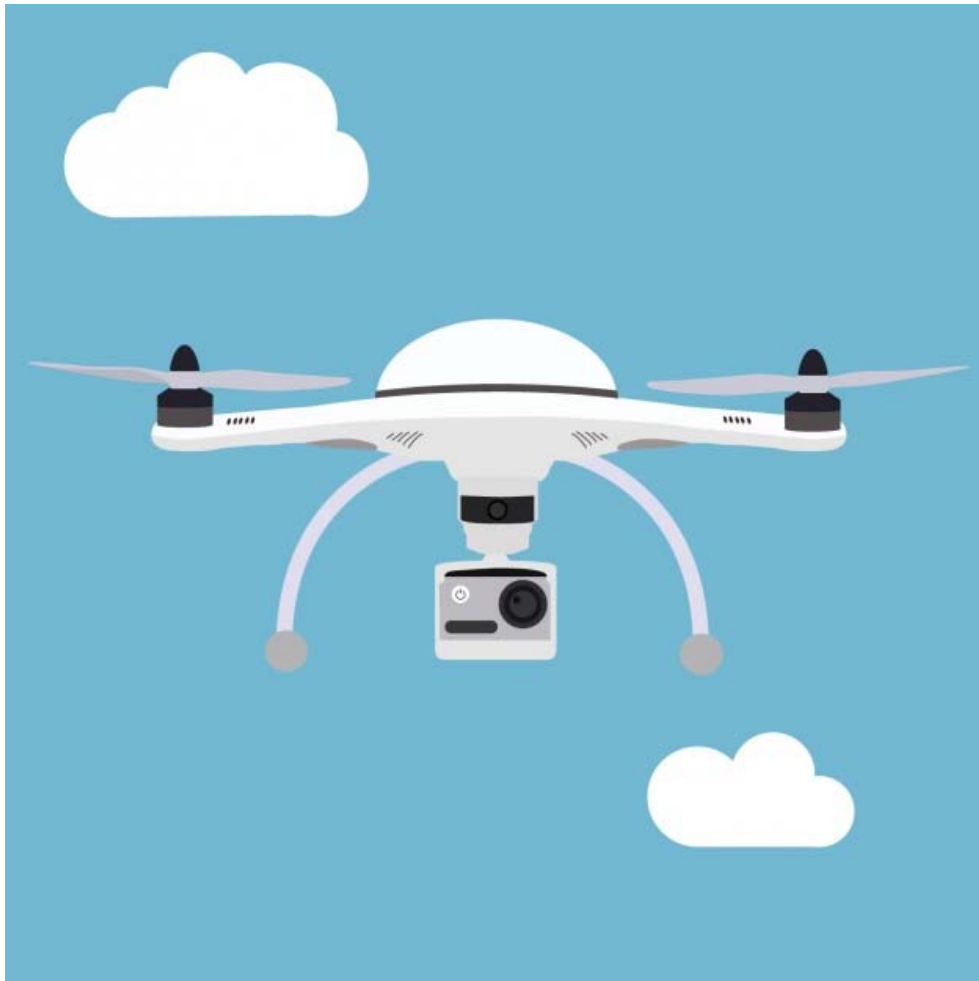




IWLAR Rules for Flying Drones on Chapter Property



July 21, 2023

A. Program Overview

On April 16, 2021, the IWLAR Board approved flying of drones on chapter property as a recreational activity for our members and as a youth/ family activity. The Board also expressed an interest in using drones in support of conservation activities on the chapter grounds such as forest management. These rules apply to both recreational flights and conservation related flights in support of the IWLAR mission (Part 107 flights).

B. FAA and State of Maryland Drone Flight Rules

The FAA rules for flying drones are based on the purpose of the operation.

Part 107. Part 107 ([14 CFR 107](#)) is the primary law for flying small drones (less than 55 lbs.) in the United States. You can fly under Part 107 rules for many reasons, including work or business, recreation, education, or for public safety missions. All flights under Part 107 require oversight by a licensed Remote Pilot and stricter flight rules than flights for recreational purposes.

Flight for Recreational Purposes. There is an exception to Part 107 provided by [49 USC Section 44809](#), which allows flying drones for recreational purposes (under certain conditions) without complying with Part 107. In order to fly under the statutory exception, you must comply with all portions of Section 44809, including flying your drone for purely recreational purposes.

“Note: Non-recreational purposes include things like taking photos to help sell a property or service, roof inspections, or taking pictures of a high school football game for the school's website. Goodwill or other non-monetary value can also be considered indirect compensation. This would include things like volunteering to use your drone to survey coastlines on behalf of a non-profit organization. Recreational flight is simply flying for fun or personal enjoyment.” [FAA website]

Maryland Laws. Maryland has one statewide law concerning the use of drones in the state. [SB 370, 2015](#)

This law pre-empts county and municipal authority and specifies that only the state can enact laws to prohibit, restrict, or regulate the testing or operation of unmanned aircraft systems.

All drone pilots operating commercially in the state of Maryland are subject to the FAA's Part 107 rules.

C. Recreational Flight Area

All recreational flights will be conducted in accordance with these rules, at a prescribed date and time, and under the supervision of a Remote Pilot. Those flights will be conducted at our lake. You are welcome to park your cars at the lake or at the Chapter House (and hike to the lake). Members must wear their membership cards while at the lake. The recreational flight area will be that area north of the lake pavilion to boundaries of Seneca Creek and to the right-of-way of the CSX Railroad (see Figure 1). Drones may be flown beyond these boundaries if the

- Drone Operator is within these boundaries,
- drone is within sight of the Drone Operator or Visual Observer, and
- flight does not pose any risk to train operators.

The Lake Chair may approve recreational flights over the lake when it does not interfere with those fishing at the lake.

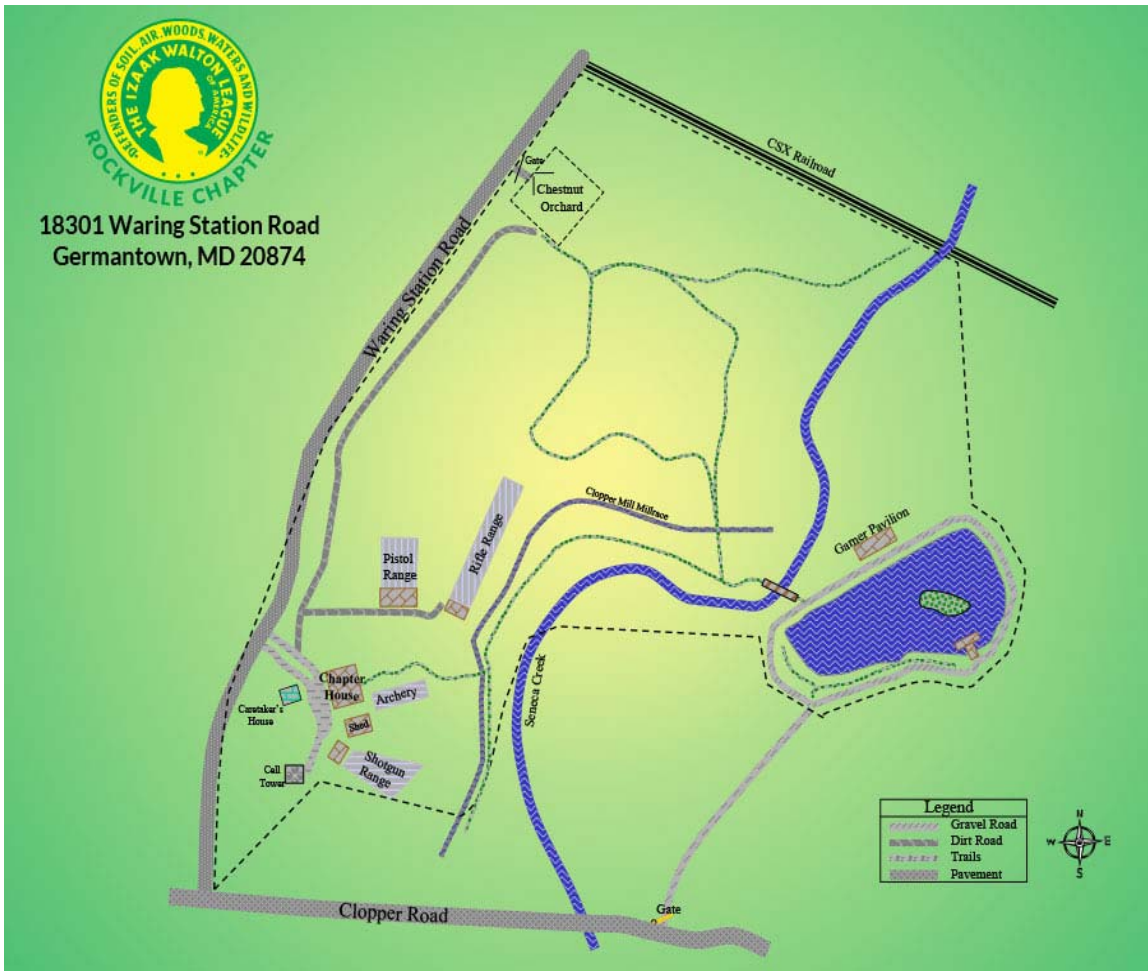


Figure 1. Map of Grounds

Participants are encouraged to use a flight pad (Figure 2) to prevent damage to their drones or accidents from long grass or rocks during takeoffs and landings.



Figure 2. Drone Flight Pad

The flight pad can be a commercial flight pad, a small piece of carpet, or even a piece of cardboard staked to the ground. A 30-inch pad should be large enough for most drones. If the drone has a precision landing feature, the pad can help the drone recognize its landing spot.

Supervised recreational flights will be scheduled once a week during summer months. Members holding a Remote Pilot license, after verification by the Drone Committee, that agree to serve duty as part of our recreation program will be permitted to make recreational flights on IWLAR property anytime. The Drone Committee, after validation of the Remote License, will issue a card showing approval for recreational flights on IWLAR property. That card will be valid until the end of the calendar year but can be renewed upon proof of membership renewal.

D. IWLAR Mission-Related Flights

IWLAR may use Drones in support of its mission. Those flights have to follow Part 107 rules and performed by a Remote Pilot with a Visual Observer. Examples of mission related flights include:

- Photographing events such as Save Our Streams,
- Inspecting solar panels and wood duck nesting boxes at the lake,
- Inspecting roofs,
- Forest management, and
- Observation of wildlife

E. Definitions

Remote Pilot---A pilot holding an FAA license to fly a drone commercially under Part 107 or for other non-recreational flights. To become a Remote Pilot, you must be:

- At least 16 years old
- Able to read, write, speak, and understand English
- Be in a physical and mental condition to safely fly a UAS
- Pass a Knowledge Test at an FAA-approved Knowledge Testing Center.

Remote Pilot in Command—The Remote Pilot that has assumed overall responsibility for a particular flight event.

Visual Observer---Visual Observer means a person who is designated by the Remote Pilot in Command to assist the remote pilot in command and the person manipulating the flight controls of drones to see and avoid other air traffic or objects aloft or on the ground. Visual Observers are encouraged for flights under Part 107 (14 CFR § 107.3).

Drone Operator---The Drone Operator operates the controls paired with the drone that controls speed, height above ground, and direction of flight.

Spectator---Spectators are members of the public who desire to watch drone flights but are not part of the flight crew. Spectators are not permitted in the flight area and are encouraged to remain in a covered space.

UAS---Unmanned Aircraft Systems are aircraft piloted without a human onboard.

sUAS---Small Unmanned Aircraft Systems are UAS under 55 lbs.

F. Rules

1. Airspace Surrounding IWLAR Property

IWLAR is within the Washington, DC Special Flight Rules Area and below the Class E airspace of Montgomery County Airpark. The airspace around Washington, D.C. is more restricted than in any other part of the country. Rules put in place after the 9/11 attacks establish "national defense airspace"

over the area and limit aircraft operations to those with an FAA and Transportation Security Administration authorization. Violators face stiff fines and criminal penalties.

There are no unique filing requirements for drones flying with the DC SFRA unless you are within 15 miles of Washington, DC, which IWLAR is not. The FAA allows flying a drone for recreational or non-recreational use between 15 and 30 miles from Washington, D.C. under these operating conditions:

- Aircraft must weigh less than 55 lbs. (including any attachments such as a camera)
- Aircraft must be registered and marked
- Fly below 400 ft.
- Fly within visual line-of-sight
- Fly in clear weather conditions
- Never fly near other aircraft

Flights on IWLAR property flying under 400 feet are in Class G airspace, which is uncontrolled airspace. The FAA states:

“Airports in Uncontrolled Airspace

For flights near airports in uncontrolled airspace that remain under 400' above the ground, prior authorization is not required. When flying in these areas, remote pilots and recreational flyers must be aware of and avoid traffic patterns and takeoff and landing areas. A drone must not interfere with operations at the airport must yield right-of-way to all other aircraft. Uncontrolled airspace and other flying restrictions can be found on our [B4UFLY](#) app.”

2. Acceptable Aircraft

IWLAR owns a few Tello drones that may be used by our members and Scouts in low wind conditions. Members and Scouts may also fly their own aircraft on IWLAR property at their own risk.

Weight Restrictions. Aircraft (with batteries installed) need to weigh less than two pounds.

Battery Powered. Only battery-powered drones are permitted. Drone Operators must fully charge drone batteries, controller, and any cell phones or tablets used to control the drone before arriving for a flight.

Registration Requirement. Drones used for either Part 107 flights and for recreational use and weighing between 0.55 and 55 pounds need to be registered with the FAA. This is done through the FAA DroneZone website (<https://faadronezone.faa.gov/#/>), where you will need to sign up for an account. You will be prompted for your name, contact details, a mailing address, and the make and model of your drone. You will also pay a \$5 registration fee. Avoid using third parties to register your drone unless you just enjoy spending more money than you have to.

After registration, you should receive a unique serial number by email. Recreational pilots may register several drones under a single serial number, so you will only need to pay the \$5 registration fee once. Drones used for Part 107 flights will need to be individually registered.

You will need to mark your drone with the serial number in a manner and location that is permanent and easily visible upon visual inspection. The recommended ways to do this is by permanent marker, sticker, or engraving

to the body of the drone. Your certificate of registration has to be carried with you during flight.

3. Who May Fly

Only IWLAR members, Scouts affiliated with our chapter, member's guests, or other people approved by the IWLAR Board may fly a drone on IWLAR property. Only one guest is permitted to accompany the member. A guest may be assigned responsibility as a Visual Observer.

All participants, including guests, who wish to fly a drone as a Drone Operator, are required:

- to attend an IWLAR safety seminar covering these rules, and every two years thereafter,
- need to show drone registration certificate (for aircraft weighing .55 lbs. or more) in advance of the flight (the FAA requires this to be carried by the user when flying the drone), and
- have proof of completing the Recreational UAS Safety Test (TRUST) now required by the FAA,

All guests will need to sign a liability waiver. A Remote Pilot must be present for any such flight. A parent, guardian, or Scoutmaster must be present for any participant under 15 years old and will be permitted on-site to the flight area. Members or affiliated Scouts may fly our Tello drones or other drones weighing under 100 grams (.22 lbs. (including battery) without taking our IWLAR safety seminar.

4. Visual Observers Requirement

Drones have to be flown within the visual line of sight of the Drone Operator or a Visual Observer co-located and in direct communication with the Drone Operator. This means that either the Drone Operator or the Visual Observer must have eyes on the aircraft at all times to ensure it is not a collision hazard to other aircraft or people on the ground. The assistance of a Visual Observer is optional for flights under Section 44809 but is helpful in ensuring the recreational flyer is able to check instruments for extended periods. The assistance of a Visual Observer is necessary if the Drone Operator wants to use first person view devices that allow a limited view of the surrounding area from the perspective of a camera aboard the aircraft. All flights on IWLAR property will have a Visual Observer.

5. Minimum Weather Conditions for Safe Flight

- 3 statute mile or better visibility
- 3000 feet or higher cloud ceiling
- Wind speed under 15 knots (we will use maximum gust speed)
- No rain and no thunderstorms (we will use probability of precipitation under 40 percent)

The Remote Pilot in Command, based on terminal area forecast weather for Montgomery County Airpark (KGAI), will make the decision on whether forecast weather is suitable for drone flights. There are many sources for this information such as <https://metar- taf.com/taf/KGAI>, or the iPad app UAV Forecast (Figure 3), which provides this information in a decoded format.

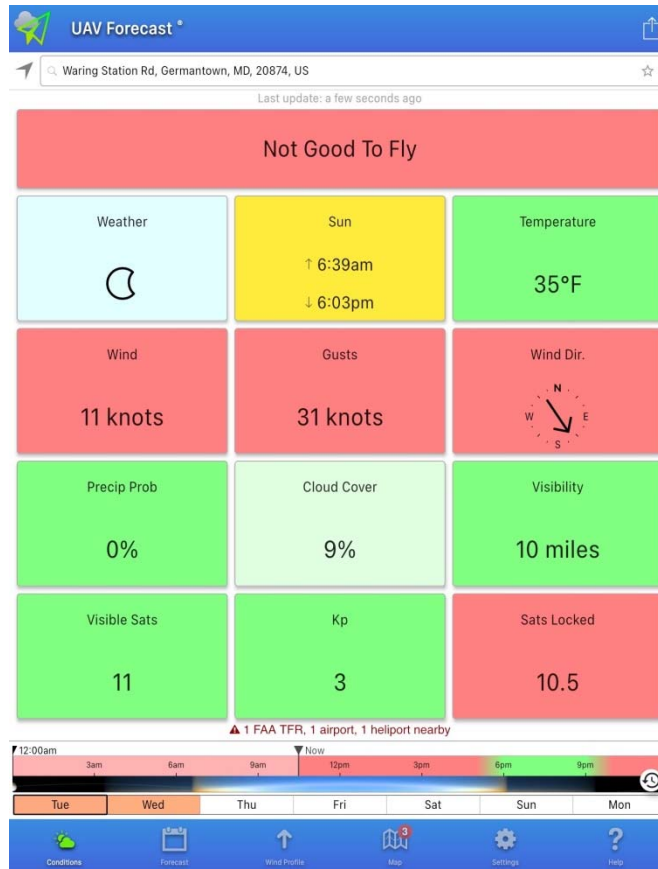


Figure 3. Weather Forecast from UAV Forecast App.

If a scheduled event cannot be performed due to forecast weather, the Remote Pilot in Command will send out a cancellation notice on IWLAR Google Group. Automated current weather at Montgomery County Airpark is broadcast constantly on 128.275 and can be checked in the flight area.

6. Safe Flight Requirements

Recreational flyers should know that if they intentionally violate any of the FAA safety requirements or operate in a careless or reckless manner, they could be liable for criminal and/or civil penalties. The rules below may be more restrictive than FAA requirements.

- a. Keep your drone within your visual line of sight, or within the visual line-of-sight of a visual observer who is co-located (physically next to) and in direct communication with you. As a rule of thumb, keep distance of the drone to the Drone Operator less than 1,640 feet (500 meters) (14 CFR § 107.31, 14 CFR § 107.33).
- b. Drones may not operate over any persons not directly participating in the operation, not under a covered structure, and not inside a covered stationary vehicle (14 CFR § 107.39).
- c. Drones may not be used within 200 yards of an active firearm or archery range or within 100 feet of our beehives (14 CFR § 107.23).
- d. All flights are to be daylight-only operations or civil twilight (30 minutes before official sunrise to 30 minutes after official sunset, local time) with appropriate anti-collision lighting (14 CFR § 107.29).

- e. All flights must yield right of way to other aircraft (14 CFR § 107.37).
- f. Spectators and dogs are not permitted in the flight area (14 CFR § 107.23, 14 CFR § 107.39).
- g. No careless or reckless flights (14 CFR § 107.23), drone racing, or aerobatics is permitted. [Note: The FAA does not prohibit racing or aerobatics].
- h. Maximum groundspeed on chapter property will be 45 mph (39 knots) [Note: This speed is lower than the 100 mph (87 knots) speed permitted by Part 107].
- i. Drone Operators may not exceed a maximum altitude of 400 feet above ground level, must keep their drone at least 500 feet below and 2000 feet horizontally from clouds, and must have flight visibility of 3 miles or better. (14 CFR § 107.51).
- j. The Drone Operator will respect any wildlife (including birds) in the flight area and keep a safe distance from them. Our goal should be to avoid any unnecessary stress on wildlife from drones.
- k. No person may act as a Remote Pilot or Visual Observer for more than one drone at a time (14 CFR § 107.35).
- l. All flights require a preflight inspection by the Remote Pilot in Command (14 CFR § 107.49).
- m. Never fly under the influence of drugs or alcohol. Many over-the-counter medications have side effects that could affect your ability to safely operate your drone. FAA tolerance for acceptable alcohol levels are extremely low (.04 percent-blood alcohol concentration) and the FAA prohibits consumption of alcohol within 8 hours of a flight. (14 CFR § 107.27)
- n. Never interfere with emergency response activities such as disaster relief, any type of accident response, law enforcement activities, firefighting, or hurricane recovery efforts.

7. Preflight Inspection

The Remote Pilot in Command will use a checklist before each flight to confirm:

- Weather conditions meet legal requirements for flight
- Verify that all Remote Pilots have their license and those licenses are current
- All required safety equipment is available
- Visual Observers have been assigned and understand their responsibilities.
- Drone Operators have registration certificate, proof of insurance, and proof of IWLAR membership or affiliation with one of our Scout troops.
- Drones and controllers are fully charged, display registration number, firmware is up to date, batteries and propellers show no defects.
- Drone compasses are calibrated and the drone has sufficient GPS satellite links for proper navigation.

8. Monitoring Overhead Air Traffic

IWLAR is underneath the terminal area of Montgomery County Airpark and about 3 statute miles from the airport. While any interference with overhead air traffic is extremely unlikely, one of our Visual Observers will use an aviation radio and a system known as Automatic Dependent Surveillance-Broadcast (ADS-B) to monitor any approaching air traffic (Figure 4).



Figure 4. ADS-B Air Traffic Display

If the Visual Observer sees any aircraft on a trajectory that will overfly IWLAR at an altitude of under 1500 feet MSL, we will make the following announcement over an aviation radio tuned to the Montgomery County Airpark common frequency (123.075):

Montgomery County traffic, this is a drone operation, we are operating 400 feet AGL (about 800 feet MSL) approximately three miles west of the airport, Montgomery County.

Some drones have ADS-B receivers built-in and will alert the Drone Operator of overhead air traffic.

9. Violations of These Rules

It is the responsibility of all Chapter members to report violations of these rules or any unsafe practices they observe pertaining to our drone program. Additionally, we will review any complaints received by outside parties, such as park rangers, neighbors, police, or the FAA. At the discretion of the drone chairperson or President, IWLAR, a member's drone flying privileges may be suspended. A verbal suspension will be followed (within 7 days) by a written suspension using certified-return-receipt mail. The suspended member will be invited to explain to the Chapter's Governing Body why the suspension should be rescinded. The suspension will remain in effect until modified by a majority vote at a Board of Directors meeting.

10. Emergencies

For emergencies at the lake, call 911 and provide the address of 12057 Clopper Road, Germantown. A member of the team needs to open the lake

gate and remain to flag and direct the emergency responders to the lake area. Multiple emergency responders may be sent, so remain in place for at least 30 minutes. There is an AED on the upper level of the chapter house if needed.

11. Safety Equipment for All Flight Events

For each flight event, the following safety items will be on site:

- First-aid kit
- Fire Extinguisher (Halon or Halon substitute)
- Cell phone
- An ADS-B receiver and tablet with an application that will display information on overhead aircraft (altitude, direction of flight, tail number, and speed).
- An aviation handheld radio

The Remote Pilot in Command will confirm that these items are present before flights can begin.

12. Learning to Fly a Drone

If you have never flown a drone before, let us know and we can pair you with someone that has for one-on-one instruction. Start by thoroughly reading the manual that came with your drone, fully charging your batteries, and applying all firmware updates before you arrive.

13. Recharging Area for Drone Batteries

The chapter has a solar system installed at our Lake Pavilion that can be used to recharge drone batteries for participants who wish to make multiple flights (Figure 5). The system offers multiple USB ports, two 12v power outlets, and can provide AC power with a power inverter. Disconnect your batteries as soon as they are charged so others can use the system. Be sure and turn off the switches on the solar power distribution panel when finished.



Figure 5. Solar Power Distribution Panel

14. References That You Can Review in Addition to Links Above

- a. [Advisory Circular 00-45H – Aviation Weather Services](#)
- b. [Advisory Circular 00-6B Aviation Weather](#)
- c. [Advisory Circular 107-2A small Unmanned Aircraft Systems \(sUAS\)](#)
- d. [Advisory Circular 150/5200-32B Reporting Wildlife Aircraft Strikes](#)
- e. [Advisory Circular 91-57B Exception for Limited Recreational Operations of Unmanned Aircraft](#)
- f. [Aeronautical Chart Users Guide](#)
- g. [Remote Pilot – small Unmanned Aircraft Systems Test Guide \(Certification and Recurrent Knowledge Testing\) FAA-S-ACS-10A](#)
- h. [Remote Pilot — Small Unmanned Aircraft Systems Study Guide \(FAA-G-8082-22\)](#)
- i. [The Pilot’s Handbook of Aeronautical Knowledge FAA-H-8083-258](#)

15. Useful Apple and Android Apps

- a. [UAV Forecast](#)
- b. [B4UFLY](#)

- c. [Kittyhawk](#)
- d. [Airmap](#)
- e. [Part 107 Reference](#)
- f. [Prepware Remote Pilot](#)

16. Videos

- a. [Drones 101: How Drones Fly](#)