

UAS FLIGHT OPERATIONS

DJI MAVIC MINI AND PHANTOM 4

UAS HISTORY, TERMINOLOGY, AG SENSORS, PRE-FLIGHT PROCEDURES




FLIGHT OPS OVERVIEW

- UAS TECHNOLOGY
- UAS PLATFORM ORIENTATION
 - PLATFORMS, COMPONENTS, OPERATING PARAMETERS
 - CONTROL UNIT
 - SENSORS
 - CREW




FLIGHT OPS OVERVIEW

- UAS OPERATIONS
 - PREP/BRIEFINGS, PRE-FLIGHT INSPECTIONS, FLIGHT, POST-FLIGHT
 - CONTROL
 - PILOT VLOS
 - CRM – CREW RESOURCE MANAGEMENT
 - COMPLIANCE
 - SAFETY
 - COMMUNICATIONS
 - EMERGENCY PROCEDURES
 - WEATHER
- 

FLIGHT OPS OVERVIEW

- MISSION PLANNING

- AIRCRAFT, SENSOR, CREW SELECTION
 - FLIGHT AREA
 - OPERATIONAL PARAMETERS
 - COMMUNICATIONS
 - COMPLIANCE
 - WEATHER
 - ALTERNATE PLAN – EMERGENCY PROCEDURES
 - CREW ROLES & RESPONSIBILITY
- 

FLIGHT OPS OVERVIEW

- MISSION BRIEFING
- MISSION EXECUTION – INDOOR FLIGHT
- MISSION DEBRIEFING




FLIGHT OPS GOALS AND OBJECTIVES

- AT THE END OF THIS FLIGHT OPS SECTION YOU WILL BE ABLE TO:
- TALK THE TALK (UAS TERMINOLOGY)
- DESCRIBE COMPONENTS AND HOW THEY OPERATE
- DESCRIBE UAS PLATFORMS AND FLIGHT CHARACTERISTICS
- DESCRIBE NORMAL AND EMERGENCY PROCEDURES FOR UAS QUADCOPTER AIRCRAFT

FLIGHT OPS GOALS AND OBJECTIVES

- AT THE END OF THIS FLIGHT OPS SECTION YOU WILL BE ABLE TO:
- DESCRIBE APPLICABLE REGULATIONS, SAFETY REQUIREMENTS, AND WEATHER EFFECTS FOR FLYING UAS AIRCRAFT
- FLY DJI MAVIC MINI AND PHANTOM 4 AIRCRAFT SAFELY AND PROFICIENTLY
- DEVELOP, BRIEF, FLY, AND DE-BRIEF A MISSION PLAN.

FLIGHT OPS – SOME QUESTIONS TO ANSWER

- WHAT IS AN UNMANNED AERIAL SYSTEM?
 - WHY DO WE USE UAS?
 - HOW DOES FLYING A UAS DIFFER FROM FLYING A MANNED AIRCRAFT?
 - WHAT IS A MISSION PLAN?
 - HOW WILL I BENEFIT BY USING A UAS?
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FLIGHT OPERATIONS

- WHAT IS A UAS?

- UAS – ANY SENSOR CARRYING OR PAYLOAD DELIVERY PLATFORM THAT OPERATES ABOVE THE EARTHS SURFACE OR INDEPENDENT OF MECHANICAL SUPPORT FROM THE SURFACE THAT DOES NOT HAVE AN OPERATOR OR PILOT ON BOARD

FLIGHT OPERATIONS

- WHAT IS A UAS?
- EARLY UAS AIRCRAFT ORIGINATED IN CHINA-
 - KITES
 - BALOONS
 - CHINESE GENERAL ZHUGE LIANG (180-234 AD)



FLIGHT OPERATIONS

- CONFUSION IN WHAT UNMANNED AIRCRAFT SYSTEMS SHOULD BE CALLED-
 - AERIAL TORPEDOS
 - RADIO CONTROLLED AIRCRAFT (RCA)
 - REMOTELY PILOTED VEHICLE (RPV)
 - AUTONOMOUS CONTROL
 - PILOTLESS VEHICLE
 - UNMANNED AERIAL VEHICLE (UAV)
 - UNMANNED AERIAL SYSTEM (UAS)
 - DRONE

FLIGHT OPERATIONS

- THE FAA HAS ADDED TO THE CONFUSION WITH THEIR OFFICIAL TITLES-
 - UAS – UNMANNED AERIAL SYSTEMS - 2016
 - UAS – UNMANNED AIRCRAFT SYSTEMS - 2019
 - UAS – UNCREWED AIRCRAFT SYSTEMS - 2022



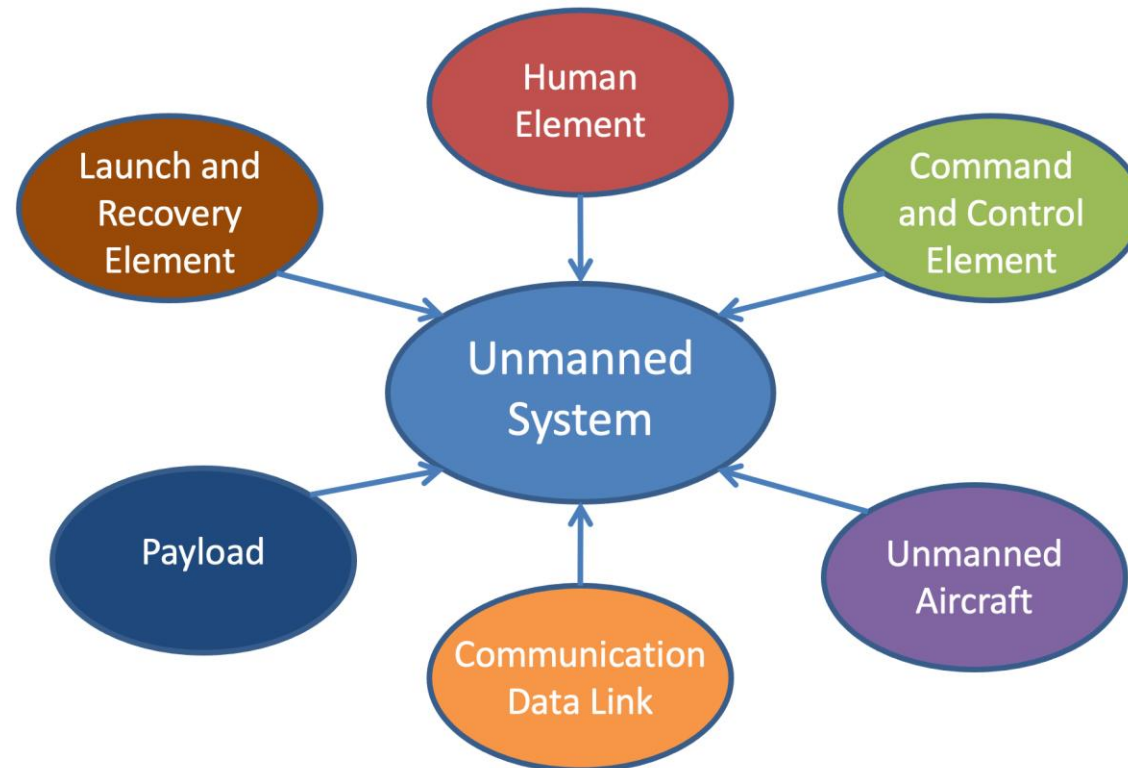
FLIGHT OPERATIONS

- UAS – UNMANNED AIRCRAFT SYSTEMS
 - THE SYSTEM HAS SIX ELEMENTS – IT'S NOT JUST THE AIRCRAFT
 - HUMAN COMPONENT – PILOT/CREW
 - THE AIRCRAFT
 - PAYLOAD
 - COMMAND AND CONTROL
 - DATA LINK/COMMUNICATIONS
 - LAUNCH AND RECOVERY



FLIGHT OPERATIONS

- UAS – UNMANNED AIRCRAFT SYSTEMS



FLIGHT OPERATIONS


- UAS – UNMANNED AIRCRAFT SYSTEMS
- TWO BROAD CATEGORIES:
 - REMOTE CONTROLLED AIRCRAFT (MODEL AIRCRAFT)
 - USED FOR RECREATION
 - UNMANNED AIRCRAFT FLOWN FOR OTHER THAN RECREATIONAL PURPOSES
 - UAS OFTEN HAVING PAYLOADS, NAVIGATION SYSTEMS AND OTHER TECHNOLOGY THAT SUPPORT THE OPERATIONAL GOAL

FLIGHT OPERATIONS

- UAS – UNMANNED AIRCRAFT SYSTEMS
- TWO COMMON TYPES OF AIRCRAFT:
 - VTOL – VERTICAL TAKEOFF AND LAND
 - ADVANTAGES- SMALL FOOTPRINT, CAN OPERATE IN TIGHT/ENCLOSED SPACES
 - DISADVANTAGES- SHORT ENDURANCE, REQUIRES SMALLER COMPONENTS
 - FIXED WING -
 - ADVANTAGES– LONG ENDURANCE – CAN COVER MORE AREA, FASTER
 - DISADVANTAGES– LARGE AREA OR MORE COMPONENTS NEEDED FOR LAUNCH AND RECOVERY.



FLIGHT OPERATIONS

- UAS – UNMANNED AIRCRAFT SYSTEMS
 - IN THIS COURSE WE WILL CONCENTRATE ON ROTORCRAFT (QUADCOPTERS)
 - AIRCRAFT RELIES ON ROTATING PROPELLERS FOR LIFT AND CONTROL
 - FOUR MOTORS – QUADCOPTER
 - SIX MOTORS – HEXOCOPTER
 - EIGHT MOTORS - OCTOCOPTER
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FLIGHT OPERATIONS

- MISSION PLANNING – WHAT AIRCRAFT WILL SATISFACTORILY COMPLETE THE MISSION FOR THE CLIENT?
- EXPLAIN WHY AN OCTOCOPTER MAYBE A BETTER AIRCRAFT TO COMPLETE A MISSION THAN A QUADCOPTER-
 - FACTORS TO CONSIDER – PAYLOAD SIZE AND WEIGHT, FLYING OVER SENSITIVE TERRAIN OR FACILITIES REQUIRING REDUNDANCY FOR SAFETY CONCERNS, HIGHER WEATHER TOLERANCES, BVLOS ISSUES.



FLIGHT OPERATIONS

- MISSION PLANNING – WHAT SENSOR(S) SHOULD BE USED TO COMPLETE THE MISSION?
 - EO – ELECTRO OPTICAL – CAMERA THAT OPERATES IN DAYLIGHT PROVIDING VIDEO AND STILL IMAGES – RGB CAMERAS FIT INTO THIS CATEGORY (DSLRS, DIGITAL POINT AND SHOOT CAMERAS, ETC.)
 - IR – INFRARED – CAMERAS THAT USE HEAT RADIATION TO FORM AN IMAGE (FLIR)
 - MSI/HSI – MULTISPECTRAL/HYPERSPECTRAL CAMERAS THAT CAN PROVIDE COLOR IMAGES WITH MULTI SPECTRAL BANDS INCLUDING THE BLUE, GREEN, AND RED PORTIONS OF THE VISIBLE SPECTRUM.

FLIGHT OPERATIONS

- MISSION PLANNING – HOW MANY CREW MEMBERS DO YOU NEED?
 - RPIC – REMOTE PILOT IN COMMAND – HAS THE FINAL AUTHORITY AND RESPONSIBILITY FOR THE FLIGHT AND CONTROLLING THE AIRCRAFT
 - VO – VISUAL OBSERVER – ASSISTS THE RPIC WITH MAINTAINING VIEW OF THE AIRCRAFT AT ALL TIMES FOR COLLISION AVOIDANCE, NAVIGATION, AND SPOTTING POTENTIAL HAZARDS OR IMMINENT UNSAFE CONDITIONS.
 - OTHER CREW COULD INCLUDE PAYLOAD TECHNICIAN, MAINTENANCE TECHNICIAN, MISSION MANAGER, ETC.

FLIGHT OPERATIONS

- MISSION PLANNING – HOW MANY CREW MEMBERS DO YOU NEED?
 - DEFINITION OF A CREW MEMBER – ANY PERSON WHO PLAYS AN ACTIVE PART IN THE MISSION AND/OR HAS BEEN INVOLVED IN THE PLANNING, PREPARATION, AND BRIEFINGS REGARDING THE MISSION EVEN THOUGH THEY MAY NOT PLAY AN ACTIVE ROLL IN THE MISSION ITSELF.
 - EXAMPLE- A MARKETING DEPARTMENT VIDEOGRAPHER PARTICIPATES IN ALL THE PLANNING AND EXECUTION OF THE MISSION SO AS TO ACCURATELY DOCUMENT THE MISSION FOR MARKETING PURPOSES.

FLIGHT OPERATIONS

- MISSION PLANNING – GROUND BASE LOCATION
 - LAUNCH AND RECOVERY – DETERMINE LOCATION FOR GROUND CONTROL, TAKE-OFF AND LANDING
 - FACTORS TO CONSIDER –
 - PEDESTRIANS AND VEHICLES- STAY AWAY FROM HIGH VOLUME TRAFFIC WALKWAYS/ROADWAYS.
 - OBSTACLES - COLLISION AVOIDANCE AND VLOS ISSUES.
 - RF INTERFERENCE -POWER LINES, CELL TOWERS, OTHER NEARBY RF TRANSMISSIONS.



FLIGHT OPERATIONS

- MISSION PLANNING – FLIGHT
 - ALTITUDE –
 - MSL – MEAN SEA LEVEL – HEIGHT ABOVE SEA LEVEL
 - AGL – ABOVE GROUND LEVEL – HEIGHT ABOVE THE GROUND
 - DETERMINE IF CONTROLLED AIRSPACE IS A FACTOR AT YOUR FLYING ALTITUDE
 - DETERMINE THE HARD DECK – BASED ON WEATHER AND FAA REGS
 - HEADING – REFERENCE SECTIONAL CHARTS, GROUND SCOUT OR GPS REFERENCE THE FOUR CARDINAL HEADINGS (ESPECIALLY NORTH) TO ORIENT YOURSELF AND THE AIRCRAFT AT THE MISSION SIGHT.
 - AIRSPEED – THE SPEED AT WHICH THE AIRCRAFT MOVES THROUGH THE AIR
 - GROUND SPEED – AIRCRAFT SPEED OVER THE GROUND

FLIGHT OPERATIONS

- MISSION PLANNING – COMMUNICATION
 - CREW COMMUNICATION IS THE BACKBONE OF CRM (CREW RESOURCE MANAGEMENT)
 - CREW COMMUNICATION PROCEDURES SHOULD BE CREATED AND ESTABLISHED AT THE HIGHEST LEVEL OF A UAS ORGANIZATION
 - PROCEDURES SHOULD INCLUDE PROPER PERSON TO PERSON VERBAL COMMUNICATION (CLOSE ENOUGH TO HEAR OTHER CREW MEMBERS) AS WELL AS RADIO COMMUNICATIONS (STILL WITHIN VISUAL SITE OF EACH OTHER BUT BEYOND HEARING RANGE OF OTHER CREW MEMBERS).
 - PROCEDURES FOR QUICK AND EFFICIENT COMMUNICATION OF POSSIBLE OR IMMINENT COLLISION HAZARDS (SUCH AS MANNED AIRCRAFT IN THE AREA).

FLIGHT OPERATIONS

- ATC – AIR TRAFFIC CONTROL
 - FAA DESIGNATED OPERATIONAL FACILITY THAT CONTROLS THE NAS (NATIONAL AIRSPACE SYSTEM) IN THEIR SPECIFIC AREA OF RESPONSIBILITY.
- GPS – GLOBAL POSITIONING SYSTEM
 - WORLDWIDE NAVIGATION AND MONITORING SYSTEM THAT IDENTIFIES A SPECIFIC GEOGRAPHICAL POSITION ON THE SURFACE OF THE EARTH.

FLIGHT OPERATIONS


- MISSION PLANNING – COMPLIANCE

- RPIC- THE REMOTE PILOT IN COMMAND MUST HOLD AN FAA PART 107 CERTIFICATION.
- AIRCRAFT- MUST HAVE PROPER EQUIPMENT ON BOARD THE AIRCRAFT TO FLY OVER PEOPLE OR BEYOND VISUAL LINE OF SIGHT.
- UAS AIRCRAFT CERTIFICATION IS ALSO REQUIRED FOR CERTAIN AIRCRAFT FLYING OVER PEOPLE (CATEGORY 4 AIRCRAFT)
- COA MISSIONS REQUIRE CREW MEMBERS HAVE ADDITIONAL MANNED AIRCRAFT CERTIFICATION TO BE IN COMPLIANCE.

FLIGHT OPERATIONS

- MISSION PLANNING/PRE-FLIGHT BRIEFING – WEATHER
 - A WEATHER OUTLOOK SHOULD BE OBTAINED DURING THE MISSION PLANNING STAGE. EVEN UNOFFICIAL FORECASTS (LOCAL NEWS) CAN PROVIDE A GENERAL OVERVIEW OF WHAT MAY BE COMING IN THE NEXT FEW DAYS. KEEP IN MIND THAT WEATHER FORECASTS ARE LESS THAN 50% ACCURATE MORE THAN 3 DAYS OUT.
 - OBTAINING AN OFFICIAL WEATHER OUTLOOK (FAA) WITHIN 24 HOURS WILL PROVIDE MORE ACCURATE WEATHER DATA.
 - A FULL WEATHER BRIEFING AS WELL AS FOLLOW UP ABBREVIATED BRIEFINGS ON MISSION DAY WILL ALLOW YOU TO MAKE GO/NO GO DECISIONS.

FLIGHT OPERATIONS

- MISSION PLANNING/PRE-FLIGHT BRIEFING – WEATHER
 - EVERY RPIC SHOULD CREATE PERSONAL WEATHER MINIMUMS IN ADDITION TO FAA WEATHER MINIMUMS.
 - NEW RPIC PERSONNEL WITH MINIMAL FLIGHT TIME OR EXPERIENCE MAY NOT BE READY FOR WEATHER CONDITIONS AT OR NEAR FAA WEATHER MINIMUMS. THESE PERSONAL LIMITS SHOULD BE OVER AND ABOVE THE FAA MINIMUMS FOR GO/NO GO DECISION MAKING.
 - PERSONAL LIMITS CHANGE WITH TIME AND EXPERIENCE.
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FLIGHT OPERATIONS

- VFR – VISUAL FLIGHT RULES

- MUST MAINTAIN VISUAL CONTROL OF THE AIRCRAFT AT ALL TIMES – 3 MILES VISIBILITY AND 500 FEET BELOW CLOUDS.
- PART 107 OPERATIONS ARE FLOWN VFR – CAN WE GET A WAIVER?

- IFR – INSTRUMENT FLIGHT RULES

- USED FOR FLIGHT OTHER THAN VFR
- REQUIRES ATC CLEARANCE AND ADDITIONAL NAVIGATION EQUIPMENT
- PILOT MUST HAVE AT LEAST A PRIVATE PILOT CERTIFICATE WITH AN INSTRUMENT RATING.

FLIGHT OPERATIONS

- MISSION PLANNING- EMERGENCY PROCEDURES
 - CREATING ALTERNATE PLANS IN CASE OF EMERGENCY OR UNEXPECTED SITUATIONS SHOULD BE A PRIORITY DURING THE MISSION PLANNING STAGE.
 - THESE PROCEDURES SHOULD BE INCLUDED AND REHEARSED BY ALL CREW MEMBERS DURING ALL PRE-FLIGHT PREPARATION AND BRIEFINGS.
 - CREW MEMBERS MUST KNOW THEIR PROCEDURAL AND COMMUNICATION RESPONSIBILITIES DURING AN EMERGENCY AS WELL AS ANY BACK-UP ROLL THEY MAYBE ASSIGNED. CHECKLISTS AND FAA/ATC PHONE NUMBERS SHOULD BE INCLUDED IN THESE PROCEDURES.

FLIGHT OPERATIONS

- PRE-FLIGHT INSPECTION

- THE RPIC IS RESPONSIBLE FOR AIRCRAFT AIRWORTHINESS.
- THE PRE-FLIGHT INSPECTION SHOULD FOLLOW THE OEM (ORIGINAL EQUIPMENT MANUFACTURER) RECOMMENDATIONS AND GUIDELINES FOR FLIGHT AIRWORTHINESS.
- IF NO GUIDELINES ARE GIVEN- THE RPIC SHOULD CREATE A PRE-FLIGHT CHECKLIST THAT IS APPROPRIATE FOR THE AIRCRAFT AND MISSION TO BE FLOWN.

FLIGHT OPERATIONS

- PRE-FLIGHT INSPECTION

- SOME CHECKLIST ITEMS THAT SHOULD BE INCLUDED:

- BATTERY CONDITION (NO SWELLING OR VISIBLE DAMAGE)

- PROPELLERS – NO VISIBLE NICKS OR CRACKS – PROPER INSTALLATION

- AIRFRAME – NO DAMAGE OR CRACKS- NUTS AND BOLTS TIGHT

- LANDING GEAR – STRUCTURALLY SOUND AND SECURE

- PAYLOAD – ATTACHED AND WORKING PROPERLY- MEMORY CARD



FLIGHT OPERATIONS

- FLYING THE MISSION
 - PAYLOAD/SENSOR PROGRAMMING
 - VIEWING ANGLE
 - NADIR – CAMERA/SENSOR VIEW STRAIGHT DOWN 90 DEGREES
 - OFF NADIR – AN OBLIQUE ANGLE TO THE TARGET – USUALLY 10-15 DEGREES OFF NADIR – DOWN 75 TO 80 DEGREES
 - MOTION EFFECT – IMAGE DISTORTION CAUSED BY AIRCRAFT MOTION ALONG THE FLIGHT PATH.



FLIGHT OPERATIONS

- A CLOSER LOOK AT MOTION EFFECT
 - HIGHER ALTITUDE – LESS MOTION EFFECT DUE TO A LARGER FIELD OF VIEW – AIRCRAFT CAN FLY AT A HIGHER AIRSPEED AND STILL GET SHARP IMAGES. COMPLETE MISSIONS FASTER. **DOWN SIDE – LESS DETAIL/RESOLUTION PER PIXEL.**
 - LOWER ALTITUDE – MORE RESOLUTION PER PIXEL BUT MORE MOTION EFFECT – THE SMALLER THE FIELD OF VIEW AND BEING PHYSICALLY CLOSER TO THE GROUND MAKES IT APPEAR LARGER AND MOVING FASTER THROUGH THE CAMERAS FIELD OF VIEW. AIRCRAFT MUST SLOW DOWN OR STOP COMPLETELY TO TAKE EACH PICTURE TO GET SHARP IMAGES. THE CAMERA MUST ALSO TAKE MORE IMAGES DUE TO THE SMALLER FIELD OF VIEW. **DOWN SIDE – FLIGHT TIMES CAN MORE THAN TRIPLE AND VLOS CAN BECOME AN ISSUE.**

FLIGHT OPERATIONS

- A CLOSER LOOK AT MOTION EFFECT
 - MISSIONS FLOWN EARLY MORNING (SHORTLY AFTER SUNRISE), LATE EVENING (SHORTLY BEFORE SUNSET), DURING THE DAY WHEN OVERCAST OR VISIBILITY 3-5 MILES WILL HAVE MOTION BLUR ISSUES.
 - LONGER SHUTTER SPEEDS ARE REQUIRED TO MAINTAIN PROPER IMAGE EXPOSURES WHICH WILL INCREASE MOTION BLUR.



FLIGHT OPERATIONS

- A CLOSER LOOK AT MOTION EFFECT



100 FT 17.5 MPH



50 FT 17.7 MPH

FLIGHT OPERATIONS

- A CLOSER LOOK AT MOTION EFFECT
 - MOTION BLUR CONSIDERATIONS WILL BE COVERED DURING THE DRONE DEPLOY PLATFORM AND MISSION PLANNING PORTIONS OF THE COURSE.



FLIGHT OPERATIONS

- A CLOSER LOOK AT BATTERY MANAGEMENT
 - BATTERIES ARE THE MOST MISUNDERSTOOD AND OVERLOOKED ASPECT OF MISSION PLANNING.
 - IMPROPER BATTERY MANAGEMENT IS ONE OF THE LEADING CAUSES OF CANCELLED MISSIONS AND REDUCED BATTERY LIFE.
 - IMPROPER CHARGING, DISCHARGING, AND STORAGE CHARGING CAN REDUCE A BATTERY'S LIFE BY UP TO 50%



FLIGHT OPERATIONS

- LITHIUM ION POLYMER BATTERIES

- LiPo BATTERIES ARE THE BEST ELECTRIC POWER SOURCE FOR DRONES.

- THEY HAVE A HIGH POWER TO WEIGHT RATIO- LIGHT WEIGHT/HIGH POWER

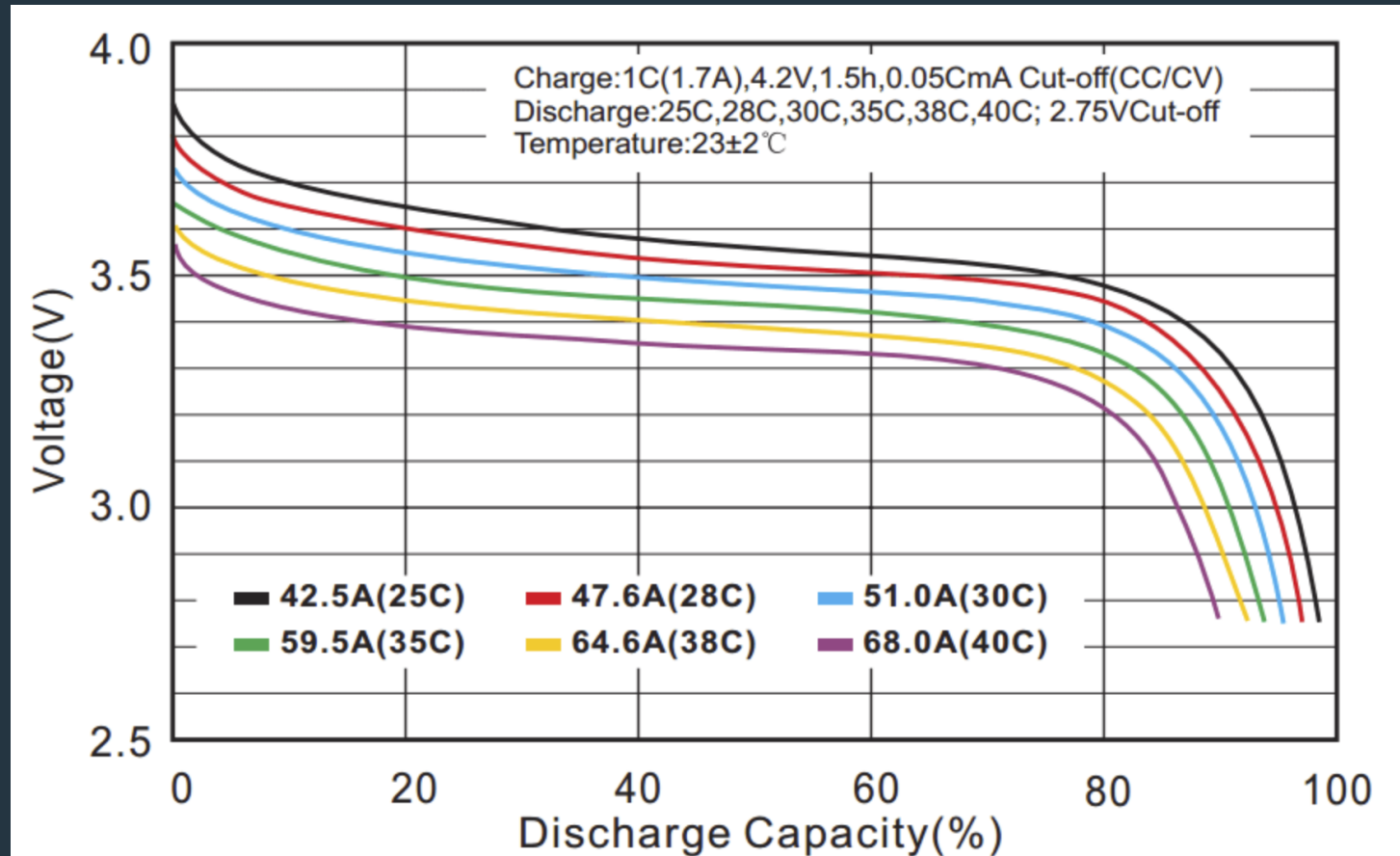
- THEY OFFER A HIGH DISCHARGE RATE

- CONSISTANT DISCHARGE RATE UP UNTIL THE BATTERIES HAVE LESS THAN 15% POWER REMAINING.



FLIGHT OPERATIONS

- LITHIUM ION POLYMER BATTERIES



FLIGHT OPERATIONS

- DJI PHANTOM 4 SMART BATTERIES



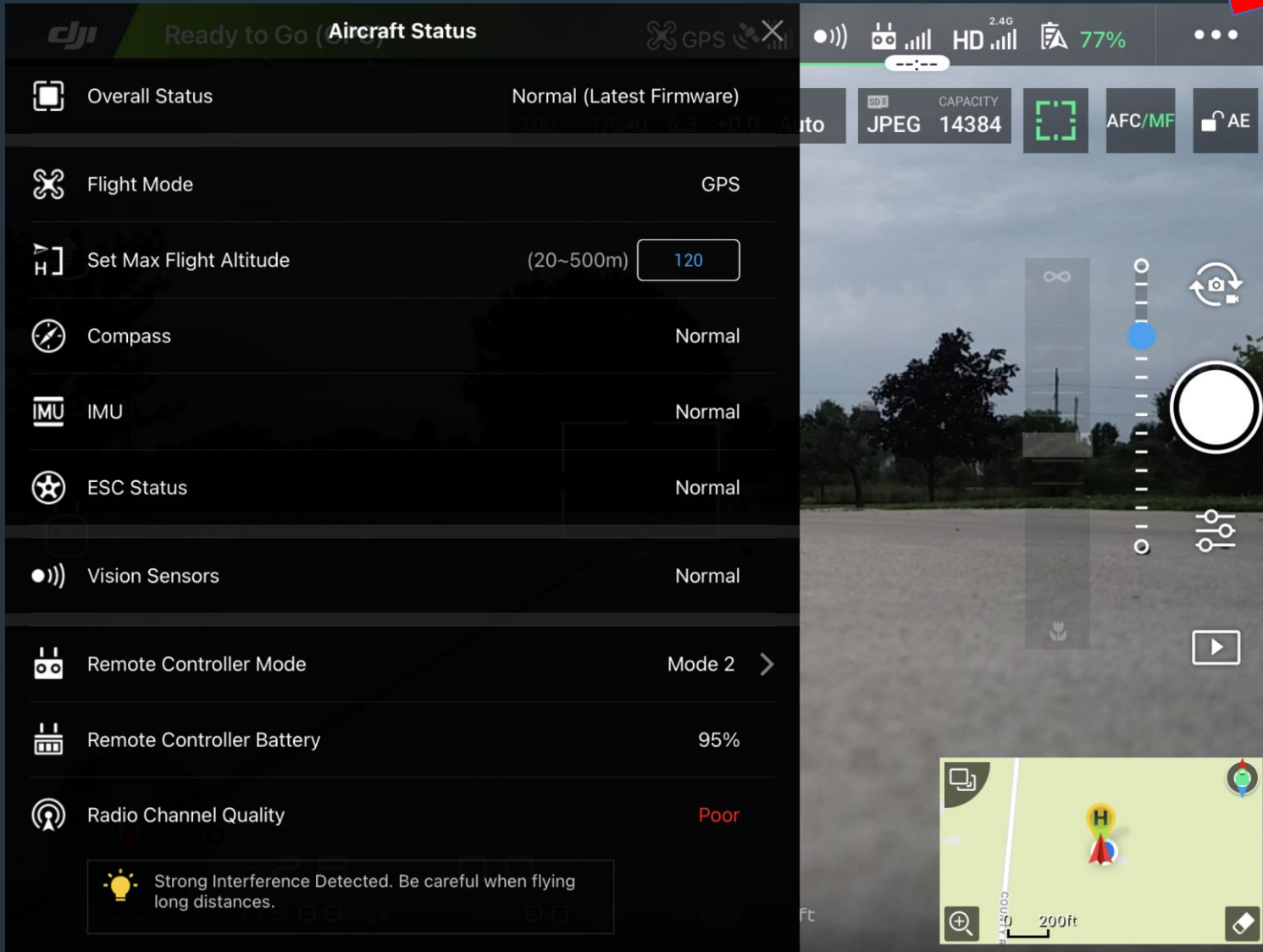
FLIGHT OPERATIONS

- DJI PHANTOM 4 SMART BATTERIES
 - THEY ARE TEMPERATURE AND CAPACITY CONTROLLED WITH INTERNAL CIRCUITRY.
 - RECENTLY USED (HOT) BATTERIES WILL NOT CHARGE UNTIL COOLED TO A SPECIFIC TEMPERATURE
 - COLD BATTERIES WILL NOT ALLOW THE AIRCRAFT TO TAKEOFF UNTIL WARMED TO A SPECIFIC TEMPERATURE
 - FULLY CHARGED BATTERIES NOT USED FOR A SPECIFIC TIME PERIOD WILL SELF DISCHARGE TO STORAGE CHARGE TO EXTEND THE BATTERIES LIFE.

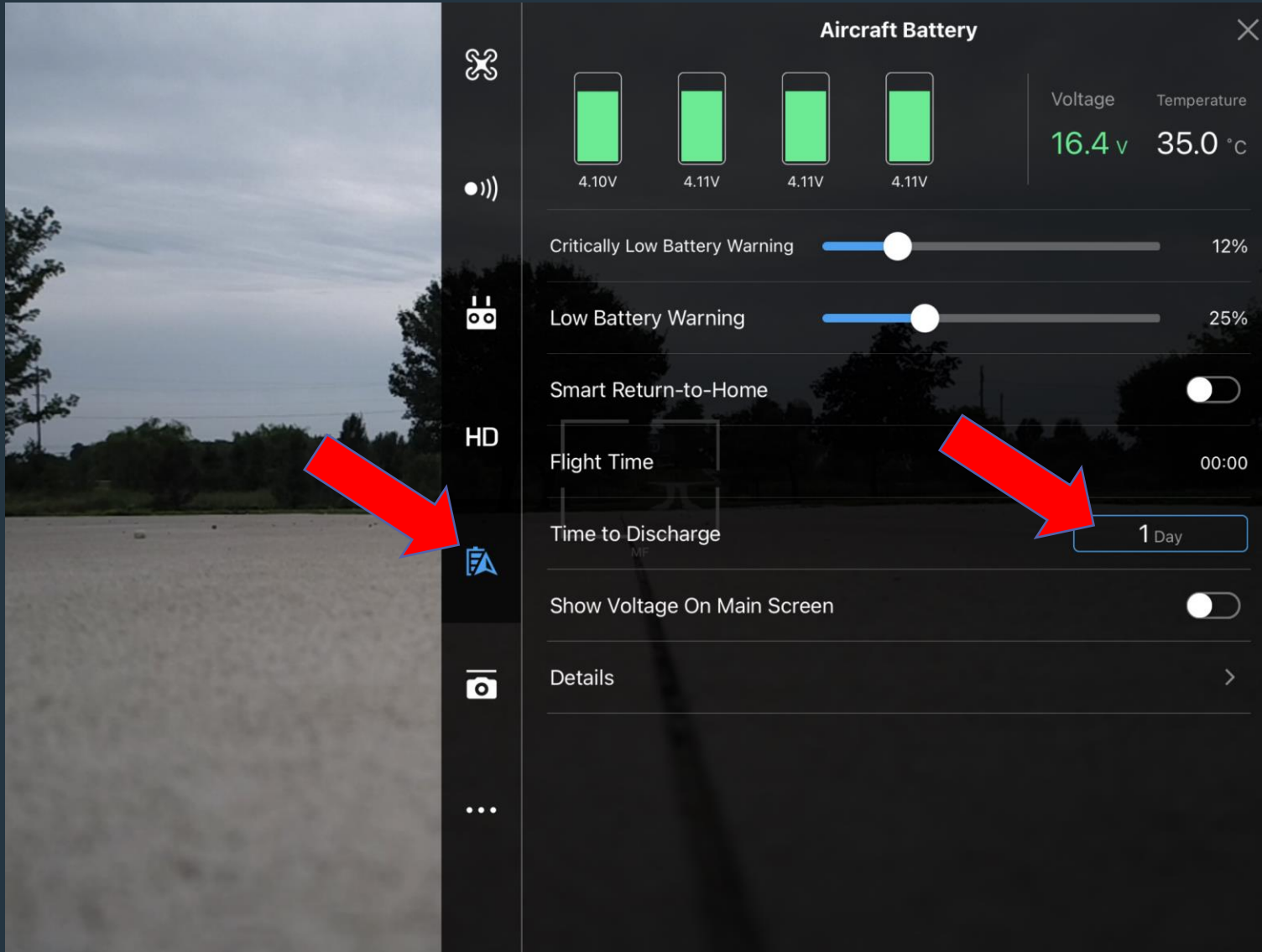
FLIGHT OPERATIONS

SETTING BATTERY SELF
DISCHARGE

SELECT THE THREE DOTS IN
THE UPPER RIGHT OF THE
MAIN DJI SCREEN TO GO TO
THE MAIN MENU



FLIGHT OPERATIONS



SETTING BATTERY SELF DISCHARGE

SELECT THE BATTERY ICON IN THE SUB MENU ON THE LEFT

SET THE "TIME TO DISCHARGE" FROM 1 TO 5 DAYS

3-5 DAYS IF YOU FLY MULTIPLE TIMES A WEEK. ALLOWS FOR A FRIDAY CHARGE TO STILL BE THERE ON MONDAY

FLIGHT OPERATIONS

MEMORY CARDS

- ANOTHER LEADING CAUSE OF CANCELLED OR DELAYED FLIGHTS IS NOT HAVING A MEMORY CARD INSTALLED ON THE AIRCRAFT WHEN READY FOR TAKEOFF.
- IT IS VITALLY IMPORTANT THAT YOU INCLUDE A MEMORY CARD SWAP IN YOUR POST FLIGHT CHECKLIST. WHEN YOU TAKE A CARD OUT, IMMEDIATELY REPLACE IT WITH AN EMPTY CARD.
- CAPACITY AND READ/WRITE SPEEDS – 4K CAMERAS REQUIRE HIGH WRITE SPEEDS TO REDUCE OR ELIMINATE LAG AND BUFFERING ISSUES.

FLIGHT OPERATIONS

MEMORY CARDS-

- U1 CARDS – CAN WRITE UP TO 10MB/SEC – 1080P
- U3 CARDS – CAN WRITE AT LEAST 30MB/SEC – 4K
- CLASS 10 – CAN WRITE UP TO 10MB/SEC – FOR OLDER TECHNOLOGY



FLIGHT OPERATIONS - QUESTIONS

- 1) JUST LIKE YOUR CAR BATTERY, YOU SHOULD KEEP YOUR UAS BATTERIES FULLY CHARGED AT ALL TIMES? **FALSE**
- 2) MICRO SD CARDS HAVE BECOME VERY RELIABLE, YOU NO LONGER NEED TO BACK UP DATA ON THE CARD? **FALSE**
- 3) MOTION EFFECT IS LESS OF A FACTOR AT LOWER OR HIGHER ALTITUDES? **HIGHER**
- 4) WHAT DOES ATC MEAN? **AIR TRAFFIC CONTROL**
- 5) WHAT IS THE DIFFERENCE BETWEEN AIRSPEED AND GROUND SPEED? **GROUND SPEED IS AIRSPEED WITH WINDS FACTORED IN**