EMERGENCY PROCEDURES

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Emergency Procedures

Aircraft close: Activate kill switch: This will make the drone fall out of the sky.

Threatening wildlife: Get in car, RTH: Get in the car first, keeping the controller outside if possible. Then, RTH.

Operational volume breached: Kill switch, call ATC: Activate kill switch and communicate with ATC (+254 798 984 005). Inform ATC of your situation, drone size, location, direction, height, speed, and remaining battery.

Loss of control/fly-away: Try control, kill switch, call ATC: Try regaining control by lifting the controller overhead and orienting the antenna towards the UAS. If unsuccessful, activate kill switch and call ATC (+254 798 984 005). Share your situation, drone size, location, direction, height, speed, and remaining battery.

Bush fire: Call radio room: Call the radio room at +254 723 312 673.

Crew unfit: RTH, first aid, call radio room: RTH and provide first aid. Call the radio room at +254 723 312 673. Keep calm and communicate clearly.

CONTINGENCY PROCEDURES

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Contingency Procedures

Low battery/high drain: RTH or land: Check battery level. If sufficient, Return to Home (RTH). If not, land the drone slowly. If close to home, perform a manual landing.

High-wind: Lower altitude, RTH or land: Lower drone altitude. If possible, RTH. If not, land the drone slowly. If the drone exits flight geometry, follow Emergency E03.

Aircraft approaching: Lower altitude: Lower the drone to a safe altitude (below 30m AGL).

Wildlife approaching: RTH, get in car: RTH and get in the car. Keep the controller outside the car to maintain control.

UAV warnings/errors: RTH or land: If possible, RTH. If not, land the drone slowly.

Communication link issues: Orient antenna, RTH: Lift the controller overhead and orient the antenna towards the UAS. RTH. Consider driving towards the UAS.

Poor weather: RTH: RTH in case of rain, wind, or poor visibility.

Crew unwell: RTH: RTH. Keep calm and communicate clearly.

3rd party approaching: Avoid overflying, assisstant pilot to communicate and avoid distraction: Avoid overflying the 3rd party, assistant communicates to avoid distracting the RPIC.

FIRST FLIGHT

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GoPro

Verify GoPro battery level, available recording time, and camera settings: Configure the camera to 1080p at 25 fps with a visible timestamp.

Begin GoPro recording and announce operation details: Mount the GoPro on the pilot's head, angled toward the controller. Clearly state the operation number, flight number, date, time, crew roles, and mission objective.

Operational Environment

Assess environment (airspace and topography): Review no-fly zones, NOTAMs, and topographic hazards.

Identify direction of north: Use a compass or suitable tool to find north.

Safety Briefing

Check crew roles, safety vests, and ensure team is behind the pilot: Confirm the team is wearing safety vests, understands roles, and remains at a safe distance behind the pilot.

Assign evacuation car seats: Ensure each evacuation car seat is allocated and free of clutter in case of an emergency.

Confirm 'IMSAFE' readiness: Ensure no team member is suffering from Illness, Medication, Stress, Alcohol, Fatigue, or Emotion (IMSAFE).

Review contingency and emergency procedures: Make certain the pilot and assistant pilot are fully confident with contingency actions and emergency protocols.

Equipment

Position the landing mat away from the pilot: Place the landing pad at a safe distance to minimize risk and ensure clear takeoffs and landings.

Conduct UAS inspection: Check for cracks, damage, or loose components. Ensure propellers rotate smoothly with no visible defects.

Power on the UAS, check failsafes, and confirm controller mode: Set failsafes: RTH (Return to Home), RTH altitude, max distance, max altitude, and confirm the controller

mode (e.g., Mode 1 or 2).

PRE-FLIGHT

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GoPro

Verify GoPro battery, remaining time, and settings: Ensure the GoPro has sufficient battery and video time for the operation. Set it to 1080p 25fps with timestamp.

Start GoPro recording and announce operation details: Begin recording with the GoPro mounted on the pilot's head, aimed at the controller. Announce: operation number, flight number, date, time, crew roles, and mission objective.

Environment

Assess weather conditions: Pilot evaluates weather safety: no high winds, good visibility, no incoming rain, no low clouds.

Confirm mission plan and brief team: Discuss the flight path, waypoints, and areas of interest with the team.

Equipment

Insert a new SD card: Insert a new SD card into the drone.

Check remaining battery, swap if needed.: Verify the remaining battery for both the UAS and the controller.

Power on UAS, check for errors, GPS fix, and RSSI strength: Check for errors (e.g., calibration). Ensure GPS fix (at least 6 satellites) and strong RSSI.

Final Checks

Team go/no-go decision: Team agrees to proceed: no ground risks (wildlife, uninvolved people), no air risks (drones, aircraft), and team is IMSAFE.

Announce 'TAKING-OFF', then take off and move away from pilot: Maintain a 1:1 height-distance ratio during take-off.

Verify flight performance away from pilot: Ensure UAS is at a safe distance. Fly forward, backward, left, right, and verify expected behavior.

IN-FLIGHT

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Flight Operations

(Optional) Upload waypoint mission: Upload the waypoint mission to the drone.

(Optional) Start recording: Start recording the flight.

Monitor weather conditions: Continuously monitor weather conditions (wind, rain, visibility) during the flight.

Monitor UAS status: Monitor UAS parameters: battery, RSSI, GPS, altitude, distance, speed.

Monitor transmitter battery: Check the remaining battery on the transmitter.

Monitor air traffic: Continuously monitor air traffic on frequency 124.3 MHz and FlightRadar24.

Announce before landing: Inform everyone in the operational area before landing.

POST-FLIGHT

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Post-Flight Operations

(Optional) Stop on-board recording: Stop the on-board recording after landing.

Remove batteries and SD card: Remove the battery and the SD card from the drone.

Inspect UAS: Check for cracks and damage. Ensure propellers spin smoothly.

Stop GoPro recording: Stop the GoPro recording after landing.

Notify ATC if operations are complete: Inform ATC that operations are done if no more flights are planned.

OPERATION PLANNING

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Operational Environment

Verify Airspace and Topography: Check for no-fly zones and NOTAMs. Assess the topography for ground obstacles and airspace visibility.

Review Weather Forecast: Use droneweather.xyz to check the temperature (-10° to 40° C), wind speed (< 10 m/s), rain (up to light drizzle), visibility (more than 5km), and Kp-index (max 5).

Crew

Confirm Pilot Certification: Ensure the pilot holds a valid drone certificate.

Schedule Pilot Assistant: Book an assistant for situational awareness (air, ground, wildlife).

Agree on Mission Plan and Generate Checklist: Discuss the flight path, waypoints, and areas of interest with the team. Generate the corresponding checklist on WildOps (wilddrone.droneweb.dk).

Regulations

Equipment

Inspect Drone and Equipment: Check the drone for cracks and smooth motor operation. Verify the transmitter, ensure SD cards are empty and ready for logging, and check battery levels (drone, transmitter, GoPro).

Pack All Equipment: Ensure all items on the equipment list are packed and ready for the operation.

PRE-OPERATION

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3rd Parties

Notify ATC / Get Approval from David / Verify Approval on WildOps: Call ATC at +254 798 984 005. Provide details of the operation type (VLOS/BVLOS), location (Ol Pejeta), height (400ft/120m AGL), and times. During the hackathon, ATC is centralized; talk to David.

Notify Radio Room: Call the Radio Room at +254 723 312 673. Provide planned locations (using patrol blocks) and times.

Operational Environment

Review Weather Forecast: Check the weather forecast on droneweather.xyz. Ensure temperature is between -10° to 40° C, wind speed is less than 10 m/s, rain is up to light drizzle, visibility is more than 5km, and Kp-index is a maximum of 5.

Crew

Assign Crew Roles: Ensure the crew is aware of their roles and responsibilities.

Packing

Complete Packing Checklist: Ensure all items on the packing checklist are packed and ready.

PACKING

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UAS Operation

Correct Mission Checklist: Ensure the checklist corresponds to your mission by checking the top banner. If it is not, generate a new one on WildOps (wilddrone.droneweb.dk).

UAS, Spare UAS, and Controller (with maps downloaded offline): Ensure the UAS and its controller are packed, and that the offline maps are downloaded on the controller.

Charged UAS Batteries, and spare batteries: Ensure the UAS batteries are charged and packed.

Empty SD Cards for UAS: Ensure empty SD cards for the UAS are packed.

GoPro and Accessories: Ensure the GoPro, its battery, spare batteries, and empty SD card are packed.

Safety Vests (2): Ensure that 2 safety vests are packed (for pilot and assistant pilot).

Personal

Water: Ensure water is packed.

Hat and Sunglasses: Ensure a hat and sunglasses are packed.

Sunscreen and Mosquito Repellent: Ensure sunscreen and mosquito repellent are packed.

Charged Phone and Power Bank: Ensure a charged phone and power bank are packed.

Car

Reserve Water: Ensure reserve water is packed in the car.

First Aid Kit and Snake Bite Kit: Ensure both kits are packed in the car.

Binoculars: Ensure binoculars are packed in the car.

POST-OPERATION

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Post-Operation Tasks

Notify ATC and Ol Pejeta comms room: Inform ATC and Ol Pejeta comms room after the operation.

Backup and format SD cards: Backup SD cards on 2 drives (personal & Ela's) using the naming convention (2025MMDD_WDXX_N_Pilot). Then, format the SD cards.

Recharge or storage charge batteries: Recharge or storage charge the batteries after the operation.

Document the flight: Record the flight details in the Drone Logbook and KFL flight logs.

Report incidents or accidents: Record and report any incidents or accidents.