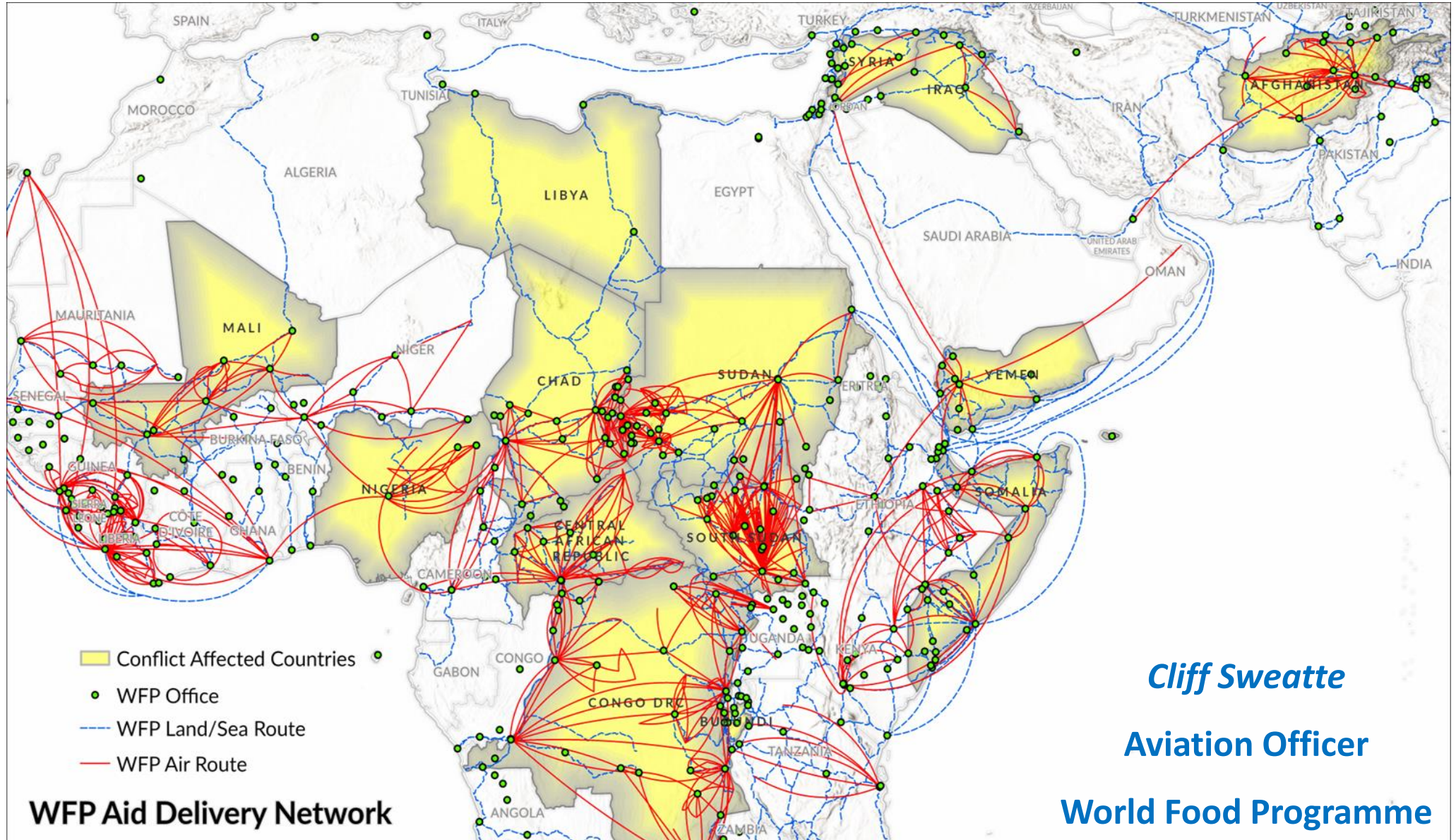


# WFP Aviation

SAVING  
LIVES  
CHANGING  
LIVES



*Cliff Sweatte*

**Aviation Officer**

**World Food Programme**



World Food  
Programme

SAVING  
LIVES  
CHANGING  
LIVES

# WFP RPAS Overview

## From Aircraft to RPAS

- Decades of Aviation Experience, Lead - Global Logistics Cluster
- Common Services Platform for Aviation & Logistics

## RPAS/UAS Initiatives

-RPAS Cargo Delivery – Coordination with ICAO, IATA & CAAs for a 1.5 MT payload RPAS operation in multiple States.

-Prepositioning UAS at UN Humanitarian Response Depots and Regional Bureaus

UAS Coordination Cell (Aviation Service, Aviation Safety & TEC)

## Footprint

- 83 Countries, 6 Regional Bureaus, 15 Aviation Field Operations
- 2017: 327K Pax, 34K MT of Cargo, 3,079 Food Airdrops 80K MT



World Food Programme

SAVING  
LIVES  
CHANGING  
LIVES

# RPAS/UAS/Drones

Unmanned Aircraft Include:

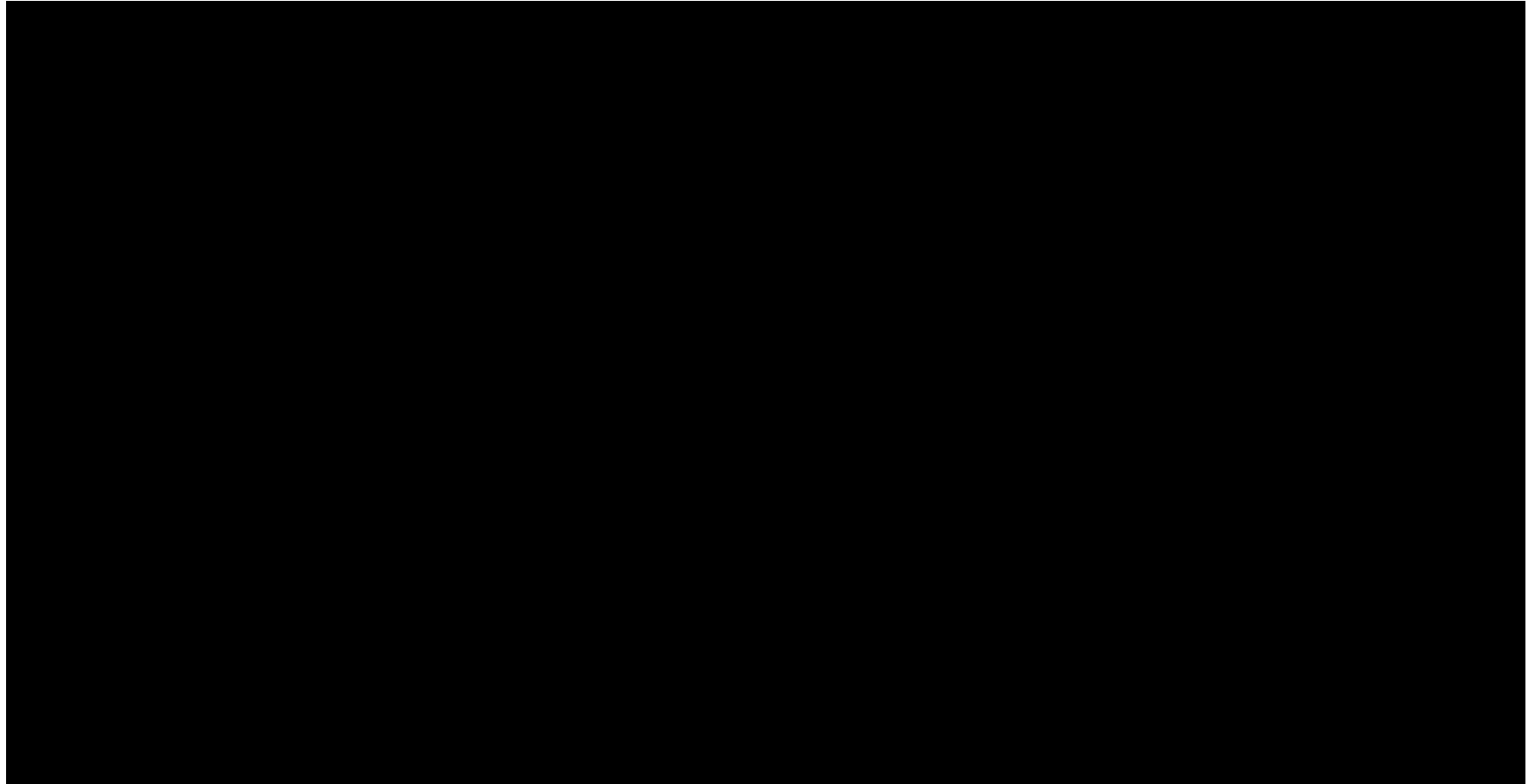
- Free balloons
- Fully automatic and/or autonomous aircraft
- Model aircraft
- Drones
- Remotely piloted aircraft



**Airspace/aerodrome integration requires control**

**Control, in real time, provided by a licensed remote pilot**

# Puerto Rico Response - Loon



# Local Loon

- Loon is planning to launch balloon powered internet connectivity in Kenya next year, partnering with Telkom Kenya. Loon has successfully sent a test internet connection 1,000 km across seven balloons. That represents a distance that would span the entire country from the port city of Mombasa to the Kenya-Uganda border.
- By sending a connection across multiple balloons, Loon is not simply extending the signal to the last balloon in the line to serve users under its position. Each balloon in the network is capable of passing a connection along while simultaneously transmitting it to users on the ground. This means that instead of one balloon utilizing one ground-based connection point to serve users, that same connection point can be used to power multiple balloons, all of which can transmit service to people below.
- Combined with the Loon system's larger coverage area – between 20 to 30 times greater than a traditional ground-based system – this will allow Loon to connect more people without having to build lots of new ground infrastructure – a key obstacle to providing connectivity to those in underserved areas.

# UAS Toolkit



ICAO SAFETY



Search...

CONFLICT ZONE UPDATES

About ICAO

Global Priorities

Meetings and Events

Information Resources

Careers

Subscribe



## Narrative

The narrative presents UAS best practices, lessons learned and regulations for your consideration. We believe that developing UAS guidance and regulations that consider public and aviation safety first, along with security and privacy protection while promoting industry, is an achievable mission.



## Fly Safe/Fly Legal

In order to ensure their safe operation, to encourage business and to provide societal benefits, all aircraft must share airspace in a safe, predictable and regulated manner.



## Current State Regulations

Existing UAS regulations from around the world.



## UAS Toolkit

UAS operators, remote pilots and recreational pilots will benefit from the information contained in the toolkit as UAS operations grow in airspace traditionally occupied by manned operations.



## News

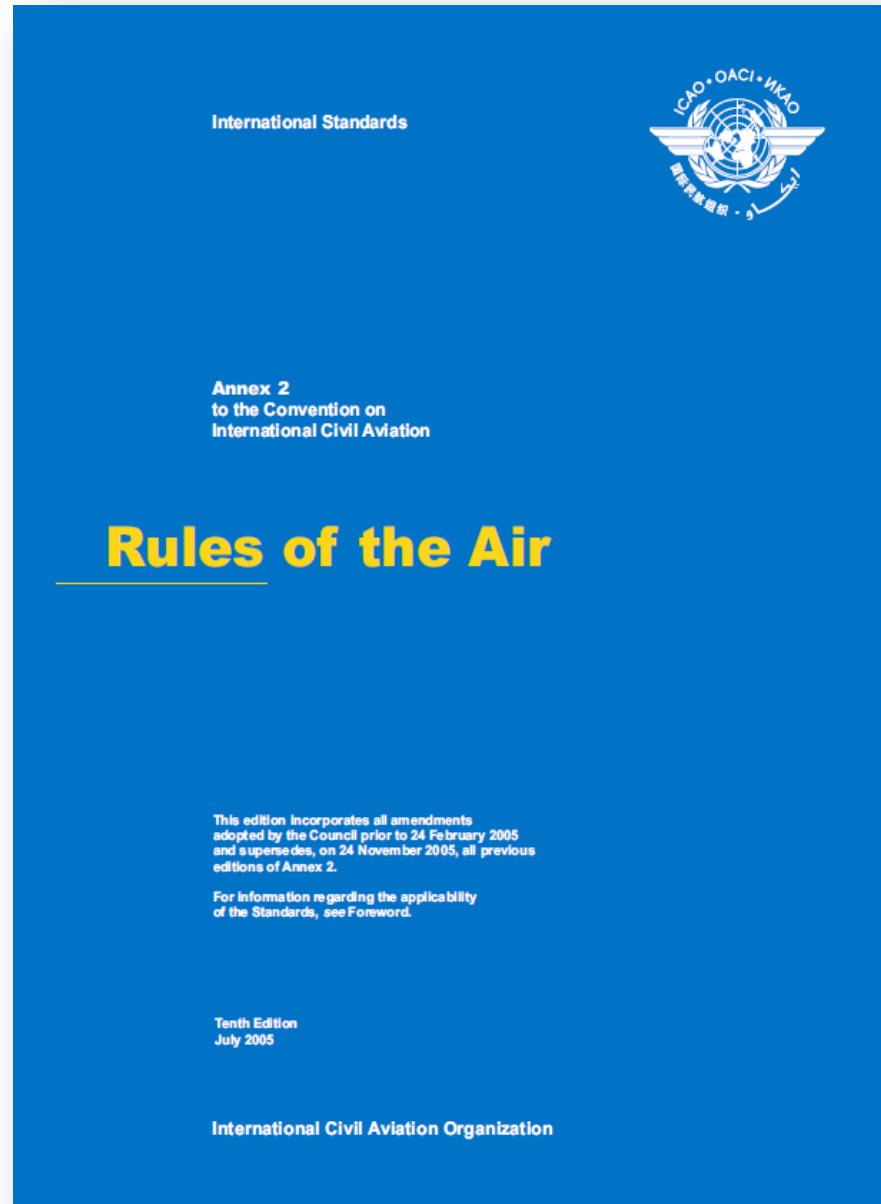
News related to unmanned aviation and related technology.



## FAQ

Commonly asked questions and answers associated with unmanned aviation.

## ANNEX 2 – APPENDIX 4



⑩ RPA shall not be operated across the territory of a contracting State without a special authorization issued by each State in which the flight is to operate.

⑩ This authorization may be in the form of agreements between the States involved.

# REQUEST FOR AUTHORIZATION FORM

## Appendix A

### REQUEST FOR AUTHORIZATION FORM

Note.— For details on completing this form, and for definitions of acronyms and abbreviations, see section on Information Required for the Assessment of Authorization following this form.

RPAS operator information		
1. Name of RPAS operator: _____		
2. State of RPAS operator: _____		
3. Mailing address: _____		
4. Contact numbers: tel.: _____ cell: _____ fax: _____		
5. Email: _____		
6. State of the RPAS operator, RPAS operator certificate number _____ (attach copy of RPAS operator certificate). Alternative documents (attach copy).		
RPAS information		
7. State of Registry and aircraft registration (attach copies of certificate of registration and certificate of airworthiness). Alternative airworthiness documents (attach copy).		
8. Aircraft radio station licence number (attach copy of aircraft radio station licence): _____		
9. Noise certificate (attach copy of certificate).		
Remote pilot(s) and RPA observer(s) information		
10. Name:	11. Type of licence or certificate and number (attach copy of licences or certificates):	12. Experience of remote pilot or RPA observer (detailed description):
a)	a)	a)
b)	b)	b)
c)	c)	c)
d)	d)	d)

App A-1

App A-2

Manual on Remotely Piloted Aircraft Systems (RPAS)

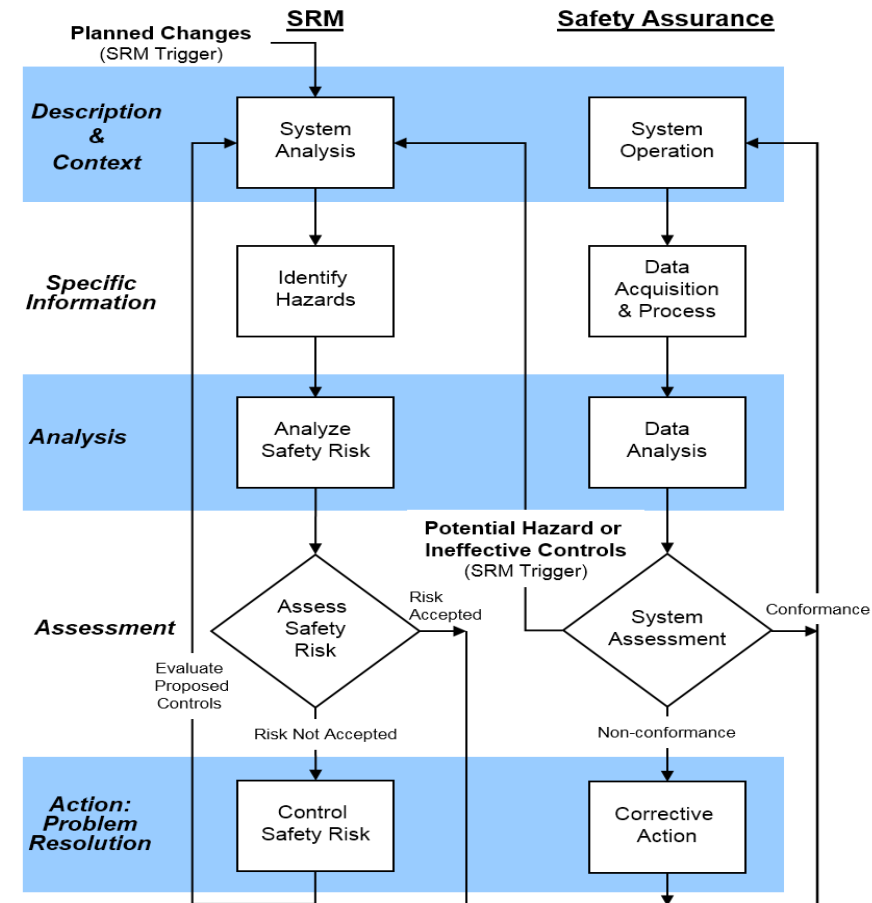
e)	e)	e)
f)	f)	f)
RPA performance characteristics (including appropriate units of measurement) (attach picture or sketch of RPA)		
13. Type of aircraft: _____	14. Maximum take-off mass: _____	15. Wake turbulence category: _____
16. Number and type of engine(s): _____	17. RPA dimensions (wing span/ rotor diameter): _____	18. Maximum speed: _____
19. Minimum speed: _____	20. Cruising speed: _____	
21. Typical and maximum climb rates: _____	22. Typical and maximum descent rates: _____	
23. Typical and maximum turn rates: _____	24. Maximum aircraft endurance: _____	
25. Other relevant performance data or information to declare (maximum operating altitude): _____		
26. CNS capabilities (including alternate means of communication with remote pilot station(s)): Communications: CPDLC <input type="checkbox"/> VHF <input type="checkbox"/> UHF <input type="checkbox"/> SATCOM <input type="checkbox"/> HF <input type="checkbox"/> Telephone: landline <input type="checkbox"/> mobile phone <input type="checkbox"/> Navigation: DME <input type="checkbox"/> VOR <input type="checkbox"/> GNSS <input type="checkbox"/> ADF <input type="checkbox"/> ILS <input type="checkbox"/> GBAS <input type="checkbox"/> RNAV _____ RNP _____ RVSM _____ Surveillance: transponder mode(s): _____ ADS-B <input type="checkbox"/> ADS-C <input type="checkbox"/> ACAS <input type="checkbox"/> Other: _____		
27. Detect and avoid capabilities: _____		
Operations		
28. Purpose of operation: _____		
29. Aircraft identification to be used in radiotelephony, if applicable: _____		
30. Date of flight(s): _____	31. Duration/frequency of flight(s): _____	
32. Flight rules: I <input type="checkbox"/> V <input type="checkbox"/> Y <input type="checkbox"/> Z <input type="checkbox"/>		33. Type of operation: VLOS <input type="checkbox"/> BVLOS <input type="checkbox"/>
34. Number and location(s) of remote pilot station(s): _____		
35. Handover procedures between remote pilot stations: _____		
36. Point of departure: _____		37. Point of destination: _____
39. Route: _____		40. Cruising level: _____



# Operation-centric, risk-based approach

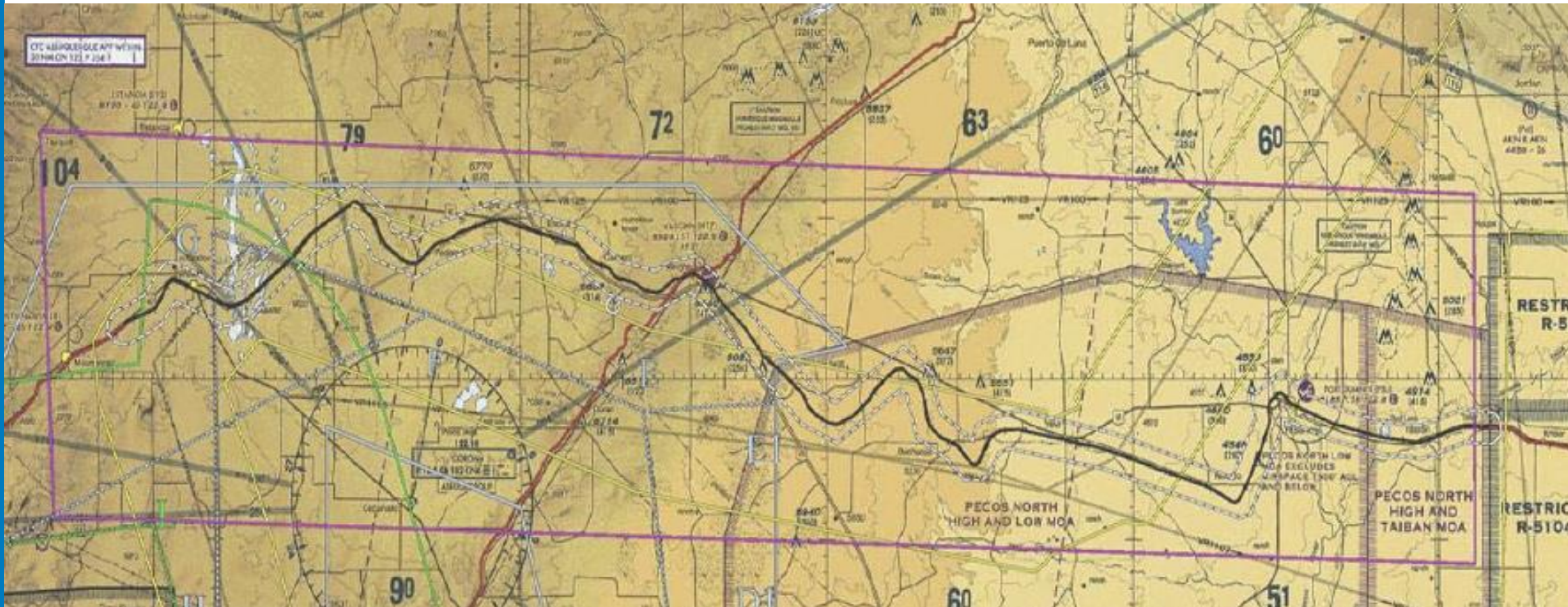


Operational approval is contingent upon acceptance by the CAA of a safety case that sufficiently identifies and address risks, hazards, and mitigations of the proposed operations



## RPAS flight planning should include provisions for any emergencies/contingencies:

- Emergency landing/ditching locations
- Loss of C2 Link
- Military Training Routes




# INTEGRATION OF RPAS OPERATIONS INTO ATM

•Right-of-way: RPA are obliged to comply with the Annex 2 right-of-way rules

RPAS operators will need to file flight plans in accordance with Annex 2

•RPAS operator should define lost C2 link procedures that are acceptable to the ANSP and regulator

•It may be difficult for ANSPs, pilots of manned aircraft and other remote pilots to acquire visual contact with the RPA due to low conspicuity



**FLIGHT PLAN  
PLAN DE VOL**

PRIORITY (Priorité) **FF** →

ADDRESSEE(S) (Destinataire(s))

ORIGINATOR (Expéditeur)

FILING TIME (Heure de dépôt)

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR (Identification précise (s) des destinataire(s) et/ou de l'expéditeur)

3 MESSAGE TYPE (Type de message) **FPL**

7 AIRCRAFT IDENTIFICATION (Identification de l'aéronef)

8 FLIGHT RULES (Règles de vol)

9 NUMBER (Nombre)

10 EQUIPMENT (Équipement)

13 DEPARTURE AERODROME (Aérodrome de départ)

15 CRUISING SPEED (Vitesse croisière)

16 DESTINATION AERODROME (Aérodrome de destination)

18 OTHER INFORMATION (Renseignements divers)

SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGE) (Renseignements complémentaires (A NE PAS TRANSMETTRE DANS LES MESSAGES DE PLAN DE VOL DÉPOSÉ))

19 ENDURANCE (Autonomie)

PERSONS ON BOARD (Personnes à bord)

EMERGENCY RADIO (Radio de secours)

SURVIVAL EQUIPMENT (Équipement de survie)

JACKETS/GILETS de sauvetage

DINGHIES/Canots

REMARKS (Remarques)

PILOT-IN-COMMAND (Pilotte commandant de bord)

FILED BY/Déposé par

SPACE RESERVED FOR ADDITIONAL REQUIREMENTS (Espace réservé à des fins supplémentaires)

# HUMANITARIAN ASSISTANCE, DISASTER RESPONSE & DEVELOPMENT

## WFP UAS OPERATIONS & COMMUNICATIONS/DECONFLICTION PLAN

Operator \_\_\_\_\_ Contact Information: Phone: \_\_\_\_\_ Email: \_\_\_\_\_

SATCOM or Telephone #: \_\_\_\_\_ (For Vessel Launches) Radio Call Sign: \_\_\_\_\_

Vessel #: \_\_\_\_\_ Vessel Phone: \_\_\_\_\_ VSAT: \_\_\_\_\_ Iridium: \_\_\_\_\_

A. 7 Days prior: Distribute email, including authorization from appropriate civil aviation authorities (CAAs), to air Navigation Service Provider (ANSP) providers and appropriate government authorities (e.g., Civil Aviation Authority, Coast Guard, Ministry of Foreign Affairs, Ministry of Defense, etc. Area commercial aircraft operators shall also be notified of the pending operation.

B. 7 Days to 24 Hours in advance: Contact appropriate ANSP provider, request a Notice to Airmen (NOTAM) be issued for the operation area. Emergency and National Disaster Operations authorizations may not be able to comply with standard NOTAM issuance timelines.

C. 1 Day prior: Provide operation area manned aircraft operator's schedule for next day.

D. By \_\_\_\_\_ (local time) on day of flight, prior to flight: Participating manned aircraft operators will confirm their flight plan(s).

E. 1 Hour prior:

1. Operator files an ICAO flight plan through appropriate CAA or with ANSP. Flight plans shall be

submitted in accordance with Chapter 3 of ICAO Annex 2, Rules of the Air.

2. Receive weather briefing, review NOTAMs, and determine if there are any other flight plans on file

for the operating area.

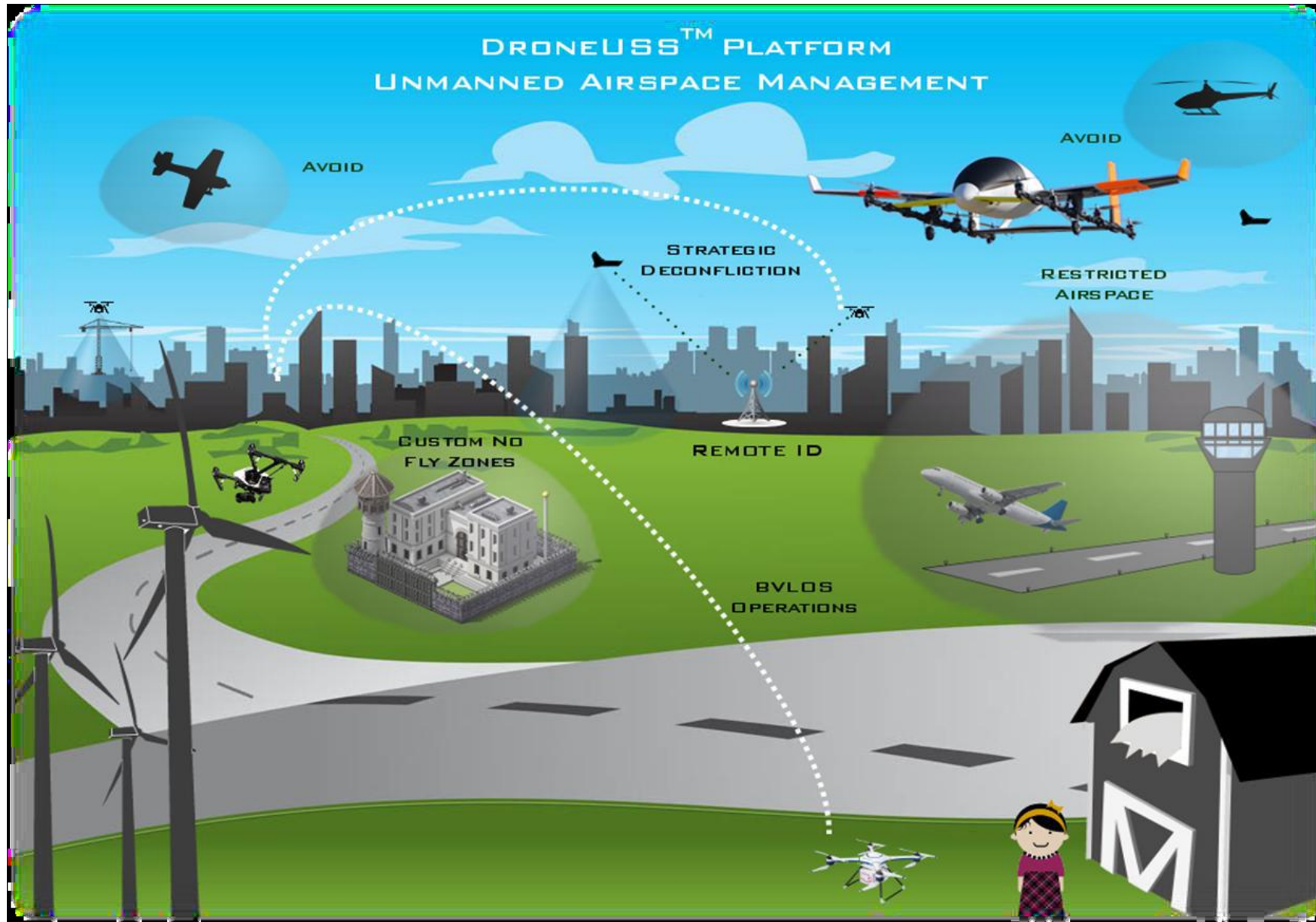
3. Check Receiver Autonomous Integrity Monitoring (RAIM), appropriate agency website or UAS app.

4. Contact appropriate ANSP unit via SATCOM or other acceptable means to confirm that any special use airspace or ALTRV is active.

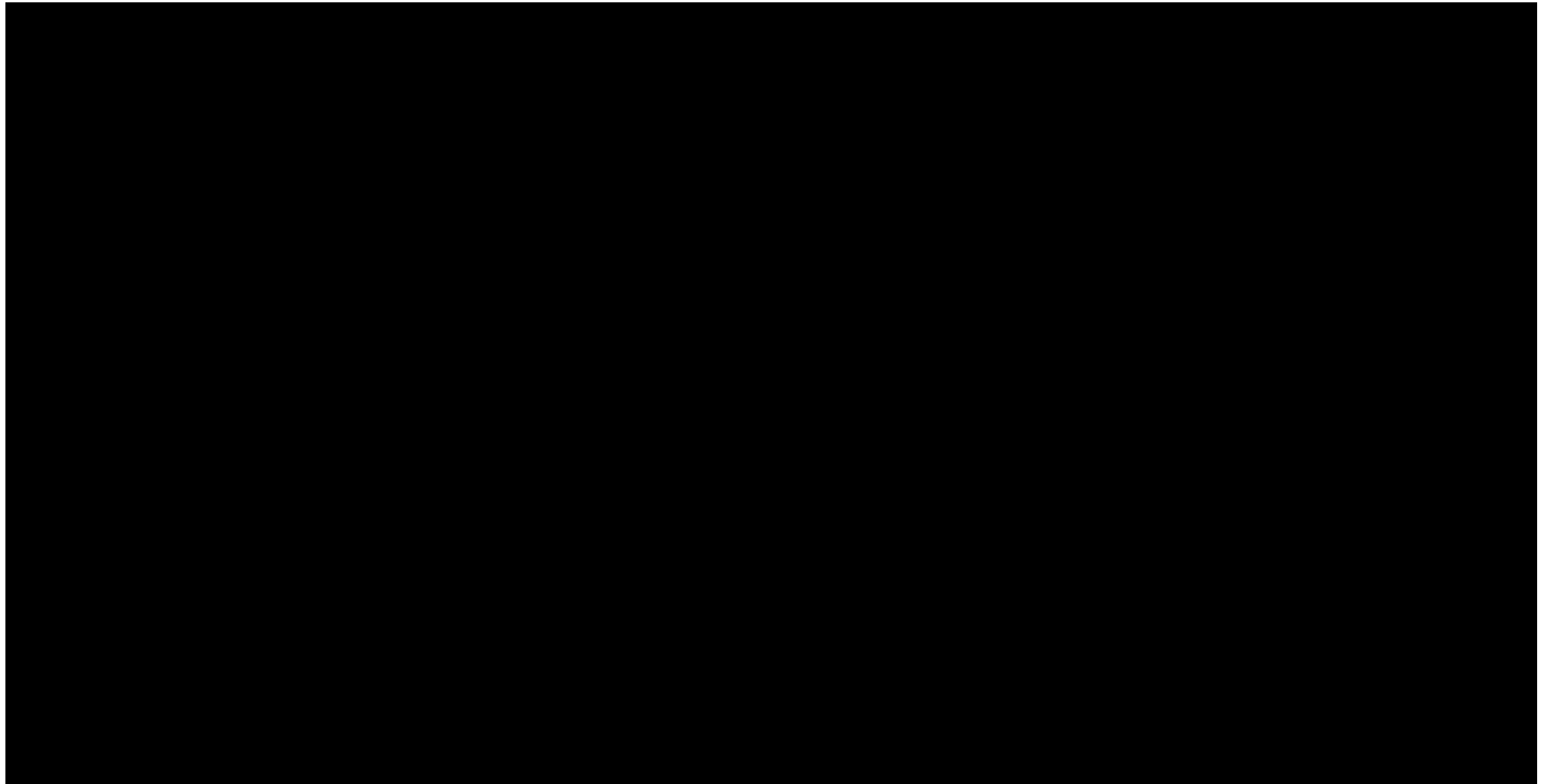
F. 10 Minutes prior to UAS launch: In preparation for launch, broadcast a warning announcement on VHF \_\_\_\_\_ MHz common traffic advisory frequency (CTAF) or Marine Common FM Ch \_\_\_\_; e.g., "UAS flight operations are commencing from LAT/LONG of research vessel, or launch site." Maintain a listening watch on VHF \_\_\_\_\_ MHz (CTAF) and \_\_\_\_\_ MHz for any area traffic.

G. During flight operations: Periodically broadcast a warning announcement on VHF \_\_\_\_\_

# Operation-centric, risk-based approach



# RPAS Cargo Delivery



# Future Collaboration and Engagements



Hybrid Airship

# WFP RPAS Cargo Delivery

## Path Forward:

- Cargo delivery category RPAS will be managed by WFP Aviation Service (OSCA)
- Identify use cases for RPAS humanitarian cargo delivery
- UNAVSTADS
- Collaborate with ICAO, IATA & Civil Aviation Authorities applying best practices to enable safe, reproducible RPAS authorizations





**World Food  
Programme**



**Thank You**

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