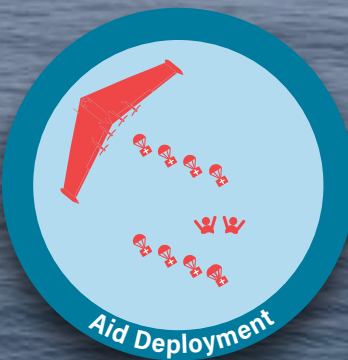
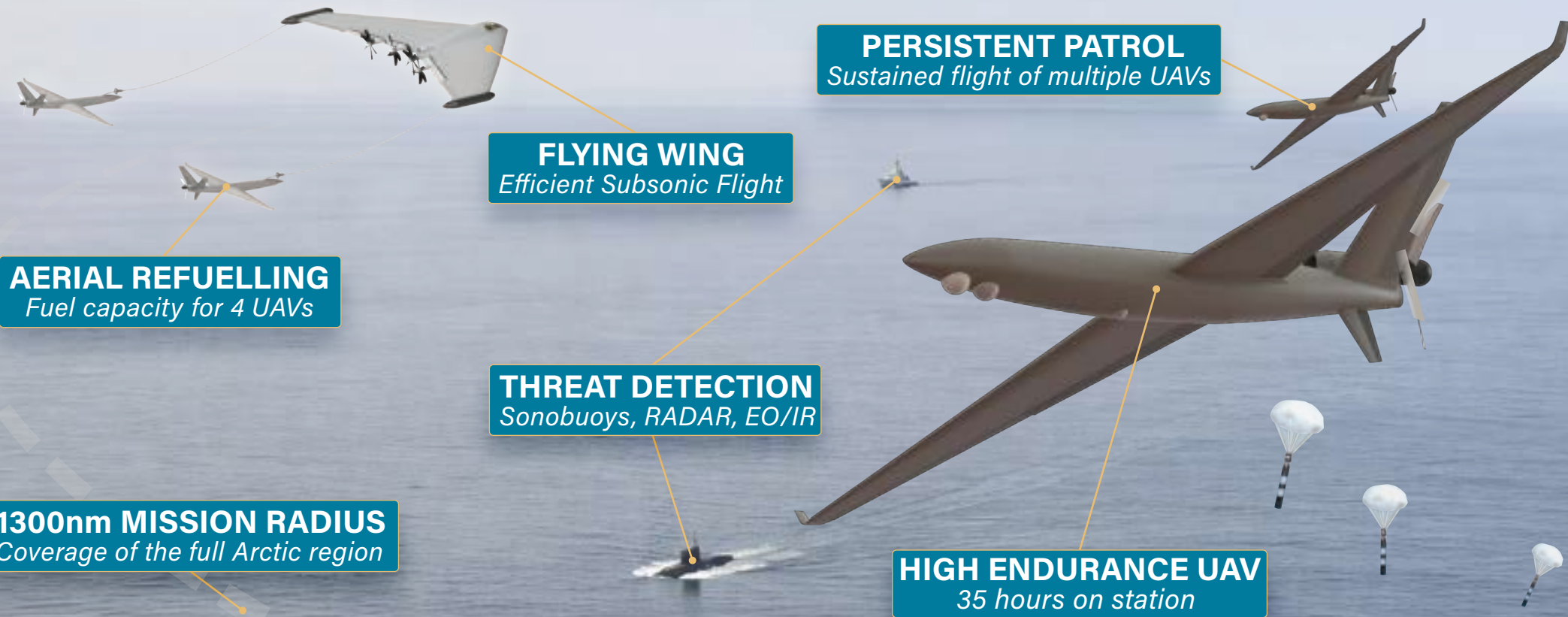
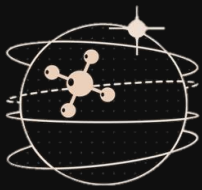




ARCTIC MARITIME PATROL AIRCRAFT

SYSTEM OF FLYING WING AND UNMANNED AIRCRAFT ENABLING PERSISTANT INTELLIGENCE, SURVEILLANCE AND RECONNAISSANCE PATROLS IN THE ARCTIC REGION FOR NATO ALLIES.





HERMES

HIGH ELEVATION
REMOTE MONITORING
FOR A METHANE-BASED
ENVIRONMENTAL
SYSTEM

OUR MISSION

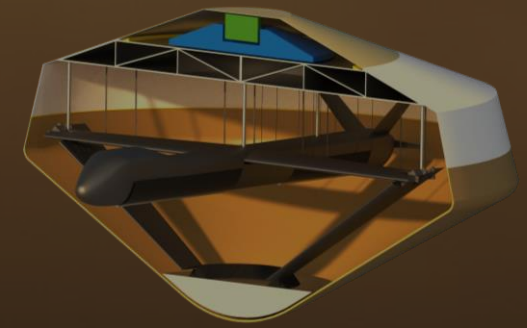
HERMES WILL FOLLOW DIRECTLY ON FROM THE PIONEERING WORK OF CASSINI, DELVING DEEP INTO TITAN'S TROPOSPHERE WHERE IT WILL:

- CHARACTERISE THE METHANE CYCLE AND SEASONAL WEATHER CHANGES
- PROFILE ATMOSPHERIC COMPOSITION
- SCAN FOR CRYOVOLCANIC ACTIVITY
- CAPTURE THE FIRST DETAILED VISUAL-WAVELENGTH IMAGES OF TITAN'S SURFACE

ANSWERING FUNDAMENTAL QUESTIONS ABOUT TITAN'S UNIQUE GEOLOGICAL SYSTEM, AND THE ORIGINS OF LIFE ITSELF

KEY FEATURES

- RTG-POWERED AND BATTERY-AIDED PERPETUAL FLIGHT
- EFFICIENCY-FOCUSED AERODYNAMIC DESIGN
- UP TO 44KM ALTITUDE
- FULLY AUTONOMOUS CAPABILITY
- EXTENSIVE SCIENTIFIC PAYLOAD FOR A RANGE OF MISSION-SPECIFIC OPERATIONS
- EMBEDDED RADAR DISH FOR EARTH COMMUNICATION
- STATE-OF-THE-ART TITANIUM ALLOY CONSTRUCTION
- HIGHLY SOPHISTICATED THERMAL MANAGEMENT SYSTEM
- DIRECT IN-ATMOSPHERE DEPLOYMENT



- UNIQUE HINGED WING DESIGN FOR ORBITAL TRANSFER

TECHNICAL SPECIFICATIONS

WINGSPAN (UNFOLDED)	11.9 M
FUSELAGE LENGTH	6.9 M
ASPECT RATIO	14
MASS	730 KG
RTG POWER	1600 W
OPERATIONAL WINDOW	17 YEARS

A LIFETIME OF FLIGHT – FOR A NEW ERA
OF SPACE EXPLORATION

ARRIVAL DATE:
OCT 2037



DESIGN SUMMARY

RAZORBILL is the RAF's future fast jet trainer, replacing the venerable Hawk T2, optimised for training pilots to fly the latest fifth generation fighters. With a top speed of Mach 1.32 at 30000ft, a climb rate of 20000ft/min, and a maximum range of 5900km, this aircraft has been tailored to the RAF's training needs. Razorbill is capable of multiple demanding missions: a 300km cruise to a manoeuvre zone followed by 15 minutes of 8g low altitude manoeuvres, then returning 300km back to base. Additionally, the aircraft can climb at 20000ft/min to 30000ft, dash at Mach 1.2 for 6.5 minutes, manoeuvre at altitude to simulation an interception, then cruise back to base. Finally, the aircraft can cruise at Mach 0.767 for 5900km to ferry the aircraft intercontinentally.

2590kg fuel - enough for a 5900km ferry flight

Gothic Strake:
increased high AoA
performance,
reduced centre of
pressure shift when
travelling
supersonic

Low-bypass
afterburning
turbofan engine with
high specific thrust
and efficiency

All moving stabilator
(max deflection +/-20°)

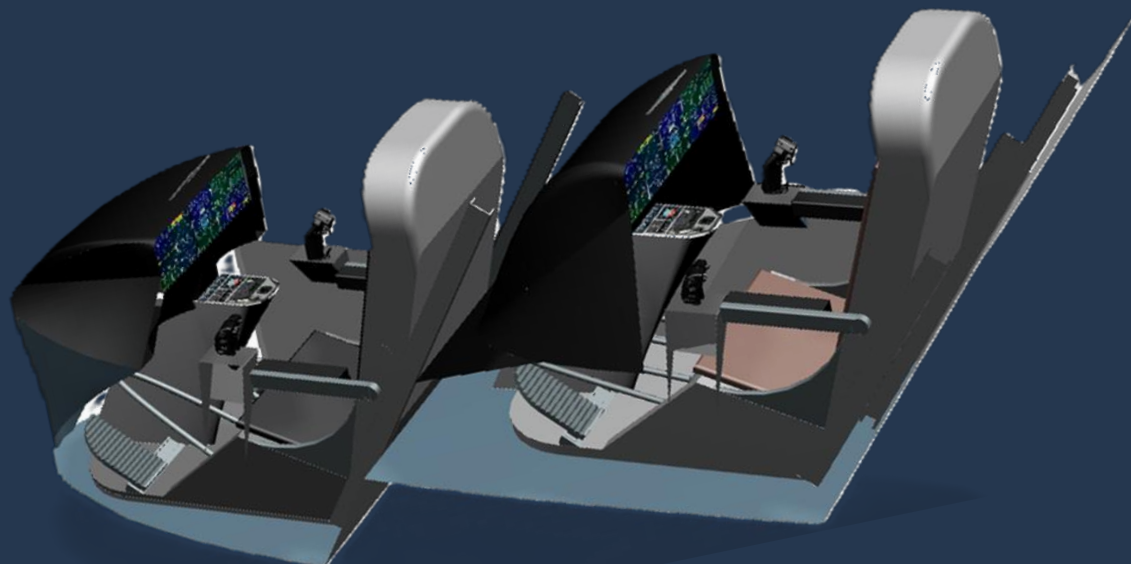
Highly ergonomic
cockpit design,
ensures pilots from
5"0 to 6"6 maintain
ample shoulder
room and head
clearance



Divertless supersonic
intakes:
Reduced drag and
increased pressure
recovery compared to
standard intakes

Converging spar structure
reduces weight compared
to traditional wing,
capable of handling loads
+8/-3g

Cockpit designed to
mimic 5th generation
systems: large multi-
functional display
emulates F-35, crucial
flight information
displayed on HUD. Side-
stick joystick allows for
greater dexterity during
high g-loads, trainee &
instructor equipped with
dual controls zero-zero
ejection seats.



NIGHTINGALE

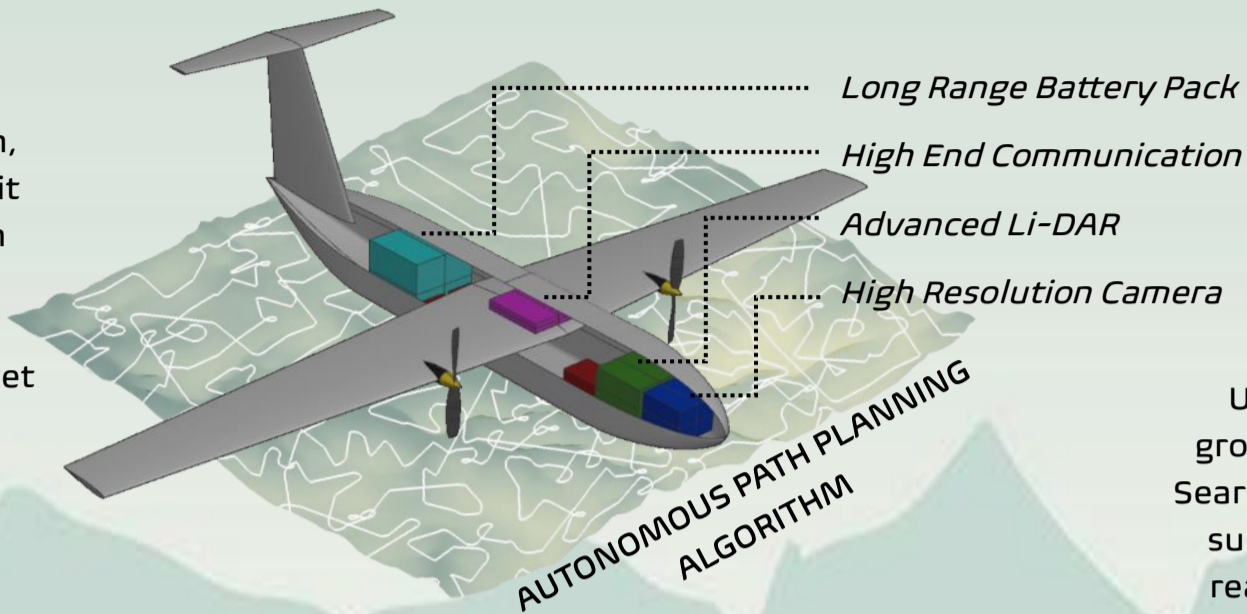
RAPID RESPONSE

AUTONOMOUS PRECISION

When every second counts, NIGHTINGALE bridges the gap between a distress call and a life saved. The integrated autonomous ecosystem operates in three decisive phases.

I DEPLOYMENT

Upon distress notification, the Nightingale mobile unit arrives at the Last Known Position (LKP). A high endurance Search Drone launches instantly to blanket search this area.



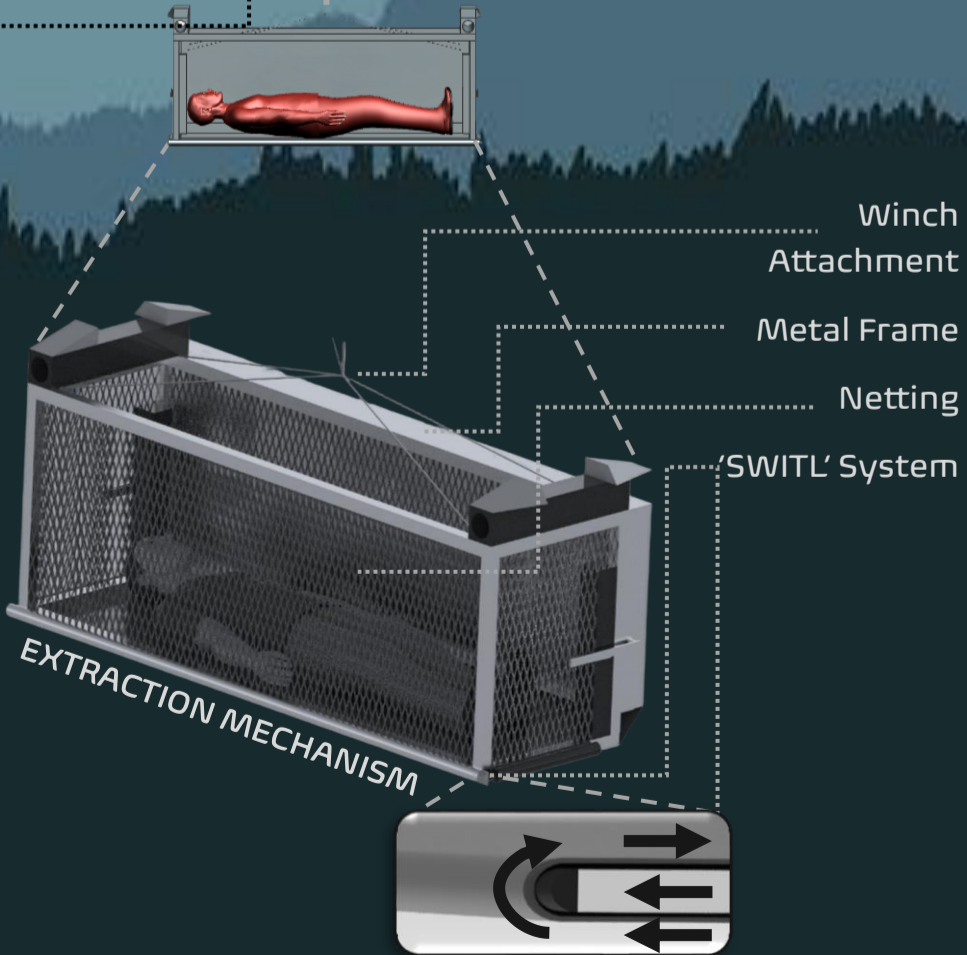
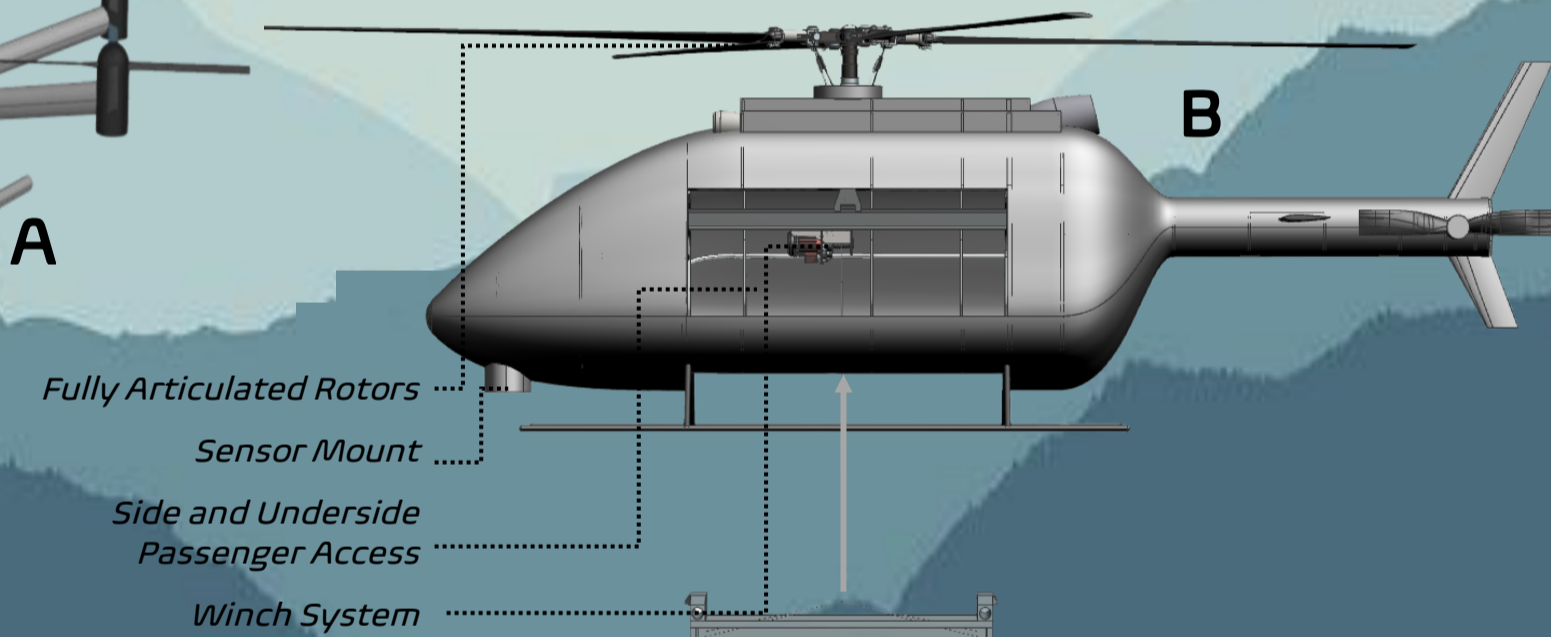
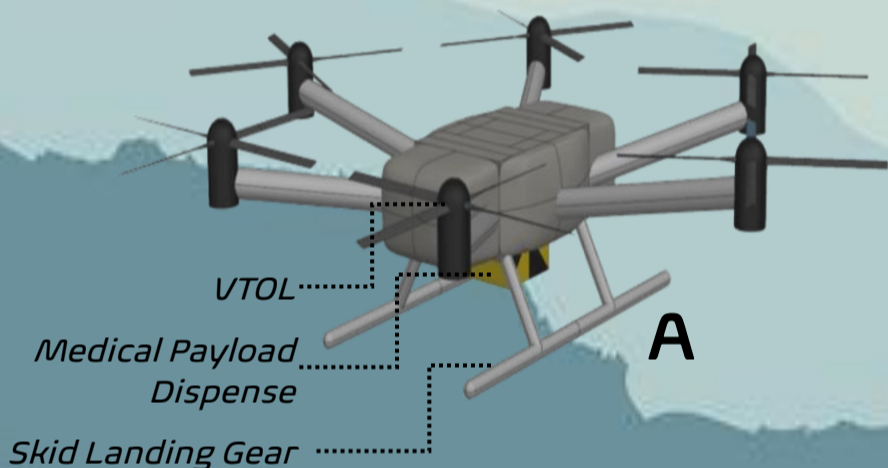
II DETECTION

Utilising a dedicated ground station relay, the Search Drone identifies the subject and performs a real-time Autonomous Status Assessment.

III RESPONSE

Tier A: If the subject is stable but stranded, a Medical Payload Multirotor delivers critical supplies while ground teams intercept.

Tier B: In critical scenarios, the Autonomous Rescue Helicopter executes an immediate extraction to bring the casualty to safety.



OVERALL SYSTEM

Cost (€K)	~160,000
Lifetime (Years)	20+
No. of Vehicles	6
Mission Duration (hrs)	2

SEARCH UAV

Cruise Speed	30 m/s
Weight (N)	196.2
Camera Coverage (60m Above Ground)	92.1m x 69.3m

RESCUE HELICOPTER

Weight (N)	9728
Maximum Payload (kg)	100
Maximum Power (kW)	192

MULTIROTOR

Weight (N)	490.5
Maximum Payload (kg)	20

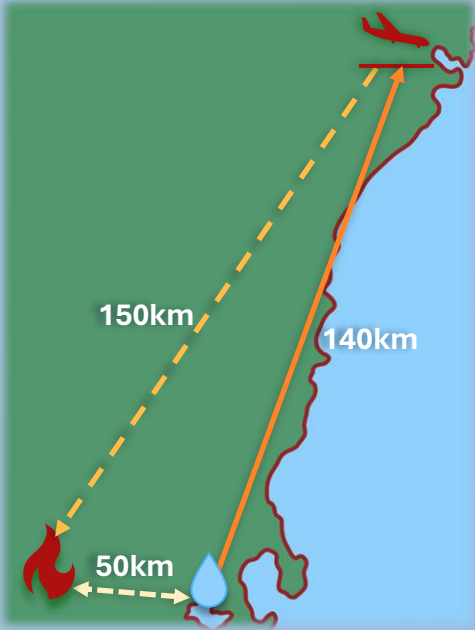
A.M.S.A.R

Autonomous Mountain Search and Rescue

— Design Summary —

THE GUARDIAN AMONGST THE BLAZE

Global wildfires are becoming increasingly severe. THETIS is the solution. A bespoke firefighting aircraft, engineered for rapid response and high-volume retardant delivery. With water scooping capabilities, THETIS uses proximity to water to its advantage.



TYPICAL MISSION DETAILS

- 8 drops
- 6 hour duration
- 96,000kg retardant mix delivered
- 5,000ft cruise altitude between water source and wildfire

Operational Longevity

Freshwater and Seawater Capability

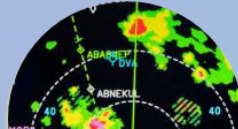
Up to 4 crew members



Live ground view



Night and day operations



Airborne mission control

5,000km ferry range

Dual Delivery System

Latest generation of avionics



Covering up to **67,000m²** with retardant mix in



4.5 seconds through pressurised delivery



Delivering up to **12,000** litres of retardant mix in



4.5 seconds through gravity drop



Scooping up to **12,000** litres of water in



15 seconds up to



8 times per mission



THETIS
DEFENDING NATURE



Supersonic Transport Project

LHR ← *56% faster* → **JFK**

HND ← *60% faster* → **LAX**

The return of supersonic flight has long been awaited. With the advent of new technologies, this new airliner concept promises to cut flight times in half, while being sustainable. For passengers who value speed and comfort, aviation must progress.

Next Generation Cockpit

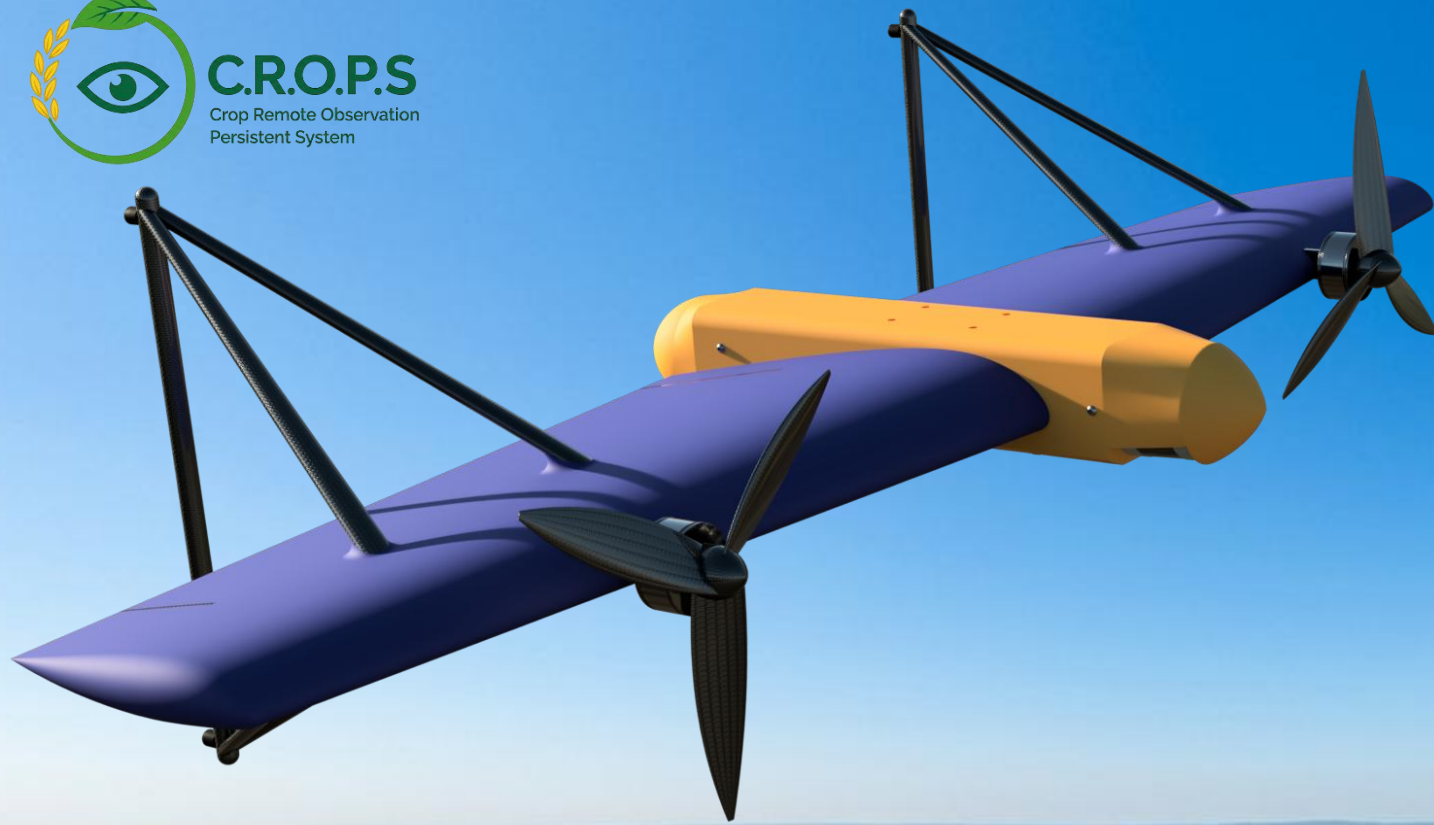
Luxury business class

Advanced supersonic propulsion

Cruise Mach Number	1.8
Cruise Altitude	60,000 ft
Range Capability	5000 nautical miles
Passenger Capacity	66
Airport Compatibility	Class 4C
Noise Emissions	<75 PLdB over land

Aircraft Length	66m
Wingspan	27m





RLSS

Precision Farming up to 120 m

A long-endurance tailsitter UAV that maps an entire farm in a single flight, on a single battery, from an unprepared field.

Satellites are too coarse, manual scouting is too slow, the RLSS delivers plant-level resolution across an entire farm, on demand, at a cost that beats subscription services.

Core Performance

7 kg MTOW	75+ min Endurance	17 m/s Cruise Speed
6.2cm² Per Pixel	6 km² Range	£0.46/km² Operating Cost



VTOL



Transition



Survey



Transition



Land

ROI	IRR	NPV (10 YR)	PAYBACK	L/D MAX	BATTERY LIFE
544%	30%	£1.25M	4.9 yrs	11	1,200 cycles