



equinor

Integration of RPAS in Offshore Operations (Remotely Piloted Aircraft Systems)

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SE OPP - DRONE I ARBEID
HOLD AVSTAND

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HOLD AVSTAND

Mongstad supply base,
West coast of Norway.

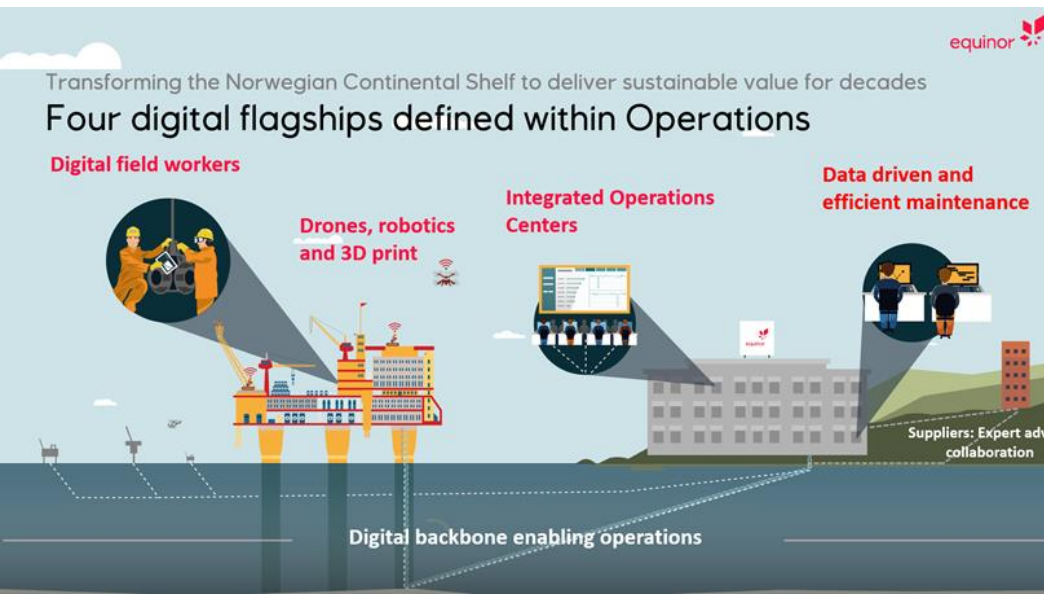
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Leder for felles driftsstøtte i Equinor, Cecilie Rønning presenterer verdens første fraktoppdrag til plattform med drone fra Mongstad Foto: Ivar Lid Rise / TV 2

Equinor med verdens første drone-frakt til oljeplattform

- Dette er en stor merkedag for oss, sier leder for felles driftsstøtte i Equinor, Cecilie Rønning.

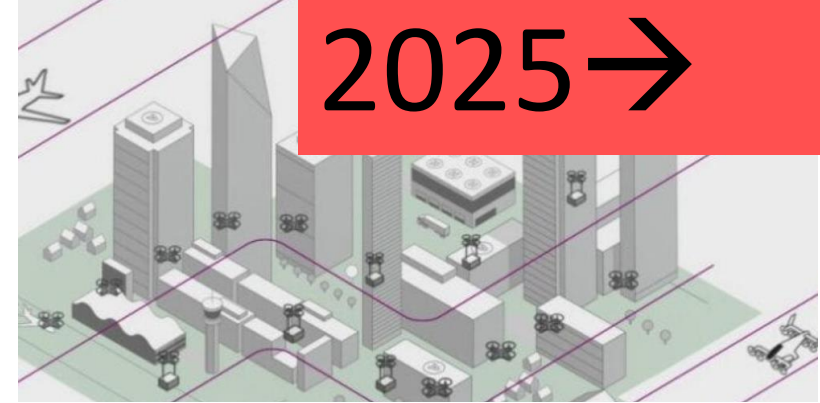


A 3D-printed part for the lifeboat system on the Troll A platform is prepared for flight.

RPAS as a service from an onshore control center

Scaling and Continuous improvement of RPAS

2025 →



Main objectives continuous improvement

- Customer driven implementation of RPAS
- Increased payload capacity (2000 kg+)
- Able to fly in all weather conditions including fog, lightning, dark and icing
- Reduced mobilization time (1-30 min.)
- Perform complex operations
- Increased reliability
- High degree of autonomous operations



Example future application areas

New Energy Solutions



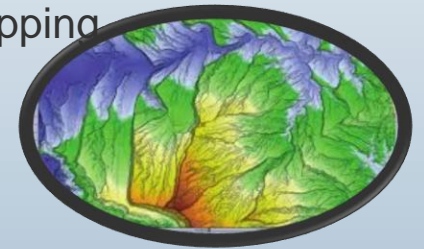
Shared Services



Digital inventory (3D print)



Seismic survey/ area mapping



Weather situations



Dangerous goods



(Remote) Inspections



Data link



Search & Rescue



E-ROV / Eelume / Subsea



Oil spill



Urgent deliveries



2022



Main objectives RPAS offshore

- Safe integration with offshore helicopter traffic
- Single crew RPAS operations
- GFC as hub for RPAS operations
 - GFC to installations (Tampen area)
 - GFC to ER vessel
- Verify and improve local work procedures (AT/SJA/(++))
- Infrastructure (landing systems, antennas, UTM)
- Governmental approval
- Scalable operations





Installation overview(s):



Gullfaks Alpha (ENGA):
 Delivery point
 Helideck Crew (Equinor) and NU
 representative available to receive cargo
 Mesh antenna installed on top of the
 Heli Radio-Room



Gullfaks Bravo (ENQG):
 Delivery point
 Helideck Crew (Equinor) and NU
 representative available to receive cargo
 Mesh antenna installed on top of the
 Heli Radio-Room



Gullfaks Charly (ENGC):
 Main hub for UAV operation
 GCS established at this location

Rev U1 Gullfaks A, B & C

N/a until further notice	Generic Standby Vessel CAUTION: Ensure to maintain RLOS: tell vessel to maintain the rear of the vessel pointing to the GCS
<p style="text-align: center;">VS482.II FSV FIELD SUPPORT VESSEL</p> <p style="text-align: center;">TD/PM CIRCLE NORMALLY ON DECK CENTRE</p>	Generic Vessel with Helideck on Bow CAUTION: Ensure to maintain RLOS: tell vessel to maintain the bow of the vessel pointing to the GCS

NORDIC UNMANNED Offshore Procedures
Equinor Information Folder
Gullfaks A, B & C

Rev 01

COM: 129.675	Deck Height: 262ft / 80m	Deck Heading: 240°
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Waypoint	Bearing / Distance ENGC Helideck	Position
GFC1	253° / 500m	
GFC2	226° / 500m	
GFC3	150° / 500m	

CONTINGENCY: In case of Loss of Link, other reason to discontinue the approach: proceed to GFAR and hold
 EMERGENCY: IN CASE OF GAS ALARM: PROCEED UPWIND 700M, AVOIDING THE NO FLY ZONE

NORDIC UNMANNED Offshore Procedures
Equinor Information Folder
Gullfaks A, B & C

Rev 01

COM: 129.675	Deck Height: 239ft / 73m	Deck Heading: 238°
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Waypoint	Bearing / Distance ENGC Helideck	Position
GFB1	090° / 600m	
GFB2	180° / 500m	
GFB3	142° / 500m	
GFBR	142° / 500m	

CONTINGENCY: In case of Loss of Link, other reason to discontinue the approach: proceed to GFAR and hold
 EMERGENCY: IN CASE OF GAS ALARM: PROCEED UPWIND 700M, AVOIDING THE NO FLY ZONE, CLIMB TO MAX 400ft & HOLD

NORDIC UNMANNED

Rev 01

Offshore P
Equinor Informat
Gullfal

Gullfaks Alpha Approach Plate

COM: 129.675	Deck Height: 250ft / 76m	Deck Heading: 240°
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Waypoint	Bearing / Distance ENGA Helideck	Position
GFA1 (Entry/Exit point 500m zone)	000° / 600m	
GFA2 (Approach/Departure point)	332° / 150m	
GFAR (Rally Point-loss of link)	332° / 500m	

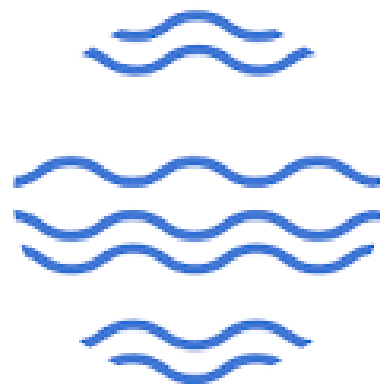
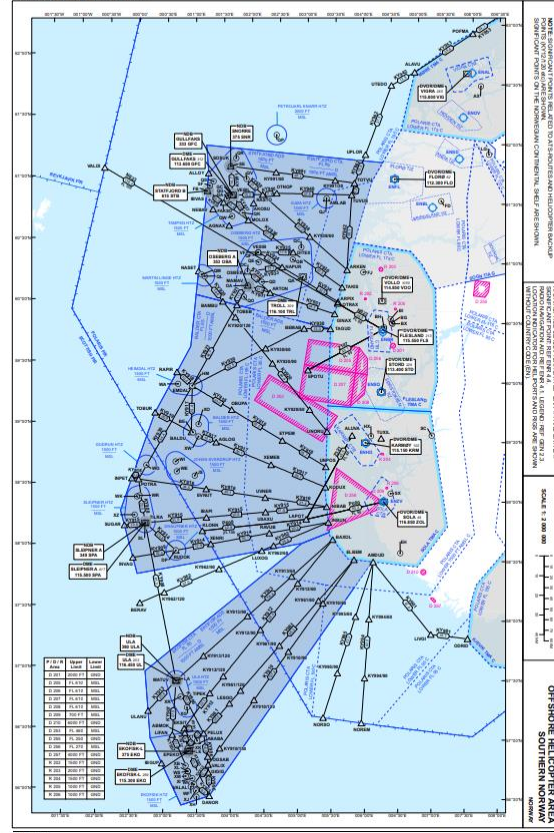
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CHANGES SOON TO BE AMENDED. EDITORIALS



OFFSHORE NORGE

