

Round table on regulations and Strategies

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Future Requirements and Operations Manual

Content of the AMAP RPAS Science operators handbook:

- **Introduction**
 - Scope of handbook
 - Permits required to operate
 - Manuals
- **Best practices**
 - Science operations design and planning
- **Operators Manual**
(All UAS operators will be required to have one)
 - Operational procedures and documentation
 - Approved operations
 - Training, qualification, maintenance requirements
 - Technical and maintenance

Norwegian CAA: Template for RPAS Operations Manual

Operational procedures and documentation

- Aircraft description
- Remote pilot station
- Normal procedures
- Emergency procedures
- Payload and sensors
- Logs, manuals, and checklists.

Approved operations

- Risk analysis of the type of operations that are conducted
 - VLOS, EVLOS, BLOS, BVLOS, BRLOS
 - Testing, training, specific types of data collection ops,...
- Standard operating procedures specific for these kind of operations

Training, qualification, maintenance requirements

- Routines and systems for training and qualification for operators and crew
- Routines and system for maintenance
- Training manuals, simulators, documentation and logging

Technical and maintenance

- Routines for documentation and logging
- Procedures
- Documentation, check lists

First time RPAS has been fully integrated into an large oil spill exercise in Norway

Place: Kongsfjorden, Berlevåg, Norway.

Date: September 12th 2012.



Mission Order

1. Detailed mapping of coastline for beach assessments and access planning prior to exercise (2 days earlier)
2. Same day mapping of operation area before under and after clean up operation
3. Rapid transfer of geolocated images during exercise to operations center.

Mission Planning

1. Planning started when request was received from NOFO about 3 months prior to exercise
2. Based on online maps and aerial photographs potential operation areas were identified
3. Site inspection performed in person and land owners contacted
4. Application and Safety Assessment submitted to the Norwegian CAA 10 weeks prior to operation.
5. ATC (Avinor) contacted and agreements made with regard to procedures
6. Final CAA permit received 2 weeks prior to operation

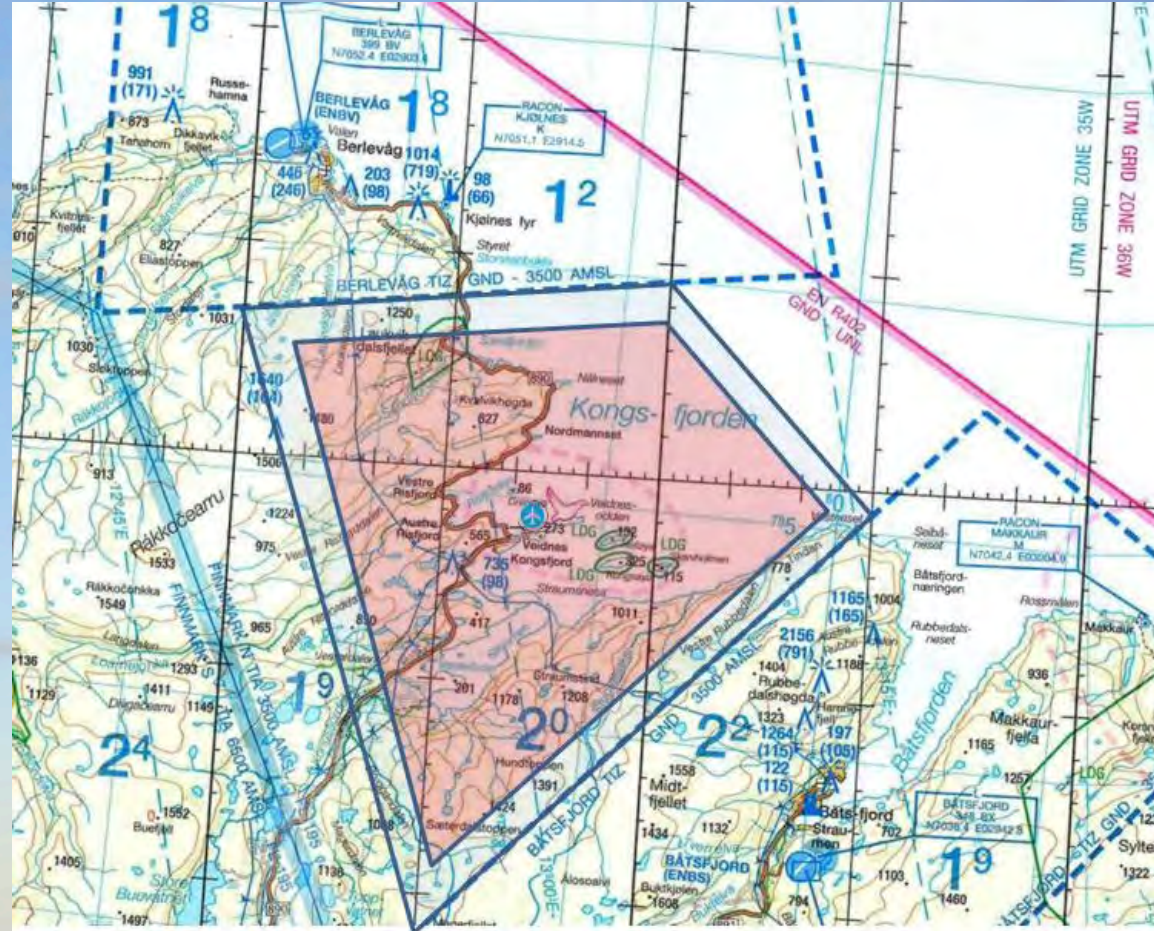
Permit

Danger area declared on area marked up to 3500' with 1nm safety zone as indicated

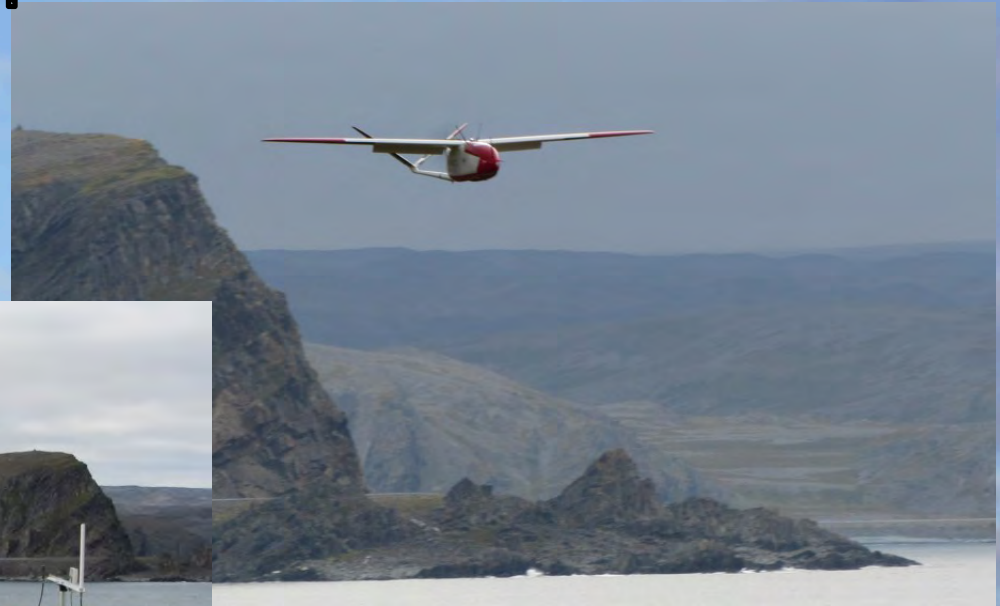
1000' vertical separation

Flights coordinated with Kirkenes TWR and Bodø CTR

NOTAM issued 1 week before start of operation



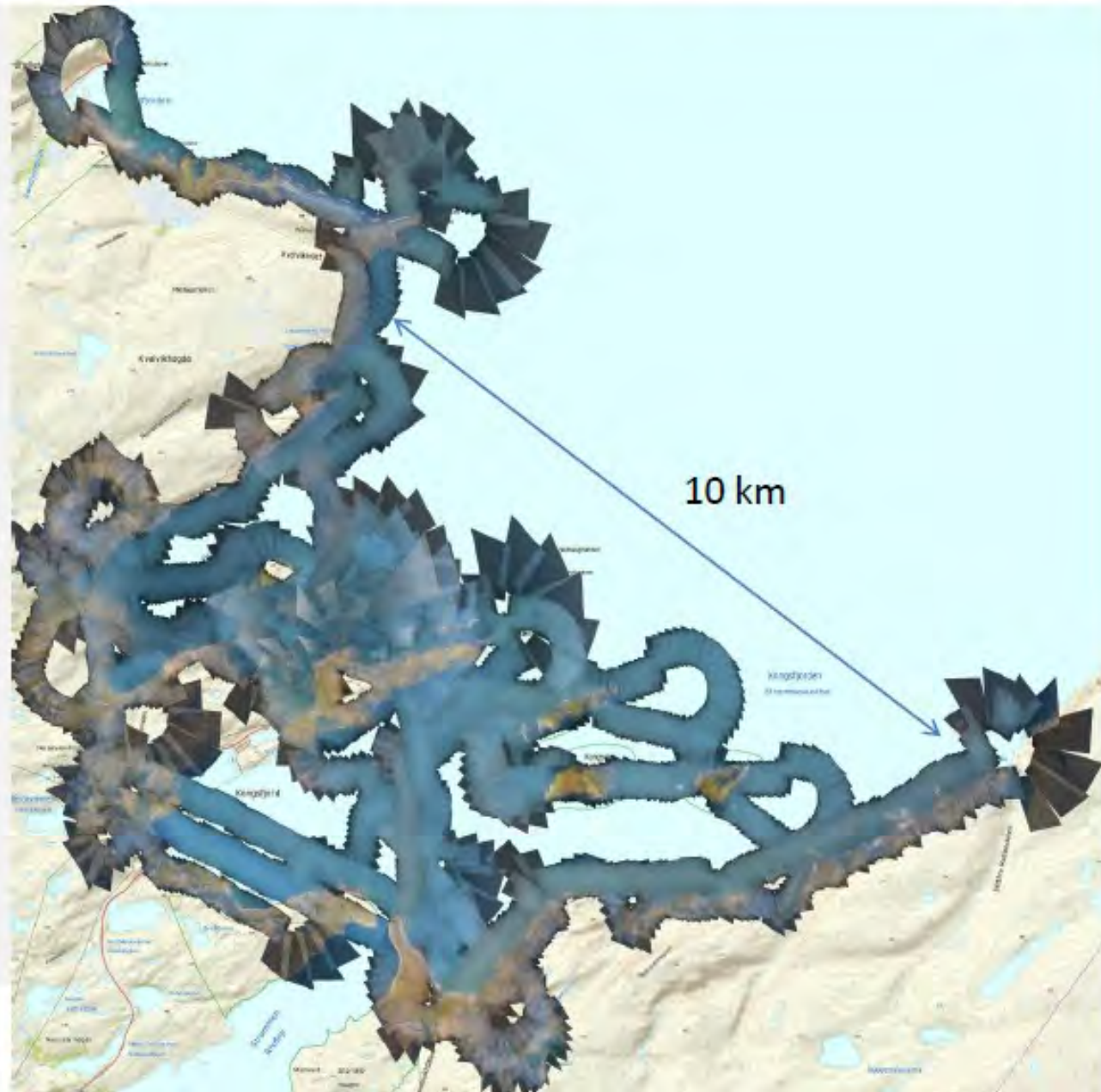
Launch Area



Beyond Line Of Sight (BLOS), Flight track

This flight track was performed on Monday September 10 in Kongsfjorden area, N 70° 45', E029° 27'.

The 30 kg CryoWing UAS operated by <http://www.aranica.com/> was the first BLOS operation during an oil spill exercise in Norway.



Vertical photo (15 Megapixel SLR Canon)

