



**NORWEGIAN DEFENCE  
MATERIEL AGENCY**

# **AW101 Sar Queen**

**Transforming airborne search and rescue  
missions in the Royal Norwegian Air Force**

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**“Out with the old and in with the new”**

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# From Sea King....





... to SAR Queen



# Cockpit - Sea King



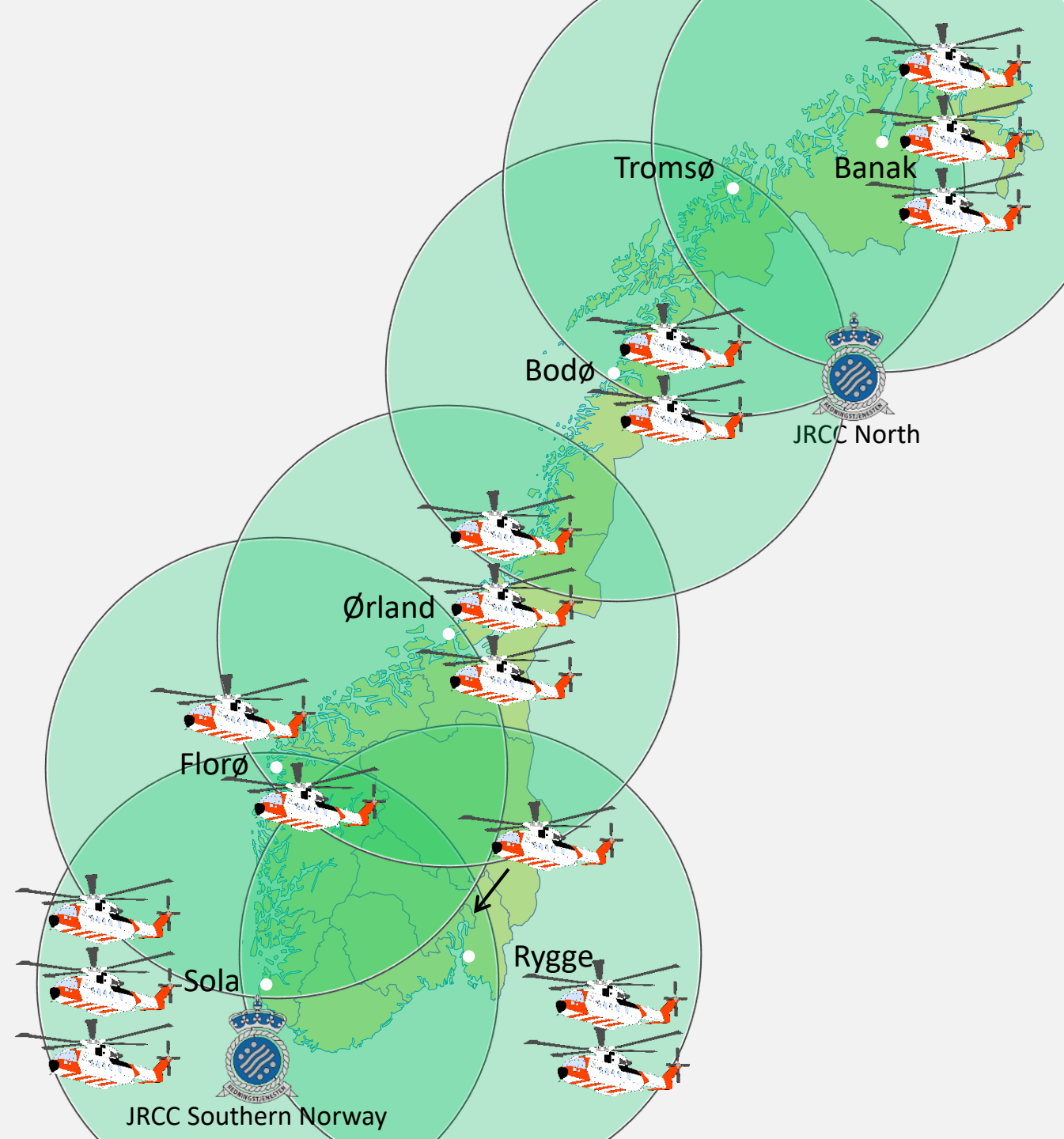


# Cockpit - SAR Queen



# Overview - 330 Squadron

- 6 permanent bases / 16 helicopters total
- 15 min alert 24/7/365
- Reach any place in Norway within 70 min.



# The Sea King «legacy»

*- From 1972 to 2022*

- 48 656 SAR- and ambulance missions
- 30 673 AMB
- 17 983 SAR
- Approx. 48 000 persons assisted/saved
- 194 500 hours flown with Sea King





# The transition – Key factors

- The project organization «decoupled» from the operational organization.
- CIVMIC
- Contract with Leonardo, including performance based logistics (PBL)
- OT&E organization





# New capabilities

- Anti-ice
- Performance Based Navigation
- Automation
- Enhanced situation awareness
- Sensors and technology

# Mobile Phone Detection and Localisation System (MPDLS)





# MPDLS

- *A quantum leap and a gamechanger*

- Product by Smith Myers
- Able to locate every mobile known/unknown within 15 minutes in the search area.
- Accuracy of 120/20 metres
- Since 2020: Over 200 MPDLS-missions completed



## Mobile Phone Detection/Localisation

- GSM, 2G & 3G protocols
- Tracks via IMSI number
- Phone Detection > 20km
- Location
- Triangulation +/-20m
- Cell GPS position
- SMS and Call capability

SAR game changing capability



WPT002	11.1	130
RNP	1.8	
RTE 05	130	
RTK 0.70	NW	

INIT
POINT
POINT EGS
COORD
HOOK

DISPLAY

INPUT

SMS

MOBILES

MAP

### MOBILE STATUS

NAME  
IMSI  
IMEI  
PL  
DTG  
BRG  
POSN



ΔALT

CALL

END



### GPS Status

POSN	N 60:50.56	ALT	6195 ft
	E 006:03.04	ERR	11 ft

### Transceiver Status

RX	Mobiles	TX	On
ULI	-122dBm	TECH	LTE
BAND	900	ARFCN	3750
MCC	Norway	MNC	Telenor
LAC	44468	CellID	14526026

### Amplifier Status

TEMP	18 °C	PWR	32dBm
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## MPDLS SEARCH STATUS

IN SERVICE SEARCH STARTED

SEARCHING FOR MOBILE



SEARCH

TX

MODE

SETTINGS



DISPLAY

INPUT

SMS

TARGETS

MAP



TGT 45433220 **LINK**  
 PL 143dB  
 DTG 4.51 NM  
 BRG 239  
 POSN N 58:40.92  
 TA E 006:22.26  
 ΔALT

SYSTEM

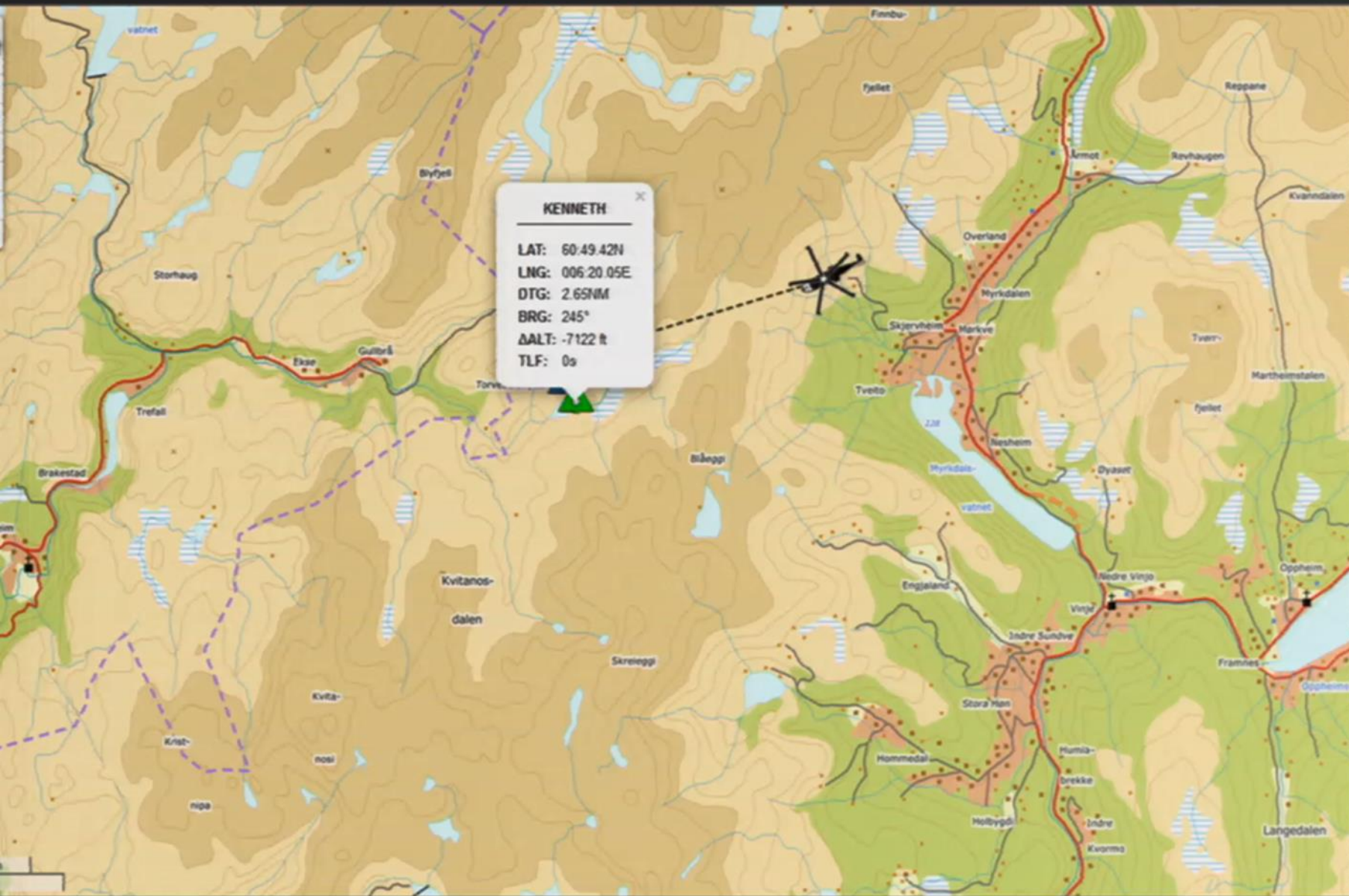
SEARCH

TX

MODE

SETTINGS





- LOCATE
- VOICE
- STOP



NAME	JOERGEN	
PL	130dB	LINK
DTG	3.01	NM
BRG	248	
POSN	N 60:49.50	±1535 ft
TA	E 006:19.70	
ΔALT	-7122	ft

## REGISTRATION SMS

Dette er redningshelikopter. trenger dere bistand?  
Letemanskaper leter etter dere.

83/160

UPDATE

CLEAR

CANCEL

## ADDITIONAL PAGES

EDIT PRESET MESSAGES

ERROR LOG

## SYSTEM SETTINGS

GSM CHN Select **AUTO** / MANUAL

GSM Preferred CHN 50

UMTS CHN Select **AUTO** / MANUAL

UMTS Preferred CHN 10662

System CLID 112

UTC Offset +0

## BUILT IN TEST

AUDIO LOOPBACK TEST

RF LOOPBACK TEST

SYSTEM

**ON** / OFF

SEARCH

**ON** / OFF

TX

**ON** / OFF

MODE

**GSM** / UMTS

SETTINGS



NAME / ID	STATE	SMS
KENNETH	REG	3
JOERGEN	TA	3

## JOERGEN

(112)

HEI. DETTE ER REDNINGSHELIKOPTERET FRA SOLA, DERE ER MELDT SAVNET. TRENGER DERE BISTAND?

2022/03/12 00:10:3

(112)

Hei, vi er på Torvedalshytta i god behold.

2022/03/12 00:11:32

(112)

Måtte søke ly pga mørke

2022/03/12 00:12:27

DET ER MOTATT FRA REDNINGSHELIKOPTERET. TA KONTAKT MED |

55/160

SEND

CLEAR

GET TEXT

FILTER

ON / OFF

GEO FENCE

ON / OFF

RESPONDED

ON / OFF

SYSTEM

SEARCH

TX

MODE

SETTINGS

02:37,44

GSM / UMTS / LTE

# Future technology and assets in SAR operations



*The future of search and rescue technology lies in the continuous advancement of artificial intelligence (AI) , augmented reality (AR), and robotics. The integration of AI and AR will continue to play a pivotal role in improving coordination and efficiency in SAR operations.*

**AirMed & Rescue magazine, 28<sup>th</sup> Feb 2024**



FLIR SYSTEMS

60°30.2748' N 7°22.4836' E  
SPD 83 KTS HDG 80 °T  
ALT 5830 FT

345°T

W N

60°30.7757' N 7°22.2057' E  
SPD 19 KTS HDG 239 °T  
ELV 5624 FT SLT 0.52 NM

21/11/2023  
12:51:33 Z

LRF TARGET  
ELV --- FT  
SLT --- NM



LRF L ARMED

HDEO  
DDE HAZE  
FOC MAN  
EXP AUT

GEOPOINT  
INS NAV 0.14°  
TRK COR  
SLAVE READY

W N 44 FT





Leonardo, please  
fold out the  
landing gear!



Sure, Jon! Playing  
'Landing Gear' by  
Suzuka on Spotify







LtCol Knut Eirik Thornes  
[kthornes@mil.no](mailto:kthornes@mil.no)