

# R/V *Sikuliaq* Technical Updates & Sonar Upgrades

**AICC 2023 Summer Meeting**



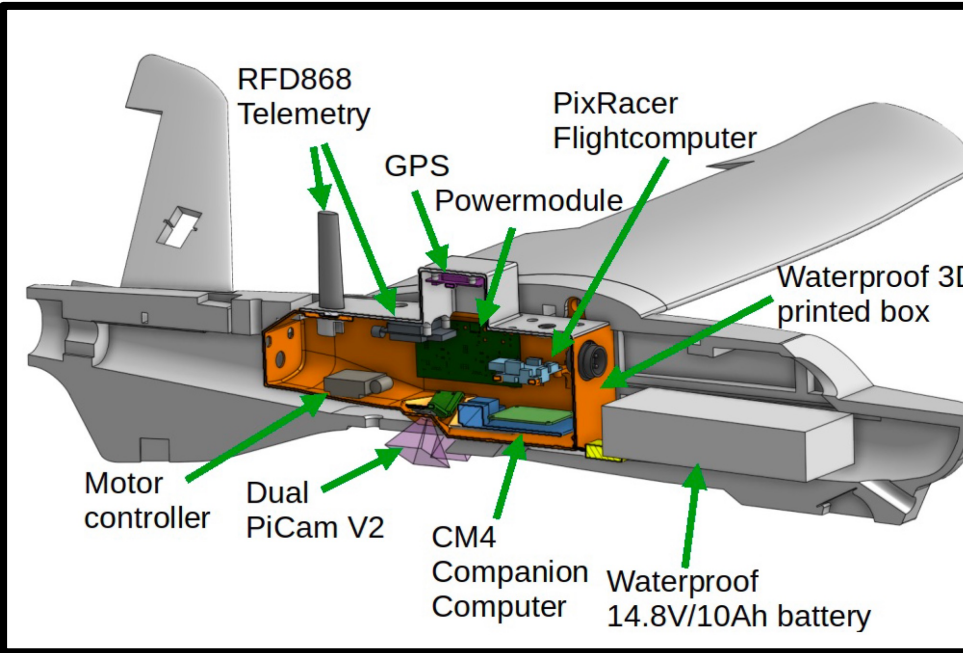
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# Technical Updates

(of interest to the AICC)

- SearchWing UAV training & testing
- Rutter Ice Radar collaboration on data products
- NWS Alaska Sea Ice Program analyst
- IT staffing support increase
- Coriolix data acquisition & data-presence
- Deck Socket Test Fixture completed
- Gravimeter replacement upcoming
- Developing a Skin SST measurement system

# SearchWing UAV

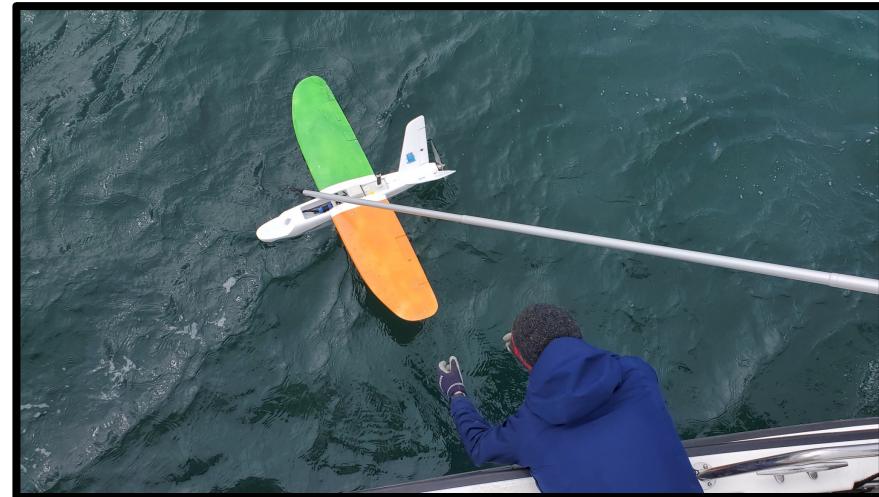


- Range: 80 - 120 km
- Flight time: 1 - 1.5 hours
- Max. area covered: 160 - 240 km<sup>2</sup>
- Image resolution: ~ 20 cm / pixel at 550 meters altitude

- IP67 (waterproof)
- Telemetry range: 25 km
- Wind resistance: 20-25 knots

## Sensors:

- Visible light cameras
- GPS
- Barometer
- IMU / Gyrometer
- Internal humidity





about:sessionrestore x Searchwing GUI x +

localhost:3000

Folder: 2023-07-08T08-38-34-ada Date: 08.07.2023 Time: 00:43:33.500819 GPS: 71° 11' 37.38" N 164° 47' 48.02" E 34.0m File: [left] 2023-07-08T08-43-33.500819.jpg

Help Settings Export Flagged

Skip n seconds: 0 Sort: DateTime

Filter: All Cycle Mode: Alternate sides

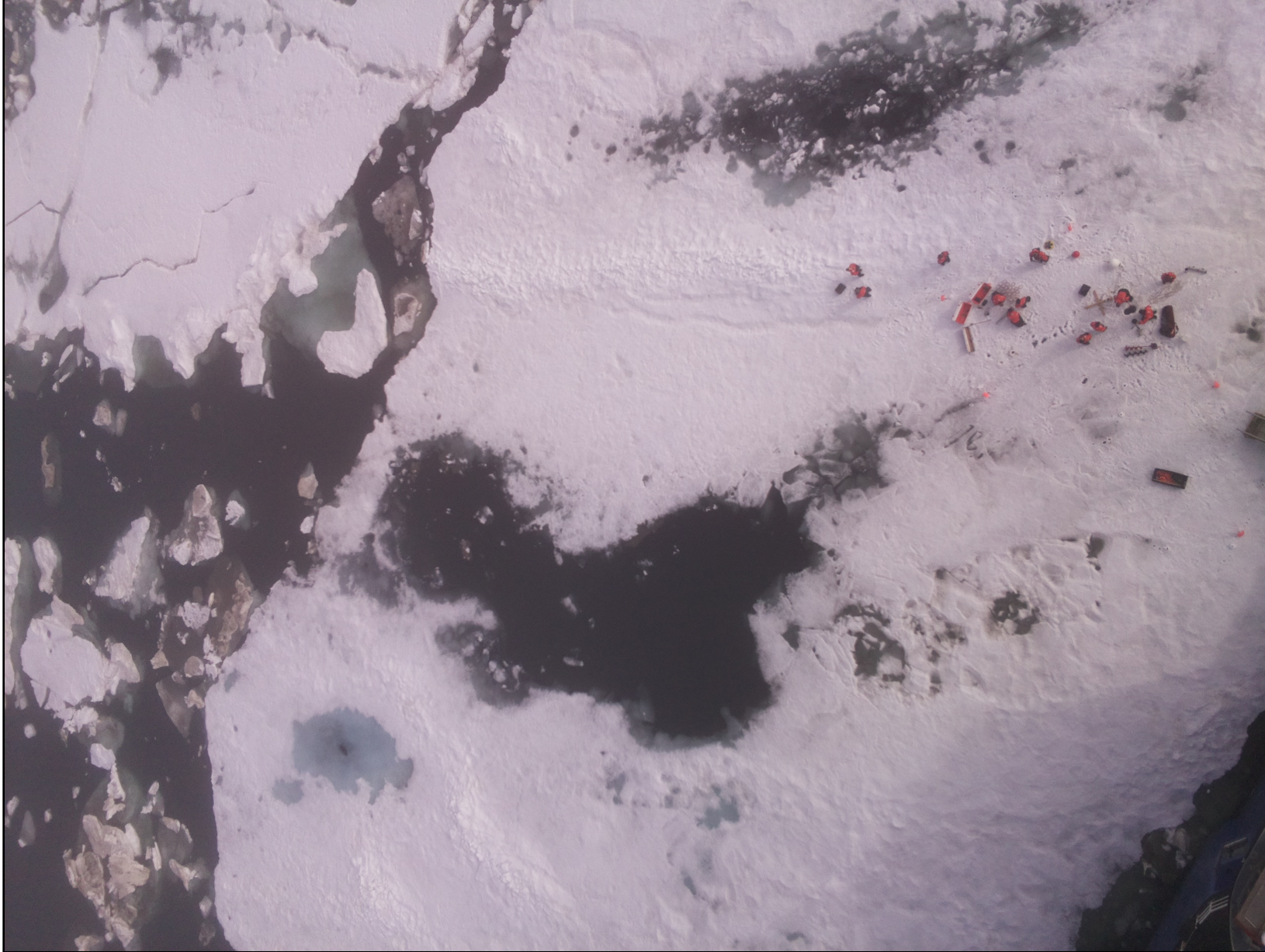
00:43:33	00:43:33
00:43:35	00:43:35
00:43:37	00:43:37
00:43:39	00:43:39
00:43:41	00:43:41
00:43:43	00:43:43
00:43:45	00:43:45
00:43:47	00:43:47
00:43:49	00:43:49
00:43:51	00:43:51
00:43:53	00:43:53
00:43:55	00:43:55
00:43:57	00:43:57
00:43:59	00:43:59
00:44:01	00:44:01
00:44:03	00:44:03
00:44:05	00:44:05
00:44:07	00:44:07
00:44:09	00:44:09
00:44:11	00:44:11
00:44:13	00:44:13
00:44:15	00:44:15
00:44:17	00:44:17
00:44:19	00:44:19
00:44:21	00:44:21
00:44:23	00:44:23

Map

Compass

Metadata Inspector



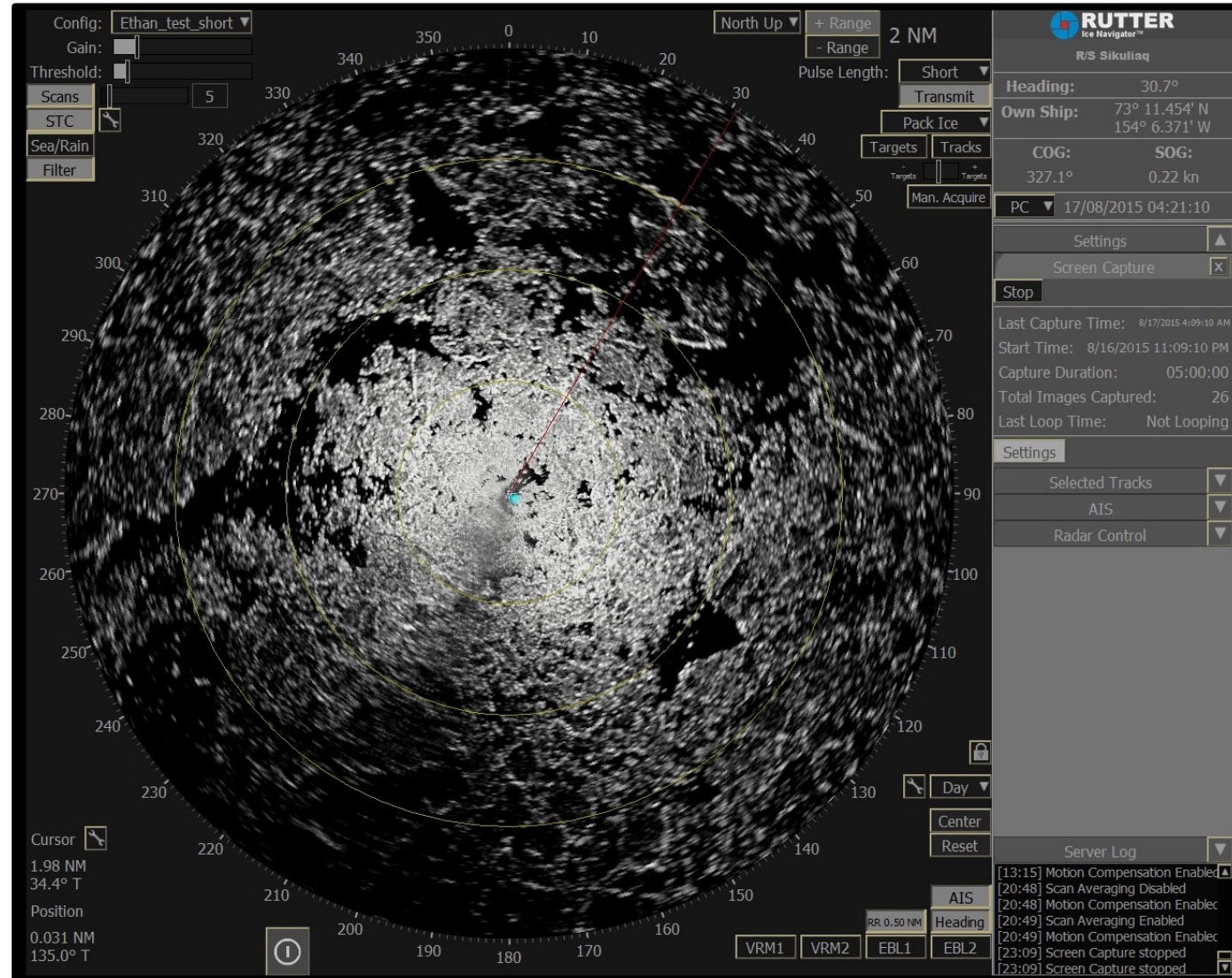




# Rutter X-band Radar

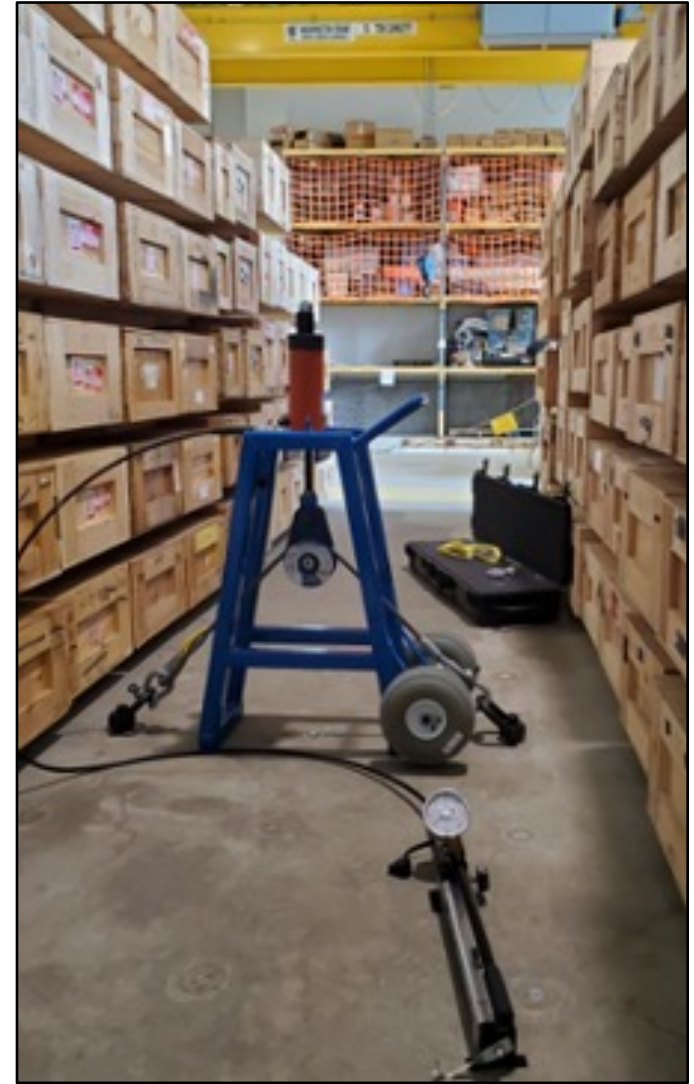
## Ice Navigator and Wave Monitoring System (WaMoS)

- GeoTIFF output
- Wave spectra
- MapServer overlay
- Surface Currents & Sea Ice Drift Maps (U of Miami CSTARS)





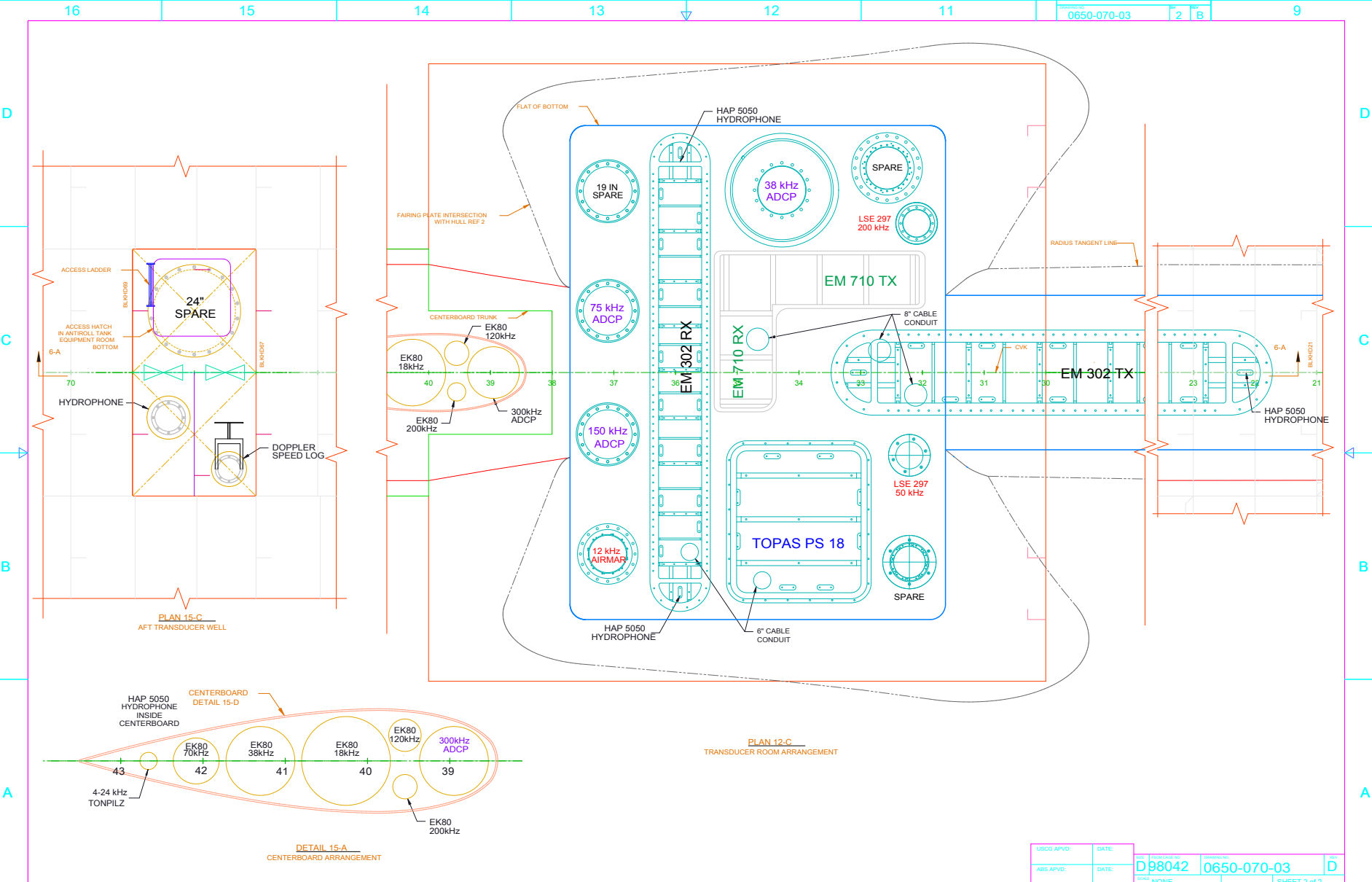
# Calibration & Validation



# Sonar & Navigation Upgrades – Part 1

- EM304 MKII Multibeam Echosounder
- EM710 RX Array Replacement
- Seapath 380 with two MGC-R3 (motion & gyro)
- Transducer Alignment & Full Dimensional Survey
- Troubleshoot OS38 ADCP
- Ice Window Replacements





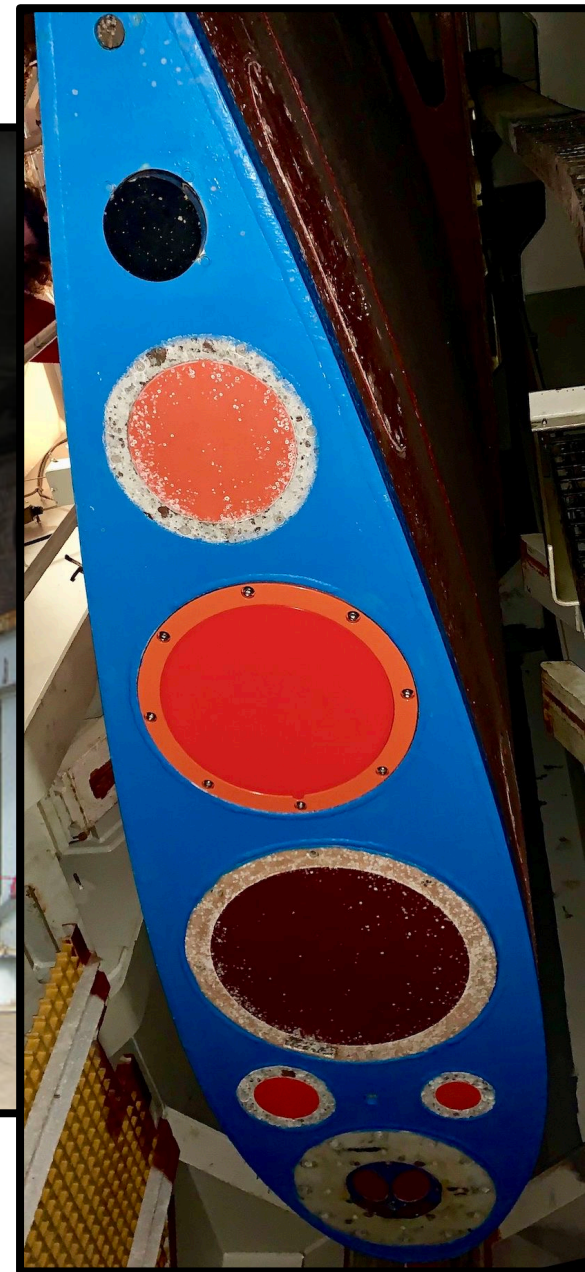
USCG APVD:	DATE:	NO.:	PROJ. NO.:	ISSUED BY:	DATE:
ABS APVD:	DATE:	D98042	0650-070-03	D	D
		SCALE: NONE			SHEET 2 of 2

# Sonar & Navigation Upgrades – Part 2

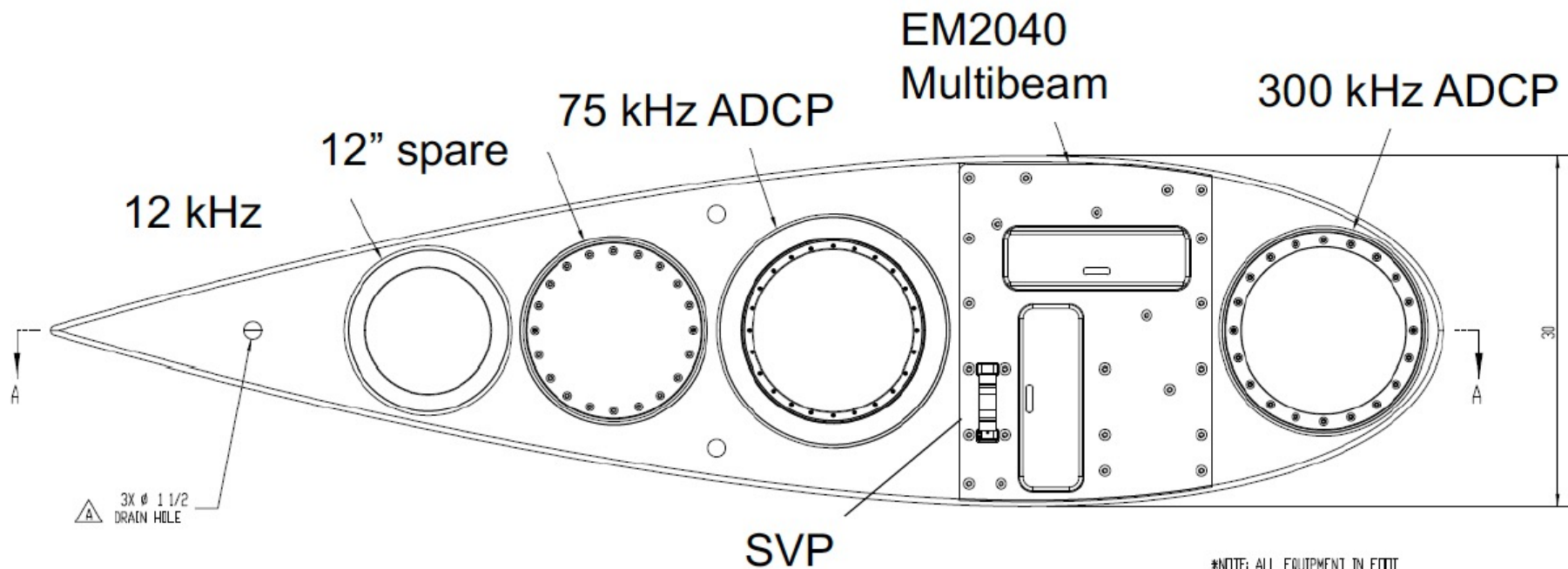
- EM2040 MKII Multibeam Echosounder
- ES18 broadband for EK80
- Centerboard IMU/heading device (iXblue Octans)
- New centerboard shoe with casings for EM2040 & OS150 ADCP
- Relocate ES18 & ES38 to blister behind ice windows



# Acoustic Centerboard



# Centerboard Sonars



\*NOTE: ALL EQUIPMENT IN FOOT SUPPLIED BY OTHERS

View looking up at bottom of foot



# Thank you!

## Any questions?