Appendix 3: 90CAPE_HATTERAS

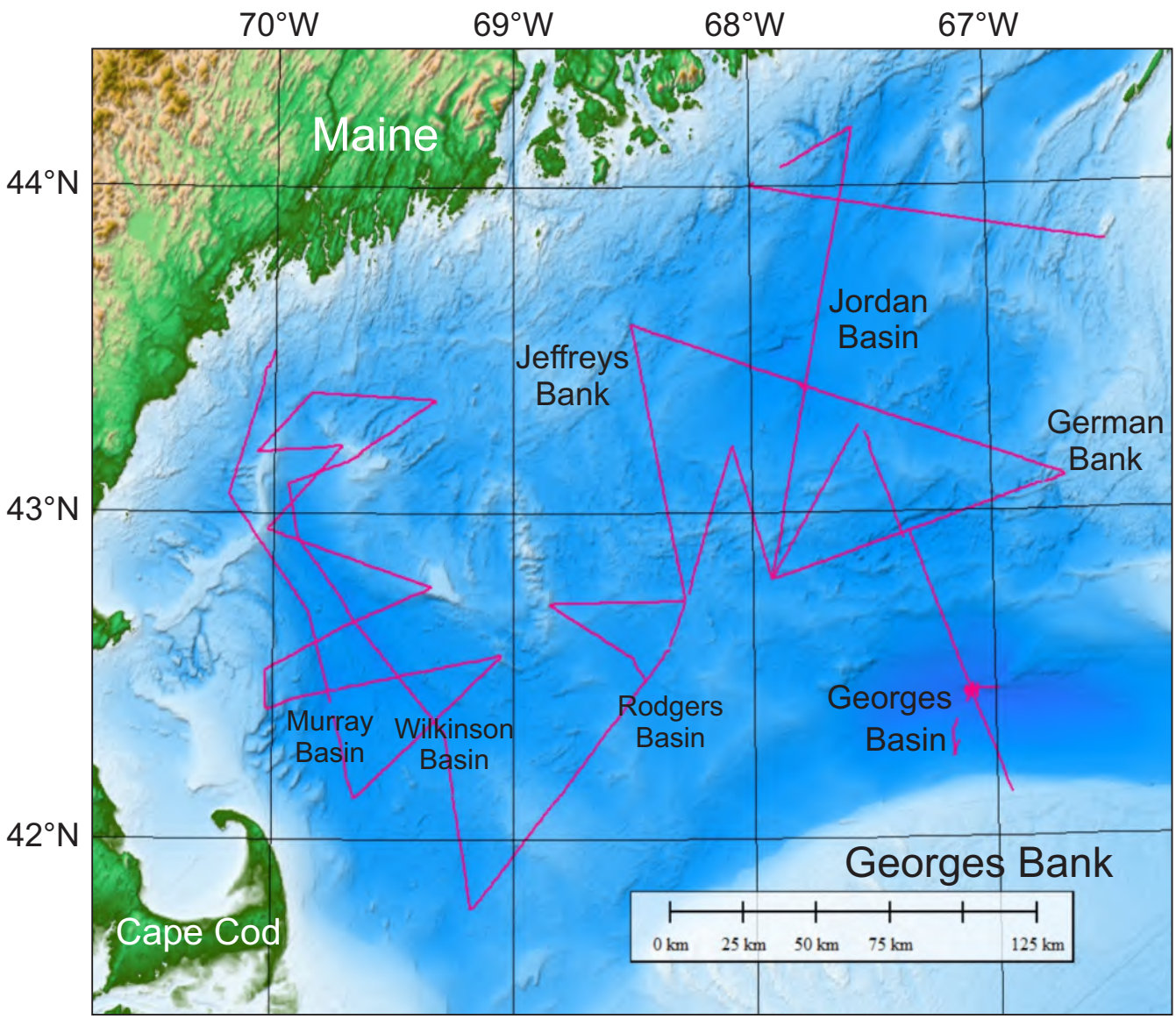
Contents

1. Track plots of expedition 90CAPE_HATTERAS in the Gulf of Maine (Huntec external and internal hydrophones)
2. Expedition notes
3. Seismic profiling cruise track log
4. Field notes from Daniel F. Belknap
5. Seismic data inventory
6. Seismic profiles (Huntec external and internal hydrophones)
7. Seismic profile detailed location maps showing start and end times (Huntec external and internal hydrophones)

Note: Navigation data are not provided in this report due to the large amount of information (4506 rows). Please refer to the Seismic Data Archive or the Expedition Data Base to retrieve the navigation data.

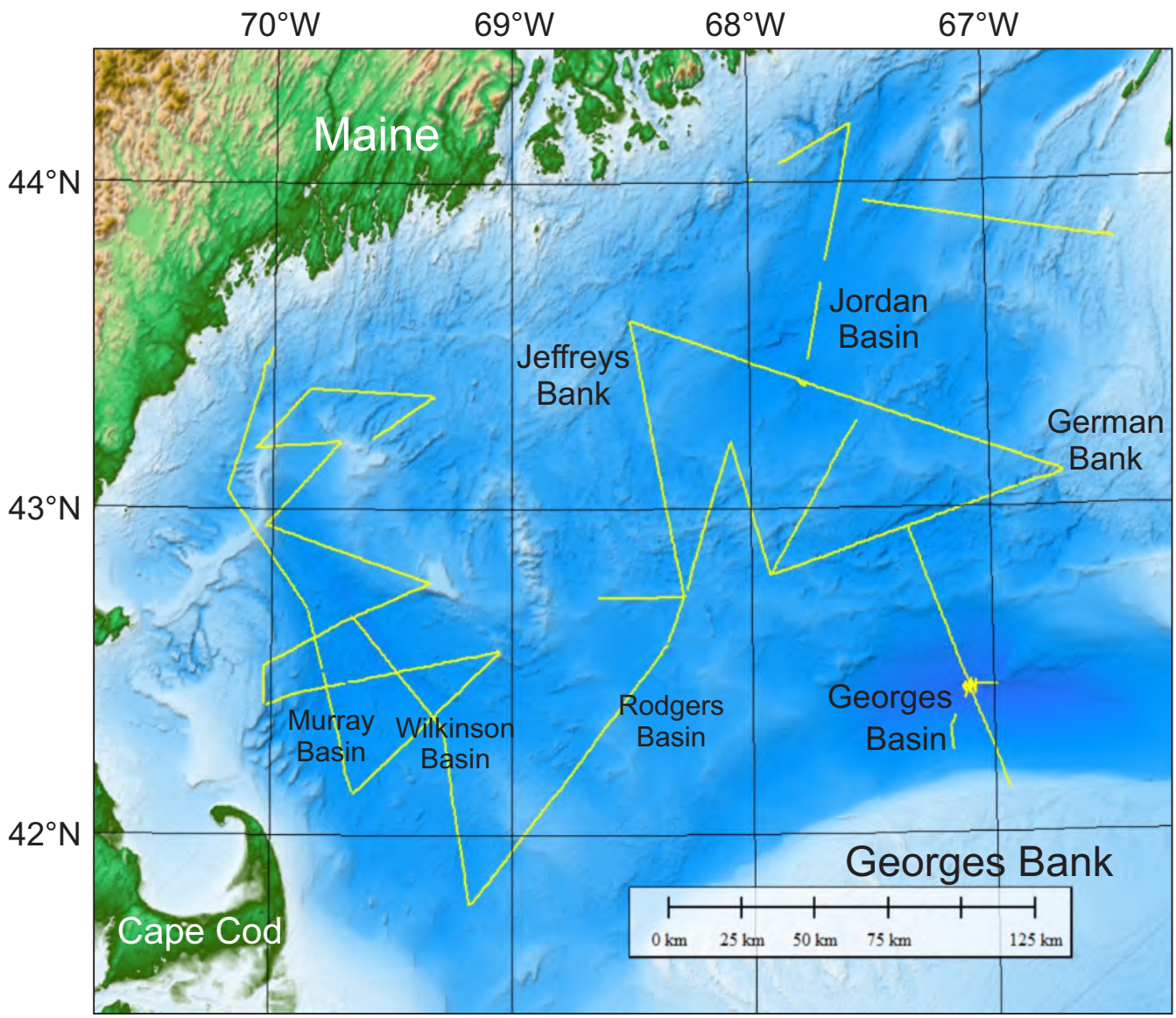
90CAPE_HATTERAS

Seismic profiles in the Gulf of Maine
Huntec External Hydrophone



90CAPE_HATTERAS

Seismic profiles in the Gulf of Maine
Huntec Internal Hydrophone



CH-10-90 - University of Maine Gulf of Maine Cruise 1990

Detmar Schnitker and Daniel F. Belknap, Co-PI's – NSF MG&G Grant

(compiled and corrected by DFB Sept. 2021 from logs and data rolls)

R/V CAPE HATTERAS – Duke University, NSF UNOLS
Depart: Boothbay Harbor, ME, 7/23/90, return 08/12/90

Ship's Crew:	Master	Richard Ogus
	Chief Mate	Dale Murphy
	Second Mate	Larry Morris
	Chief Engineer	Orville Weeks
	Asst. Engineer	Walter Willis
	Deck Engineer	Curtis Oden
	Seaman	Byron Boyer
	Seaman	Lester Salter
	Steward	Robert Lipscomb
	Messman	Jim Collinger
Scientists:	Detmar Schnitker	UM – co-PI
	Daniel Belknap	UM – co-PI
	Tania Bacchus	UM – PhD candidate
	Barbara Batchelor	UM – MS Candidate
	Larry Reynolds	UM – MS Candidate
	John Peck	URI graduate student
	Susan Pederson	URI graduate student
	Kate Steinhacker	Columbia U. graduate student
	Gordon Fader	BIO Senior Scientist (7/24/90 at Yarmouth, NS)
	Shawn Pecore	BIO Asst. Scientist (7/24/90 at Yarmouth, NS)
Technicians:	Tim Boynton	Duke University
	Graham Standen	HUNTEC (embark 7/24/90 at Yarmouth, NS)

---

23 July, Monday – 204 (Day of Year) @ 0800 EDT Departure
Start 5 cubic inch airgun
Line CH-10-90-01 @ 1615 EDT @ 43°45.08'N; 68°07.07'W
W to E across Jordan Basin.
End line 01 @ 2300 EDT @ 43°45.91'N; 67°09.82'W
Weather rain and fog, 5-10 knot breeze, calm seas

24 July, Tuesday – 205 – Jordan Basin

Load Huntec DTS @ 0730 EDT, embark Fader, Pecore and Standen

Depart Yarmouth, NS @ 1440 EDT

Huntec DTS seismic profiling:

Start Line CH-10-90-02 @ 1705 EDT @ 43°49.45'N; 66°29.80'W

(originally labeled e.g., GOM-JB-90-02 "Gulf of Maine, Jordan Basin", but later changed to sequential CH-10-90-numbers)

25 July, Wednesday – 206 – Jordan Basin

End Line 02, Start Line 03 @ 0742 EDT @ 44°00.00'N; 68°00.00'W

End Line 03, Start Line 04 @ 1230 EDT @ 44°10.73'N; 67°33.52'W

Start airgun @ 1245 EDT @ 44°08.75'N; 67°34.03'W

(Slight degradation of Huntec record)

Weather rain and fog

26 July, Thursday – 207 – Crowell Basin

End airgun @ 0404 EDT @ 42°59.32'N; 67°52.21'W

End Line 04, Start Line 05 @ 0630 EDT @ 42°47.89'N; 67°55.21'W

End Line 05, Start Line 06 @ 1900 EDT @ 43°06.12'N; 66°41.61'W

Weather light rain

27 July, Friday – 208 – Jordan Basin

	Break Line 06 for coring	@ 0652 EDT	@ 43°22.85'N; 67°45.69'W
PC	Piston Core 01 – 273.75 m	@ 0731 EDT	@ 43°22.83'N; 67°45.63'W
PC	Piston Core 01A – 273.5 m	@ 1013 EDT	@ 43°22.78'N; 67°45.71'W
PC	Piston Core 02 – 238 m	@ 1258 EDT	@ 43°31.63'N; 67°44.05'W
PC	Piston Core 02A – 238 m	@ 1533 EDT	@ 43°31.65'N; 67°43.92'W
PC	Piston Core 03 – 240 m	@ 1858 EDT	@ 43°41.39'N; 67°41.44'W
CTD	CTD deploy 01 -273.5 m	@ 2140 EDT	@ 43°23.38'N; 67°46.39'W
	Resume Line 06	@ 2210 EDT	@ 43°23.04'N; 67°46.00'W

Weather rain and fog, calm seas, 2' swells

28 July, Saturday – 209 – Jordan Basin to Truxton Swell

End Line 06, Start Line 07 @ 0537 EDT @ 43°34.47'N; 68°29.42'W

End Line 07, Start Line 08 @ 1650 EDT @ 42°43.95'N; 68°16.59'W

End Line 08, Start Line 09 @ 2332 EDT @ 43°12.20'N; 68°04.98'W

Weather sunny, 4 knot wind, 3' swell

29 July, Sunday – 210 – Crowell Basin – Georges Basin

	End Line 09, Start Line 10	@ 0524 EDT	@ 42°47.68'N; 67°55.08'W
	End Line 10, Start Line 11a	@ 1216 EDT	@ 43°16.21'N; 67°33.00'W
	Break Line 11a for coring	@ 1725 EDT	@ 42°55.05'N; 67°22.15'W
PC	Piston Core 04 – 255 m	@ 1844 EDT	@ 42°56.26'N; 67°21.50'W
GC	Gravity Core 01 – 225 m	@ 2055 EDT	@ 42°51.66'N; 67°38.72'W
	Very little recovery		
GC	Gravity Core 01A – 225 m	@ 2125 EDT	@ 42°51.65'N; 67°38.79'W
GC	Gravity Core 02 – 248	@ 2250 EDT	@ 42°51.65'N; 67°38.79'W
	Very little recovery		
GC	Gravity Core 02A – 248	@ 2305 EDT	@ 42°55.90'N; 67°22.86'W
	Very little recovery		
CTD	CTD deploy 02 – 248 m	@ 2315 EDT	@ 42°55.89'N; 67°22.81'W
	Resume Line 11b	@ 2347 EDT	@ 42°56.02'N; 67°22.83'W

Weather hazy, foggy, calm seas

30 July, Monday – 211 – Georges Basin *See Figure 1

Weather clear, warm, calm seas

End Line 11, Start Line 12	@ 0958 EDT	@ 42°08.23'N; 66°56.38'W

(Line 12 is 3.5 kHz only – Huntec resumed at start of Line 13)

End Line 12, Start Line 13	@ 1155 EDT	@ 42°27.01'N; 67°58.97'W
End Line 13, Start Line 14	@ 1312 EDT	@ ~42°27.01'N; ~67°07.64'W
End Line 14, Start Line 15	@ 1335 EDT	@ 42°25.51'N; 67°06.87'W
End Line 15, Start Line 16	@ 1358 EDT	@ 42°27.41'N; 67°07.26'W
End Line 16, Start Line 17	@ 1429 EDT	@ 42°25.48'N; 67°05.85'W
End Line 17, Start Line 18	@ 1502 EDT	@ 42°28.12'N; 67°05.60'W
End Line 18, Start Line 19	@ 1538 EDT	@ 42°25.54'N; 67°04.66'W
End Line 19	@ 1612 EDT	@ 42°28.29'N; 67°04.58'W

Weather clear, 2-3' swell and chop, wind rising

PC	Piston Core 05 – 345 m	@ 1659 EDT	@ 42°28.17'N; 67°06.62'W
PC	Piston Core 06 – 368 m	@ 1958 EDT	@ 42°26.76'N; 67°06.52'W
GC	Gravity Core 03 – 384 m	@ 2149 EDT	@ 42°27.08'N; 67°05.82'W
	Start Line 20	@ 2210 EDT	@ 42°26.45'N; 67°06.20'W

Weather clear, tropical storm swells to 10', building easterly gale

31 July, Tuesday – 212 – Georges Basin

End Line 20	@ 0100 EDT	@ 42°15.24'N; 67°10.32'W

Secure ship because of storm conditions (Tropical Storm, then becoming Hurricane Bertha). Proceed to Portland ME

01 August, Wednesday – 213 – Jeffreys Basin

Depart Portland	@ 0915 EDT	
Start Line 21	@ 1050 EDT	@ 43°30.02'N; 70°00.01'W
End Line 21, Start Line 22	@ 1636 EDT	@ 43°03.60'N; 70°11.33'W
End Line 22, Start Line 23	@ 2223 EDT	@ 42°41.58'N; 69°50.93'W

Weather clear, warm

02 August, Thursday – 214 – Murray Basin – Wilkinson Basin

End Line 23, Start Line 24	@ 0519 EDT	@ 42°07.63'N; 69°39.66'W
End Line 24, Start Line 25	@ 1348 EDT	@ 42°33.74'N; 69°03.06'W
Cross over position of E-2F79 Core 2	*@ 21:14:40 EDT*	*@ 42°26.36'N; 69°51.80'W*
End Line 25, Start Line 26	@ 2243 EDT	@ 42°23.80'N; 70°01.62'W

Weather clear, warm, 3' seas, 15 knot west wind

03 August, Friday – 215 – Wilkinson Basin

	End Line 26, Start Line 27	@ 0100 EDT	@ 42°32.16'N; 69°59.44'W
	End Line 27, Start Line 28	@ 0737 EDT	@ 42°46.34'N; 69°20.55'W
	End Line 28	@ 1424 EDT	@ 42°57.12'N; 70°01.66'W
PC	Piston Core 07 – 212 m	@ 1603 EDT	@ 42°48.98'N; 69°57.58'W
PC	Piston Core 08 – 173 m	@ 1912 EDT	@ 43°00.91'N; 70°08.96'W
CTD	CTD deploy 03 (~173m)	@ ~2000 EDT	@ ~43°00.91'N; ~70°08.96'W
	Start Line 29	@ 2055 EDT	@ 42°56.93'N; 70°01.70'W

Weather clear, calm

04 August, Saturday – 216 – N. Wilkinson Basin – Jeffreys Basin

	End Line 29, Start Line 30	@ 0100 EDT	@ 43°12.28'N; 69°43.11'W
	End Line 30	@ 0404 EDT	@ 43°11.22'N; 70°04.37'W

Retrieve Huntec, continue on 3.5 kHz

Proceed to Portland, ME *(for medical services for Graham Standen. Graham remained ashore during and after treatment*.)

	End 3.5 kHz	@ 0630 EDT	@ 43°33.00'N; 70°08.00'W

Depart Portland, transit to Core Site 09, 3.5kHz alone, Jeffreys Basin

		@ 0910 EDT	@ 43°24.84'N; 70°07.67'W
PC	Piston Core 09 – 139 m	@ 1050 EDT	@ 43°14.20'N; 70°07.01'W

	Start Line 31	@ 1245 EDT	@ 43°11.19'N; 70°04.24'W
	End Line 31, Start Line 32	@ 1553 EDT	@ 43°22.07'N; 69°50.85'W
	End Line 32, Start Line 33	@ 2030 EDT	@ 43°20.68'N; 69°19.55'W
	Weather clear, flat calm		

05 August, Sunday – 217 – Wilkinson Basin axis

	End Line 33, Start Line 34	@ 0236 EDT	@ 43°05.48'N; 69°56.42'W
	Break Line 34 for coring	@ 0800 EDT	@ 42°40.81'N; 69°40.37'W
PC	Piston Core 10 – 286 m	@ 0927 EDT	@ 42°40.25'N; 69°39.73'W
CTD	CTD deploy 04 – 285 m	@ 1045 EDT	@ 42°40.22'N; 69°39.68'W
	Resume Line 34	@ 1120 EDT	@ 42°40.26'N; 69°37.78'W
	(equipment problems, restart @ 1142)		
	End Line 34, Start Line 35	@ 1608 EDT	@ 42°19.67'N; 69°17.25'W
	End Line 35, Start Line 36	@ 2248 EDT	@ 41°46.88'N; 69°10.11'W
	Weather clear, calm – foggy evening		

06 August, Monday – 218 – Rodgers Basin

	End Line 36, Start Line 37	@ 1025 EDT	@ 42°34.88'N; 68°21.22'W
	End Line 37, Start Line 38	@ 1211 EDT	@ 42°43.71'N; 68°17.04'W
	End Line 38, Start Line 39	@ 1704 EDT	@ 42°43.32'N; 68°50.98'W
	End Line 39, Start Line 40	@ 2100 EDT	@ 42°34.85'N; 68°33.40'W
	Break Line 40 for coring	@ 2223 EDT	@ 42°29.20'N; 68°27.04'W
PC	Piston Core 11 *(pre-triggered, no recovery)*		
	Weather clear, calm		

07 August, Tuesday – 219 – Franklin Basin

PC	Piston Core 11A *(no recovery)*	@ 0108 EDT	@ 42°27.93'N; 68°28.71'W
	Redeploy Huntec	@ 0352 *not working*	
	Recover Huntec	@ 0430	

Remaining Lines are ORE Geopulse

	Resume Line 40 (Geopulse)	@ 0520 EDT	@ 42°27.92'N; 68°26.21'W
	End Line 40, Start Line 41	@ 0826 EDT	@ 42°16.71'N; 68°18.55'W
	End Line 41, Start Line 42	@ 1511 EDT	@ 41°58.86'N; 67°47.86'W
	Weather 10 knot wind, 3' seas		

08 August, Wednesday – 220 – Georges Basin

	End Line 42, Start Line 43	@ 0106 EDT	@ 42°47.89'N; 67°55.11'W
	End Line 43, Start Line 44	@ 0424 EDT	@ 42°40.80'N; 67°36.00'W

	End Line 44, Start Line 45	@ 1152 EDT	@ 42°04.44'N; 67°30.06'W
	Stop Geopulse	@ 1154 EDT	@ 42°04.41'N; 67°30.23'W
	Restart Geopulse	@ 1212 EDT	@ 42°05.19'N; 67°29.70'W
	End Line 45 *(SAIL Nav at 1725)*	@ 1727 EDT	@~42°28.30'N; ~67°06.73'W
CTD	CTD deploy 05 – 345 m	@ 1737 EDT	@ 42°28.35'N; 69°06.34'W
	Start Line 46	@ 1752 EDT	@ 42°28.27'N; 69°06.60'W

Weather foggy, calm

09 August, Thursday – 221 – Franklin Basin – Crowell Basin – Jordan Basin

	End Line 46, Start Line 47	@ 0104 EDT	@ 42°12.19'N; 67°53.14'W
	End Line 47	@ 0700 EDT	@ 42°28.00'N; 68°28.97'W
PC	Piston Core 12 *(failed)*	@ 0744 EDT	@ 42°27.94'N; 68°28.68'W
PC	Piston Core 12A – *214 m*	@ 0945 EDT	@ 42°27.95'N; 68°28.68'W

(Note that this is a re-try of 11 and 11A at desirable location)

	Start Line 48	@ 1104 EDT	@ 42°27.95'N; 68°28.68'W
	End Line 48, Start Line 49	@ 1748 EDT	@ 42°36.10'N; 67°42.90'W
	End Line 49, Start Line 50	@ 2051 EDT	@ 42°51.58'N; 67°39.04'W

Weather foggy, calm

10 August, Friday – 222 – Jordan Basin

	End Line 50, Start Line 51	@ 0248 EDT	@ 43°19.37'N; 67°58.55'W
	End Line 51	@ 1026 EDT	@ 43°54.22'N; 67°37.36'W
PC	Piston Core 13 – 210 m	@ 1127 EDT	@ 43°54.09'N; 67°37.79'W
	Start Line 52	@ 1240 EDT	@ 43°54.80'N; 67°37.43'W
	End Line 52, Start Line 53	@ 1854 EDT	@ 43°29.96'N; 67°08.06'W
	End Line 53	@ 2042 EDT	@ 43°33.52'N; 66°56.44'W

End Seismic Survey, Proceed to Yarmouth, NS

Weather foggy, flat calm

11 August, Saturday - 223

Arrive Yarmouth, NS @ 0600 EDT

Offload Huntec, disembark Fader, Pecore and Boynton

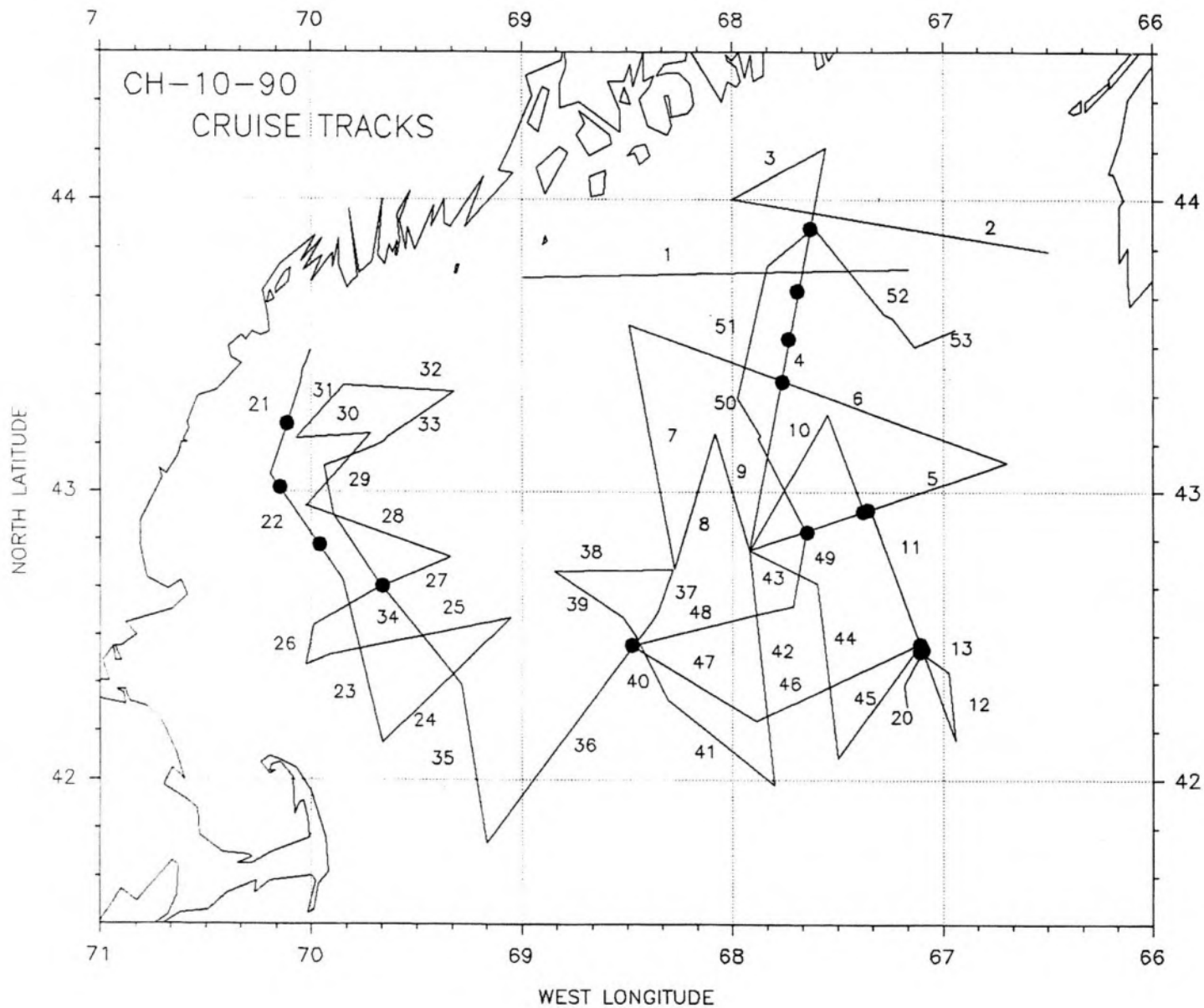
Depart for Maine @ 0900 EDT

Weather foggy, flat calm

12 August, Sunday – 224

Arrive Boothbay Harbor, ME @ 0530 EDT - unload data, cores and gear

Finished with *R/V Cape Hatteras* @1000 EDT – with great thanks.


CH-10-90
CRUISE TRACKS
NORTH LATITUDE
WEST LONGITUDE
7
70
69
68
67
66
71
44
43
42

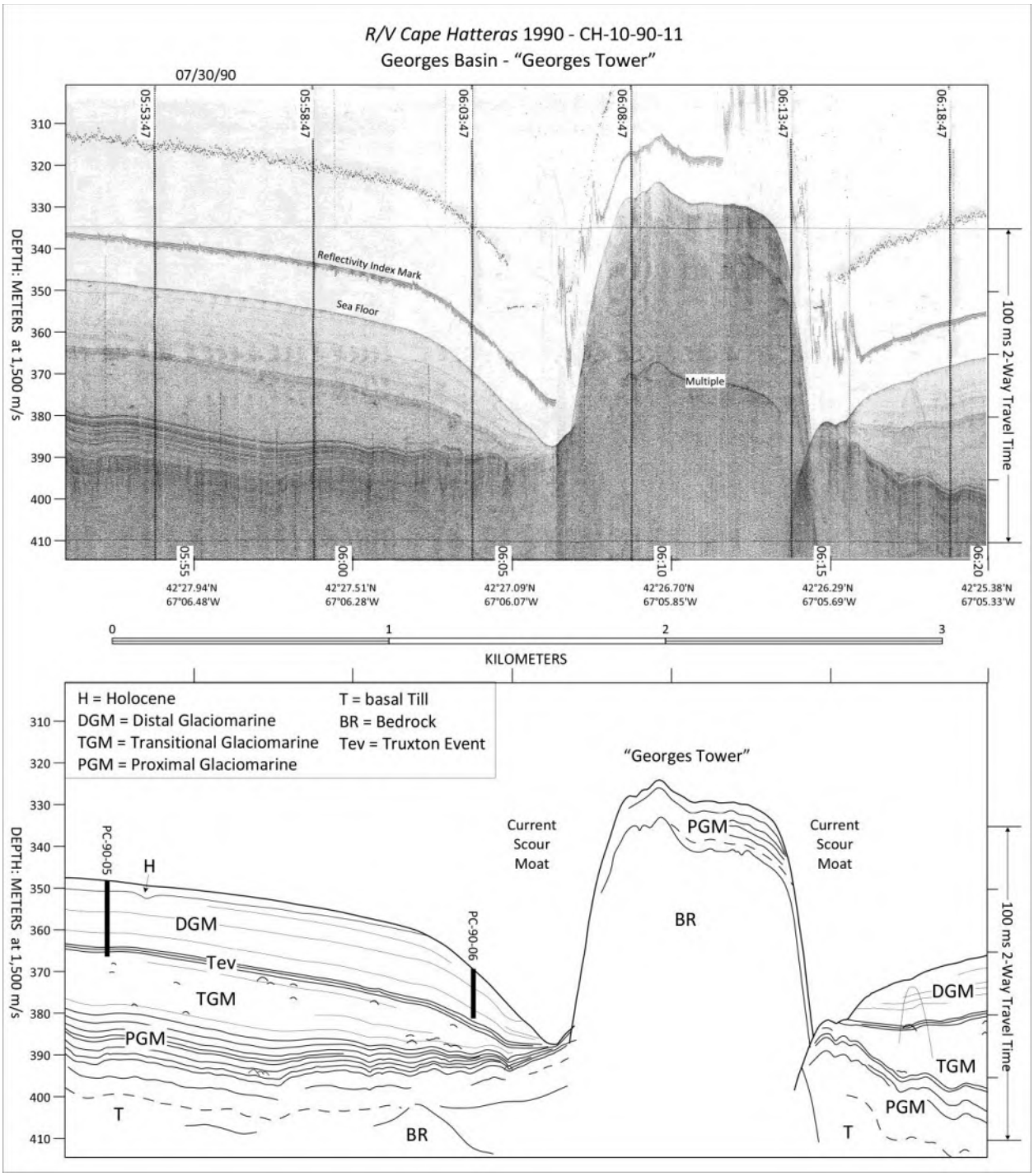


Figure 1 – Transect over "Georges Tower" with complete stratigraphic sequence.

HALF-HOURLY.

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/23/90 WEATHER: Fog, Rain, 5-10 knts

LOCATION: Boothbay Harbor to Yarmouth, N.S.

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: 3.5 KHz & Sim³ airgun PAGE: 1 OF 44

TIME	LORAN-C	OTHER NAVIGATION CH-10-90 COMMENTS
Local Time - EDT 0800		Underway from Dock
1200	43° 44.08' N 68° 59.53' W	44.15 68°59.53 59.53 Northstar 7000 (on the left) SOL-GOM-JB-90-1
1230	43° 44.08' N 68° 52.79' W	44.08 52.79 68°52.79 Note: Sail is in ZULU: Local +4 for Canadian waters and US
1300	43° 43.88' N 68° 46.12' W	43°43.89'N 68.46.12'W Tape - Right
1330	43° 43.81 N 68° 39.23 W	
1400	43° 44.07 N 68° 32.69 W	Note: Lines continuous renumbering. Eventually renamed CH-10-90-#
1430	43° 44.42'N 68° 26.00'W	
1500	43° 44.77N 68 19.43W	(1445) EPSCO PLOTTER INDICATED.
1530	43° 45.00 N 68° 13.02 W	
1545	43° 44.99'N 68° 08.96'W	TS DID NOT WORK
1600	43° 44.99' N 68° 08.21 W	Time (1615) 43°45.08'N 68 07.07'W
1620	43° 45.15'N 68° 05.88W	STARTED AIR-GUN
1630	43° 45.17'N 68° 04.71'W	
1645	43° 45.24'N 68° 02.94W	EPSCO PLOTTER - MARKED ONE-PLOT
1700	43° 45.31 N 68° 01.20 W	(1711) INCREASED BOAT SPEED FROM 5 TO 7 KTS
1730	43° 45.30 N 67° 57.00W	(1734) RECORDING STOPPED ON AIR GUN.
1800	43° 45.20 N 67° 54.90W	(1736) AIR GUN BROUGHT IN - SLOWED DOWN FROM 7-4 KTS (1751) REVERSE COURSE OF SHIP FOR APP. 10 MINS - SLOW TURN. DOWN TO 1.9 KTS. (OC 272°)
1830	43° 45.29'N 67° 52.24'W	(1802) AIRGUN - BACK IN H_2O TURNED BACK TO ORIGINAL COURSE 87° 1829 reduce speed 1830 82° OC
1900	43° 46.04 N 67° 48.32W	1841 7 KTS resume speed (Before 1900) - interesting marks on record - dikes ??) OC 73°
1930	43° 46.25 N 67° 43.84 W	OC 90°
~1945		Rift-fault? Convex sonic lens focussing?

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/23/90 WEATHER: Fog, calm

LOCATION: Boothbay to Yarmouth

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: 3.5KHz, 5ci airg PAGE: 2 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
2000	43° 46.26'N 67° 39.06'W	OC 93° 7 Knots	
2030		problem w/ 'Sail' System - No data output	
2054	43° 46.29'N 67° 30.35'W	System back on line [NStar 800]	
2100	~~44° 62.4'N~~ ~~67° 28.3'W~~	67° 28.75'W 43 46.23'N ?? OC 101° NStar 7000	43 46.23'N 67° 28.75'W
2115	43° 46.20N 67° 26.93W	screwy readout!	
2130	43° 46 16' N 67° 24.54'W	3.5 KHz - turned off (before mark) - immediately on again - right on again	
2200	43 45.98 N 67 19.72 W	problems? off/on - adjustments	
2230	43° 46.03 N 67° 14.78W	OC 99°	
2300	43° 45.91 N 67° 09.82 W	EOL - GOM - JB - 90 - 1 Shut down airgun & 3.5	
		Deadhead to Yarmouth, N.S.	
7/24/90 0000	43° 45.96 N 67° 01.66 W		
0200	43° 45.35'N 66° 42.70' W		
0400	43° 44.88' N 66° 22.76' W		
0505	43° 44.55' N 66° 13.80' W		
0530	43° 44.97' N 66° 13.13 W	Standing By off Yarmouth, N.S.	
1440		0730 - 1430 - LOADED, stored Departed N.S	
1		Heading for Point Jø to initiate Huntec	
1500	43° 49.49N 66 08.11 W		
1530	43° 46.35N 66 11.00 W		
1600	43° 47.25 N 66° 16.67 W		
1630	43° 48.44 N 66° 22.67 W		

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/24/90 WEATHER:

LOCATION: Yarmouth to line 30 — Lurcher Shoal to N. Jordan Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec + 12 KHz PAGE: 3 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1700	43° 49.32 N 66° 29.29 W	depth: not recorded Speed: 10.1 Kts	Lurcher Shoal
1705	43° 49.45 N 66° 29.80 W	depth: not recorded speed: 4.1 Kts deploy Huntec DTS	Start GOM-JB-90-2 Deploy Huntec DTS
1715	43° 49.29 N 66° 30.62 W	Started tape	depth: Speed: 4.7
1730	43° 49.45 N 66 32.24 W	depth: 105 m Speed: 5.6 Kts	105 m 5,6 Knots
1800	43° 49.86 N 66° 35.18 W	depth: 92 m speed: 4.4 Kts	
1830	43° 50.22 N 66° 38.26 W	depth: 125 m speed: 3.7 Kts	
1900	43° 50.58 N 66° 41.18 W	depth: 86.25 m Speed: 4.4 Kts	
1930	43° 50.92 N 66° 44.22 W	depth: 129 m speed: 4.5 Kts	
2000	43° 51.34 N 66° 47.48 W	depth: 120 Speed: 4.6 Kts	
2030	43° 51.70' N 66° 50.63' W	depth: 128 m Speed: 4.2	
2100	43° 52.06 N 66° 53.62 W	depth 157 m Speed 4.3	
2130	43° 52.43 66° 56.56	d-157.5 2110 Start tape 7 Speed 4.3	
2200	43° 52.75' 66° 59.45	depth 150 Speed 4.3	
2230	43° 53.11 67° 02.26	depth 158 Speed 3.4	
2300	43° 53.46 67° 05.31	depth 158 Speed 4.6	2244 Start tape 8
2330	43° 53.81 67° 08.27	depth 143 Speed 4.2	
0000	43° 54.17 67° 11.15	depth 143 speed 3.4	
7/25/90 0030	43° 54.19 67 13.97	depth 155 Speed 4.7	0017 Start tape 9 multiple tills and start of till tongue
0100	43° 54.81' 67 16.83	depth 206 speed 4.0	Entering Jordan Basin
0130	43° 55.20' 67° 19.89	depth 223 speed 4.5	0149. Tape 10
0200	43° 55.53' 67° 22.85'	depth 217 Speed 4.4	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/25 WEATHER: rain, fog

LOCATION: EOL 2 SOL 3 (to point J2) NW Jordan Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec + 12 KHz PAGE: 4 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0230	[illegible]	depth [illegible] speed [illegible]	
0300	43°56.29' 67°29.00'	depth 199 speed 4.3	START TAPE 11 3:25:23
0330	43°56.69' 67°32.19'	depth 218 speed 4.5	[illegible] (0354)
0400	43° 57.07' 67° 35.52'	depth 214 speed 4.8	
0430	43° 57.45' N 67° 38.53' W	depth 206.25 Speed: 4.2 kts	End tape 11; start tape 12
0500	43° 57.75' N 67° 41.63' W	depth: 221.25 speed: 4.6 kts	
0530	43° 58.08' N 67° 44.93' W	depth: 187.5 speed: 3.0 kts	
0600	43° 58.51' N 67° 48.31' W	depth: 187.5 speed: 4.8 kts	
0630	43° 59.05' N 67° 51.72' W	depth: 157.5 speed: 4.7	06:33 Tape 12 end; 06:34, Tape 13 start
0700	43° 59.46' N 67° 55.18' W	depth: 140 speed: 4.9 kts	
0730	43° 59.84' N 67° 58.59' W	depth: 142.5 speed: 5 kts	6 NM ENE of Mt. Desert Rock
0742	44° 00.00 68° 00.00	change direction	EOL-132, start Line 2 (to point J2) SOL-6 3M-JB-80-3
0800	44° 00.68' 67° 58.64'	depth 139 speed 4.3	Start tape 14 0808
0830	—	depth 114 Speed	'Sail' - Loran out - No data Stylus changed ext. Huntec
0900	—	depth 101	problems w/ Loran 'Sail' - ~~data Northstar~~
0910	44°03.3 67 52.04		
0930	44° 04.06 67° 50.15	depth 109 speed 4.6	
1000	44° 05.24' 67° 47.36	~~speed~~ depth 116 speed 4.6	0942 Start tape 15
1030	44° 06.40' 67° 44.48	depth 145 speed 4.7	
1100	44° 07.57 67° 41.51	depth 188 speed 4.6	
1130	44° 08.61 67° 38.99	depth 139 speed 4.1	1115 tape 16

M-

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/25/90 WEATHER: rain, fog

LOCATION: line 3 to J2 / line 4 to J3 Jordan Basin N to S

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec, 12KHz and Airgun PAGE: 5 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1200	44° 09.67 67° 36.24	depth 172.5 Speed 4.6	
1230	44° 10.73 67° 33.52	depth Speed 3.5	EOL-JB-3 SOL-GOM-JB-90-4 1223:37 changing course TO 190 changing paper in 12 KHz [illegible]
1300	44° 08.73 67° 34.03'	depth 218 Speed 4.4	12:45 Start airgun GOM-JB-1990-4
1330	44° 06.58' 67° 34.59	depth 244 Speed 4.2	12:50 NEW TAPE STARTED (#17) [illegible]
1400	44° 04.38' 67° 35.13'	depth 251 speed 4.5	
1430	44 01.97' 67 35.76'	depth 214 speed 4.6	1423:11 new tape (#18) 1432 new airgun tape #2
1500	43° 59.62 67° 36.29	depth 225 Speed 4.7	
1530	43° 57.45 67° 36.97	depth 203 speed 4.3	
1600	43° 55.24' 67° 37.64'	depth 203 speed [illegible]	[illegible] tape #19 1606 end airgun tape #2 1608 start tape #3
1630	43° 52.91' N 67° 38.30' W	depth 206.25 Speed 5.0 KtS	1615 site of PC-90-13
1700	43° 50.51' N 67° 39.01' W	depth: 217.5 Speed: 4.6 KtS	1727: end tape 19; begin tape 20
1730	43° 48.12' N 67° 39.71' W	depth: 225 speed: 4.8 KtS	1734: Airgun tape #3 ends; #4 begins
1800	43° 45.66 N 67° 40.40 W	depth: 232.5 Speed: 4.7	
1833	43° 42.91' N 67° 41.15' W	depth: 236.25 speed: —	Navigation program crashed site of PC-90-3 1860
1900	43° 40.74' N 67° 41.81' W	depth: 238 Speed: 5.1 KtS	1905, tape 20 ends; 1911, start tape 5.
1930	43° 38.30' N 67° 42.40' W	depth: 230 speed: 4.8	
2000	43° 35.97' N 67° 42.97' W	depth: 236.25 speed: 4.8 KtS	
2030	43° 33.72 67° 43.56	depth 244 Speed 4.3	2039 start tape 22
2100	43° 31.62 67° 44.05	depth: 236 Speed: 4.1	Site of PC-90-2 2100 2043 Airgun tape 6 2115 change paper - ext. Hunt.
2130	43° 29.36 67° 44.66	depth 236 Speed 4.8	2157 change paper - int Hunt.
2200	43° 26.98 67° 45.28	depth 248 speed 4.7	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/25/90 – 7/26/90 WEATHER:

LOCATION: Line 4 to J3 / Line 5 to J4 Jordan Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: 12 KHz \ Huntec \ Airgun PAGE: 6 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
2230	43° 24.64 67° 45.90	depth 255 speed 4.8	2212 Start tape 23 2215 start Airgun tape 7
2300	43° 22.31 67° 46.46	depth 270 speed 4.8	Site PC-90-01 2247 change plotter paper
2330	43° 19.88 67° 46.99	depth 259 speed 4.7	
2400	43° 17.59 67° 47.70	depth 248 speed 4.5	2346 Start tape 24 2347 Start Airgun #8
0030	43° 15.37 67 48.19	depth 248 speed 4.5	7/26/90
0100	43° 13.22 67° 48.76	depth 234 speed 4.4	0120 Start tape 25 0119:42 Start Airgun 9 at 0119:42 started Airgun tape 9
0130	43° 11.07 67° 49.32	depth 210 speed 4.3	
0200	43° 08.81 67° 49.85	depth 200 speed 4.5	
0230	43° 06.45 67° 50.44	depth 198 speed 4.8	02:54:05 Start tape 26 02:51:34 Start airgun 10
0300	43° 04.02' 67° 51.12'	depth 195 speed 4.9	
0330	43° 01.62 67° 51.82	depth 203 speed 4.8	
0400	42° 59.34 67° 52.16	depth 191 speed 4.4	0403:35 Shutdown airgun. 0429 tape change Start 27
0430	42° 57.16' N 67° 52.67' W	depth 178 speed 4.5 Kts	
0500	42° 54.97' N 67° 53.12' W	depth 202.5 speed 4.4 Kts	
0530	42° 52.72' N 67° 53.86' W	depth: 188 speed: 4.7 kts	
0600	42° 50.33' N 67° 54.58' W	depth: 170 speed: 5.0 KTS	0603 tape change Start 28
0630	42° 47.89' N 67° 55.21' W	depth: 210 speed: 4.8 Kts	~~[illegible]~~ EOL JB-4 SOL-GOM-JB 90-5
0700	42° 48.45' N 67° 52.19' W	depth: 200 speed: 4.8 Kts	0632 Atc ~~[illegible]~~
0730	42° 49.18' N 67° 49.07' W	depth: 182 speed: 4.8 Kts	0737 Start tape 29
0800	42° 49.96 67° 46.11	depth 198 sp 4.4	
0830	42° 50.77 67° 43.19	depth 218 speed 4.4	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/26/90 WEATHER: lgt rain

LOCATION: Line 5 to J4 Crowell Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: 12KHz, Huntec PAGE: 7 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0900	42° 51.45 67° 40.35	depth 206 speed 4.6	
0930	42° 52.22 67° 37.36	depth 221 speed 4.4	0915 site GC-90-1 0910 start tape 30
1000	42° 52.98 67° 34.41	depth 221 speed 4.6	
1030	42° 53.72 67° 31.55	depth 236 speed 4.3	
1100	42° 54.48 67° 28.66	depth 251 speed 4.5	1045 start tape 31
1130	42 55.25 67° 25.56	depth 244 speed 5.0	1155 site GC-90-2
1200	42° 56.03 67° 22.44	depth 248 speed 4.7	12:18:07 STARTED TAPE 32 1209 site PC-90-04
1230	42° 56.81 67° 19.22	depth 255 speed 4.7	1252 - [illegible]
1300	42° 57.59 67° 15.90	depth 266 speed 5.4	1258 " " "
1330	42° 58.48 67° 12.56	depth 239 speed 5.1	1351 CHANGED TAPE TO #33
1400	42° 59.29 67° 09.68	depth 275 speed 4.2	
1430	42° 59.94 67° 06.99	depth 214 speed 4.3	[illegible]
1500	43° 00.59 67° 04.29'	depth 226 Speed 3.8	1525 change to tape #34
1530	43° 01.31 67° 01.45	depth 173 Speed 4.4	
1600	43° 01.96 66° 58.73	depth 173 Speed 4.4	
1630	43° 02.74 66° 55.95	depth 170 speed 4.5 Kts	1657 tape 34 ends 1700 tape 35 begins
1700	43° 03.44 66° 53.11	depth 168.75 speed 4.4 KTS	End Roll 3 Internal
1730	43° 04.12 66° 50.08	depth 142.5 Speed 5.0 KTS	
1800	43° 04.69 66° 47.20	depth 150 Speed 4.0	End Roll 3 External
1830	43° 5.24' N 66° 44.19' W	depth 135 speed 4.3 Kts	1835 end tape 35; start 36
1900	43° 06.12 66° 41.61	depth 119 Speed 4.1 Kts	EOL 5/SOL 6 GOM-JB-90-6

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/26/90 WEATHER: calm Foggy, rain

LOCATION: Line 6 to J5

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: 12KHz, Huntec PAGE: 8 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1930	43°06.92 'N 66°43.67 'W	depth 131.25 speed 4.2	
2000	43°07.66 'N 66°46.57 'W	depth 168.75 speed 3.9 Kts	2008 Start Tape 37
2030	43° 08.44' 66° 49.43'	depth 165 speed 4.7	
2100	43° 09.31 66° 52.56	depth 154 speed 4.4	
2130	43°10.13 66°55.54	depth 158 speed 4.1	
2200	43°10.77 66°58.27	depth 173 speed 4.2	2142 Start tape # 38
2230	43° 11.49 67° 01.22	depth 184 speed 3.9	
2300	43°12.29 67°04.06	depth 199 speed 4.4	2315 Start tape 39
2330	43°12.99 67° 06.91	depth 191 speed 4.4	
2400	43°13.60 67°09.91	depth 214 speed 4.4	
7/27/90	FRIDAY JULY 27		Note: Huntec Auto times are 30 sec fast
0030	43° 14.60 67° 12.89	depth 225 Speed 4.6	0049 Start tape 40
0100	43° 15.32 67° 15.79	depth 221 Speed 4.3	
0130	43°16.00 67° 18.92	depth 206 Speed ? NORTHSTAR 7000 DOWN	NORTHSTAR 800 43 16.00' 67 18.92'
0200	43° 16.68 67° 21.26	depth 214 Speed 3.6	02:23:30 Start tape 41 Increase speed
0230	43° 14.48 67° 24.13	depth 210 speed 4.7	
0300	43° 18.17 67 26.93	depth 206 Speed 4.1	
0330	43° 18.94 67 29.88	depth 191 Speed 4.9	
0400	43° 19.75 67° 32.94	depth 218 speed 4.8	03:56 Start tape 42
0430	43° 20.51' N 67° 35.96' W	depth 232.5 Speed 4.7 Kts	04:30 tape 43 start
0500	43° 21.21' N 67° 38.96' W	depth 243.75 speed 4.5 KTS	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/27/90 WEATHER: Gorgeous overcast sky; grey-blue theme

LOCATION:

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: 3.5KHz \ Piston Coring PAGE: 9 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0530	43° 22.00' N 67° 41.93' W	depth 251.25 Speed 4.3 kts	
0600	43° 22.85 67° 44.97	depth 273.75 Speed 5.0 kts	A/C to avoid buoys "Thar she blows!..." 0607 ste of PC-90-01
0630	43° 23.20 67° 47.56	depth 262.5 speed 5.0 kts	(0626 A/C To core station 43° 23.53 67 47.64)
0652	43° 22.96 67° 45.68	Stop Huntec analogs 43° 22.85 67° 45.69 0657 Huntec recovered	0654 start 3.5 end 12 KHz BREAK LINE 6
0700	↓ ↓	depth Speed 1.1 kts	
0732	43° 22.83 N 67° 45.63' W	PC 1	40' PC water depth 273.75 m
		Insufficient slack loop - lengthened & tried again	
1013	43° 22.78' N 67° 45.71' W	PC 1A	40' PC 273.75 m
		live Brittle star found top trigger core 1A	
		PC 2	40' PC 238 m
		To sample iceberg furrowed surface	
1258	43° 31.63' N 67° 44.06' W	below Holocene mud. Only recovered	
		1 & 1/2 pipes - try again	
		PC2A Same Location	238 m
1533	43° 31.65 N 67° 43.92 W	1 pip of PC 2A	
1837		Rig ~~launch~~ 60' Core 3	240 m
1854		Descending!	Core to sample complete strat sequence into Emerald Silt A, Iceberg furrows
1858.20	43° 41.39' 67° 41.44'	Core PC-3 Hit	
2100	43° 29.81 67° 44.27	3.5 KHz depth - 236 speed - 9.8	steam to core site 1
2130	43° 24.92 67° 45.80	depth 251 speed 10	
2140	43° 23.38 67° 46.39	CTD Station	273.75 m H_2O

2148 - Lowering begins - Record

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/27/90 WEATHER: Calm seas Swells 2

LOCATION: continue Line 6 from Core Site 1 to point J5

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec / 12 KHz PAGE: 10 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
2200	43°23.14 67°46.17	Resume at [Break-Line 6] Raising CTD	2207 End 3.5KHz 2213 - 12KHz
2210	43°23.04 67°46.00	Start (12KHz) and Huntec	
2215	43°23.01 67°46.05	fish in H_2O (Huntec)	2219 Start tape 44
2230	43°23.50 67°47.14	depth 270 speed 3.6	
2300	43°24.17 67°49.77	depth 251 speed 4.2	
2330	43°24.87 67°52.46	depth 251 speed 4.2	
July 28th 0000	43° 25.58 67° 55.22	depth 259 speed 4.7	2353 Start tape 45
0030	43° 26.26 67° 58.30	depth 249 speed 5.1	
0100	43° 27.26 68° 01.43	depth 233 speed 5.1	0126 Start tape 46
0130	43° 28.11 68 04.75	depth 203 speed 5.1	pock mark at 1152.
0200	43° 29.01 68° 08.07	depth 195 speed 5.2	Side B - 2:20 (~~Started~~ Tape 46)
0230	43° 29.84 68° 11.39	depth 180 speed 4.8	
0300	43° 30.69 68° 14.44	depth 182 speed 4.9	Start Tape 47 0301
0330	43° 31.42 68° 17.45	depth 186 speed 4.6	side B (47) START 0348
0400	? ? ?	"SAIL" SYSTEM DOWN ? ? ?	depth 187
0415	43° 32.49 68° 22.01	depth 180 speed 4.7 Kts	
0430	43° 32.86 68° 23.52	depth 183.75 speed 4.7	0434 End T47; 0436 Start T48
0500	43° 33.64 68° 26.45	depth 178 speed 4.4	
0530	43° 34.47 68° 29.42	depth 191.25 speed 4.5	A/C 0537 [Begin line "GOM-JB-90-7"]
0600	43° 33.12 68° 29.74	depth 176.25 speed 4.3	0608 tape 48 ends, 49 begins
0630	43° 30.92 68° 29.07	depth 146.25 speed 4.5	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/28/90 WEATHER: очень красивая погода сегодня.

LOCATION: JB Line 7 to point J8 — continue to J9 Davis Swell

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec/12KHz PAGE: 11 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0700	43° 28.60 68° 28.45	depth 180 Speed 4.7	
0730	43° 26.26 68° 27.83	depth 176.25 speed 4.9	
0800	43° 23.86 68° 27.27	depth 191.25 speed 4.7	0742 Start Tape 50
0830	43° 21.41 68° 26.61	depth 180 speed 4.9	
0900	43° 18.97 68° 26.05	depth 188 speed 4.8	
0930	43° 16.59 68° 25.40	depth 173 speed 4.9	0916 Start tape 51
1000	43° 14.18 68° 24.88	depth 176 speed 4.9	43° 12.69 1021 J8 68° 24.48
1030	43° 11.94 68° 24.31	depth 158 speed 4.5	1049 Start tape 52
1100	43° 09.75 68° 23.71	depth 180 speed 4.4	
1130	43° 07.63 68° 23.20	depth 206 speed 4.1	
1200	43° 05.69 68° 22.65	depth 200 speed 4.2	1154 Buried Pockmark
1230	43° 03.64 68° 22.14	depth 199 Speed 4.3	1223 start tape 53
1300	43° 01.36 68° 21.49	depth 210 speed 4.9	
1330	42° 58.95 68° 20.98	depth 203 speed 5.0	1357 tape ~~1338~~ Iceberg pits? in GM
1400	42° 56.46 68° 20.25	depth 184 speed 5.1	
1430	42° 54.09 68° 19.66	depth 161 speed 4.7	
1500	42° 51.79 68° 18.96	depth 180 Speed 4.6	Disrupted GM — "Liftoff moraines"
1530	42° 49.76 68° 18.45	depth 184 speed 4.4	1531 Tape 55
1600	42° 47.56 68° 17.79	depth 203 Speed 4.8	
1630	42° 45.22 68° 17.19	depth 187.5 Speed 5.0	1652 Huntec "paper machines screwed up."
1700	42° 44.74 68° 16.18	depth 180 Speed 5.0	1650 EOL7 SOL8 42° 43.95 68° 16.59 CC 18°

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/28/90 WEATHER: 4 knots, 3' swell, foggy: onset at dusk

LOCATION: JB Line 8 to 9

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec /12 KHz PAGE: 12 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1730	42° 46.86 68° 15.41	1715 tape 55 ends tape 56 starts 1720 →	depth 206.25 speed 4.4
1800	42° 48.97 68° 14.80	depth 199 speed 4.2	
1830	42° 50.87 68° 13.97	depth 206 speed 3.8	1850 tape 57 starts
1900	42° 52.77 68° 13.17	depth 187.5 speed 4.1	
1930	42 54.87 68 12.86	depth 138.75 speed 4.2	
2000	42°57.03 68° 11.47	depth 161 speed 4.2	2027 start tape 58
2030	42° 59.20 68° 10.65	depth 165 speed 4.3	
2100	43° 01.24 68° 09.78	depth 195 speed 4.2	
2130	43° 03.36 68° 08.84	depth 210 speed 4.4	
2200	43° 05.46 68° 07.87	depth 195 speed 4.4	2247 Huntec off/on adjusting stylus
2230	43° 07.19 68° 07.10	depth 173 speed 4.2	2255 again off/on 2158 start tape 59
2300	43° 09.67 68° 06.13	depth 184 speed 4.6	
2330	43° 12.01 68° 05.05	depth 203 speed 4.7	EOL 8 SOL 9 2332 @ J9 43° 12.2 N 68° 04.98
7/29/90 2400	43° 10.67 68° 04.21	depth 195 speed 4.0	2386 Start tape 60
0030	43° 08.75 68° 03.45	depth 182 speed 3.8	
0100	43° 06.81 68° 02.64	depth 166 speed 3.9	0109 Start tape 61
0130	43° 04.83 68° 01.78	depth 173 speed 4.1	
0200	43° 02.78 68° 01.06	depth 202 speed 4.1	
0230	43° 00.78 68° 00.34	depth 173 speed 4.1	0243 start tape 62
0300	42° 58.83 67° 59.48	depth 159 M speed 4.1	
0330	42° 56.46 67° 58.63	depth 178 speed 4.5	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/29/90 WEATHER: Hazy/foggy Sunshine ?

LOCATION: Line 9 \ Line 10 (J11-J12) Eastok Davis Swell

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec/12 KHz PAGE: 13 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0400	42°54.37 67°57.74	depth 169 speed 4.9	
0430	42°52.01 67°56.87	depth 188 speed 4.7	0417 Start tape #63
0500	42°49.64 67°55.98	depth 195 speed 5.0	
0524	42°47.68 67°55.08	CC @ J11 ~ 80°	EOL 9 SOL 10
0530	42°48.16 67°54.74	depth 218 speed 5.3	course 23°
0600	42°50.33 67°53.30	depth 195 speed 4.9	0550 start tape 64
0630	42°52.40 67°51.66	depth 202 speed 4.9	
0700	42°54.43 67°50.02	depth 176 speed 4.8	
0730	42°56.43 67°48.51	depth 210 speed 4.4	0725 Start tape 65
0800	42° 58.37 67° 47.01	depth 169 speed 4.2	
0830	43° 00.09 67 45.38	depth 159 Speed 4.8	
0900	43° 02.51 67° 43.81	depth 191 speed 66	0858 Start tape 66
0930	43° 04.76 67° 42.04	depth 156 Speed 5.3	
1000	43° 07.10 67° 40.21	depth 203 Speed 5.3	
1030	43° 09.19' 67° 38.64'	depth 195 Speed 4.1	1032 Start tape 67
1100	43° 11.05 67° 37.22	depth 195 speed 4.2	
1130	43° 13.02 67° 35.69	depth 195 Speed 4.3 kts	
1200	43 14.98 67° 33.98	depth 218 speed 4.7	1206 tape 68 begins
1216:30	43° 16.21 67° 33.01		CC EOL 10 SOL 11
1230	43° 15.65 67° 32.25	depth 207 Speed 4.3 kts	
1300	43° 13.68 67° 30.81	depth 210 Speed 4.3	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/29/90 WEATHER: Hazy and foggy, calm

LOCATION: Line GB11

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec 12KHz Coring PAGE: 14 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1330	43 11.61 67 30.69	depth 195 speed 4.2	1337 tape change to 69
1400	43 09.65 67 29.31	depth 185 speed 4.1	
1430	43 07.64 67 28.32	depth 202 speed 4.3	
1500	43 05.57 67 27.19	depth 206 speed 4.3	1513 tape change to 70
1530	43 03.39 67 25.97	depth 191.25 speed 4.9	
1600	43° 01.37 67° 24.96	depth 210 speed 4.3	
1630	42° 59.19 67° 24.11	depth 218 speed 4.6	1646 start tape 71
1700	42° 56.98 67° 23.09	depth 228 speed 4.9	
1715	42° 55.87 67° 22.56	depth 248	Cross line 5
1725	42° 55.05 67° 22.15	stop retrieve Huntec (Stop tape 71)	
1730	42° 54.78 67° 21.99	depth 244 speed 3.1	moving to station 12KHz
		~1732 monitor w/ 3.5 KHz off with 12KHz	
1758	42° 56.16', 67° 21.57'	Searching for core site	
1800	42° 56.27' 67° 21.59'	"	"
1805	42° 56.33' 67° 21.56'	"	"
1810	42° 56.33 67° 21.51	"	"
1844	42° 56.26 67° 21.50	PC 4 hit	depth 255
2010		underway to gravity site - monitor w/ 3.5 KHz	
2030	42° 52.55' 67 35.44'	depth - 218 speed 9.6 kts	
	42° 51.67 67° 38.75	127558 } Loran 253383 } LINES	
2055	42° 51.66' 67° 38.72'	GC-1	Gravity Core Hit depth 225 stuck in barrel

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/30/90 WEATHER: calm

LOCATION: GOM-90-GB-11

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: (3.5) Coring/Huntec/12 KHz PAGE: 15 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
2125	42° 51.65 67° 38.79	(GC-1A	Hit with second gravity core @ 225 m
2200		depth 233 @ 2133 [illegible] speed [illegible]	
2230	42° 55.62 67° 26.13	depth 248 speed 12.6	
2250	42° 55.89 67° 22.81	GC-2 HIT BOTTOM.	ONLY CORE CATCHER HAD SEDIMENT
2305	42° 55.90 67° 22.86	depth 248 m GC-2A	CORE CATCHER VERY LITTLE SEDIMENT CORE OKAY.
2315:30	42° 56.02 67 22.83	depth 248 m.	DEPLOYED CTD - (SITE ST2) SHUT DOWN 3.5 KHZ DEPLOYED 12 KHZ at 2318
2345 2347	42° 56.29' ? 67° 21.20' from SAIL files	Resumed course	Huntec deployed @ 2337 line 11
30th July			
0000	42° 55.50 67° 20.33	depth 242 speed 4.7	
0030	42° 53.27 67° 19.12	depth 248 speed 5.0	0033 end tape 71; start 72
0100	42° 50.99 67° 17.99	depth 225 speed 5.2	
0130	42° 48.60 67° 16.88	depth 214 speed 5.1	
0200	42° 46.00 67° 15.64	depth 206 speed 5.5	
0230	42° 43.35 67° 14.34	depth 210 speed 5.0	0207 end tape 72, start 73
0300	42° 41.01 67° 13.07	depth 236 speed	
0330	42° 38.77 67° 11.89	depth 270 speed 4.1	0350 Start tape 74
0400	42° 36.77 67° 10.90	depth 285 speed 4.1	
0430	42° 34.64 67° 09.88	depth 296 speed 4.7	
0500	42° 32.37 67° 08.80	depth 323 speed 4.8	
0530	42° 30.02 67° 07.61	depth 338 speed 5.3	0524 start tape 75
0600	42° 27.51 67° 06.28	depth 356 speed 5.5	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/30/90 WEATHER:

LOCATION: GOM-90-GB-11 S. Georges Basin to Georges Bank

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: 12KHz / Hunter PAGE: 16 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
→ 0607	42° 27.09 67° 06.07	159° 5.2 Knts entering "moat" of target feature	~ 368 m
→ 0610	42° 26.70 67° 05.85	159° top of "Devils tower 11"	~ depth 330
→ 0615	42° 26.29 67° 05.69	165° 5.1 Knts depth 383 crossing moat at other side (S)	
0630	42° 24.93 67° 05.10	depth 368 speed 5.7	0624 cross 42° 25.47 G2 67° 05.37
0700	42° 22.49 67° 03.87	depth 330 speed 4.6	0658 Start tape 76
0730	42° 20.28 67° 02.63	depth 308 speed 4.9	
0800	42° 18.02 67° 01.41	depth 293 speed 4.6	app at 1811b back to ½ second sweep.
0830	42° 15.88 67° 00.23	depth 262 speed 4.7	(?) 0836 - Tape 77
0900	42° 13.44 66° 59.04	depth 218 speed 5.2	SD EOL 11-12
0930	42° 10.78 66° 57.78	depth 163 speed 6.0	0958 End of LINE G3 Hunter at LAT 42° 08.23 66° 56.38
1000	42° 08.13 66° 56.35	depth 68M. speed 5.1	turned into 0958 - GOM-90-GB-11 (New line)
1030	42° 12.71 66° 56.71	depth 203 speed 9.9	10:03 Stopped tape 77
1100	42° 17.24 66° 57.53	depth 288 speed 10.1	1115 switch to 1 sec sweep
1130	42° 22.48 66° 58.59	depth 341 Speed 10.6	1155 [illegible] EOL-12 SD L13
1200	42° 27.07 66° 58.99	depth 323 Speed 1.7	Deployed Hunter at 1200 1201 START
1205	42° 27.16 66° 59.61	depth 323 speed 5.0	
1210	42° 27.13 67° 00.23	depth 323 speed [illegible]	
1215	42° 27.12 67° 00.86	depth 323 Speed 5.4	
1220	42° 27.16 67° 01.48	depth 330 Speed 5.6	
1225	42° 27.18 67° 02.07	depth 330 speed 5.4	
1230	42° 27.17 67° 02.66	depth 352.5 speed 5.1	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schrifter & Belkrap

DATE: 7/30/90 WEATHER: Unusually nice and sunny and warm

LOCATION: Atlantic Ocean, western hemisphere - tracking Georges Basin tower

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec, 12KHz PAGE: 17 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1235	42° 27.06 67° 03.19		
1240	27.06 03.82	352.5	
1245	27.05 04.45		
1250	27.04 05.10	330	
1255	27.03 05.76	5.8	
1300	27.00 06.38	382.5 5.5	
1305	27.00 07.02	360 4.8	
1310	42° 27.01 67° 07.64	360 5.1	1311 Detmar decides to change course EOL 13 1312 A/C turn corner SOL 14
1315	26.85 07.94	360 3.1	
1320	26.53 07.70	368	
1325	26.22 07.46	4.1	
1330	25.86 07.18	367.5 4.9	
1335	25.51 06.87	368 4.9	Course 150° E.O.L. 14 S.O.L. 15
1340	25.80 06.83	365 4.5	350°
1345	26.21 06.98	382.5 5.2	1348 42° 26.45 67° 07.02 TOP OF ROCK 346°
1350	26.66 07.09	375 5.4	
1355	42° 27.10 67° 07.19	360 5.5	1358 change course 42° 27.41 349° 67° 07.26 E.O.L 15 S.O.L 16
1400	27.53 07.14	352.5 5.0	005°
1405	27.30 06.91	356 5.0	153°
1410	26.94 06.72	367.5 4.5	1413 Moat 42° 26.73 67° 06.54 160°
1415	26.26 06.44	345 4.9	Start tape 79. 163°

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/30/90 WEATHER: Sunny, beautiful

LOCATION: tracking Georges Basin Tower

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec / 12KHz PAGE: 18 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1420	26.33 06.28	382.5 4.9	[42 26.38 67 06.33 1418 Top of Rock]
1425	25.82 06.07	367.5 5.0	[1429 Change course 42°25.48 67°05.85] E.O.L. 16 S.O.L. 17
1430	25.45 05.41	367.5 4.8	
1435	25.79 05.84	367.5 3.8	
1440	26.21 05.81	375 5.1	
1445	26.63 05.68	330 5.2	[42° 2667 67° 05.68 1445 Top of Rock]
1450	27.03 05.46	338 5.3	
1455	27.47 05.60	360 5.3	
1500	27.93 05.59	352	[1502 42° 2812 67°05.60 Change course] E.O.L 17 S.O.L 18
1505	28.14 05.69	352 2.4 ?	
1510	27.77 05.54	358 4.6	
1515	27.38 05.37	367.5 4.8	
1520	26.98 0525	330 4.9	
[illegible]	26.58 05.08	330	
[illegible]	26.18 04.84	375	
1535	25.79 04.73	367.5 5.1	[1538 42°25.54 67° 4.66 Change of Course] E.O.L 18 S.O.L 19
1540	25.51 04.52	368 5.0	
1545	25.92 04.57	depth 368 speed 5.1	
1550	26.34 04.53	depth 368 speed 4.9	1553 tape 79 ends, 80 begins
1555	26.75 04.55	depth 337.5 speed 4.9	
1600	27.19 04.58	depth 360 speed 5.1	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/30/90 WEATHER: sunny, swell + 2-3' chop, wind rising

LOCATION: Tracking Georges Basin Tower To find PC 5 site

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec/12kHz/3.5 kHz PAGE: 19 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
	27.59 64.56	352.5 5.1	
	28.02 04.57	345 5.2	359°
1612	28.29 04.58	345	EOL 19 Huntec retrieved
1615		345	
1621	42°28.44 67°04.83	depth 345 speed	Start 3.5 kHz off with 12 kHz
1630	42°28.24 67°06.22	depth 345 speed	
1632	42°28.20 67°06.55	speed	on station for PC #5 Georges tower
1659	42°28.17 67°06.62	PC#5 (hit)	depth 345m
		6 sections - full recovery	
1930	42°26.79 67°06.44	holding / check station for PC#6	
1944	42°26.77 67°06.48	depth 382.5m	
1950	42°26.79 67°06.49	~~core~~ descending	
1958	42°26.76 67°06.52	PC#6 hit bottom	368
		Gravity Core 3 - target is	
		Emerald A in "moat" around Georges Tower	
2149 214a	42°27.08' 67°05.82'	GC 3 Hit	Depth 384 m
2210	42°26.45' N 67°06.20' W	start GB-90-20	Tape Restart
	SAIL Files	Tape restart 2211 tape 80	
		~~12 kHz~~ ~~Gas~~	
	Hand written		

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schrifter & Belknap

DATE: 7/30/90 WEATHER: Rising winds & seas – Tropical Storm swells to 10', building

LOCATION: Georges Basins

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: _____ PAGE: 20 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
2215	42° 26.10 67° 06.43	depth 377 speed 4.6	2211 restart tape 80
2230	42° 25.06 67° 07.06	depth 364 speed 4.4	
2300		depth 357 speed	Northstar 7000 down [illegible] 800
2305	42 22.84 67 08.79	depth speed 4.5	2315 TAPE 81
2330	42° 21.16 67° 10.05	depth 319 speed 4.2	2338 Northstar 7000 return. 2356 changed course (wrong co-ord)
0000	42° 19.75 67° 10.98	depth 293 Speed 4.0	31st July 1990. loran 800 (loran 7000 down)
0030	42° 17.29 67° 10.63	depth Speed 4.2	0003 loran 7000 resumed.
0100	42° 15.24 67° 10.32	depth speed 4.5	0051 end tape 81; start 82 E.O.L. 20
			0057 shut down Huntec System
			0105 shut down 12 KHz
			Break survey due to Tropical Storm Bertha
0130	42°16.69'N 67°09.84'W		
0723	42° 58.97' 66° 52.14'		Running 265° before the wind
0830	42° 00.28' 67° 08.48		Now Hurricane Bertha
0900			
1000	[illegible]	43°04.81'N 67°30.98'W "	"
1100	43 07.45 67 44.45		
1300	43° 11.37 68° 09.70		
1400	43° 14.03 68° 23.15		
1500	43° 16.60 68° 37.48		
1600	43° 19.05 68° 51.48		

SEISMIC PROFILING CRUISE TRACK LOG

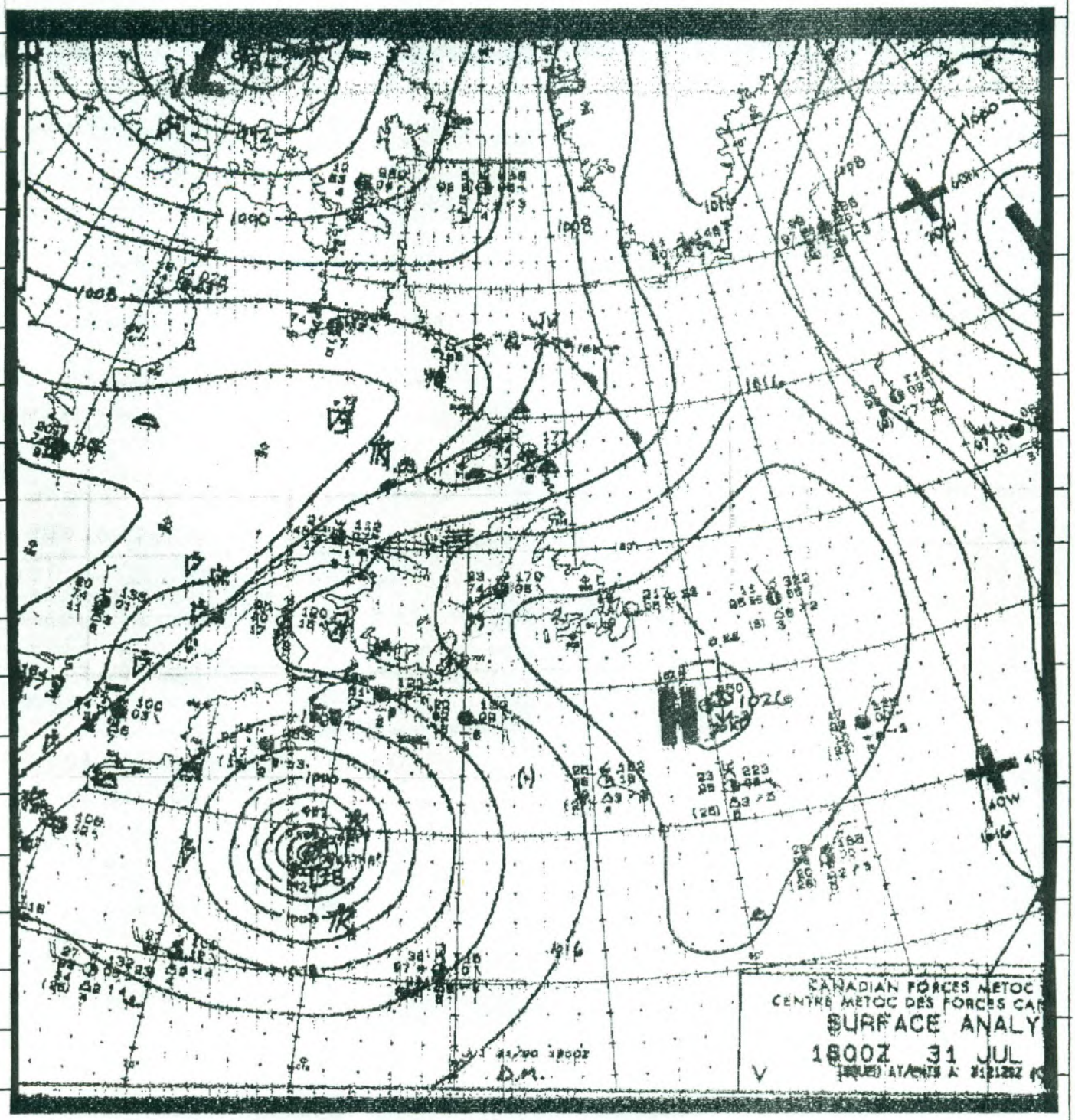
PROJECT: GOM-90 OPERATORS: Belknap & Schnitker

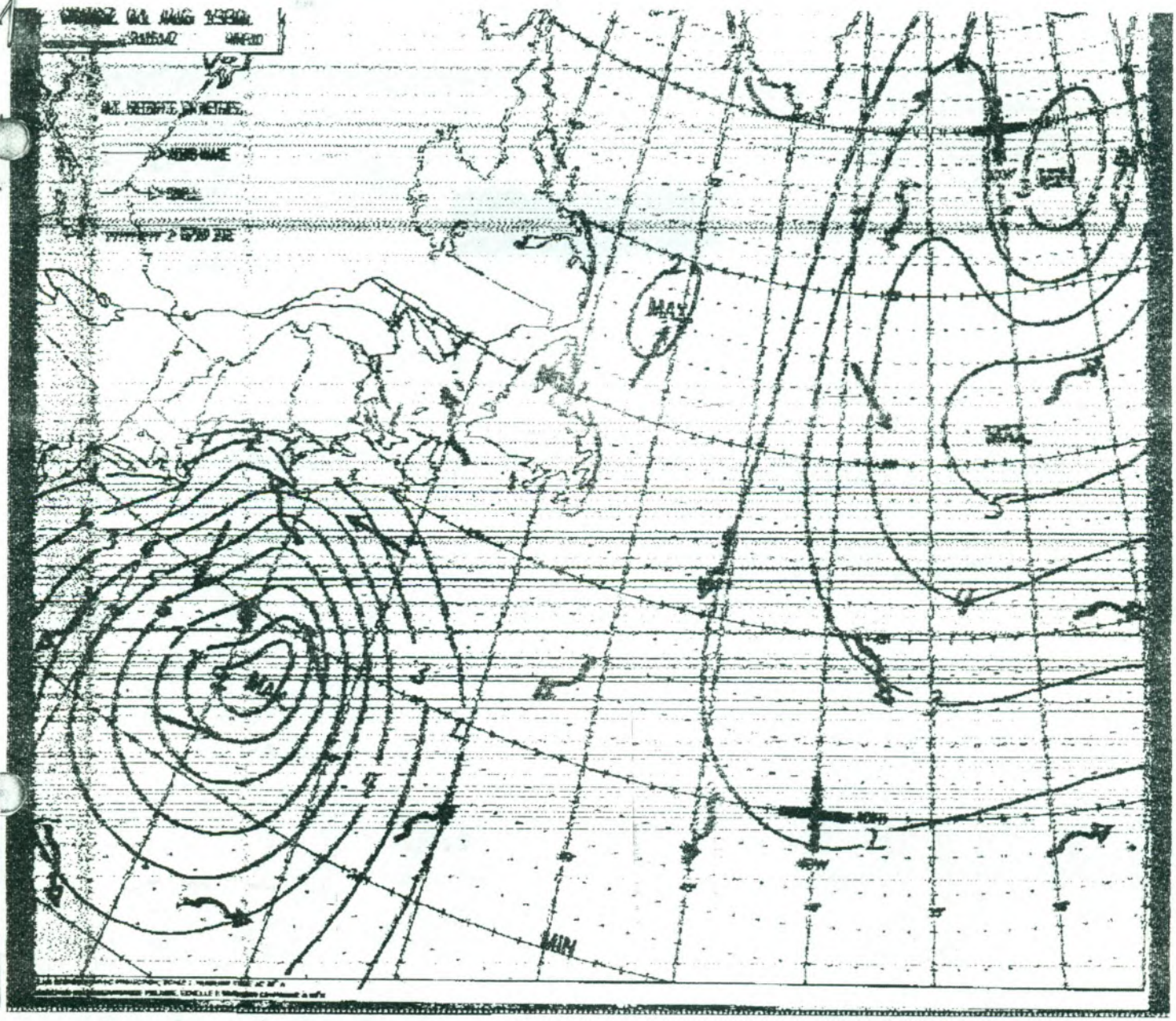
DATE: 7/31/90 WEATHER: 1400 local Time Weather map

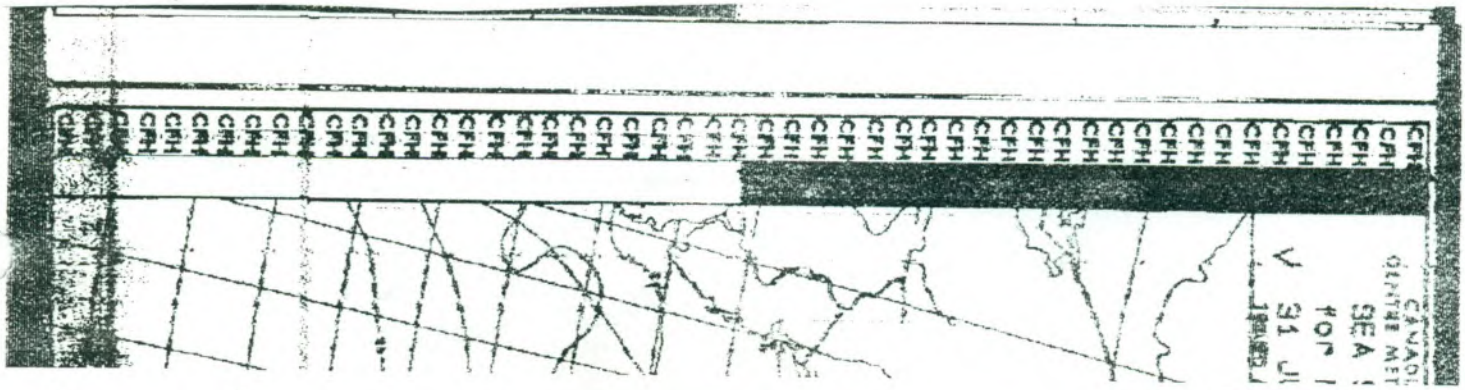
LOCATION: Portland of Hurricane Bertha 70 knt winds

VESSEL: Cape Hatteras SEISMIC SYSTEM: Huntec PAGE: ___ OF ___

TI




MAX
MIN



SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 7/31/90 - 8/1 WEATHER: ~~[illegible]~~ Easterly gale

LOCATION: Steaming West to outrun Hurricane

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: none PAGE: 21 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1700	~~[illegible]~~	43° 21.59 69° 06.81	Proceed to Portland for Graham Standen hospital call
1800	43° 23.26 69° 17.72		
1900	43° 25.73 69° 31.92		
2000	43° 28.38 69° 46.43		
2235	IN Port		
	8/1/90	Portland Harbor	4 knt westerly wi
0915		up anchor - underway	
0930	43° 38.29' N 70° 12.22' W		
0945	43° 36.31' N 70° 10.83' W		
1000	43 33.73 70° 07.75 W		
1030	43° 31.38 70° 02.28	speed 9.8	
1045	43° 30.27 70° 00.30	Deploy Huntec DTS	
1100	43° 29.28 70° 00.32	depth 113 Speed 4.6	1047 restarted tape 82 10:50 start line 21 GOM-90-WB-21
1130	43° 27.03 70° 01.35	depth 111 Speed 4.7	1131, change course for traffic 43° 26.93 70° 01.41
1200	43° 25.10 70° 02.68	depth 116 Speed 4.9	11:45 43° 26.27 70° 02.37
1230	NORTHSTAR 800 43° 22.70 70° 03.19	depth 139 Stop tape 82 Speed 4.8	1215 → started Tape 83 Resuming course 1207 1230 - Loran 7,000 out
1300	43° 20.64 70° 04.12	depth 154 Speed 4.8	1248 Resume Loran 7,000 Resumed Loran 800 at 1300
1330	43° 18.12 70° 05.21	depth Speed 4.8	tape 84 1355
1403	43 15.49 70 06.47	depth 150 speed	Loran Time 0/6 Took Reading from LAB Loran 7000
1434	43° 13.05 70° 07.37	depth 146 Speed	Took Reading from LAB Loran 7000
1500	43 11.01' 70 08.17'	depth 146 Speed 4.8	

1050 SAIL ~~43° 30.02~~ 43° 30.02 70° 00.01

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 08/1/90 WEATHER: Sunny

LOCATION: GOM-90-WB-20 Jeffreys ~~Plate~~ Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec, 12 KHz PAGE: 22 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1530	43 08.73 70 09.16	Depth 158m Speed 4.8	tape change to tape 85 1531
1600	43° 06.36 70° 10.19	depth 158 Speed 4.8	
1630	43° ~~03.89~~ ? 70° ~~11.22~~	depth 169 Speed 4.9	2000 out ? 43° 04.06 70° 11.05 GPS
1636	43° 03.60 70° 11.33	EOL 21 SOL 22 CC @ W2 145°	
1700	43° 01.~~[illegible]~~55 70° 09.~~[illegible]~~64	depth 184 speed ~~[illegible]~~ 4.5	1705 Start tape 86
1730	43° 00.27 70° 08.43	depth 176 speed 4.4	Site PC-90-8 1714 43 00.25 70 08.42 OK
1800	42° 58.~~52~~ .41 70° 06.~~67~~ .56	depth 128 speed 4.6	1813 raise fish in H_2O to 27m
1830	42° 56.57 70° 04.95	depth 86 speed ~~3~~ 4.5	1838 start tape 87 Jeffreys Ledge
1900	42° 54.72 70° 03.27	depth 97 speed 4.5	1909 lower fish to 52m
1930	42° 52.88 70° 01.56	depth 154 speed	1928 – Till-tongues Tertiary ??
2000	42° 51.02 69° ~~10~~ 59.81	199 4.5	* 1935 Till tongue lens 1936 Change paper 12 KHz
2030	42° 49.16 69° 58.02	depth 210 Speed 4.3	2020 START TAPE 88 w 2010-2020 ma
2100	42° 47.11 69° 56.01	depth 240 speed 4.7	
2130	42° 45.18 69° 54.22	depth 255 Speed 4.8	2153 START TAPE 89
2200	42° 43.19 69° 52.39	depth 263 speed 4.8	2223 end line 22 42° 41.58 start line 23 69° 50.93
2230	42° 41.09 69° 50.77	depth 268 speed 5.2	Wilkinson Divide
2300	42° 38.39 69° 49.90	depth 263 Speed 5.3	2326 START TAPE 90
2330	42° 35.80 69° 49.07	depth 251 Speed 5.3	
0000	42° 33.17 69° 48.18	depth 266 speed	2nd Aug 1990
0030	42° 30.66' 69° 47.25	depth 275 speed 5.1	
0100	42 28.20 69 46.50	depth 281 Speed 5.1	Start Tape 91

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/2/90 WEATHER: AM - Sunny, warm - 3' seas 15 knt wind W

LOCATION: GOM-WB-90-23 / GOM-WB-90-24 Murray Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: 12KHz, Hunter PAGE: 23 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0130	42° 25.55 69° 45.49	used Nordstar 800 depth - 281 speed 4.8	
0204	42 22.83 69 44.73	Sail system out at 0200	used Lab Loran
0230	42° 20.59 69° 43.94	depth 248 speed 5.0	start tape 92 0234
0307	42° 17.72 69 42.99	depth ~~236~~ speed	Lab Loran
0330	42 15.86 69 42.42	depth 236 speed 4.9	
0400	42° 13.58 69° 41.71	depth 234 speed 4.9	0408 Start tape 93
0430	42° 11.09 69° 41.15	depth 233 speed 4.6	
0500	42° 09.05 69° 40.26	depth 236 speed 4.4	
0519	42° 07.63 69° 39.66	depth 214	EOL 23. SOL 24 CC 37°
0530	42° 07.78 69° 39.13	depth 236 speed	0542 Start tape 94
0600	42° 09.03 69° 37.39	depth 233 speed 3.7	
0630	42° 10.44 69° 35.45	depth 240 speed 4.0	
0700	42° 12.03 69° 33.32	depth 236 speed 4.3	0715 Start tape 95
0730	42° 13.42 69° 31.29	depth 229 speed	
0800	42° 14.93 69° 29.28	depth 229 speed 4.2	
0830	42° 16.24 69° 27.26	depth 223 speed 4.2	0849 start tape 96
0900	42° 17.96 69° 24.94	depth 223 speed 4.1	
0930		depth 229 speed	
0935	42° 19.52 69° 22.90	depth speed 4.2	
1000	42° 20.84 69° 21.05	depth 233 speed ~~4.5~~	~1030 START TAPE 97
1030	42° 22.47 69 18.81	depth 248 speed 4.5	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: Gulf of Maine 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/2/90 WEATHER: Sunny

LOCATION: GOM-WB-90-24 / GOM-WB-90-25 S. Wilkinson Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: 12KHz / Huntec PAGE: 24 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1100	42° 24.07 69° 16.52	depth 255 speed 4.6	
1130	42° 25.71 69° 14.18	depth 214 speed 4.9	11:57 start tape 98
1205	42 27.75 69° 11.35	depth 229 speed	Lab Loran
1230	42° 29.27 69° 09.33		Northstar 7000
1300	42° 30.99 69° 06.90	depth 208 speed 5.0	
1330	42° 32.66 69° 04.60	depth 206 speed 4.9	Start tape 99 @ 1331
1348	42° 33.75 69° 03.06	depth 154	Turning at 1348 onto Leg 25 - EOL 24 Sharpes Ridge SOL 25
1400	42° 33.76 69° 03.91	depth 169 speed 3.9	
1430	42° 33.38 69° 06.59	depth 210 speed 3.9	
1500	42° 32.91 69° 09.31	depth 213 speed 4.4	Tape 100 @ 1504 GM-25
1530	42° 32.50 69° 12.54	depth 221	
1600	42° 32.04 69° 15.28	depth 229 speed 4.6	
1630	42° 31.60 69° 18.41	depth 240 speed	1638 start tape 101
1700	42° 31.03 69° 21.69	depth 225 speed 4.9	
1730	42° 30.56 69° 25.14	depth 263 speed 5.0	
1800	42° 30.02 69° 28.48	depth 266 speed 5.3	1812 start tape 102
1830	42° 29.59 69° 31.43	depth 263 speed	
1900	42° 28.86 69° 35.89	depth 255 speed 5.6	
1930	42° 28.30 69° 39.66	depth 263 speed 5.5	
2000	42° 27.73 69° 43.16	depth 266 speed 5.3	1945 start tape 103
2003:30	42° 27.67 69° 43.50	Position of core E79-3	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/2/90 WEATHER:

LOCATION: GOM-WB-90-25 | 26 | 27 S. Wilkinson Basin to Wildcat Knoll

VESSEL: RV Cape Hatteras SEISMIC SYSTEM: 12KHz / Huntec PAGE: 25 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
2030	42° 27.14 69° 46.68	depth 281 Speed 5.3	2034 Site of [illegible]
2100	42° 26.63 69° 50.01	depth 240 speed 5.1	
2114:40	42° 26.36 69° 51.80	depth speed	Position of Core E-79-2
2130	42° 26.09 69° 53.92	depth 173 speed 5.0	2119 Start tape 104
2136:53	42° 25.94 69° 54.37		Point W-6 C/C
2200	42° 25.14 69° 57.06	depth 161 Speed 5.3	22:18 Postglacial Lowstand? Terrace
2230		depth 195 speed	
2236	42° 24.02 70° 00.79		
2243:30	42° 23.80 70° 01.62	C/C S.O.L. GOM-WB-90-26 Point W-7 Wildcat Knoll	EOL-90-25 2253 START TAPE 105
2300	42° 24.84 70° 01.73	depth 105 speed 3.8	
2330	42° 26.80 70° 01.72	depth 359 Speed 3.8	
8/3/90 0000	42° 28.98 70° 01.72	3rd Aug 1990	depth 120 used Northstar 800 speed 4.0
0030	42° 30.89 70° 01.69	depth 139 speed 4.3	START TAPE 106 0028
0100	42° 32.16 69° 59.44	depth 143 Speed 4.7	SOL27 EOL26 0035 change course TO WB-27 42° 31.19 70° 01.67 used Northstar 7000
0130	42° 33.21 69 56.91	depth 153 speed	
0200	42° 34.38 69° 53.98	depth 180 Speed 4.7	START TAPE 107 @ 0202
✓ 0230	42° 35.60 69° 51.08	depth 225 speed 4.8	
✓ 0310	42 37.21 69 47.19	depth 244 speed .7865	
✓ 0330	42 38.03 69 45.44	depth 244 Speed 4.8	START TAPE 108 @ 0337
✓ 0400	42° 39.54 69° [illegible]	depth 248 speed 4.9	~~[illegible]~~ alter course 67° (incorrect plot)
✓ 0430	42° 40.20 69° 39.32	281 m 5.0 Knts	Site PC-90-10 0427
✓ 0500	42° 41.17 69° 36.19	depth 267 speed 1.2	0455 Slow for buffer 360° Circle to avoid

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker + Belknap

DATE: 8/3/90 WEATHER:

LOCATION: GOM-WB-90-27 C. Wilkinson Basin

VESSEL: RV Cape Hatteras SEISMIC SYSTEM: Huntec/12 KHz PAGE: 26 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0530	42° 41.84 69° 34.36	depth 244 speed 4.9	0511 Start tape 109
0600	42° 42.89 69° 31.22	depth 248 speed	
0630	42° 43.95 69° 27.96	depth 199 speed 5.4	0645 Start tape 110
0700	42° 45.01 69° 24.61	depth 161 speed	
0730	42° 46.09 69° 21.29	depth 90 speed 5.2	0727 raise fish H_2O
0737	42° 46.34 69° 20.55	depth 83m CC @ W9	EOL 27 SOL 28 Fippennies Ledge
0800	42° 46.93 69° 22.60	depth 143 speed 4.6	
0830	42° 47.69 69° 25.52	depth 155 speed 4.8	0819 STARTED TAPE 111
0900	42° 48.60 69° 29.00	depth 155 speed 5.0	
0930	42° 49.40 69° 32.08	depth 178 speed 4.9	
1000	42° 50.20 69° 35.24	depth 184 speed 4.9	0952 started tape 112
1030	42° 51.02 69° 38.30	depth 165 speed 4.7	
1100	42° 51.80 69° 41.35	depth 189 speed 4.8	
1130	42° 52.52 69° 44.14	depth 210 speed 4.7	1127 started tape 113
1200	42° 53.35 69° 47.23	depth 233 speed 4.7	
1230	42° 54.20 69 50.69	depth 244 speed 4.6	
1300	42° 54.99 69° 53.59	depth 248 speed 4.4	1300 started tape 114 Loran 7,000
1330	42° 55.68 69° 56.44	depth 229 speed 4.4	Loran 800
1400	42° 56.41 69° 59.16	depth 152 speed 4.6	EOL-28 Loran 7,000 1424 Huntec Hauled in
1430	42° 56.98 70 02.15		(1424 - 42° 57.12 70° ~~69°~~ 01.66) ~~Jeffreys~~ Ledge (Turnips) DO NOT HAVE TIME FOR
1500	42° 51.66 70 02.25	depth 154 speed 10.6	SOL 28 A 093° NEXT LEG TO PISTON CORE-7 CHANGING COURE FOR CORRECT LONGITUDE
1520	42° 48.80 [illegible] 01.02	depth 159 [illegible]	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/3/90 WEATHER: sunny, calm

LOCATION: Core site PC/7 and PC-8

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: coring PAGE: 27 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1603	42°48.98 69° 57.58	PC-7 (on GOM-WB-90-22)	42°48.98 69°57.58 Complete B, into A
		depth 212m	
1725	42° 53.75 70° 02.32	Proceeding to next core site	SOL 28B
1749	42° 57.10' 70° 03.46'	Time mark	
1800	42° 58.46 70° 05.35	"	
1820	43° 00.73' 70° 08.54	"	
1834		Reverse course	
1848	43° 00.90 70° 08.99	location of Core 8	
1912	43° 00.91 70° 08.94	Hit PC-8 173m H_2O	CTD #3
2010	43°00.88 70°08.86	28C Depart for next seismic line at W-10	
2035	42° 58.57' 70° 04.54'		
2055	42°56.93 70°01.70	Deployed Huntec 88 m depth	S.O.L. GOM-90-WB-29
2100	42° 57.23 70° 01.37	2100 switched to 12 kHz	depth 98 speed 4.9
2130	42° 59 17 69° 58 94	Depth 184 Speed 5.0 KTs	
2200	43°01.13 69° 56.48	Depth 222 Speed 5.7 KTs.	
2230	43° 03.08 69° 54.21	Depth 206 speed 4.9	2232 start tape 116
2300	43° 04.94 69° 51.92	depth 176 speed 4.9	
2330	43° 06.75 69° 49.78	depr 173 speed 4.8	
0000	43° 08.61 69° 47.53	00 0007 START Tape 117 4th August 1990	depr 171 speed 4.9
0030		depth 154	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/4/90 WEATHER: N, Wilkinson Basin

LOCATION: GOM-90 WB-30 - EOL Steam to Portland (3.5KHz)

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec/12KHz/3.5 PAGE: 28 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0100	43° 12.28 69° 43.11	depth 101 ?? speed 4.5	A/C at ~~0500~~ 0100 Local leg EOL-29-50L WB-30 Platts Bank
0130	43° 12.23 69° 46.12	depth 150 speed	START TAPE 118 @ 0140
0200	43° 11.98 69° 49.47	depth -173 speed 5.1	
0230	43° 11.70 69° 52.93	depth 169 speed 5.0	
0300	43° 11.66 69° 56.44	depth 158 speed 5.2	@ 0314 Tape 119
0330	43° 11.48 70° [illegible]	depth 88 speed 5.6	Jeffreys Ledge
0400	43° 11.23 70° 03.79	depth 128 speed 5.4	
0404	43° 11.22 70° 04.37	EOL 30	Huntec pulled in. Jeffreys Basin
0414			Steam to Portland w/ 3.5KHz
0430	43° 13.169 70° 05.45		
0500	43° 18.41 70° 05.90		
0515	43° 20.88' 70° 06.08'		
0530	43° 23.37' 70° 06.28'		
0545	43° 25.76' 70° 06.55'		
0600	43° 28.15' 70° 06.89'		
0615	43° 30.64' 70° 07.12'		
0630	43° 33.00' 70° 08.00'		shut down 3.5 kHz operation
0630			Drop off Graham Standen in Portland -
			illness
0800			Rig corer for next site

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 - NSF OPERATORS: Schnitker & Belknap

DATE: 8/4/90 WEATHER: Clear flat calm

LOCATION: Bigelow Bight, NW Gulf of Maine

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: 3.5 kHZ PAGE: 29 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0910	43° 24.84 70° 07.67	Transit Portland to core site 9	
0915		109 M	
0930	43° 21.50 70° 07.41	68 M 178° True	
0945	43° 19.06 70° 07.25	128 M	
1000	43° 16.83' 70° 07.14'	144 M	
1015	43° 14.60' 70° 07.09'	Target is 14.2' N 07.0' W	
1045	43° 14.21' 70° 07.02'		
1049:45	43° 14.20 70° 07.01'	WP Core 9	4 10' sections - sample of Facies A and "Till tongue"
	Sail 12:45 43° 11.19 70°04.24		off N Tip Jeffreys Ledge
1247		Hunter deployed	SOL 90-31
1300	43° 11.58 70° 03.97	Started tape 119	
1330	43° 13.29 70° 01.74	depth 131 speed 4.5	Loran 7000
1400	15.26 59.27	depth 151 speed 4.9	@ 1333 Started tape 120
1430	16.87 57.32	depth 150 speed 4.9	
1500	18.92 54.99	depth 154 speed 5.4	START tape 121 @ 1507
1530	20.33 52.99	depth 173 speed 4.8	On [illegible]
1600	43° 22.12 69° 50.36	depth 158	1555 EOL 31 SOL 32 43° 22.07 69° 50.85
1630	43° 21.98 69° 46.83	depth 165 speed 5.0	1640 Start tape 122
1700	43° 21.86 69° 43.27	depth 161 speed	
1730	43° 21.72 [illegible]	depth 173	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/4/90 - 8/5/90 WEATHER: Sunny, calm

LOCATION: GOM-WB-90-32 Bigelow Bight

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec/12 KHz PAGE: 30 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1805	43 21.53 69 35.71	Depth-161m Speed-	Sail system down
1830	43°21.45 69 32.87	depth 161 speed 5.0	1813 Start tape 123
1900	43°21.38 69°29.63	depth 164 speed 5.0	
1930	43°21.14 69 26.02	depth 169 speed 5.1	using Northstar 800 more reliable now
2000	43°20.91 69°22.37	depth 173 speed 5.1	Approx. Location Core E-79-16 1947 Start tape 124
2026		Huntec Time marks noted 1min behind actual time	
2026:30	43°20.89 69°19.53	Point P1	EOL-90-32 start of G.O.M-90-33
2031		Reset Huntec Time to correct value	
2030	43° 20.68 69° 19.55	depth 169 Speed 3.2	E.O.L. 32, S.O.L. 33
2100	43° 19.39 69° 22.36	depth 176 speed 4.9	21:21 Start tape 125
2130	43° 18.03 69°25.11	depth 169 Speed	
2200	43° 16.64 69° 27.79	depth 154 speed 4.8	
2230	43° 15.15 69° 30.41	depth 156 speed 4.7	
2300	43° 13.87 69° 33.25	depth 154 speed 5.1	2255 start tape 126
2330	43° 12.43 69° 36.16	depth 109 speed 5.1	2334 raised tow 2349 break line for traffic
2349	43° 11.48 69° 38.06	depth speed	5th August 1990 Platts Bank
8/5 0000	43° 10.67 69° 39.10	depth 69 speed 5.3	BACK ON LINE 43° 10.56 69° 39.21 @ 0003 (0029 Tape 127)
0034	43° 09.36 69° 42.50	depth 113	A/C LORAN NOT WORKING FOR TIME of 0030
0100	43° 08.31 69° 46.21	depth 158 speed 5.4	course 158°
0130	43° 07.62 69° 48.72	depth 173 speed 5.4	
0200	43° 06.50 69°52.56'	depth 173	(0202 Tape 128)

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/5/90 WEATHER:

LOCATION: GOM-WB-90-34 Wilkinson Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec /12 KHz PAGE: 31 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0230	43° 05.62 69° 55.92	depth -180 speed 4.7	Wikinson Basin
0236	43° 05.48 69° 56.42	depth speed	EOL on leg 33 of WB Ntip of 100 Em line S.O.L. 34
0305	43° 02.58 69° 55.67	depth 199 speed 5.3	
0330	43° 00.76 69° 55.32	depth 218 speed 5.4	START TAPE 129 @ 0336
0400	42° 57.39 69° 54.49	depth 233 speed 5.6	
0430	42° 55.18 69° 53.69	depth 245 speed 4.9	Change course @ 430
0500	42° 52.83 69° 51.49	depth 253 Speed 5.5	0510 start tape 130
0530	42° 50.66 69° 49.24	depth 259 speed 5.1	
0600	42° 48.78 69° 47.07	depth 263 Speed 4.6	
0630 ✓	42° 46.88 69° 45.24	depth 266 Speed 4.6	0644 Start tape 131
0700 ✓	42° 45.01 69° 43.41	depth 274 Speed 4.7	
0730 ✓	42° 42.85 69° 41.70	depth 278 speed 4.6	
0800 ✓	42° 40.81 69° 40.37	depth 278 speed 4.8	0817 End of tape 131 ~~AT SITE~~ -PC#10 SHUT Huntec DOWN. 4.12 KHZ crossing 150 Em line
0817	42° 39.55 69° 39.38	~~PC#10~~ SITE	0826 STARTED 3.5 KHZ
0830 ✓	42° 39.92 69° 39.57		
0912	42° 40.33 69° 39.73		On station - PC 10 *
0927 ✓	42° 40.25' 69° 39.73'	Hit PC-10	286 m - Mod. tough pullout
1045	42 40.22 69 39.68		- 1050 retrieved CTD deployed - 285 m depth
* 1120	42° 40.26 69° 39.84 78	depth = speed 1.8	@ (1111) Huntec deployed TAPE 132 12 KHZ started at 11:20.
1130	42° 39.02 69° 38.58		Problems c̄ Huntec started 1142 tape at 1142 at counter # 432
1200 ✓	42° 37.02 69° 36.18	depth 285	
1230	42° 34.92 33.84'	depth 281	

not plotted - in order of everything!

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/5/90 WEATHER: Sunny becoming foggy, calm

LOCATION: GOM-WB-90-34

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec/12 KHz PAGE: 32 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1300	42° 32.67 69° 31.40	depth 289 sp. 5.5	1245 Start tape 133
1330	42° 30.40 69° 29.03	depth 274 speed 5.3	1339 shutdown Huntec (clean stylus)
1400	42° 28.31 69° 26.82	depth 259 speed 5.4	off/on 1340 1348 off to replace stylus/ on 1350
1430	42° 26.33 69° 24.58	depth 244 speed 5.4	1357 off to again replace stylus (int.) on 1358
1500	42° 24.21 69° 22.22	depth 244 speed 5.2	1418 start tape 134
1530	42° 22.22 69° 20.10	depth 240 speed 4.9	
1600	42° 20.24 69° 17.88	depth 232 speed	1552 Start tape 135
1608	42° 19.67 69° 17.25	CC	EOL 34 SOL 35 GOM-WB-90-35
1630	42° 17.94 69 16.76	depth 218 speed 4.8	
1635		Huntec off temporarily - retrieved for examination	
1656		Back in water	
1700	42° 15.56 69° 16.30	depth 206 speed 4.7	1726 Start tape 136
1730	42° 13.19 69° 15.81	depth 203 speed 4.7	
1800	42° 10.52 69° 15.25	depth 188 speed 5.1	
1830	42° 08.18 69° 14.73	depth 191 speed 4.9	
1900	42° 05.65 69° 14.51	depth 199 speed 4.7	1900 Start tape 137
1930	42° 02.98 69° 13.63	depth 203 speed 5.0	
2000	42° 01.01 69° 13.21	depth 205 speed 4.8	
2030	41° 58.64 69° 12.62	depth 214 speed 4.7	START TAPE 138 @ 0035
2100	41 56.15 69° 12.06	depth 214 speed 5.0	
2130 ~~2135~~	41° 53.~~88~~72 69° 11.~~74~~56	depth 214 speed 5.1	CHANGED ROLL FOR 12.5 KHZ. @ 2130
2200	41° ~~51.15~~ 69° 11.07	depth 210 speed 5.1	START TAPE 139 @ 2200

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/6/90 WEATHER:

LOCATION: GOM-WB-90-35

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Hunter/12 KHz PAGE: 33 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
2230	41° 48.60 69° 10.51	depth 206 (176c) speed 5.3	EOL @ 2248
2248	41 46.88 69 10.11	EOL 35 SOL 36	GOM-WB-9036
2300	41 48.32 69 08.61	depth 203 speed 4.8	Loran down
2330	41 49.52 69° 07.40	depth 188 speed 5.0	START TAPE 140 @ 2340
Aug 6 0000	41 51.63 69 05.27	depth 184 speed 4.7	
0030	41 53.25 69 03.59	depth 188 speed 4.7	
0100	41 55.12 69 01.74	depth 191 speed 4.3	0114 Start tape 141
0130	41 56.96 69 00.00	depth 188 speed	
0200	41 58.74 68 58.16	depth 135 speed	
0230	42 00.62 68 56.47	depth 135 speed 4.7	0248 Start tape 142
0300	42 02.52 68 54.39	depth 131 speed	Franklin swell ~~[illegible]~~ see plotter
0330	42 04.44 68 52.38	depth 139 speed 5.0	↳ Ran out against right side
0400	42° 06.45 68° 50.39	depth 154 speed 4.8	0421 start tape 143
0430	42° 08.43 68° 48.07	depth ~~5.2~~ 173 speed 5.2	
0500	42° 10.45 68° 46.12	depth 203 speed 5.2	
0530	42° 12.65 68° 43.96	depth 200	
0600	42° 14.75 68° 41.76	depth 205 speed 5.3	0603 Start tape 144
0630	42° 16.87 68° 39.74	depth 203 speed 5.8	
0700	42° 19.67 68° 36.89	depth 164 speed 6.0	Howell swell
0730	42° 21.85 68° 34.55	depth 176 speed 5.9	0736 Start tape 145
0800	42° 24.20 68 32.17	depth 180 speed 5.9	
0830	42° 26.69 68 29.71	depth 210 speed	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/6/90 WEATHER: Sunny, calm

LOCATION: GOM-RB-90-37/38 S. Wilkinson Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec/12KHz PAGE: 34 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0900	42° 29.03 68° 27.27	depth 218 speed 5.3	START TAPE 146 @ 0911 0845 site RC-90-12A
0930	42° 30.90 68° 25.38	depth 210 speed 5.3	
1000	42° 33.08 68° 23.10	depth 199 speed 5.4	ADC 1006
1025	42° 34.88 68° 21.22	depth speed	CANNOT STEER TO POINT R3 - due to fishing gear in the way of track. Jacques swell 1025 EOL 36 → 37 SOL GOM-RB-90-37
1030	42° 35.33 68° 21.11	depth 180 speed 5.2	START TAPE 147 @ 1046
1100	42° 38.61 68° 19.36	depth 203 speed 5.1	Loran DOWN - okay
1130	42° 40.69 68° 18.40	depth 203 speed 5.4	
1200	42 42.73 68° 17.44	depth 199 speed	1258 Change Huntec Ext. paper
1211	42 43.71 68 17.04		CC EOL 37 SOL 38 GOM-RB-90-38
1230	42° 43.77 68° 19.04	depth 184 speed	1220 Start tape 148
1300	42 43.77 68 22.42	depth 191	
1330	42 43.60 68 25.83	depth 184	
1400	42 43.59 68 29.21	depth 169	1354 Start tape 149
1430	42 43.59 68 32.63	depth 184 speed 5.0	cog 267°
1500 ✓	42 43.52 68 36.27	depth 180 speed	1517 Change Huntec Ext. paper
1530	42 43.48 68 39.93	depth 184	1527 Start tape 150
1600	42° 43.38 68° 43.20	depth 199 Speed 5.0	
1630	42° 43.47 68° 47.22	depth 176 speed 5.0	
1700	42° 43.33 68° 50.50	depth 113 speed	1701 Start tape 151
1704	42° 43.32 68° 50.98	CC	E.O.L 38 S.O.L 39 Parker Ridge GOM-RB-90-39
1730	42° 42.27 68° 49.01	depth 150 speed 4.6	
1800	42° 41.07 68° 46.38	depth 161 4.3	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/6/90 WEATHER:

LOCATION: GOM-RB-90-40 / Coring Rodgers Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Huntec / 12 KHz PAGE: 35 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1830	42° 39.82 68° 43.90	depth 169 speed	START TAPE 152 @ 1836
1900	42° 38.75 68° 41.63	depth 184 speed 4.4	
1930	42° 37.52 68° 38.83	depth 197 speed 4.8	
2000	42° 36.20 68° 36.31	depth 201 speed	START TAPE 153 @ 2009
2030	42° 34.85 68° 33.40	depth 210 speed 4.4	
2100	42° 33.77 68° 31.18	depth 218 speed	EOL 90-39 2114 SOL leg 40 STARTED
2130	42° 32.97 68 29.94	depth 219. speed 4.0	START TAPE 154 @ 2143
2200	42° 30.24 68° 27.97	depth 208 speed 4.3	EOL
22[illegible]3	42° 29.20 68° 27.04		Bringing in Huntec
2226			START 3.5 KHZ.
8/7/90 0108	42 27.43 68 28.71	PC 11	Attempted - No Recovery 217.6m H_2O
0352	42° 29.82 68° 27.55	Deploy Huntec	
0411		Restart Tape 154 side A?	
0415		Start Tape 155	
0430	42 27.34 68 25.79	shut off Huntec - NOT working STOP Tape 155	
0520	42° 27.92 68° 26.21	Deploy geopulse	GOM RB-90 Line 40
0530	42° 27.80 68° 26.13		
0532		START TAPE 155	
0548		Momentary Pause in tape recording TAPE RESUMES 0553	
0600	42° 25.98 68° 25.00	Depth ? speed 4.3	Geopulse on line Huntec dead Restart 90-40
0630	42° 24.24 68° 23.81	depth 210 speed 4.5	START TAPE 156 @ 0700
0700	42° 22.13 68° 22.37	depth 208 speed 4.6	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/7/90 WEATHER: 3' seas 10 knt winds

LOCATION: Rodgers Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: GEOPULSE PAGE: 36 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0730	42° 20.21 68° 21.23	depth 209 m speed	
0800	42° 18.43 68° 19.84		
0815	42 17.43 69 18.13		
0826	42 16.71 68 18.55	CC RH EOL40 SOL41	GOM-RB-90-41
0830	42 16.55 68 18.28		
0836		START TAPE 157 @ 0836	
0900	No good.		
0930	42° 14.26 68° 14.30		
1000	42° 12.83 68° 11.99	START TAPE 158 @ ~~1100~~ 1008	
10.30	42° 11.44 68 9.50		
1100	42° 09.91 68° 07.20	paper change for 12KHZ at 1118	
1130	42 00.43 68 04.67 ?	1142 start tape 159	
1200	42 07.01 68 01.98	depth 229 speed 4.0	course 124
1230	42 06.11 68 00.41	depth 221	
1300	42 05.04 67 58.20	depth 210	1315 start tape 160
1330	42 03.82 67 56.37	depth 191 speed 4.4	
1400	42 [illegible] → 67 [illegible]	depth 184 speed 4.0	42° 02.58 67° 54.14
1430	42 01.06 67 51.66	depth 176	1449 Start tape 161
1500	41 59.49 67 49.11	depth 98 speed 5.2	
1511	41 58.84 67 47.86	depth 82	EOL 41 SOL 42 GOM-GB-90-42
1530	42 00.06 67 47.83	depth 101	Georges Bank edge
1600	42° 02.51 [illegible]	depth 116	1622 start tape 162

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/7/90 WEATHER: foggy

LOCATION: Franklin Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Geopulse / 12kHz PAGE: 37 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1630	42° 05.15 67° 48.64	depth 195 speed 5.2	
1700	42° 07.08 67° 48.98	depth 203 speed 5.5	
1730	42° 10.74 67° 49.47	depth 224 speed 5.6	1756 Start tape 163
1800	42° 13.83 67 49.89	depth 236	
1830	42° 16.57 67° 50.28	depth 229 speed 5.1	
1900	42° 19.31 67° 51.11	depth 199	
1930	42° 21.63 67 51.44	depth 173	1929 start tape 164
2000	42° 23.88 67° 51.79	depth 191	
2030	42 26.32 67 51.94	depth 229	
2100	42° 29.03 67° 52.35	depth 259 speed 4.8	2115 Geopulse shut off for a few seconds for a test. Start Tape 165 @ 2110
2130	42° 31.19 67° 52.65	depth 218 speed 4.9	
2203	42 33.50 67 53.17	depth 225	
2233	42 36.27 67 53.35	depth 218	START Tape 166 @ 2238
2304	42° 38.57 67° 53.80	depth 206	
2330	42° 40.63 67° 54.06	depth 184	
8/8/90 0000	42 42.87 67 54.39	depth 180	0012 Start tape 167
0030	42° 45.34 67° 54.77	depth 191 speed 4.6	
0100	42° 47.36 67° 54.90	depth 203 speed 4.3	
0106	42 47.89 67 55.11	depth 206	CC 117 EOL 42 SOL 43
0130	42 47.30 67 53.01	depth 203	0145 Start tape 168
0200	42 46.15 67 50.13	depth 204	
0230	42 44.99 67 47.09	depth 195	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/8/90 WEATHER: foggy

LOCATION: GOM-GB-90-43 Georges Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Geopulse/12KHz PAGE: 38 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0300	42 43.98 67 44.11	depth 206 speed	0319 Start tape 169
0330	42 42.80 67 41.24	depth 191 speed	
0400	42° 41.79 67° 38.56	depth 180 speed 4.7	
0424	42° 40.80 67° 36.00	0410 depth 176	decrease power to 280 J East EOL 43 SOL 44 Sewell Ridge
0430	42° 40.37 67° 35.83	depth 173	0453 Start tape 170
0500	42° 37.87 67° 35.45	depth 206	
0530	42° 35.39 67° 35.53	depth 214	
0600	42° 32.93 67° 35.08	depth 210 speed 4.8	
0630	42° 30.40 67° 34.58	depth 232 speed 4.9	0627 start tape 171
0700	42° 27.92 67° 34.18	d - 268 s - 4.4	
0730	42° 25.77 67° 33.74	d - 283 s - 3.8	
0800	42° 23.63 67° 33.31	depth - 289	START TAPE 172 @ 0801
0830	42 21.37 67° 32.83	depth - 285	
0900	42° 19.14 67 32.45	depth 285	
0930	42° 16.69 67° 32.03	depth 266	START TAPE 173 @ 0935
1000	42° 14.07 67° 31.58	depth 257	
1030	42° 11.27 67° 31.21	depth 214	
1100	[illegible]		
1130	42 06.00 67 30.41	depth 150	44 EOL @ 1152 START leg GB-45 (42° 04.44 67 30.06) stop Geopulse 1154
1200	42 04.41 67 30.23	depth 79	Georges Bank Nedge
1204		Start Huntec - Doesn't work	
1212	42° 05.19' N 67° 29.70' W	Geopulse back in H_2O	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/8/90 WEATHER: foggy, calm

LOCATION: Georges Basin GOM-GB-90 45

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Geopulse/12KHz PAGE: 39 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1230	42 06.62 67 28.77	depth 154	
1231		maneuvering for traffic	
1300	42 08.63 67 26.64	depth 188 speed 5.4	1303 Start tape 175
1330	42 10.72 67 24.25	depth 218	
1400	42 12 96 67 22 03	depth 236	
1430	42 15.22 67 19.78	depth 251	1436 Start tape 176
1500	42 17.62 67 17.44	depth 281 speed 5.7	1455 change 19" paper & stylus
1530	42 19.62 67 15.19	depth 293	
1600	42° 21.90 67° 13.93	depth 315	1610 start tape 177
1630	42° 24.10 67° 10.67	depth 364 speed 5.1	
1700	42° 26.39 67° 08.52	depth 364 speed 5.7	1727 Shutdown for CTO 42°28.30 Sail at 21:25Z 15 67°06.73 ?
CTD 1737	42° 28.35 67° 06.34	depth 345 1752 G.O.L. 45 S.O.L 46	1752 startup geopulse 1752 Start tape 178 1752 = 42°28.27'N 67°06.60'W
1800	42 28.08 67 06.95	depth 346	
1830	42° 27.15 67° 09.56	depth 349	
1900	42° 26.25 67° 12.54		1926 start tape 179
1930	42° 25.23 67° 15.68	depth 353 speed 5.2	
2000	42° 24.24 67 19.08	depth 353	
2030	42 22.60 67 22.09	depth 334	
2100	42 21.78 67 25.76	depth 326	START Tape 180 @ 2100
2130	42° 20.45 67° 29.09	depth	CHANGING PAPER
2200	42 19.34 67 32.44		
2230	42 18.22 67 35.73	depth 263	START TAPE 181 @ 2233

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

8/8 DATE: 8/9/90 WEATHER:

LOCATION: GOM-GB-90-46 / 47 Georges Basin to Rodgers

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Geopulse / 12 KHz PAGE: 40 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
2300	42° 17.05 67 38.99	depth 240m ·	2324 Traffic A/C
2330	42° 15.73 67 42.23	depth 229	
Aug 9 0000	42 14.77 67 45.66	depth 229	0000 Start tape 182
0030	42 13 61 67 49 22	depth 236 speed 5.8	
0100	42 12 48 67 52 66	depth 240	
0104	42 12 19 67 53.14	depth 240	EOL 46 SOL 47
0130	42 13.36 67 55.86	depth 233	
0200	42 14.70 67 59.09	depth 203	0140 Start tape 183
0230	42 16 22 68 02 29	depth 180	
0300	42 17 62 68 05 46	depth 176	0314 Start tape 184 Stout Swell
0330	42 18.96 68 08.54	depth 191	
0400	42° 20.16 68° 11.37	depth 188	
0430	42° 21.38 68° 14.08	depth 199	
0500	42° 22.60 68° 16.98	depth 197 m speed 5.1	0446 START TAPE 185
0530	42° 23.88 68° 19.95	depth 206 speed 5.1	
0600	42° 25.38 68° 22.91	depth 211 speed 5.2	0622 START TAPE 186
0630	42° 26.91 68° 25.83	depth 214 speed 5.2	
0658:22	42° 68° 27.94 28.74	Site of core PC-12	
0700	42° 28.00 68° 28.97	depth 212	0703 Stop tape 186. Rodgers Basin
			EOL-90-47
0744	42° 27.97' 68° 28.68'	Core 12 Hit	217 M
		Moderate Pullout	— Failed

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/9/90 WEATHER: Calm, light Fog

LOCATION: Rodgers Basin – Wright Swell

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Geopulse / 12 Hz / coring PAGE: 41 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0945	42° 27.46' 68° 28.68'	depth 214 Core Site 12A	try again
		Hit – easy pullout	
1104	42° 28.14' N 68° 27.16' W	– on line – SOL 48	
1130	42° 28.48' 68° 25.43'	Rodgers Bsn.	1150 Start tape 187
1200	42° 29.12 68° 22.00	depth 191	
1230	42 29.79 68 18.73	depth 188 speed 5.0	
1300	42 30.30 68 15.44	depth 184	
1330	42 30.84 68 12.39	depth 180 4.9	1325 Start tape 188
1400	42 31.49 68 08.84	depth 169 4.9	Wright Swell
1430	42 32.10 68 05.51	depth 173 speed 4.9	
1500	42 32 59 68 02.29	depth 191	1458 Start tape 189
1530	42 33.12 68 59.54	depth 204	1520 Change stylus 19"
1600	42° 33.77 67° 56.20	depth 210	
1630	42° 34 40 67° 52.60	depth 229m speed 5.4	cl. Started 190° @ 1631
1700	42° 34.96 67° 48.95	depth 221 speed 5.7	
1730	42° 35.73 67° 45.09	depth 199 speed 5.8	
1748	42° 36.10 67° 42.90	depth 199	EOL 48. SOL 49
1800	42° 37.01 67° 42.59	depth 197 speed 4.8 Kts	Start tape 191 @ 1805
1830	42° 39.64 67° 41.93	depth 180 speed 5.6	
1900	42° 42.19 67° 41.41	depth 190 speed 5.2	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 3/9/90 WEATHER: flat calm, fog

LOCATION: GOM-JB-90-50 to JB3 Cowell Basin - Jordan Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Geopulse 1/2 KHz PAGE: 42 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1935	42° 44.67 67° 40.89	depth 184 speed 4.5	1938 start tape 192 Sewell Ridge
2100	42° 46.99 67° 37.74	depth 212 speed 4.9	1941 veer offline for fishing traffic
2030	42° 49.70 67° 39.39	depth 218 speed 5.1	2002 – Back on course
2051	42 51.58 67.39.04	Site of 89-90-1	EOL 49 — SOL 50 GOM-JB-90-50 Cowell Basin
2100	42 52.23 67 39.52	depth 218 speed 5.2	
2135	42° 55.63 67 41.88	depth 195 speed 5.7 ← DO NOT TRUST THIS READING	START TAPE 193 @ 2132
2200	42° 57.26 67° 43.08	depth 178 speed 5.8	
2230	42° 59.83 67.44.90	depth 169 speed 5.3	
2300	43° 02.23 67° 46.60	depth 195 speed 5.5	START TAPE 194 @ 2305
2330	43° 04.74 67° 48.31	depth 199 speed 5.7	
8/10/90 0000	43° 07.28 67° 50.02	depth 192 speed 5.7	
0030	43 09.77 67 51.90	depth 203	0039 start tape 195
? 0045	43 11.11 67 52.77		CC 040? avoiding traffic
? 0055	43 11.78 67 51.84	Back on course	
0100	43 12.16 67 52.00	depth 214 speed 5.2	0117 CC 290° "
0130	43 13.80 67 54.54	depth 218 speed 4.9	0138 CC 328
0200	43 15.43 67 56.43	depth 210	0212 start tape 196
0216	43 16.68 67 57.44	CC 350	
0230	43 17.81 67 57.65	depth 233 speed 5.5	
0248	43 19.37 67 58.55	JB — EOL 50 SOL 51	013°
0300	43 20.45 67 58.22	depth 244	

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/10/90 WEATHER: Dead flat calm, fog

LOCATION: GOM-JB-90 51 Western Jordan Basin

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Geopulse/12 KHz PAGE: 43 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
0330	43 23.25 67 57.77	depth 248	0346 Start tape 197
0400	43 25.83 67 57.20	depth 248	
0430	43° 28.06 67° 55.87	depth 255	
0500	43° 30.33 67° 55.30	depth 266 speed 4.6	0520 START TAPE 198
0530	43° 32.63 67° 54.67	d. 253 s. 4.8	
0600	43° 34.86 67° 53.93	d - 234 s - 4.5 KTS	
0630	43° 37.34 67° 53.27	d - 242 s - 5.0 KTS	
0700	43° 39.79 67° 52.18	d - 237 s - 5.0	0655 start 199
0701 - 0706		shut down geopulse to remove weeds	
0730	43° 41.99 67° 51.40	depth 225 speed 5.1	
0800	43° 44.54 67° 50.49	depth 210 speed	
0821	43° 46.44 67° 50.00		A/C leg 51 START TAPE 200 @ 0827
0830	43 46.89 67 49.25	depth 210	
0900	43° 48.70 67° 46.36	depth 221	
0930	43° 50.55 67° 43.30	depth 206 speed 5.9	
1000	43° 52.48 67° 40.23	depth 203 speed 6.0	START TAPE 201 @ 10:01
1026	43° 54.22' 67° 37.36'		C/C - decr speed to 3.5 ft
			Swing wide left to 208°
1031	43° 54.33' 67° 37.55'		On course 208°
1039		?	Mark Position
1127	43° 54.09' 67° 37.79'	P Core 13	Hit tough pullout ~~[illegible]~~ tension ~~[illegible]~~

SEISMIC PROFILING CRUISE TRACK LOG

PROJECT: GOM 1990 NSF OPERATORS: Schnitker & Belknap

DATE: 8/10/90 WEATHER: Calm, fog

LOCATION: GOM-JB-90-52 Jordan Basin toward Yarmouth, NS

VESSEL: R/V Cape Hatteras SEISMIC SYSTEM: Geopulse/12KHz PAGE: 44 OF 44

TIME	LORAN-C	OTHER NAVIGATION	COMMENTS
1240	43° 54.80 67° 37.43	Deployed Geopulse	
1242	1640 43° 54.85' 67° 37.49' S.O.L.	S.O.L.	GOM - 90 - 52
1300	43 54.65 67 35.98	Start of tape 202 at 1300	
1330	43° 51.74 67° 33.63	210 m O.C. 145°	
1400	43 49.86 67 31.33	depth 218	
1430	43 47.82 67 29.14	depth 221 speed 5.3	1433 Start tape 203
1500	43 45.87 67 26.79	depth 212 5.4	
1530	43° 43.66 67 24.31	depth 199	
1600	43° 41.41 67° 21.47	depth 211 Speed 6.1	1607 Start tape 204
1630	43° 38.60 67° 18.52	depth 208 speed	1623 - 1627 Shutdown geopulse to remove weed
1700	43° 37.22 67° 17.08	depth 182 speed 4.7	1649 Checking geopulse hydrophone
1707	43° 36.81 67° 16.83	C/C for traffic	
1730	43° 35.84 67° 14.47	depth 158	
1800	43° 33.66 67° 12.58	depth 210 speed 4.7	1759 Start tape 205
1830	43° 31.63 67° 10.16	depth 218 speed 6.2	
1854	43° 29.96 67° 08.06	C/C	EOL 52 SOL - GOM-JB-90-53
1900	43° 30.05 67° 07.39	depth 218 speed 5.0	
1930	43° 31.18 67° 04.47	depth 214 speed 4.7 kts	
1933		START TAPE 206	
2000	43° 32.10 67 01.09	depth 206 speed 5.2	
2030	43° 33.26 66° 58.05	depth 176 speed 5.2	
2042	43° 33.52 66° 56.44		EOL 53 End

Daniel F. Belknap
Field Book #12
May 30, 1989 –
Aug. 20 1990

LIETZ
SINCE 1882

FIELD BOOK

No. 8152-60

7/23/90 NSF Cruise

Board R/V Cape Hatteras
0700
Depart Boothbay 0800
setup gear 0830-0930
Brief scientific crew

Crew

Dick Ogus	Master
Dale Murphy	Chief Mate
Larry Morris	2nd Mate
Orville Week	Chief Engr.
Walter Willis	Asst Engr.
Curtis Oden	Deck Engr.
Byron Boyer	Seaman
Lester Salter	Seaman
Bob Lipscomb	Steward
Jim Collinger	Messman

Scientists

Dan Belknap	Detmar Schnitker
Larry Reynolds	Tania Barchus
Barbara Batchelor	
John Peck - URI	Susan Pederson
Kate Steinhacker	
Gordon Fader, Shawn Pecore	
Bedford Inst.	

Techs - Tim Boynton
Graham Standen
1000 - Start 3.5 KHz watch
1100 - Safety Briefing
1200 - Start first watch
1620 - Start Airgun - problems with solenoid trigger cord. Collecting data by 1645

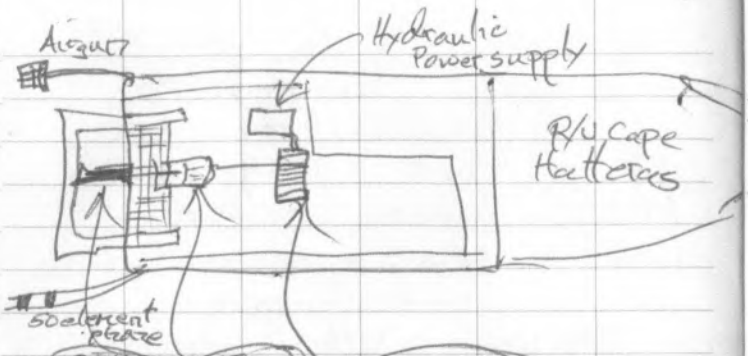
Start with 12-4 watch - Belknap, Barchus, Reynolds, Pederson

Airgun Turn across Northern Jordan basin
High vert. exaggeration

channels in Triassic - edge effect diffracts

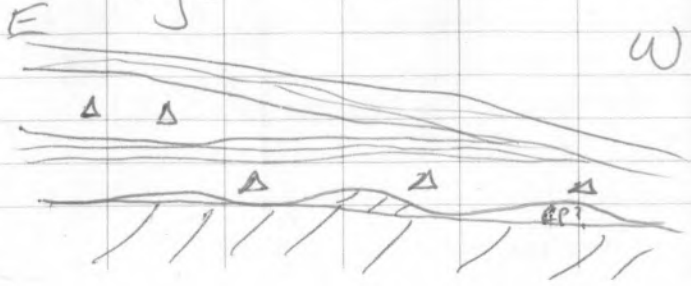
Shut down airguns 2300
Deadhead to Yarmouth

Arrive Yarmouth 30530
Load Hunter gear
0930 - 1440 add 3=
Graham Standen, Gordon Fader, Shawn Pecore



12.0 KHZ & Huntec
underway at 1705
500-5000 HZ filters
Running from Lurcher Shoal to Jordan Basin

E Edge of Jordan Basin - Lurcher shoal shelf
Thick till, iceberg furrows & hummocks
7/25 1040 Till Tongues - feather edge



External Hydrophone - lower frequencies & deeper penetration
Internal Hydrophone higher frequencies & greater resolution

Deeper Jordan basin - thicker GM & Holocene, but discontinuous, thin over till highs.

Turnonto JB-3 - ∥ to shore, offshore of existing lines: narrow sediment ponds, current erosion & drifting of Holocene?

Excellent sediment sections at end of JB-3

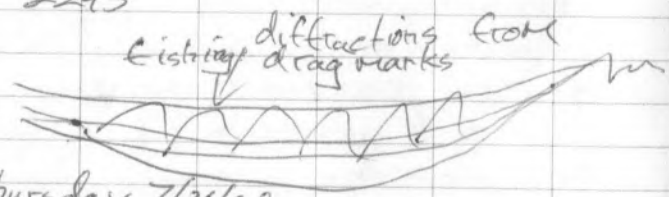
JB-4 Start 5 in³ airgun - run simultaneously with Huntec - slight record degradation

1415 - Faulting?

1430 - 1600 Triassic basin on airgun profile, hard GM & Till

Continuous mud basin - 1656 on Till Tongue 1901

Thickest basin section 2245

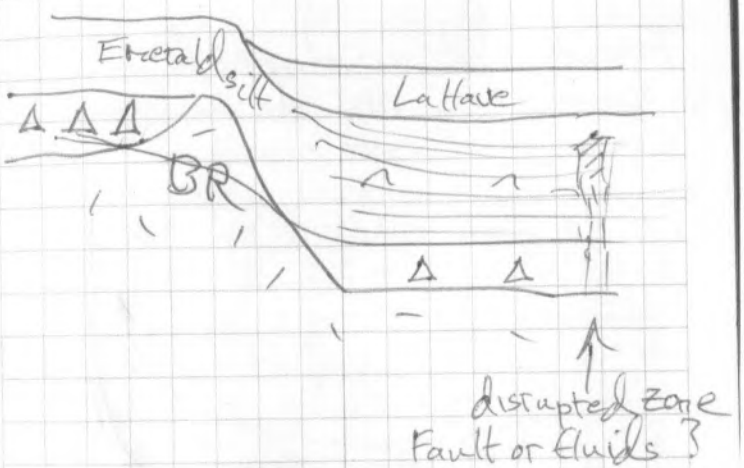


Thursday 7/26/90

Depth limited iceberg furrows on Truxton swell

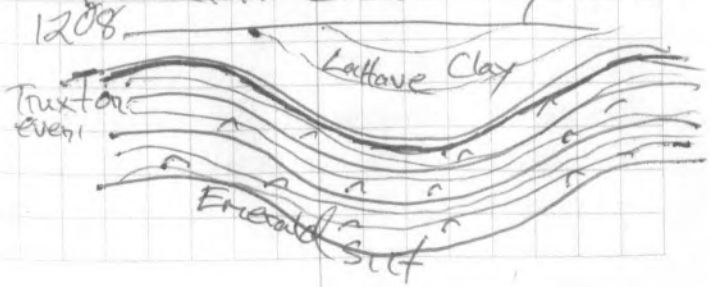
0320 - GM - stratified transition from "till" over Truxton Swell

0925 Transition into Crowell Basin - "Lattave"



1130 - Excellent core localities

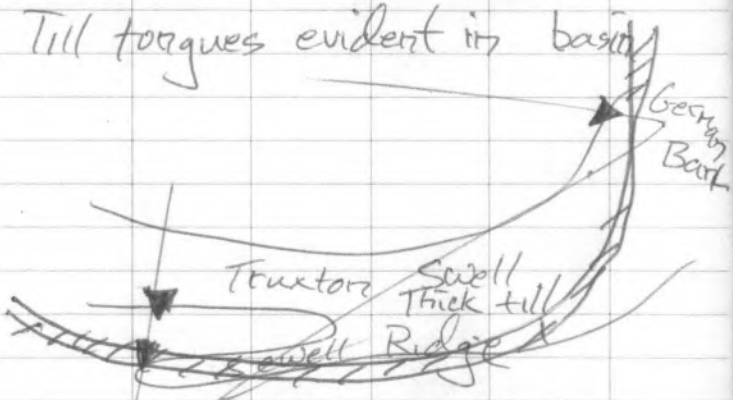
1200 - Ice rafted detritus, Truxton event very clear



Thick Sections of GM across Crowell Basin

Thursday BM - selected core sites in Jordan and Crowell Basin.

Till tongues evident in basin



Arcuate till tongue front in Truxton Swell area.

Truxton Event in Crowell Basin - post till tongue ? - Return to ice-proximal conditions.

Friday 7/27/90 - Cross Southern Jordan Basin on line 6 to deepest portion. Break line at cross point with line GOM-1B-90-9, at 150 fm basin.

Begin piston coring

CH-90-10 PC-1
40' pipes - Holocene ?
muddy basin in center of Jordan Basin Deep
Olive mud to bottom
2 attempts due to problem with scope on first attempt
2nd - PC-1A - full 38' of core (11.97 m)
274 m water depth

CH-90-10 PC-2 -
attempt to core highly reflective "Emerald A?", iceberg furrowed surface.
First attempt 40' pipes - only 1.5 pipes full, to long, poor penetration.
PC-2A, 30' pipes, excellent

penetration and recovery
7.84 m out of 9.12
238 m Water depth

CH-90-10 [CH1090]
PC-3 60' pipes to sample complete section through Holocene and deglacial sections.
15.91 m out of 18.24
(53') 240 m water depth
Lots of work horsing pipes along the racks on starboard side.
Penetration to well stratified reflector - Emerald A? - Brick-red sandy, gravelly mud! Distinct color change, stiff gritty mud.

Finish Coring 1858
Finish cleanup, labelling by 2100 -
Cut cores generally into 5' sections for easier handling.
John Peck - URI grad student of John King - Magnetic Susceptibility Measurements

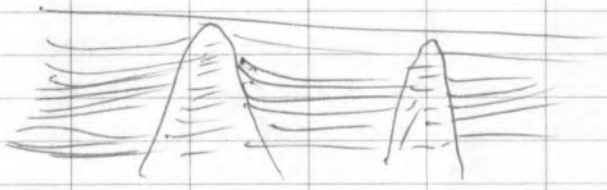
on all cores - Confirm visual estimates of Holocene vs. glacial: Terrigenous clastics higher in magnetic minerals, glacial materials very high readings

Resume Seismic lines -
Start with CTD at deepest point of basin
Clear distinction between Surface water, above Thermocline of 7.5 to 18 °C, with 32.5 ‰ S,
Versus Maine Intermediate water of 6°C, 34.2 ‰ S and very clear, versus Slope Intrusion water, 6.5°C, 34.7 ‰ S, decreased transmission

Start Huntec at 2215
7/28/90 Excellent Stratigraphy in "New Found Basin", and along Line JB toward Truxton Basin
Massive Till tongues at 8°1000 et seq.

1154 Buried Pockmark
1330 –
Examples of iceberg turbation ? disruption of GM beds

at 1500 – other disrupted beds or "liftoff moraines"



Zig Zagging over western margin of Jordan Basin to Davis Swell – proceed to Truxton swell

7/29/90 Sunday
Midnight watch –
Traverses over Truxton Swell, till tongues and Iceberg furrows

0800
Numerous abrupt transitions from GM to massive "till" – no clear wedging till-tongues – a complex ice grounding-line history

Till Tongue – 1418 – excellent homogeneous till, sharp edge pointing south into Crowell Basin
Well stratified parallel reflectors – GM, ice-rafted in Crowell.

1600 – 70m Thick Quaternary record
Buried Pockmark
1630
Moat – "Taylor Effect" – Resistant GM vs Lattave Clay

Evening – PC-4 into Truxton Event
2 Gravity cores –
Gas in Sections 3 & 4 of PC – extruding through

07/30/90

Caps. Gravity cores penetrate gravelly mud.

Drilled cores to allow gas escape.

Seismic towards Georges Basin

Cross Georges "Devils Tower" - bedrock outcrop at 0610. Spectacular seismic - pinchouts and moating.

Erosion, cut & fill structures on Georges Bank North edge. Till tongue

0800 — K-T BR with dipping Reflectors

0930 Sand waves

Lowstand shoreline ? ~ 90m

Return to center of Georges Basin - at Georges Basin "Tower"

Core 5 60' in full Emerald silt (& Lattave clay) Gas charged

Core 6 40' lower section in Emerald B - gas charged

Gravity core 3 into moat at toe of Tower - Emerald A?

Finish Cores 10 PM - resume Hurtec

Building seas -

7/31/90

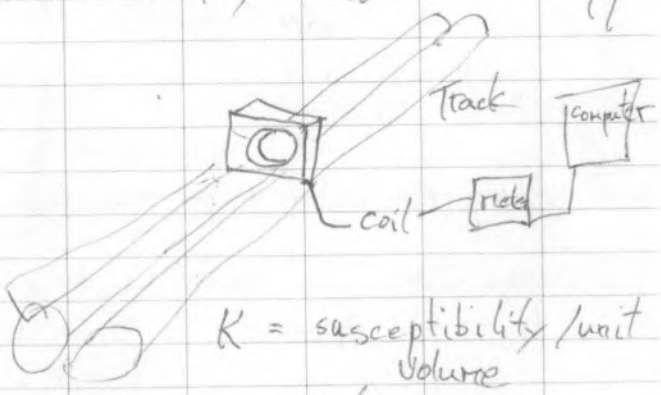
Hurtec Run until 0100

Abandoned profiling due to storm

conditions -
By morning - Hurricane Bertha
Ran first towards Yarmouth, then towards Portland.
Oil Leak - port shaft - problem for high speed runs. Continued deterioration.

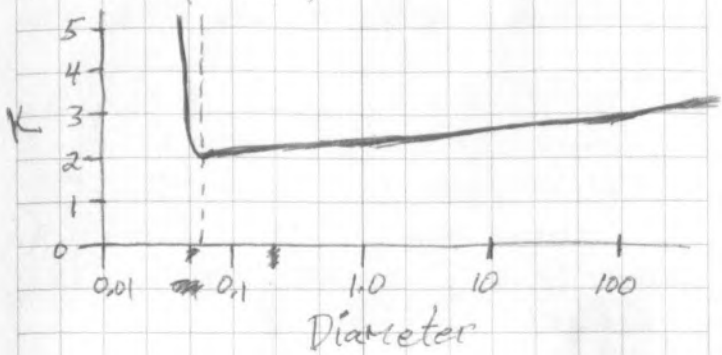
Measurement of magnetic susceptibility in cores -

Environmental Magnetism
Roy Thompson & Frank Oldfield, 1986
Allen & Unwin, London 227 pp.



K = susceptibility / unit volume
= M/H
1 (SI unit) = $4\pi G\ Oe^{-1}$
gauss / oersted
$m^3\ kg^{-1}$

Susceptibility vs diam.



K mainly a consequence of magnetite

Repeats ~ 0.2 variance

Remainder of day archiving data

Arrive Portland 2000
Graham checked by doctor
8/1/90 Depart 0915 for Wilkinson Basin Hurtec
start 0950

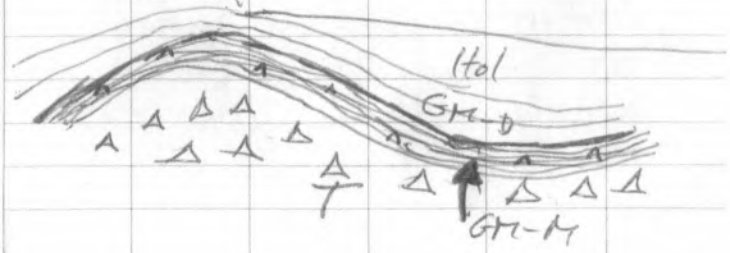
Traverse to Jeffreys Basin
Bedrock with isolated basins

Thick basin with mounds, draping geometry of GM-D - "liftoff moraines" are clearly a shear zone along flanks of GM highs, areas too steep to image

1830 Top of Jeffreys Ledge - Till & strat sed over BR - Bedforms

* 1935 - Till tongues and lenses

Excellent coring location
2035 - variety of strat outcrops

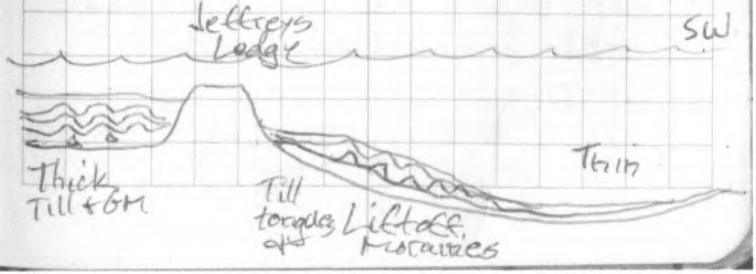


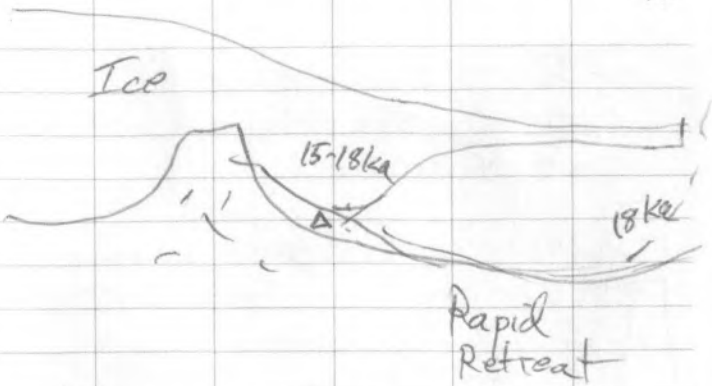
2230 - hummocky till overlain by draped glaciomarine.

2240 - Lift-off moraines?

Gordon - info on FMG Project - GIS in Gulf of Maine - joint Dalhousie, BIO, St. Mary's University

8/2/90
Thin sediment across most of SW Murray/Wilkinson basin - thickening only in central zone. Till, rapid ice retreat/disintegration, then slow sed accum. Contrasts strongly with Jeffreys Basin





Thick Quaternary only in axis of Wilkinson basin below ~ 140 m contour

1735 Till tongue sandwiched between GM highly stratified

1853 Till tongue

2210 - Wildcat knoll - Bedrock, till mantle - note deeply eroded channel on W side with strat-GM ? overlain by till

Also - Thick GM with a fault ? in the center

8/3/90 - Overnight - 10 m ave GM → good stratigraphic tracer
0440 Pockmark - Holocene and GM

Fippennies Ledge - BR, Till, and sandy cover - prograding clinoforms to W

Thin GM draped over till in central Wilkinson Basin
No sign of thick GM
1000 - Iceberg furrowing intense
1100 - "pockmark" - need to separate processes: pockmarks vs current erosion of draped GM over hummocks

Excellent late Quaternary section in axis of Wilkinson Basin,

1430
End at Jeffreys Ledge.
Afternoon:
Piston Coring —
core 7 — 60' in Northernmost
Murray Basin — good recovery
Jeffreys Basin
Core 8 — 40' — buried
corer in mud — mud to
piston. — Later stages of
section — transparent mud.
CTD in basin at core site

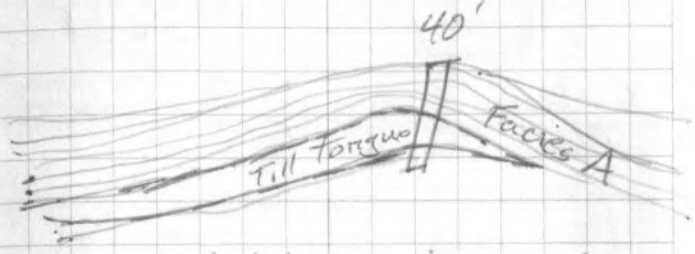
2054 — resume Huntec
Seismic.
2130 as many as 4 tills
interbedded with (gm?)

Graham Starden Home Phone 902-865-6005 902-463-0932

8/4/90 — Break off seismics
at 0400 — excellent
till tongues, thick GM
clanking northern Platts
Bank and Jeffreys Ledge

Oil leak, port shaft, increasing.
Problem for high speed runs.
Drop Graham off in Portland —
Arm infection not improving
sufficiently to chance continuing

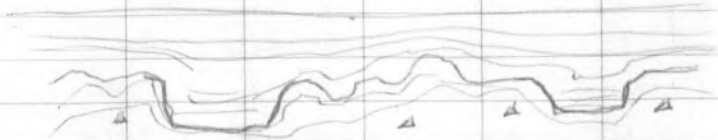
Proceed to core site 9.



Core mistake — wire snarl —
but a full 38' core recovered.
Pebbly mud. "Till tongue"
May be massive mud.
Resume Huntec 1300

Thin blanket of draping GM +
H over variable till
Turn to Platts Bank —
Flat-topped till w. stg cover.
0000 8/5/90 Sunday
Platts Bank to Wilkinson
Basin: Spectacular
till tongue sequence —

"slotted" and hummocky appearance to Facies A and underlying till.



Iceberg furrows? or water-flow channels.

Spectacular till tongue SW of Platts Bank.

Till tongues & thick GM, center of Wilkinson Basin

0815 - Core site 10 - 6-10' sections, 54' recovery, stiff reddish gravelly mud at base

Resume Huntec 1200 - Gradually thinning GM or Hol. over hummocky till - flow out the SE channel creating iceberg furrows?

Thinning of Quaternary stratified continues to S. Thick till, ice pinning on bedrock high at Franklin Swell, return to thin drift to S.

8/6/90 Monday

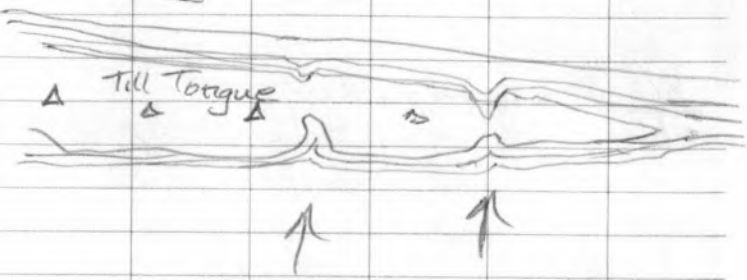
Thin drift, hummocky, with some Holocene to turn at S end of Wilkinson Basin.

Turn to NE same hummocky till surface continues.

Problems with stylii on recorders - See 0420 for example (Internal phone) Broad tip stylii work best.

Thick till over ~~Howell~~ Swell bedrock pinning point Iceberg furrows

Rodgers Basin
0841 Till tongue
Thick GM, facies A & B
overlain by Transparent
postglacial.



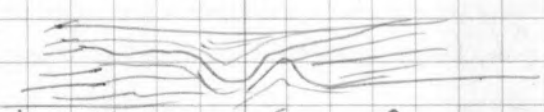
Disruptions - water
escape structures? -
or ice tectonics

Thick GM only in axis
of Rodgers. Thick till
on N Margin, hummocky
till on S Margin - Coastal
Plain? or till over BR.
Bed rock pinning points on
Parker Ridge

Excellent till tongue at
1901

1922 Ice tectonics?
note draping or concentric
folding - dying out into
basin

1940 - Iceberg loading
structures?



spectaclur line for many
purposes
2147
Rodgers Basin "Paleotower" analogous
to Georges Basin

Preparing for core 11

Core 11 - failed to trip, fell on side?

138

Core 11 - 2nd Failure - piston jammed in 2nd pipe. Two liner sections jammed together?
1½ knot currents.

8/7/90
Worked until 4AM, then gave up the core, attempted to restart Huntec - Huntec cable termination fraying - reinforced, but failed when deployed.

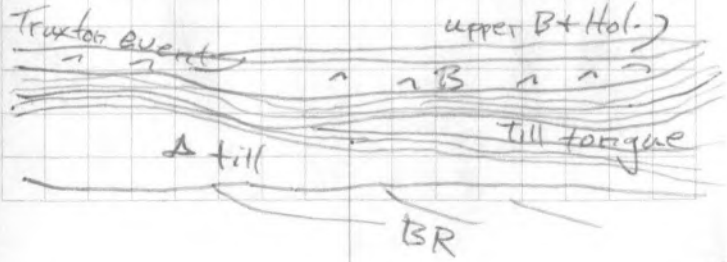
Tim determinated, but after 20 hrs of work, fish flooded.
Several iterations of repairs with no ultimate success - insufficient spares.

Deployed Geopulse at ¼ sec sweep. Excellent data on EPC 1600 and EPC 3200, different filtering ranges.

Till over bedrock & thick till characterize Stout Swell and eastern Franklin Basin.
Run up on Georges Bank suggests 160 m notch - current activity?
Bedrock reflectors, till tongues.

8/8/90 Lindenkohl Basin - excellent GM & till tongue sections.
Lindenkohl Knoll, till, iceberg furrows

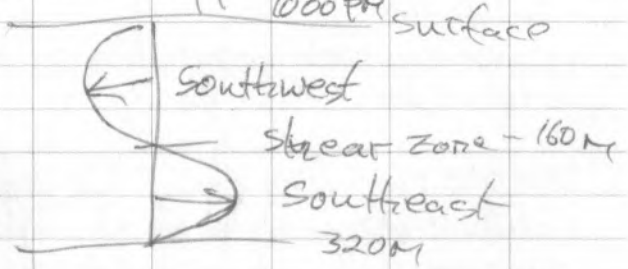
Western Georges Basin: Till tongues, flat BR erosional unconformity



Similar Georges Basin - Bank
Zig Zag.
Outstanding lines - 45 & 46, over till tongues, complete GM sections.

6 Section core prepared for Thursday

8/9/90 - Thick till, iceberg furrows over stout swell
Start Doppler Current Meter

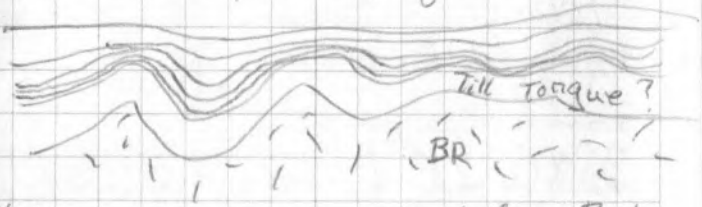


Shear zone corresponds to water masses. CTD at point G5 reveals sharp contrast between Slopewater at 8.5°C, 34.6‰S and Cold intermediate water 4°C, 32.5S

Shear also corresponds to terraces, sand waves ?

Thick tills, till tongues coming out of Georges Basin.

Outstanding records on Geopulse - (Return 1100 - 1300)
Rodgers Basin Y
Lindenkohl Basin - excellent thick till, GM sequences



Till tongue pinches out against Georges Bank
1447
Core 12 - 0700 - 6 pipes - no luck. Tripped & penetrated 15', but bent nose core indicates a dropstone. Penetration stopped at full 55-60' with brown diamict, but core only 15'.
Core 12A - 4 pipes, successful
Olive mud over gravelly brown mud

Afternoon - resume Geopulse profiling across Lindenkohl - turn to Jordan Basin. Thick till, but bedrock control of ridges.

8/10/90

Turn into Jordan Basin - Thinner GM on W Margin

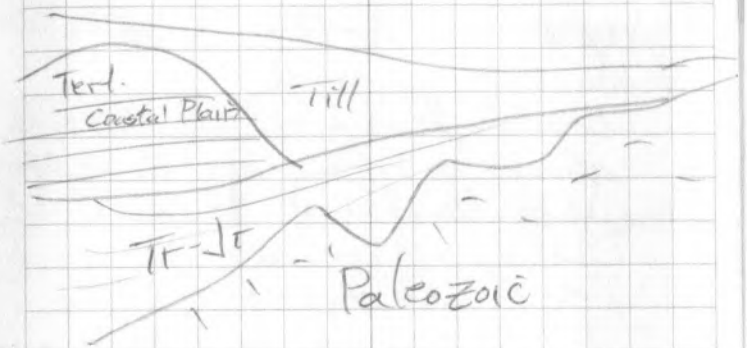
Bedrock ridges, abundant pinnacles under till, GM.

Triassic basin distinct from crystallines

Attempted Core PC-13 in well stratified Emerald "A" 30'
Core bent - recovered 15' of gravelly brick red diamict

Afternoon - continue Geopulse across Jordan Basin to Eastward core sites.

White Rock Fm Meguma Group
2000 Paleozoic BR, Triassic, Tertiary Outlier, Till



Final Core - PC-13 in Facies A - 3 pipes - Bent at end joint. Abandonned plans for next core
Seismic until 1900 -

8/11/90 - Steam to
Yarmouth, N.S.
arrive 0530 -
Unload Hunter gear.
Disembark Gordon & Sean,
Tim Boynton
Finish 0900
Steam to Boothbay Harbor

8/12/90 - Arrive Boothbay
Harbor 0530 -
Unload cores & seismic
gear - finish 1000 AM -
Unload at ICDC.

Drive to Orono -

Monday - Wednesday -
Office, Orono

Thursday 8/16 -
ICDC start core
preparation & description
8/17, 8/18, same

	SEISMIC DATA INVENTORY				
GULF OF MAINE		**R/V Cape Hatteras**		**CRUISE CH-10-90**	
University of Maine		*Compiled by Daniel F. Belknap, 2021*			
				(add + 4 hr for GMT (Z) found on SAIL data)	
5 in^3 AIRGUN	**Subroll**	**Tracklines**	**Date**	**Time (EDT)**	**Location**
Roll - 01		CH-10-90-01	07/23/90	17:00 - 23:00	N. Jordan Basin W to E
Huntec DTS Internal Hydrophone					
Roll - 01		CH-10-90-02 (partial)	07/24/90	16:50 to	Northern Jordan Basin
			07/25/90	03:15	
Roll - 02	*MISSING*	CH-10-90-02 (cont'd)	07/25/90	02:41 - 07:41	
	Roll 2B	CH-10-90-03	07/25/90	07:42 - 12:30	NW Jordan Basin SW to NE
	Roll 2C	CH-10-90-04 (partial)	07/25/90	12:30 - 22:01	N. Jordan Basin N to S
		(cont'd roll 3)			
Roll - 03	Roll 3A	CH-10-90-04 (cont'd)	07/25/90	22:01 to	S. Jordan Basin N to S
			07/26/90	06:30	
	Roll 3B	CH-10-90-05 (partial)	07/26/90	06:36 - 17:02	Truxton Swell & Crowell Basin
					WSW to ENE
Roll - 04	Roll 4A	CH-10-90-05 (cont'd)	07/26/90	17:06 - 19:00	Eastern Crowell Basin
	Roll 4B	CH-10-90-06a	07/26/90	19:00 to	Yarmouth Shelf to Central
		Break for coring	07/27/90	06:53	Jordan Basin ESE to WNW
Roll - 05	Roll 5A	CH-10-90-06b	07/27/90	22:17 to	Jordan Basin SE to NW
			07/28/90	05:35	
	Roll 5B	CH-10-90-07	07/28/90	05:37 - 16:50	Western Jordan Basin

Roll - 06	Roll 6A	CH-10-90-08	07/28/90	17:08 - 23:33	Davis Swell
	Roll 6B	CH-10-90-09	07/28/90	23:33 to	Jordan Basin, Truxton Swell,
			07/29/90	05:24	Crowell Basin NNW to SSE
	Roll 6C	CH-10-90-10	07/29/90	05:23 - 12:13	Crowell Basin SSW to NNE
Roll - 07		CH-10-90-11	07/29/90	12:23 - 17:24	Georges Basin
		Break for coring	07/29/90	23:29 to	Georges Basin to Georges Bank
		and resume 11	07/30/90	09:58	N to S
	NOTE: CH-10-90-12 is 3.5 kHz only				
Roll - 08		CH-10-90-13	07/30/90	12:00 to	Georges Basin tower and moat
		CH-10-90-14			detailed survey
		CH-10-90-15		13:58	
Roll - 09		CH-10-90-16	07/30/90	13:58	Mapping "Georges Tower"
		CH-10-90-17		to	and moat
		CH-10-90-18			
		CH-10-90-19			
		CH-10-90-20	07/31/90	01:00	
	NOTE: break off SE Gulf to run from Hurricane Bertha, proceed Portland, then NW Gulf				
Roll - 10	Roll 10A	CH-10-90-21	08/01/90	10:50 to	Jeffreys Basin to
		CH-10-90-22		22:23	NW Wilkinson Basin
		CH-10-90-23 (partial)		22:23 to	NNE tp SSW then NNW to SSE
	Roll 10B	CH-10-90-23 (cont'd)	08/02/90	00:33	Murray Basin NNW to SSE
Roll - 11	Roll 11A	CH-10-90-23 (cont'd)	08/02/90	00:33 - 05:20	Murray Basin N to S
	Roll 11B	CH-10-90-24	08/02/90	05:21 - 13:48	S. Wilkinson Basin
Roll - 12		CH-10-90-25 (partial)	08/02/90	13:48-19:40	Sharrer Ridge to Wildcat Knoll
Roll - 13	*MISSING*	CH-10-90-25 (cont'd)	08/02/90	19:40 - 22:43	

	Roll 13B	CH-10-90-26	08/02/90	22:44 - 01:00	Wildcat Knoll S - N
		CH-10-90-27	08/03/90	01:00 - 07:37	Central Wilkinson Basin SW-NE
		CH-10-90-28	08/03/90	07:37 - 14:24	
Roll - 14		CH-10-90-29	08/03/90	20:54 to	N. Wilkinson Basin and
			08/04/90	01:00	Platts Bank
		CH-10-90-30	08/04/90	01:00 - 04:04	Platts Bank to Jeffreys Ledge E-W
Roll - 15	Roll 15A	CH-10-90-31	08/04/90	12:40 - 15:53	Jeffreys Basin SSW - NNE
		CH-10-90-32	08/04/90	15:53 - 20:30	N. Wilkinson Basin
	Roll 15B	CH-10-90-33 (partial)	08/04/90	20:26 - 23:12	NE Wilkinson Basin NE to SW
Roll - 16	*MISSING*	CH-10-90-33 (cont'd)	08/04/90	23:12 - 02:36	N. Wilkinson Basin NE - SW
	MISSING	CH-10-90-34 (partial)	08/05/90	02:36 - 08:00	C. Wilkinson Basin axis NNW-SSE
Roll - 17		CH-10-90-34 (cont'd)	08/05/90	11:06 - 16:08	Wilkinson Basin axis NW - SE
		CH-10-90-35 (partial)	08/05/90	16:08 - 22:00	S. Wilkinson Basin NNW - SSE
Roll - 18		CH-10-90-35 (cont'd)	08/05/90	22:06 - 22:48	S. Wilkinson Basin NNW - SSE
		CH-10-90-36	08/05/90	22:48 to	Franklin Swell - Howell Swell -
			08/06/90	10:25	Rodgers Basin - Jacques Swell
Roll - 19		CH-10-90-37	08/06/90	10:26 - 12:11	Jacques Swell SSW - NNE
		CH-10-90-38 (partial)	08/06/90	12:11 - 15:17	Rodgers Basin E to W
Roll - 20		CH-10-90-38 (cont'd)	08/06/90	15:17 - 17:04	Rodgers Basin E to W
		CH-10-90-39	08/06/90	17:04 - 21:14	Parker Ridge to Rodgers Basin
		CH-10-90-40 (partial)	08/06/90	21:14 - 22:20	Rodgers Basin
		CH-10-90-40 (cont'd)	08/07/90	03:52 - 04:31	Franklin Basin
Huntec Failed - Continue with ORE Geopulse (surface towed)					
ORE Geopulse - 19" Rolls					
Roll - 01		CH-10-90-40 (cont'd)	08/07/90	06:15 - 08:26	Franklin Basin NW to SE

		CH-10-90-41 (partial)	08/07/90	08:26 - 13:30	
Roll - 02		CH-10-90-41 (cont'd)	08/07/90	13:33 - 15:11	to N flank Georges Bank
		CH-10-90-42	08/07/90	15:11 to	Western Georges Basin
			08/08/90	01:06	
		CH-10-90-43	08/08/90	01:06 - 06:15	
		CH-10-90-44	08/08/90	06:15 - 12:13	
		CH-10-90-45 (partial)	08/08/90	12:13 - 15:00	Central Georges Basin
Roll - 03		CH-10-90-45 (cont'd)	08/08/90	15:00 - 17:52	S. Georges Basin SW to NE
		CH-10-90-46	08/08/90	17:52 - 01:04	W. Georges Basin ENE to WSW
		CH-10-90-47	08/09/90	01:04 - 09:45	Georges to Franklin ESE to WNW
		CH-10-90-48	08/09/90	10:54 - 17:48	Franklin to Crowell W to E
		CH-10-90-49	08/09/90	17:48 - 20:50	
		CH-10-90-50	08/09/90	20:50 - 02:48	To Jordan Basin
		CH-10-90-51 (partial)	08/10/90	02:48 - 06:37	Jordan Basin
Roll - 04		CH-10-90-51 (cont'd)	08/10/90	06:45 - 11:27	W. Jordan Basin S to N
		CH-10-90-52	08/10/90	12:59 - 18:54	NW Jordan Basin NW to SE
		CH-10-90-53	08/10/90	18:54 - 20:40	N. Jordan Basin toward
END OF SEISMIC DATA					Yarmouth, NS
ORE Geopulse - 9" Rolls			**Note: Recorded simultaneously with 19" rolls**		
Roll - 01a		CH-10-90-40 (cont'd)	08/07/90	06:00 to	Rodgers Basin - Franklin Basin -
		CH-10-90-41	08/07/90	15:11	end at Georges Bank
Roll - 01b		CH-10-90-42	08/07/90	15:11 to	Western Georges Basin
		CH-10-90-43 (partial)	08/08/90	04:00	Lindenkohl Knoll - Georges Basin
Roll - 02a		CH-10-90 (cont'd)	08/08/90	04:08 to	Georges Bank - Georges Basin

		CH-10-90-47	08/09/90	07:00	
Roll - 02b		CH-10-90-48	08/09/90	07:00 to	Rodgers Basin - Lindenkohl Basin
		CH-10-90-50 (partial)	08/09/90	22:00	Crowell Basin
Roll - 03		CH-10-90-50 (cont'd)	08/09/90	22:15 to	
		CH-10-90-53	08/10/90	20:42	Jordan Basin
END OF SEISMIC DATA					
3.5 kHz and 12 kHz PDR - 19" Rolls			*12 kHz for standard Precision Depth Recorder		
			*3.5 kHz generally in support of coring operations		
		Tracklines	**Date**	**Time (EDT)**	**Location**
Roll - 01a	3.5 kHz	CH-10-90-01	07/23/90	07:23 - 23:00	Northern Gulf of Maine W - E
Roll - 01	12 kHz	CH-10-90-02	07/24/90	07:17 to	Northern Gulf of Maine E - W
		CH10-90-03	07/25/90	12:15	
Roll - 02	12 kHz	CH-10-90-04 to	07/25/90	12:35 to	Jordan Basin
		CH-10-90-06 (partial)	07/27/90	06:45	Crowell Basin
Roll - 02a	3.5 kHz	Coring PC-90-01	07/27/90	07:00 - 12:58	Jordan Basin
		PC-90-1a			
Roll - 02b	3.5 kHz	Coring PC-90-2a	07/27/90	12:58 - 22:07	Jordan Basin
		PC-90-03, CTD-01			
	12 kHz	CH-10-90-06 (cont'd)	07/27/90	22:13 to	Jordan Basin
	12 kHz	CH-10-90-10 (partial)	07/28/90	12:00	East of Davis Swell
Roll - 03	12 kHz	CH-10-90-11a	07/29/90	12:00 - 17:35	Crowell Basin
	3.5 kHz	Coring PC-90-04	07/29/90	17:35 - 23:18	
	12 kHz	CH-10-90-11b -	07/29/90	23:18 to	Georges Basin
		CH-10-90-19	07/30/90	16:21	"Georges Tower" detailed survey
	3.5 kHz	Coring PC 90-05, 06	07/30/90	16:30 - 22:10	

	12 kHz	CH-10-90-20	07/30/90	22:10 to	
			08/01/90	01:00	
	Break for Hurricane Bertha				
	12kHz	CH-10-90-21	08/01/90	10:45 - 14:30	Jeffreys Basin
Roll - 04	12kHz	CH-10-90-22 to	08/01/90	19:45 to	Wilkinson Basin - Murray Basin
		CH-10-90-28	08/03/90	15:15	
	3.5 kHz	Coring PC-90-07	08/03/90	15:15 - 17:25	Wilkinson Basin
Roll - 05	3.5 kHz	Coring PC-90-08	08/03/90	17:30 - 2100	Jeffreys Basin
	12 kHz	CH-10-90-29, 30	08/03/90	21:00 to	Wilkinson Basin
			08/04/90	04:05	
	3.5 kHz	no seismic	08/04/90	04:05 - 06:30	to Portland, ME
	Break for medical emergency				
	3.5 kHz	Coring PC-90-09	08/04/90	09:07 - 11:45	Jeffreys Basin
	12 kHz	CH-10-90-31 to	08/04/90	11:45 to	Jeffreys Basin
		CH-10-90-34 (partial)	08/05/90	08:20	
	3.5 kHz	Coring PC-90-10	08/05/90	08:30 - 11:10	Wilkinson Basin
	12 kHz	CH-10-90-34, 35	08/05/90	11:10 - 21:31	Wilkinson Basin
Roll - 06	12 kHz	CH-10-90-35, 35	08/05/90	21:31 to	Wilkinson Basin to
		CH-10-90-36 to 40	08/06/90	22:23	Rodgers Basin
	3.5 kHz	Coring PC-90-11, 11A	08/06/90	22:26 to	Rodgers Basin
		(no recovery)	08/07/90	06:43	
Roll - 07	12 kHz	CH-10-90-40 to 41	08/07/90	06:45 - 11:15	Stout Swell to Franklin Basin
Roll - 08	12 kHz	CH-10-90-41 (cont'd)	08/07/90	11:30 to	Franklin Basin
		to 42 - 46 (partial)	08/08/90	21:36	Georges Basin and Georges Bank
Roll - 09	12 kHz	CH-10-90-46 (cont'd)	08/08/90	21:36 to	Franklin Basin

		to 47, 48 (partial)	08/09/90	01:04 - 07:00	Rodgers Basin
	- - - - -	Coring PC-90-12A	08/09/90	07:00 - 10:55	Rodgers Basin
	12 kHz	48 (cont'd), 49	08/09/90	10:55 to	Crowell Basin - Jordan Basin
	12 kHz	50, 51 (partial)	08/10/90	09:50	Jordan Basin
Roll - 10	12 kHz	CH-10-90-51 (cont'd)	08/10/90	10:19 - 10:43	
	- - - - -	Coring PC-90-13	08/10/90	10:43 - 12:40	W. Jordan Basin
	12 kHz	CH-10-90-52 - 53	08/10/90	12:40 - 20:30	Jordan Basin to Yarmouth, NS
END OF PDR DATA					

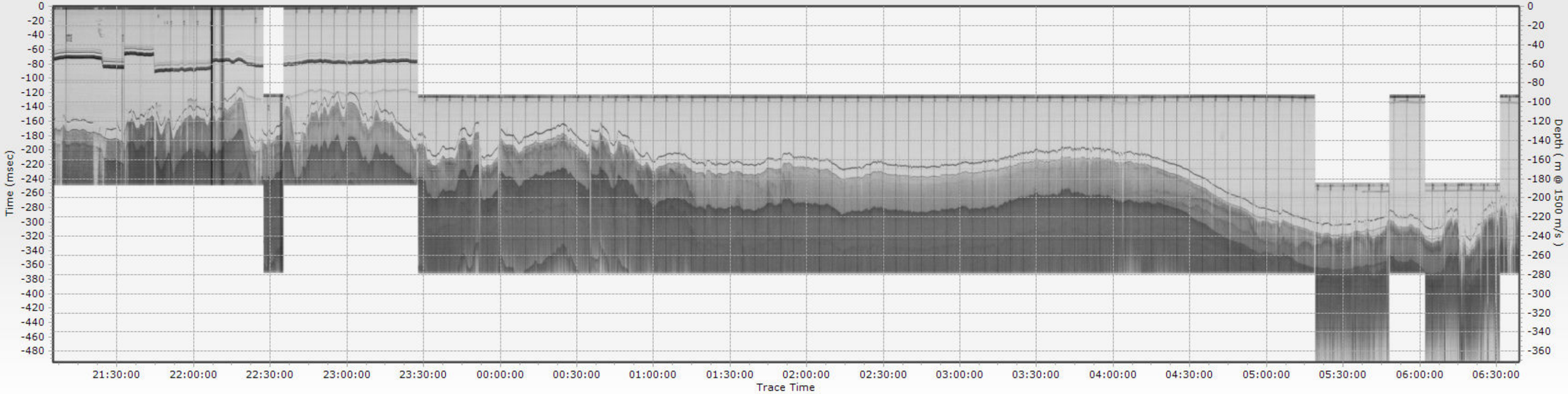
Huntec DTS External Hydrophone			(simultaneous with INTERNAL but Roll lengths vary slightly)		
		Tracklines	**Date**	**Time (EDT)**	**Location**
Roll - 01		CH-10-90-02 (partial)	07/24/90	17:05 to	Nova Scotia W Shelf to
			07/25/90	02:38	Northern Jordan Basin
Roll - 02		CH-10-90-02 (cont'd)	07/25/90	02:41 - 07:41	Northern Jordan Basin E-W
		CH-10-90-03	07/25/90	07:41 - 12:28	NW Jordan Basin SW-NE
		CH-10-90-04 (partial)	07/25/90	12:28 - 21:15	Jordan Basin N-S
Roll - 03		CH-10-90-04 (cont'd)	07/25/90	21:16 to	Jordan Basin - Truxton Swell -
			07/26/90	06:31	Crowell Basin
		CH-10-90-05 (partial)	07/26/90	06:31 - 18:00	Crowell Basin WSW - ENE
Roll - 04		CH-10-90-05 (cont'd)	07/26/90	18:01 - 19:02	E. Crowell Basin WSW - ENE
		CH-10-90-06a	07/26/90	19:03 to	Jordan Basin
		break for coring	07/27/90	06:52	
Roll - 05		CH-10-90-06b	07/27/90	22:17 to	Jordan Basin SE to NW
			07/28/90	05:35	
		CH-10-90-07	07/28/90	05:37 - 16:50	Western Jordan Basin
Roll - 06		CH-10-90-08	07/28/90	16:48 - 23:32	Davis Swell
		CH-10-90-09	07/28/90	23:32 to	Jordan Basin, Truxton Swell,
			07/29/90	05:24	Crowell Basin NNW to SSE
		CH-10-90-10	07/29/90	05:23 - 12:13	Crowell Basin SSW to NNE
Roll - 07		CH-10-90-11a	07/29/90	12:43 - 17:25	Georges Basin
		Break for coring	07/29/90	23:29 to	Georges Basin to Georges Bank
		and resume 11	07/30/90	09:58	N to S

		NOTE: CH-10-90-12 is 3.5 kHz only			
Roll - 08		CH-10-90-13	07/30/90	12:00 - 13:12	Details of "Georges SE-NW
		CH-10-90-14	07/30/90	13:12 - 13:36	Tower" and moat NW-SE
		CH-10-90-15	07/30/90	13:36 - 13:58	SSW - NNE
		CH-10-90-16	07/30/90	13:58 - 14:29	NNW - SSE
		CH-10-90-17	07/30/90	14:29 - 15:01	S - N
		CH-10-90-18 (partial)	07/30/90	15:01 - 15:34	NNW - SSE
Roll - 09		CH-10-90-18 (cont'd)	07/30/90	15:33 - 15:38	"Georges Tower" and moat
		CH-10-90-19	07/30/90	15:38 - 16:14	
		Break for coring			
		CH-10-90-20	07/30/90	22:05 to	S. Georges Basin N - S
			07/31/90	00:57	
	NOTE: break off SE Gulf to run from Hurricane Bertha, proceed Portland, then NW Gulf				
Roll - 10		CH-10-90-21	08/01/90	10:50 - 16:36	Jeffreys Basin N - S
		CH-10-90-22	08/01/90	16:36 - 22:23	Jeffreys Ledge to Wilkinson
					Divide NNW - SSE
		CH-10-90-23 (partial)	08/01/90	22:23 to	
			08/02/90	01:45	Murray Basin NNW - SSE
Roll - 11		CH-10-90-23 (cont'd)	08/02/90	01:48 - 05:20	Murray Basin N - S
		CH-10-90-24 (partial)	08/02/90	05:20 - 11:38	C. Wilkinson Basin SW to NE
			EPC Recorder problems mid-late line 24		
Roll - 12		CH-10-90-24 (cont'd)	08/02/90	11:38 - 13:48	C. Wilkinson Basin SW to NE
					end at Sharrer Ridge
		CH-10-90-25 (partial)	08/02/90	13:48 - 20:08	C. Wilkinson Basin E - W
Roll - 13		CH-10-90-25 (cont'd)	08/02/90	20:13 - 22:43	Wilkinson Basin E - W

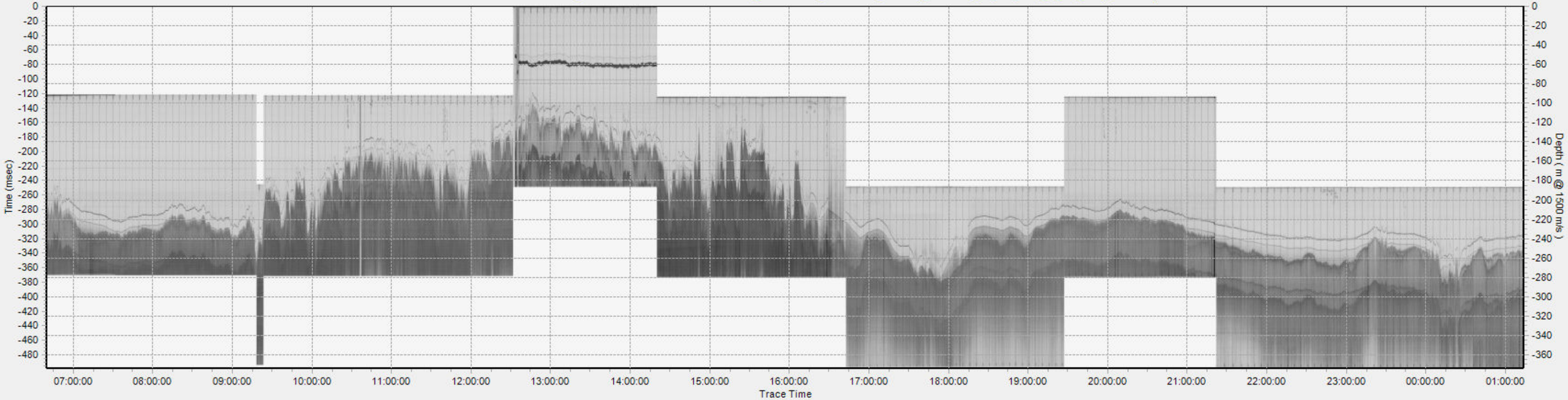
		CH-10-90-26	08/02/90	22:43 to	Wildcat Knoll S - N
			08/03/90	00:36	
		CH-10-90-27	08/03/90	00:36 - 07:37	Wilkinson Basin SW - NE
		CH-10-90-28	08/03/90	07:37 - 14:24	Wilkinson Basin SE - NW
		break for coring			
Roll - 14		CH-10-90-29	08/03/90	20:54 to	Jeffreys Ledge - Wilkinson Basin -
			08/04/90	01:00	Platts Bank SW - NE
		CH-10-90-30	08/04/90	01:00 - 04:03	Platts Bank to Jeffreys Ledge E-W
Roll - 15		CH-10-90-31	08/04/90	12:45 - 15:55	Jeffreys Basin SSW - NNE
		CH-10-90-32	08/04/90	15:55 - 20:26	"Platts Basin" N. Wilkinson W - E
		CH-10-90-33 (partial)	08/04/90	20:26 - 22:00	Platts Bank to N. Wilkinson Basin
Roll - 16		CH-10-90-33 (cont'd)	08/04/90	22:06 to	N. Wilkinson Basin NE - SW
			08/05/90	02:37	
		CH-10-90-34a	08/05/90	02:37 - 08:17	C. Wilkinson Basin axis NNW-SSE
		break for coring			
Roll - 17		CH-10-90-34b	08/05/90	11:11 - 16:08	Wilkinson Basin axis NW - SE
		CH-10-90-35 (partial)	08/05/90	16:08 - 18:25	S. Wilkinson Basin NNW - SSE
Roll - 18		CH-10-90-35 (cont'd)	08/05/90	18:35 - 22:48	S. Wilkinson Basin NNW - SSE
		CH-10-90-36	08/05/90	22:48 to	Franklin Swell - Howell Swell -
			08/06/90	10:25	Rodgers Basin - Jacques Swell
Roll - 19		CH-10-90-37 (partial)	08/06/90	10:26 - 11:57	Jacques Swell SSW - NNE
Roll - 20		CH-10-90-37 (cont'd)	08/06/90	12:00 - 12:11	NE Rodgers Basin SSW - NNE
		CH-10-90-38	08/06/90	12:12 - 17:04	N. Rodgers Basin E - W
		CH-10-90-39	08/06/90	17:04 - 21:14	Rodgers Basin NW - SE
		CH-10-90-40 (partial)	08/06/90	21:14 to	Rodgers Basin NW - SE

				04:31	
Huntec Failed - Continue with ORE Geopulse (see previous listings)					

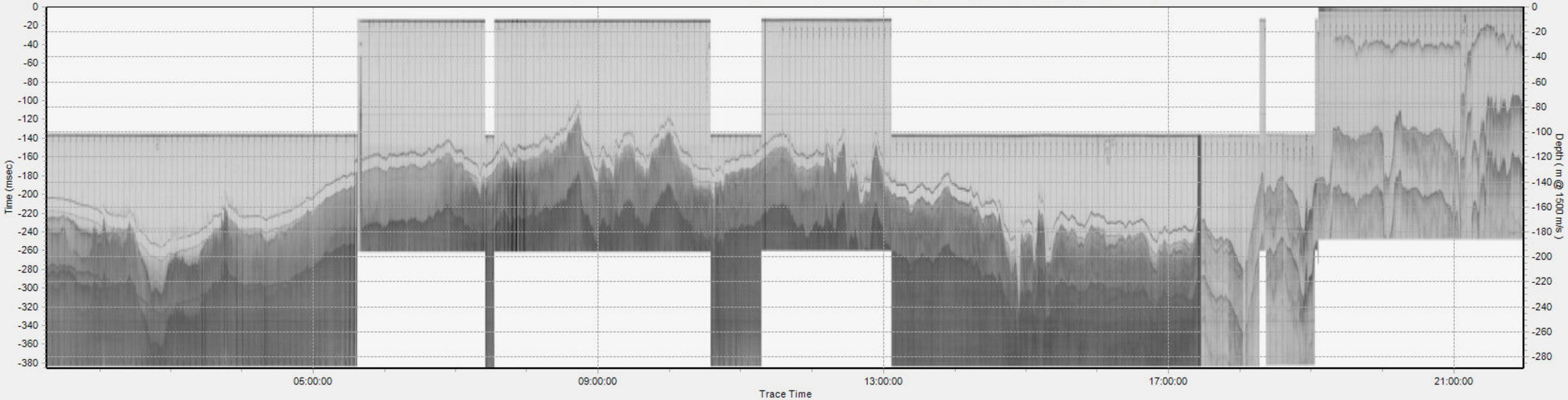
C:\Users\Urist\Desktop\Buisness\Brian Todd\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_205_2105_to_206_0638_halfwave.jp2



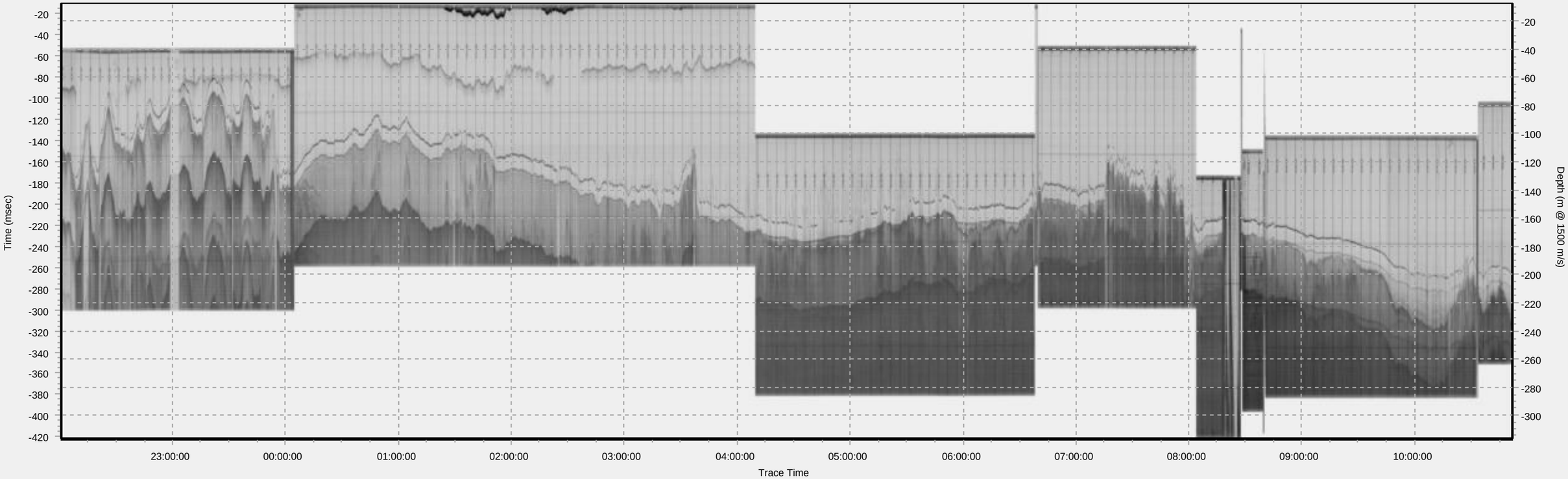
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_206_0640_to_207_0113_halfwave.jp2



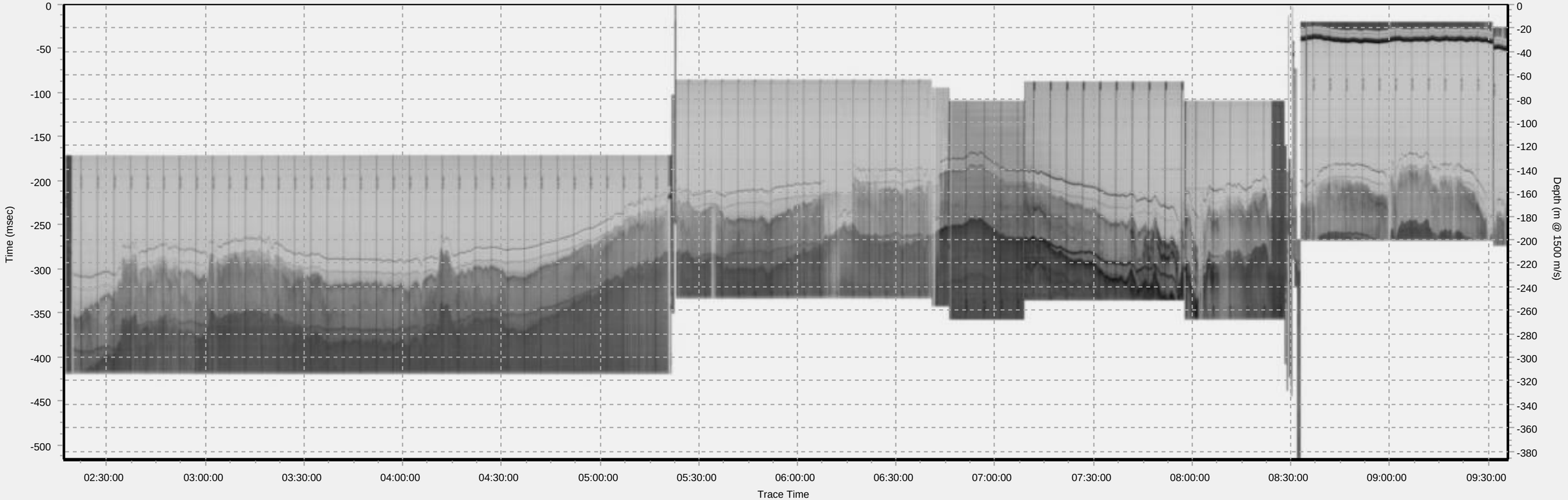
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_207_0116_to_207_2158_halfwave.jp2



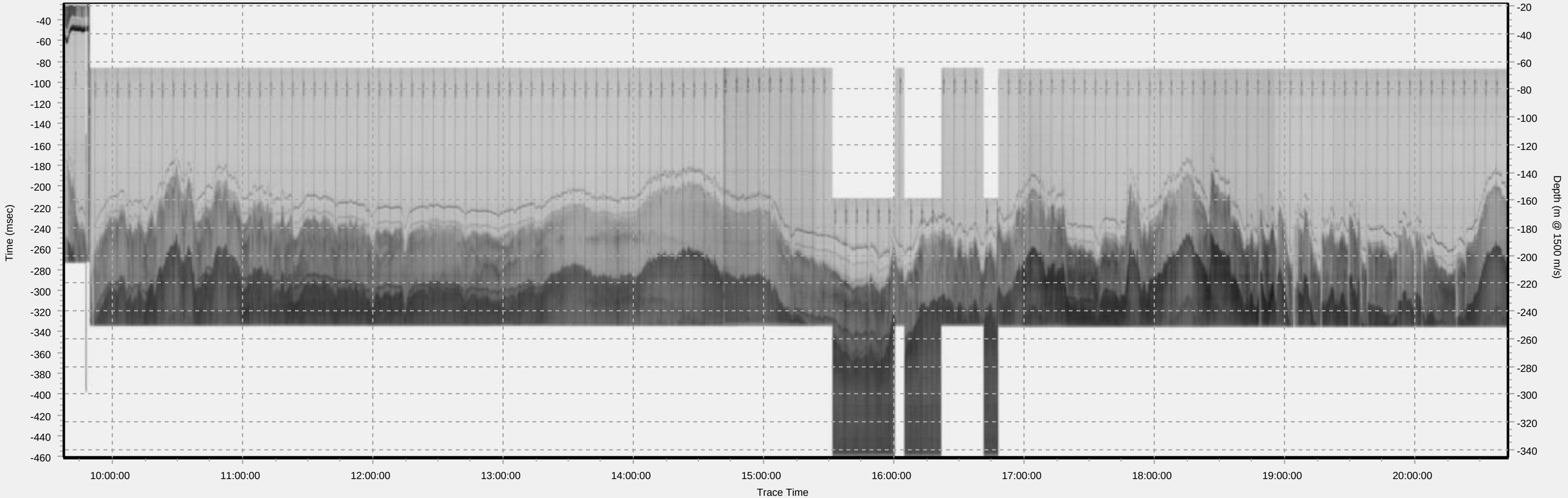
F:\3__DATA\18_UoM_Gulf of Maine expeditions\For transfer to the Seismic Data Archive\90CAPE_HATTERAS\JP2\Huntec_external\90CAPE_HATTERAS_SEISMIC_HUNTEC_EXT_207_2201_to_208_1051_halfwave.jp2



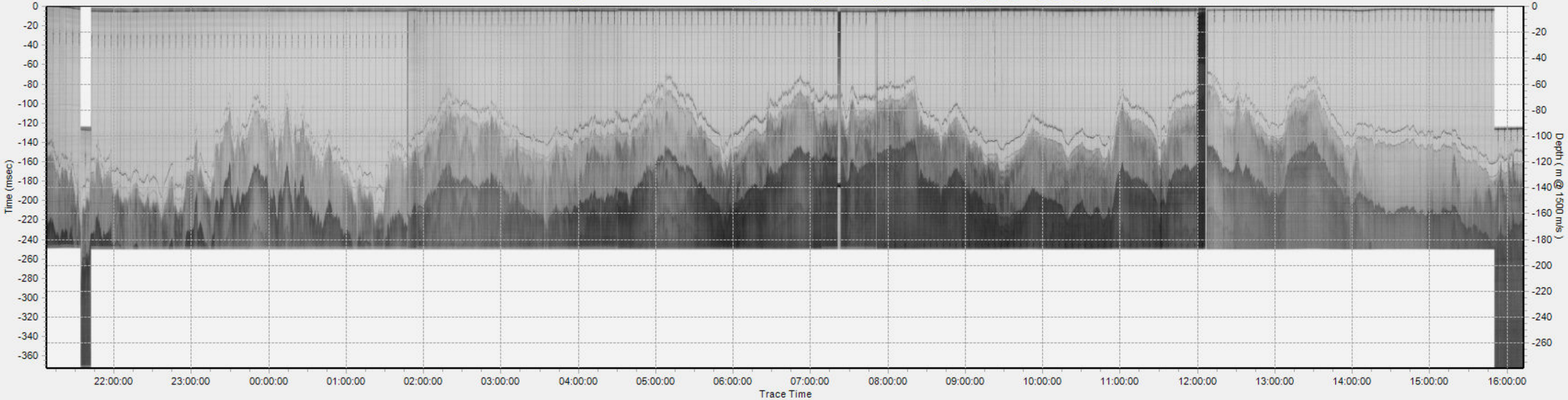
F:\3__DATA\18_UoM_Gulf of Maine expeditions\For transfer to the Seismic Data Archive\90CAPE_HATTERAS\JP2\Huntec_external\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_209_0217_to_209_0935_halfwave.jp2



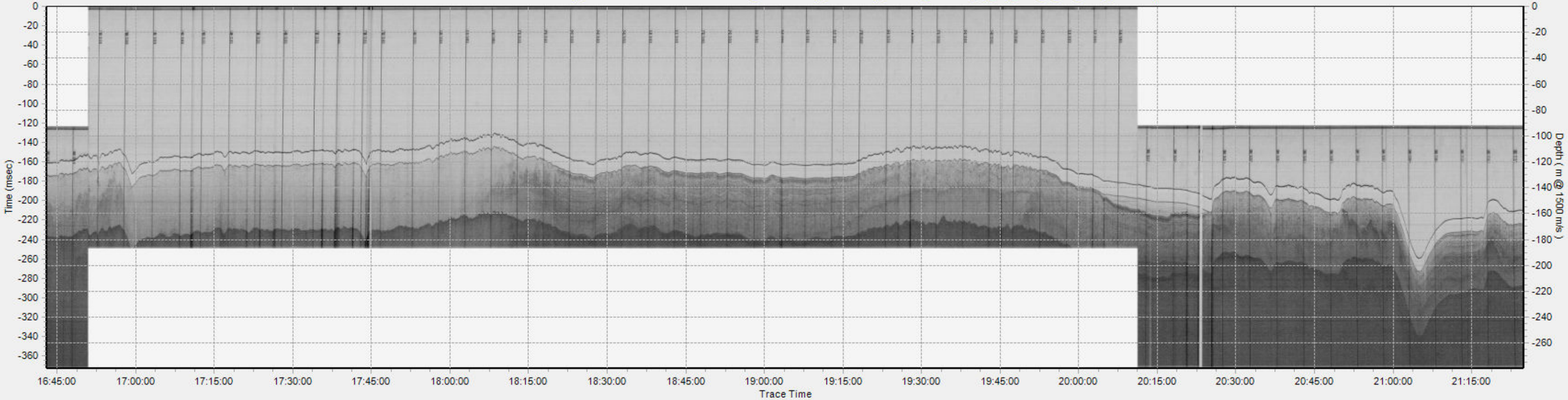
F:\3__DATA\18_UoM_Gulf of Maine expeditions\For transfer to the Seismic Data Archive\90CAPE_HATTERAS\JP2\Huntec_external\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_209_0937_to_209_2042_halfwave.jp2



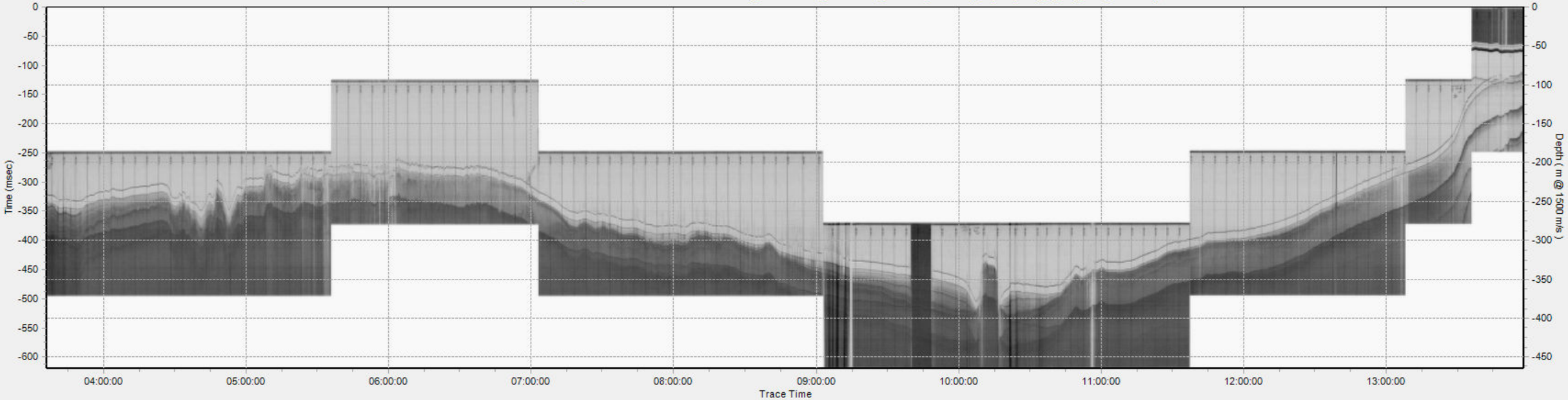
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_209_2108_to_210_1612_halfwave.jp2



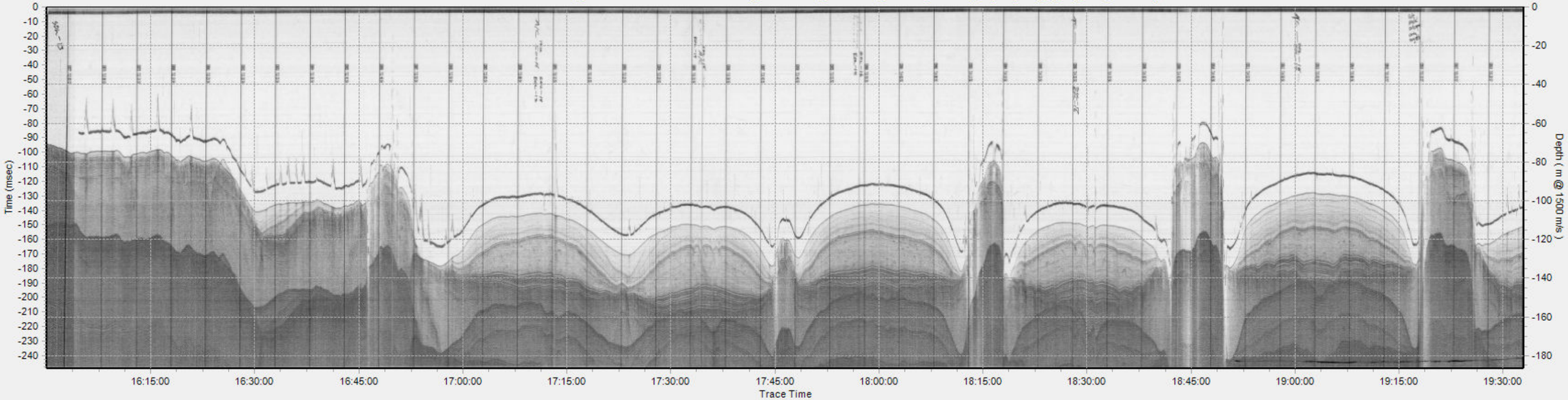
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_210_1643_to_210_2124_halfwave.jp2



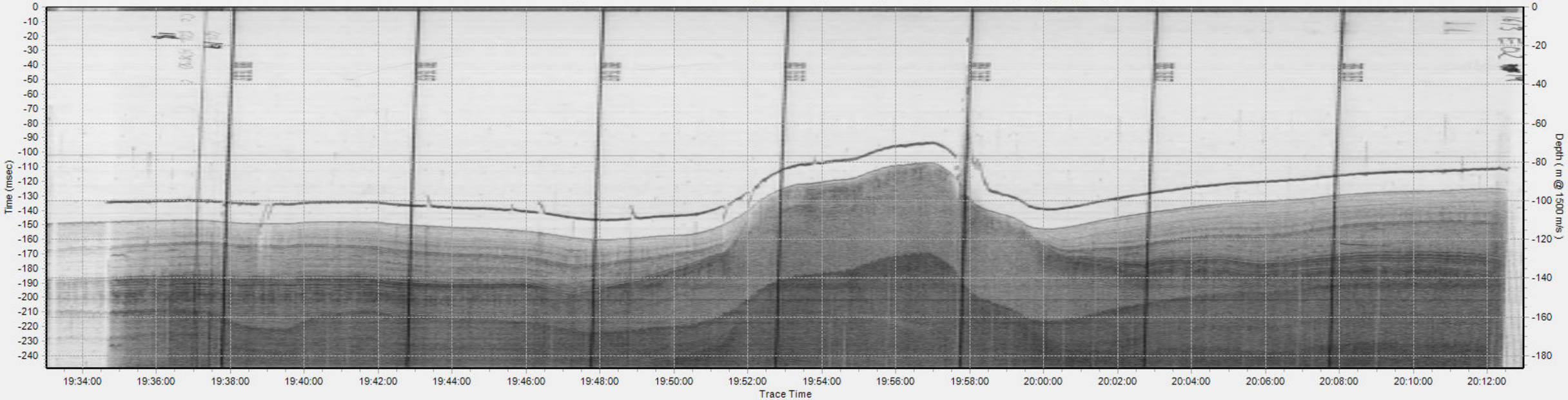
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_211_0336_to_211_1357_halfwave.jp2



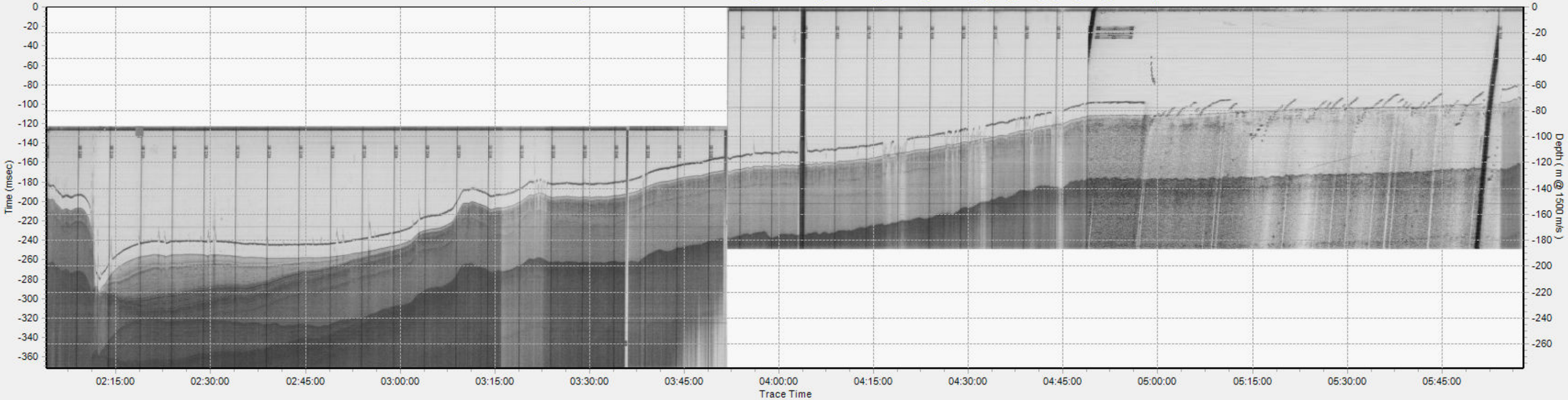
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_211_1600_to_211_1932_halfwave.jp2



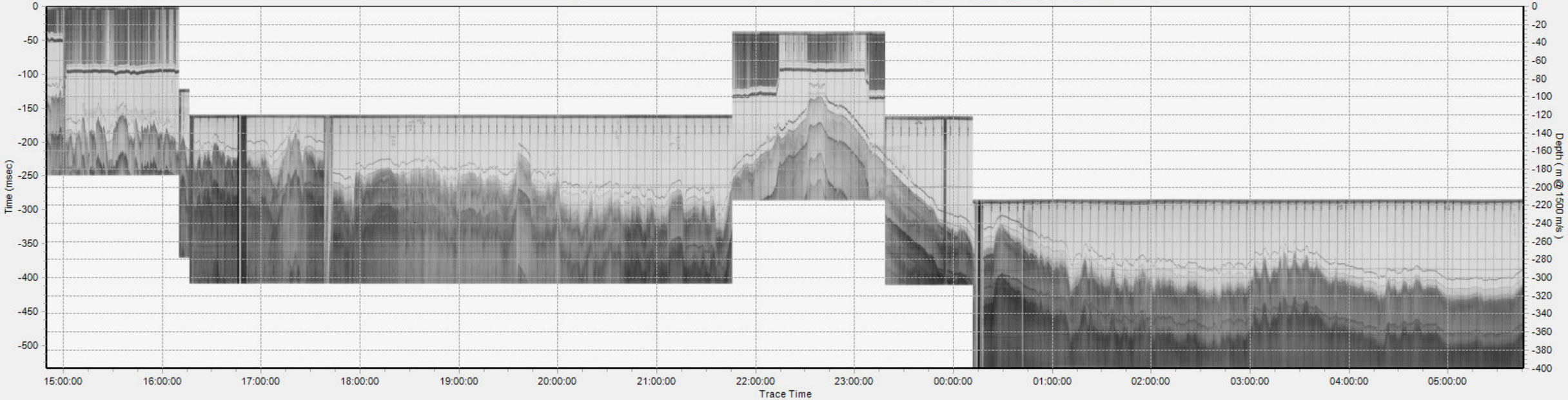
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_211_1933_to_211_2012_halfwave.jp2



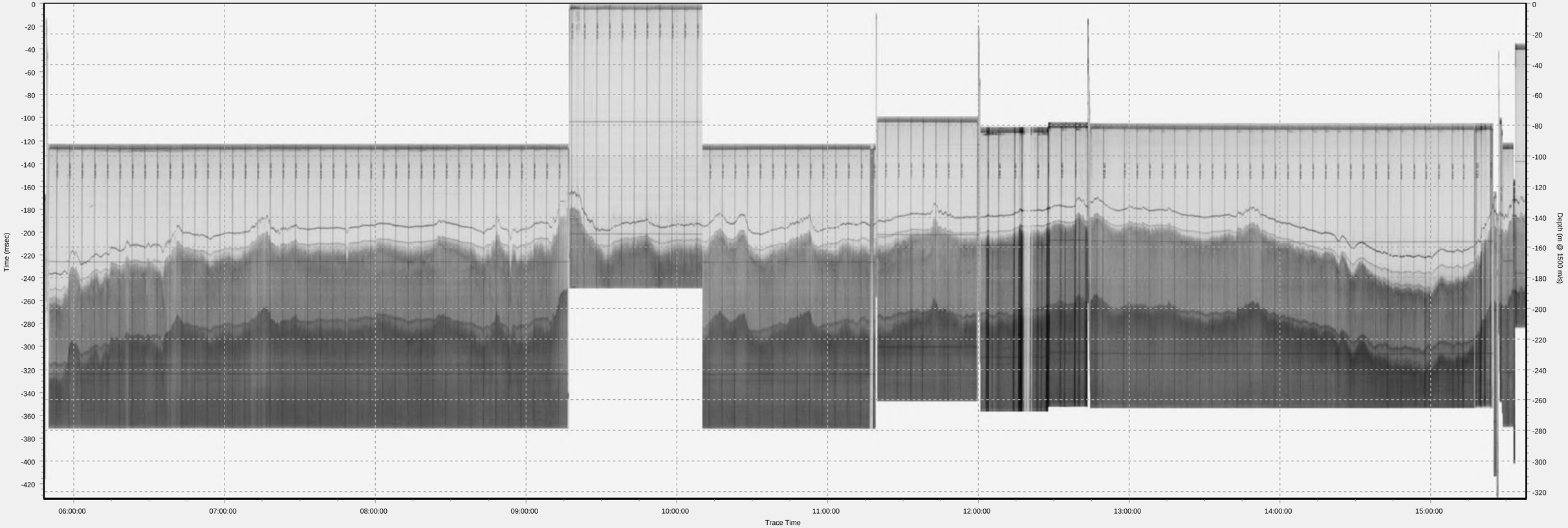
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_212_0204_to_212_0557_halfwave.jp2



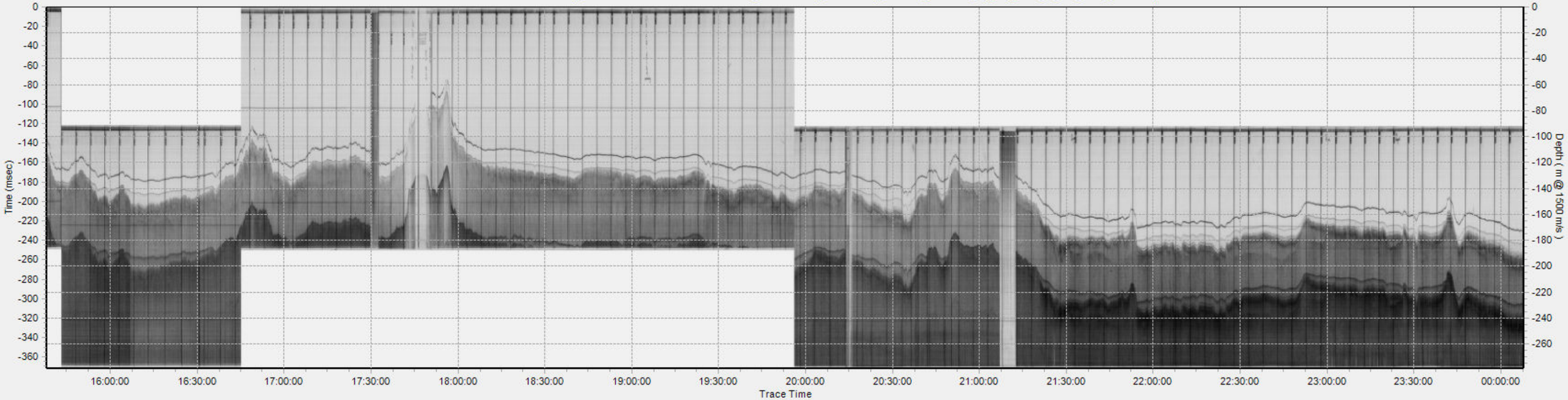
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_213_1450_to_214_0545_halfwave.jp2



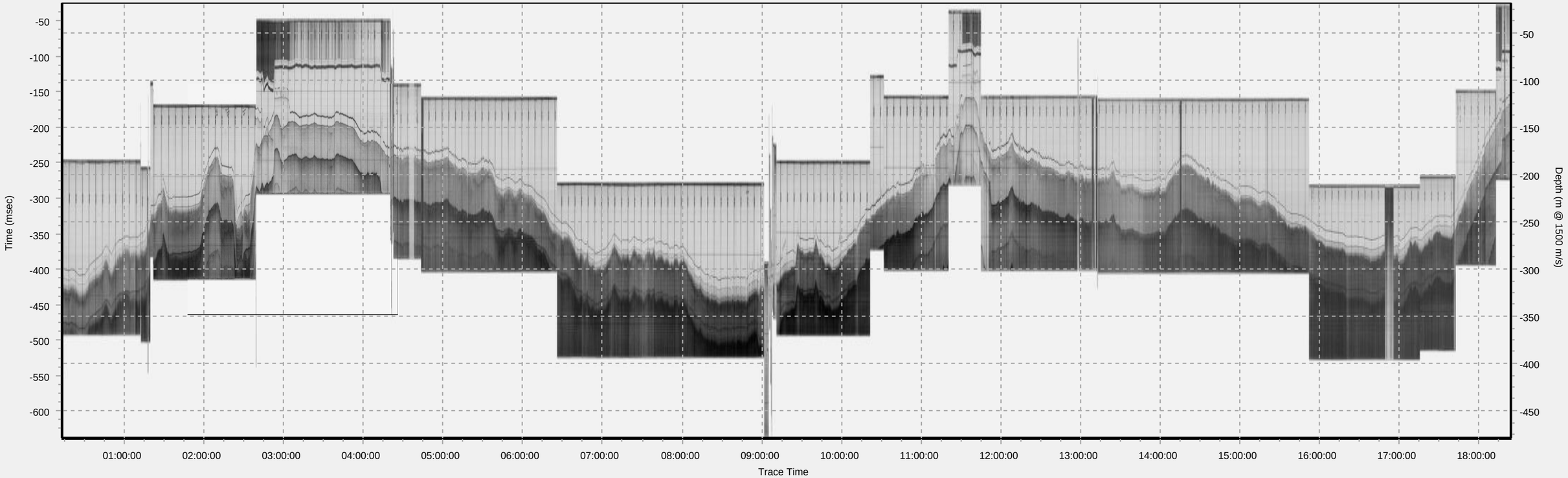
E:\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_214_0548_to_214_1537_halfwave.jp2



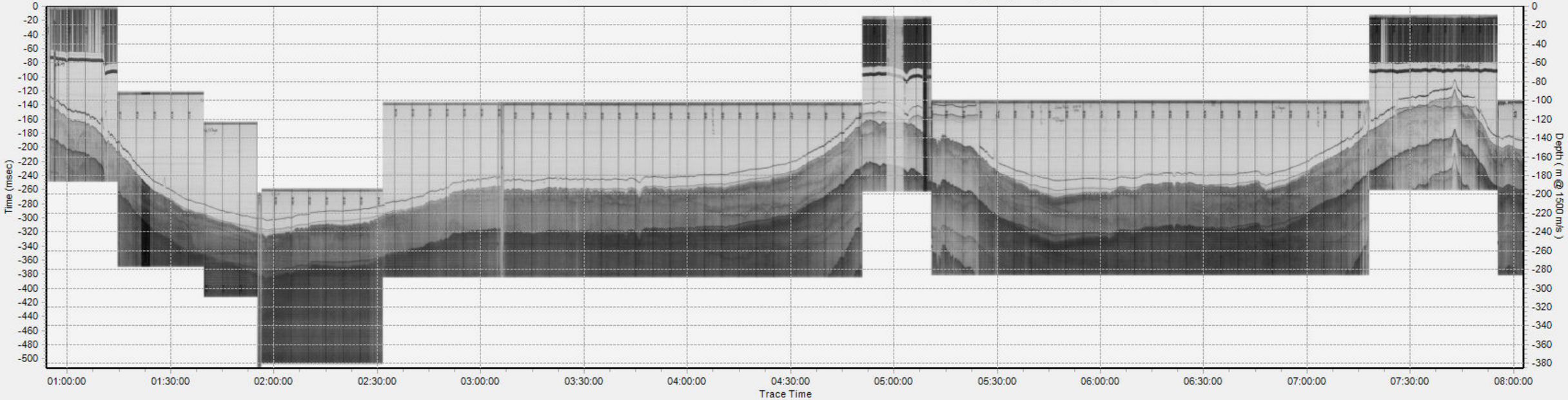
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_214_1538_to_215_0007_halfwave.jp2



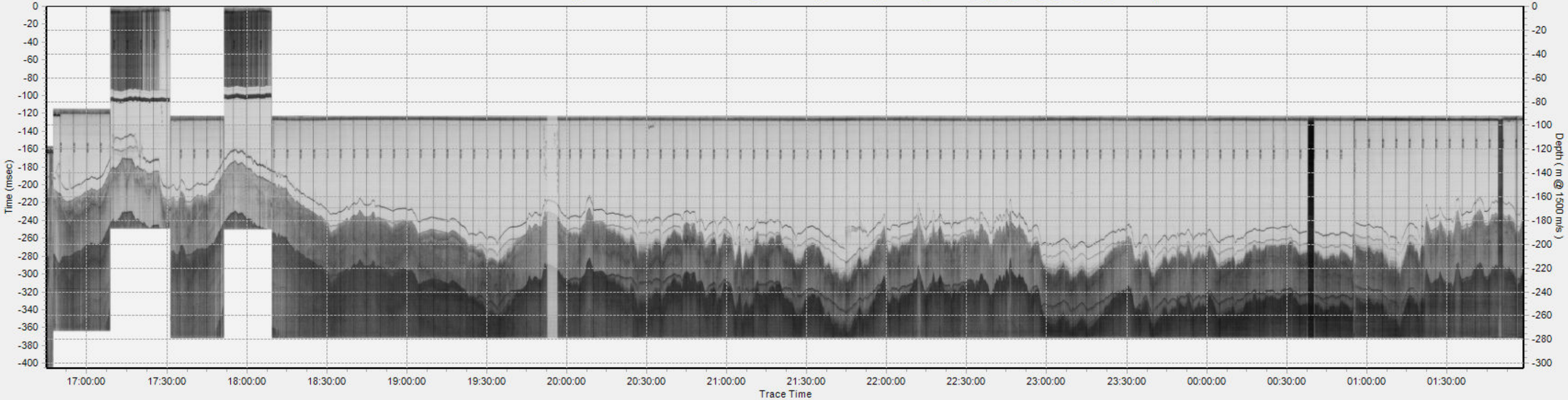
F:\3__DATA\18_UoM_Gulf of Maine expeditions\For transfer to the Seismic Data Archive\90CAPE_HATTERAS\JP2\Huntec_external\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_215_0013_to_215_1823_halfwave.jp2



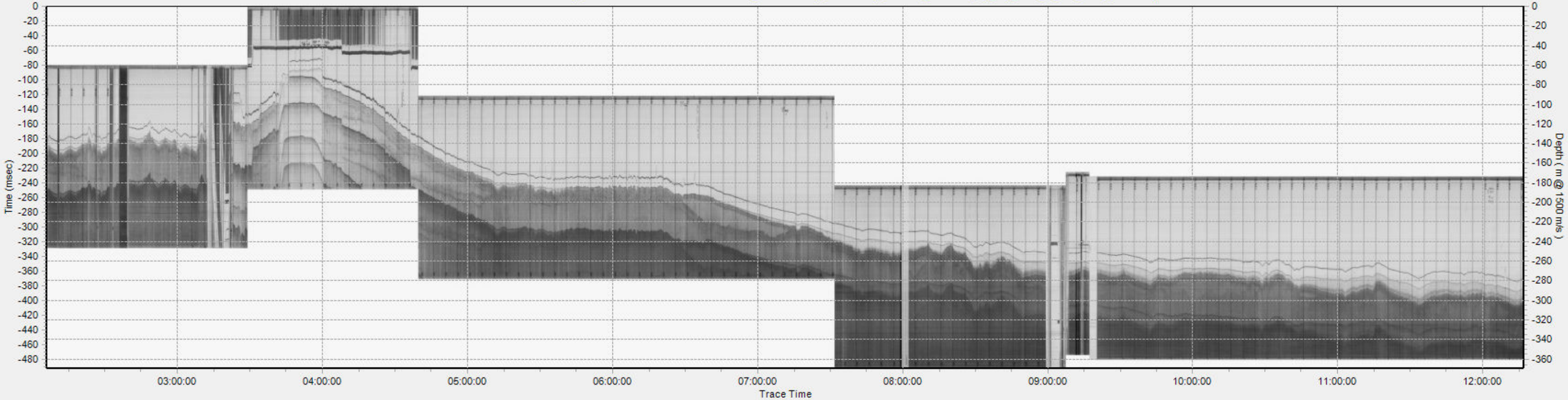
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_216_0054_to_216_0802_halfwave.jp2



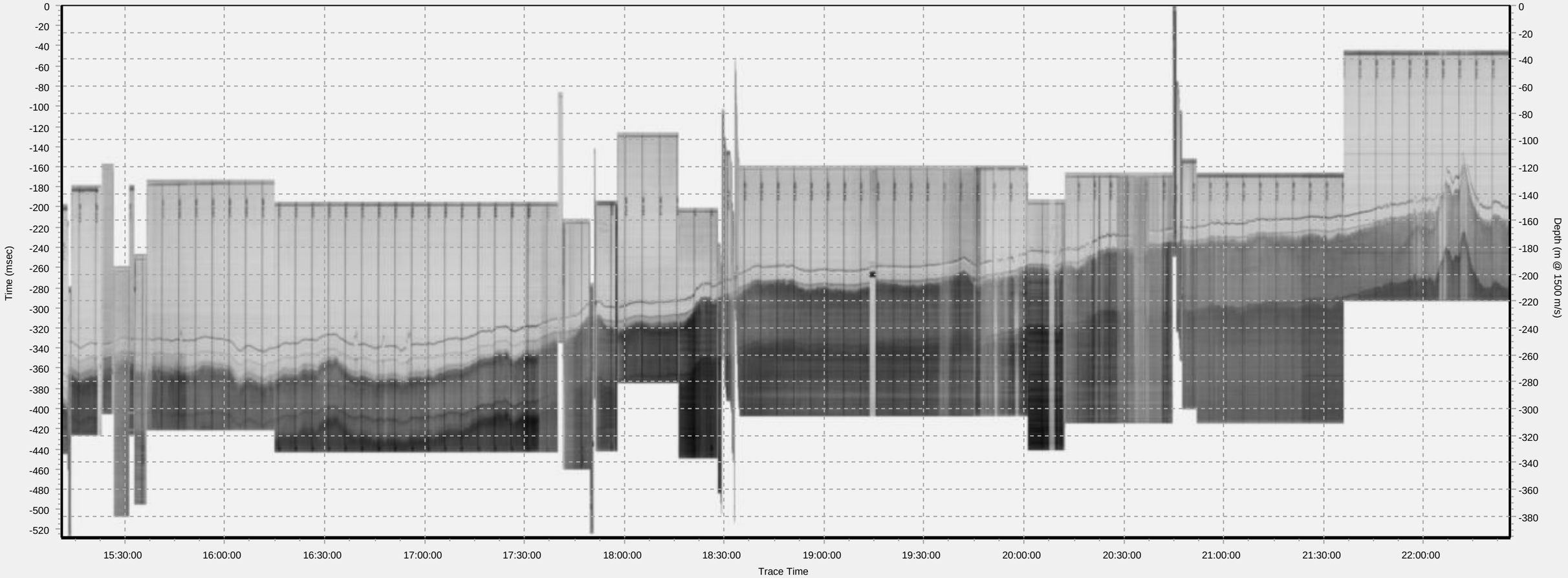
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_216_1645_to_217_0158_halfwave.jp2



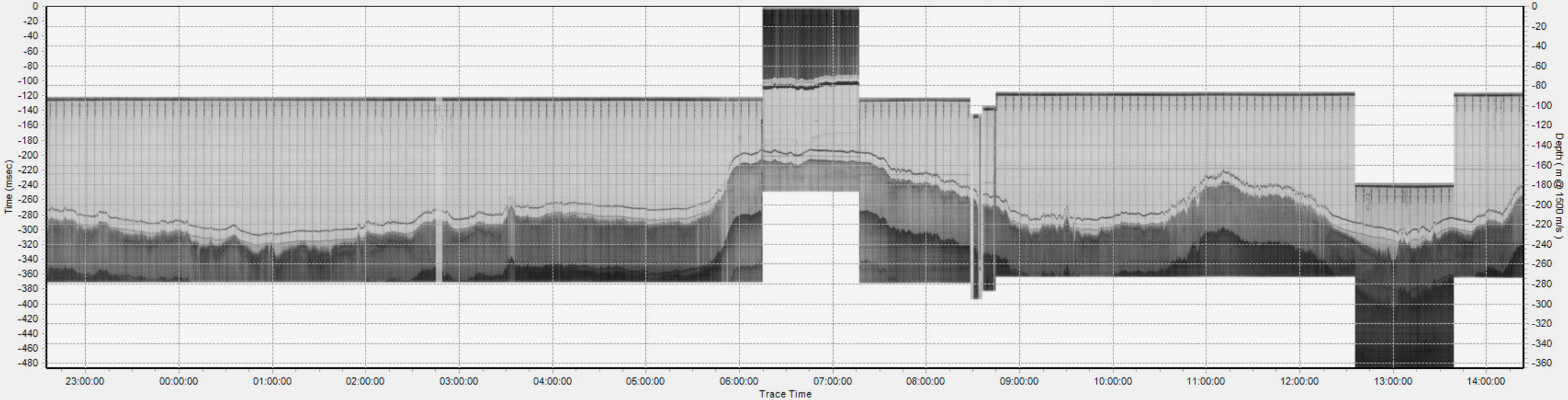
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_217_0206_to_217_1216_halfwave.jp2



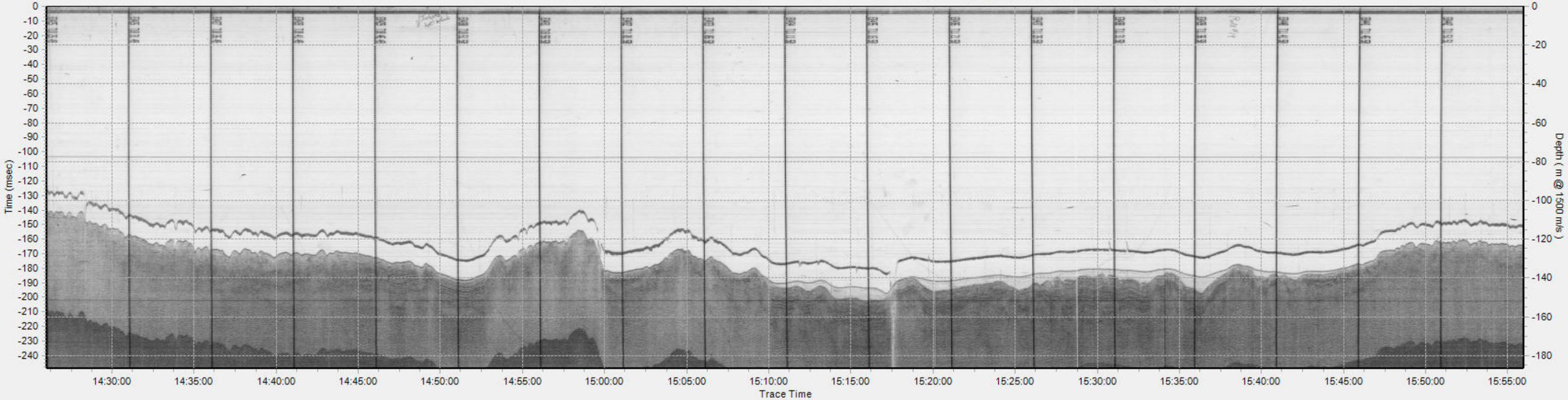
D:\Gulf of Maine seismic\JP2\90CAPE_HATTERAS_SEISMIC_HUNTEC_EXT_217_1511_to_217_2225_halfwave.jp2



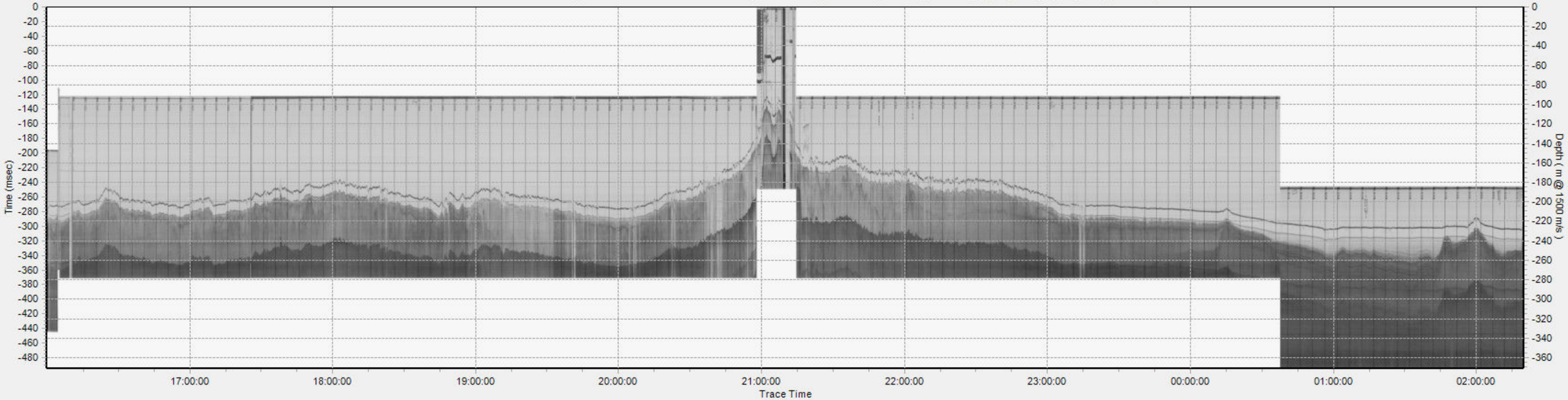
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_217_2235_to_218_1423_halfwave.jp2



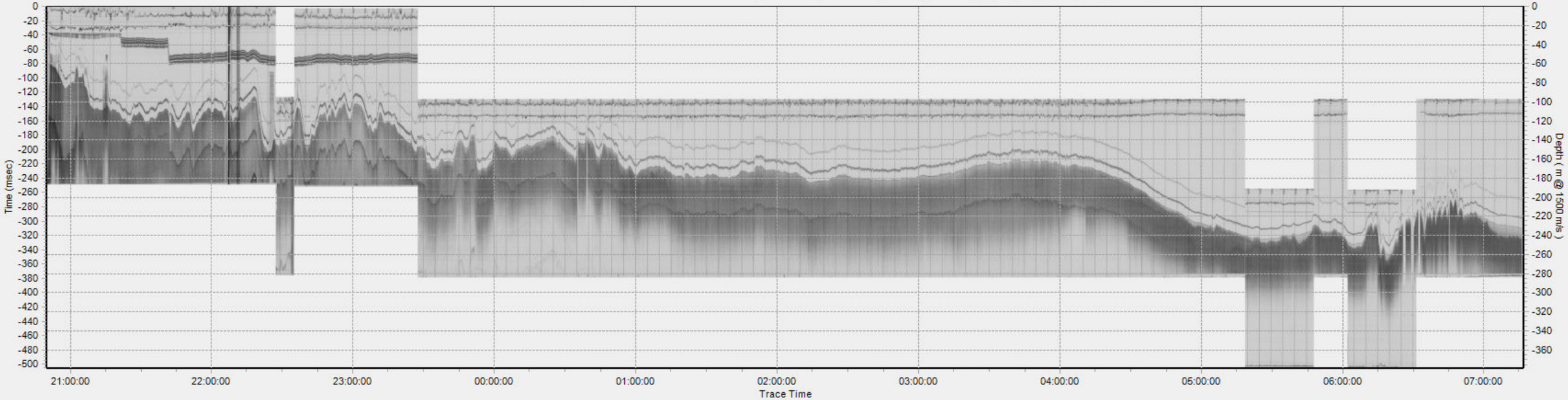
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_218_1426_to_218_1555_halfwave.jp2



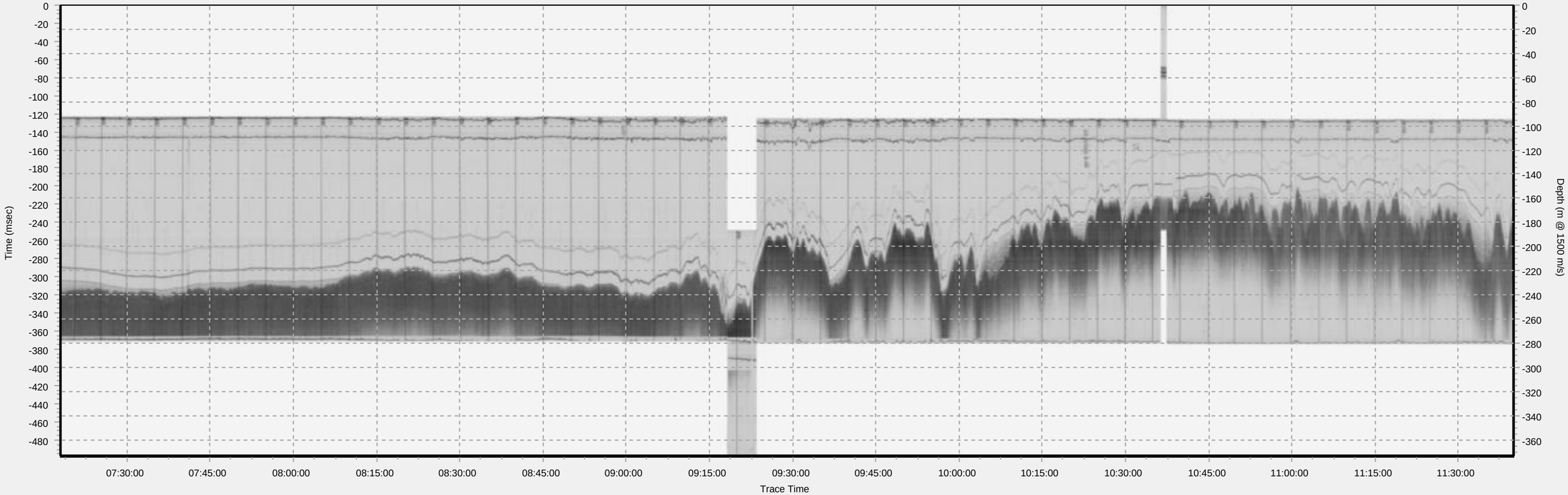
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_EXT\90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_218_1600_to_219_0219_halfwave.jp2



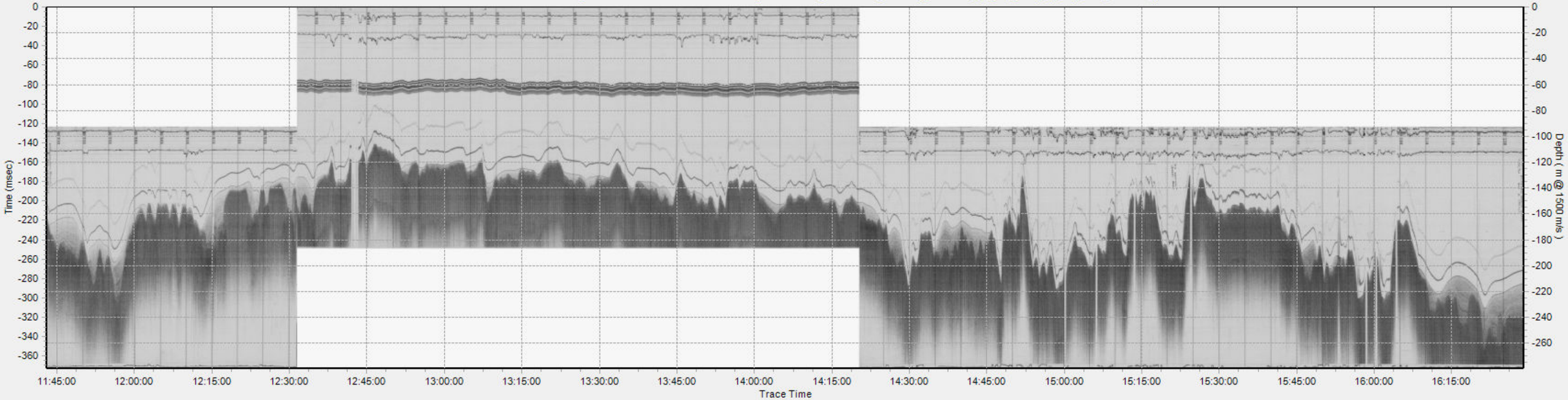
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_205_2050_to_206_0716_halfwave.jp2



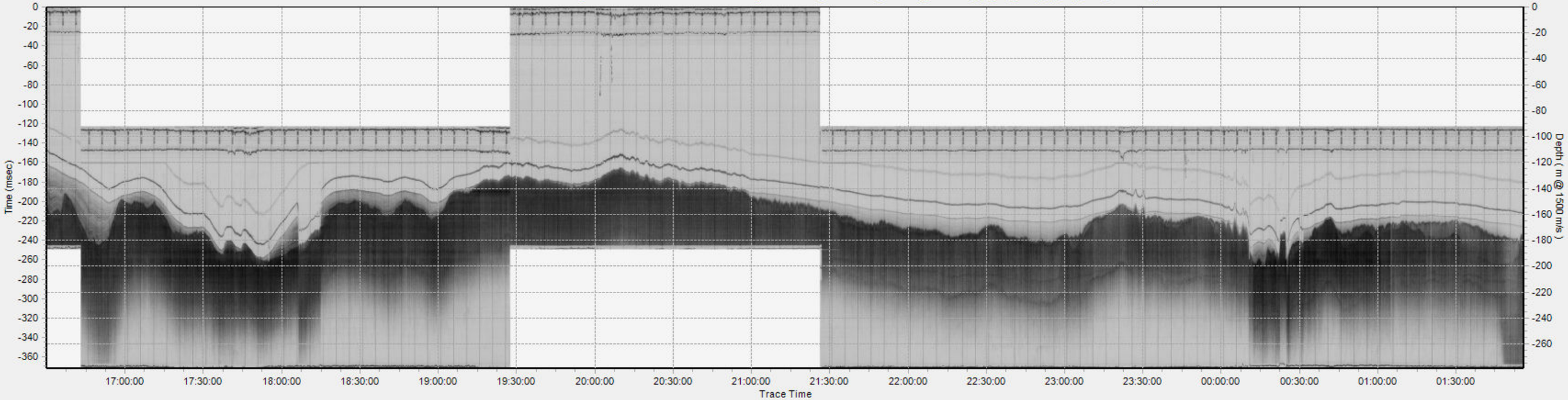
F:\3__DATA\18_UoM_Gulf of Maine expeditions\90CAPE_HATTERAS\jp2\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_206_0718_to_206_1139_halfwave.jp2



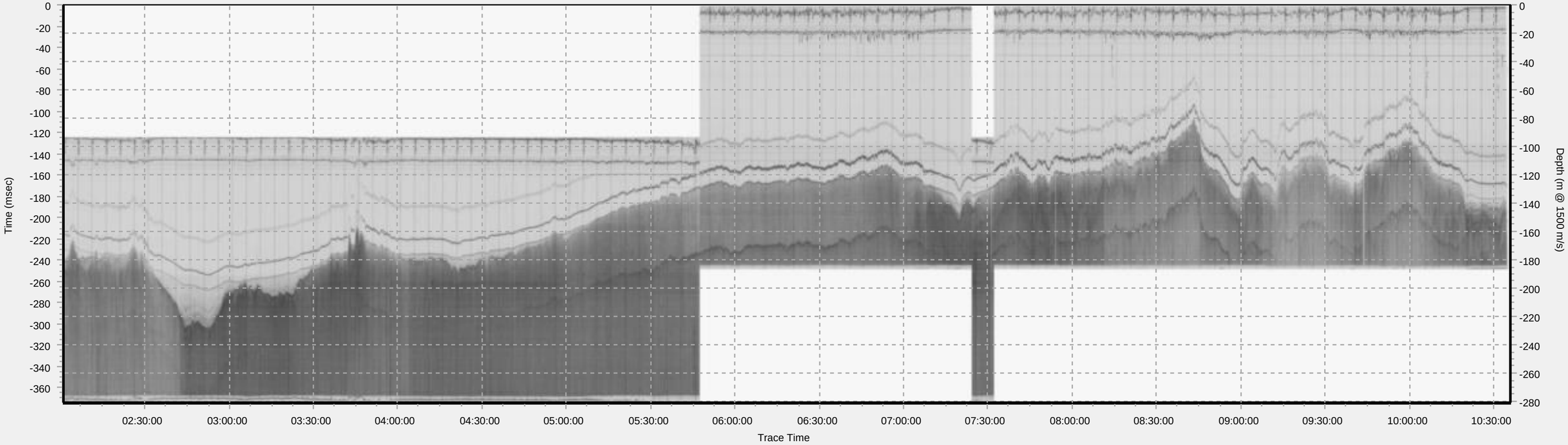
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_206_1143_to_206_1628_halfwave.jp2



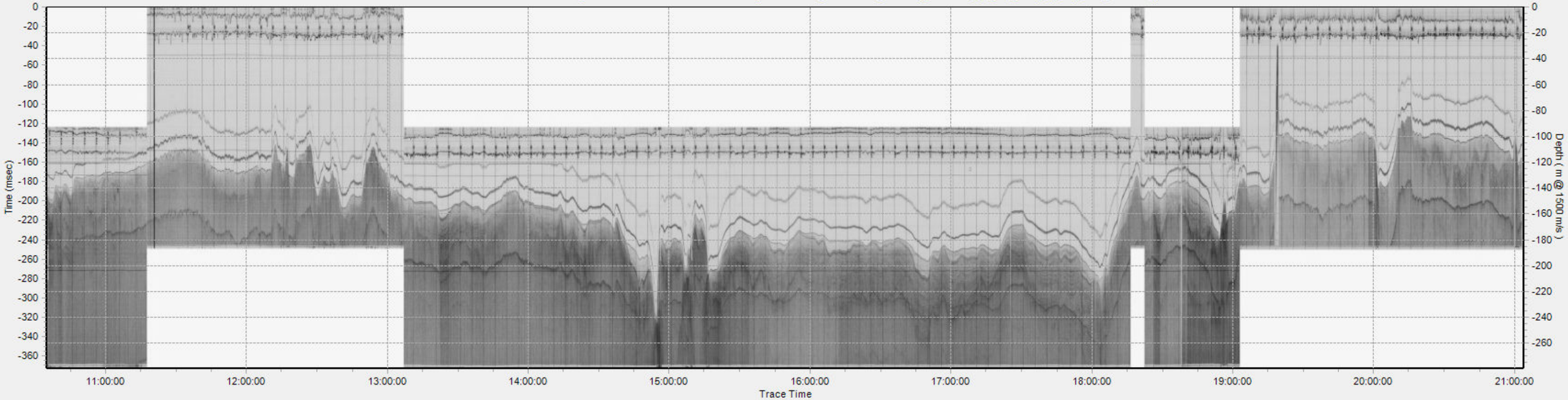
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_206_1630_to_207_0155_halfwave.jp2



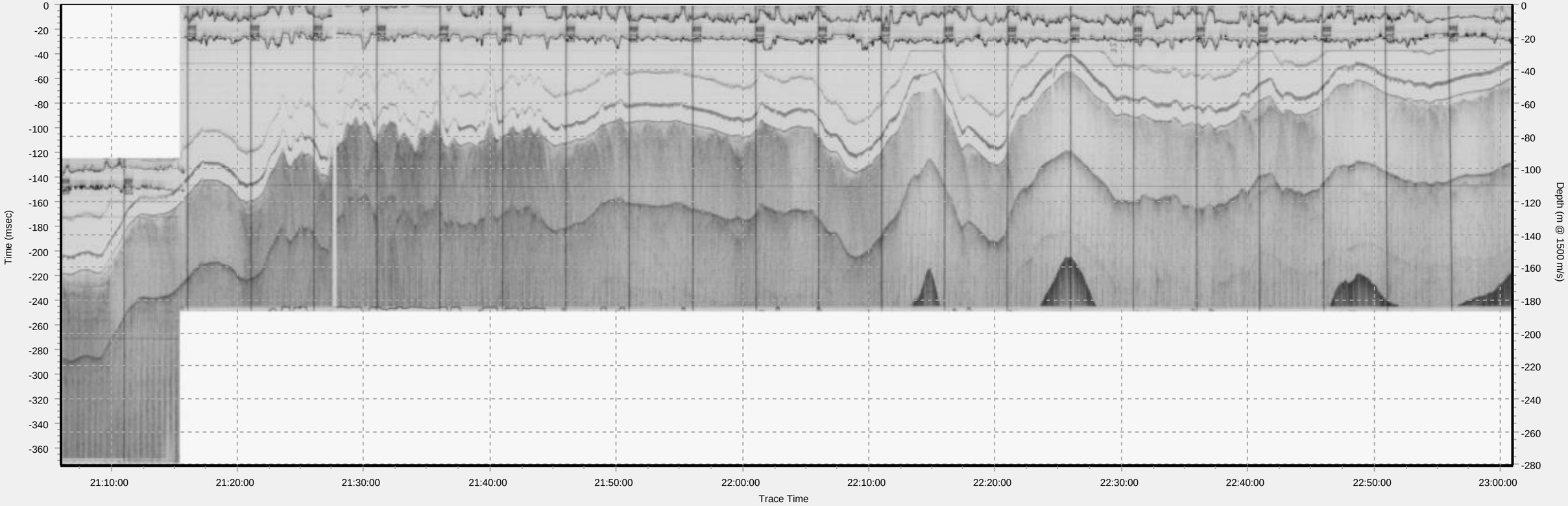
F:\3__DATA\18_UoM_Gulf of Maine expeditions\90CAPE_HATTERAS\jp2\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_207_0201_to_207_1035_halfwave.jp2



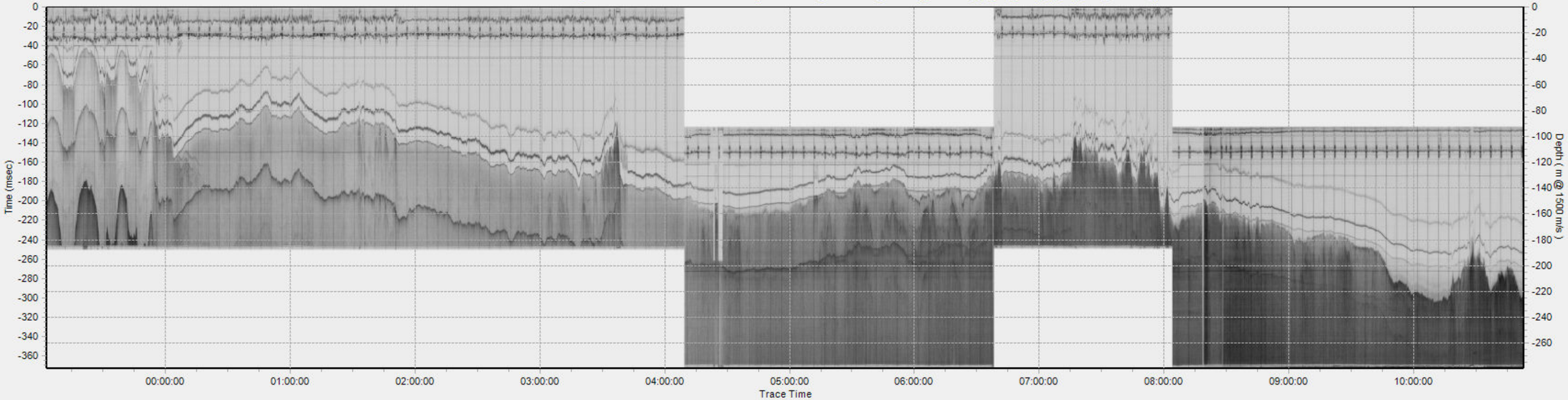
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_207_1035_to_207_2103_halfwave.jp2



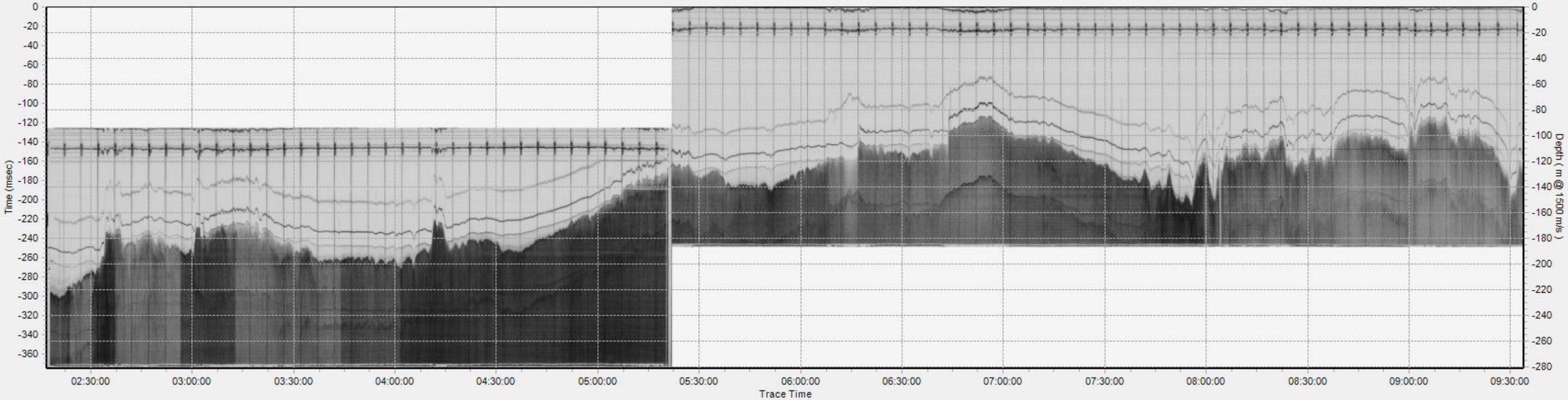
F:\3__DATA\18_UoM_Gulf of Maine expeditions\90CAPE_HATTERAS\jp2\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_207_2106_to_207_2300_halfwave.jp2



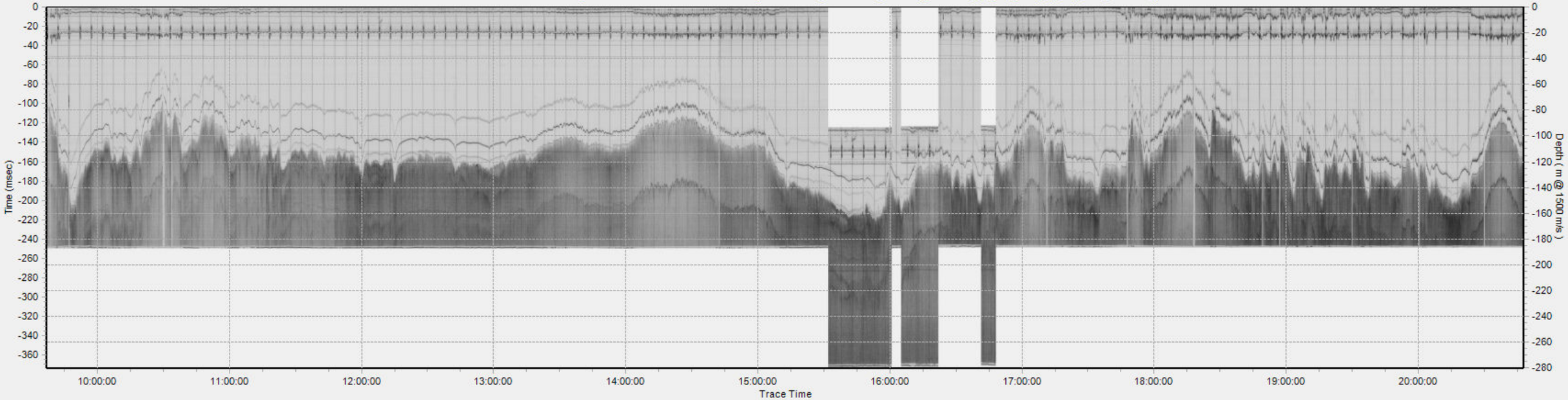
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_207_2303_to_208_1052_halfwave.jp2



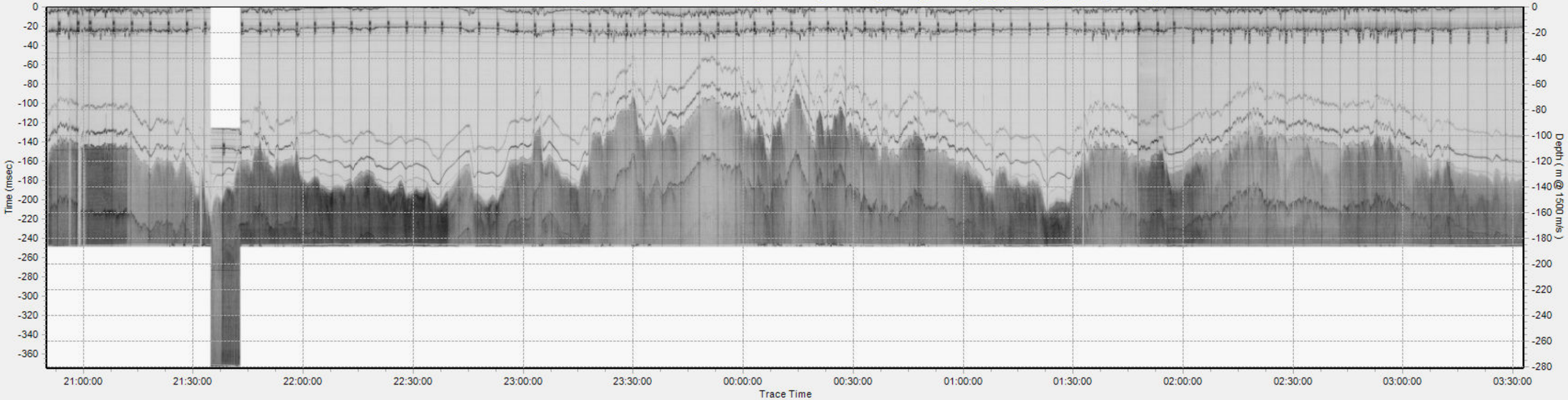
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_209_0217_to_209_0933_halfwave.jp2



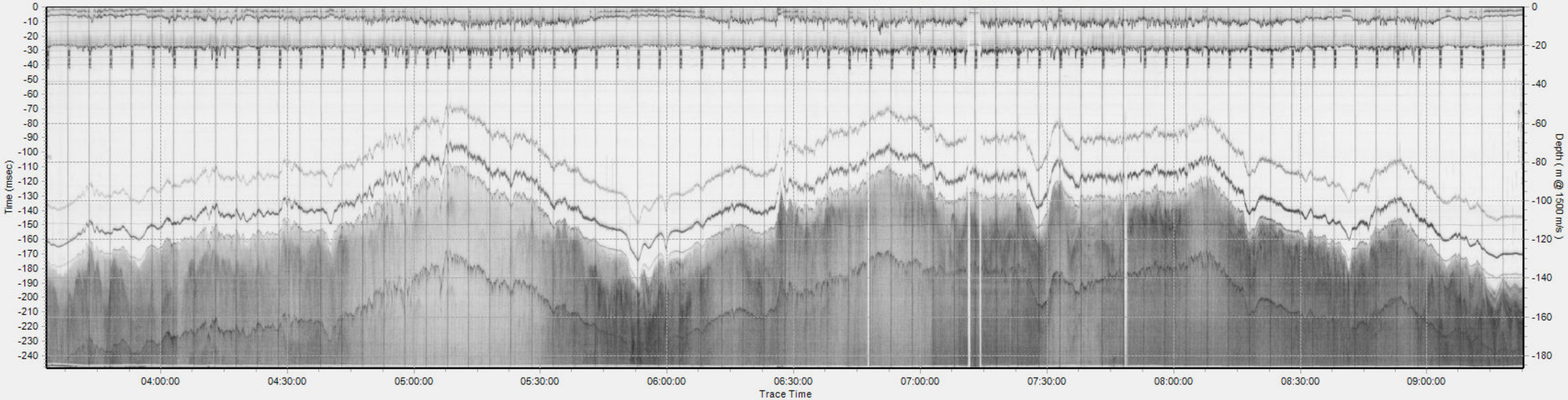
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_209_0937_to_209_2047_halfwave.jp2



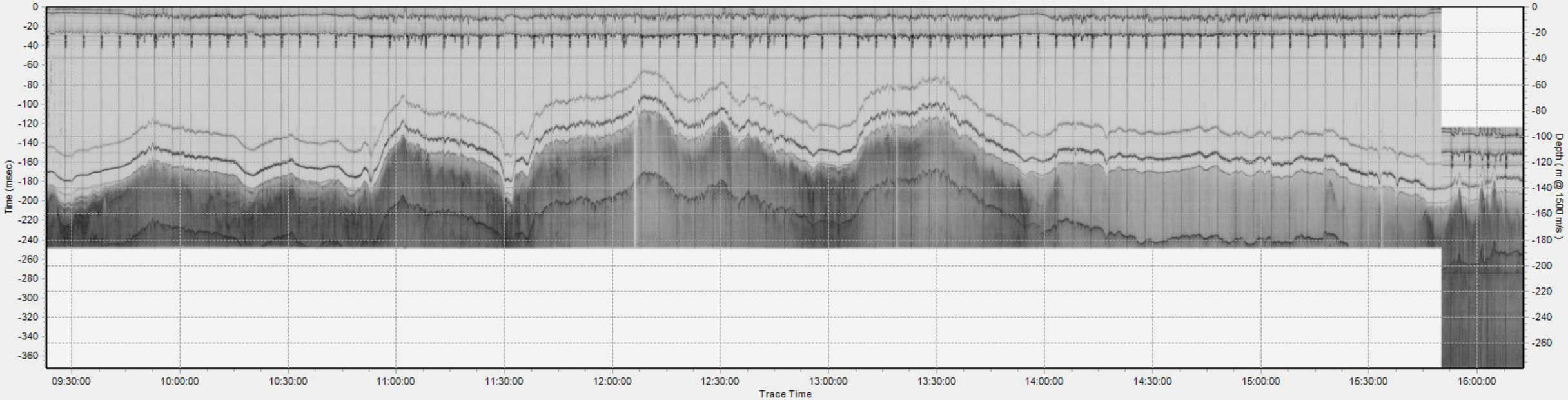
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_209_2050_to_210_0332_halfwave.jp2



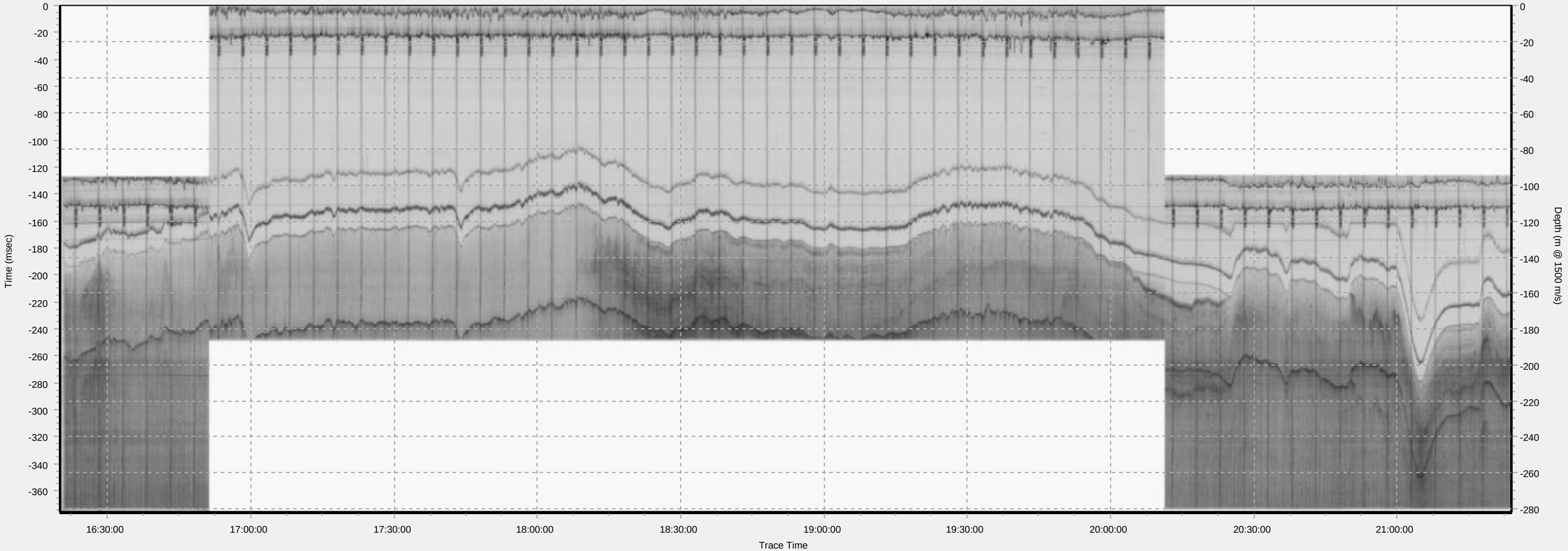
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_210_0333_to_210_0922_halfwave.jp2



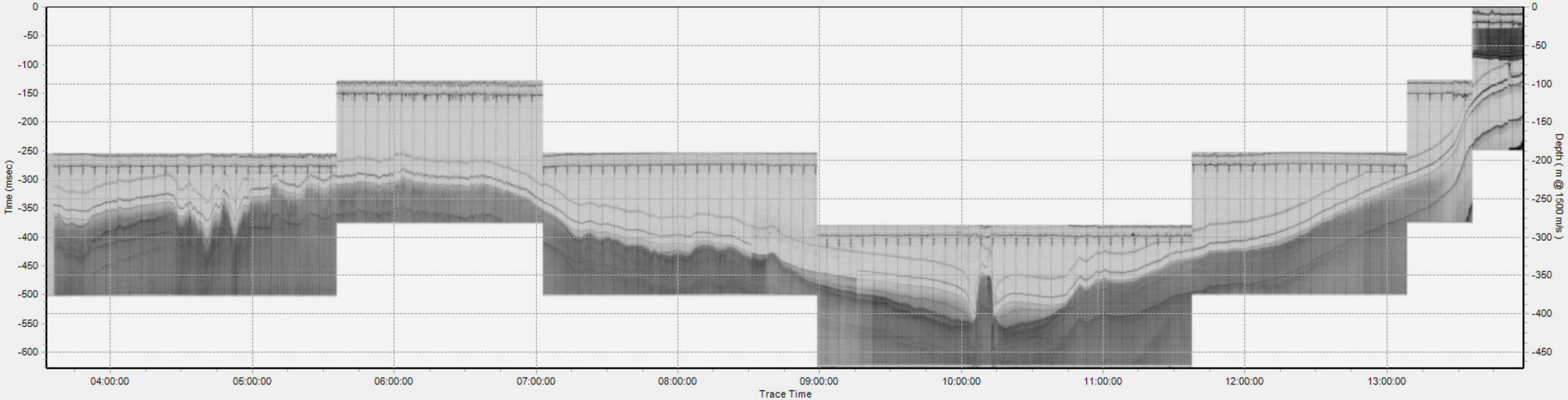
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_210_0923_to_210_1612_halfwave.jp2



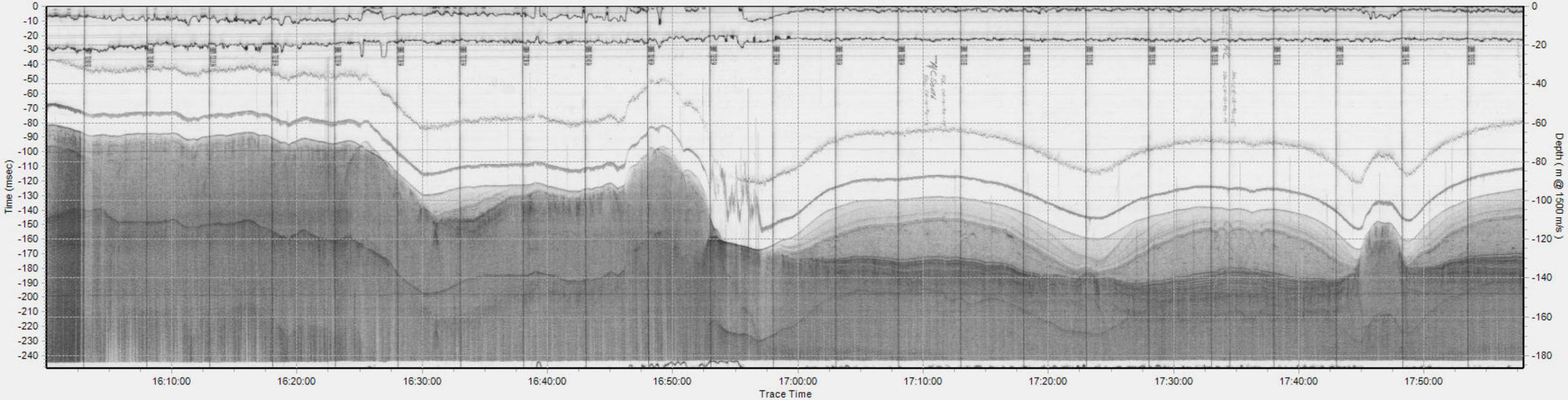
F:\3__DATA\18_UoM_Gulf of Maine expeditions\90CAPE_HATTERAS\jp2\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_210_1620_to_210_2123_halfwave.jp2



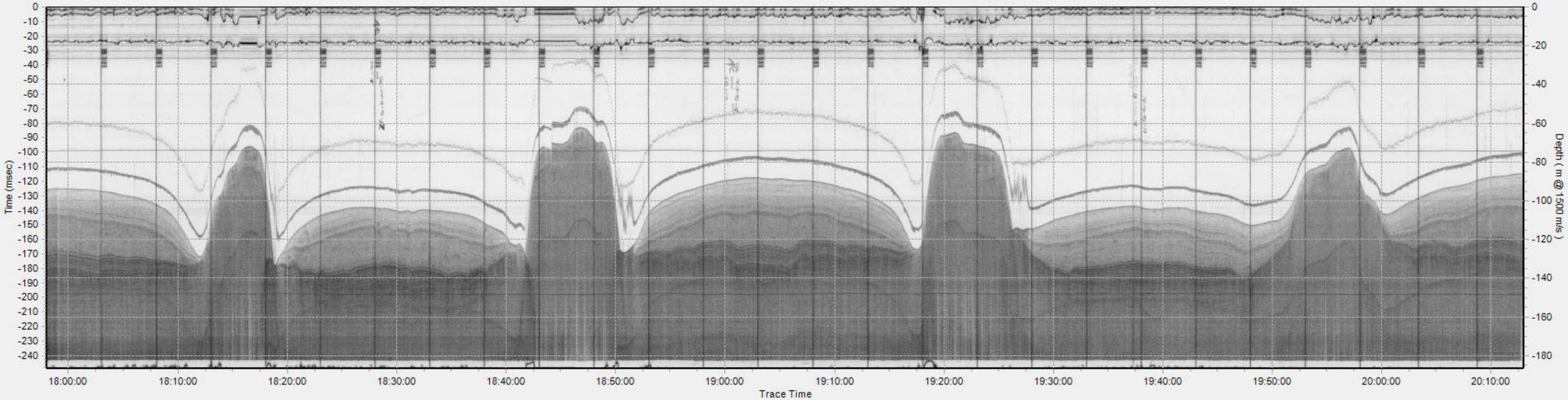
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_211_0333_to_211_1357_halfwave.jp2



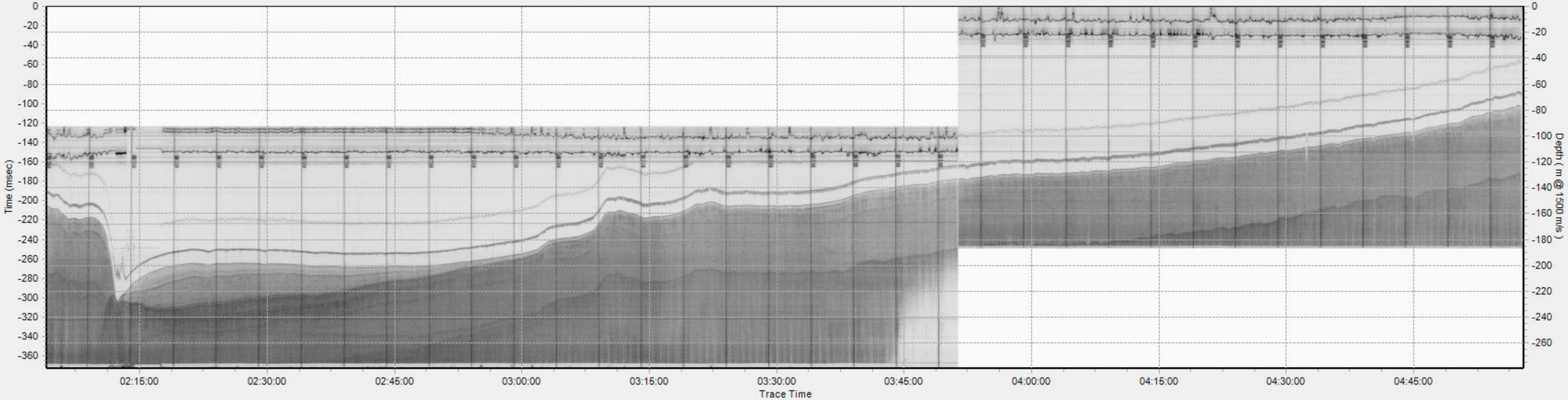
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_211_1600_to_211_1757_halfwave.jp2



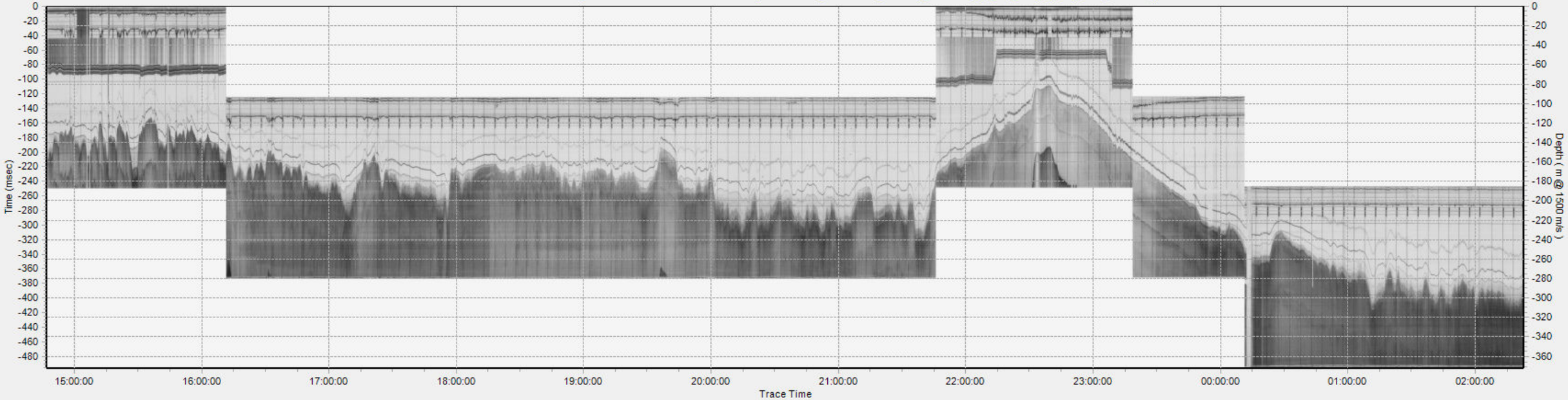
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_211_1758_to_211_2012_halfwave.jp2



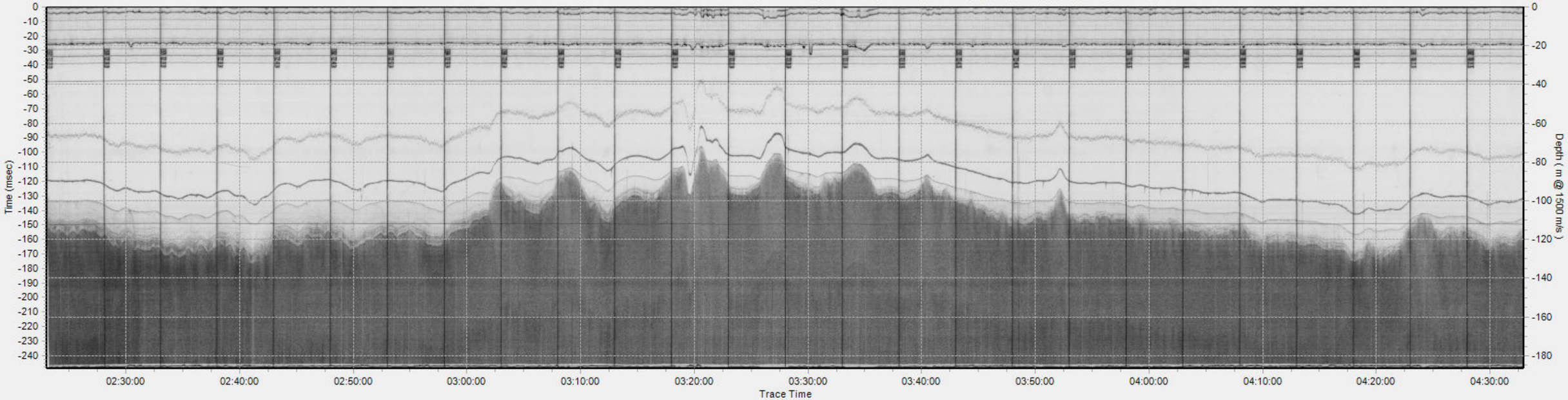
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_212_0204_to_212_0457_halfwave.jp2



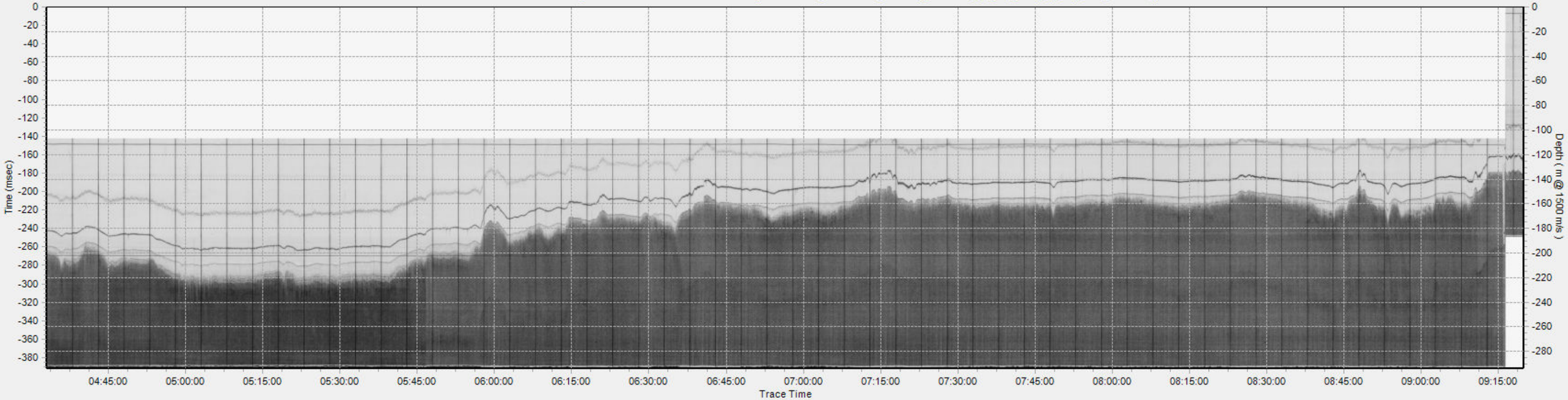
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_213_1447_to_214_0222_halfwave.jp2



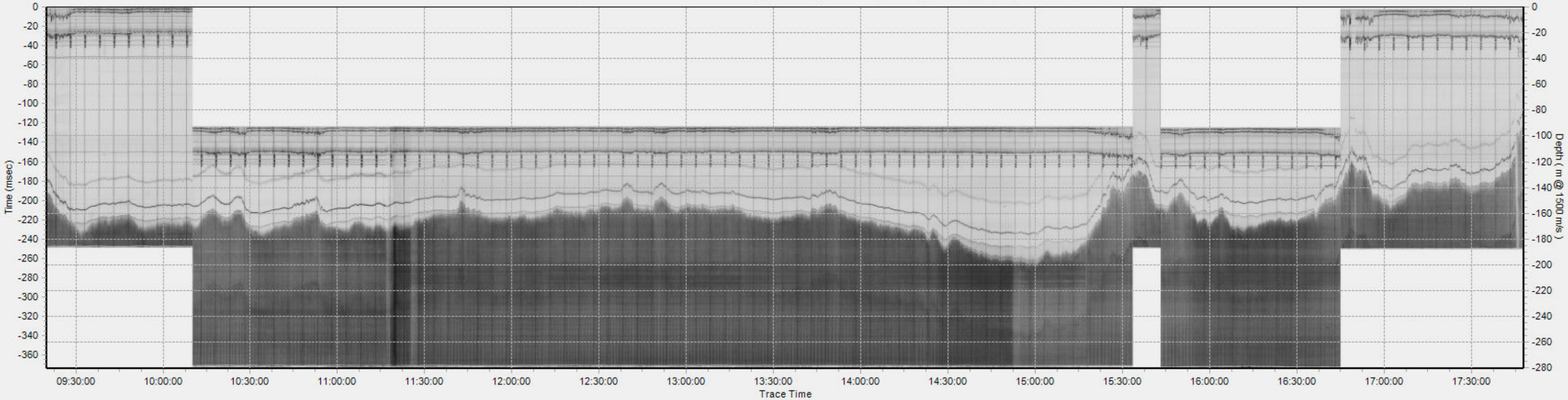
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_214_0223_to_214_0432_halfwave.jp2



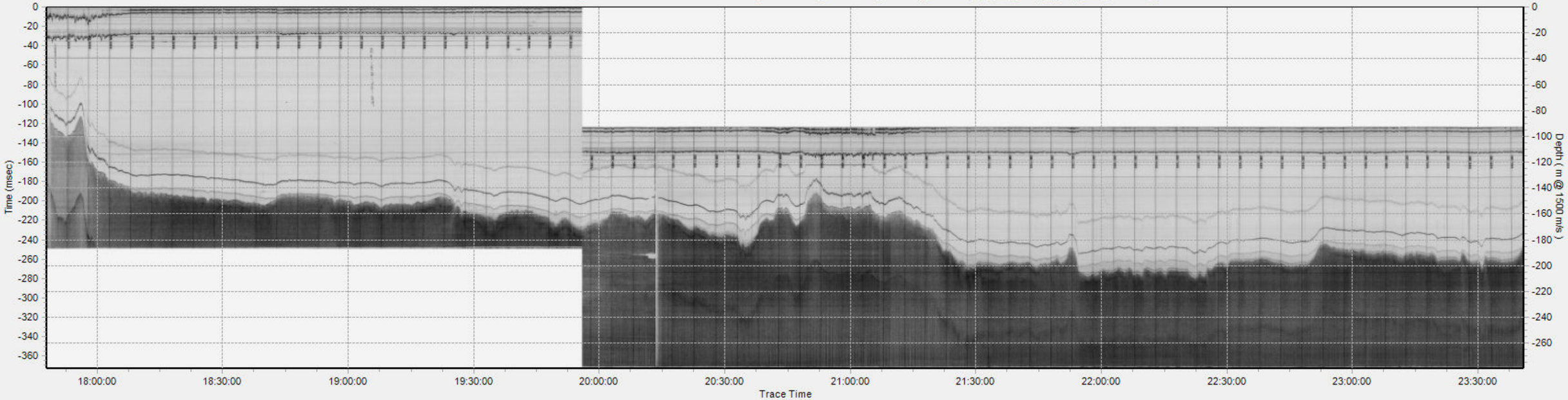
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_214_0433_to_214_0919_halfwave.jp2



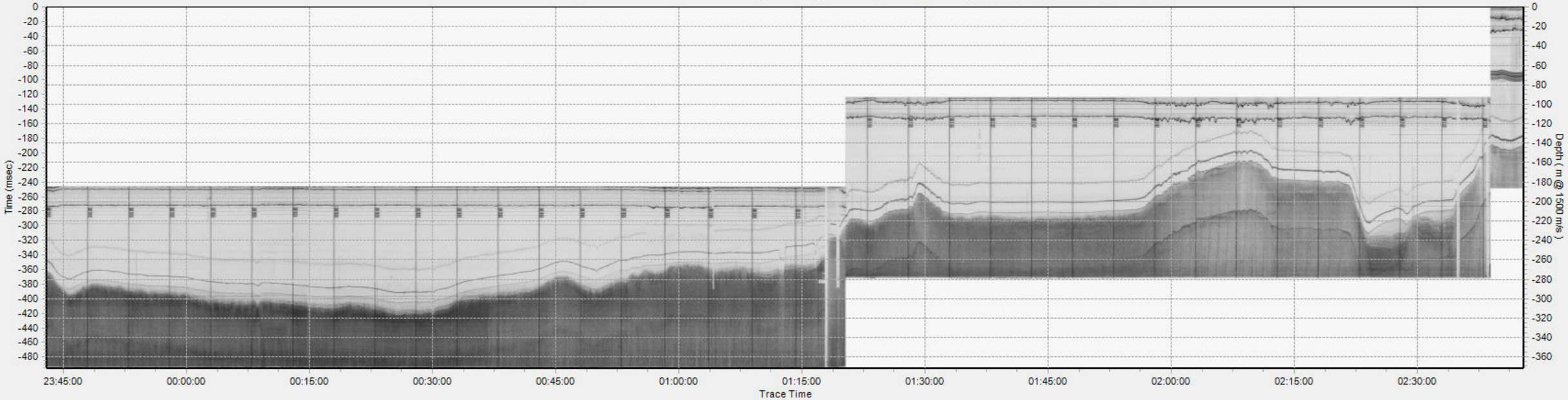
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_214_0920_to_214_1747_halfwave.jp2



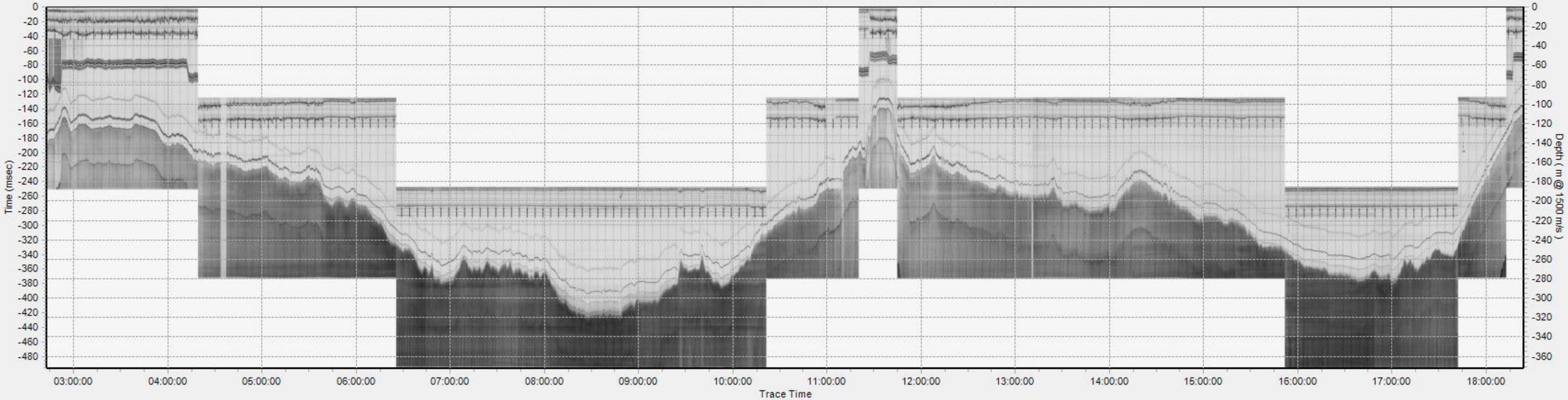
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_214_1748_to_214_2340_halfwave.jp2



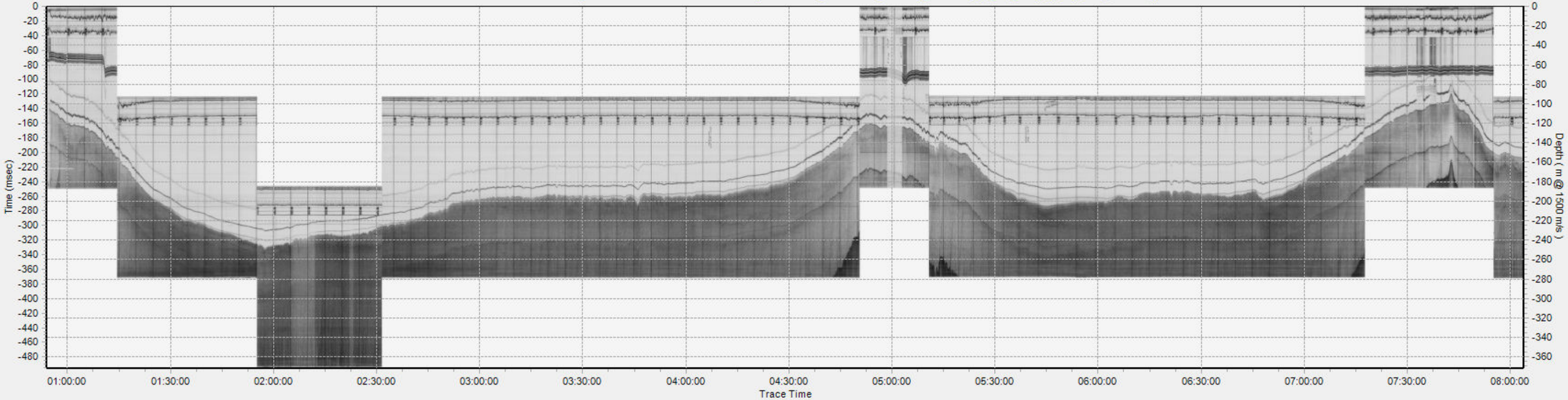
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_214_2343_to_215_0242_halfwave.jp2



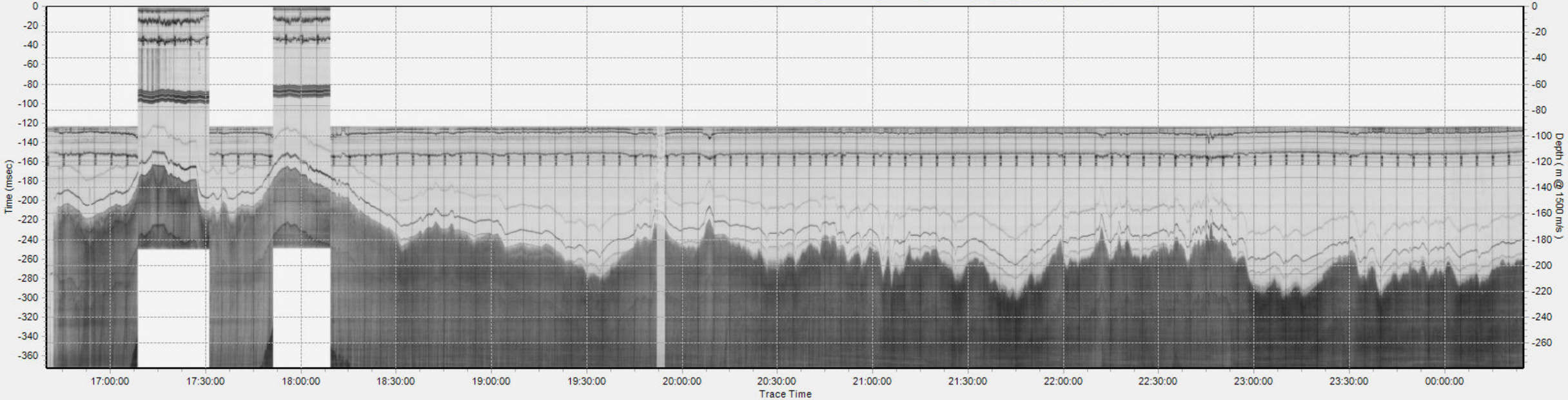
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_215_0243_to_215_1823_halfwave.jp2



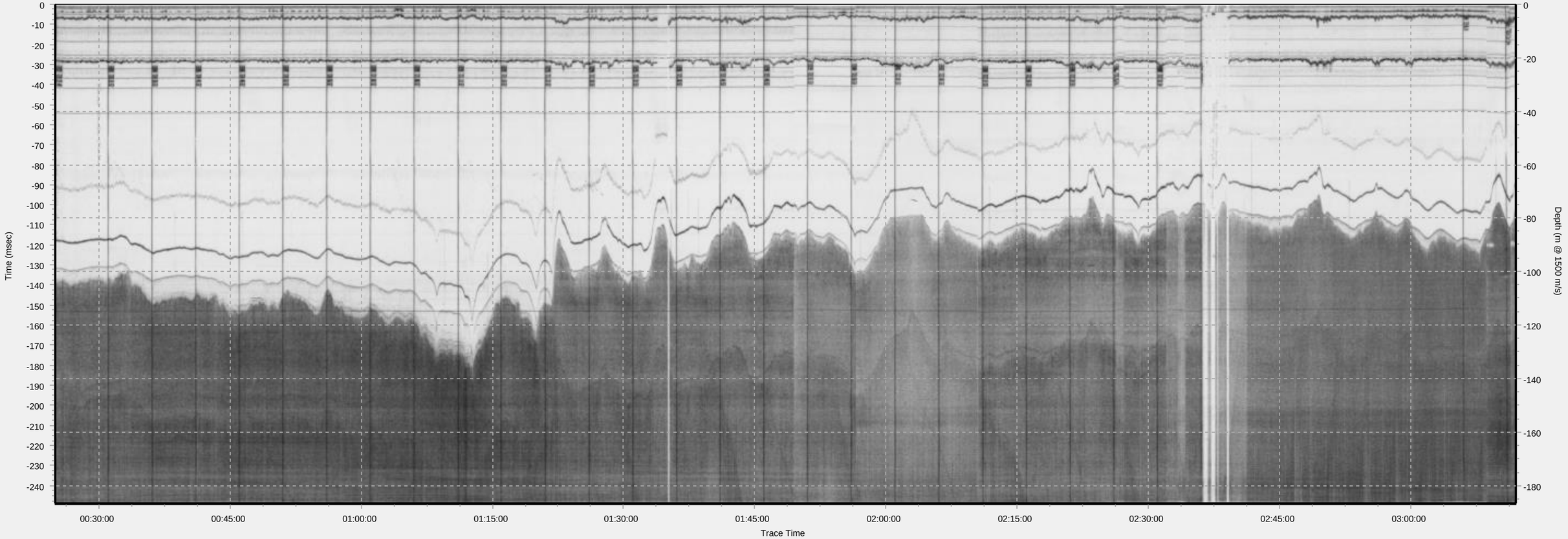
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_216_0054_to_216_0803_halfwave.jp2



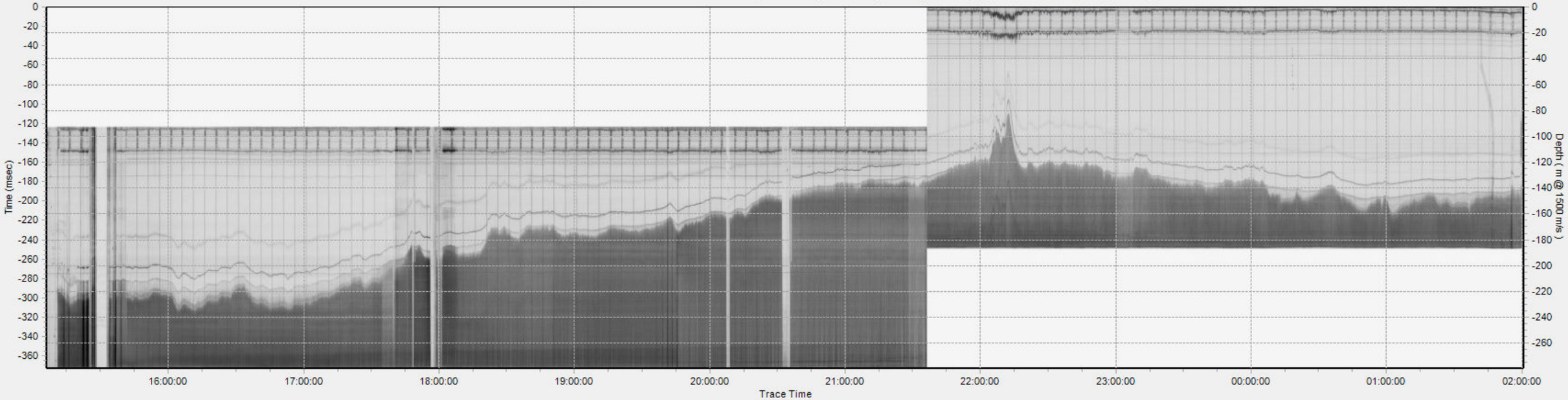
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_216_1640_to_217_0024_halfwave.jp2



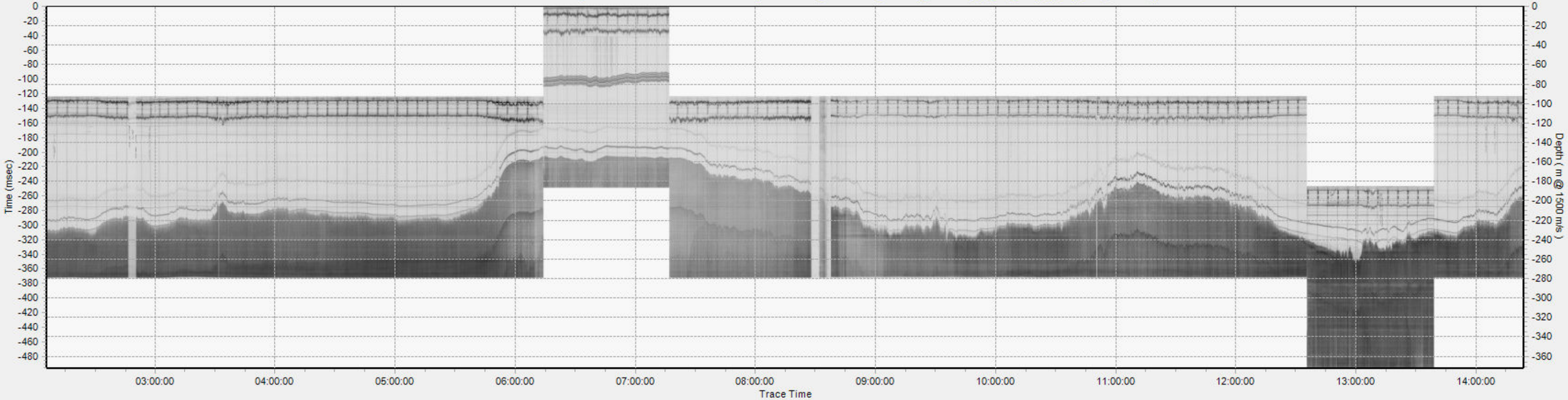
F:\TEMP\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_217_0025_to_217_0311_halfwave.jp2



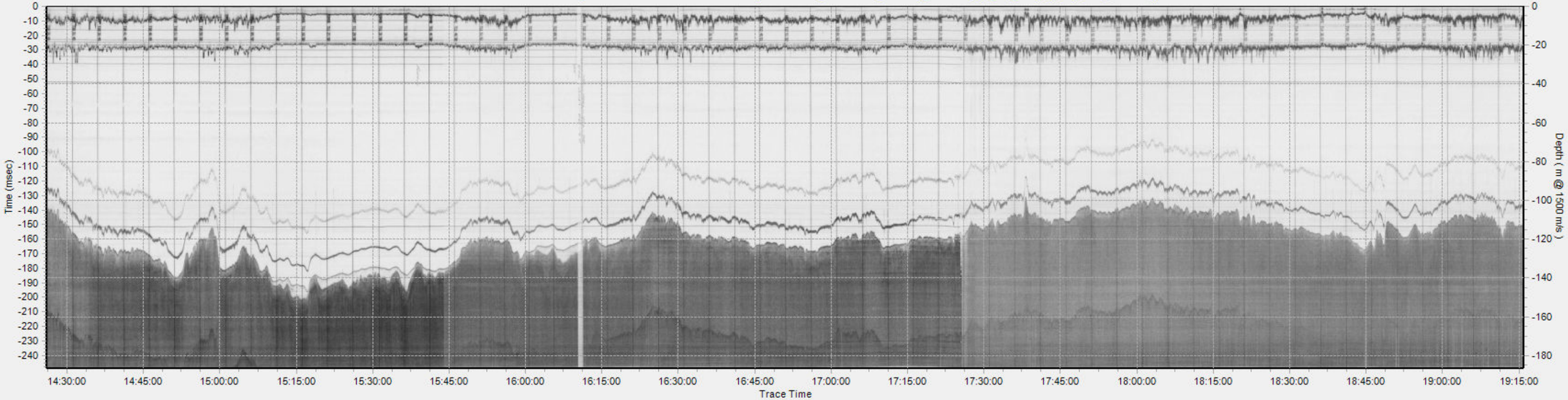
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_217_1506_to_218_0200_halfwave.jp2



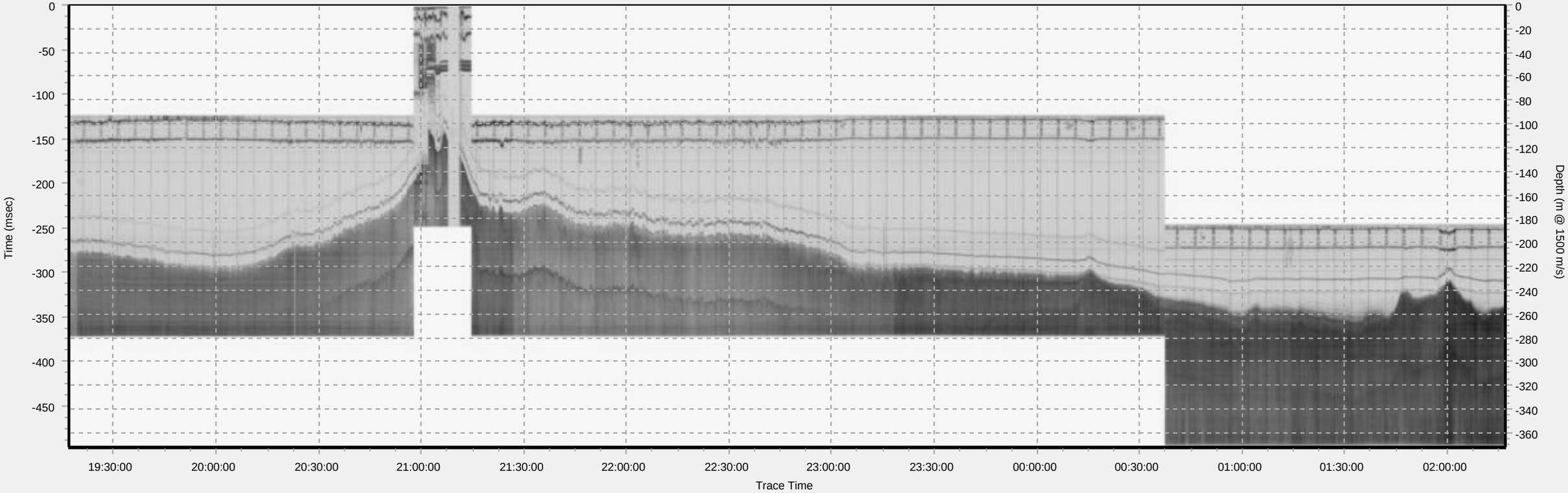
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_218_0206_to_218_1423_halfwave.jp2



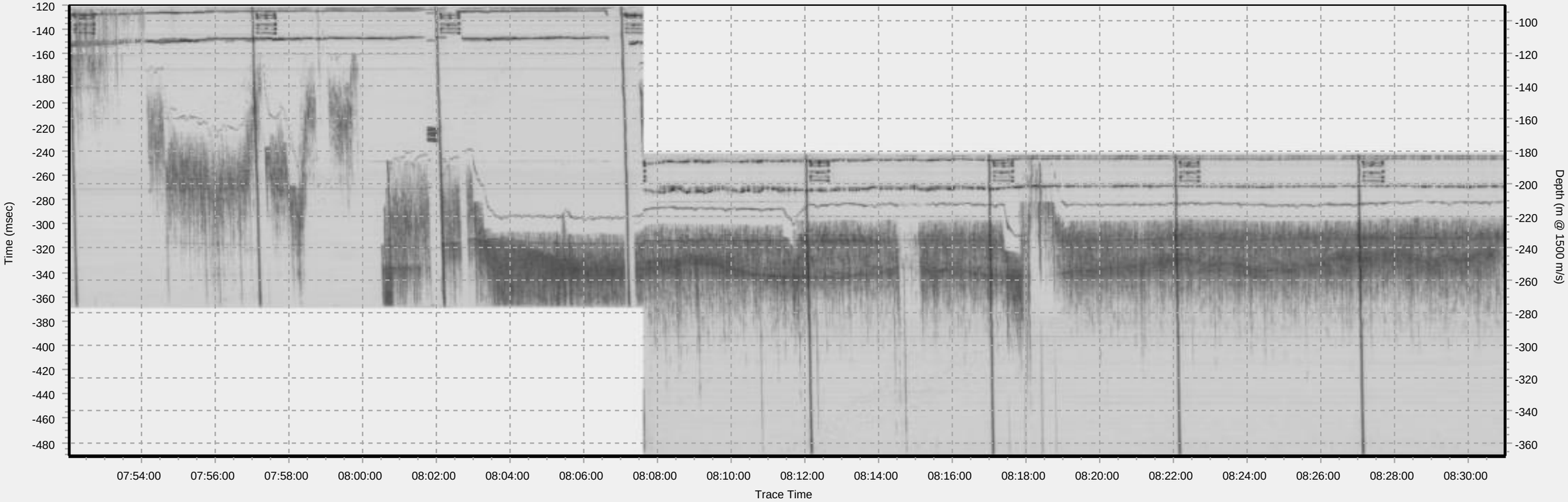
F:\Brian Todd 2022 Contract\90CAPE_HATTERAS\Embedded Nav\HUNTEC_INT\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_218_1426_to_218_1915_halfwave.jp2



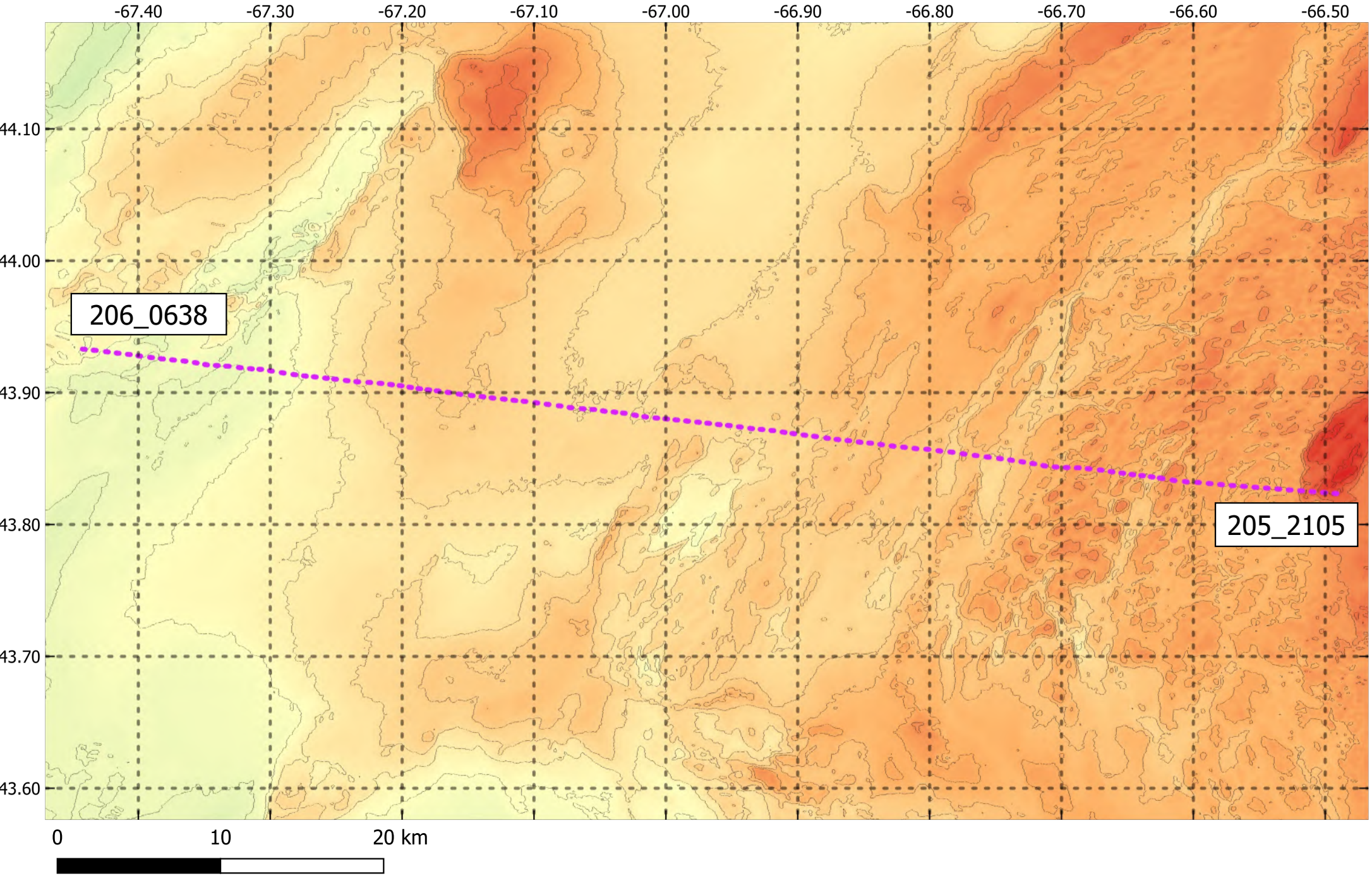
F:\3__DATA\18_UoM_Gulf of Maine expeditions\For transfer to the Seismic Data Archive\90CAPE_HATTERAS\JP2\Huntec_internal\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_218_1917_to_219_0216_halfwave.jp2



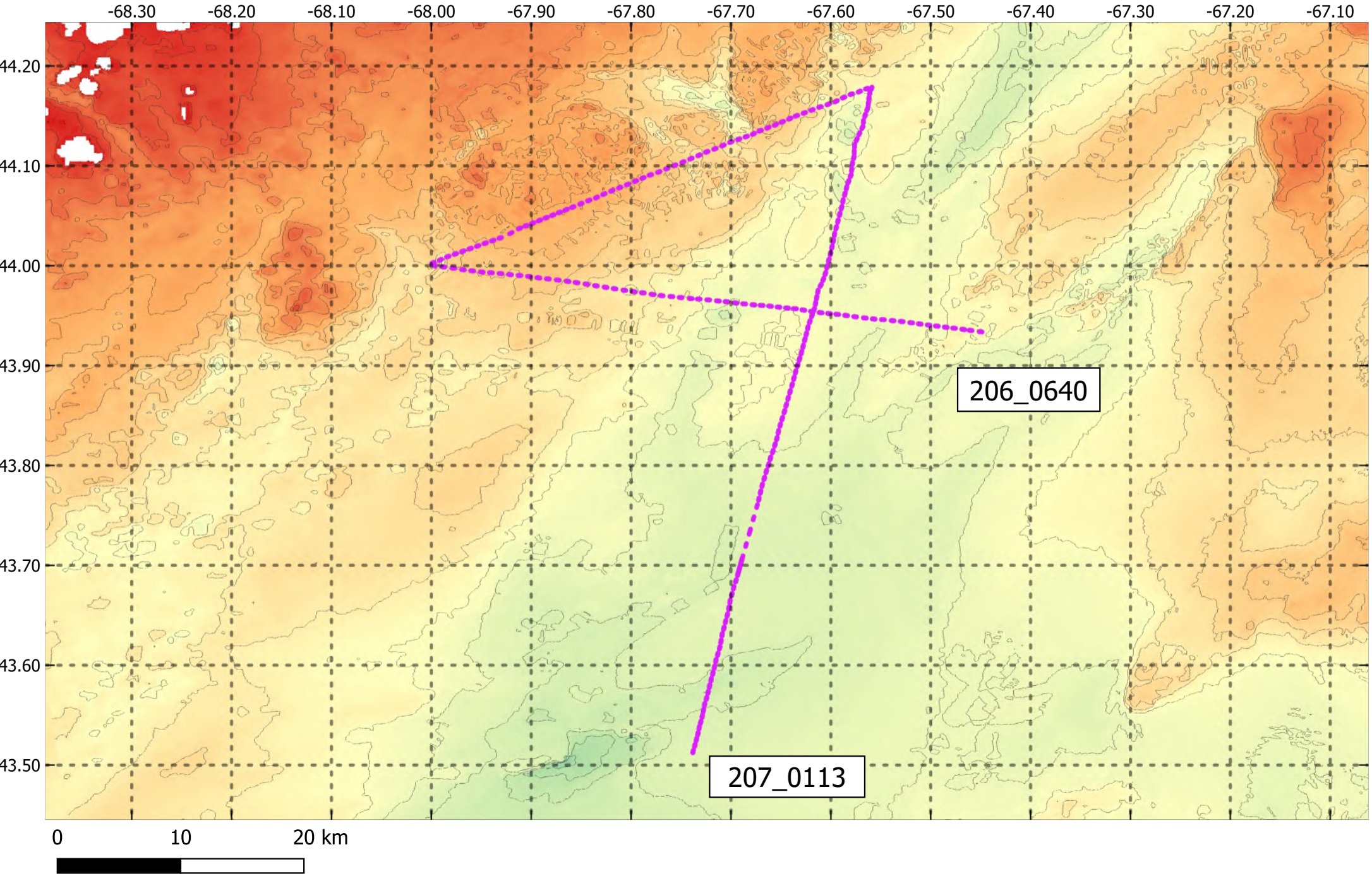
F:\3__DATA\18_UoM_Gulf of Maine expeditions\For transfer to the Seismic Data Archive\90CAPE_HATTERAS\JP2\Huntec_internal\90CAPE_HATTERAS_SEISMIC_HUNTEC_int_219_0752_to_219_0830_halfwave.jp2



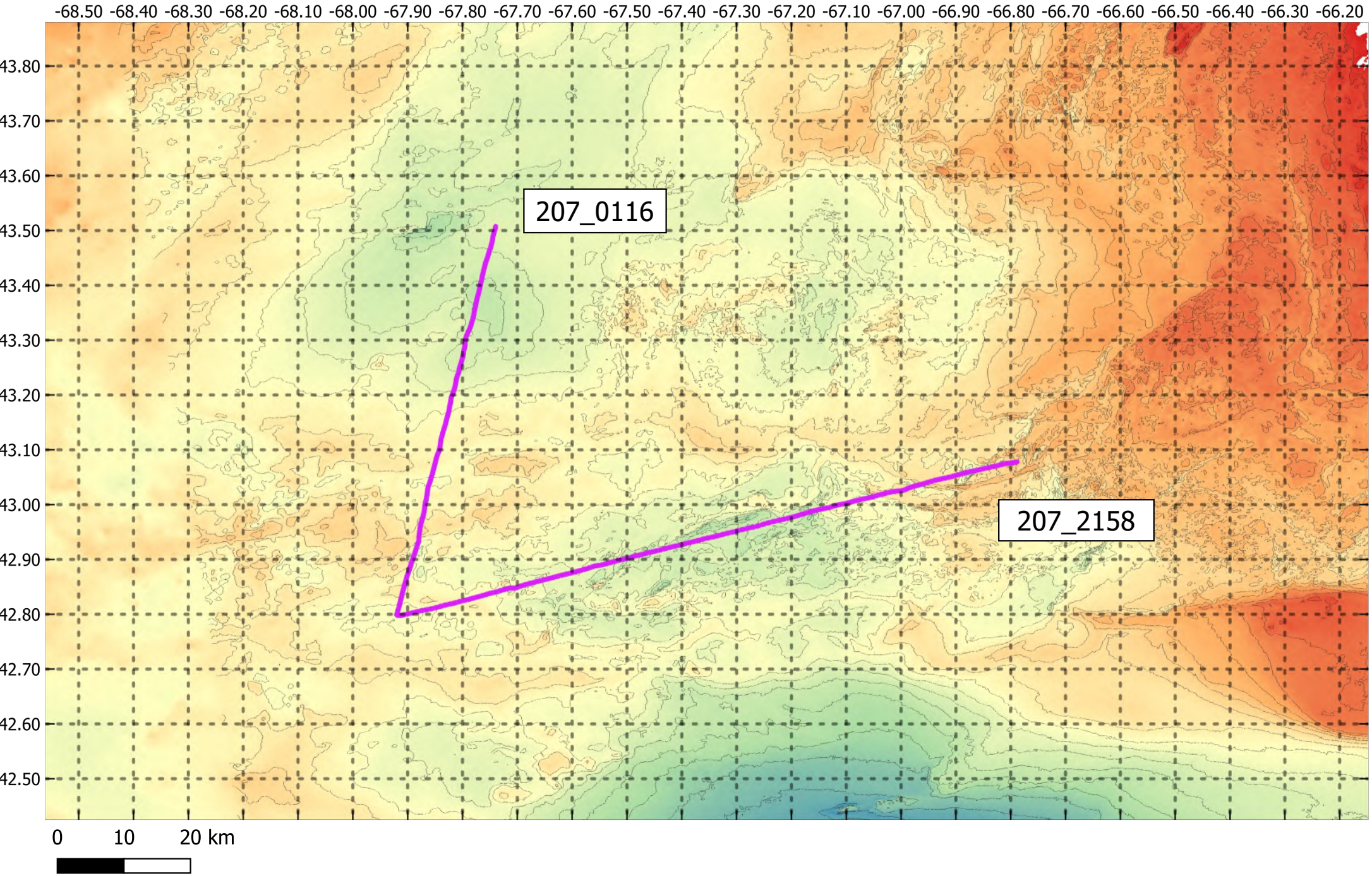
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_205_2105_to_206_0638



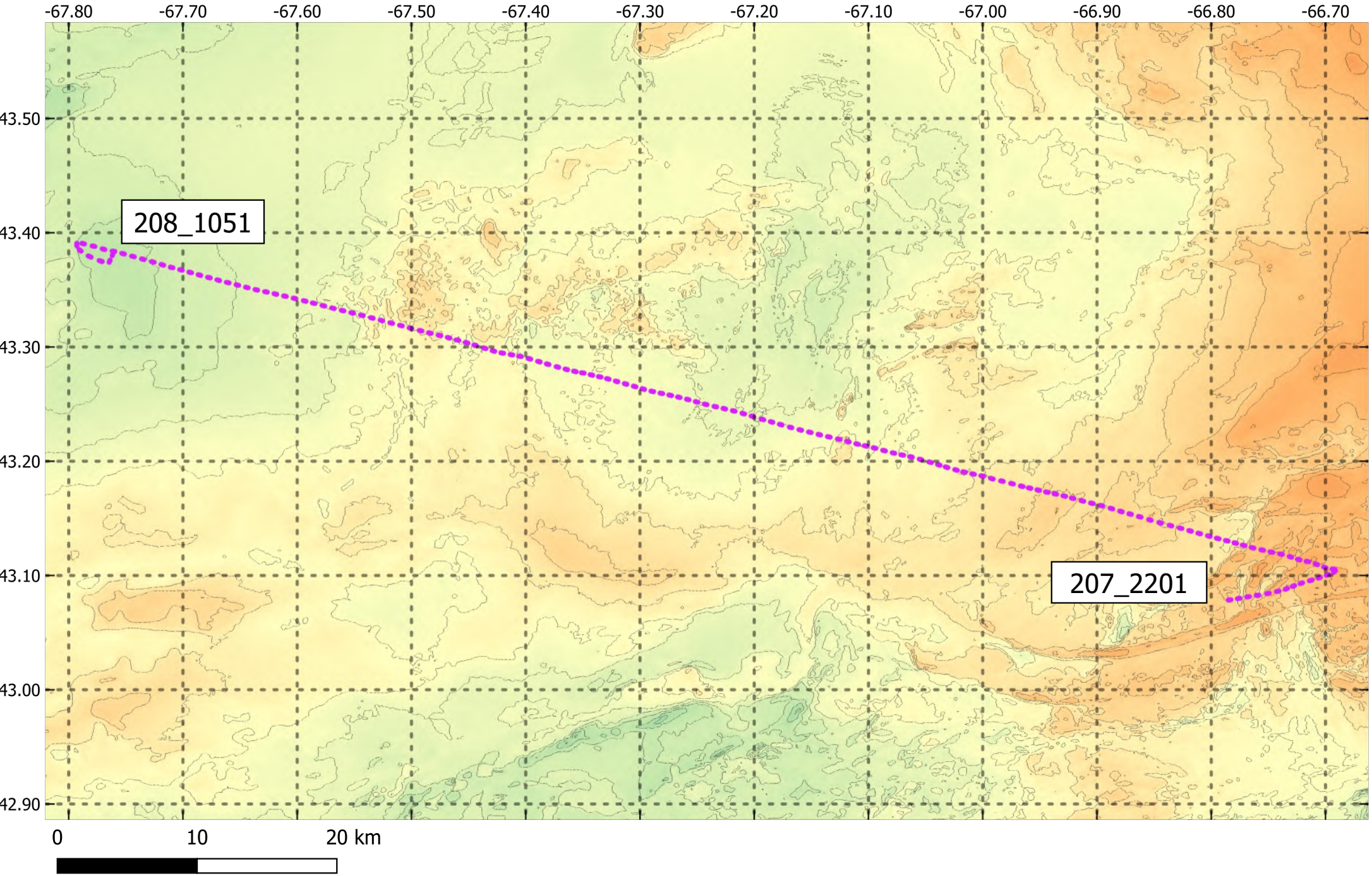
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_206_0640_to_207_0113



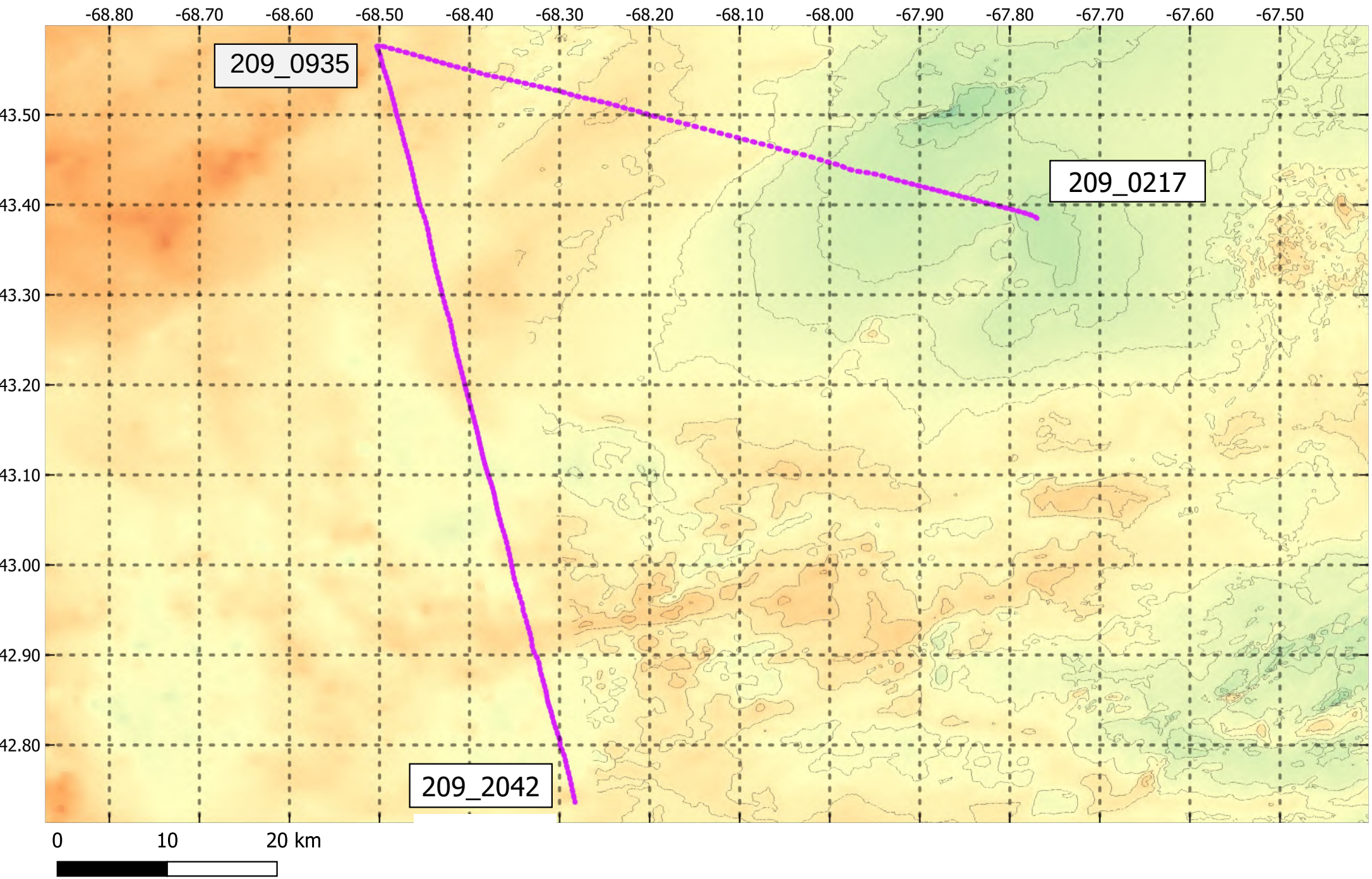
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_207_0116_to_207_2158



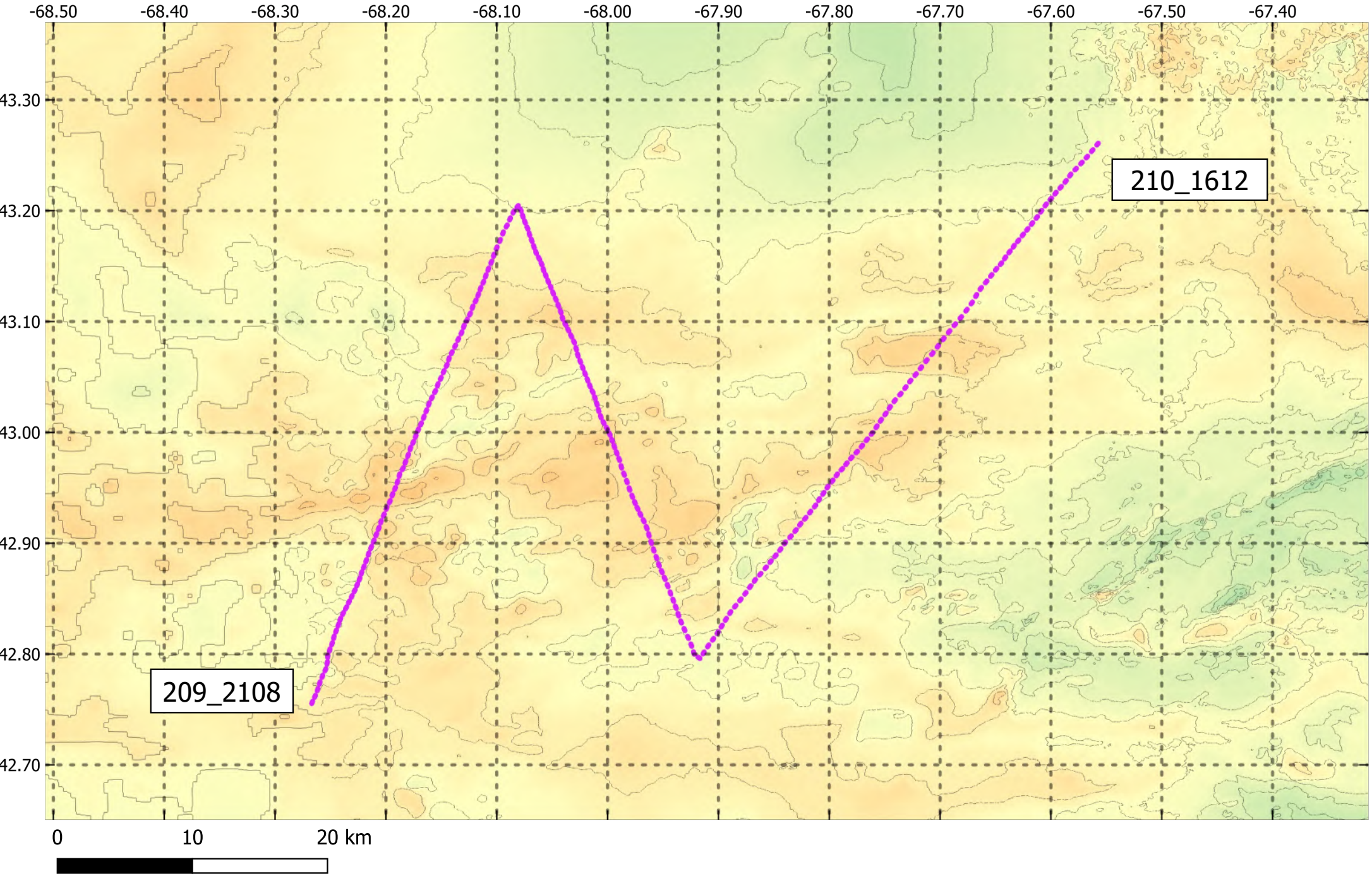
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_207_2201_to_208_1051



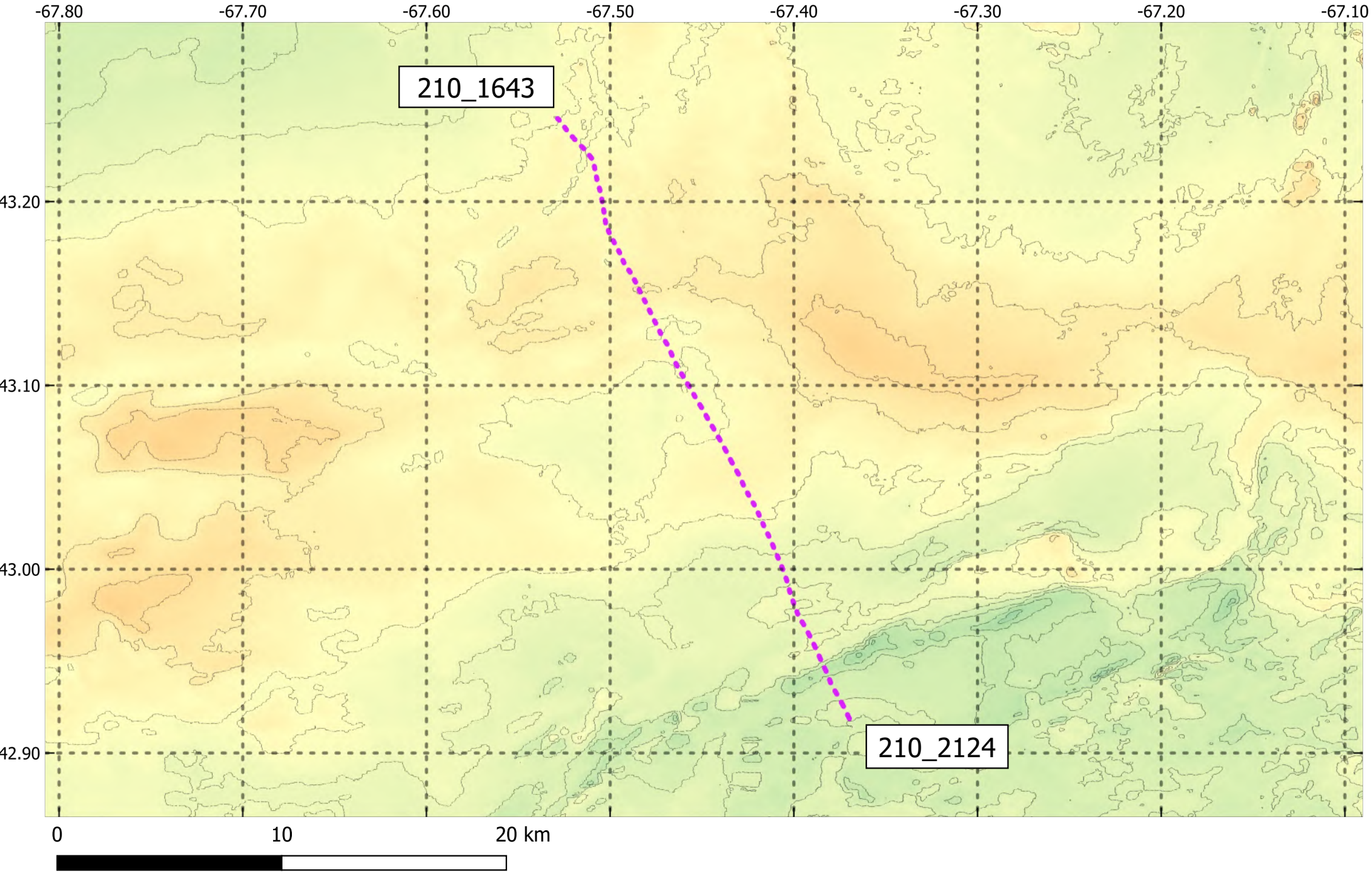
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_209_0217_to_209_2042



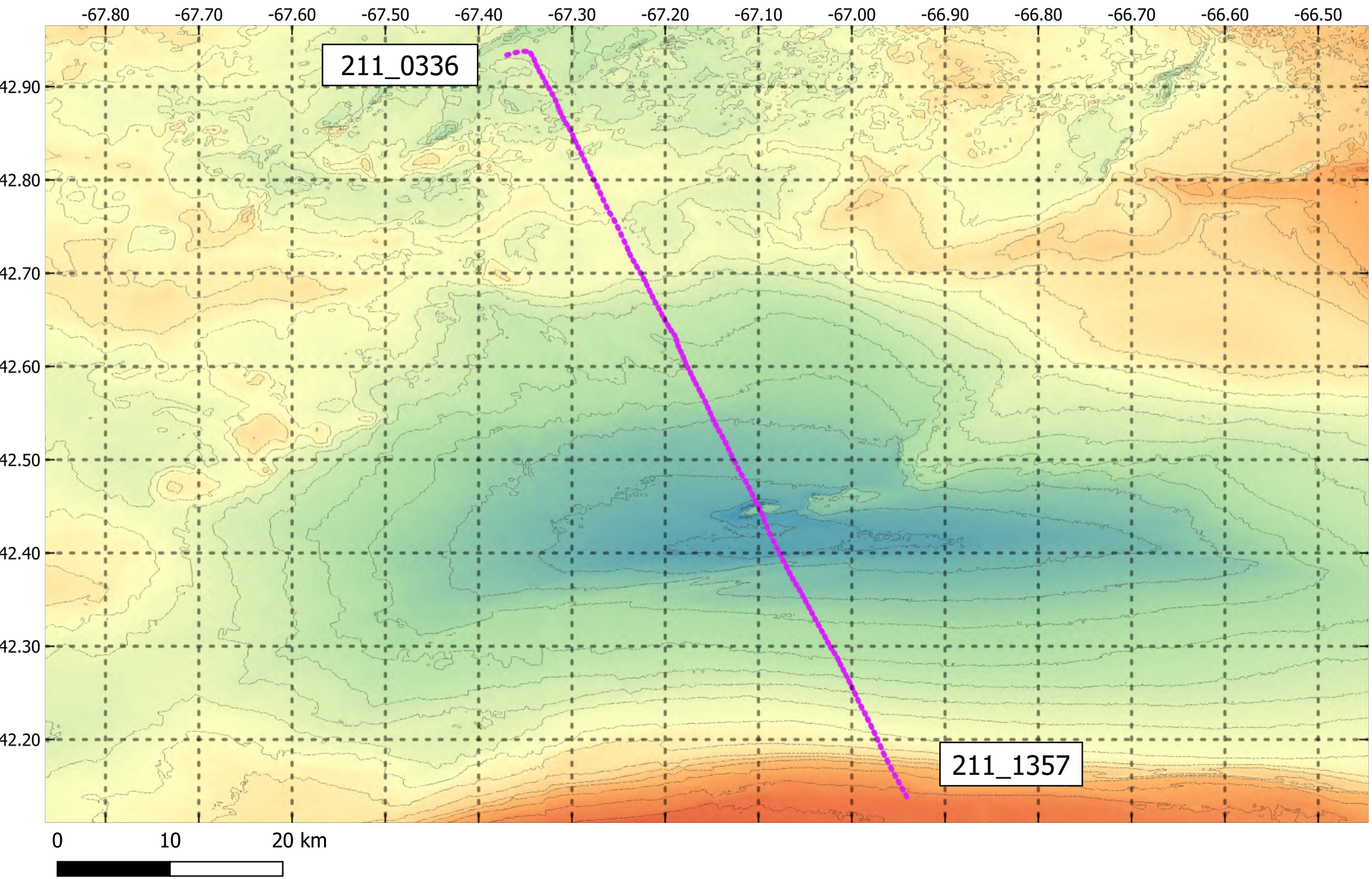
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_209_2108_to_210_1612



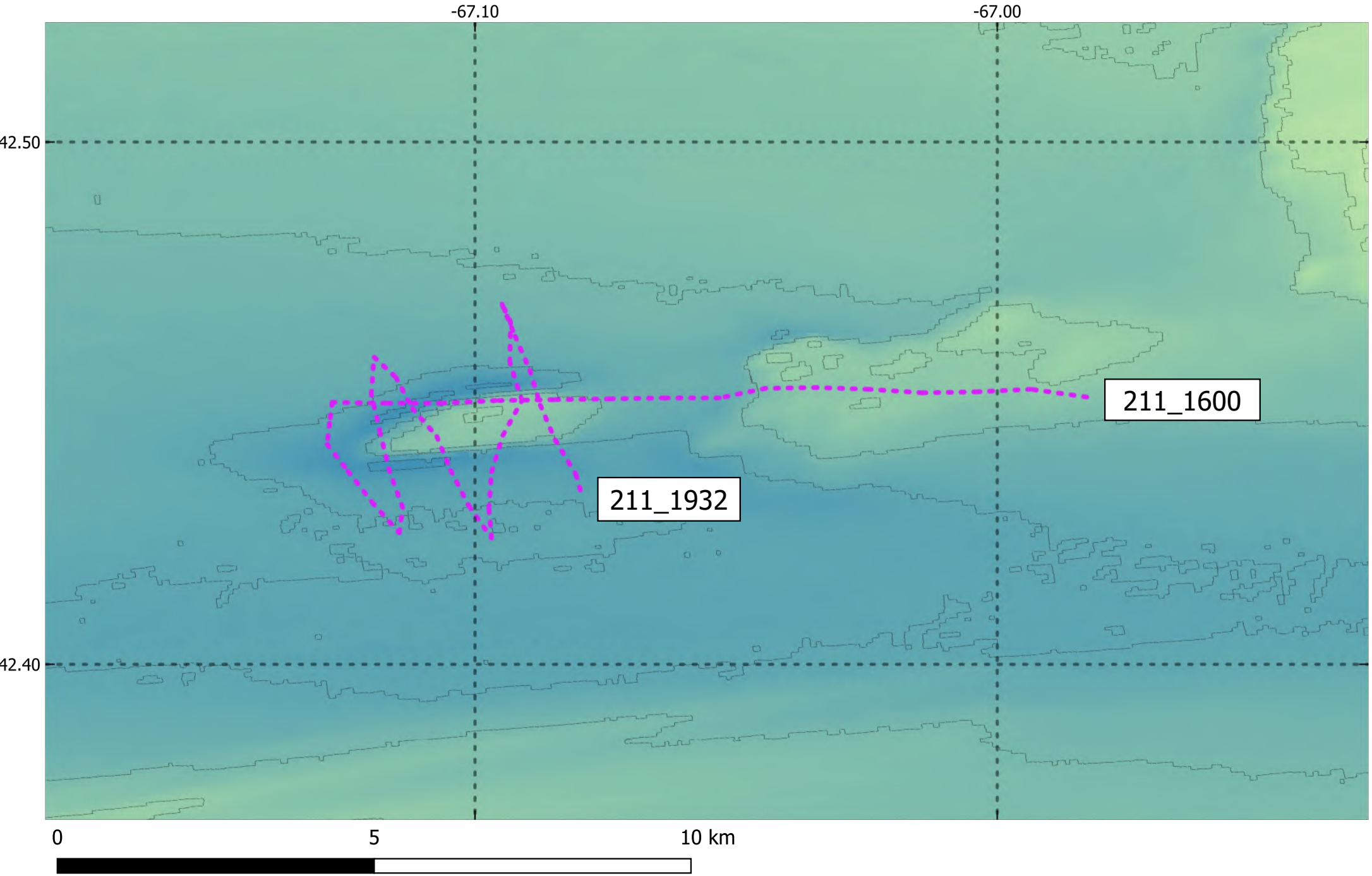
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_210_1643_to_210_2124



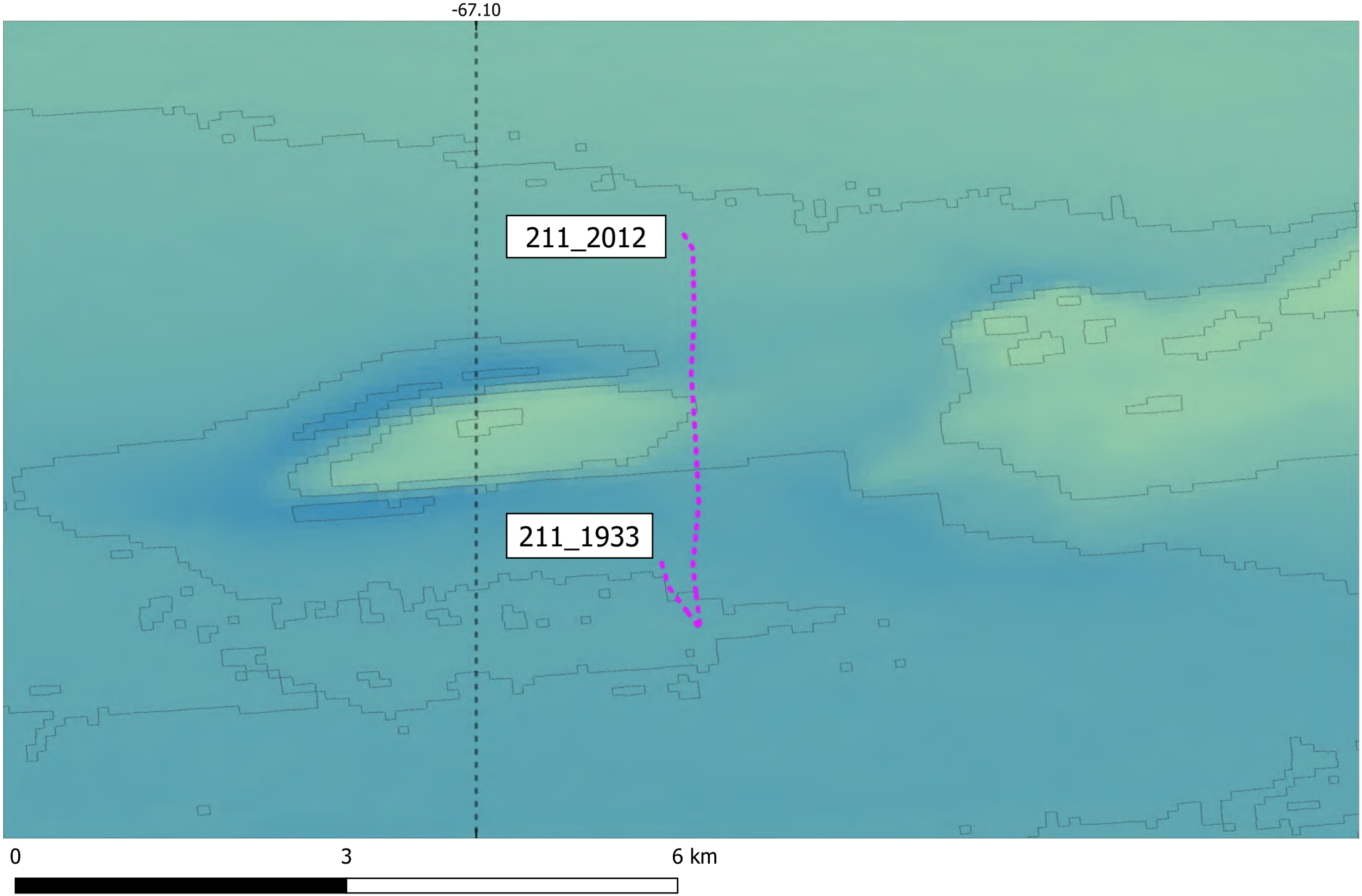
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_211_0336_to_211_1357



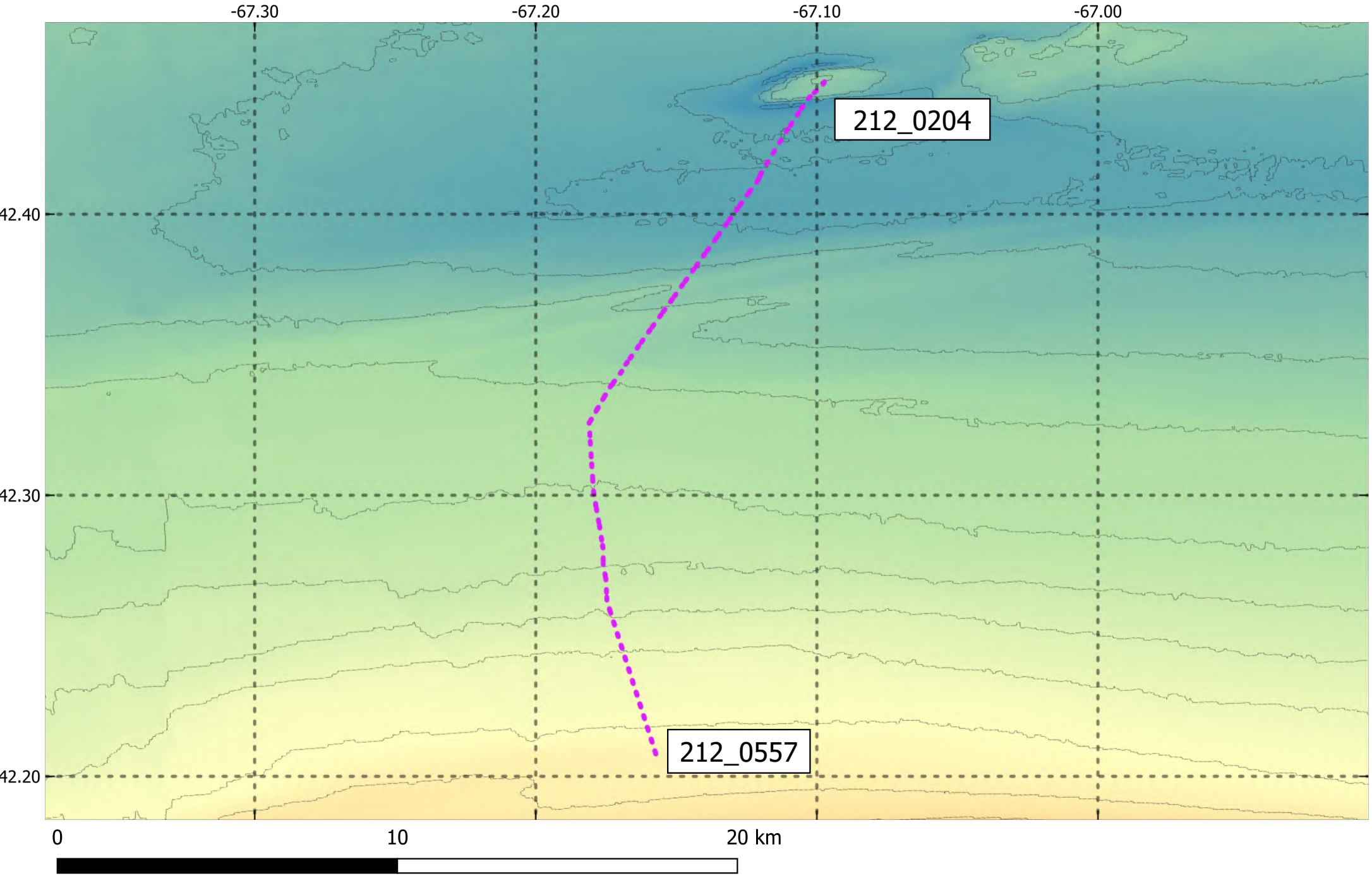
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_211_1600_to_211_1932



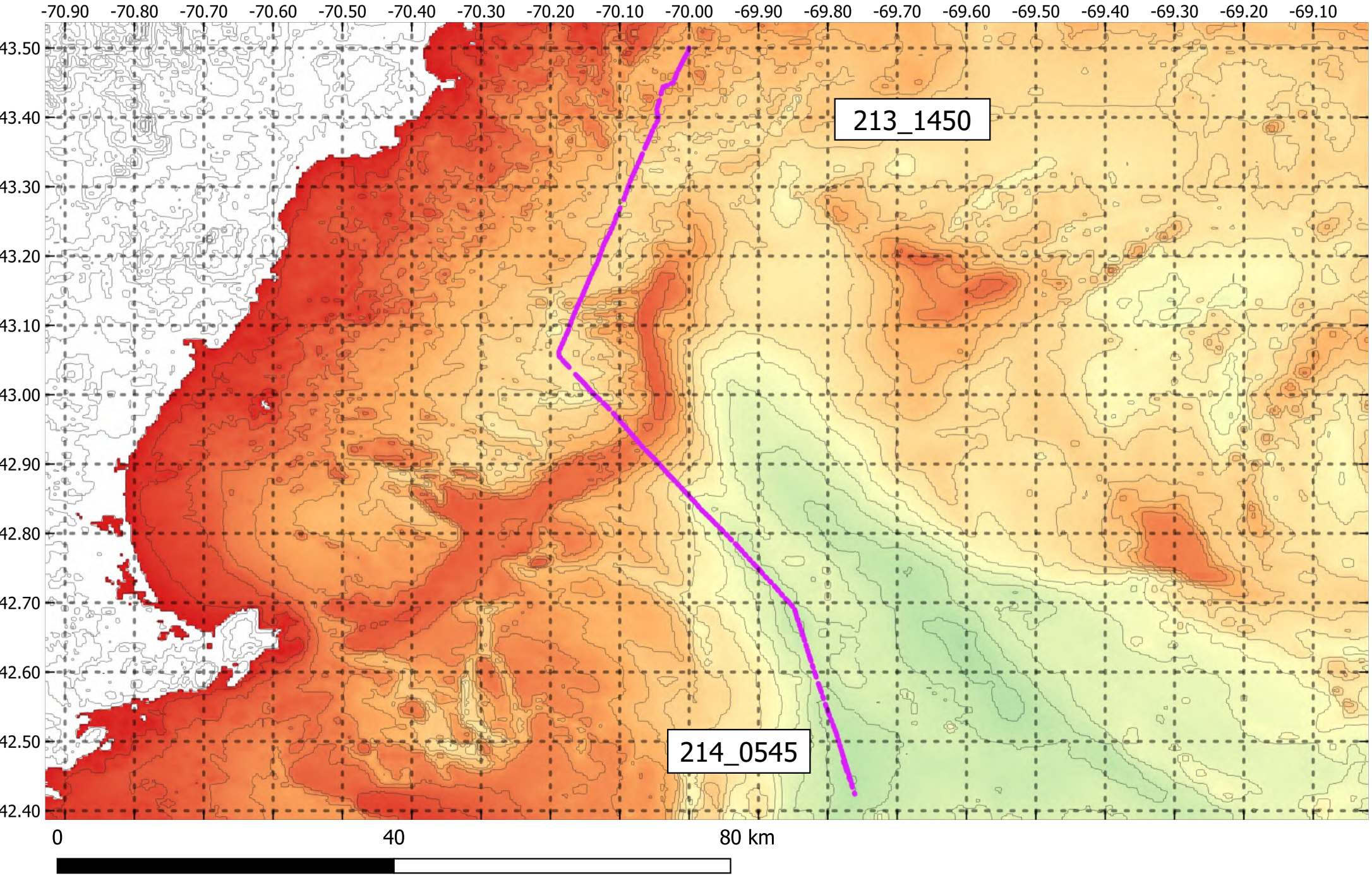
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_211_1933_to_211_2012



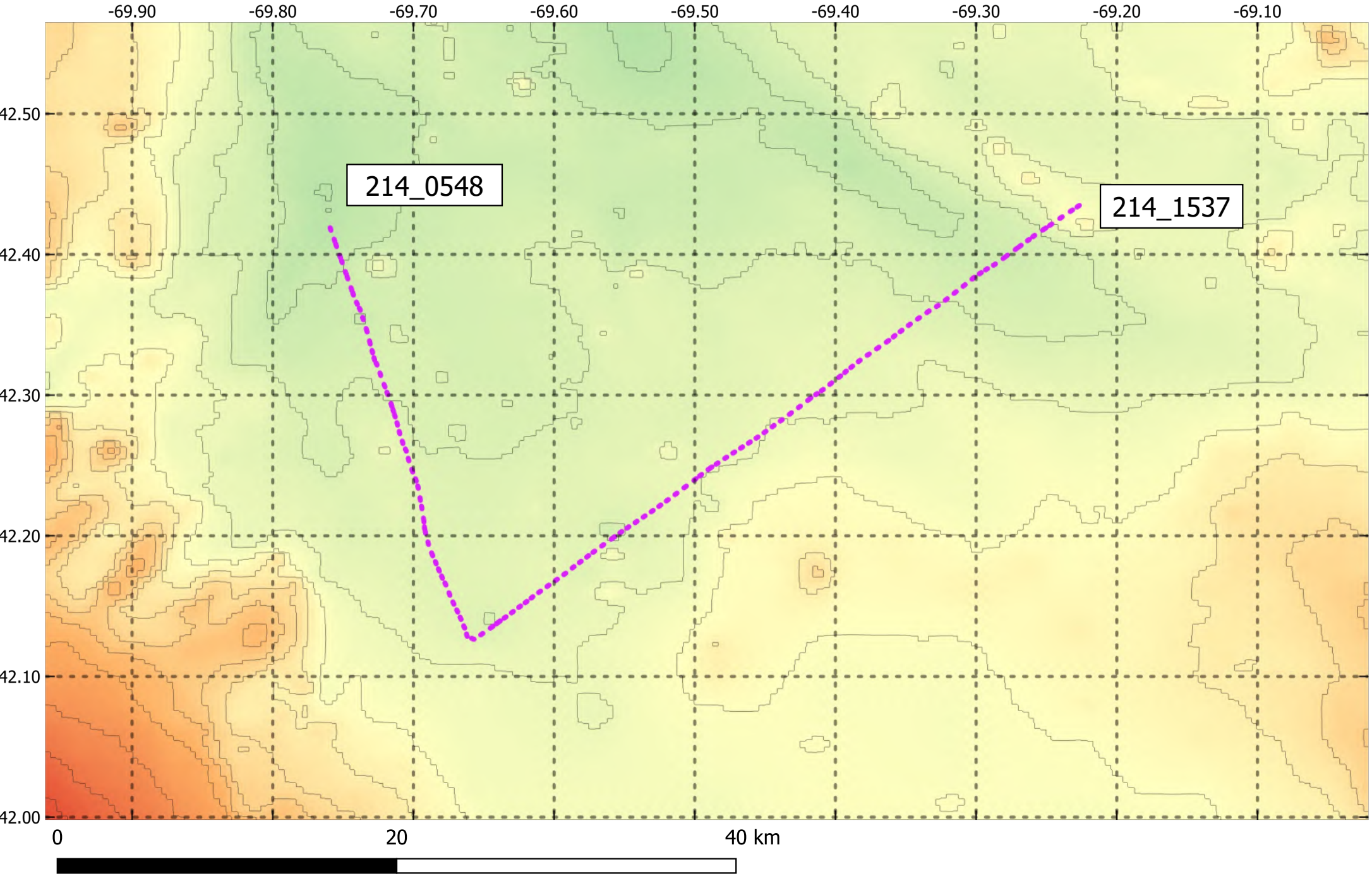
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_212_0204_to_212_0557



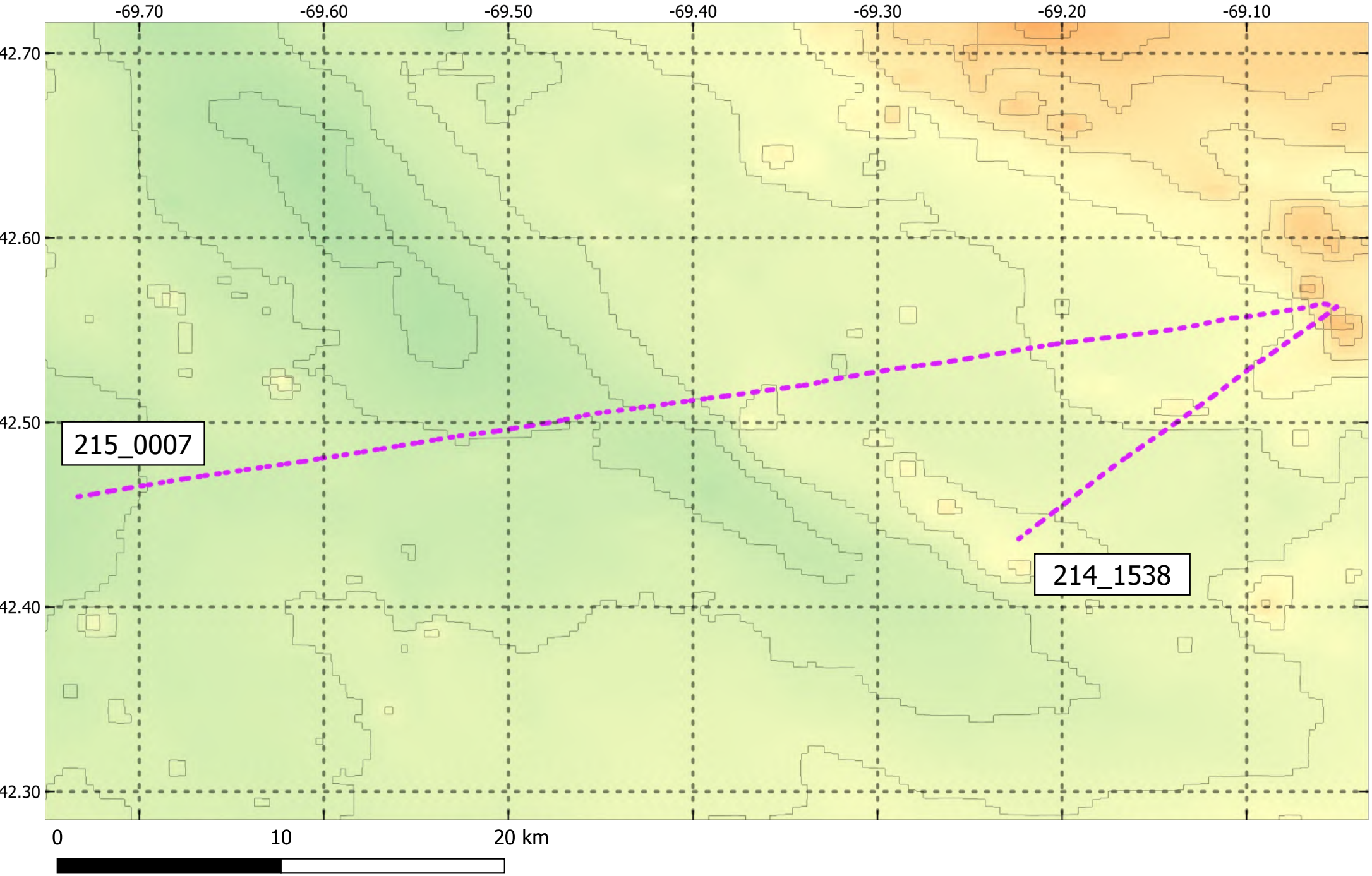
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_213_1450_to_214_0545



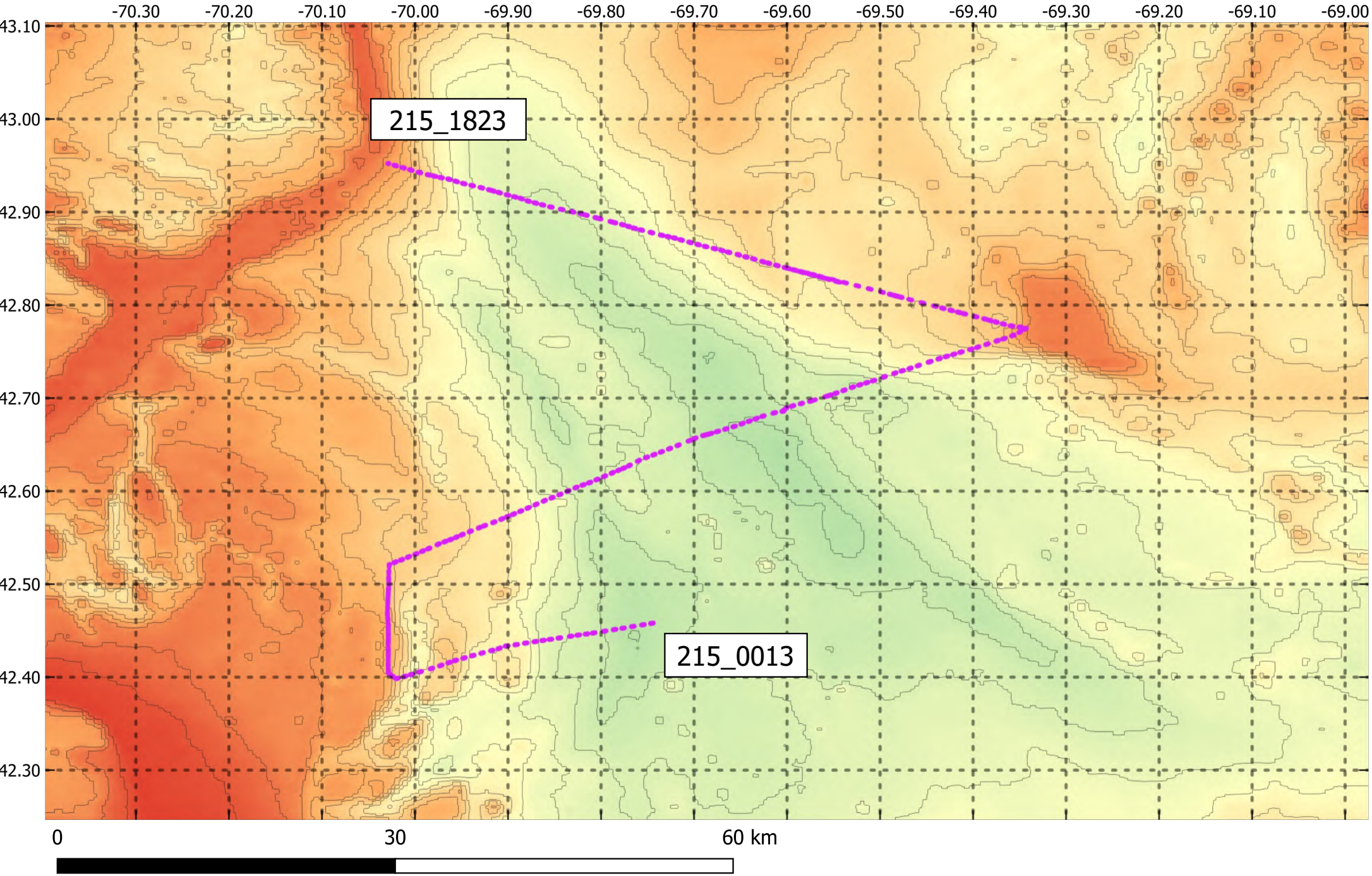
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_214_0548_to_214_1537



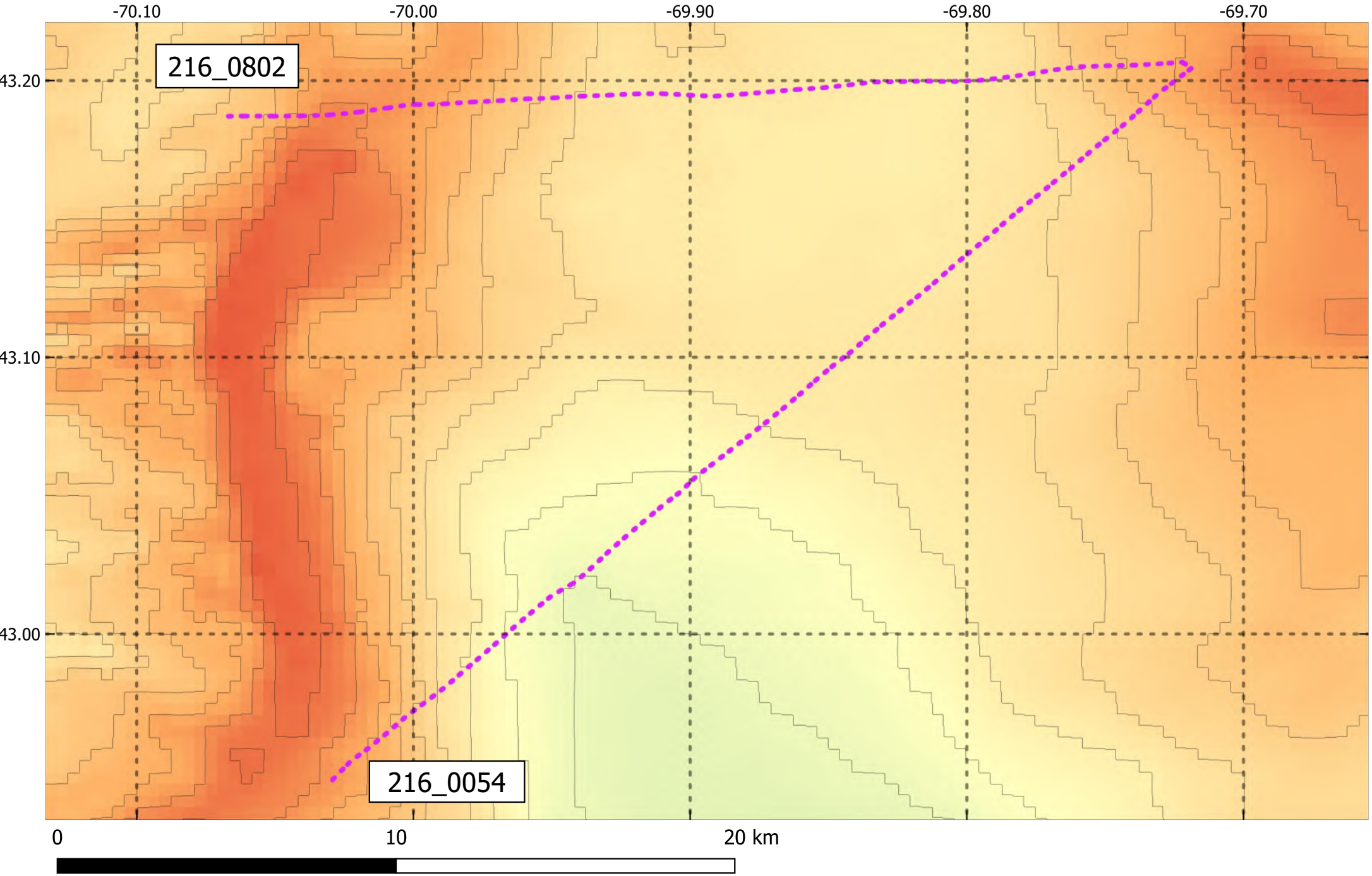
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_214_1538_to_215_0007



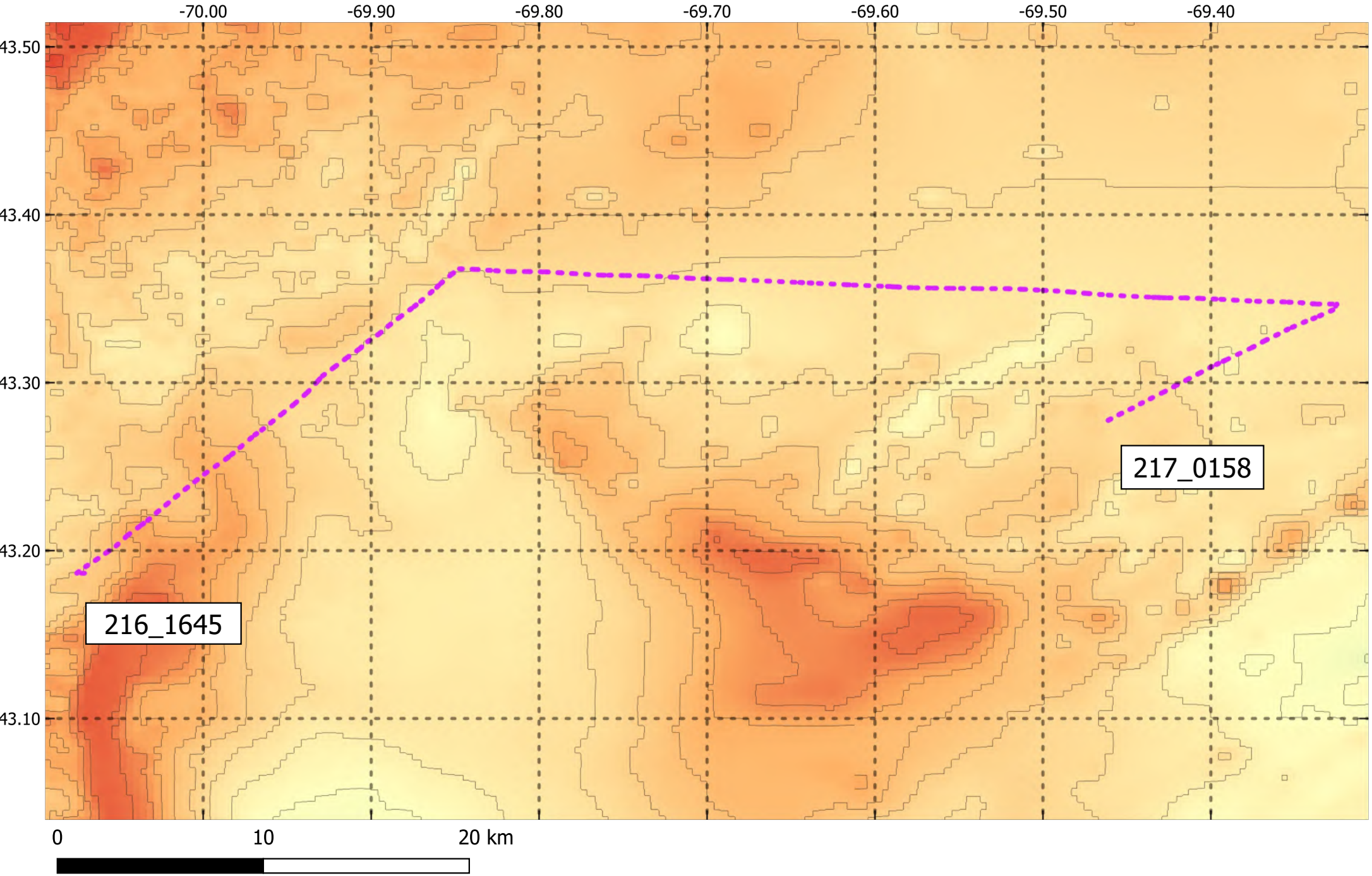
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_215_0013_to_215_1823



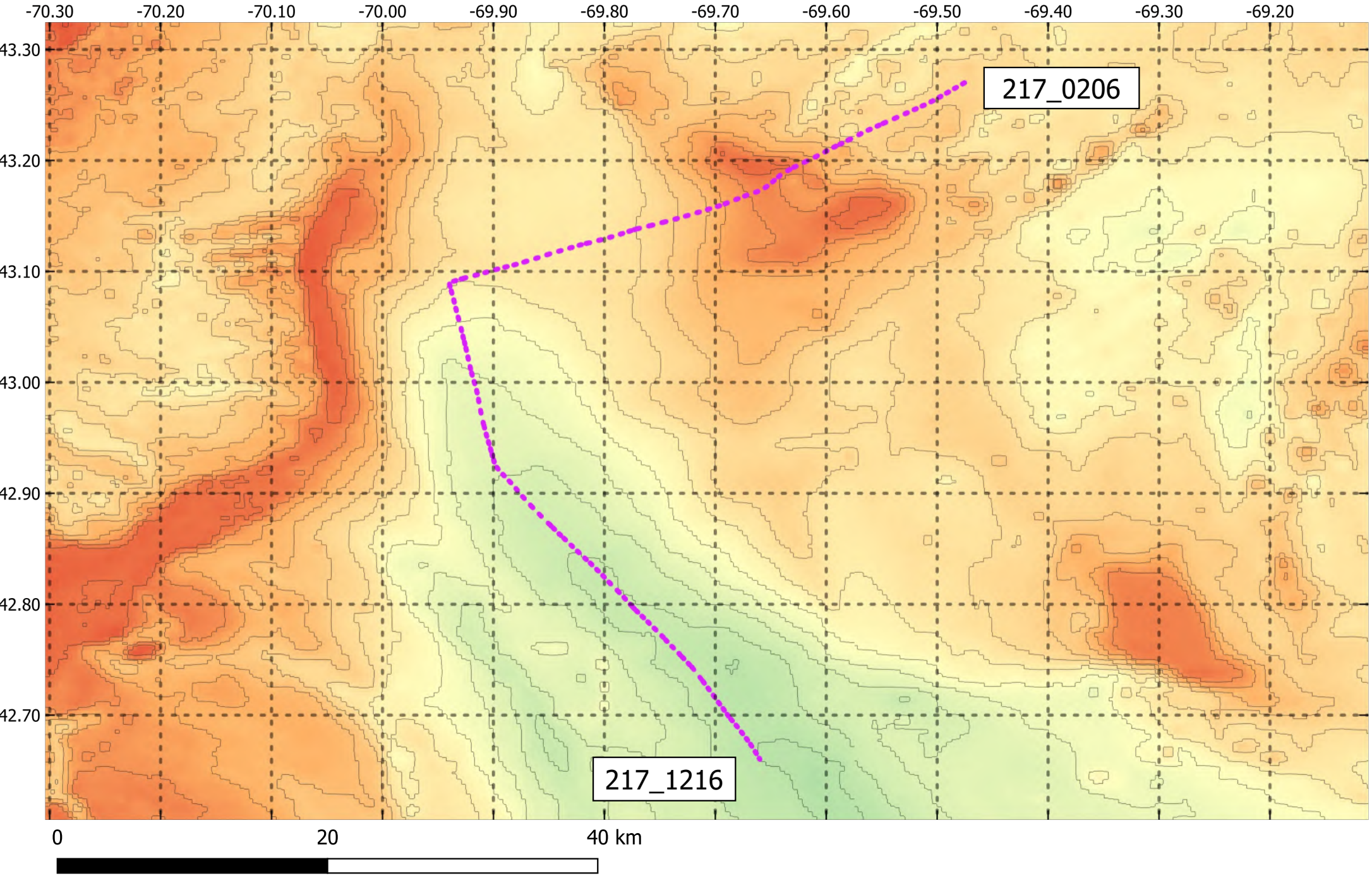
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_216_0054_to_216_0802



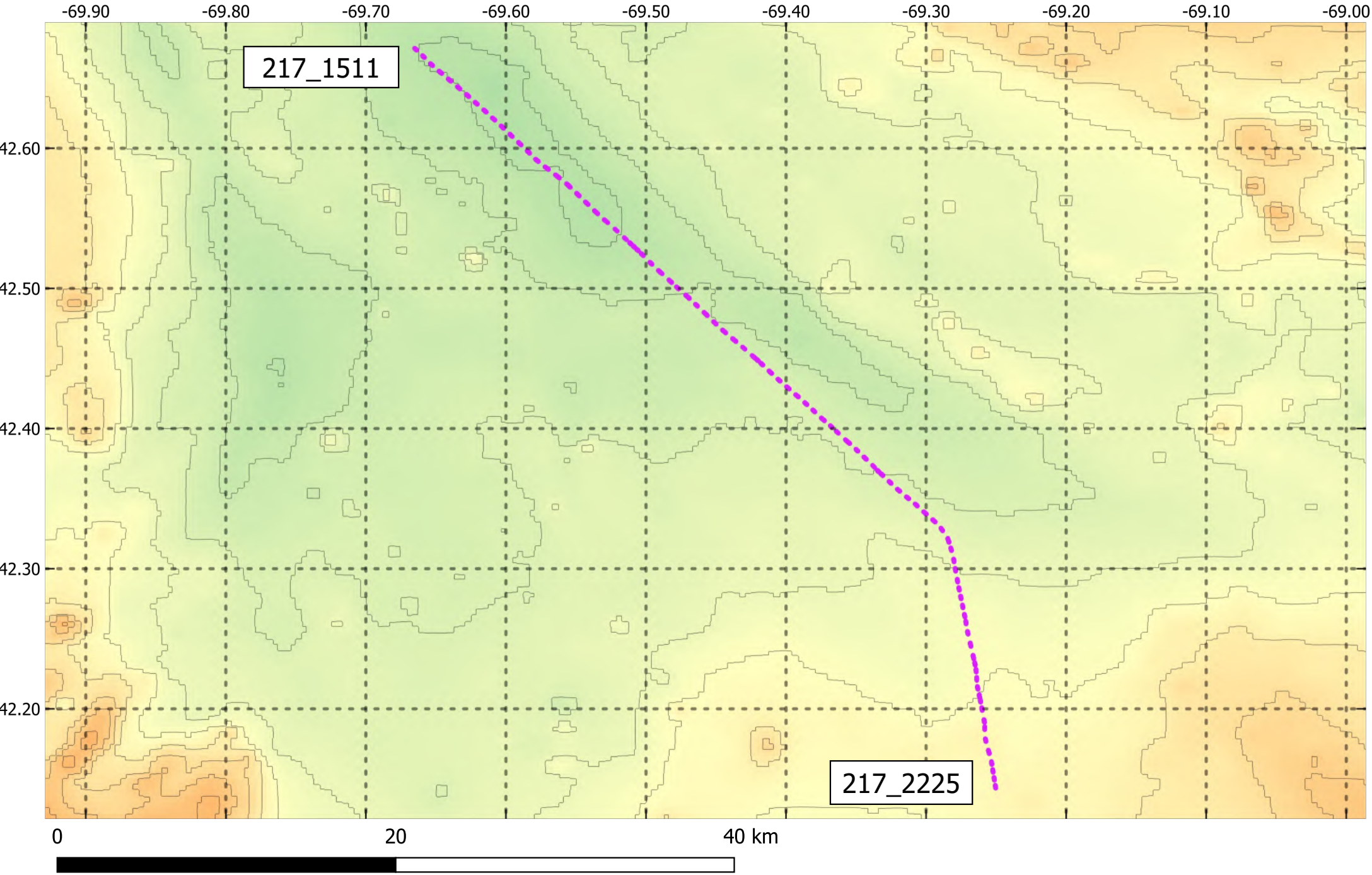
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_216_1645_to_217_0158



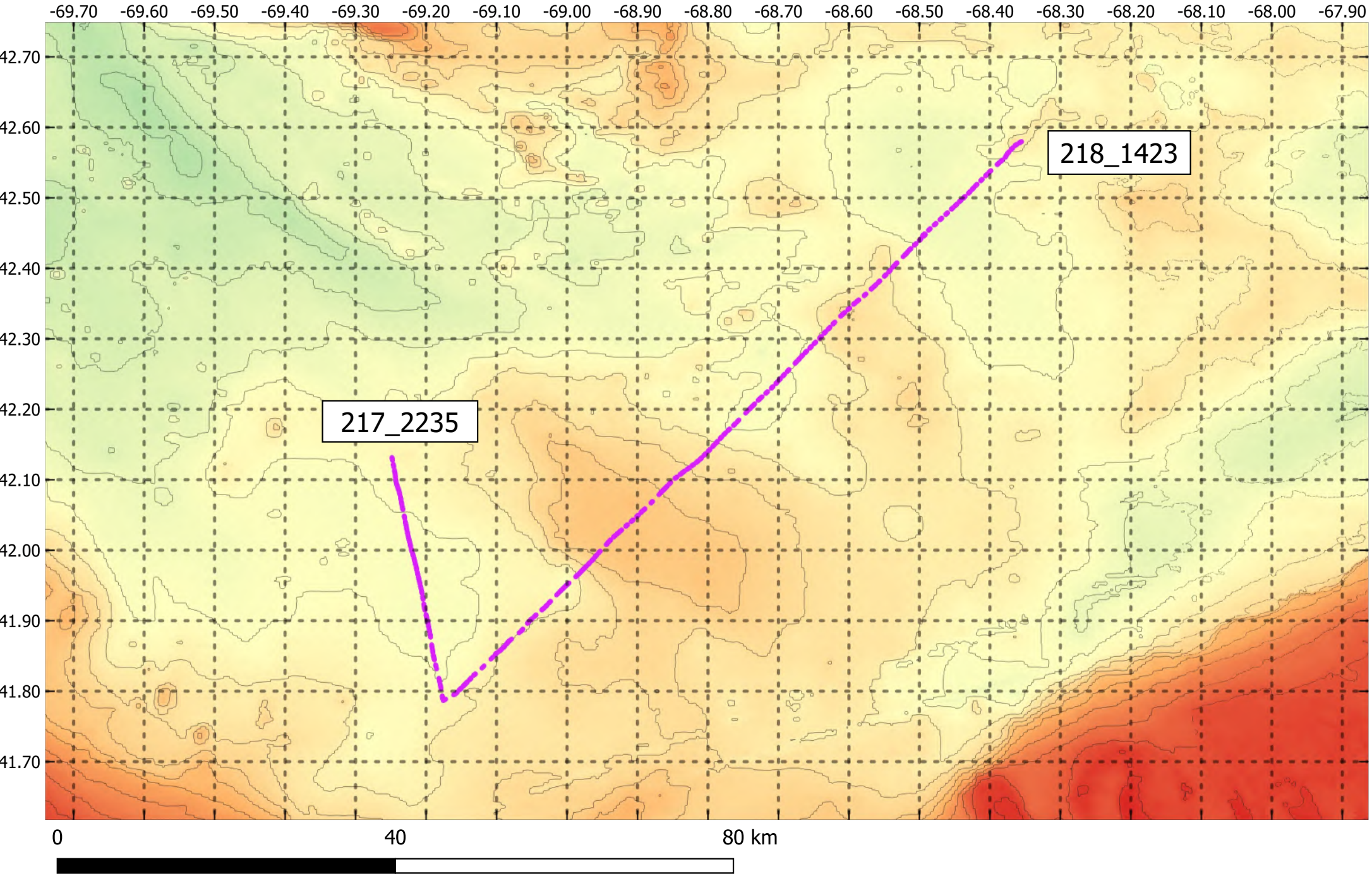
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_217_0206_to_217_1216



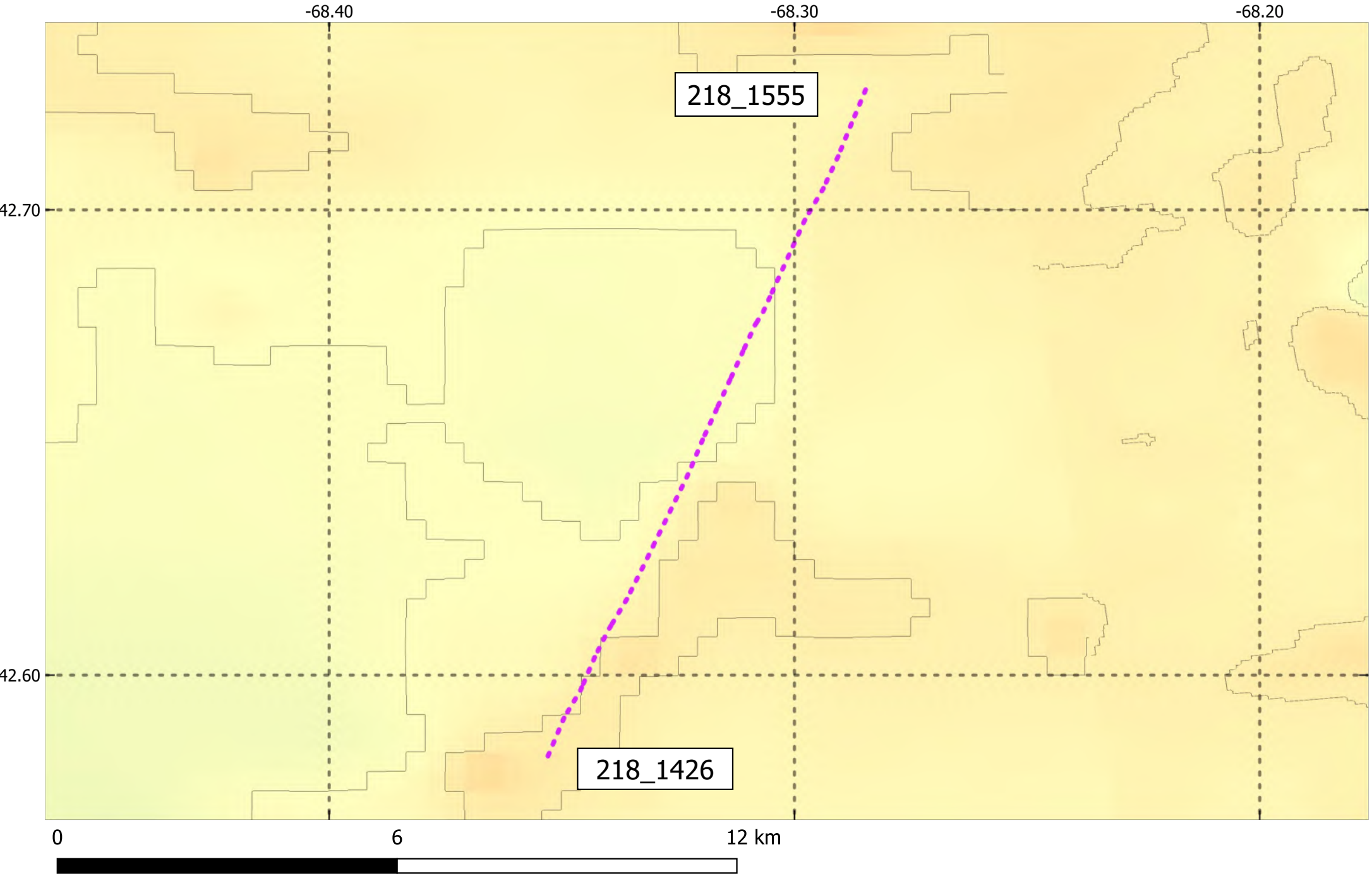
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_217_1511_to_217_2225



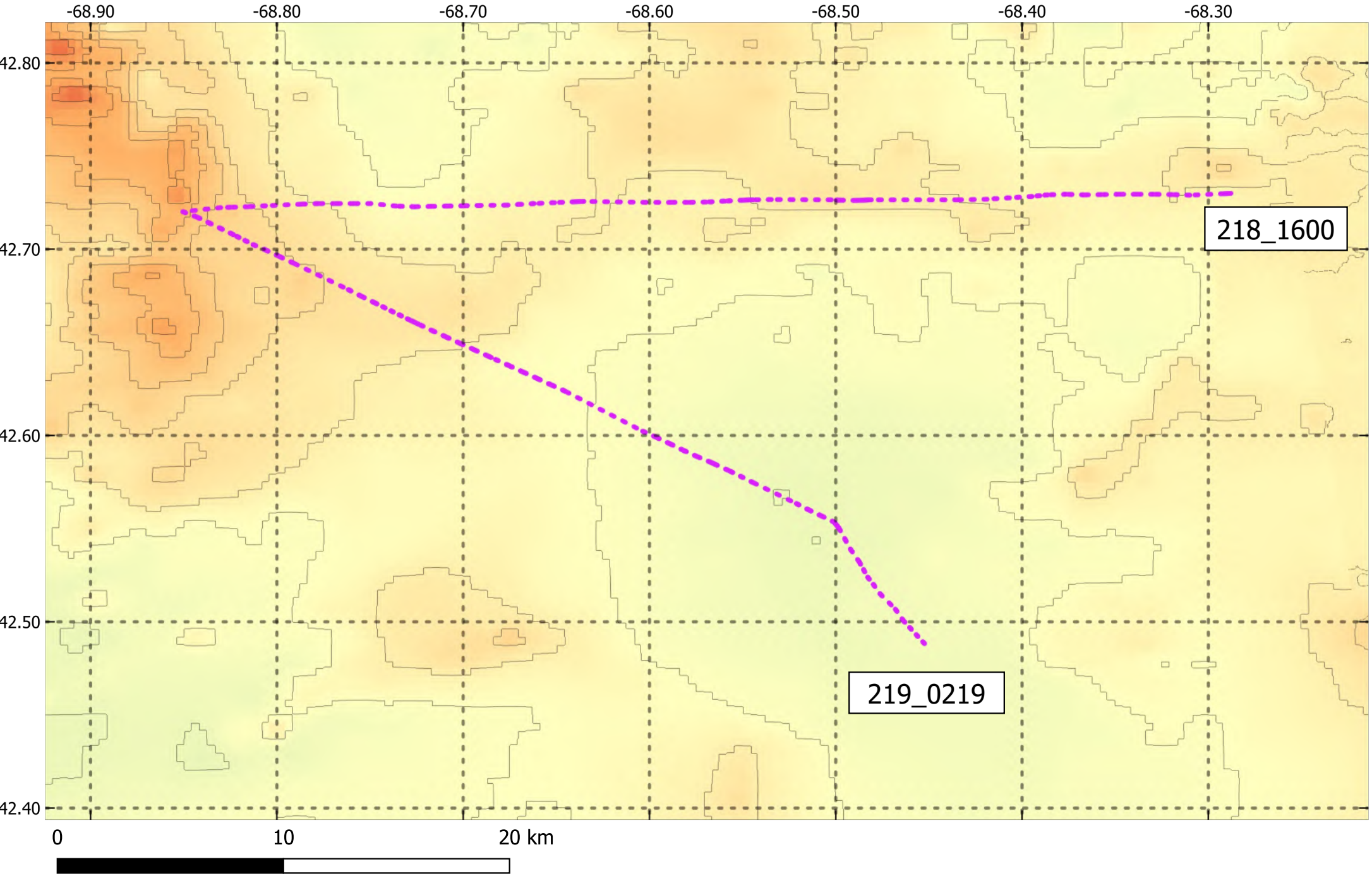
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_217_2235_to_218_1423



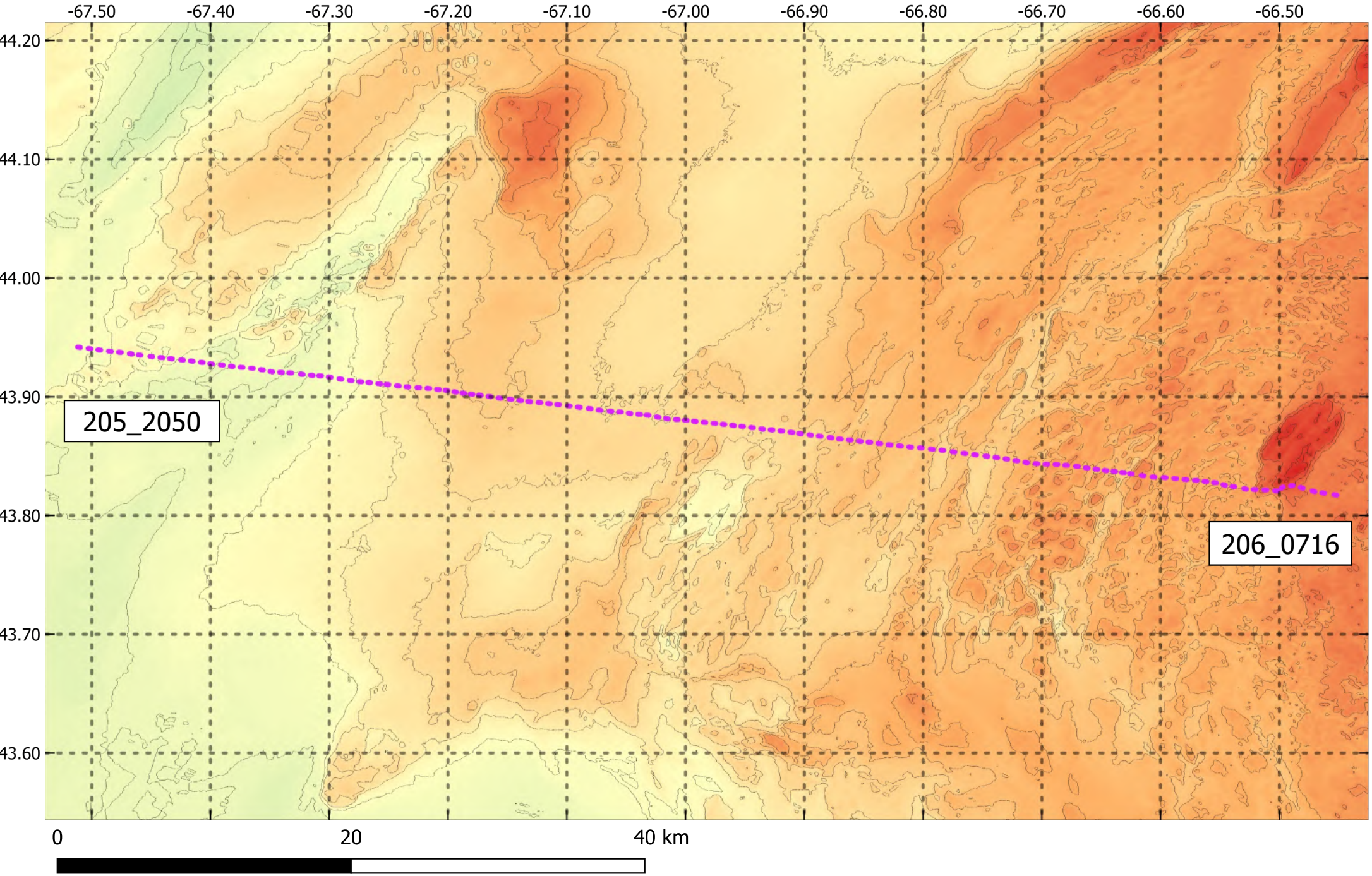
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_218_1426_to_218_1555



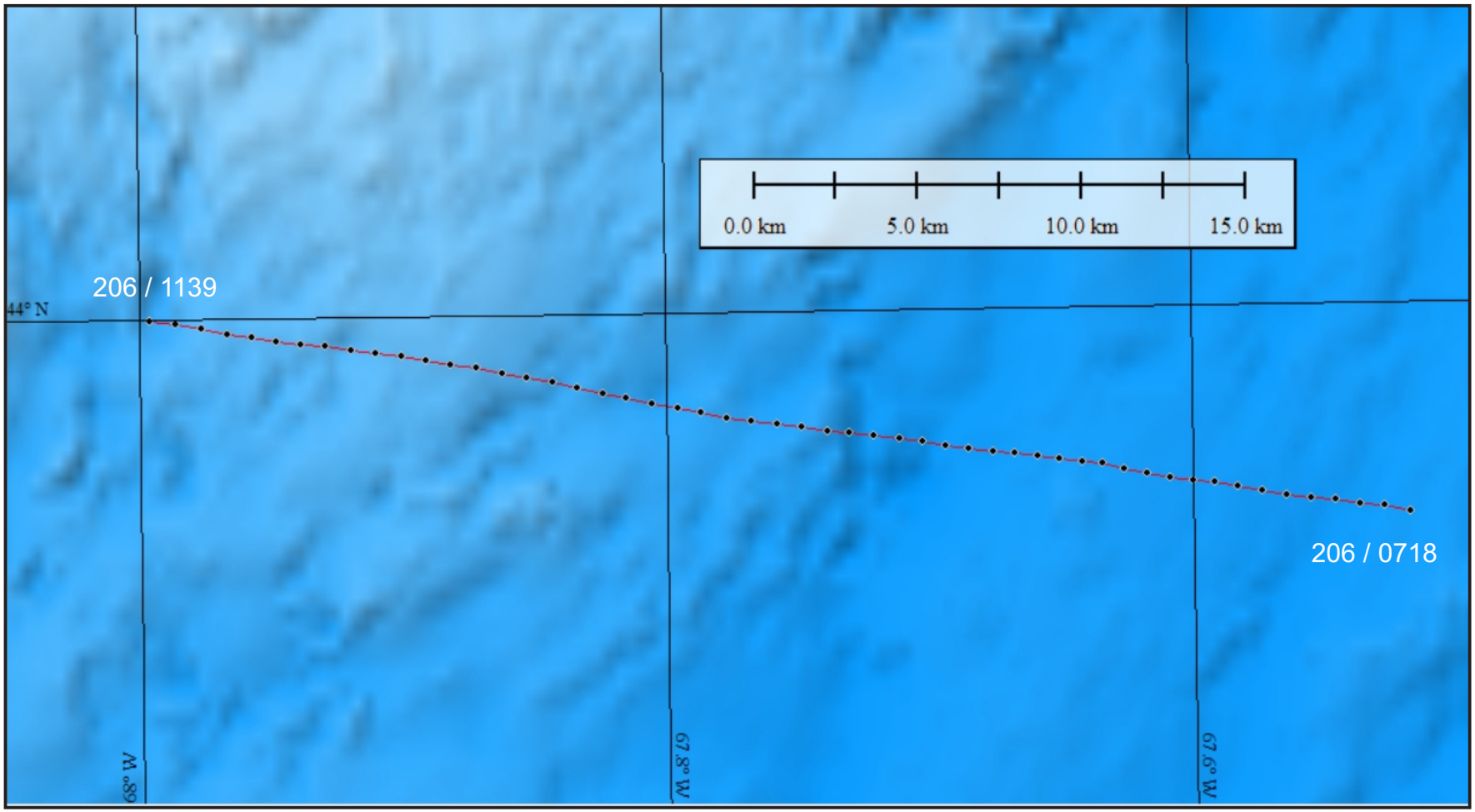
90CAPE_HATTERAS_SEISMIC_HUNTEC_ext_218_1600_to_219_0219



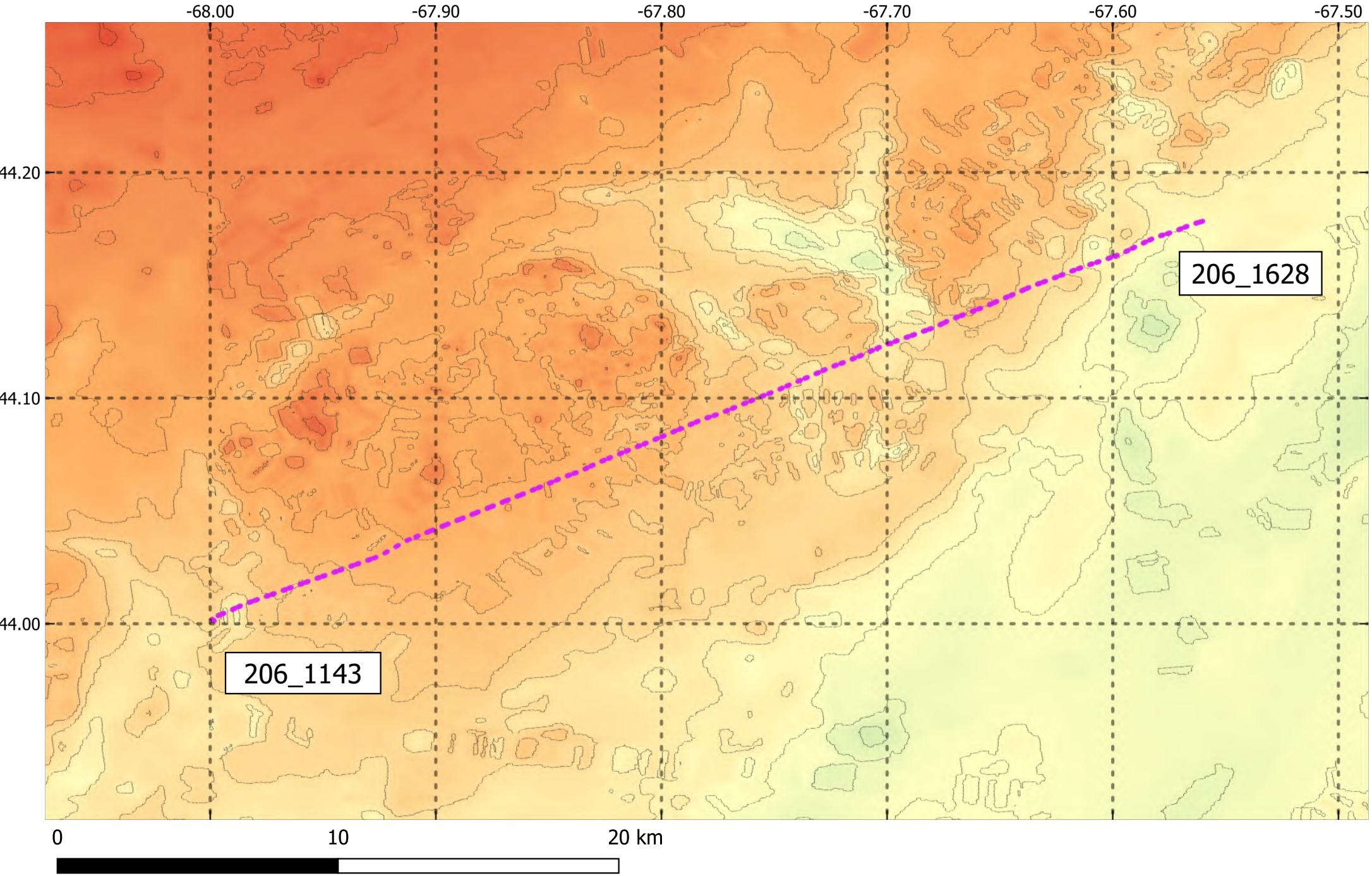
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_205_2050_to_206_0716



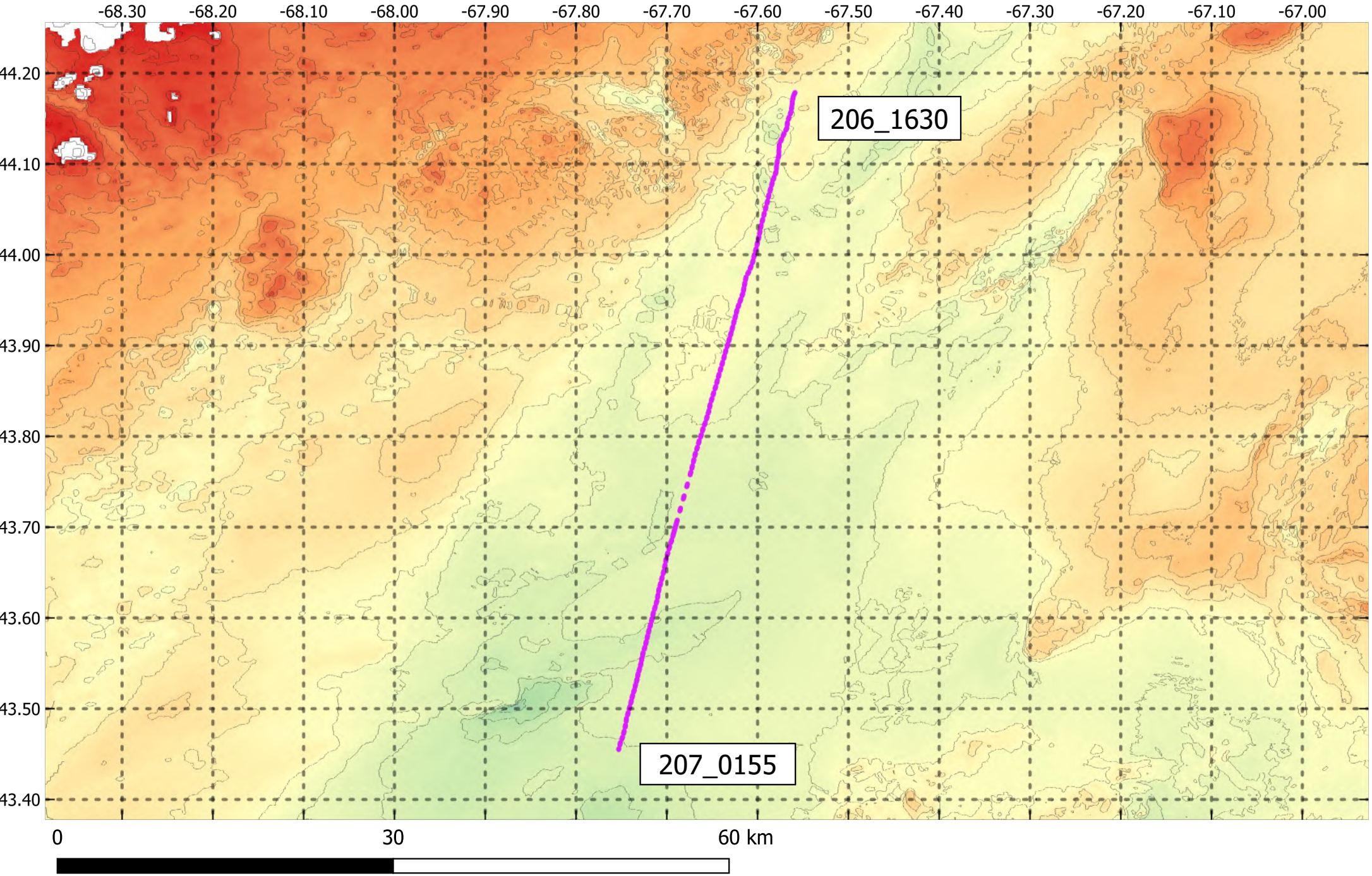
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_206_0718_to_206_1139



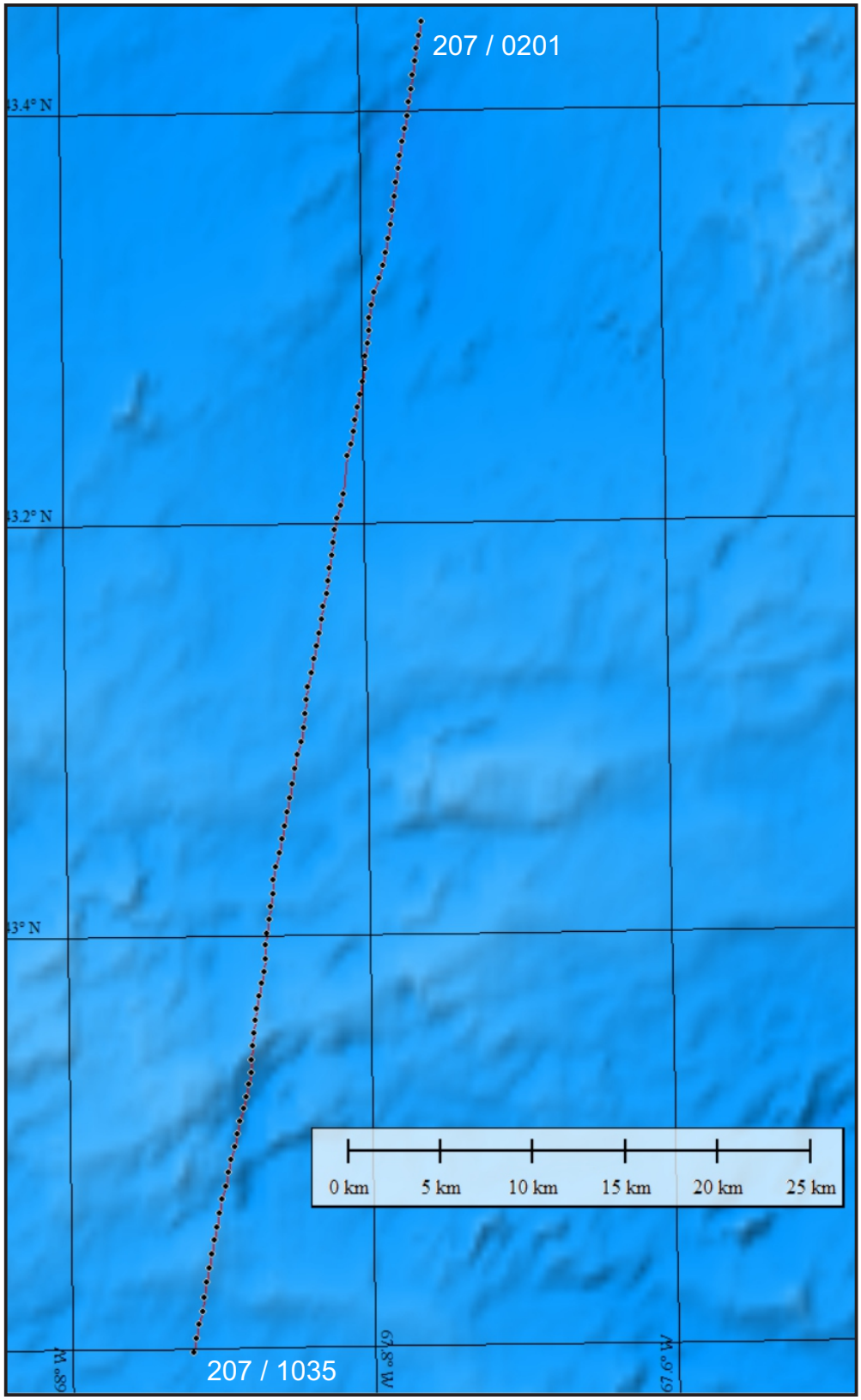
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_206_1143_to_206_1628



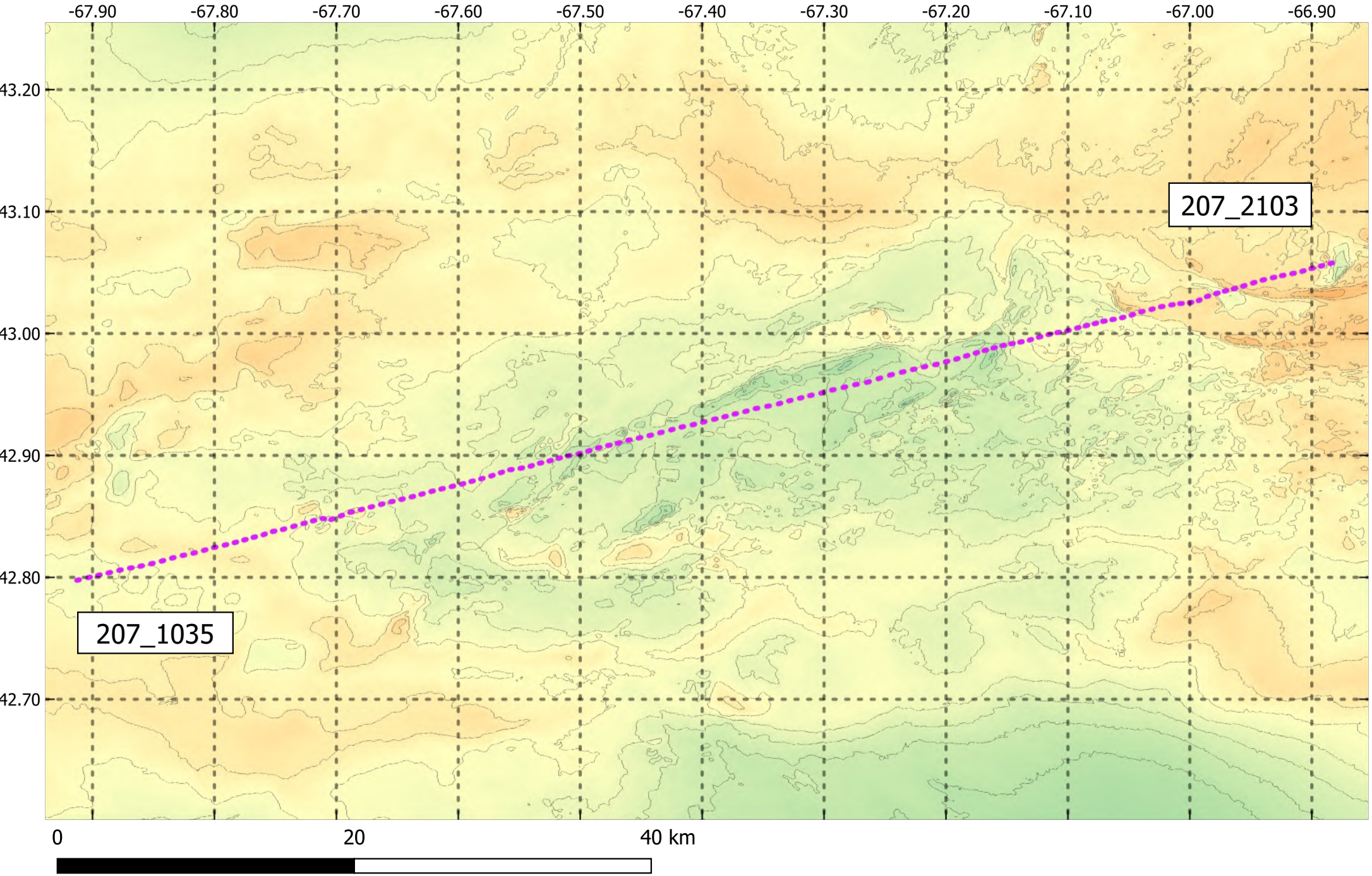
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_206_1630_to_207_0155



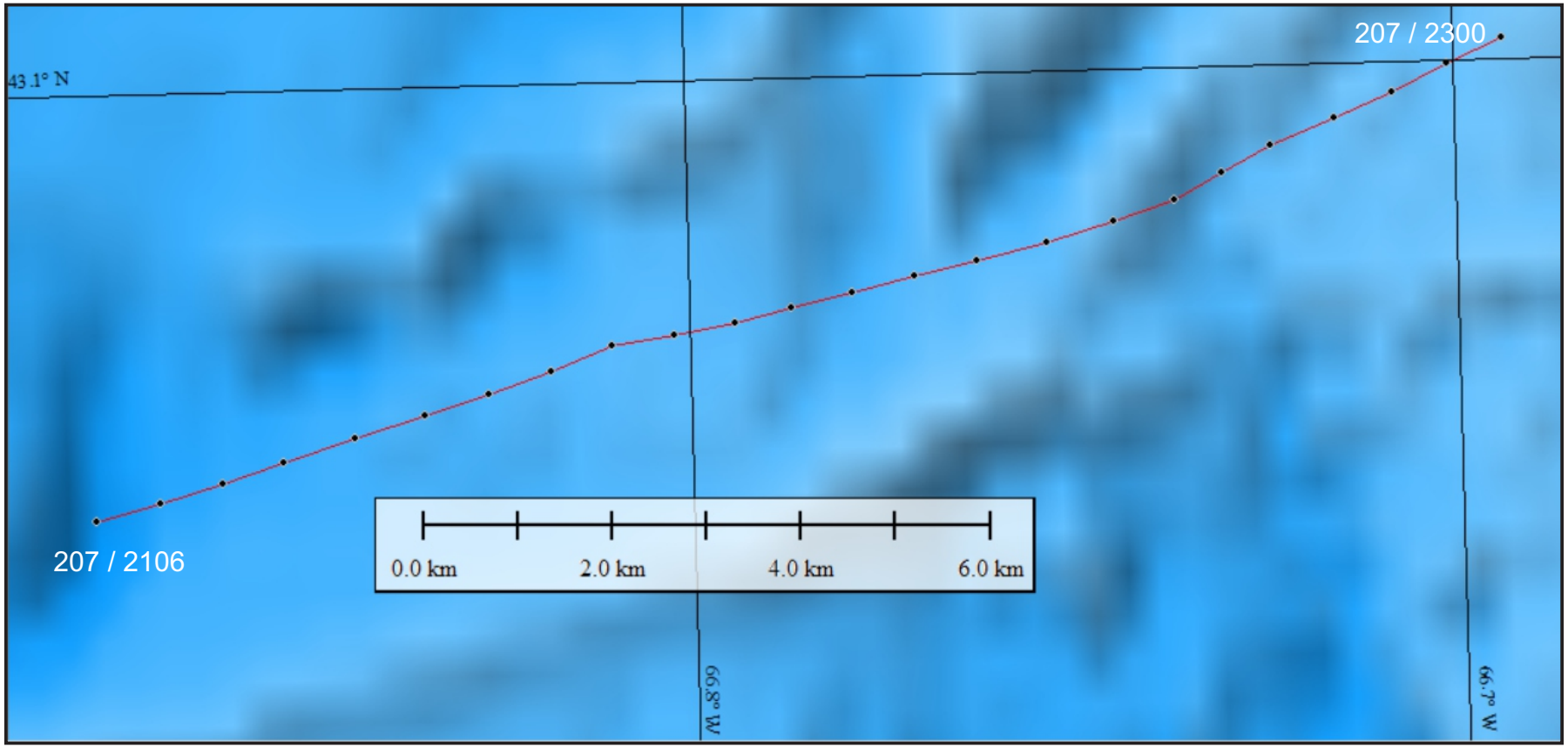
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_207_0201_to_207_1035



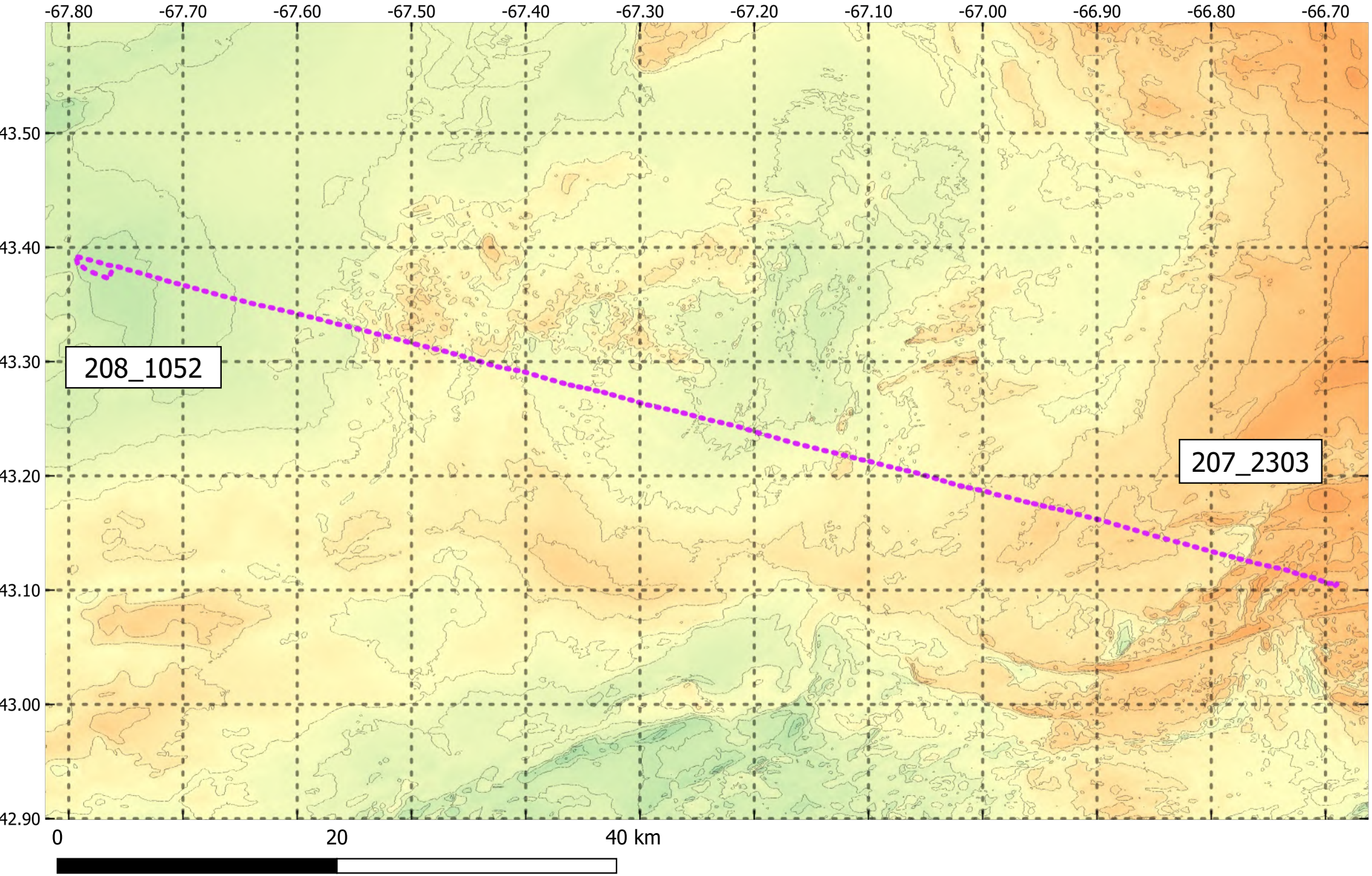
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_207_1035_to_207_2103



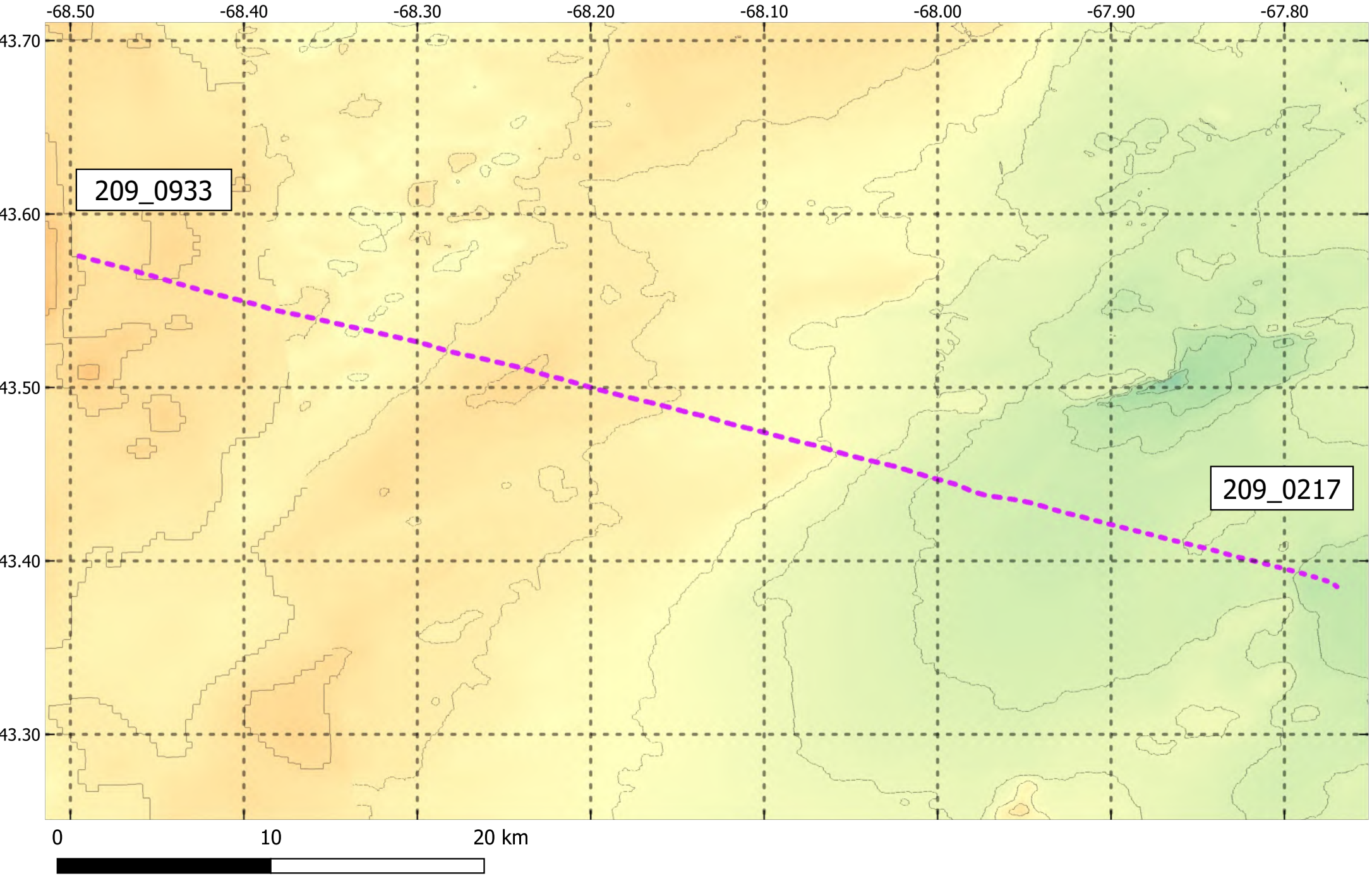
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_207_2106_to_207_2300



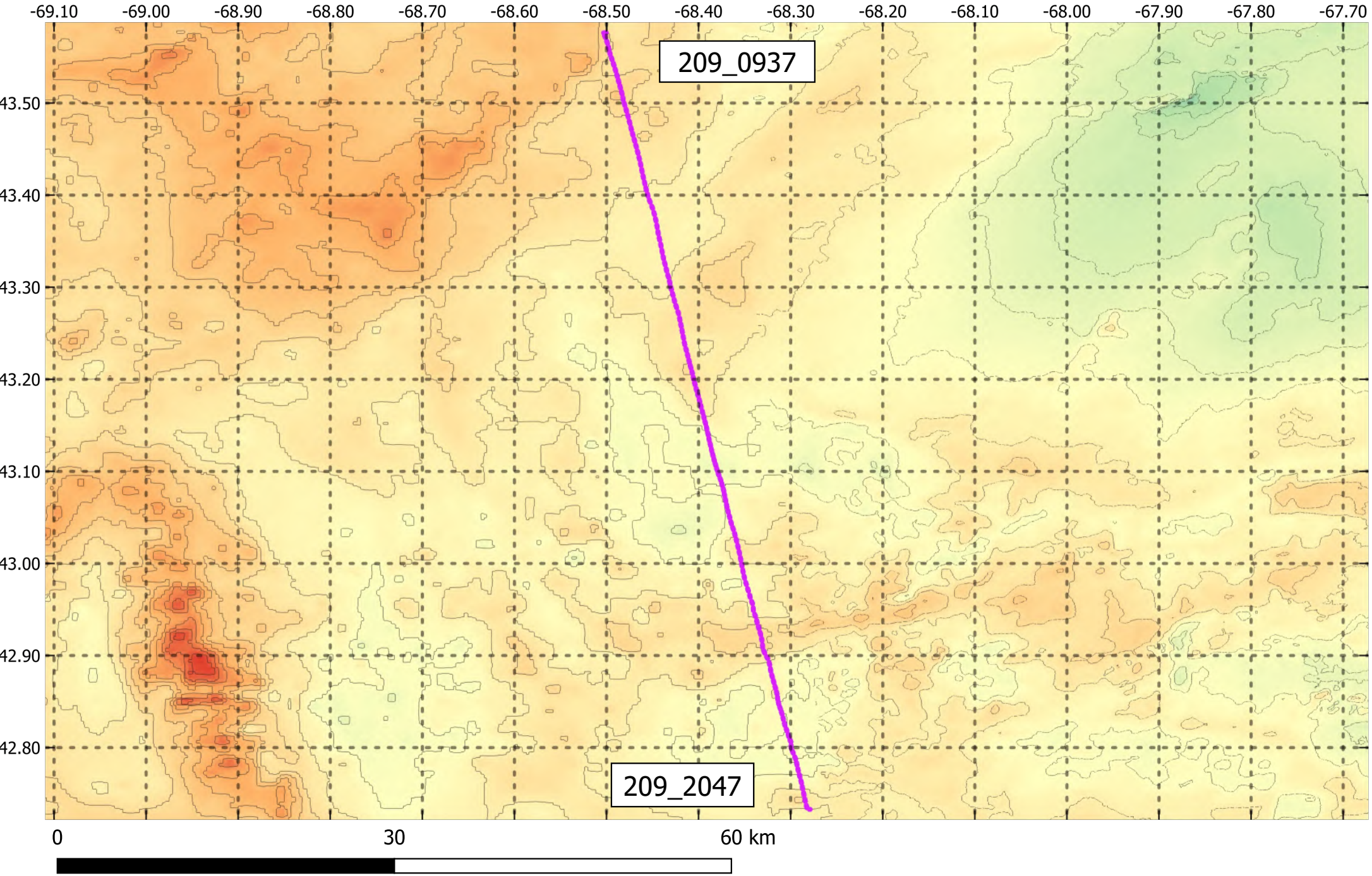
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_207_2303_to_208_1052



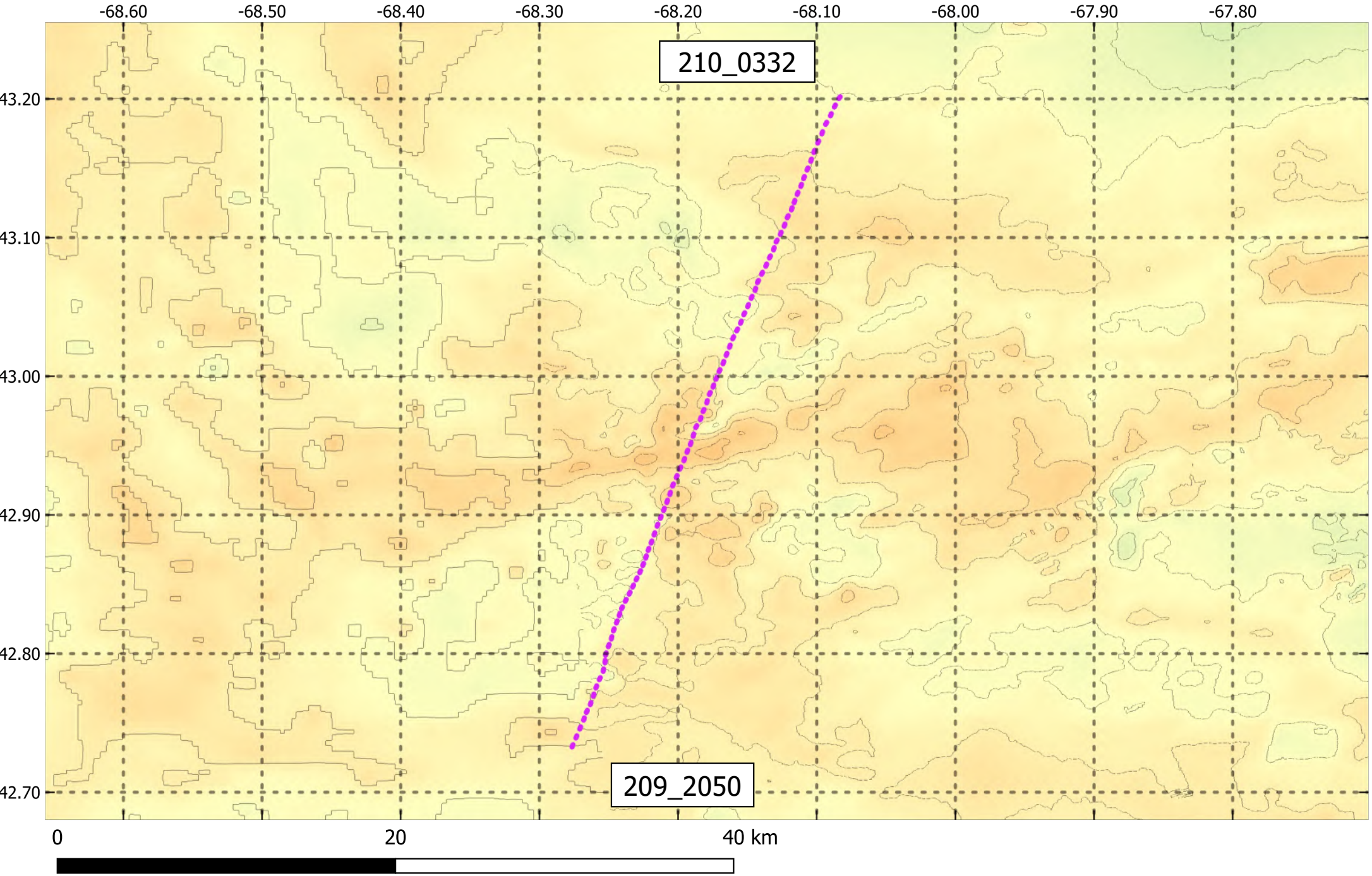
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_209_0217_to_209_0933



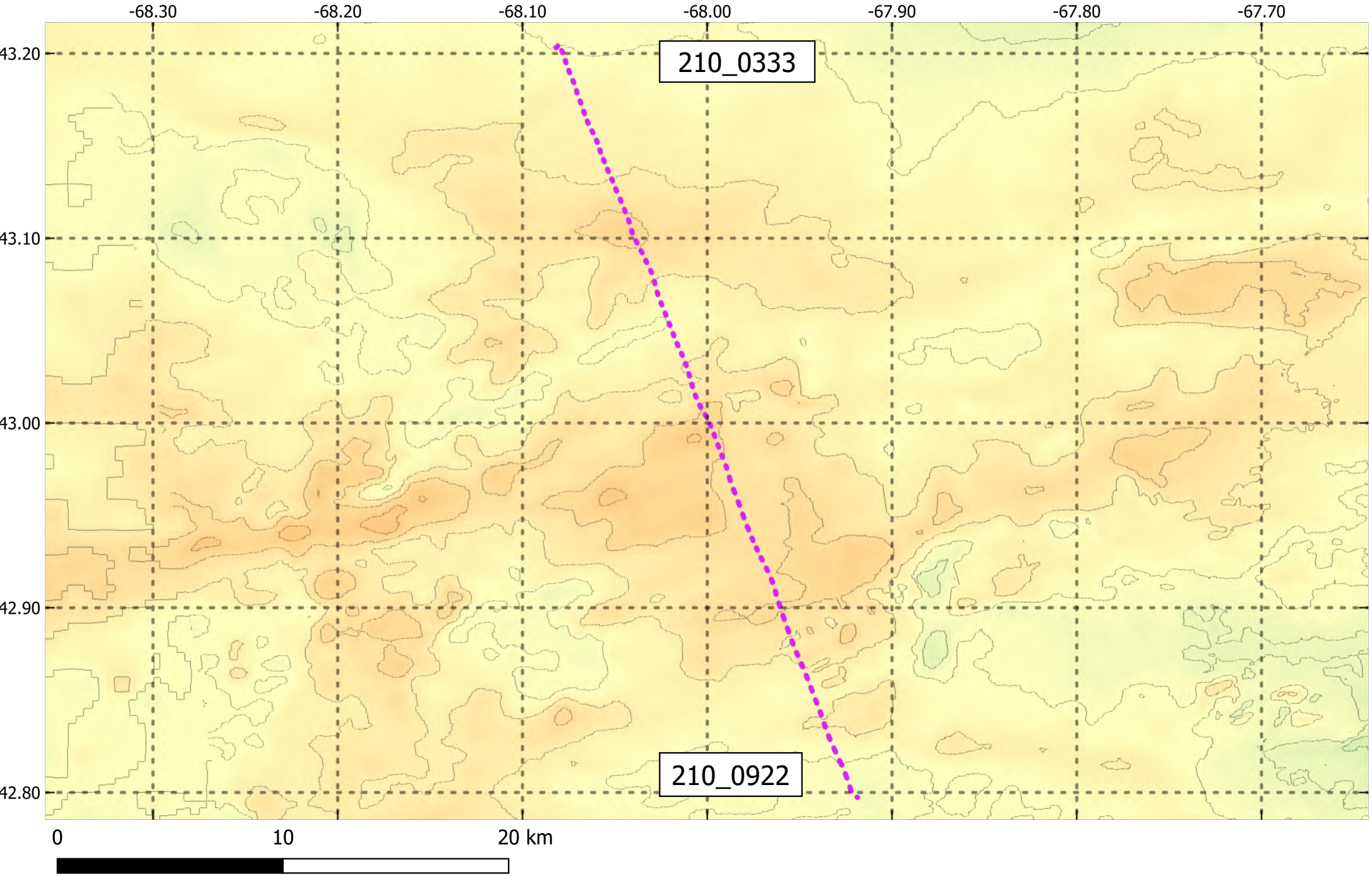
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_209_0937_to_209_2047



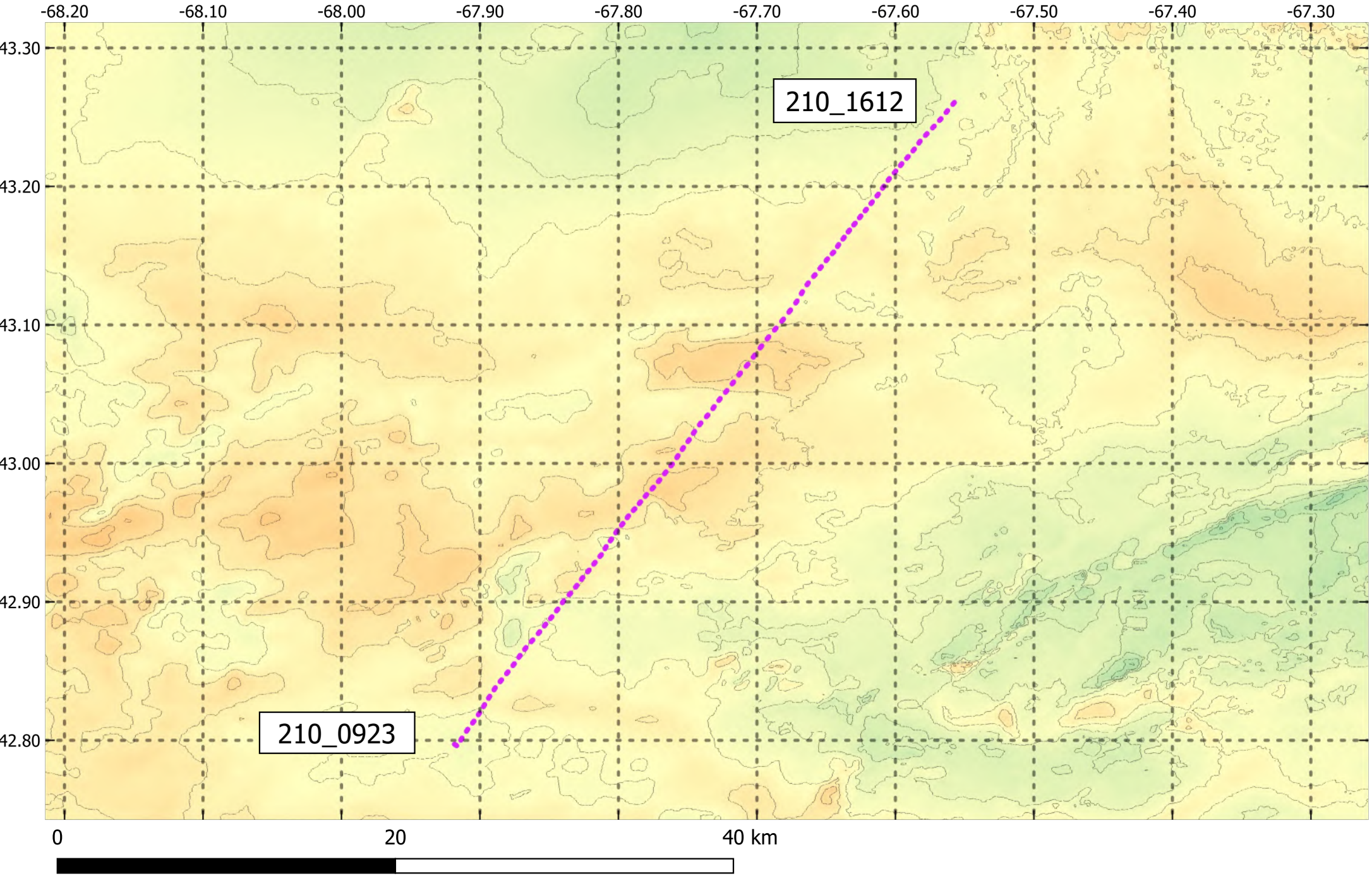
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_209_2050_to_210_0332



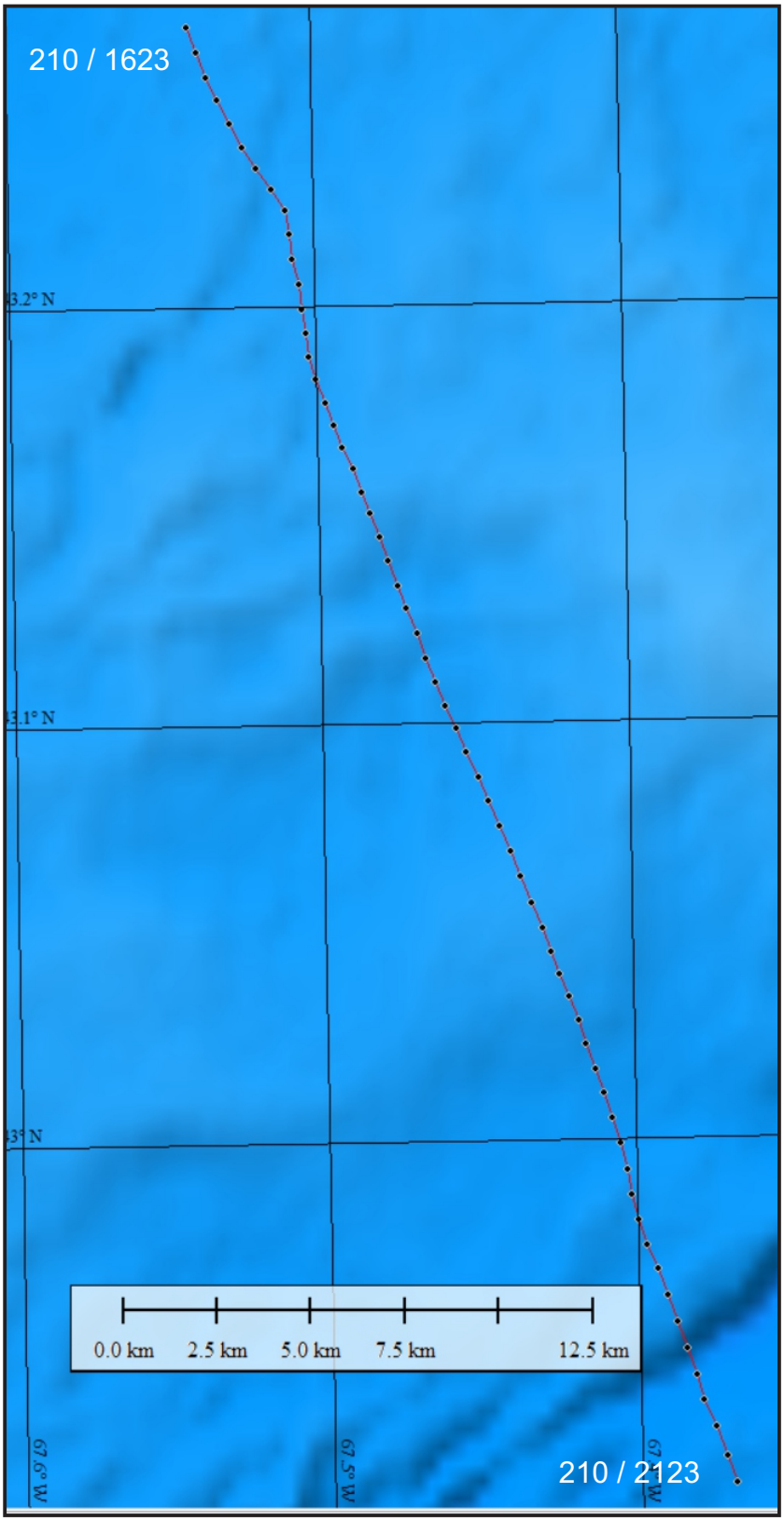
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_210_0333_to_210_0922



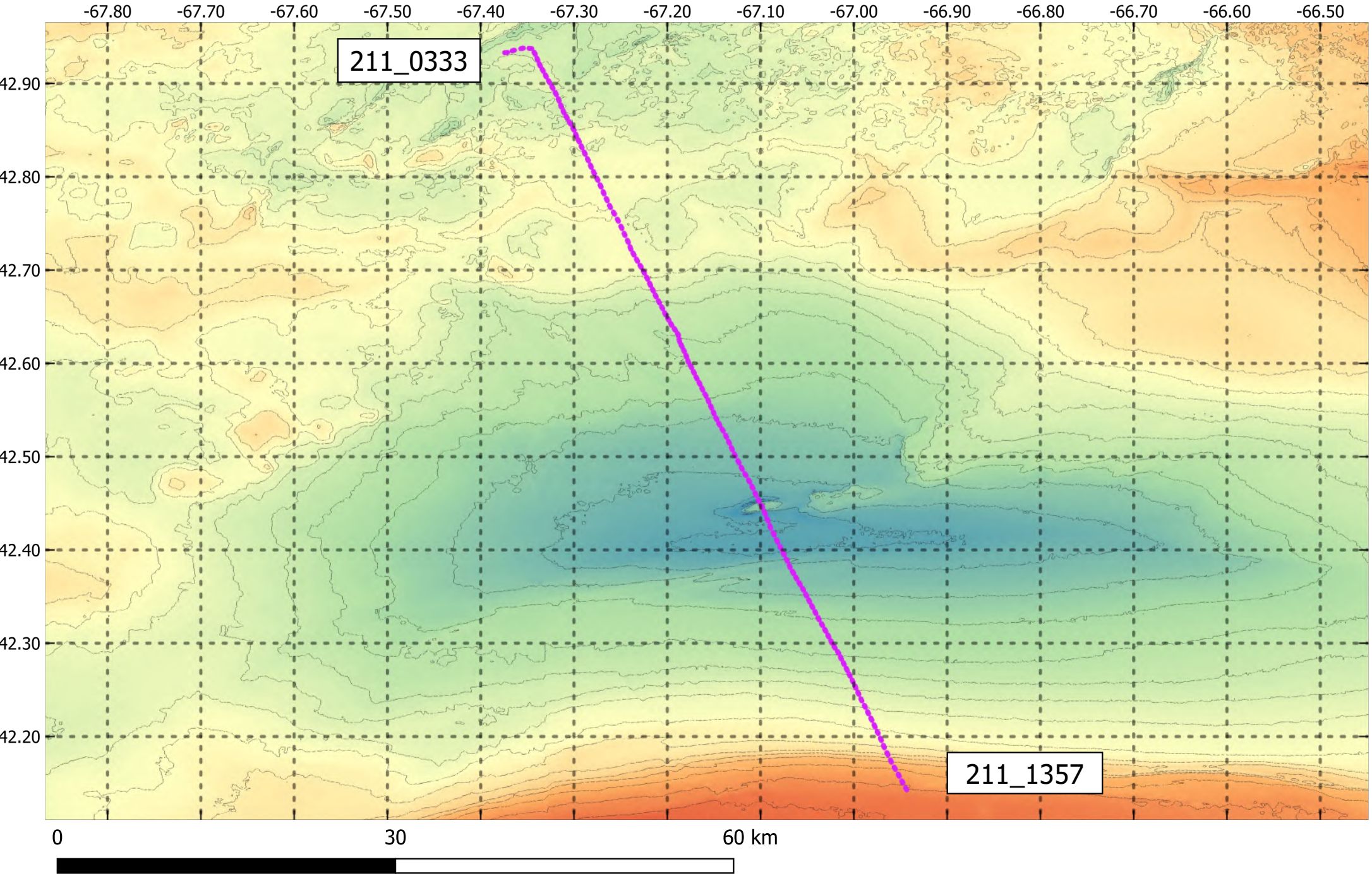
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_210_0923_to_210_1612



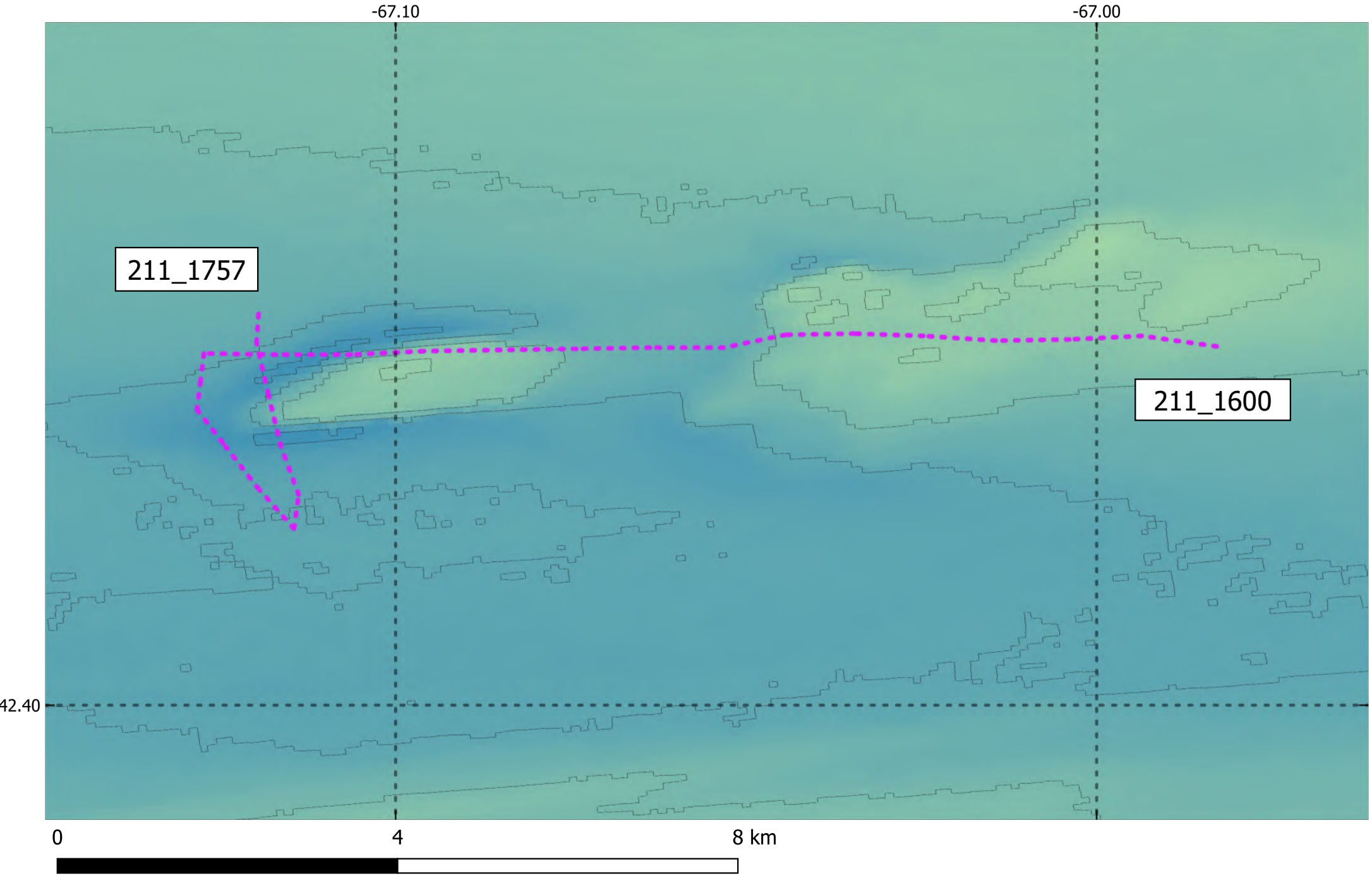
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_210_1623_to_210_2123



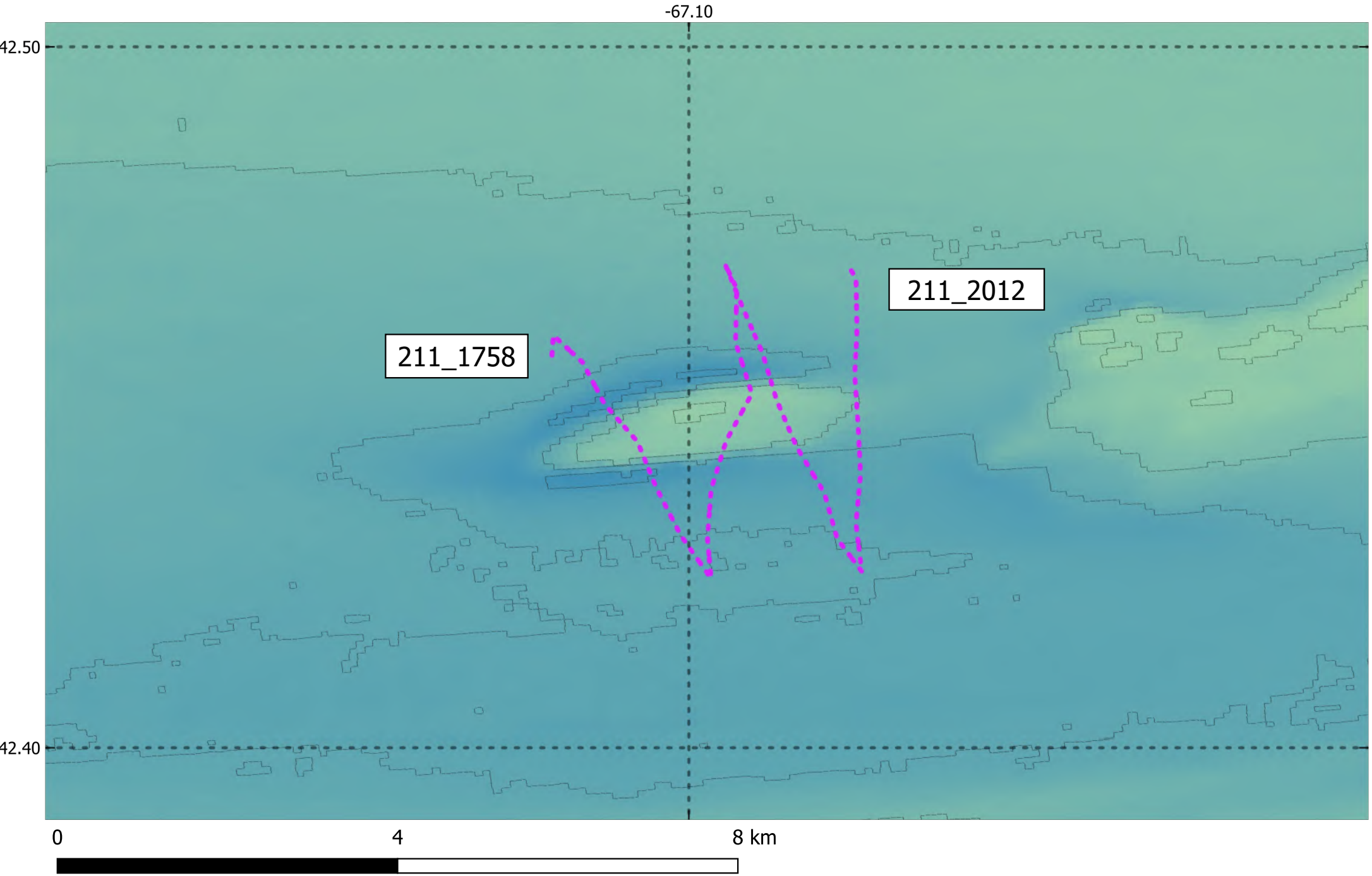
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_211_0333_to_211_1357



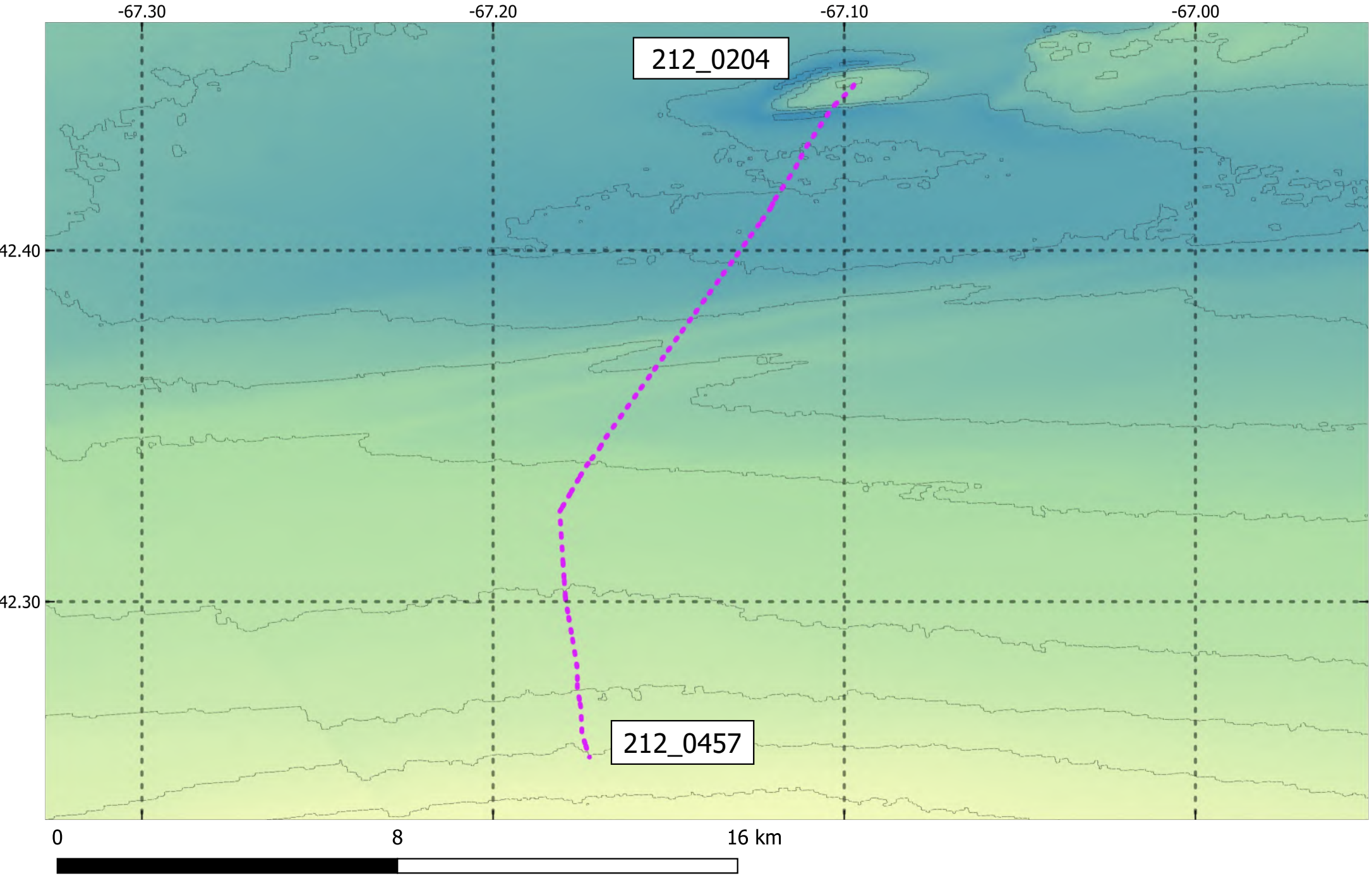
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_211_1600_to_211_1757



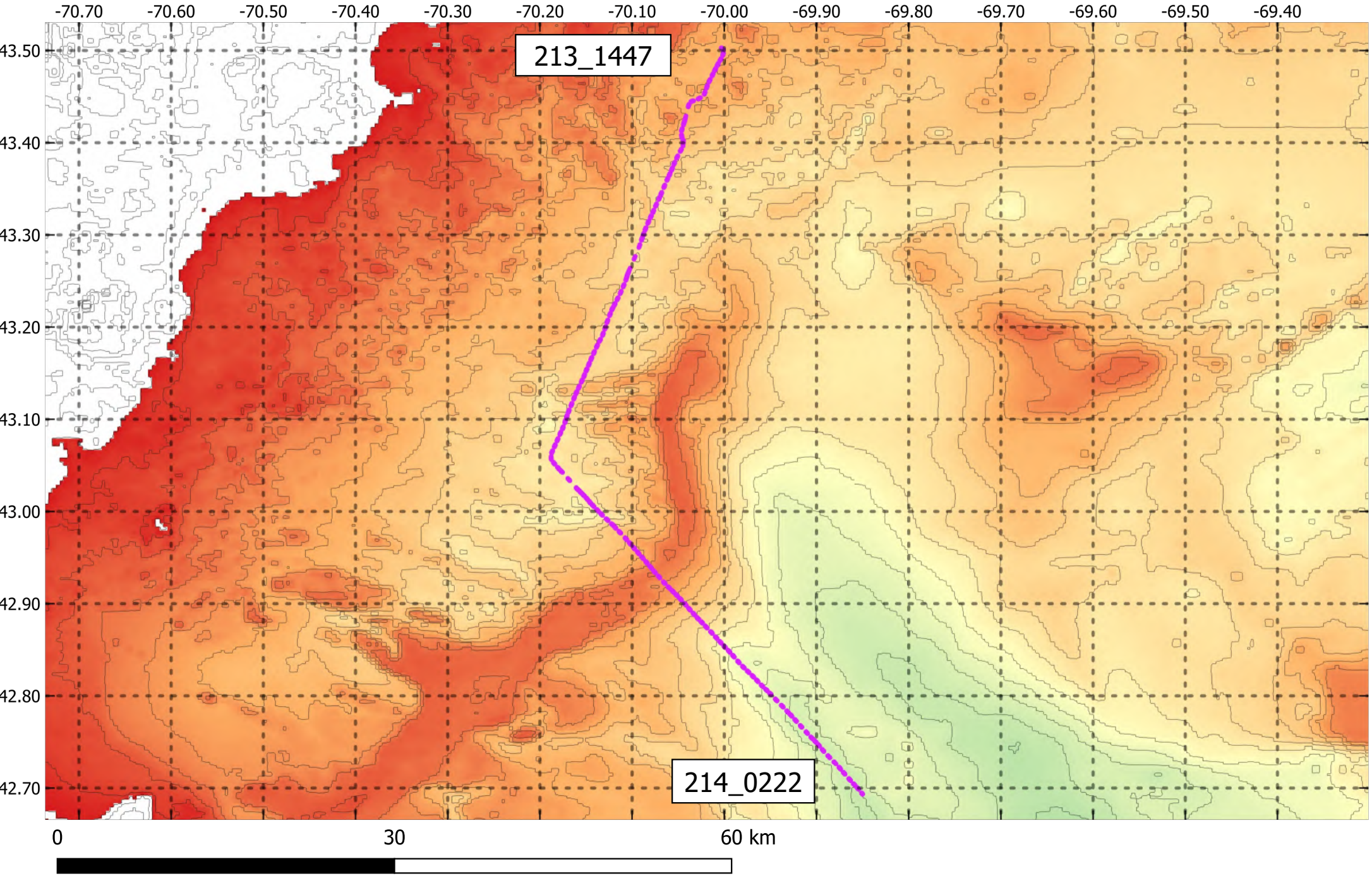
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_211_1758_to_211_2012



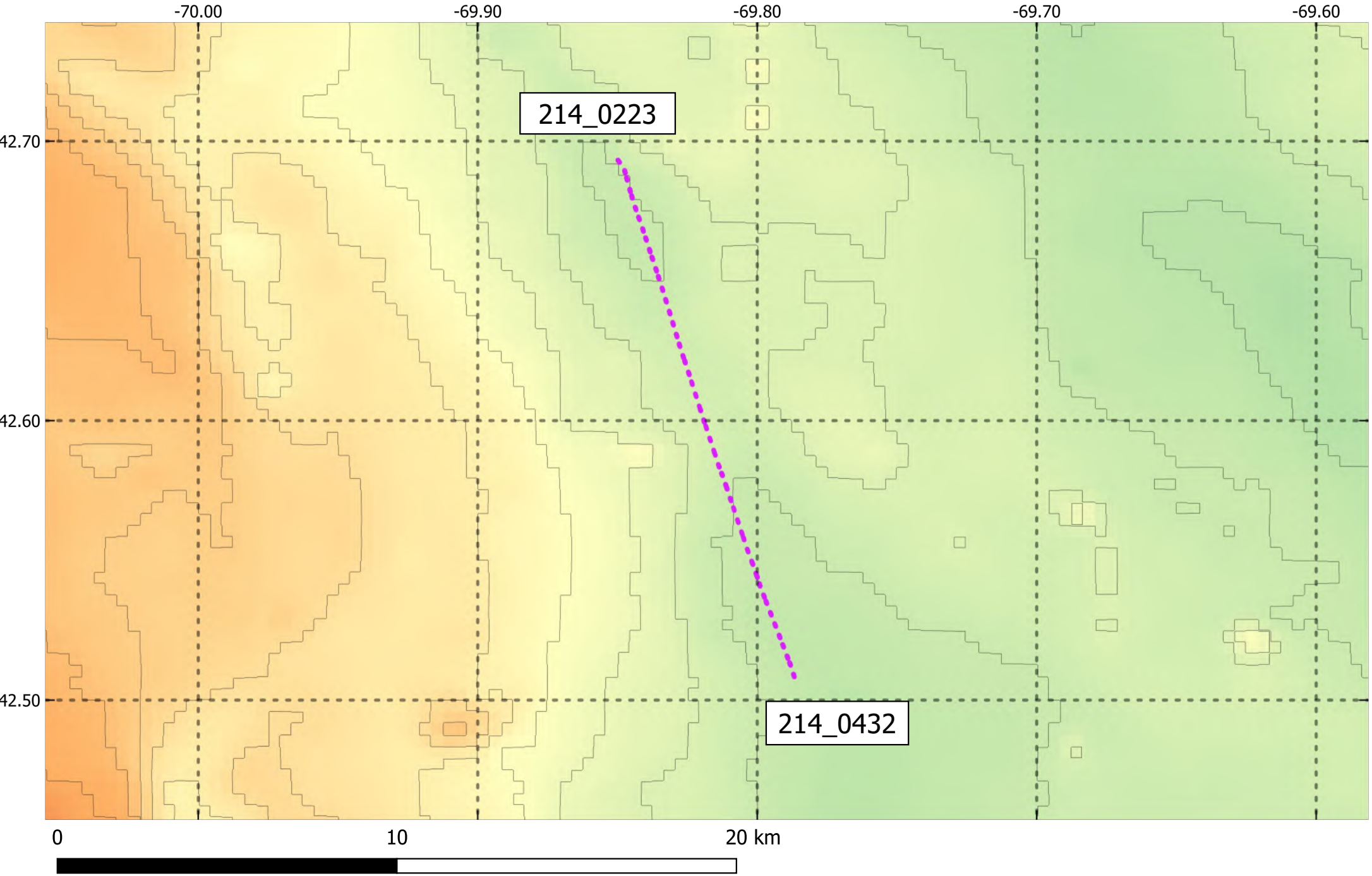
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_212_0204_to_212_0457



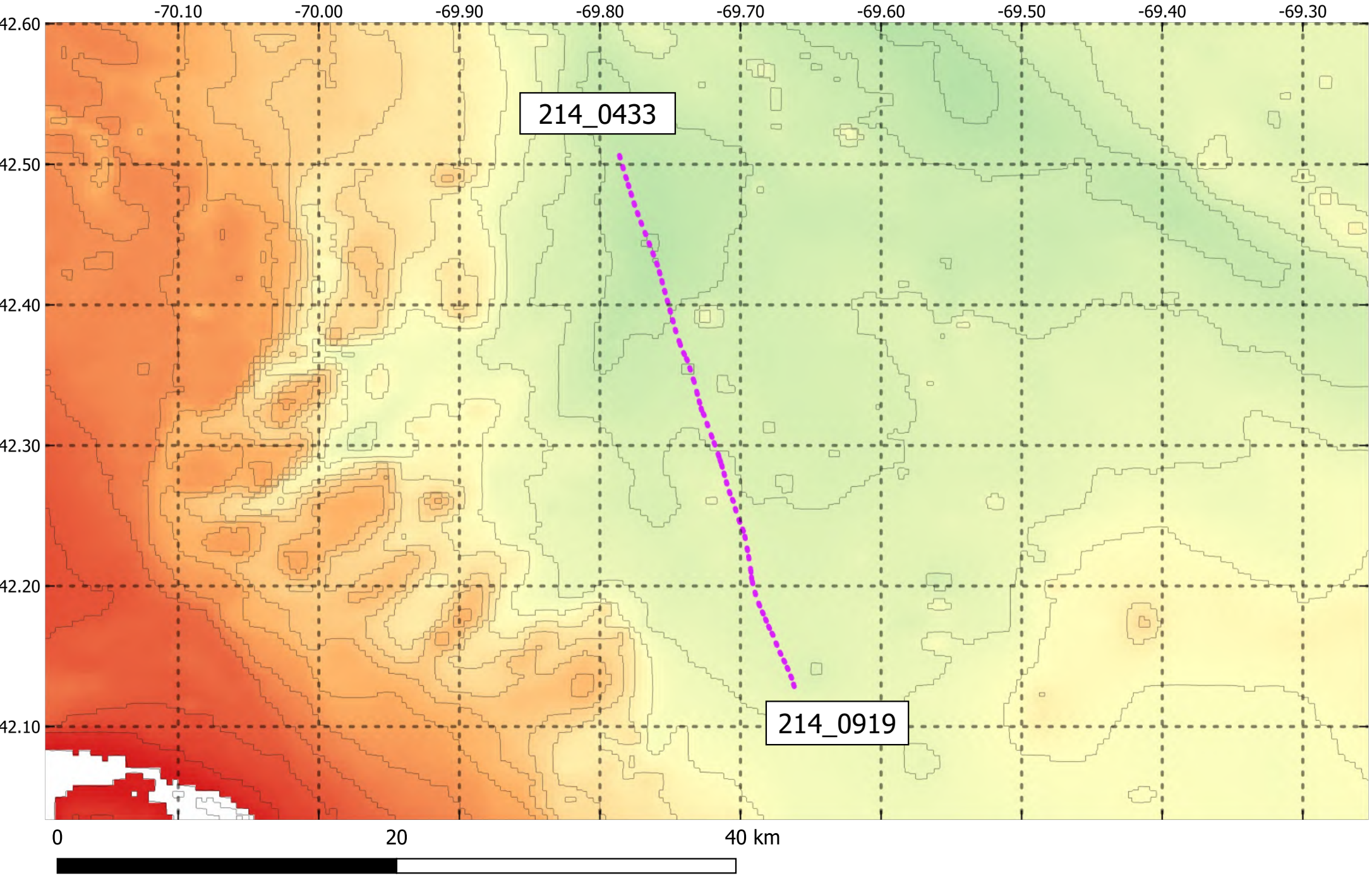
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_213_1447_to_214_0222



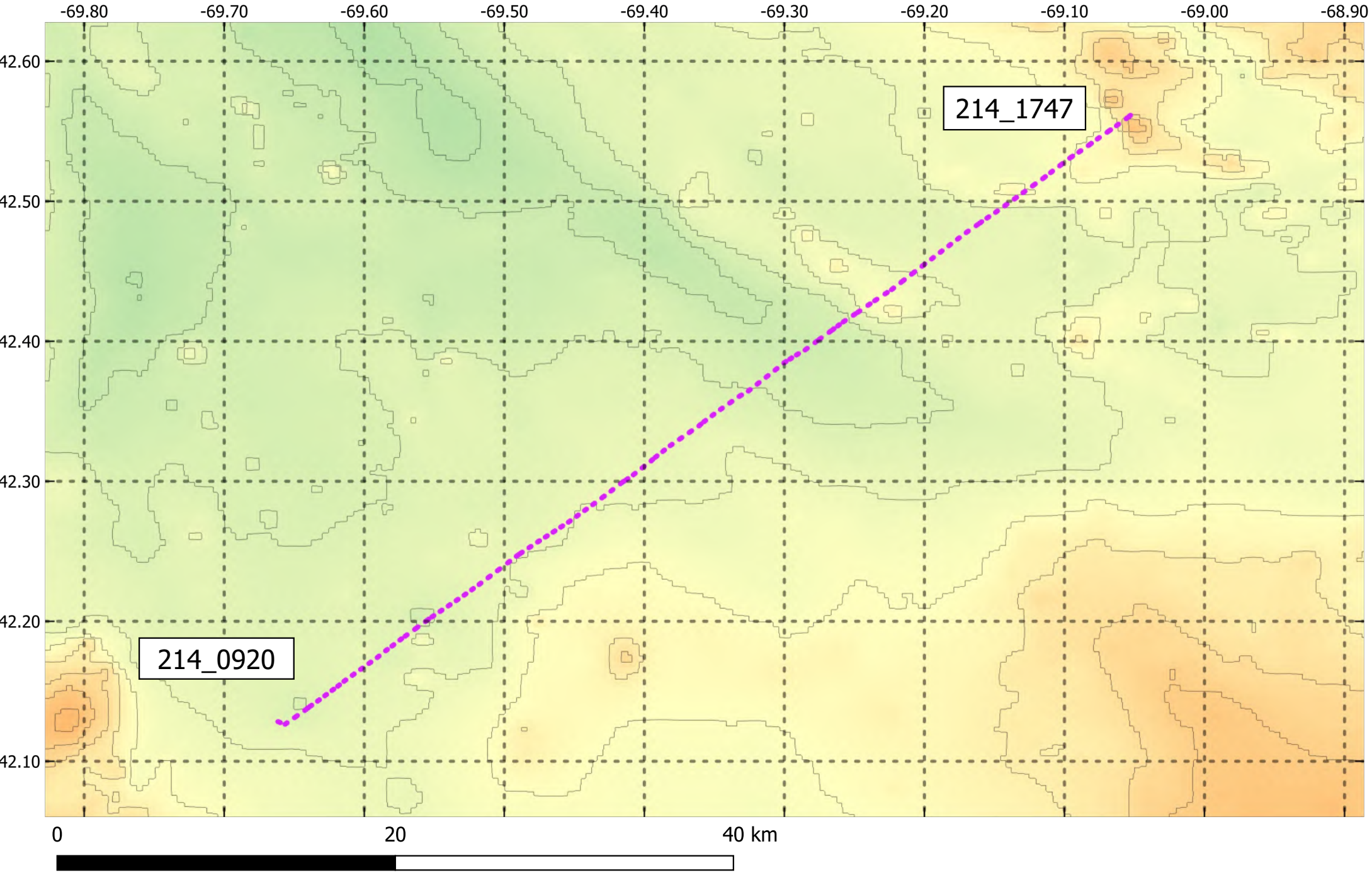
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_214_0223_to_214_0432



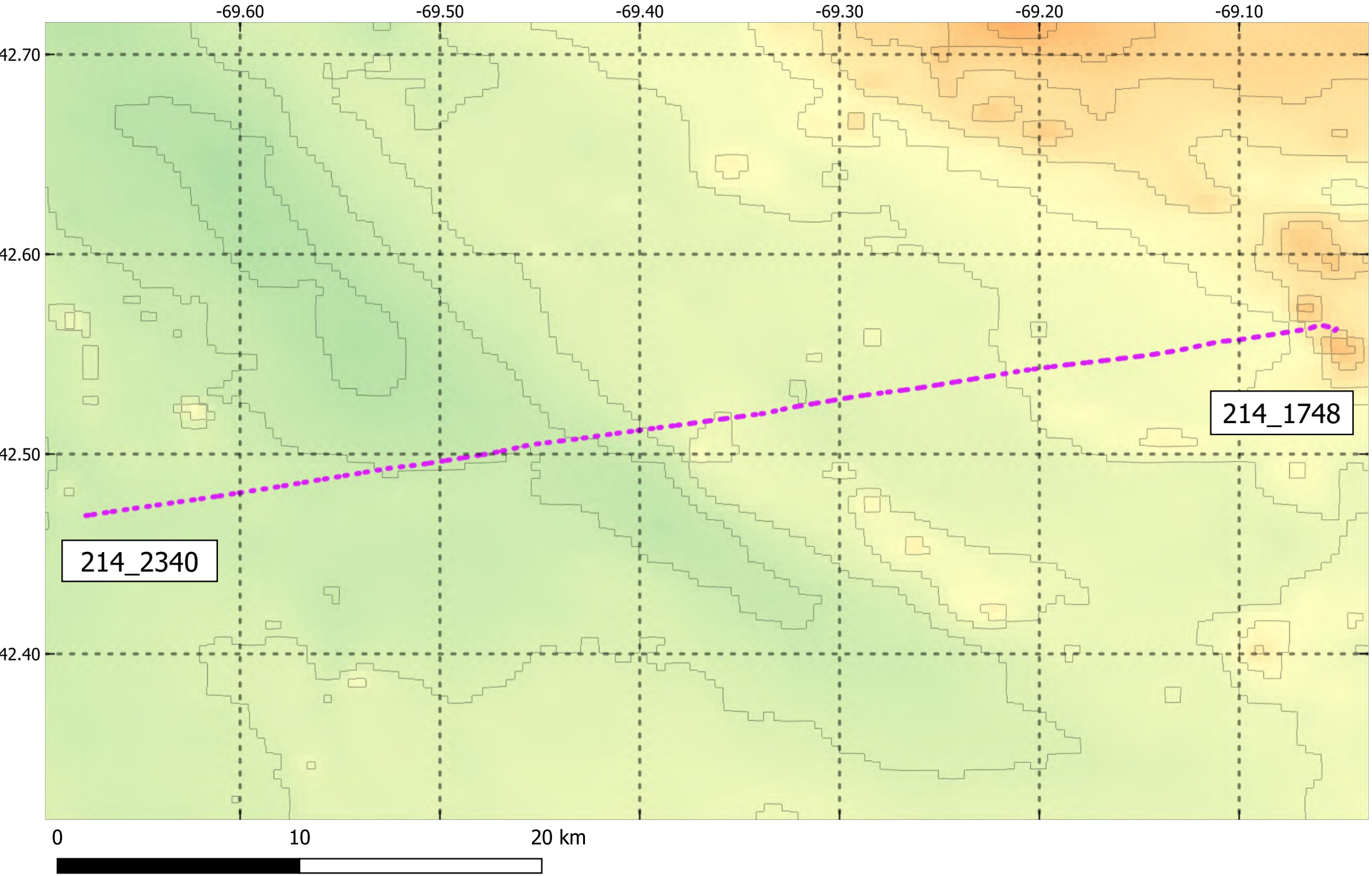
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_214_0433_to_214_0919



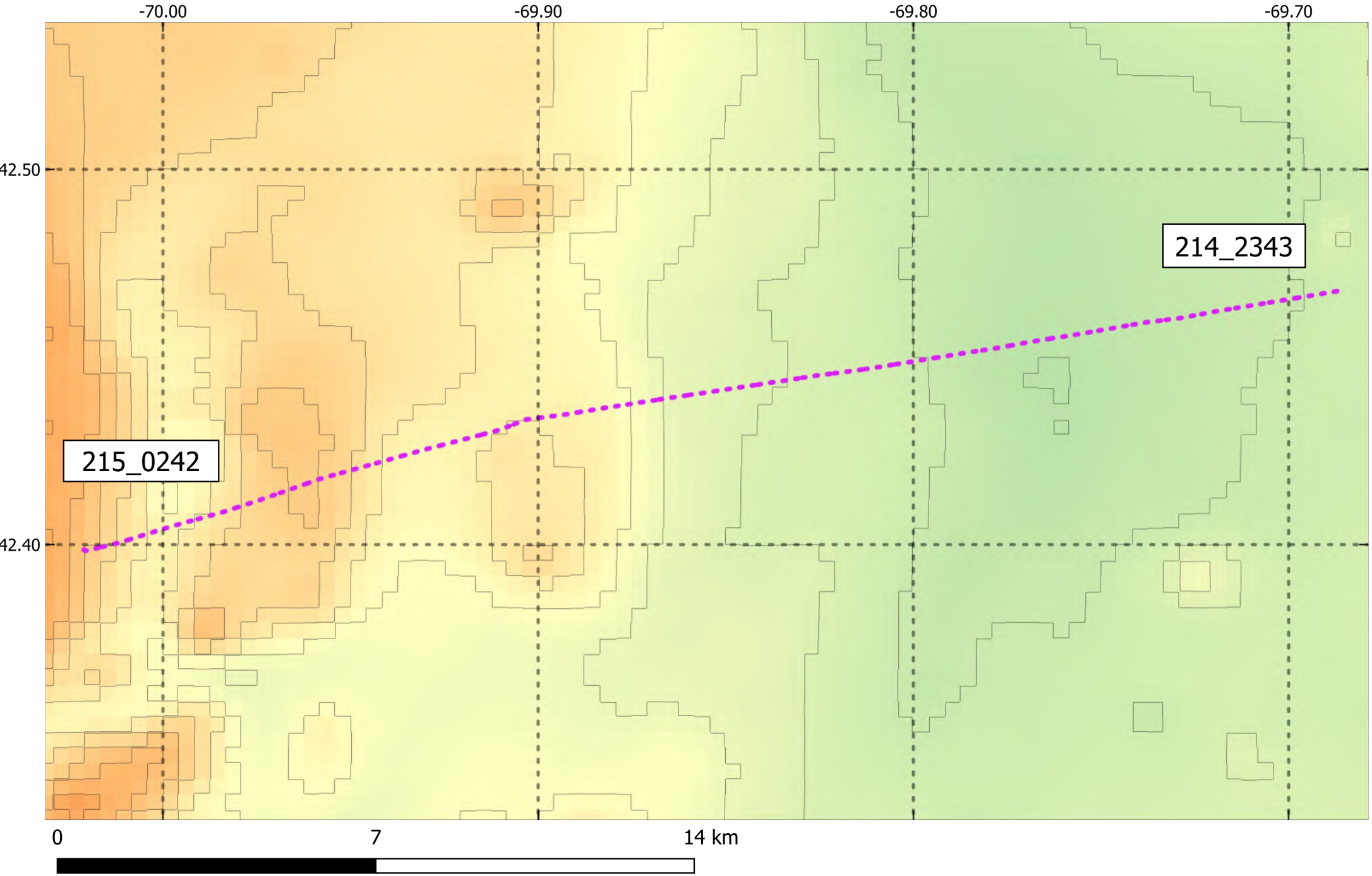
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_214_0920_to_214_1747



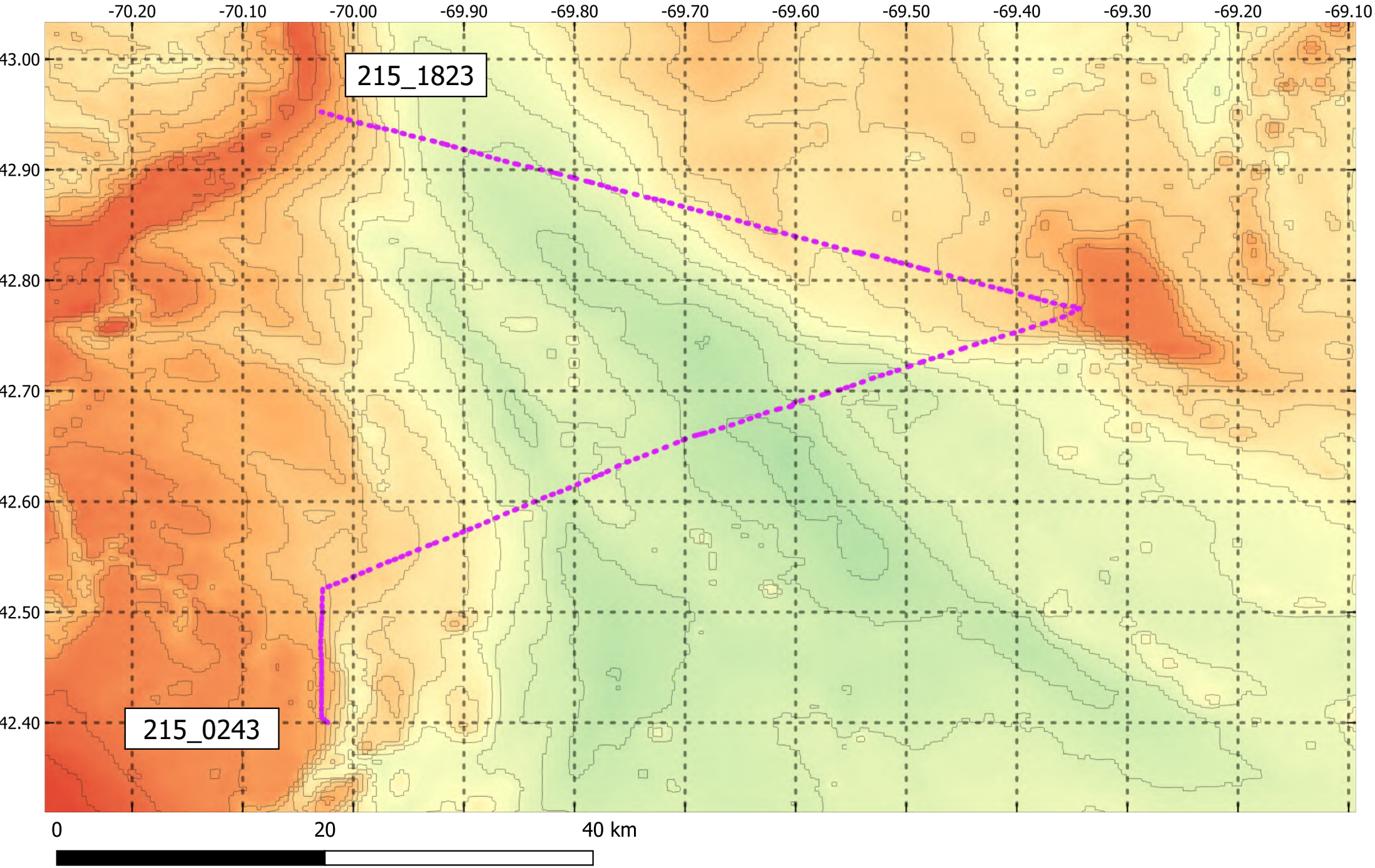
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_214_1748_to_214_2340



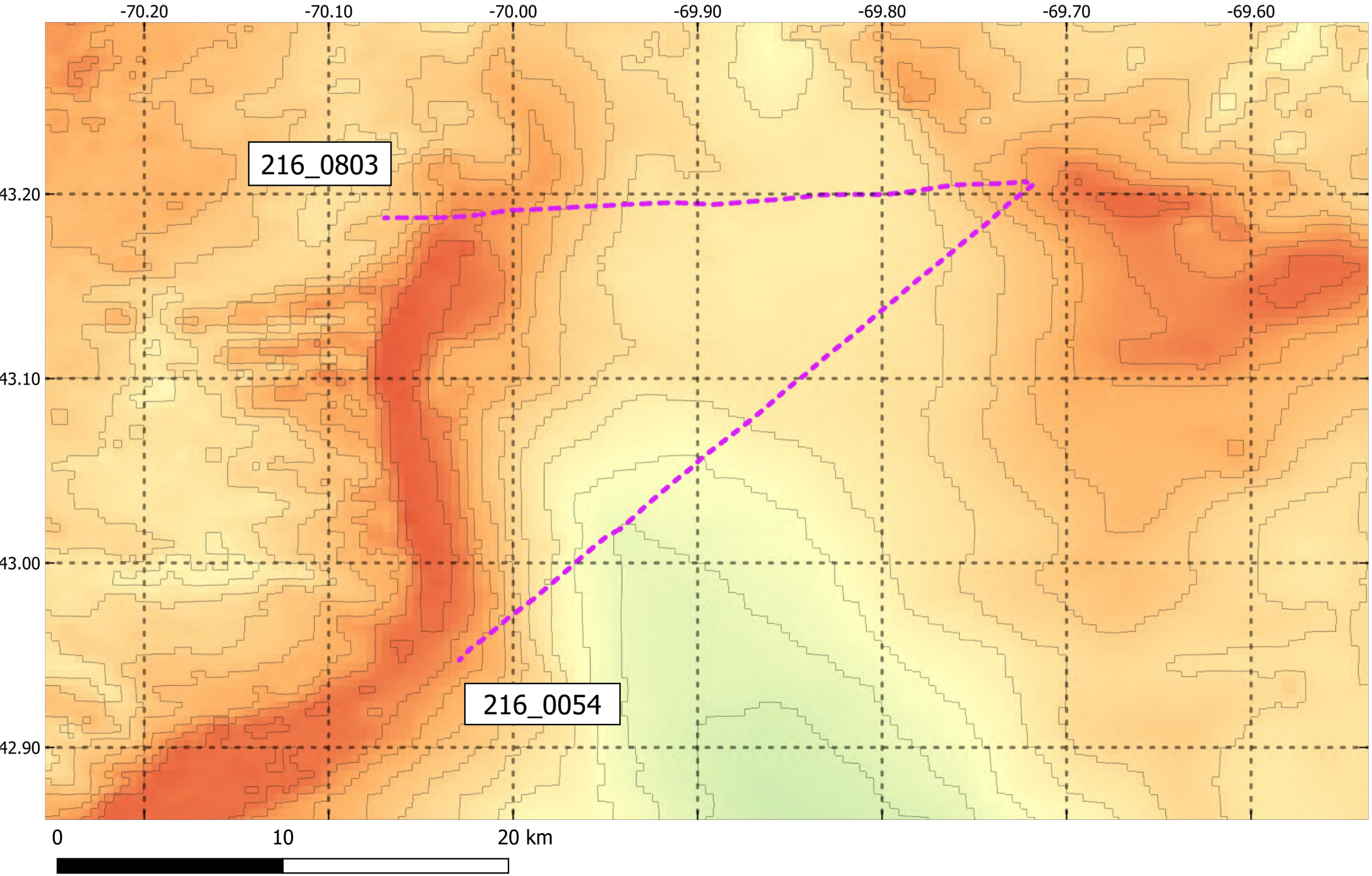
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_214_2343_to_215_0242



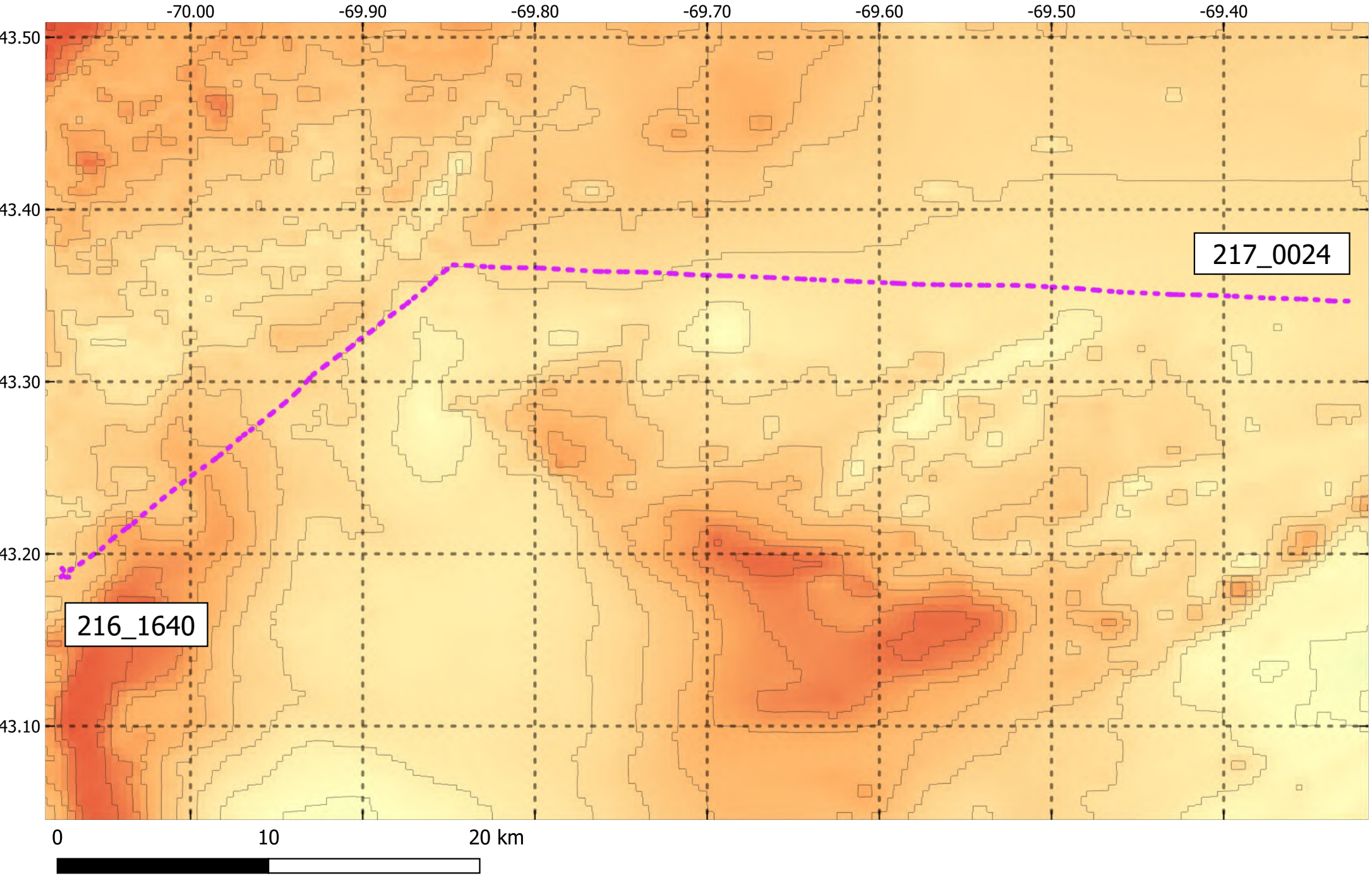
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_215_0243_to_215_1823



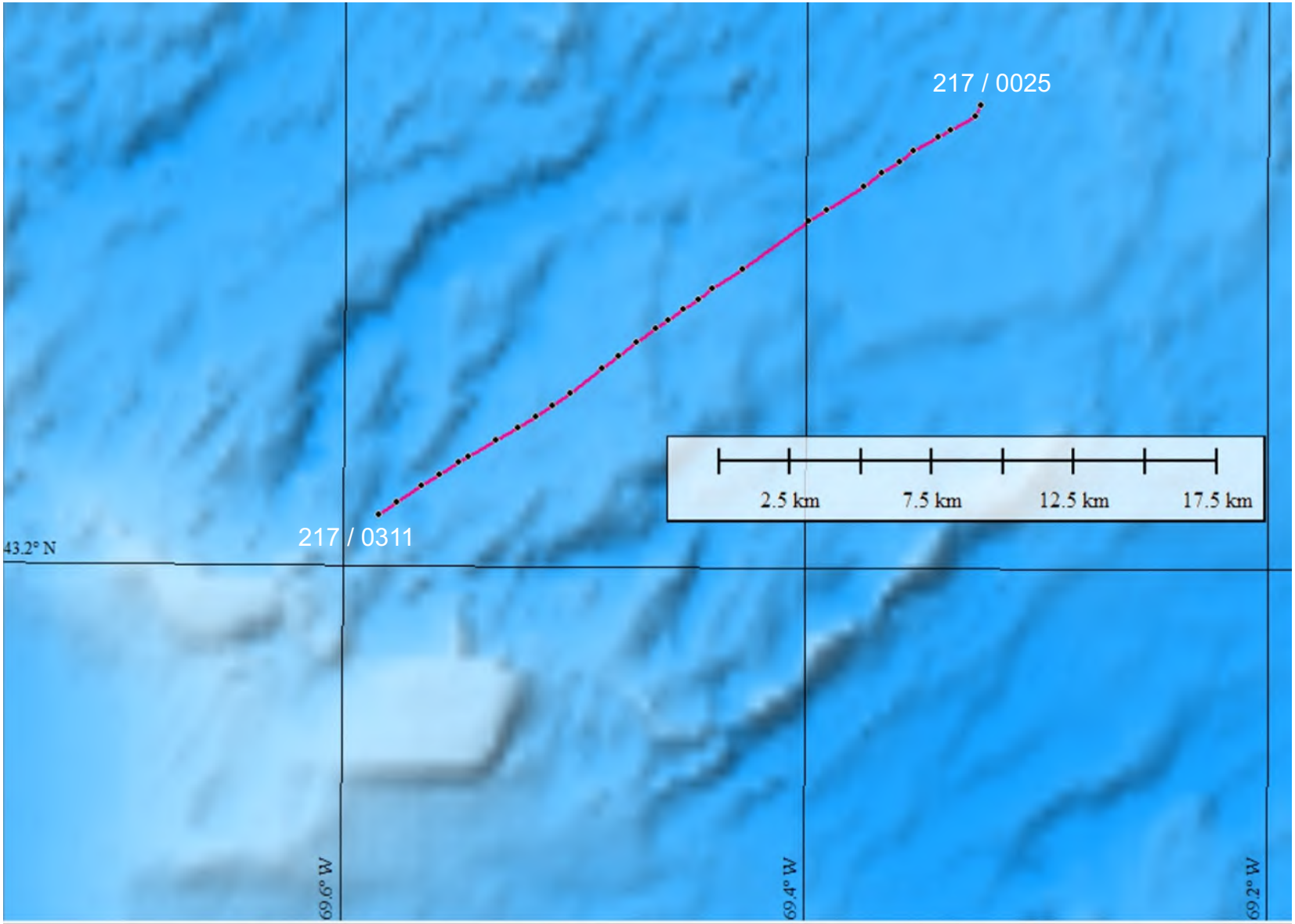
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_216_0054_to_216_0803



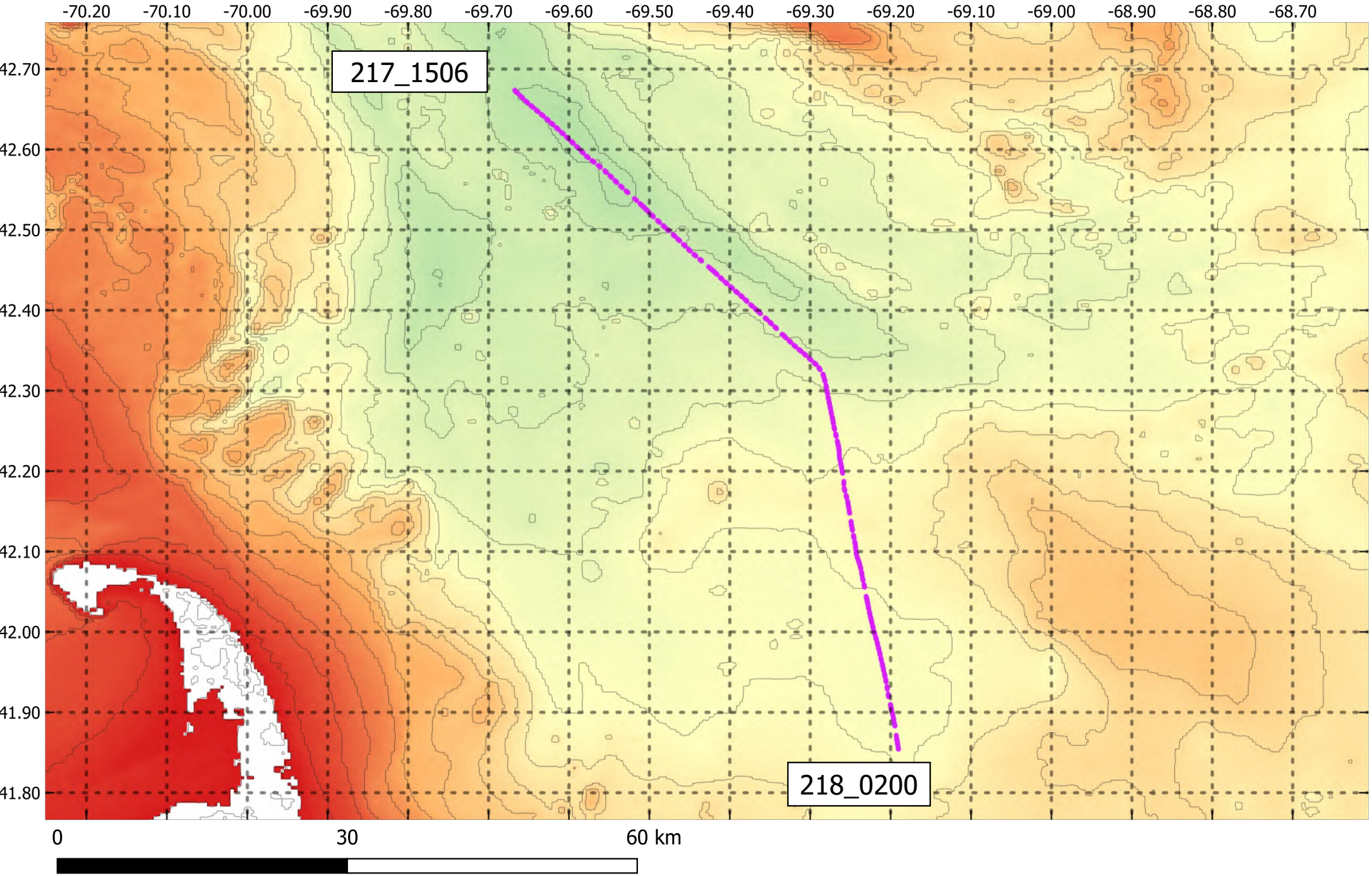
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_216_1640_to_217_0024



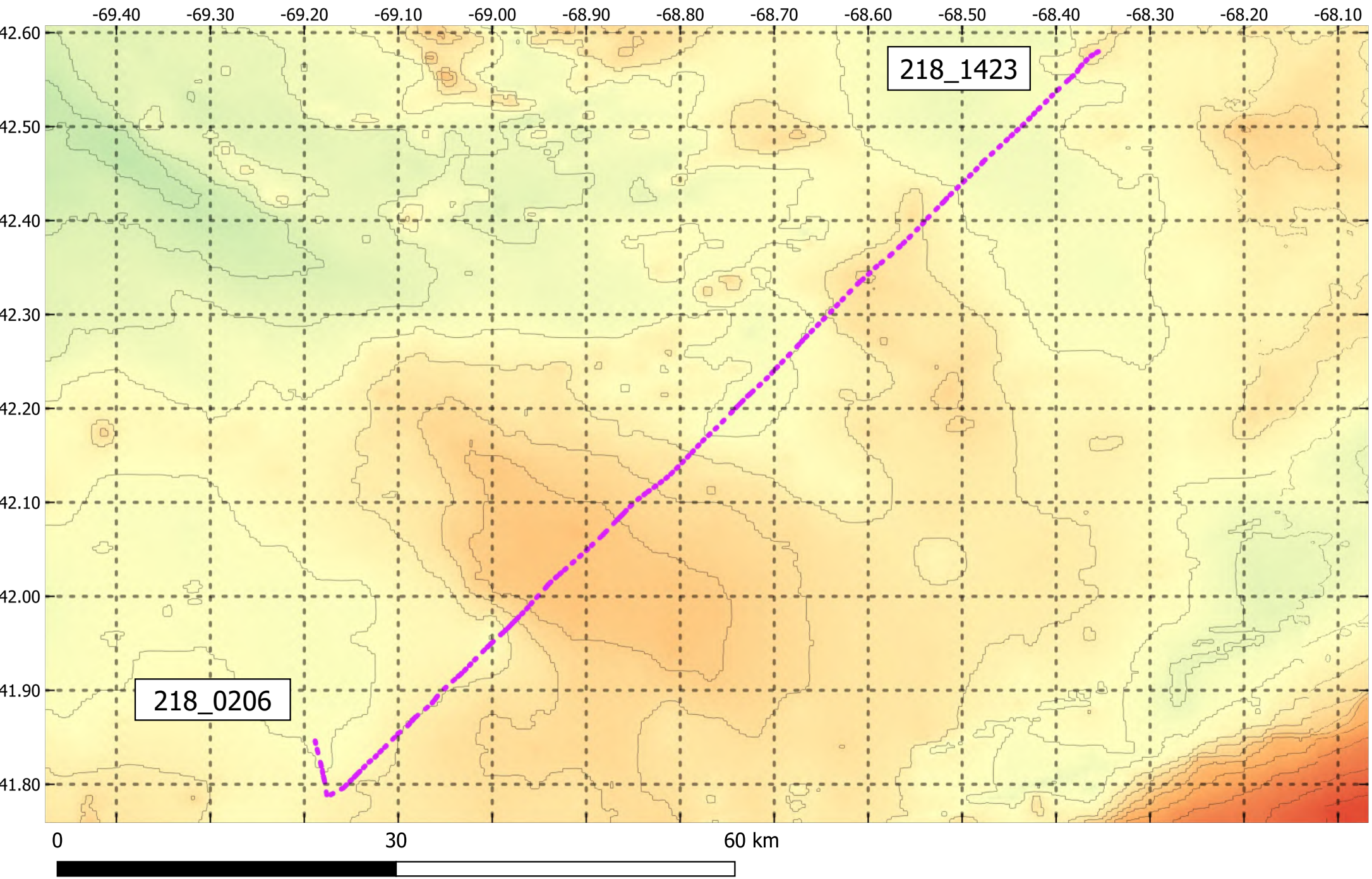
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_217_0025_to_217_0311



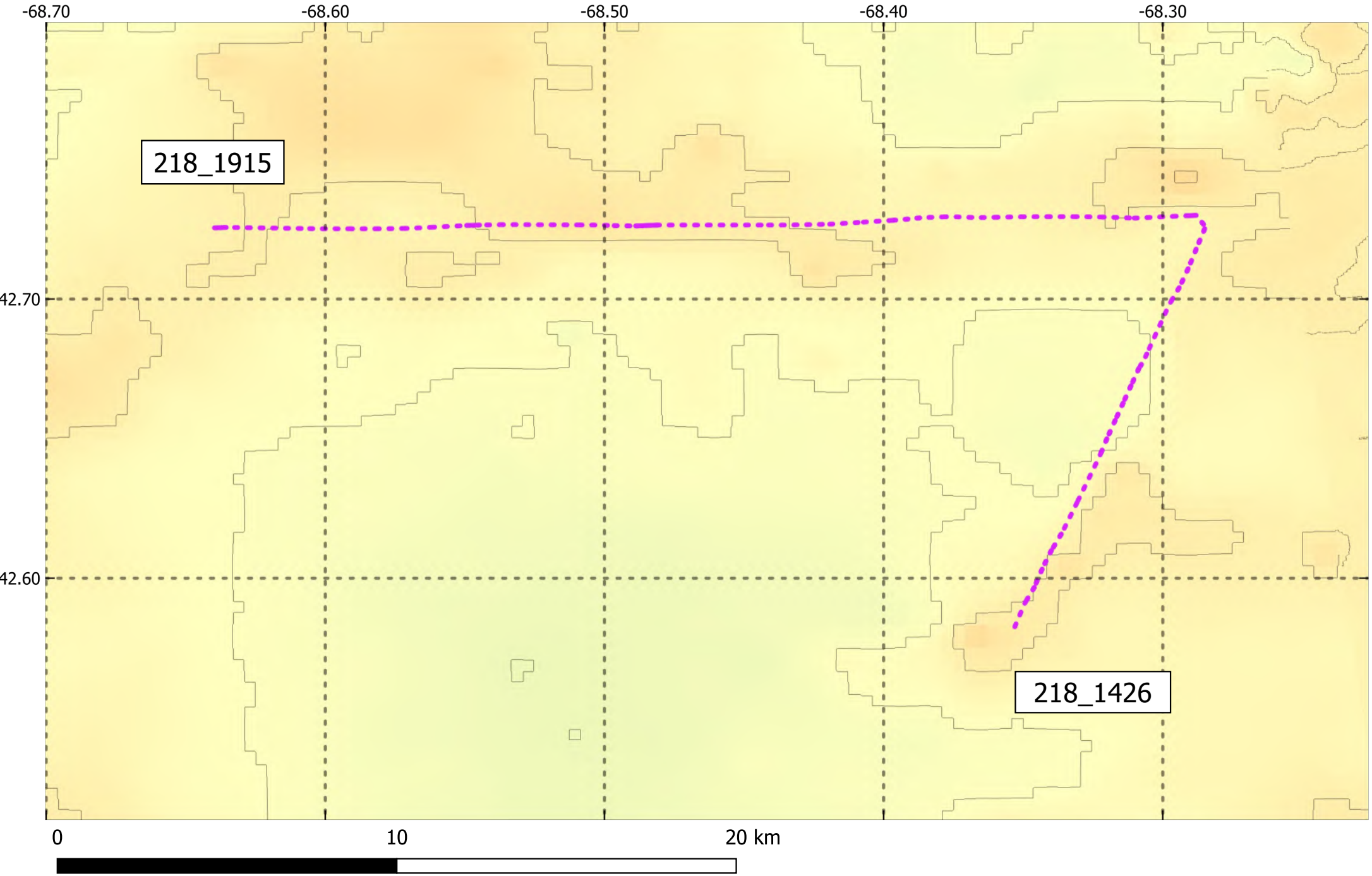
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_217_1506_to_218_0200



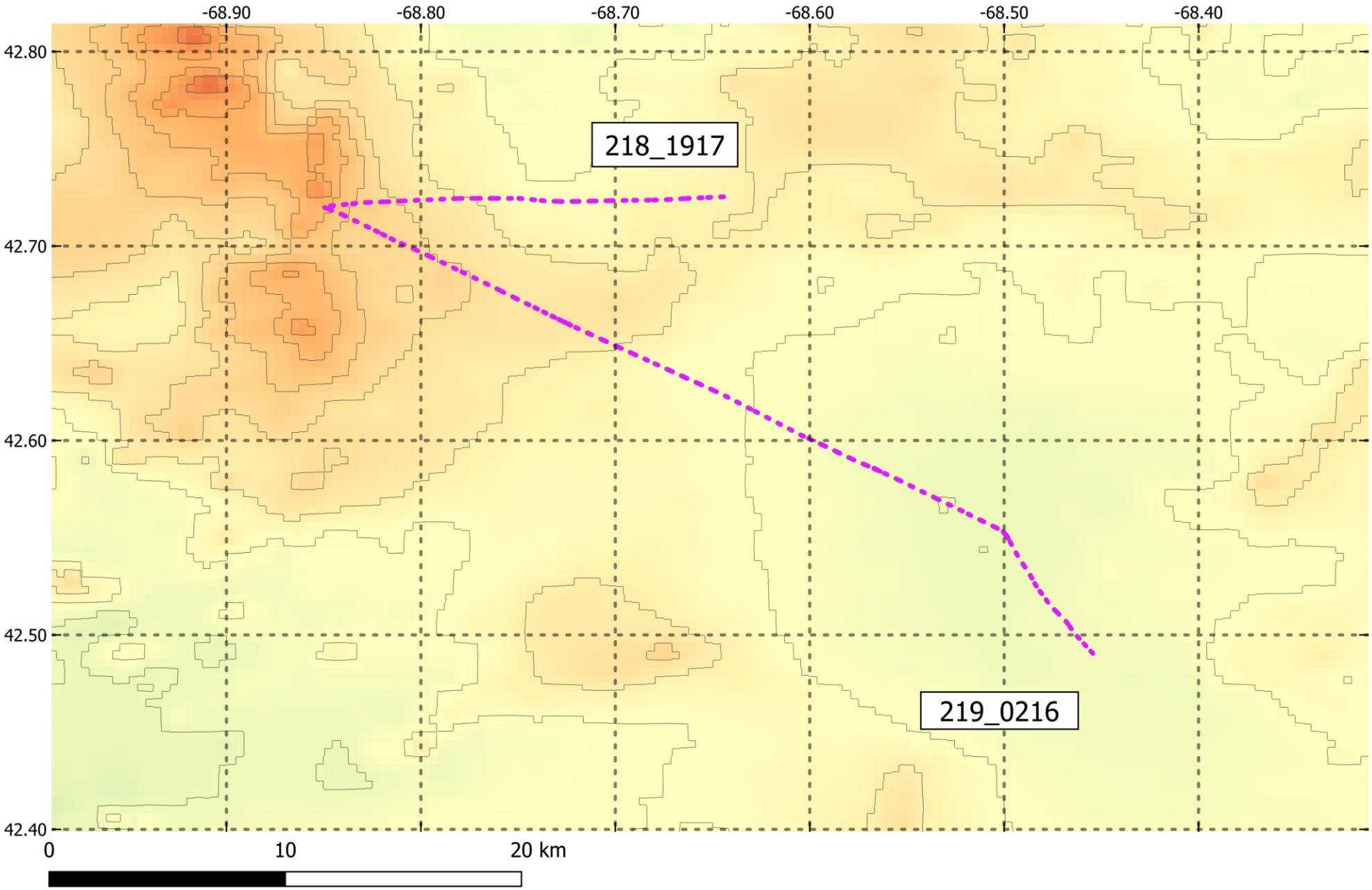
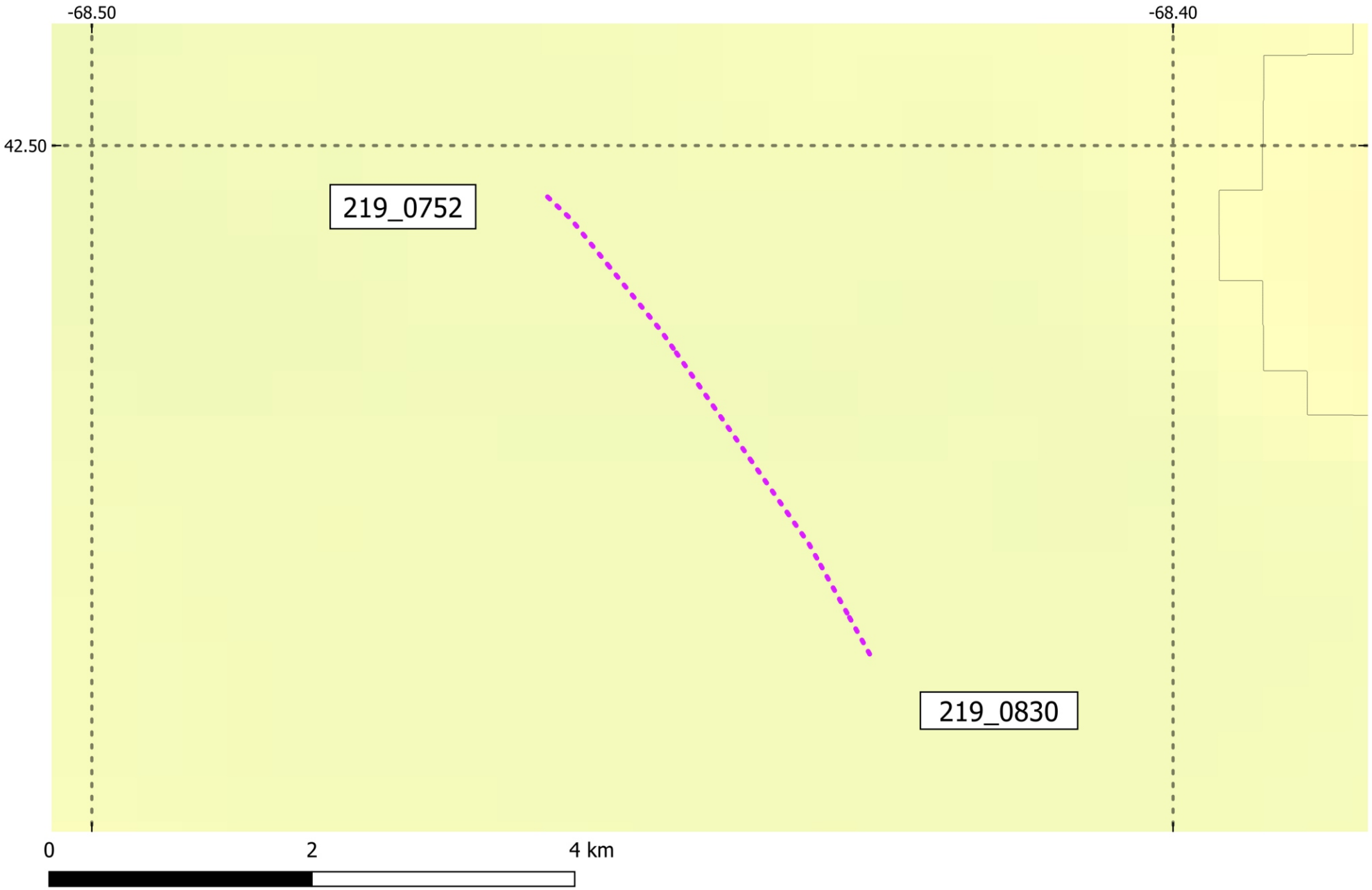
90CAPE_HATTERAS_SEISMIC_HUNTEC_int_218_0206_to_218_1423



90CAPE_HATTERAS_SEISMIC_HUNTEC_int_218_1426_to_218_1915



90CAPE_HATTERAS_SEISMIC_HUNTEC_int_218_1917_to_219_0216



90CAPE_HATTERAS_SEISMIC_HUNTEC_int_219_0752_to_219_0830