SAMS deployment plan for SBC 2017

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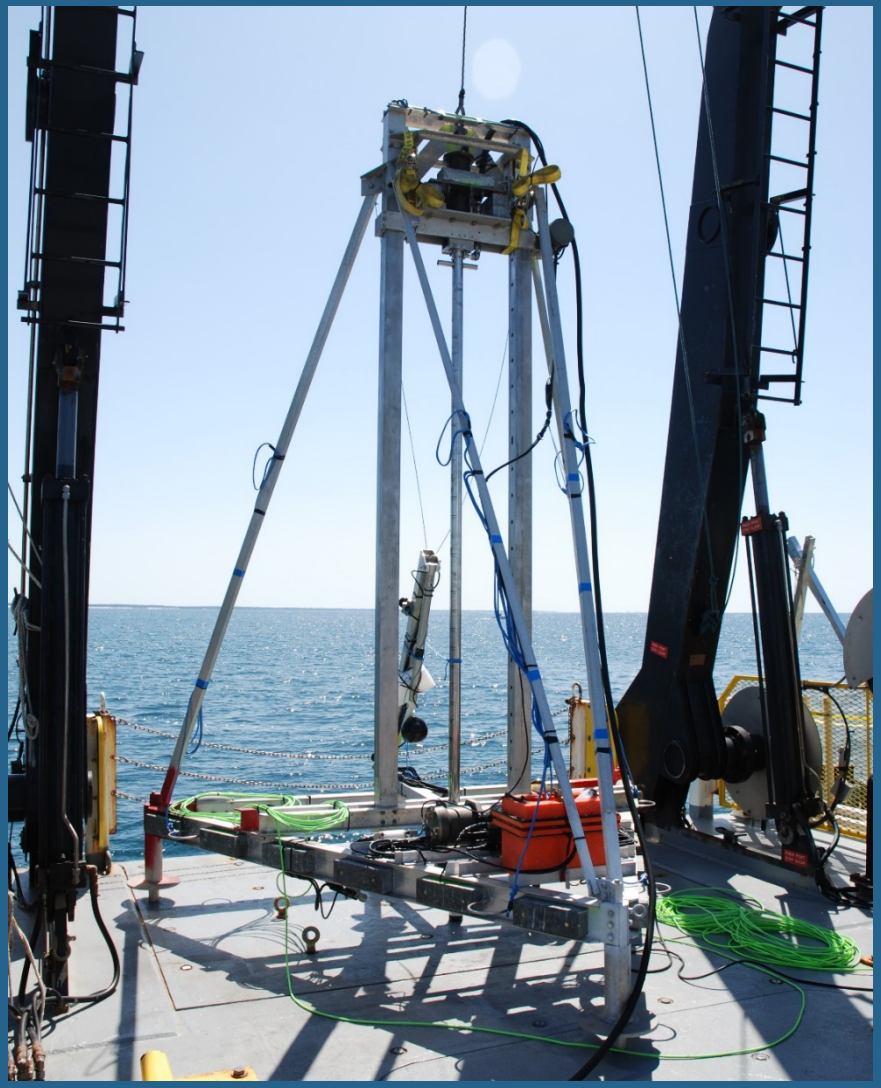
Washington DC, 6-8 June 2016

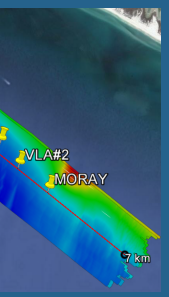
Scientific interests

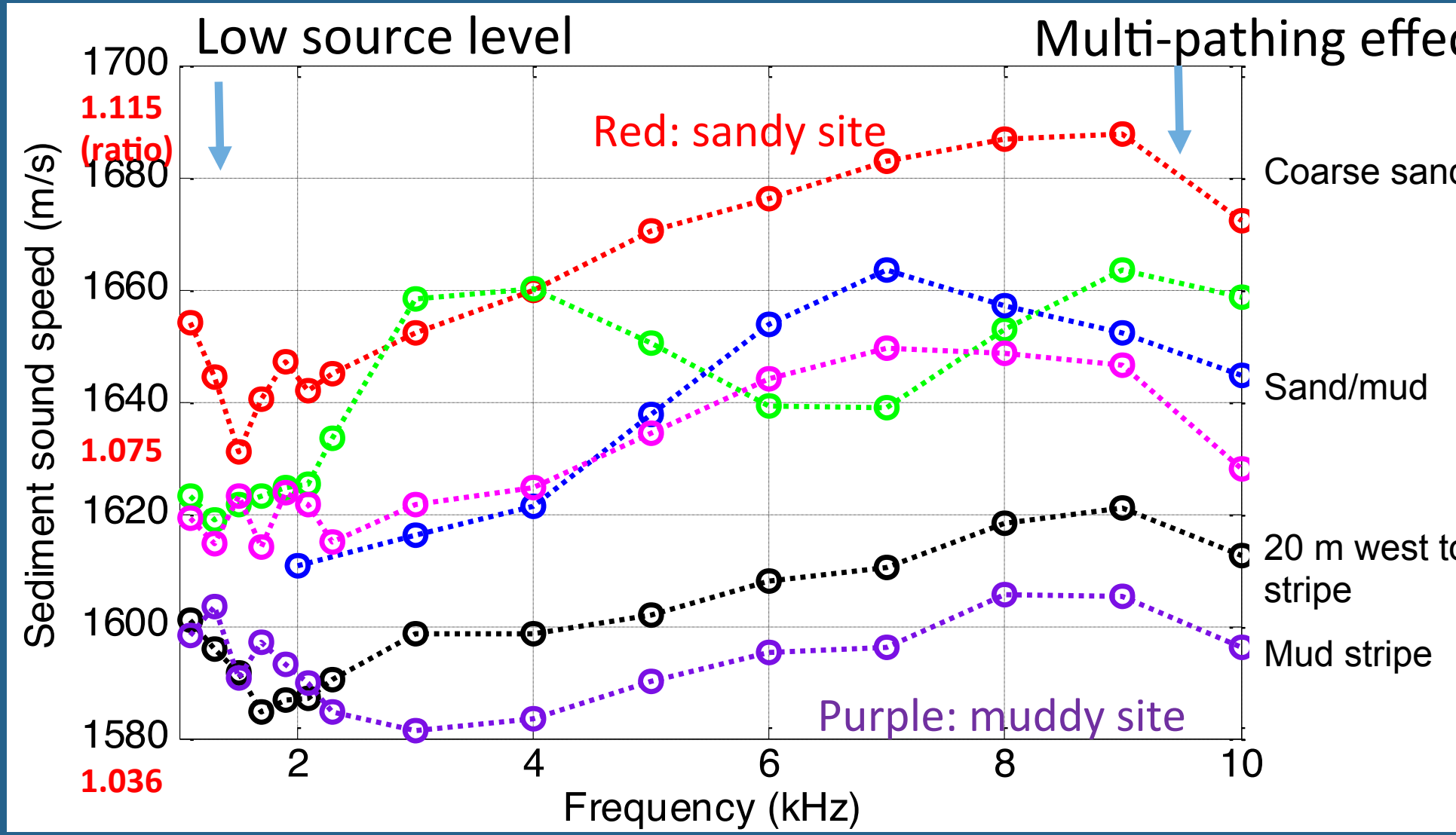
- Frequency dependence of sediment sound speed and attenuation in mud in the frequency band of 500 Hz – 10 kHz
- Spatial variation of sediment sound speed and attenuation
- Mud layer thickness and comparison with chirp sonar survey results
- Sound speed gradient due to sediment consolidation

Measurement method

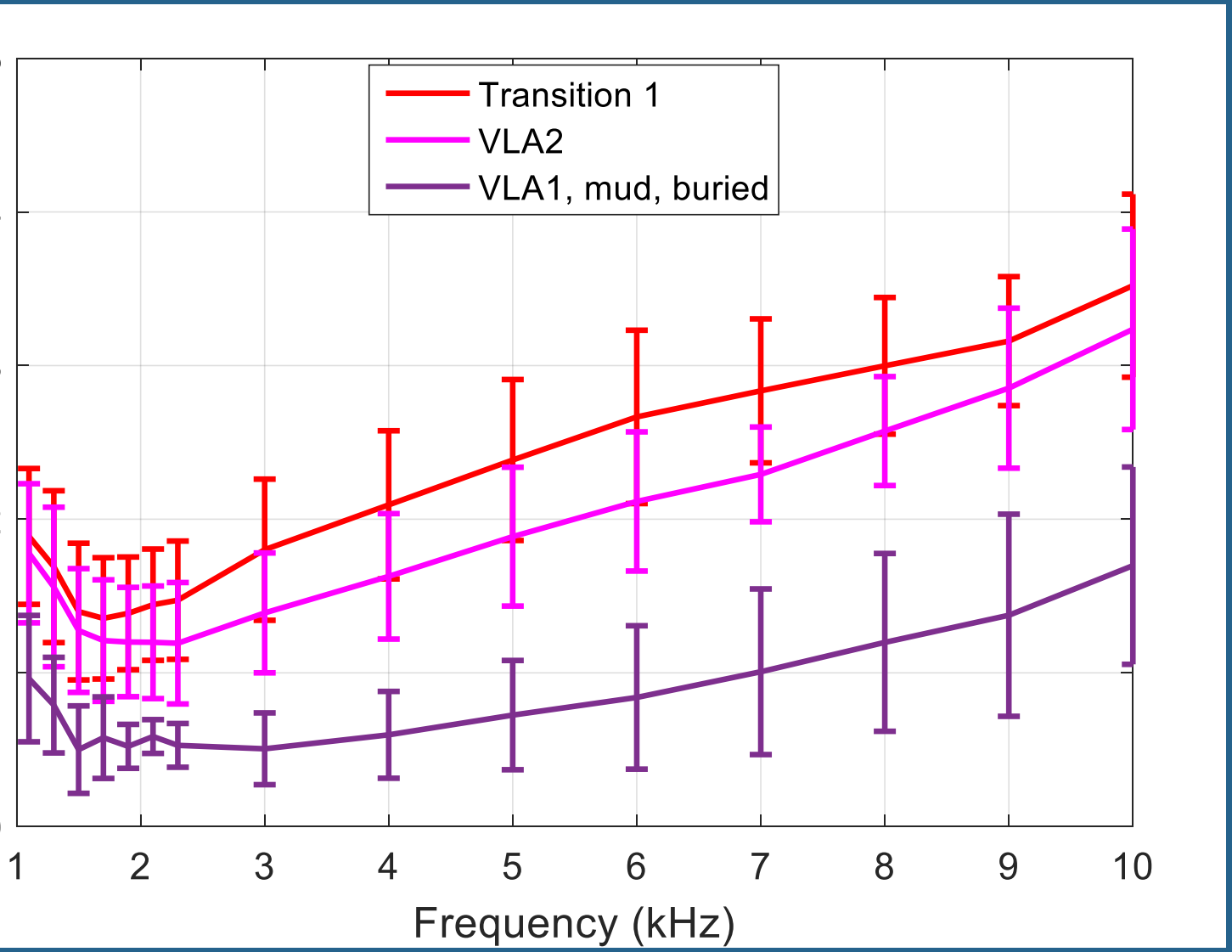


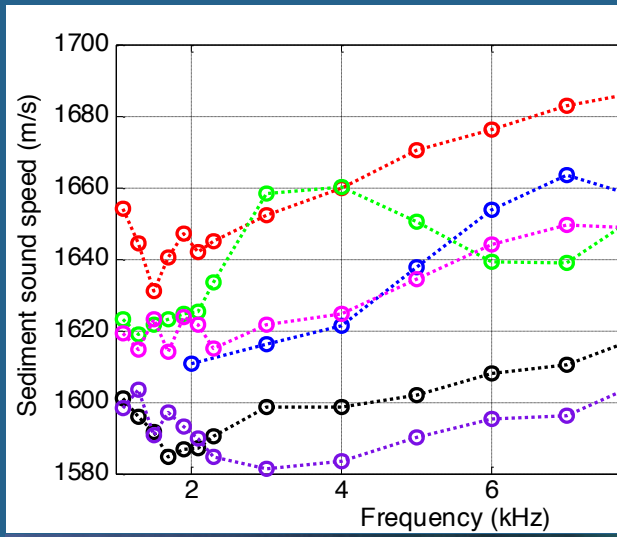
Summary of sediment sound speed at TREX sit

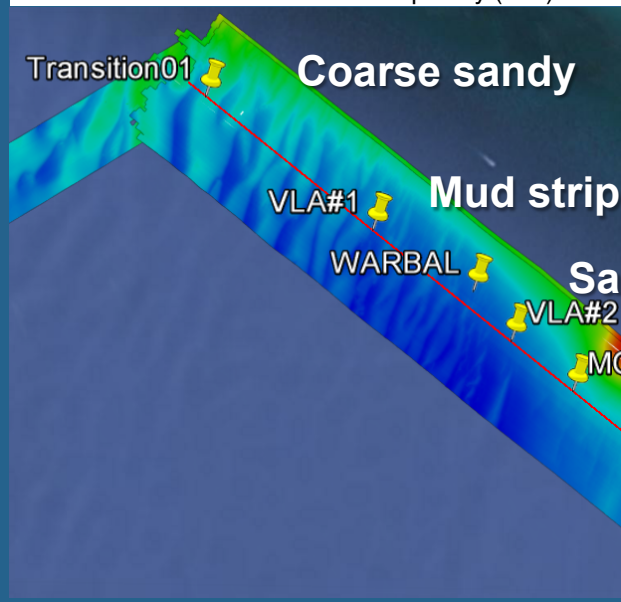




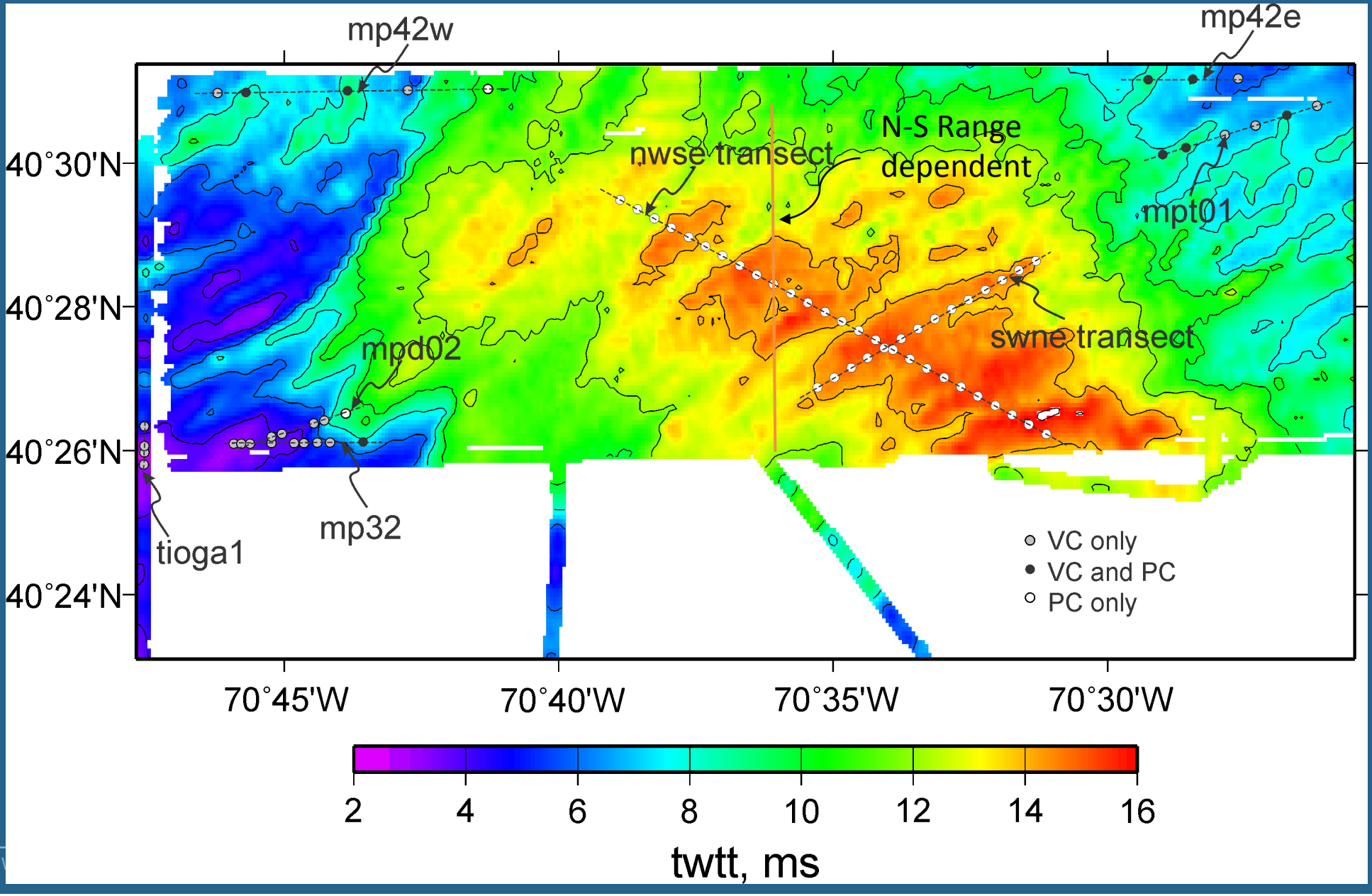
Work in progress: sediment attenuation at TREX site





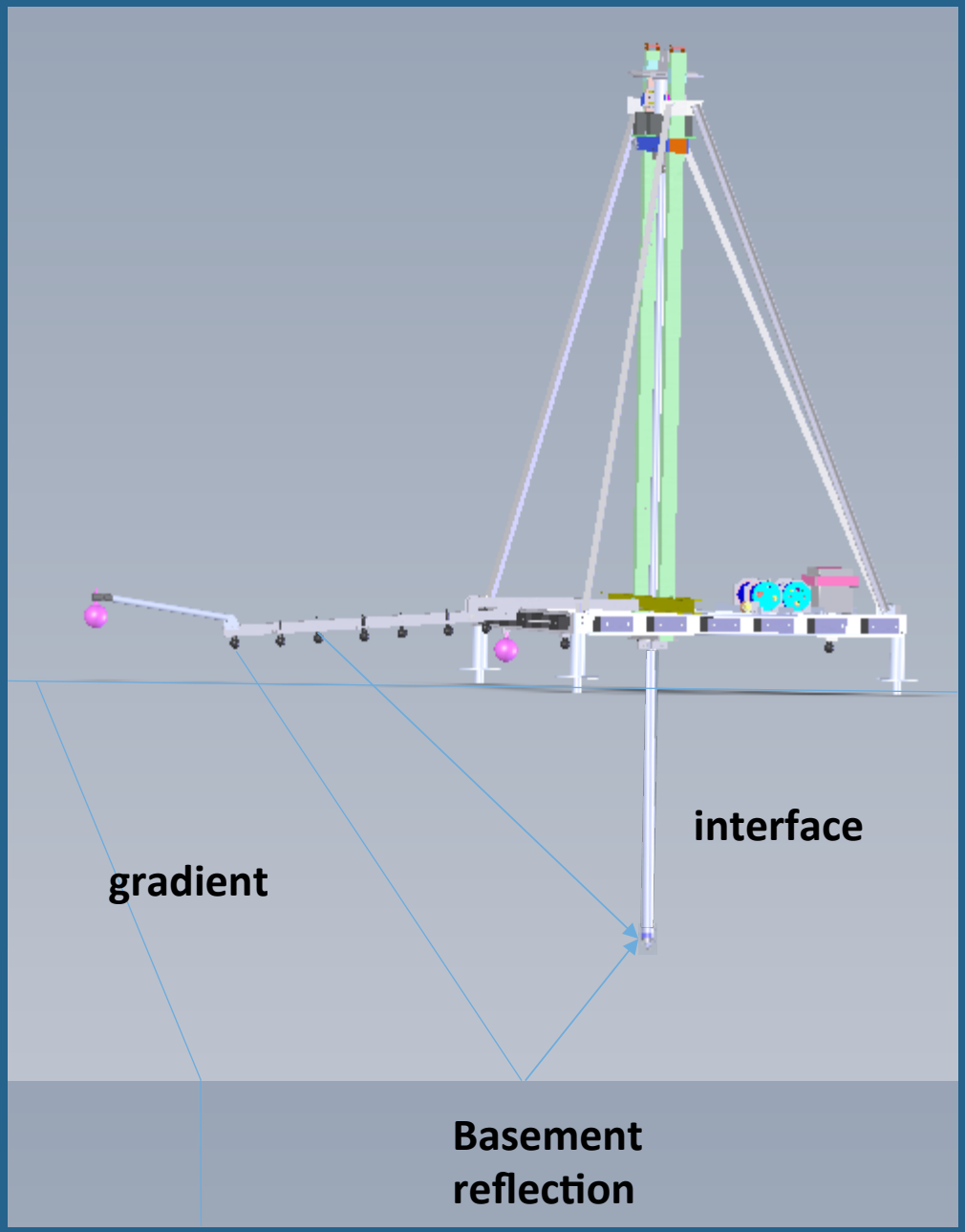


patial variation of sediment sound speed and attenuation



Mud layer thickness and comparison with chirp sonar survey results

Sound speed gradient due to sediment consolidation



S proposed yment part 1:

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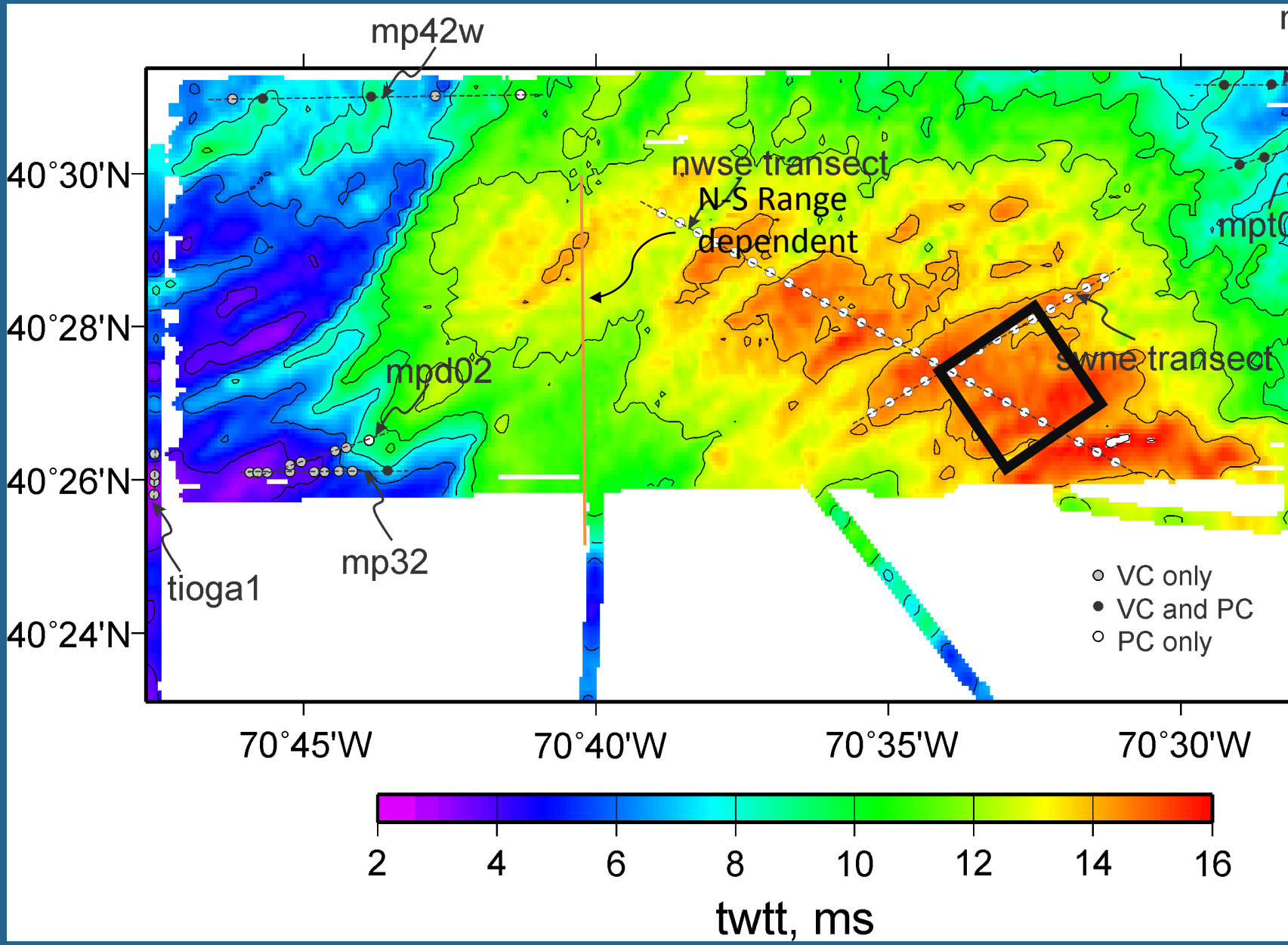
sampling (12 – 16 es)



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part 2:

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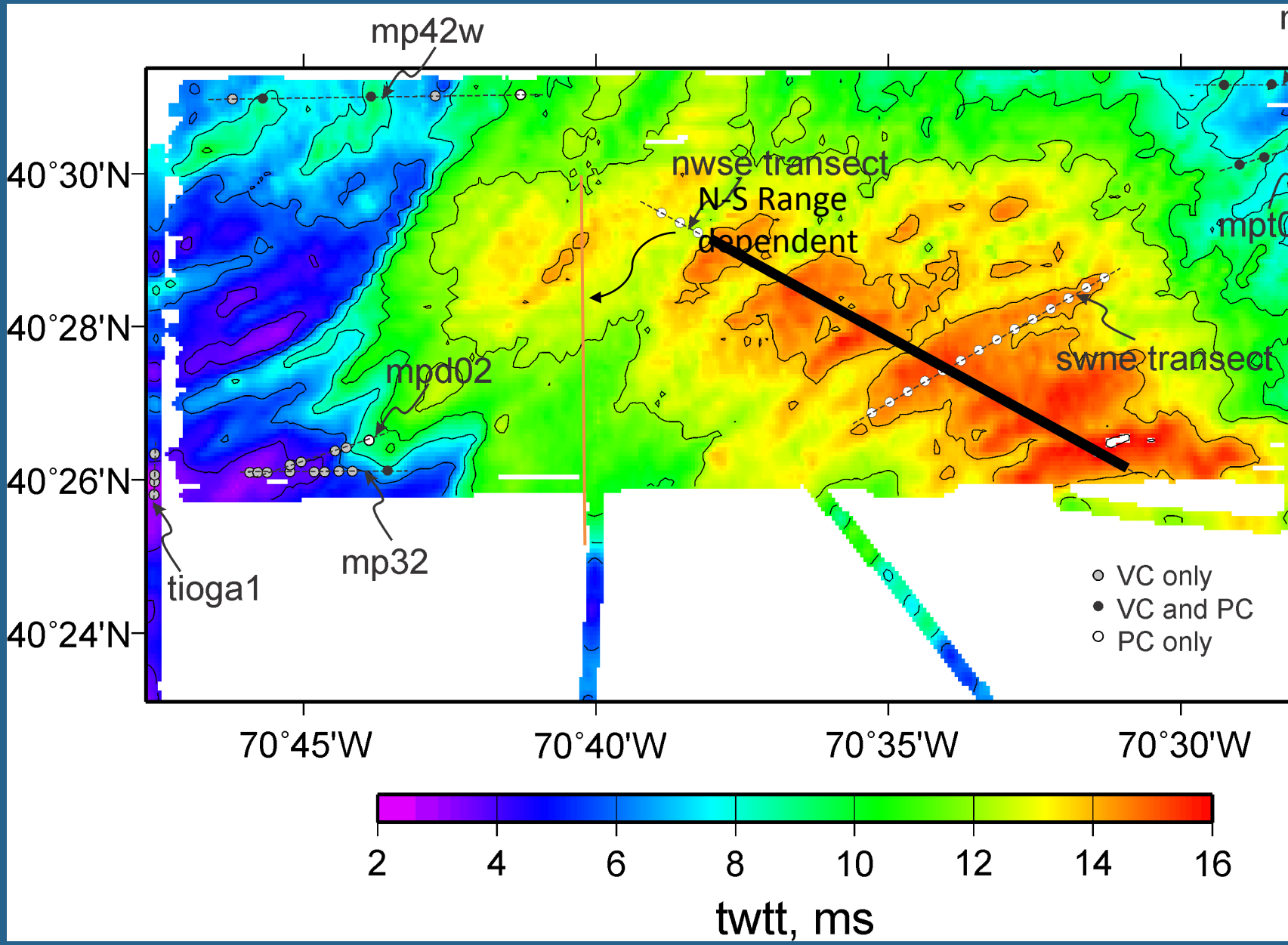

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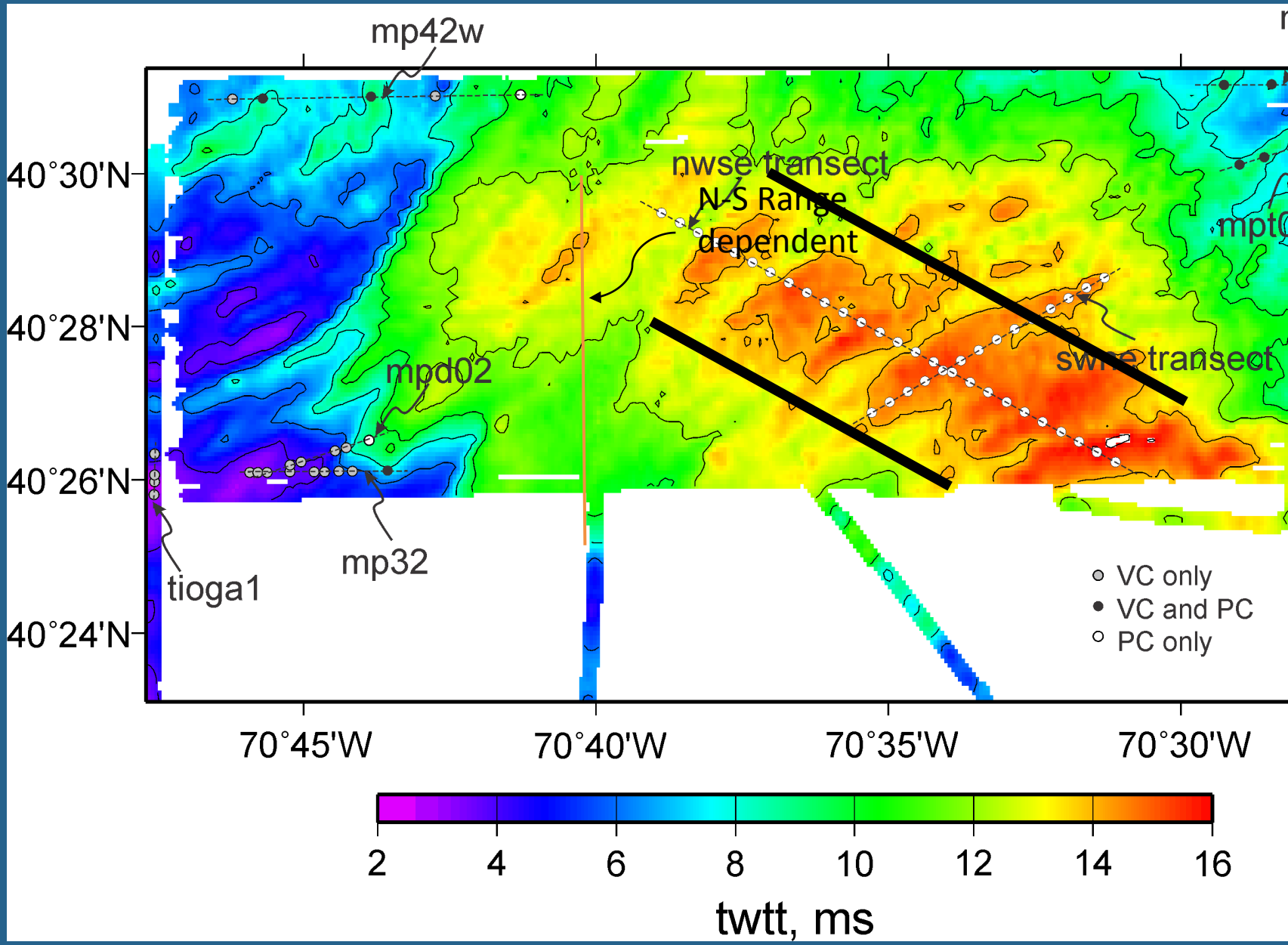

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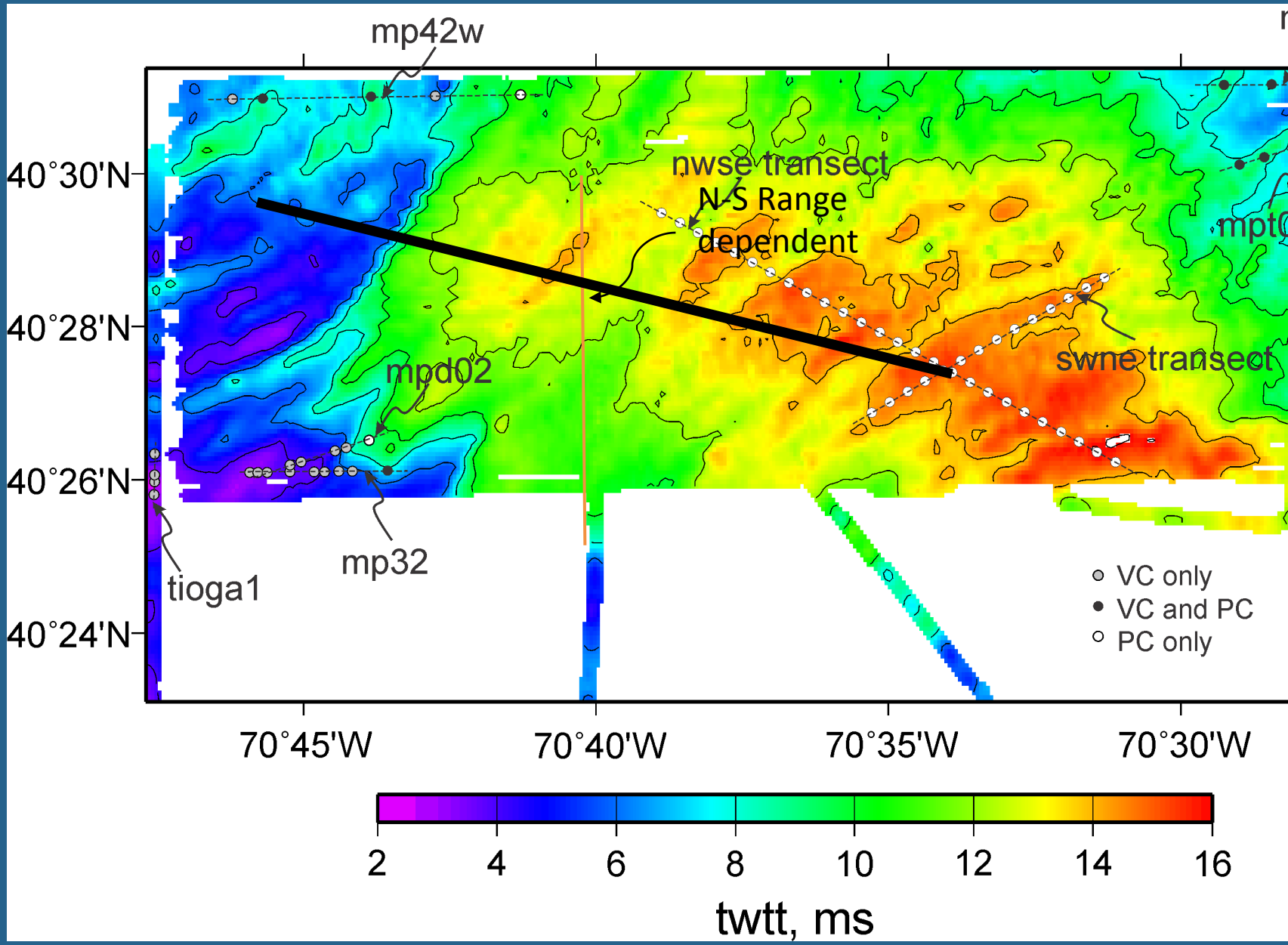

Model Parameterization

Parameter/ Mechanisms	In situ/penetration
Sediment interface scattering	No
Sediment volume scattering	No
Compressional sound speed	Yes
Sediment density	No
Layering/sound speed gradients	Yes
attenuation	Yes
Frequency dependence of sound speed and attenuation	Yes
range-dependence	Yes
Shear	No
Sediment models	Fluid
Frequency band	500 Hz – 10 kHz

Dimensions	Vertical: 4.5 m Horizontal: 5 m (including extension ar
System working depth	100 m
Maximum sediment penetration	3 m
Acoustics Sources	2 low-frequency sources: ITC1007 and PS-8 mid- to high-frequency sources (ITC1032
Receiver	ITC5510 (customized ring transducer)
Frequency coverage	500 – 1600 Hz & 1.5 – 35 kHz
Deployment Ship requirement	Crane or A-frame, 20’ clearance; 12’x12’ d size for the frame, 5’x12’ for big air compres dynamic positioning
No of personnel required	4 – 5
Time for deployment	0.5 – 1 hour
Time for acoustic transmission	2 hours