

RELATÓRIO DE SONDAGENS GEOFÍSICAS

LEVANTAMENTO GEOFISICO POR MEIO DE IMAGEAMENTO GEORRADAR

REDES DO SUL – ETAPA III - NOVA VENEZA SIDEROPOLIS

A	25/04/24	ATENDENDO COMENTARIOS	ADEILTON	ANDRÉS	REYNALDO
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ÁREA: REGIÃO “D” – SUL CATARINENSE					
TÍTULO: RELATÓRIO DE SONDAGENS GEOFÍSICAS – GEORRADAR - REDES DO SUL ETAPA III NOVA VENEZA – SIDEROPOLIS					
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ÍNDICE

1. OBJETIVO	3
2. LEVANTAMENTO GEOFÍSICO COM USO DE GPR	3
2.1 Descrição dos Métodos	3
2.2 Equipamento	4
2.3 Prospeção do Local	4
2.4 Processamento dos Dados	4
2.5 Interpretação dos Dados	4
3. DESCRIÇÃO DAS ÁREAS DE LEVANTAMENTO	5
3.1 Mapa de Localização do Levantamento	5
3.2 Extensão do Levantamento Geofísico	5
4. RESULTADOS OBTIDOS	5
5. REFERENCIAS BIBLIOGRAFICAS.....	6
6. ANEXO I – PLANTA DAS ÁREAS E RADARGRAMAS INTERPRETADOS	8

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REDE DE DISTRIBUIÇÃO DE GÁS NATURAL DO ESTADO DE SANTA CATARINA		RE-42.330.LMT.108	
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TÍTULO:		FOLHA:	DE:
RELATÓRIO DE SONDAGENS GEOFÍSICAS GEORRADAR- REDES DO SUL - ETAPA III – NOVA VENEZA - SIDERÓPOLIS		3	709

1. OBJETIVO

Este relatório tem por objetivo apresentar os dados geofísicos extraídos do Levantamento com GPR realizado em Nova Veneza – SC, entre os dias 10/03/2024 a 12/03/2024. O relatório contém ainda uma descrição sucinta dos principais elementos e procedimentos utilizados nas atividades desenvolvidas na sua elaboração, além dos Elementos Gráficos necessários para melhor aproveitamento de seus resultados.

A investigação Geofísica da área levantada, realizada com GPR, visa a verificação da presença ou não de possíveis interferências localizadas em subsuperfície.

2. LEVANTAMENTO GEOFÍSICO COM USO DE GPR

2.1 Descrição dos Métodos

O uso de GPR antes do início de escavações em obras é importante para detectar a presença de cabos elétricos, de telefones, adutoras de água, redes de esgoto sanitário e tubulações de gás principalmente, entre outras interferências que podem gerar prejuízos e transtornos e até mesmo acidentes graves, quando danificadas. O uso de GPR em projetos de engenharia civil e geotécnicos em áreas urbanas pode ajudar a minimizar riscos à sociedade. Ground Penetratin Radar – GPR é um método geofísico não invasivo e não destrutivo que usa alta frequência de onda eletromagnética (normalmente entre 10 MHz e 2,5 GHz), para localização de feições geológicas rasas e objetos artificiais enterrados. A onda eletromagnética percorre as estruturas até encontrar uma descontinuidade dielétrica, como ocorre quando há mudança de material constitutivo, mudança nas características estruturais da rocha ou solo (presença de camadas compostas por diferentes materiais e/ou diferentes quantidades de água) e presença de interferências de origem antrópica.

A análise dos perfis contínuos de georadar fornece subsídios adequados para um melhor planejamento das investigações por métodos diretos.

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RELATÓRIO DE SONDAGENS GEOFÍSICAS GEORRADAR- REDES DO SUL - ETAPA III – NOVA VENEZA - SIDERÓPOLIS		4	709

2.2 Equipamento

O equipamento utilizado é um GPR MODELO DS2000 e antenas blindadas de 250 MHz e 700 MHz, do fabricante LEICA. Com esta antena é possível obter informações de profundidade até 10 metros, dependendo das características dielétricas do meio analisado.

2.3 Prospecção do Local

O levantamento de campo foi realizado através de caminhamentos em perfis, chamados de linhas de aquisição. Os números que acompanham as linhas são sequenciais e indicam a ordem de aquisição.

O caminhamento se dá com o uso de um cart com quatro rodas no qual a antena é acoplada na parte central para a execução da aquisição dos dados. Cada caminhamento resulta em um radargrama, uma imagem da subsuperfície.

2.4 Processamento dos Dados

Os dados obtidos foram tratados no pacote do software OUVERTURE que possui todas as rotinas e ferramentas necessárias para análise dos sinais. As rotinas de processamentos incluem desde a análise do traço até análise média do espectro de sinais. O processamento objetiva a extração legítima de sinais e a supressão de ruídos e interferências e sinais não informativos.

2.5 Interpretação dos Dados

As feições existentes em subsuperfície foram destacadas para que houvesse melhor visualização das mesmas. As feições circuladas em vermelho representam interferências tanto contínuas (tais como vigas de ferro e tubulações) quanto pontuais, como objetos e seixos enterrados. Todos os pontos de interferência identificados foram devidamente plotados no local correspondente do arquivo em CAD, com suas respectivas profundidades aparentes.

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		FOLHA: 5	DE: 709

3. DESCRIÇÃO DAS ÁREAS DE LEVANTAMENTO

3.1 Mapa de Localização do Levantamento

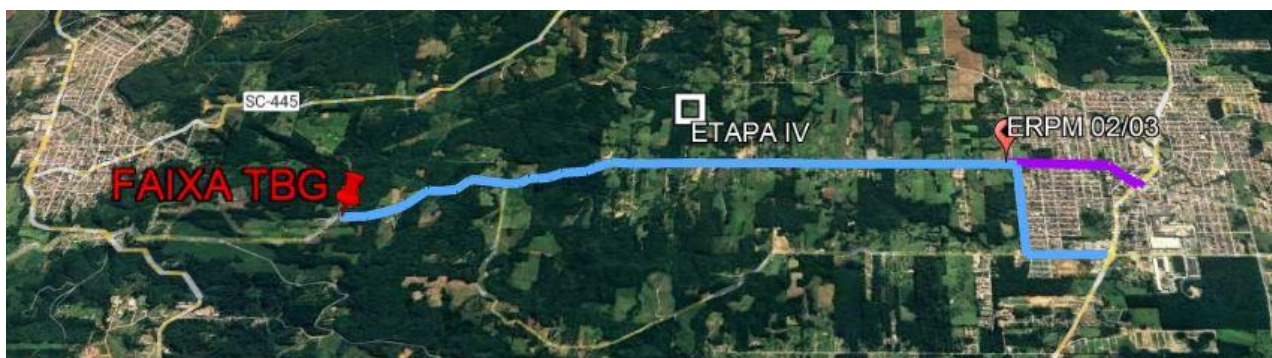


Figura 1 – Localização do Sistema Redes do Sul / Etapa IV - SC

3.2 Extensão do Levantamento Geofísico

A extensão do levantamento geofísico foi de aproximadamente 1.840,00m divididos entre linhas paralelas ao projeto de gás e linhas perpendiculares ao projeto de gás, cobrindo a área desejada em uma malha que atende às exigências de espaçamento de 5 metros entre as linhas, sempre que possível.

4. RESULTADOS OBTIDOS

A interpretação realizada é o resultado da análise puramente indireta, não sendo analisados quaisquer dados de acesso direto ao subsolo nas áreas investigadas.

No objetivo de detectar a presença de interferências nas áreas de intervenção os levantamentos do georadar tomaram por base os dados do cadastramento topográfico. A partir destes dados foram direcionados os trabalhos para confirmar a localização correta das interferências e, quando possível, correlacionar com as tubulações existentes.

Nas áreas onde ocorre a presença de horizontes muito condutivos (argilosos) as interferências em cotas mais baixas são de difícil detecção, uma vez que não ocorre contraste entre a constante dielétrica do solo úmido e das tubulações de concreto dos esgotos pluvial e cloacal. A baixa resistividade elétrica do solo com água causa uma maior dissipação da energia eletromagnética, bloqueando praticamente a propagação das ondas para profundidades maiores.

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~~Todos os pontos de interferências geofísica significativos, encontrados a profundidades superiores~~
a 50 cm (cinquenta centímetros) estão marcados na planta do projeto, acompanhados por uma tabela de pontos e profundidades aparentes. As profundidades de base são estimadas meramente por comparação aos tamanhos das tubulações anteriormente cadastradas.

5. REFERENCIAS BIBLIOGRAFICAS

- Porsani, J.L., 1999. Ground Penetrating Radar (GPR): Proposta metodológica de emprego em estudos geológico-geotécnicos nas regiões de Rio Claro e Descalvado—SP.
- DScThesis, Instituto de Geociências e Ciências Exatas, UNESP, Campus de Rio Claro—SP, Brasil.
- Porsani, J.L., Borges, W.R., Rodrigues, S.I., Hiodo, F.Y., 2006. O sítio controlado de geofísica rasa do IAG/USP: Instalação e resultados GPR 2D-3D. Revista Brasileira de Geofísica 24, 49–61.
- Porsani, J.L., Bortolozzo, C.A., Almeida, E.R., Santos Sobrinho, E.N., Santos, T.G., 2012. TDEM survey in urban environmental for hydrogeological study at USP campus in São Paulo city, Brazil. Journal of Applied Geophysics 76, 102– 108.
- Salamanca, G.E.D., Assumpção, M., Barbosa, J.R., Prado, R.L., 2010. Relocation of hypocenters of the induced activity in Bebedouro, Paraná Basin, Brazil.IV Simpósio Brasileiro de Geofísica, Brasília, Brazil. Cdrom.
- Rodrigues, S.I., Porsani, J.L., 2006. Utilização do GPR para caracterizar tambores plásticos enterrados no sítio controlado de geofísica rasa do IAG/USP. Revista Brasileira de Geofísica 24, 157–168.
- ANNAN, A.P., 1992. Ground penetration radar workshop notes. Sensors & Software, Inc., Internal Report, 130 p.
- ANNAN, A.P. 2002. GPR – History, Trends, and Future Developments. Subsurface Sensing Technologies and Applications, 3 (4): 253 – 270.
- BENSON, A.K. 1995. Applications of ground penetrating radar in assessing some geological hazards: examples of groundwater contamination, faults, and cavities. Journal of Applied Geophysics, 33:177–193.
- DANIELS, J. J., 1996. Surface Penetrating Radar, The Institution of Electrical Engineers, London, United Kingdom, 300p.
- DANIELS, J.J., ROBERTS, R., VENDL, M. 1995. Ground penetrating radar for the detection of liquid contaminants. Journal of Applied Geophysics. 33:195–207.
- DAVIS, J. L. & ANNAN, A. P. 1989. Ground Penetrating Radar for High Resolution Mapping of oil and rock stratigraphy. Geophysical Prospecting, 37:531–551.

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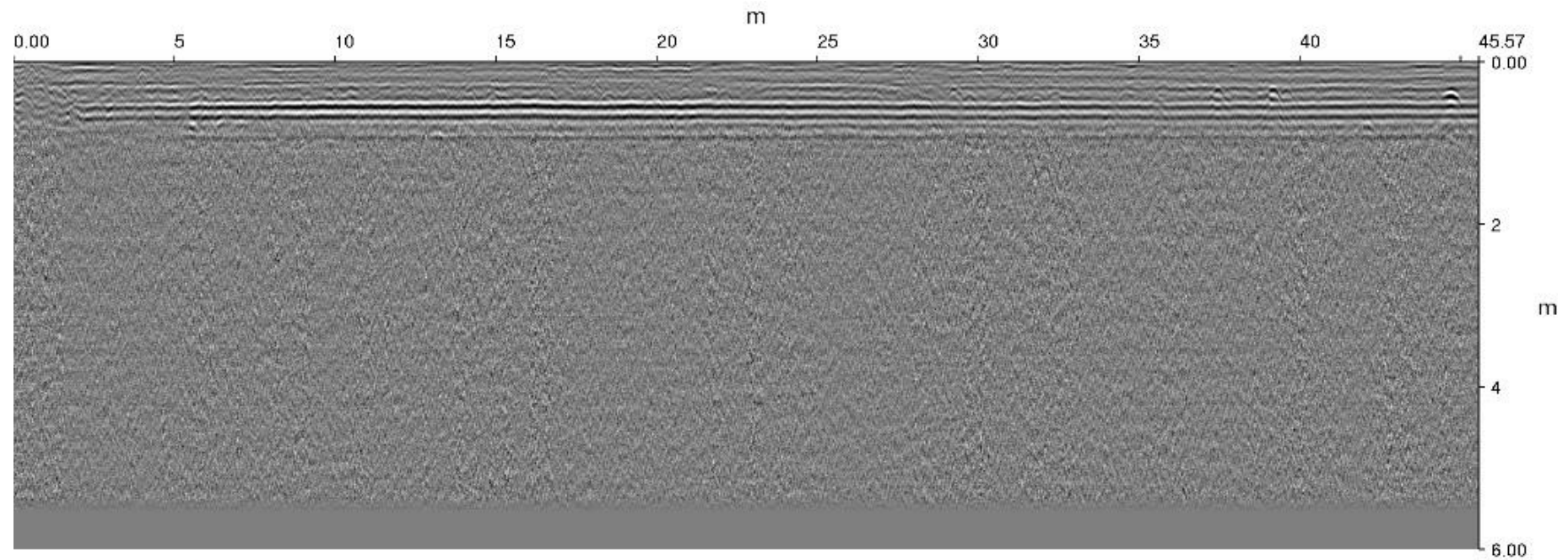
- ~~GRANDJEAN, G., GOURRY, J.C. & BITRI, A. 2000. Evaluation of GPR techniques for civil-~~
 engineering applications: study on a test site. Journal of Applied Geophysics, 45: 141 – 156.
- JOL, H.M. & SMITH, D.G. 1995. Ground penetrating radar: antenna frequencies and maximum probable depths of penetration in Quaternary sediments. Journal of Applied Geophysics, 33: 93 – 100.
- KRUK, J. van der; SLOB, E.C. & FOKKEMA, J.T. 1999. Background of ground-penetrating radar measurements. Geologie en Mijnbouw, 77: 177 – 188.
- SANDMEIER, K.J. 2008. REFLEXW Version 4.5 for Windows 9x/2000/NT/XP. Program for the processing of seismic, acoustic or electromagnetic reflection, refraction and transmission data. Manual do Software, 192 p.
- TOPP, G.C.; DAVIS, J.L. & ANNAN, A.P. 1980. Electromagnetic Determination of Soil Water Content: Measurements in Coaxial Transmission Lines. Water Resources Research. 16: 574 – 582.
- ZENG, X. & McMECHAN, G.A. 1997. GPR characterization of buried tanks and pipes. Geophysics, 62(3): 797 – 806.

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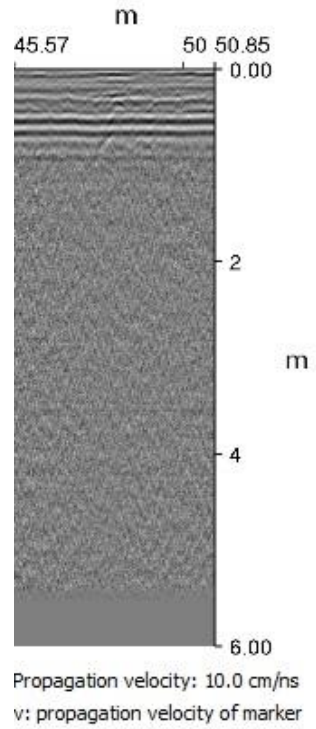
6. ANEXO I – PLANTA DAS ÁREAS E RADARGRAMAS INTERPRETADOS

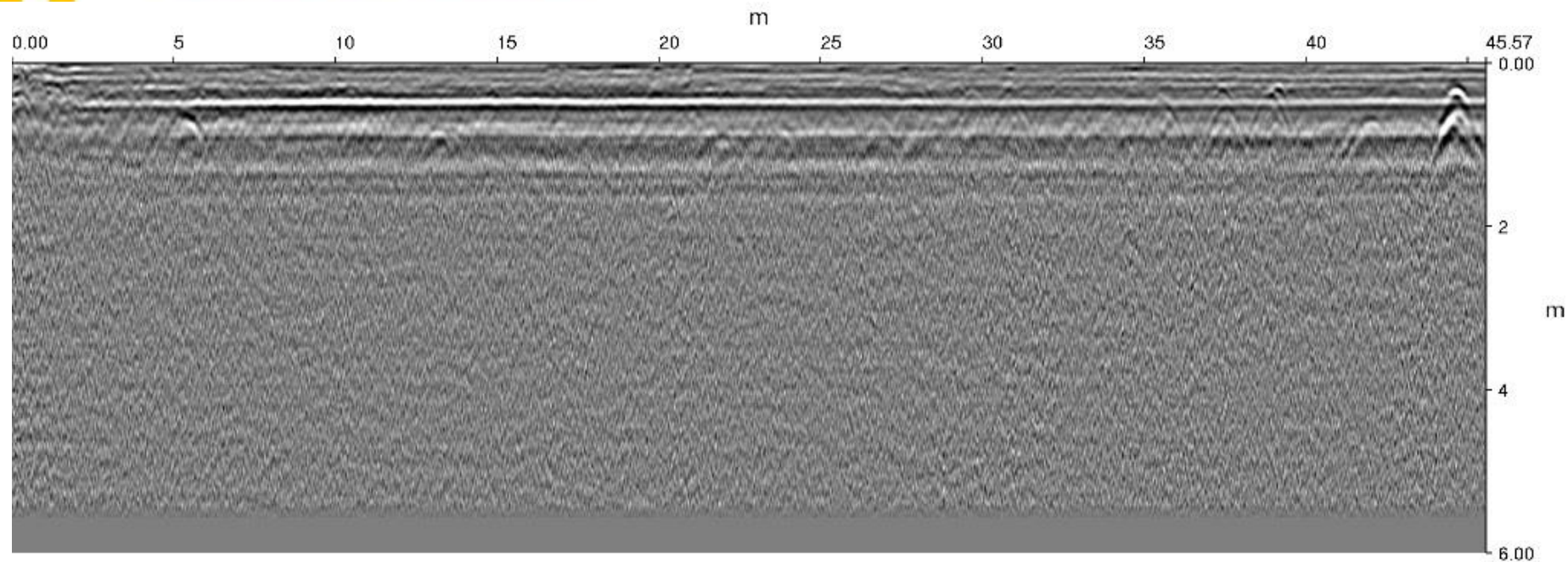
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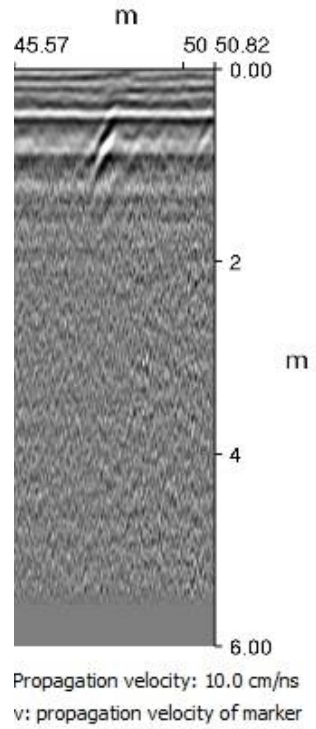


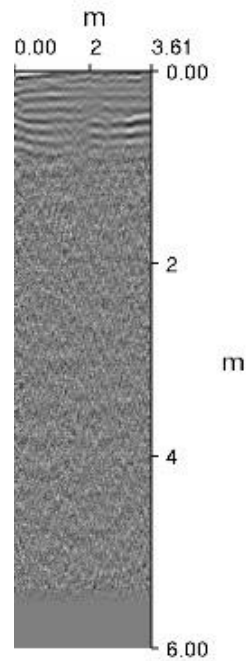
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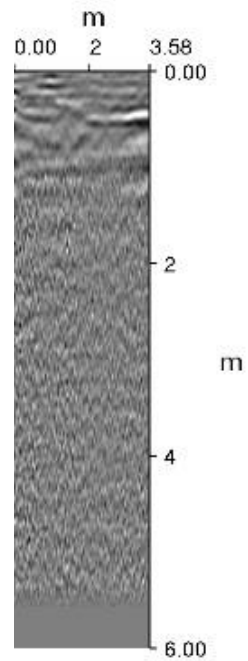


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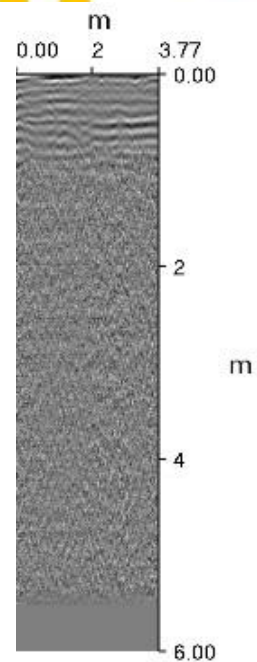




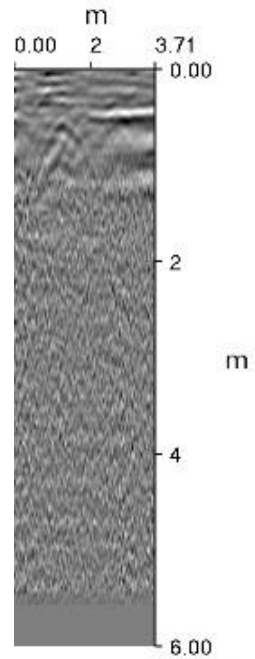
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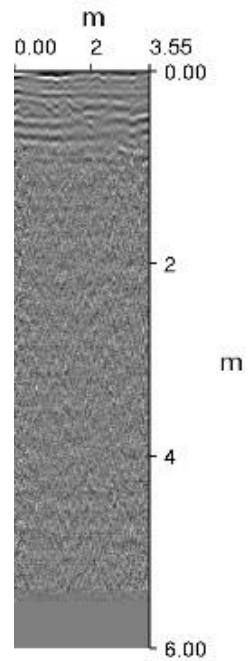
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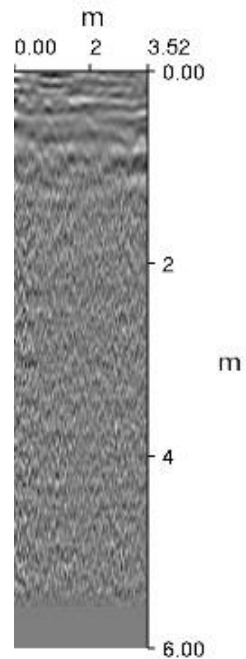
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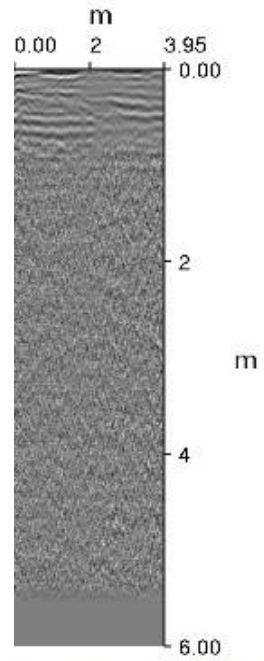
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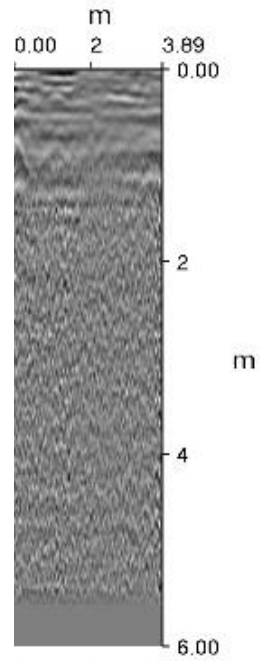
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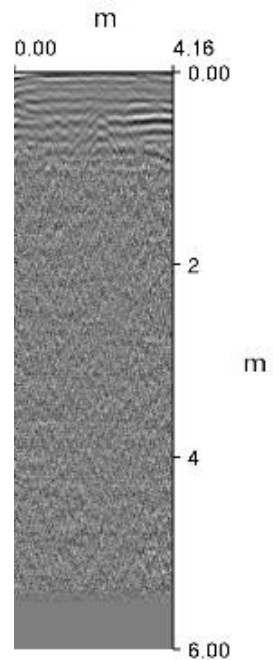
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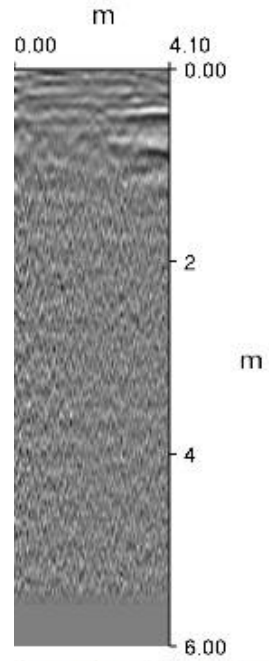
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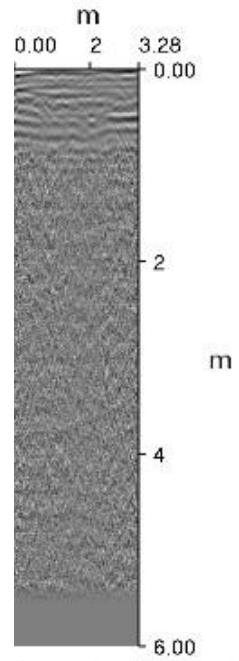
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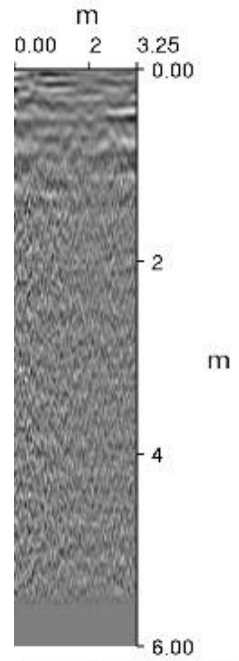
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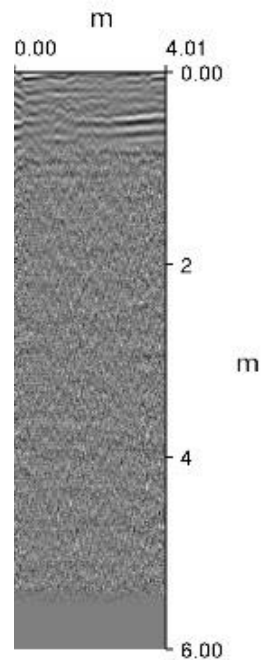
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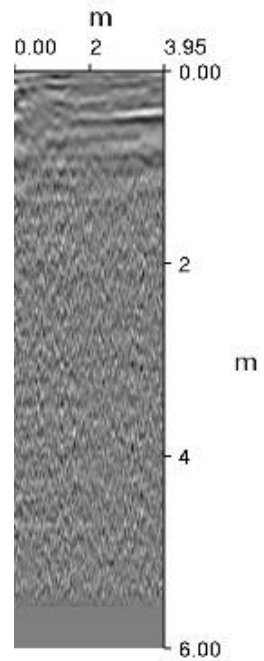
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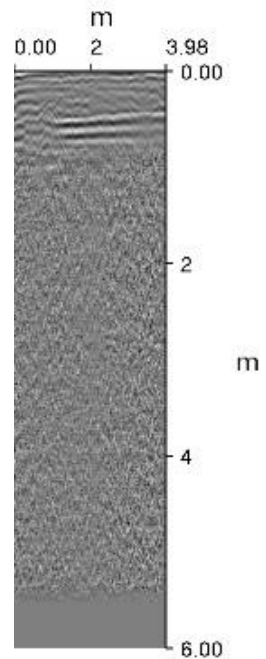
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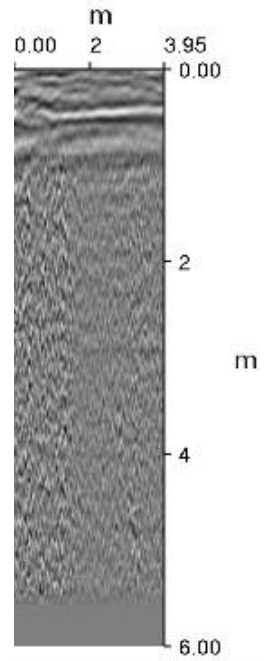
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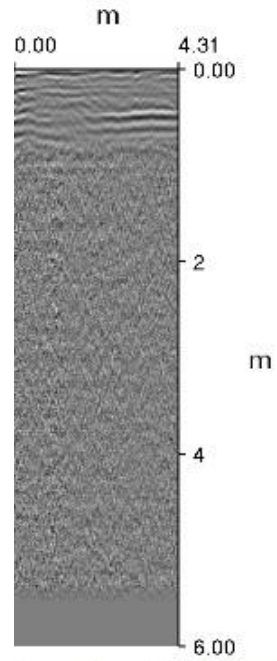
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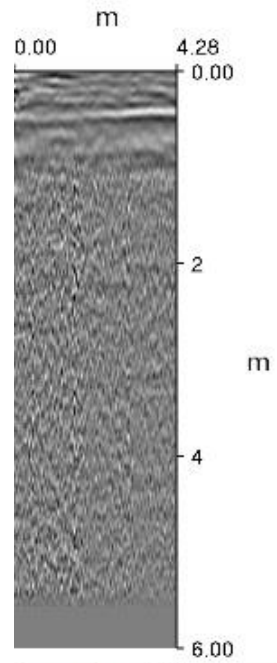
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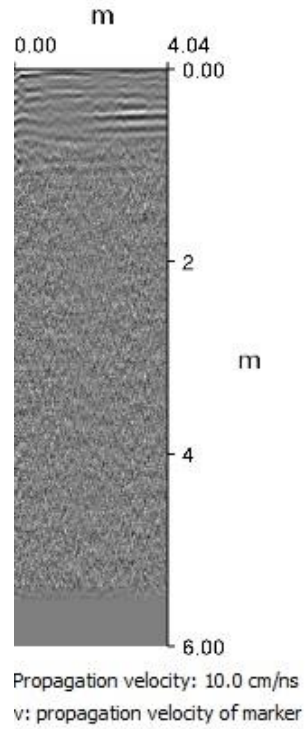
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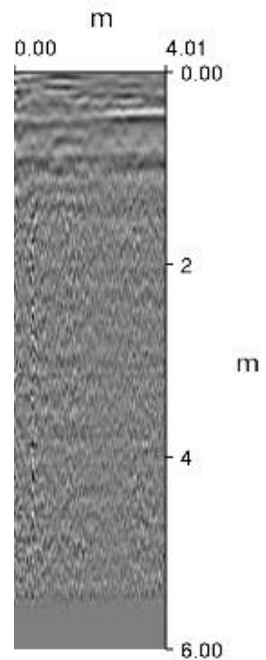


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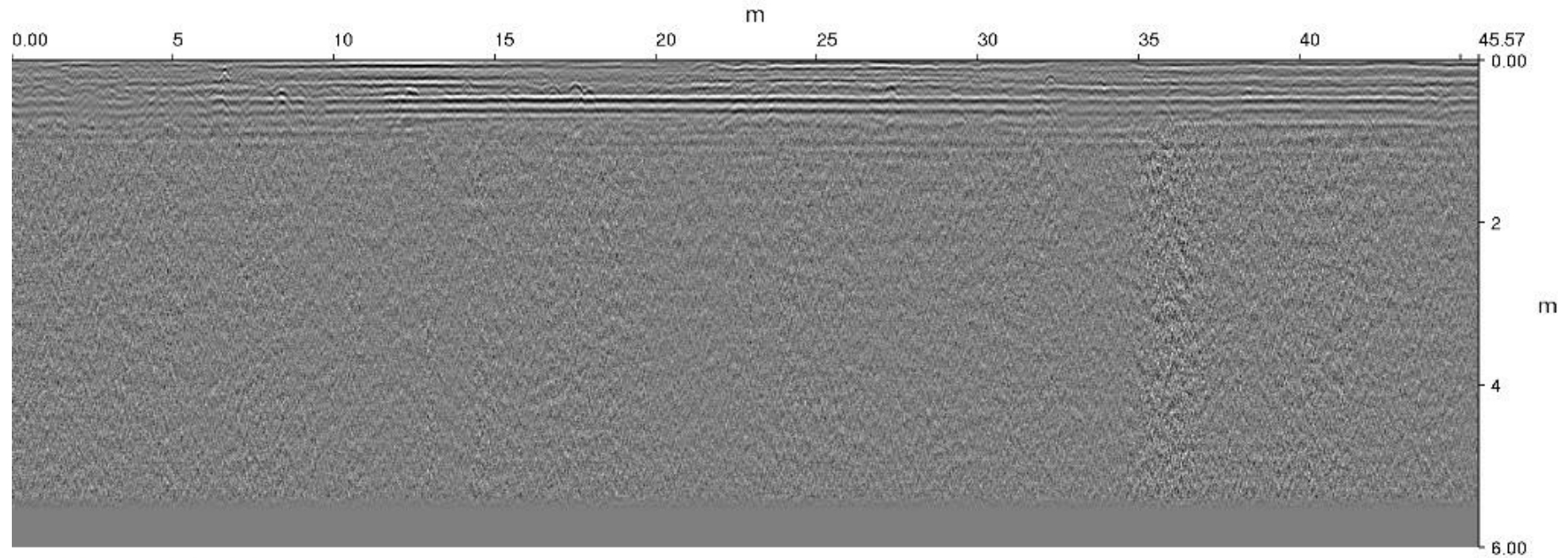


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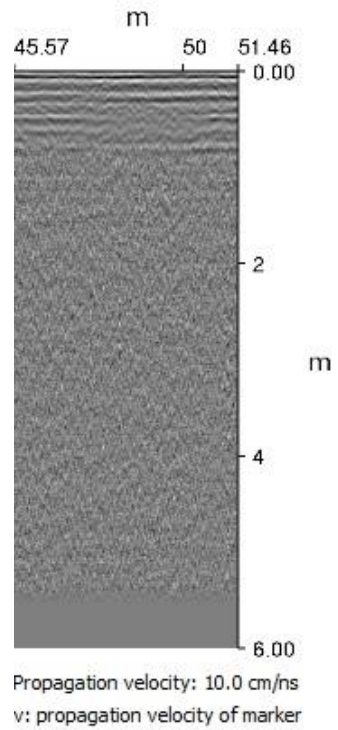


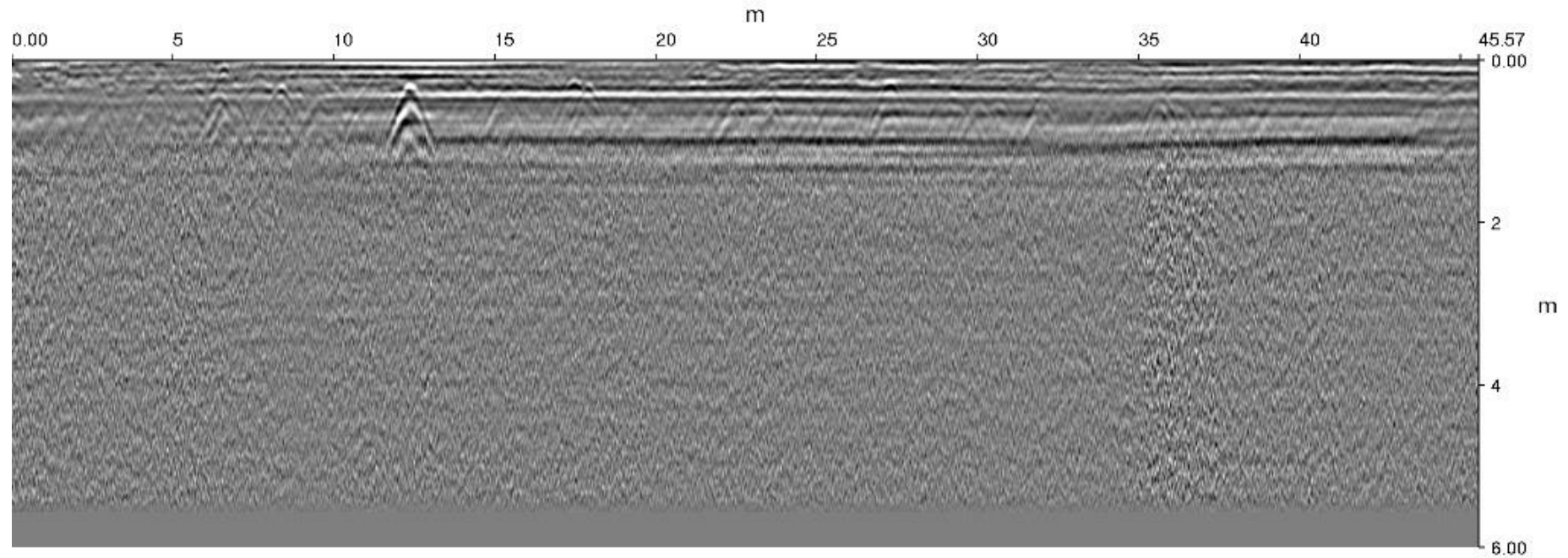


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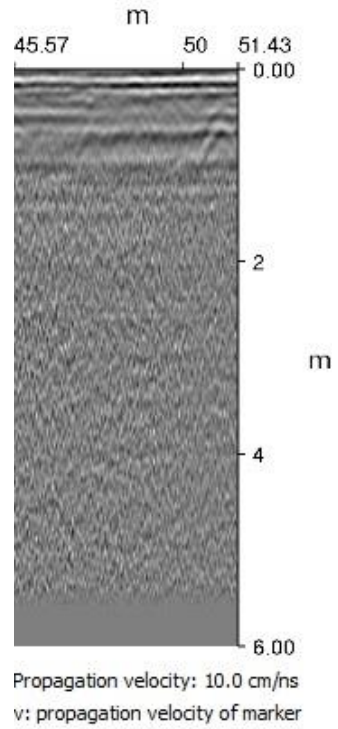


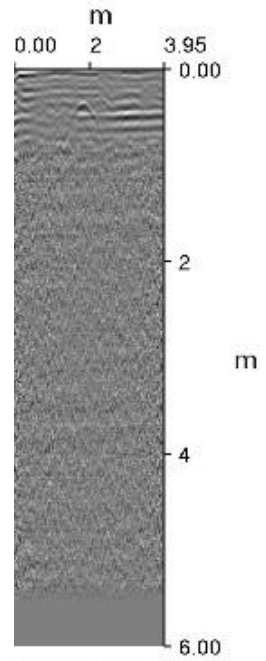
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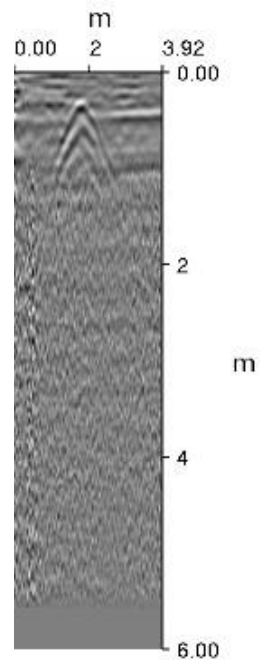


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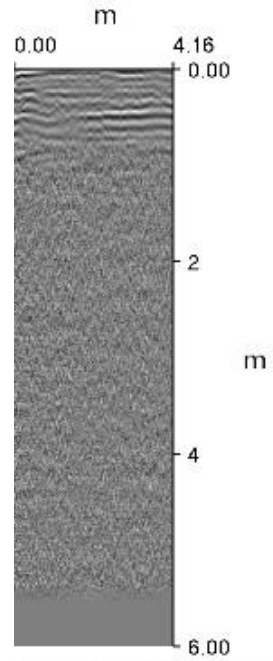




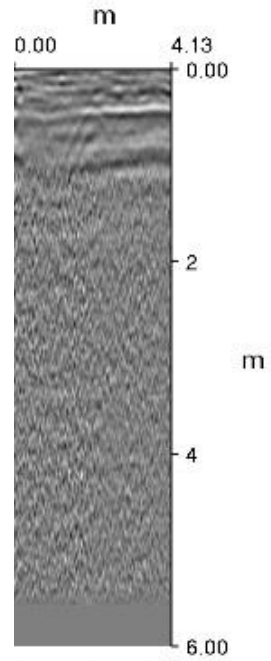
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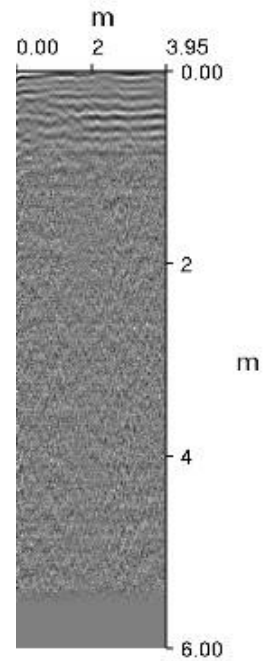
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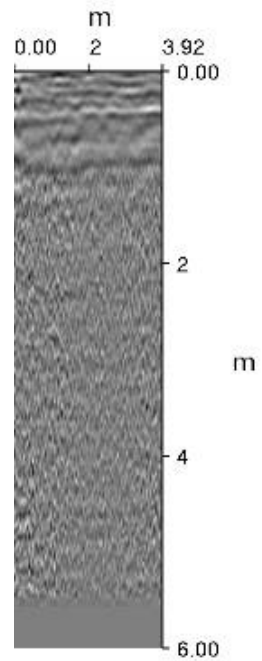
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v: propagation velocity of marker



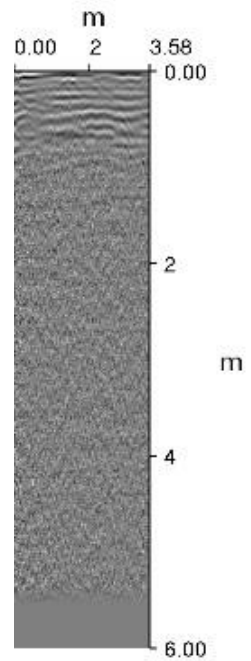
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



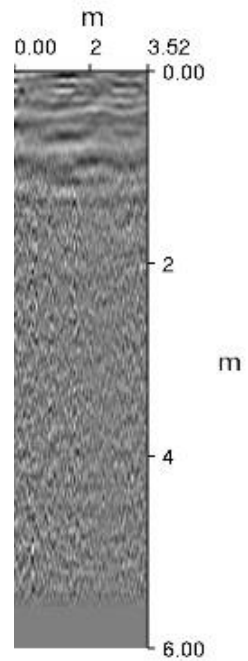
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v: propagation velocity of marker



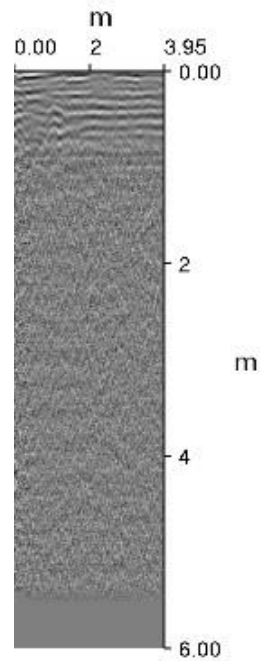
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



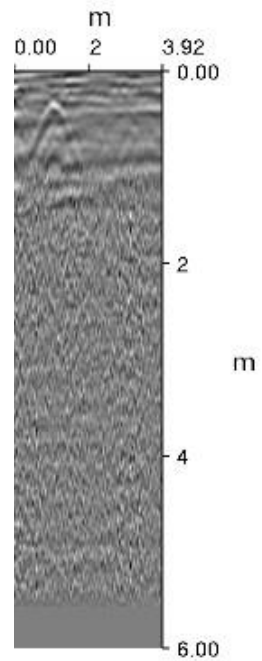
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



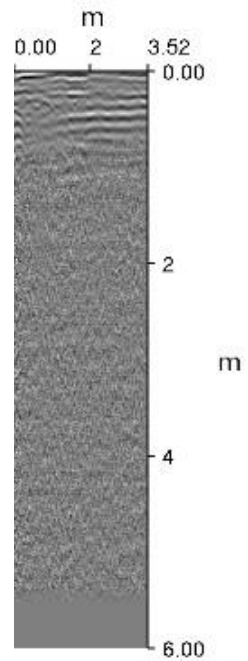
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



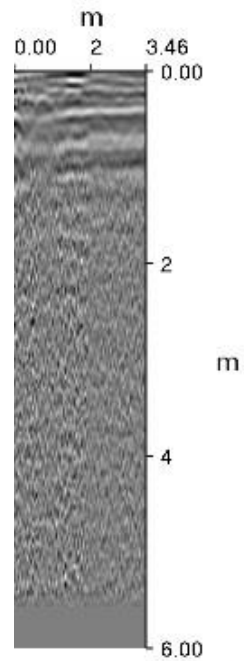
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



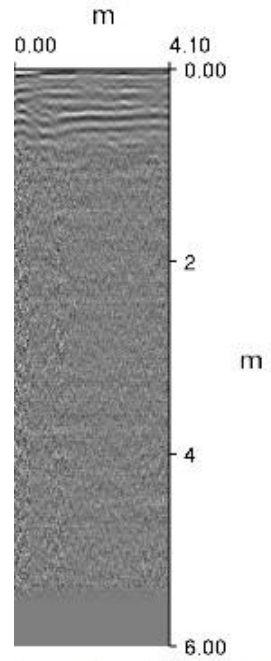
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



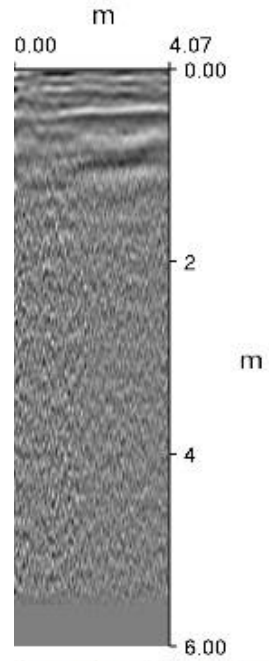
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



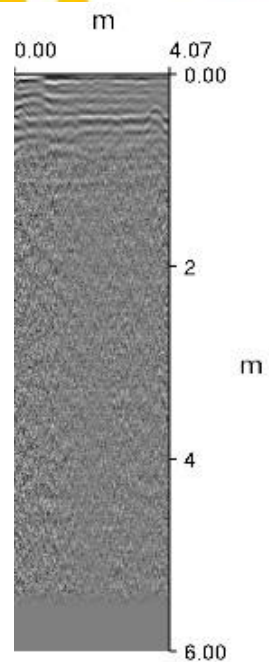
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v: propagation velocity of marker



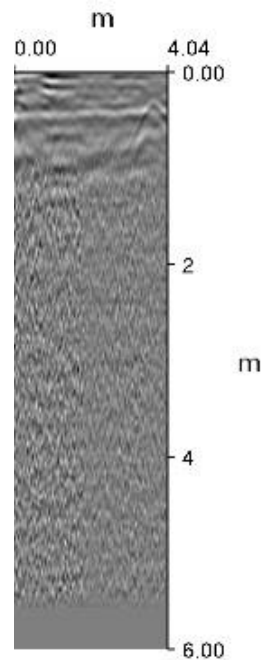
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



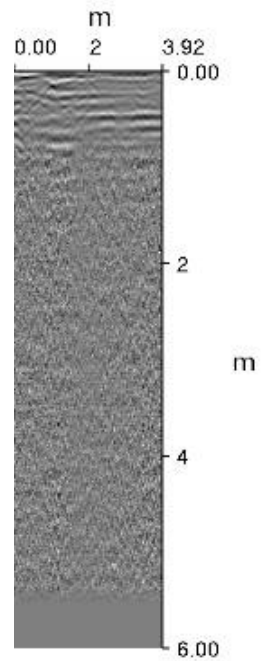
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v: propagation velocity of marker



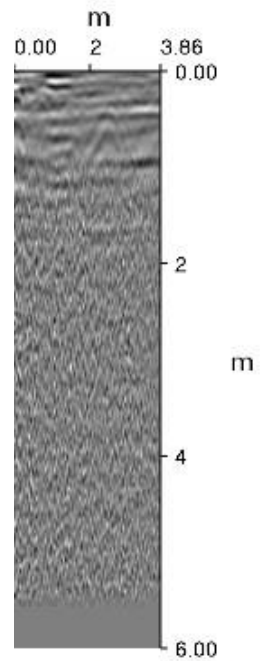
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v: propagation velocity of marker



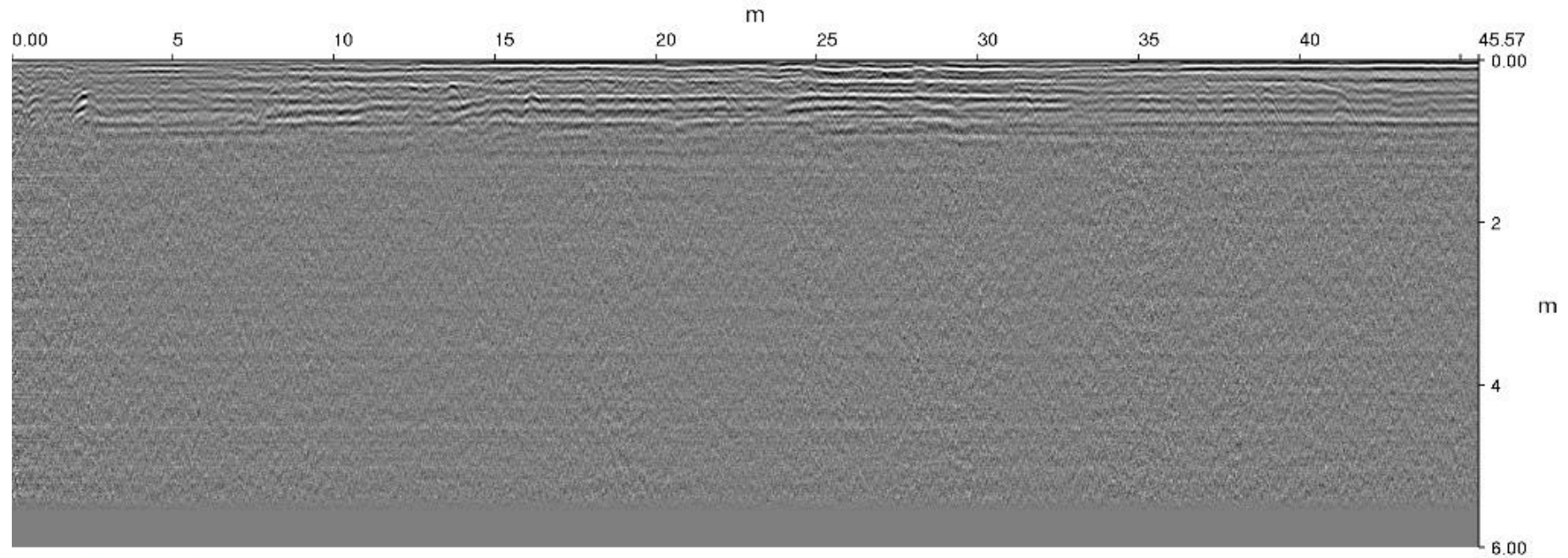
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



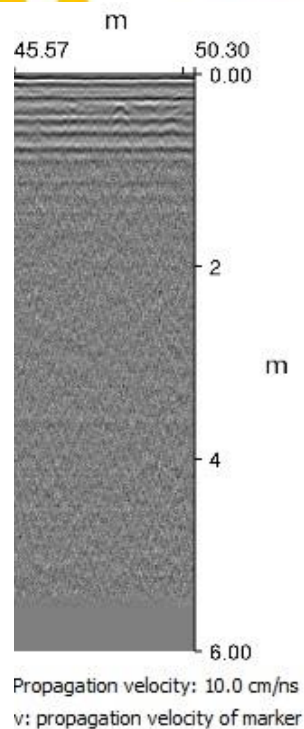
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v: propagation velocity of marker

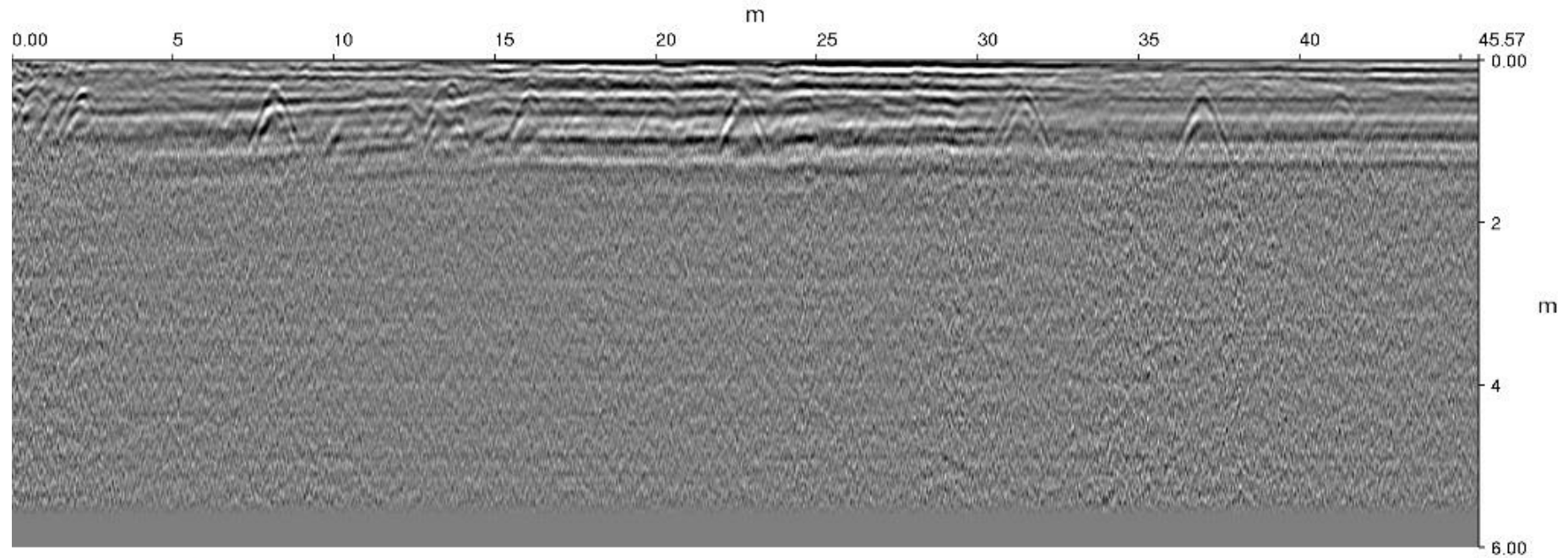


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

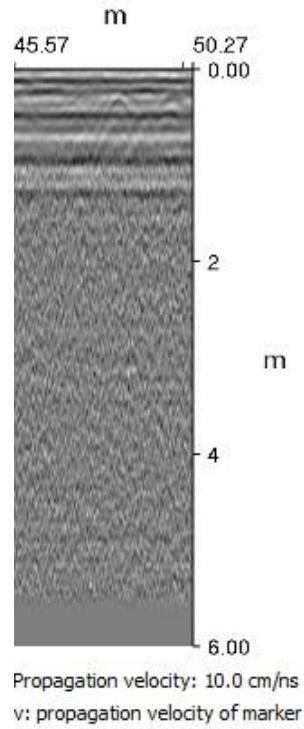


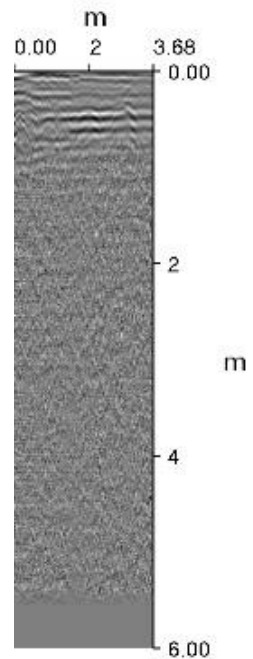
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



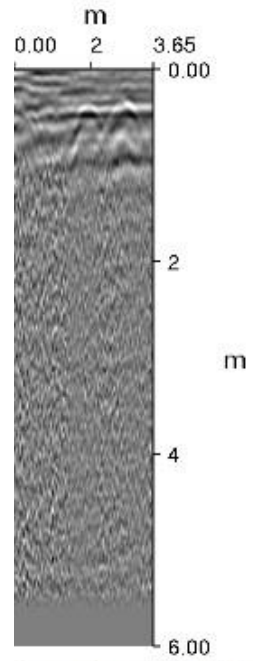


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

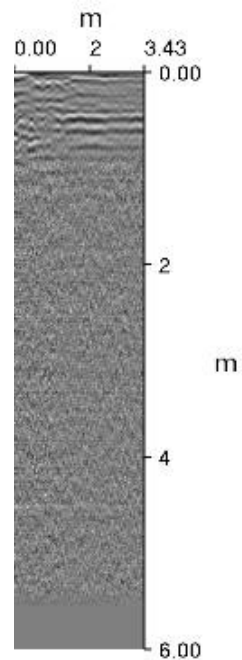




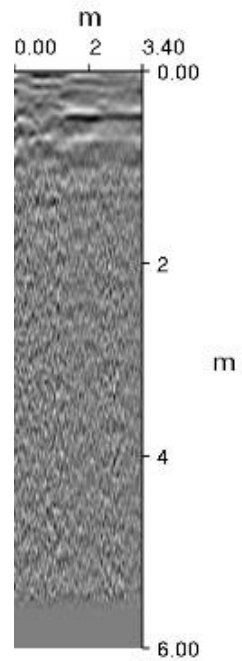
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



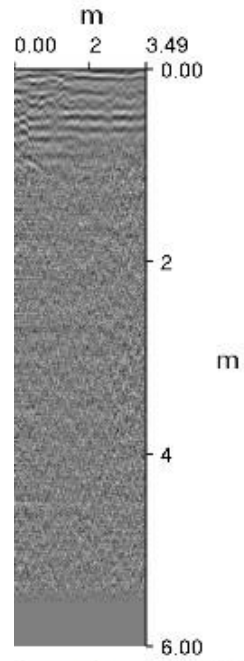
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



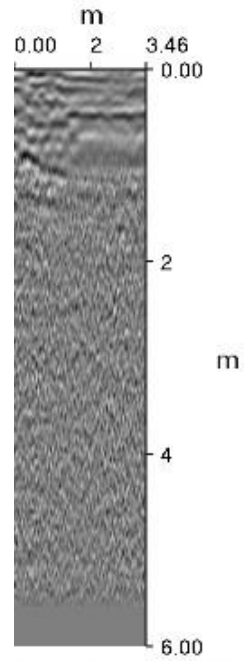
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



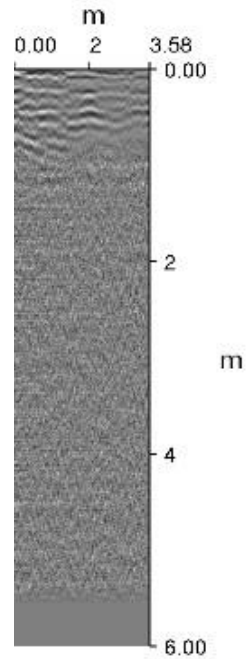
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



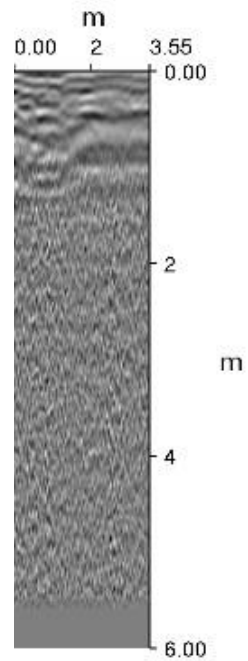
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



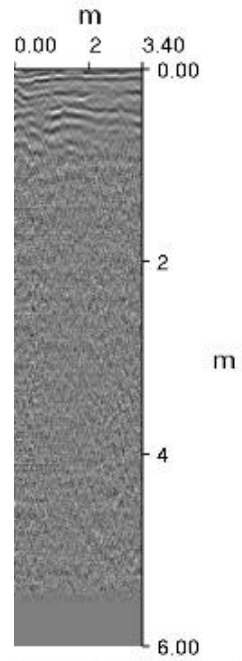
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



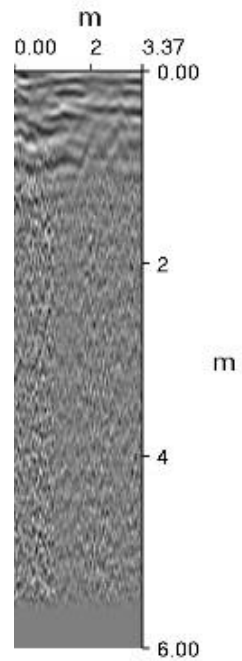
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



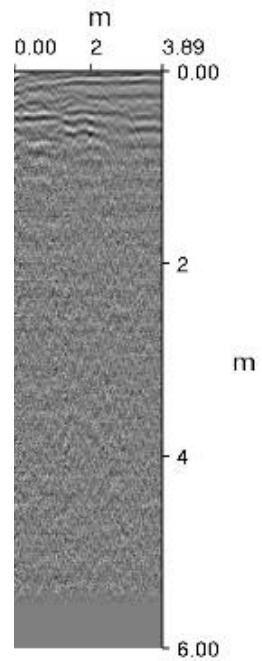
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



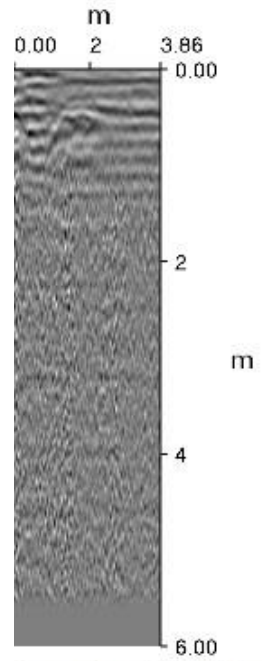
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



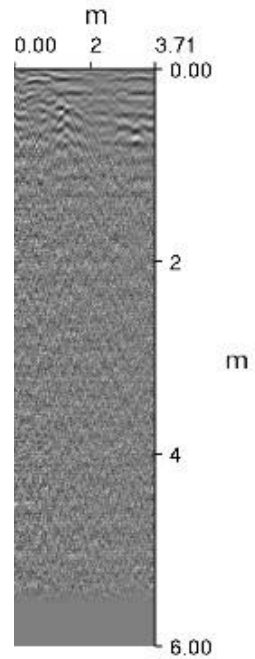
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



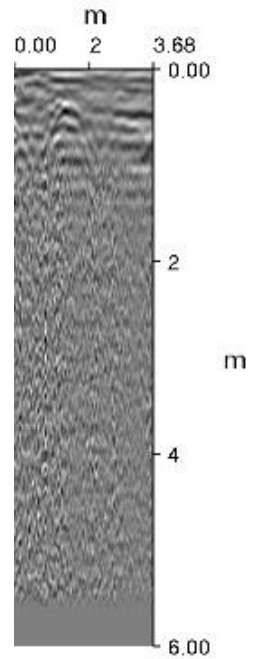
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



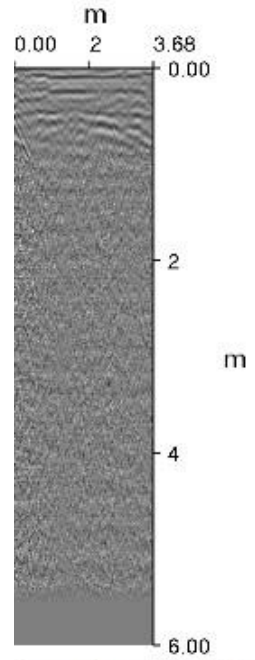
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



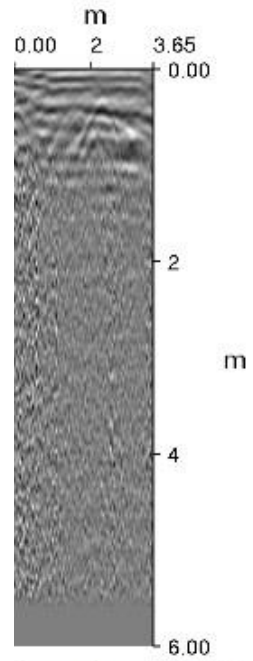
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



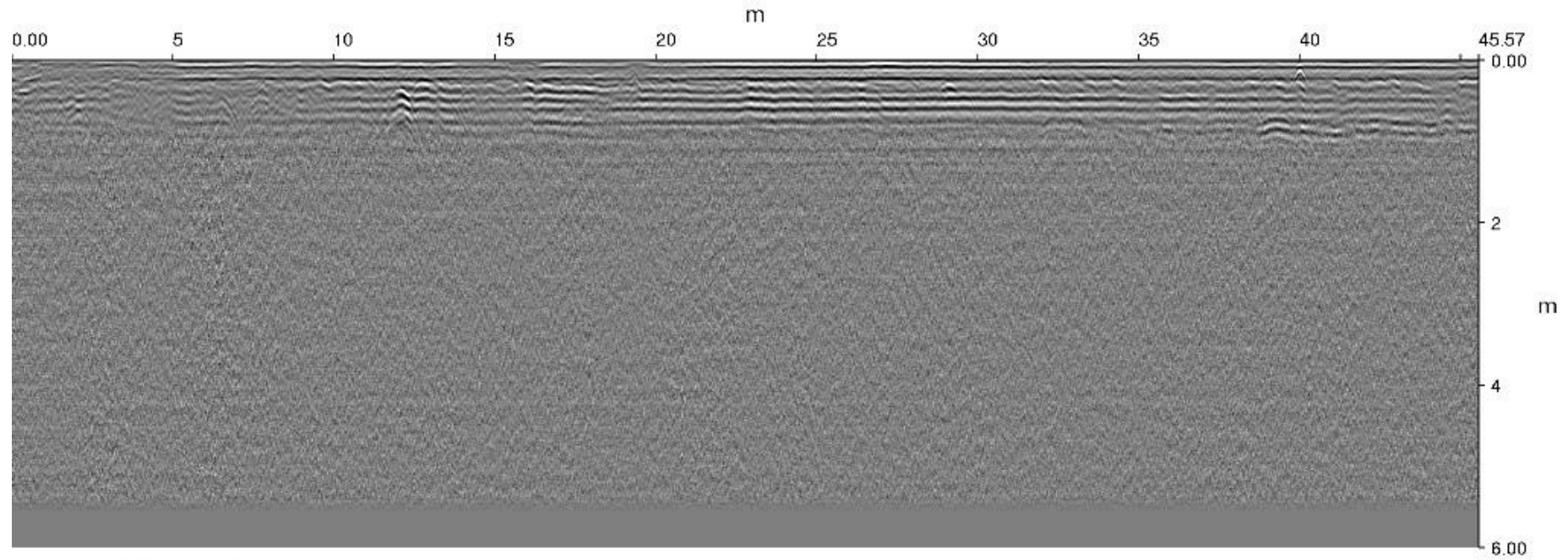
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



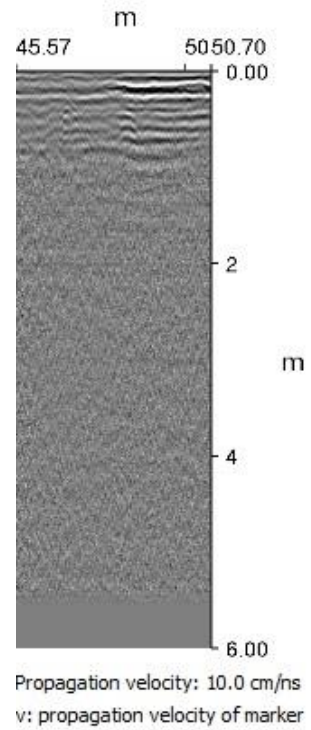
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v: propagation velocity of marker

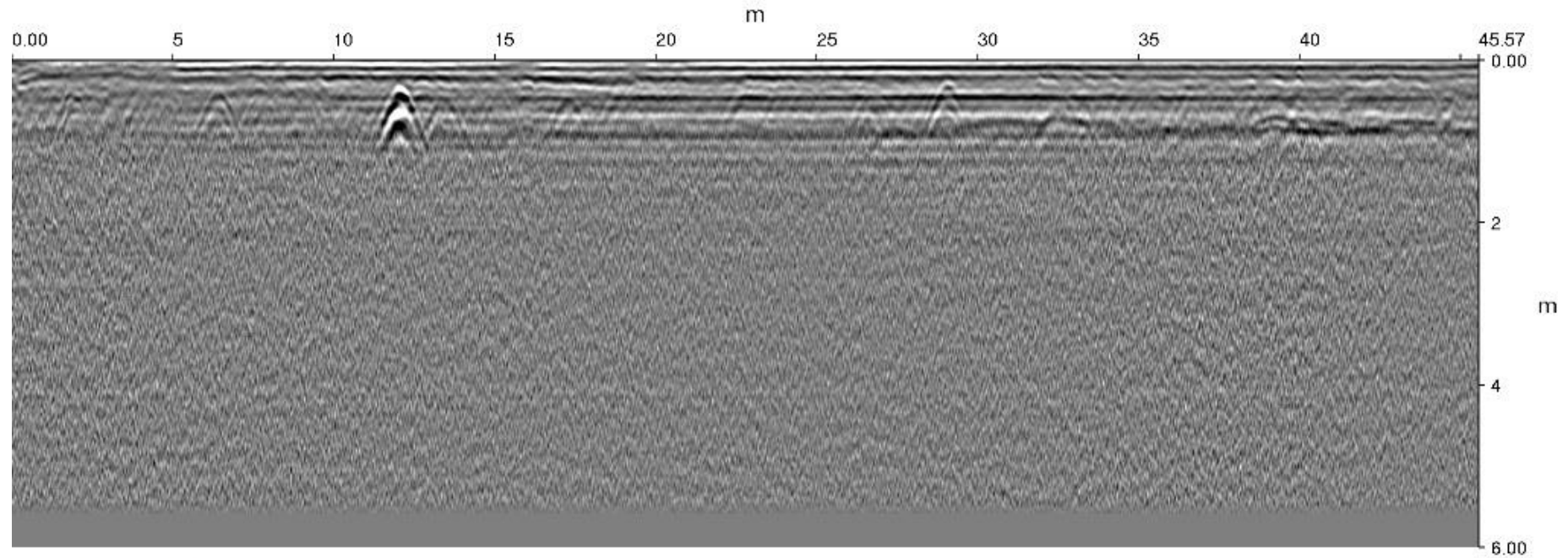


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

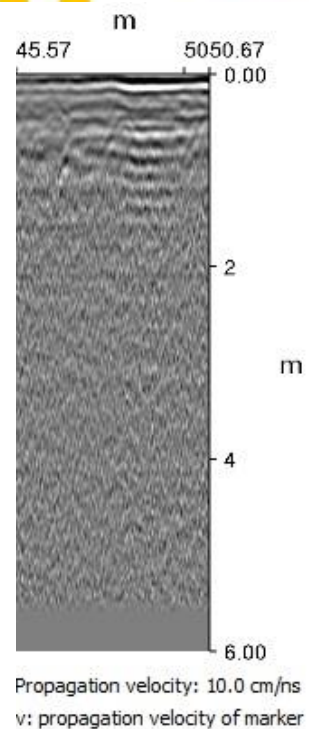


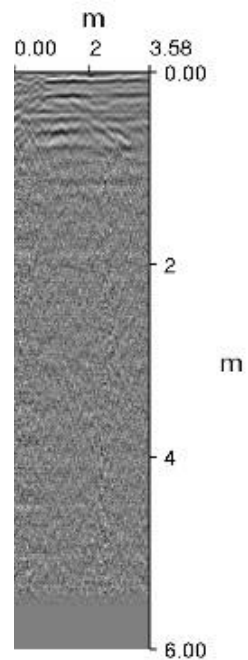
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v: propagation velocity of marker



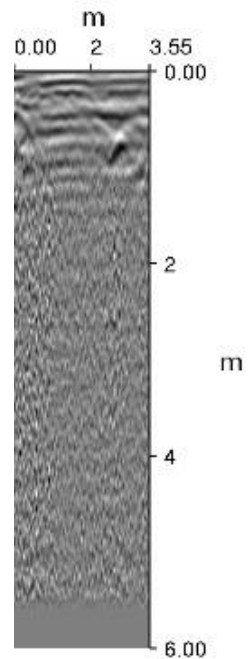


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

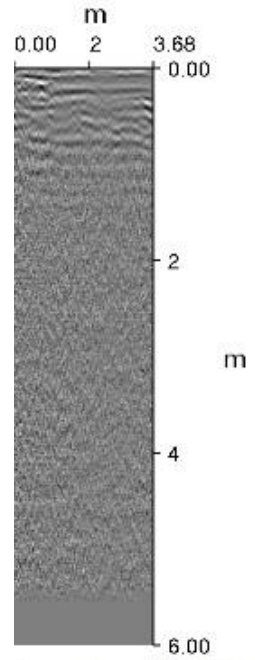




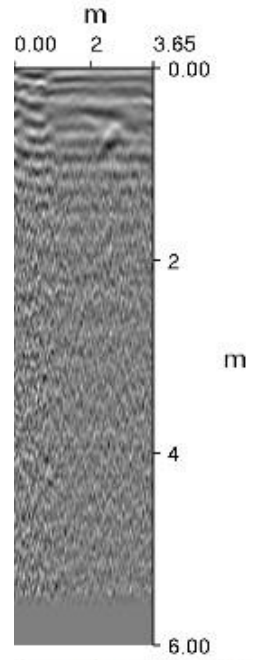
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v: propagation velocity of marker



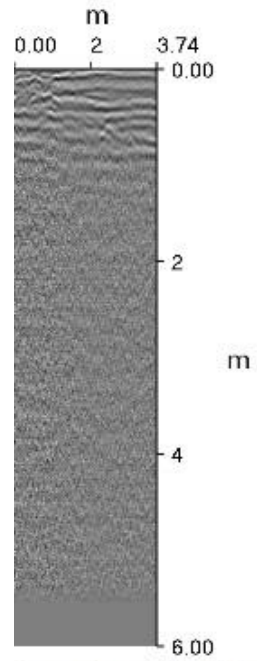
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v: propagation velocity of marker



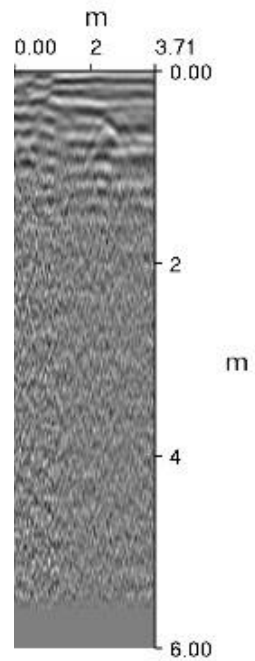
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v: propagation velocity of marker



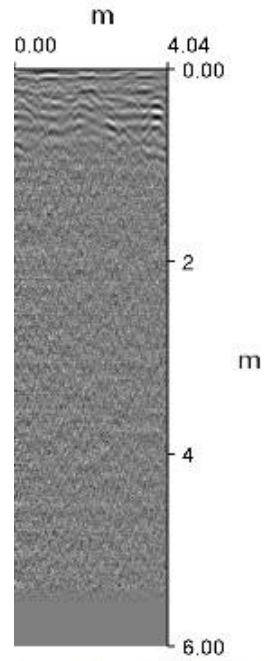
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v: propagation velocity of marker



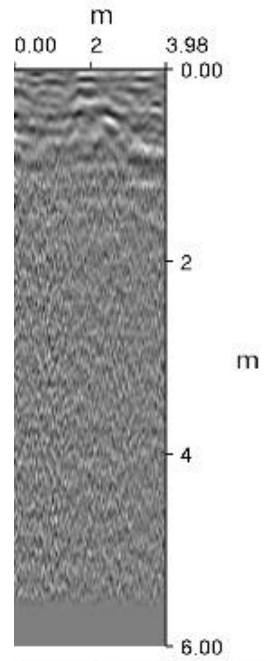
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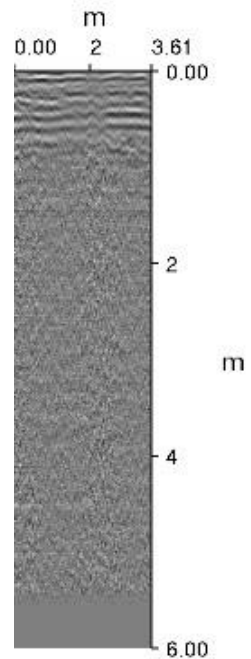
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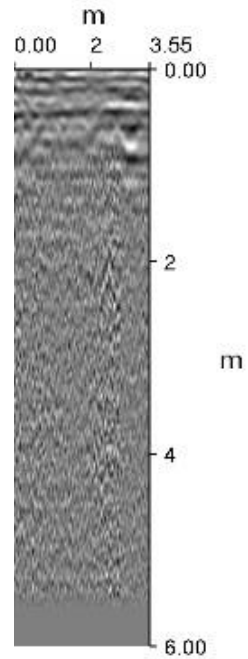
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v: propagation velocity of marker



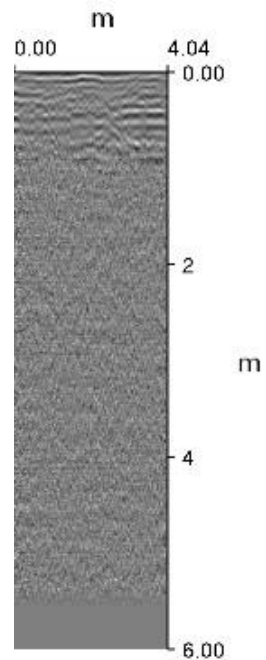
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v: propagation velocity of marker



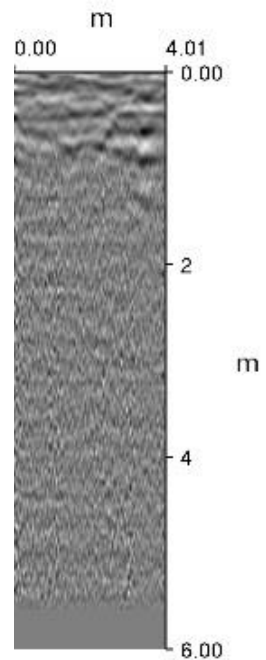
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



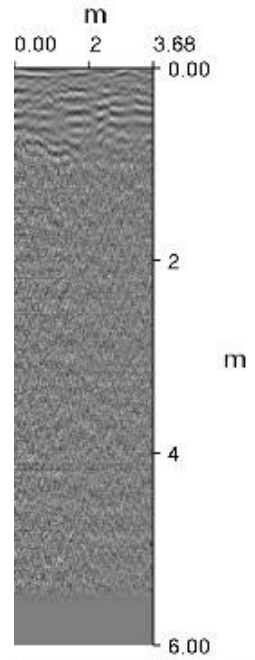
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



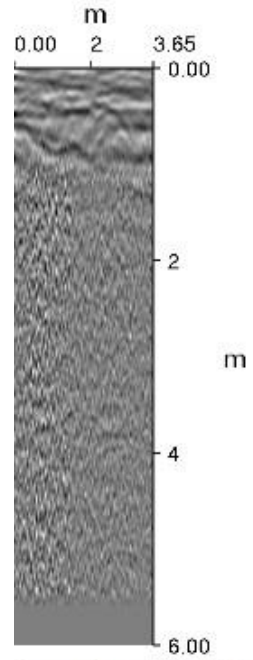
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



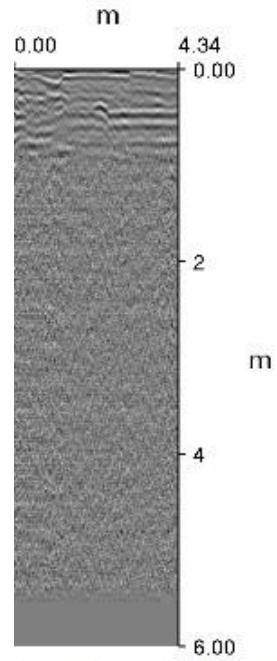
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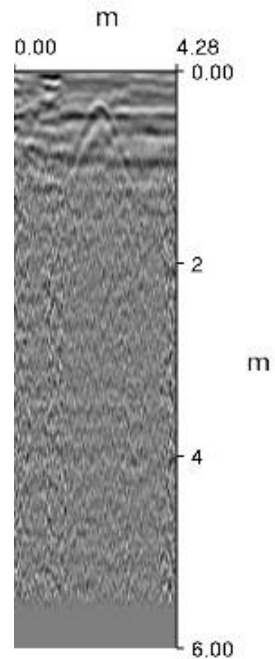
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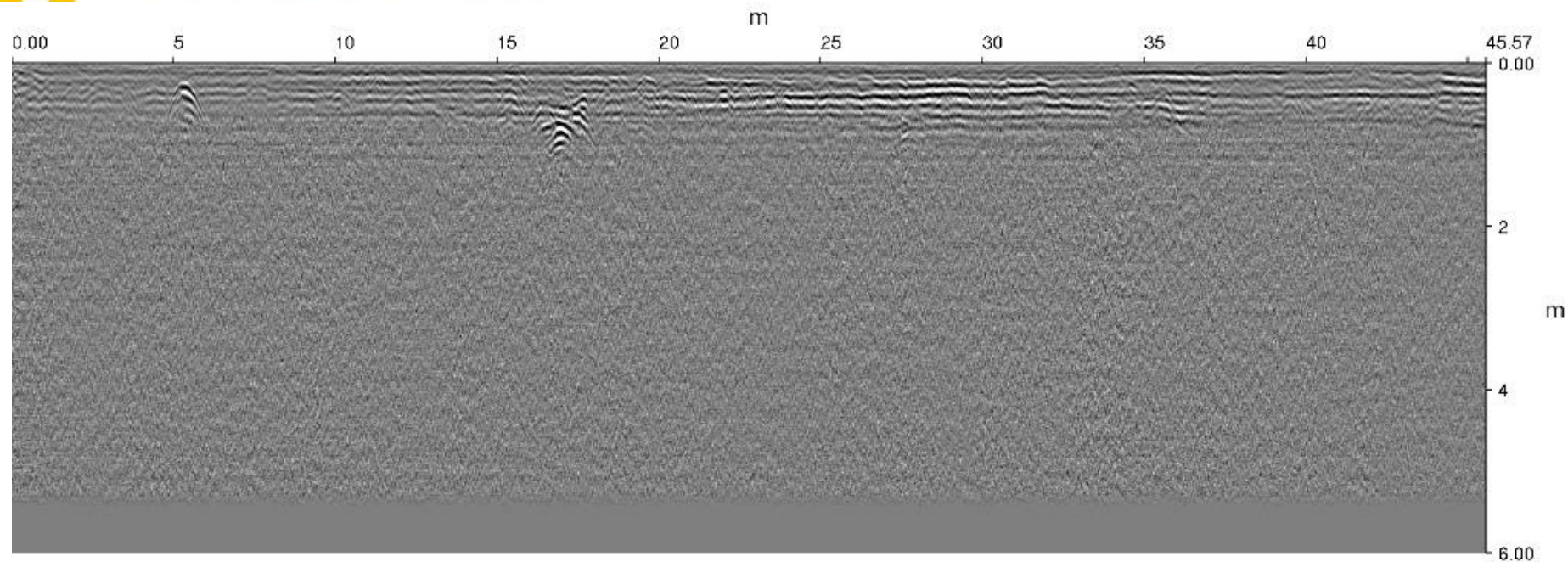
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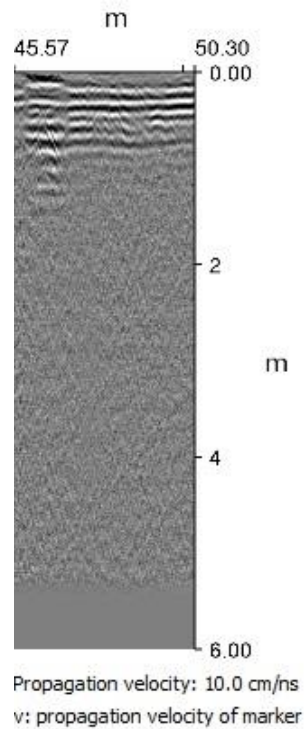
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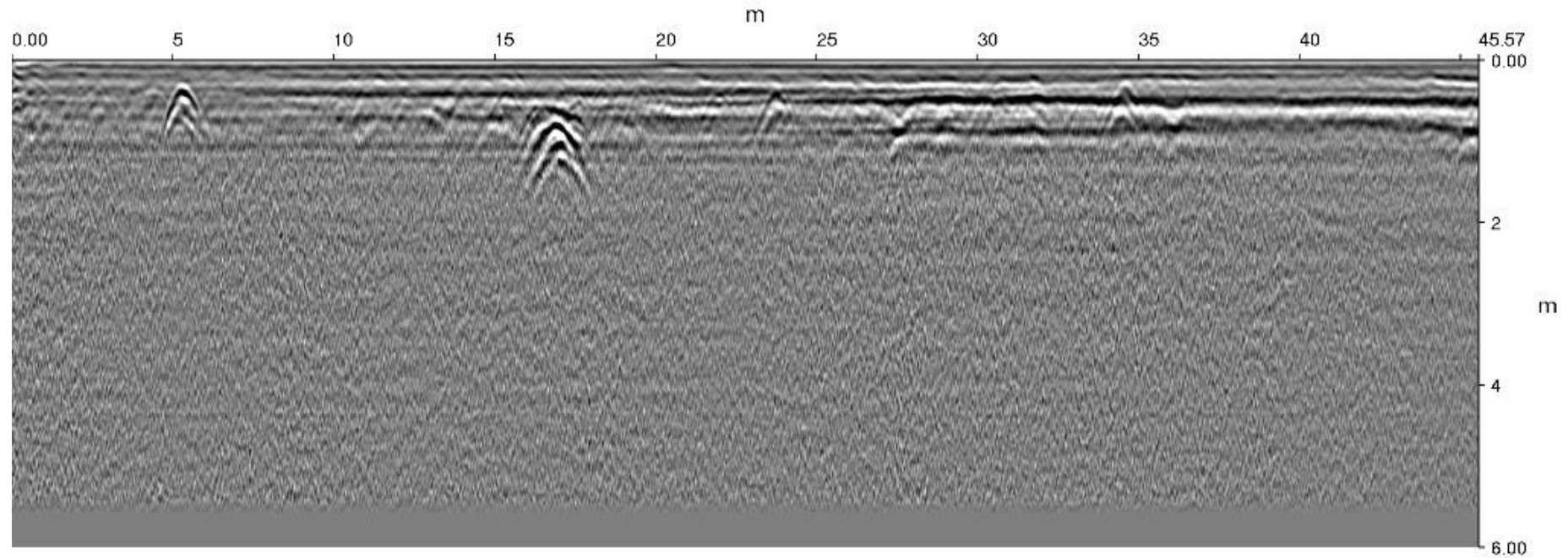


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

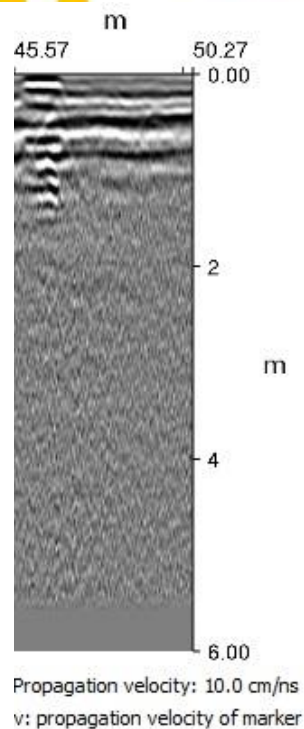


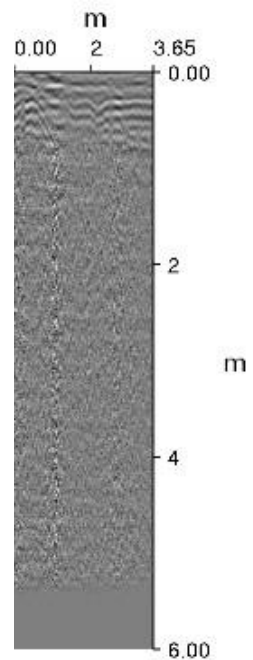
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v: propagation velocity of marker



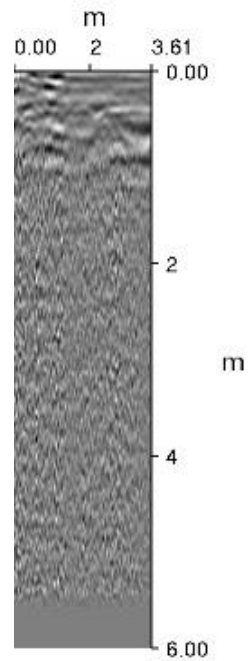


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

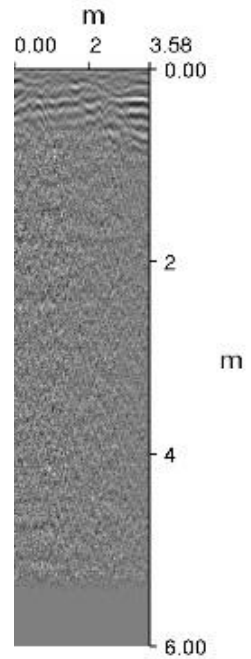




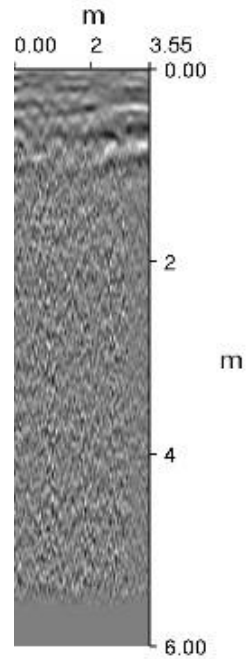
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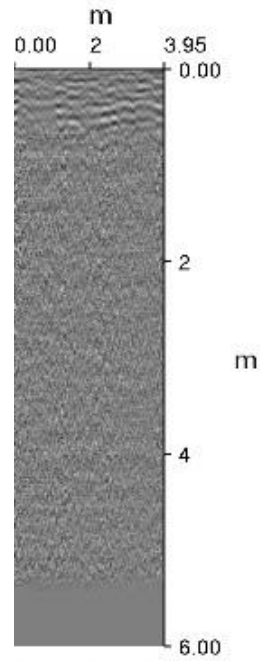
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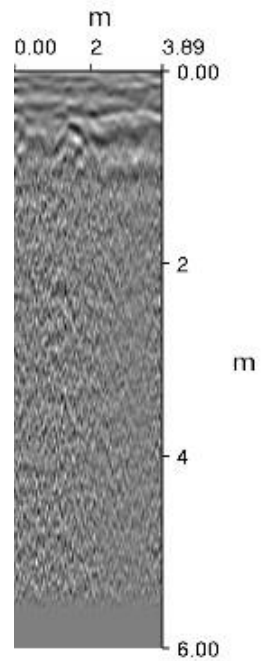
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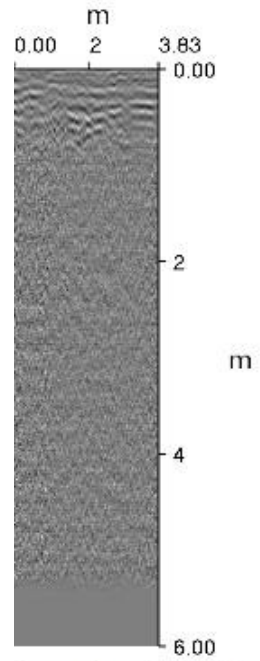
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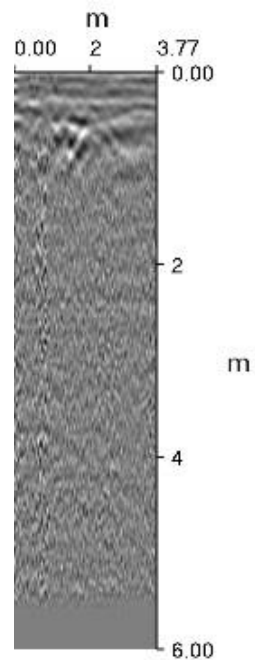
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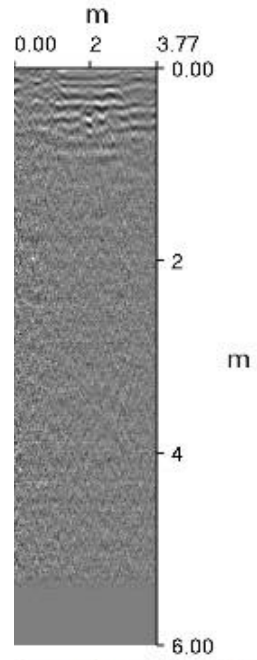
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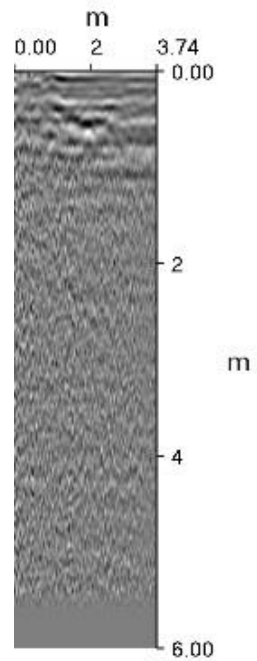
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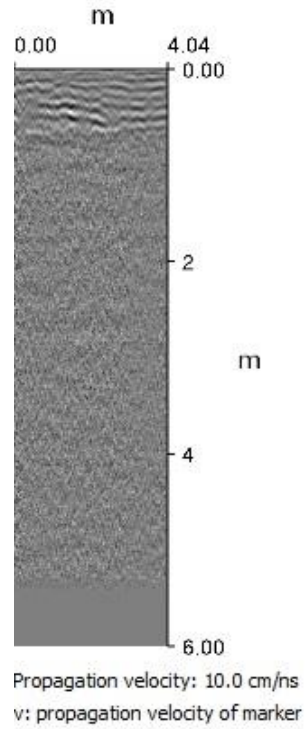
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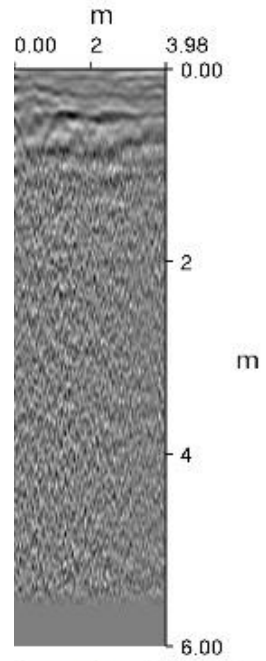


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

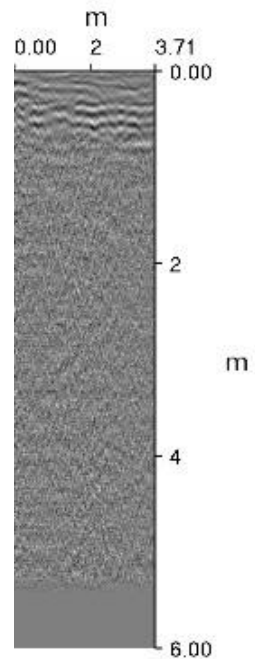


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

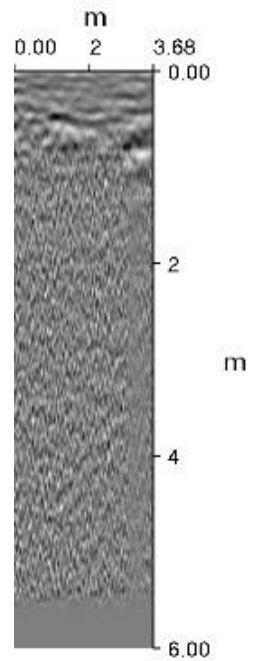




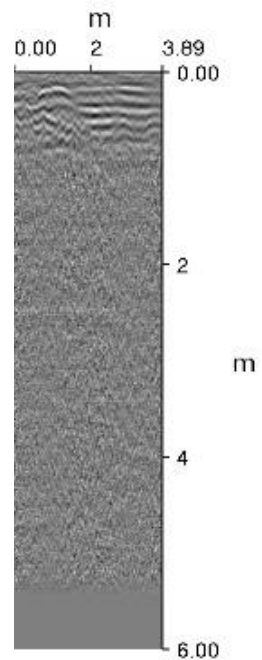
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v: propagation velocity of marker



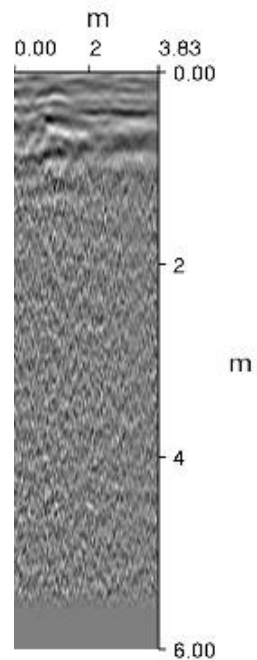
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v: propagation velocity of marker



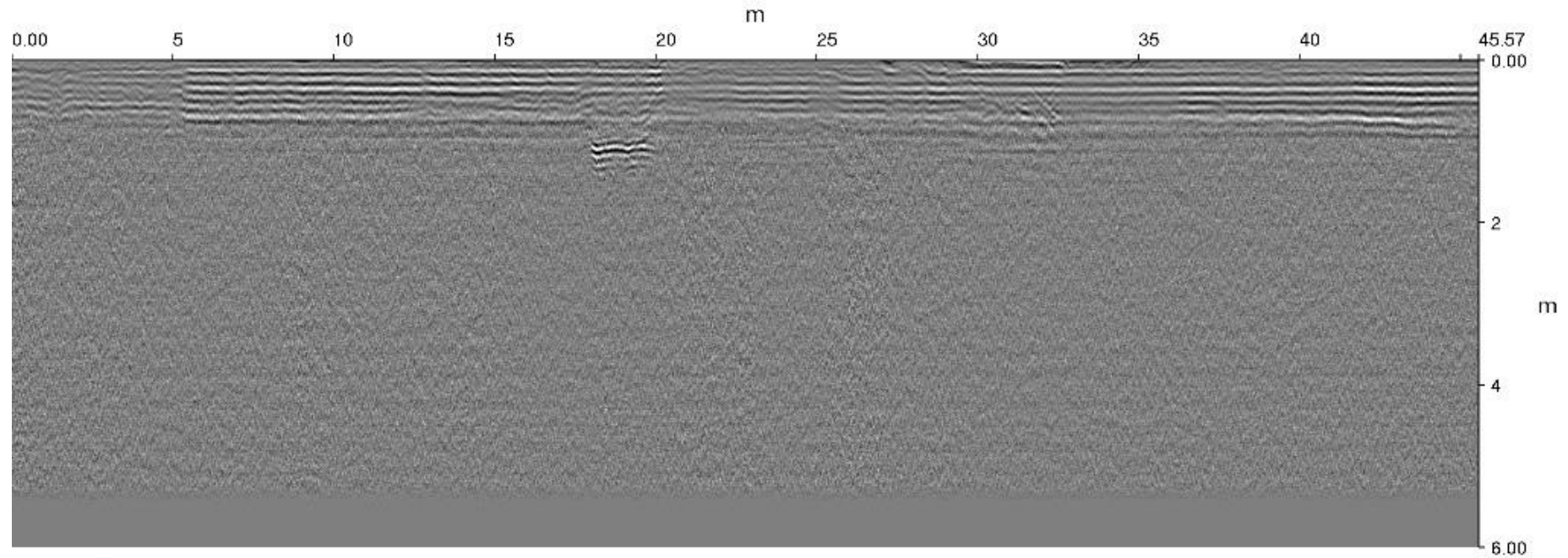
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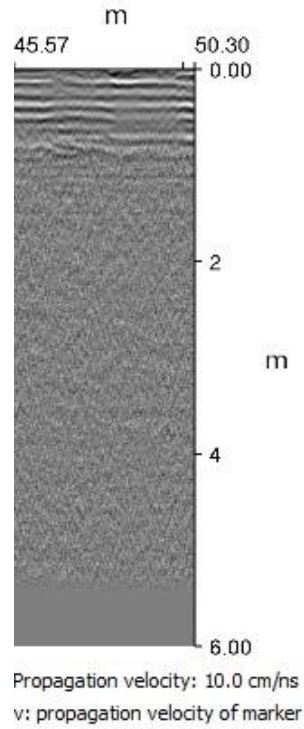
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v: propagation velocity of marker

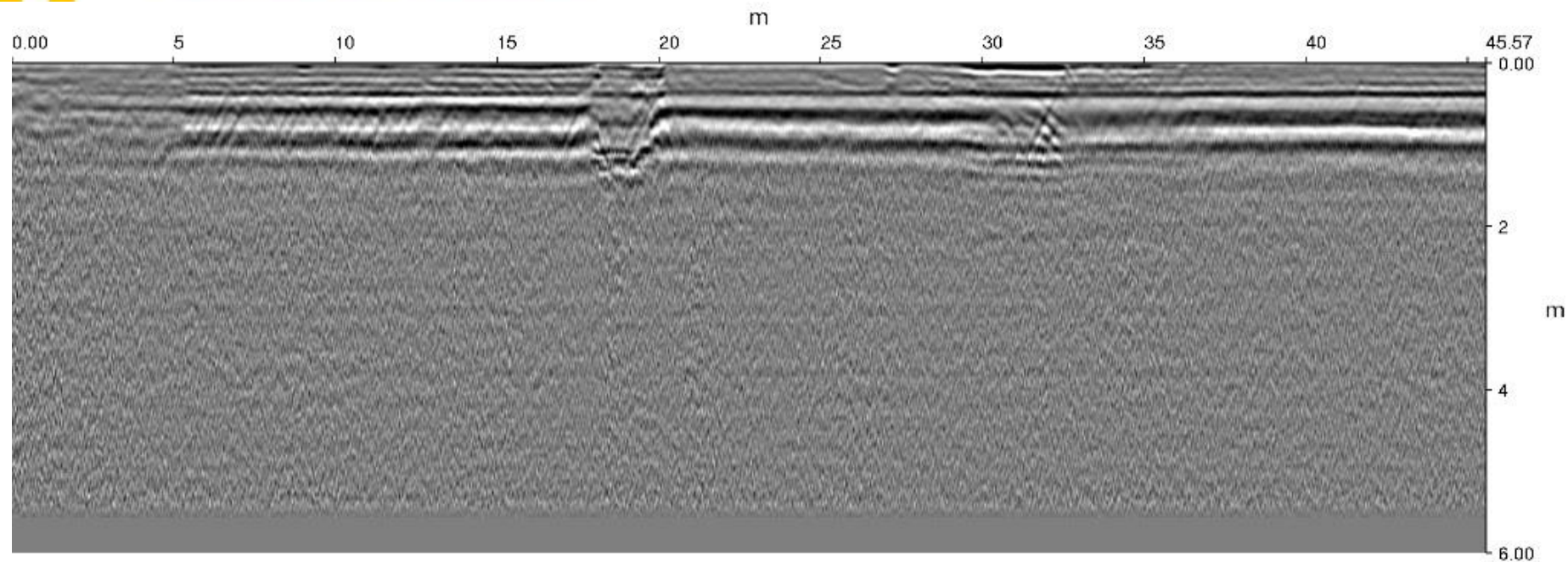


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

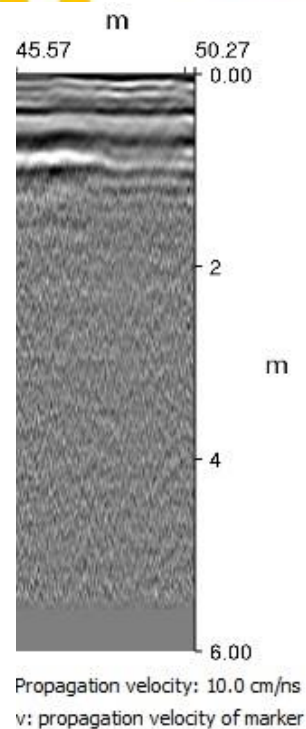


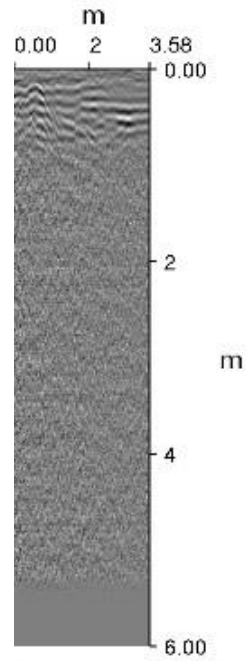
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v: propagation velocity of marker



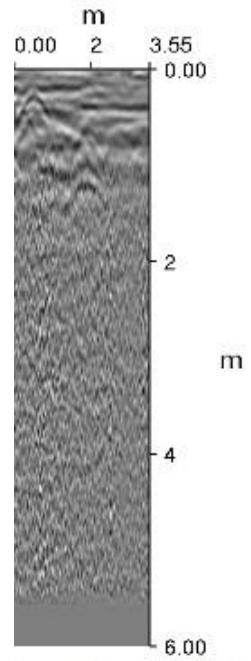


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

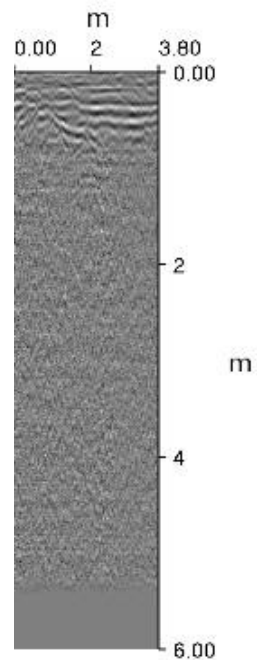




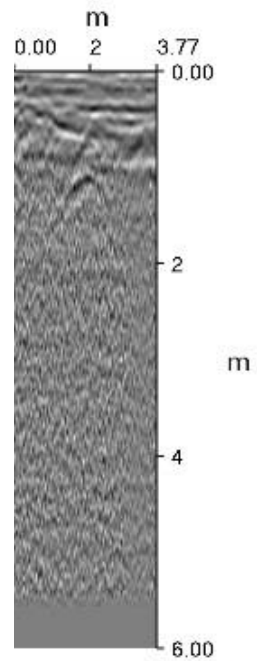
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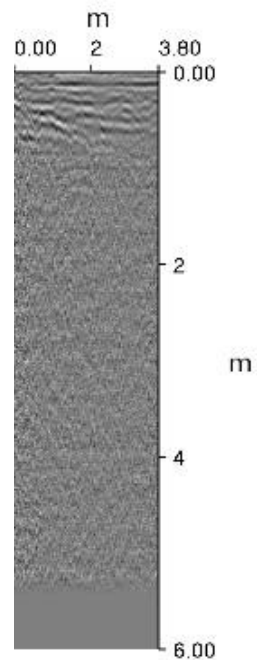
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



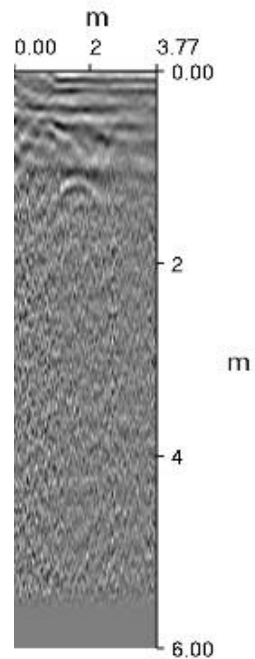
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



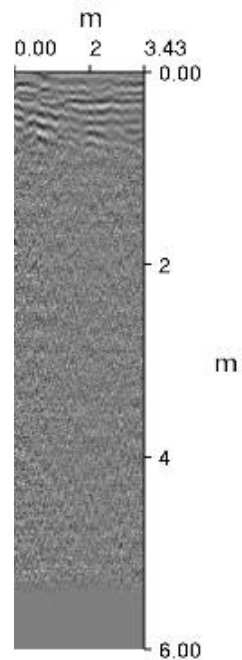
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



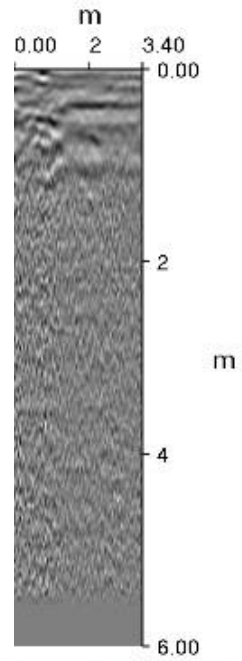
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



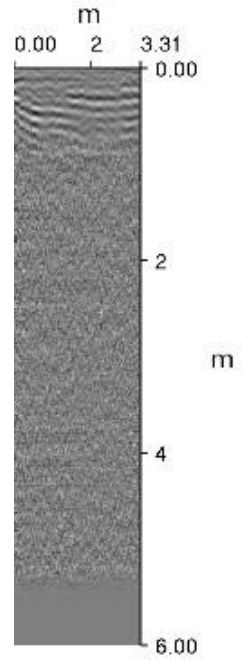
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



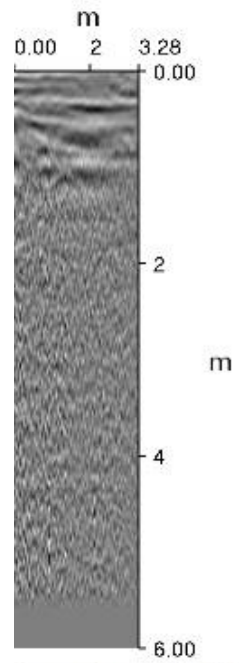
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v: propagation velocity of marker



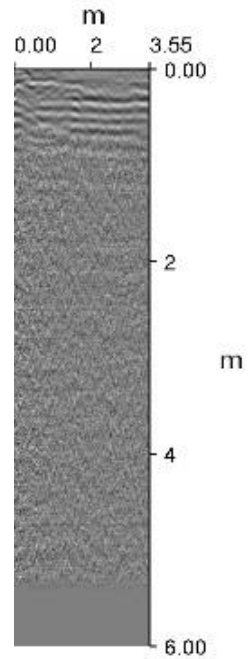
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



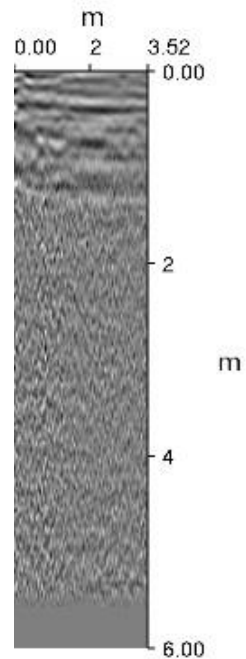
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



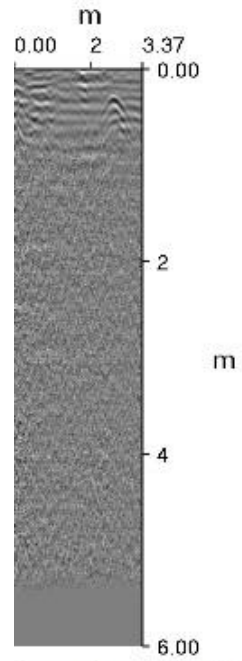
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



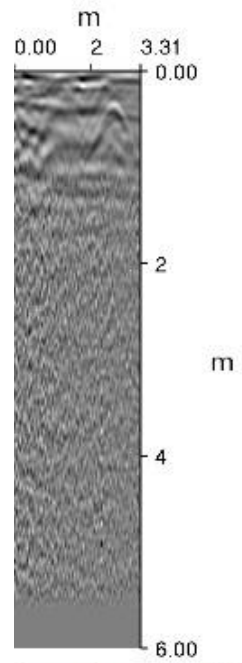
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



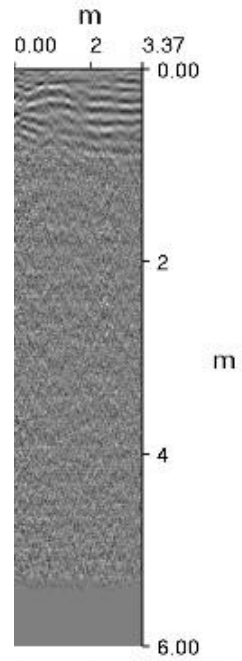
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



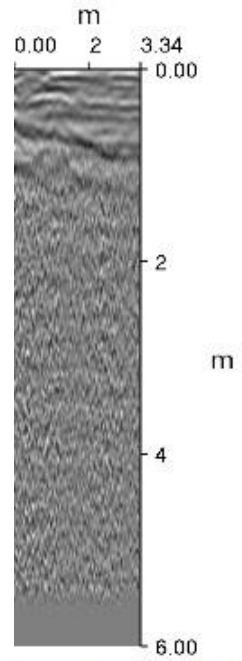
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



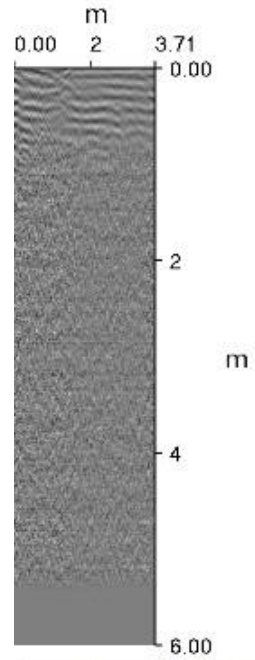
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



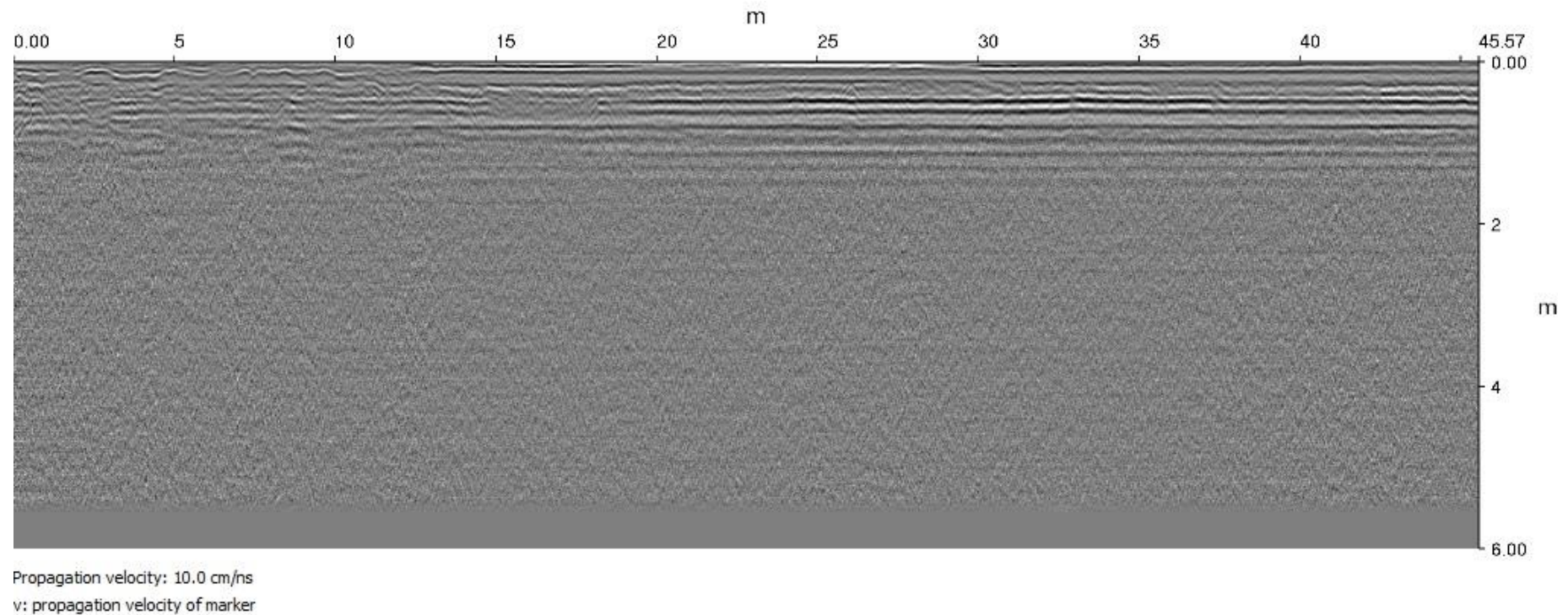
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

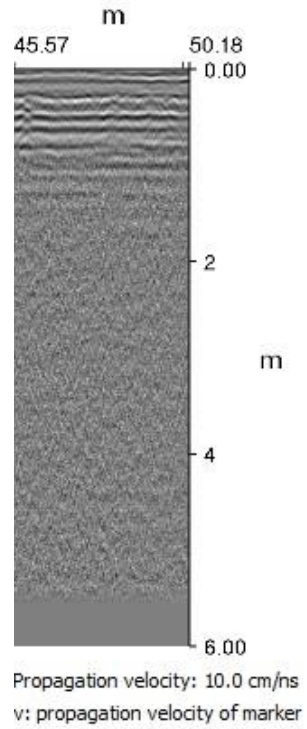


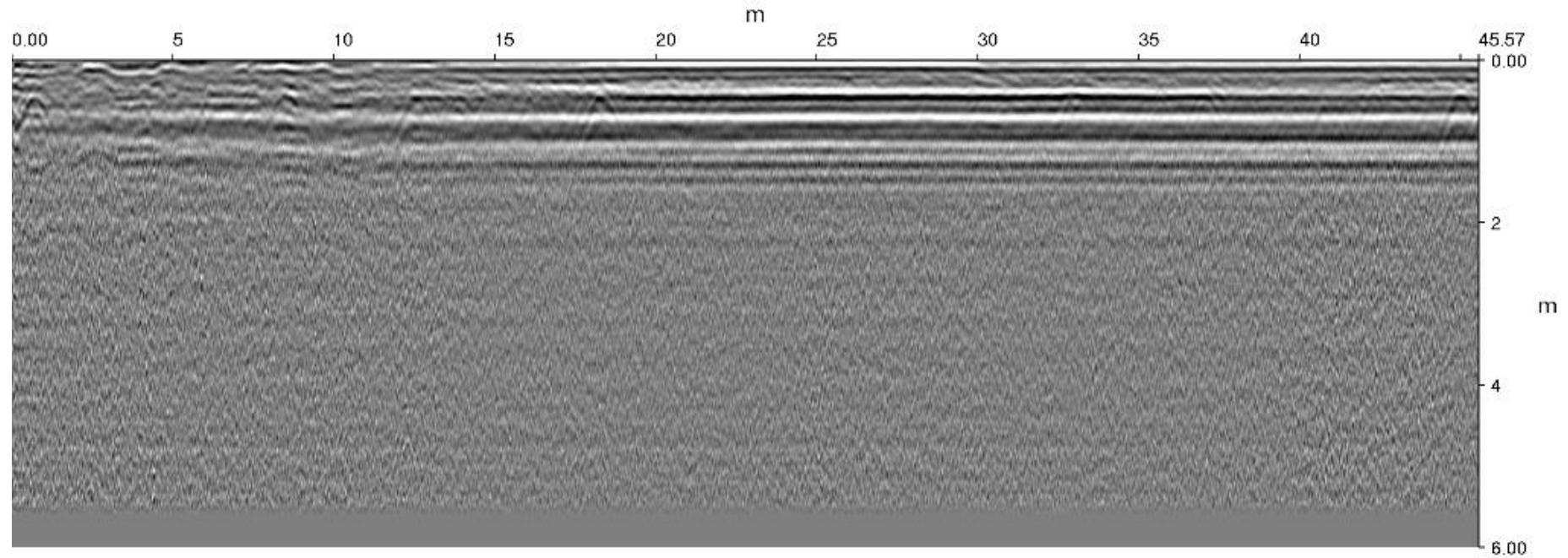
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

E

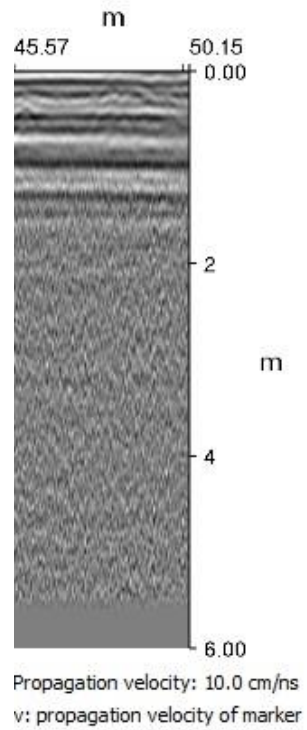
ESTACA 26 A 50 - RODOVIA JOSÉ SPILLERE / RUA ANTÔNIO REMO

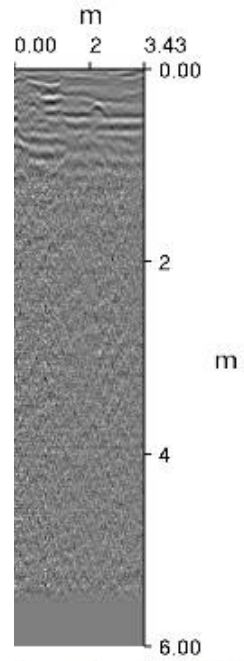




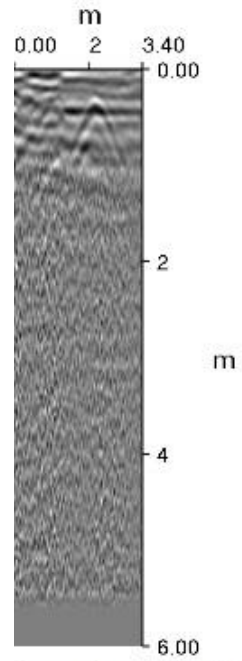


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

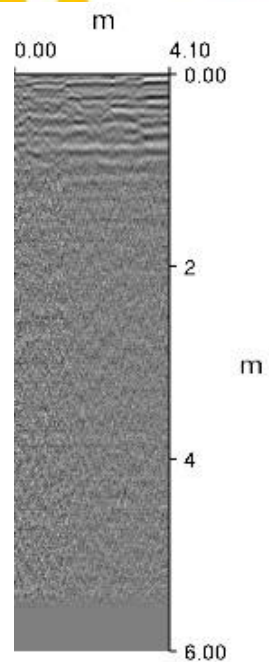




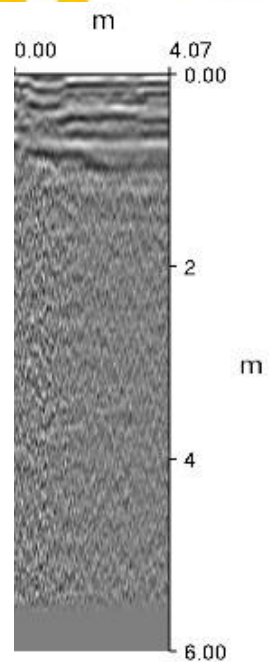
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



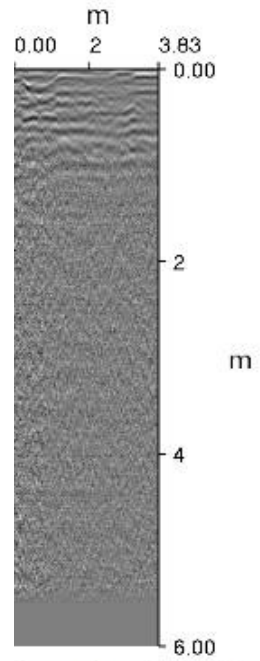
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v: propagation velocity of marker



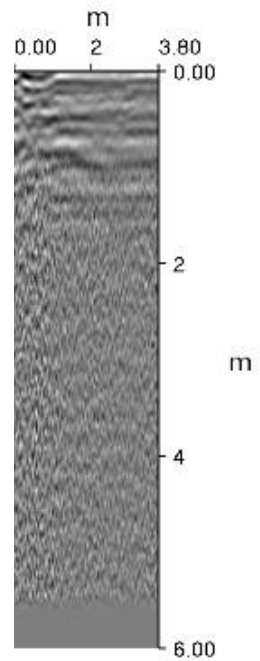
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



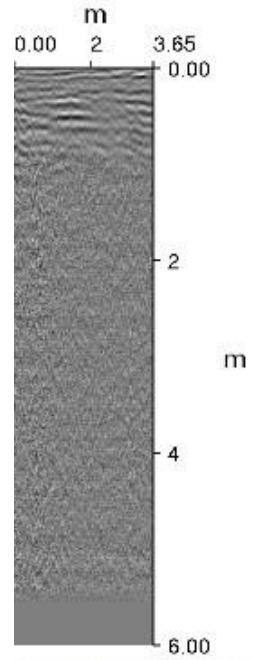
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



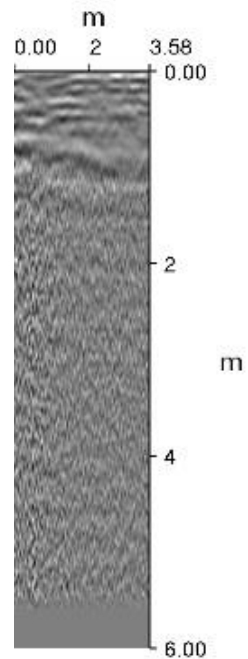
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



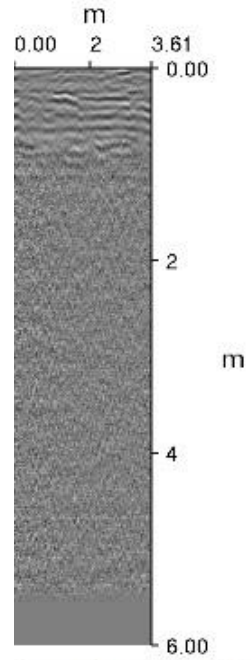
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



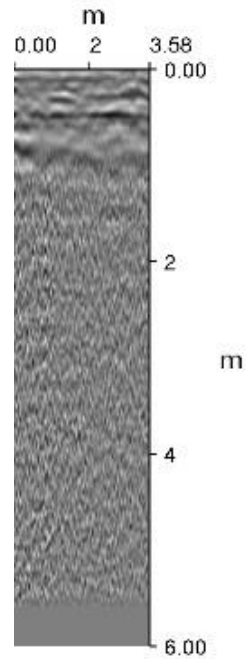
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



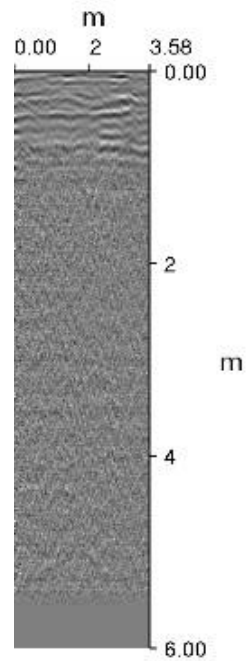
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



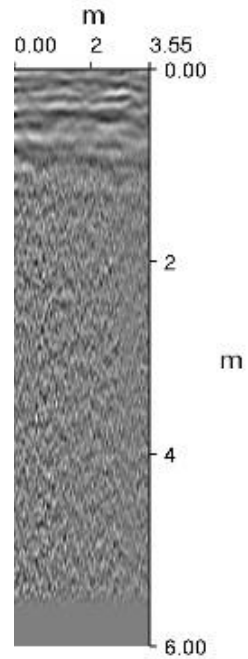
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



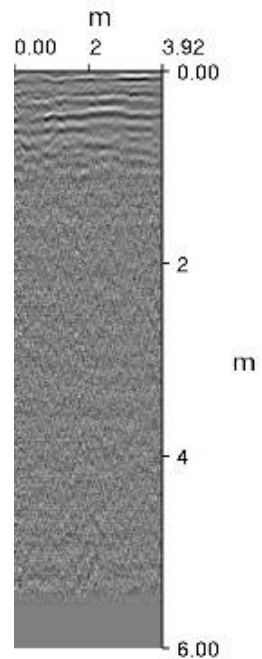
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



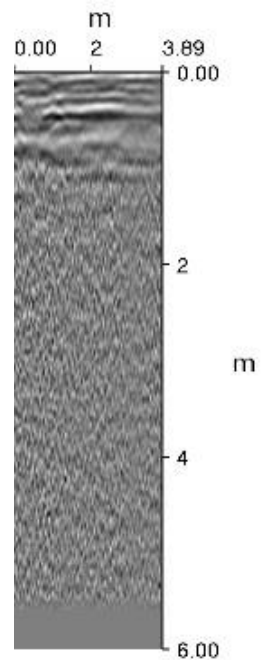
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



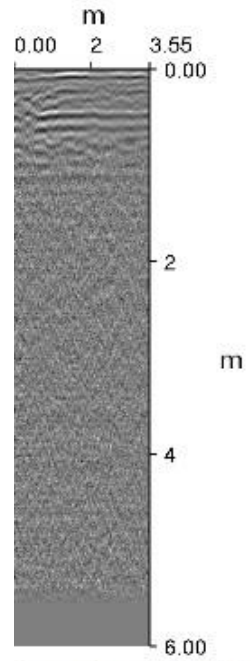
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



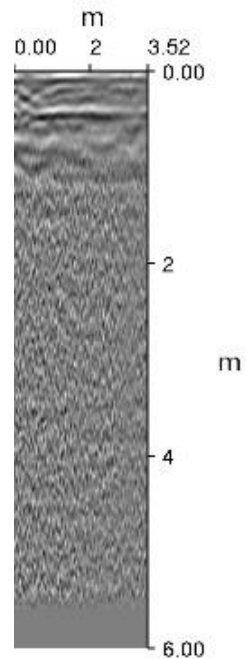
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v: propagation velocity of marker



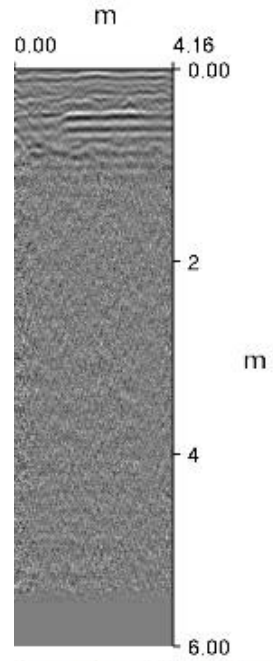
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v: propagation velocity of marker



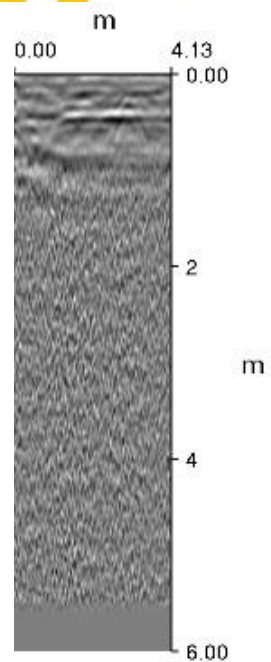
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



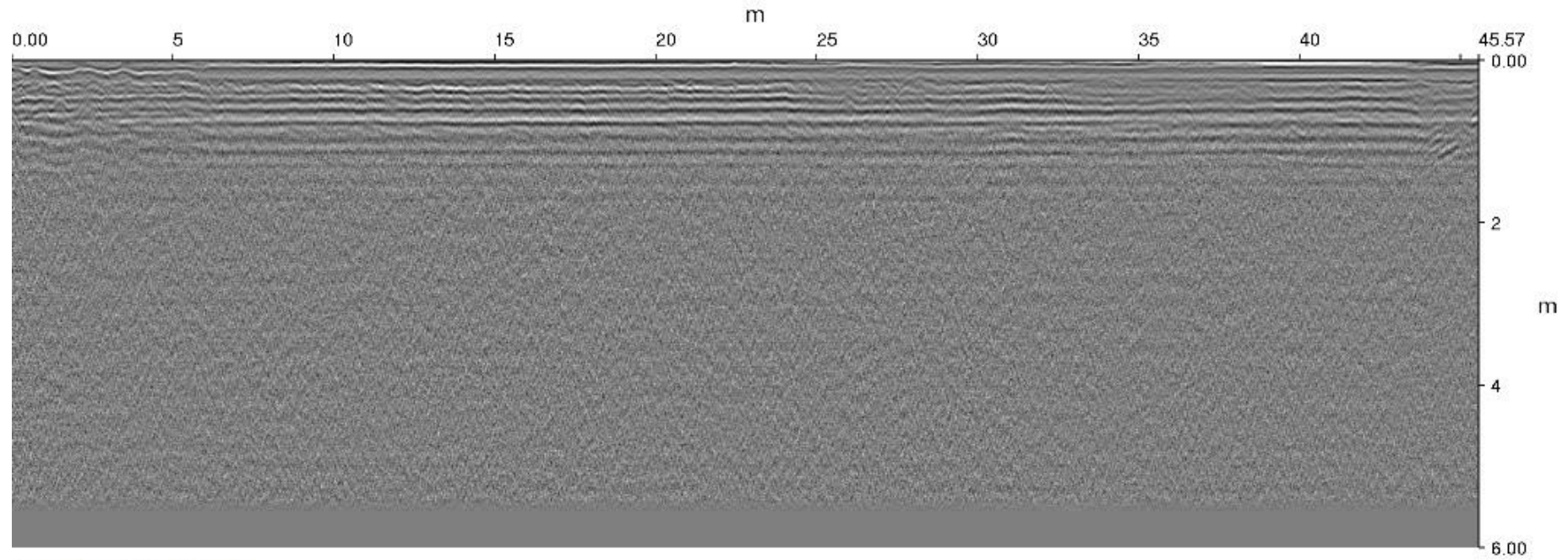
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v: propagation velocity of marker



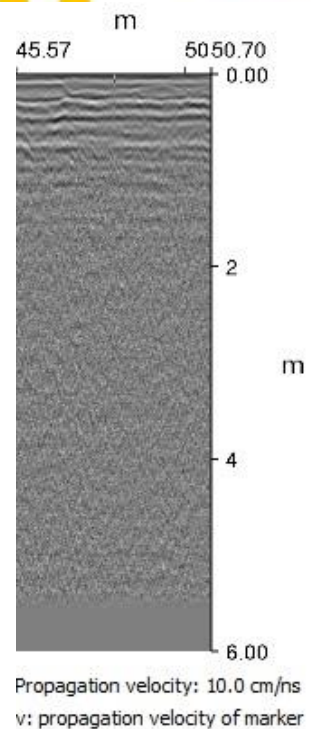
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v: propagation velocity of marker

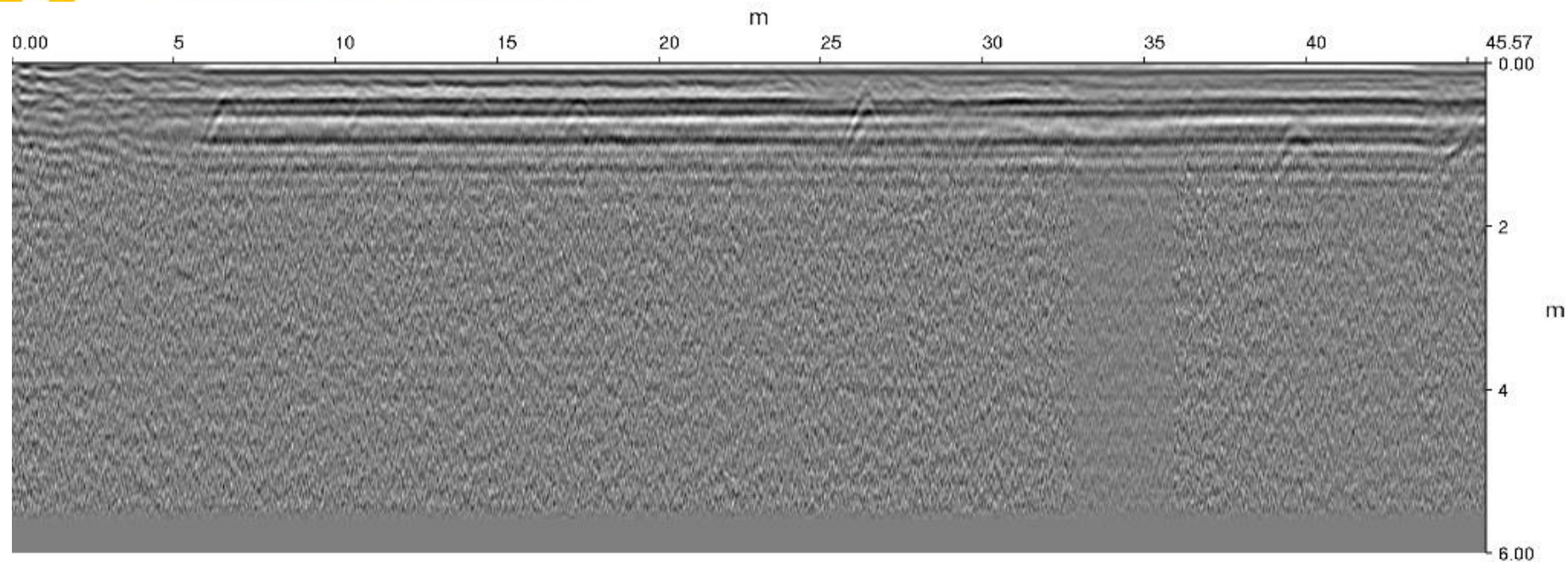


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

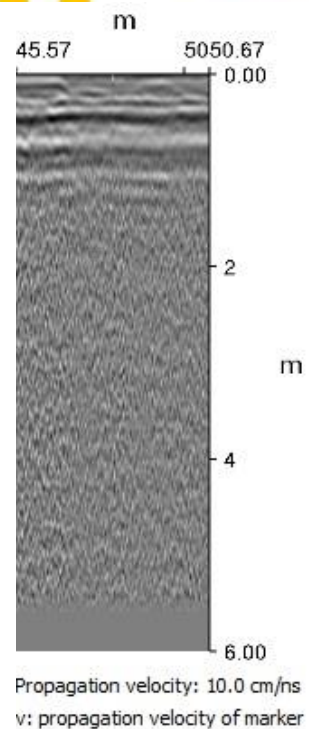


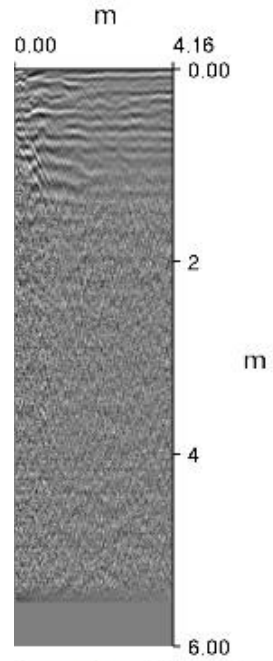
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



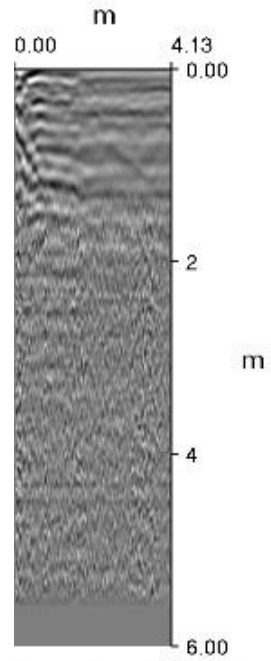


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

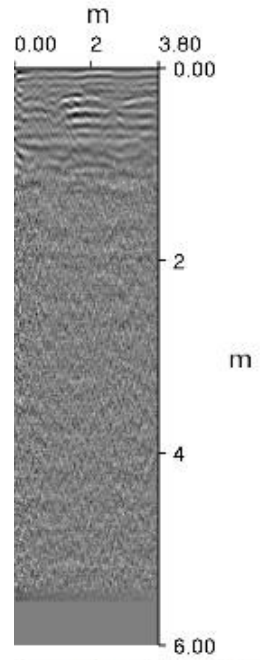




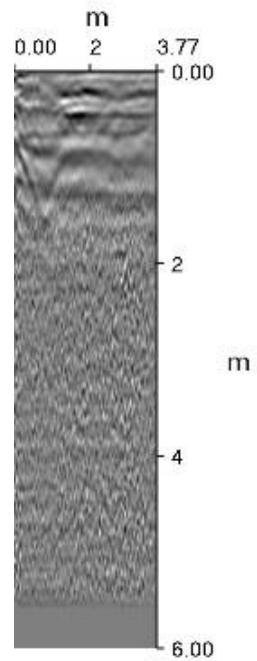
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



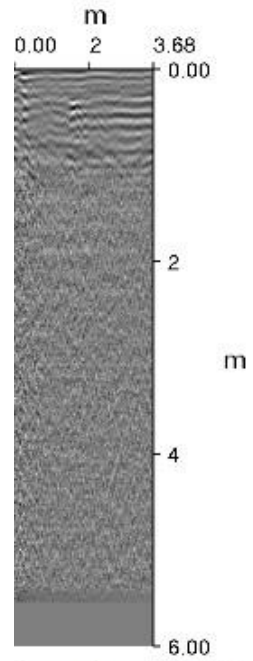
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v: propagation velocity of marker



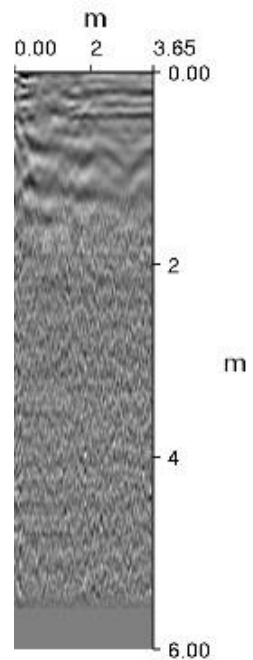
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



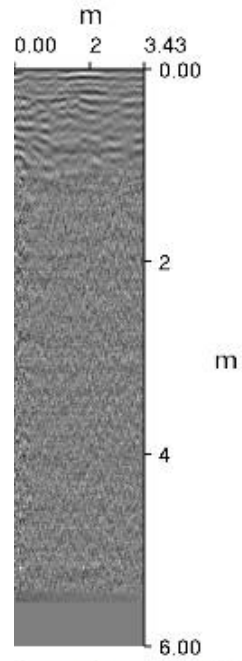
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



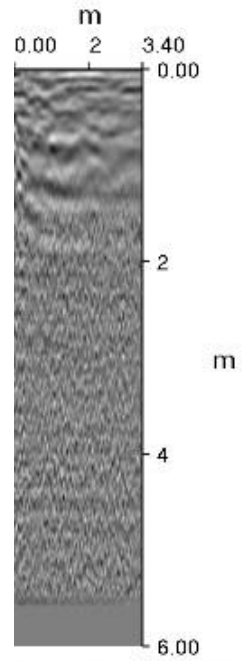
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



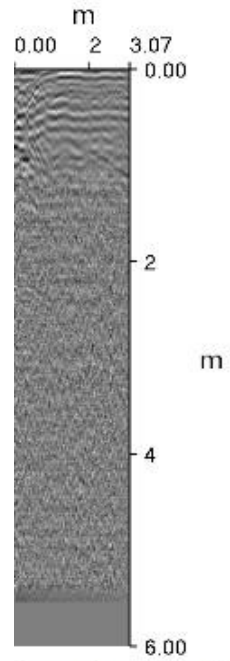
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



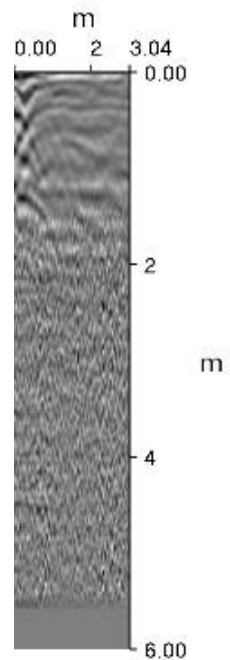
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



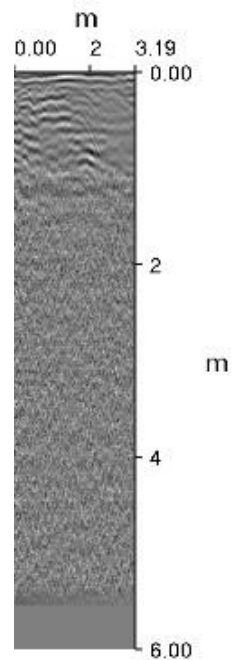
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



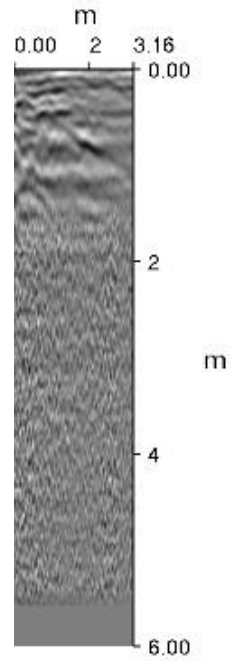
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



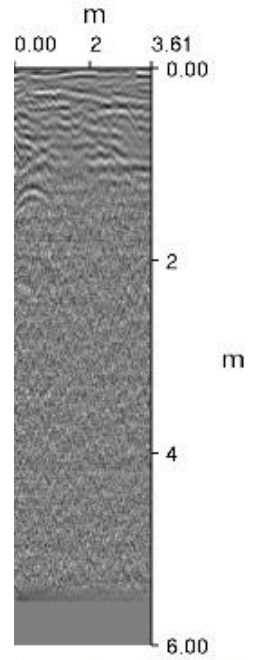
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



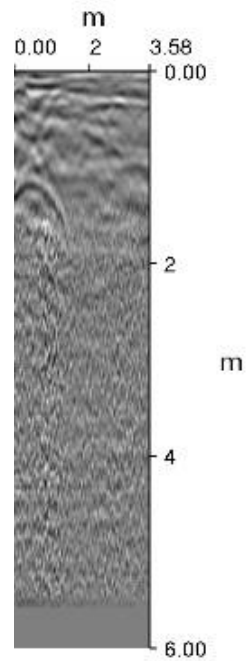
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



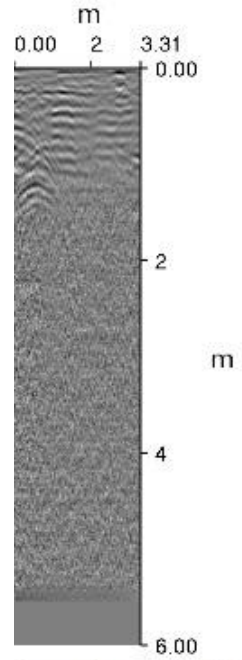
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



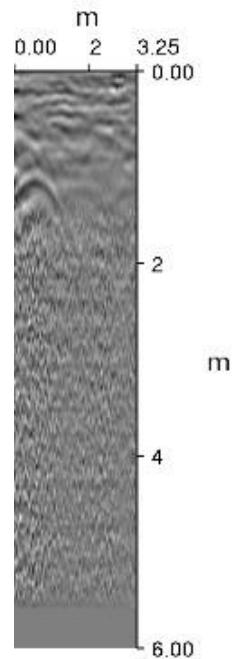
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



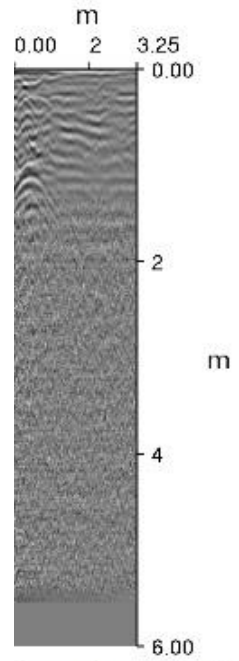
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



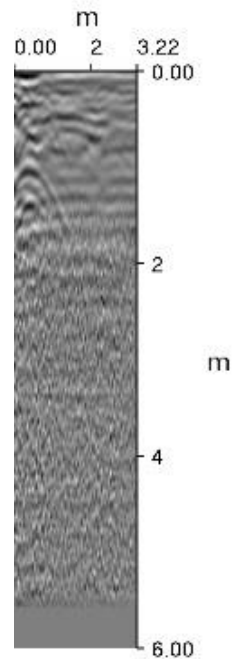
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v: propagation velocity of marker



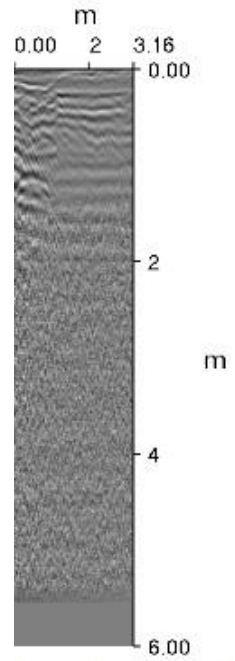
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



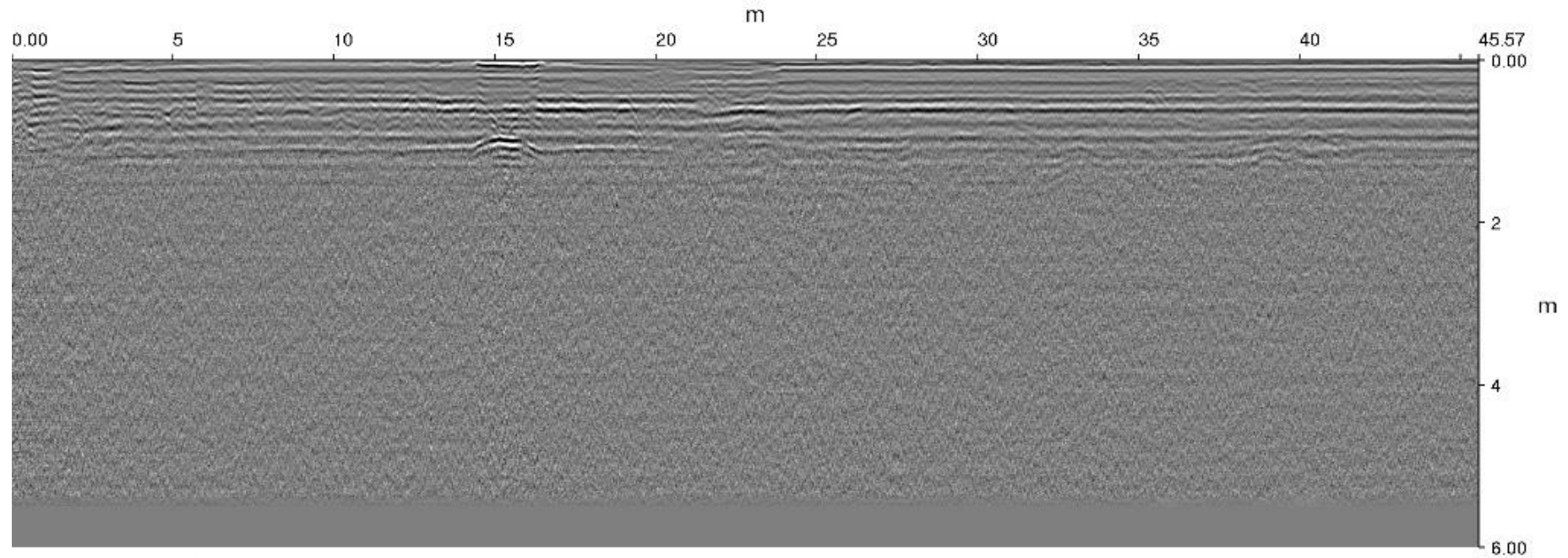
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v: propagation velocity of marker



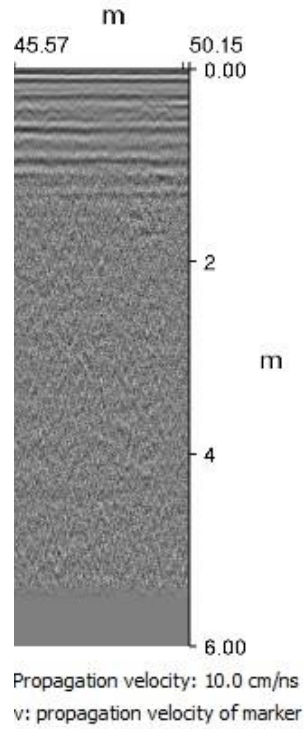
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

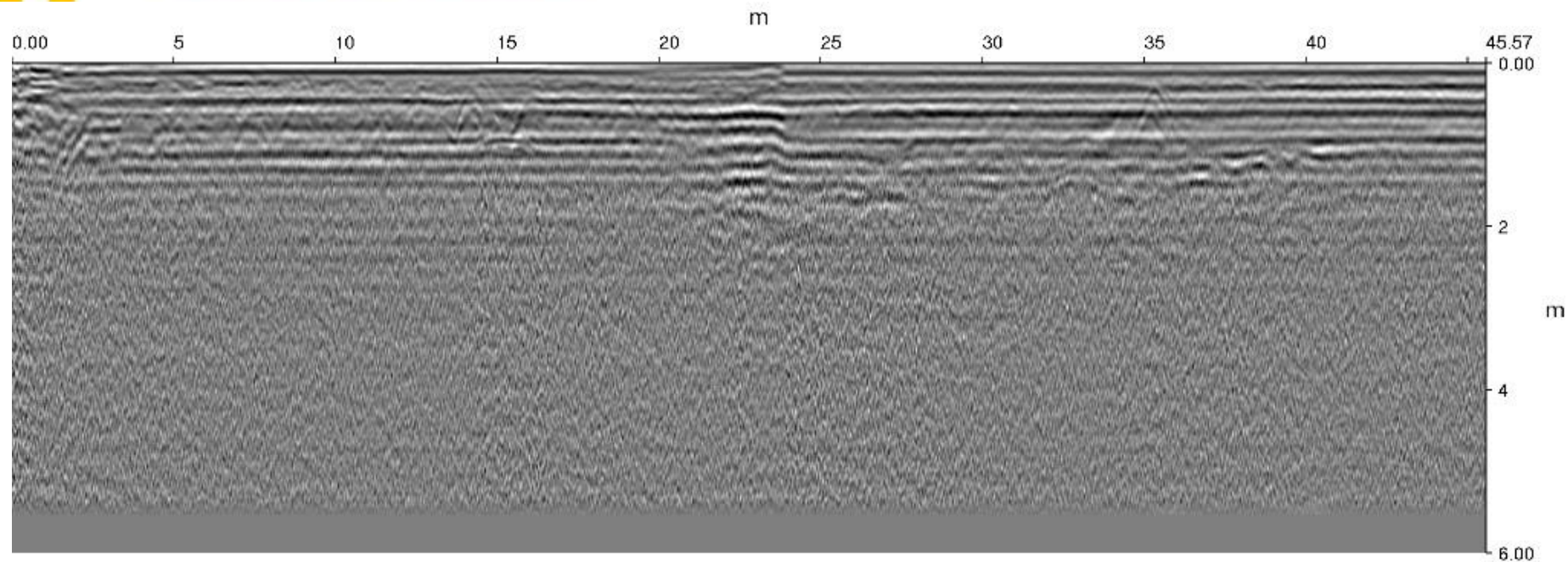


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

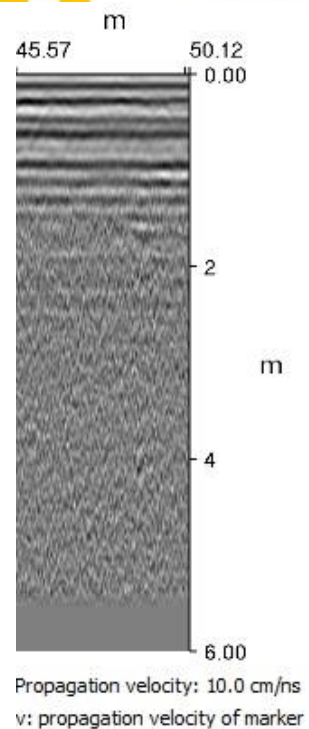


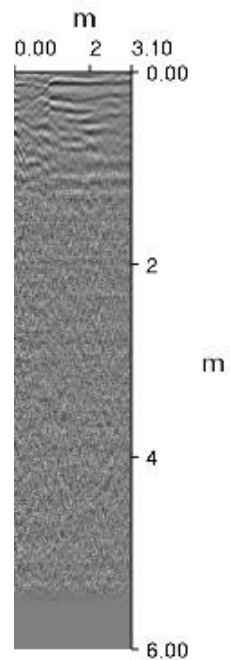
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



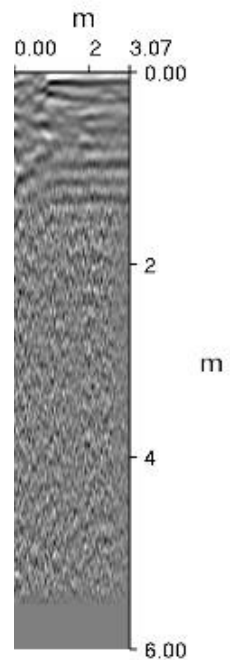


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

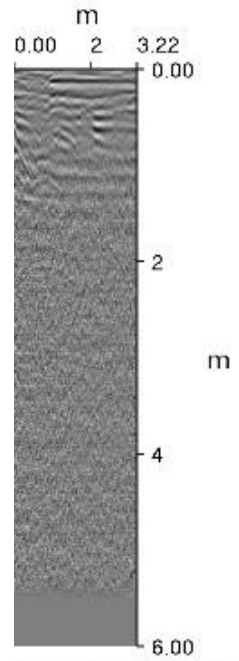




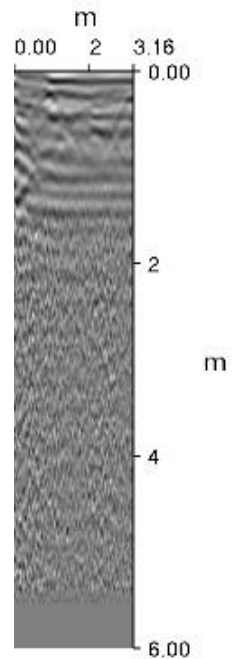
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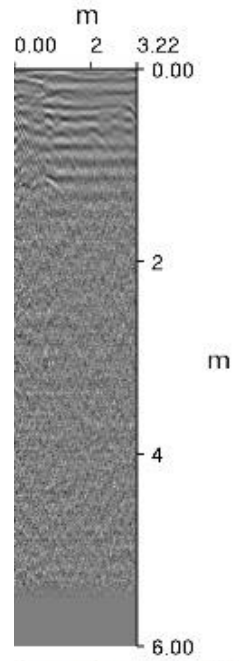
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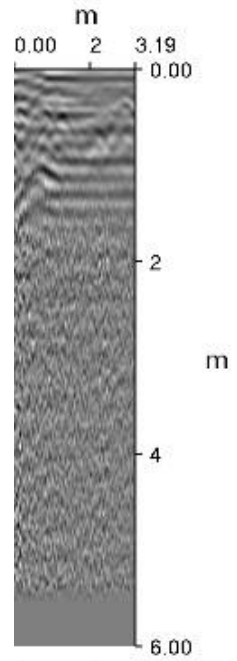
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v: propagation velocity of marker



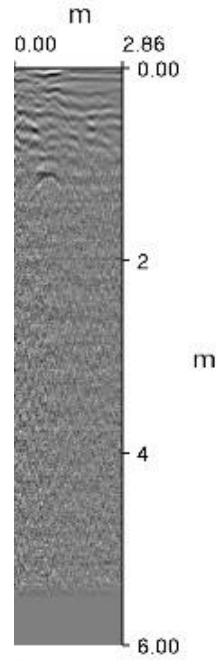
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v: propagation velocity of marker



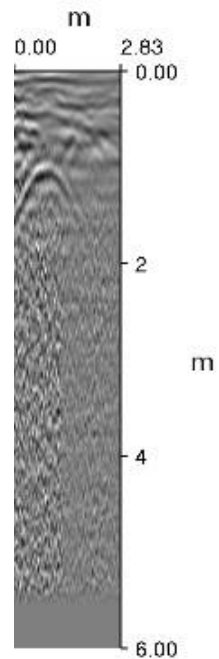
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v: propagation velocity of marker



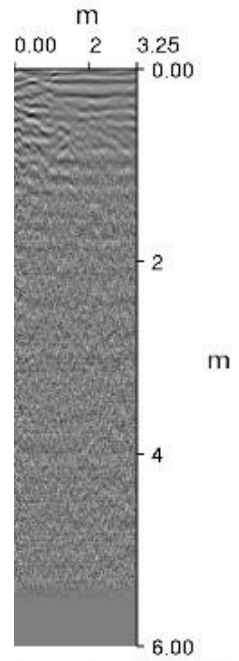
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v: propagation velocity of marker



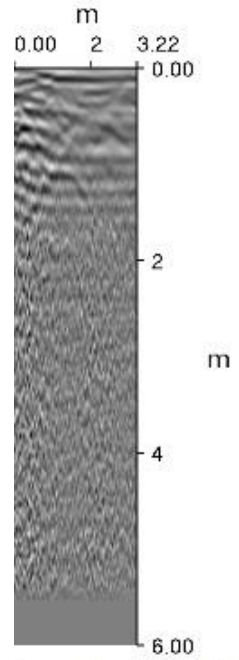
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



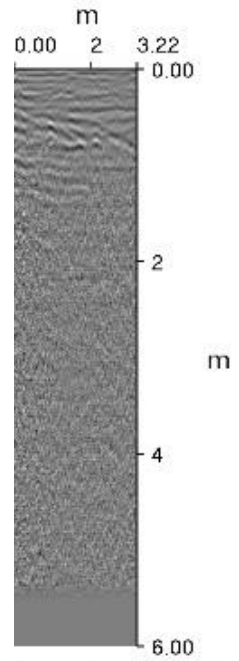
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



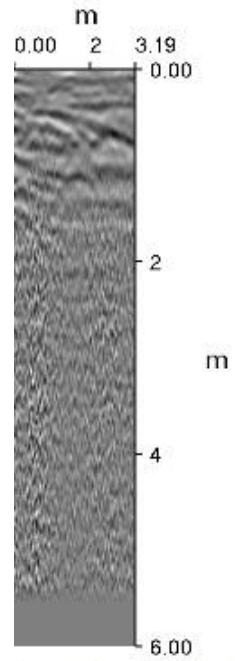
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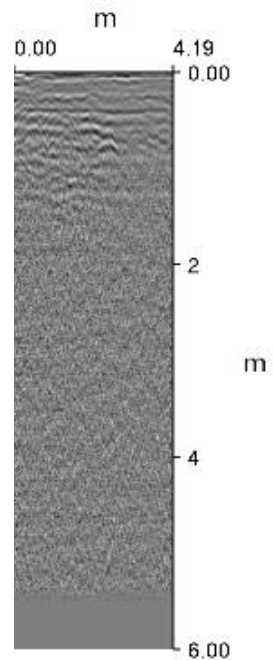
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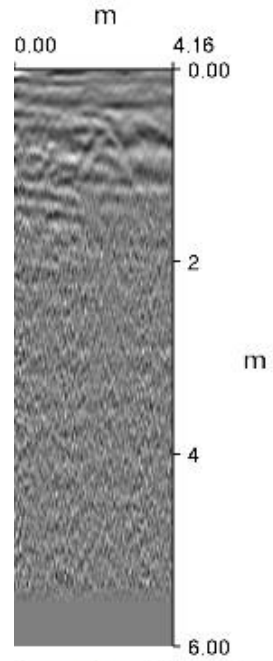
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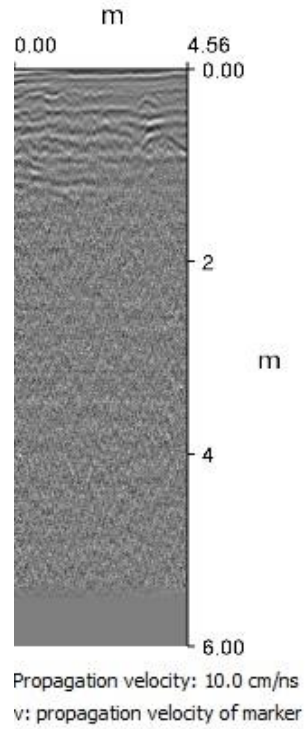
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v: propagation velocity of marker

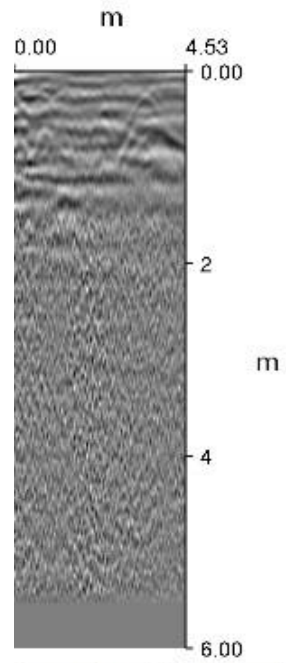


Propagation velocity: 10.0 cm/ns
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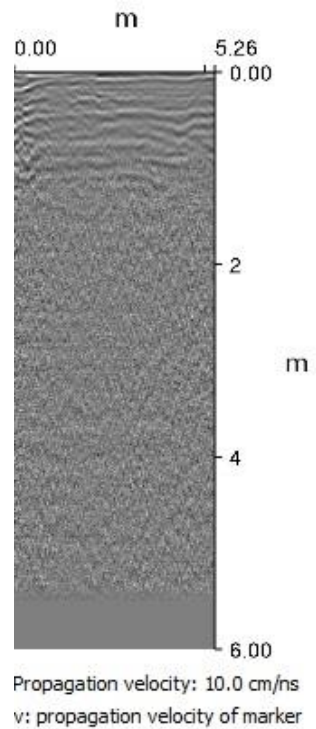


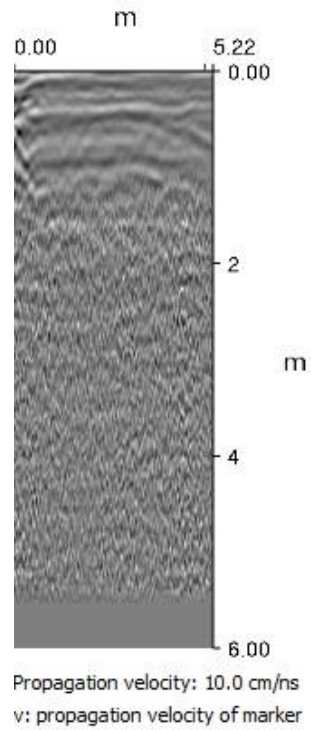
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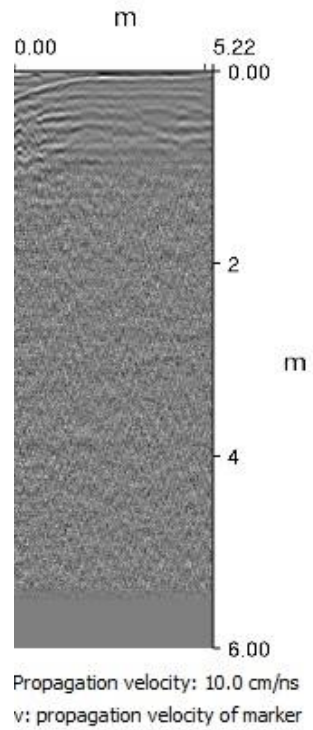


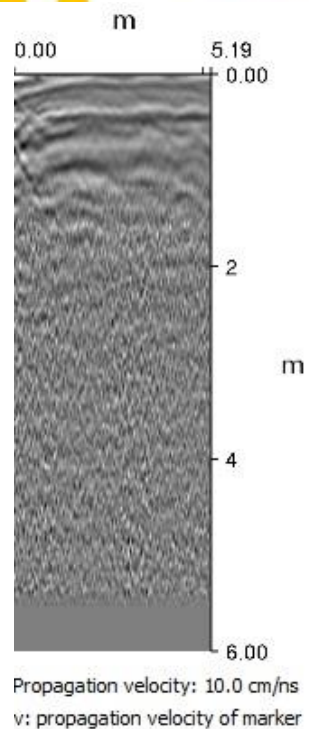


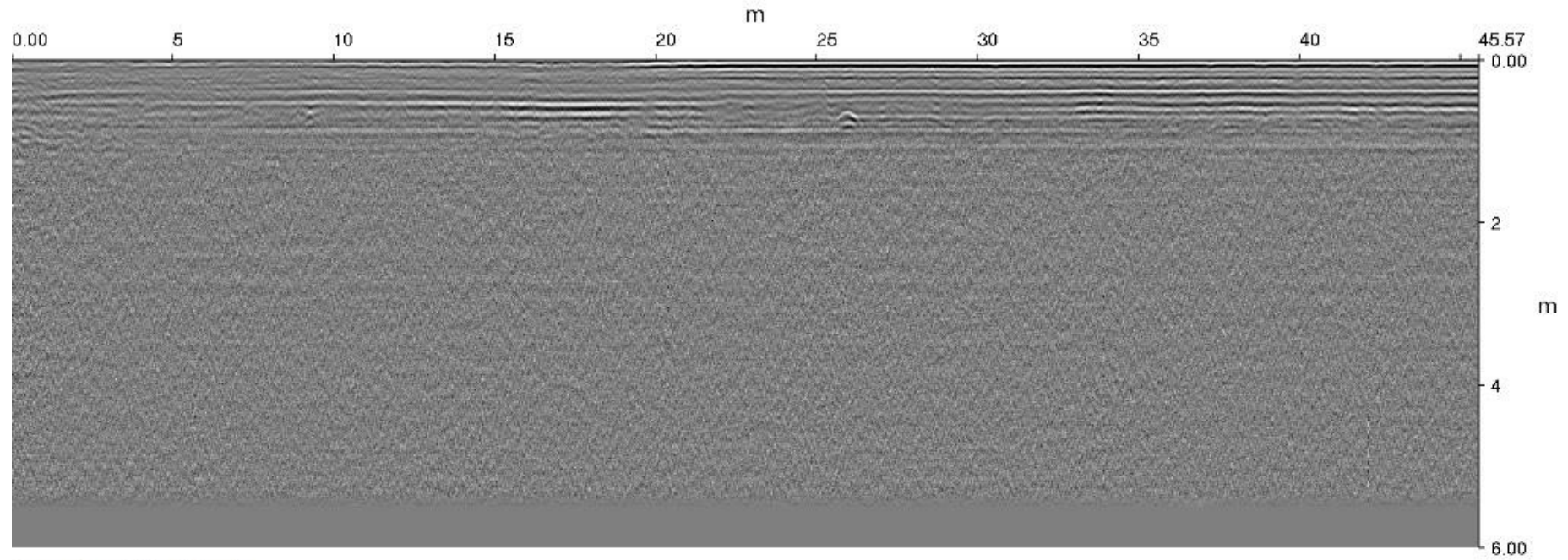
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v: propagation velocity of marker



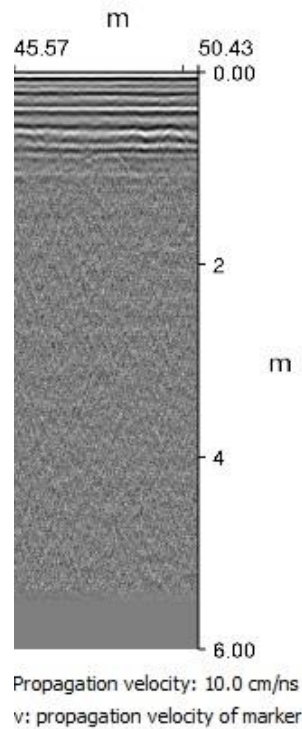


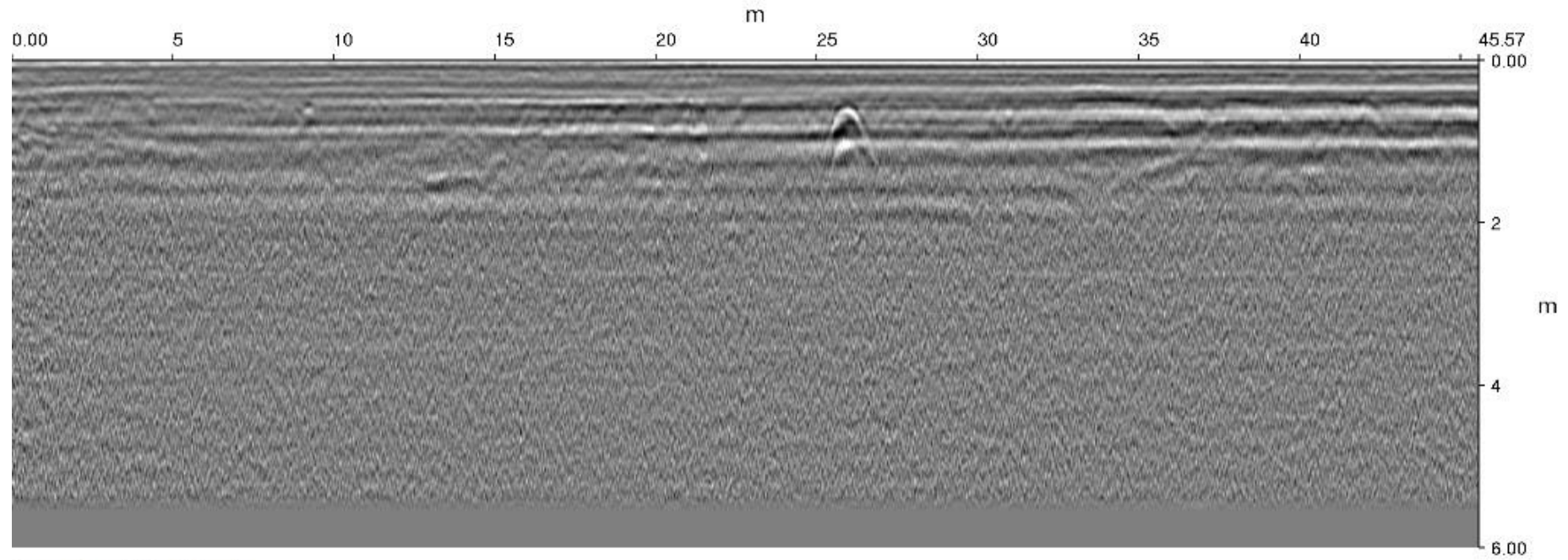




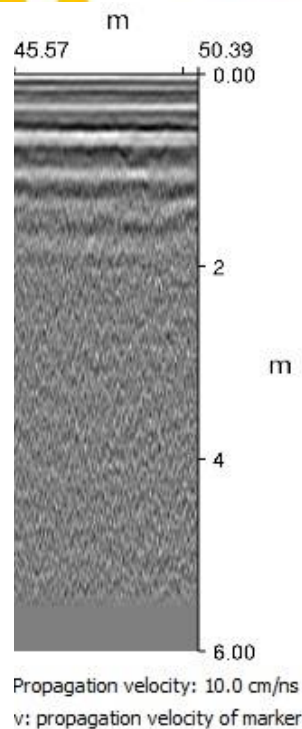


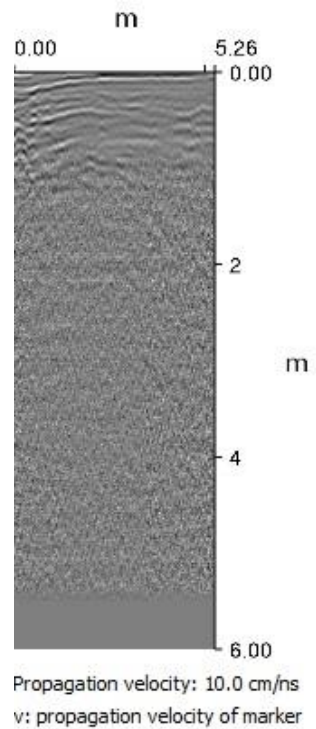
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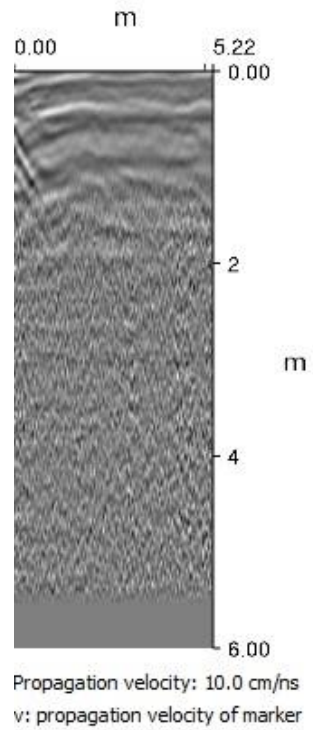


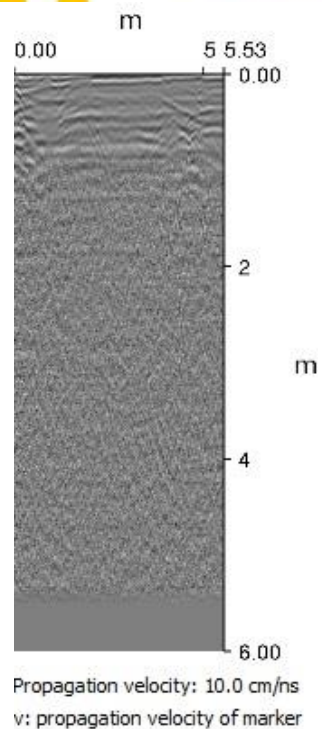


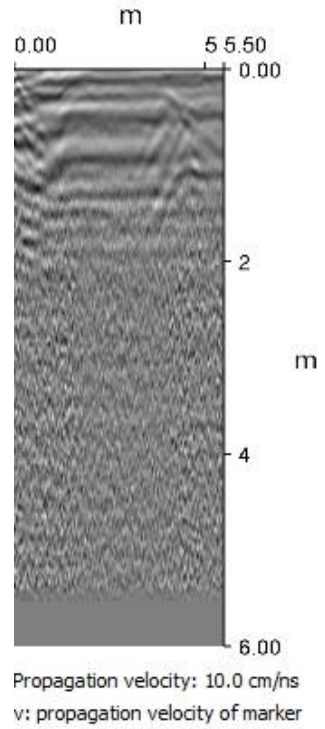
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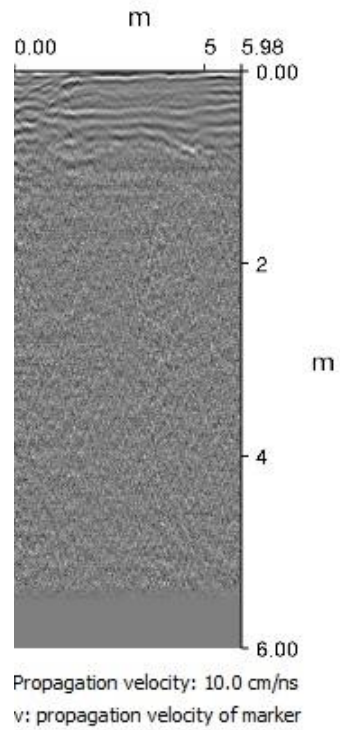


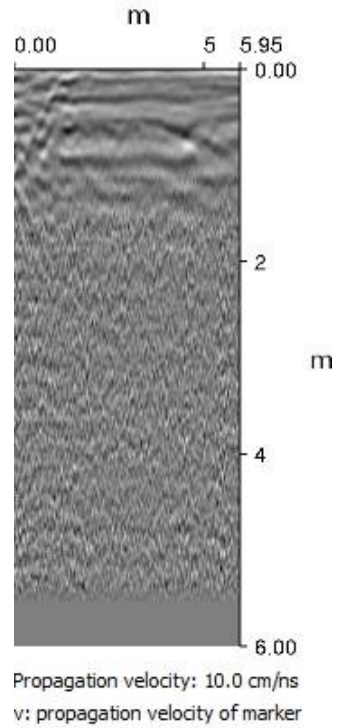


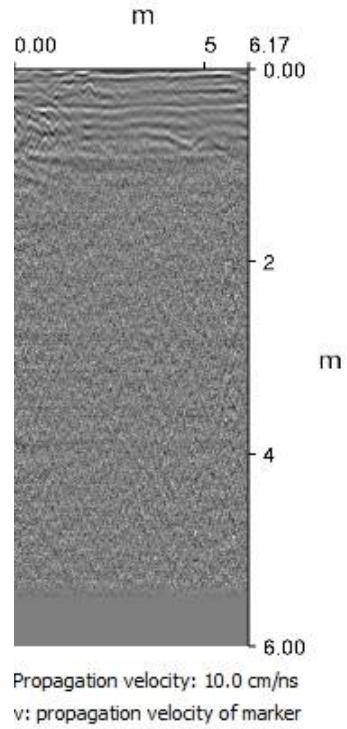


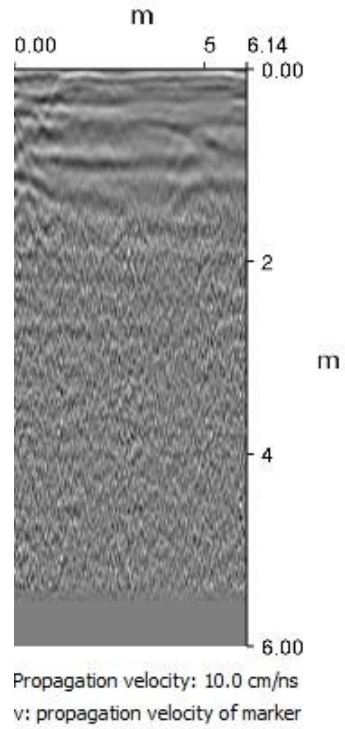


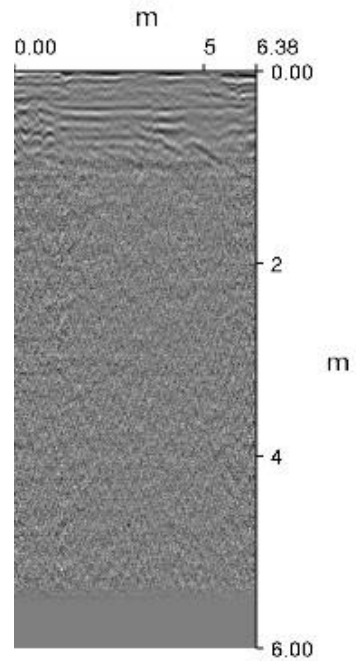




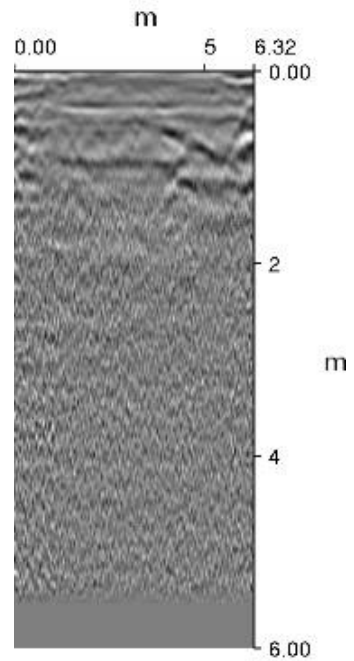




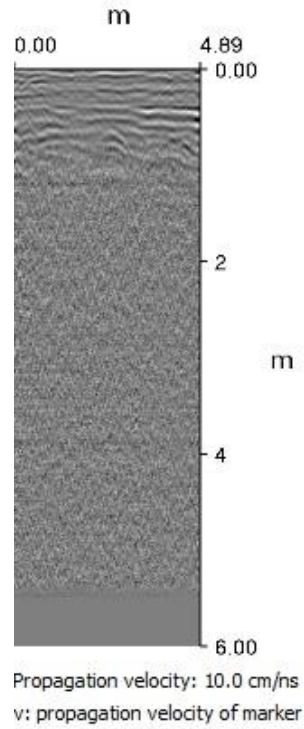


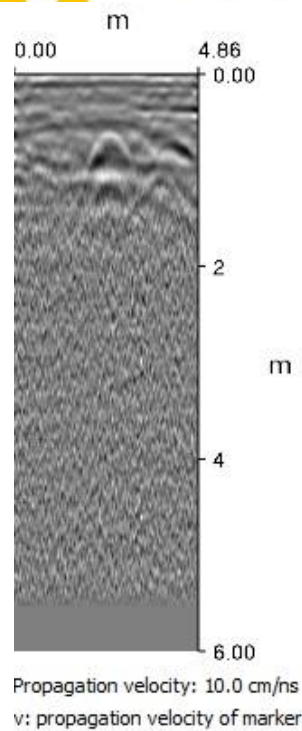


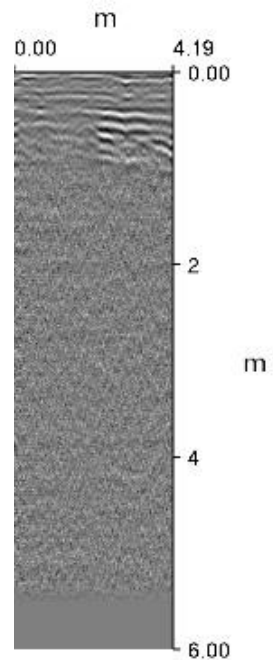
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v: propagation velocity of marker



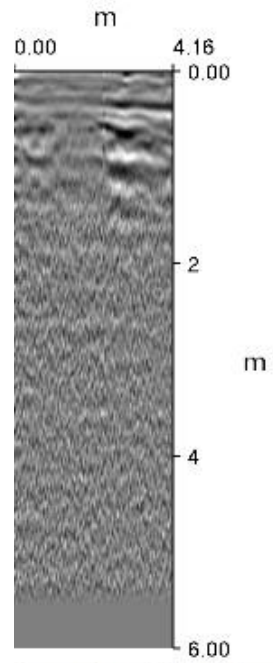
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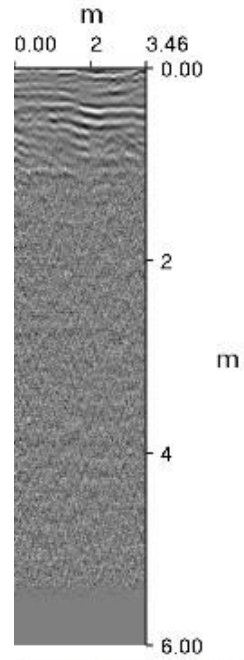




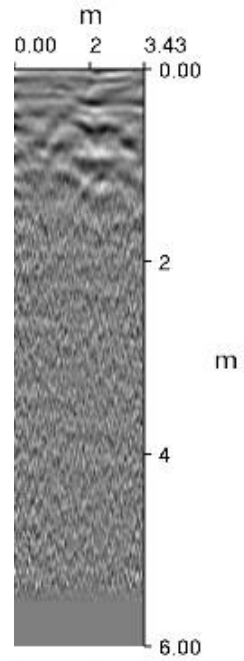
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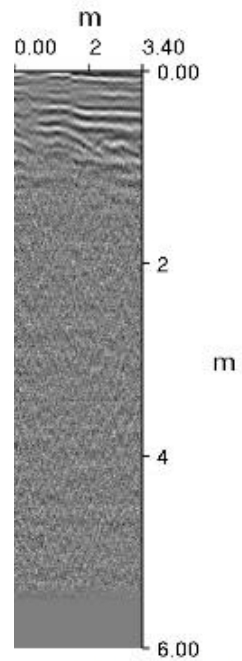
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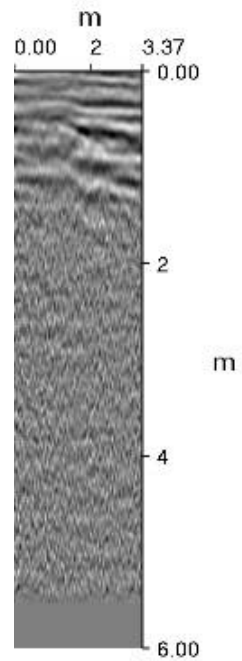
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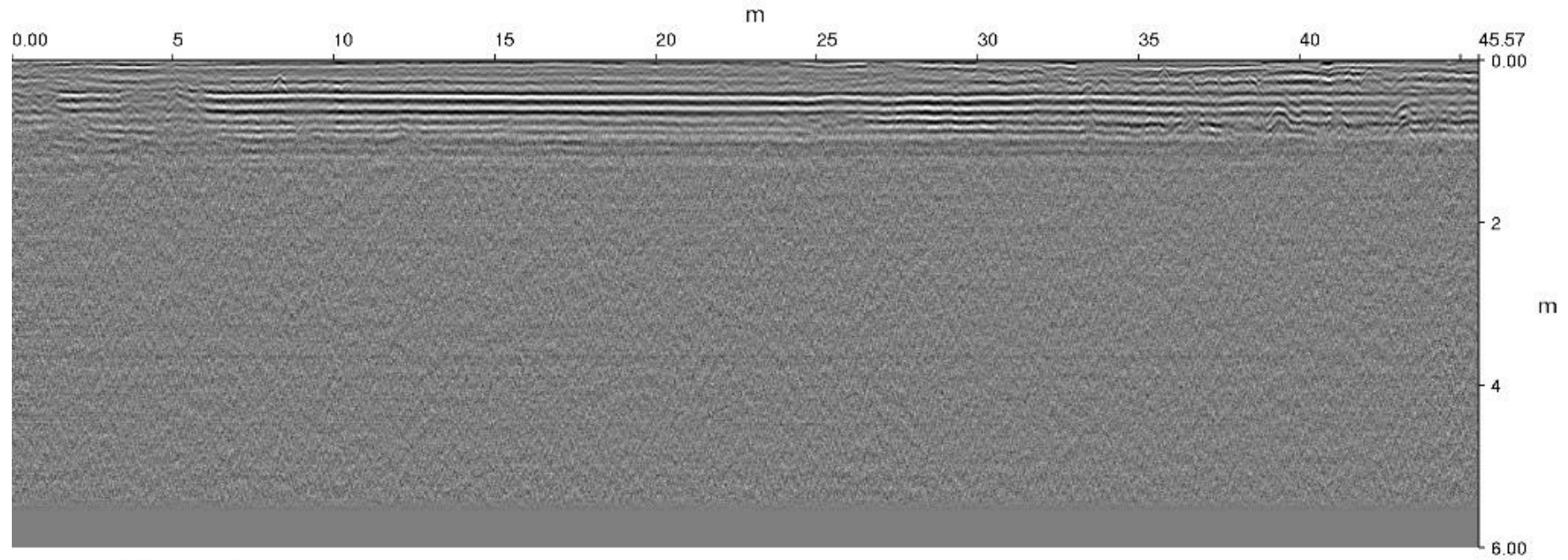
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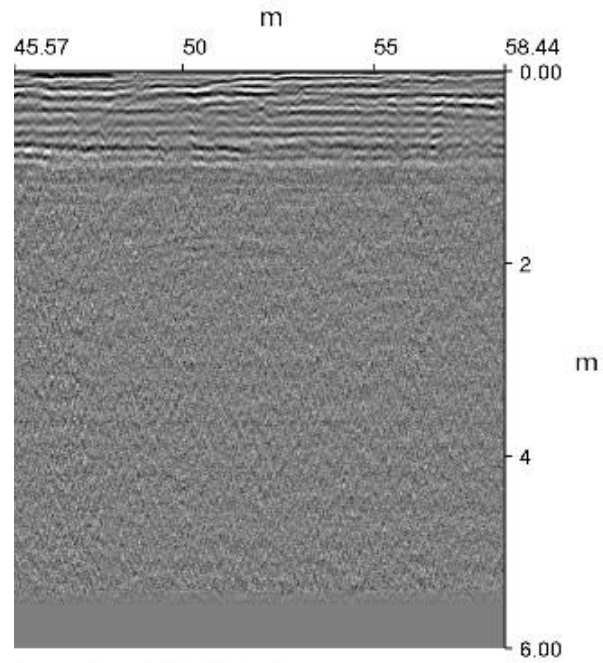
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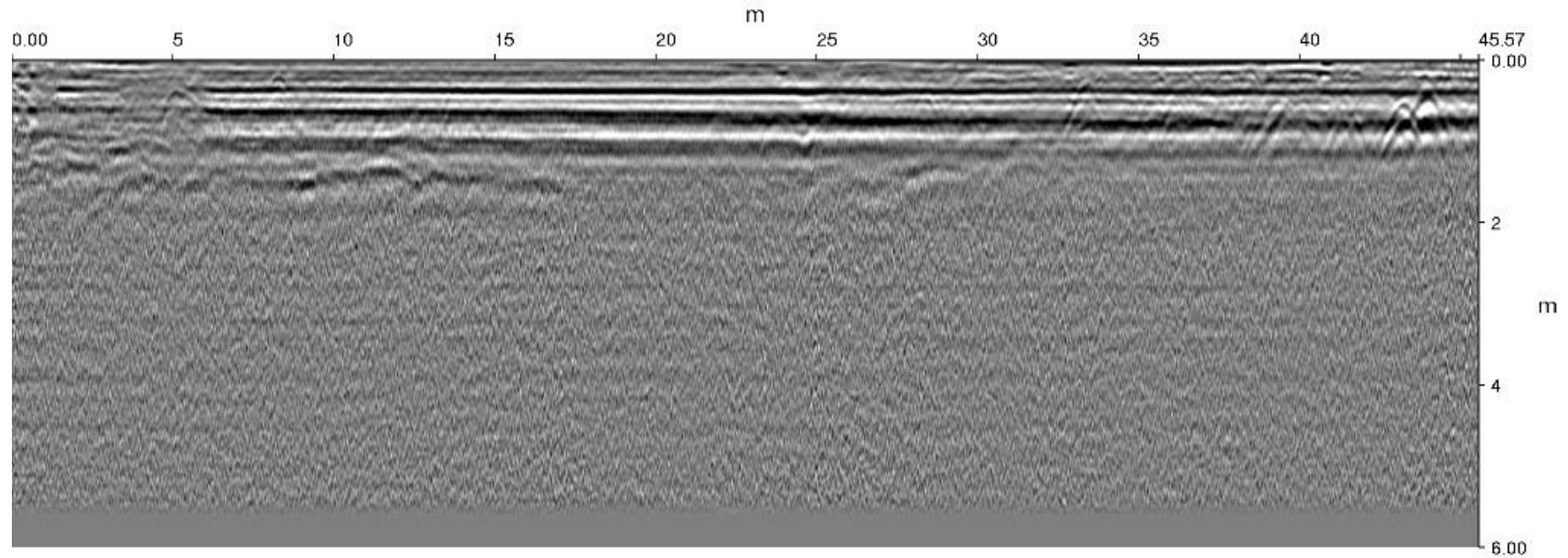
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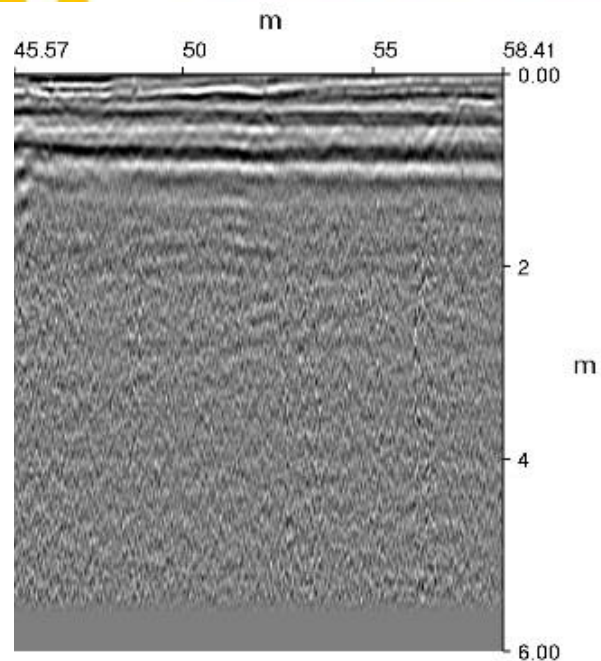
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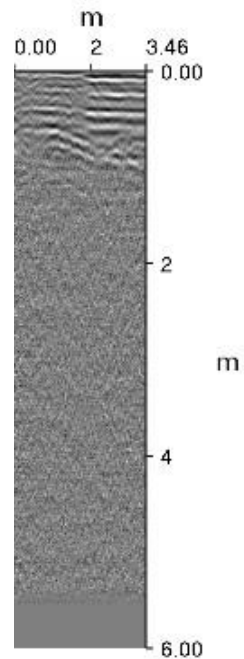
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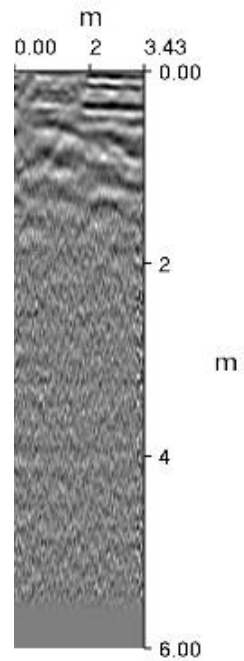
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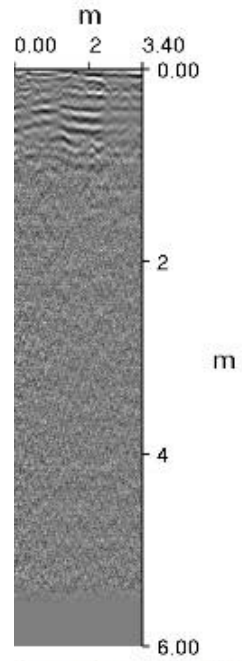
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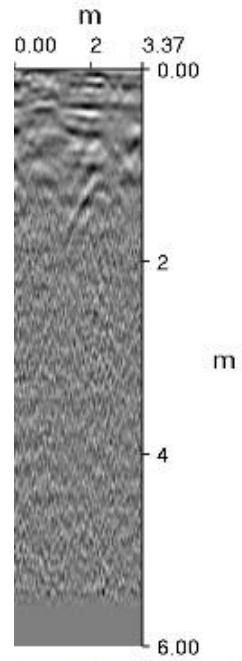
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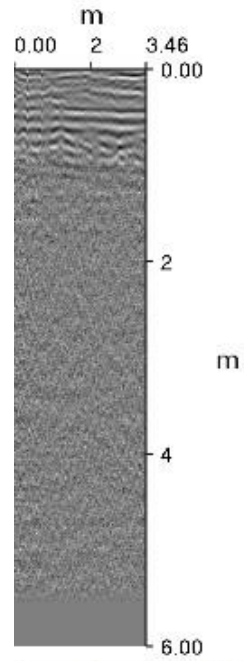
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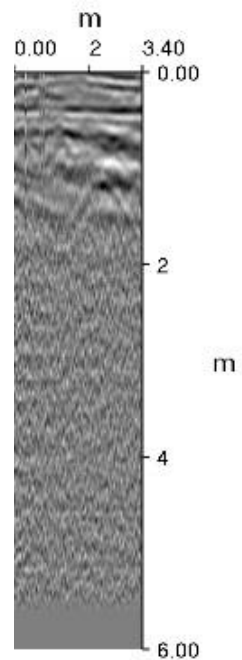
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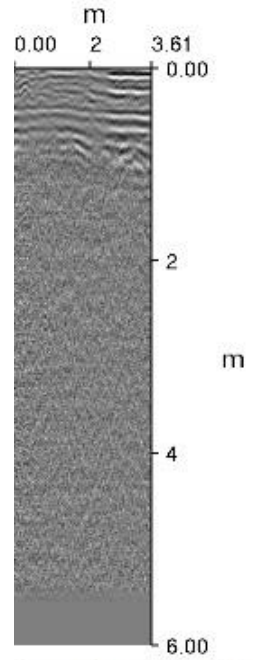
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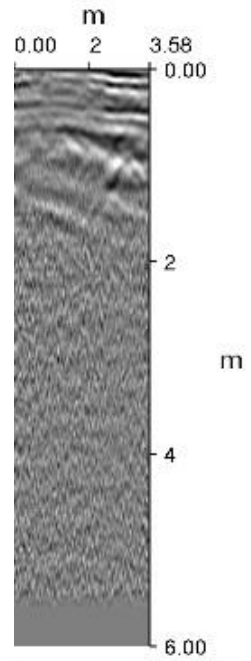
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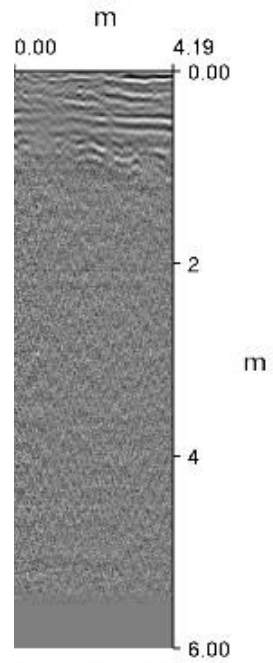
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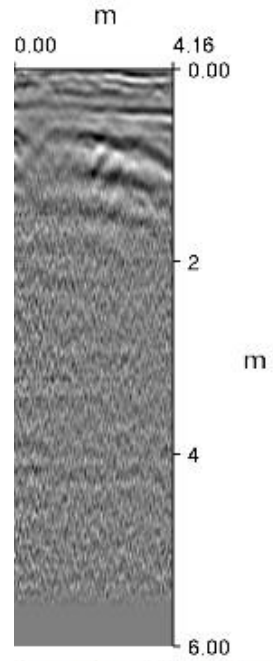
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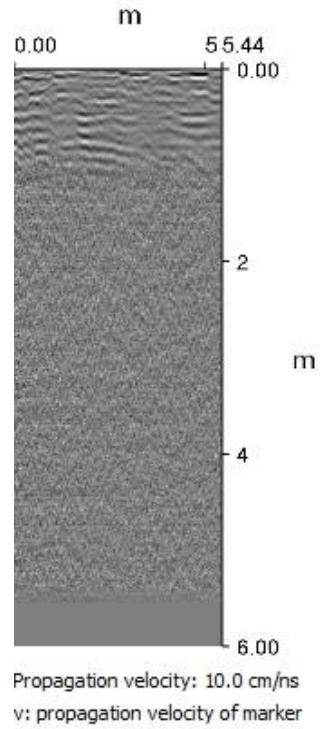
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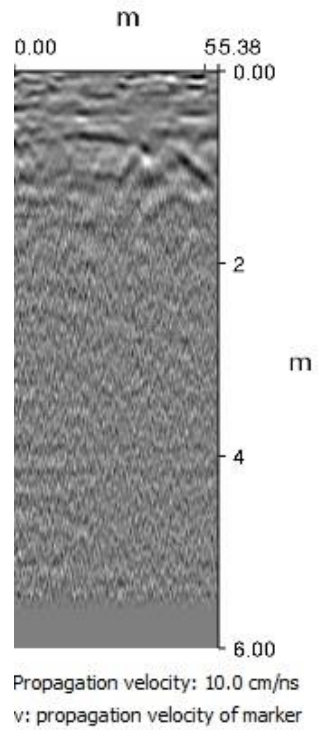


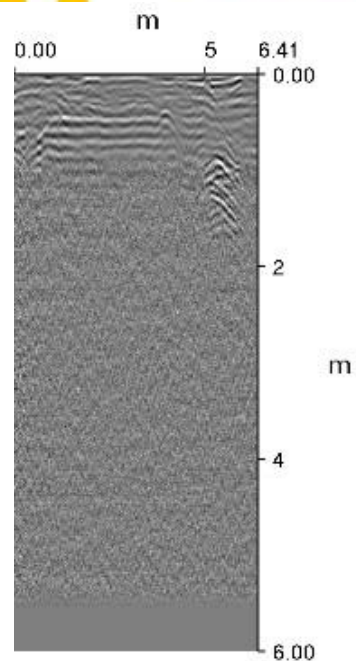
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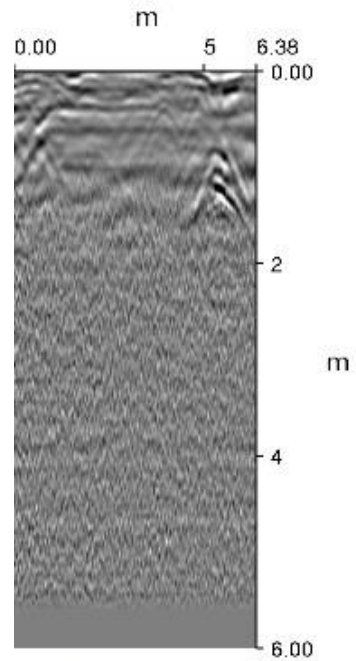
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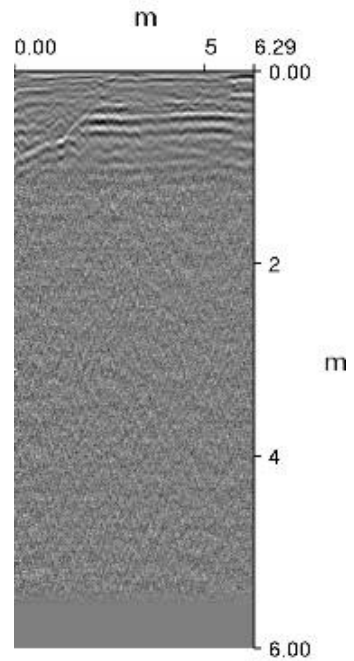




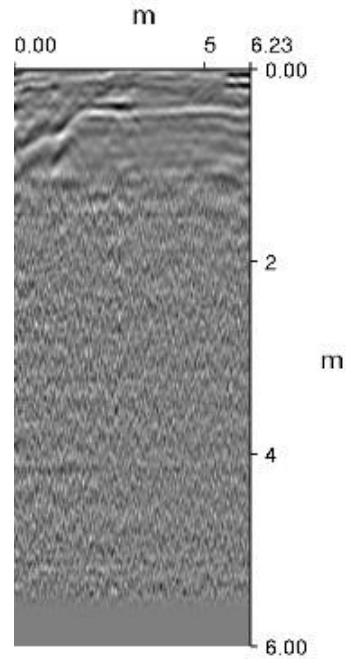
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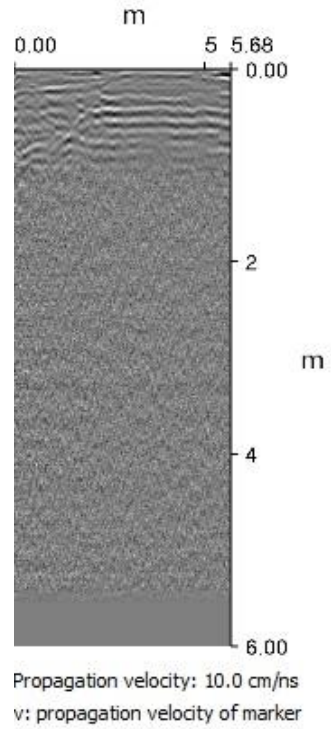
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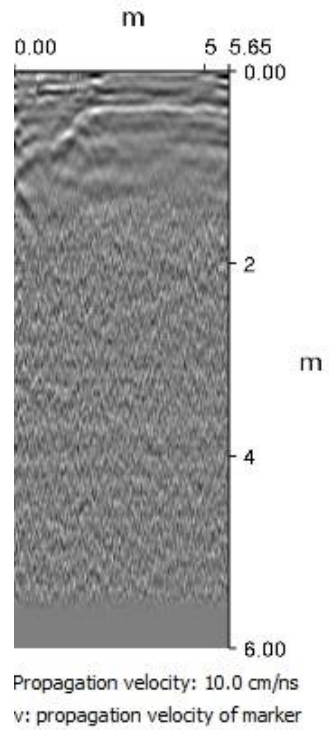


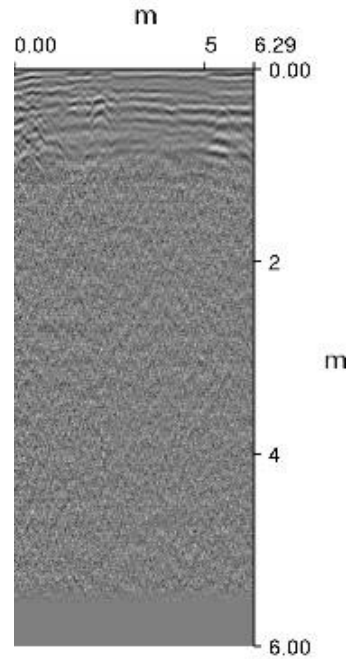
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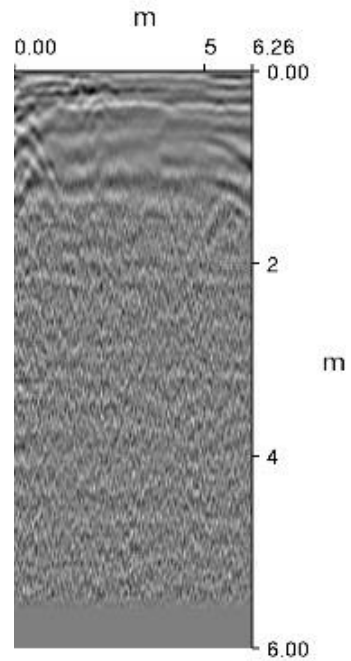
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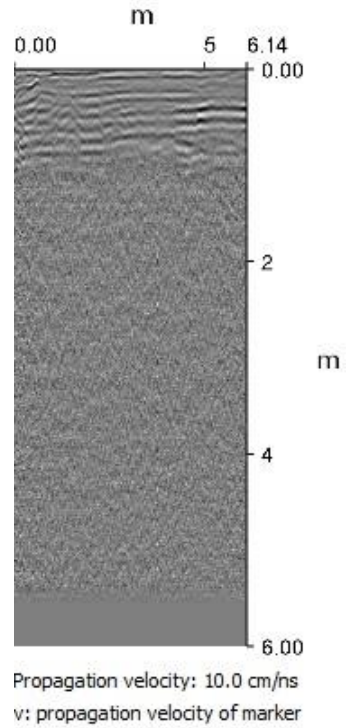


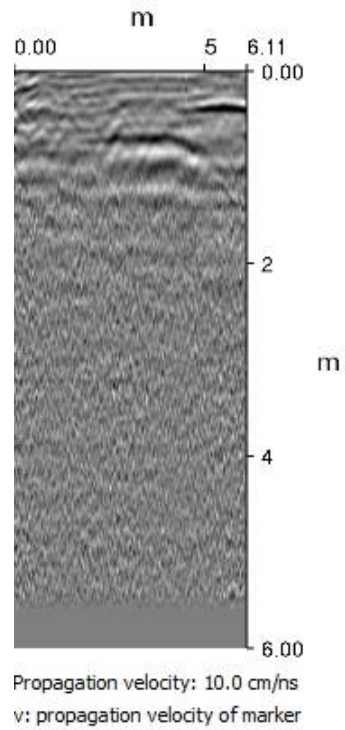


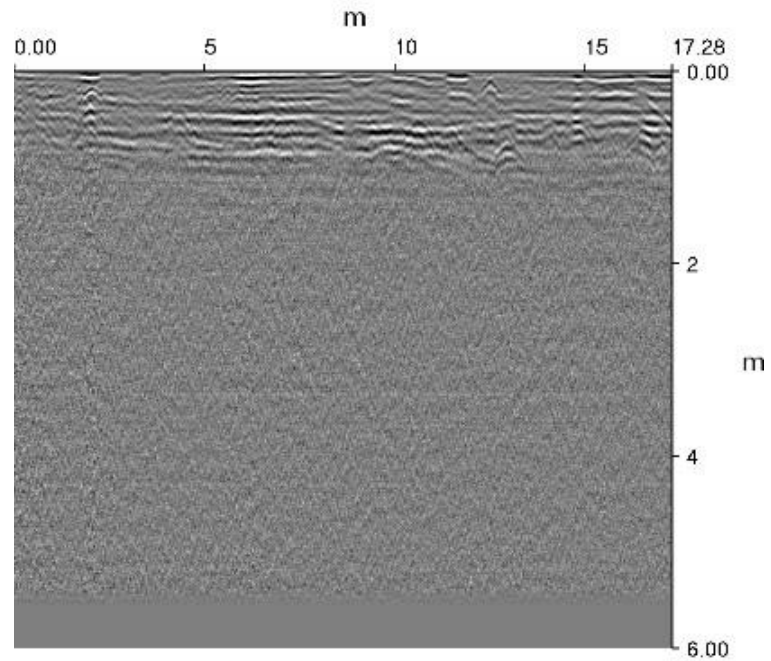
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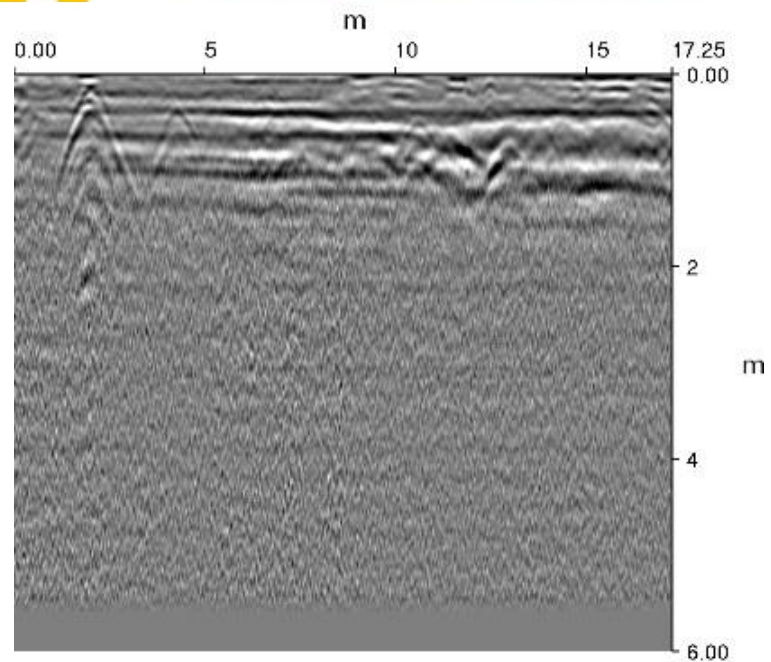
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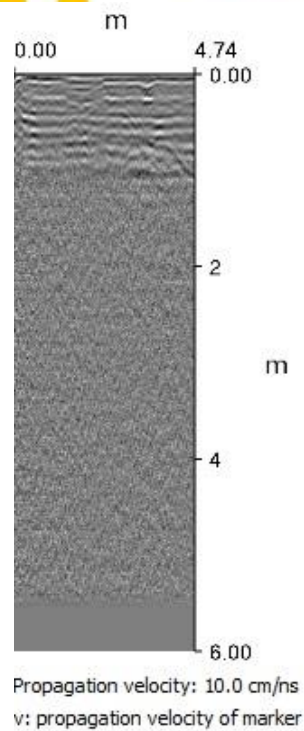


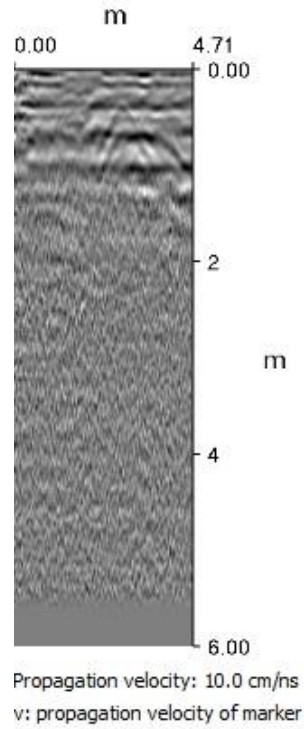


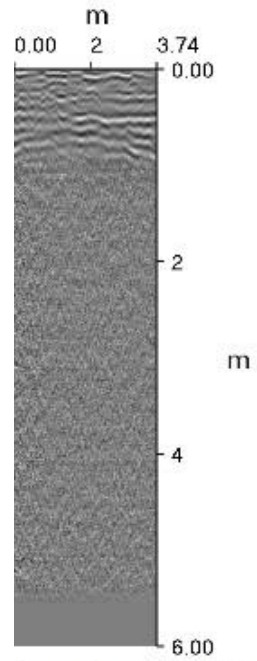
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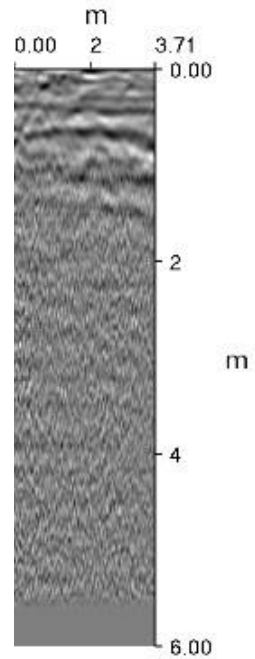
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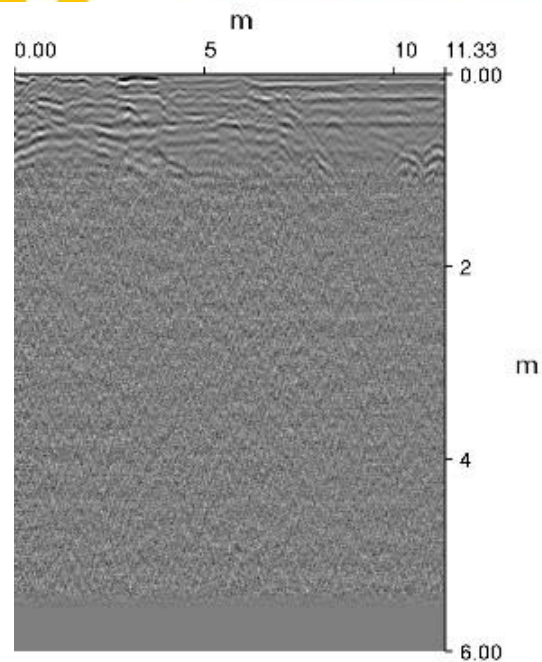




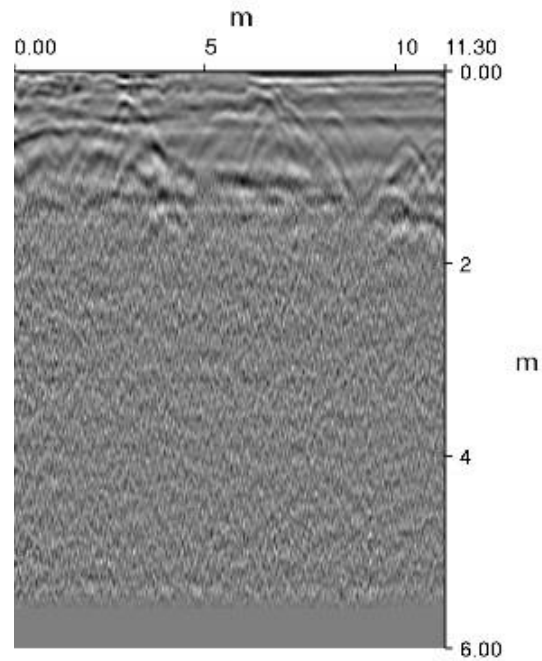
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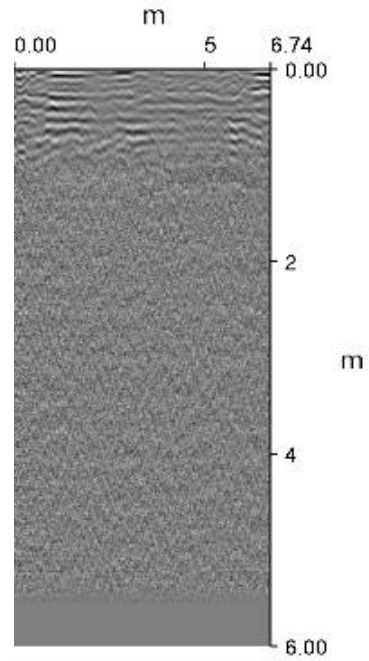
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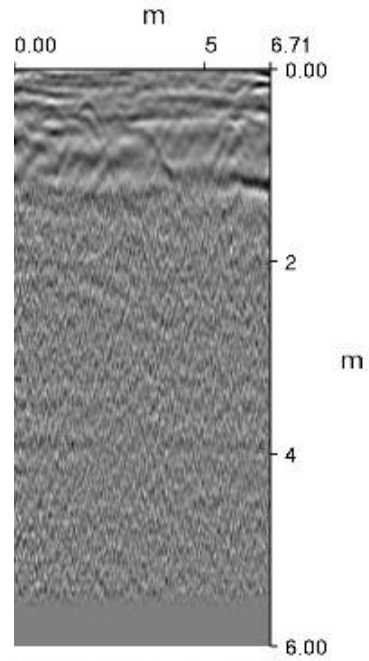
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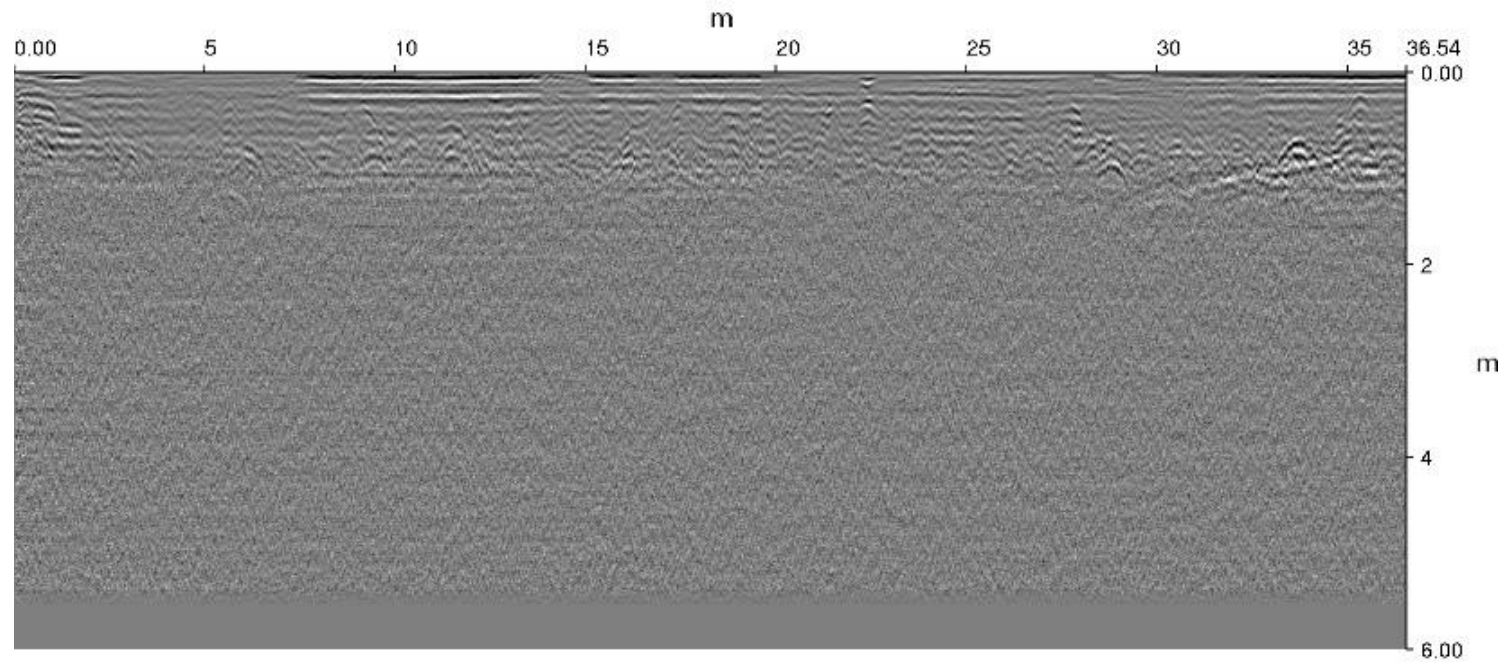
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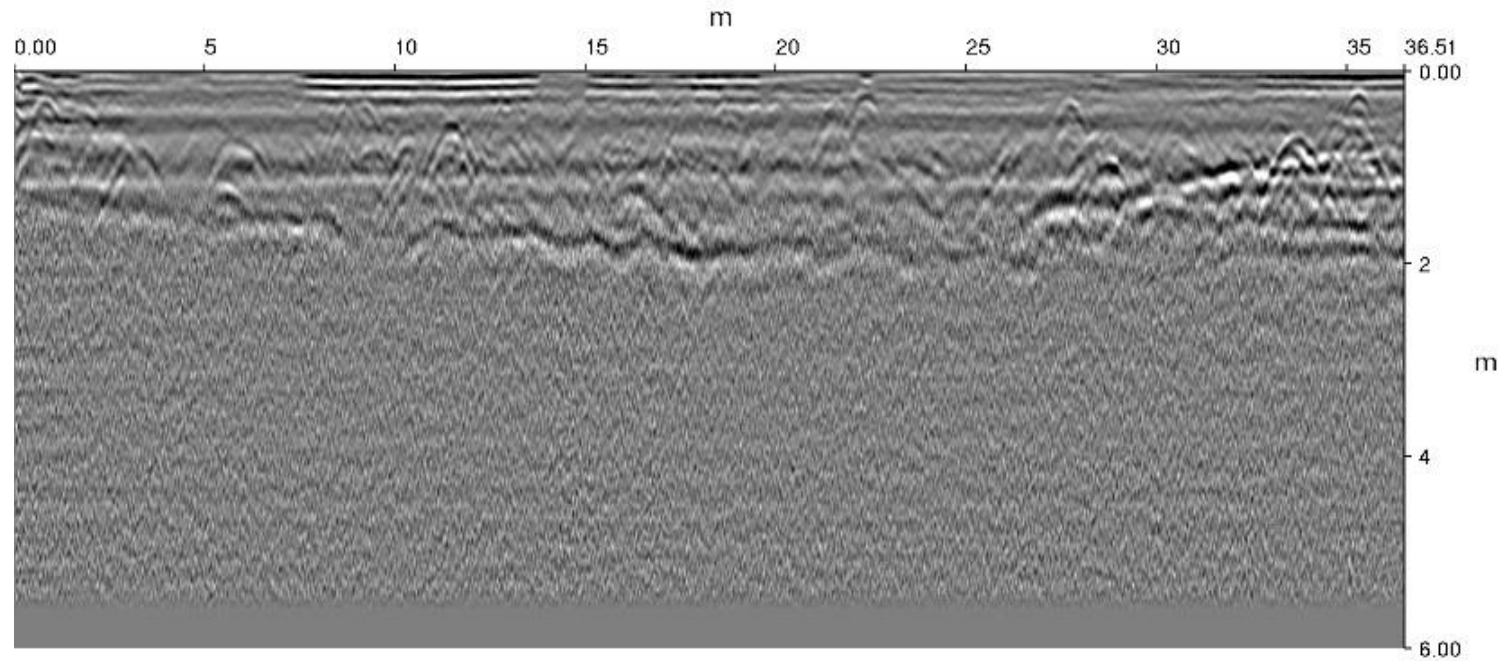
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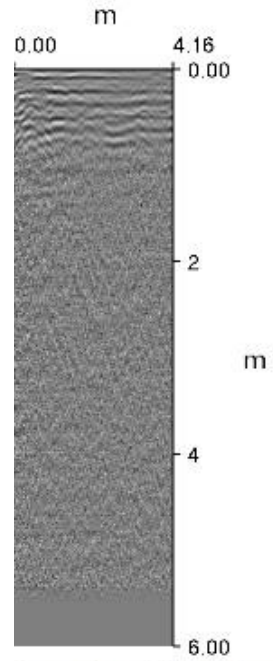
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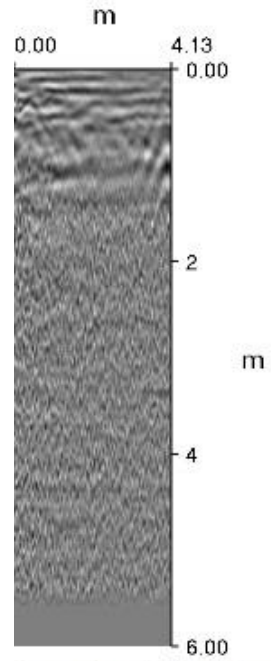
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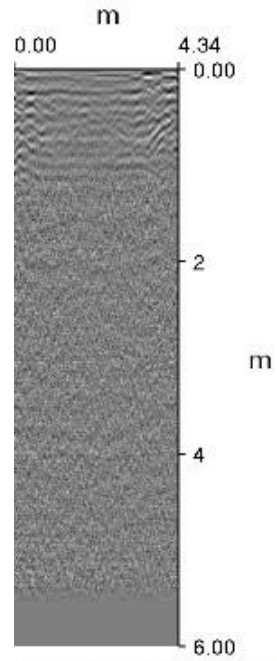
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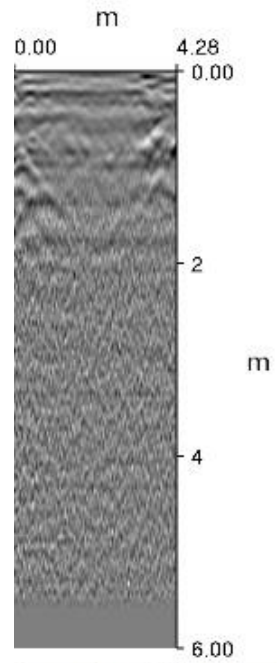
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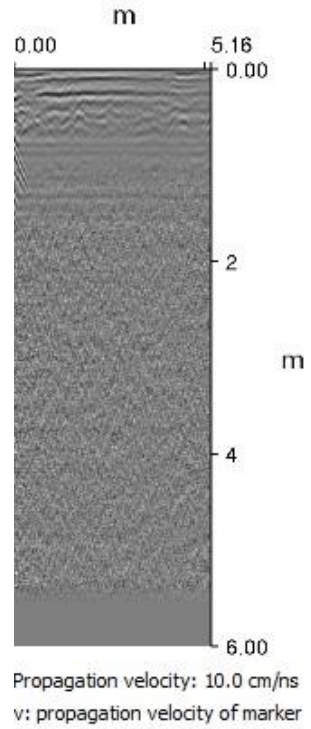
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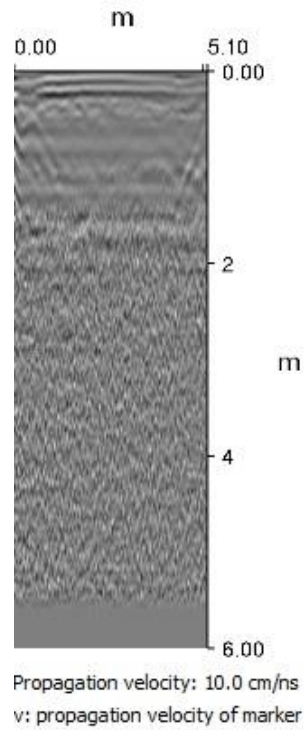


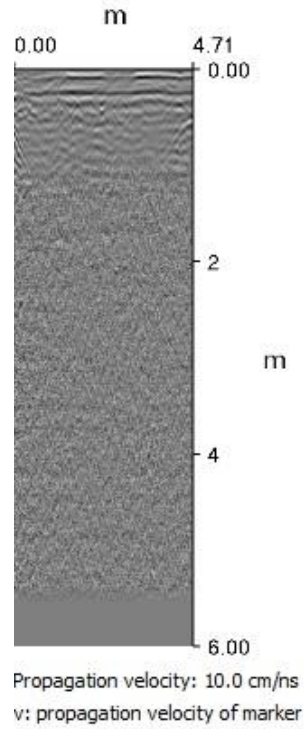
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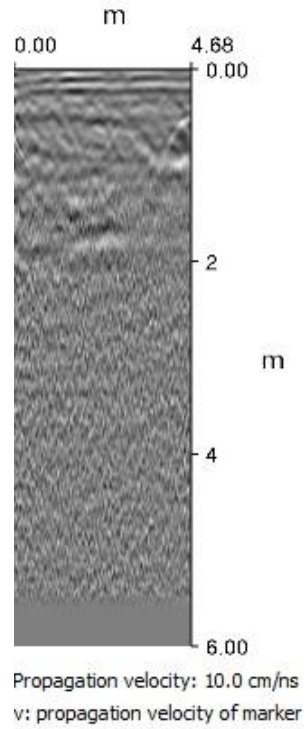


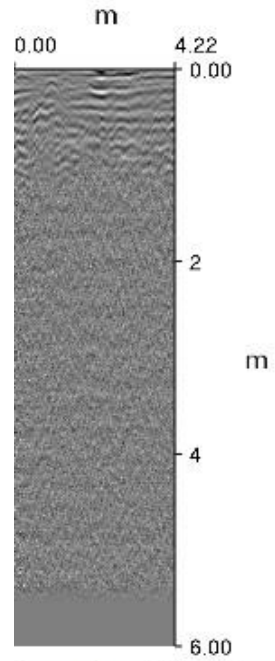
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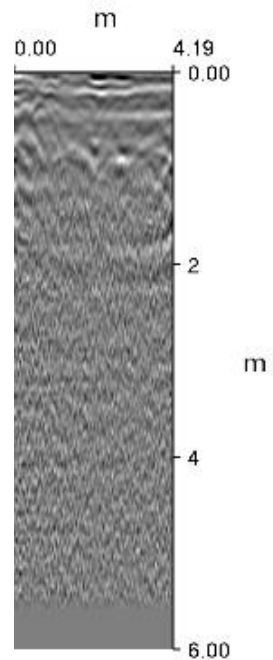




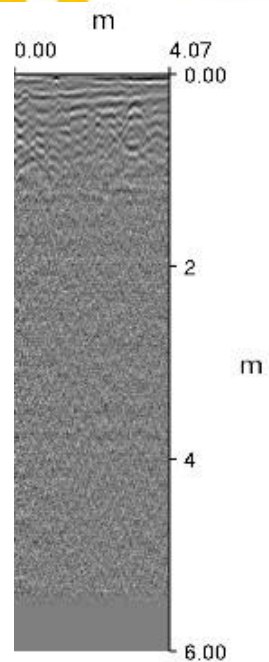




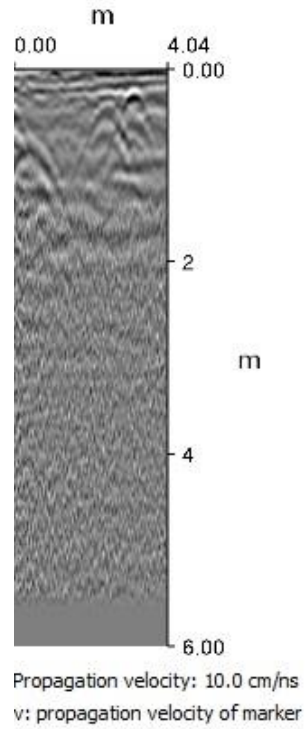
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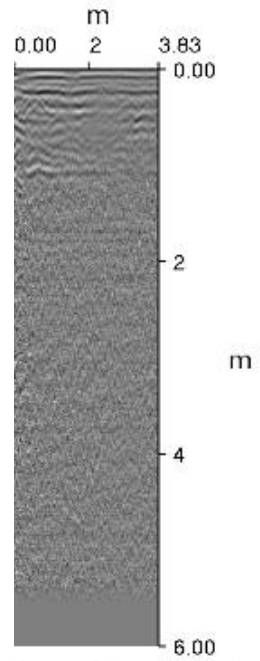


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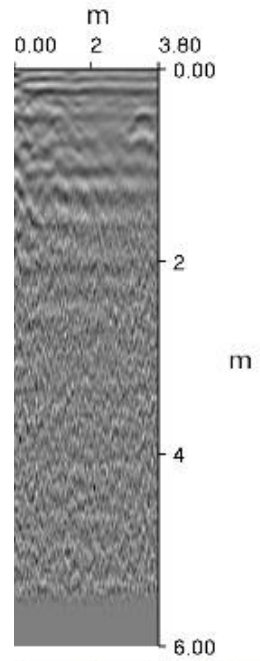


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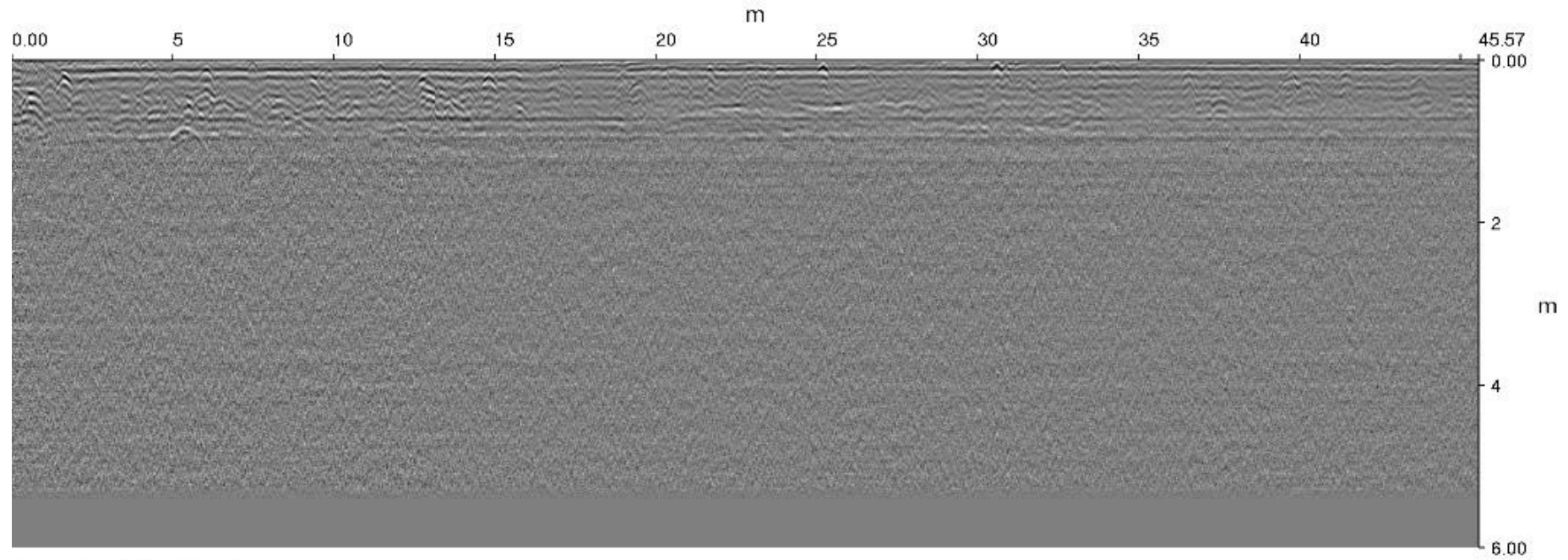




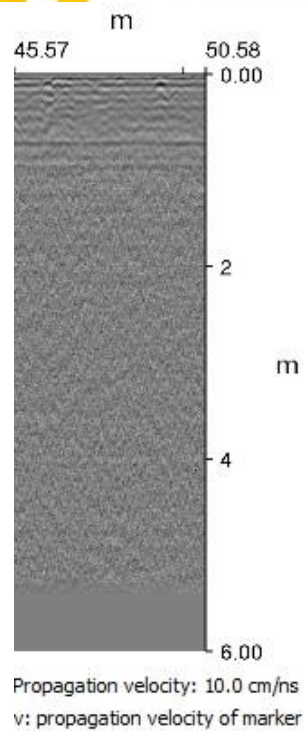
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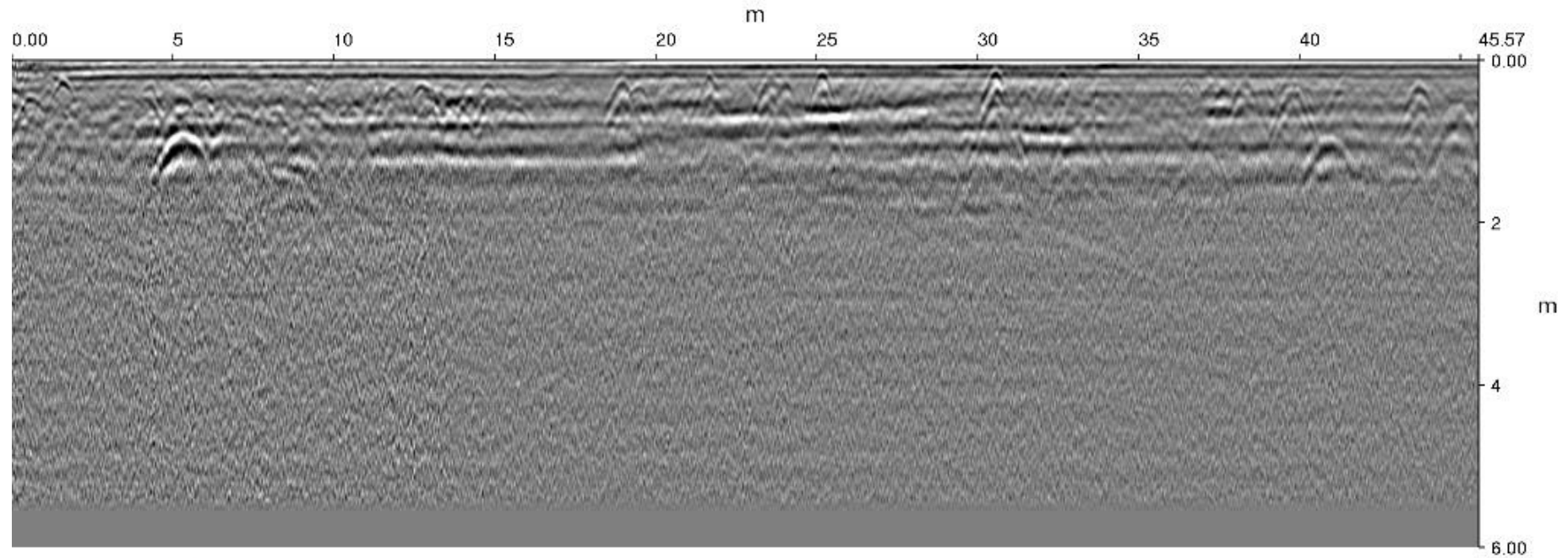


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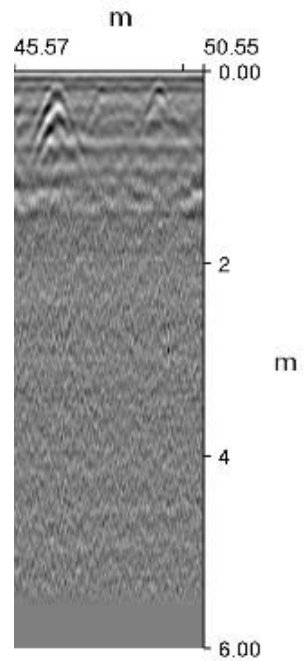


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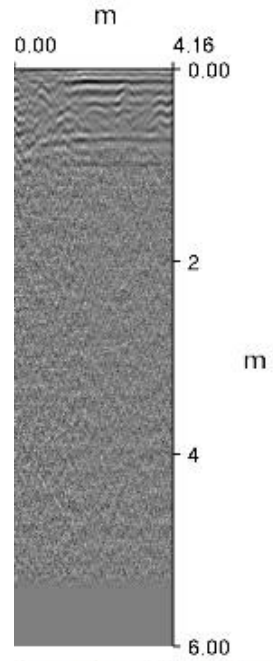




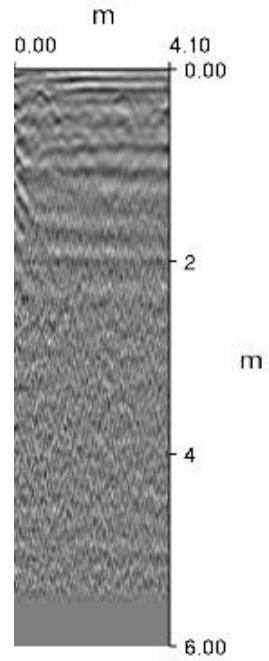
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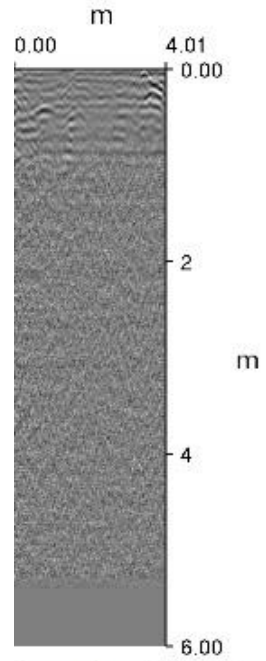
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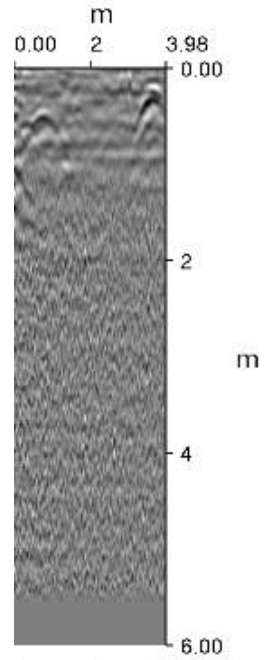
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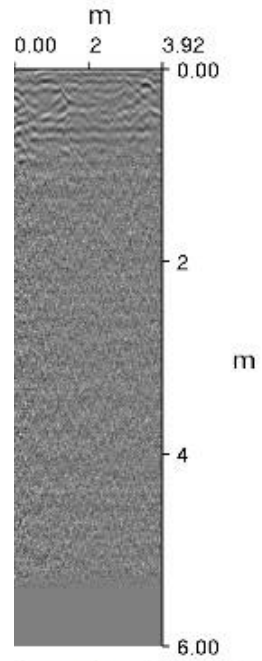
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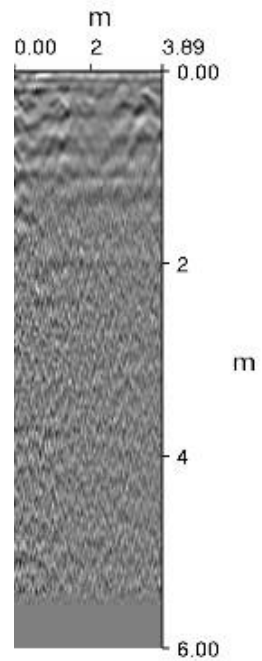
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v: propagation velocity of marker



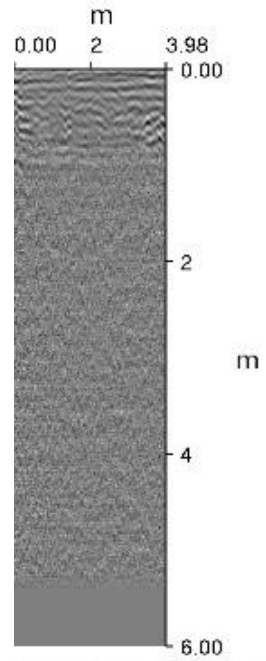
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



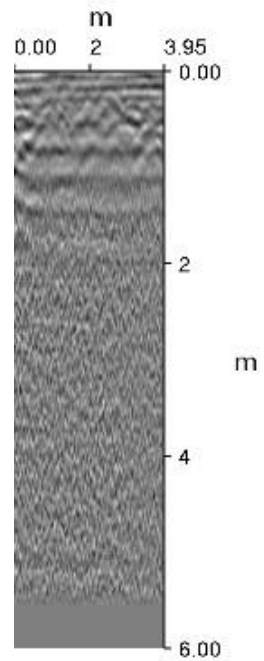
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v: propagation velocity of marker



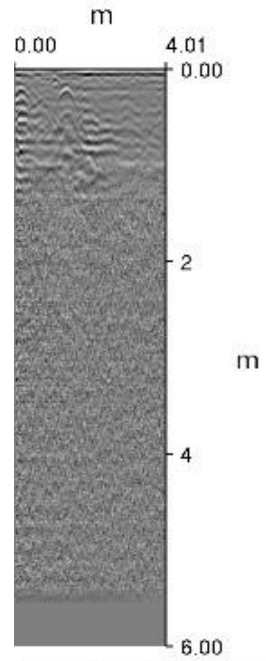
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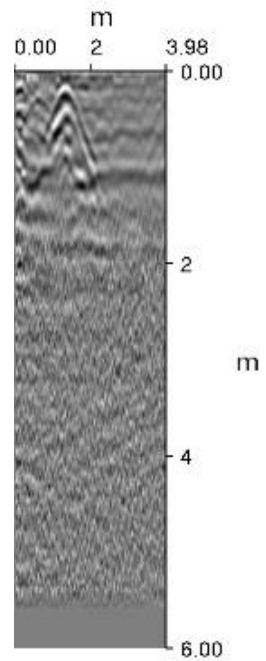
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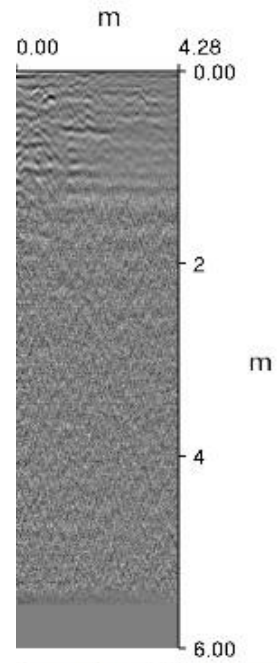
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v: propagation velocity of marker



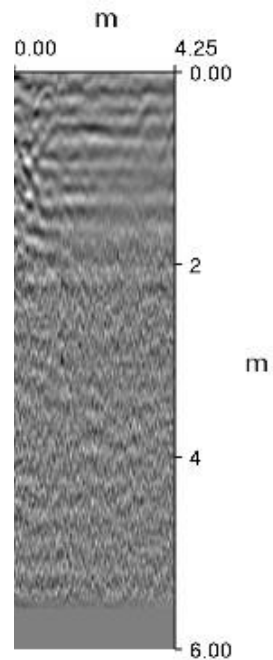
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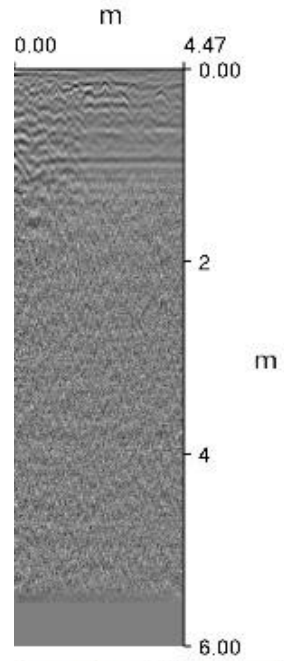
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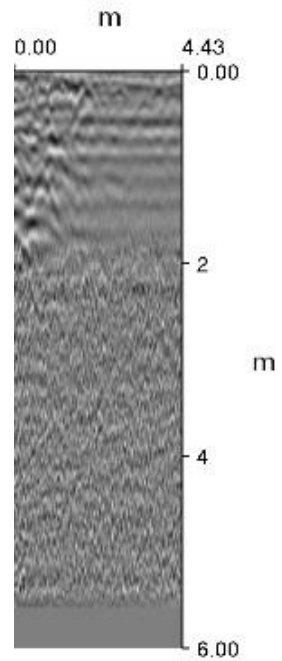
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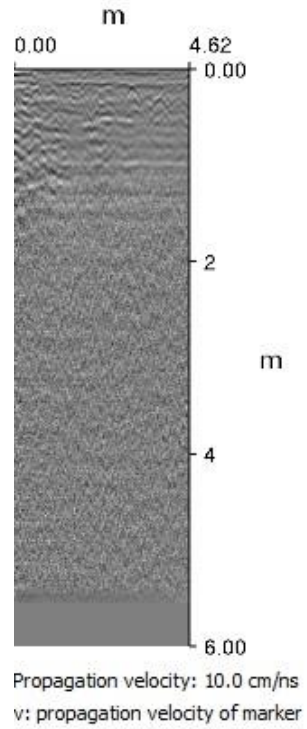
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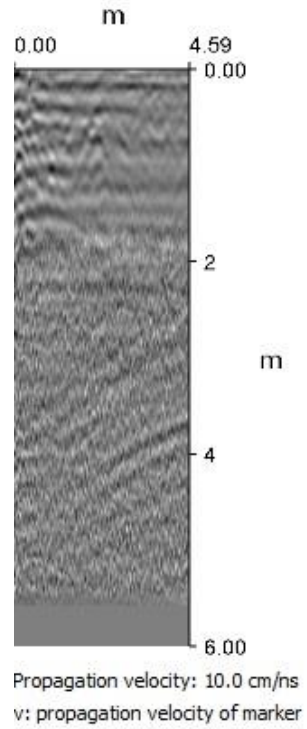


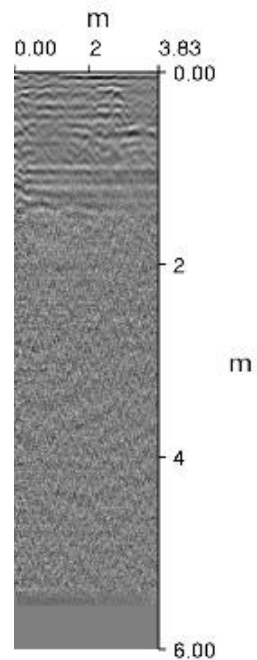
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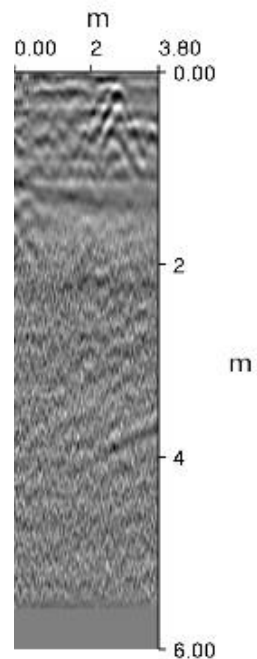
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v: propagation velocity of marker



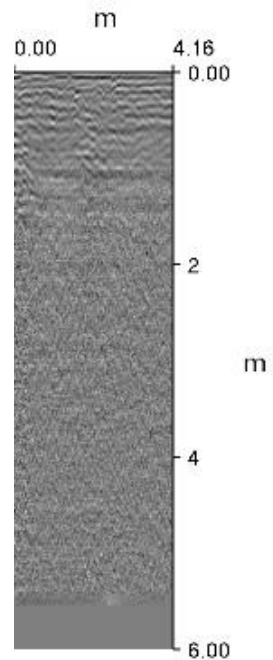




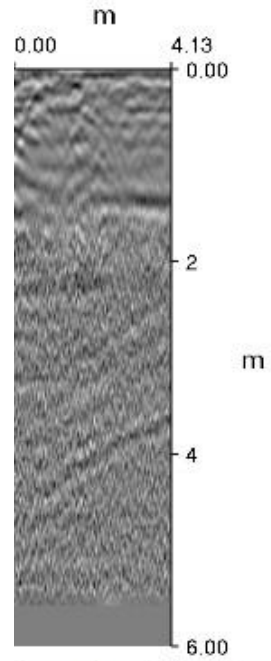
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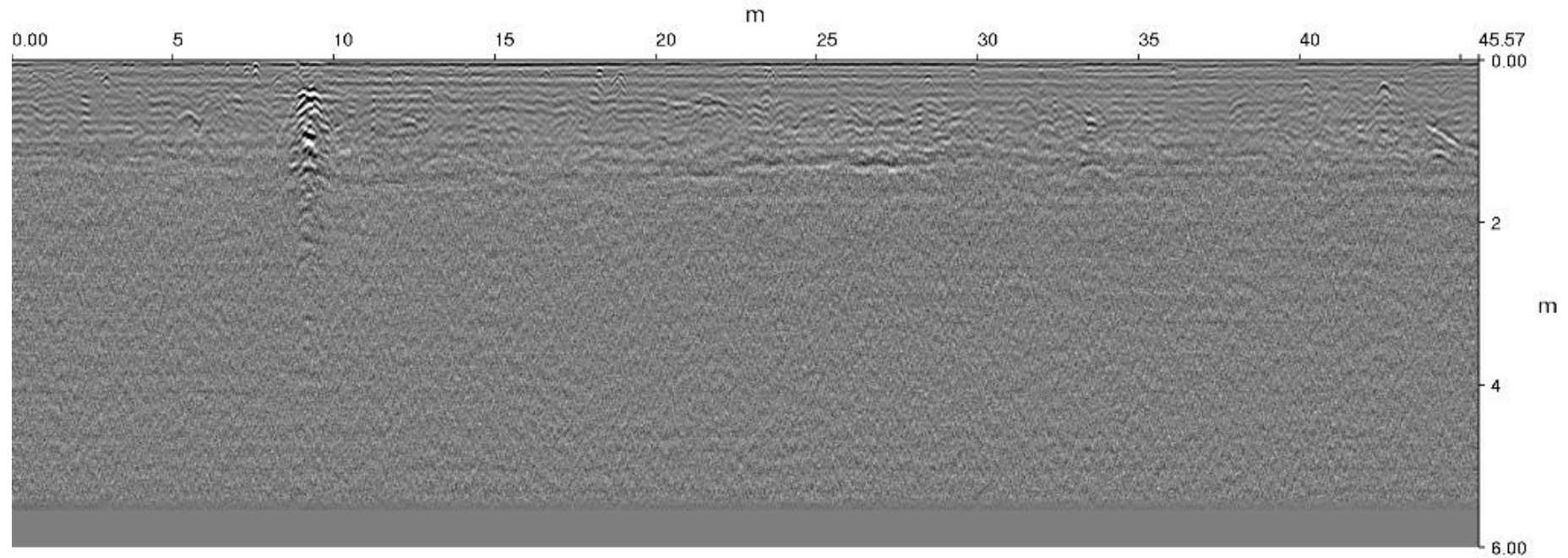
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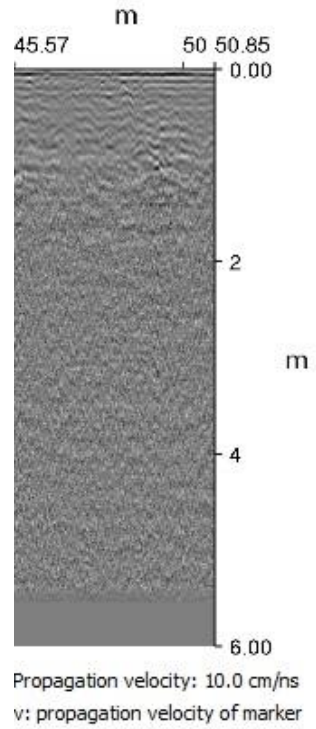
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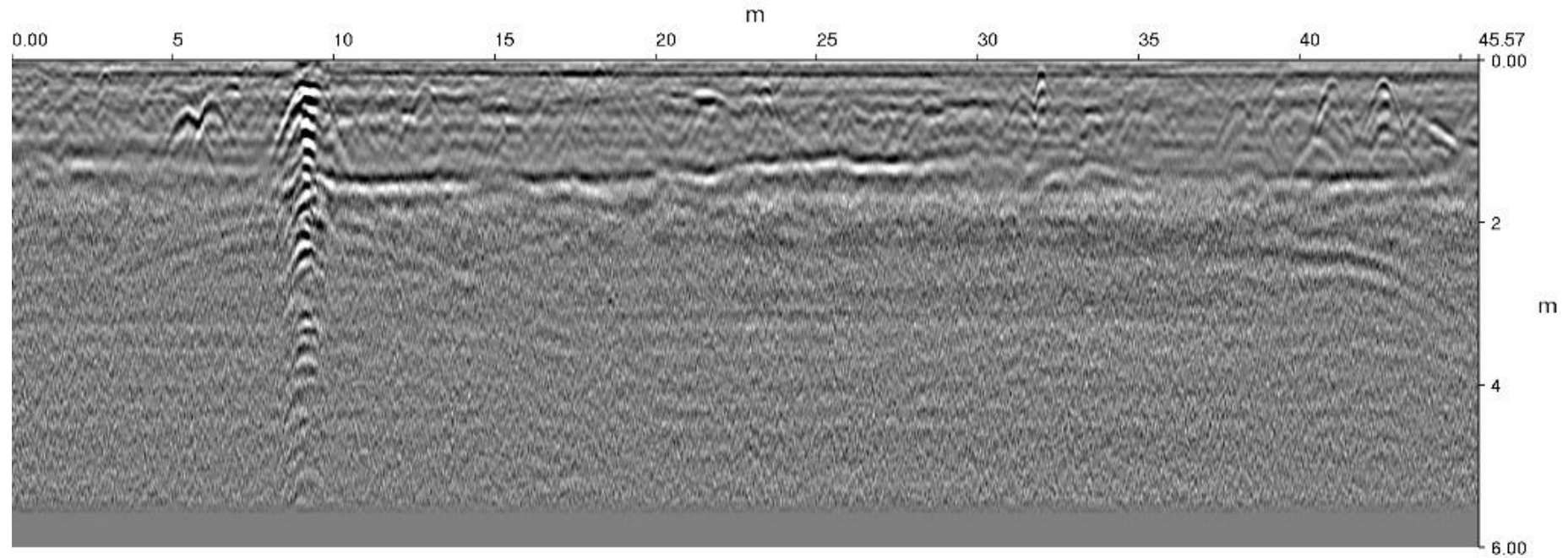


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

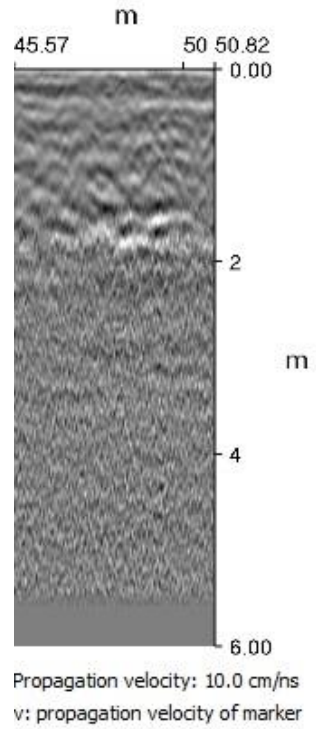


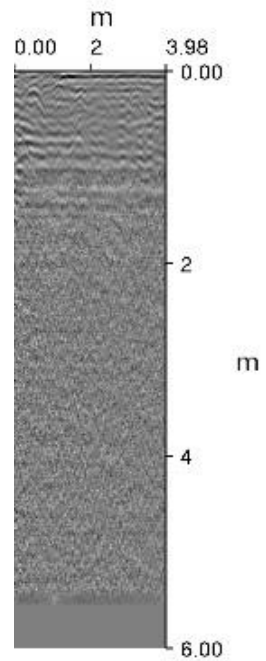
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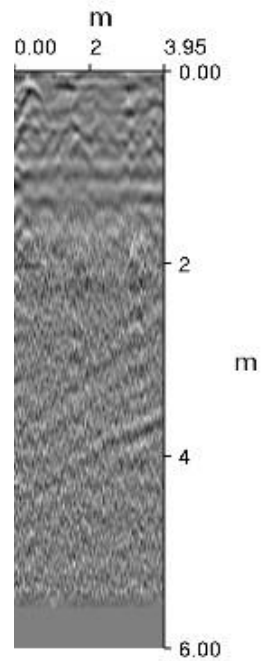


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

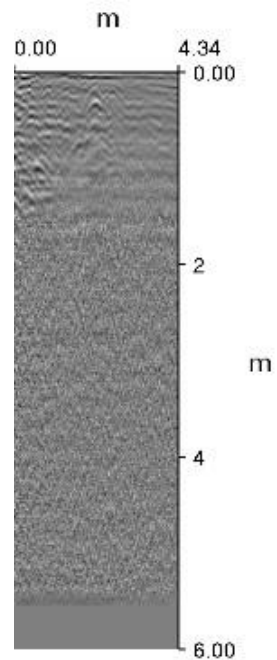




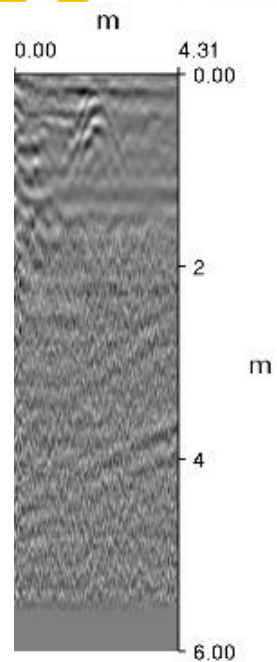
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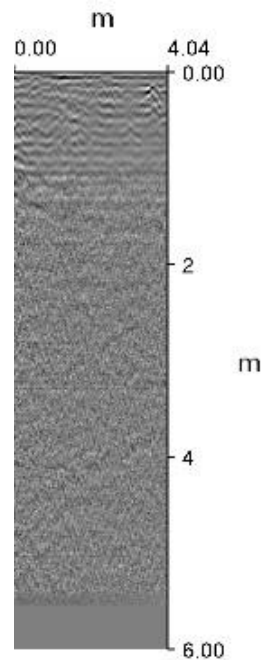
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v: propagation velocity of marker



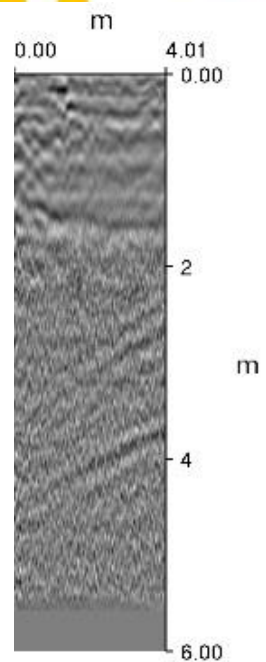
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v: propagation velocity of marker



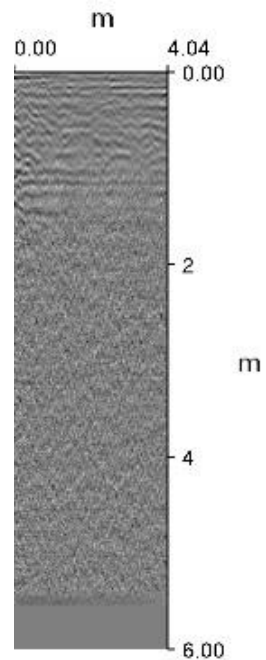
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v: propagation velocity of marker



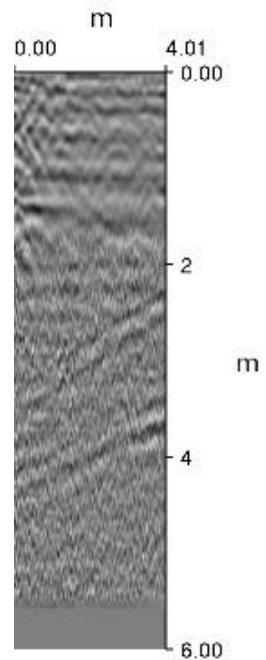
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v: propagation velocity of marker



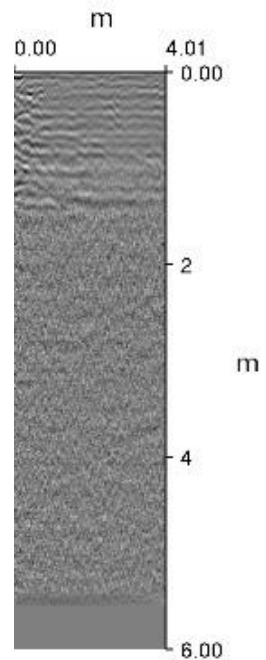
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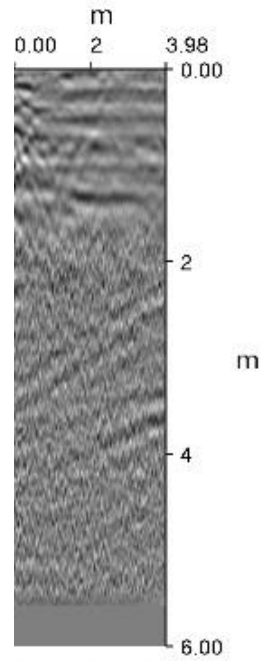
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v: propagation velocity of marker



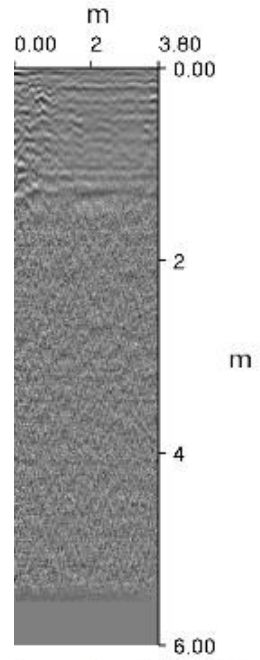
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v: propagation velocity of marker



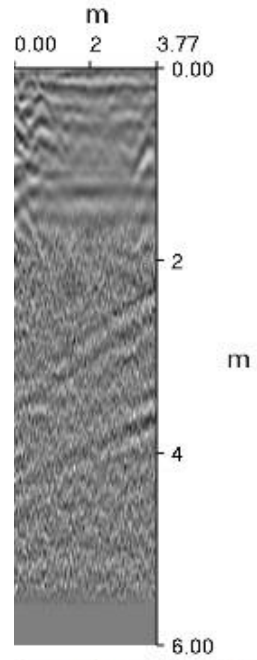
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v: propagation velocity of marker



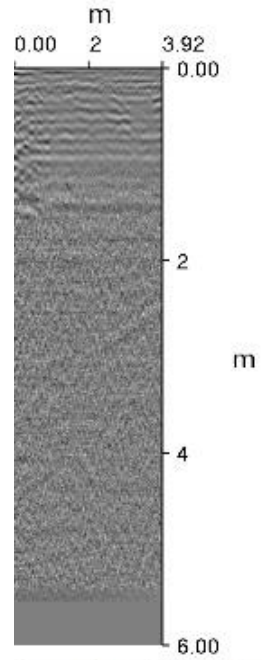
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v: propagation velocity of marker



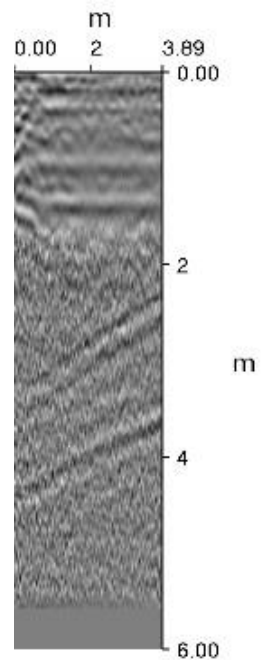
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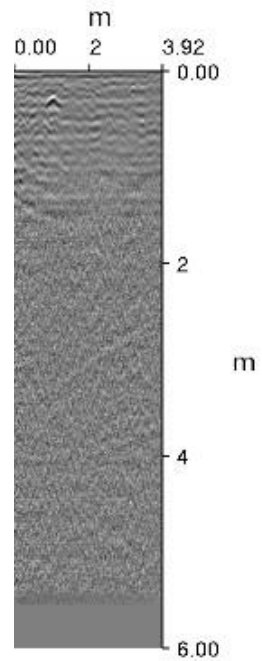
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v: propagation velocity of marker



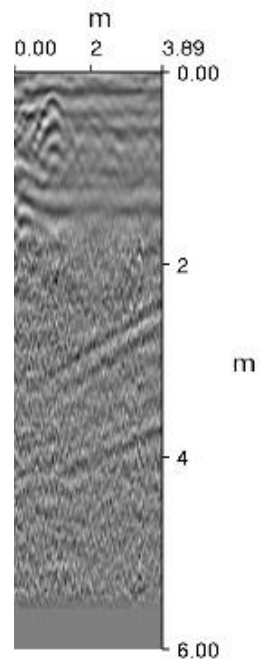
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v: propagation velocity of marker



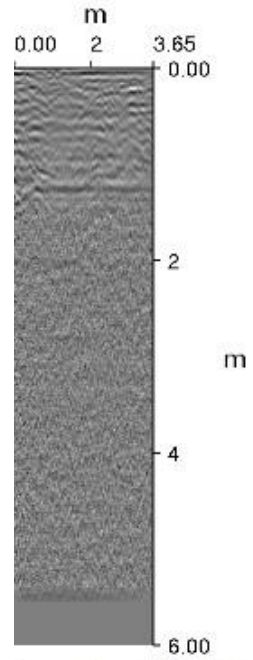
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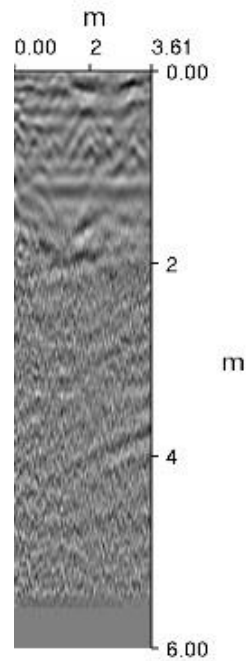
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v: propagation velocity of marker



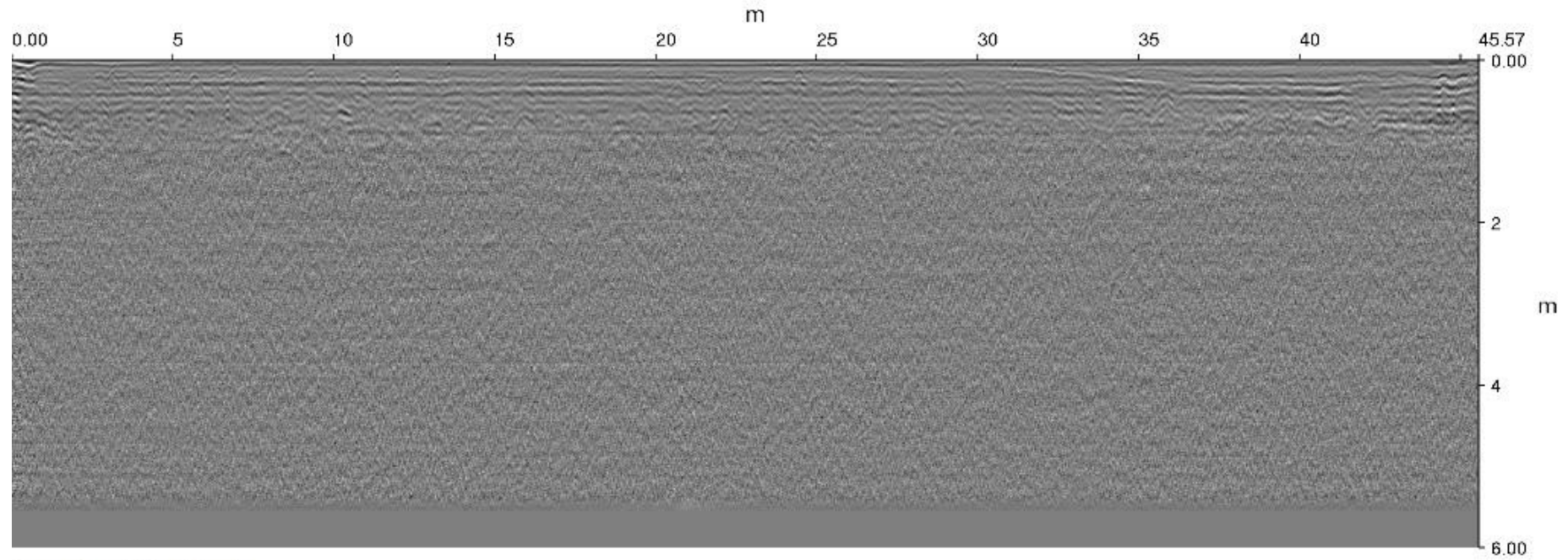
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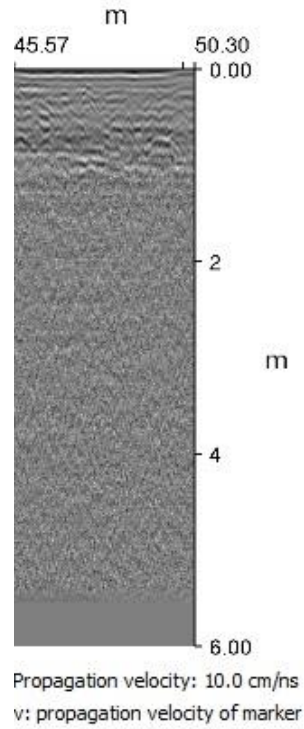
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v: propagation velocity of marker

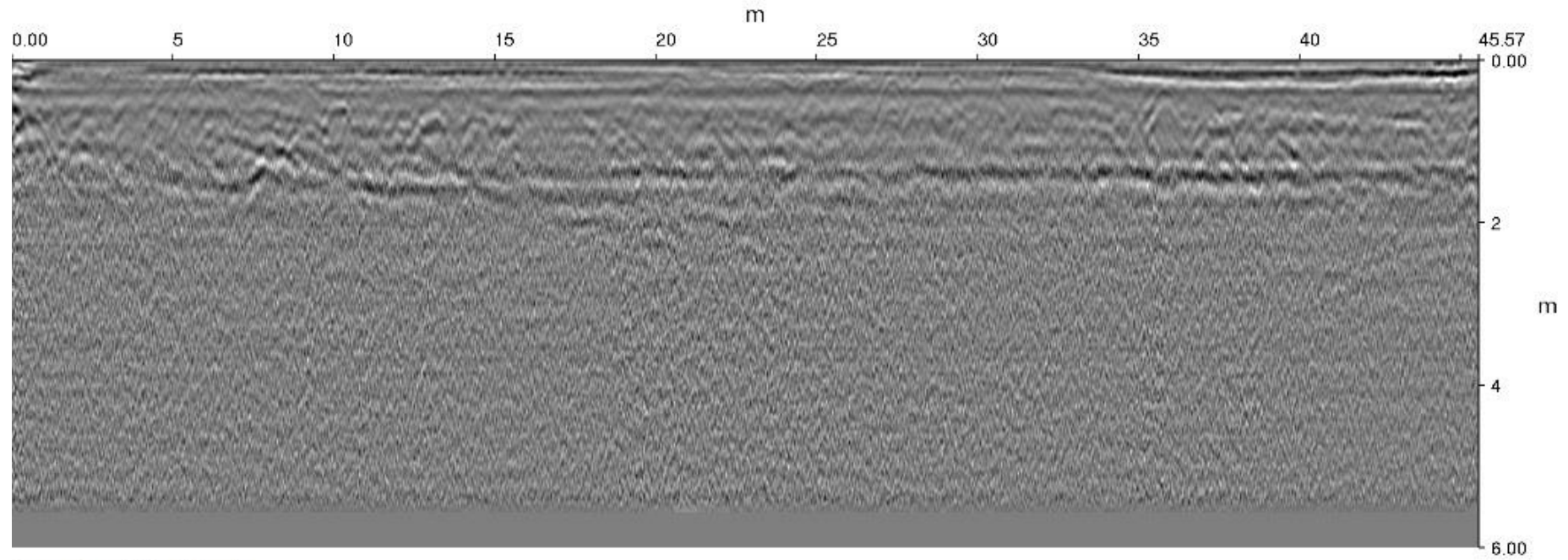


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

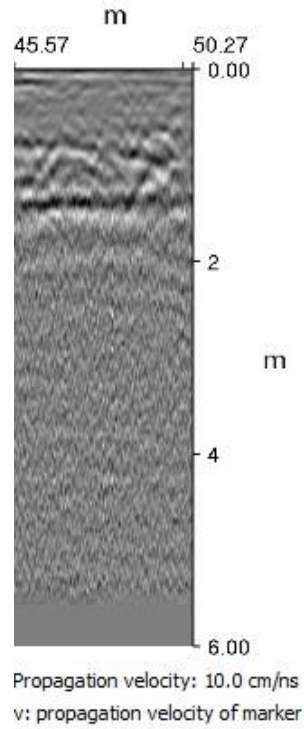


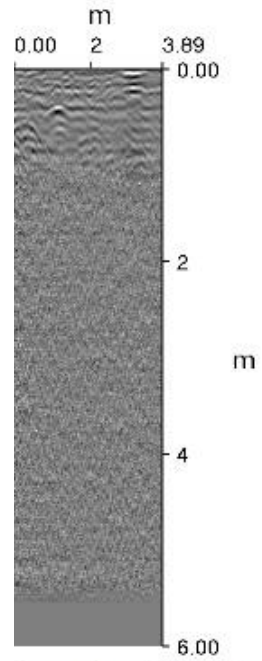
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



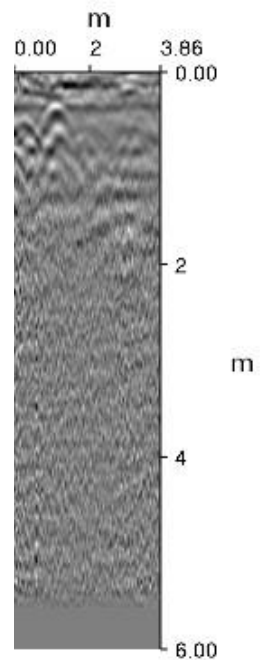


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

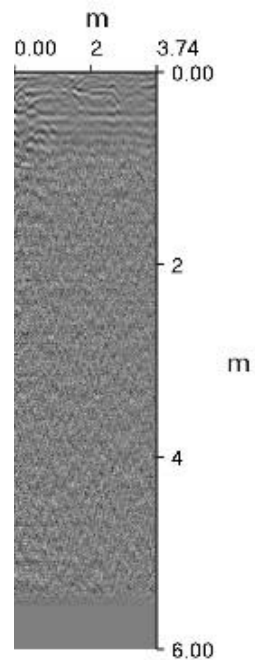




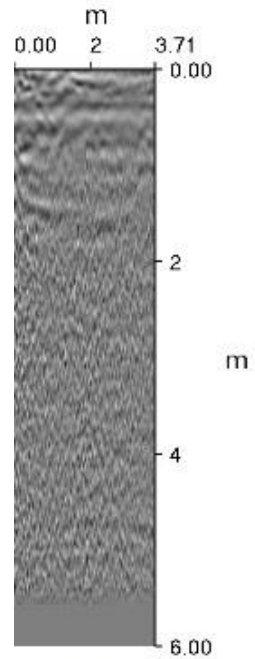
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v: propagation velocity of marker



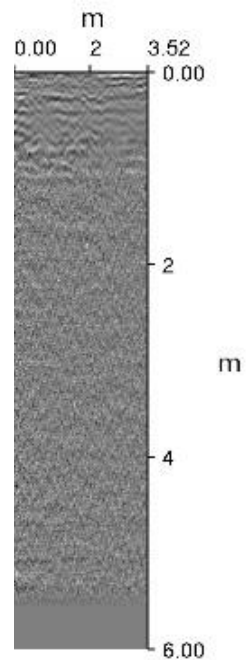
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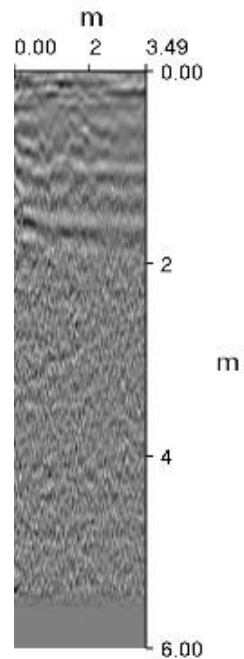
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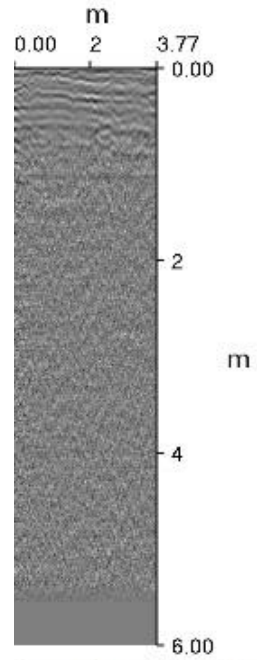
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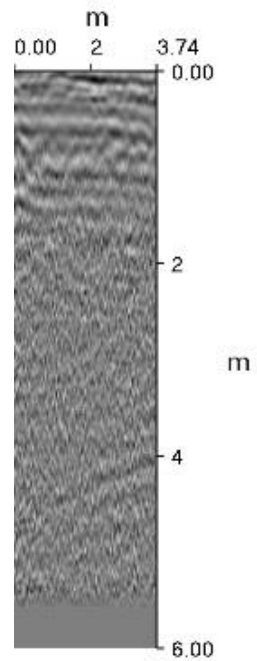
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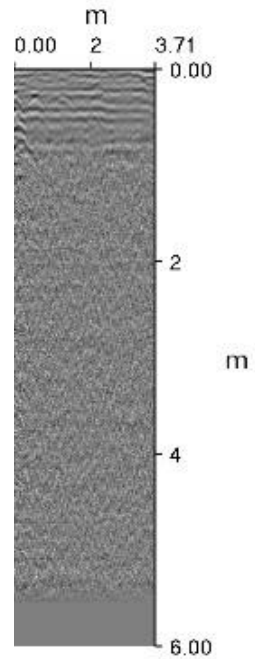
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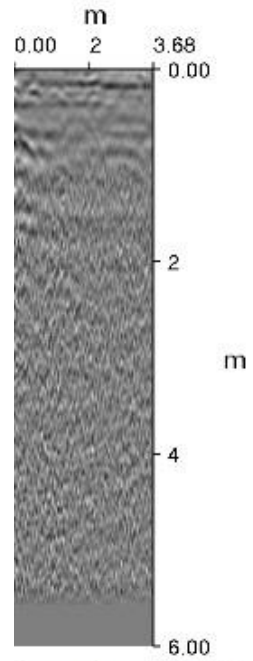
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v: propagation velocity of marker



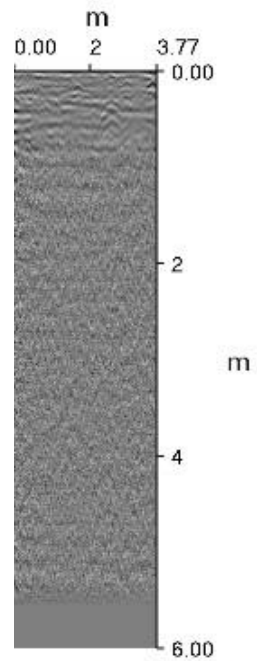
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v: propagation velocity of marker



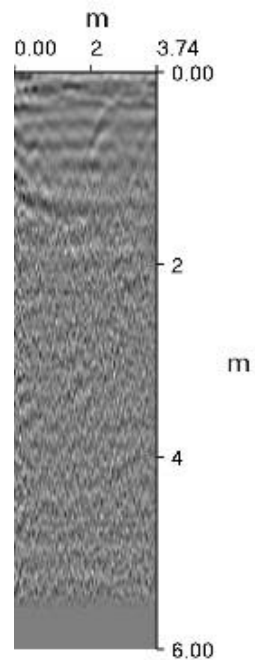
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v: propagation velocity of marker



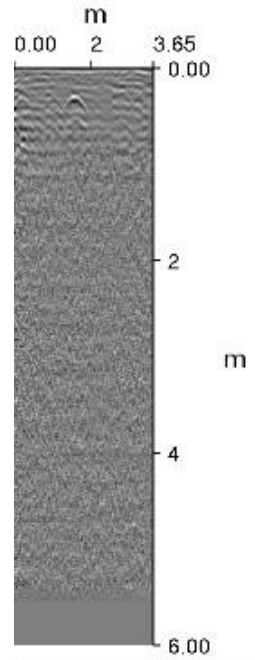
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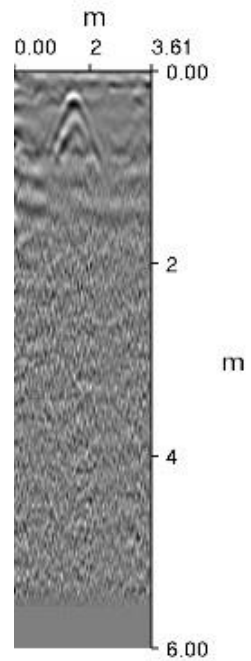
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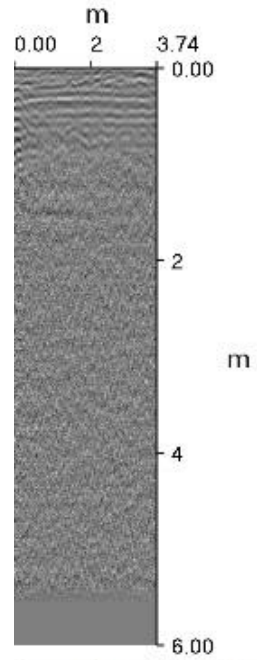
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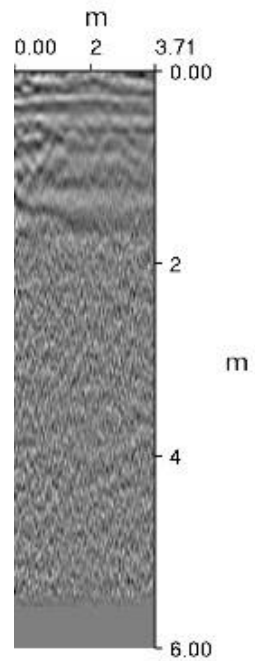
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v: propagation velocity of marker



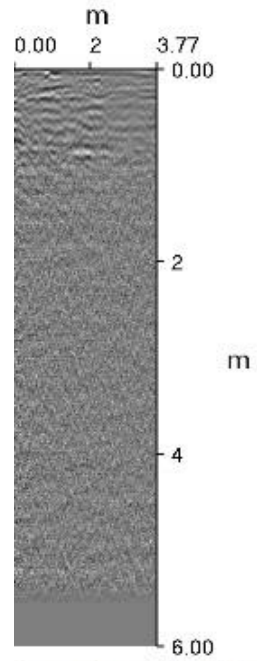
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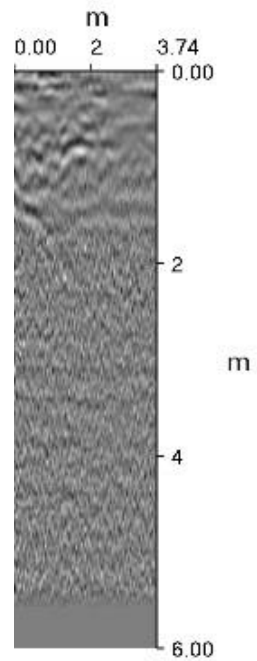
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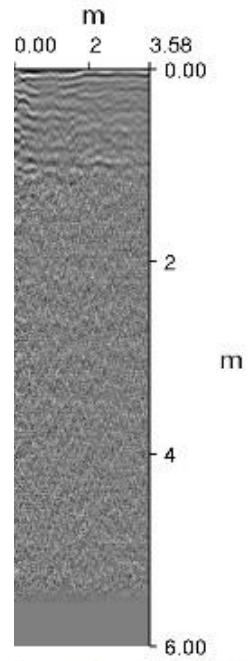
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



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v: propagation velocity of marker



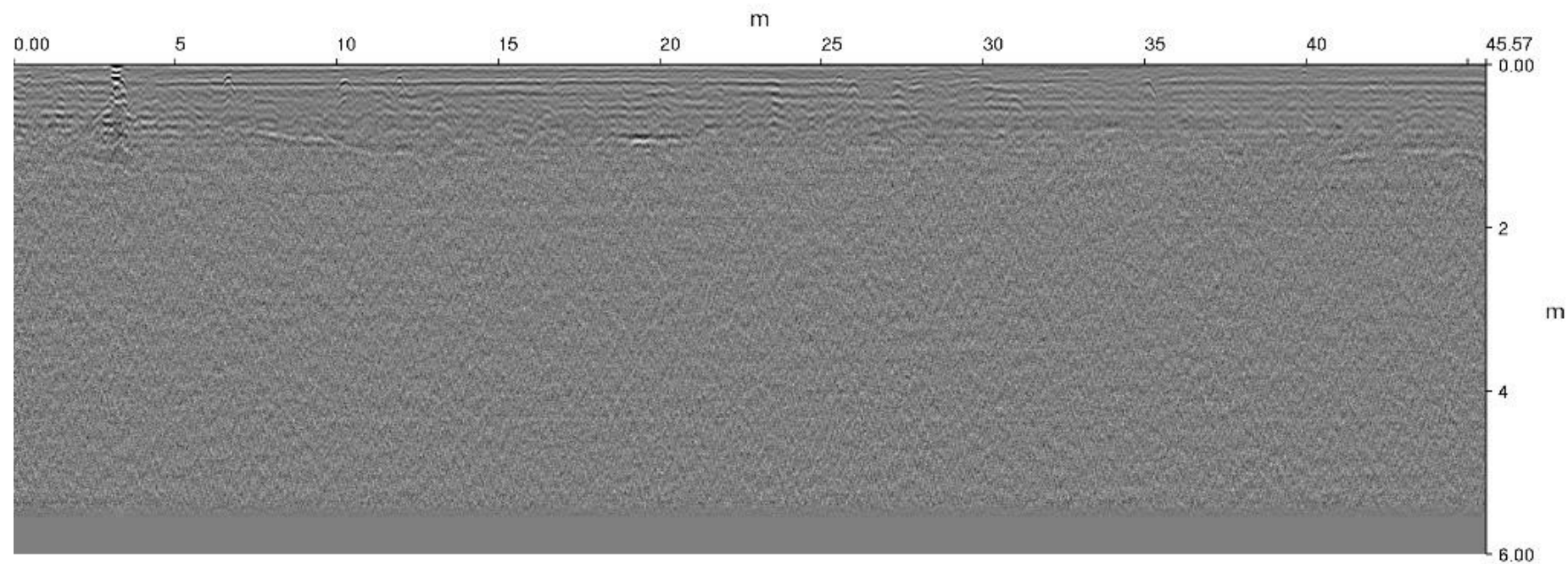
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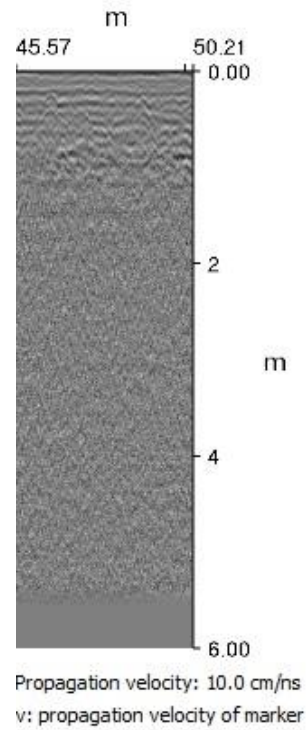
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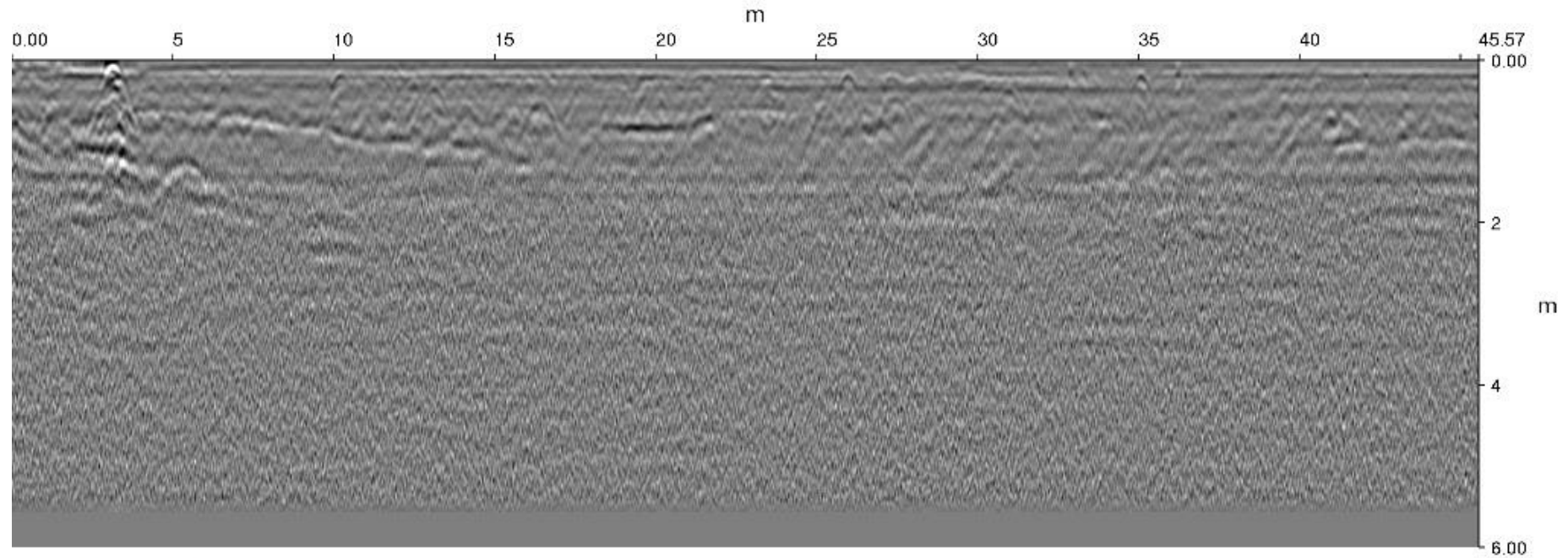
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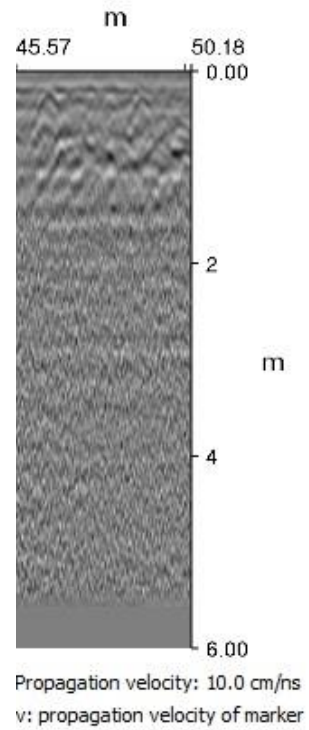


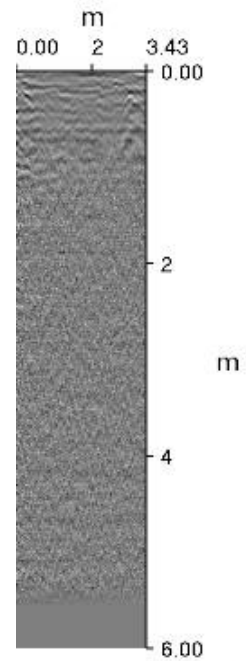
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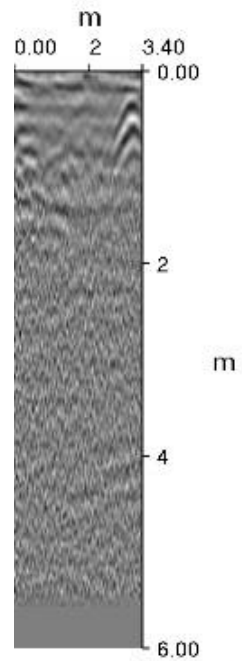


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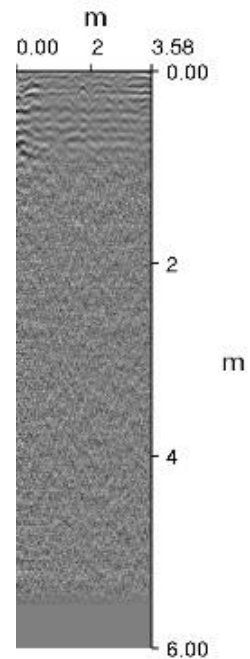




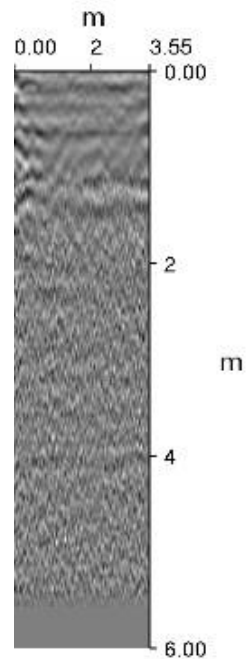
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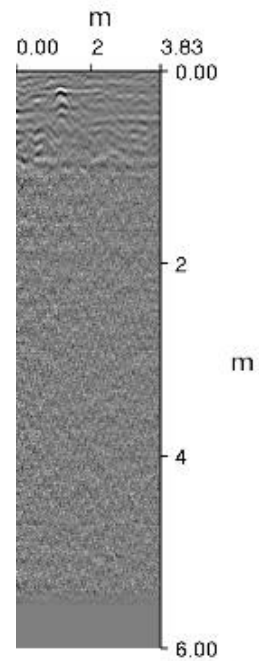
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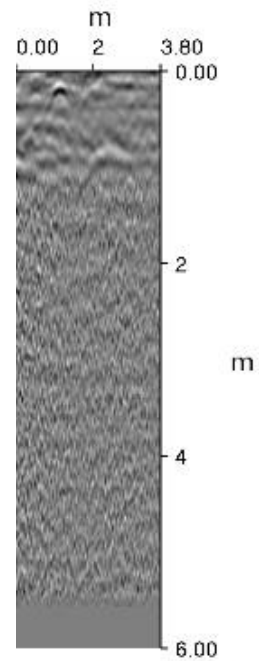
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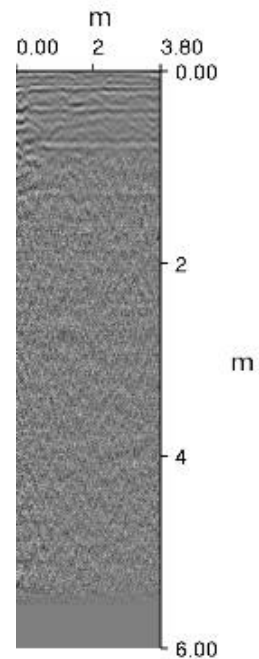
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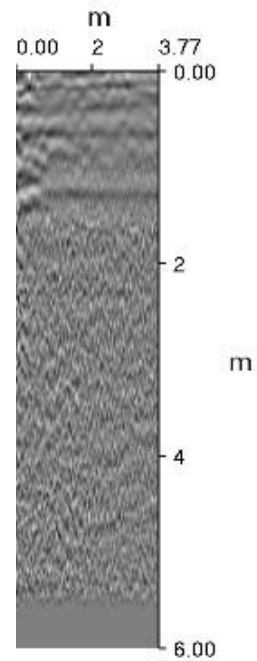
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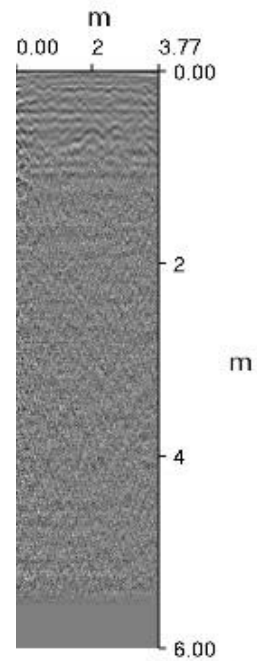
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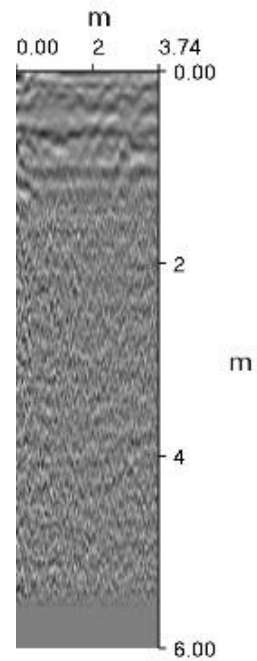
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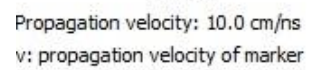
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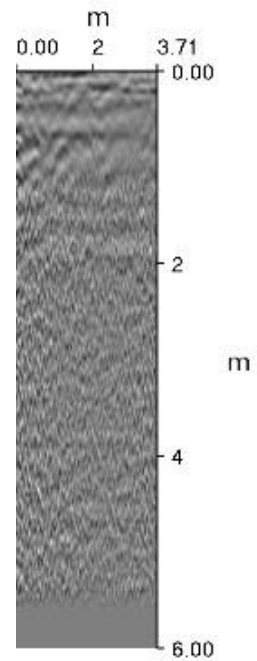


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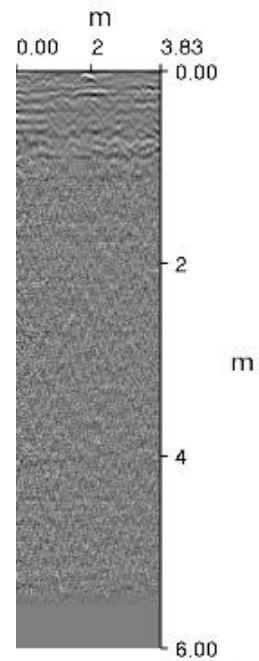


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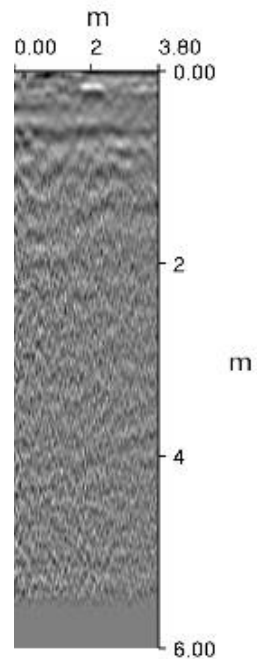




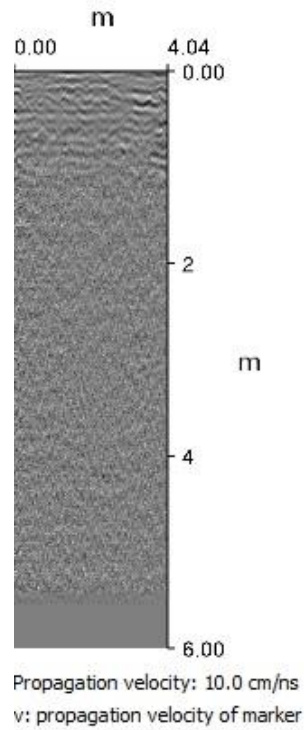
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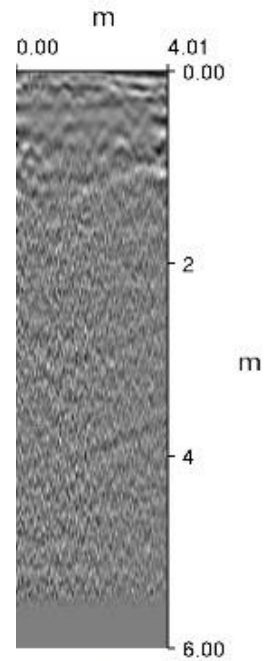


Propagation velocity: 10.0 cm/ns
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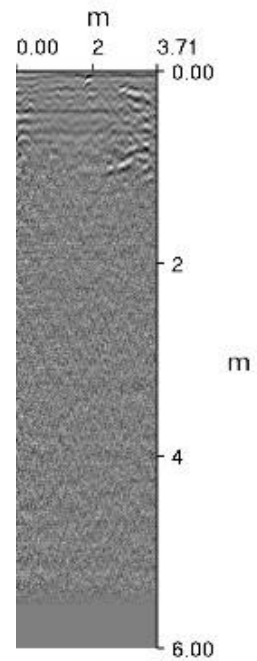


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

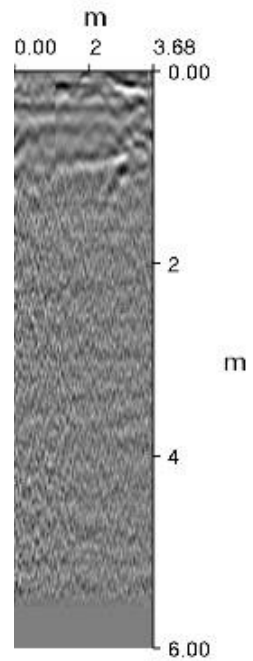




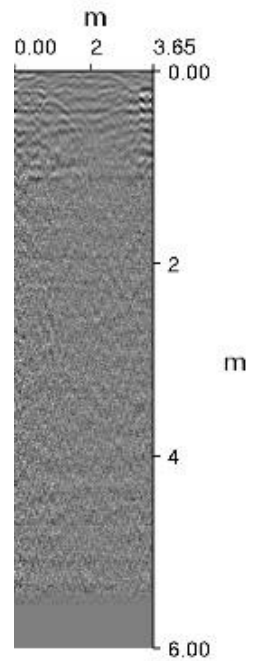
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



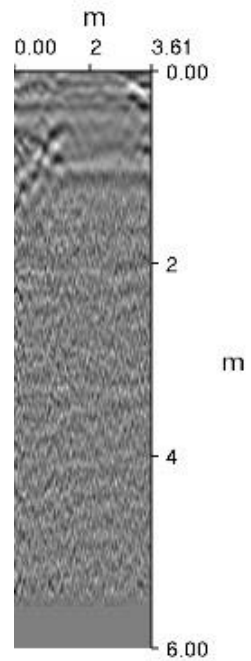
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



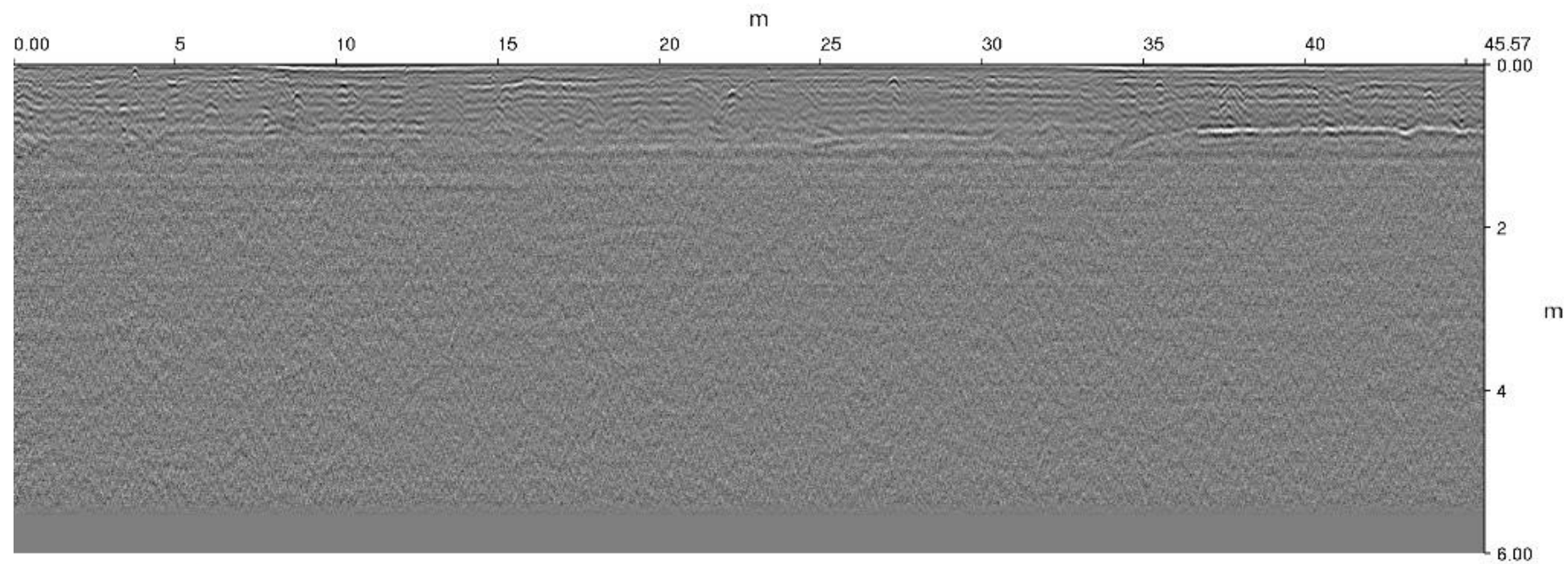
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v: propagation velocity of marker



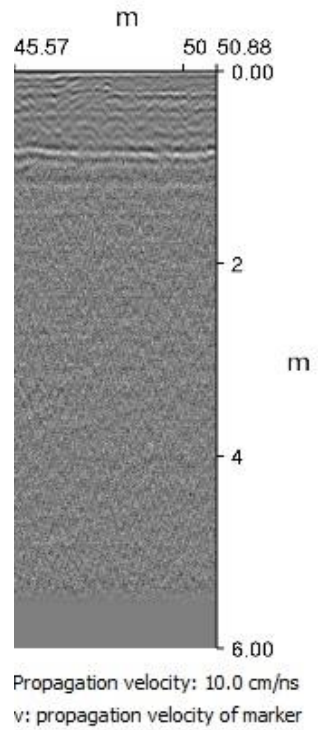
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

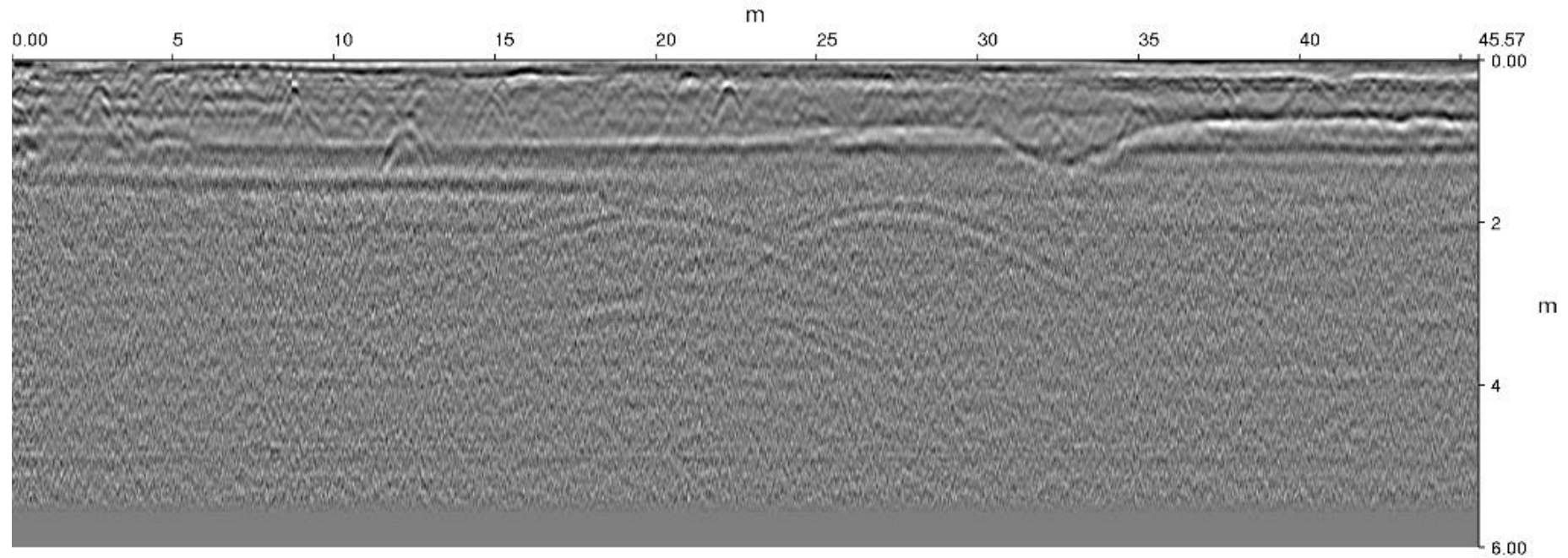


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

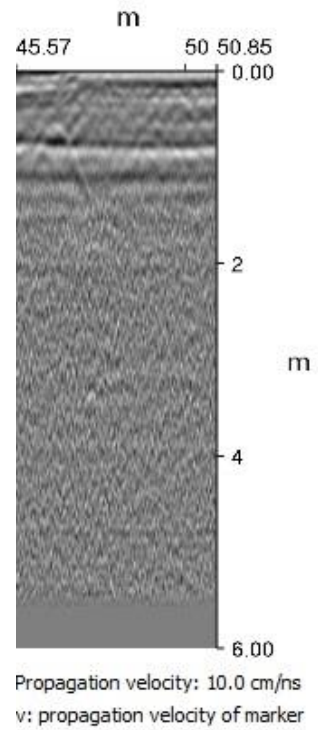


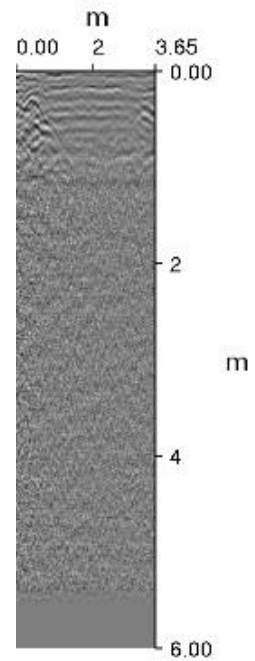
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



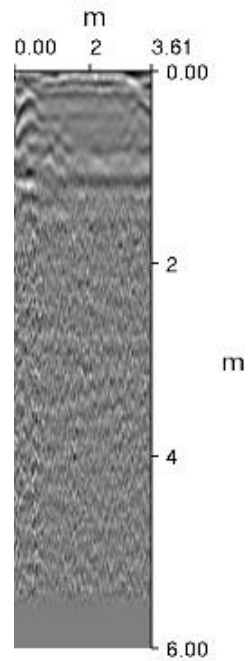


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

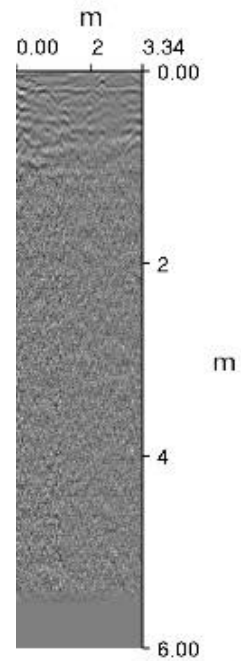




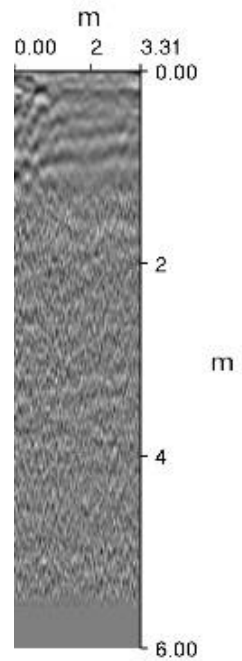
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



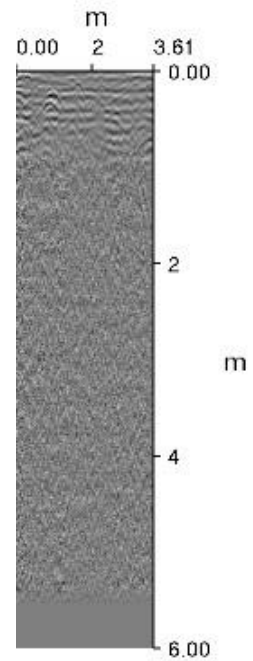
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v: propagation velocity of marker



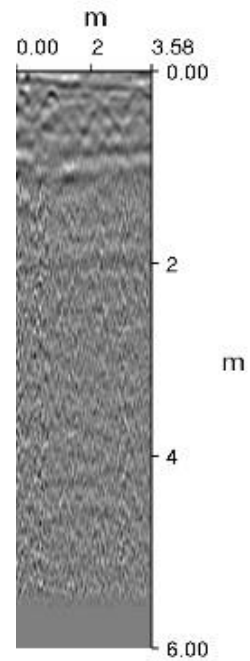
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v: propagation velocity of marker



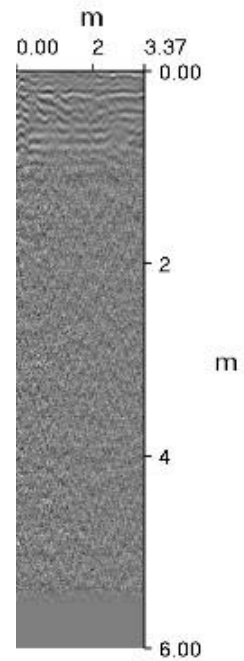
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



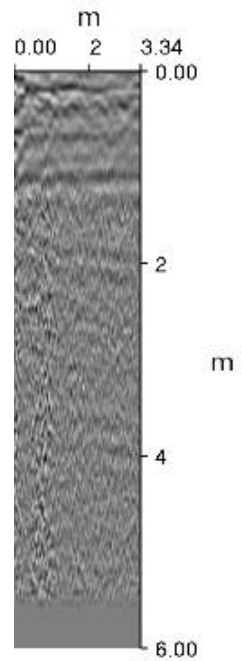
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



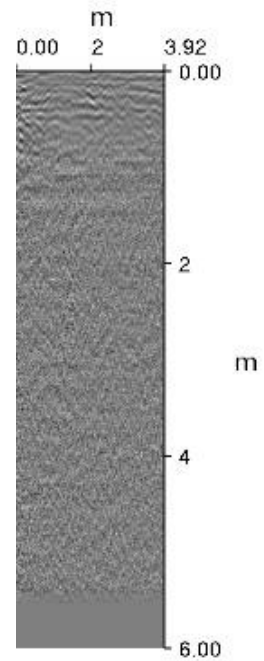
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



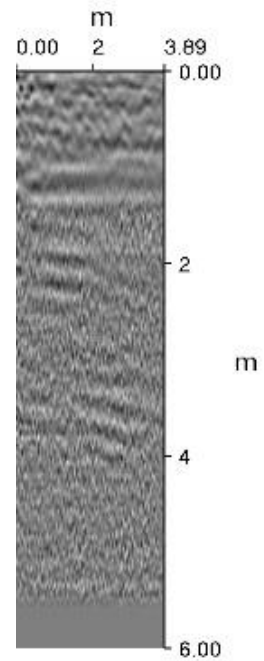
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



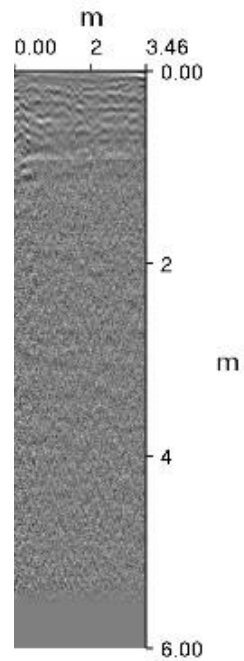
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



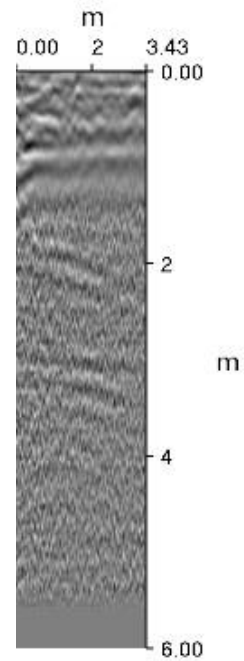
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



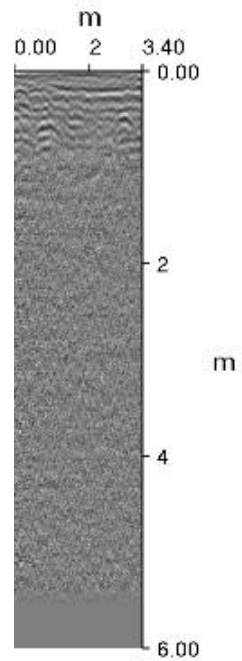
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v: propagation velocity of marker



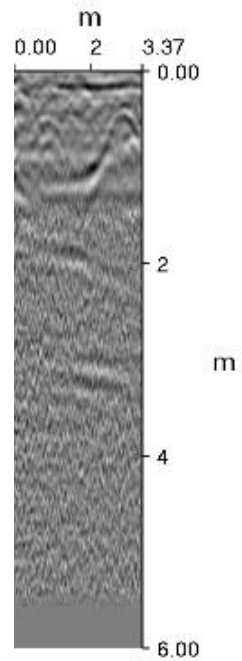
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



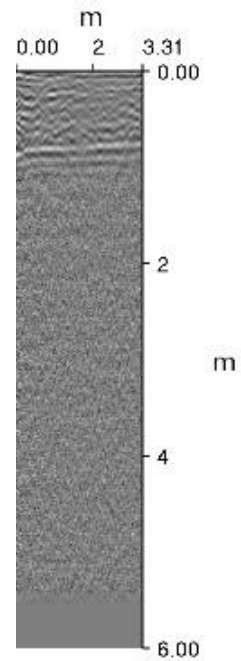
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v: propagation velocity of marker



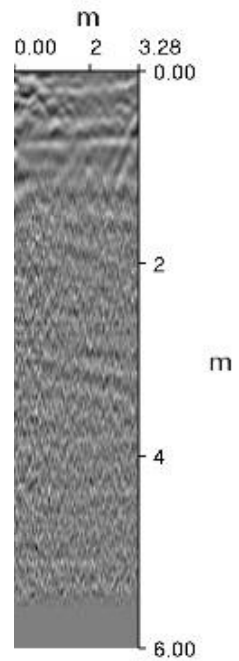
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



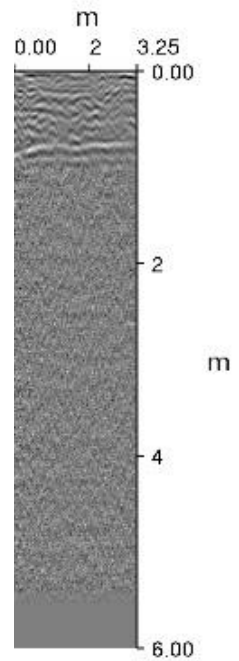
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



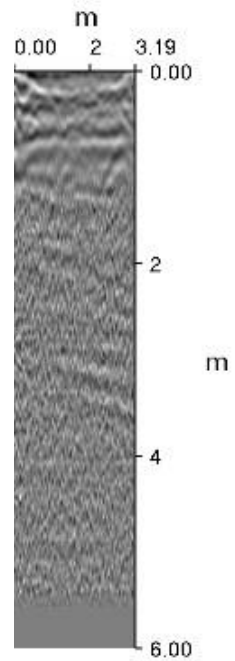
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



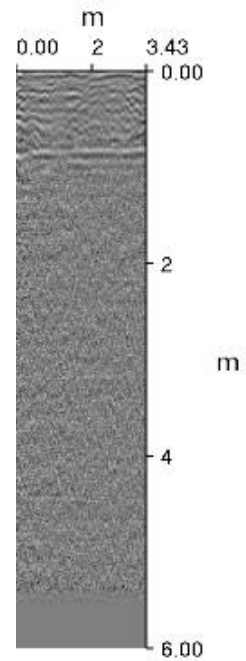
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



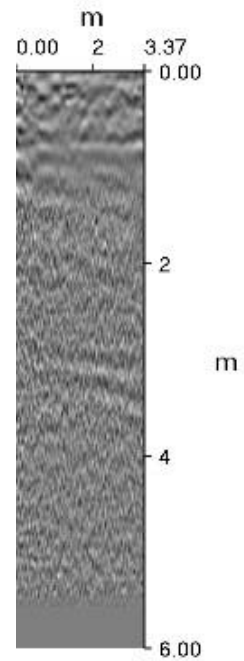
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v: propagation velocity of marker



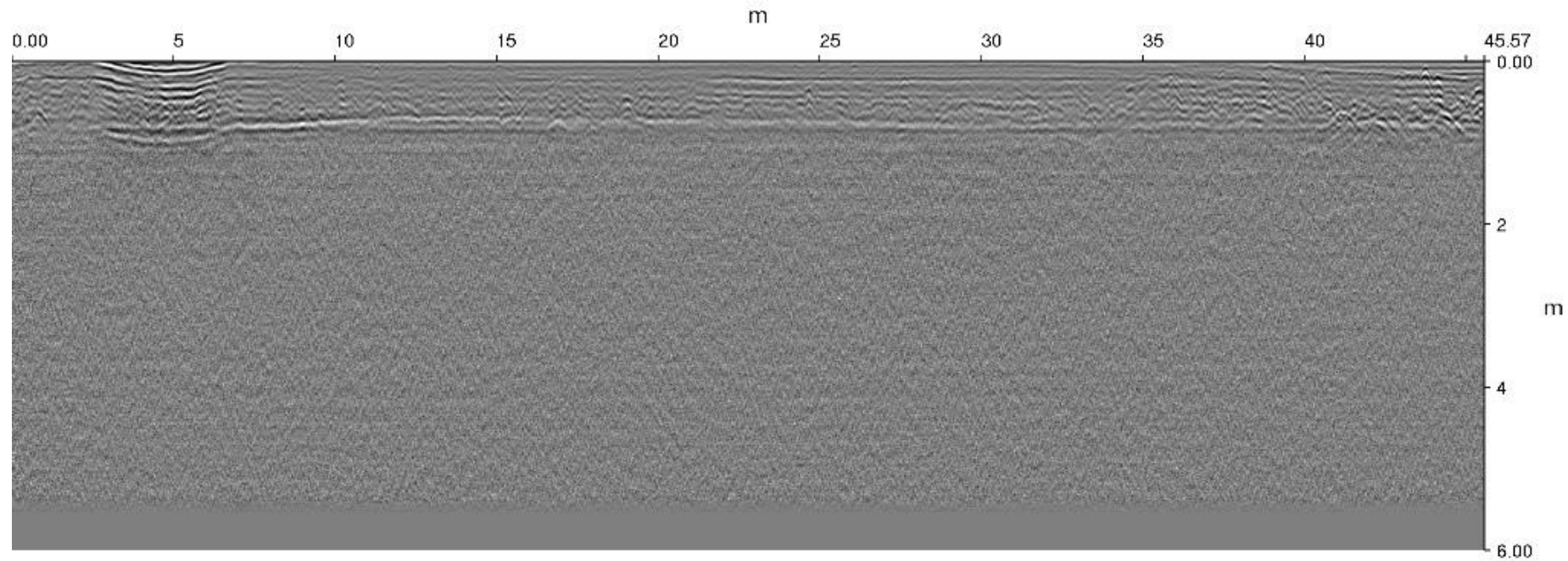
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



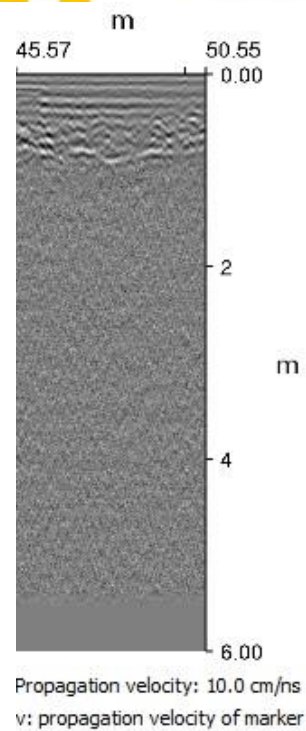
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

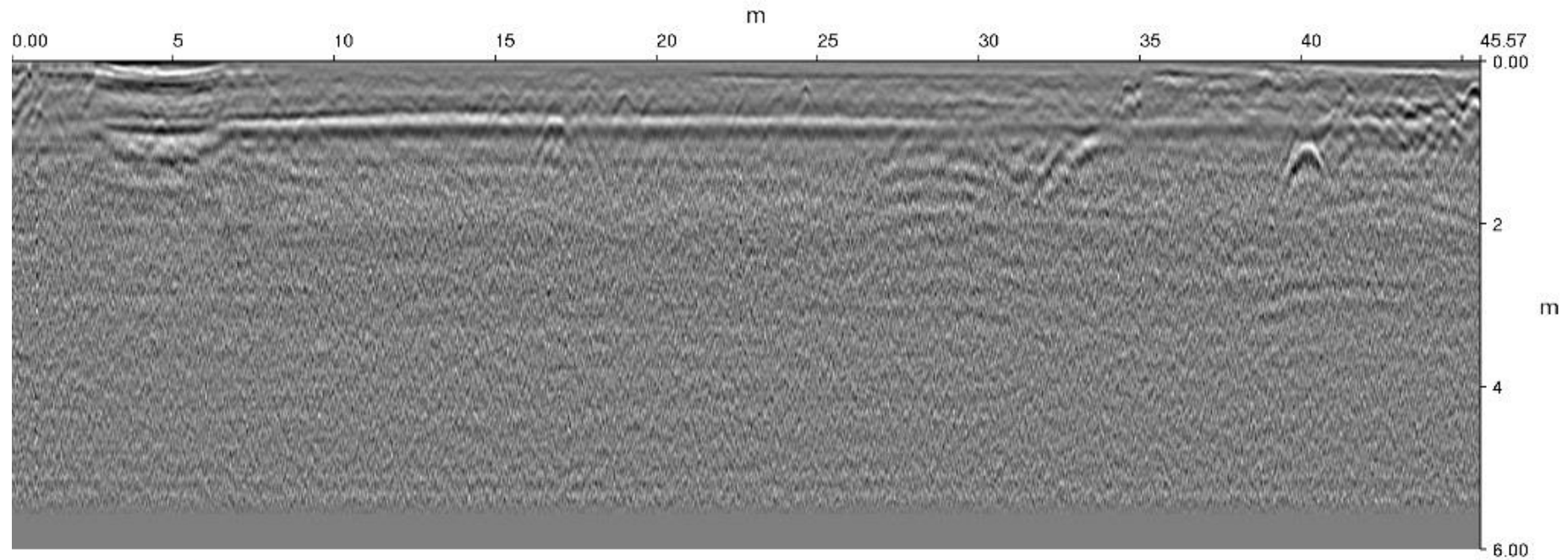


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

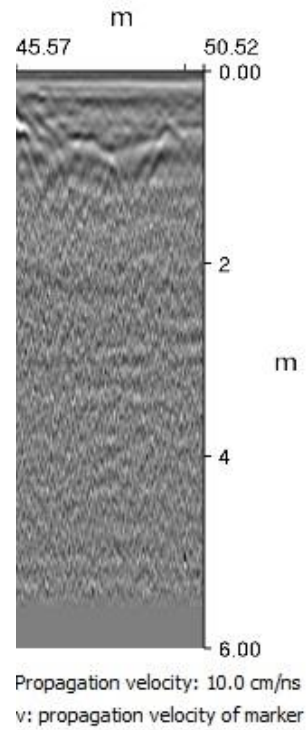


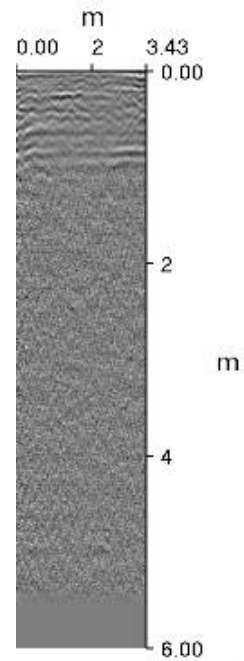
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v: propagation velocity of marker



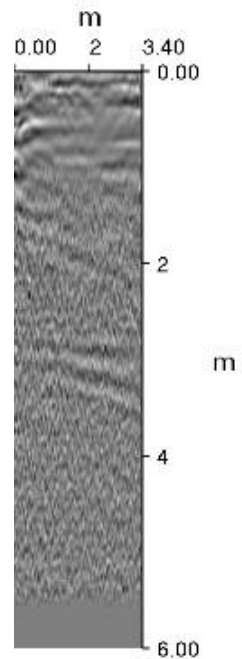


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

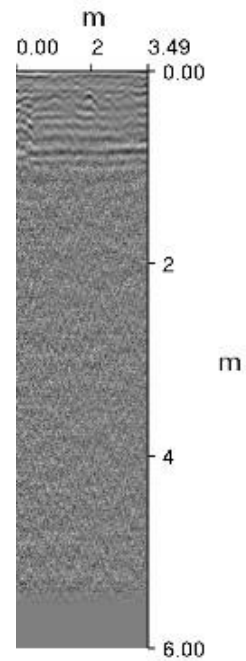




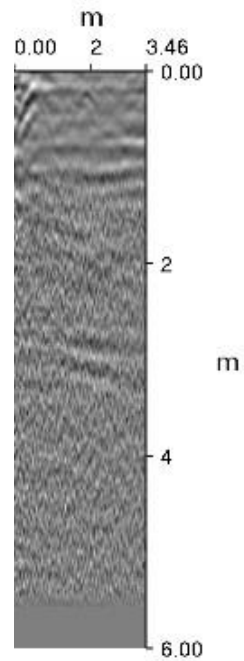
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v: propagation velocity of marker



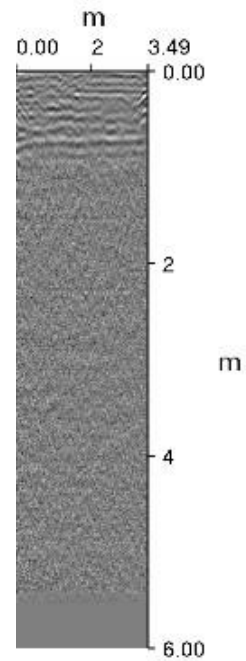
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



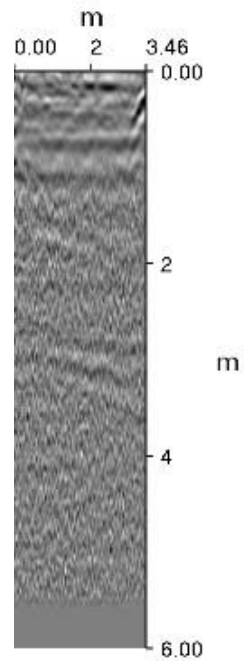
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v: propagation velocity of marker



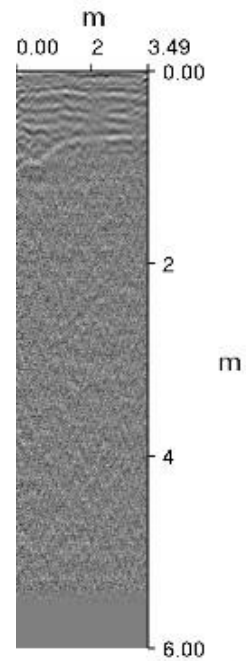
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v: propagation velocity of marker



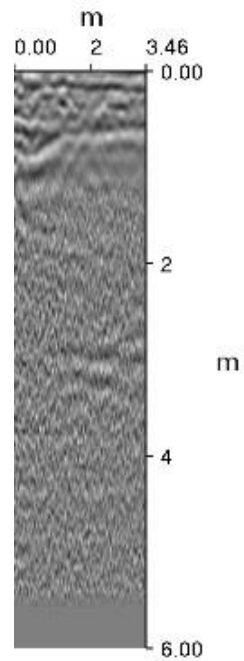
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v: propagation velocity of marker



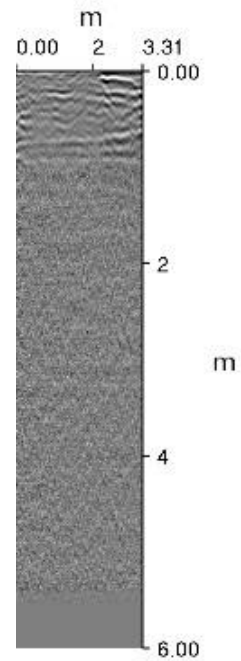
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v: propagation velocity of marker



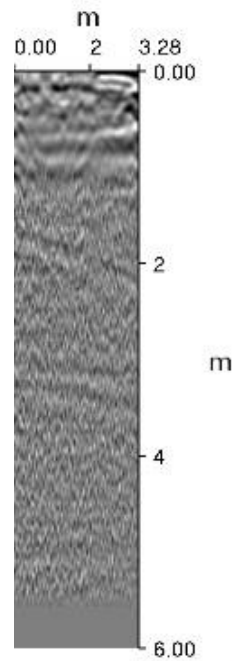
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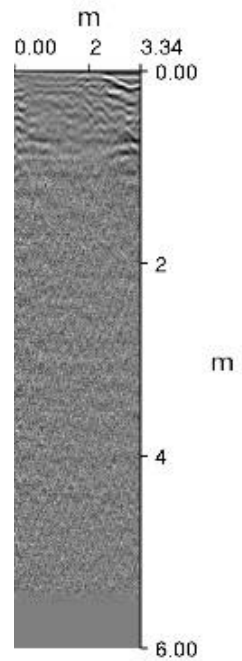
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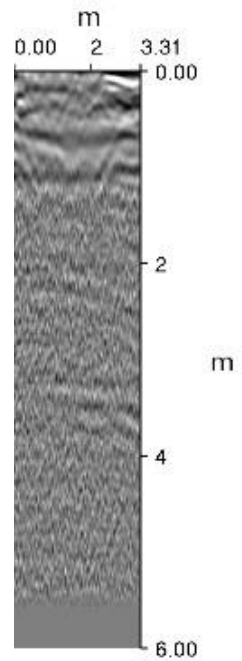
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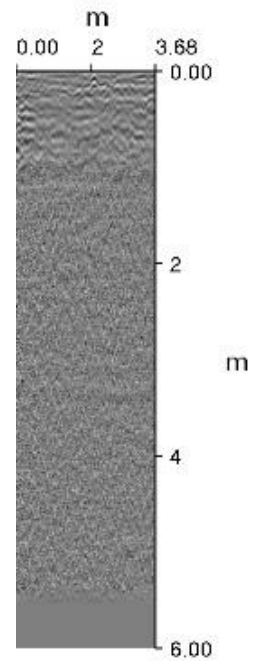
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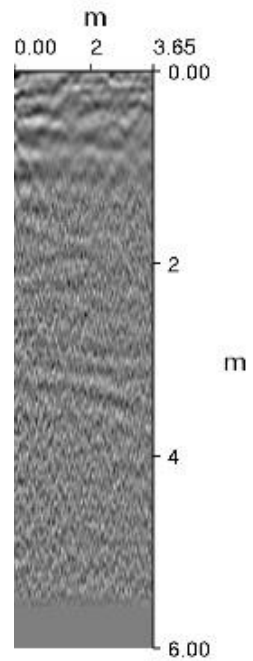
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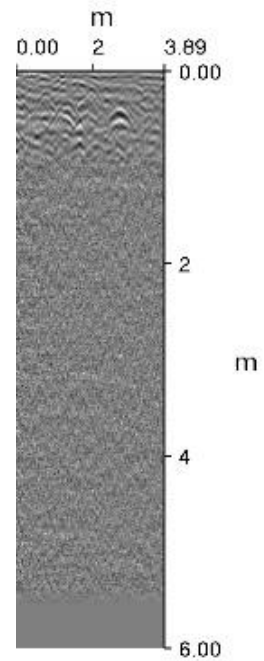
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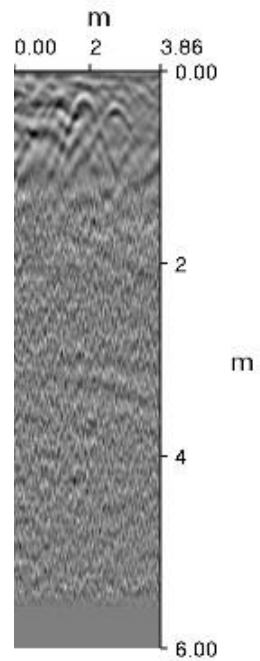
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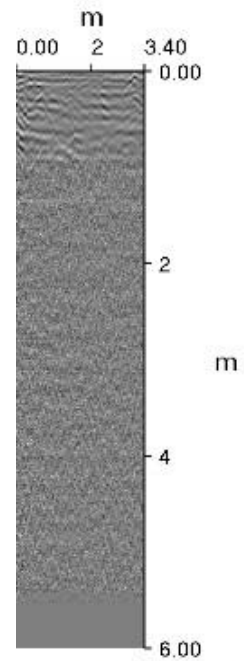
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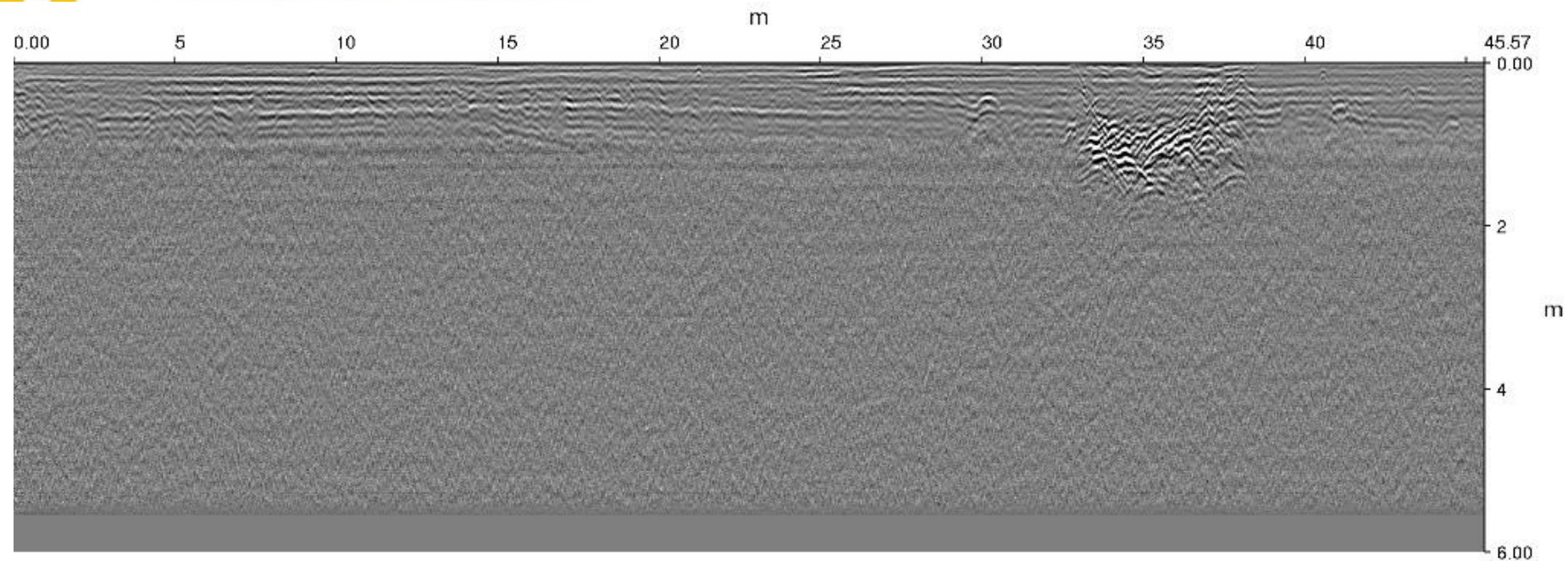
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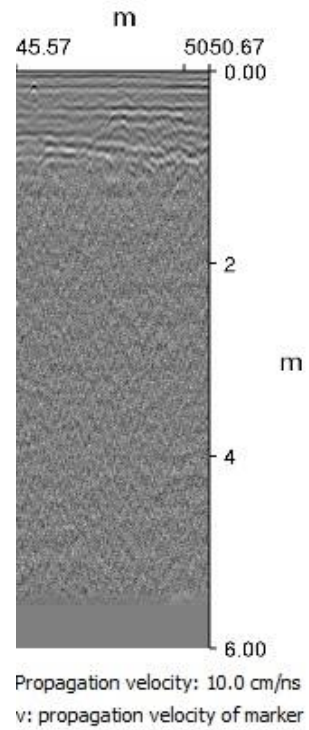
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v: propagation velocity of marker

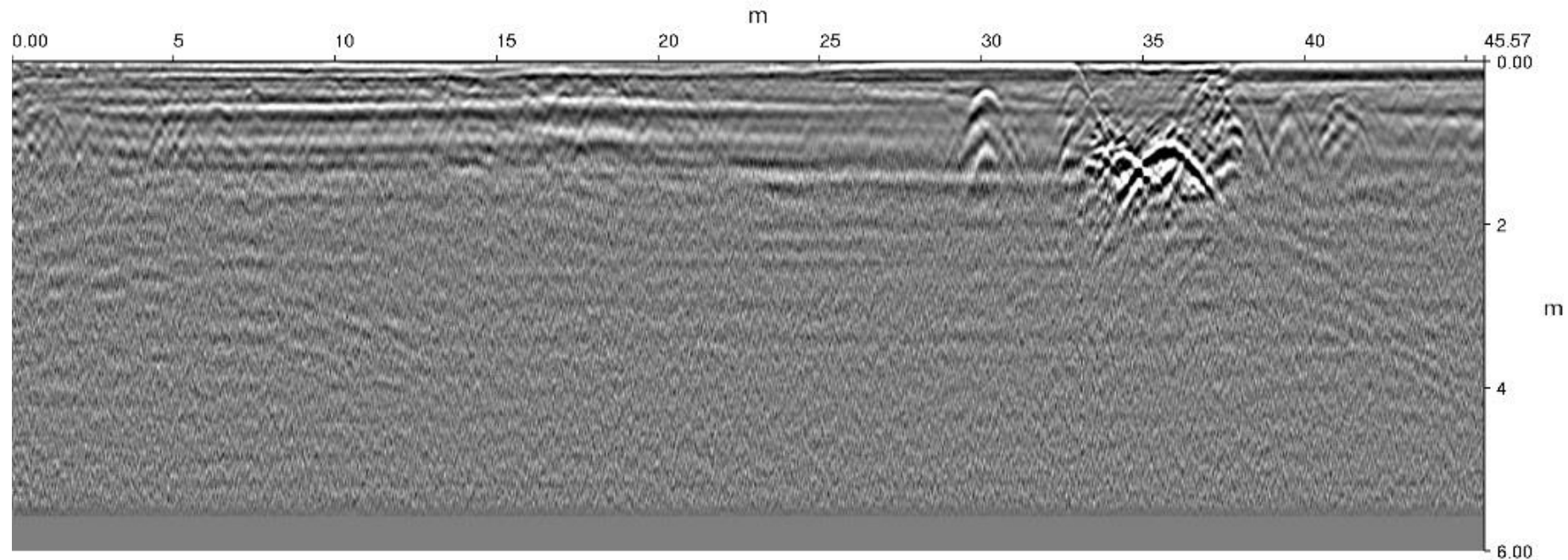


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

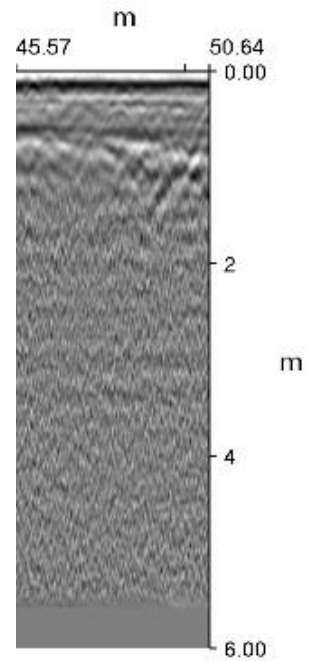


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

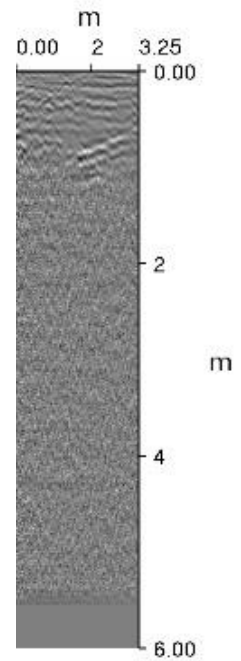




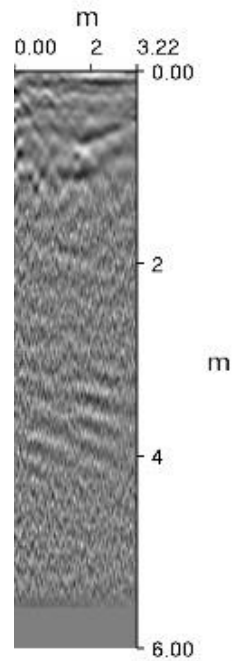
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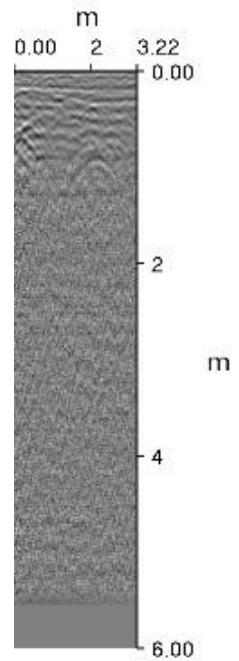
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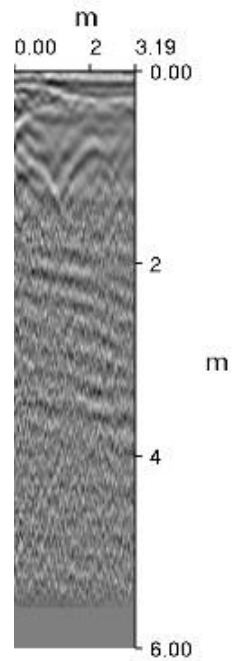
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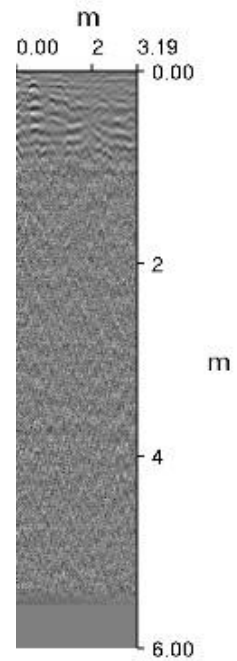
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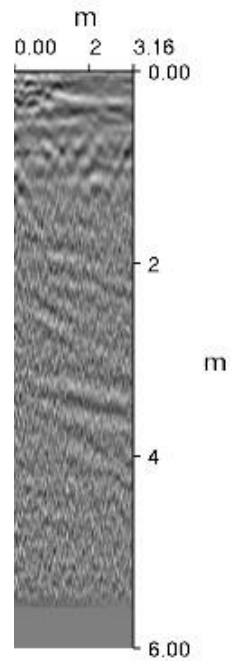
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v: propagation velocity of marker



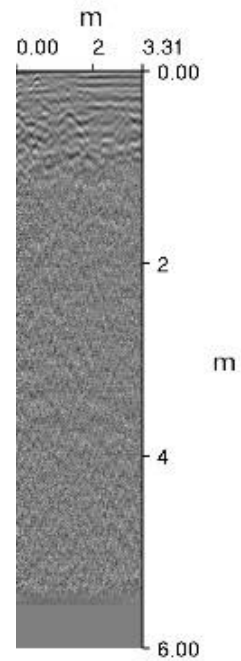
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v: propagation velocity of marker



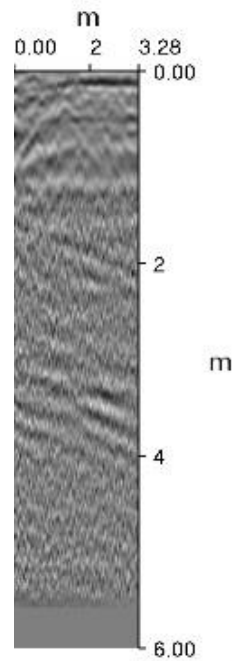
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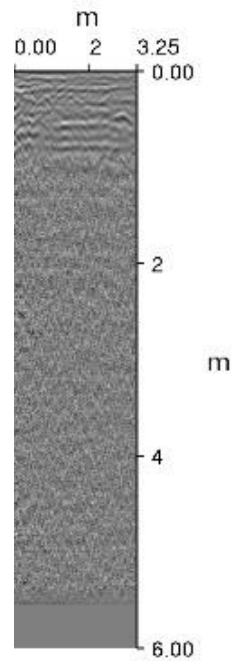
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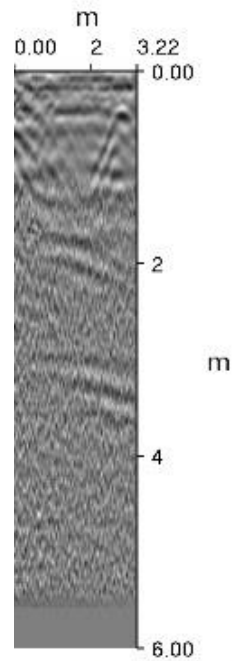
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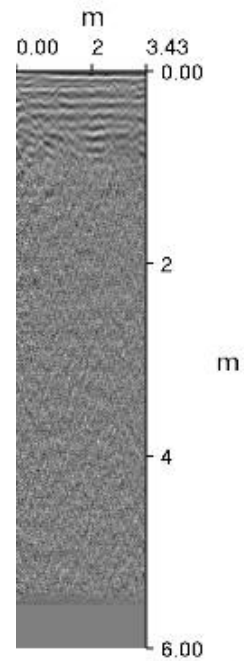
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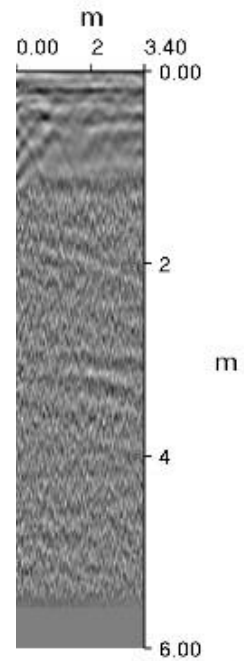
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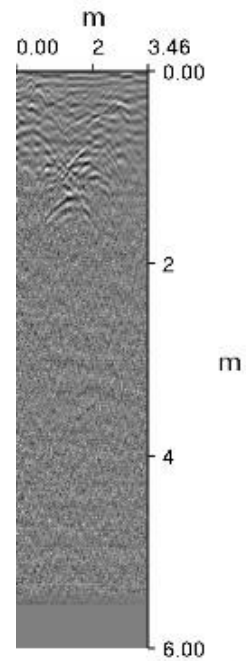
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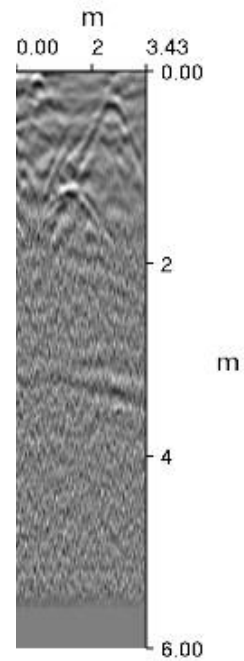
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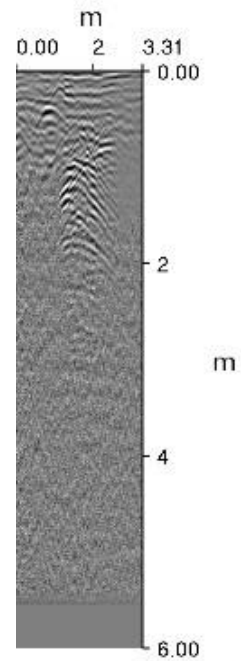
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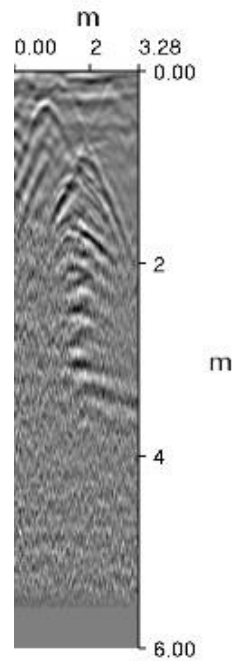
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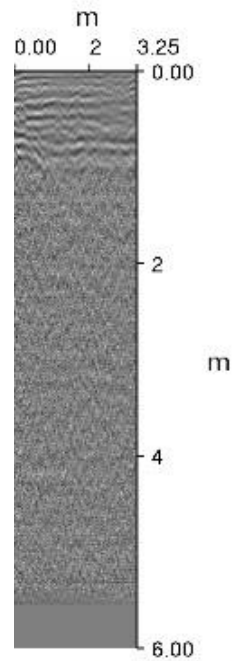
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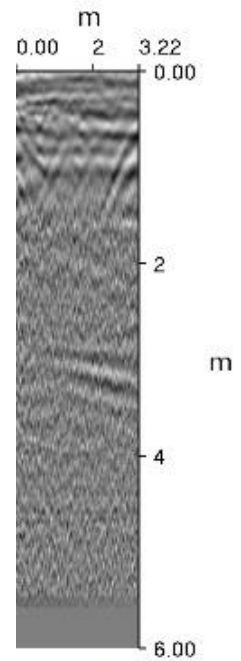
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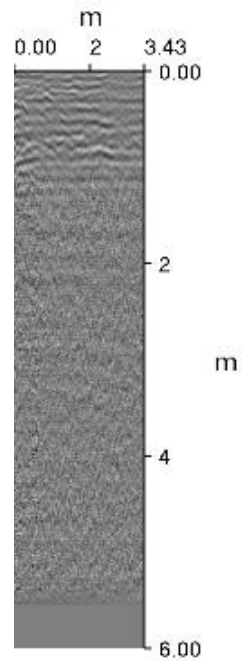
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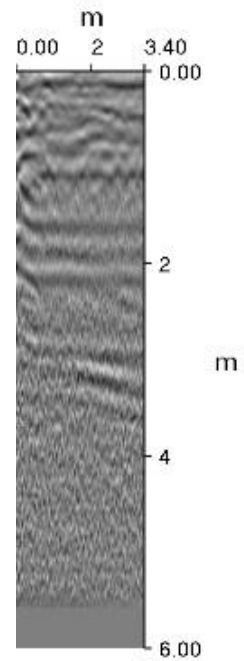
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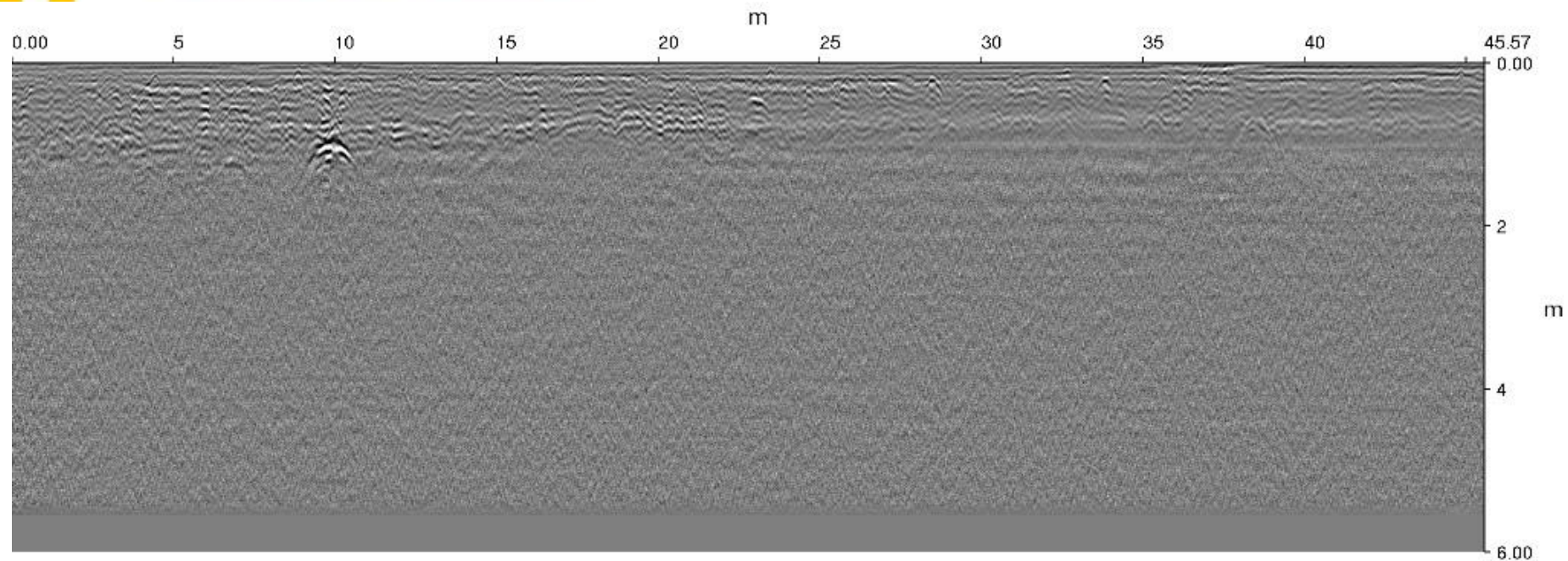
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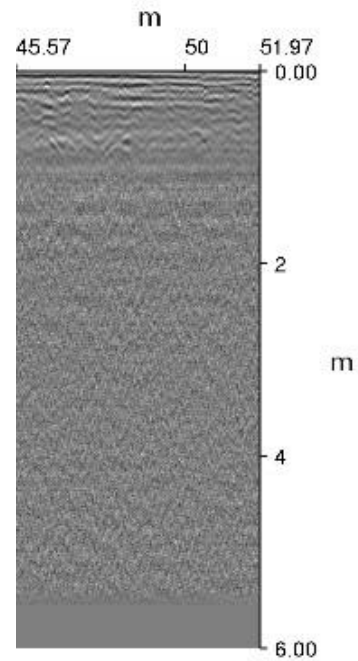
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v: propagation velocity of marker



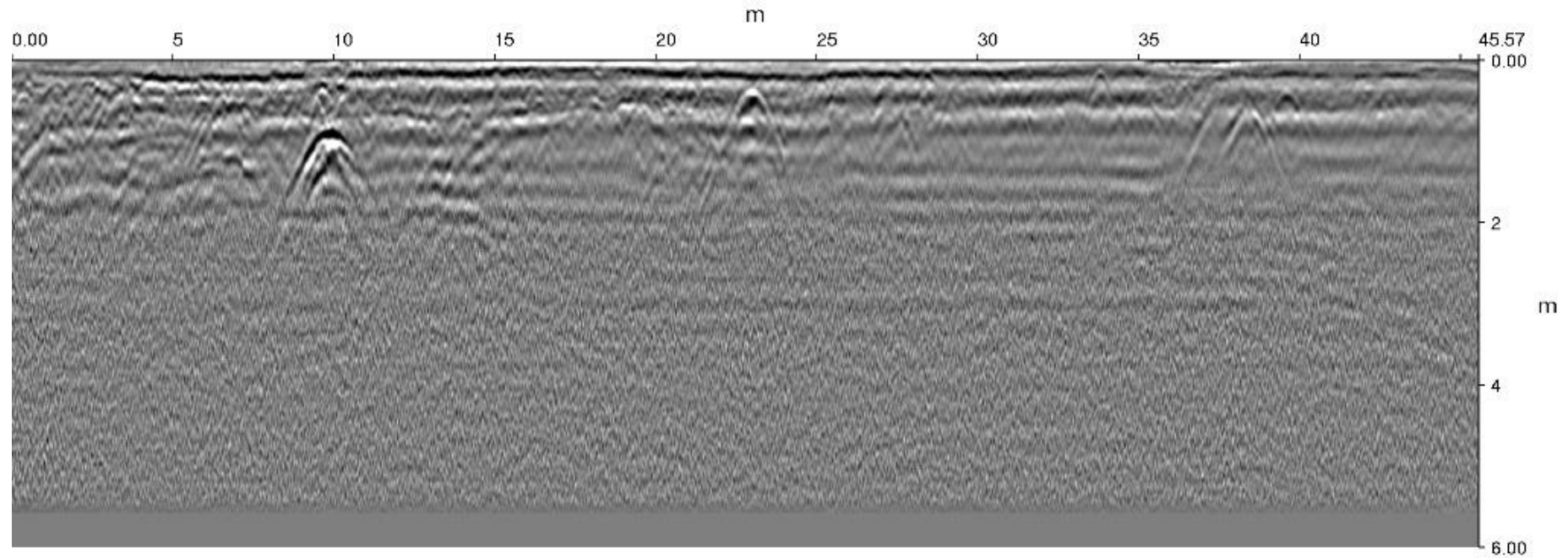
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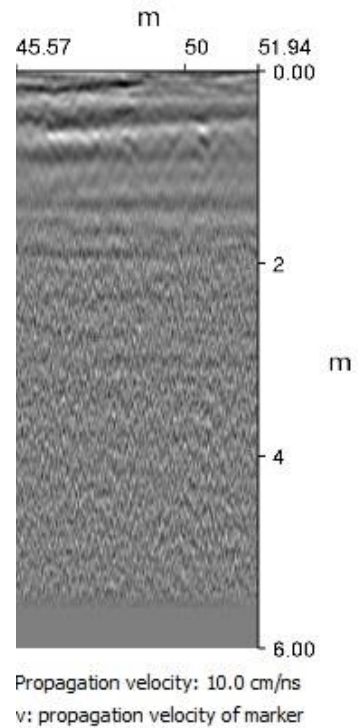
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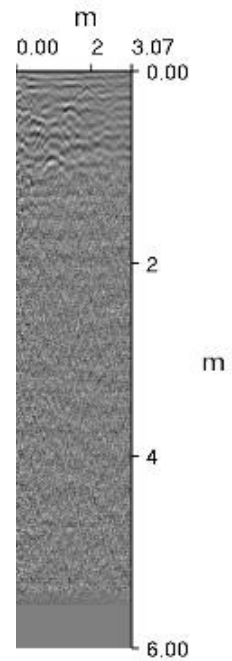


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

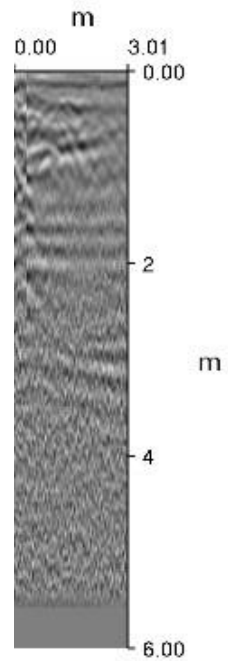


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

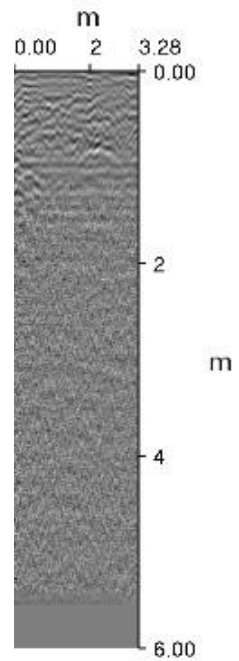




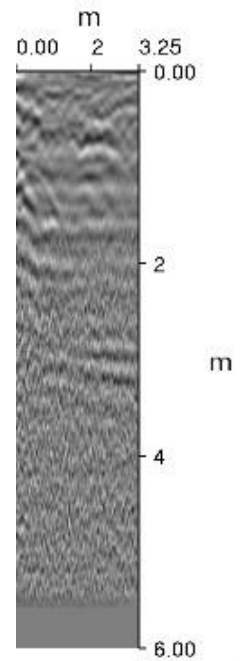
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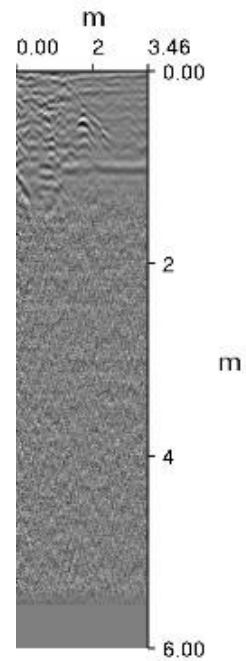
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v: propagation velocity of marker



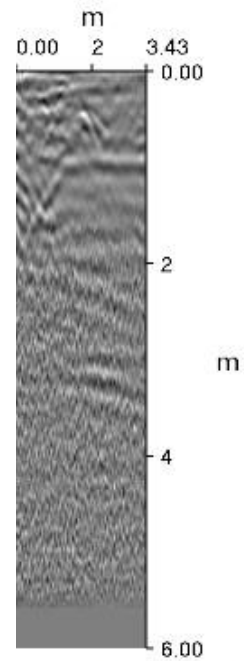
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v: propagation velocity of marker



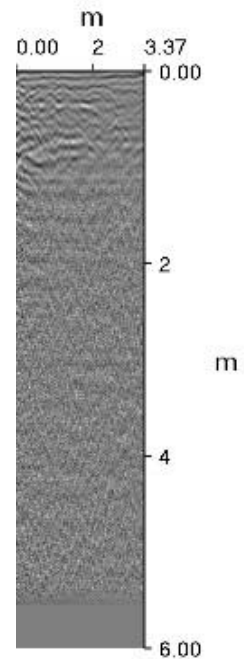
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v: propagation velocity of marker



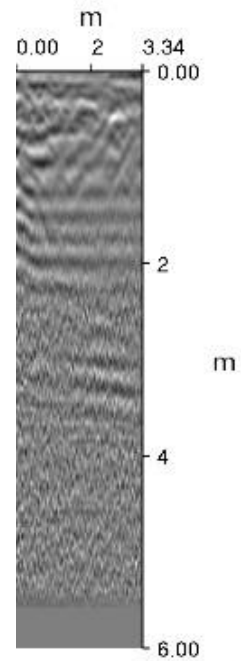
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v: propagation velocity of marker



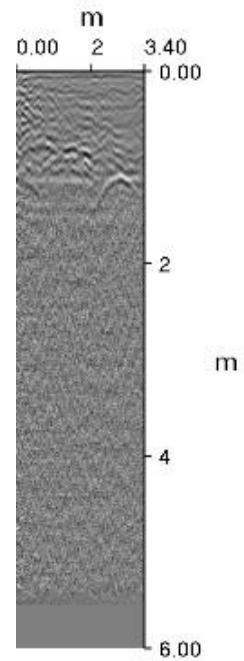
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v: propagation velocity of marker



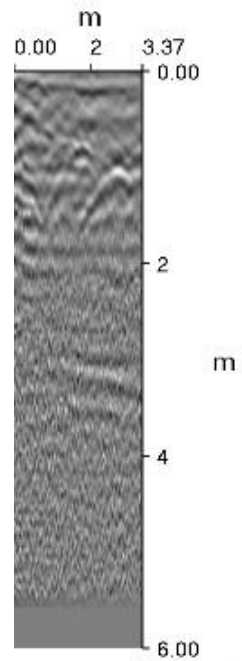
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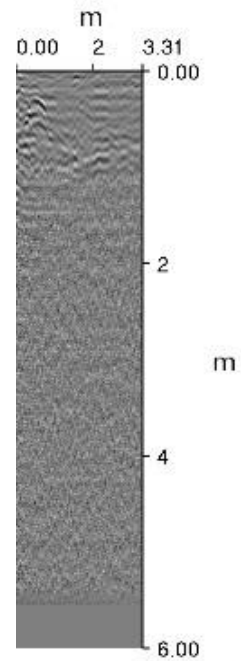
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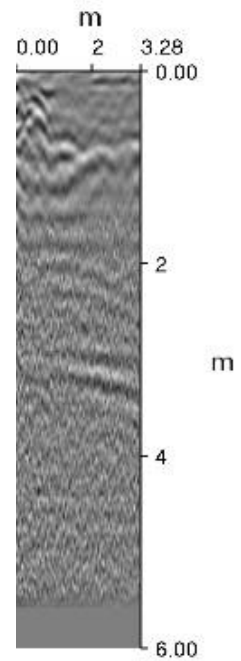
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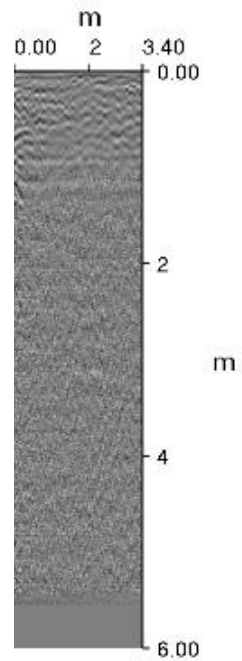
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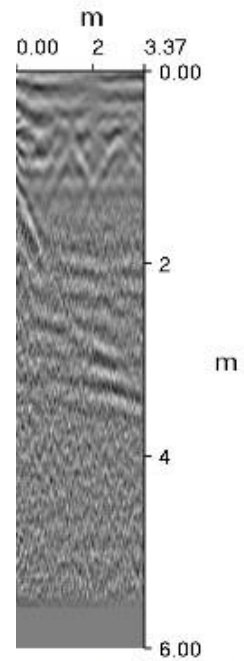
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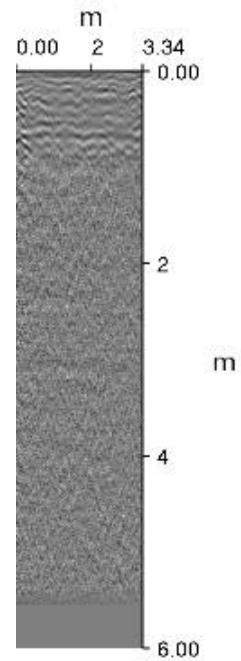
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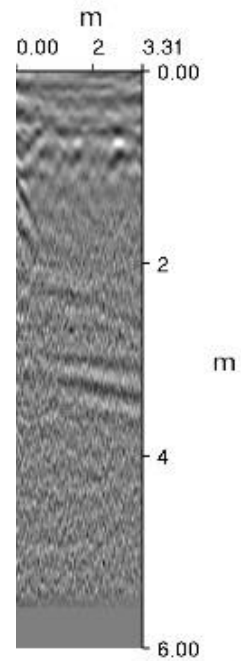
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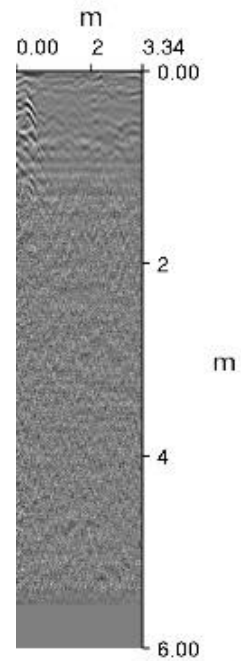
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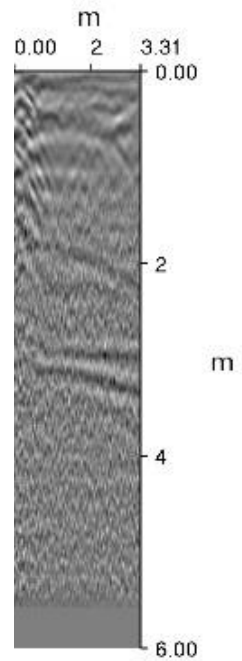
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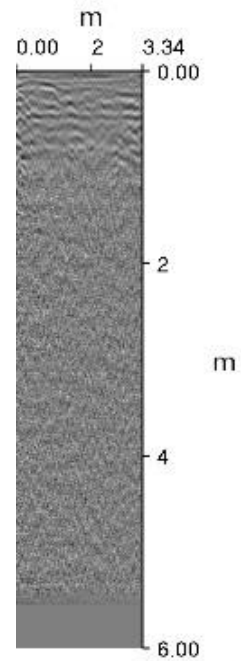
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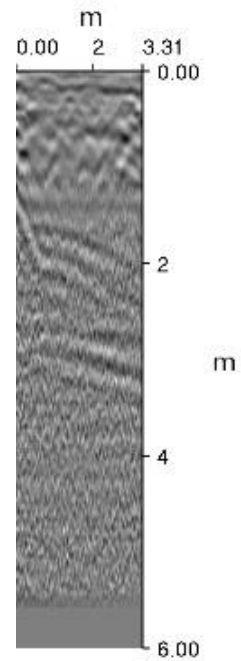
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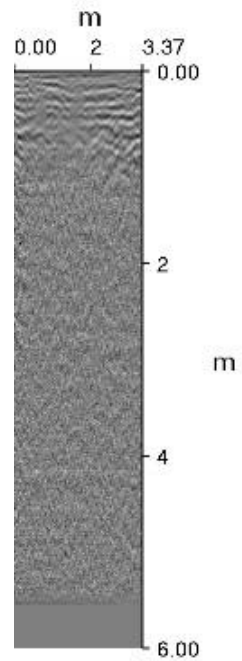
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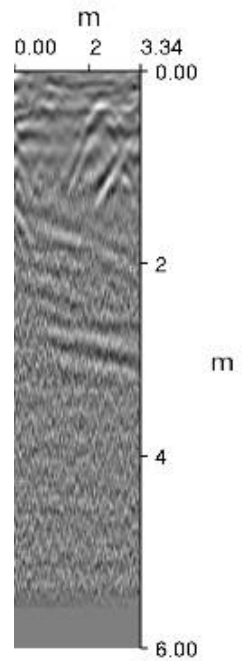
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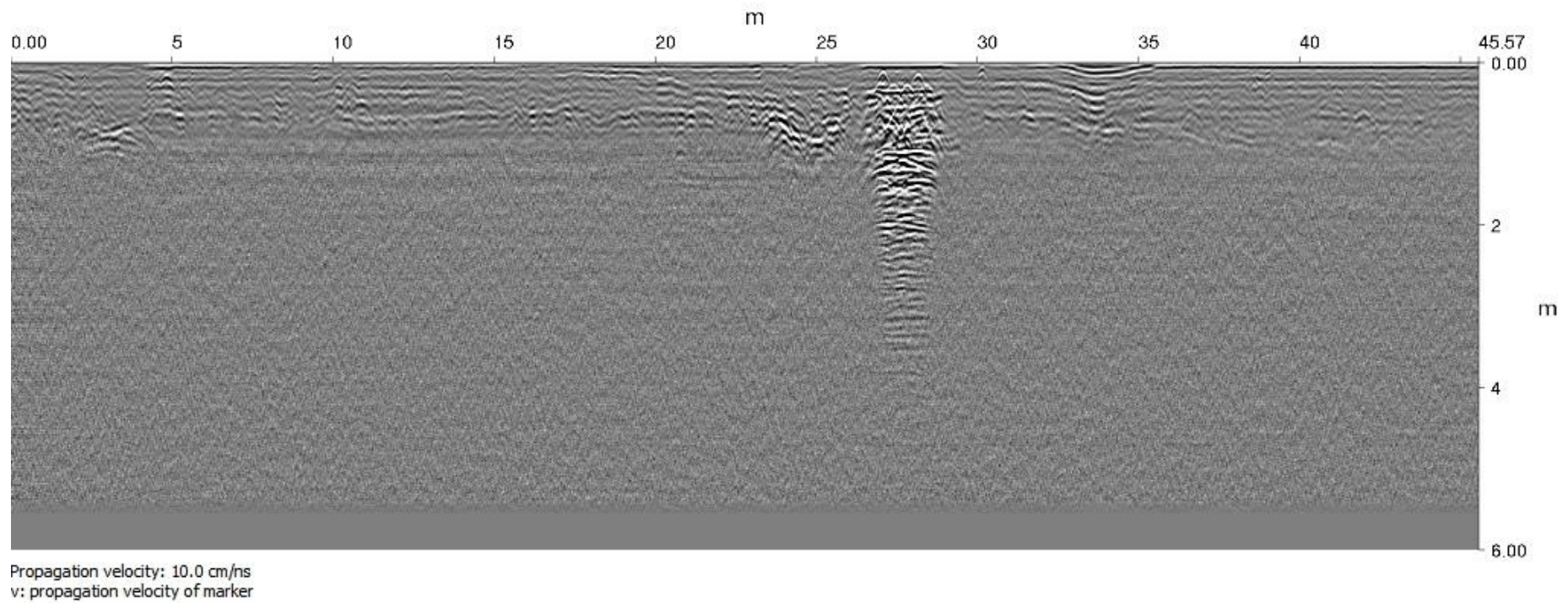
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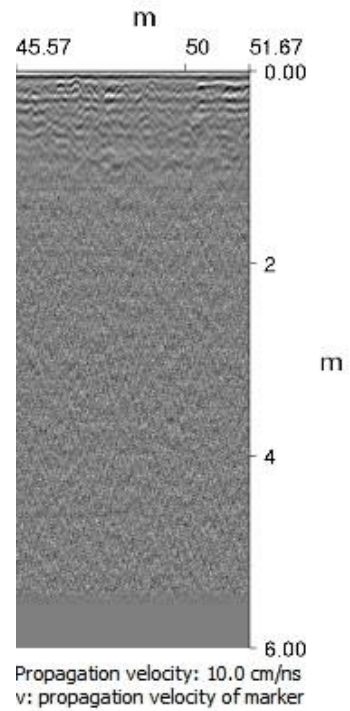


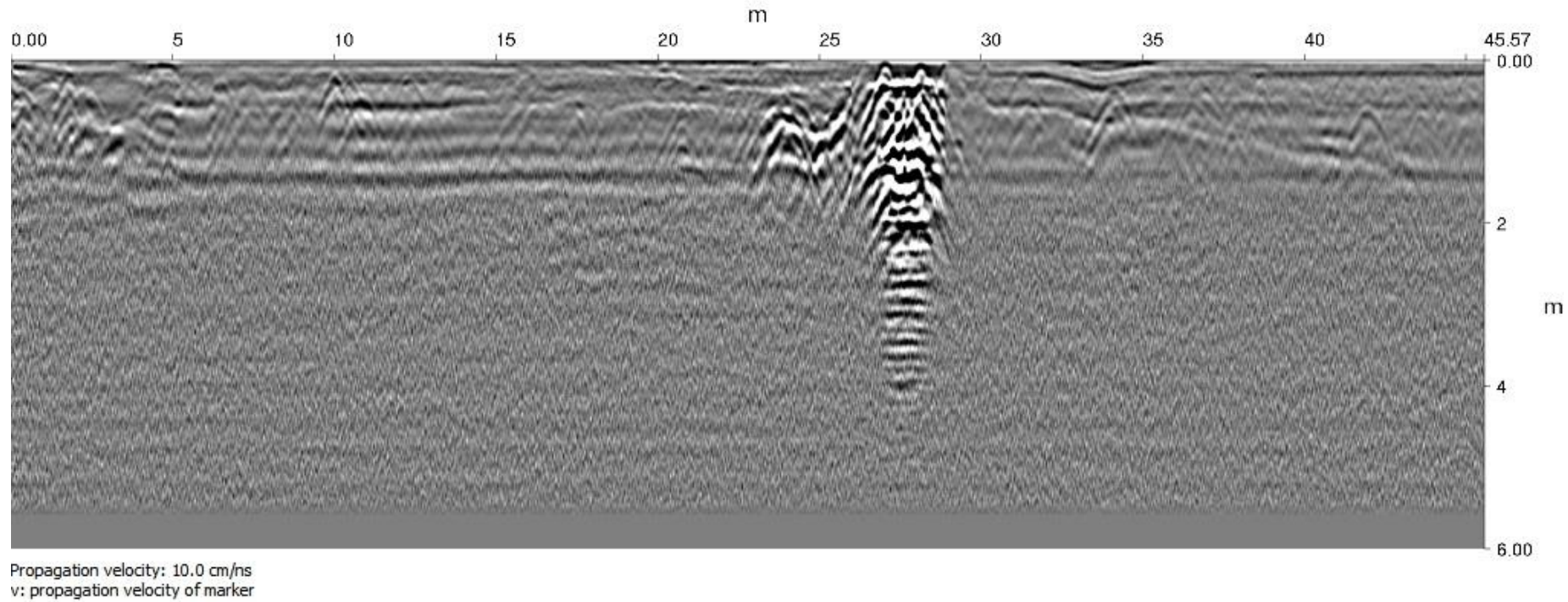
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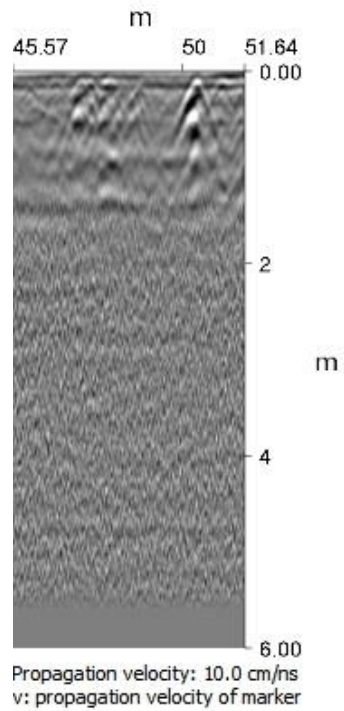


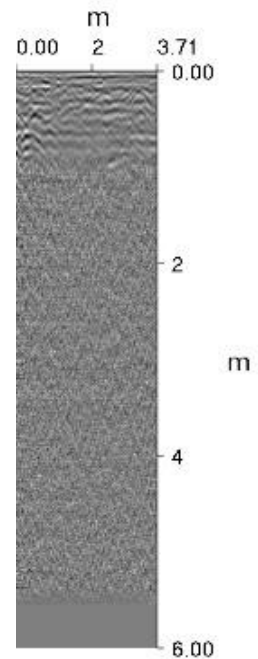
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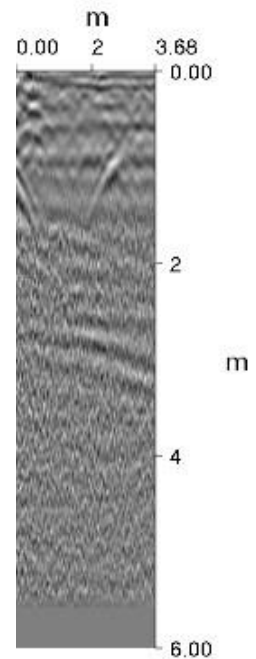




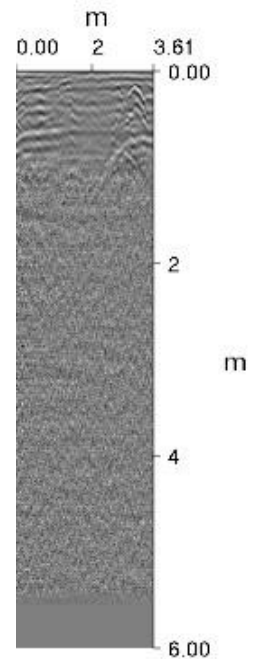




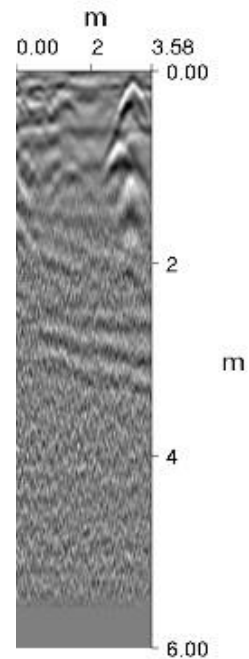
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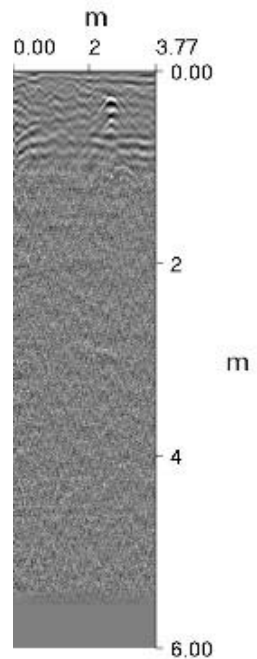
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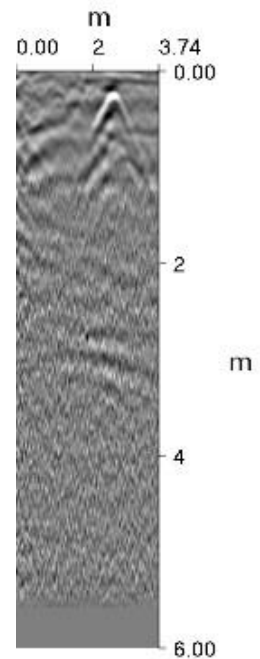
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v: propagation velocity of marker



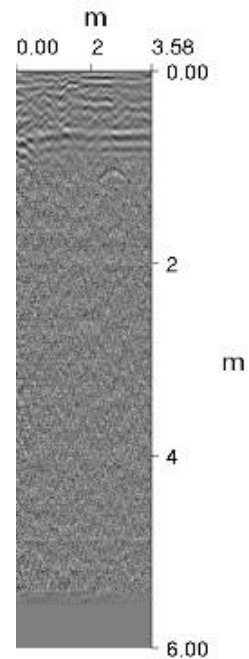
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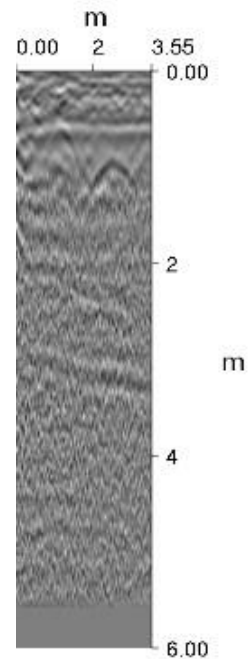
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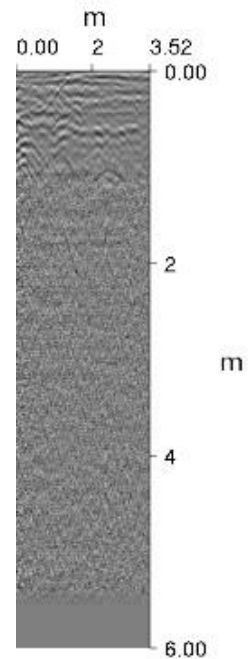
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v: propagation velocity of marker



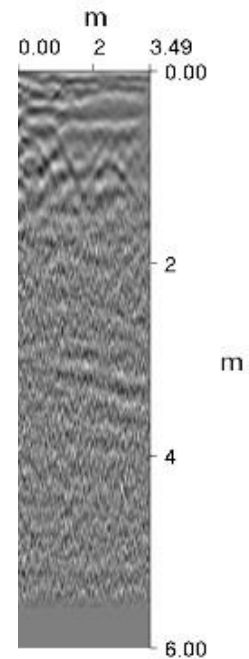
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v: propagation velocity of marker



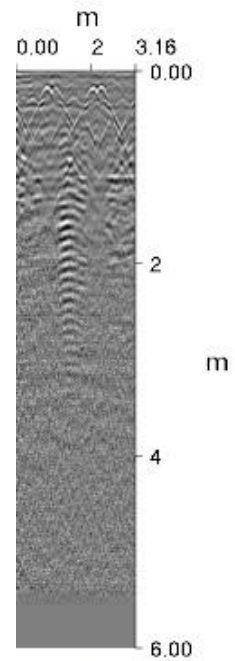
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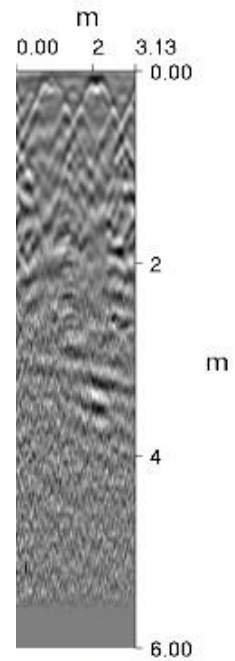
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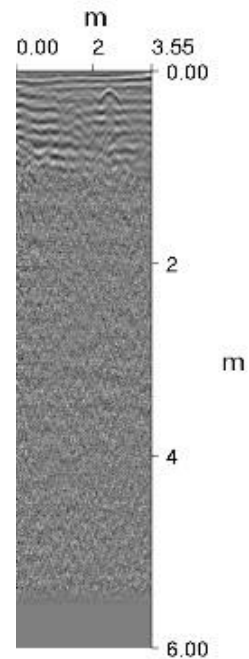
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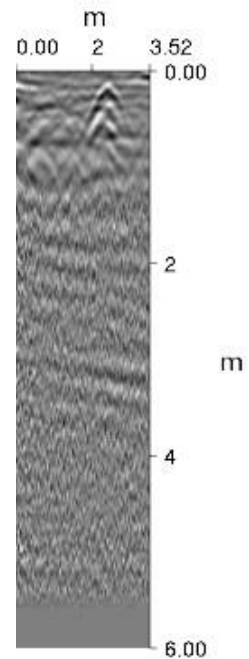
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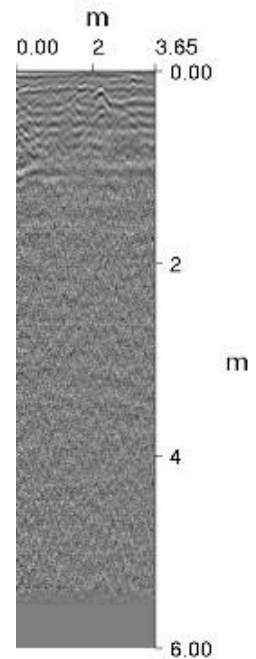
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v: propagation velocity of marker



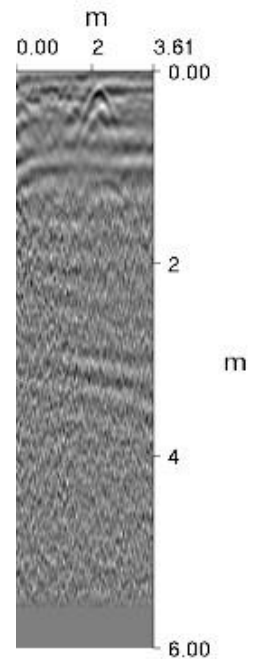
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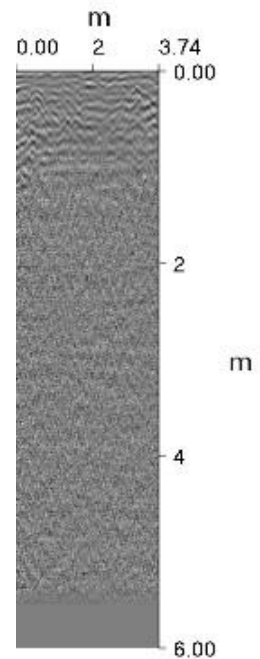
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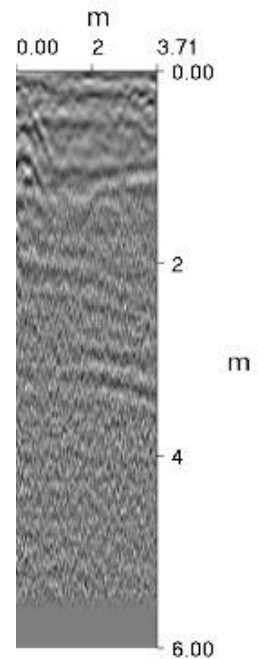
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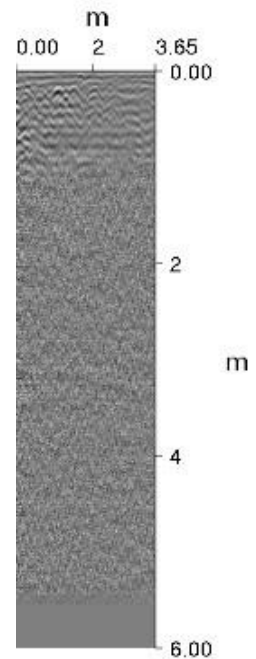
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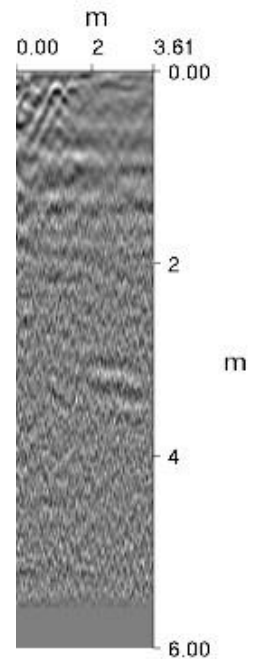
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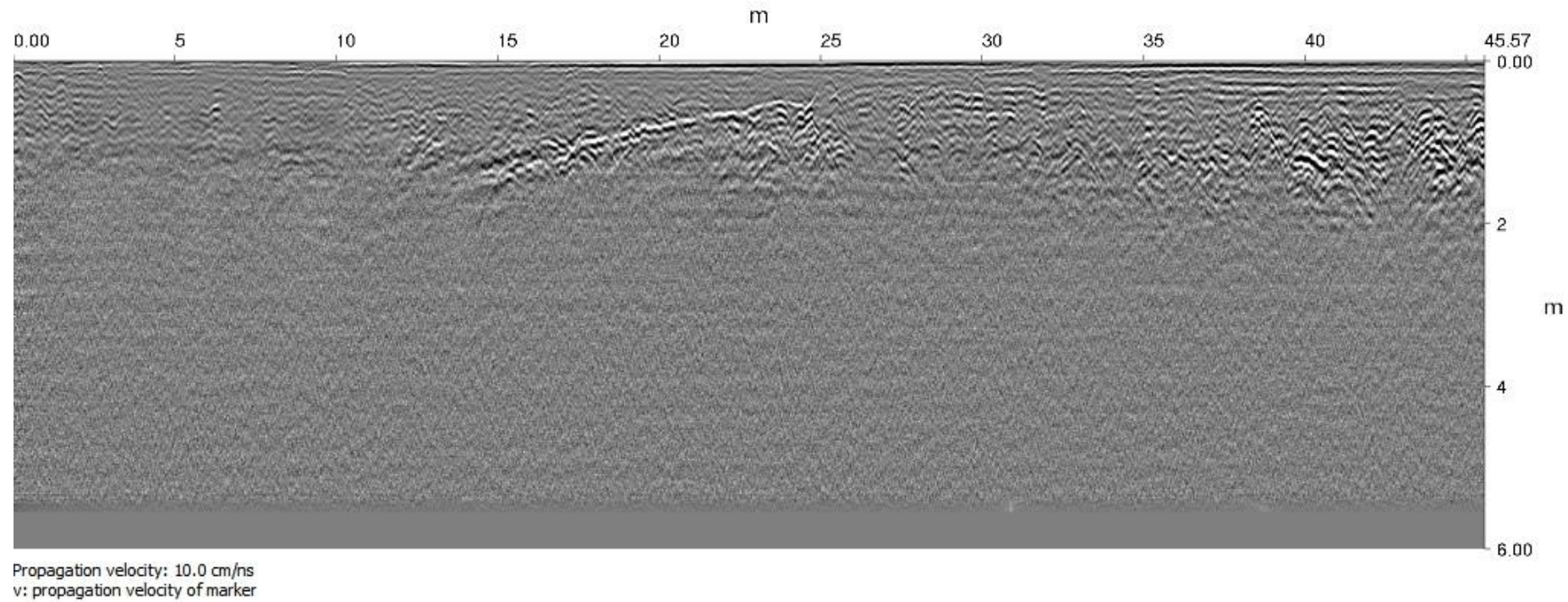
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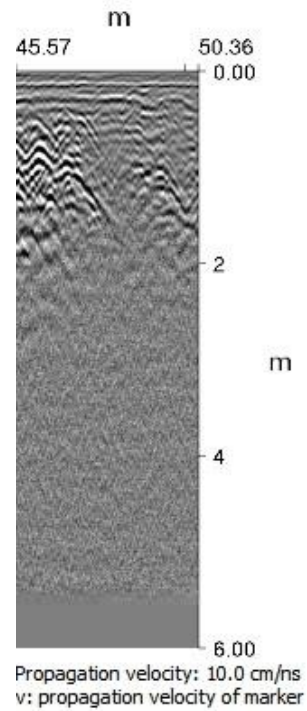


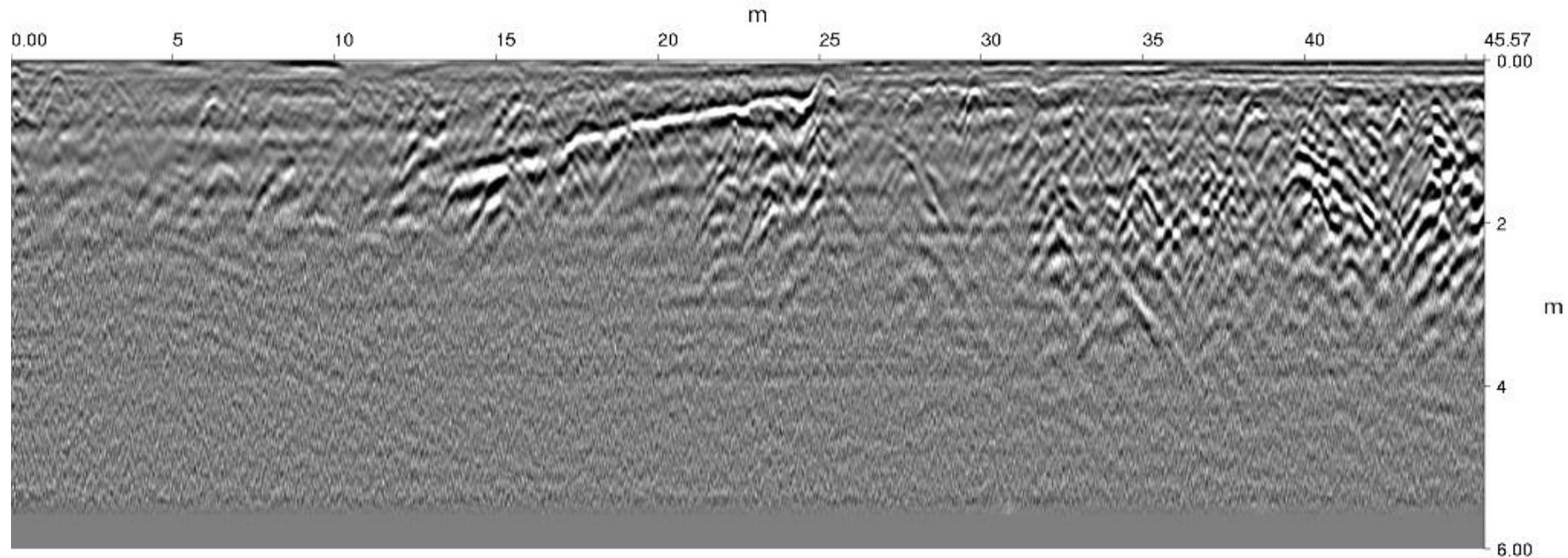
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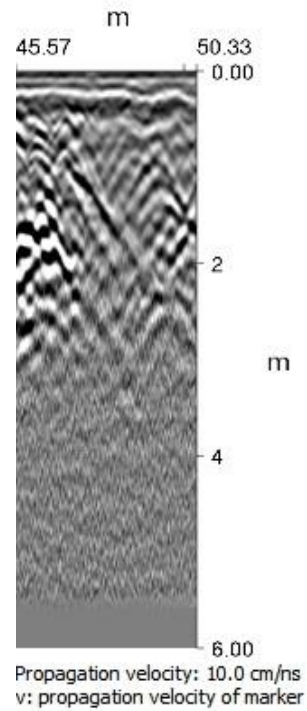
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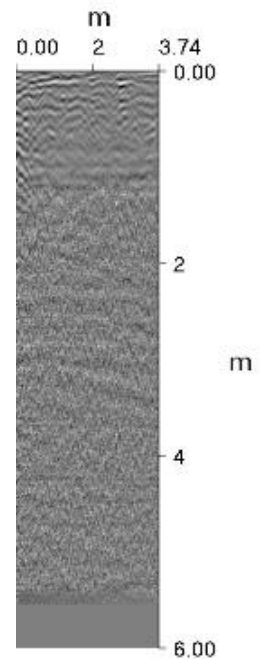




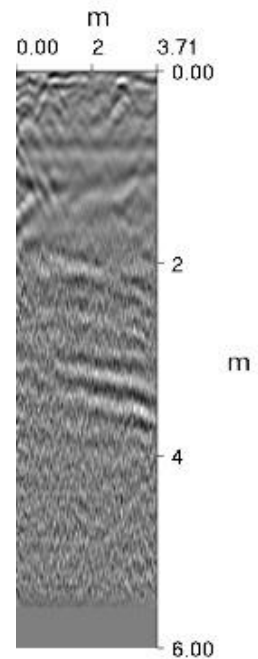


Propagation velocity: 10.0 cm/ns
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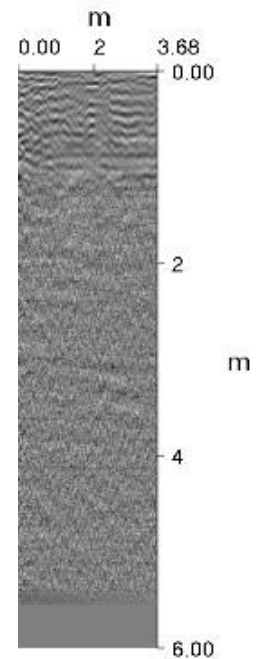




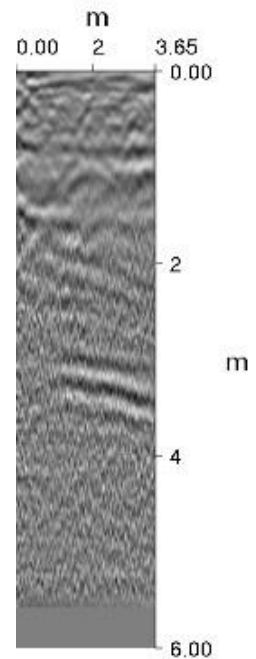
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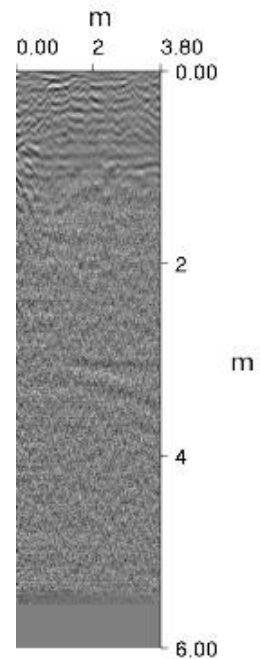
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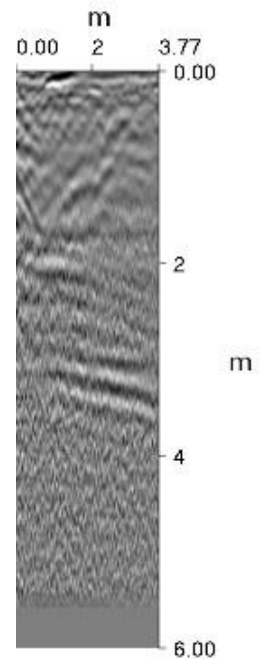
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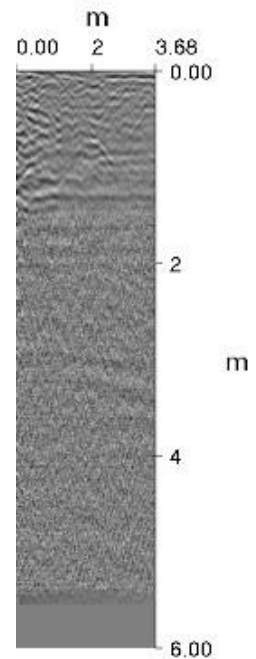
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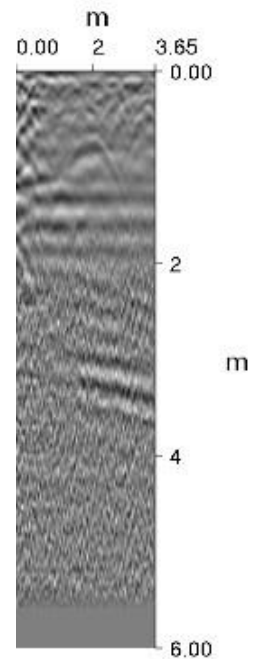
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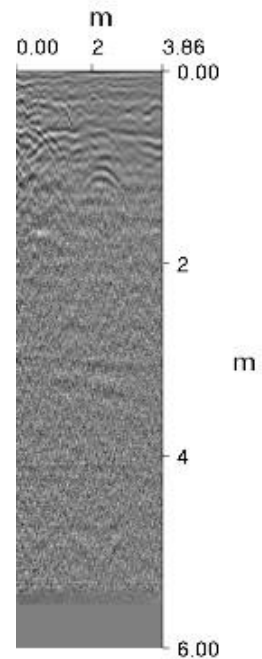
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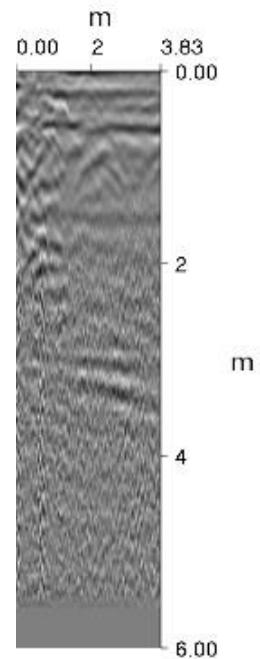
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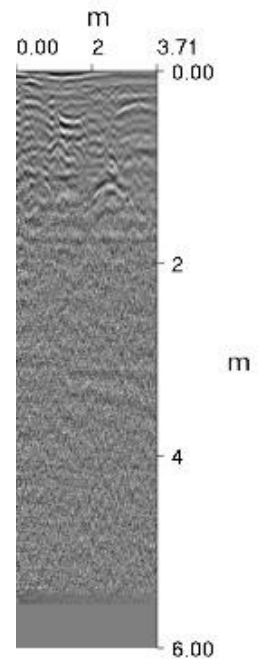
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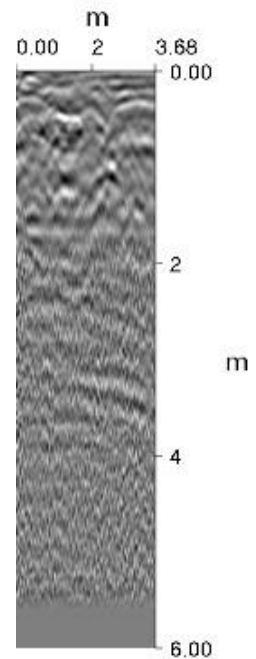
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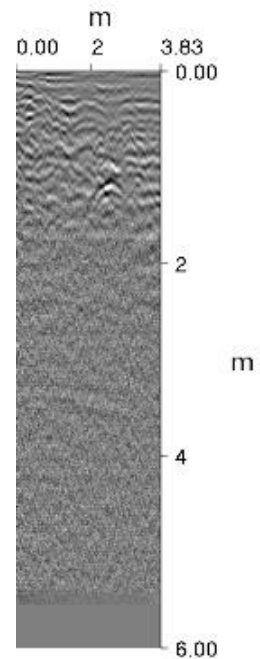
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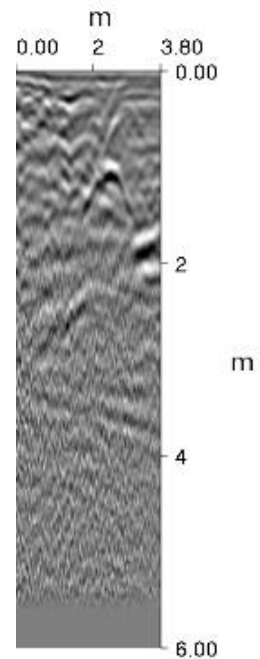
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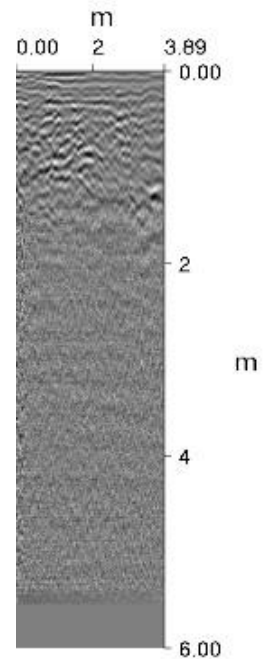
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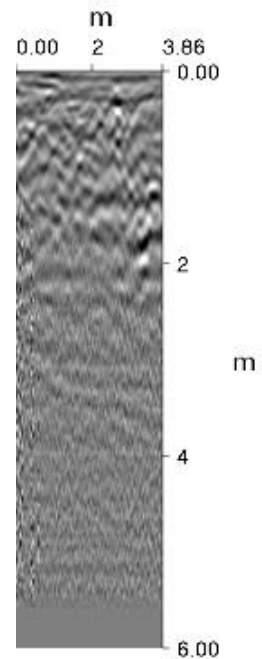
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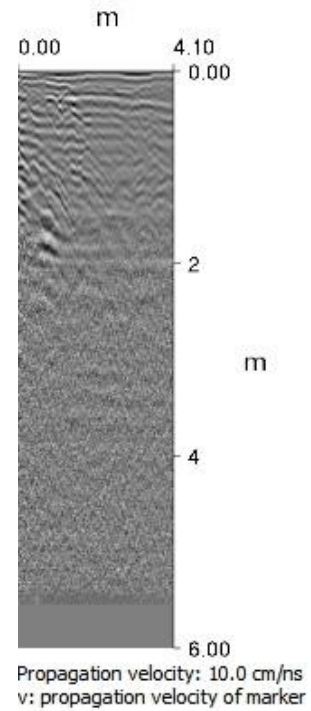
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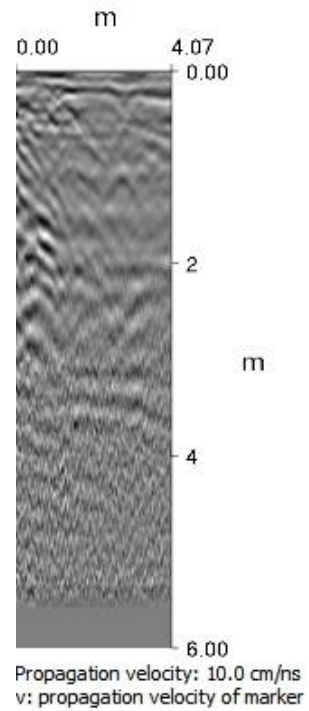


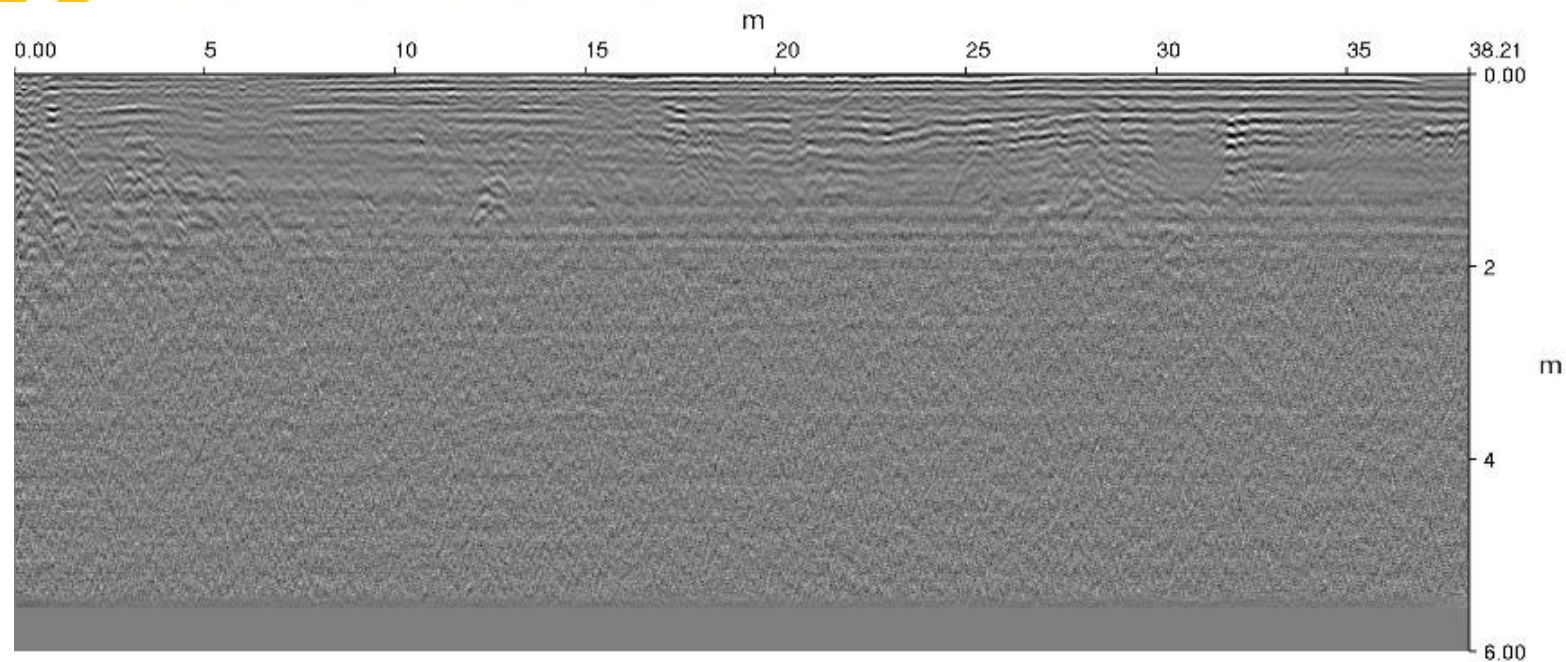
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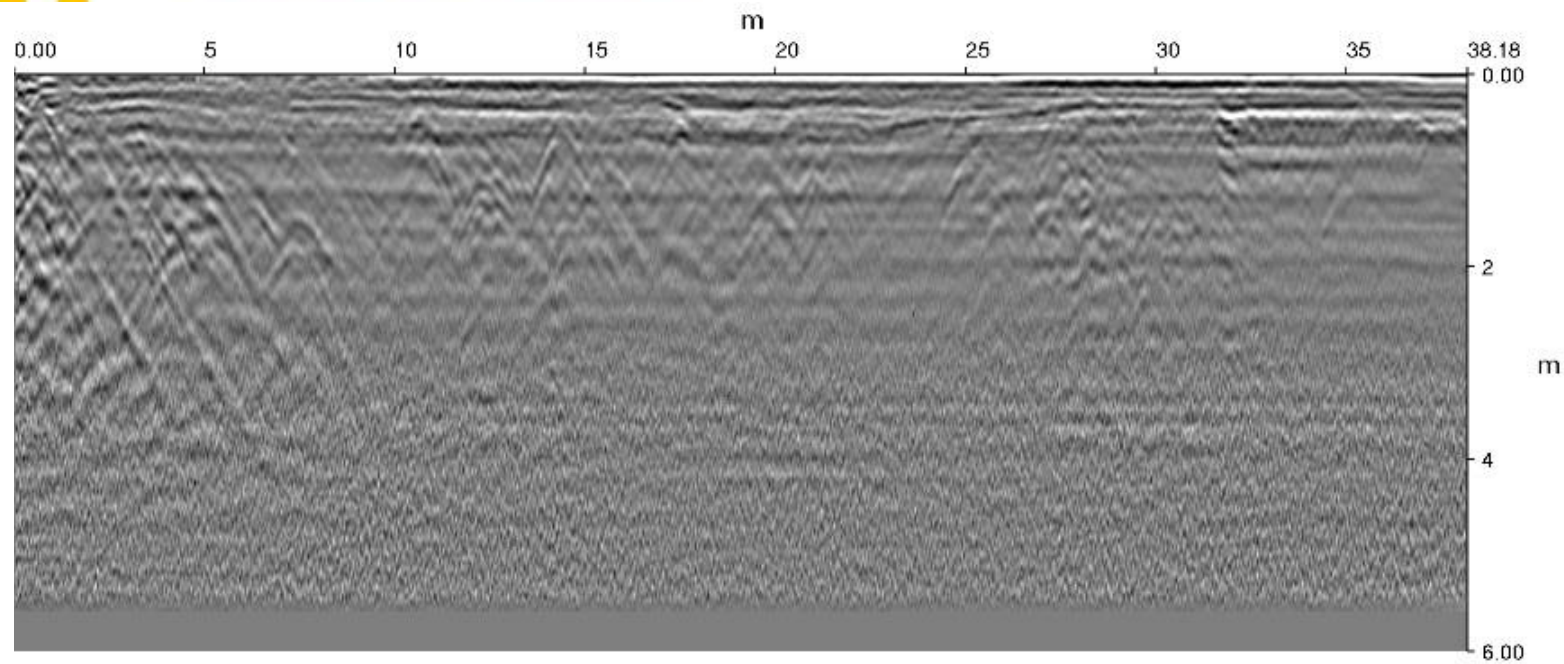
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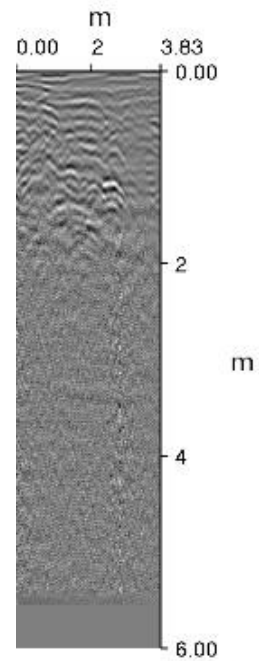




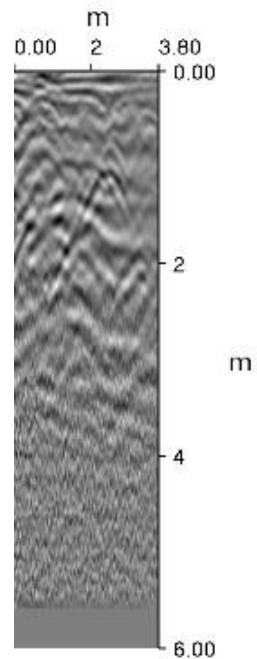
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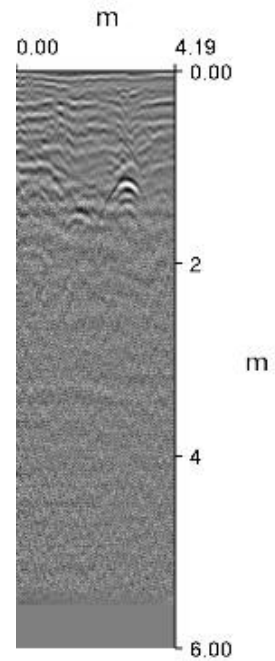
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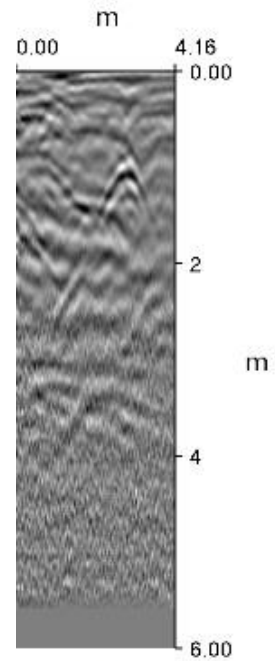
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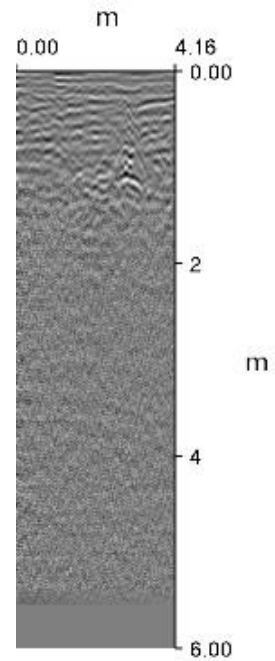
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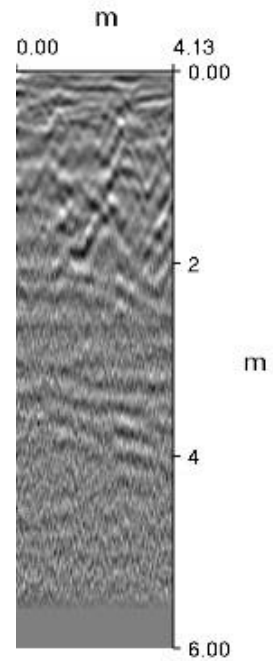
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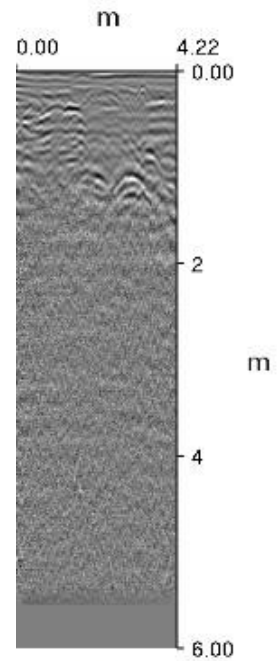
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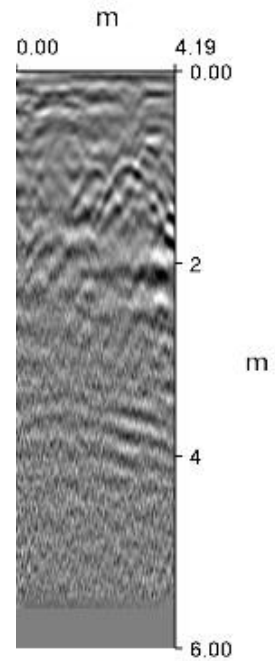
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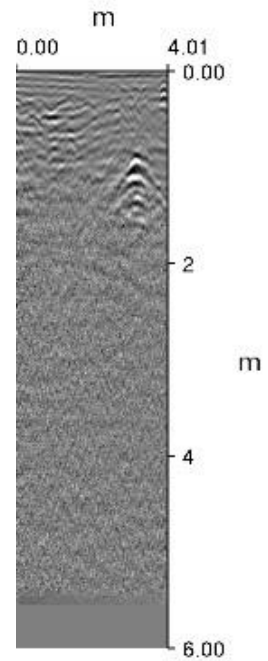
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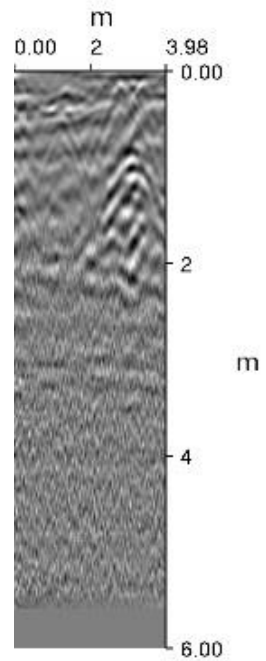
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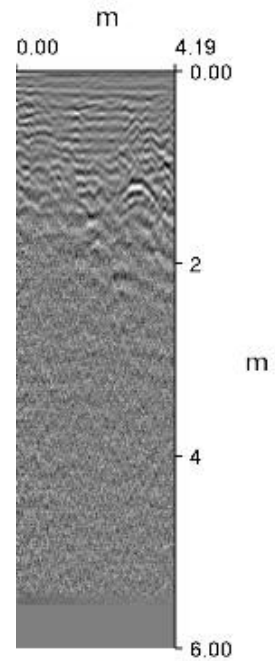
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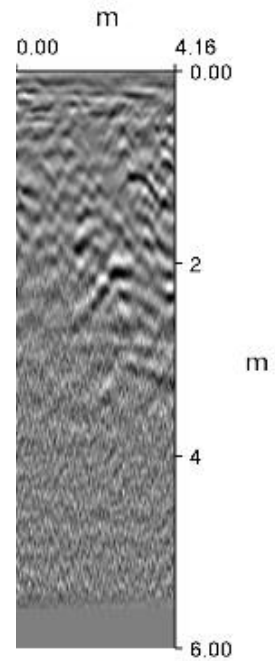
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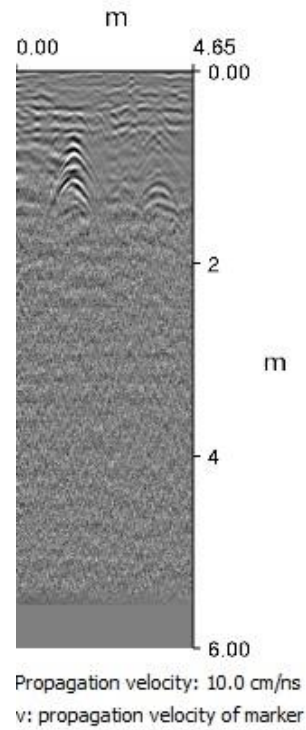
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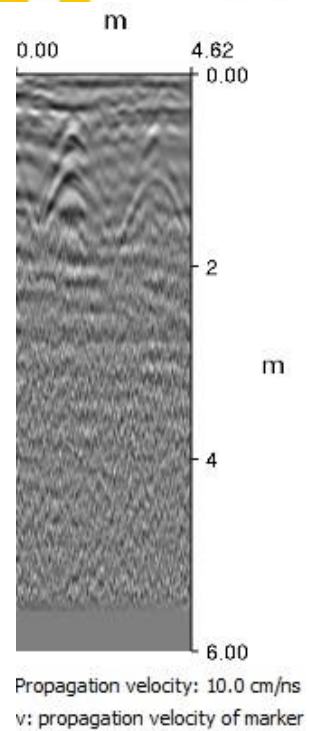


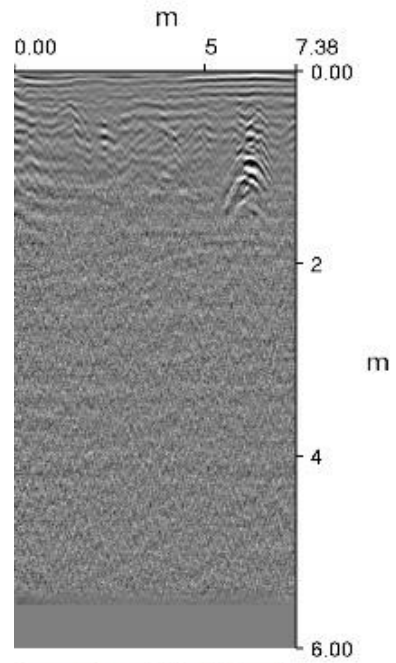
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



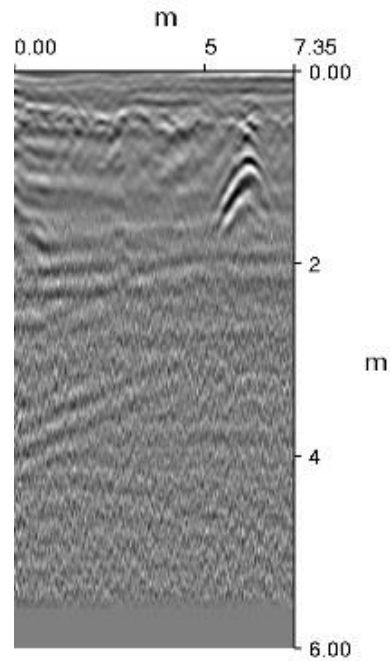
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



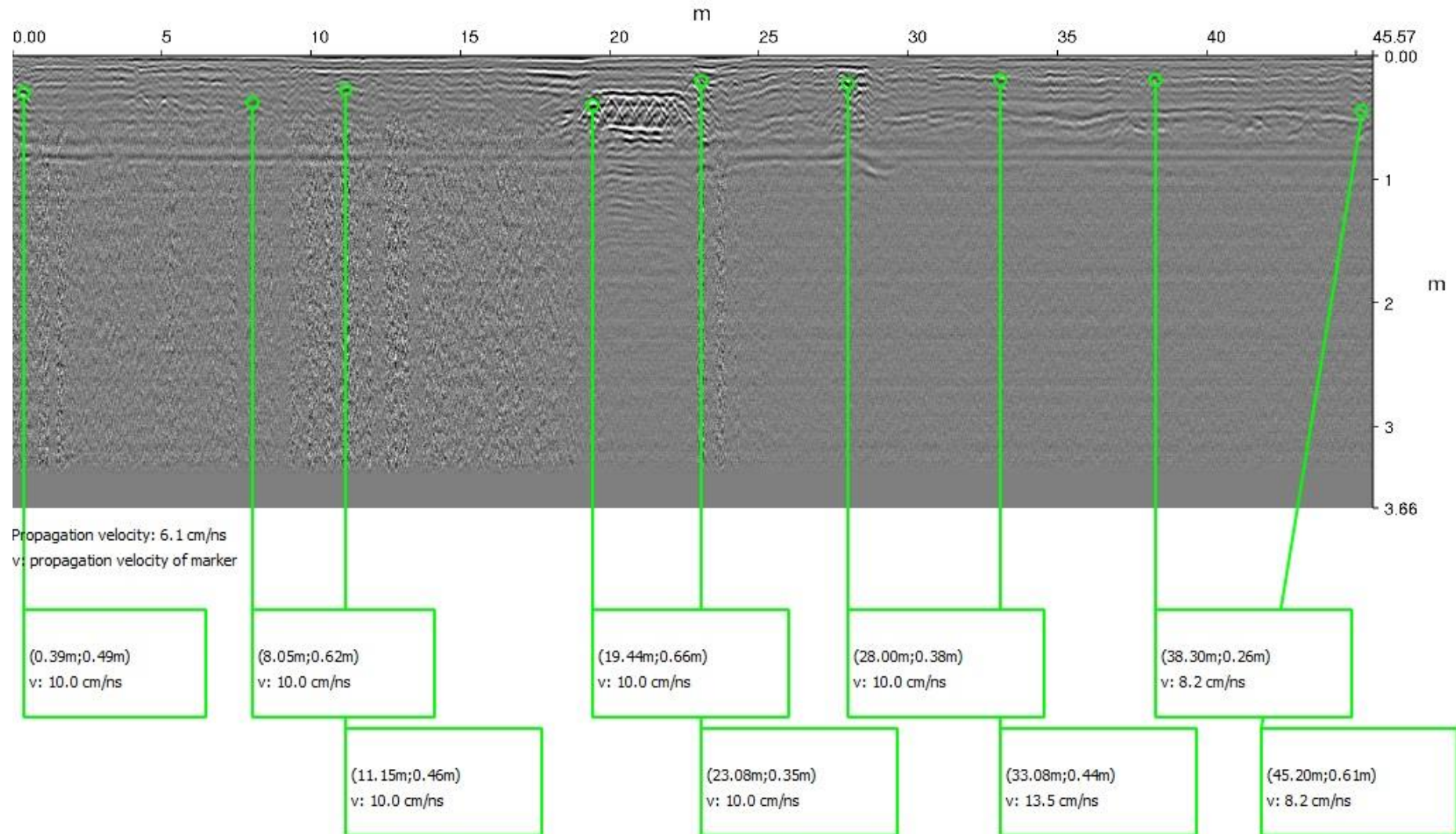


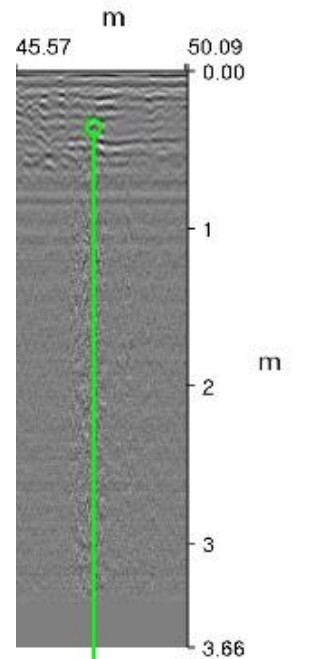


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



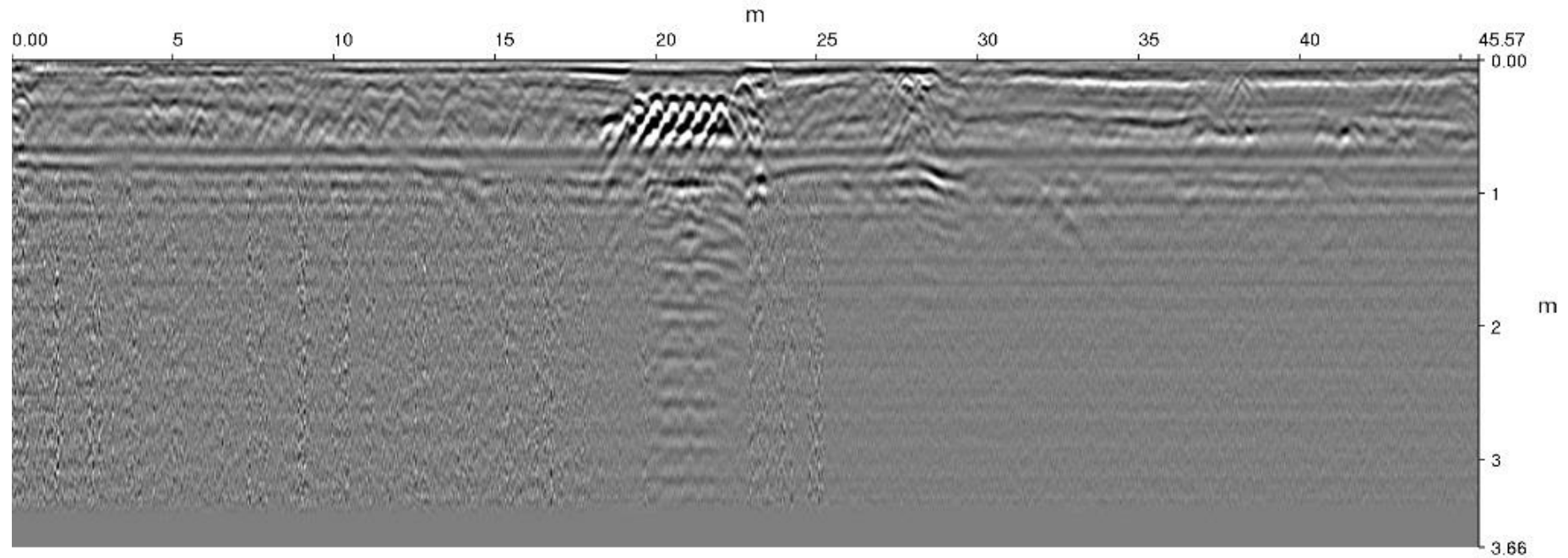
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



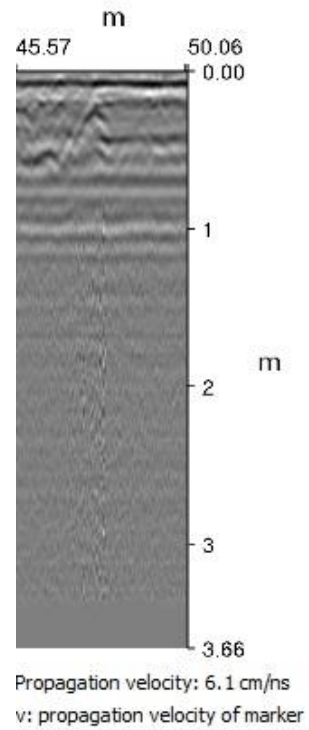


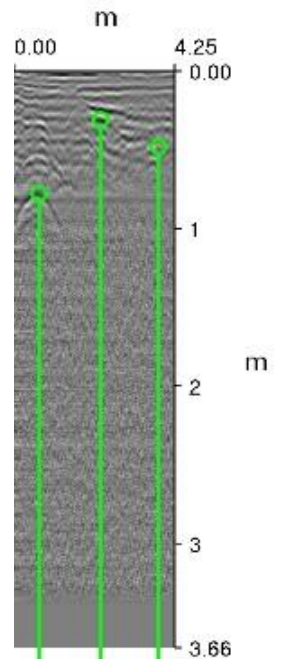
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker

(47.63m;0.49m)
v: 8.2 cm/ns



Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker



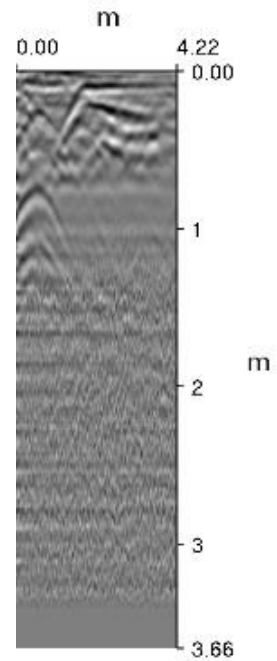


Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker

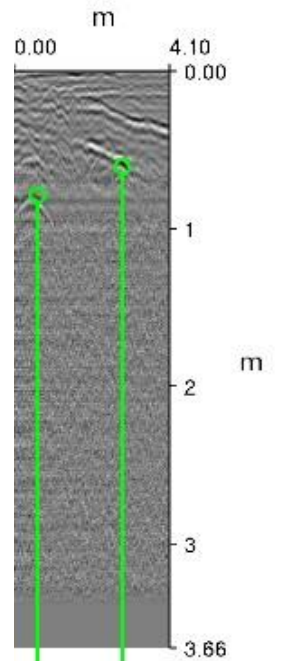
(2.31m;0.54m)
v: 10.4 cm/ns

(0.67m;0.76m)
v: 5.9 cm/ns

(3.83m;0.83m)
v: 10.4 cm/ns



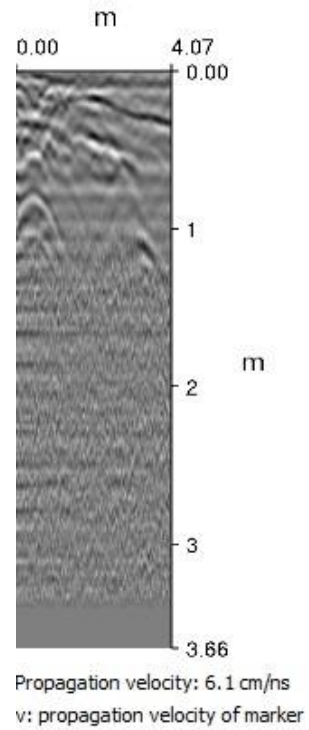
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker

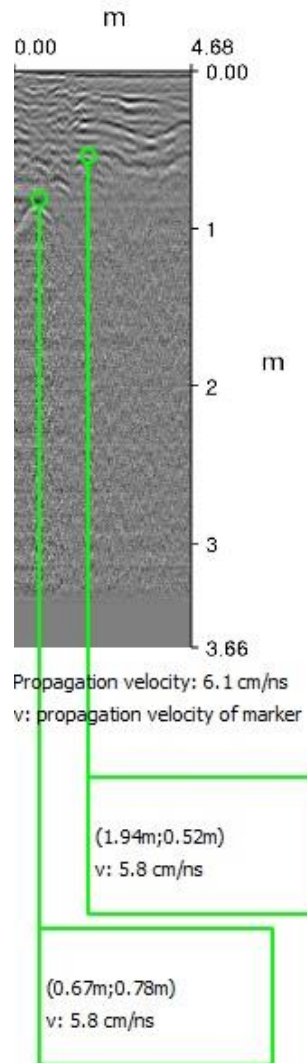


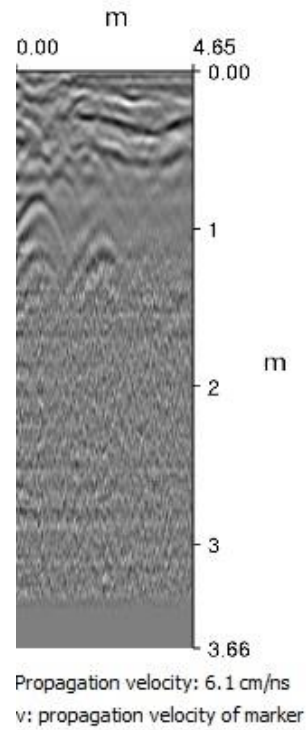
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker

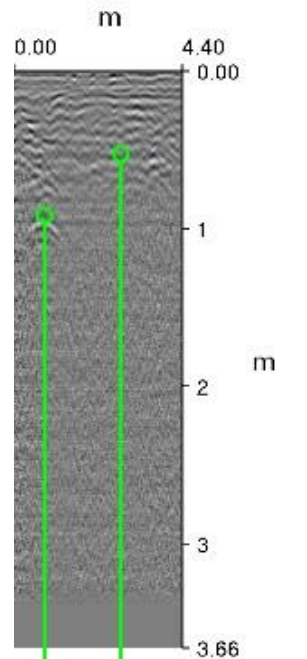
(0.61m;0.76m)
v: 5.8 cm/ns

(2.86m;0.58m)
v: 5.8 cm/ns





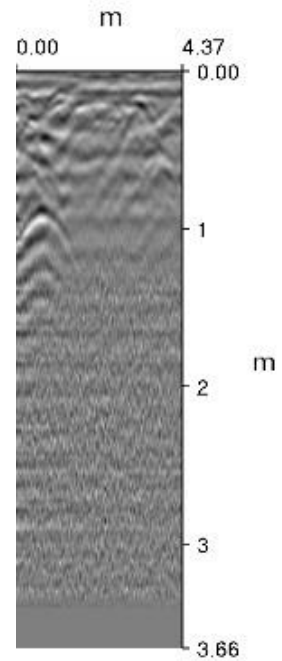




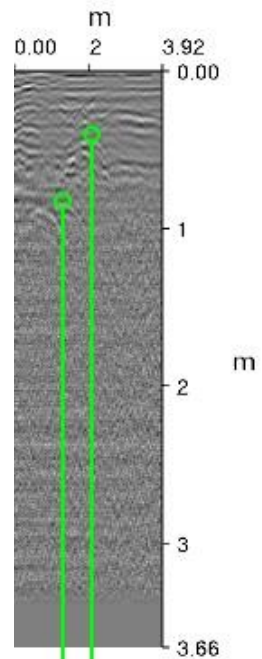
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker

(0.80m;0.87m)
v: 5.8 cm/ns

(2.79m;1.01m)
v: 11.7 cm/ns



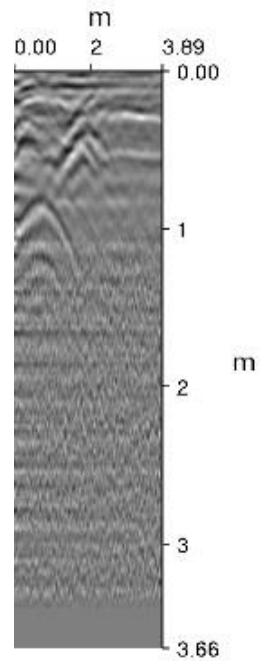
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker



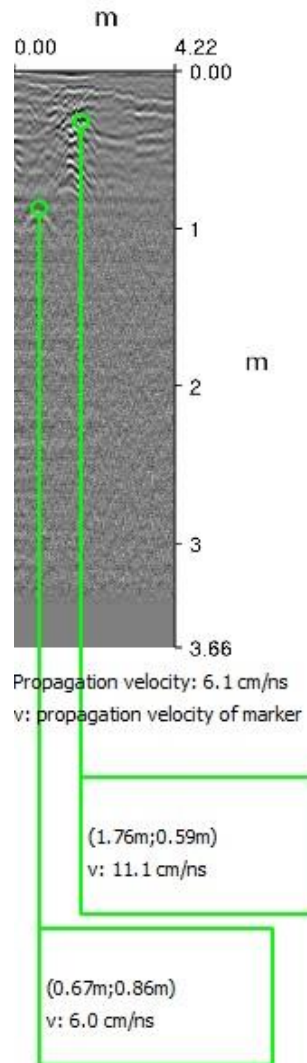
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker

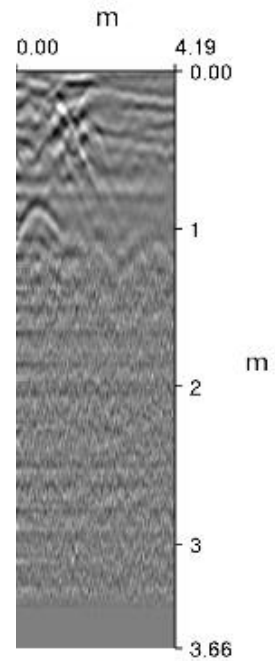
(1.31m;0.98m)
v: 7.2 cm/ns

(2.04m;0.71m)
v: 10.7 cm/ns

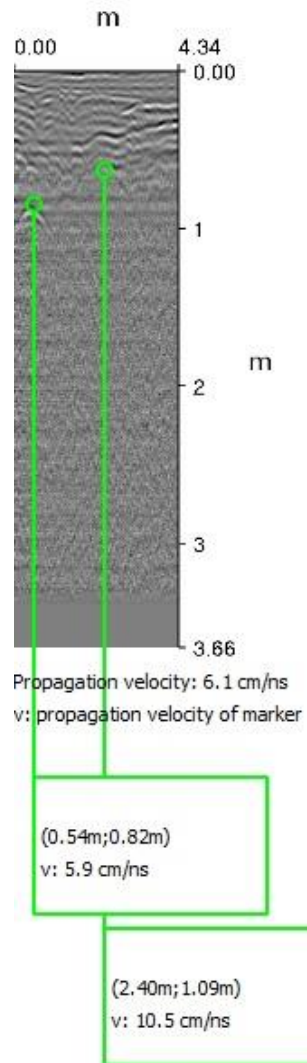


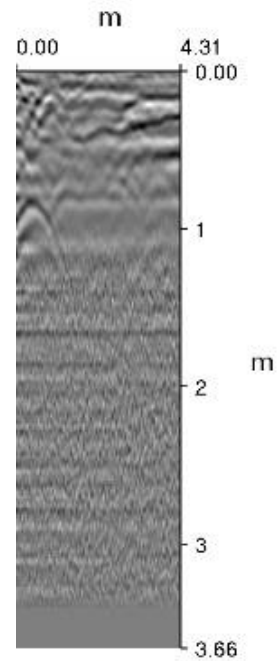
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker



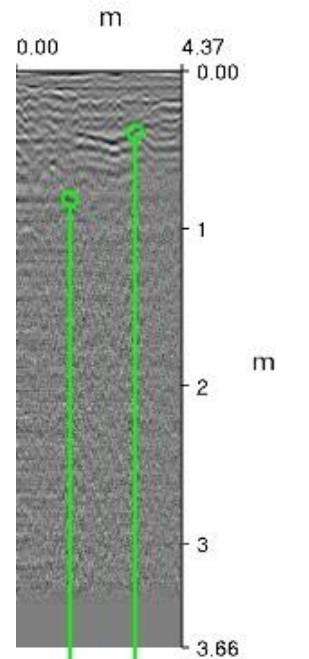


Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker





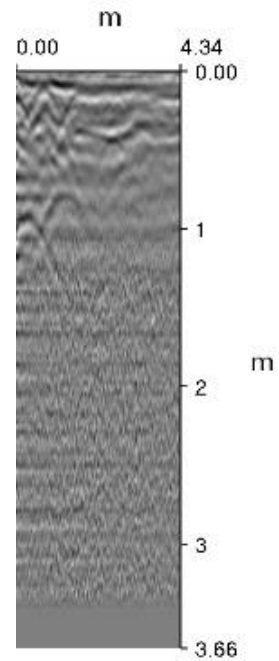
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker



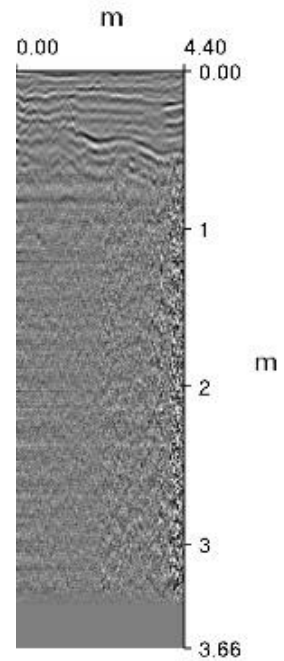
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker

(1.43m;0.82m)
v: 6.1 cm/ns

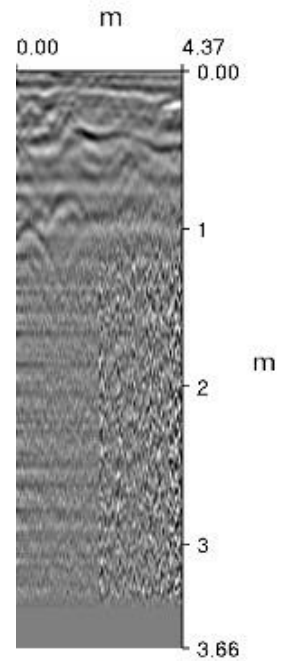
(3.16m;0.39m)
v: 6.1 cm/ns



Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker

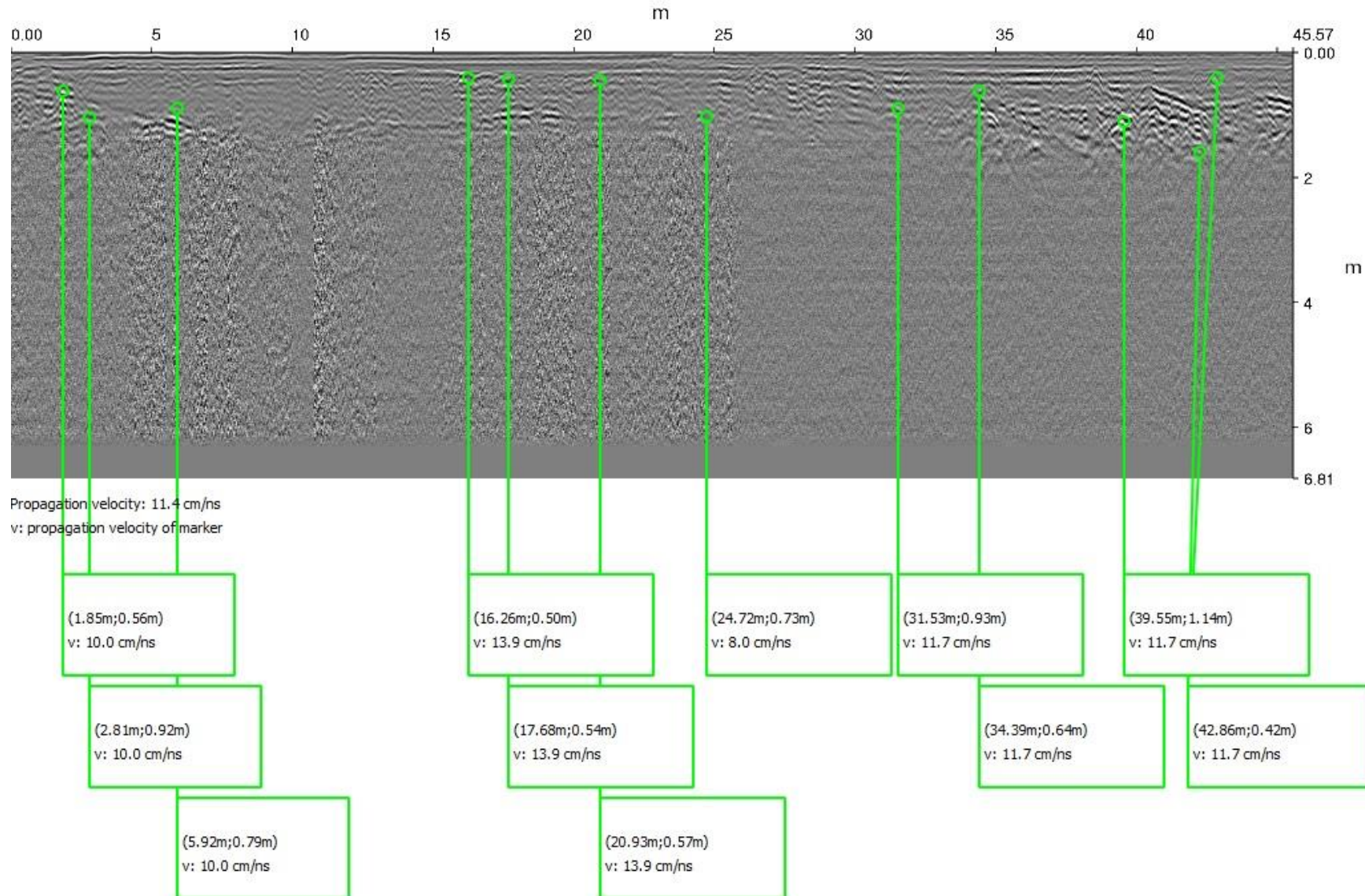


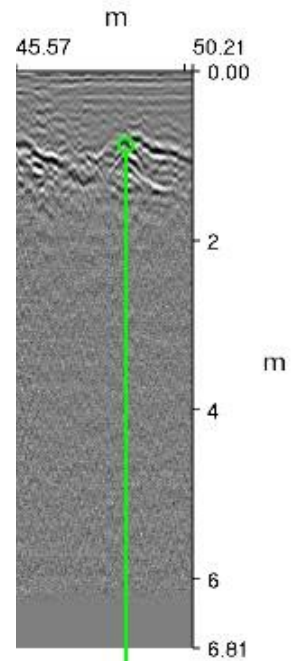
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker



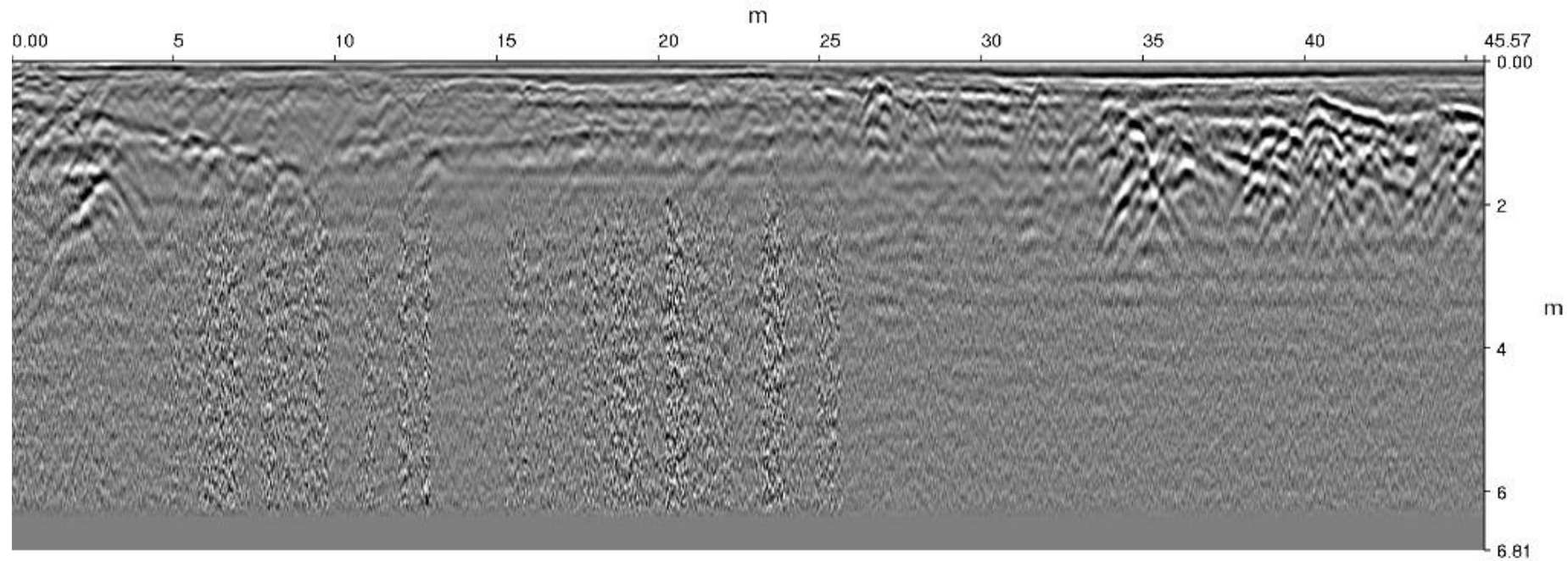
Propagation velocity: 6.1 cm/ns
v: propagation velocity of marker

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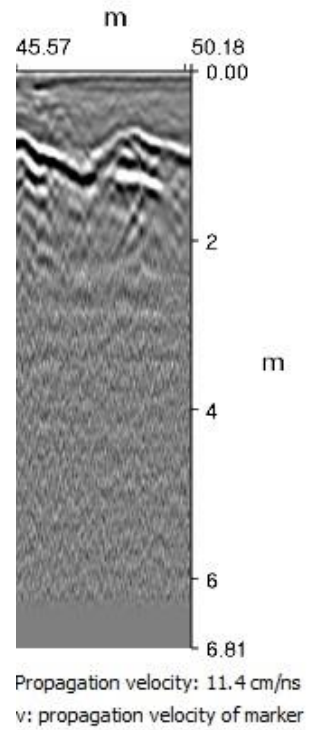


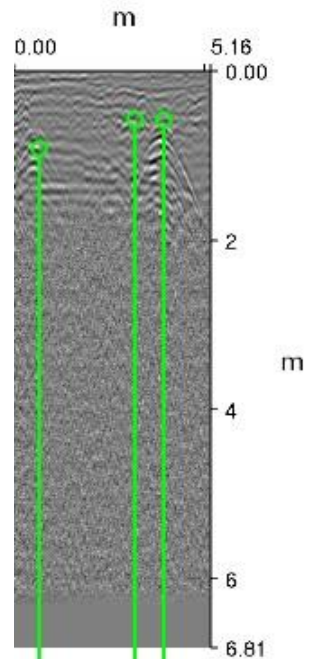


(48.45m;0.90m)
v: 11.7 cm/ns



Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker



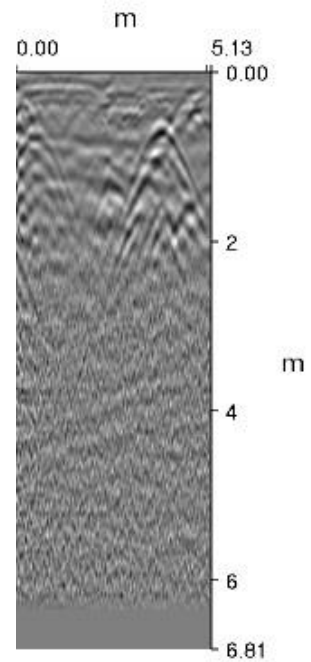


Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker

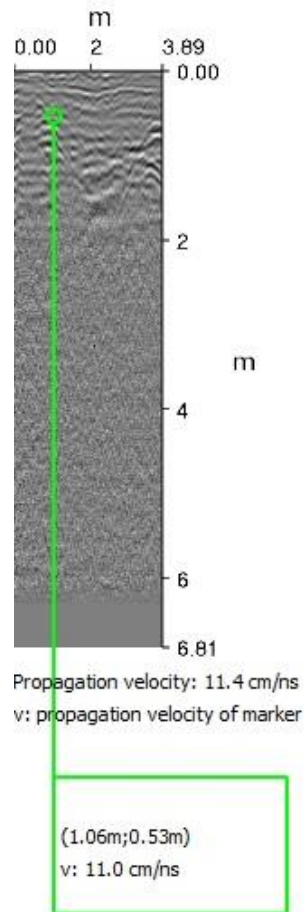
(3.92m;0.41m)
v: 7.9 cm/ns

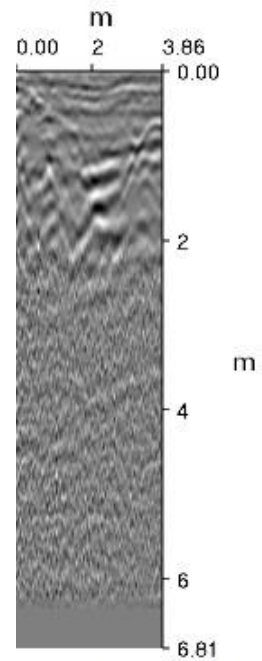
(3.19m;0.41m)
v: 7.9 cm/ns

(0.67m;0.64m)
v: 7.9 cm/ns

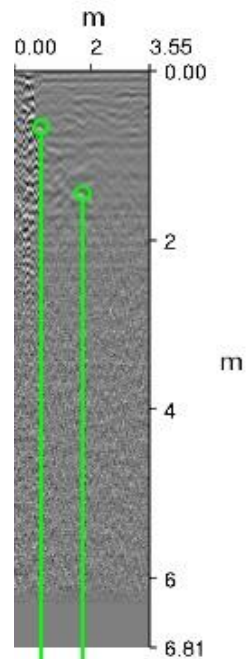


Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker





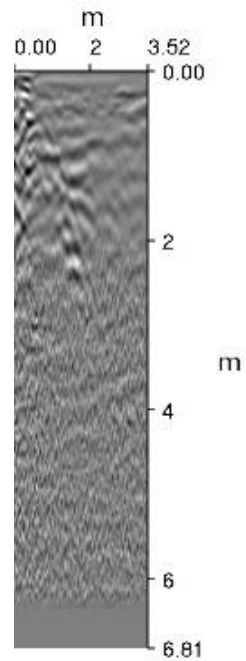
Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker



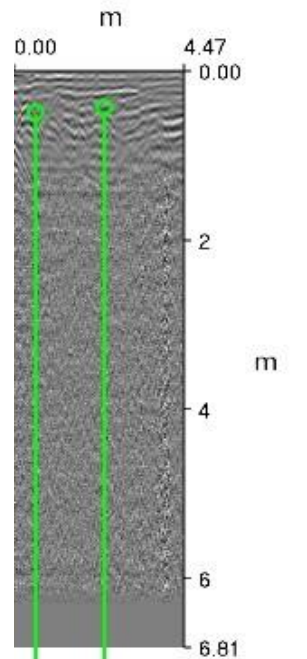
Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker

(1.82m; 1.05m)
v: 8.2 cm/ns

(0.70m; 0.49m)
v: 8.2 cm/ns



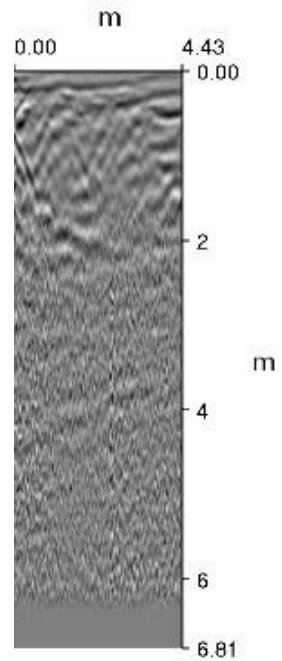
Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker



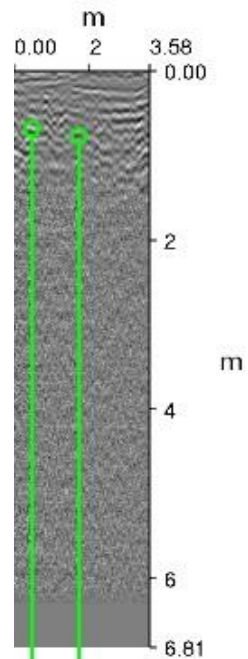
Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker

(0.58m;0.36m)
v: 8.2 cm/ns

(2.37m;0.31m)
v: 8.2 cm/ns



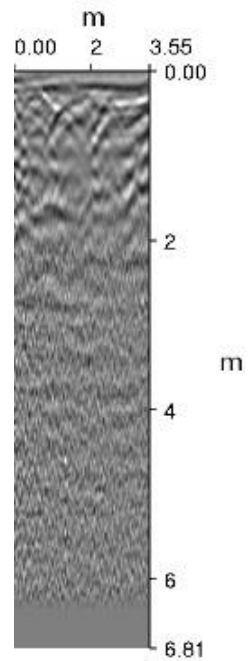
Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker



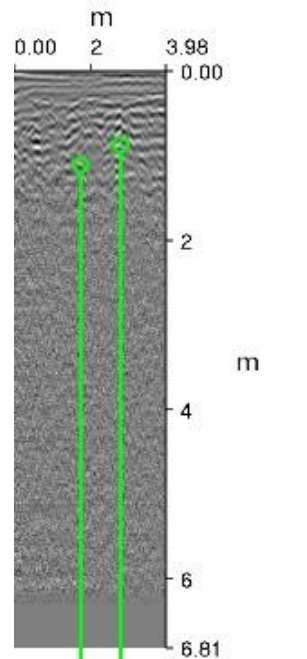
Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker

(0.49m;0.49m)
v: 8.2 cm/ns

(1.73m;0.56m)
v: 8.2 cm/ns



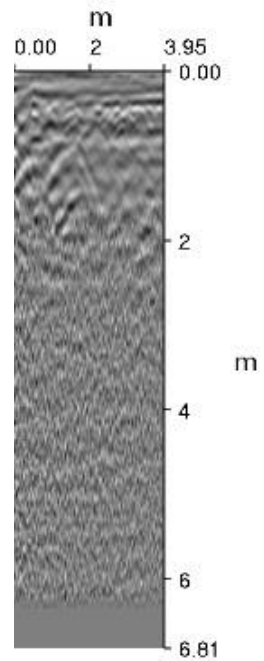
Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker



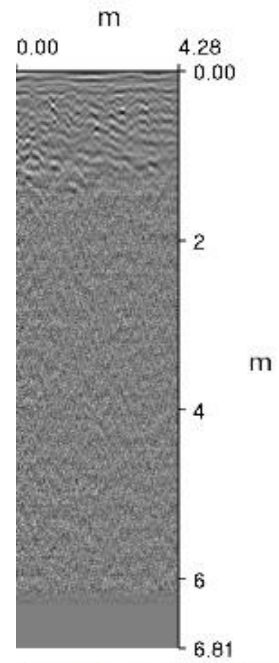
Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker

(1.76m;0.80m)
v: 8.2 cm/ns

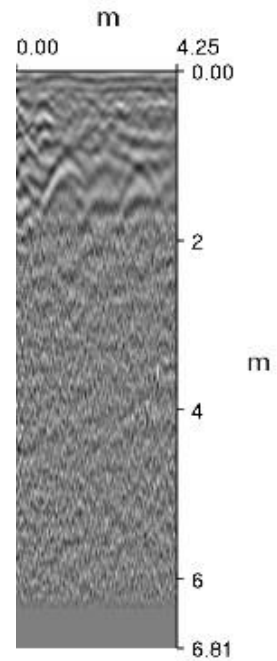
(2.80m;0.64m)
v: 8.2 cm/ns



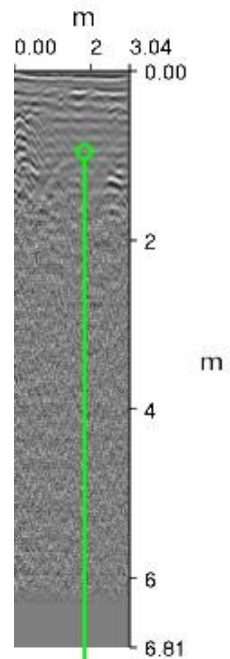
Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker



Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker

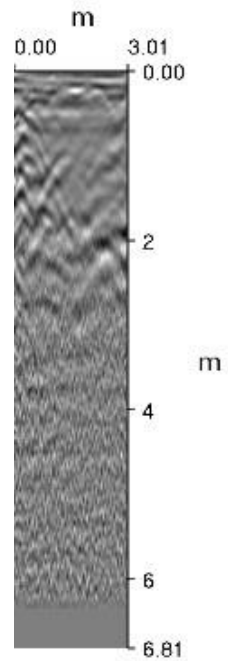


Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker

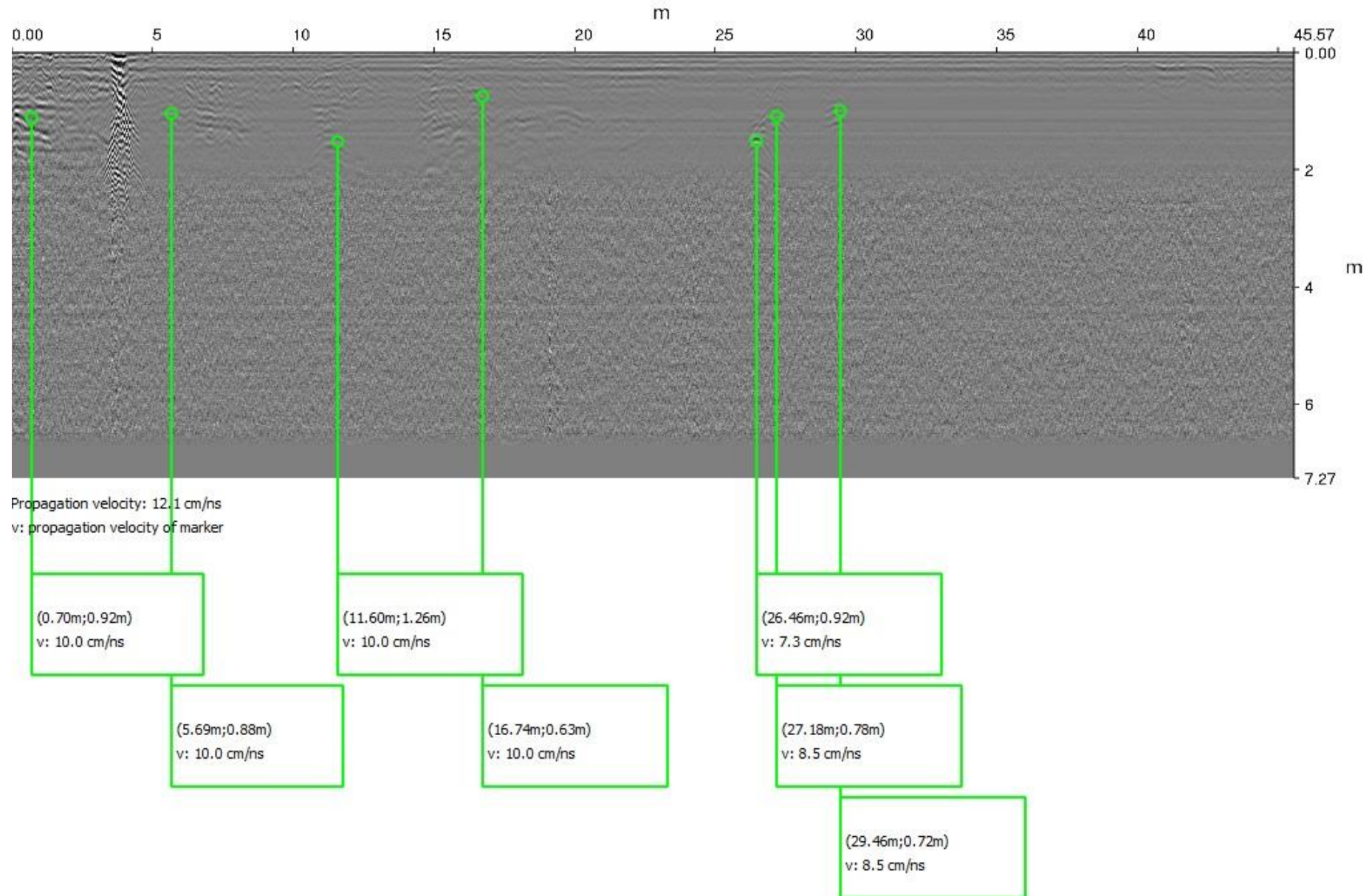


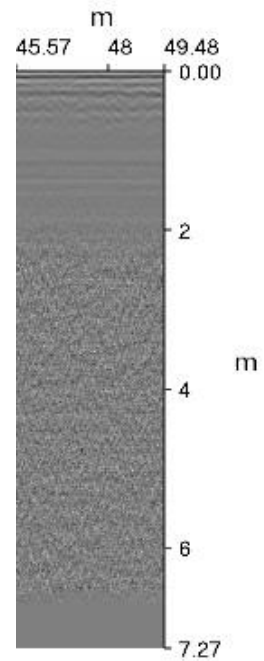
Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker

(1.85m;0.96m)
v: 11.4 cm/ns

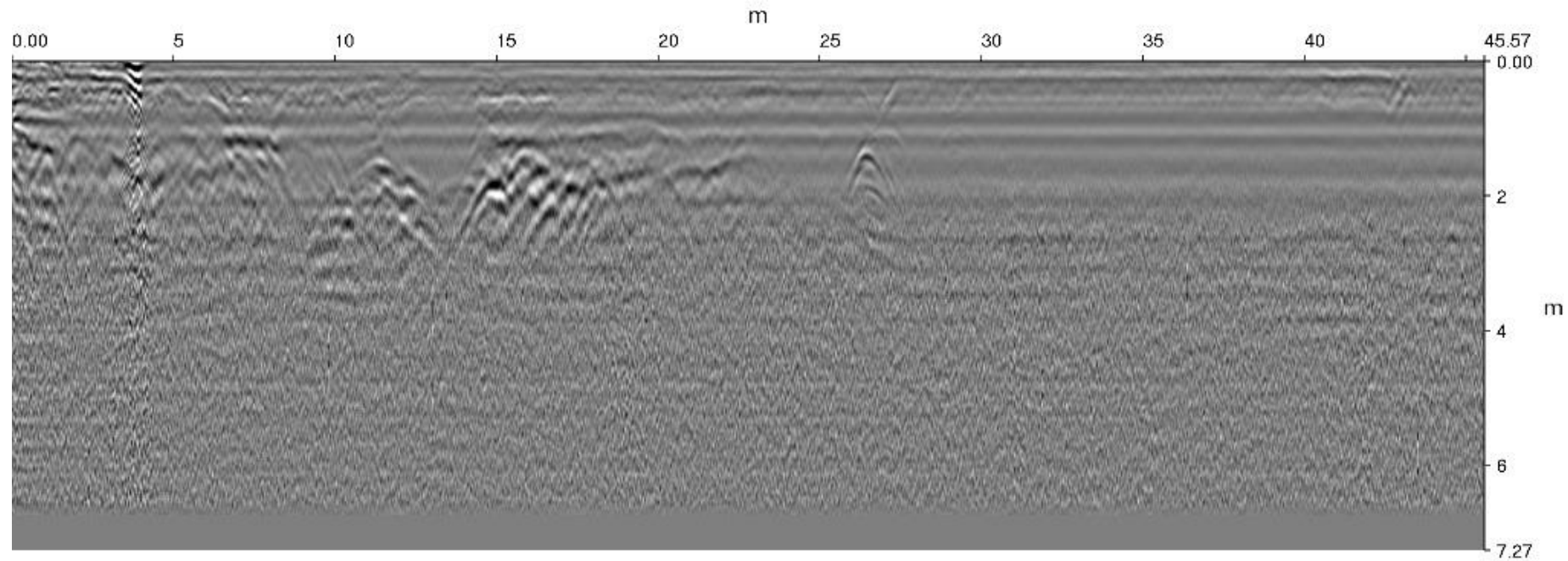


Propagation velocity: 11.4 cm/ns
v: propagation velocity of marker

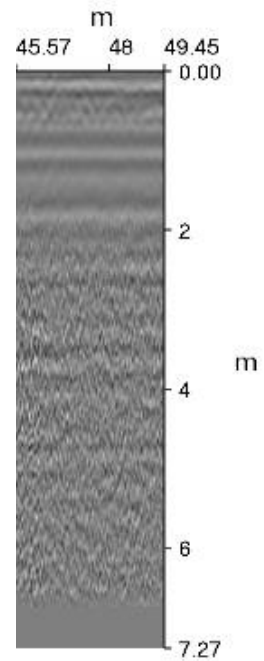




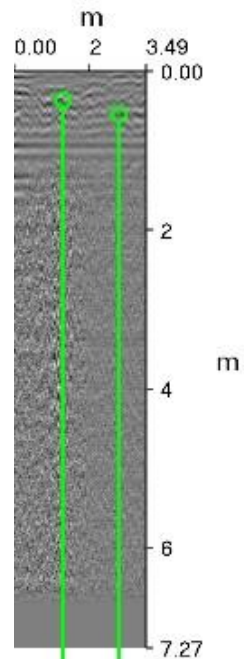
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



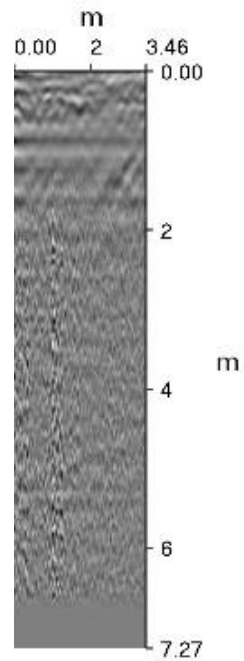
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



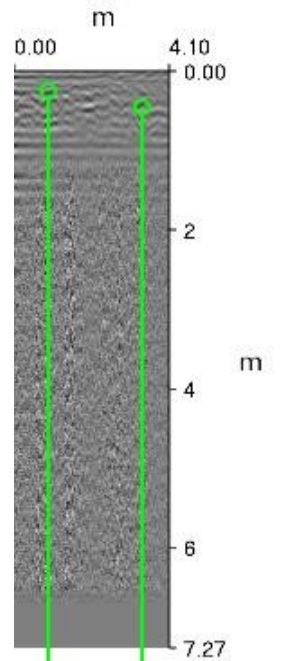
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker

(2.76m;0.40m)
v: 8.5 cm/ns

(1.28m;0.27m)
v: 8.5 cm/ns

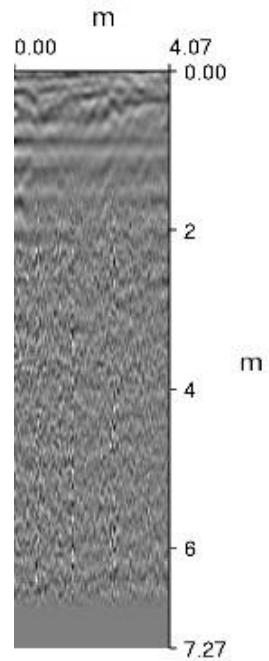


Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker

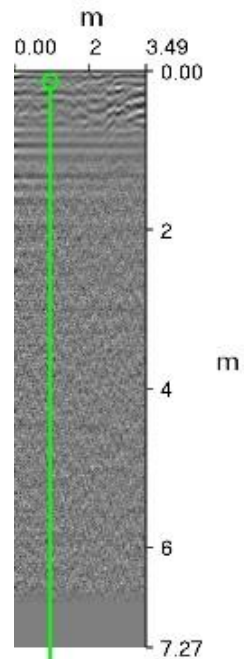


(3.37m;0.47m)
v: 12.1 cm/ns

(0.91m;0.27m)
v: 12.1 cm/ns

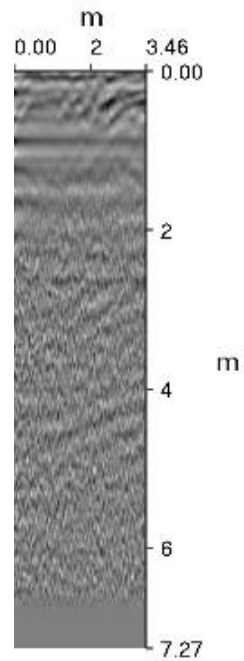


Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker

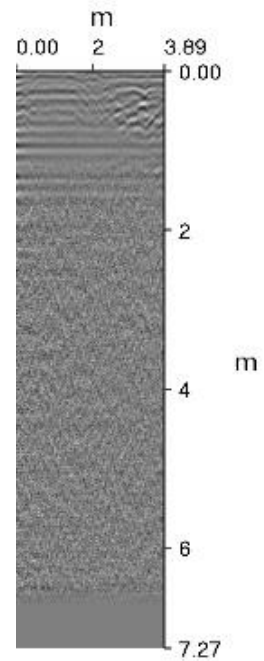


Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker

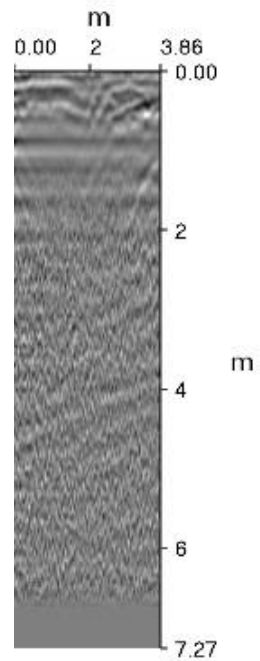
(0.95m;0.14m)
v: 12.1 cm/ns



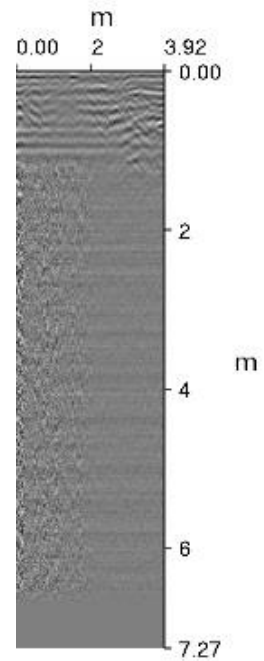
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



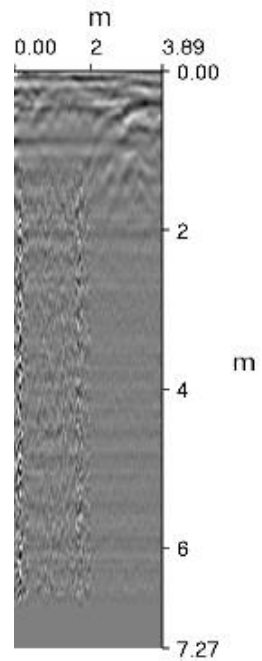
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



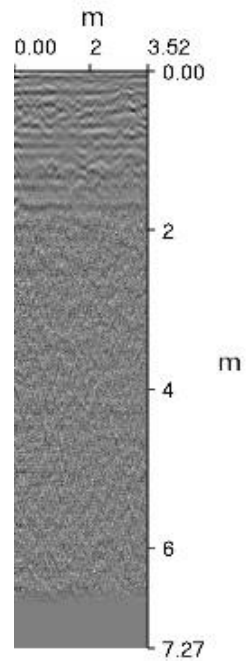
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



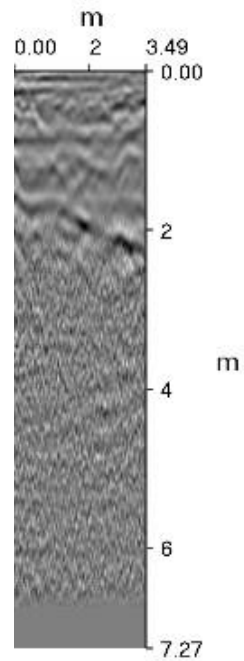
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



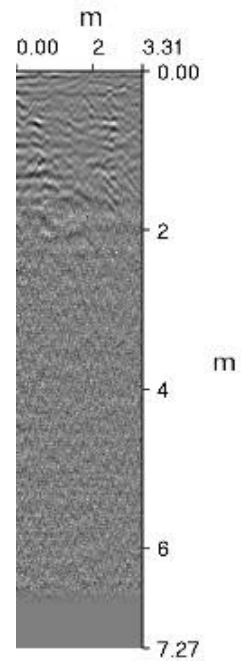
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



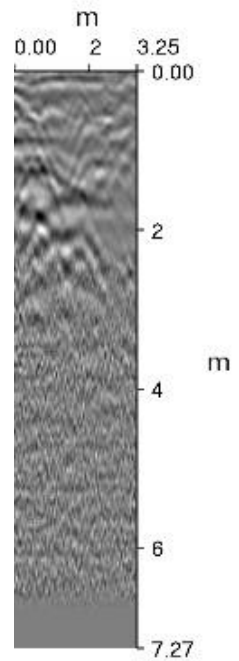
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



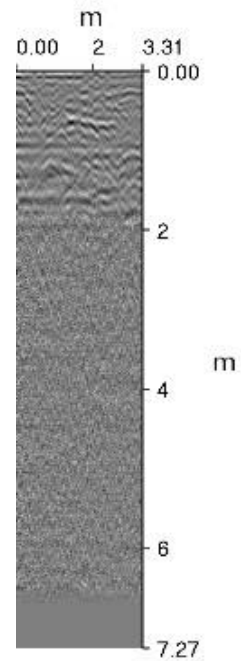
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



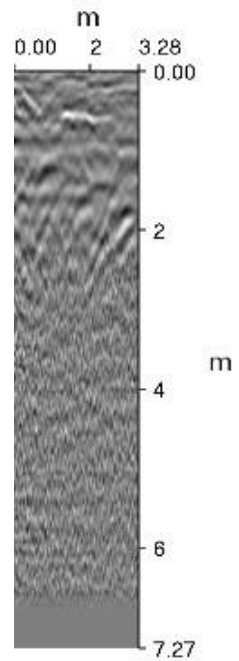
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



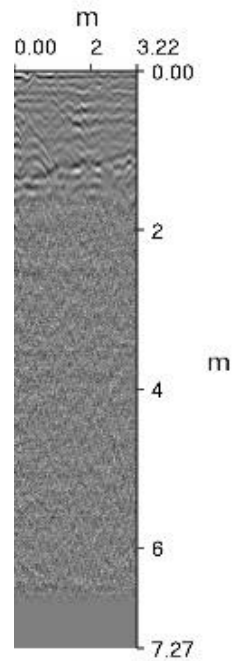
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



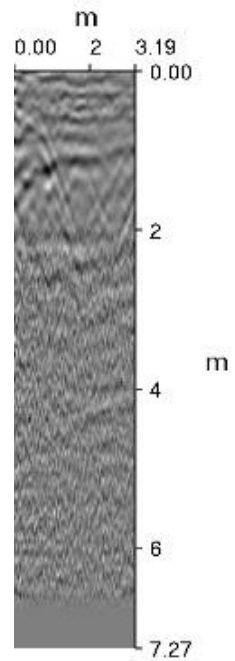
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



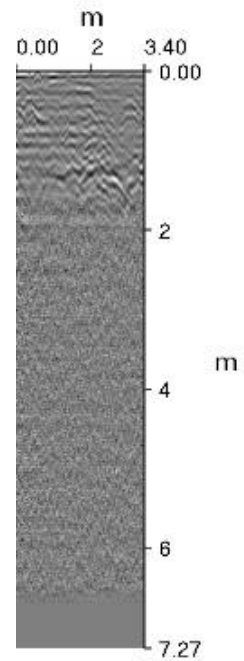
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



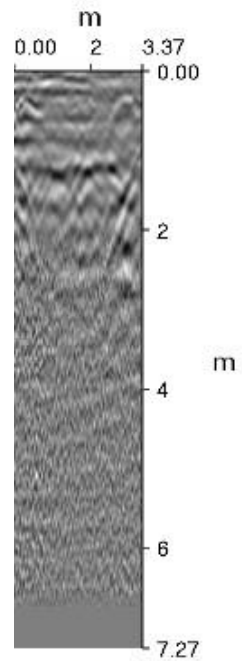
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



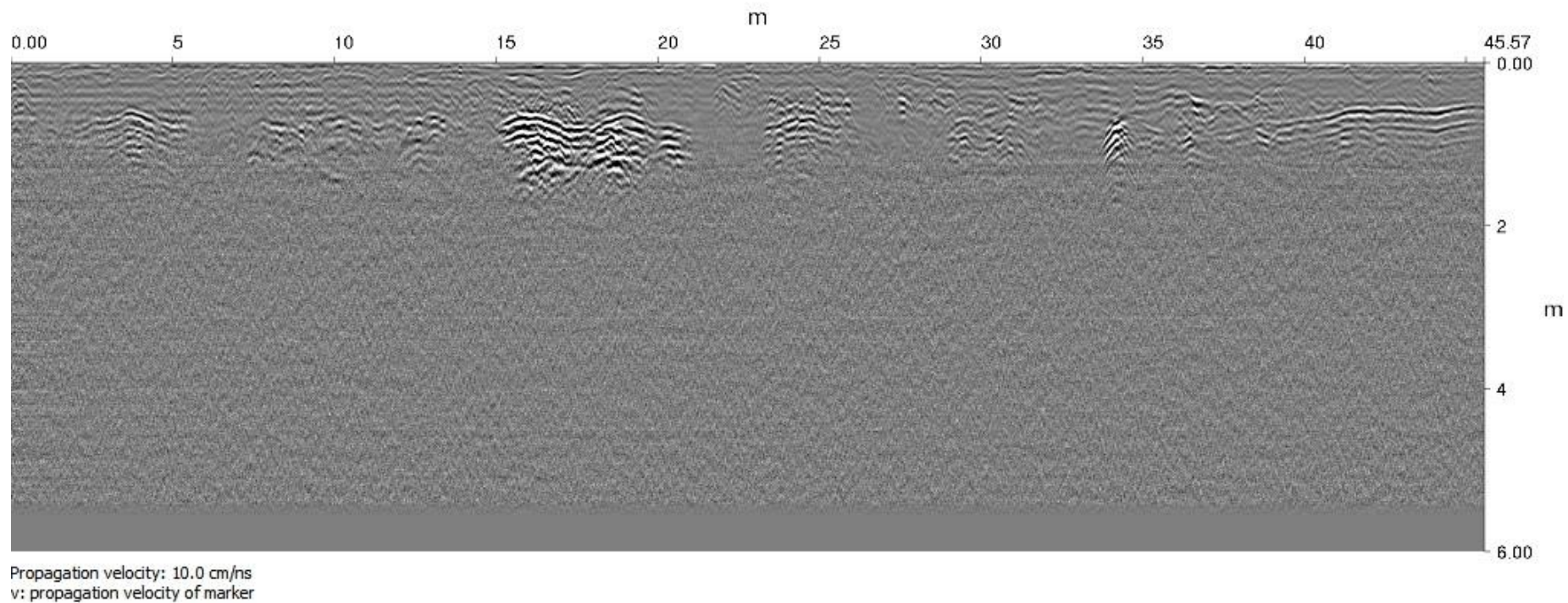
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker

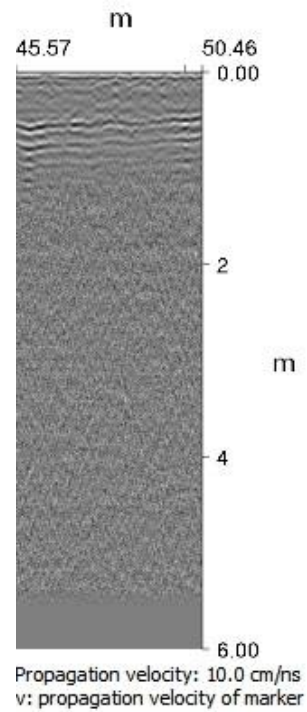


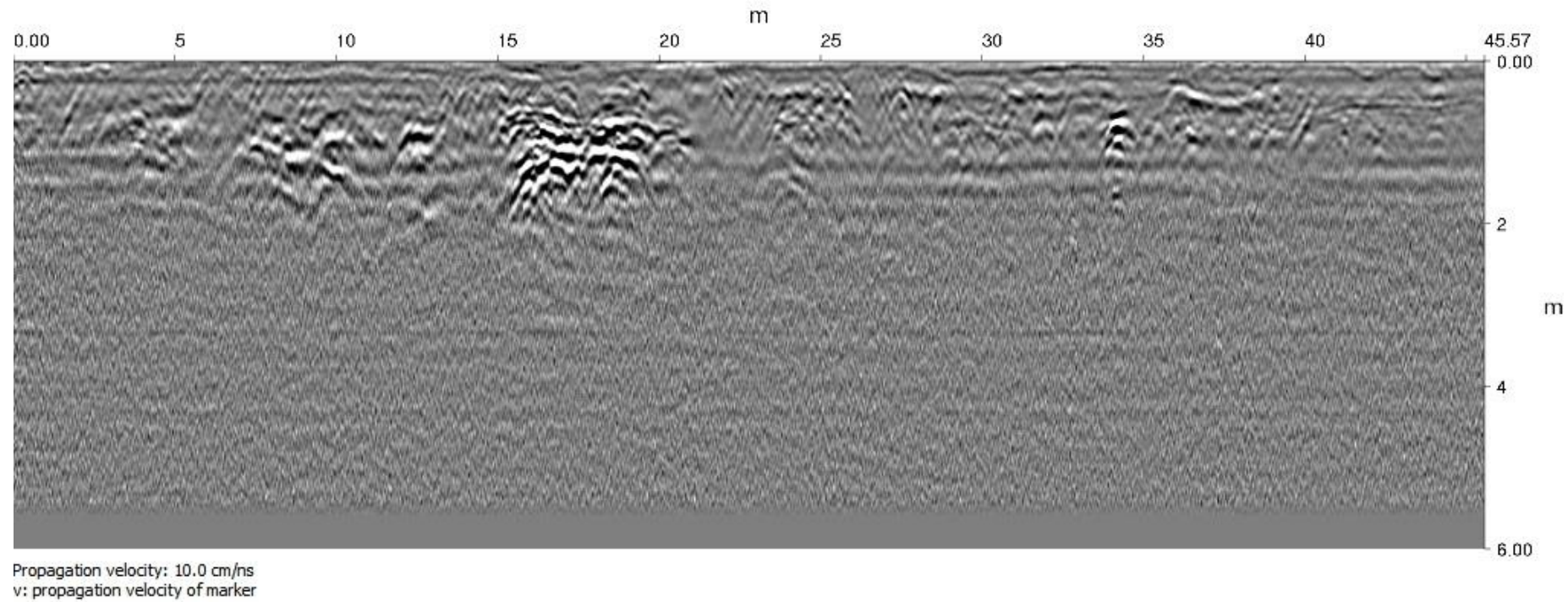
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker

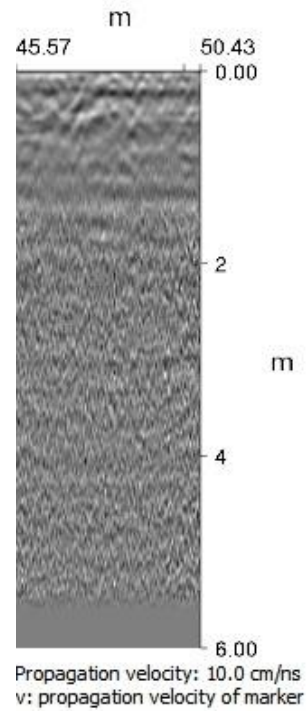


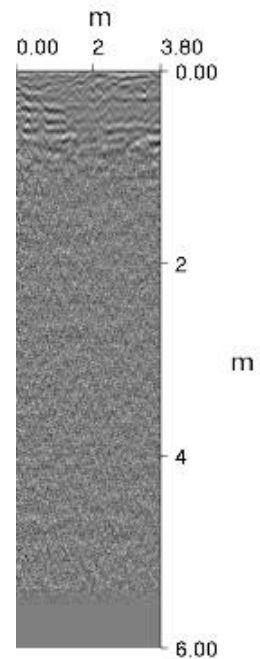
Propagation velocity: 12.1 cm/ns
v: propagation velocity of marker



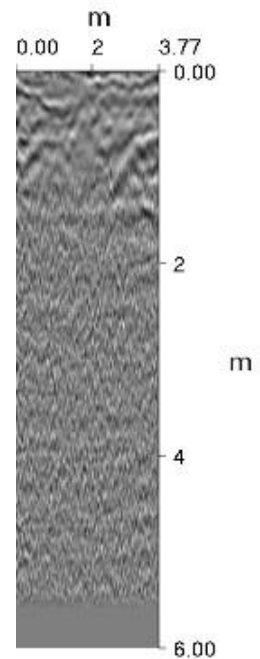




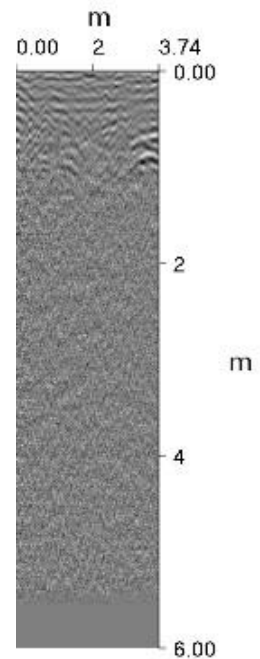




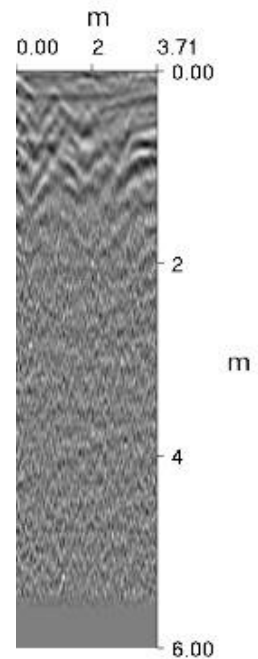
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



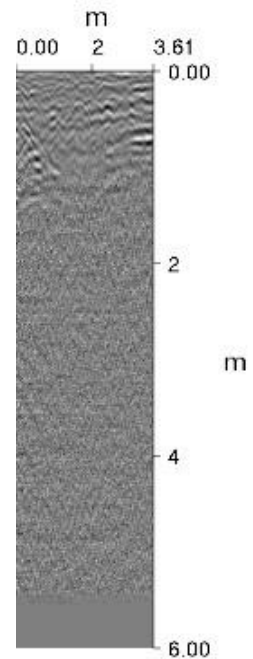
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



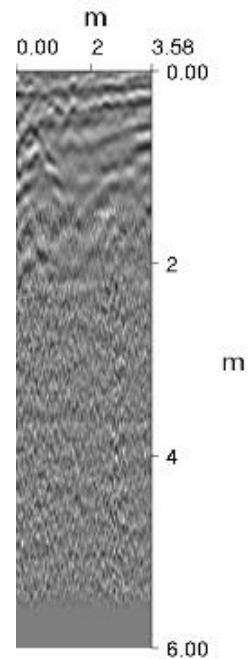
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



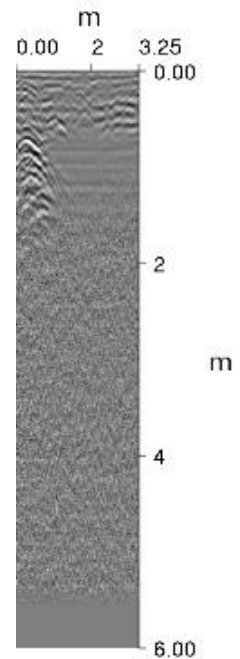
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



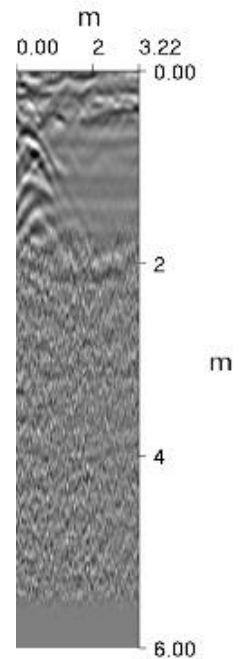
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



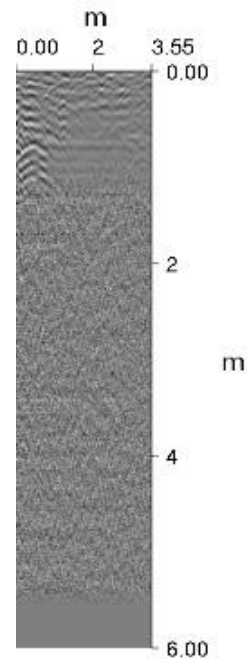
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



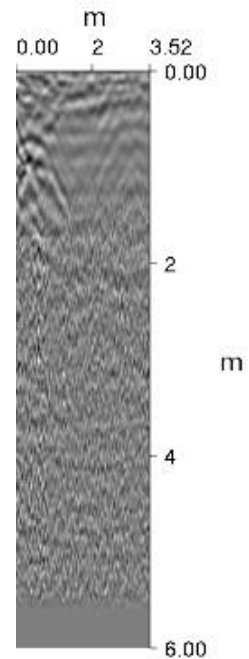
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



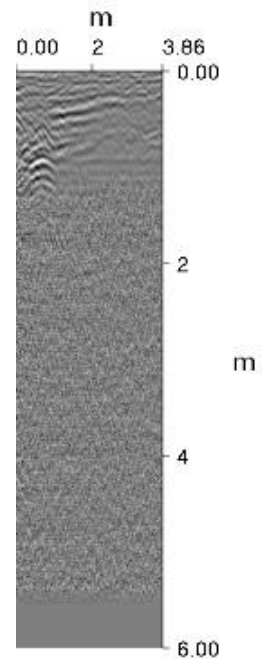
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



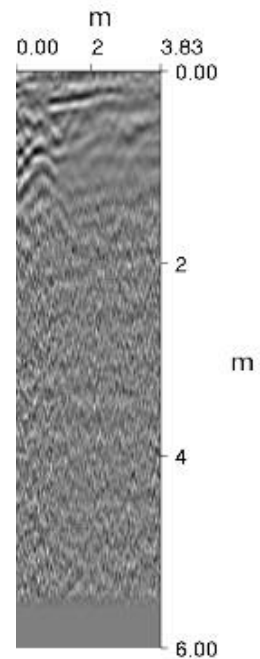
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



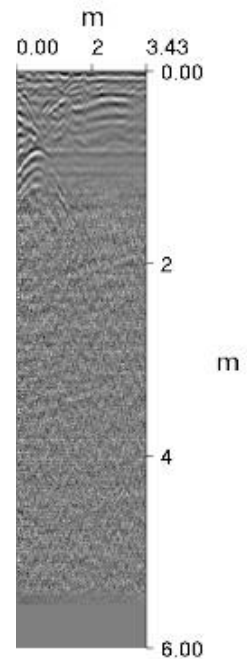
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



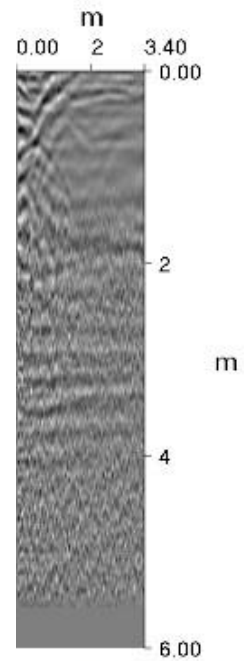
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



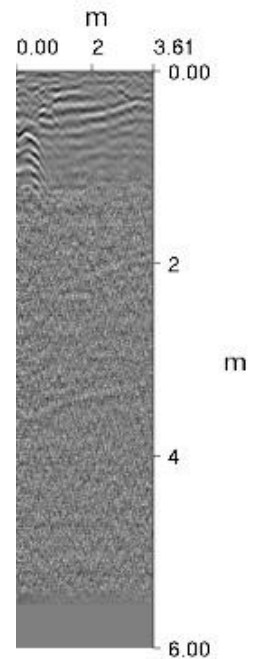
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



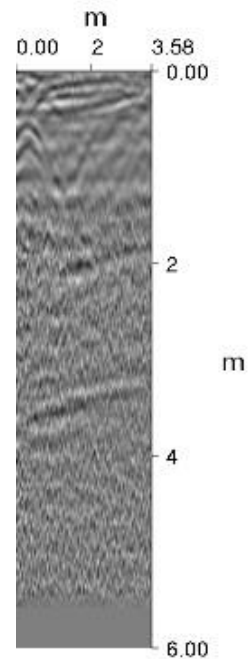
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



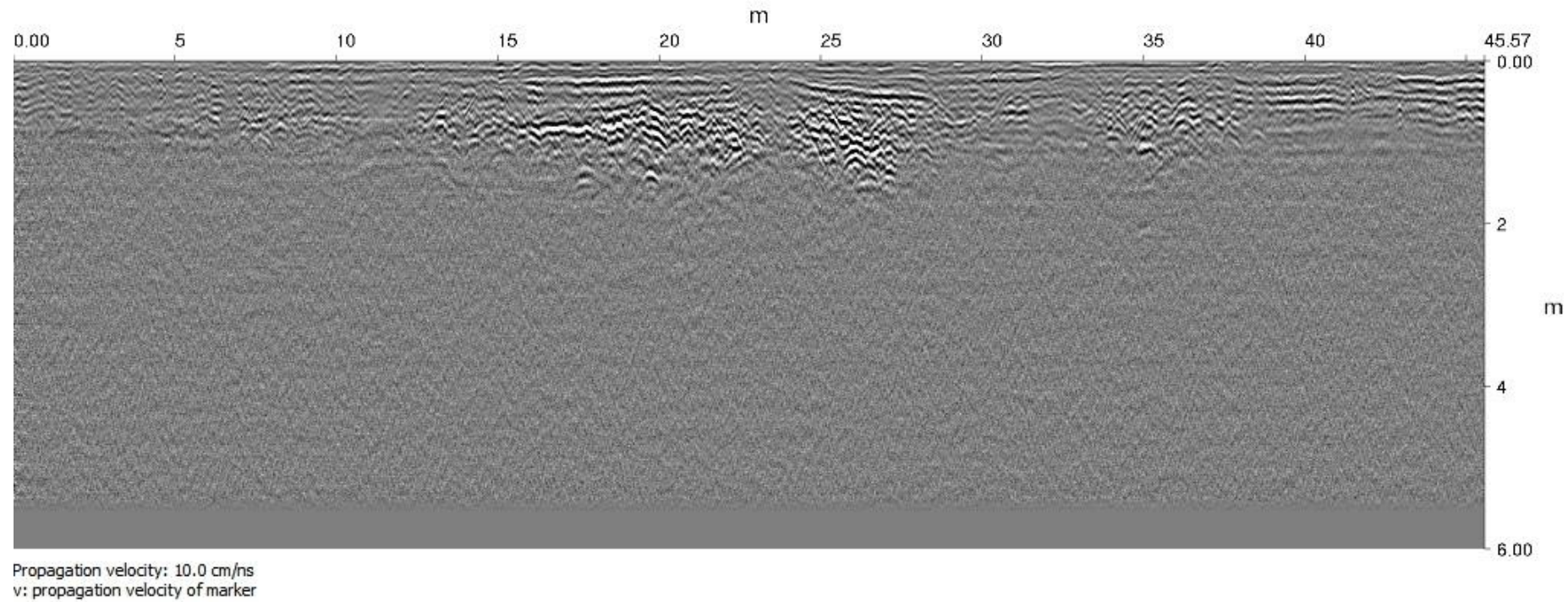
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

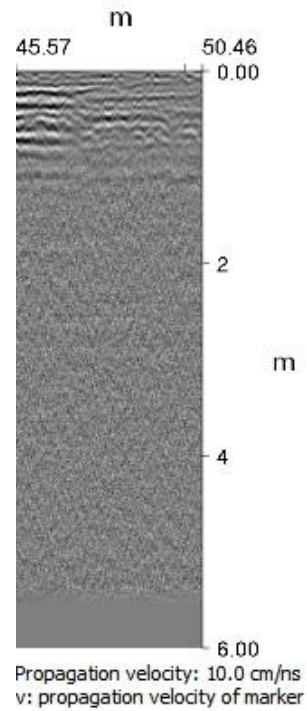


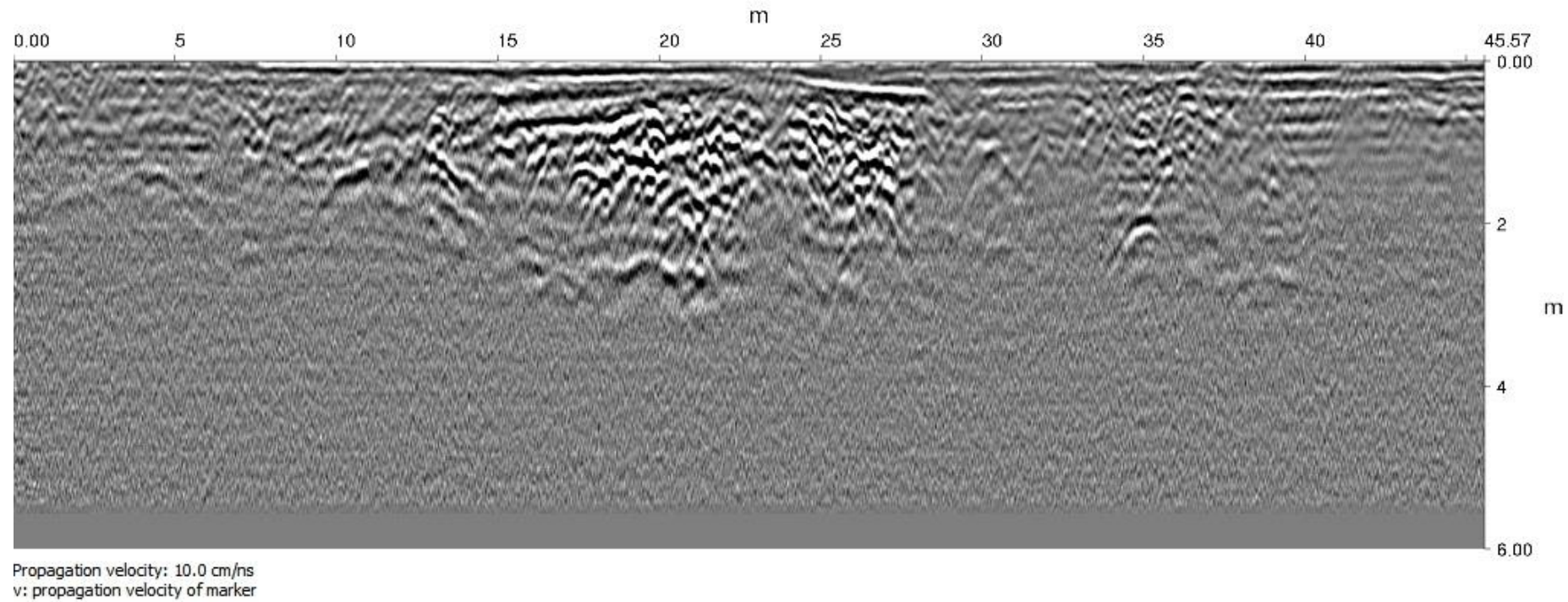
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

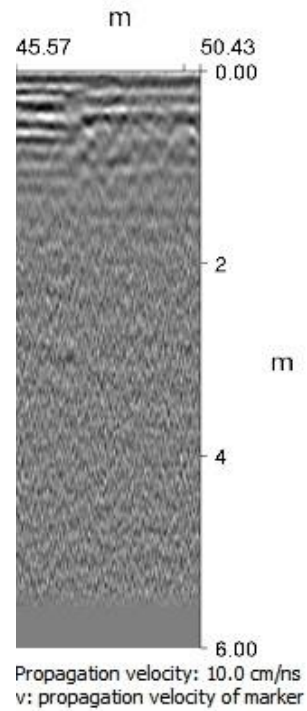


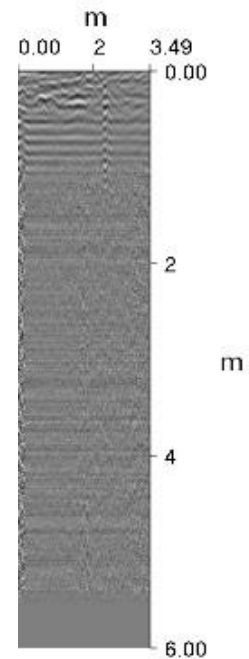
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



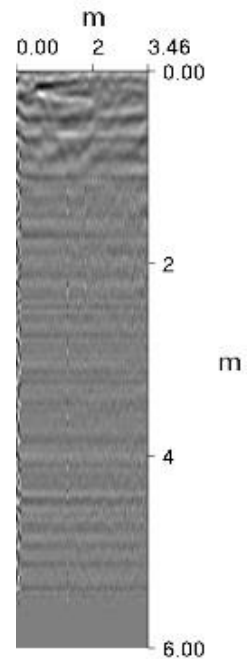




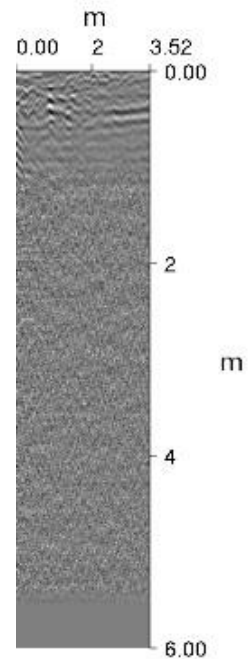




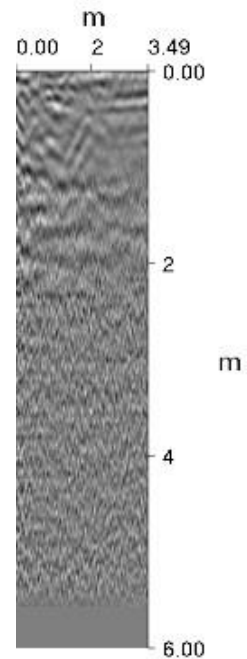
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



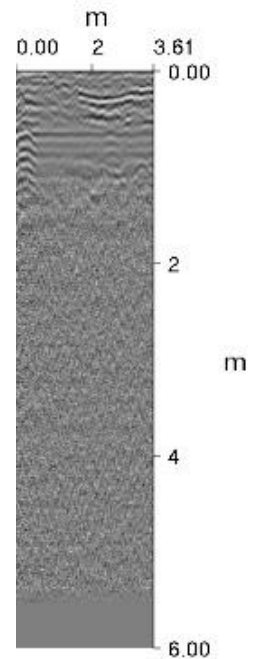
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



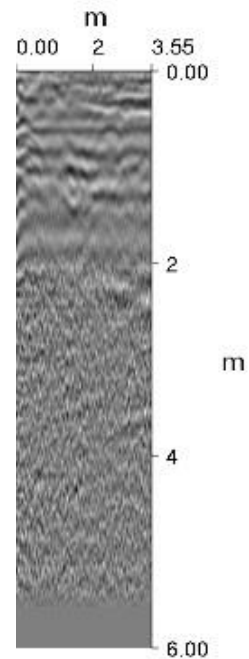
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



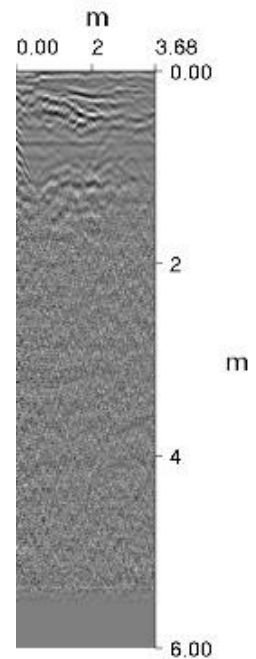
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



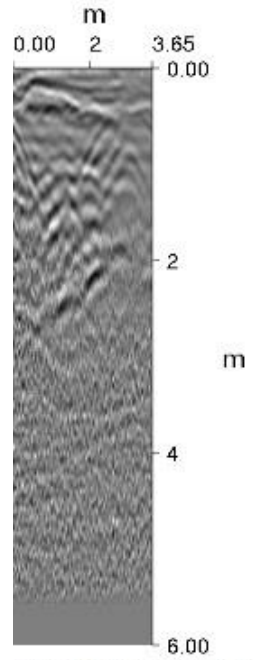
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



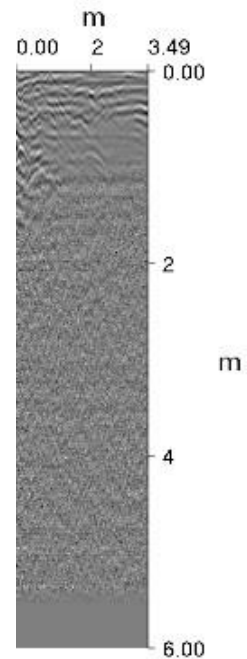
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



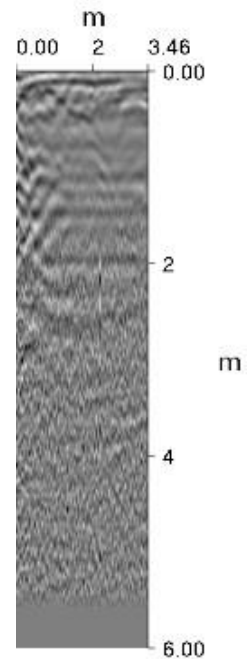
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



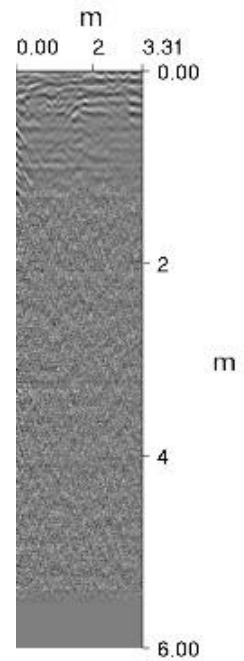
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



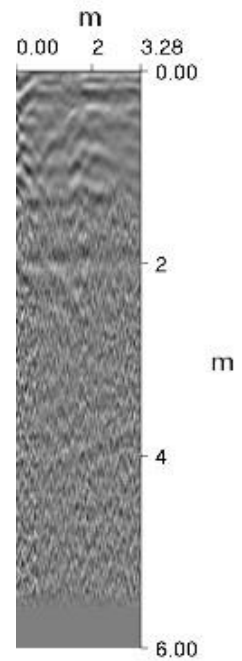
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



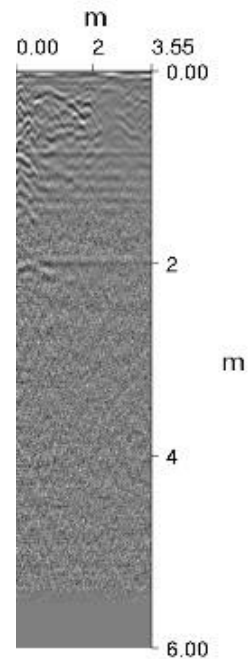
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



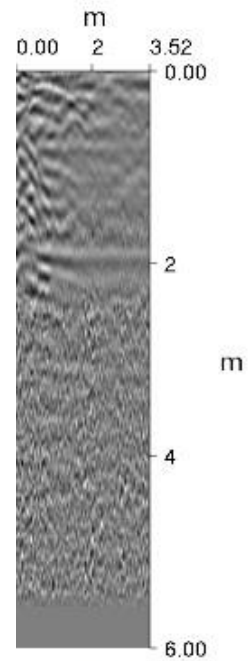
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



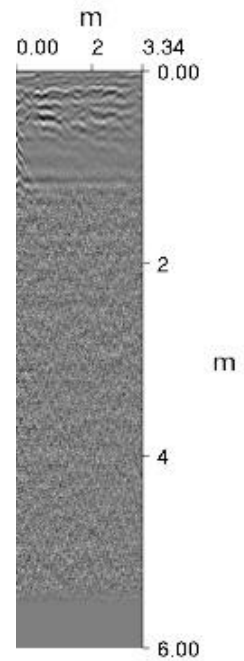
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



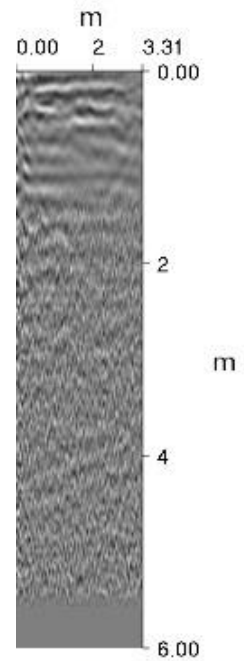
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



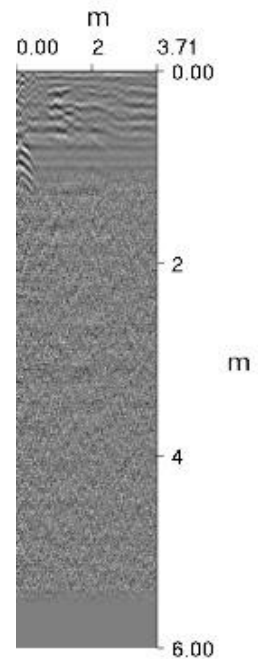
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



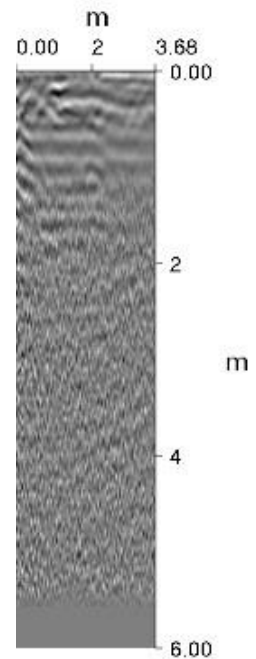
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



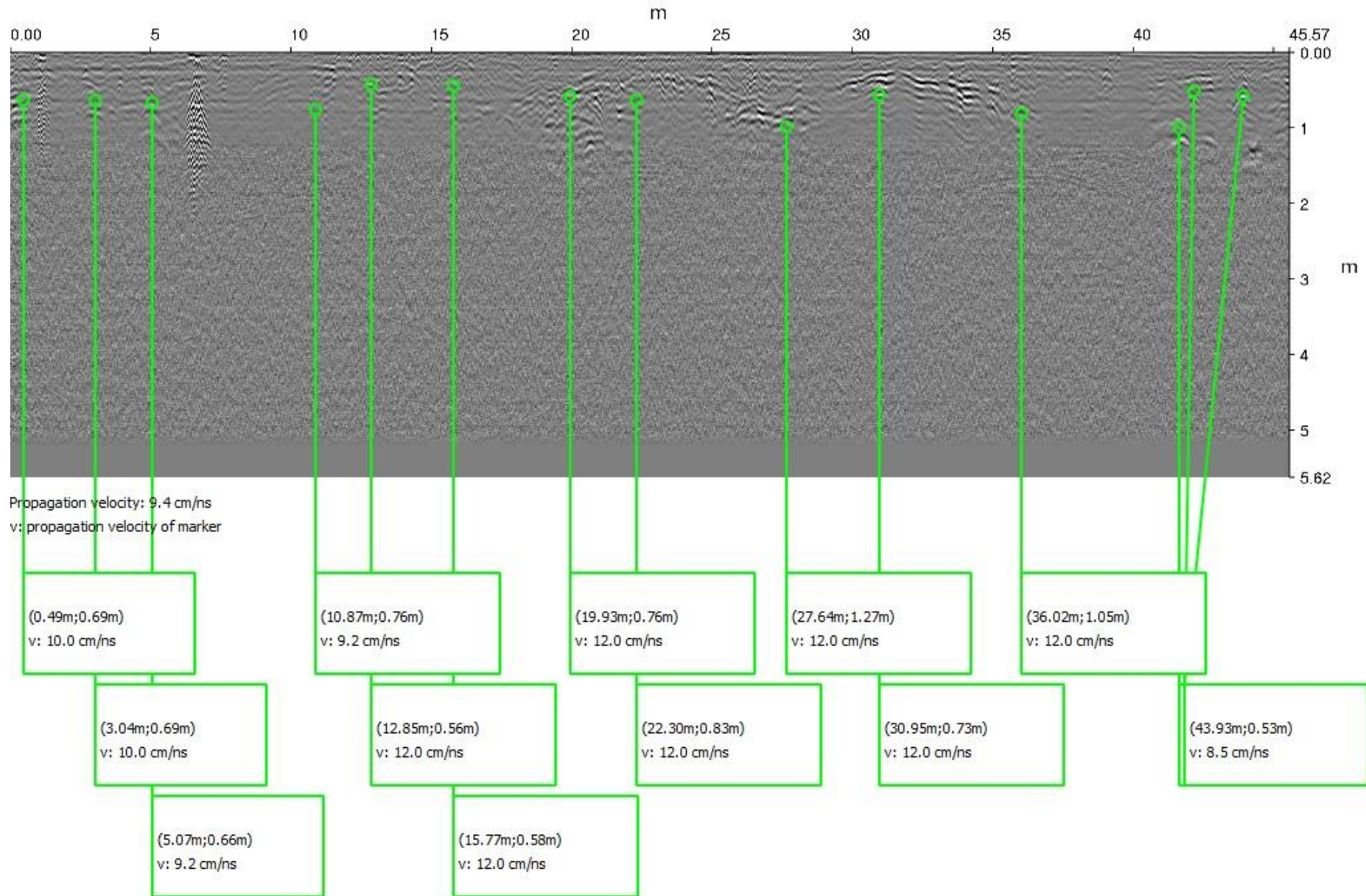
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

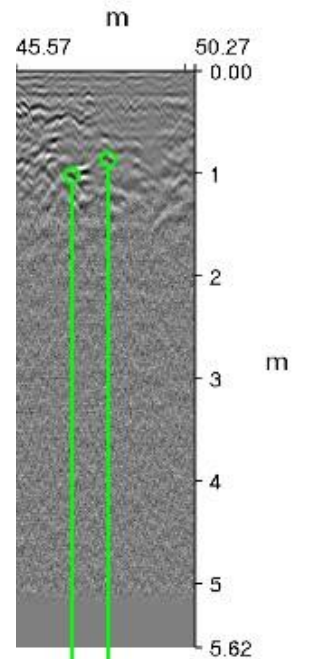


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

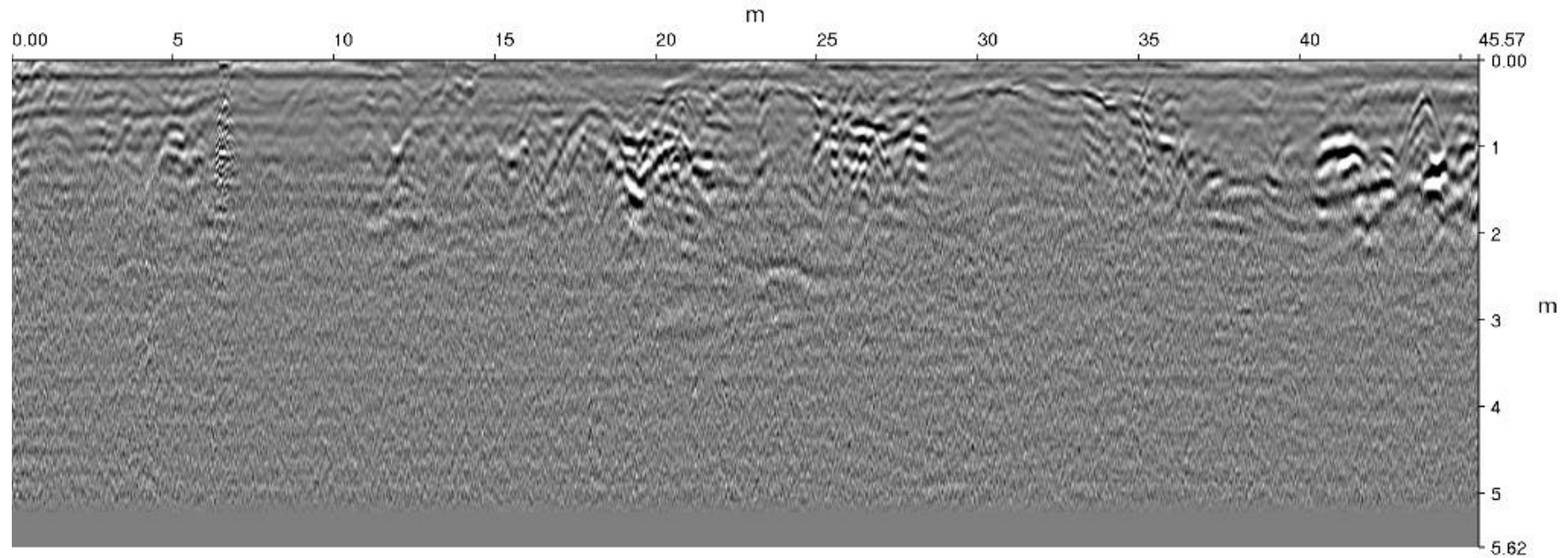




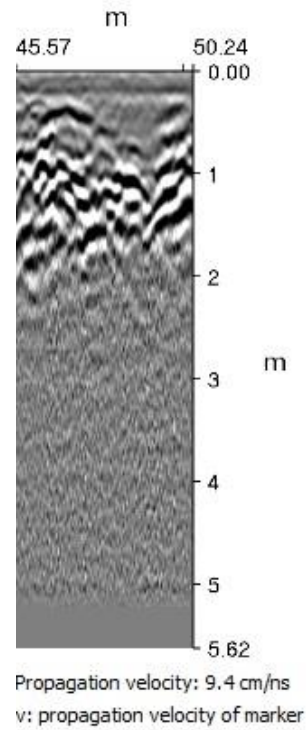
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

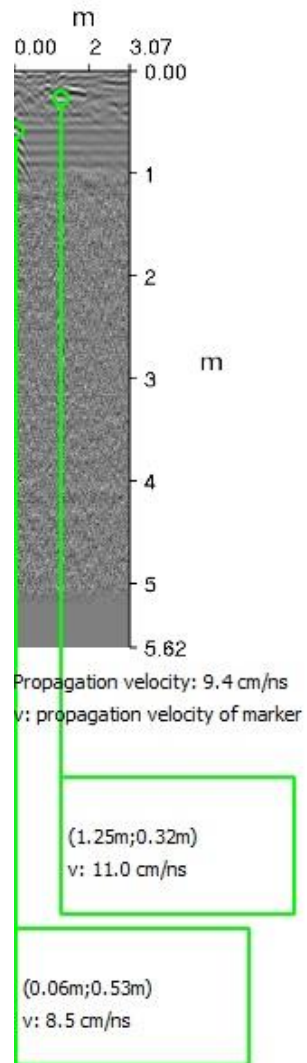
(47.03m;0.94m)
v: 8.5 cm/ns

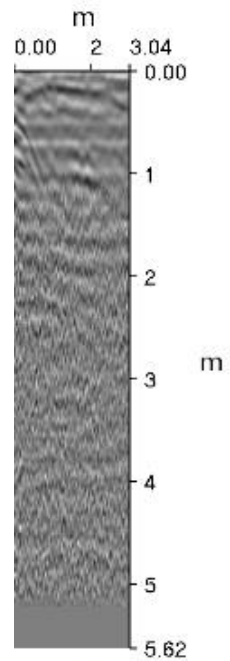
(48.00m;0.79m)
v: 8.5 cm/ns



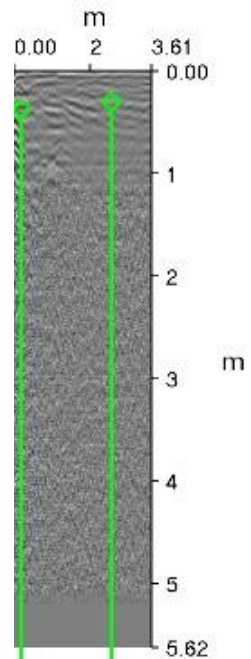
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker







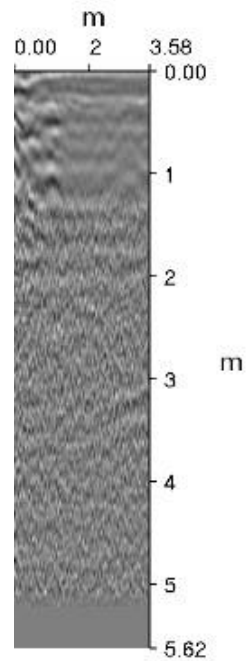
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker



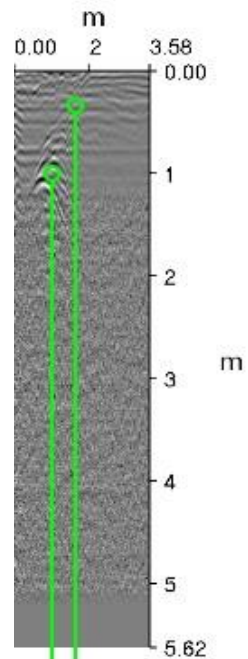
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

(0.18m;0.38m)
v: 9.2 cm/ns

(2.58m;0.31m)
v: 9.2 cm/ns



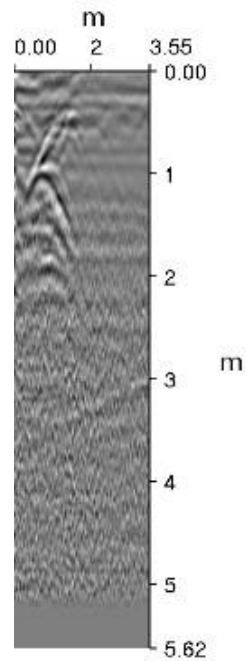
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker



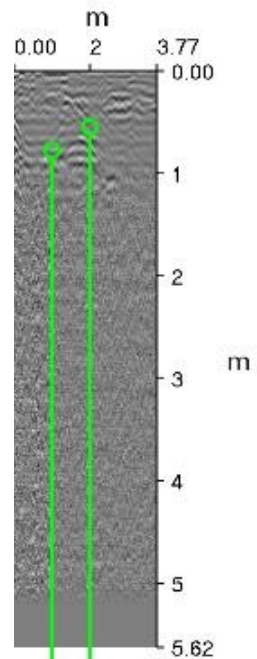
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

(1.00m;0.76m)
v: 7.0 cm/ns

(1.64m;0.26m)
v: 7.0 cm/ns



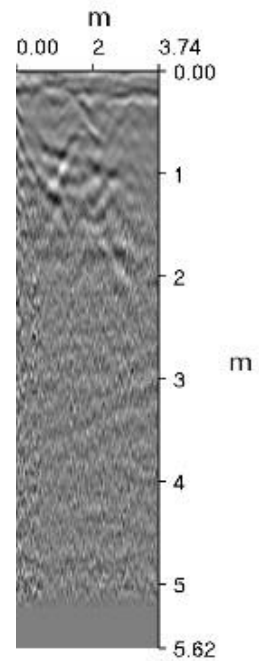
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker



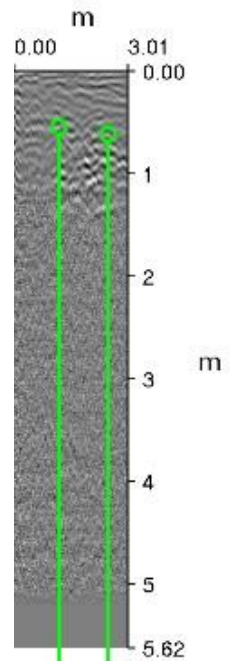
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

(1.00m;0.59m)
v: 7.0 cm/ns

(2.00m;0.55m)
v: 9.4 cm/ns



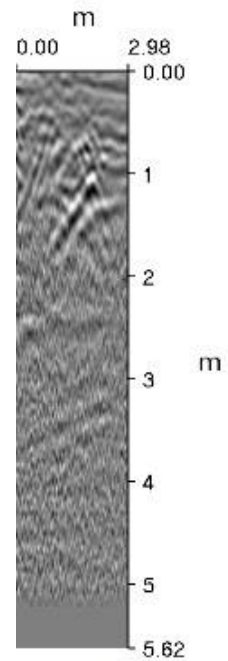
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker



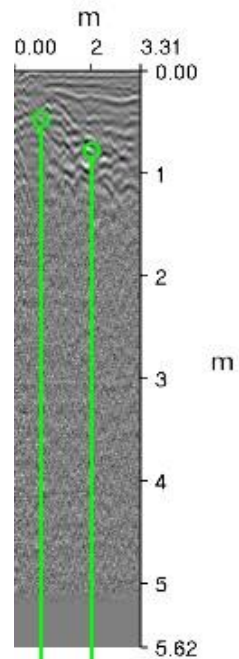
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

(1.18m;0.56m)
v: 9.4 cm/ns

(2.49m;0.63m)
v: 9.4 cm/ns



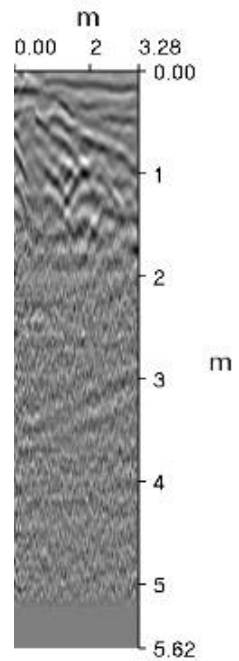
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker



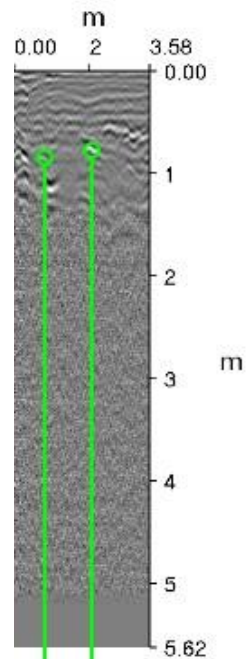
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

(0.73m;0.48m)
v: 9.4 cm/ns

(2.04m;0.78m)
v: 9.4 cm/ns



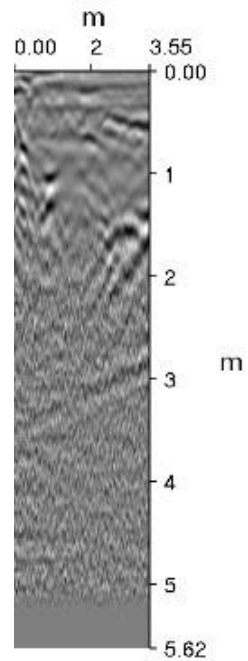
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker



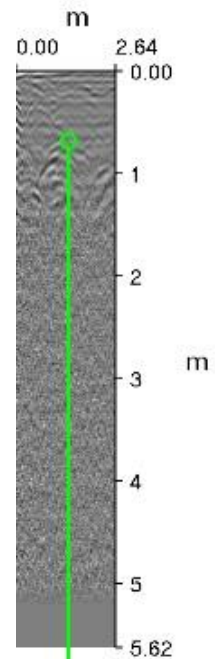
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

(0.79m;0.86m)
v: 9.4 cm/ns

(2.04m;0.79m)
v: 9.4 cm/ns

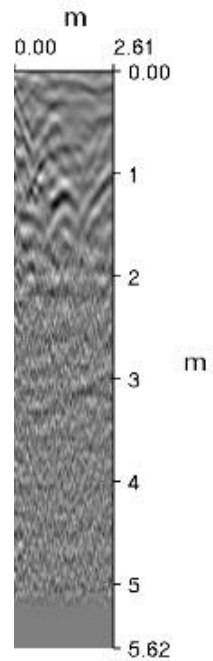


Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

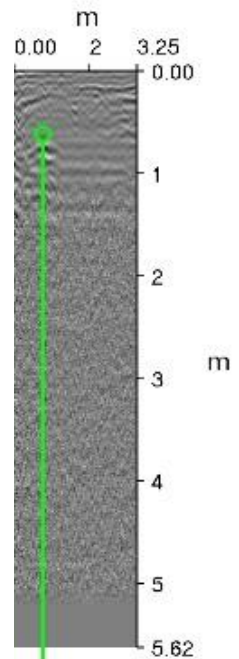


Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

(1.40m;0.70m)
v: 9.4 cm/ns

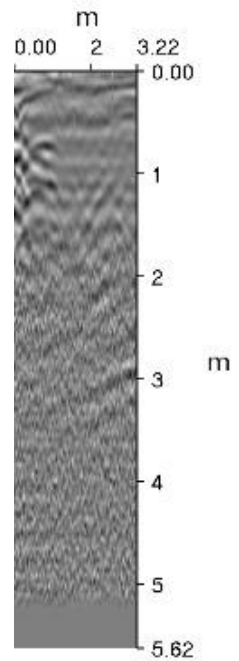


Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

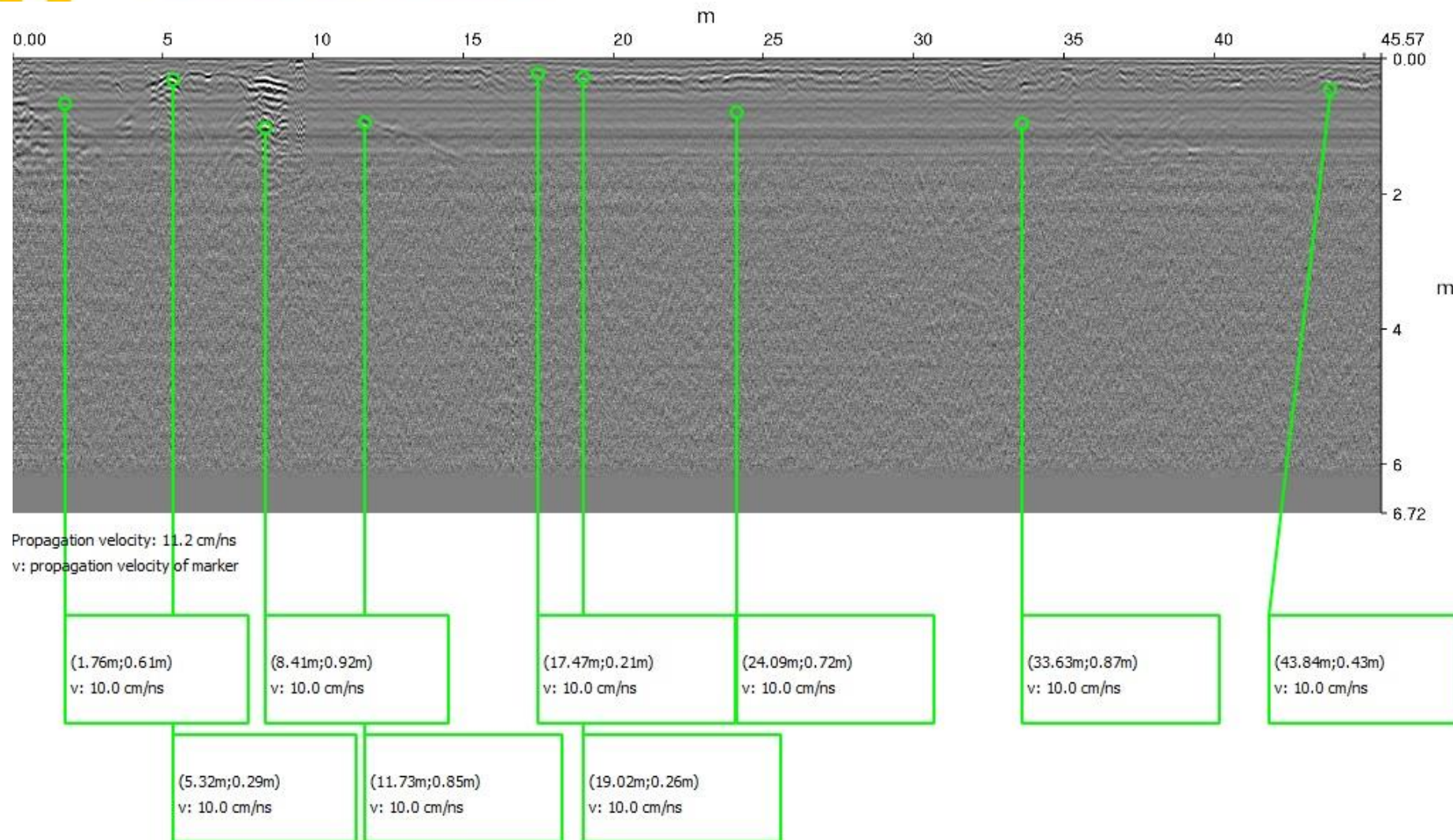


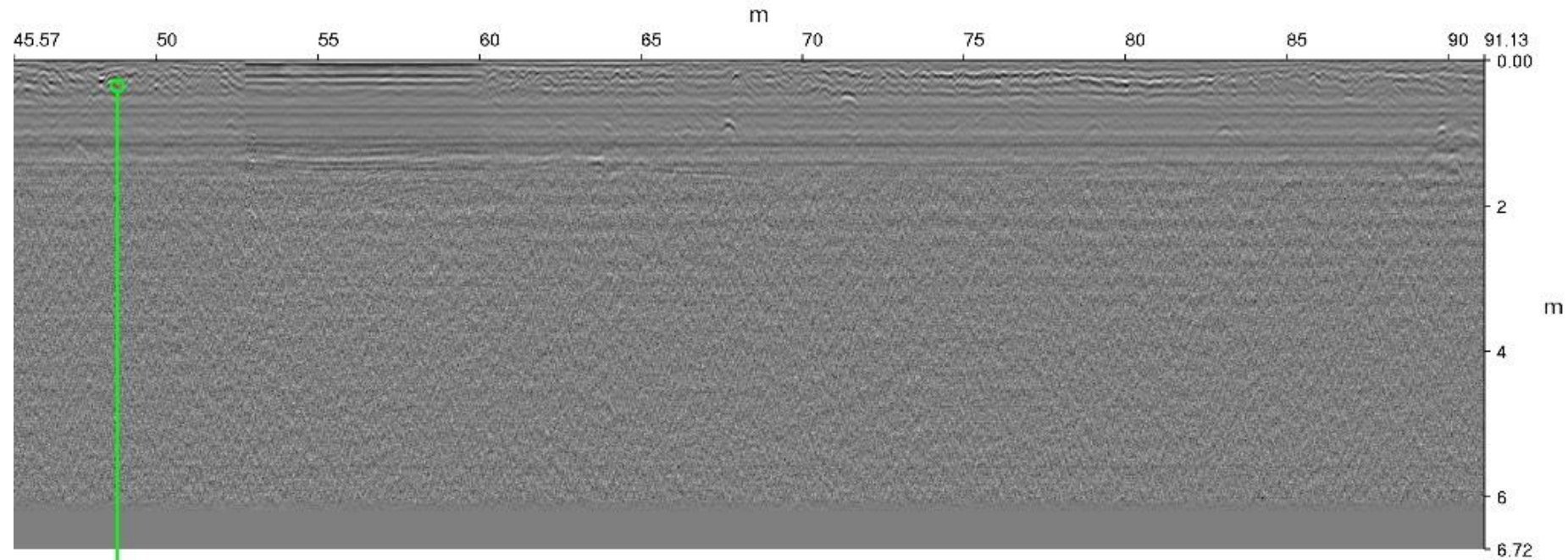
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker

(0.76m;0.63m)
v: 9.4 cm/ns



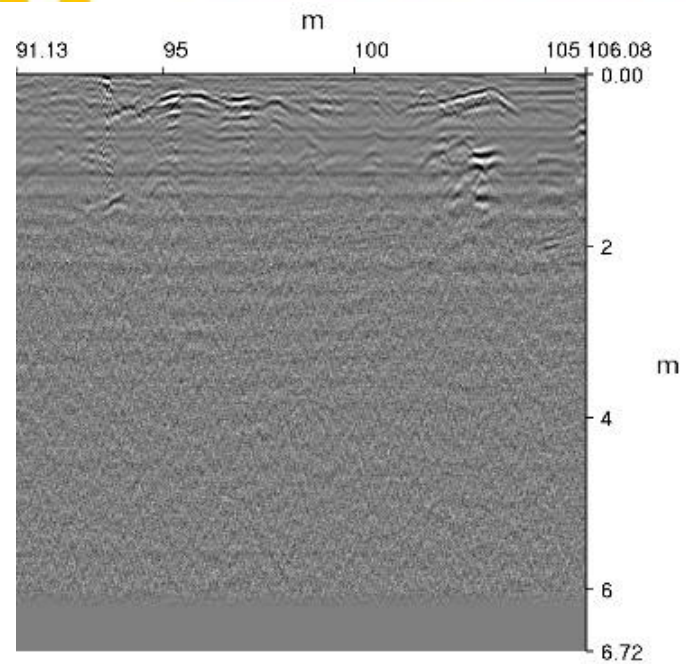
Propagation velocity: 9.4 cm/ns
v: propagation velocity of marker



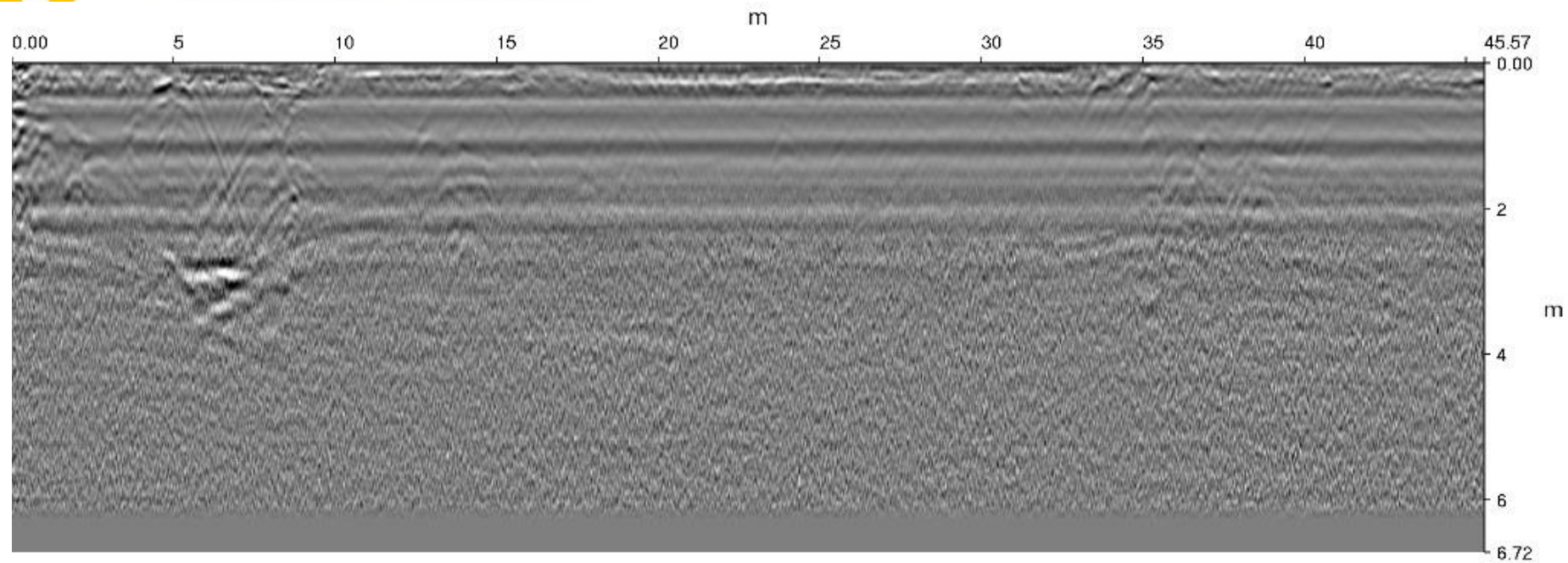


Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

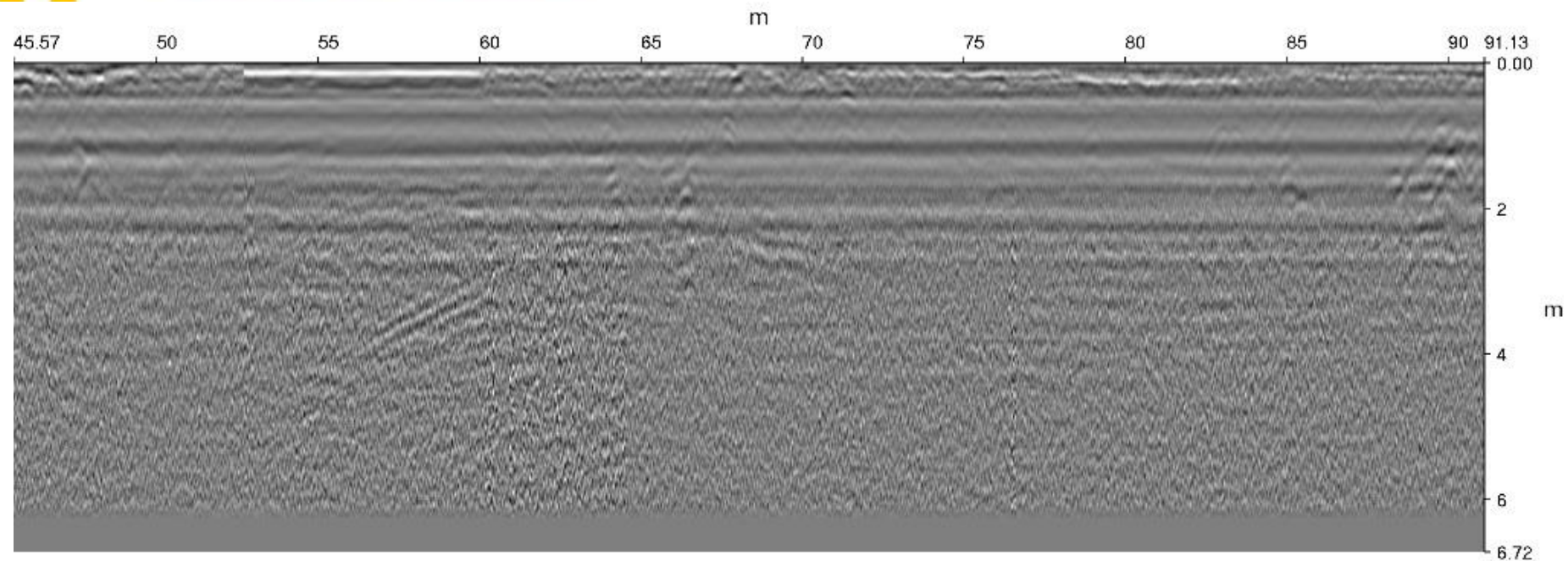
(48.79m;0.32m)
v: 10.0 cm/ns



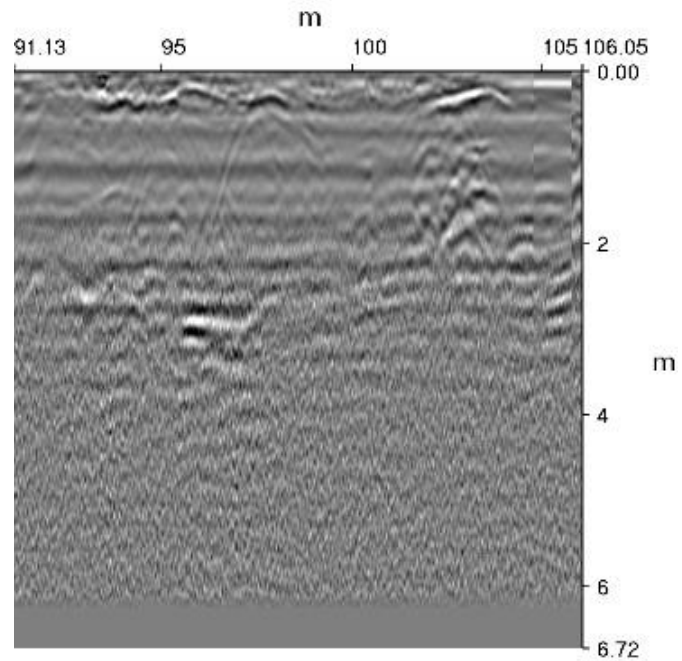
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker



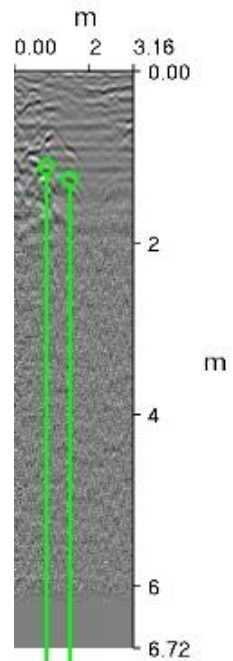
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker



Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker



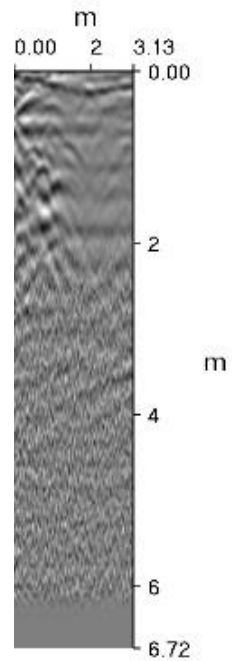
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker



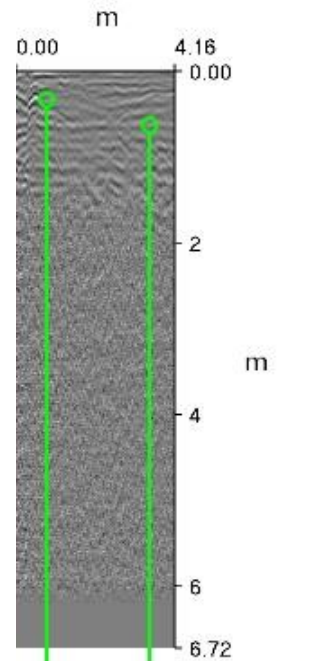
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

(0.87m;0.64m)
v: 6.3 cm/ns

(1.48m;0.72m)
v: 6.3 cm/ns



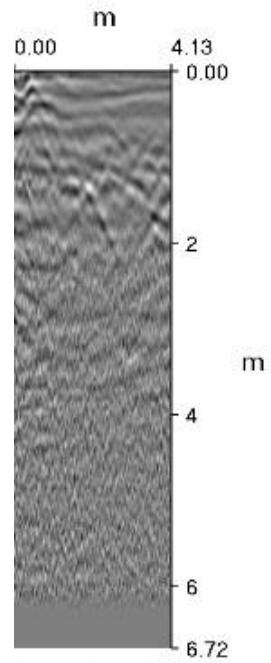
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker



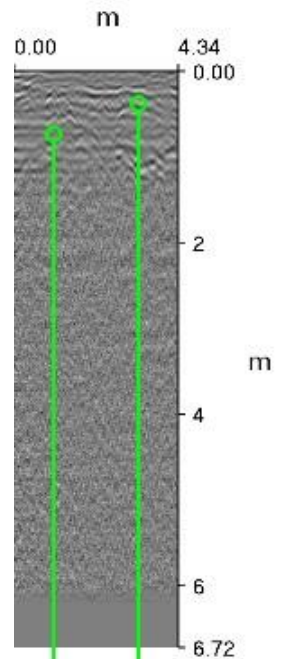
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

(0.79m;0.35m)
v: 11.2 cm/ns

(3.51m;0.63m)
v: 11.2 cm/ns



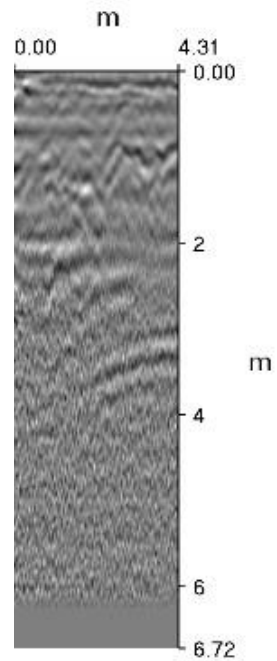
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker



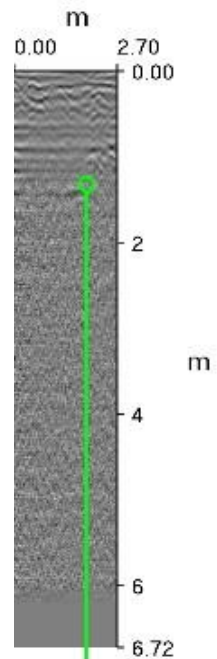
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

(1.03m;0.74m)
v: 11.2 cm/ns

(3.31m;0.38m)
v: 11.2 cm/ns

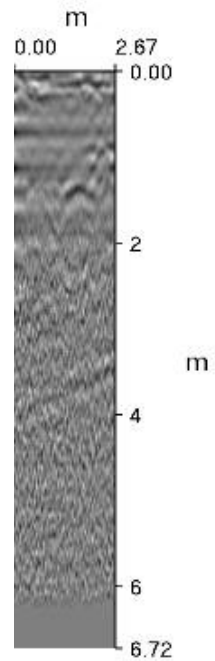


Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

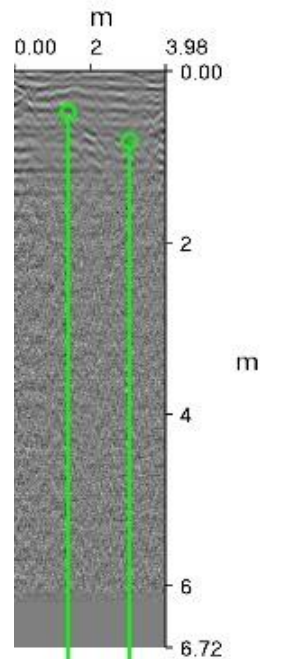


Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

(1.91m;1.33m)
v: 11.2 cm/ns



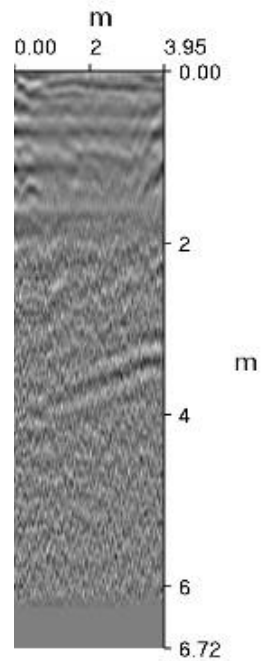
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker



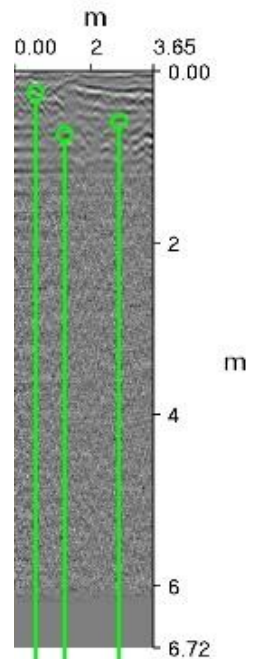
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

(1.40m;0.49m)
v: 11.2 cm/ns

(3.01m;0.83m)
v: 11.2 cm/ns



Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

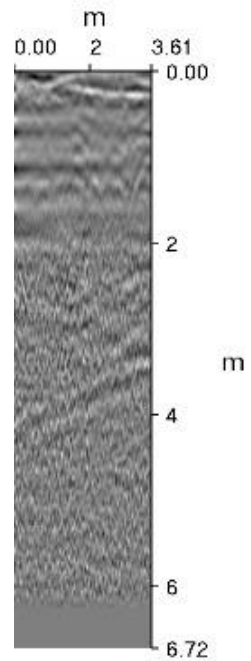


Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

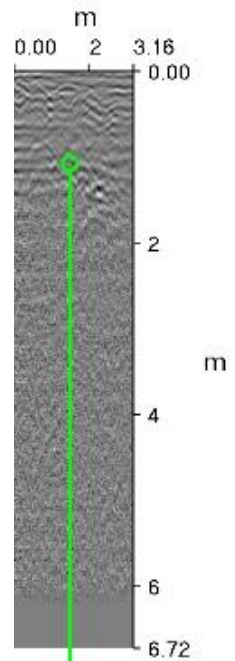
(0.55m;0.26m)
v: 11.2 cm/ns

(1.34m;0.74m)
v: 11.2 cm/ns

(2.73m;0.59m)
v: 11.2 cm/ns

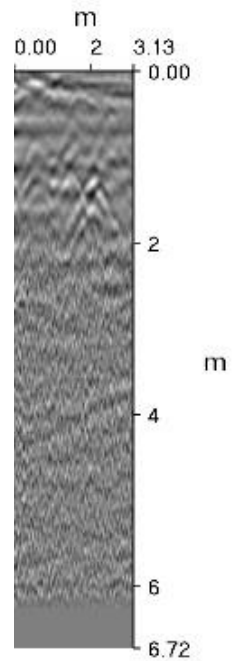


Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

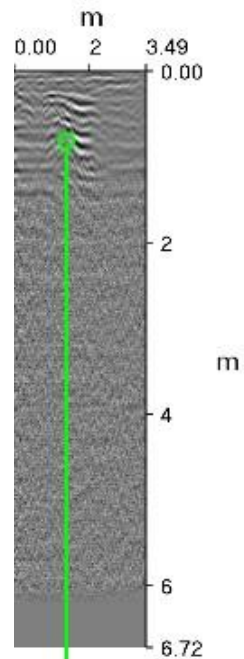


Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

(1.46m; 1.08m)
v: 11.2 cm/ns

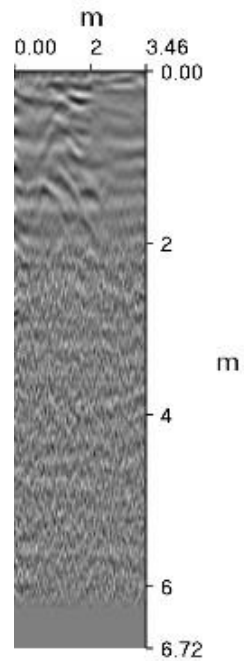


Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

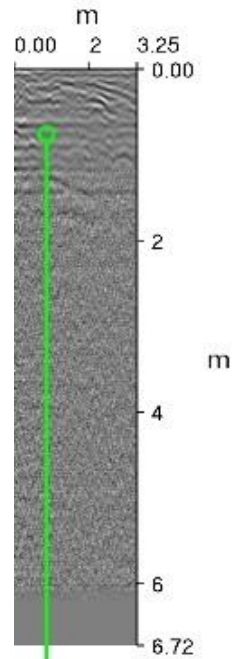


Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

(1.40m; 0.83m)
v: 11.2 cm/ns

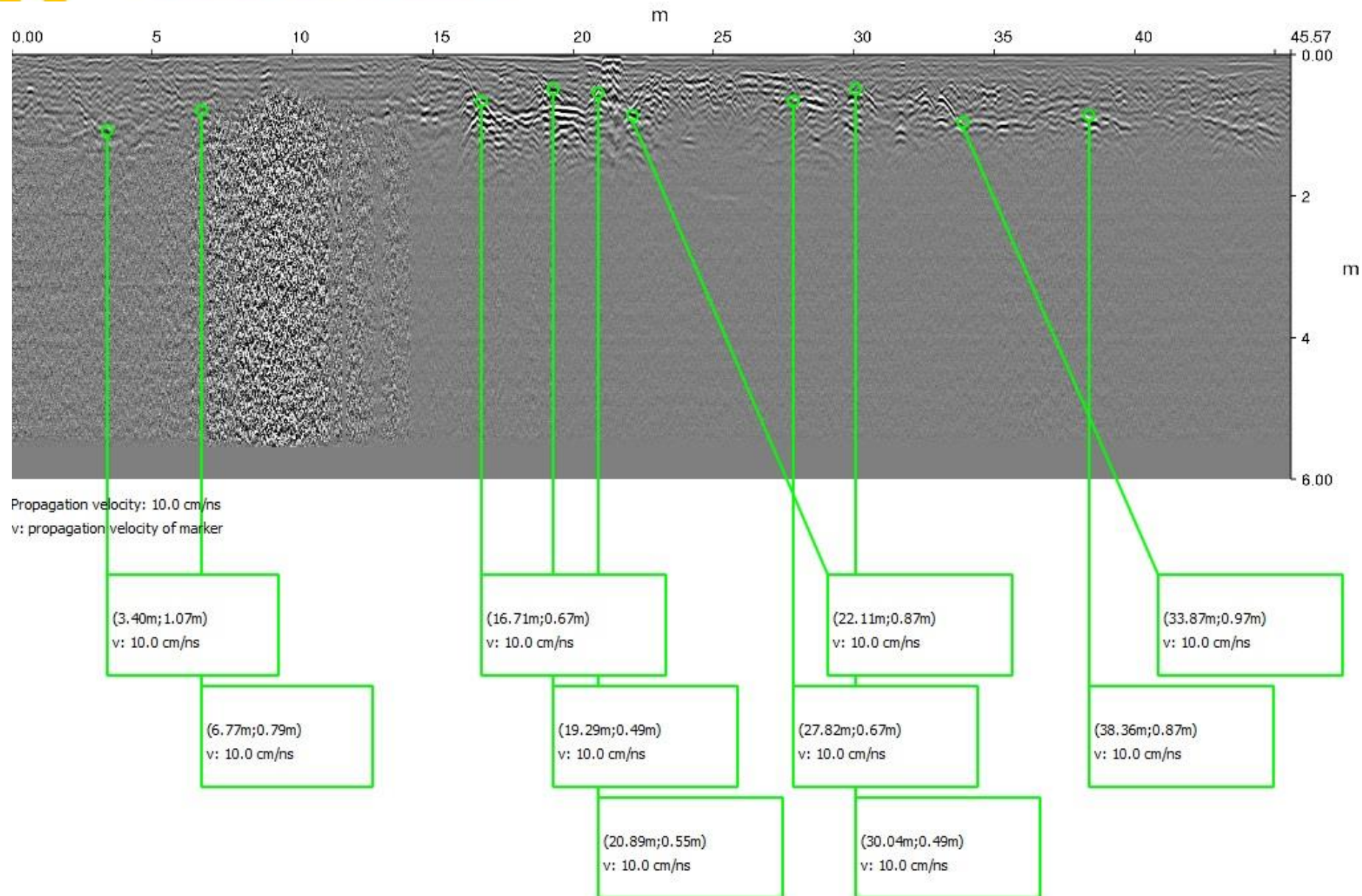


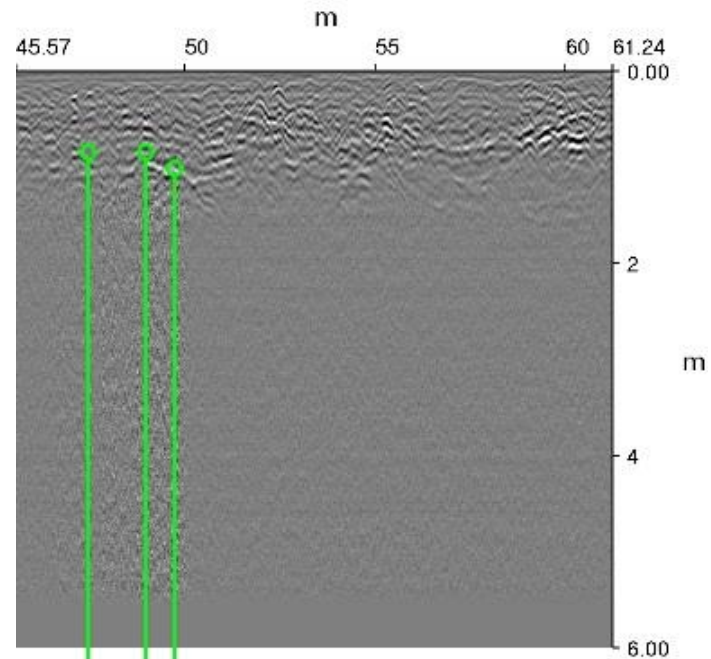
Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker



Propagation velocity: 11.2 cm/ns
v: propagation velocity of marker

(0.85m;0.76m)
v: 11.2 cm/ns



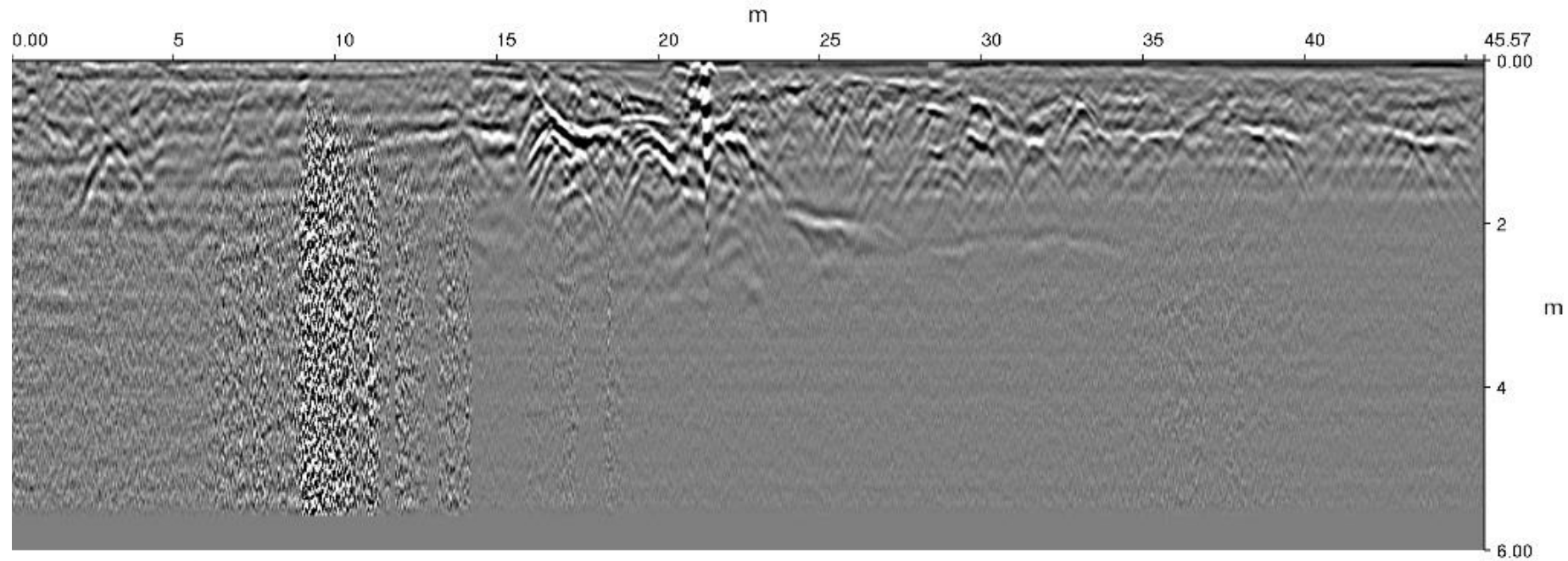


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

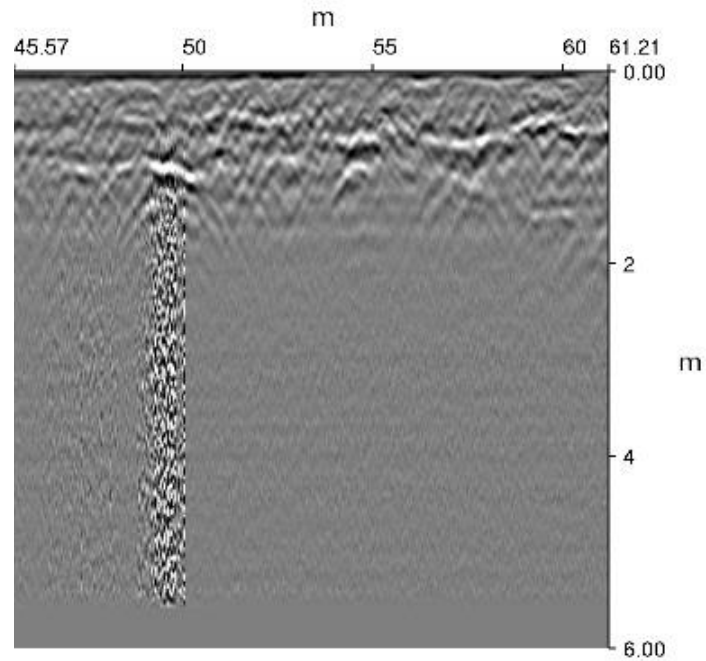
(47.44m;0.85m)
v: 10.0 cm/ns

(48.99m;0.85m)
v: 10.0 cm/ns

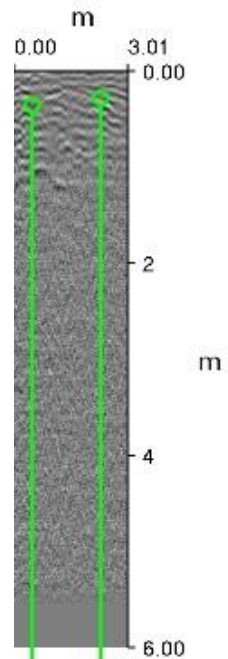
(49.75m;1.02m)
v: 10.0 cm/ns



Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



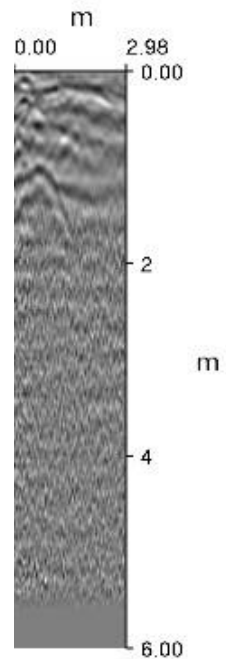
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



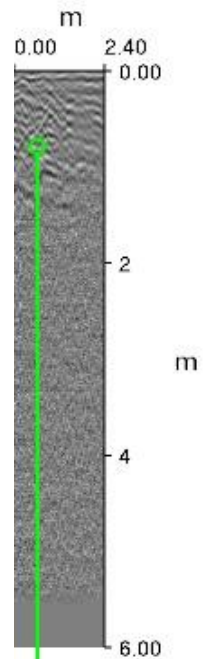
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

(0.49m;0.36m)
v: 10.0 cm/ns

(2.31m;0.29m)
v: 10.0 cm/ns

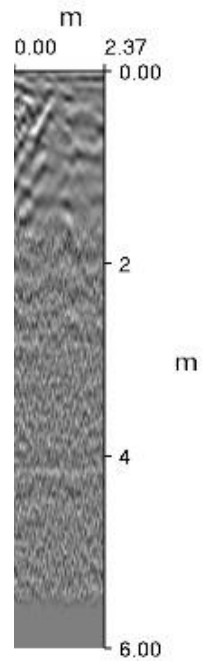


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

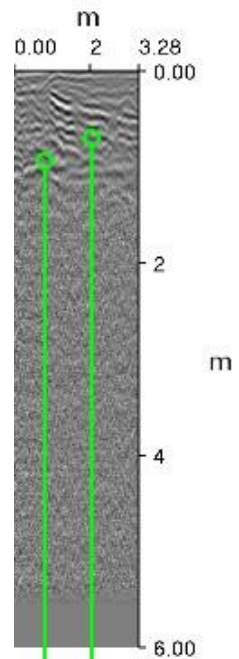


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

(0.64m;0.80m)
v: 10.0 cm/ns



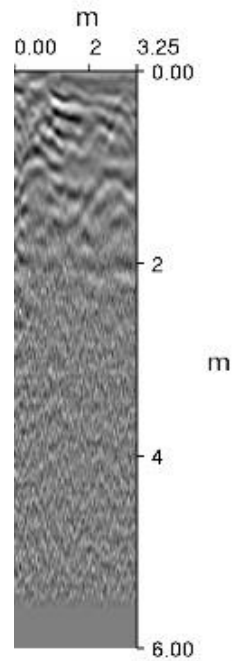
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



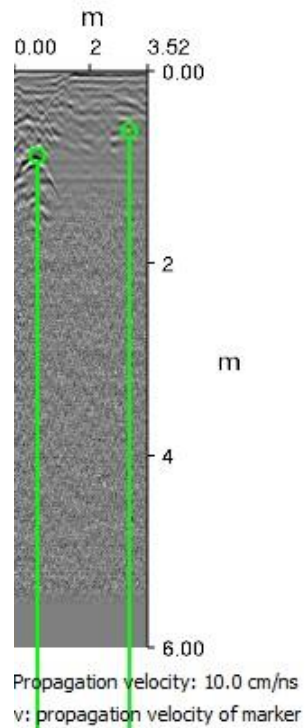
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

(2.04m;0.70m)
v: 10.0 cm/ns

(0.79m;0.94m)
v: 10.0 cm/ns

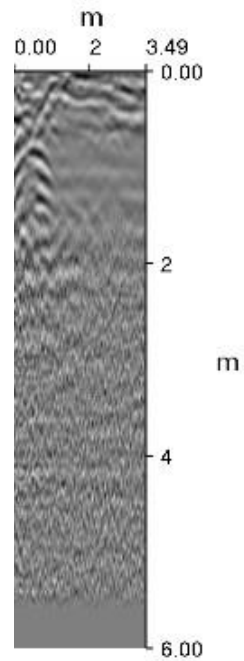


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

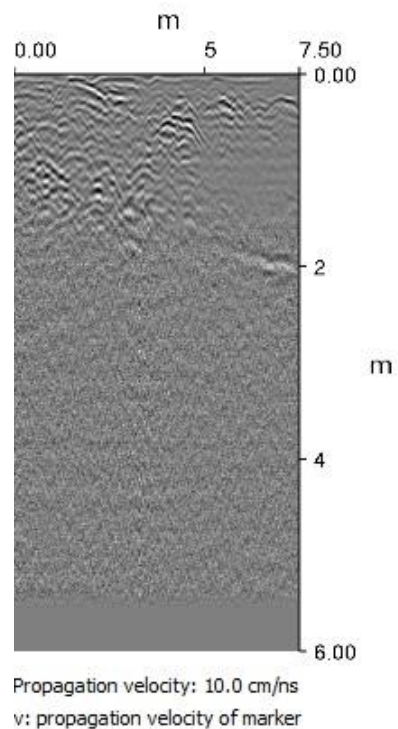


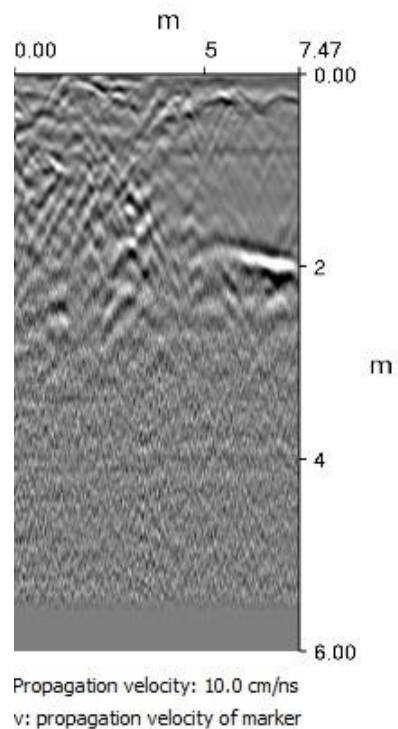
(3.04m;0.63m)
v: 10.0 cm/ns

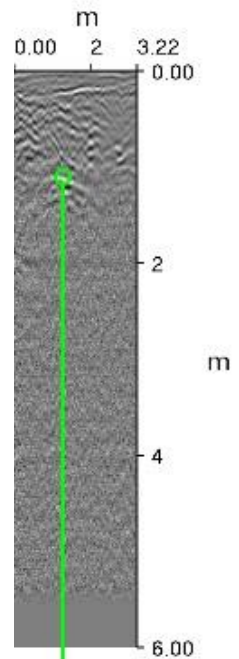
(0.64m;0.89m)
v: 10.0 cm/ns



Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

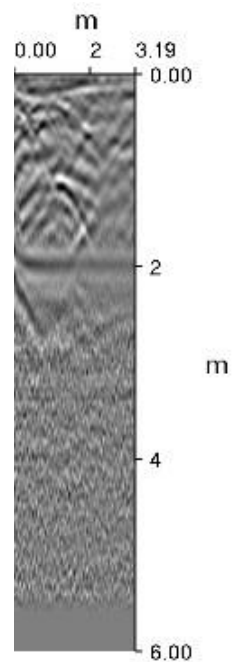




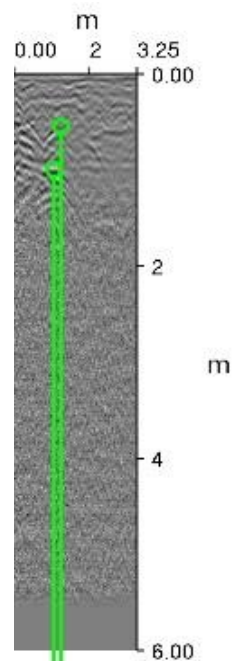


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

(1.28m; 1.12m)
v: 10.0 cm/ns



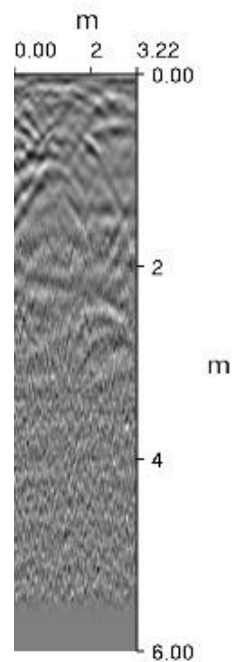
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



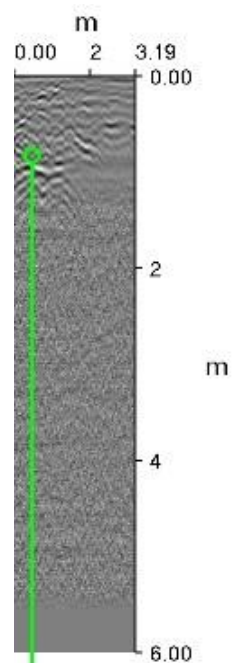
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

(1.25m;0.56m)
v: 10.0 cm/ns

(1.06m;1.00m)
v: 10.0 cm/ns

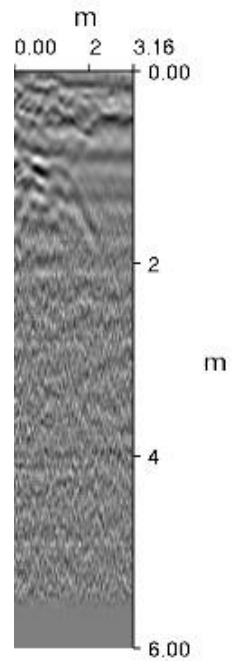


Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

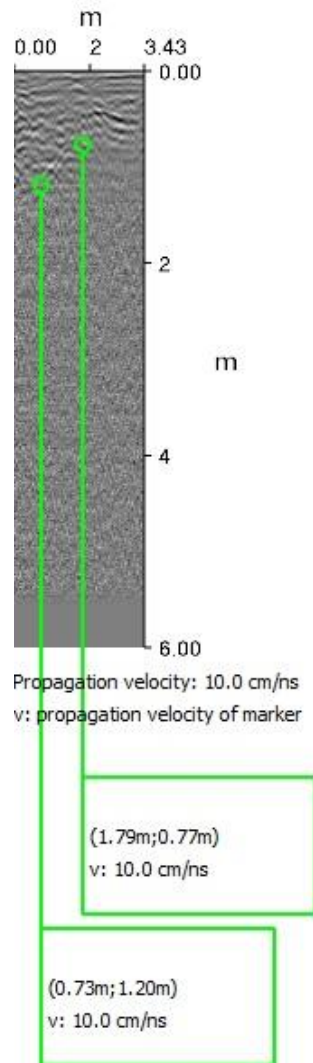


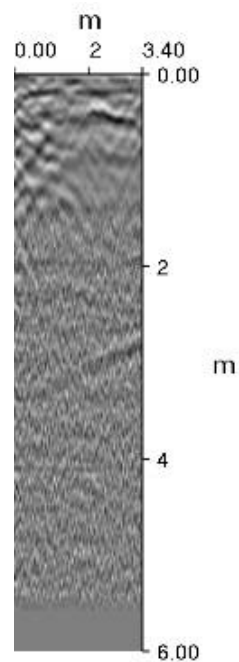
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker

(0.49m;0.83m)
v: 10.0 cm/ns

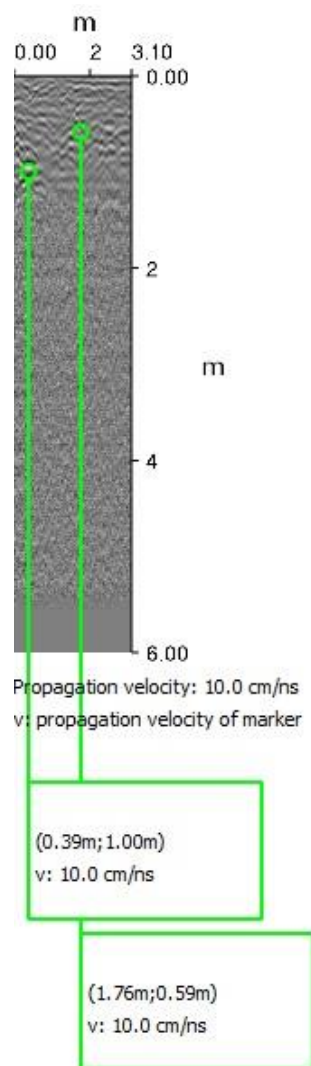


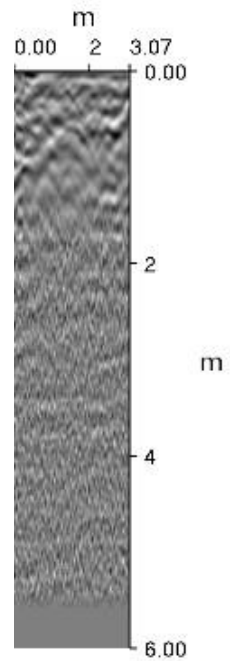
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker



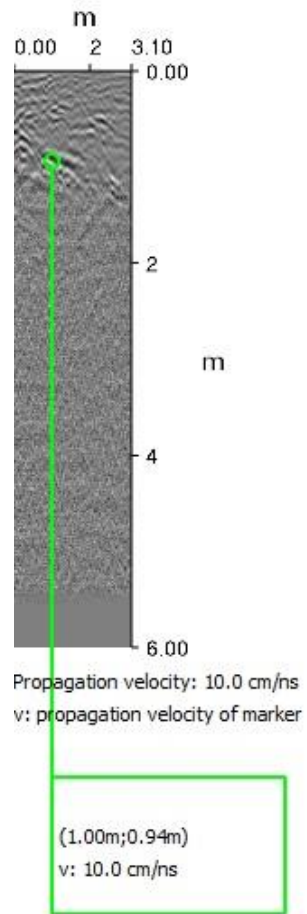


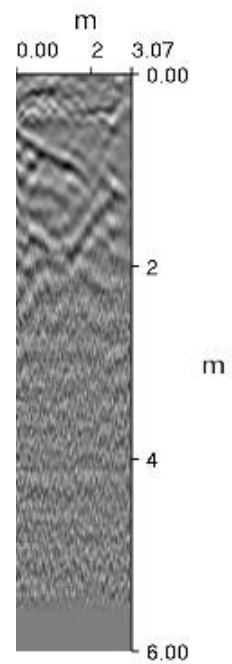
Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker





Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker





Propagation velocity: 10.0 cm/ns
v: propagation velocity of marker