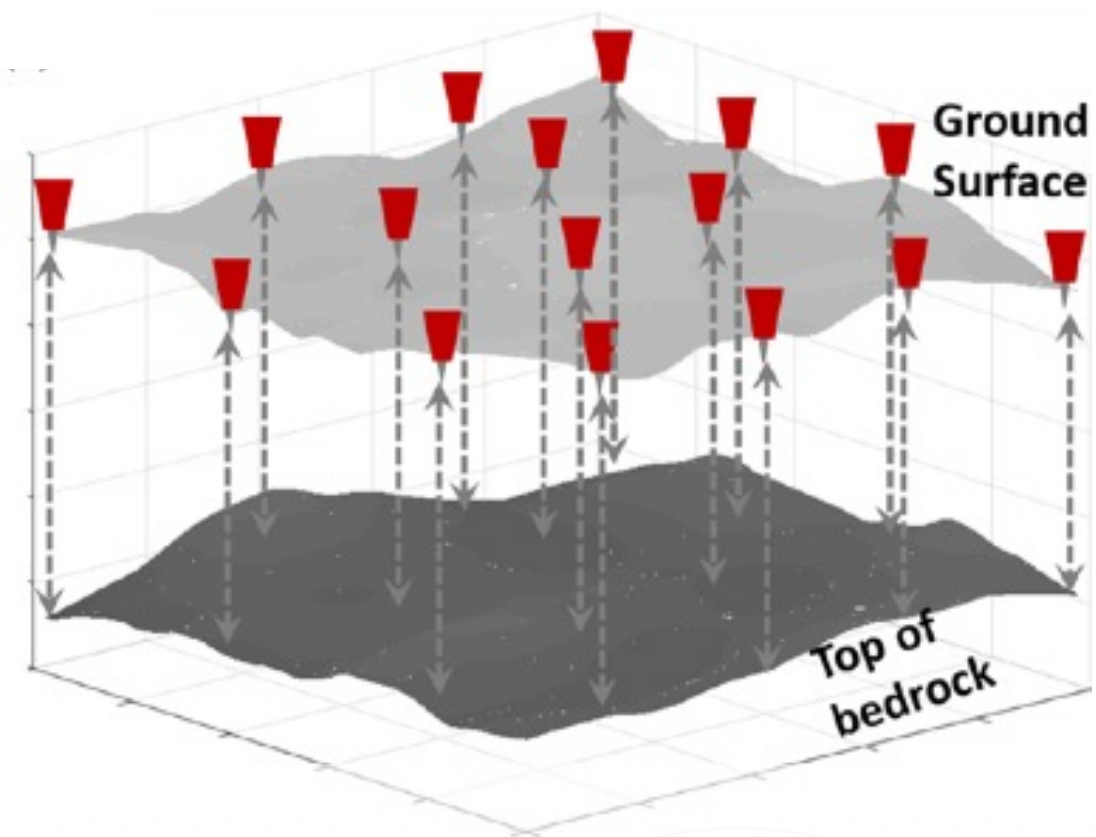


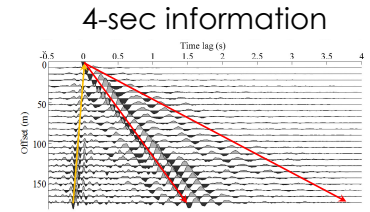
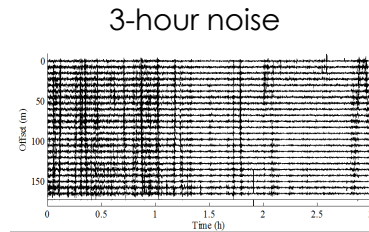
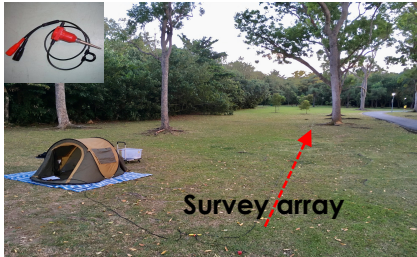
Bedrock detection

Using ambient urban noise



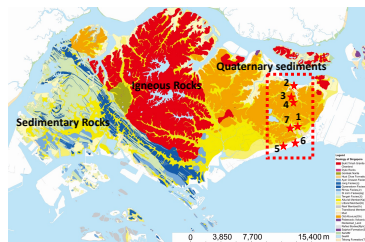
Passive Bedrock Detection

Case 1: Deep (> 100 m) bedrock mapping – Eastern SG OA Formation



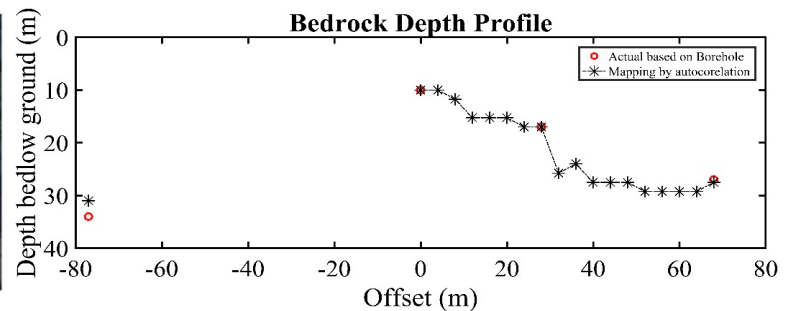
X-corr Seismic Interferometry

- Passive recording length: hours
- Range/length: 1:1
- Accuracy: 10% of target depth



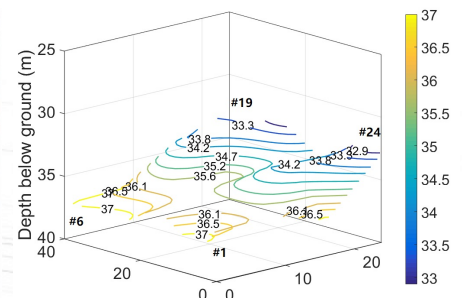
	Borehole No	Bedrock depth from BH	Distance from BH	Estimated depth from noise	Array length
Site 2	BH3	115m	300m	103m	172.5m
Site 3	BH1	200m	30m	208m	184m
Site 4	BH1	200m	720m	245m	138m
Site 7	BH6	110m	75m	58m	114m
Site 1	BH6	110m	400m	150m	184m
Site 5	BH7	>145m	96m	65m	138m
Site 6	BH8	120m	284m	124m	132m

Case 2: Shallow (< 40 m) bedrock mapping – Western SG JR Formation



Auto-corr Seismic Interferometry

- Do not require array acquisition
- Accuracy: within 1 m
- High resolution: meter-scale

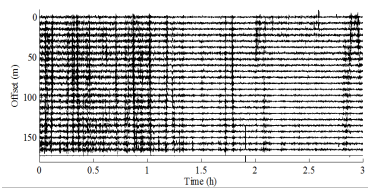


城市微动基岩探测

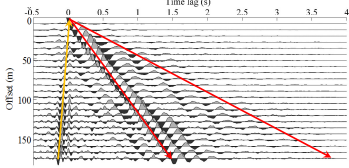
案例 1: 深部 (> 100 m) 基岩探测 – 新加坡东部OA沉积岩



三小时微动信号

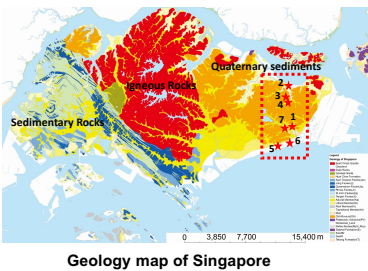


四秒钟信息



互相关地震干涉法

- 被动源采集时间: 小时
- 探测距离/排列长度: 1:1
- 精度: 目标深度的 10%

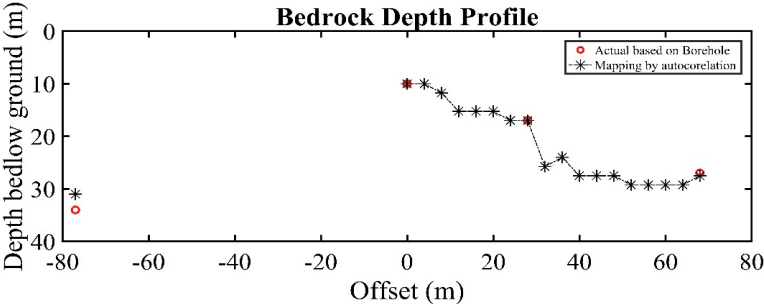


	Borehole No	Bedrock depth from BH	Distance from BH	Estimated depth from noise	Array length
Site 2	BH3	115m	300m	103m	172.5m
Site 3	BH1	200m	30m	208m	184m
Site 4	BH1	200m	720m	245m	138m
Site 7	BH6	110m	75m	58m	114m
Site 1	BH6	110m	400m	150m	184m
Site 5	BH7	>145m	96m	65m	138m
Site 6	BH8	120m	284m	124m	132m

案例 2: 浅部 (< 40 m) 基岩探测 – 新加坡西部裕廊沉积岩

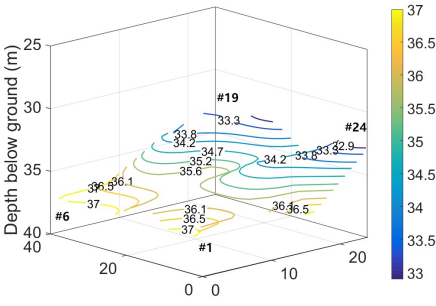
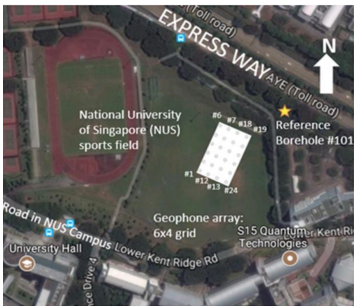


Bedrock Depth Profile



自相关地震干涉法

- 节点式采集, 无需阵列
- 精度: 1米以内
- 空间分辨率: 米级



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