

STRUMENTI PER LA VALUTAZIONE DI CROLLI DI FALESIE

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 **Interreg**
Italia-Malta

NEWS

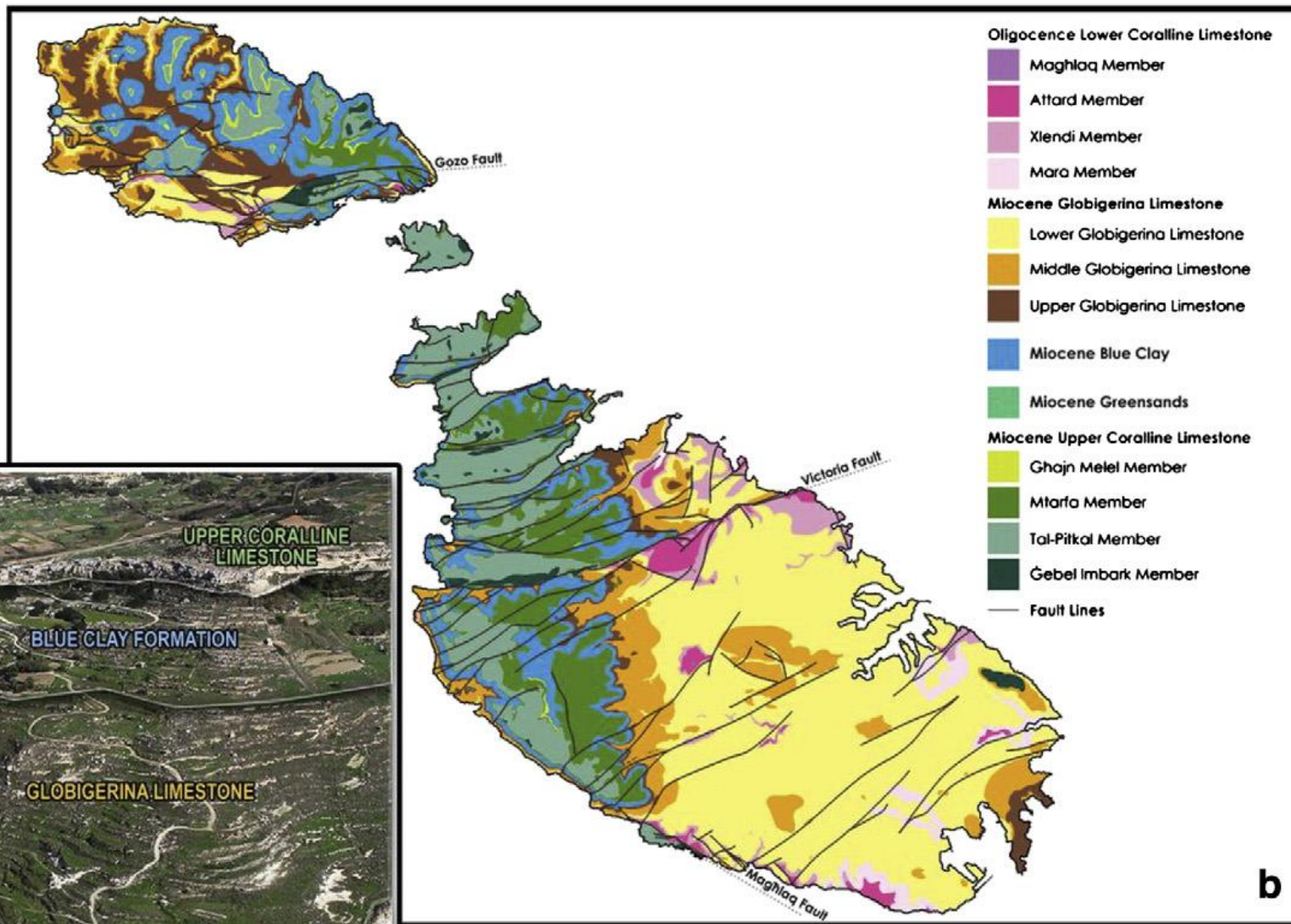
Fondo Europeo di Sviluppo Regionale
European Regional Development Fund



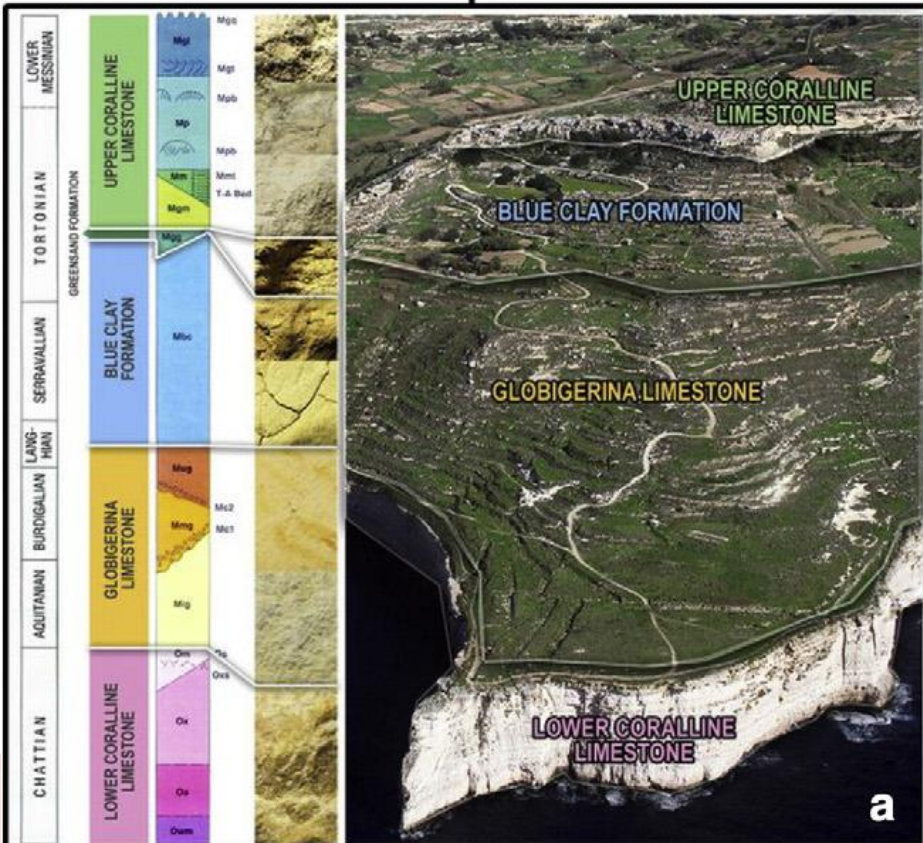
Wied il-Mielah

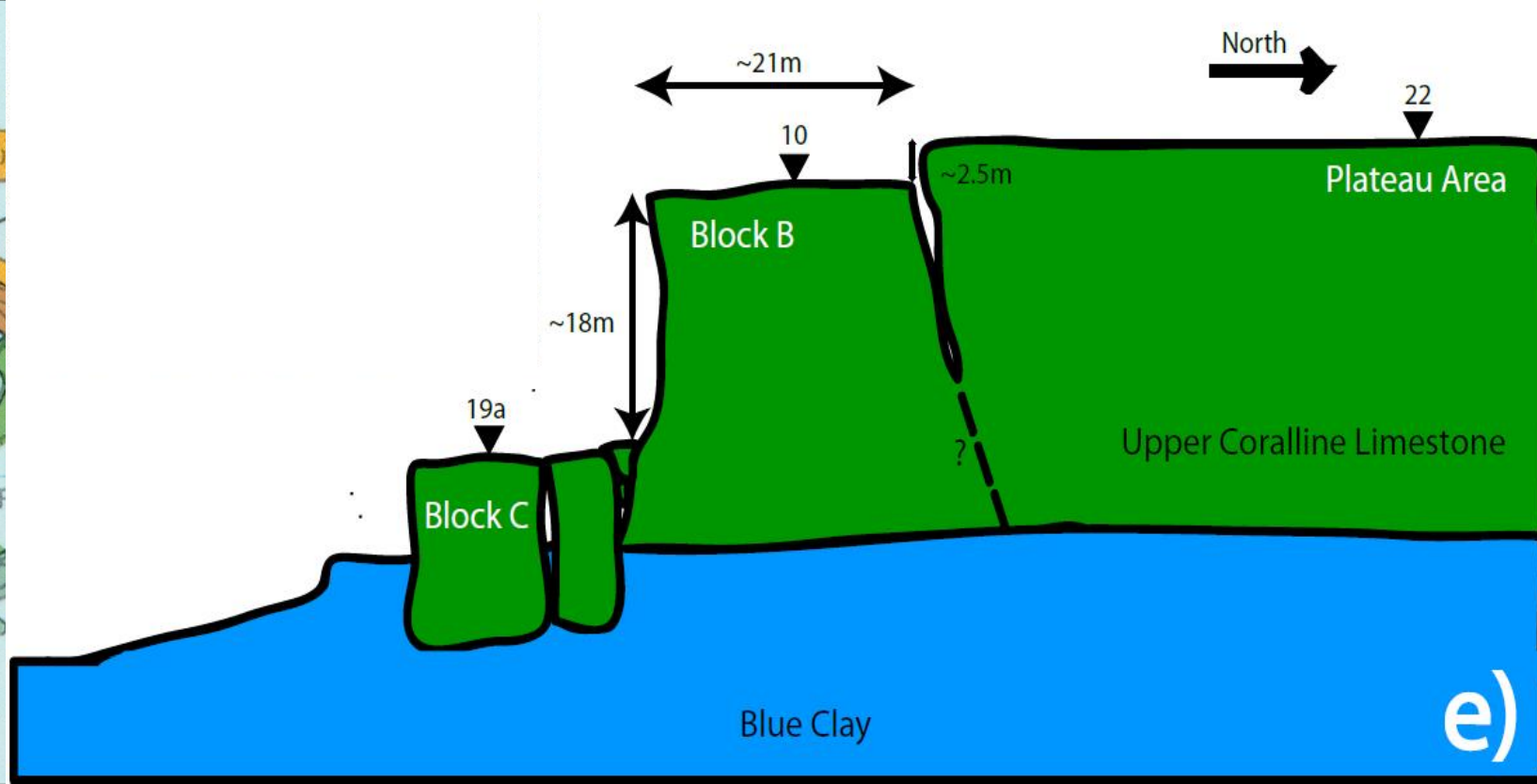
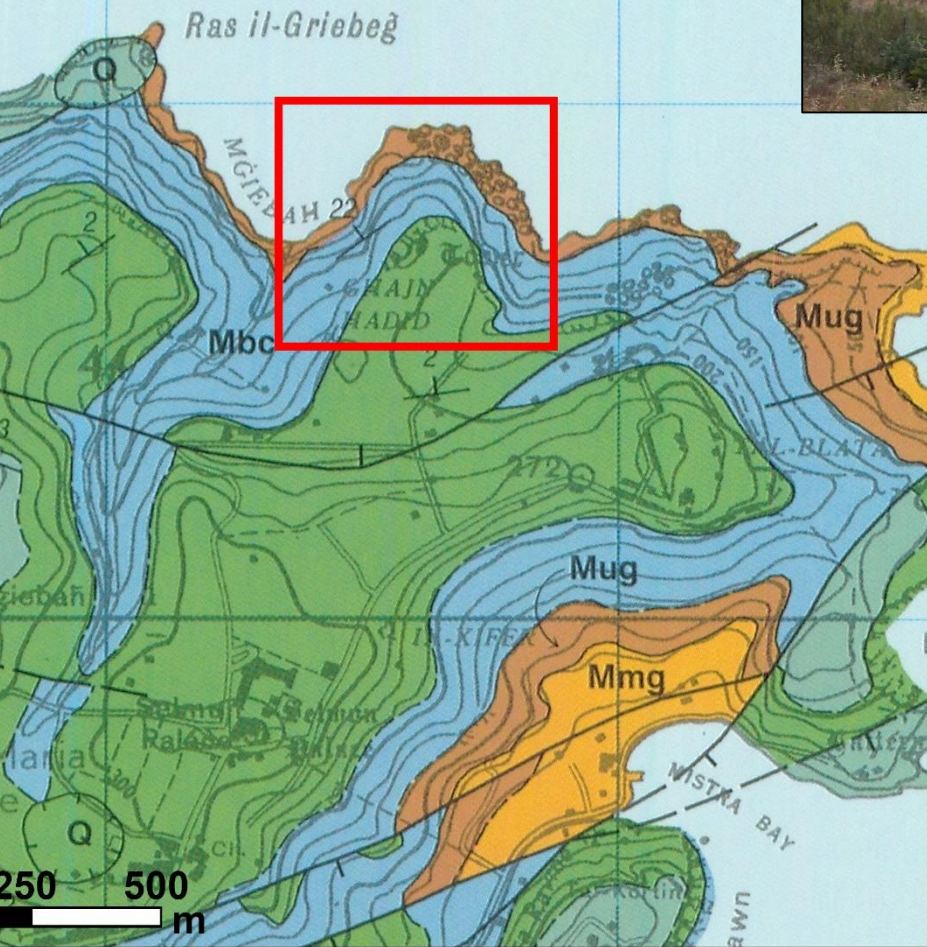
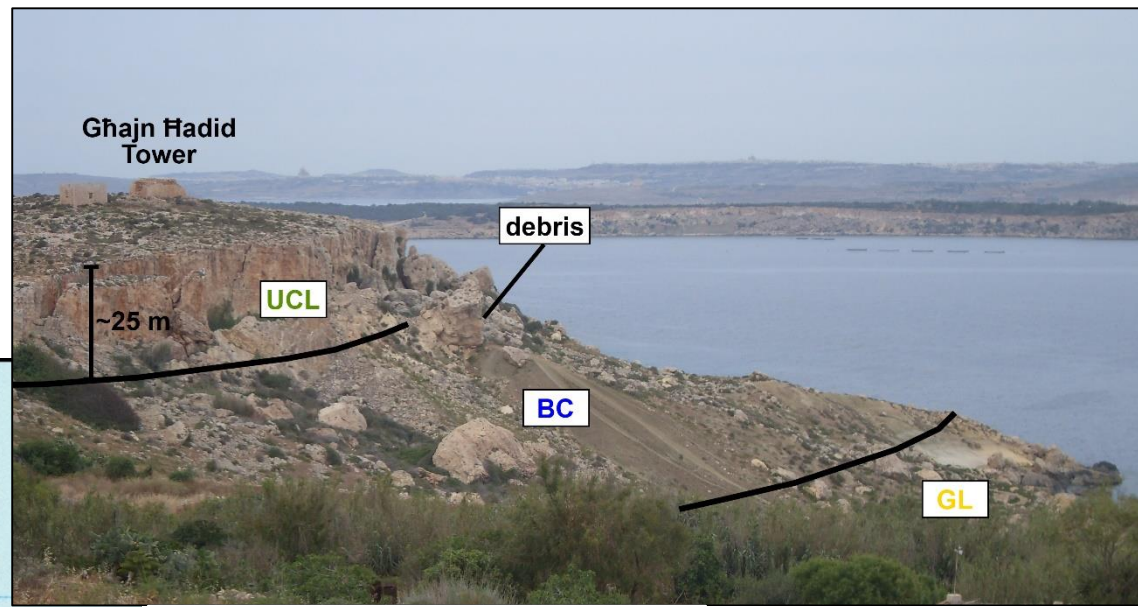


- *GEOMATICS*
- *GEOFYSICS*
- *GEOLOGY*



b





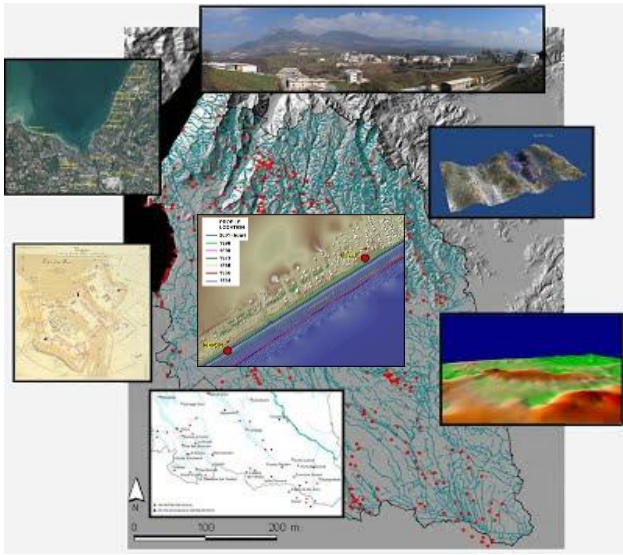
e)

Gravitational processes

Landslide: lateral spreading inducing sliding/topple/fall of rock blocks

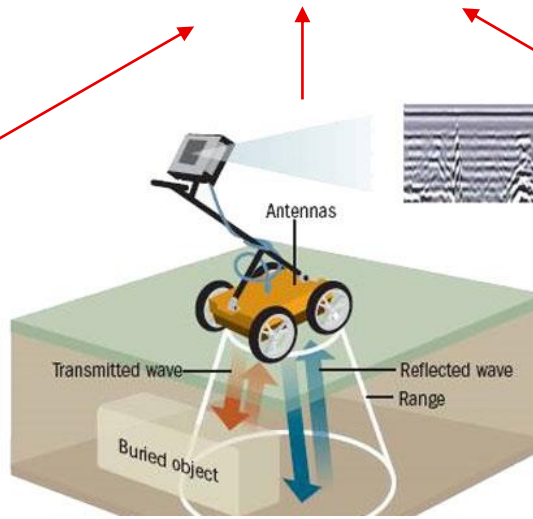


Gravitational process evolution



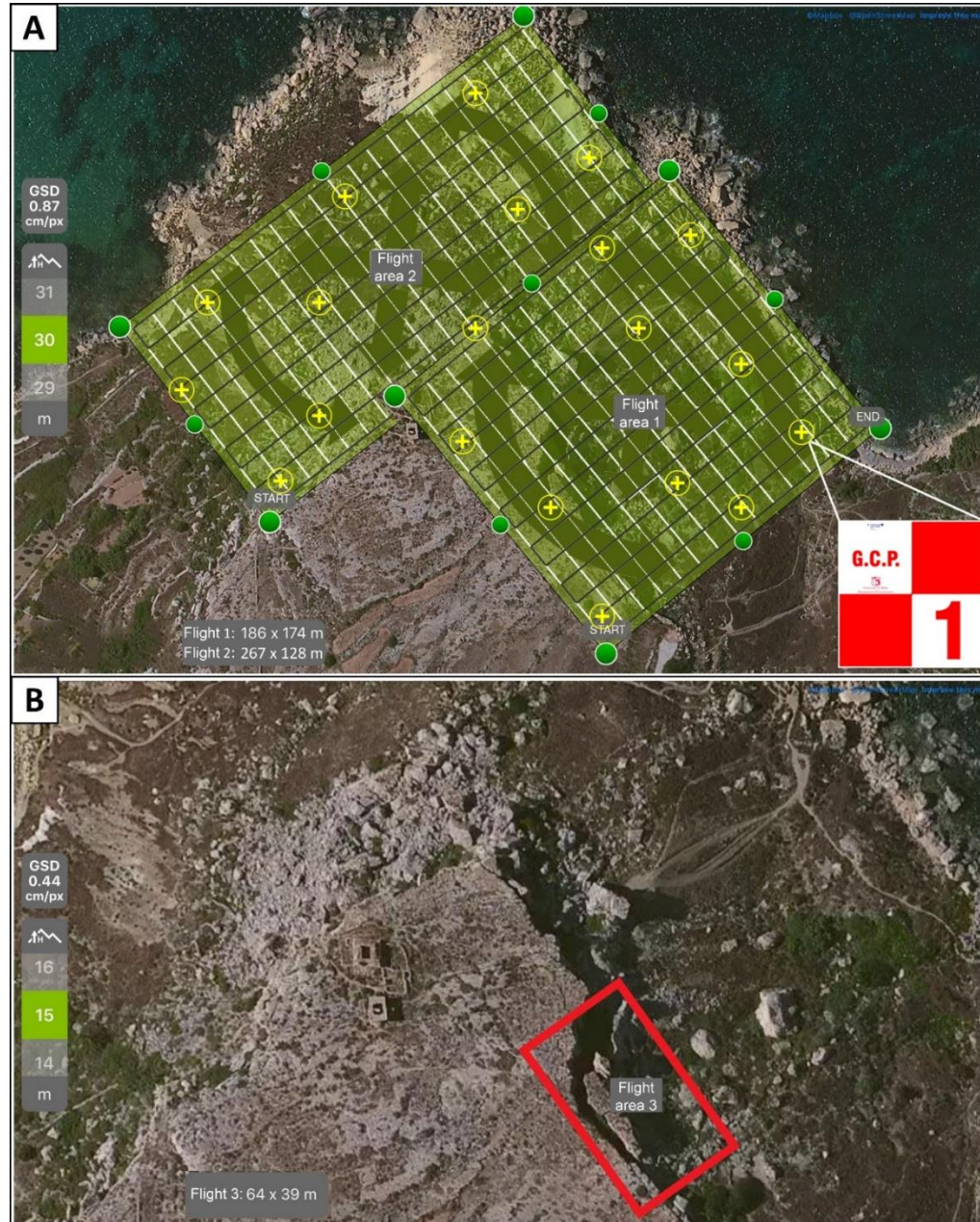
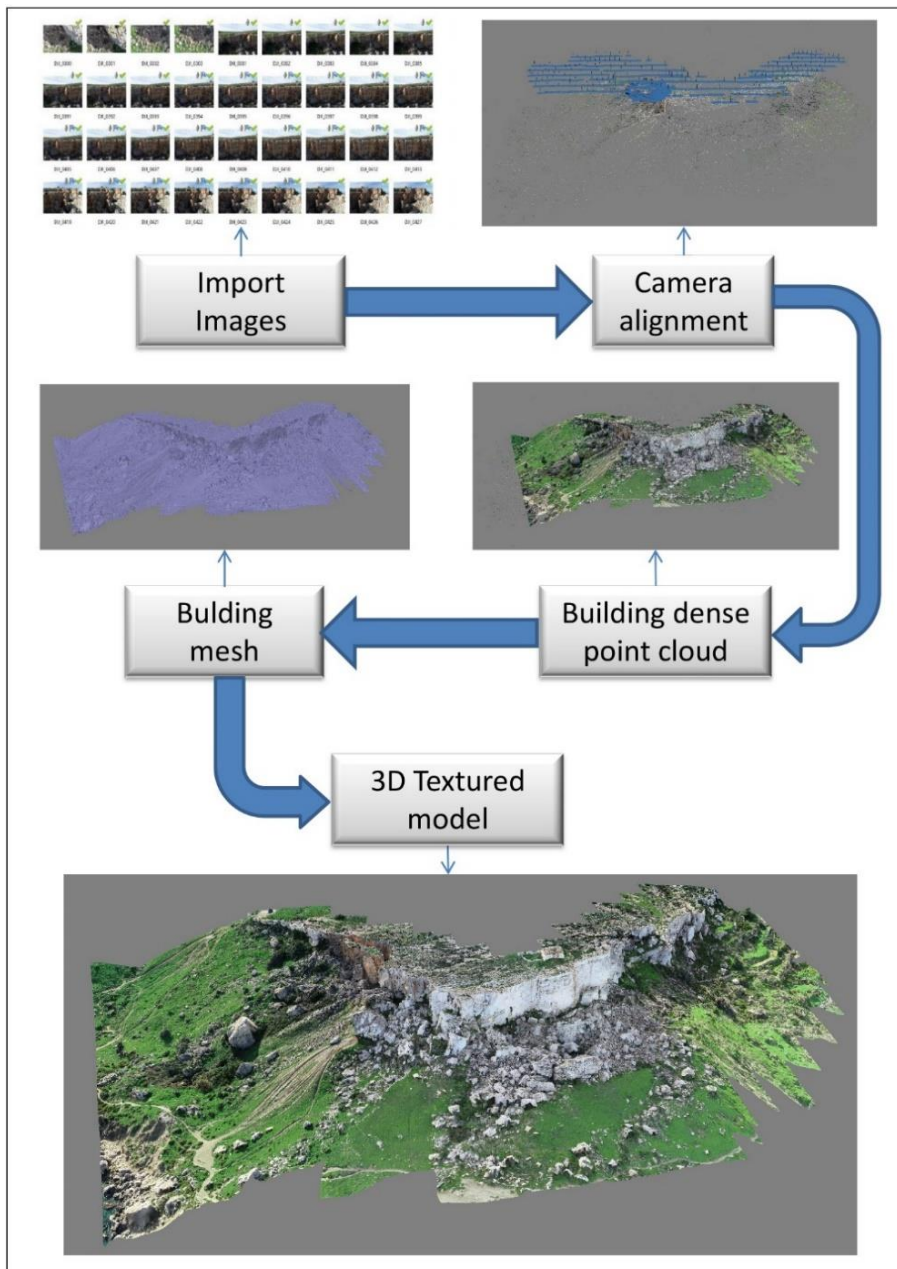
Geomatics

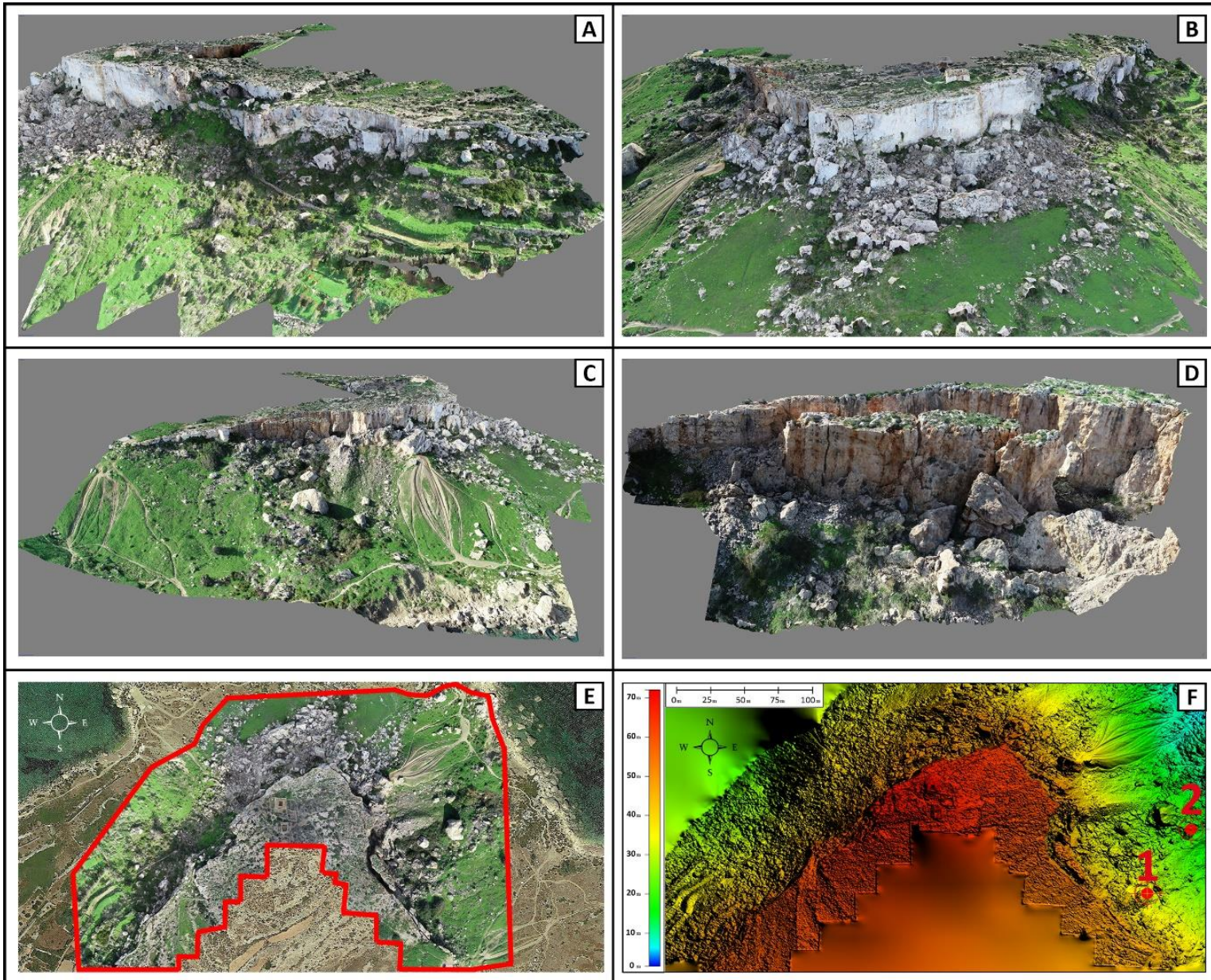
a multidisciplinary approach

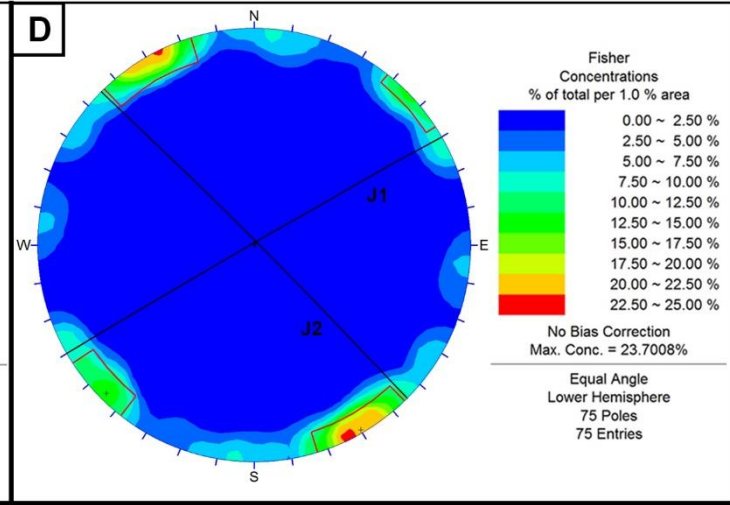
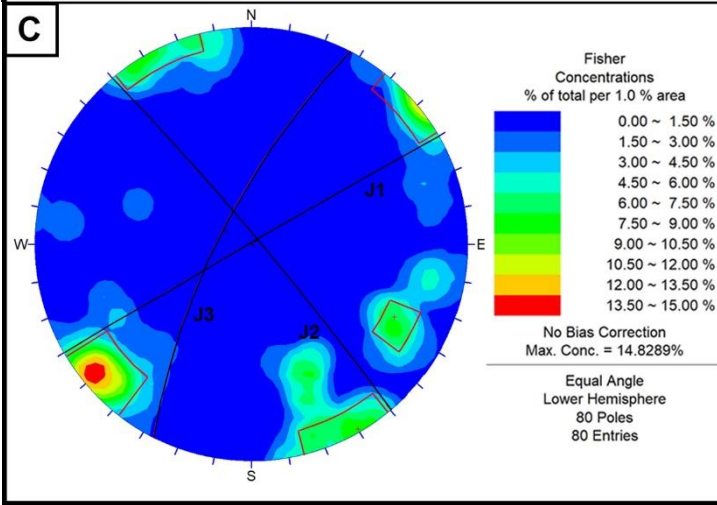
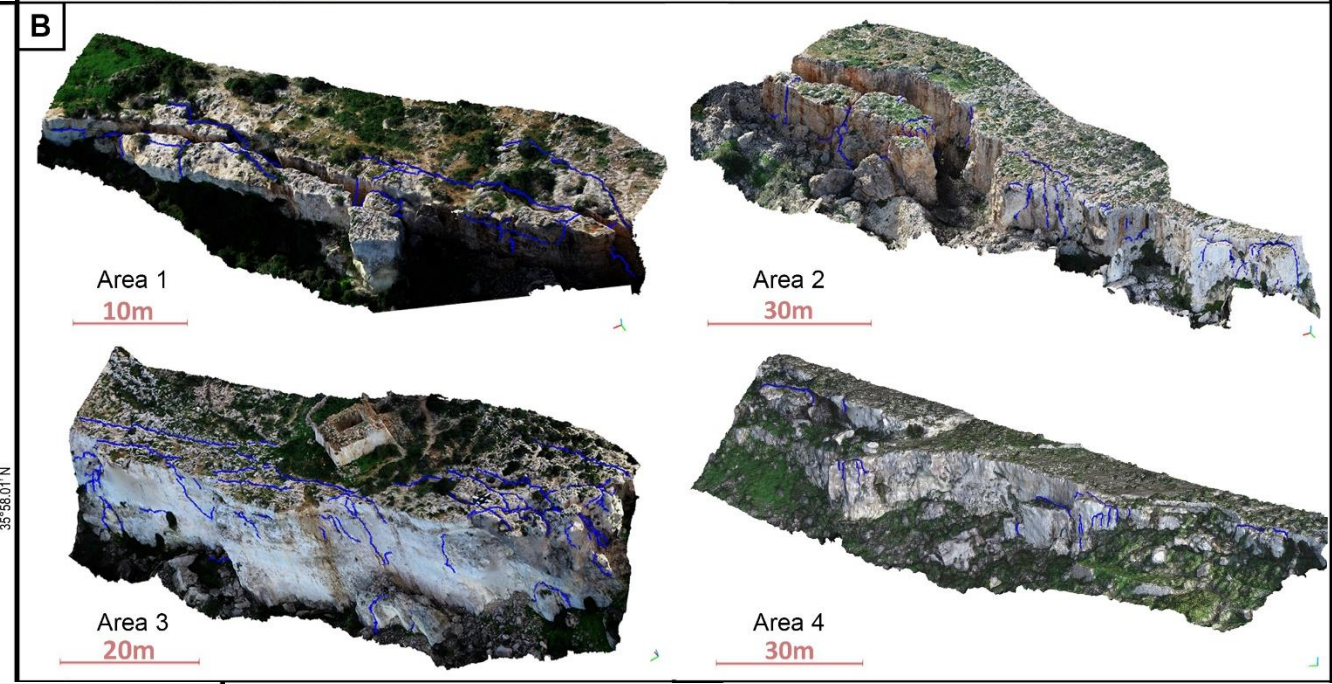
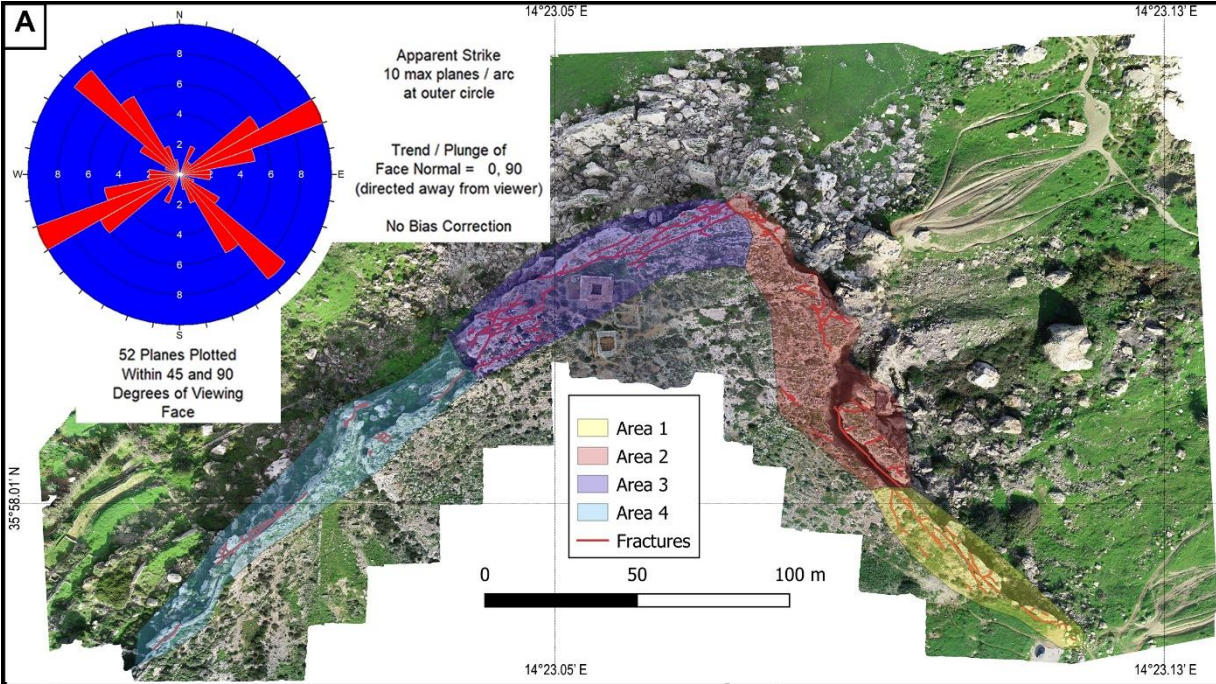


UAV Lidar

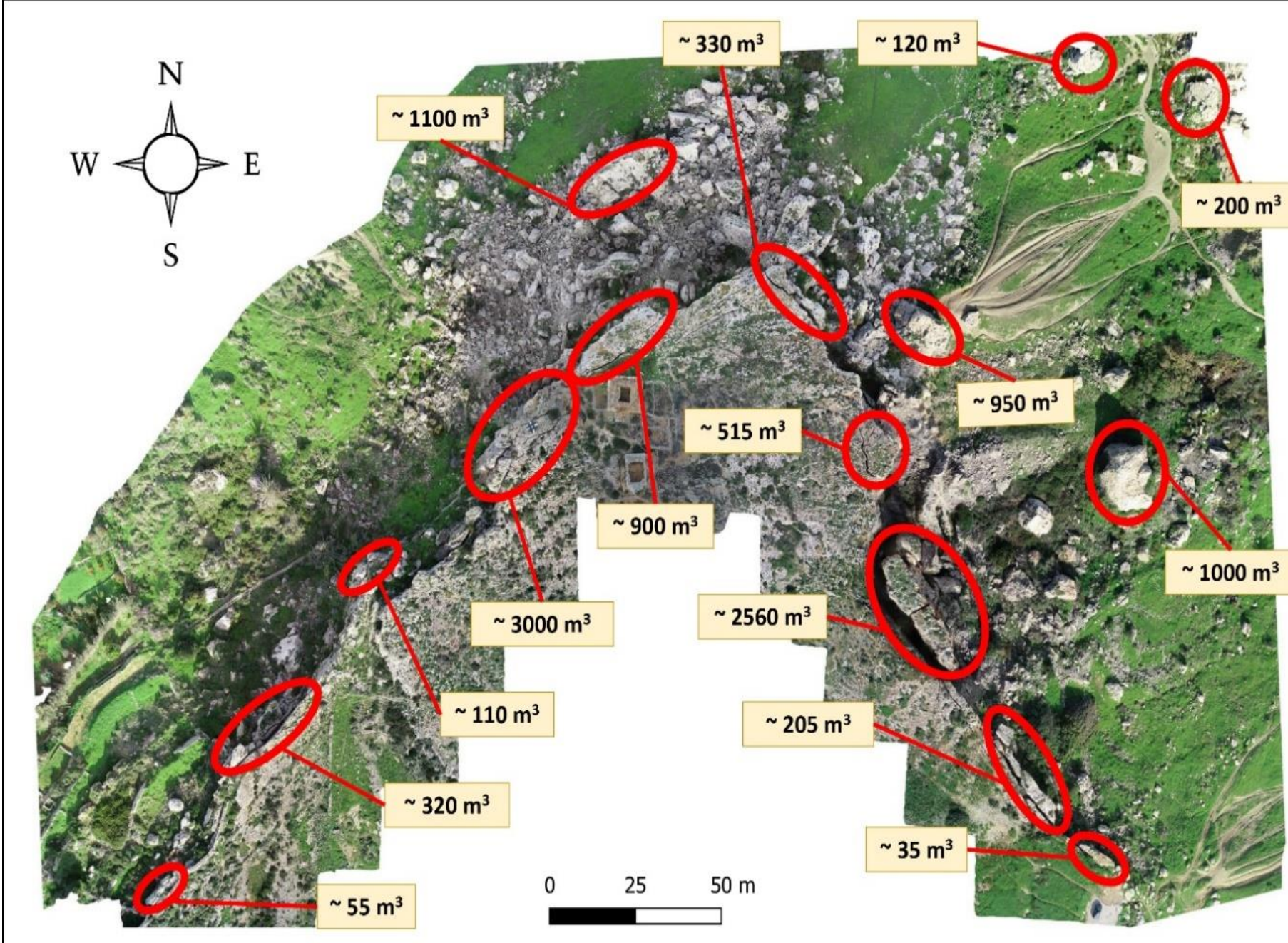


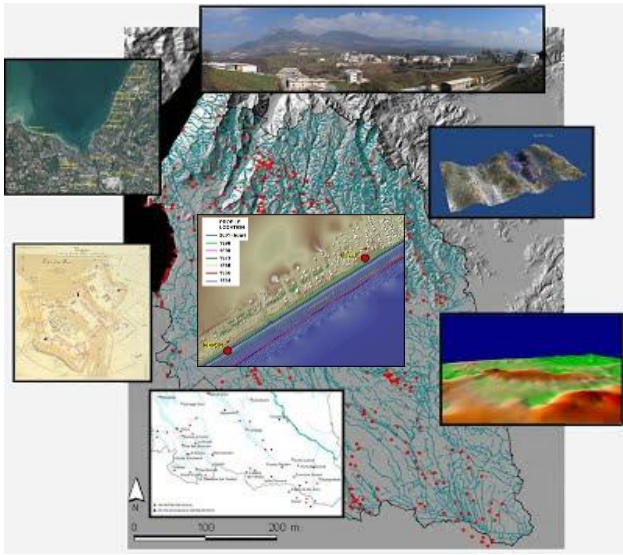






Joints pole systems	Manual survey (Iannucci et al., 2018)		Digital survey (This study)	
	Dip direction and dip (°)	Average Opening (AO) in cm	Dip direction and dip (°)	Average Opening (AO) in cm
J1	330/89	1<AO<105	330/89	1<AO<100
J2	45/88	1<AO<70	50/86	1<AO<320
J3	n/a	n/a	297/73	1<AO<30





Geophysics

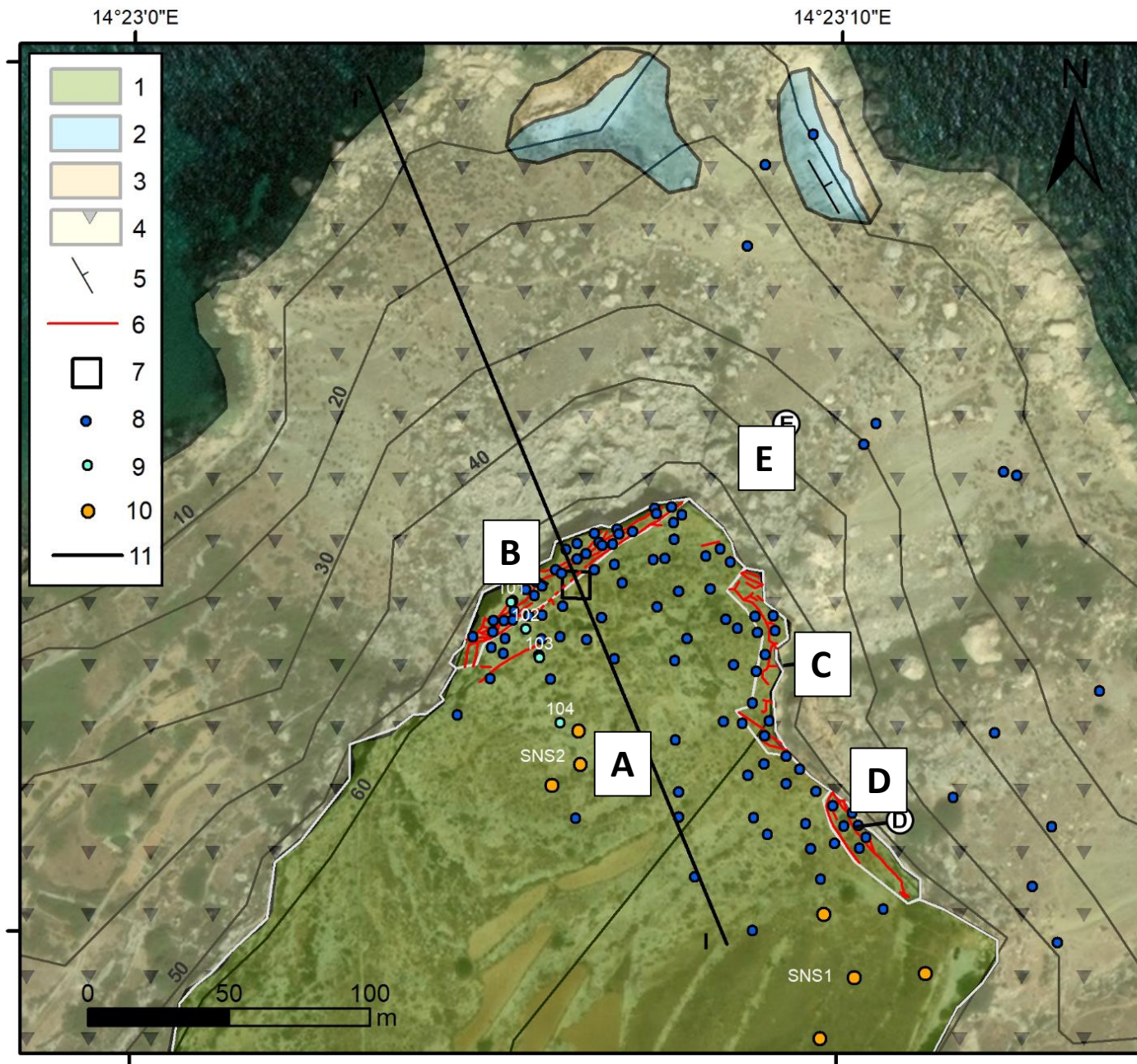
a multidisciplinary approach



*... Implementing a
real time monitoring
system to prevent
rock failure ...*



Engineering geological model

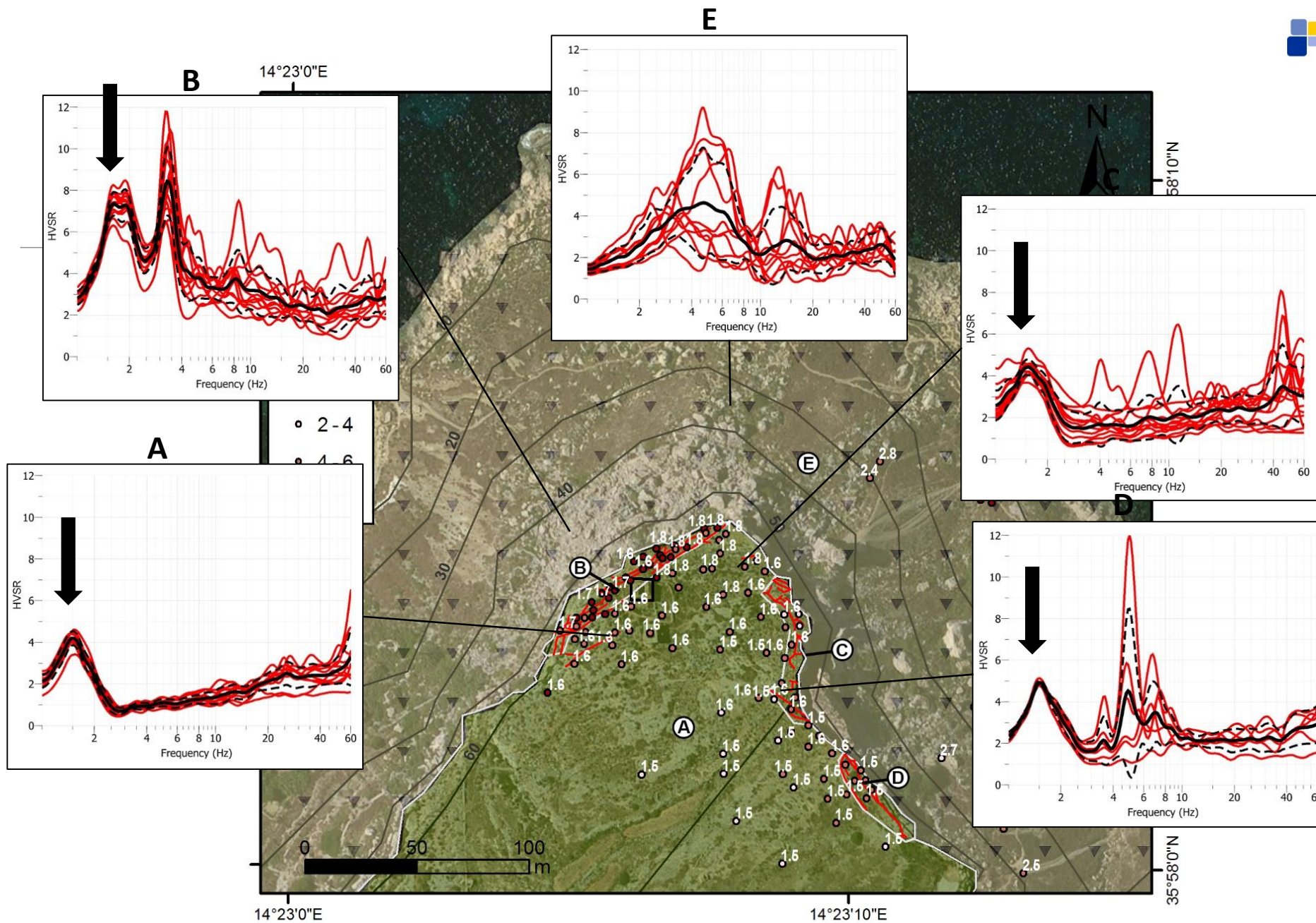


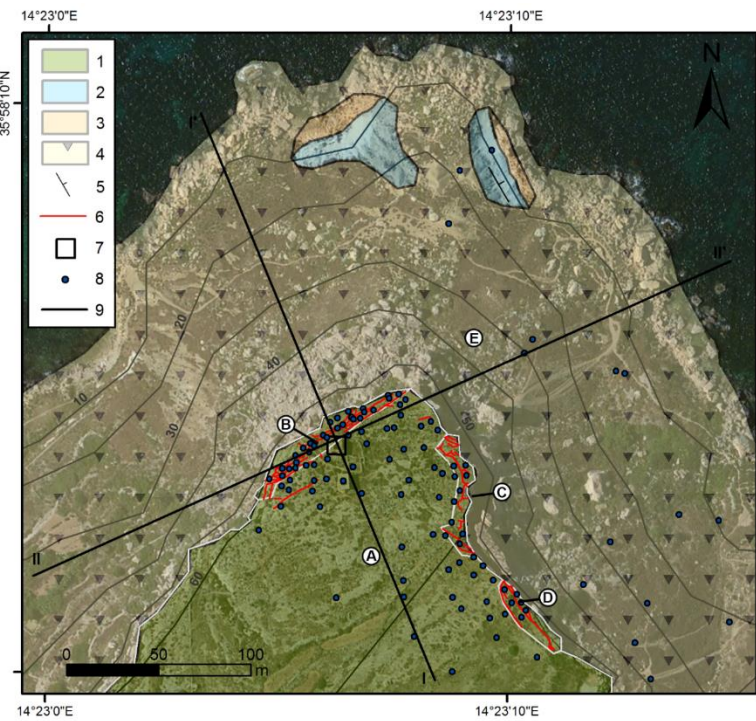
Zone A:
inland plateau

Zones B, C, D:
edge plateau

Zone E
clayey slope

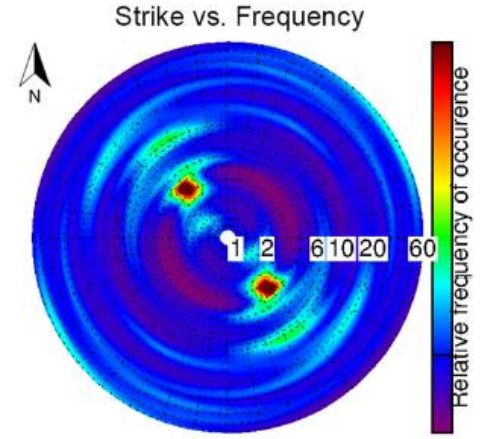
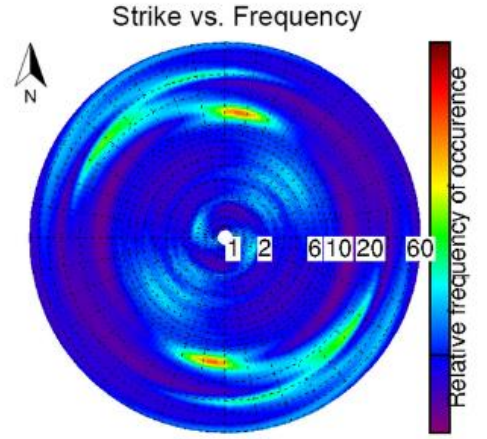
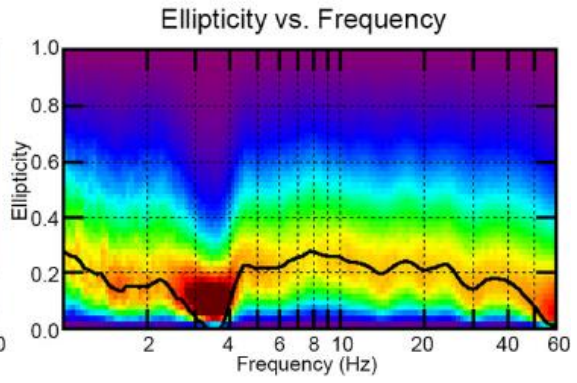
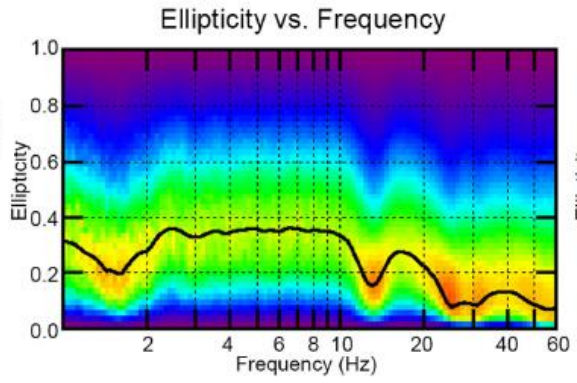
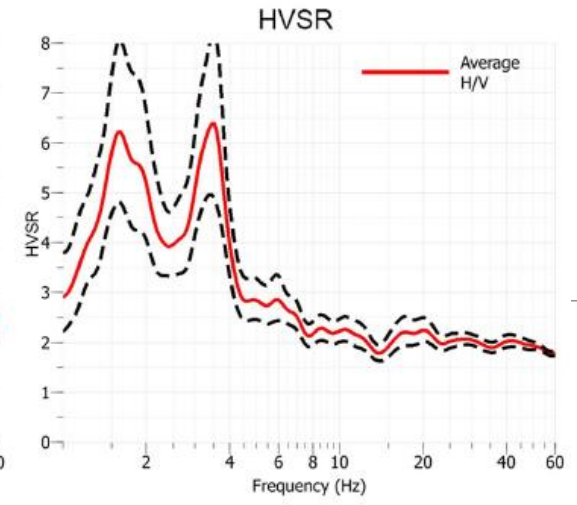
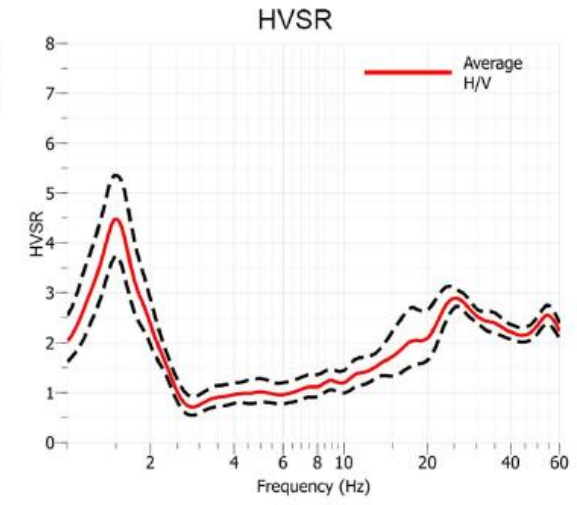




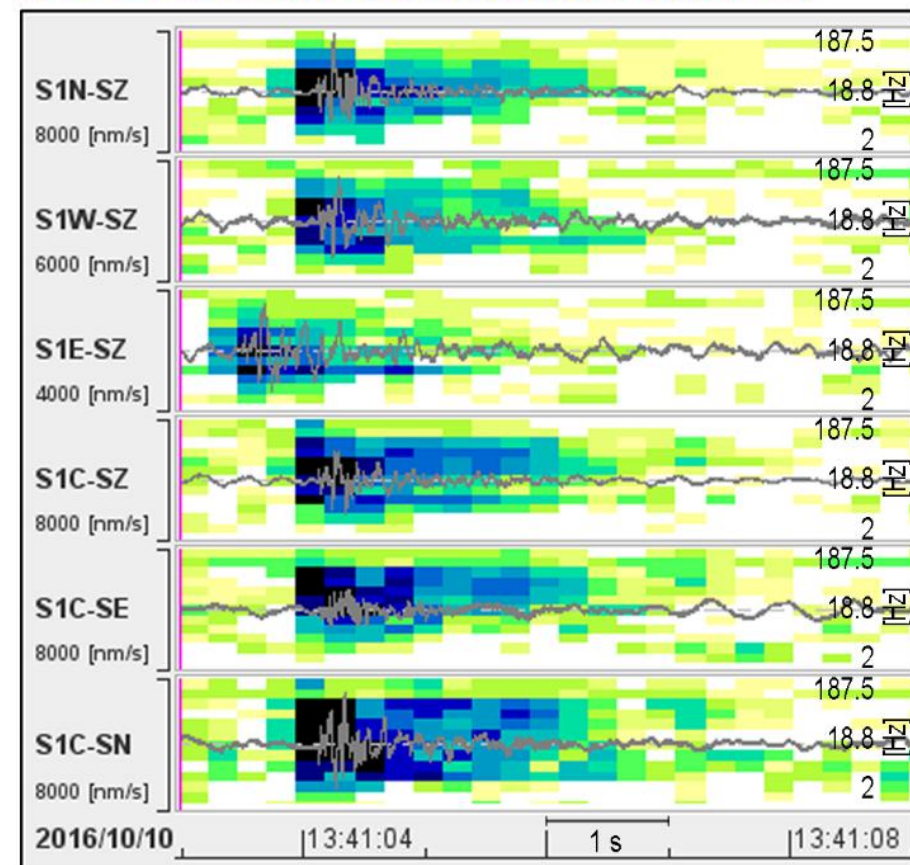
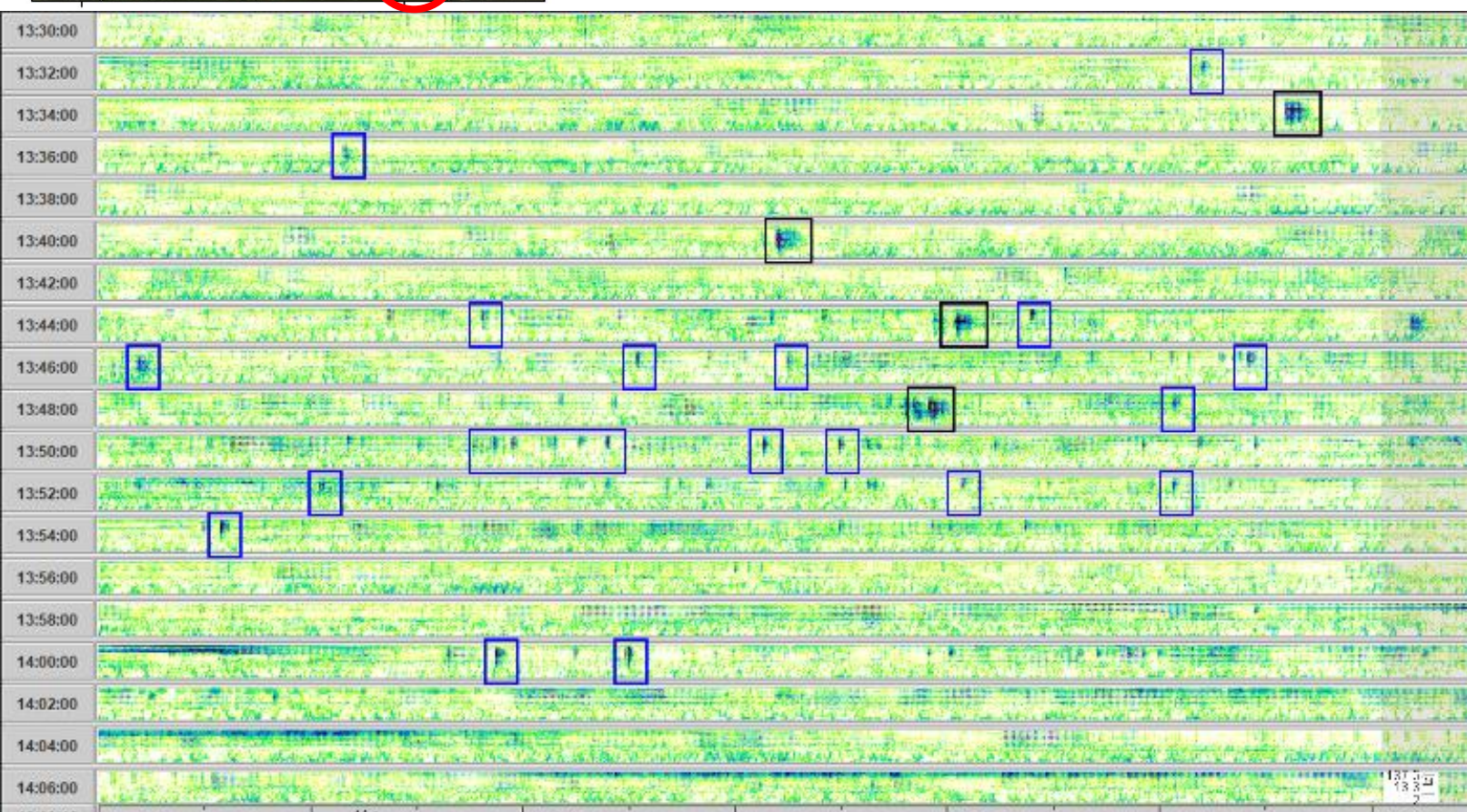
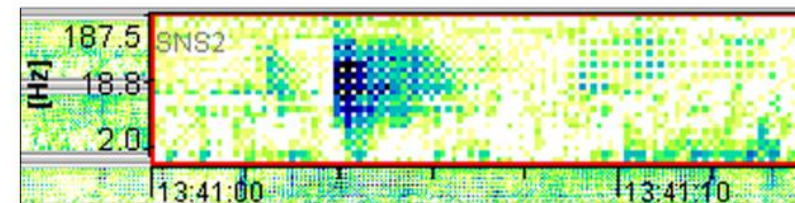
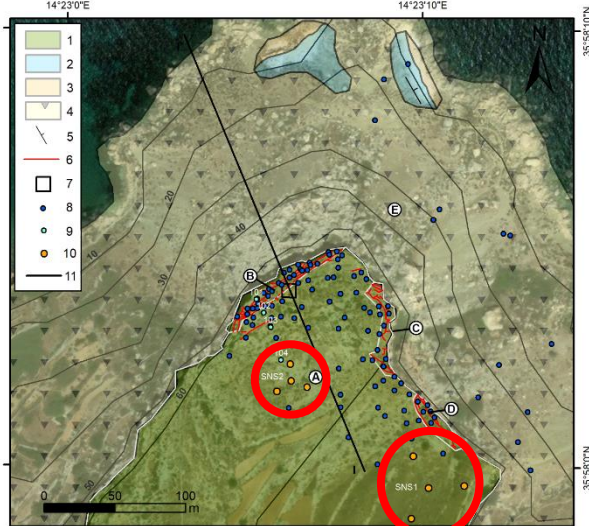


Zone A (inland plateau)

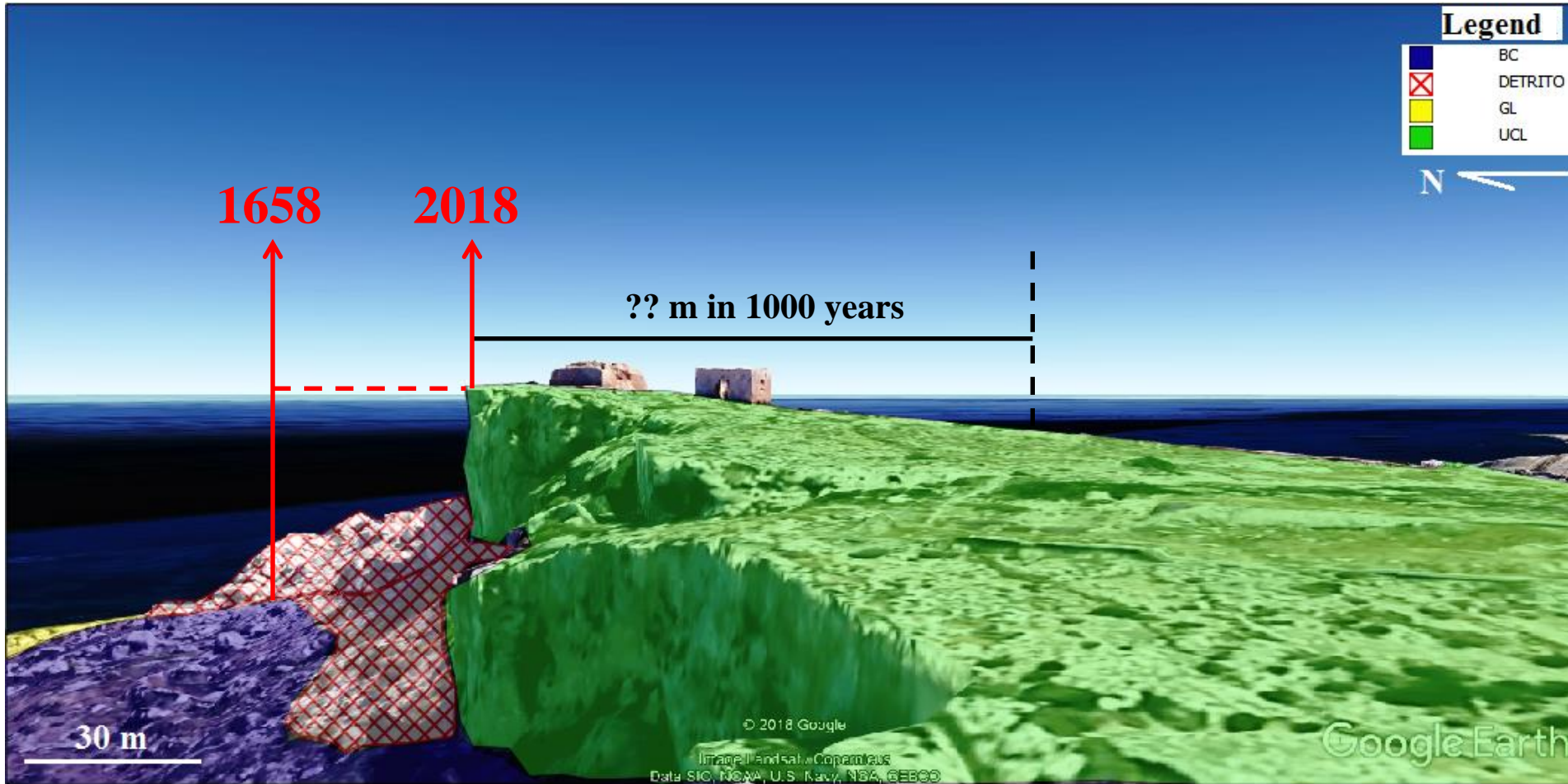
Zone B (edge plateau)



Induced rockfall



Evaluation of recession rate

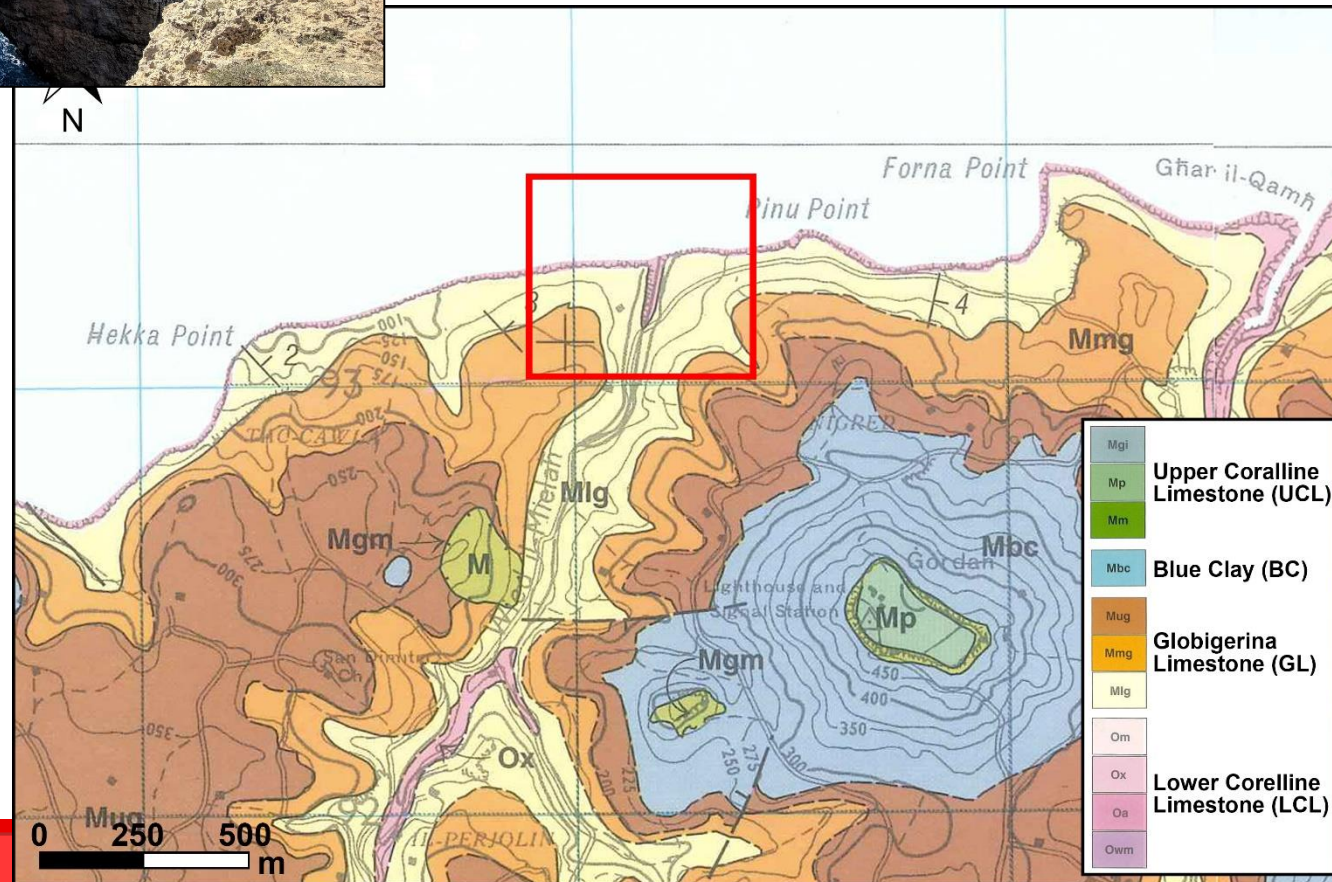


Wied il-Mielah





Wied il-Mielah



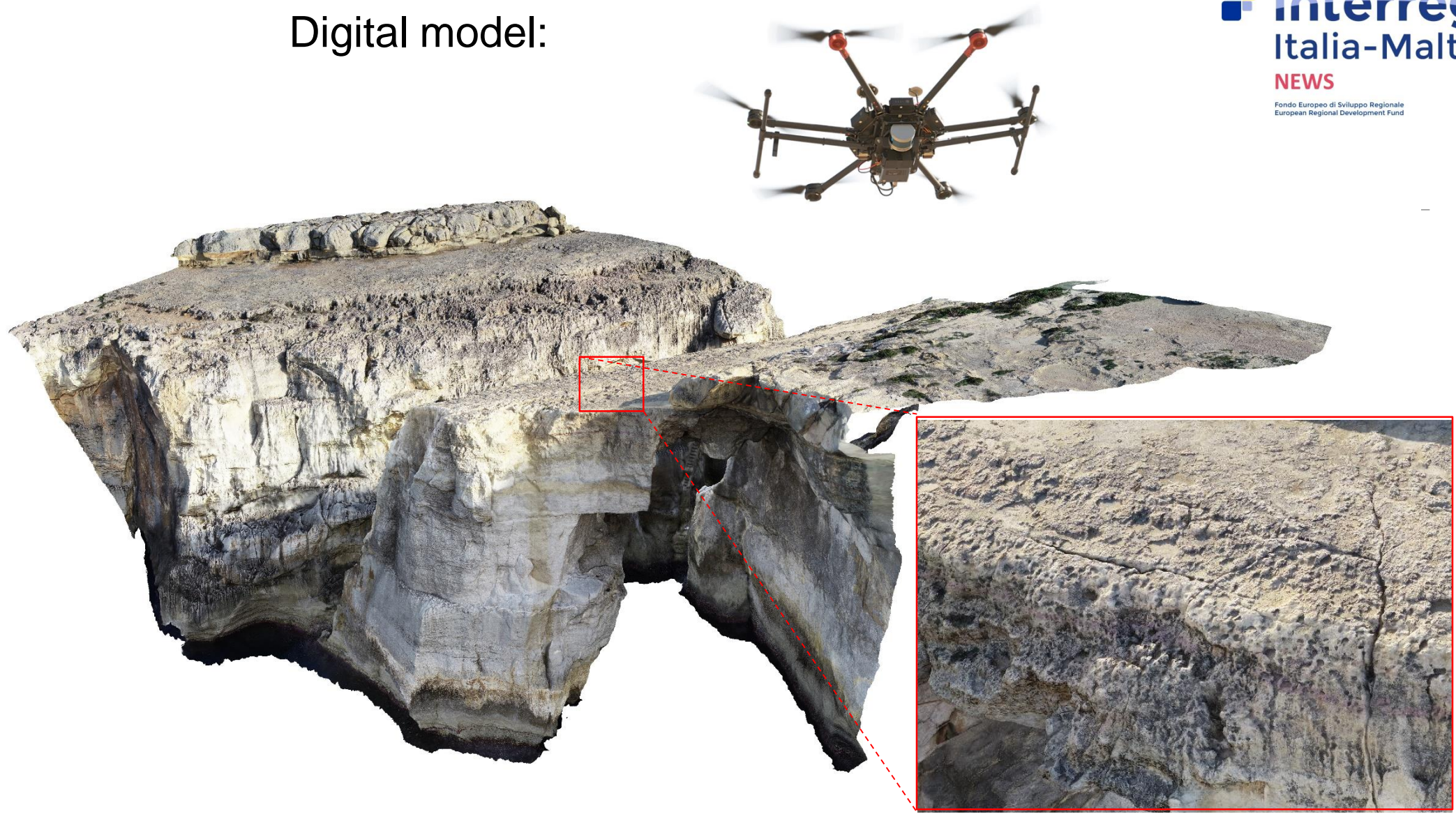


Abutment

Beam

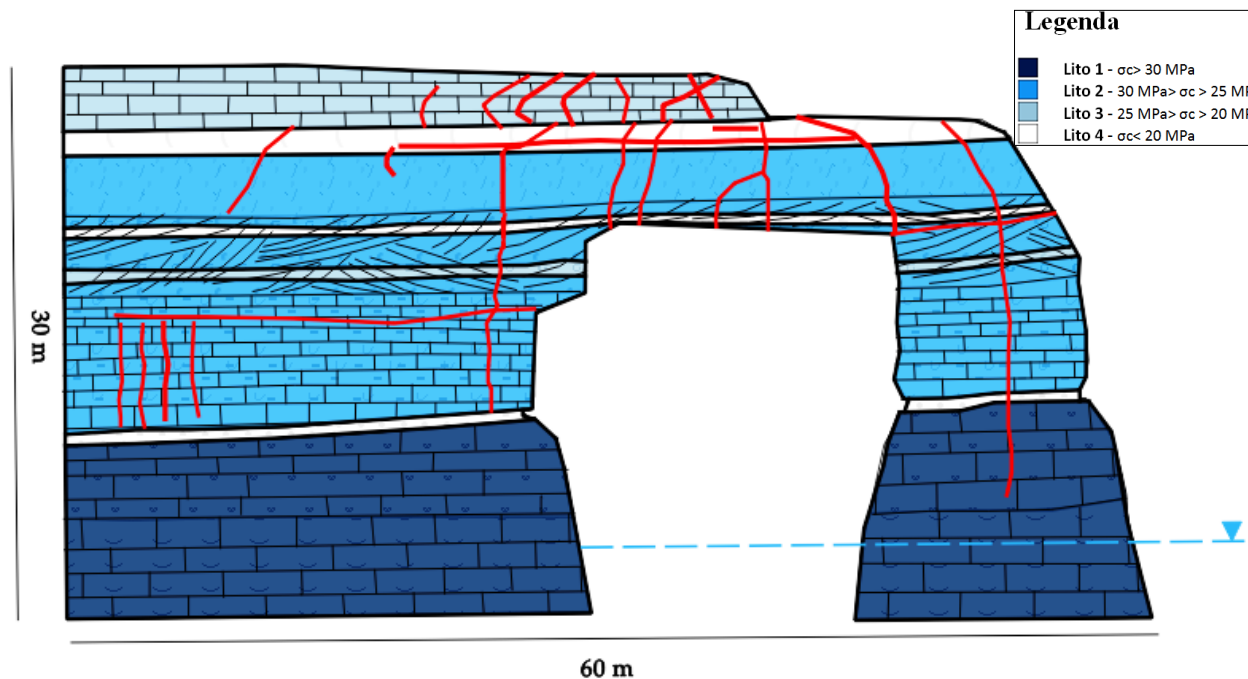
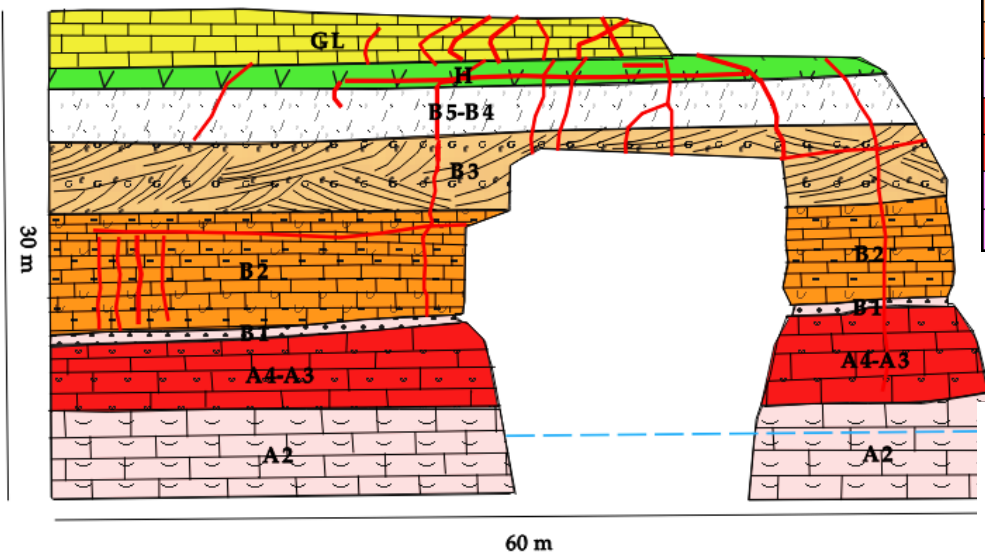
Pillar

Digital model:



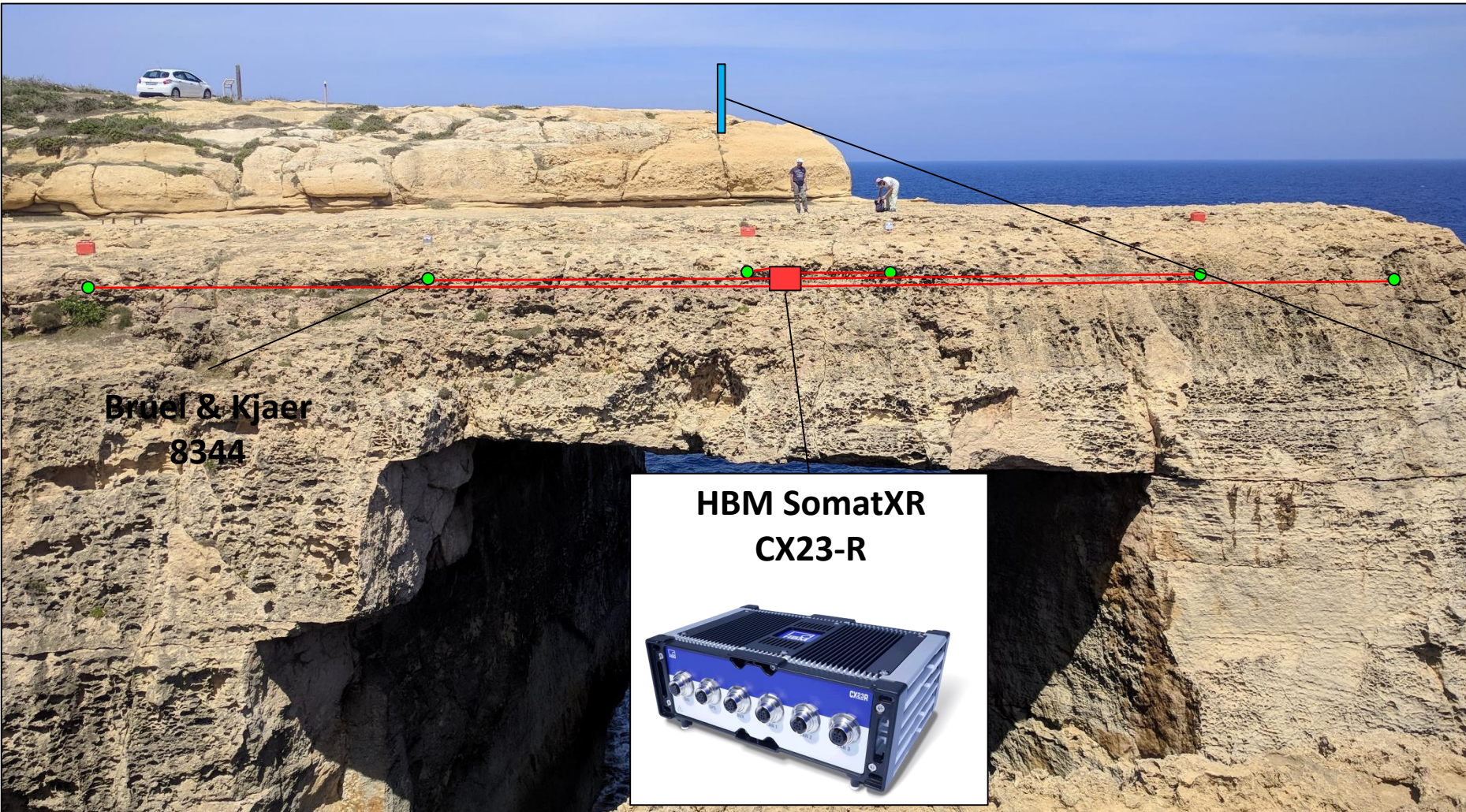
Engineering geological model

	density (Kg/m ³)
GL	1720
H	1950
B5	2250
B4	2250
B3	2080
B2	2080
B1	2480
A4	2390
A3	2390
A2	2400
A1	2400



Monitoring of the Wied il-Mielah rock arch (instrumented in this configuration by

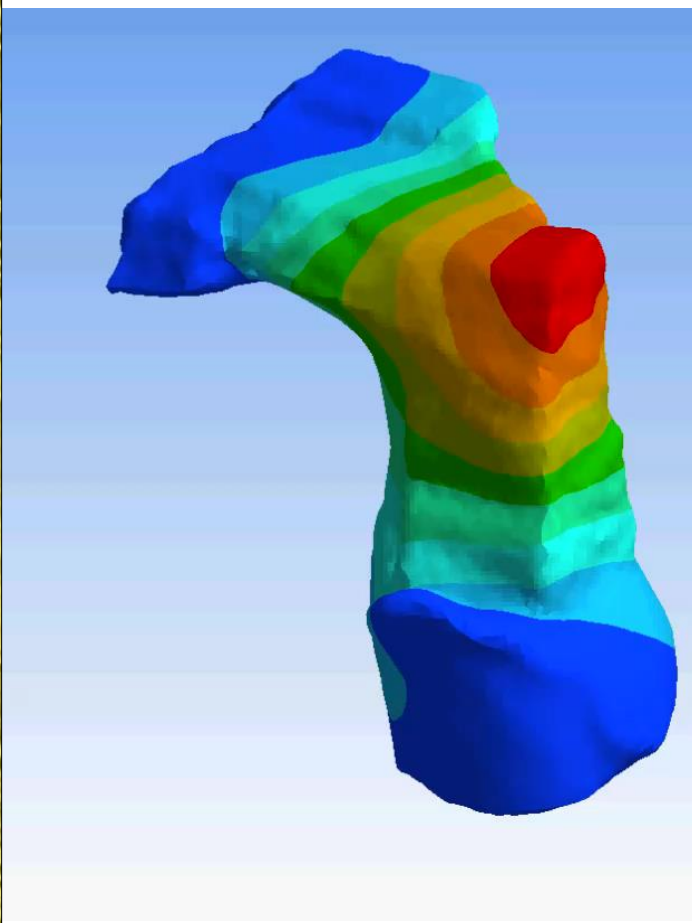
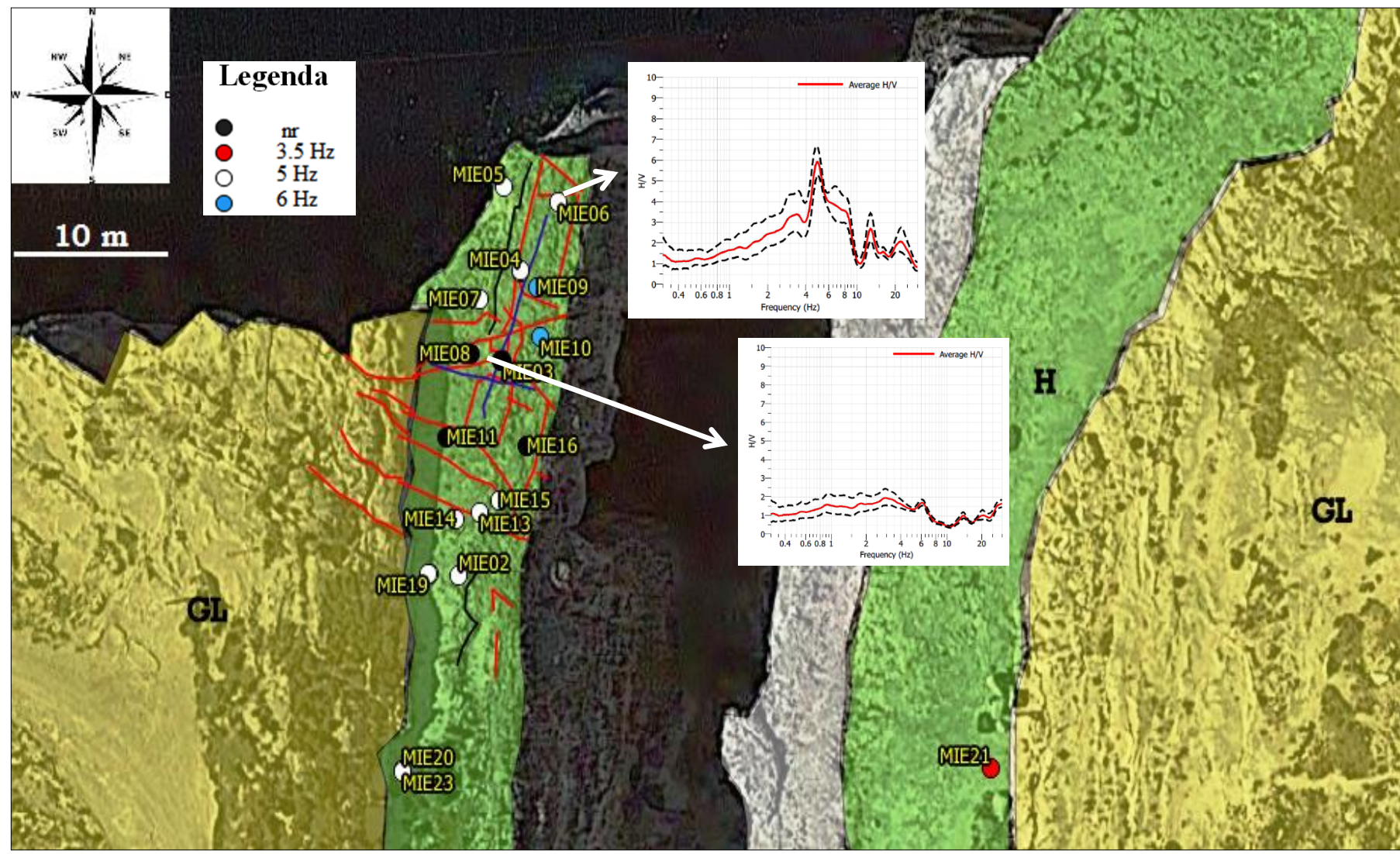
Univeristy fo Rome - La Sapienza)

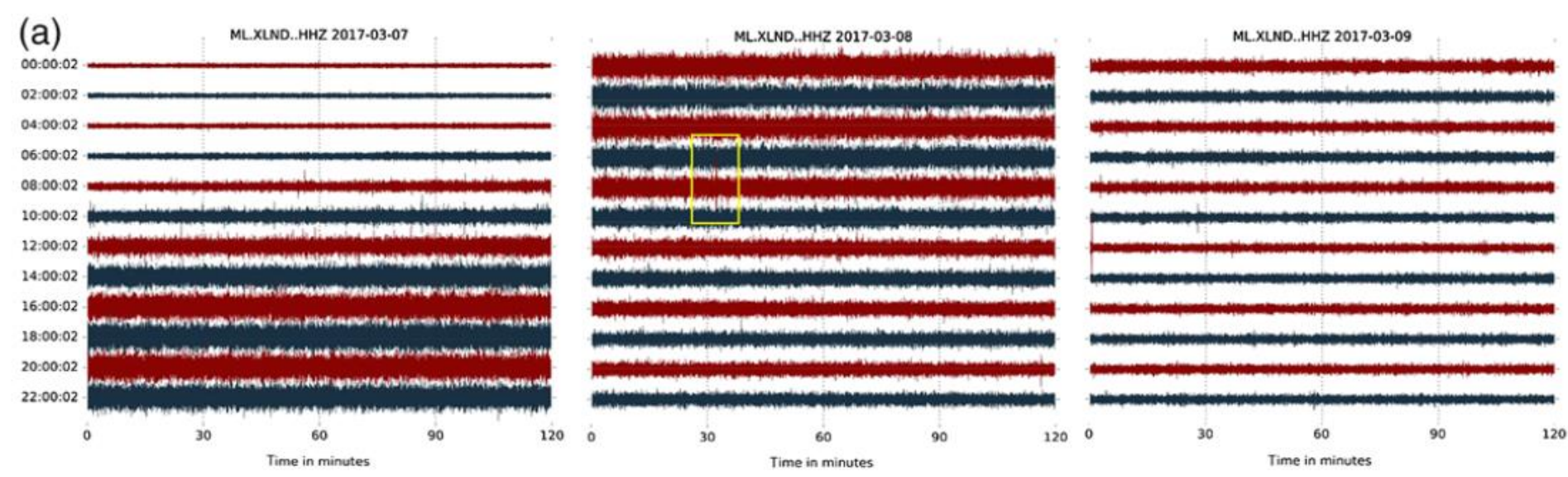
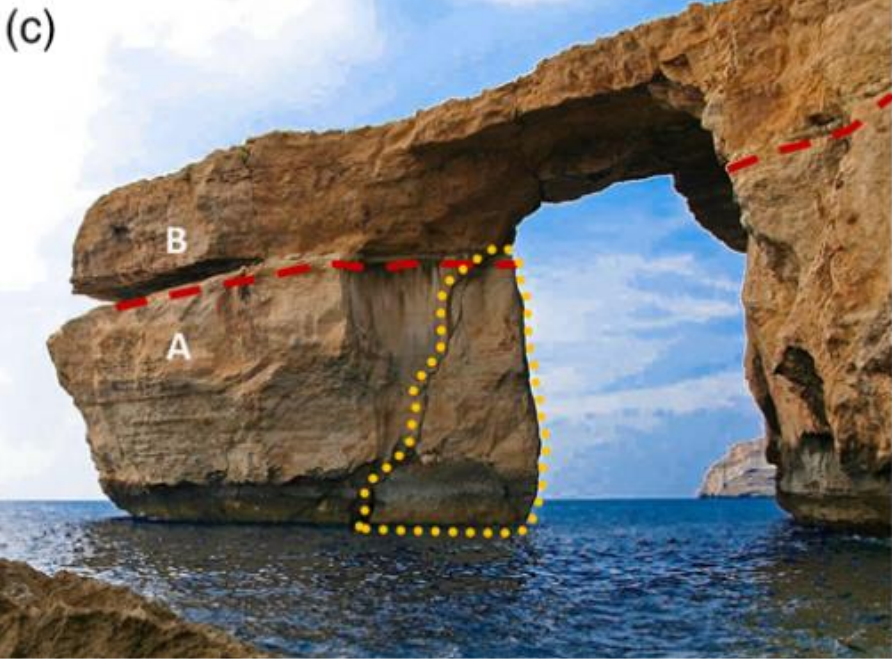
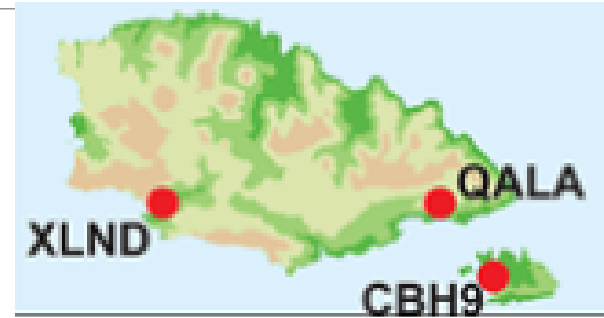


Photos: Courtesy of Prof. Salvatore Martino and Dr. Roberto Iannucci

Seismic noise measurements

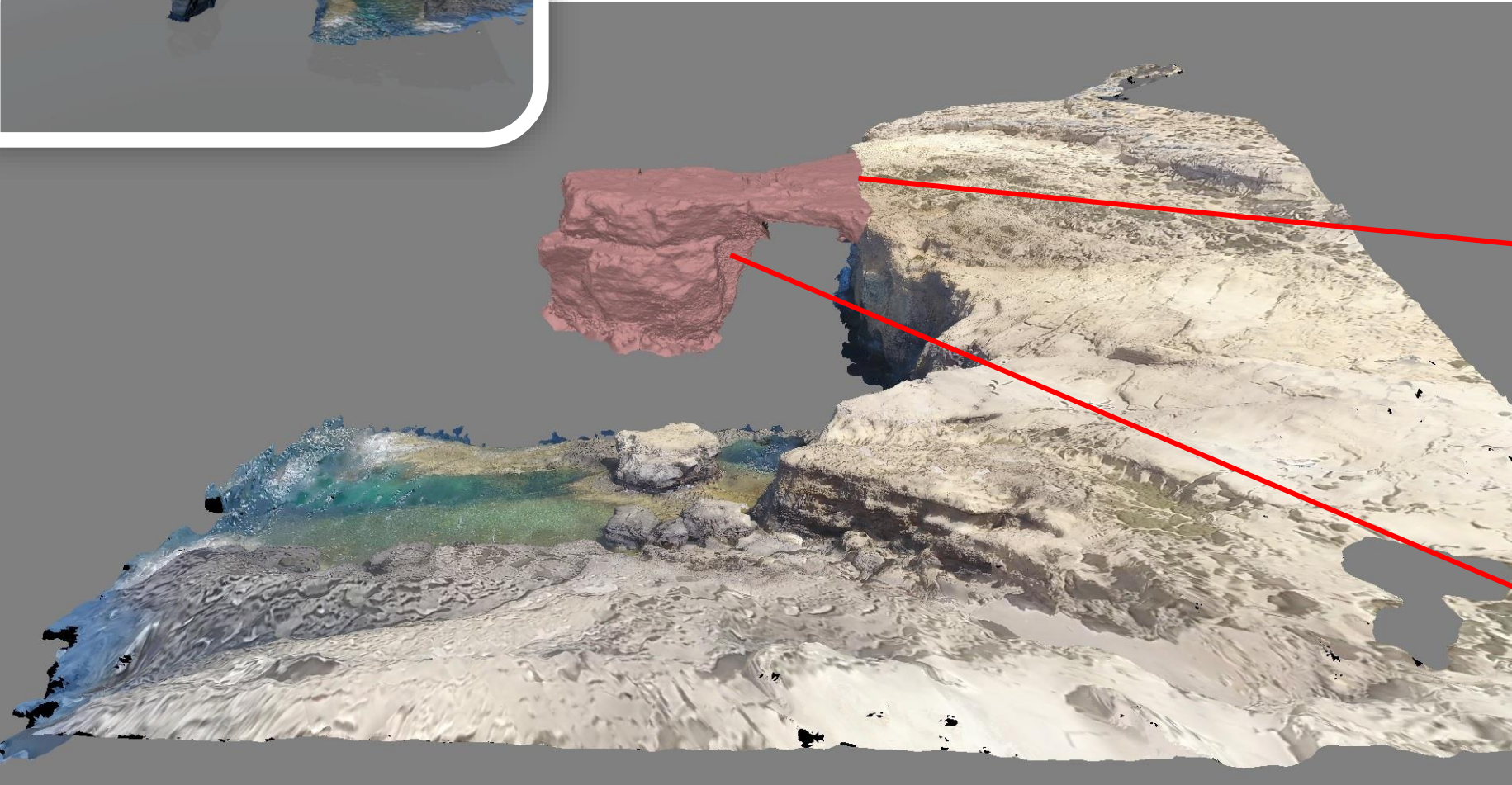
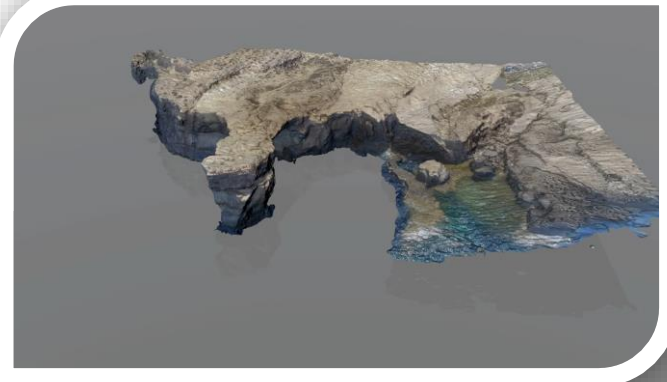
HVSR analysis



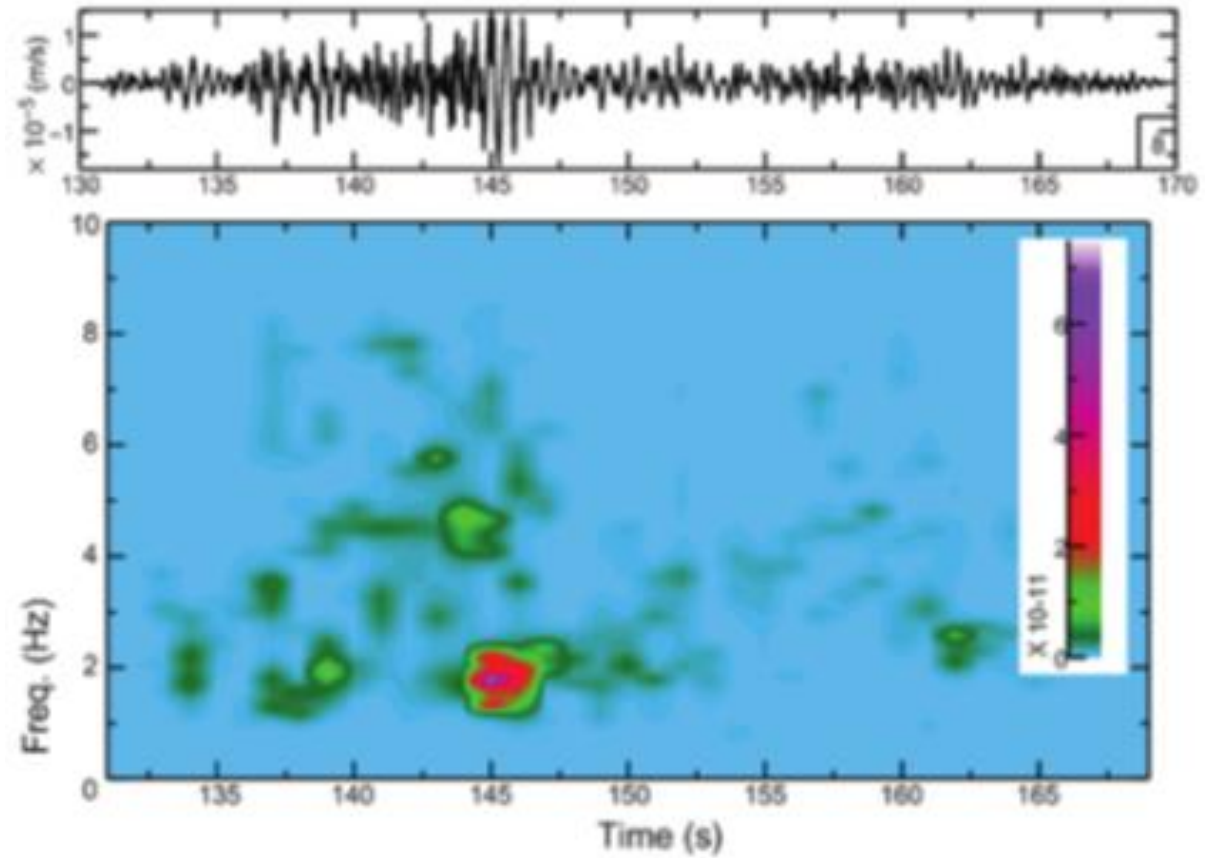
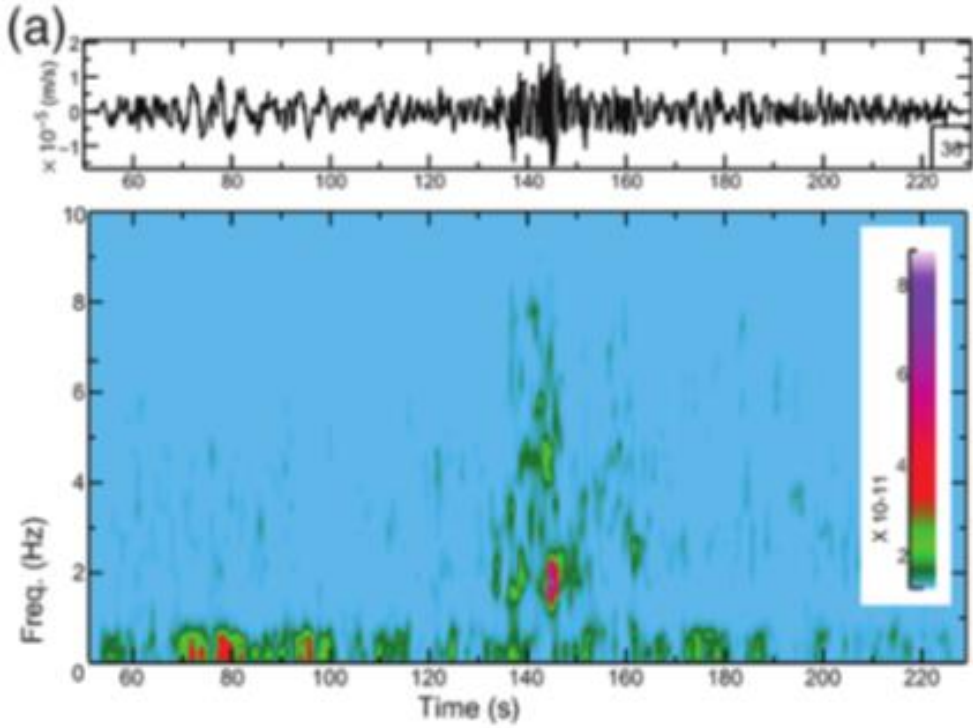


The Azure Window
rock arc collapsed on
 March 8th 2017

Azure Window 3D model



V 16,644 m³
M 3.7 10⁷ kg





Thank you for your attention

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