



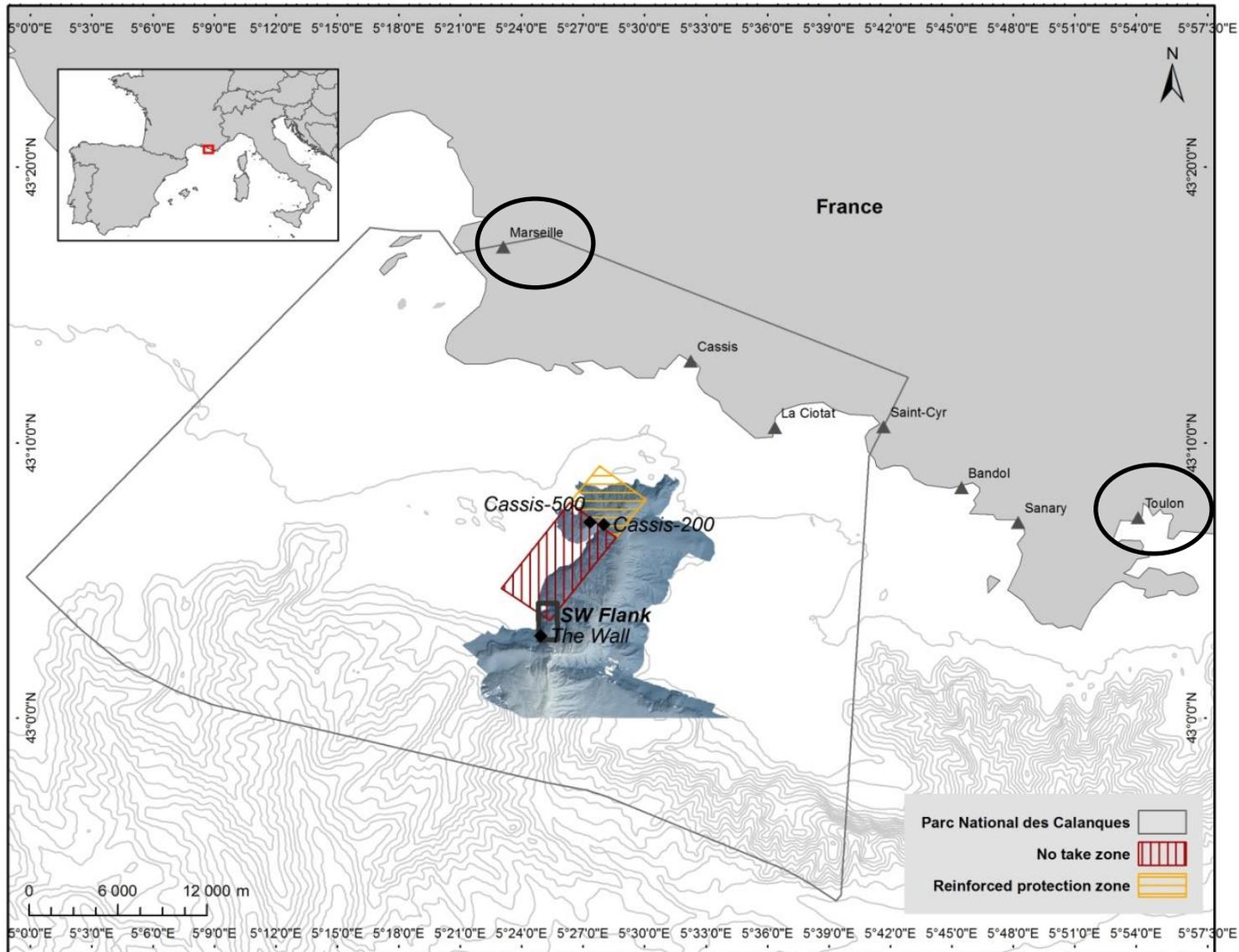
Mesure de l'état des coraux d'eaux froides à partir d'une reconstruction vidéo en 3-Dimensions

VINHA Beatriz^{1*}, ARNAUBEC Aurélien¹, ALLAIS Anne-Gaëlle¹,
BOUHIER Marie-Edith¹, FABRI M-Claire¹

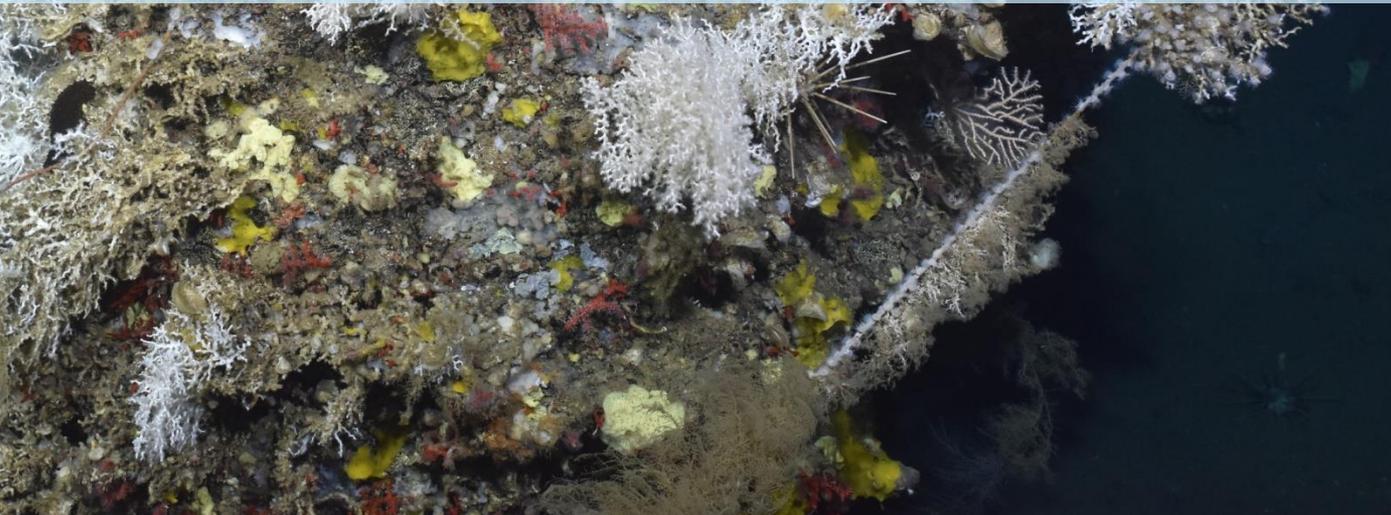
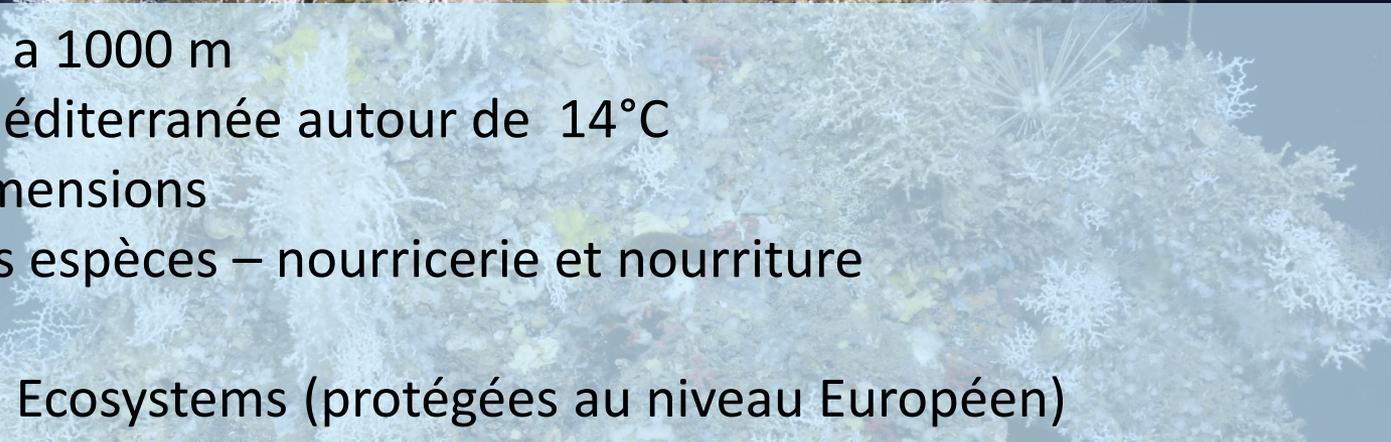
¹Ifremer Centre de Méditerranée, La Seyne sur Mer, France

20 Mars 2018

Canyon de Cassidaigne

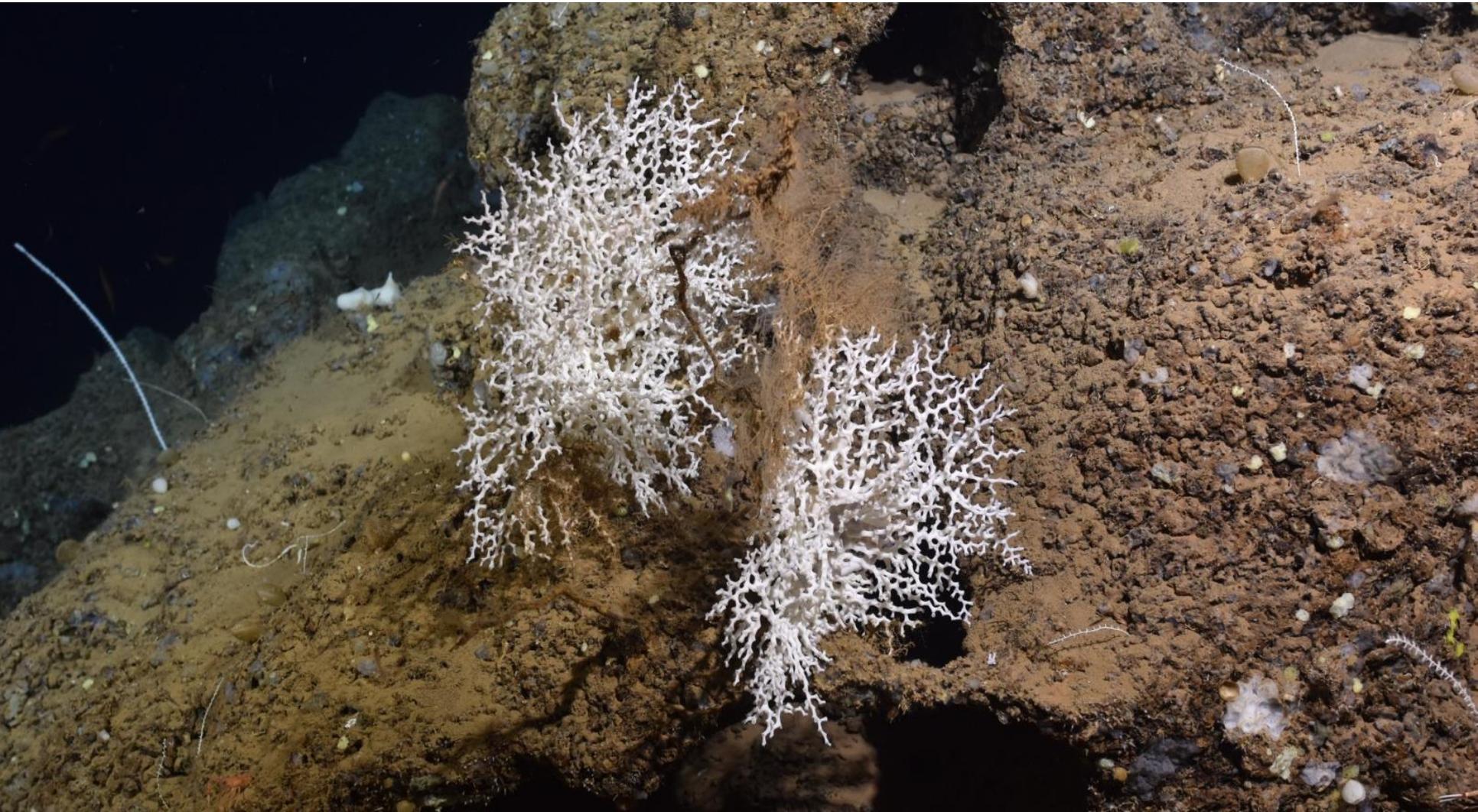


Les coraux d'eaux froides

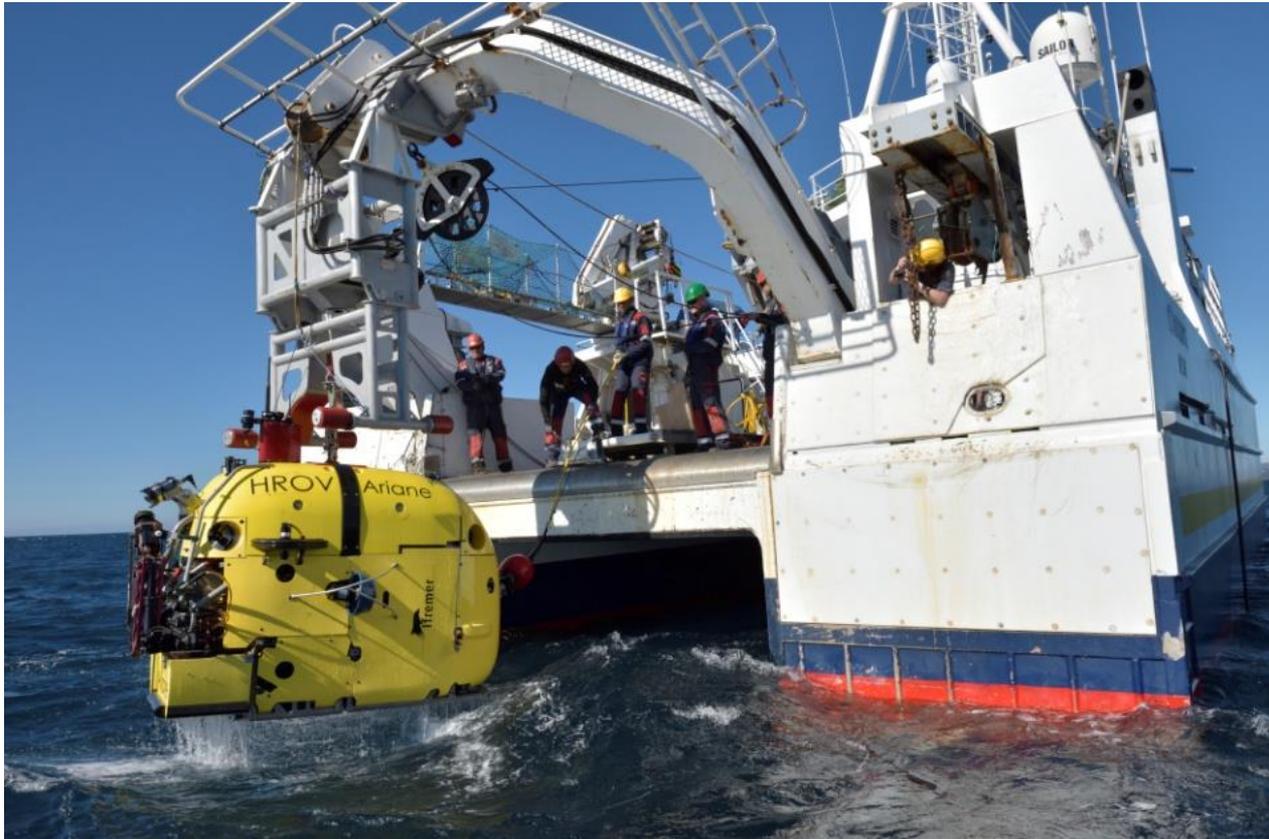


- Profondeur de 200 a 1000 m
- Température en Méditerranée autour de 14°C
- Structures en 3 dimensions
- Refuge pour autres espèces – nurserie et nourriture
- Croissance lente
- Vulnerable Marine Ecosystems (protégées au niveau Européen)

Scléractiniaire: *Madrepora oculata*



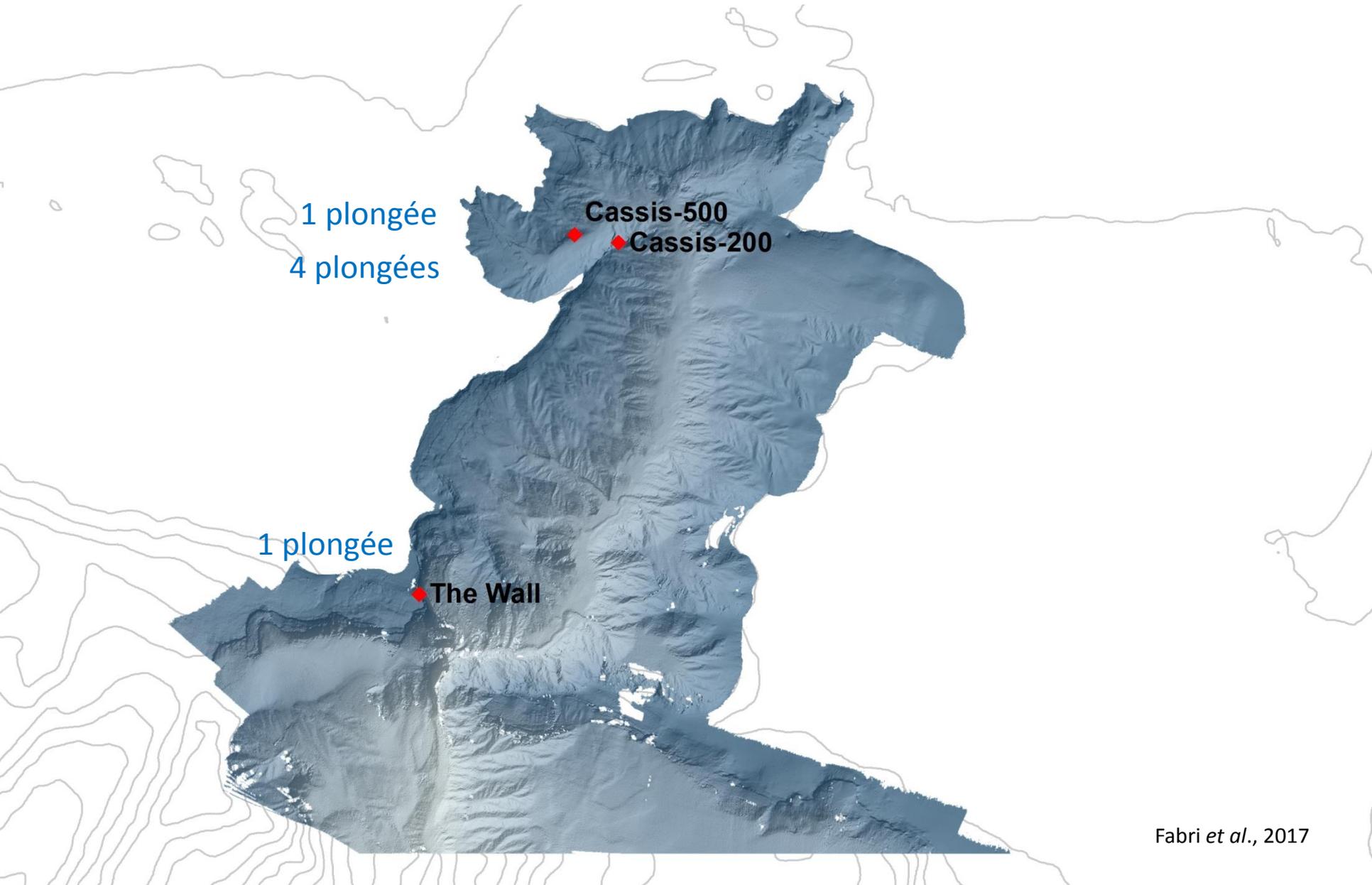
Données



8 plongées
24 h00 de Vidéos
> 10000 Photos
Géoréférencées

VIDEOCOR1 (2017)

La première campagne scientifique du
H-ROV ARIANE sur L'Europe

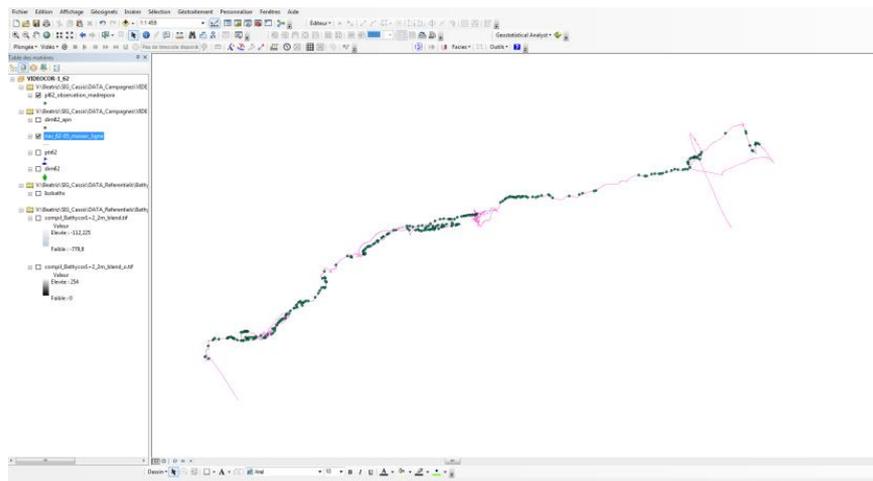
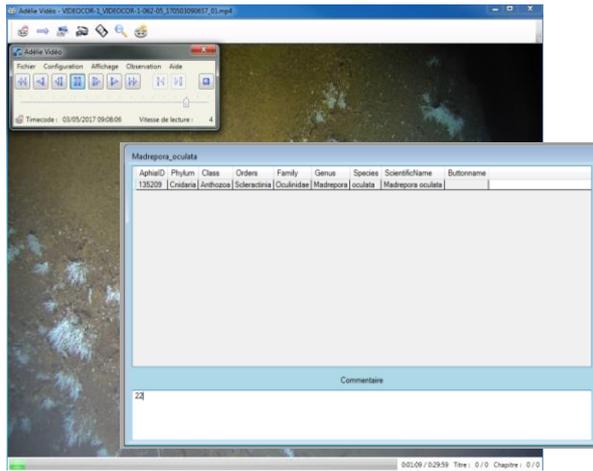


Ifremer



Traitement des images et des vidéos

Adélie (Ifremer sous ArcGIS © ESRI) 2 dimensions

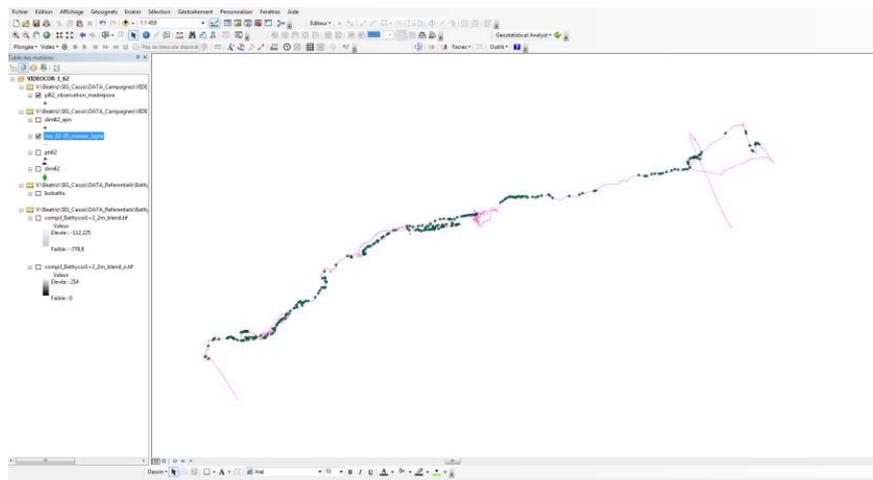
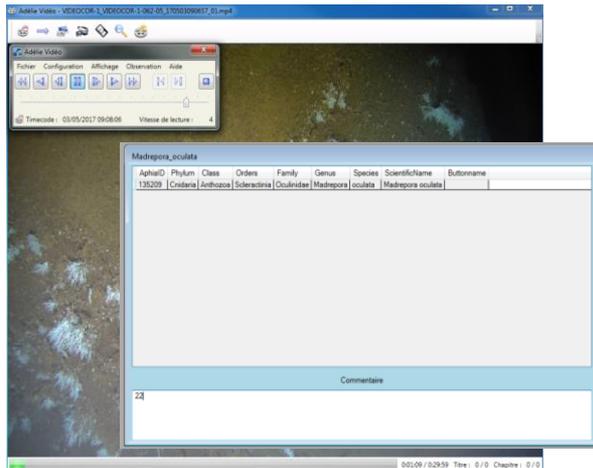


Ifremer



Traitement des images et des vidéos

Adélie (Ifremer sous ArcGIS © ESRI) 2 dimensions



3D Metrics ©Ifremer 3 dimensions

Visibility	Name	Type	Category	Temperature	Result	Comments
<input checked="" type="checkbox"/>	MadreSurf1	Surface measurement	Madre		2.380 m²	
<input checked="" type="checkbox"/>	madre1	Interest point	Madre		7.76814, -3.13182, 8.6603	
<input checked="" type="checkbox"/>	madre2	Interest point	Madre		7.6957, -3.9813, 7.23886	
<input checked="" type="checkbox"/>	madre3	Interest point	Madre		7.5342, -3.6616, 7.21888	
<input checked="" type="checkbox"/>	madre4	Interest point	Madre		7.66234, -3.0577, 7.6991	
<input checked="" type="checkbox"/>	madre5	Interest point	Madre		7.47067, -3.94422, 7.08252	
<input checked="" type="checkbox"/>	madre6	Interest point	Madre		7.5975, -4.13057, 7.15266	
<input checked="" type="checkbox"/>	madre7	Interest point	Madre		7.48639, -2.75483, 8.41215	
<input checked="" type="checkbox"/>	madre8	Interest point	Madre		7.52163, -3.09654, 8.17212	
<input checked="" type="checkbox"/>	madre9	Interest point	Madre		7.46703, -2.62188, 8.73248	
<input checked="" type="checkbox"/>	madre_line1	Line measurement	Madre		0.184 m	



Mesurer l'état des coraux

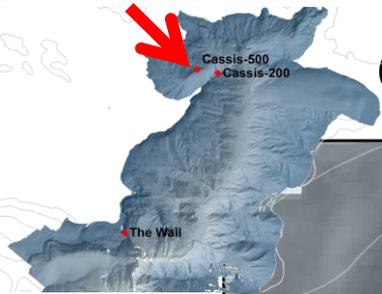
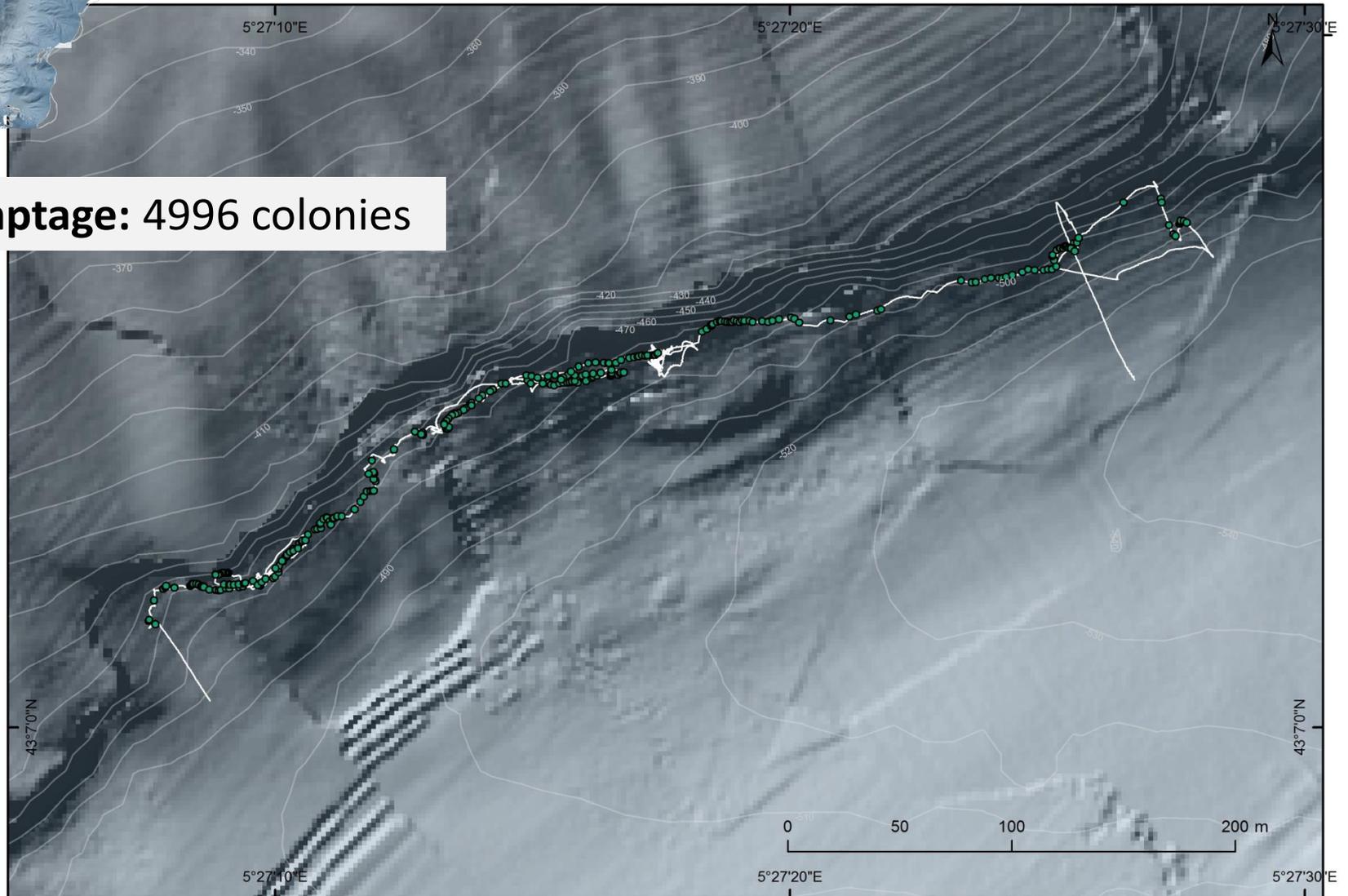
1. Surface et densité
2. Taille
3. Diversité
4. Pression et impacts

Ifremer



Surface et densité

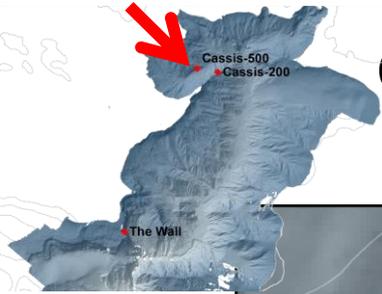
2D, Adélie SIG

**Cassis-500****Comptage: 4996 colonies**

Ifremer

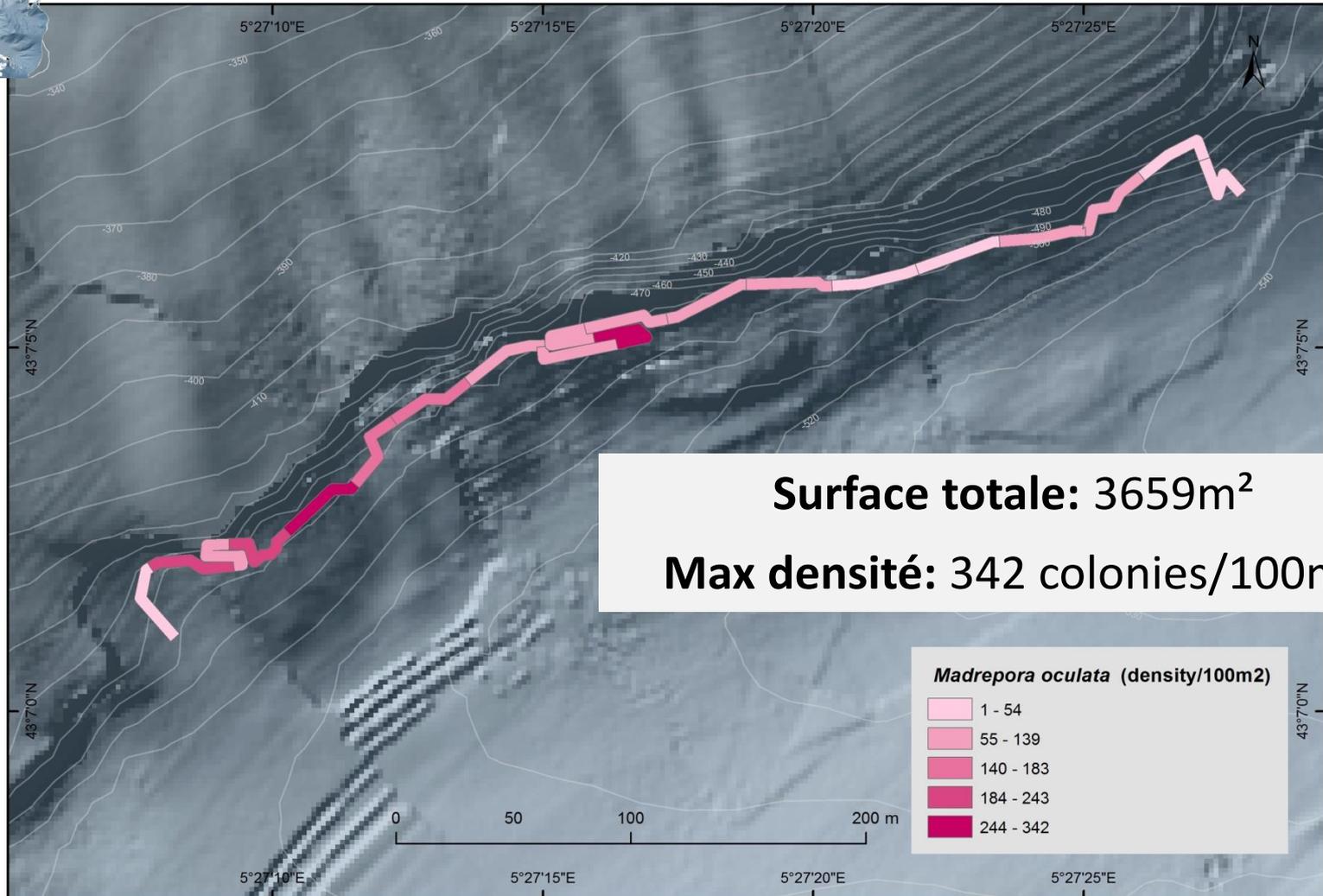


Cassis-500

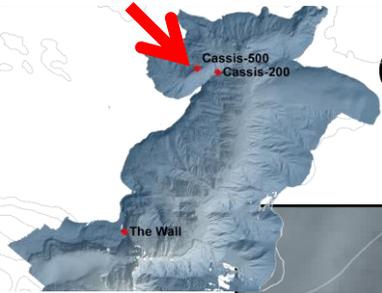


Surface et densité

2D, Adélie SIG



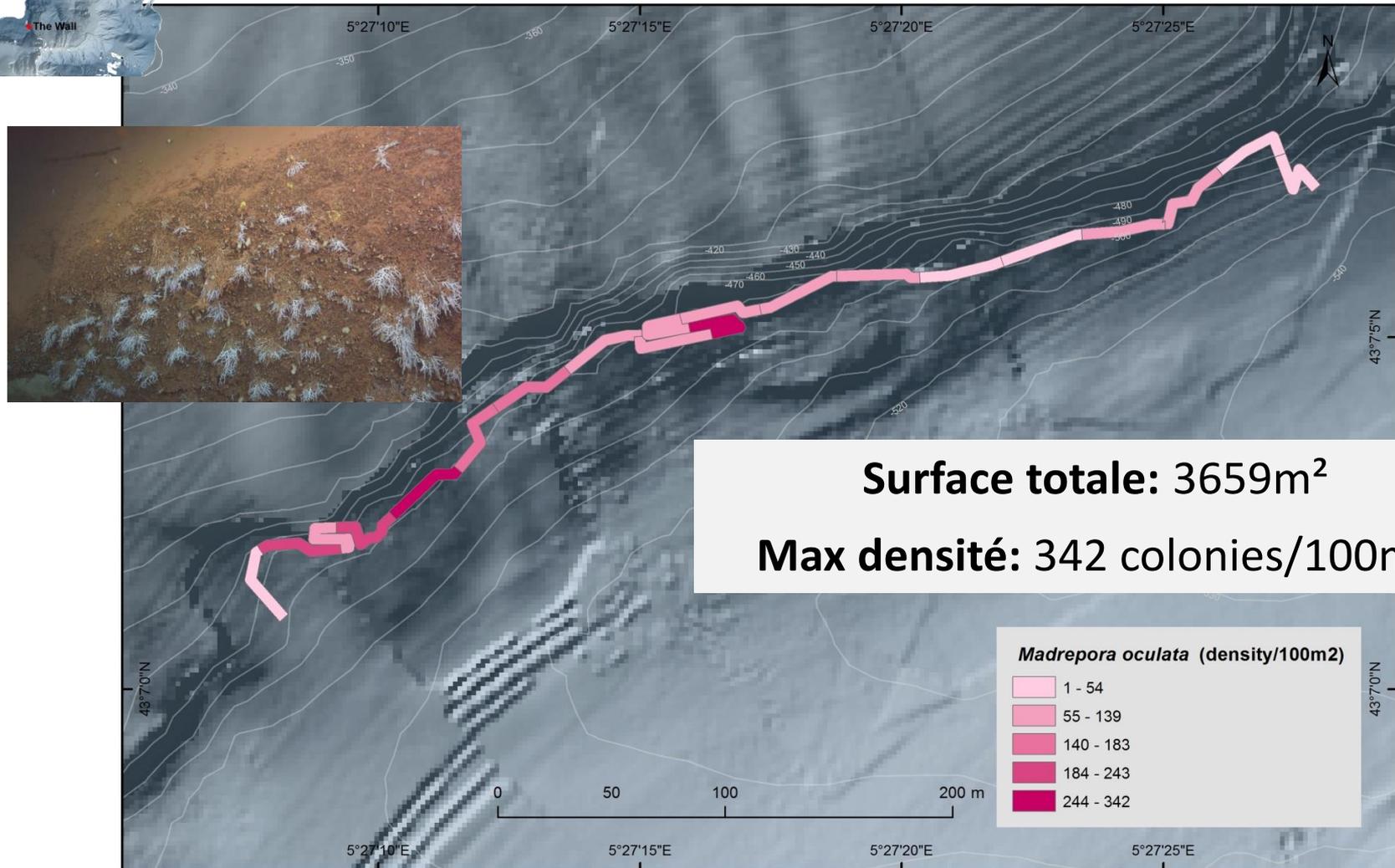
Ifremer



Cassis-500

Surface et densité

2D, Adélie SIG

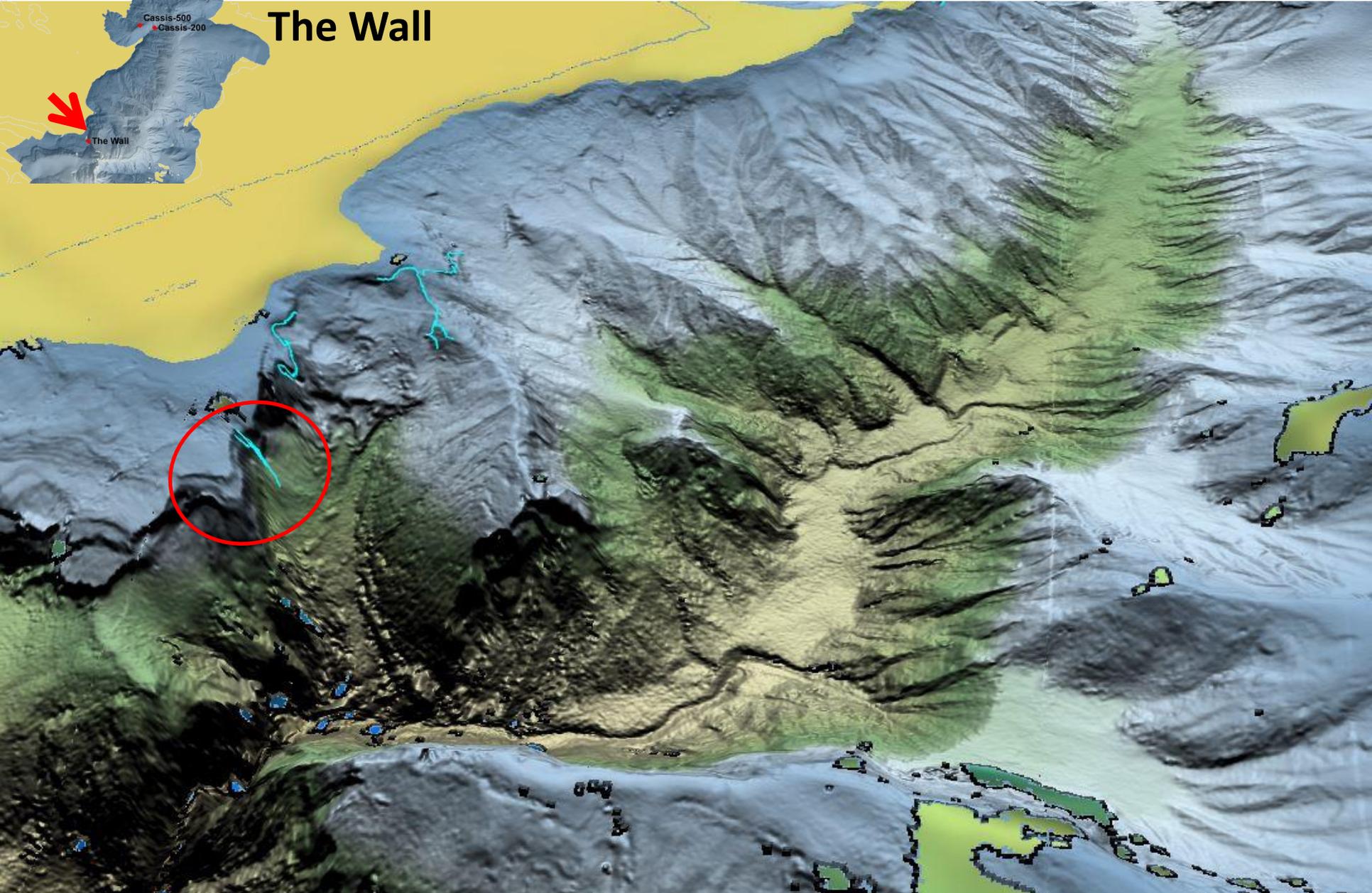


Ifremer



Surface et densité

The Wall



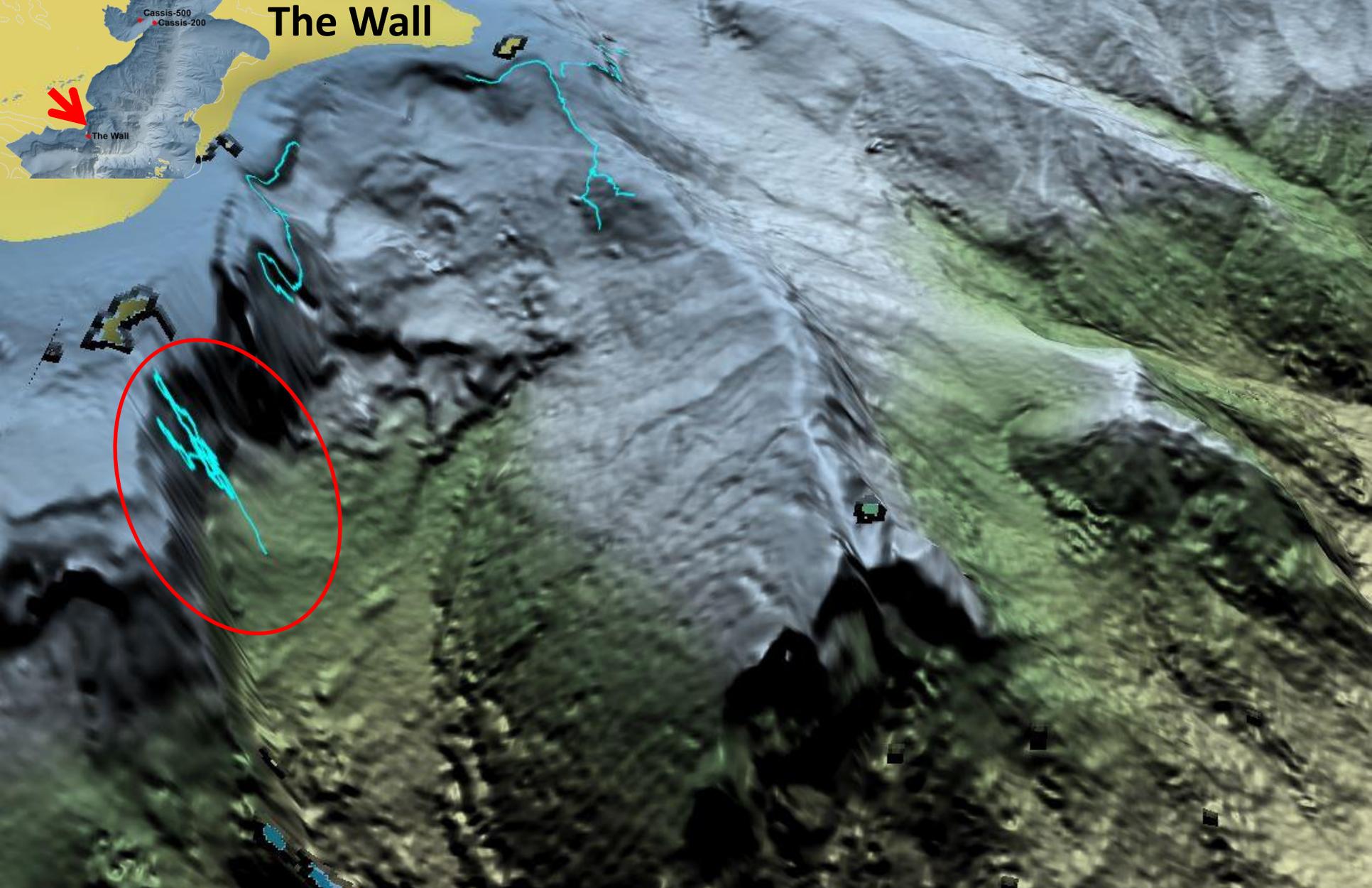
Ifremer



Surface et densité

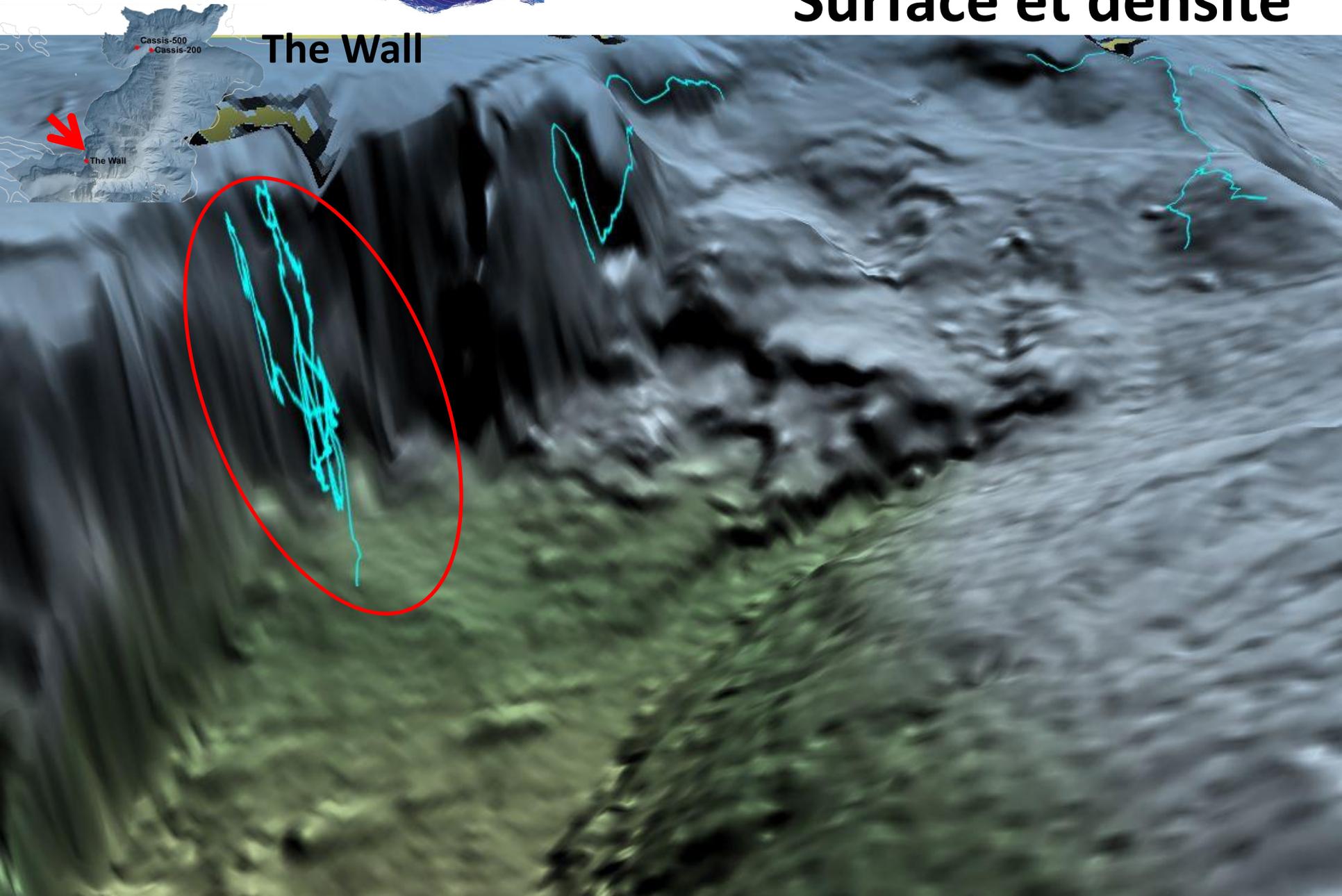


The Wall





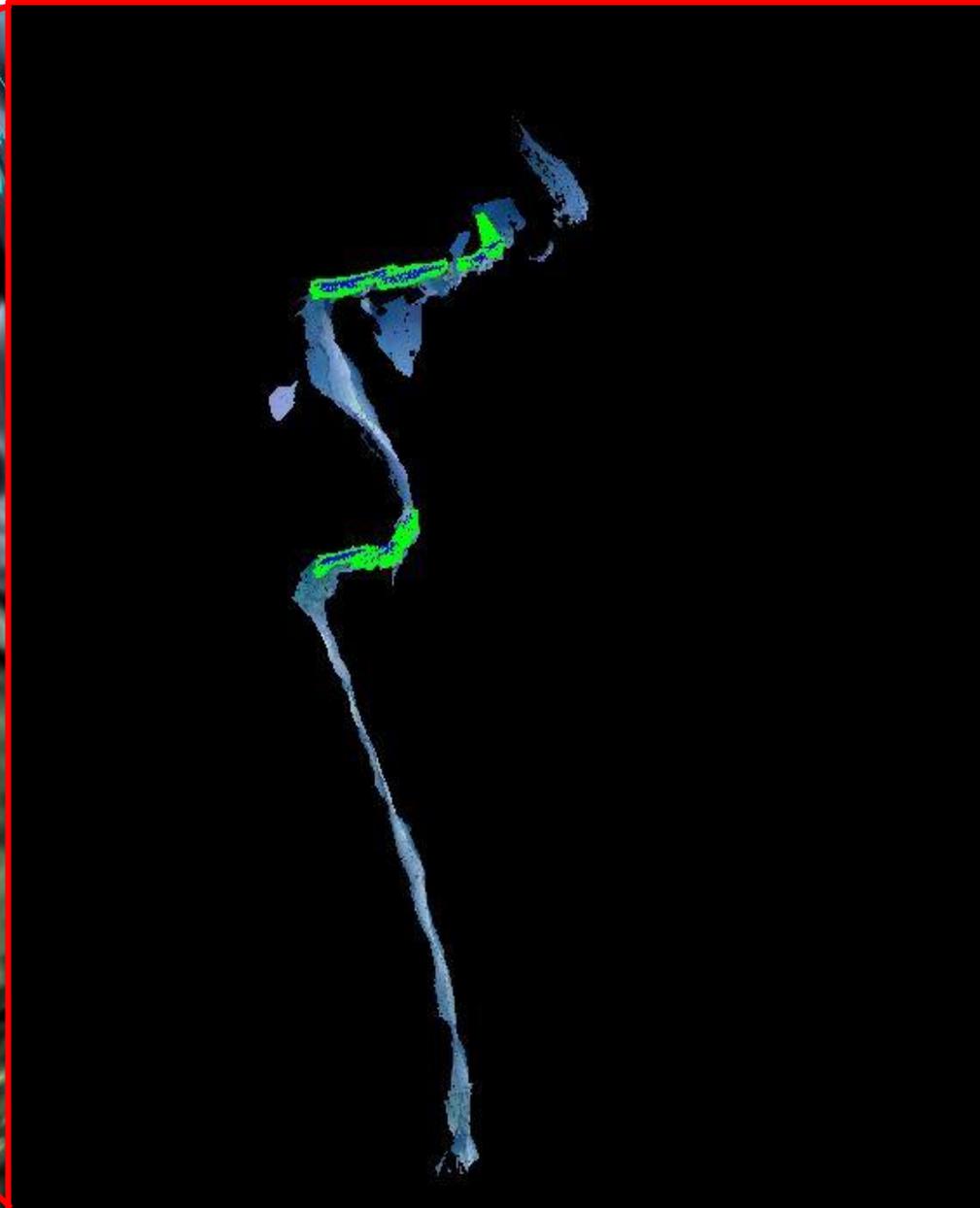
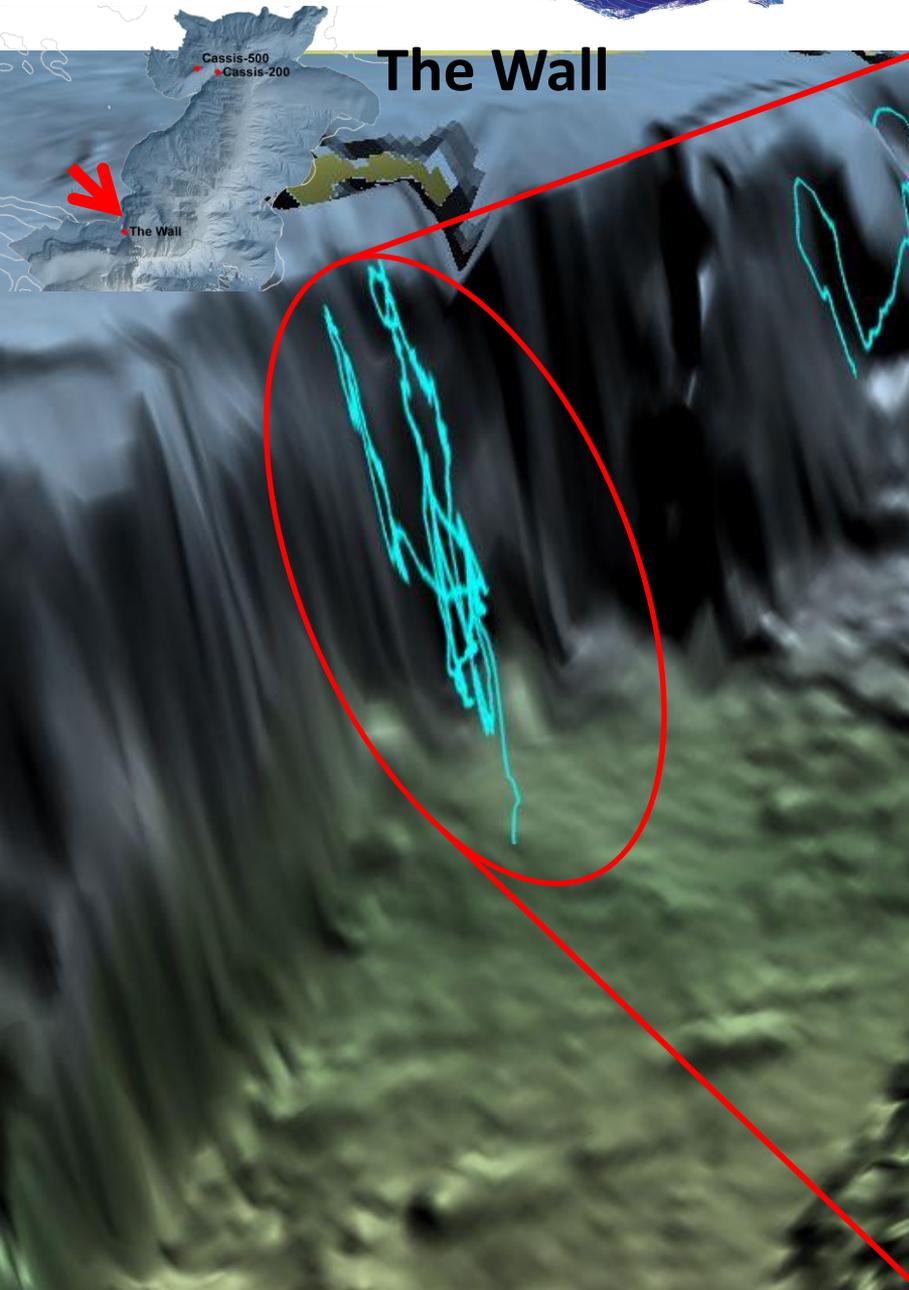
Surface et densité



The Wall



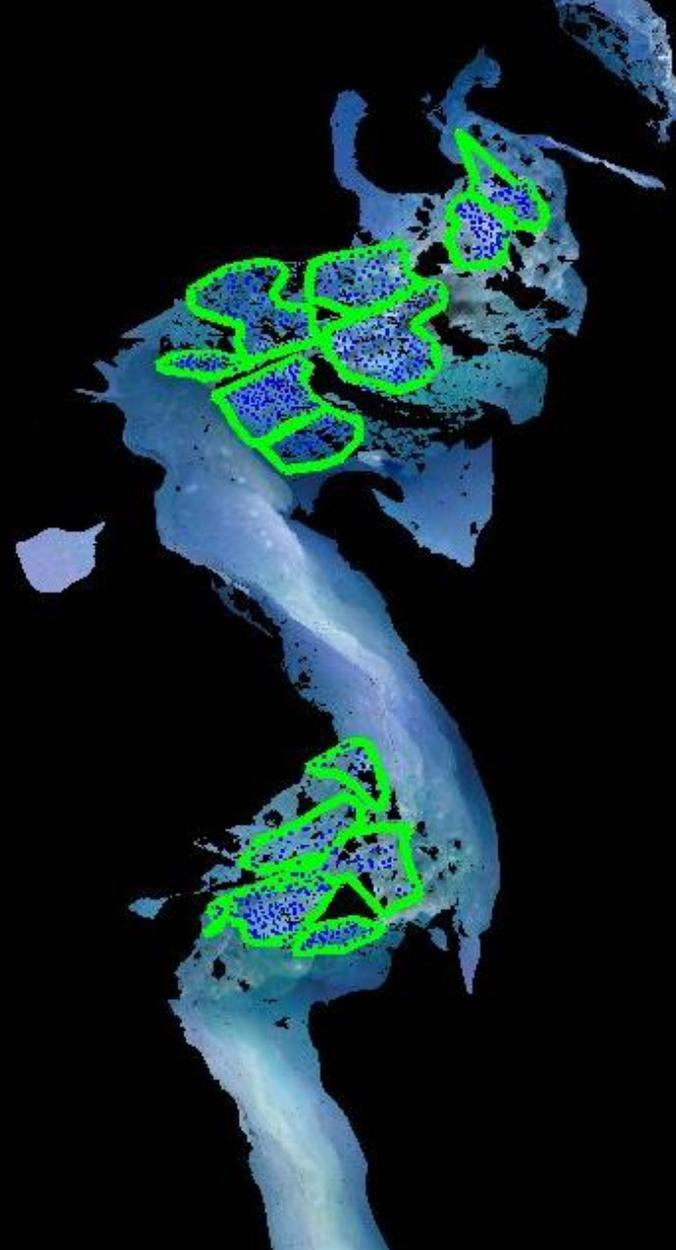
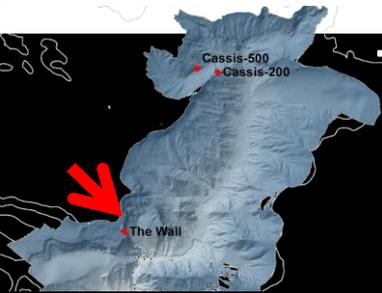
Surface et densité



Surface et densité

3D, 3D Metrics

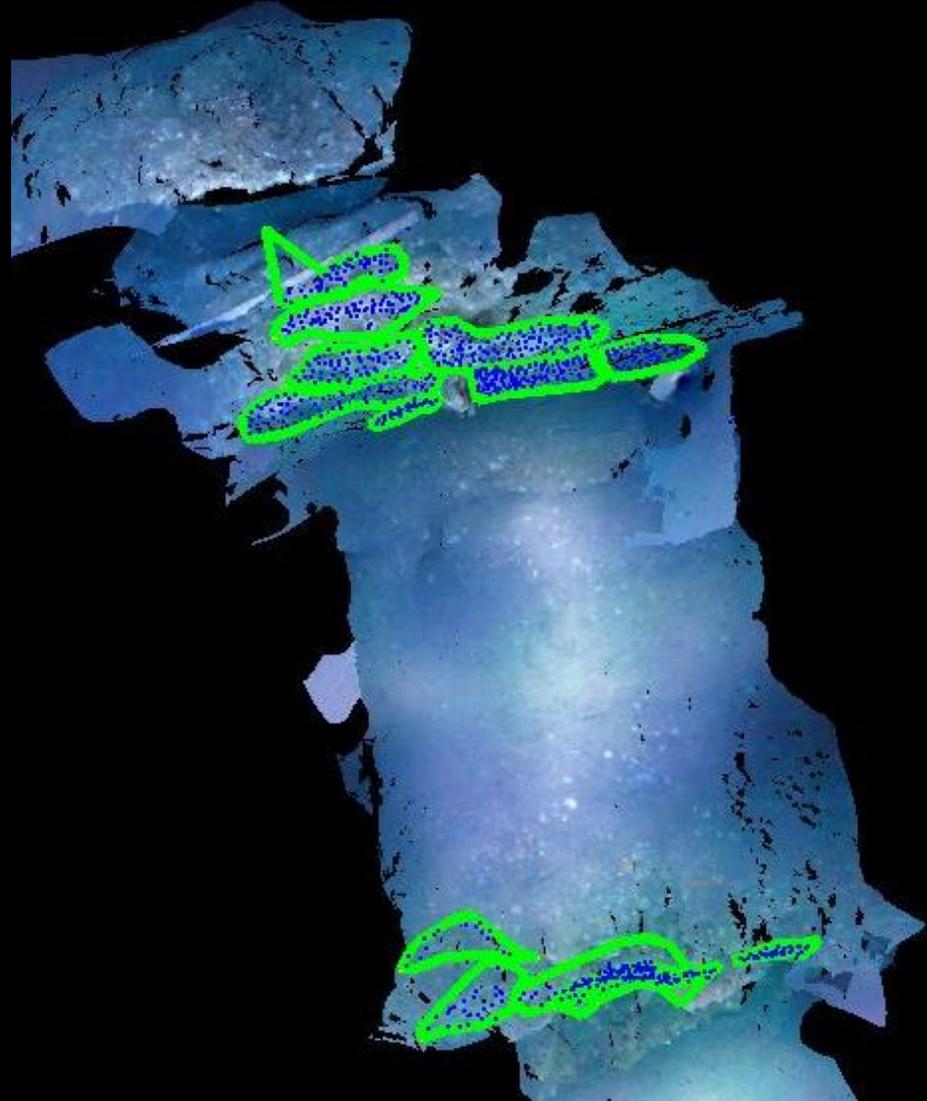
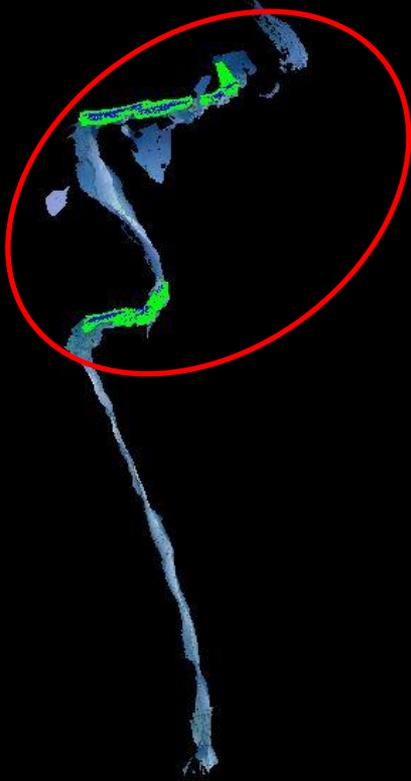
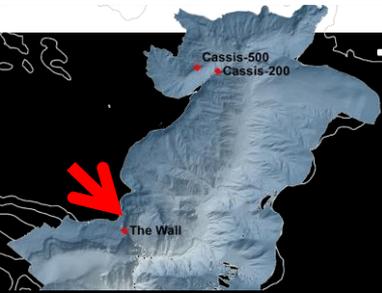
The Wall



Surface et densité

3D, 3D Metrics

The Wall



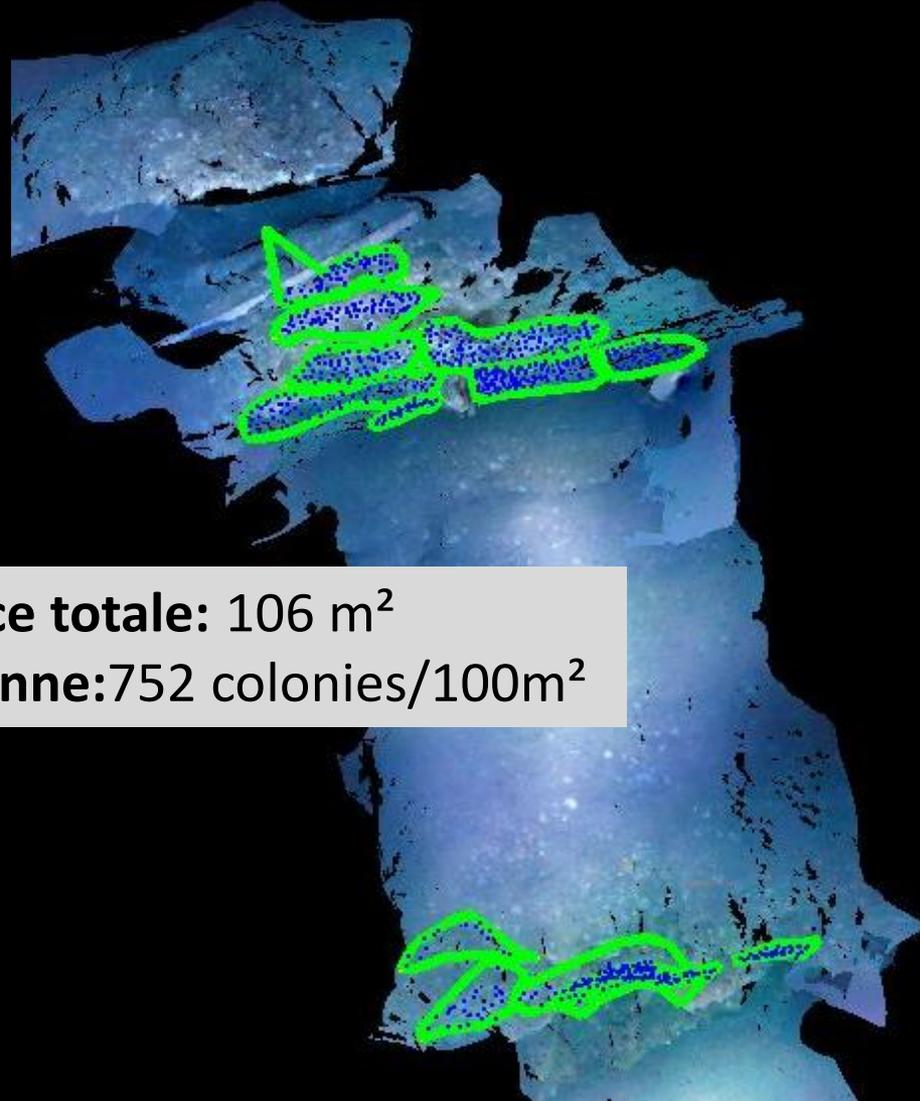
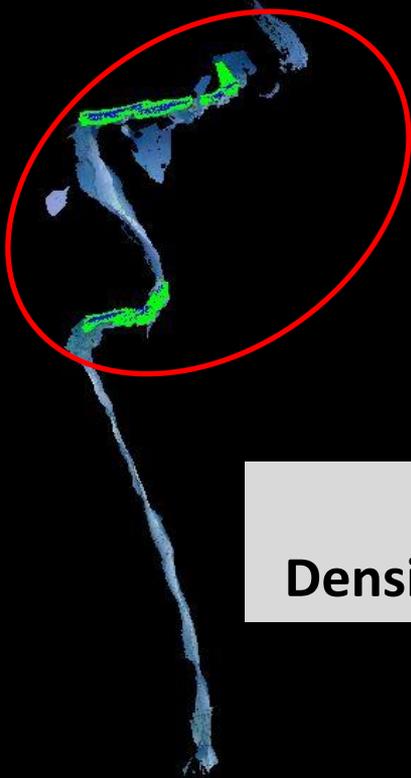
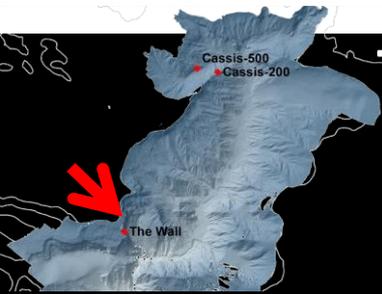
Ifremer



Surface et densité

3D, 3D Metrics

The Wall



Surface totale: 106 m²
Densité moyenne: 752 colonies/100m²

Ifremer

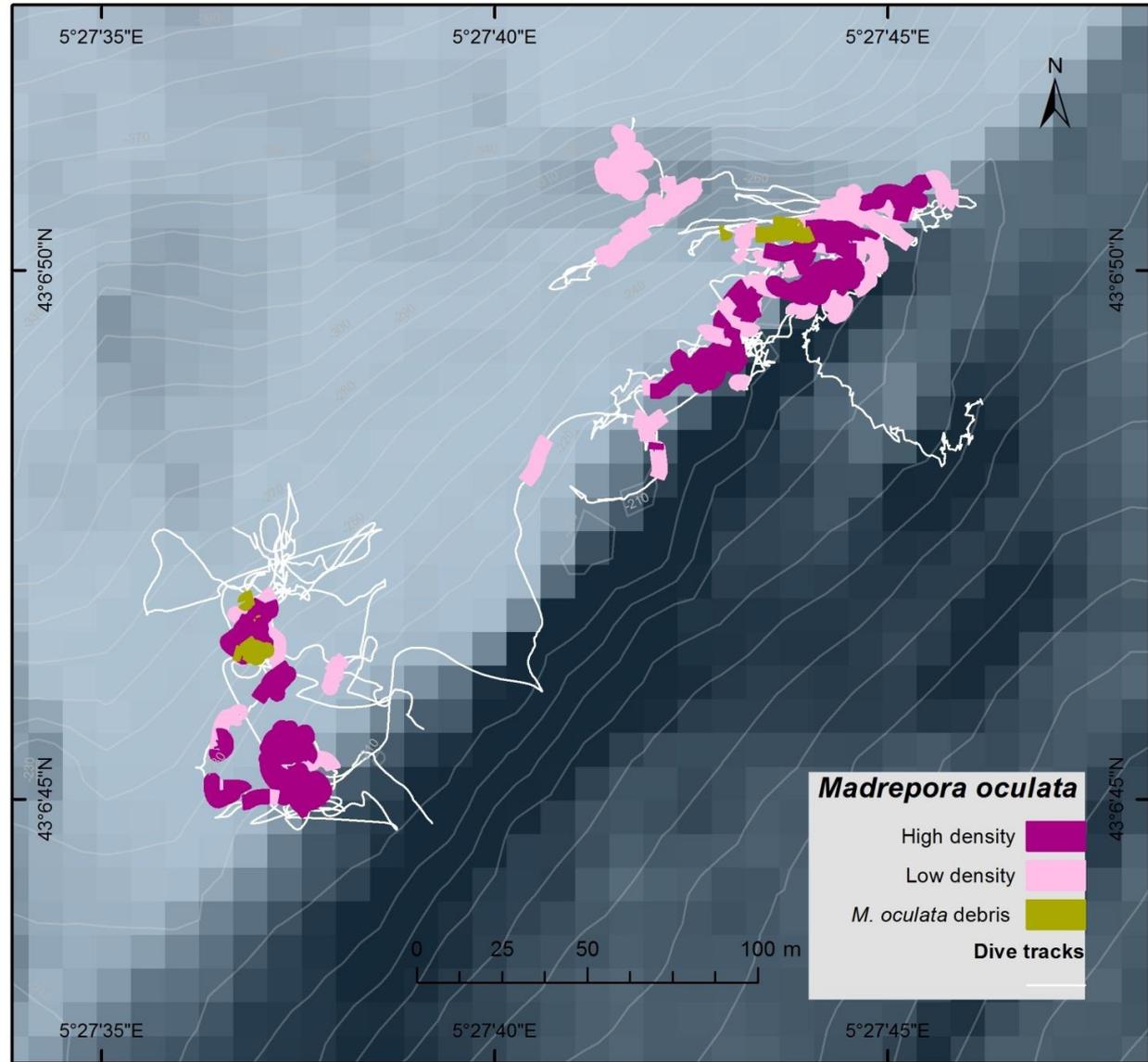


Surface et densité

2D, Adélie SIG



Cassis-200



Ifremer

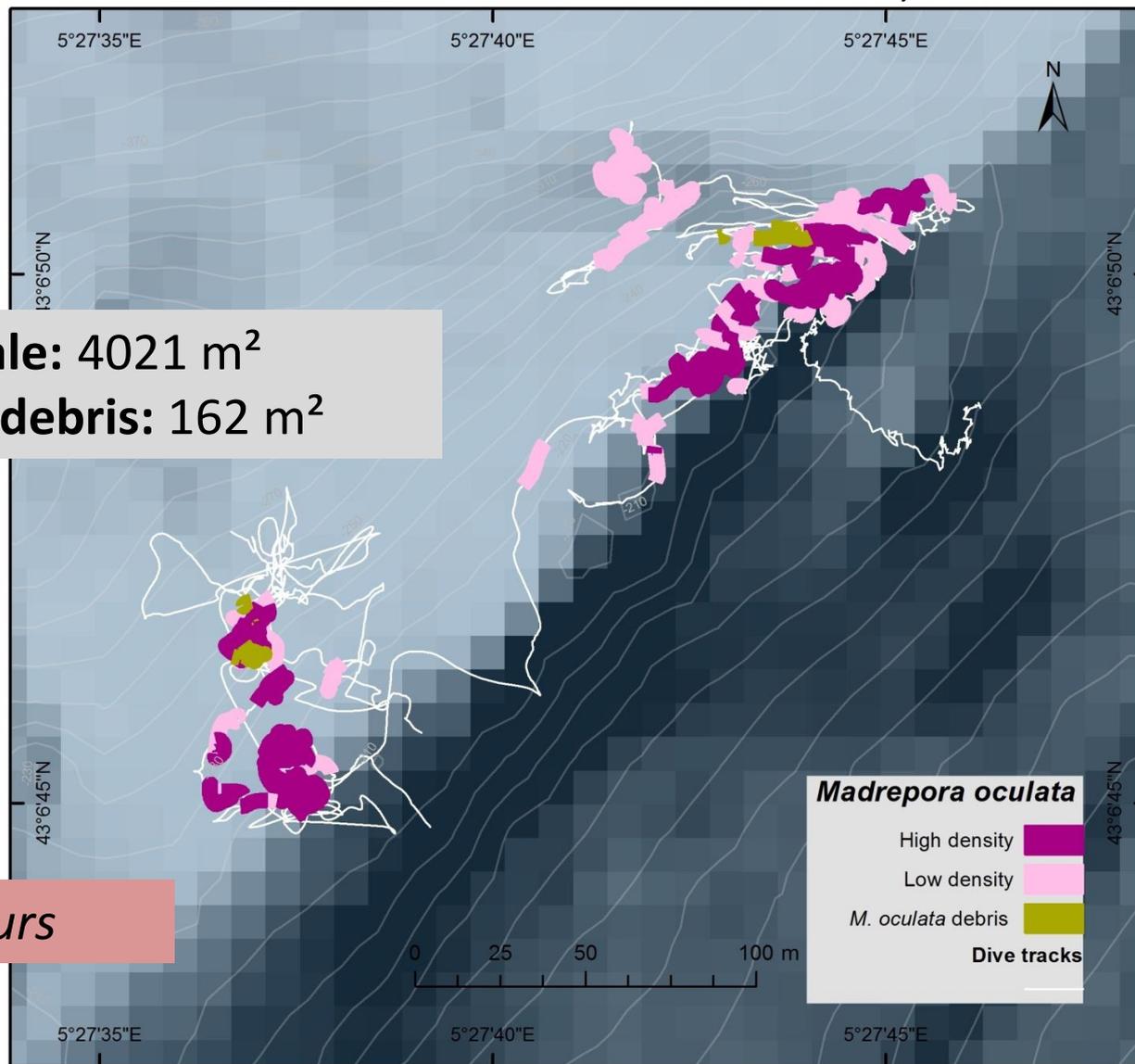


Surface et densité

2D, Adélie SIG

**Cassis-200**

Surface totale: 4021 m²
Surface totale débris: 162 m²

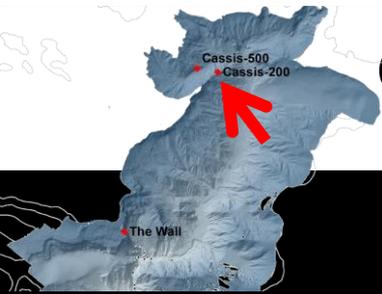


Densité: *en cours*

Ifremer

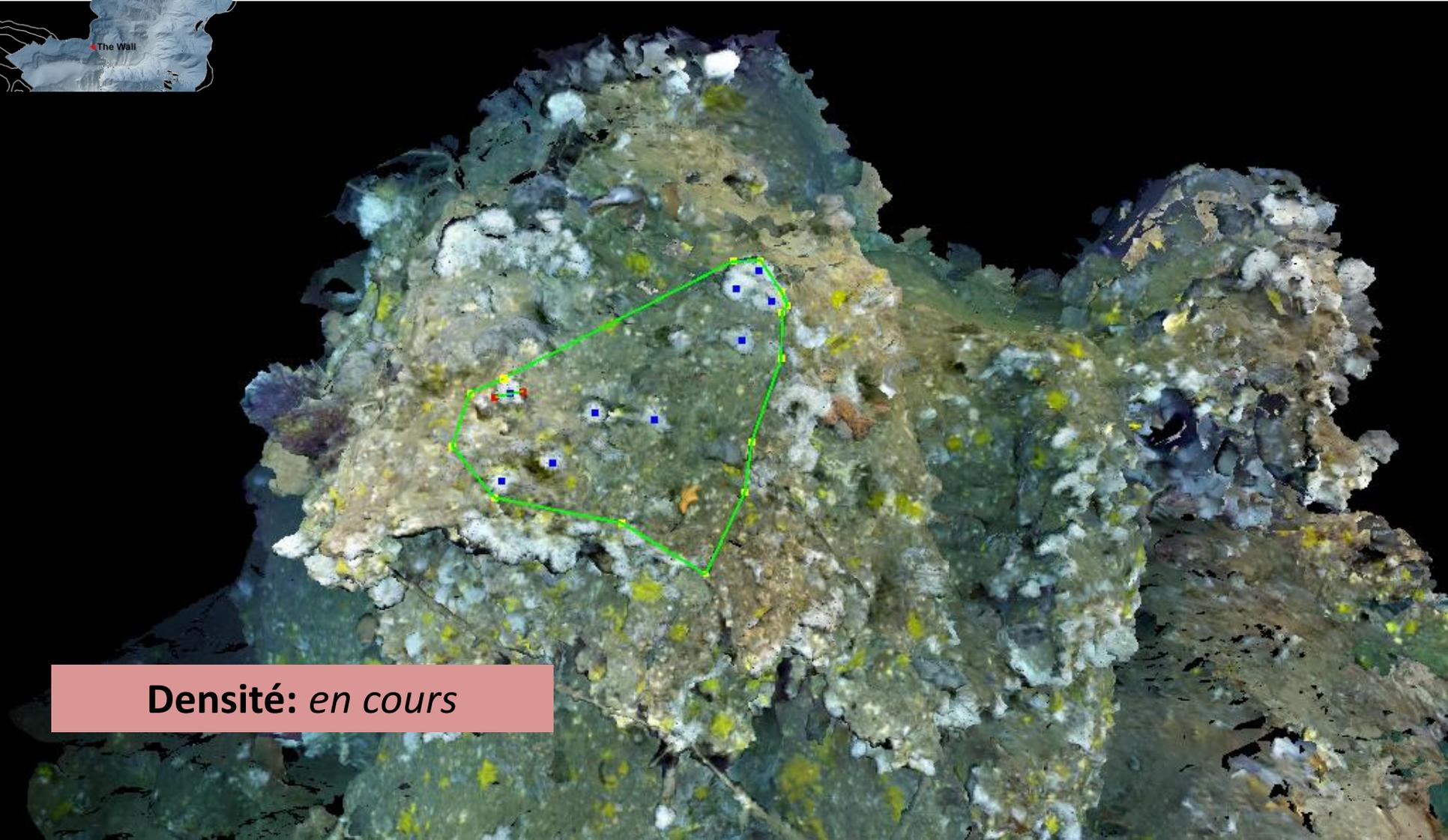


Cassis-200



Surface et densité

3D, 3D Metrics



Densité: *en cours*



Mesurer l'état des coraux

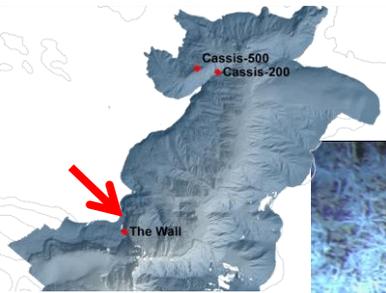
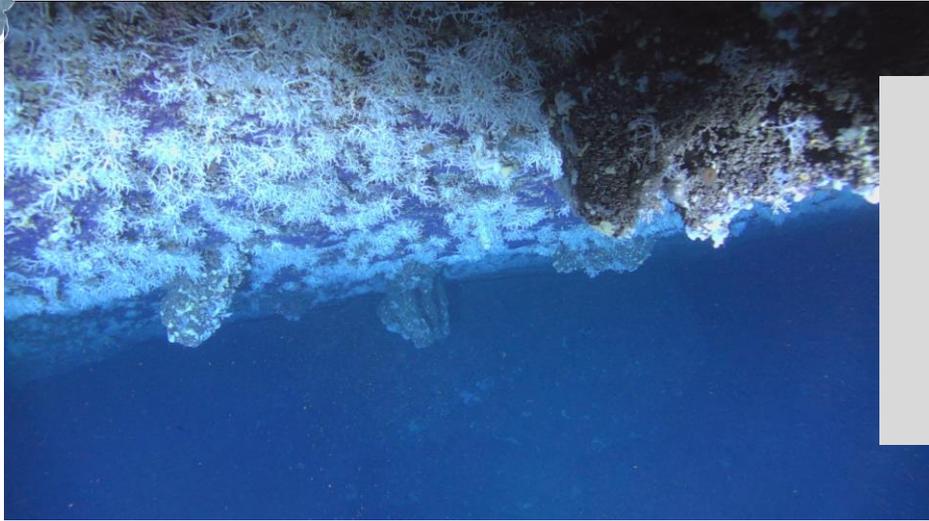
1. Surface et densité
2. Taille
3. Diversité
4. Pression et impacts

Ifremer

Madrepora oculata

Taille

3D, 3D Metrics

**The Wall****10 ± 4 cm****Min 3 cm****Max 27 cm**

Hypothèse

Les colonies qui poussent la tête en bas n'arrivent pas à grandir et tombent



Ifremer



Madrepora oculata

Taille

3D, 3D Metrics

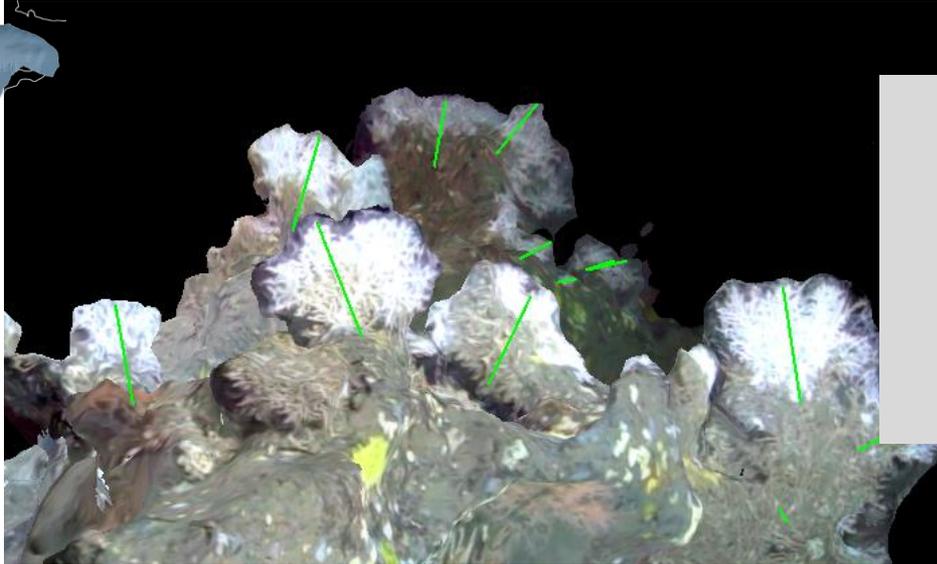
20 ± 11 cm

Min 5 cm

Max 60 cm



Cassis-200



Cassis-500

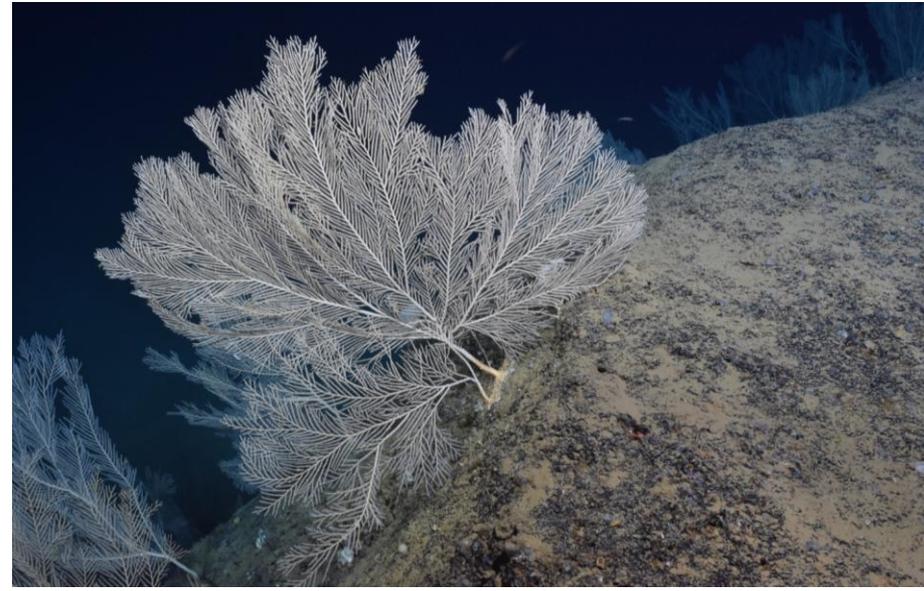
en cours

Les autres espèces structurantes

Viminella flagellum



Callogorgia verticillata



Ifremer

Taille

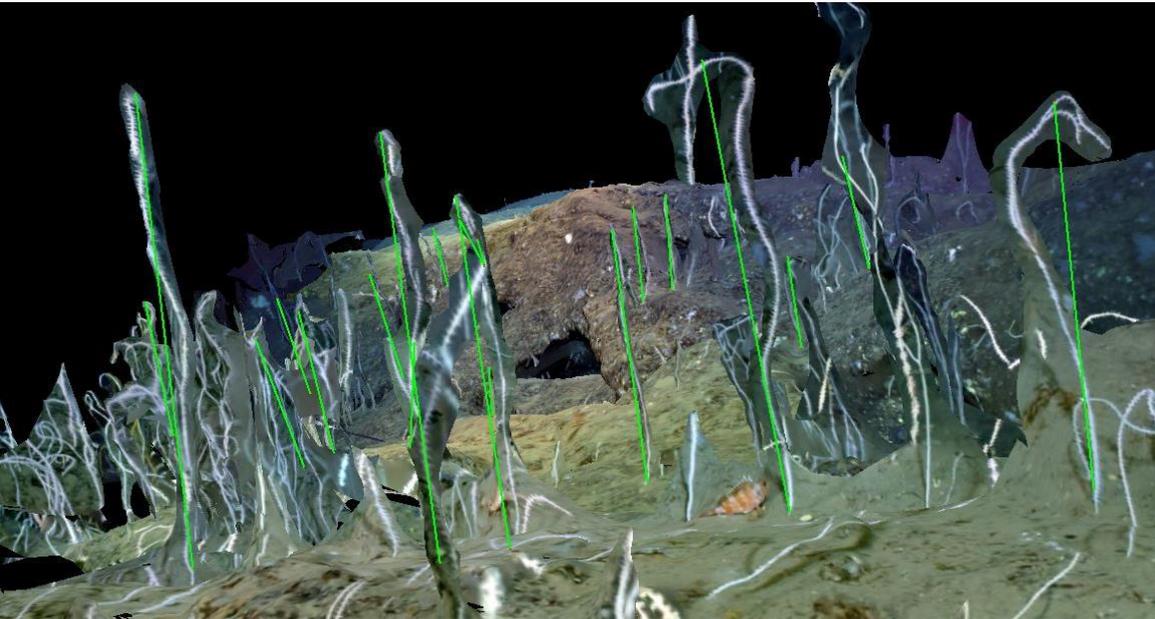
3D, 3D Metrics

Viminella flagellum

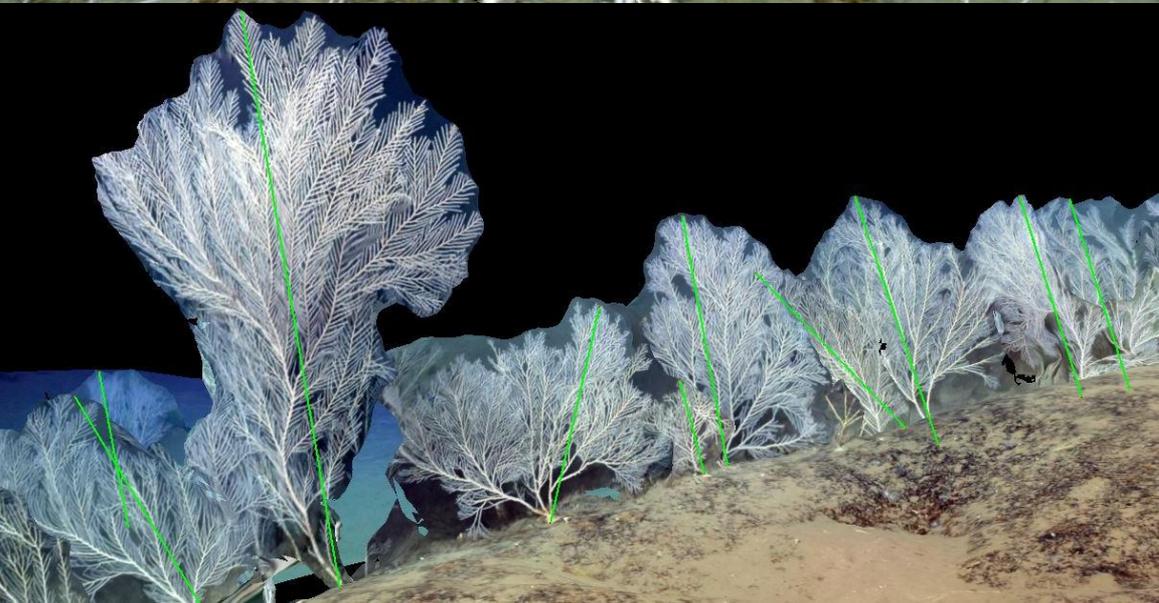
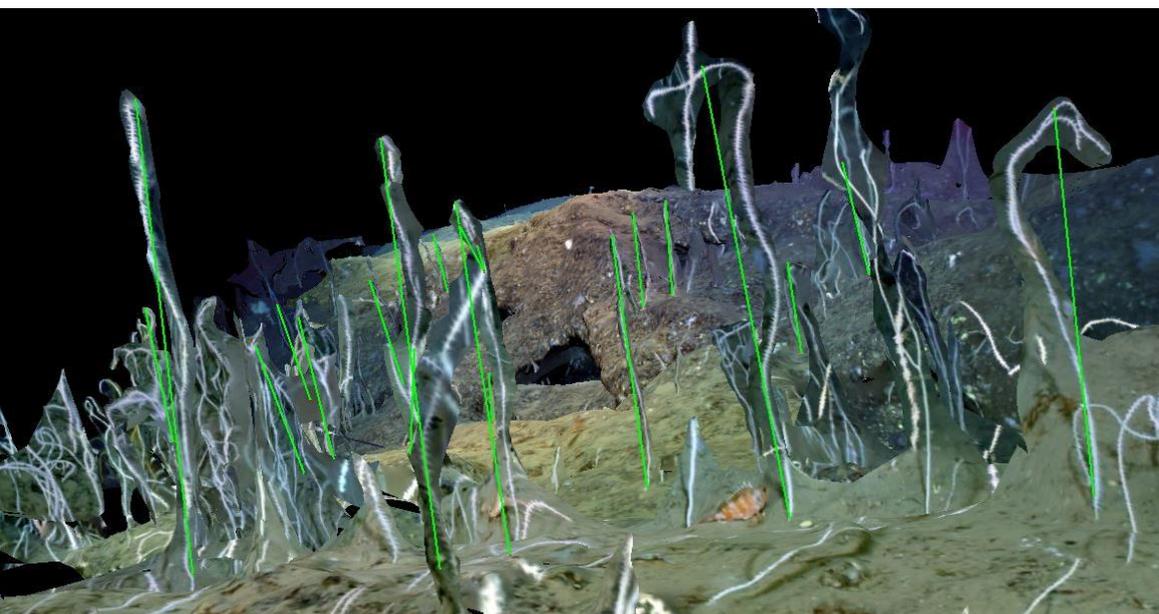
56 ± 20 cm

Min 16 cm

Max 1,06 m



Ifremer



Taille

3D, 3D Metrics

Viminella flagellum

56 ± 20 cm

Min 16 cm

Max 1,06 m

Callogorgia verticillata

81 ± 27 cm

Min 27 cm

Max 1,43 m



Mesurer l'état des coraux

1. Surface et densité
2. Taille
3. Diversité
4. Pression et impacts

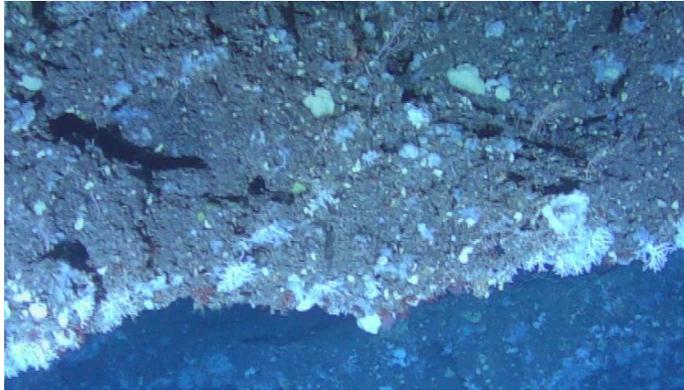
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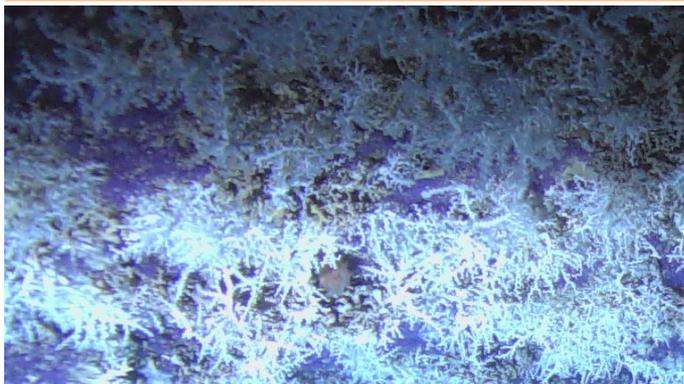
Diversité



The Wall
7 espèces



- 4 éponges
- *Madrepora oculata*
- *Viminella flagellum*
- *Corallium rubrum* - corail rouge



Cassis-500
8 espèces



- 4 éponges
- *Madrepora oculata*
- *Callogorgia verticillata*
- *Acanthogorgia hirsuta*
- Crustacés





Cassis-200 n espèces

...

- 7 éponges
- 2 échinodermes:
Gorgonocéphale et Oursin
- 2 gorgones:
Acanthogorgia hirsuta et *Paramuricea clavata*
- *Madrepora oculata*
- *Leiopathes glaberrima* – corail noir
- *Corallium rubrum* – corail rouge
- *Dendrophyllia cornigera* – corail jaune

...

en cours



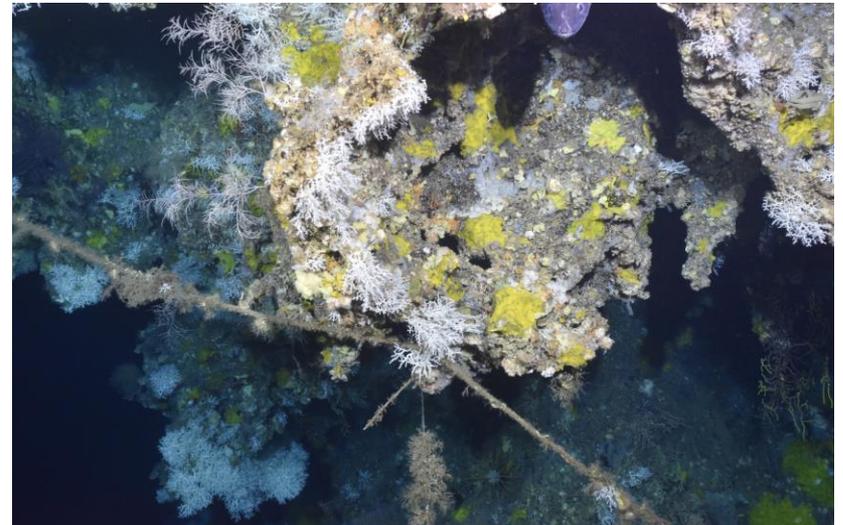


Mesurer l'état des coraux

1. Surface et densité
2. Taille
3. Diversité
4. Pression et impacts

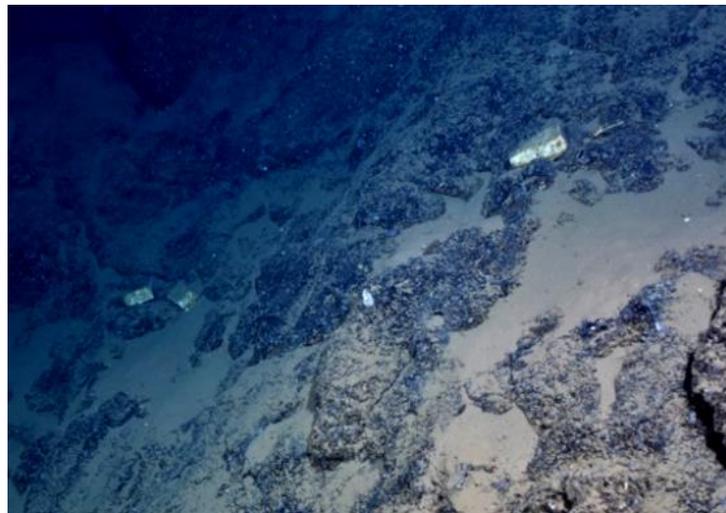
Pression et impacts

Engins de pêche



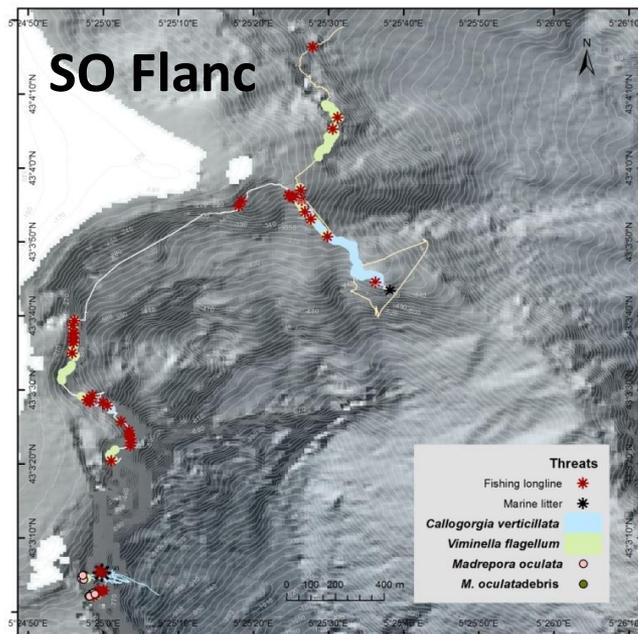
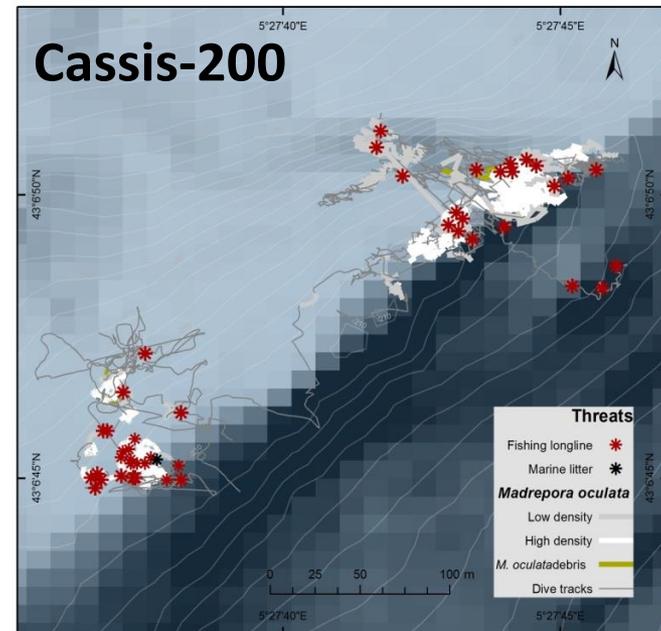
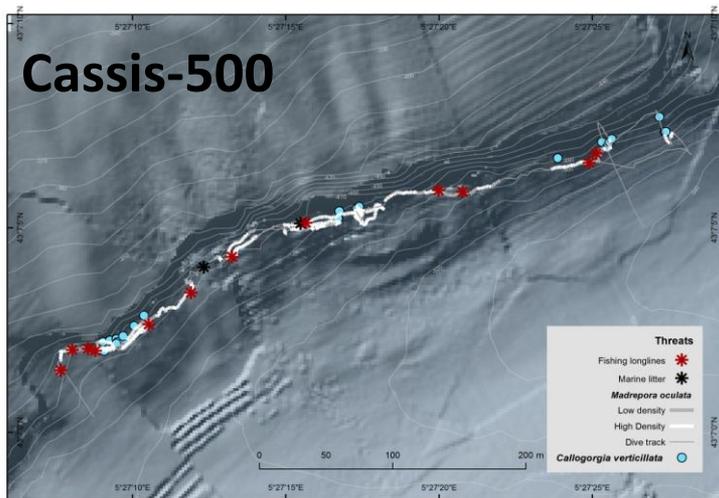
Pression et impacts

Déchets marins



Pression et impacts

2D, Adélie SIG





Mesurer l'état des coraux

1. Surface et densité
2. Taille
3. Diversité
4. Pression et impacts

Conclusions

Directive Cadre pour la Stratégie Marine sur le Milieu Marin (DCSMM)

Descripteur 1.
Diversité biologique

Descripteur 6.
Intégrité des fonds marins

D6C4: étendue de la perte (%)
D6C5: étendue de la dégradation (%)

Évaluation de l'État Écologique

Merci!



Ifremer

The logo for Ifremer features a stylized grey fish silhouette above a yellow horizontal bar. The word "Ifremer" is written in bold black text across the bar.

meriGéo

The logo for meriGéo features a blue, abstract, map-like graphic with white contour lines and scattered blue squares. The word "meriGéo" is written in white lowercase text across the bottom of the graphic.