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ambiances  
architectures  
urbanités



# Visualisation des risques côtiers de Chef de Baie

Journées Territoires et Immersions 2024

Jin-A Choi, Myriam Servières, Vincent Tourre, Laurent Lescop



# Objectifs

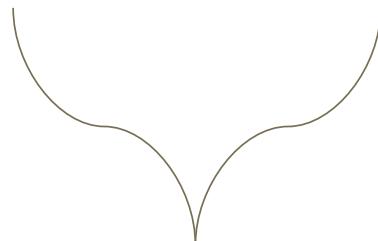
- ▶ Sensibilisation aux effets du changements climatiques sur le littoral
  - ▶ Habitants, Collectivités
  - ▶ Montée des eaux, Inondation
- ▶ Développement d'un outil de visualisation
  - ▶ Proposer une visualisation 3D des inondations ou des variations de marée
  - ▶ Paramétrier les conditions en temps réel
  - ▶ Utiliser un dispositif immersif (réalité virtuelle) pour améliorer l'impact

# Site : Chef de baie, La Rochelle (17)



# Méthodologie

Terrain 3D



Bathymétrie

Volume 3D



Simulation



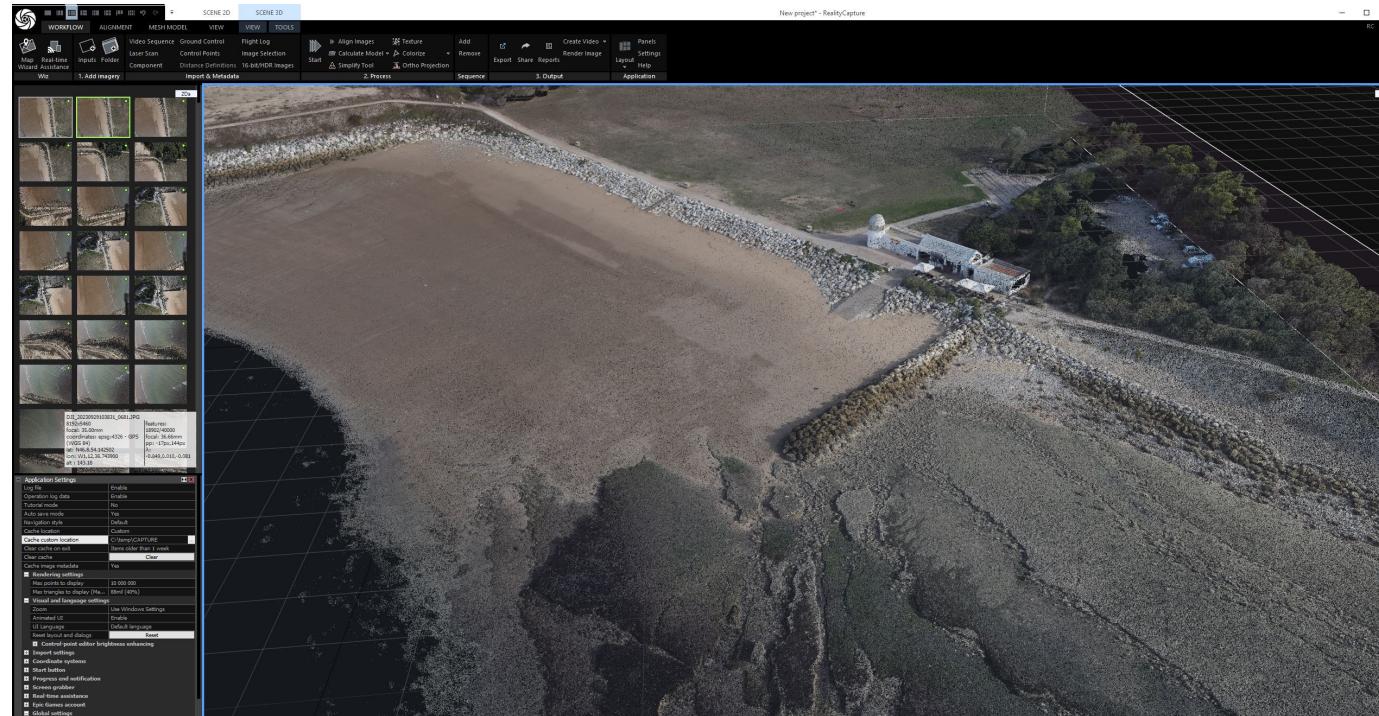
- Création de **Chef de baie** au format fichier **glb** via **Luma.ai**
- Immersion des photos de Drone

**Blender 4.2**

**Water Simulation addon**  
**<Cell fluid>**  
**<Flip Fluids>**

# Terrain 3D

► Photogrammetry using Reality Capture



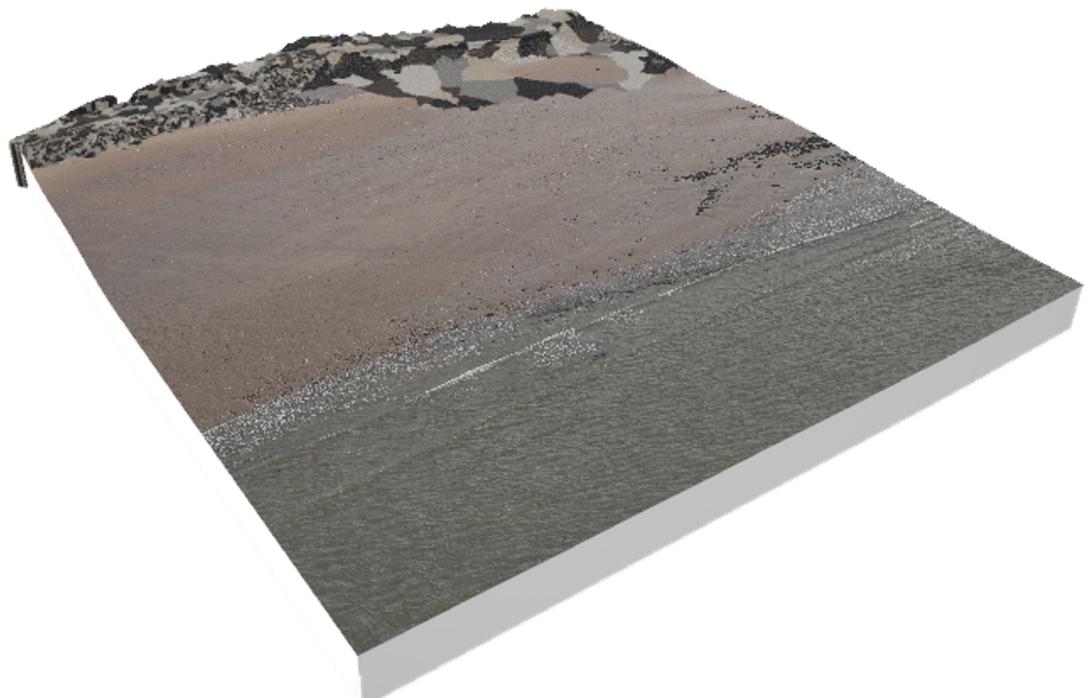
# Terrain 3D

► Format : **glb**

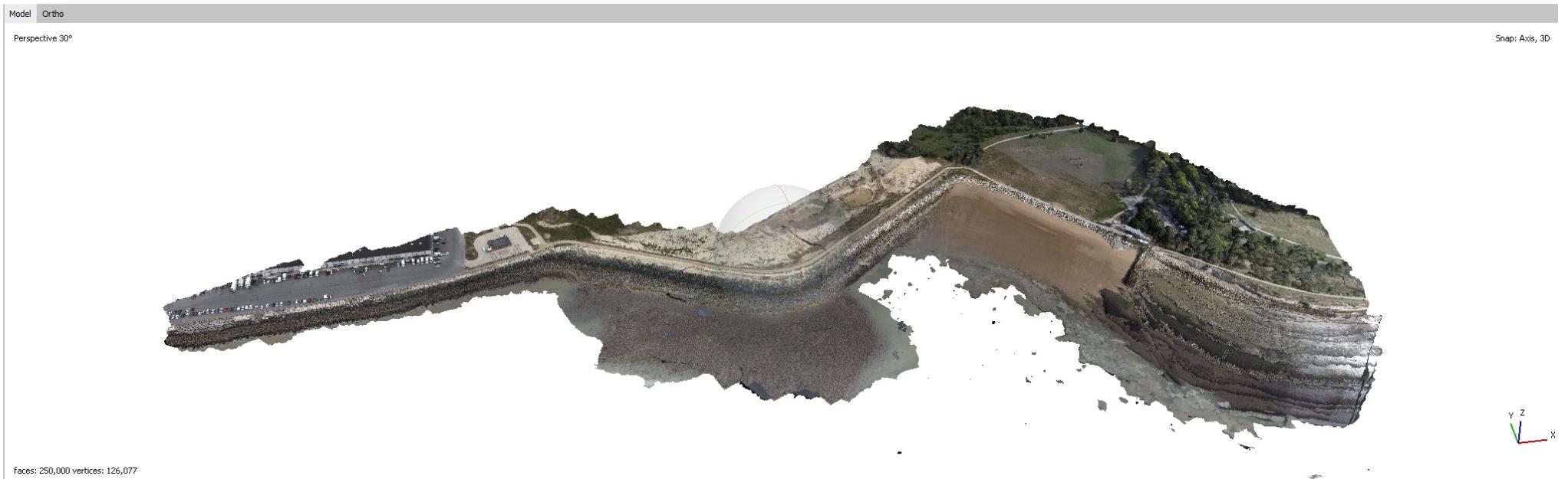


Conversion du  
format shapefile  
avec les volumes  
+ matériaux

Les photos de la côte de  
Chef de Baie

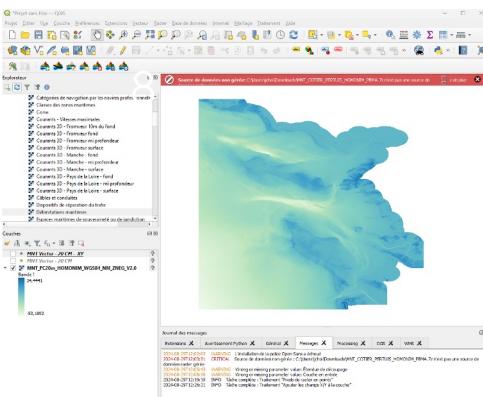
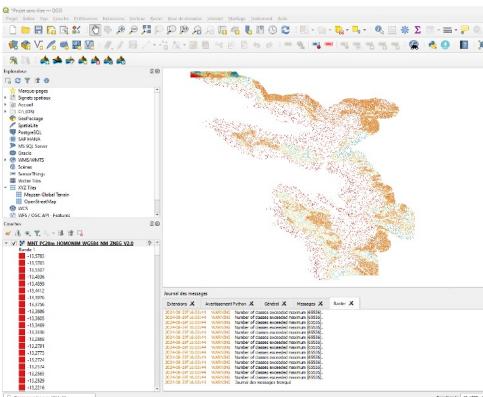


# Terrain 3D

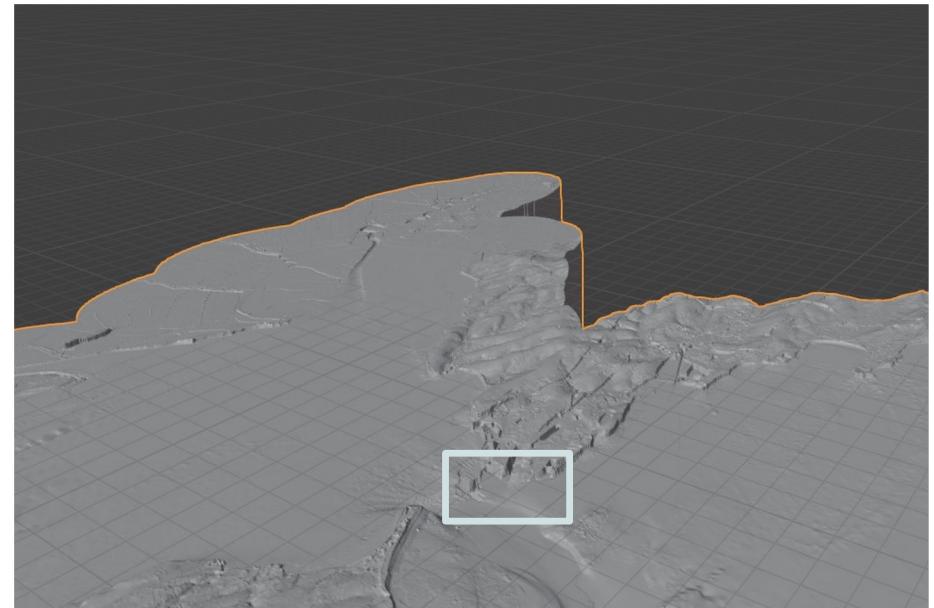


# Bathymétrie

► Format : **shp**

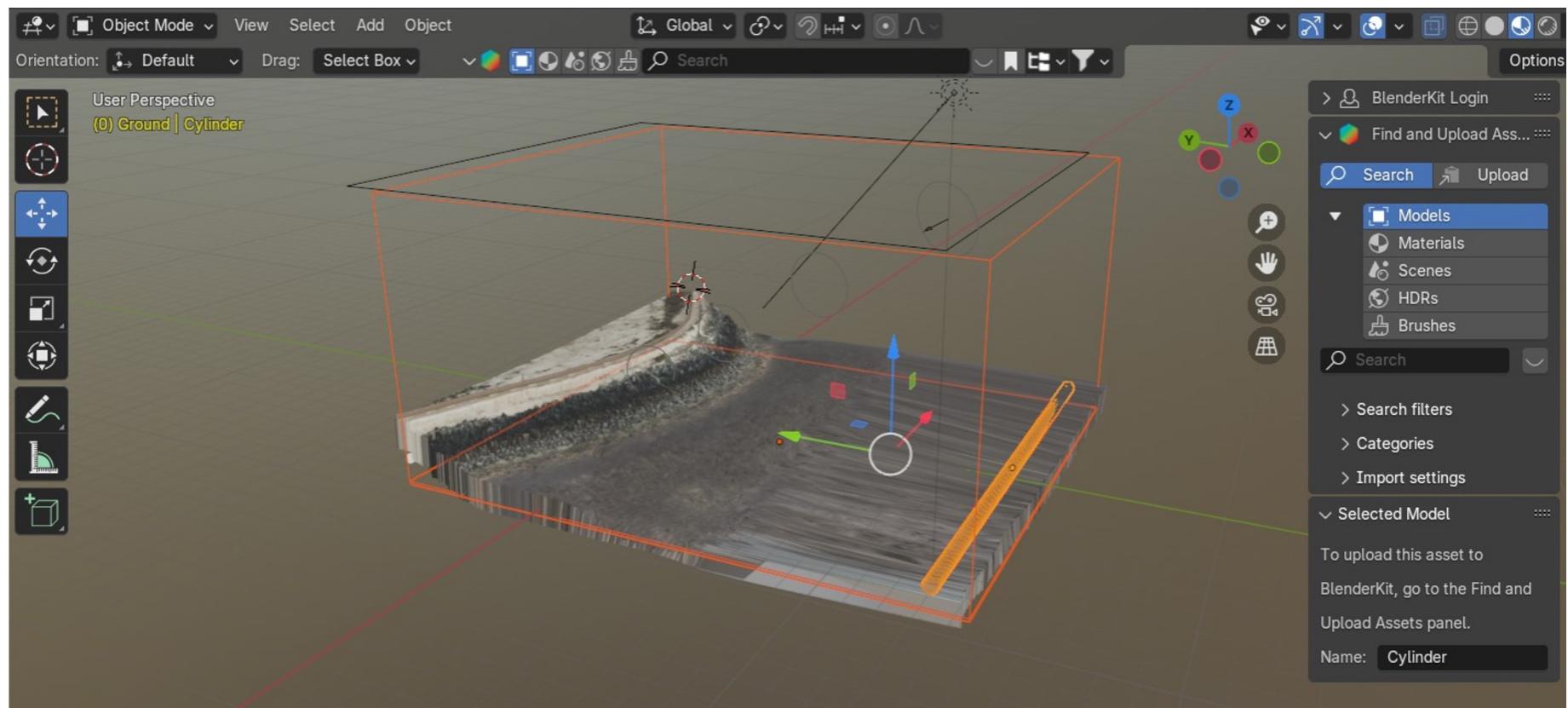


Conversion du  
fichier .ASC (donnée  
par SHOM) en  
shapefile avec le  
volume de  
bathymétrie



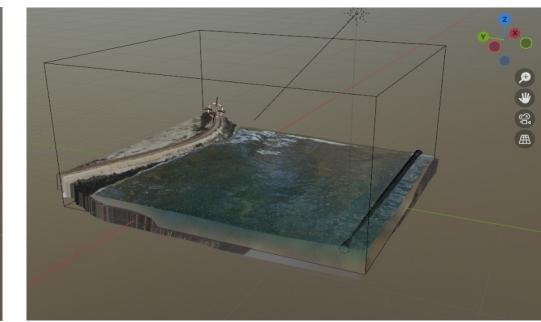
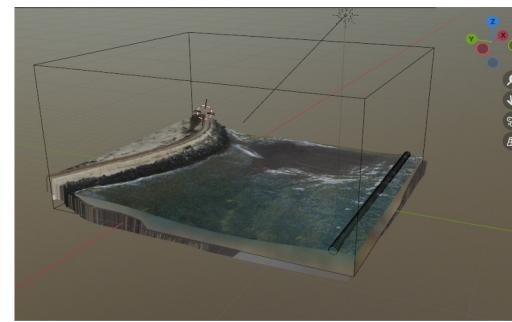
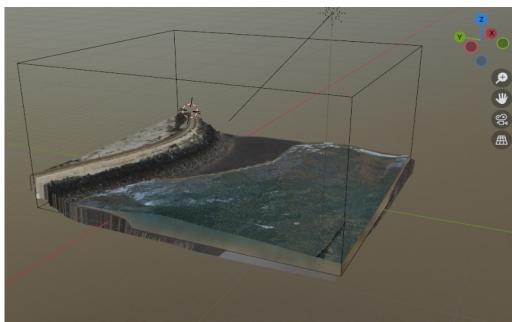
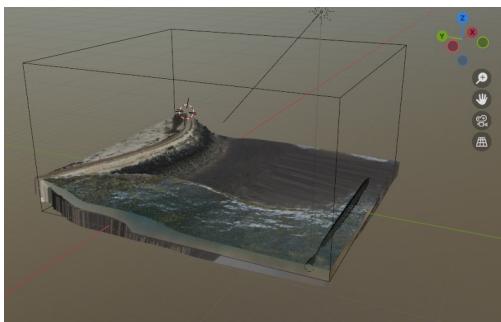
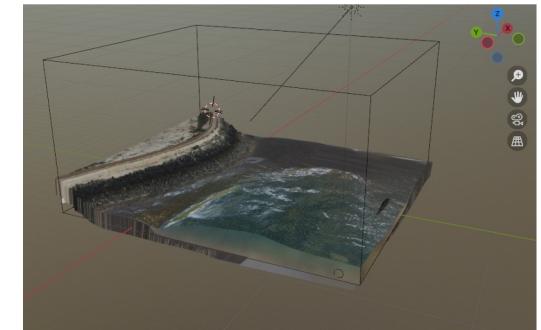
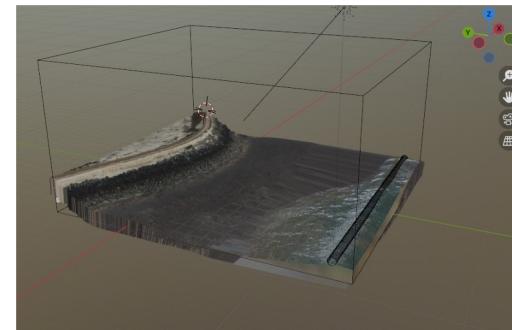
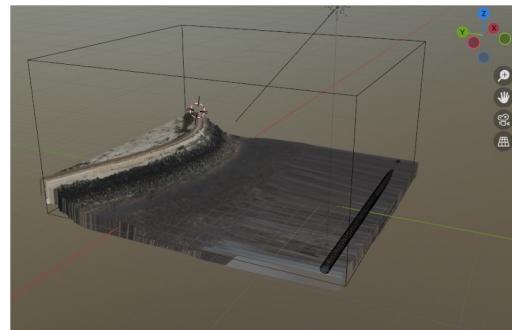
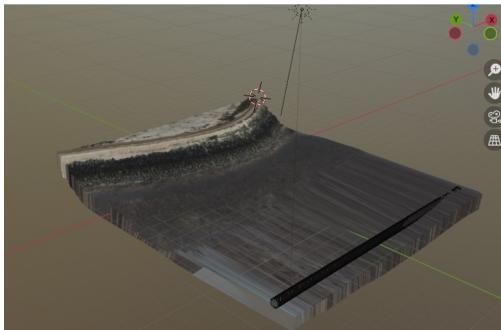
# Simulation (Blender 4.2 - Cell fluids)

- ▶ La marée de Chef de baie - Normal



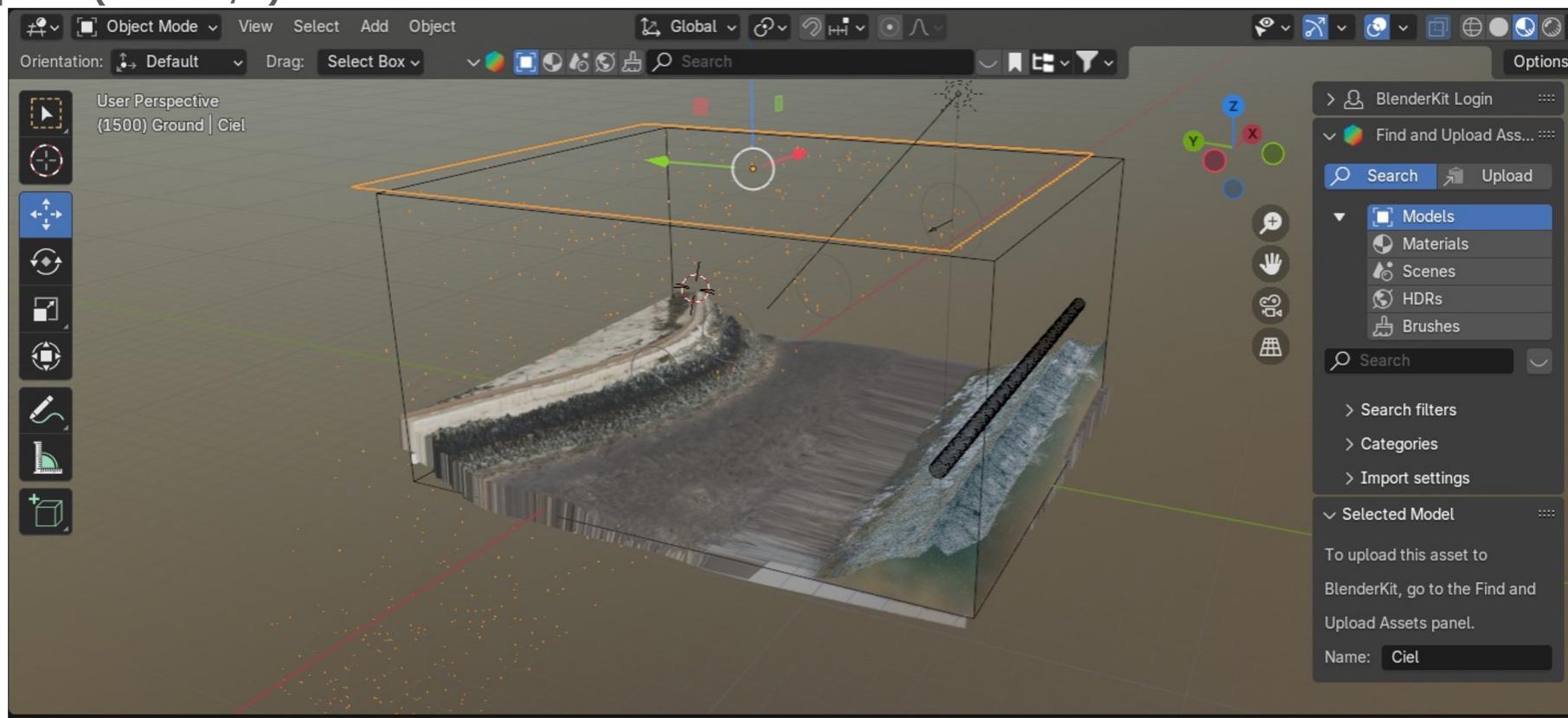
# Simulation (Blender 4.2 - Cell fluids)

- ▶ La vague de Chef de baie -  
Normal



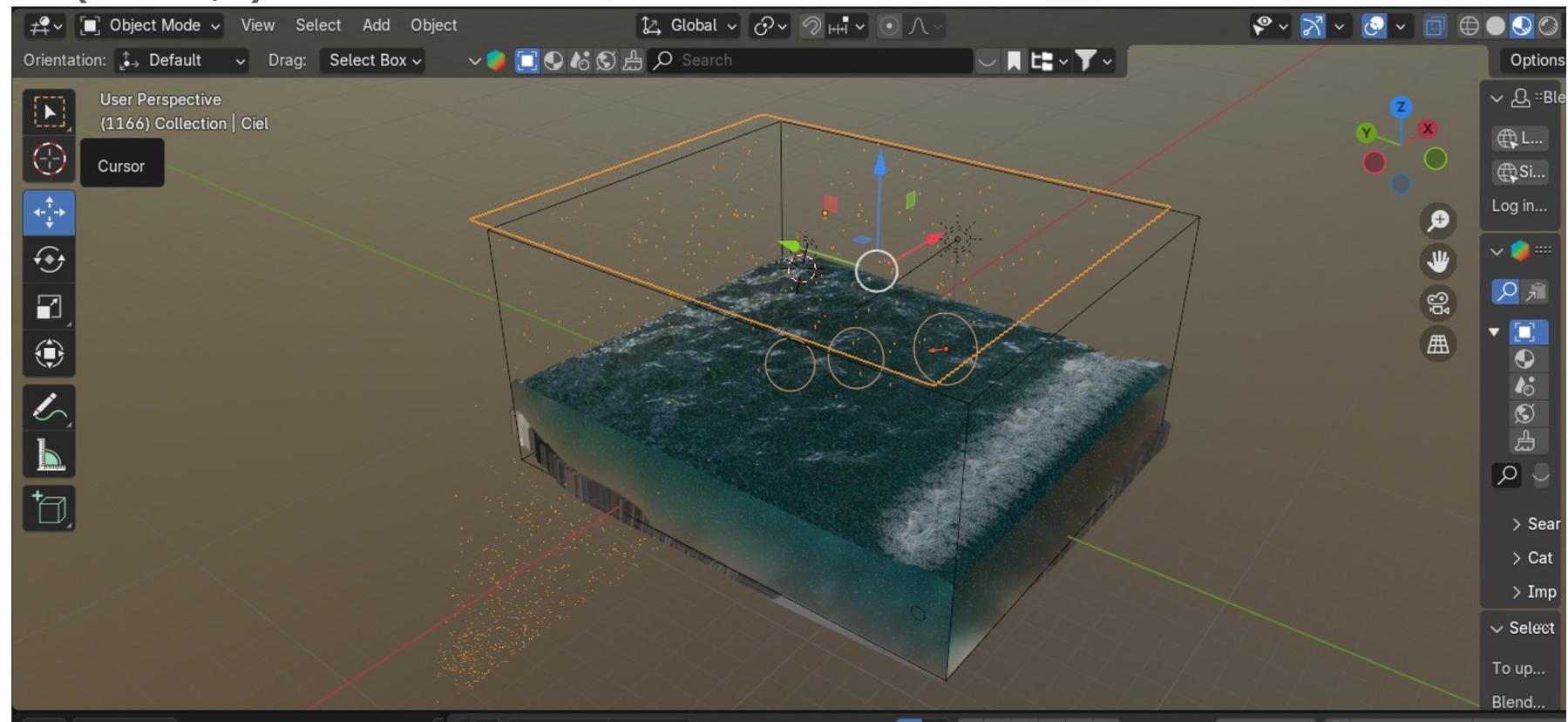
# Simulation (Blender 4.2 - Cell fluids)

- ▶ La marée de Chef de baie -  
Situation de typhon (100 km/h)



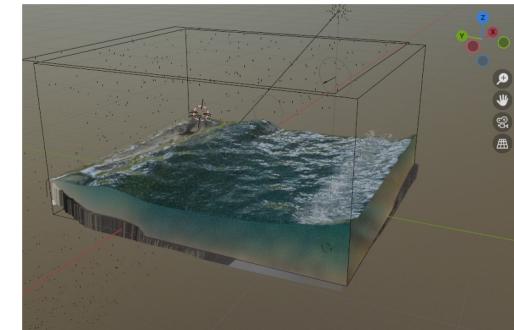
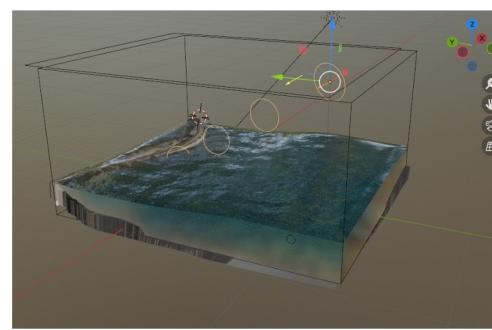
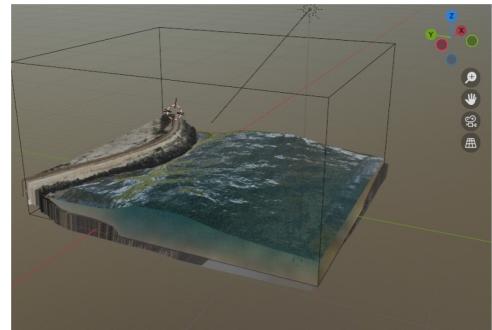
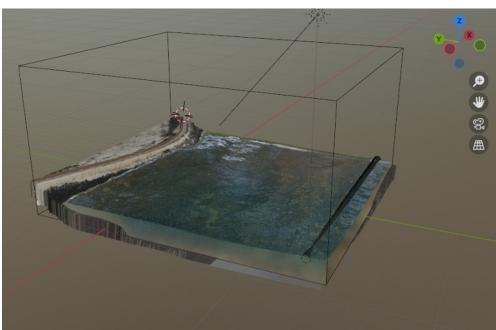
# Simulation (Blender 4.2 - Cell fluids)

- ▶ La vague de Chef de baie -  
Situation de typhon (100 km/h)



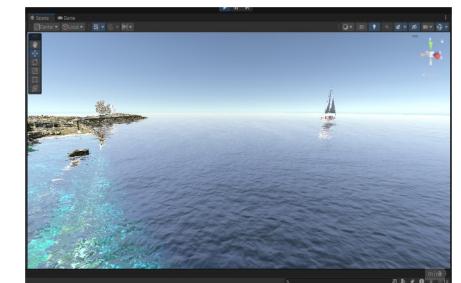
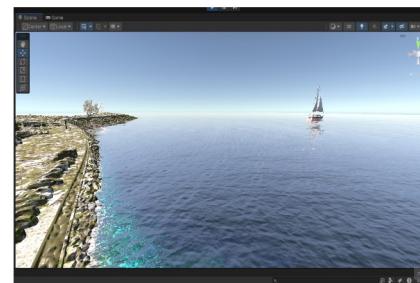
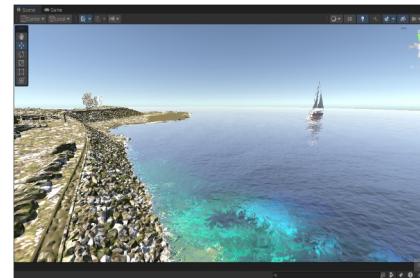
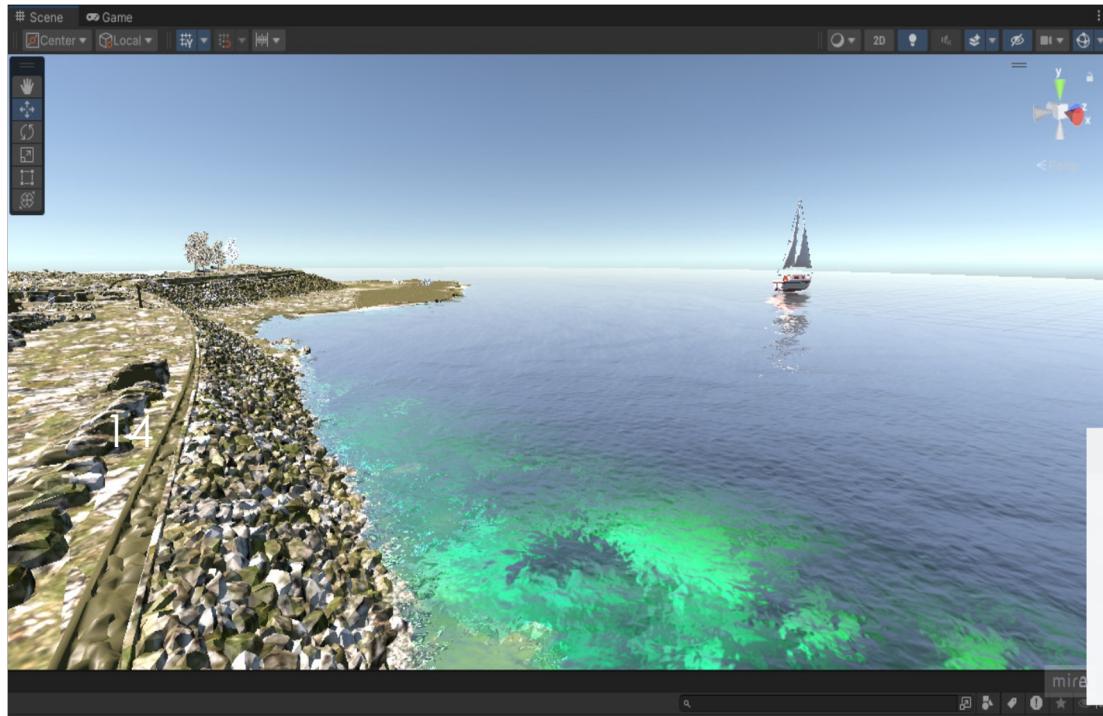
# Simulation (Blender 4.2 - Cell fluids)

- ▶ La vague de Chef de baie -  
Situation de typhon (100 km/h)



# Visualisation (Unity)

- ▶ La vague de Chef de baie -  
Normal



# Perspectives

- ▶ Automatisation de la chaîne de traitement
  - ▶ Application à d'autres sites
  - ▶ Application à d'autres situations
- ▶ Tests utilisateur sur le rendu dans un casque de VR



# La visualisation des risques côtiers de Chef de Baie

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