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of the European Union

2nd International Conference “DIVE IN BLUE GROWTH”
on the Promotion of Accessible Underwater Cultural Heritage Sites

VIRTUAL May 12-14, 2021



Use of cheap surface and submarine automated vessels for research and promote Accessible Underwater Cultural Heritage Site (AUCHS)

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ANO Underwater Archaeological Society

Unmanned Surface Vehicle (USV)

The development surface automated vessels progressing for more than 30 years, but their cost is too high for use in small scientific projects.



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Parallel with the development specialized companies, opensource solutions are being developed, which are most often used in amateur robotics.

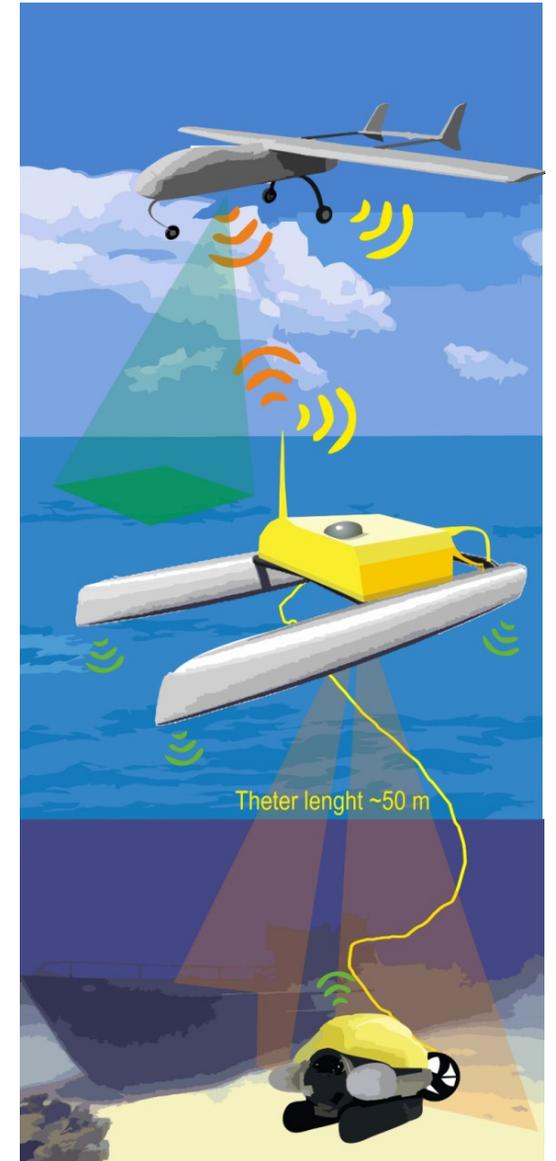
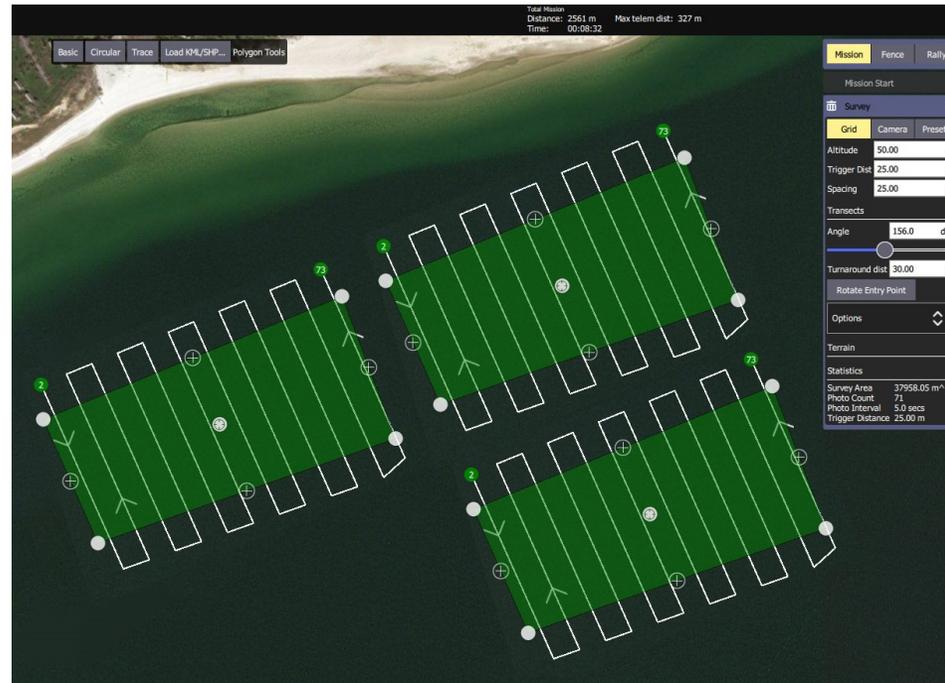
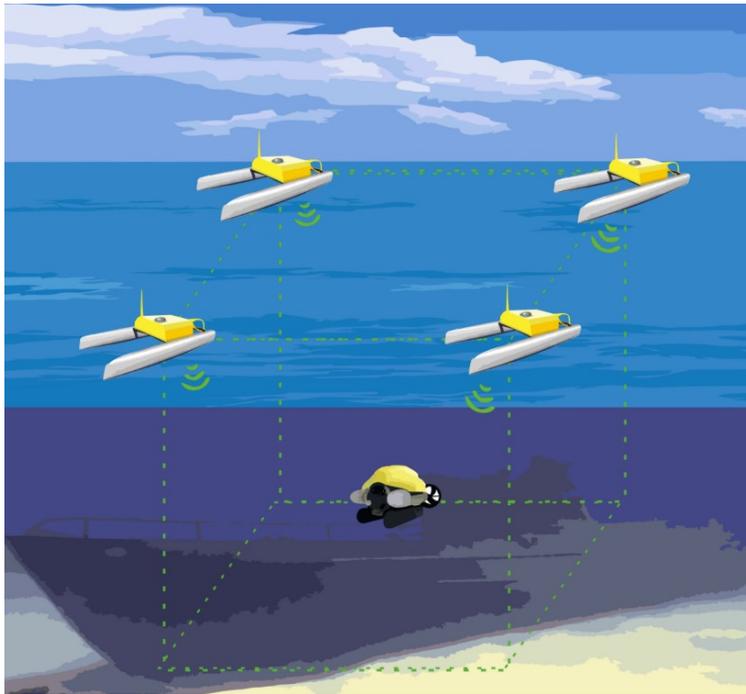


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Network system of hydrophysical equipment carrier vessels

Our goal is to build on the basis of opensource solutions a modular system with interchangeable components with the possibility of simultaneous use of a fleet different devices, united into a single network.

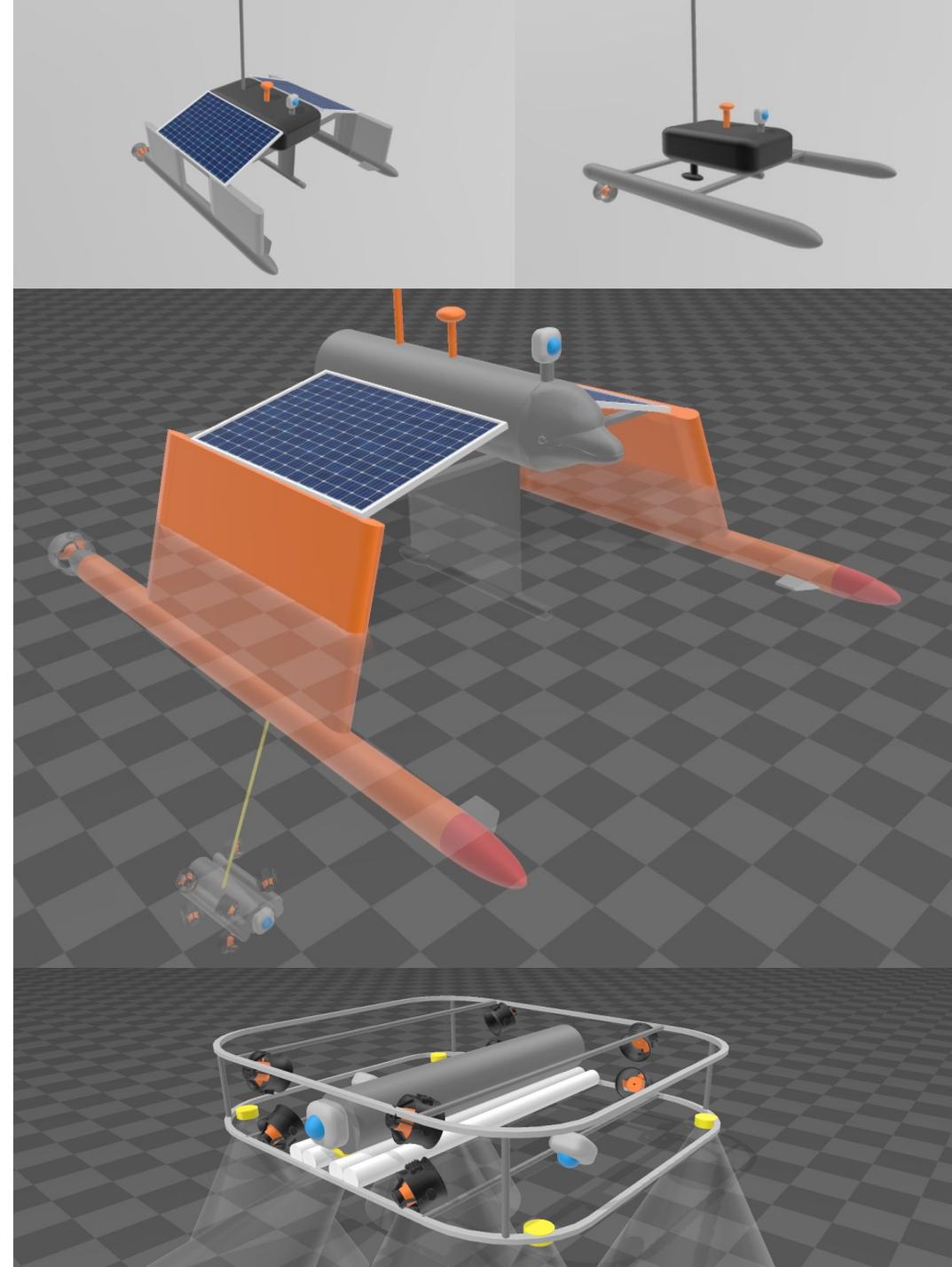


Modular system building on opensource solution and 3D-printed parts much cheaper than existing commercial solutions.

Using interchangeable components it can be assemble the necessary vessel for solving specific task.

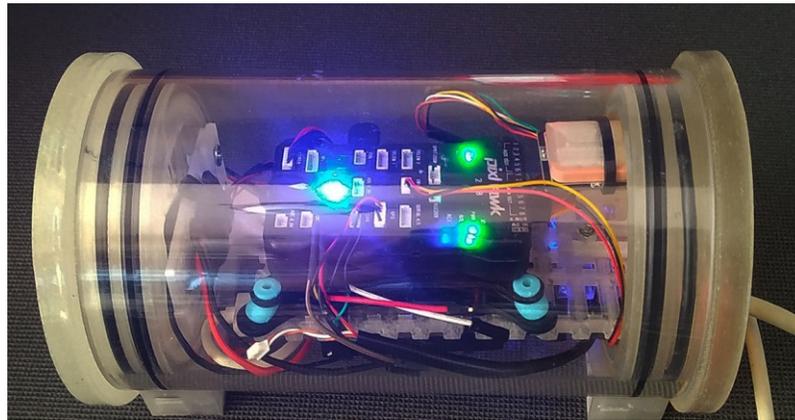
- Unmanned Surface Vehicle USV,
- Underwater Remote Operated Vehicle (ROV),
- Autonomous underwater vehicle (AUV)
- Monitoring online-video system for AUCHS.

This will allow use those technologies in small-budget projects.



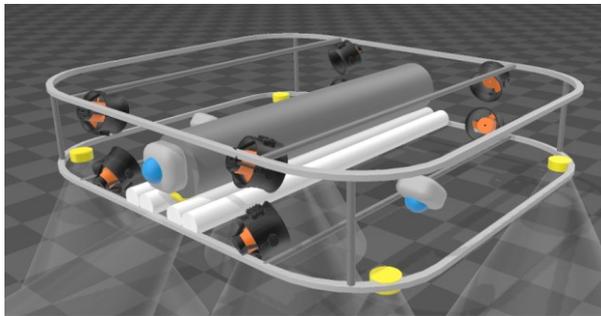
The interchangeable computer control module

- + On site, you can assemble those vessels that are needed at the moment.
- + Reduces the volume and weight of equipment during transportation.
- + Interchangeable components increase the overall level of system reliability.

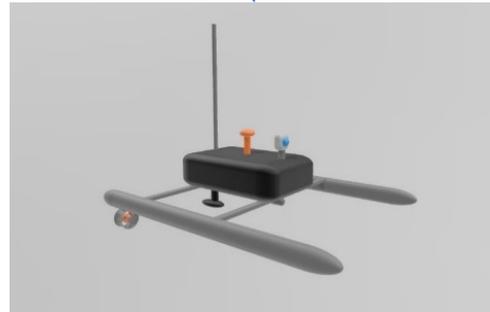


**interchangeable
computer control module**
(waterproof and pressure 250 m tested)

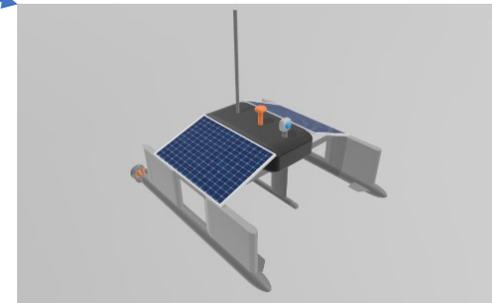
Underwater ROV or AUV



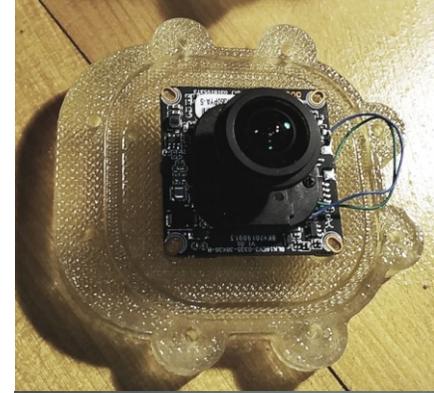
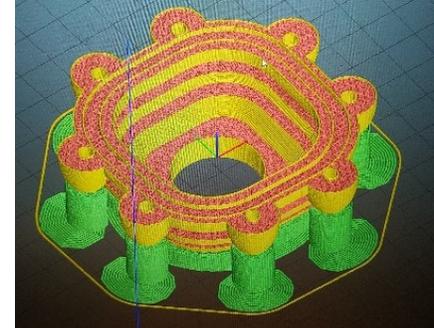
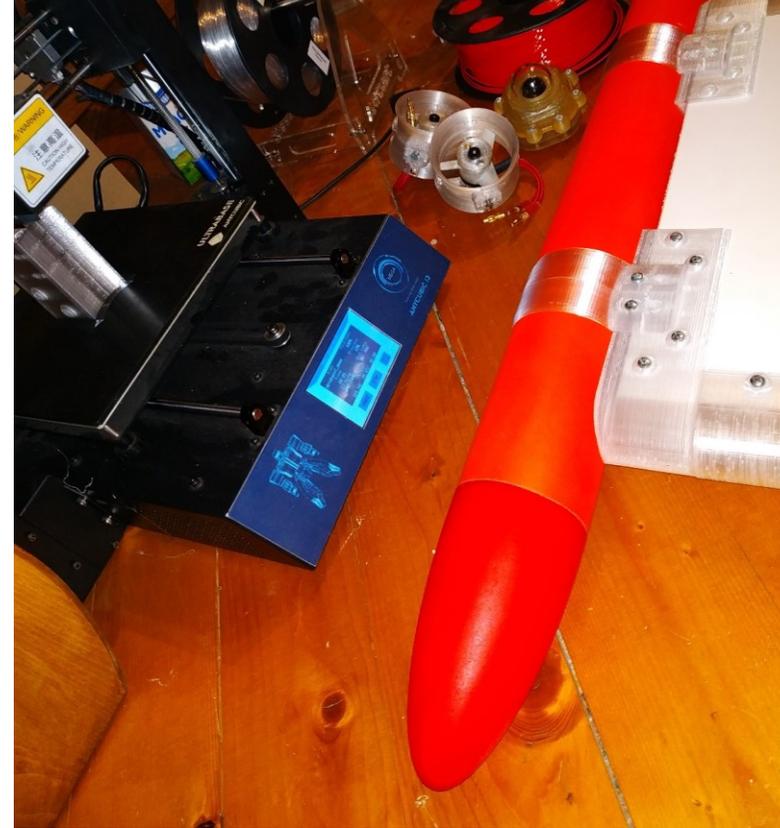
USV



USV (SWATH)

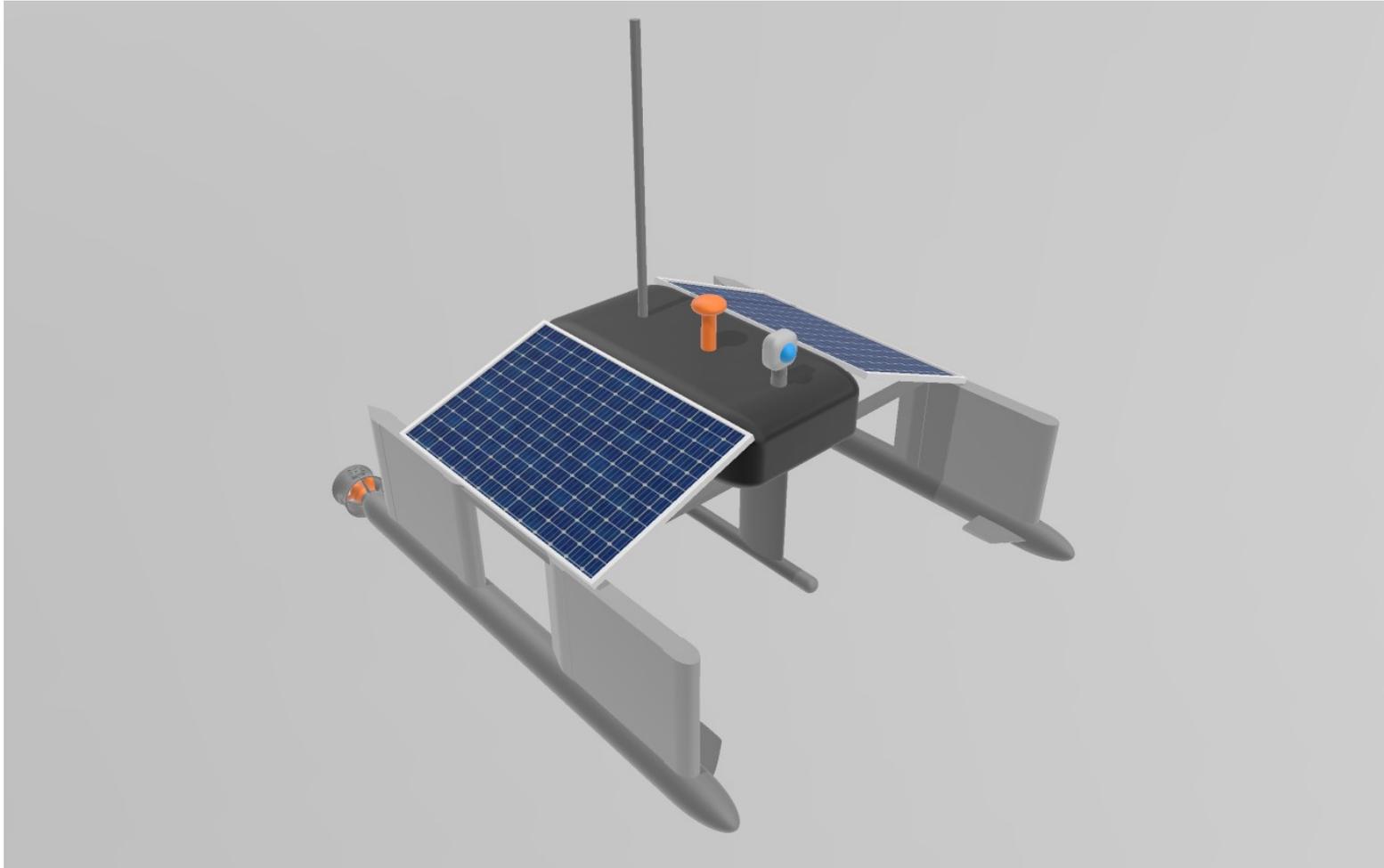


Using of 3D printing makes it possible to simplify reproduction and provide easy and flexibility in configuring for a specific task.



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Model of Small Waterplane Area Twin Hull (SWATH)



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Waterproof box for hydrophysical third-party equipment and compact dimensions for transportation.



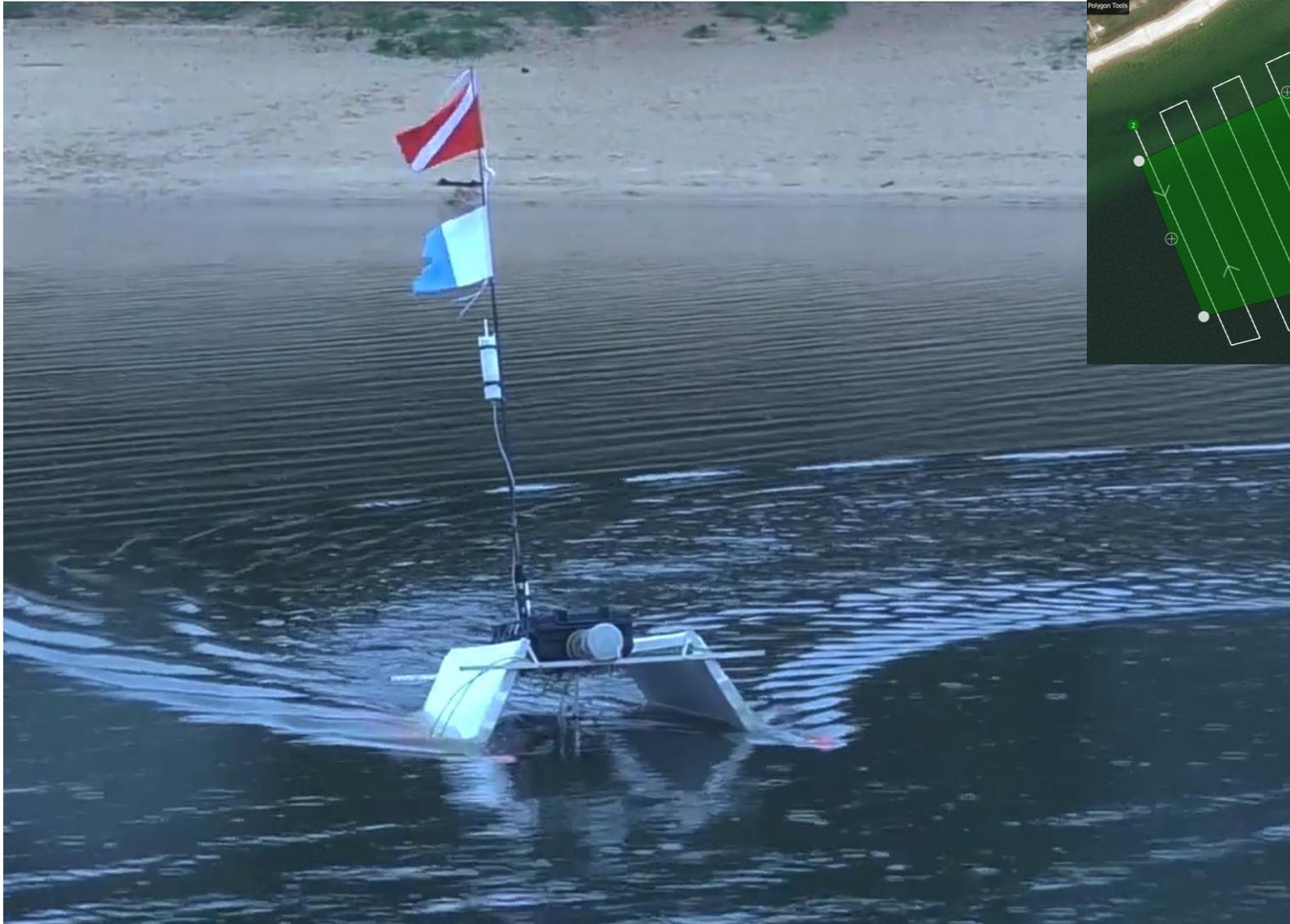
Tests



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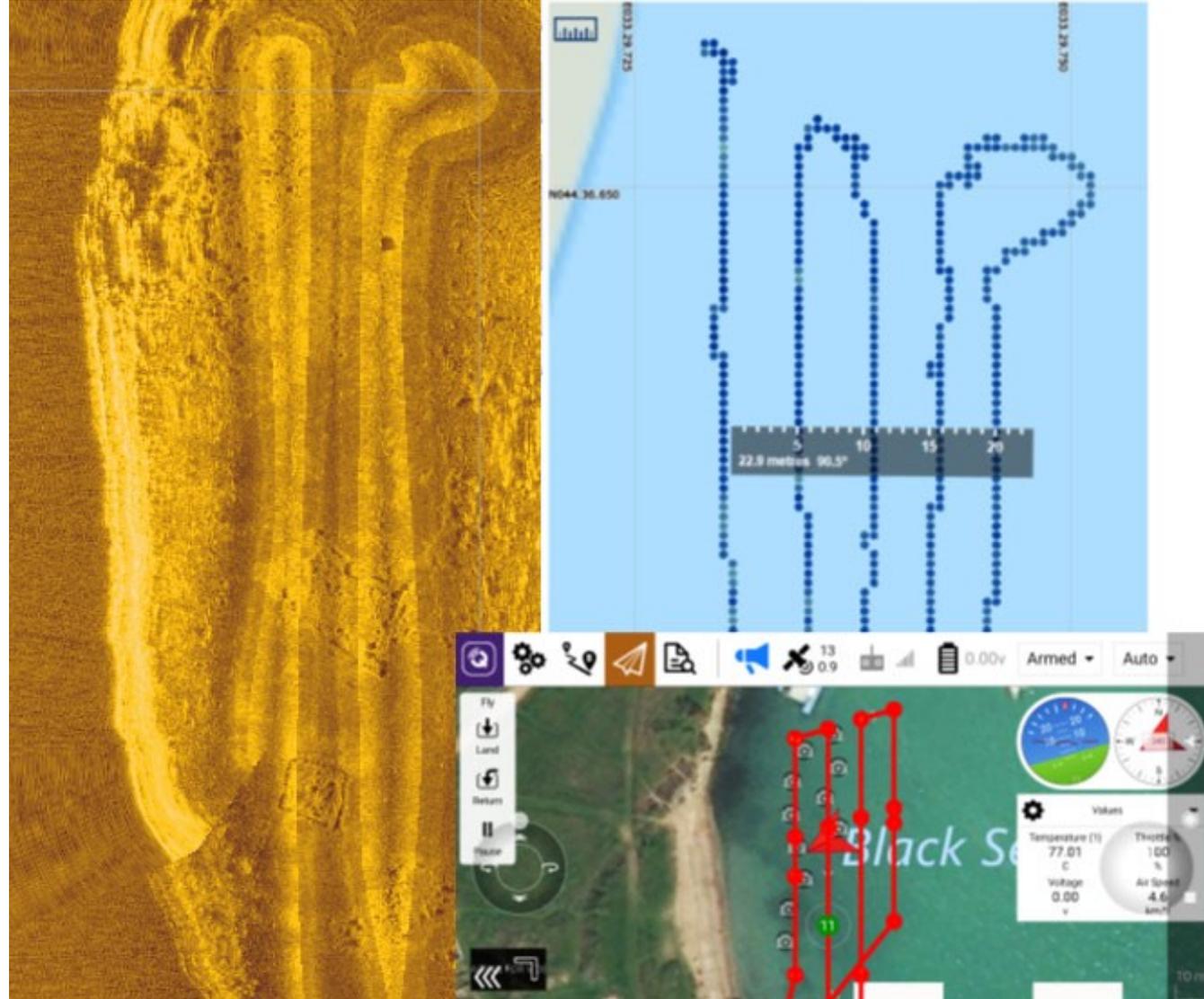
USV prototype



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Research ancient port area of Preserve "Tauric Chersonese" 2020, successful tests USV prototype for building a side-scan sonar mosaic.

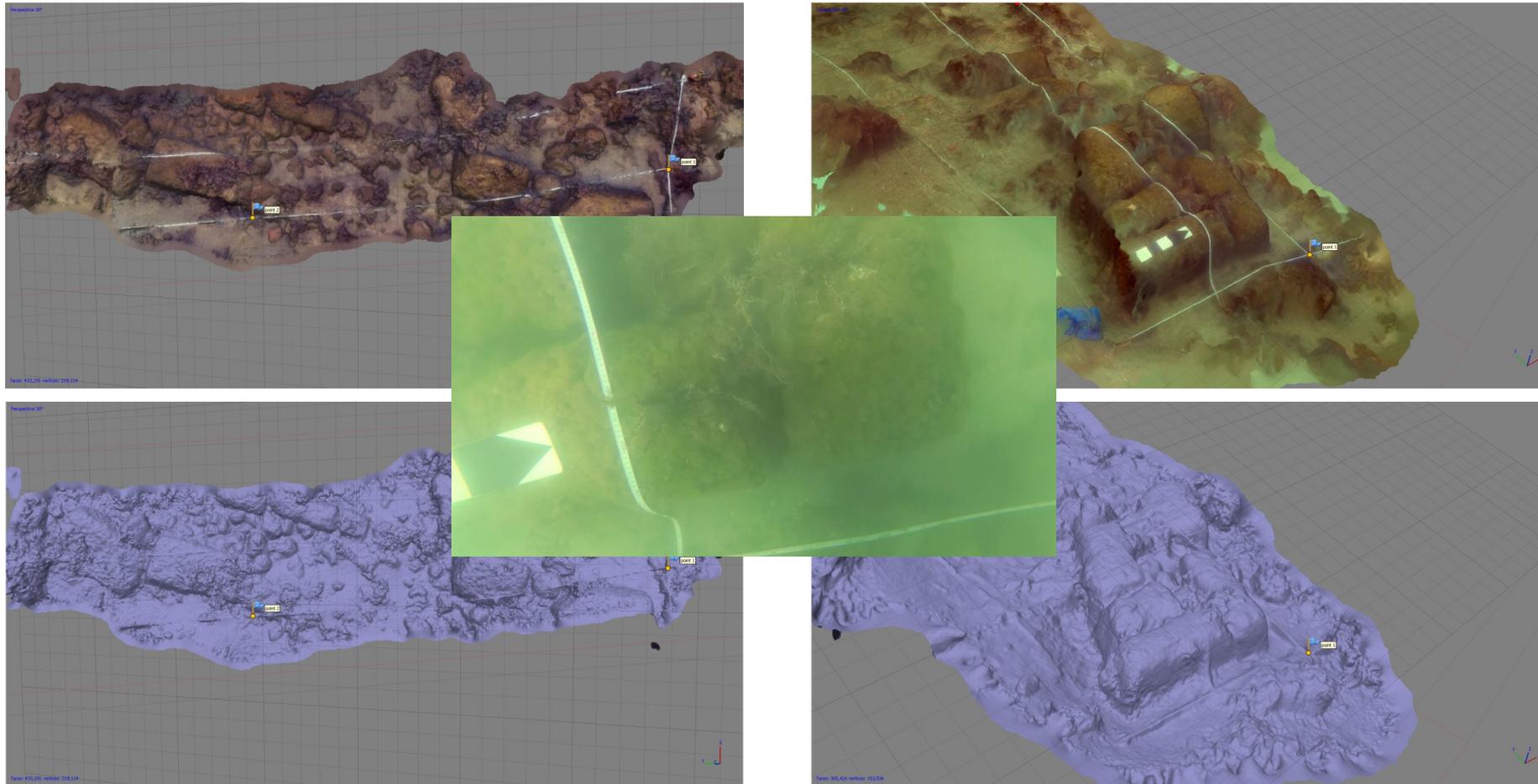


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Our example photogrammetry in muddy water

Research ancient port area of Preserve "Tauric Chersonese"

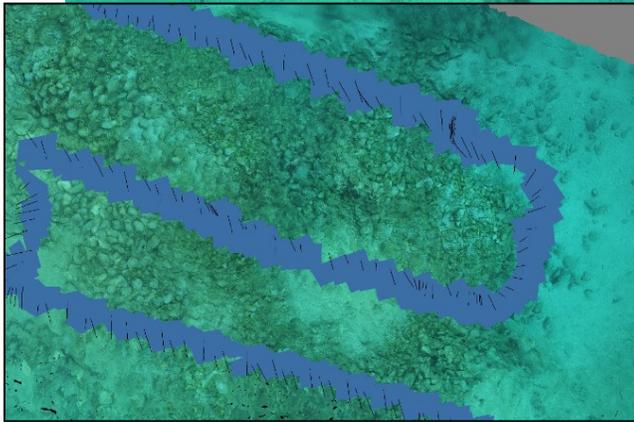
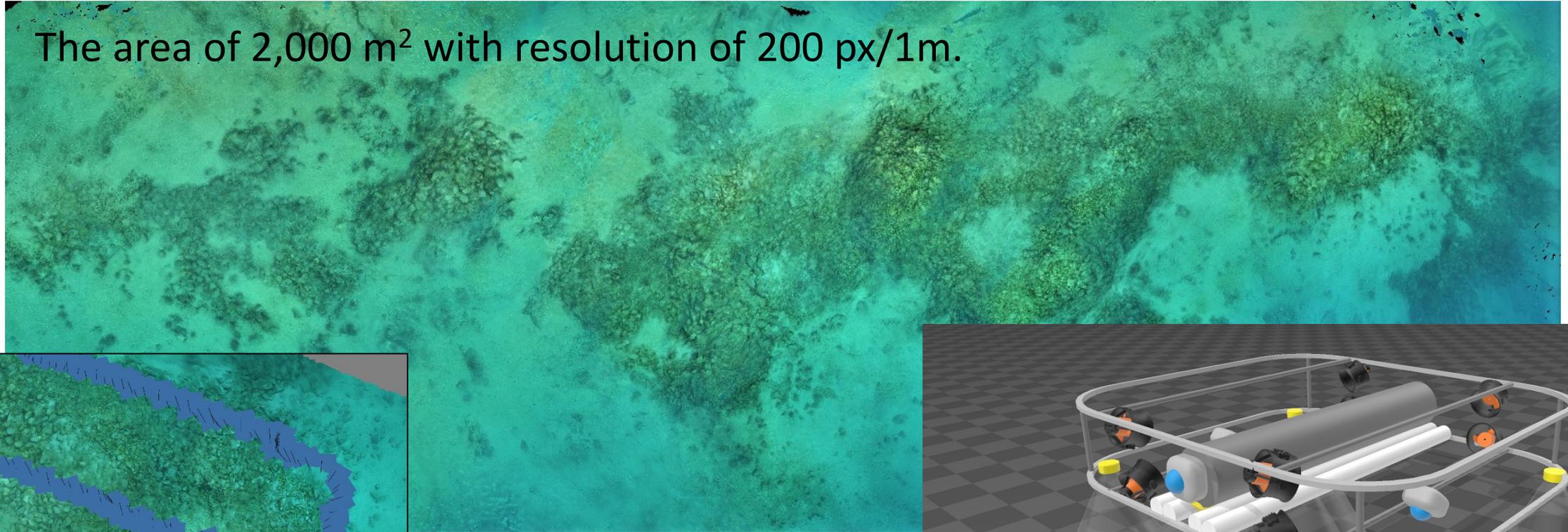


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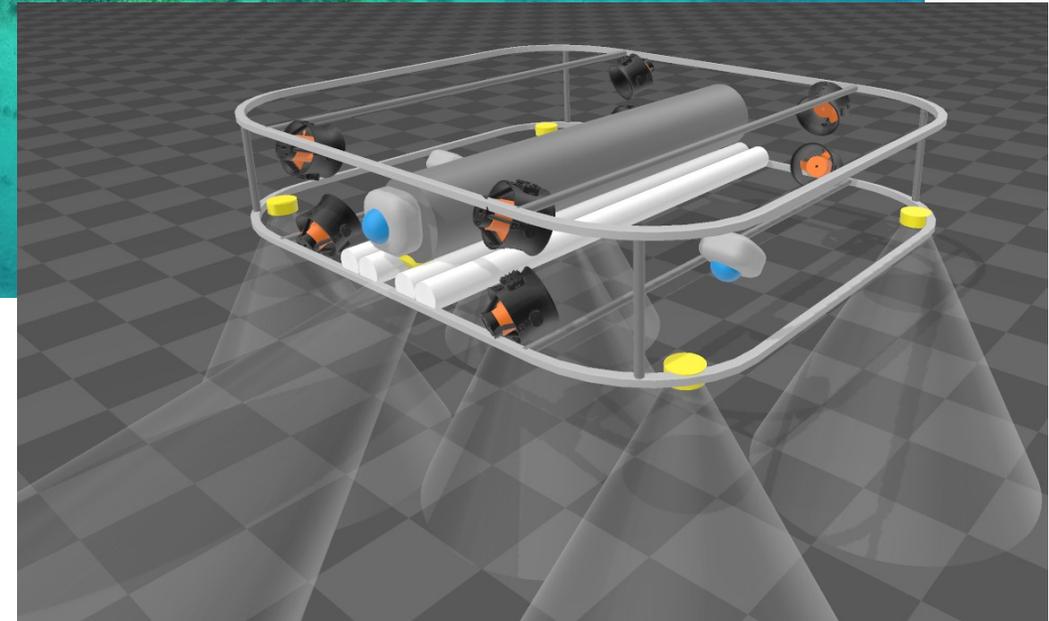


Mapping and creating 3D-model of bottom using underwater ROV

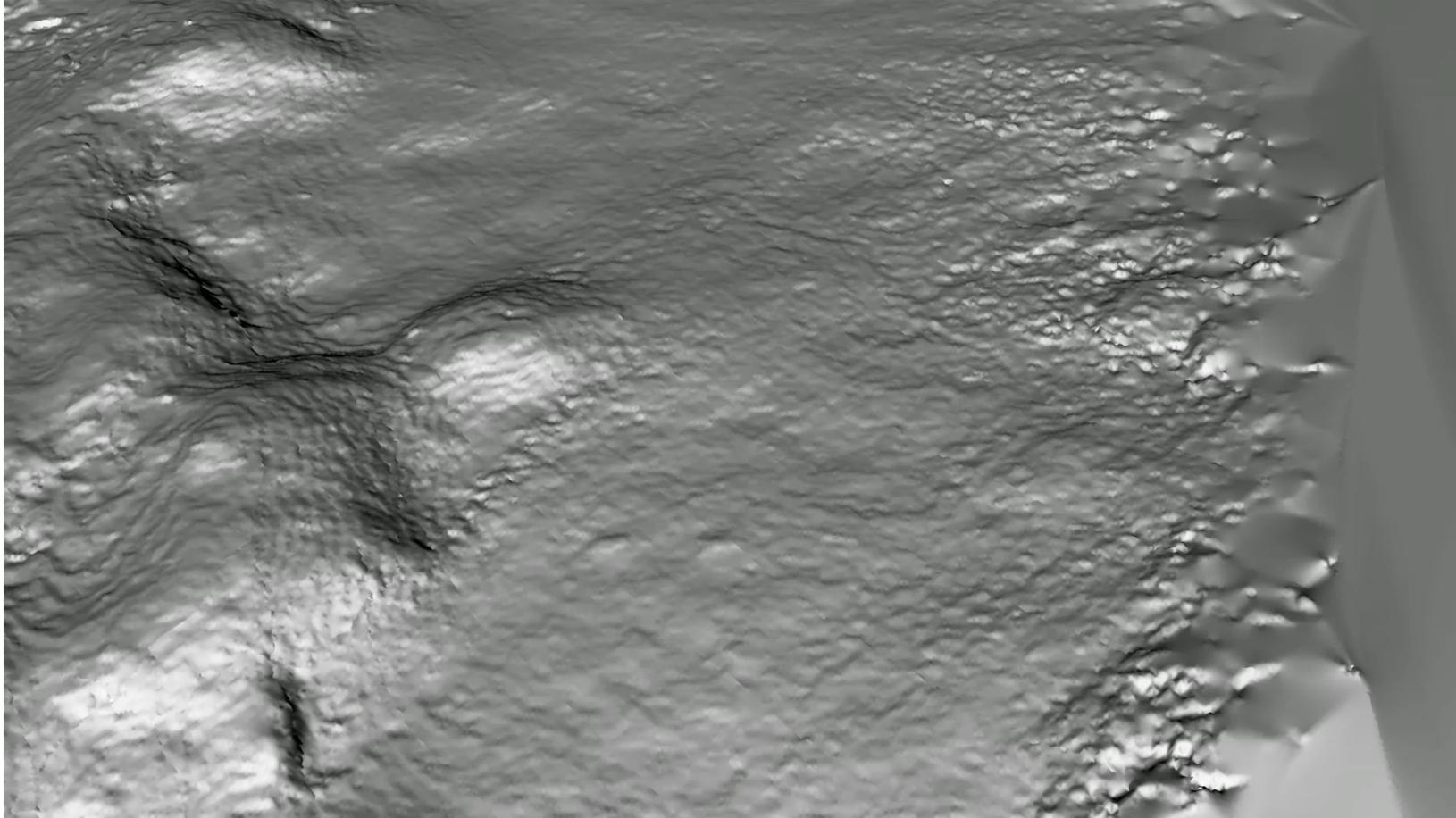
The area of 2,000 m² with resolution of 200 px/1m.



Blue squares - places of underwater photoshoots, tracing a way of ROV.



Mapping and creating 3D-model of bottom using underwater ROV



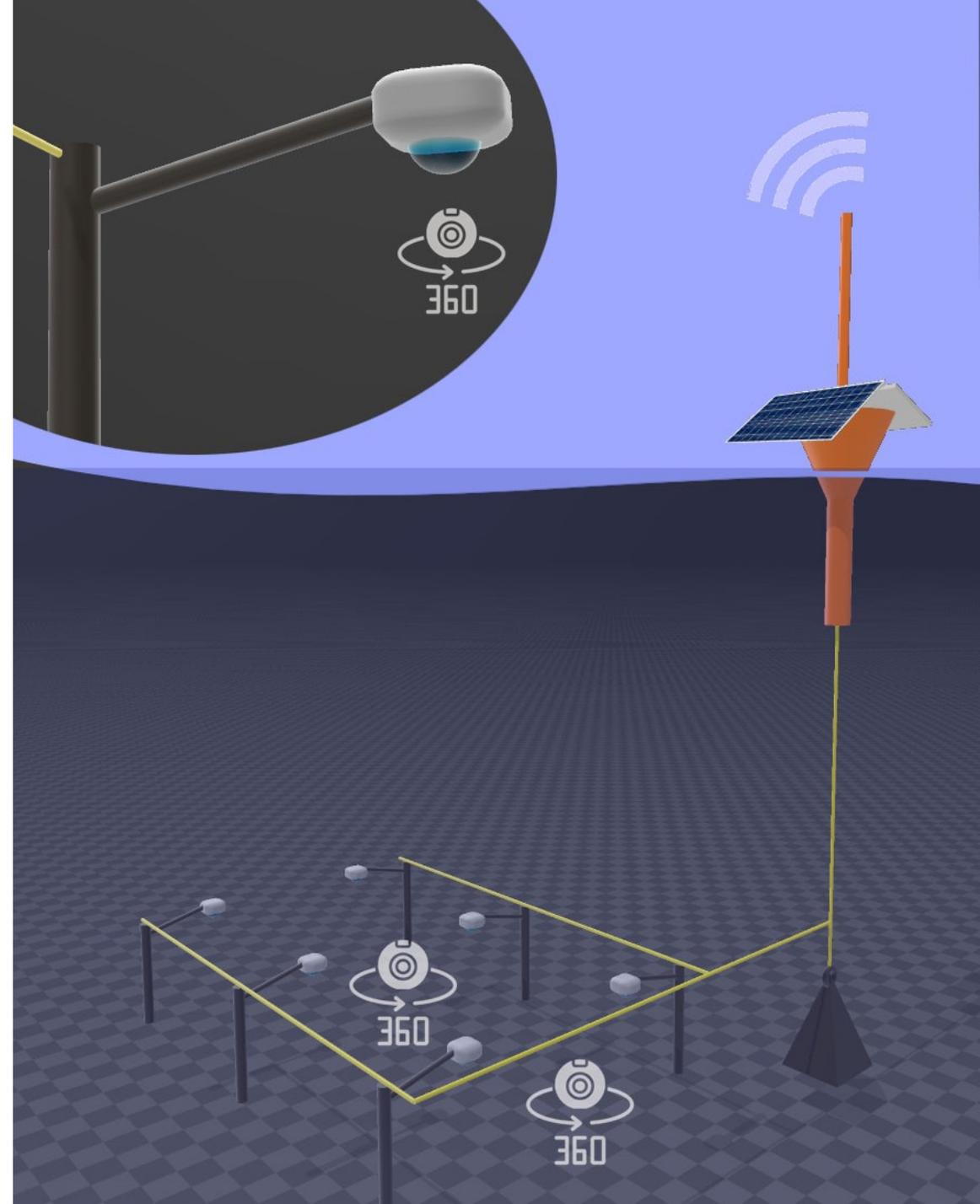
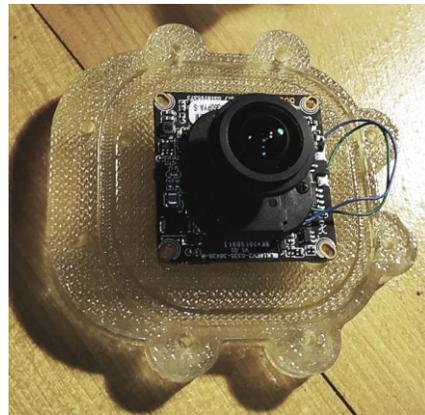
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Monitoring online-video system for AUCHS.

360 Camera modules can share video from AUCHS direct to museum or web-site.

Video monitoring system can be used as secure system for AUCHS.





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If you are interested in this project our web-address:

www.intersea.ru

Thank you.