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The Global Seagrass Watch: Spatially-explicit seagrass ecosystem accounting enabled by contemporary remote sensing advances

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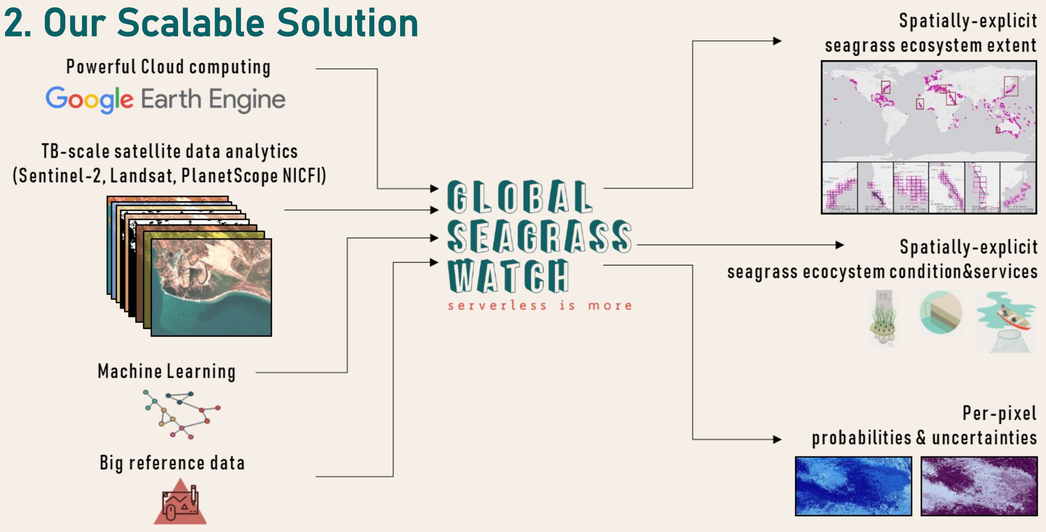
1. The Challenges

- **Lack** of spatially-explicit data on seagrass ecosystem extent, condition & ecosystem services
- **Lack** of scalable spatially-explicit monitoring methods
- **Sparsity** in nationally-aggregated, country-specific spaceborne & field data observations
- Only **26%** of seagrasses within MPAs vs **40%** of corals & **43%** of mangroves (UNEP20)
- **Lack** of relevant seagrass indicators & tracking of progress of pertinent MEAs (CBD, NDCs, SDGs)

2. Our Scalable Solution

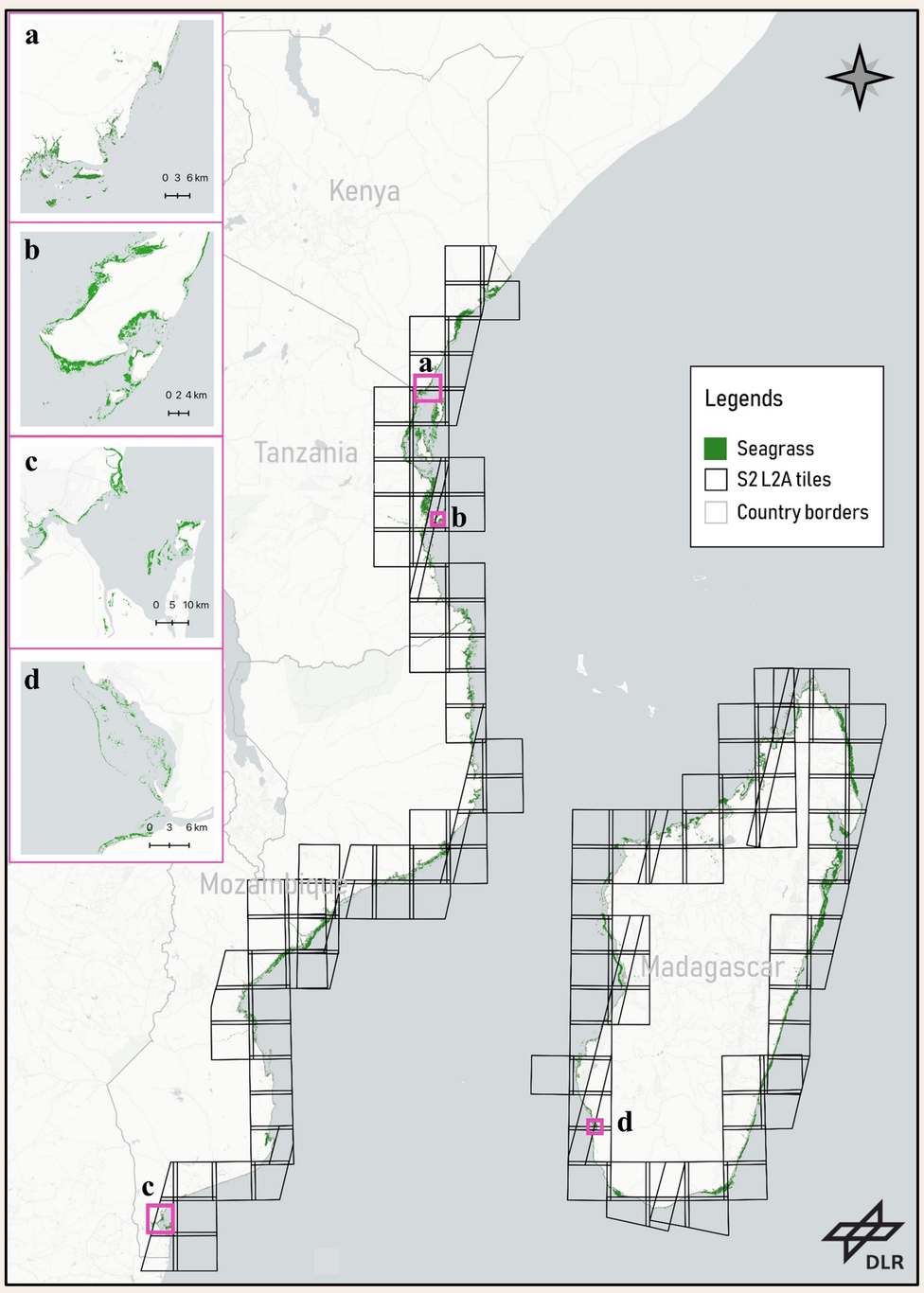


4.1 Our Findings - East Africa

16,453
10-m Sentinel-2 L2A image tiles (2018-2020)

128,000 km²
Mapped seabed area

84.3%
Overall accuracy

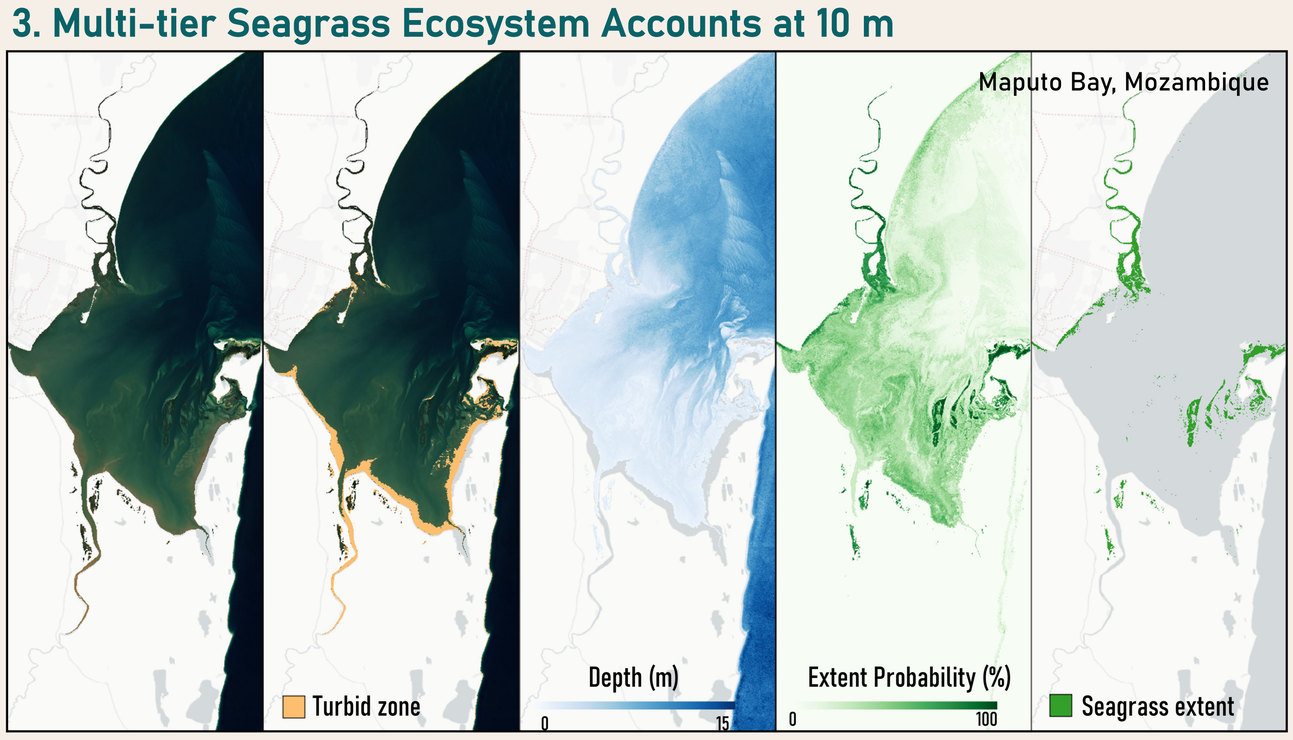


4,316 km²
Regional seagrass extent

147.5 Mt CO_2
Tier 2 maximum stored carbon dioxide in regional seagrass soils

20,820
reference data points

3. Multi-tier Seagrass Ecosystem Accounts at 10 m



4.2 Our Findings – Entire Mediterranean bioregion

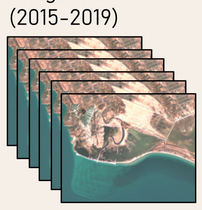
22
Mediterranean countries

56,783 km²
Mapped seabed area

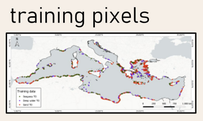
>19,000 km²
Mapped seagrass area

72 %
Overall accuracy

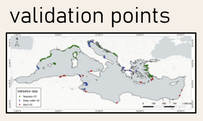
279,186
10-m Sentinel-2 image tiles (2015-2019)

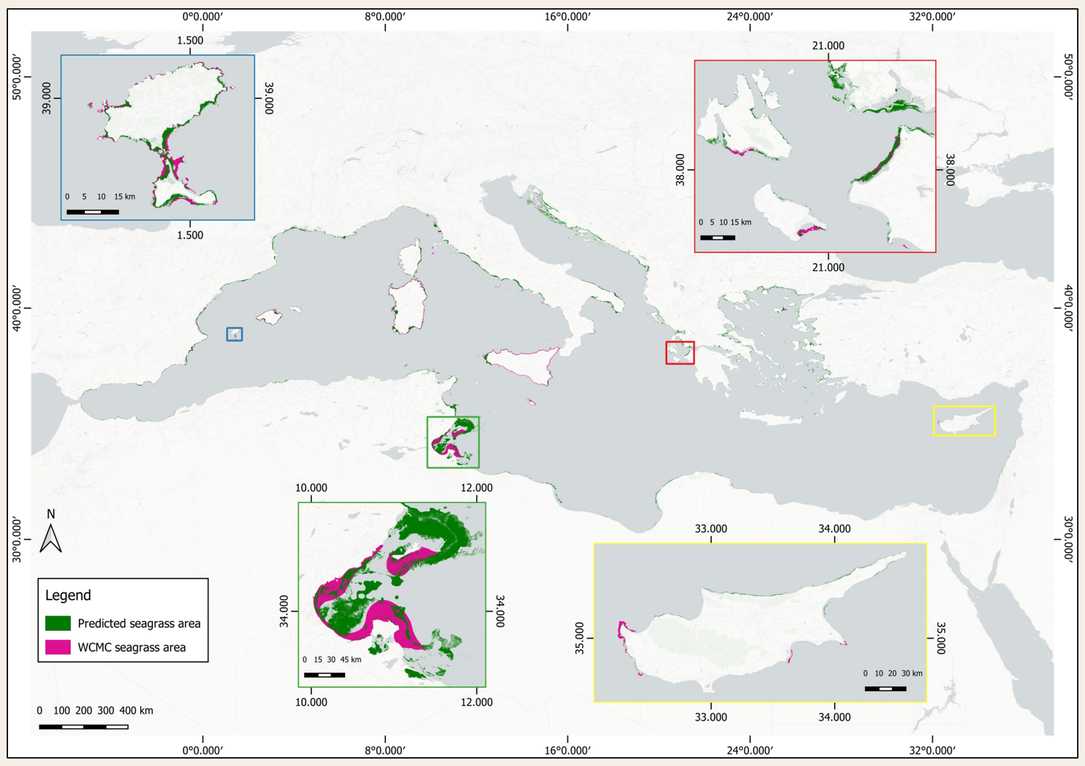


62,928
Human-labelled training pixels



2,480
Field-collected validation points





5. Resolving the Challenges

- **Mapping** of over **70,000 km²** of seagrass meadows across **28** countries & **300,000 km²** of seabed, in a spatially-explicit & high-resolution fashion
- **Development** of a scalable spatially-explicit seagrass ecosystem accounting framework

6. Next Steps

- **Amalgamation** of remote sensing, biophysical & economic modelling for holistic seagrass ecosystem accounting
- **Collaboration** with scientists for collection & integration of big in situ reference data on seagrasses
- **Collaboration** with governments & the industry to improve uptake of holistic bundles of seagrass ecosystem services in policy making & funding

References

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