

**ALINA BLUME**

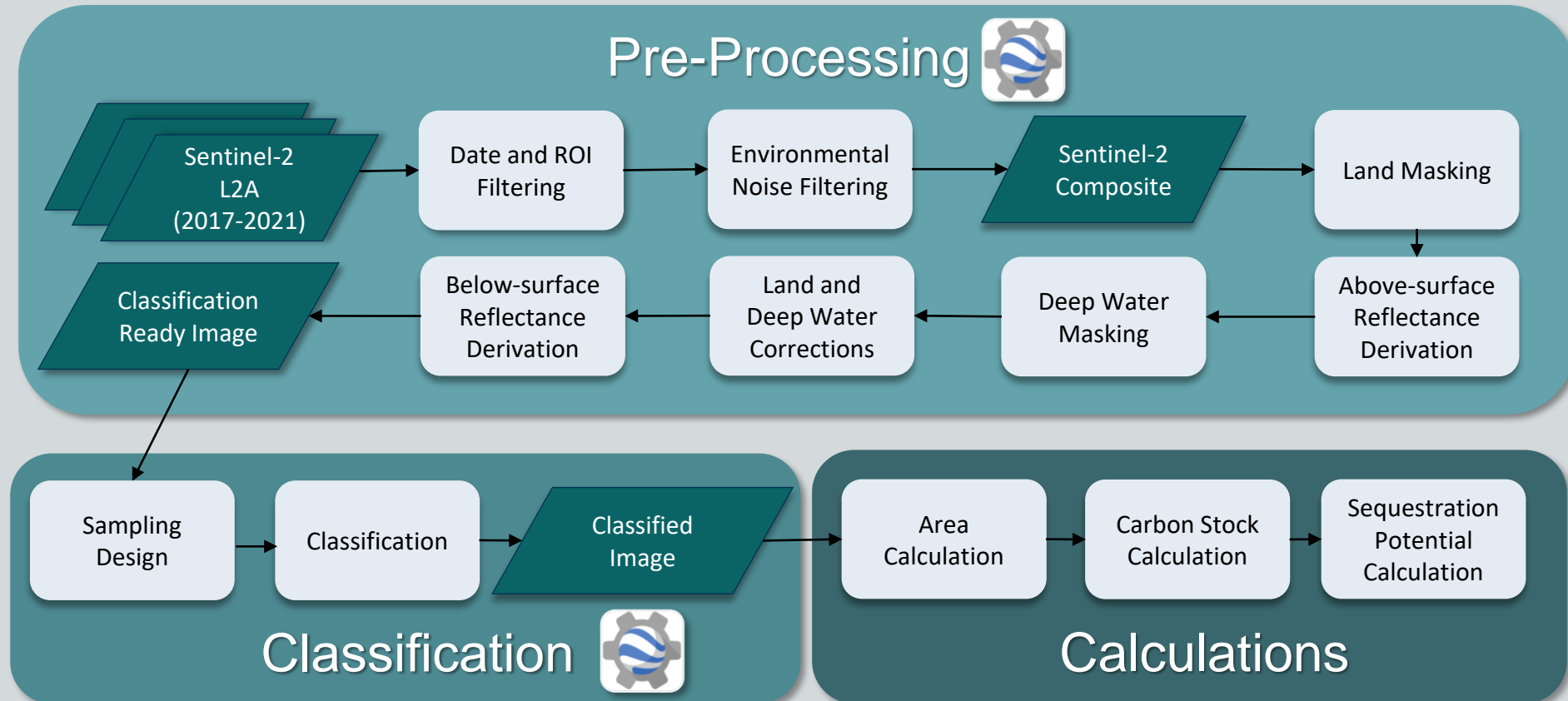
WSC2022 & ISBW14

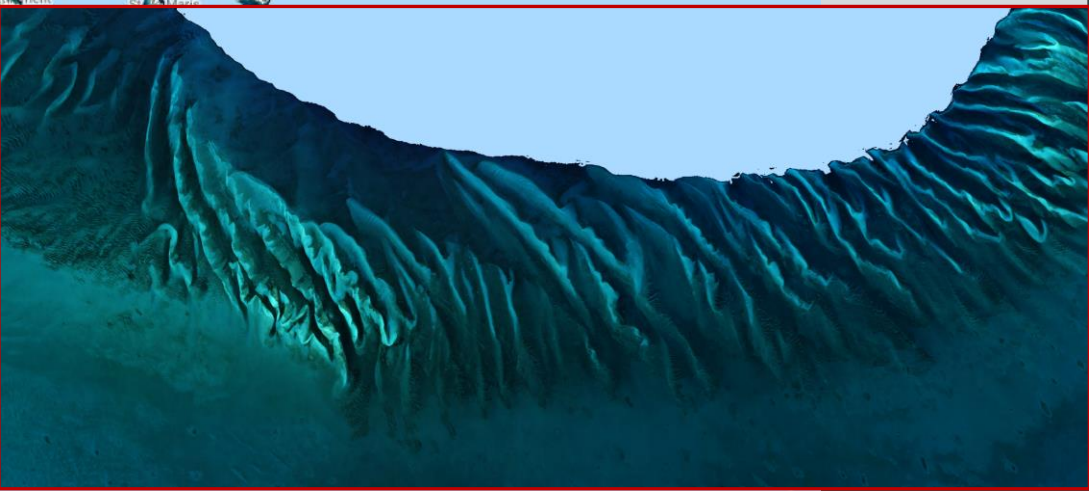
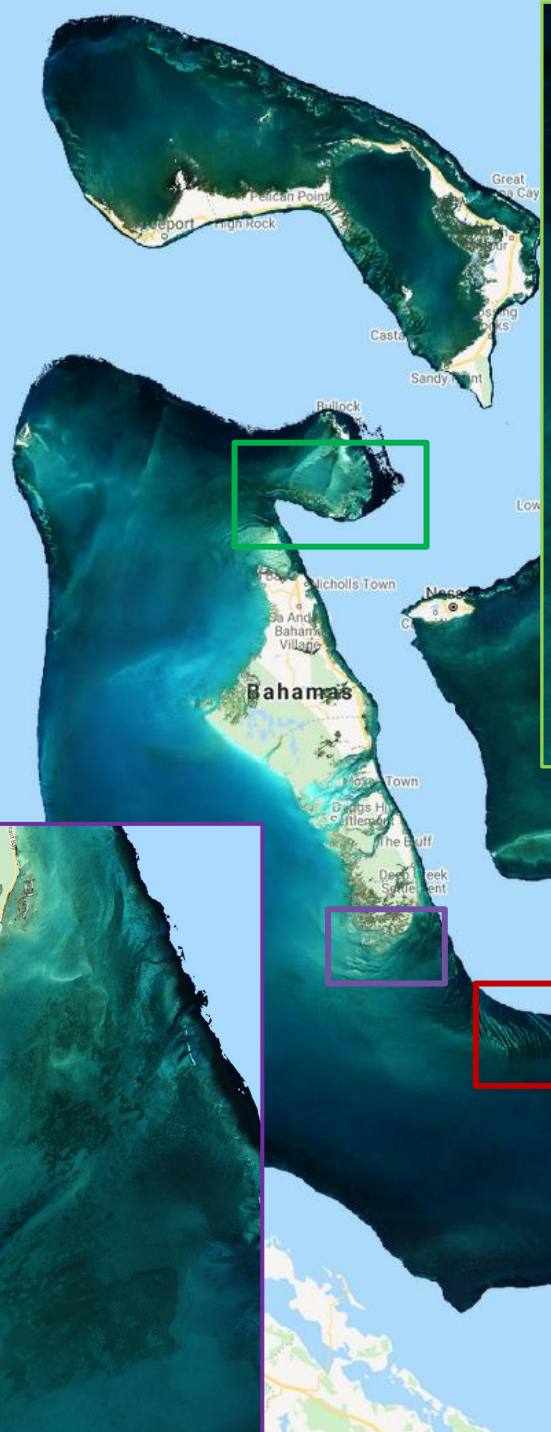
09.08.2022



# Bahamas-wide Seagrass Blue Carbon Assessment leveraging Modern Earth Observation advances


# Workflow





# Classification

# Carbon Assessment

- 4-Class System: Seagrass, Sand, Coral, Rock/Rubble
- Validation Data: Allen Coral Atlas (ACA) (2020)
- Training Data: Annotated Data
- Classifier: Random Forest 
- Classification Design: 20 models based on different input-features  
→ maximum & minimum extent

## Carbon Stock

	Carbon Stock Minimum [Mg/km <sup>2</sup> ]	Carbon Stock Maximum [Mg/km <sup>2</sup> ]
Tier 2	15,417.55	16,486.47

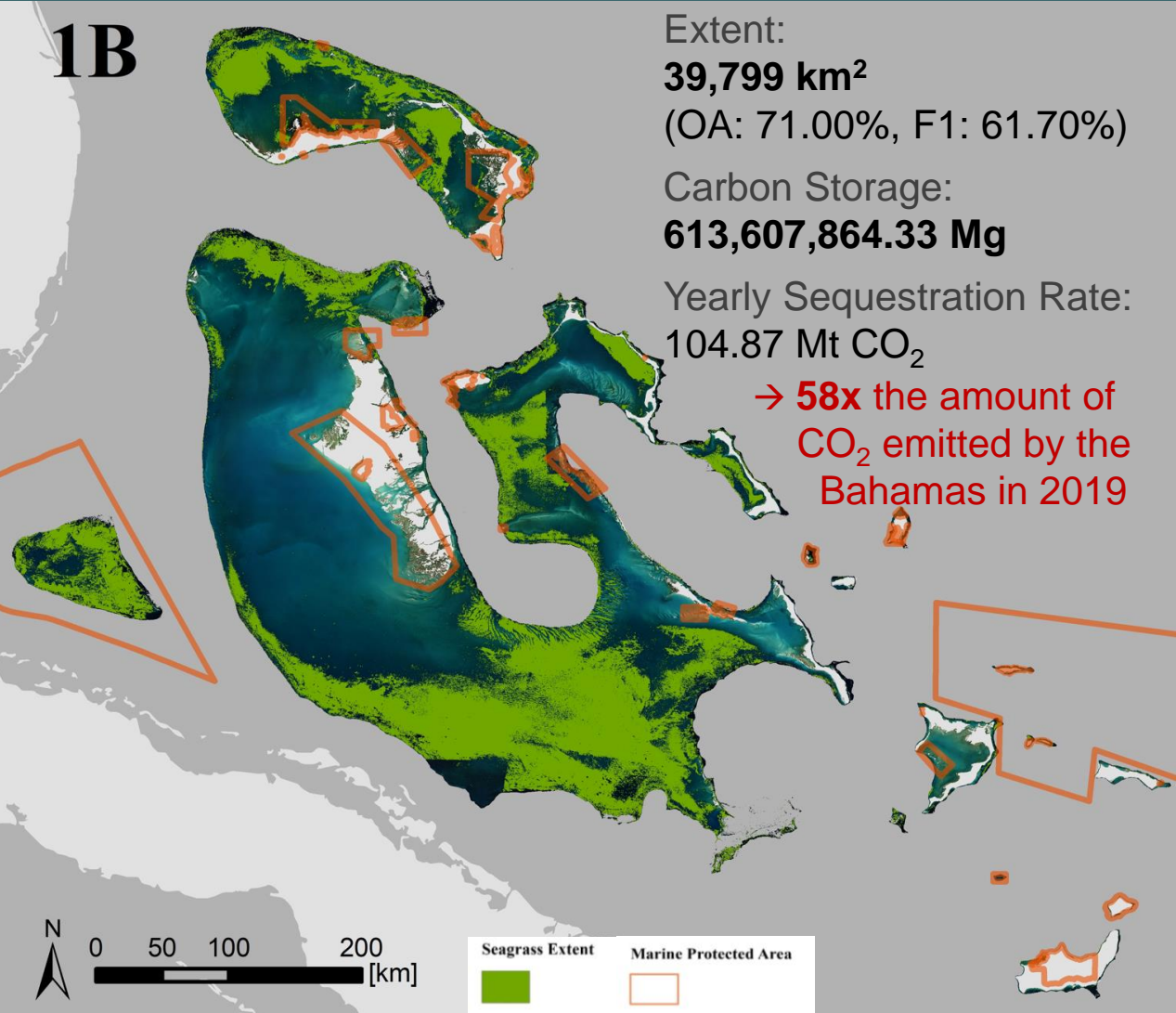
(Buchan, 2000; Dierssen et al., 2010; Fourqurean et al., 2012; van Tussenbroek et al., 2014)

Sequestration rate: 0.0026 Mt CO<sub>2</sub>/km<sup>2</sup>/year  
(Alongi, 2018; Dierssen et al., 2010)

# Results

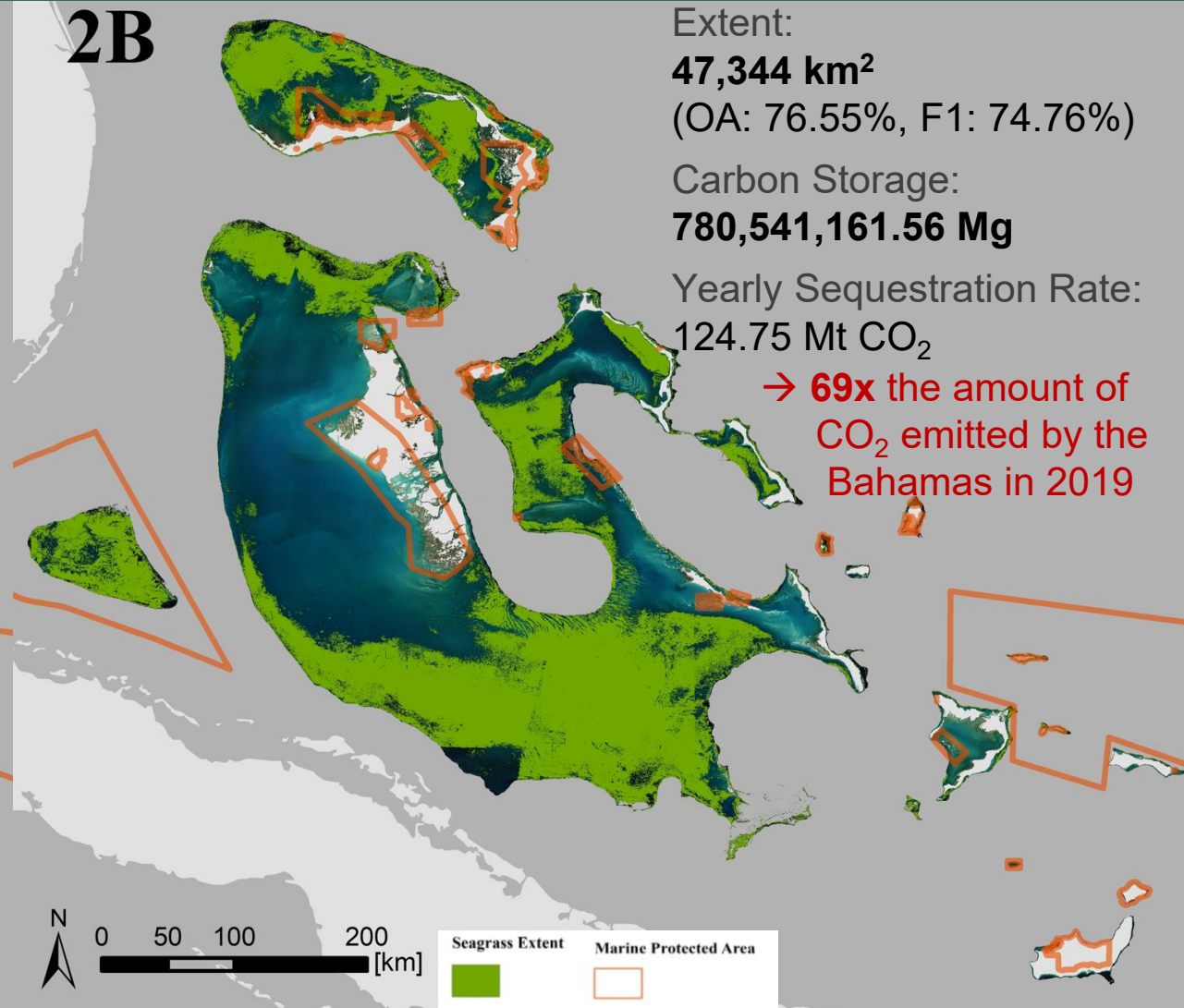
## Minimum Extent

1B



## Maximum Extent

2B



# Challenges

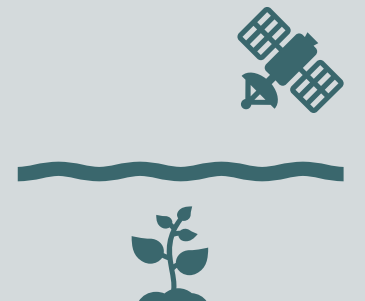
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- Remaining challenges in the **composite** which effect the classification
- Lack of **ground truth** data
- Lack of **in-situ carbon** data
  - Soil – bioregion
  - Biomass – country site specific

# Future Steps

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- Include **uncertainty** models
- Include **bathymetry** data
- Estimate the **monetary value** of the mapped seagrass blue carbon



 **Thank you!** 

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