Large scale assessment of landscape changes and recovery in forest structure of mangrove wetlands using SRTM data.

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- *to generate enhanced SRTM elevation data to estimate vegetation height in wetlands dominated by mangroves*
- *to estimate productivity within the complex mangrove mosaic and extend production models to regional scales.*
- *to develop a landscape-scale understanding of recovery from disturbance, which is of course related to the innate productivity of the site.*

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Project Relevance

- Carbon cycle and Ecosystem Roadmap
  - (**T**)Vegetation 3D structure (Biomass & Disturbance)
  - Coastal carbon
- Research associated to LTER (Long term Ecological Research)

Why Mangroves?

- Habitats of 1300 species of animals
- Among the most productive ecosystems on earth (Jennerjahn & Ittekkot, 2002)
  - The approximate 200,000 km^2 of mangrove global cover contribute **11%** of global total export to ocean and **15%** of the C_{org} accumulation in modern sediments!!
- Endangered by urbanization, exploitation and sea level rise
- Between 33% to 50% coverage loss over the last 50 years

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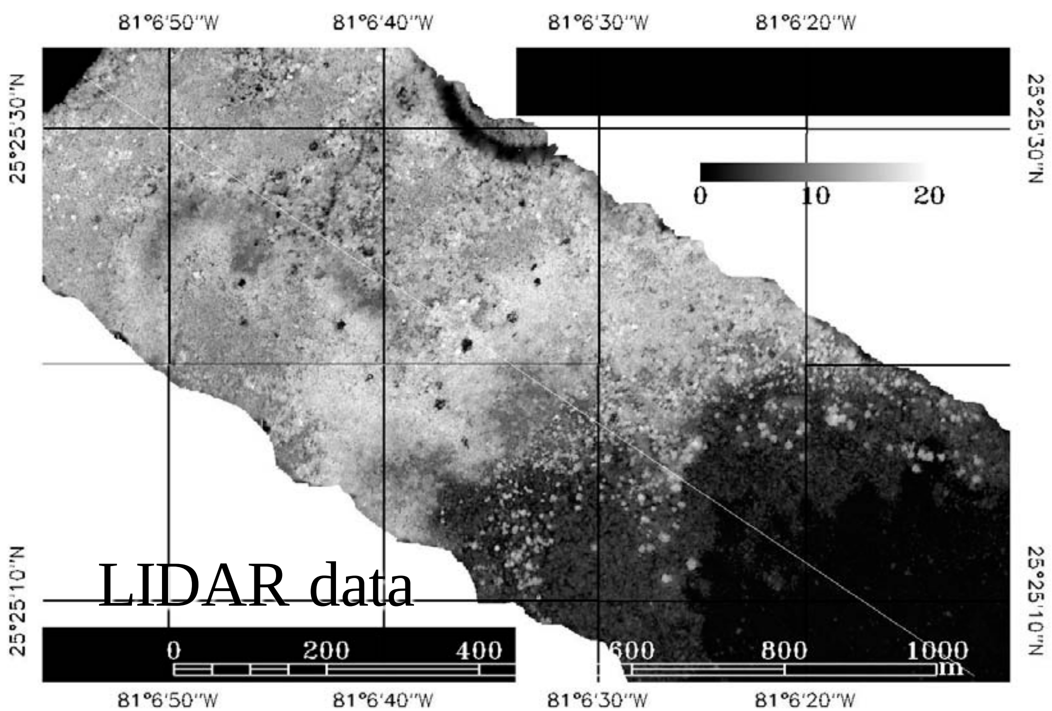
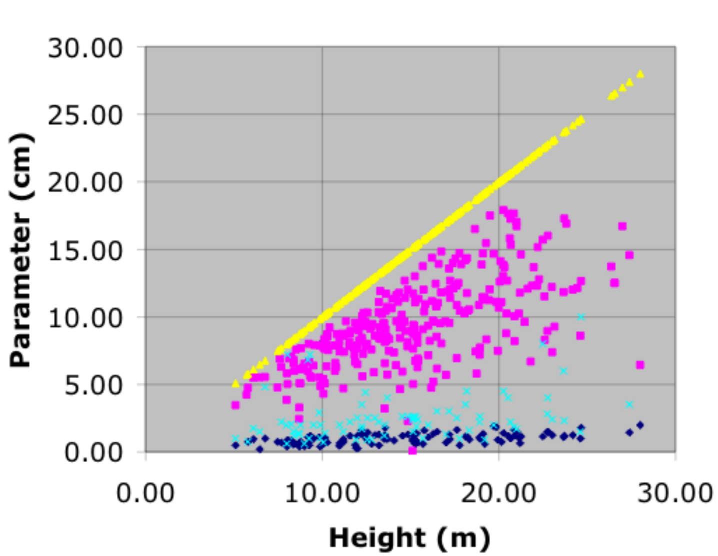
LIDAR and field data is used to calibrate SRTM data.



Site: Harney river, ENP

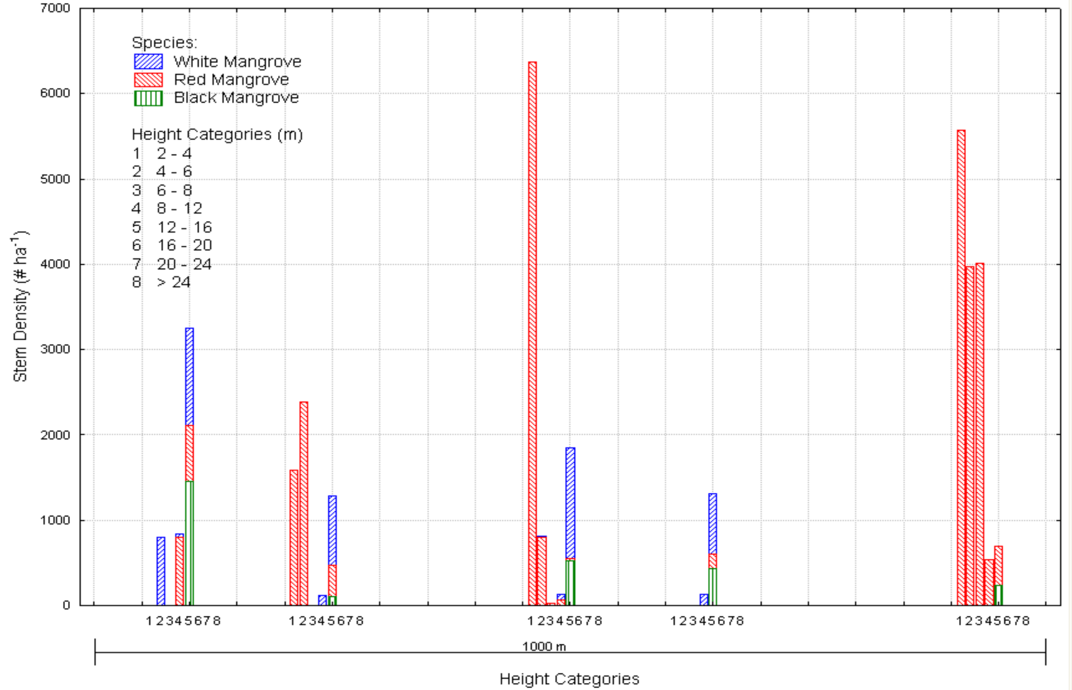
Field data: Photo 360^{o}

Significant result #1: A statistical description of single tree and forest stand architecture from field data



Forest stand measurements:

- Stem spatial density
- Species spatial density
- Basal area
- Biomass
- productivity



Single tree measurements:

- tree height
- DBH
- Crown Thickness
- Root height and extent
- Productivity

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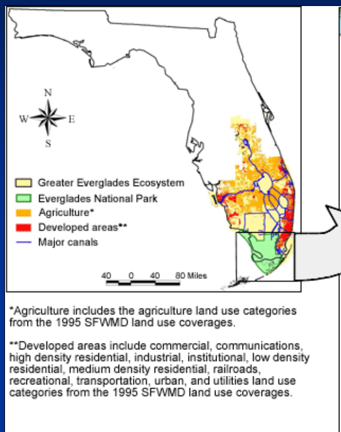
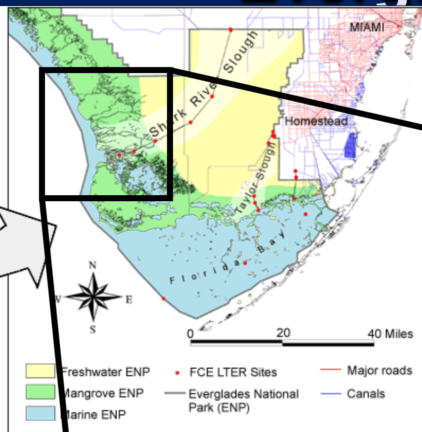
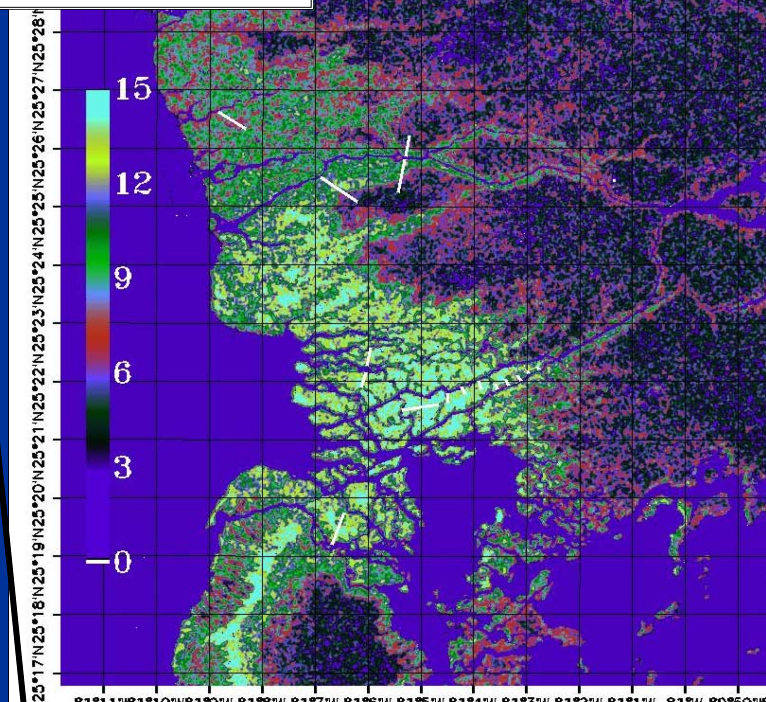
Significant result #2: the SRTM map of Mangrove Height in the Everglades National Park







Height map of the Shark river region