Effects of new water delivery pattern from extended C100 spur canal on hammock vegetation in the Deering Estate

Himadri Biswas, Florida International University
Research Mentor: Dr. Michael Ross

Goals
1. Investigate the temporal and spatial response and variability of surface water levels, as well as understand the flow and solute transport mechanisms resulting from scheduled water deliveries in the Deering Estate (Figure 1), located downstream of the created wetland.
2. Determine the combined effect of water delivery from the canal and tides on surface water levels.
3. Inspect vegetation trends using remote sensing techniques in the Deering Estate prior to and after water deliveries started.

Research Methodology
- Install water level loggers at 19 sites for long-term surface water level monitoring (Figure 2).
- Periodically monitor and record observations on vegetation along 3 transects
- Analyze surface water level measurements
- Vegetation stress/change detection using remote sensing

Expected Results
- The surface water levels are expected to increase post new water delivery system compared to prior levels.
- Tree mortality and vegetation stress is expected in areas with higher surface water level (Figure 3).

Figure 1. Map of study area
Figure 2. Proposed gauge locations to monitor the surface water level
Figure 3. Normalized Difference Vegetation Index (NDVI) is expected to decrease with increase in surface water level indicating stress in vegetation or mortality.

This material is based upon work supported by the National Science Foundation under Grant No. HRD-1547798. This NSF Grant was awarded to Florida International University as part of the Centers of Research Excellence in Science and Technology (CREST) Program. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.