Project Status, November 2018: CS-175; Dynamic Collection System Control

Summary
The two areas of focus for the project CS-175; Dynamic Collection System Control are: analysis of dynamic control for the GDRSS system, and an operator decision support dashboard. Here we provide a review of progress made for each of these tasks and discuss future work.

Updates

Dynamic Control for the GDRSS
In October we started computational experiments to investigate the sensitivity and performance of the control algorithm under different storm scenarios. A selection of historical storms of varying intensity and duration were used in conjunction with a genetic algorithm to understand the range of optimal parameter sets for control. The computational portion of this experiment has continued through November. Analysis of results are expected to take place in December. This effort is ongoing.

Decision Support Dashboard
On November 16th we presented the prototype of the dashboard to a team of GLWA operations and research staff. The meeting provided important feedback towards the dashboard's implementation and use-case, identifying key areas to better leverage existing data and simplify recommendation communication. A version of this presentation can be found here: https://slides.com/gregoryewing/prototype_review. The dashboard prototype can be accessed here: http://data.open-storm.org:3000/?orgId=1. A secure login is required and has been provided to select GLWA parties. To request login credentials please contact gregjew@umich.edu.

Following this meeting, we have worked to finalize application processes and recommendation calculation procedures. End-to-end process time has been reduced by half by decreasing the wait time between procedures. As a result, recommendations populated in the dashboard use the most recent measurements possible. Further, recommendations are now calculated with respect to the capabilities of each specific asset and communicated in the dashboard to reflect these differences. We believe that this will make recommendations both more understandable and more actionable.

Outreach, Support, and Communications
In response to the results of the LIFT IWS Challenge, and to support the transition of this work into an operations and testing phase, public-facing and internal-facing documentation is in development. Towards this effort, the webpage http://open-storm.org/open_storm_detroit_dynamics/ within the Open Storm website was created as a node for these resources.

Future Work

Reporting
We look forward to providing an update of our progress on December 31, 2018.

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