Open-Source Software Library for Simulation of Collaborative Small-Satellite Sensor Networks

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PRESENTER INFO

- Year 1 Masters student
- Advisors: Andrew O'Brien, Prof. Joel T. Johnson
- Focus: Remote Sensing, Machine Learning, and AI

BACKGROUND

Collaborative networks of small satellites will form future Earth-observing systems. Maximizing the science value of measurements from such systems will require autonomous decision making with regard to management of limited resources (i.e. power, communications, and sensor configuration).

OBJECTIVE

Develop new software tools to aid users in efficient modeling and simulation of collaborative remote sensing networks, allowing them to tackle the complex decision space

APPROACH

- Open-source software library and tool–set that has been specifically designed for simulating small satellite networks
- Object-oriented C++ library is presented with results from example simulations

RESULTS

Delivered a first version of software tools to offer enhanced simulation capabilities to developers of future observing system simulation experiments (OSSEs) with collaborative networks of adaptive sensor platforms.

Sponsor: NASA Adv. Information Systems Tech. Program

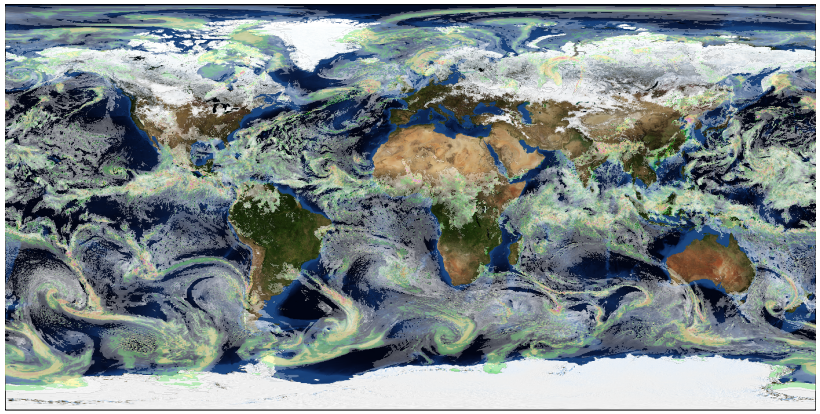

Fig 1: Atmospheric Remote Sensing Truth Data

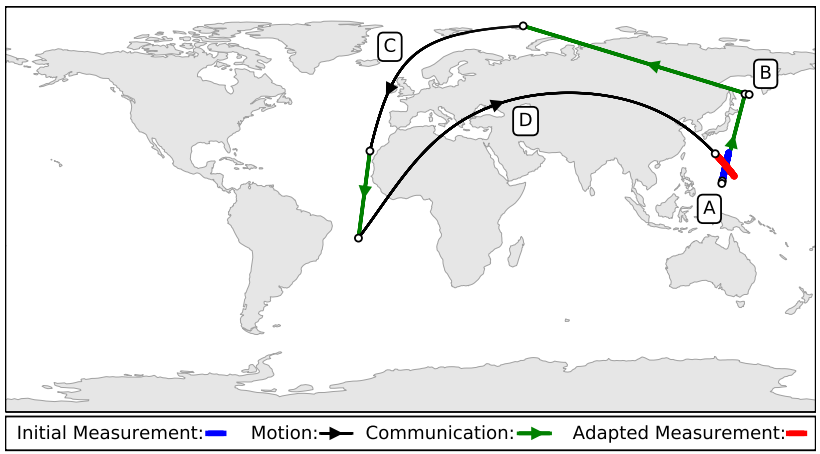

Fig 2: Collaborative Networking Algorithm