Characterization of Operational Best Practices

Analysis of Operational Data using Machine Learning
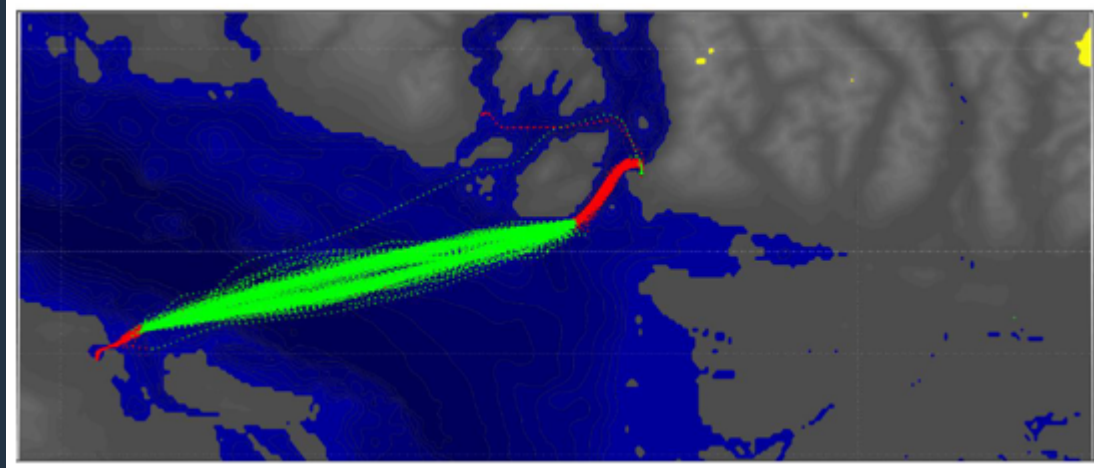
Project Background

- **Operational data for ferry that operates on west coast of Canada**
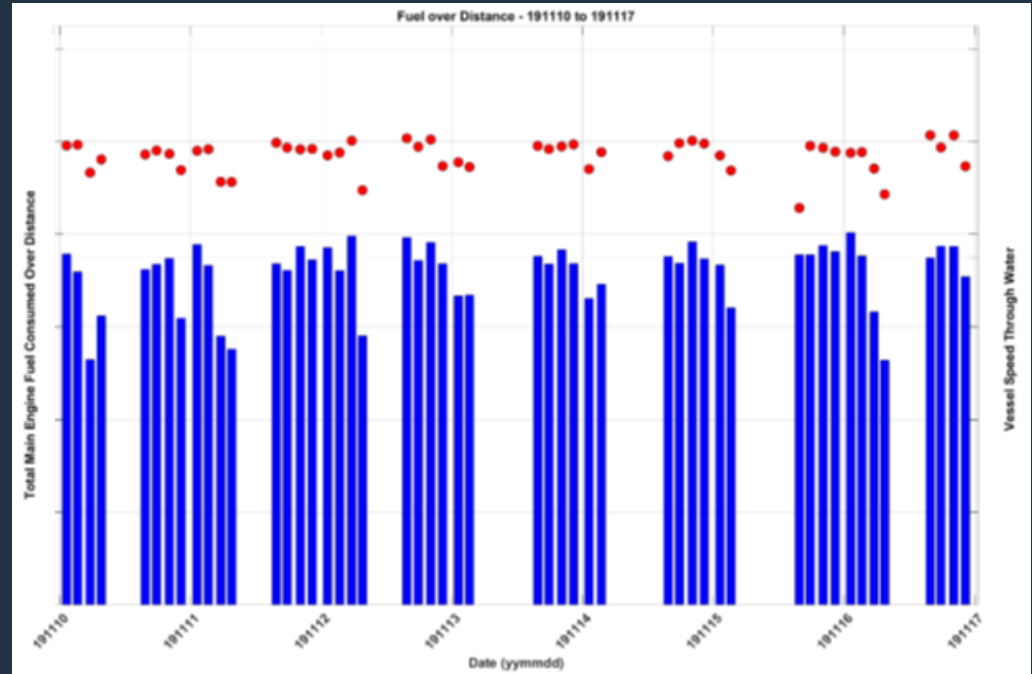
- **Double ended passenger ferry**

Project Background

- **Ferry operates on constant route**

Project Background

- **Relatively large variation in fuel performance during operations in similar environmental conditions**
- **Different captains with varying navigational technique**

Project Idea

- Analyse vessel historic operational data to try to characterize best practices for navigating technique in terms of fuel consumption
- For example, when should captain initiate turn, or start to decelerate in terms of optimum fuel consumption?
- Characterized navigational best practices to be integrated into decision support framework and / or existing navigation system to assist navigators on bridge

Project Stages & Planning

- NRC Ocean Program grant application submitted
- Agreement being developed between NRC, vessel operator and university
- Obtaining Graduate Students (M. Eng.) from SFU to work on project
- 1st Student focus on analysing operational data using machine learning techniques in attempt to characterize best navigating practices
- 2nd Student focus on coordinating analysis results and developing decision support framework
- Student 1 to start Jan – Feb 2021 and student 2 to start Oct – Nov 2021

Complements to ongoing internal research

- **There could be complementary research conducted relating to this project and / or other NRC internal research projects ongoing within the Marine Performance and Evaluation team that increases the impact of the results**

- **Example for this project - generalization of the analysis methods and decision framework to apply to additional vessels and data sets**

- **NRC could collaborate on complementary projects through NRC program grants, using IRAP support, etc.**

THANK YOU

Allison Kennedy
Research Officer / Team Lead – Marine Performance & Evaluation
Ocean, Coastal & River Engineering Research Centre
National Research Council of Canada
Allison.Kennedy@nrc-cnrc.gc.ca