MACHINE LEARNING FOR LOW-COST OFFSHORE MODELLING (MALCOM)

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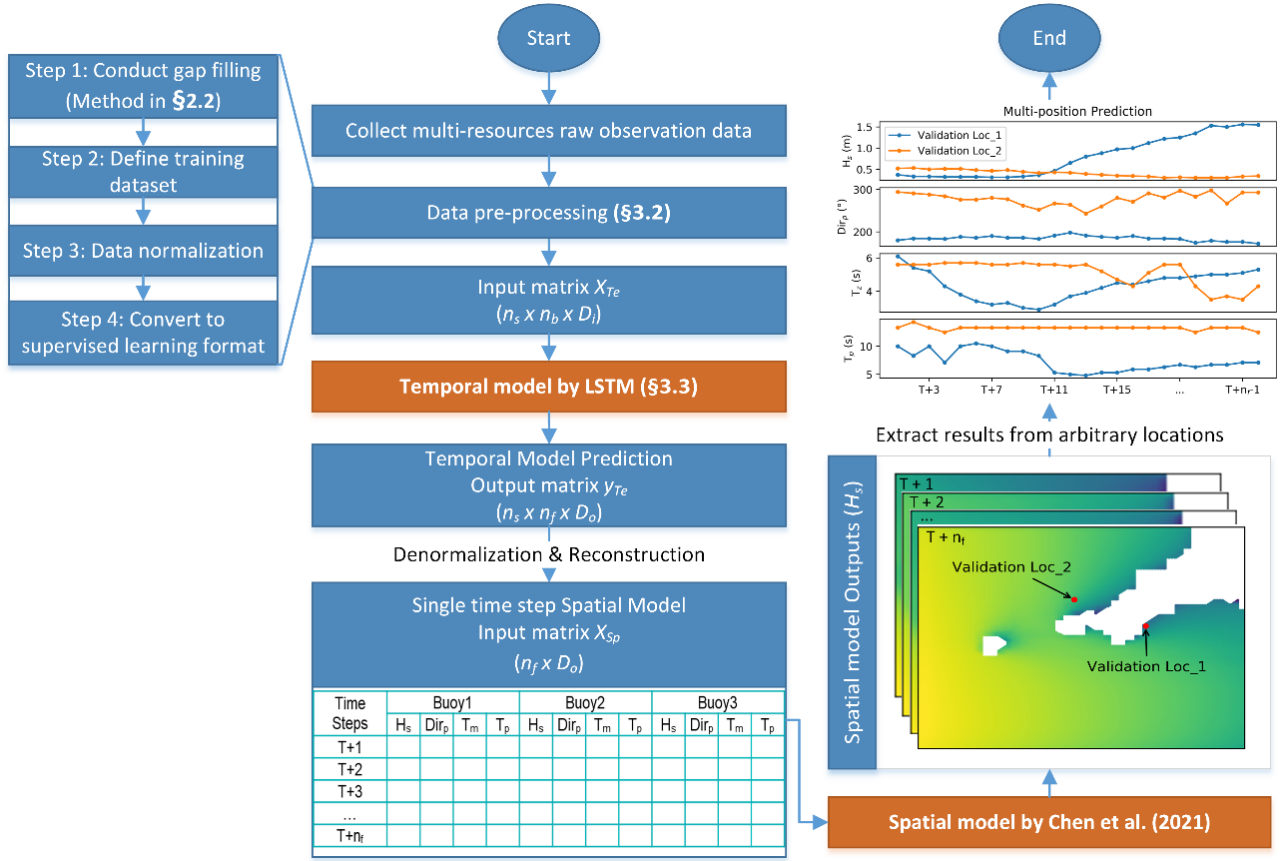
System Overview

- Forecasting methodology divided into two models that are coupled:

  1. *Spatial Nowcasting*
     Relate the conditions at point locations to the conditions throughout the model domain

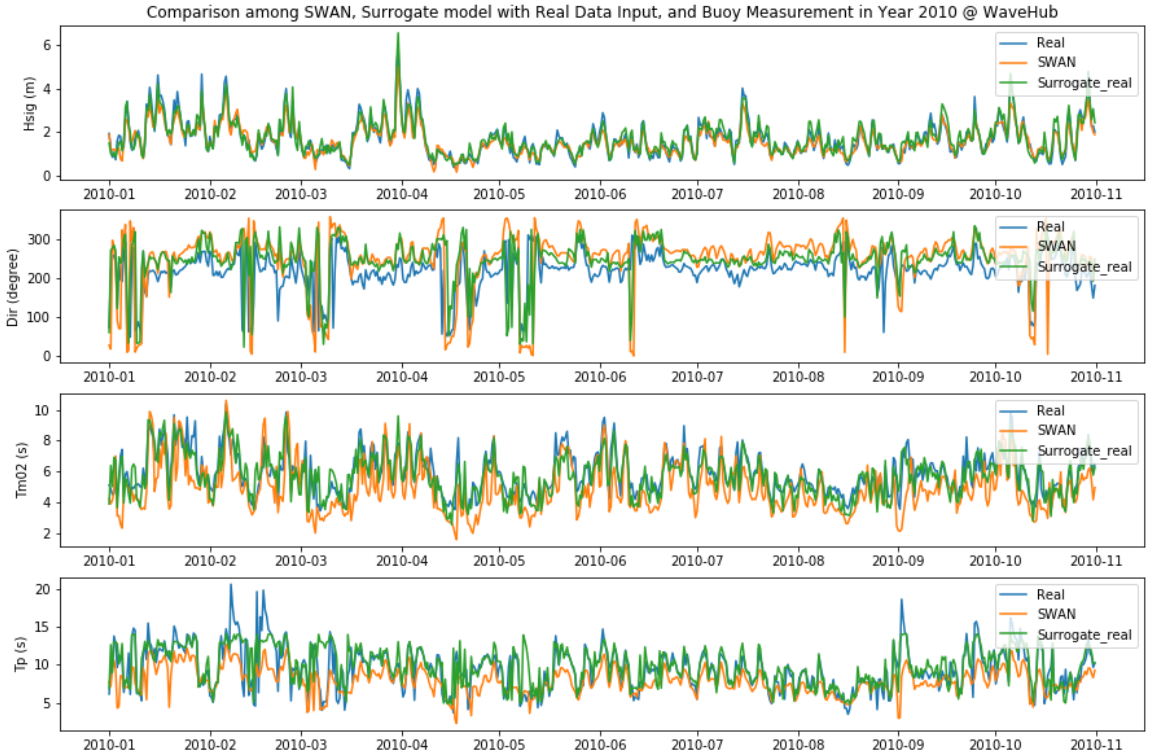
  2. *Temporal Point Forecasting*
     Use the conditions at the in-situ measurement locations to forecast future conditions at the same location

- Coupling models enables spatial forecasting

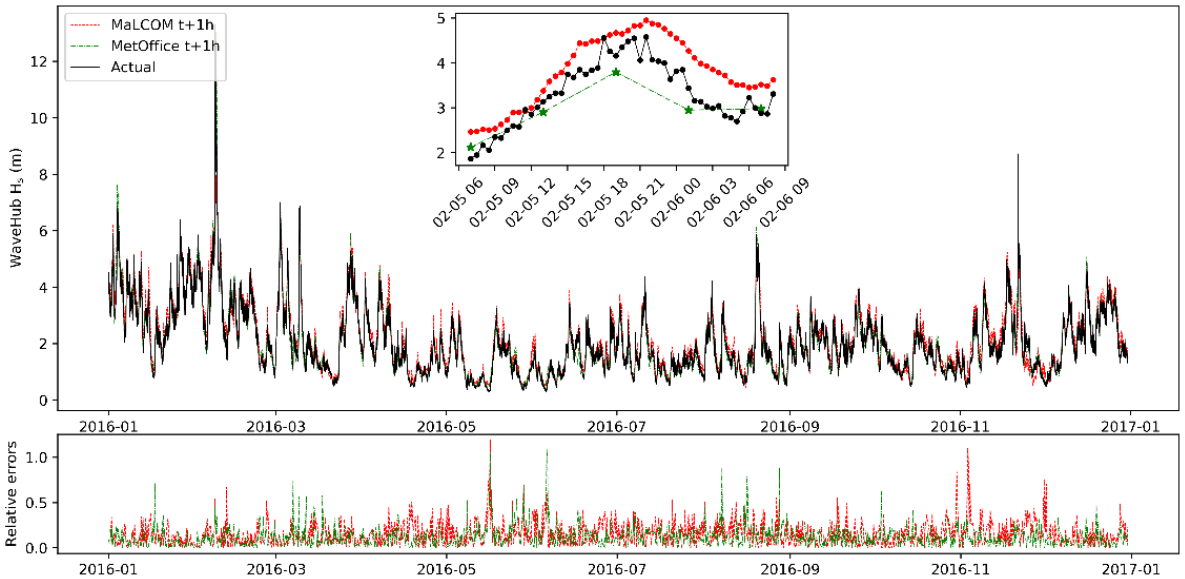


RESULTS

Nowcasting



Forecasting



- Preliminary results indicate that the surrogate modelling method enables **improvements** compared to a hindcast both in respect to accuracy and time efficiency
- Spatial nowcasting methodology is able to leverage real-time in-situ measurements to estimate entire domain
- Forecasting methodology is shown to have similar errors to physics-based forecast, though requires significantly less computational effort

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