

Predicting The Ultra-Low Frequency Plasma Wave Power Using Solar Wind Data: A Neural Network Approach

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November 11, 2022



Presentation Outline

Motivation

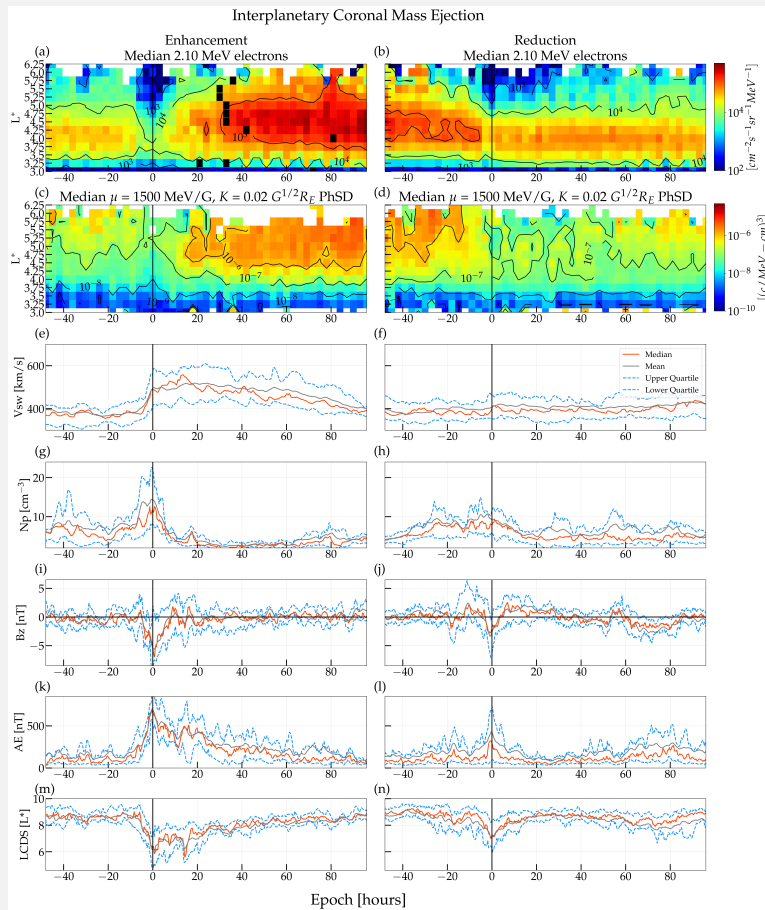
Dataset period

Model approach

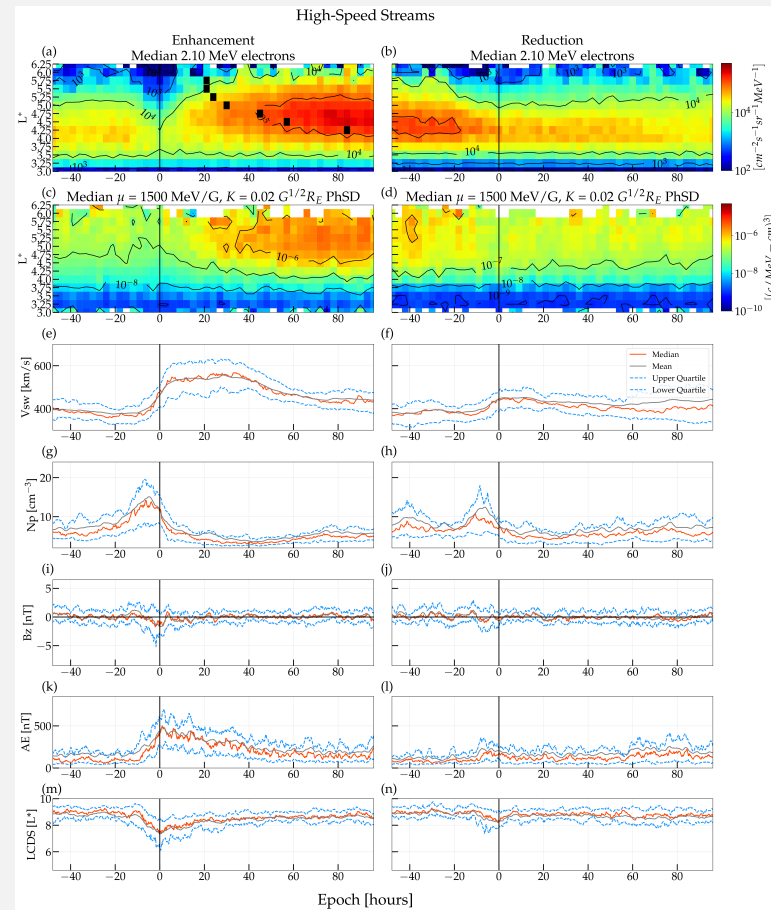
Preliminary results

Motivation

ICME

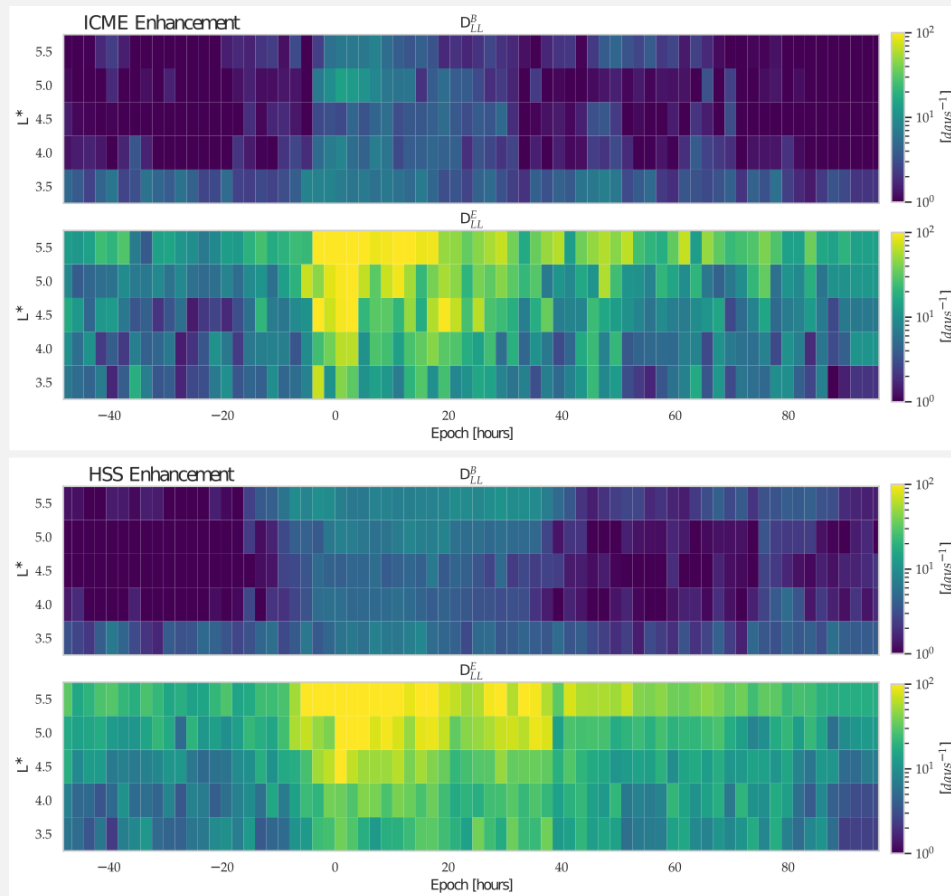


HSS

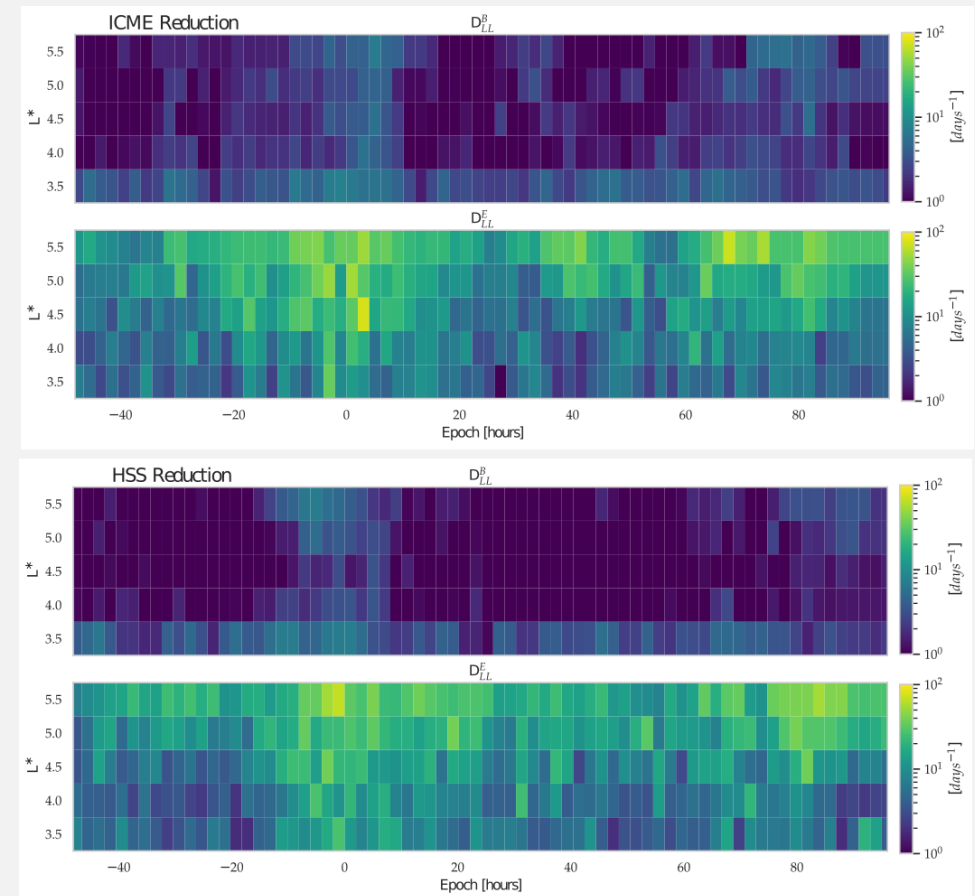


Motivation

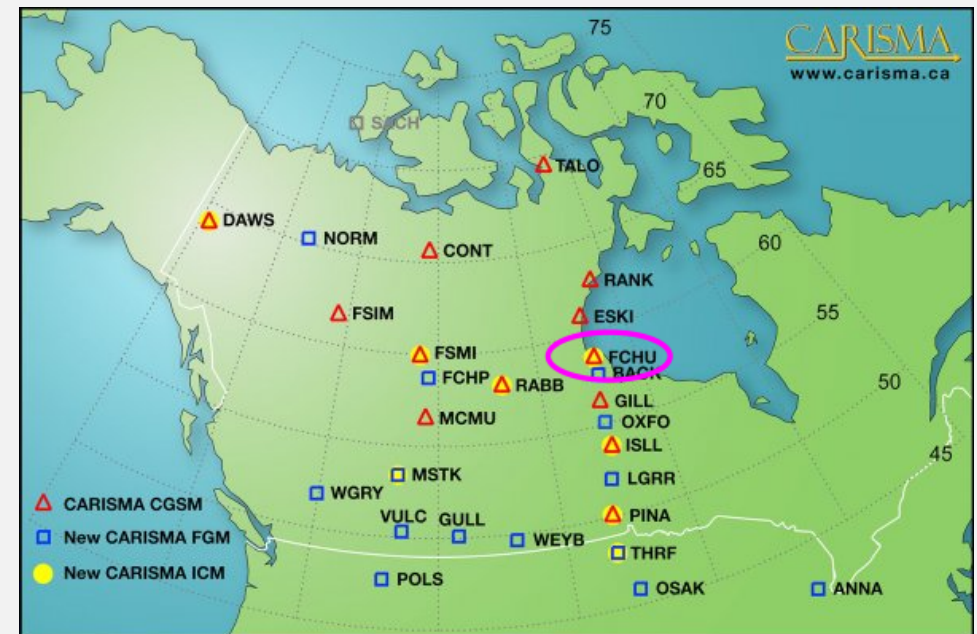
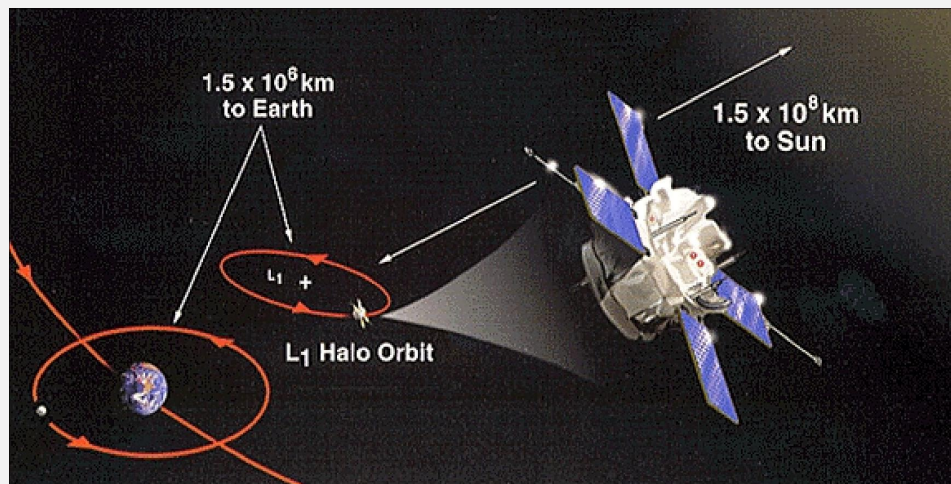
DLL Enhancements



DLL reductions

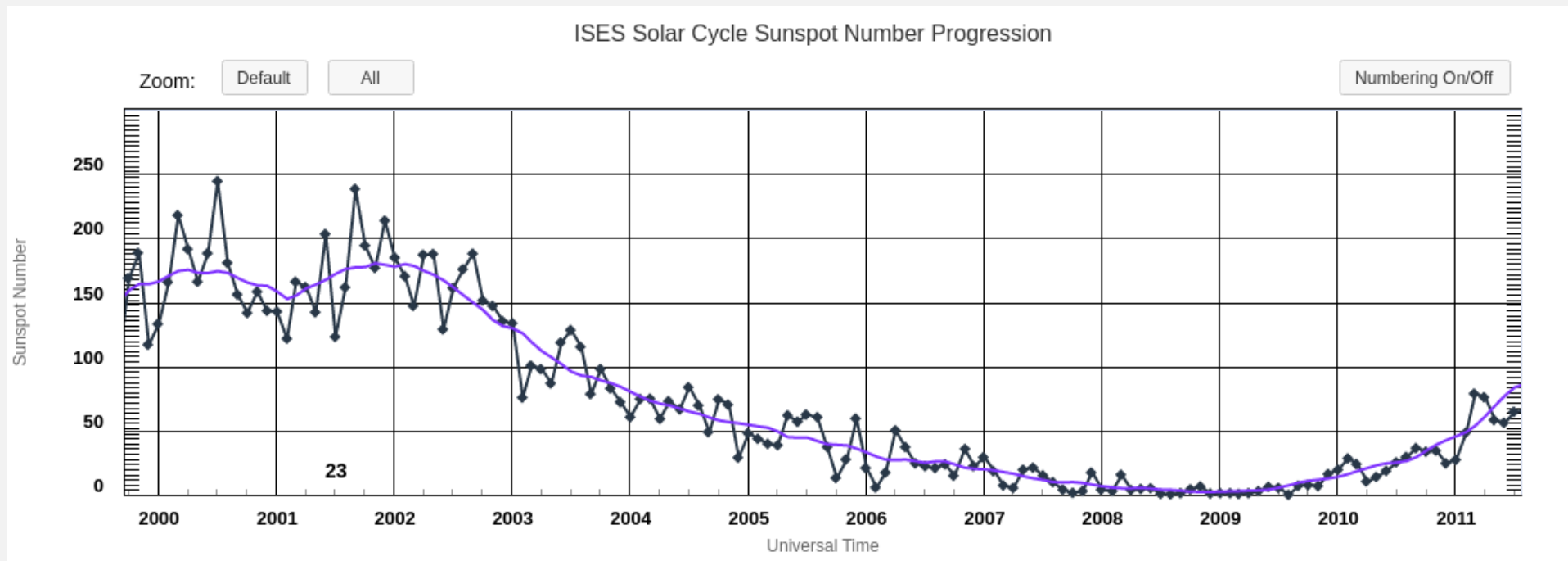


Dataset

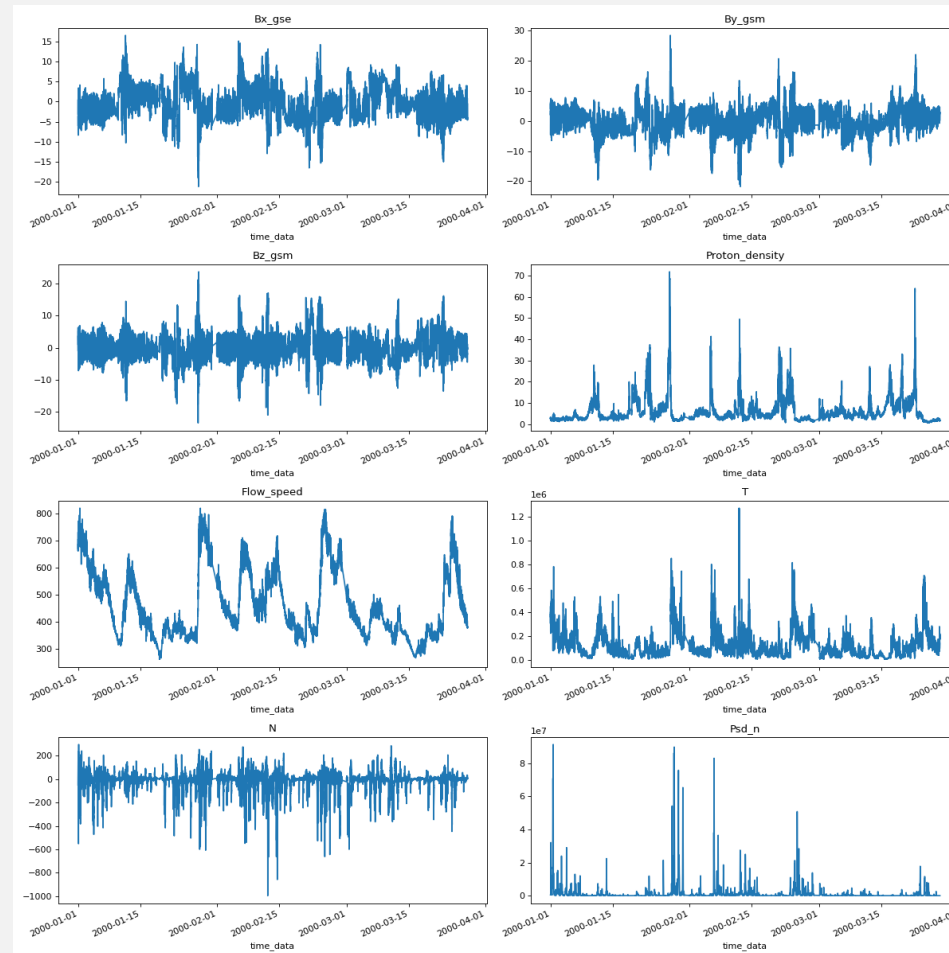


- ▶ ACE satellite;
- ▶ CARISMA network (FCHU).

Dataset period

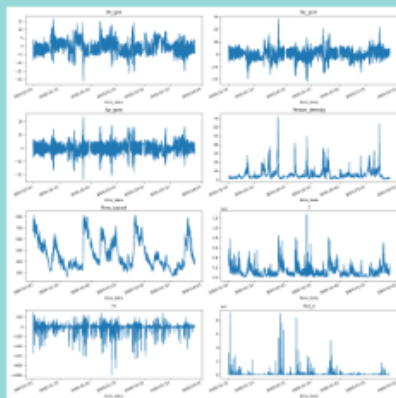


Linear interpolate the gaps

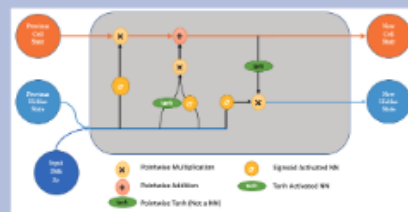


Pipeline

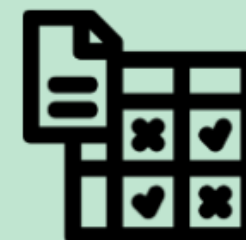
Data Processing



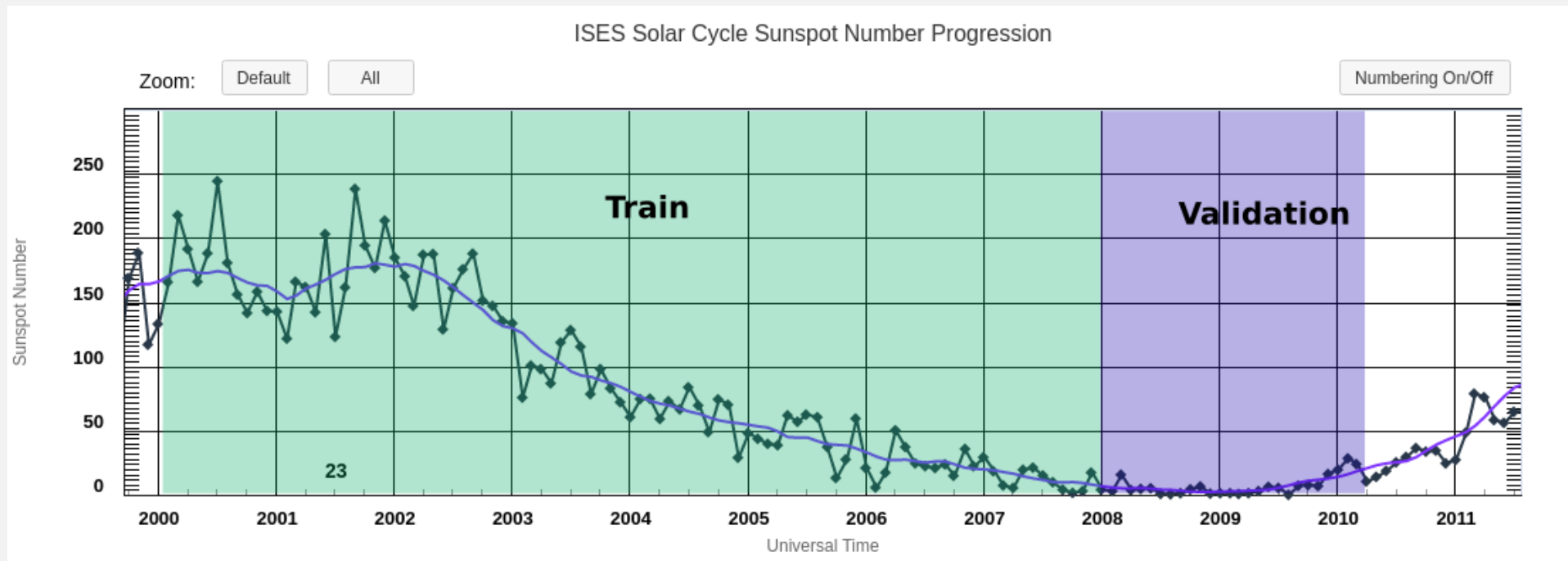
Neural Network



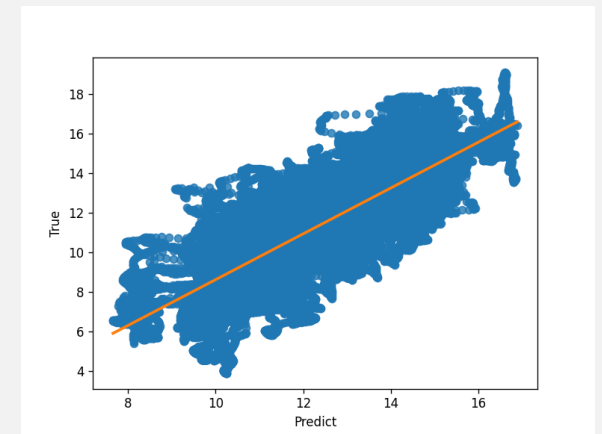
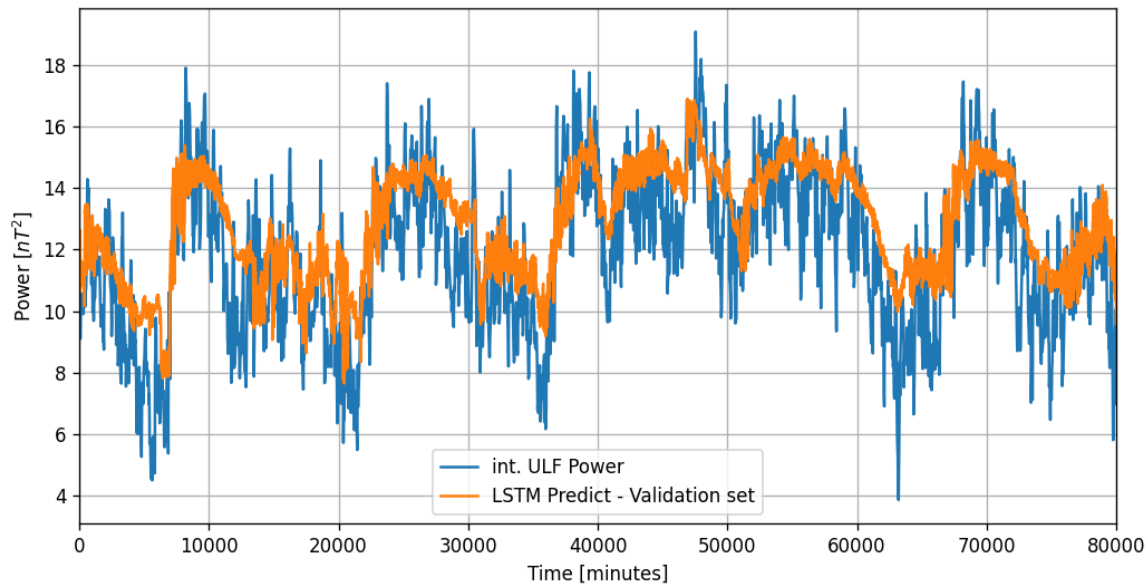
Test



Dataset train, validation

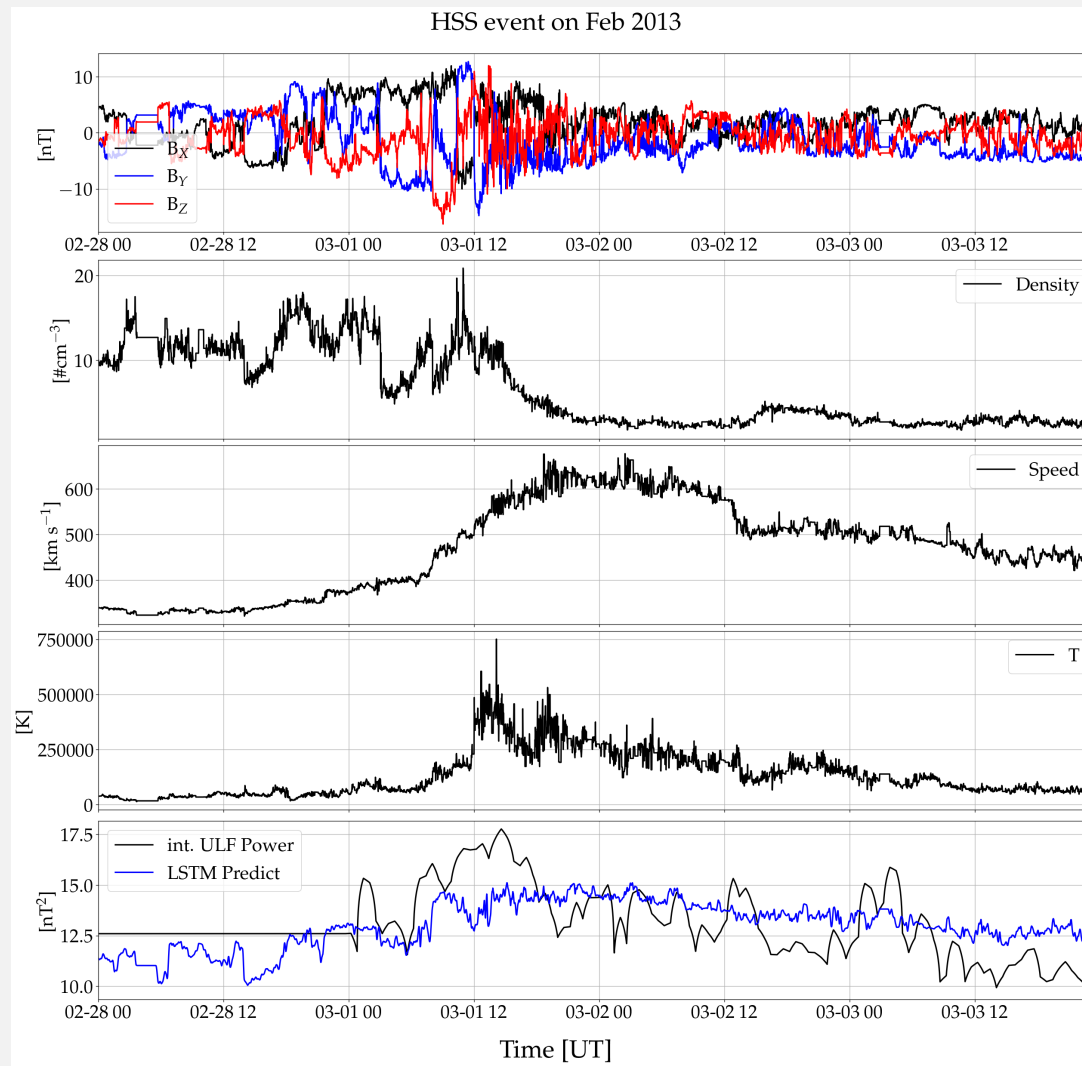


Preliminary results - Validation Dataset

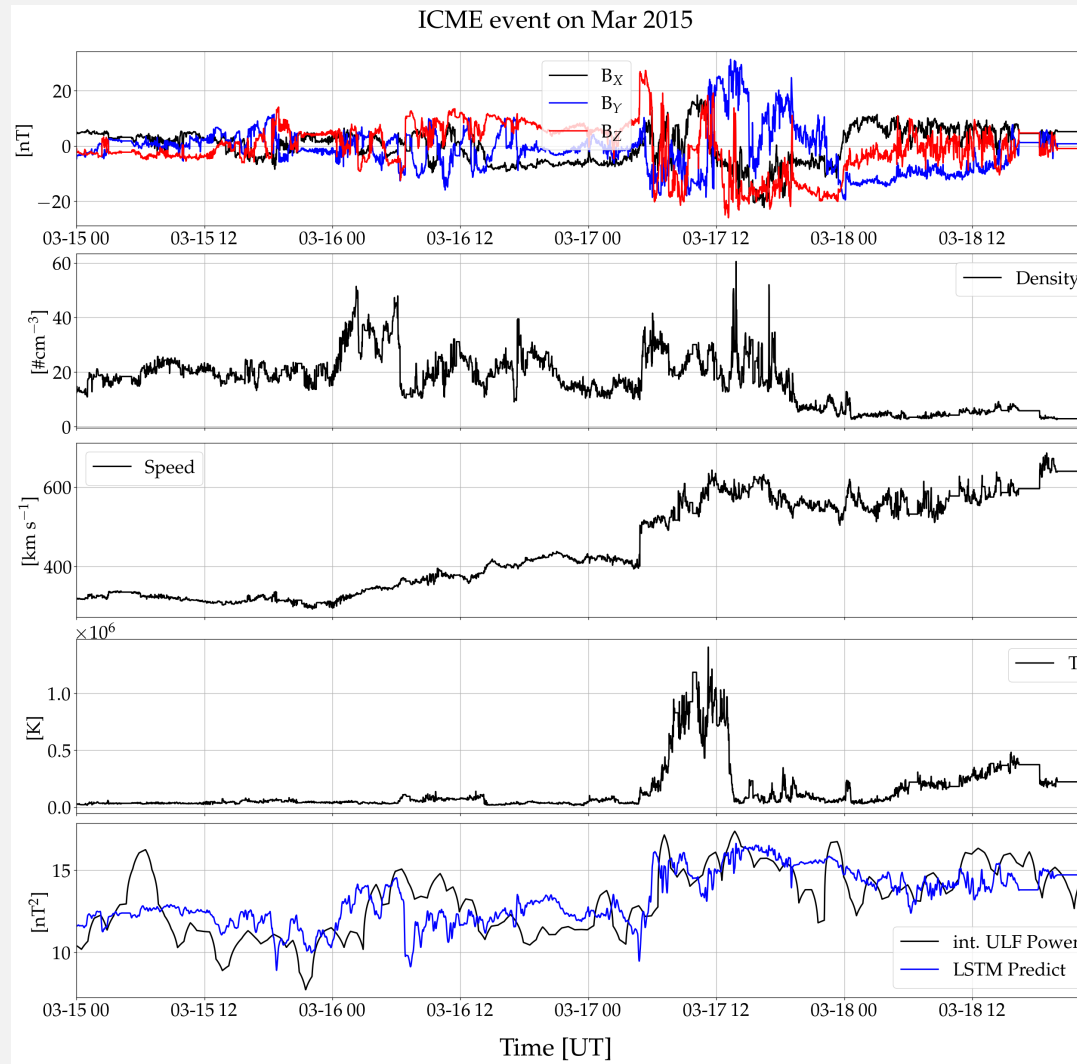


- Test With the Validation set.
- training for 30 epochs.

Preliminary results - HSS



Preliminary results - ICME



Next steps

- ▶ Different Neural Networks;
- ▶ Include more ground stations;
- ▶ Include satellite magnetic field data;
- ▶ Include the wave prediction;
- ▶ Use real-time data.

Thanks!

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