

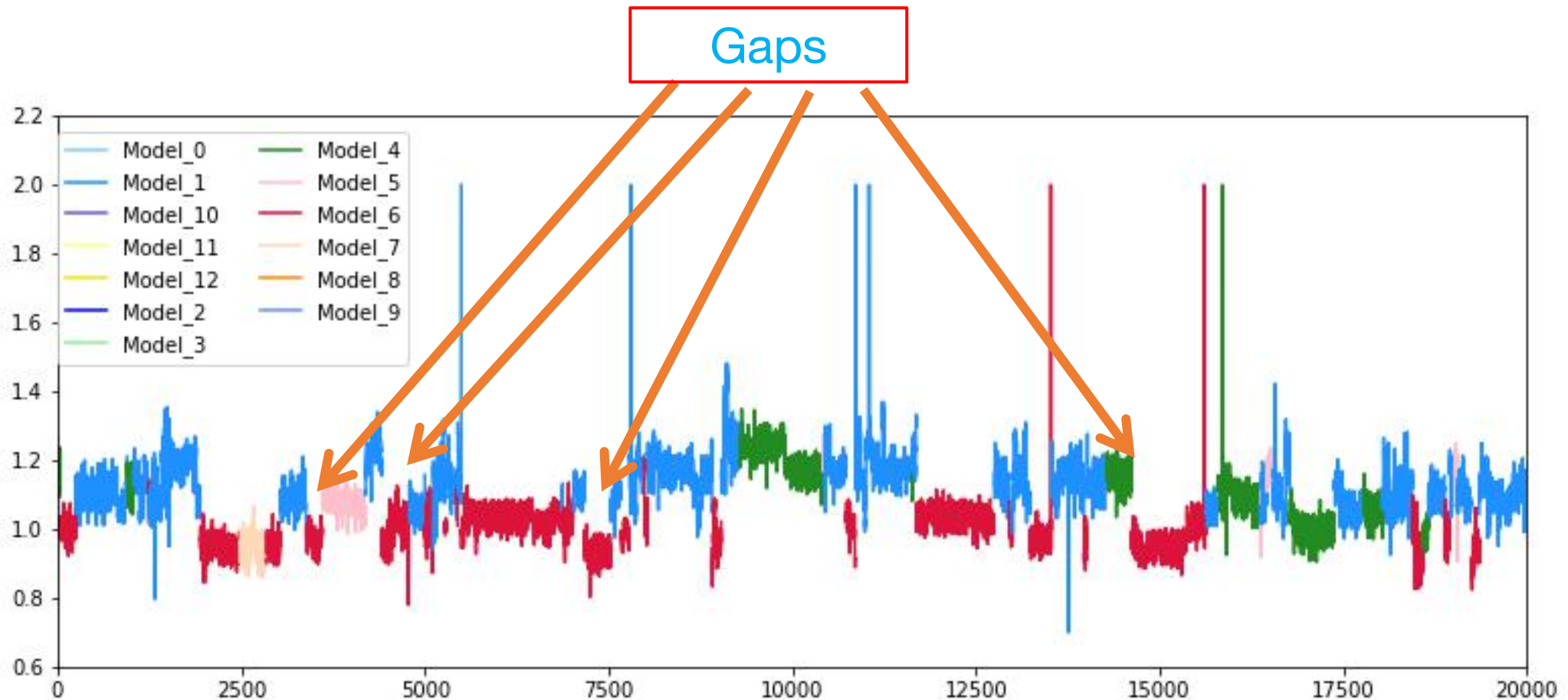
Sinto Project

Quan Xiao

10/14/2019

Data Normalization

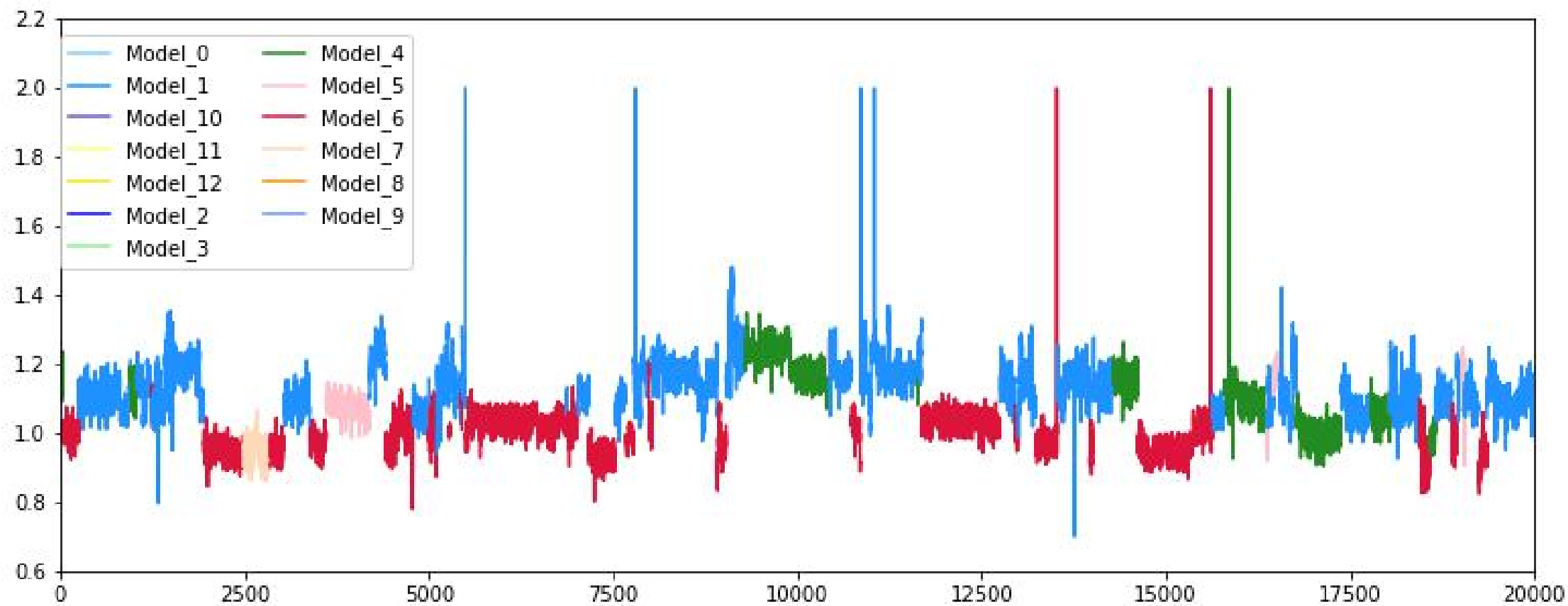
Goal: Find baseline solutions for each model to minimize the gaps between different models.



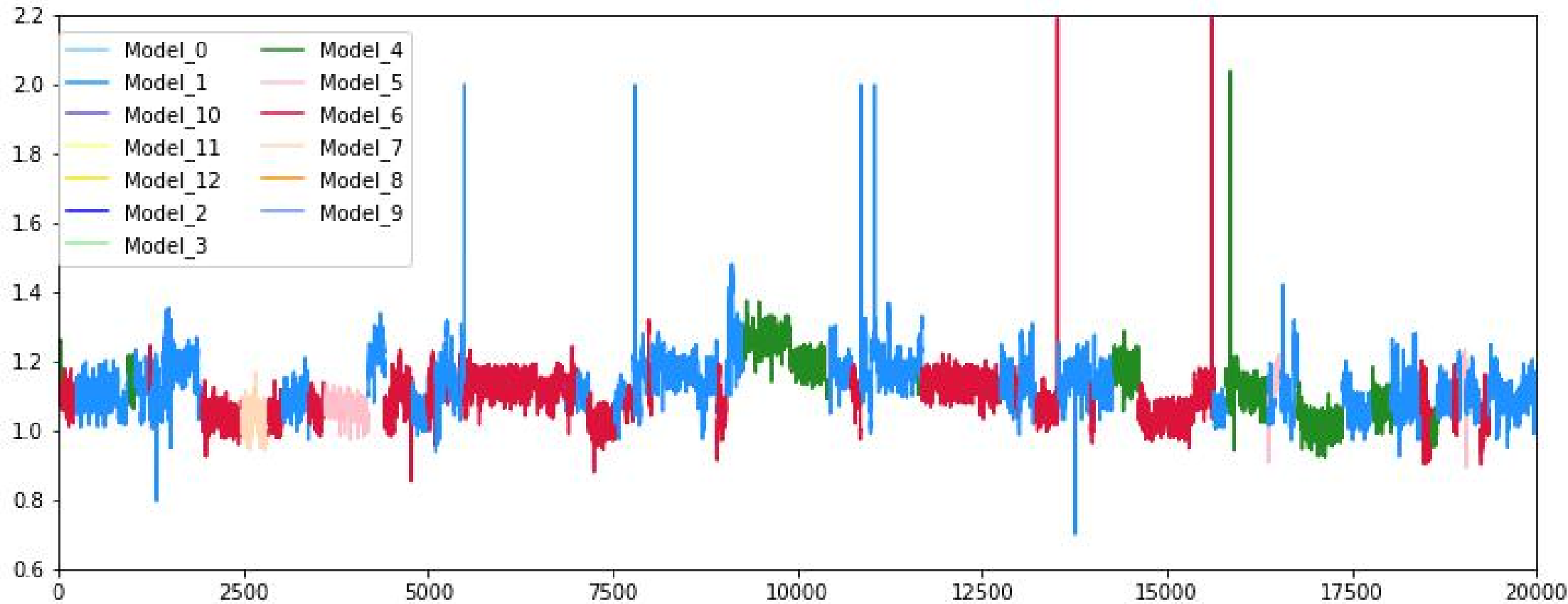
Procedure

- Choose the model that occurs **most** in the time series and fix its baseline. That is **Model_1** in our setting.
- Let $a_0, a_2, a_3, \dots, a_{12}$ be the **optimal baseline time** of each model to be sought
- x_{ij} : the median of ten values before the j-th point changing from **Model_i** to **Model_1**
- y_{ij} : the median of ten values after the j-th point changing from **Model_i** to **Model_1**
- Target function:
$$\sum_{j=1}^{n_i} (x_{ij} a_i - y_{ij})^2 \quad \forall i = 0, 2, 3, \dots, 12$$

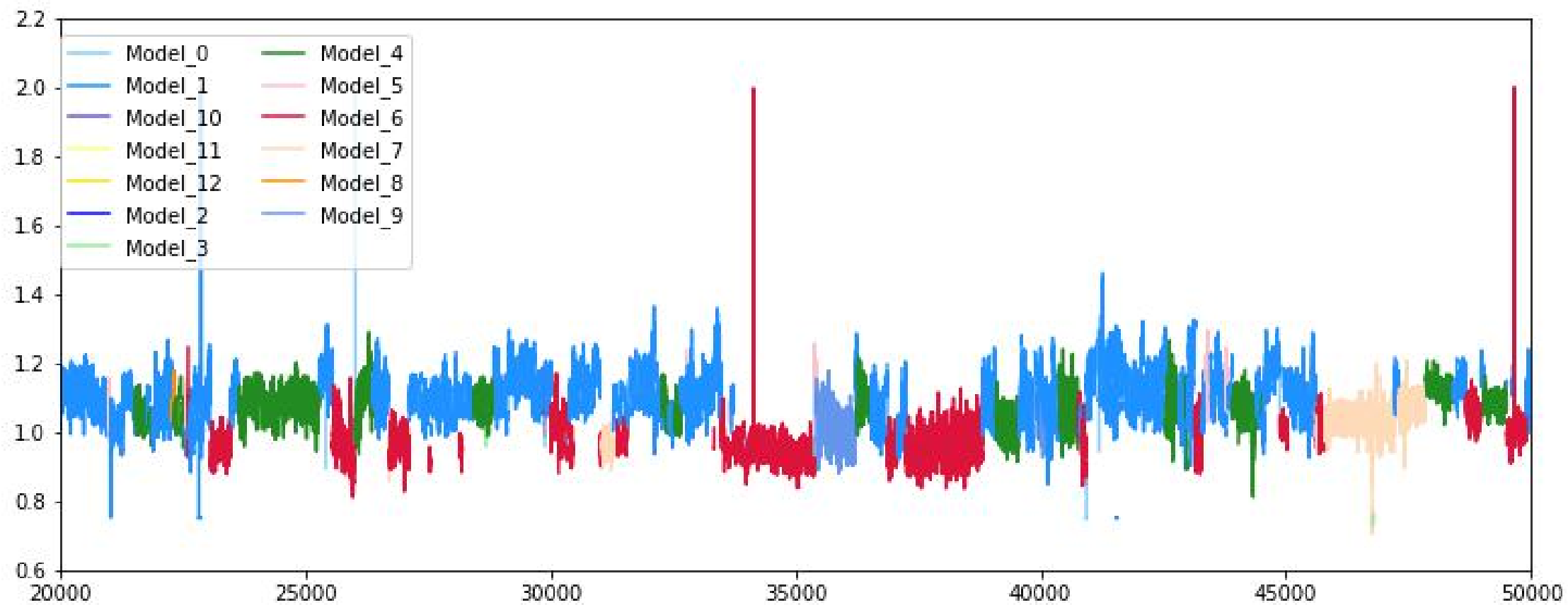
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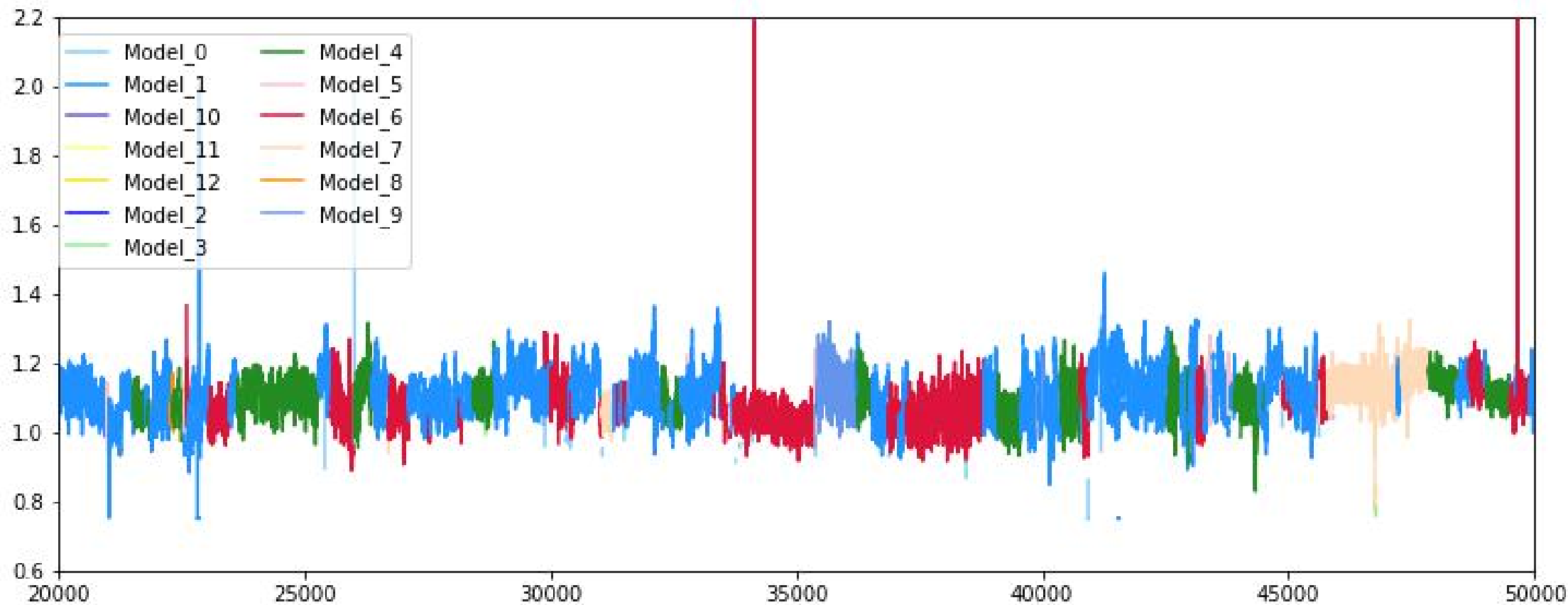
Change



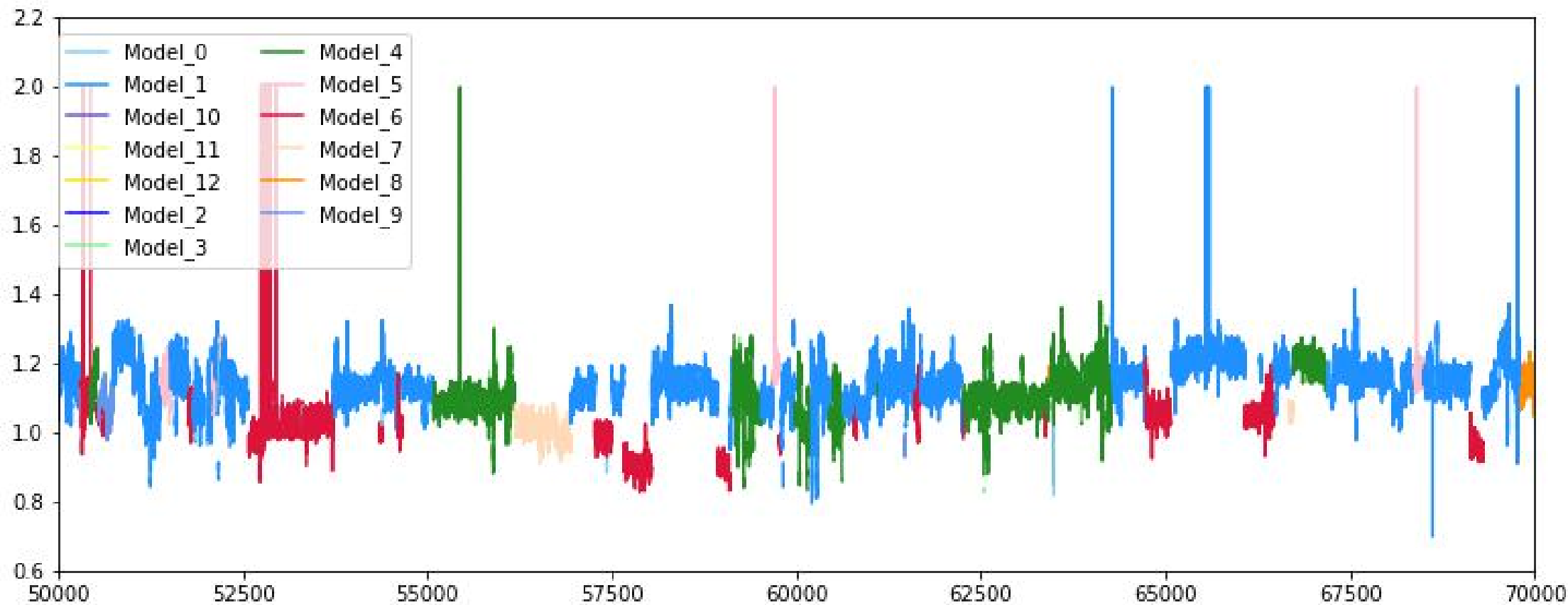
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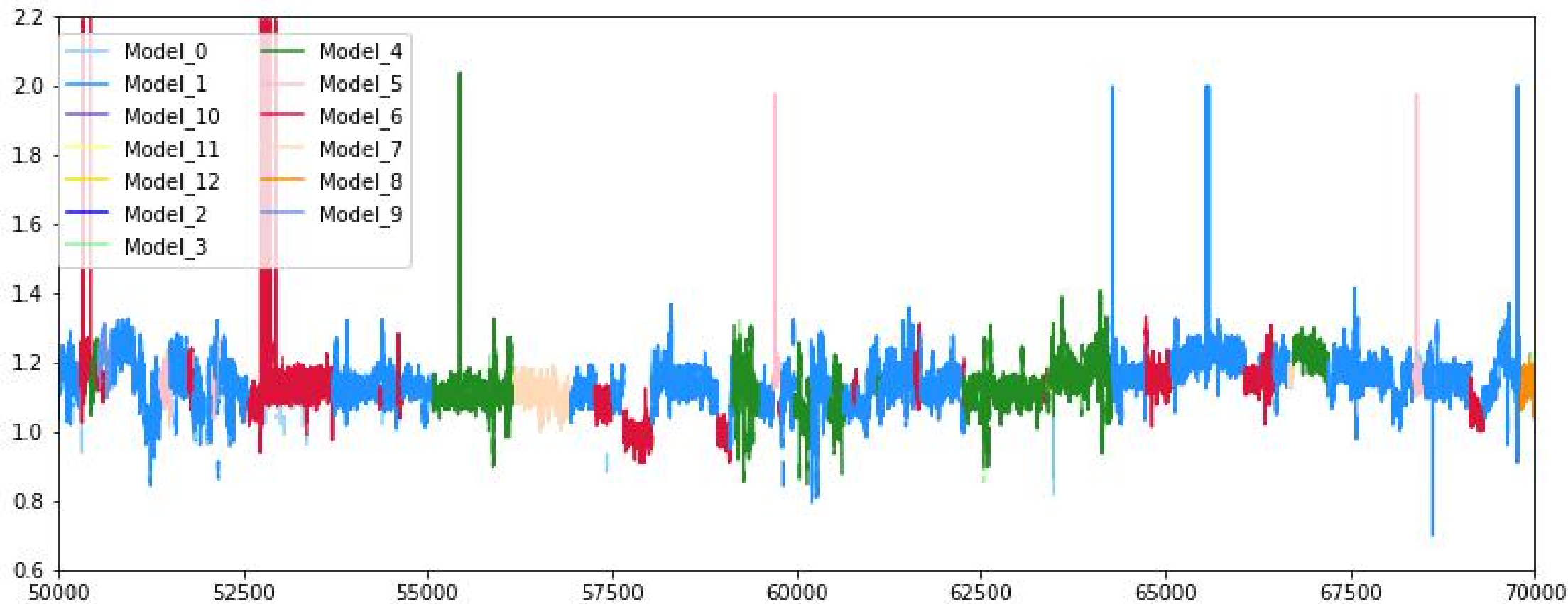
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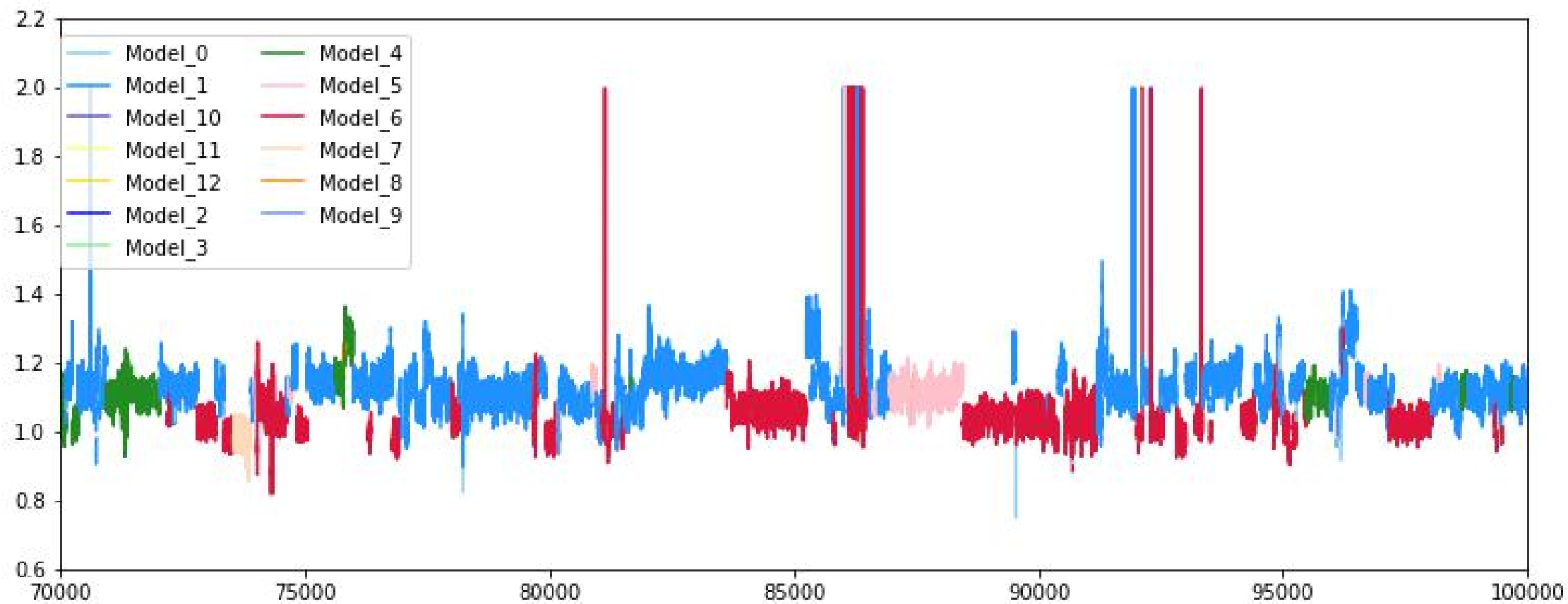
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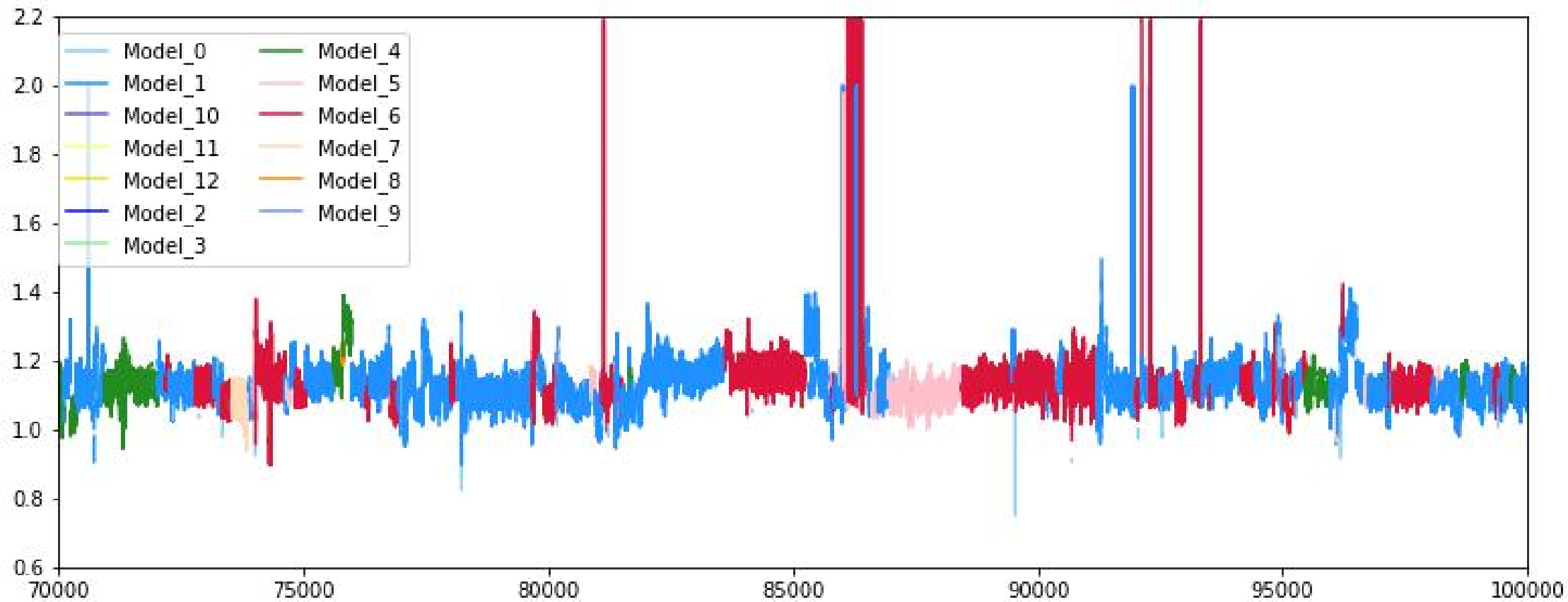
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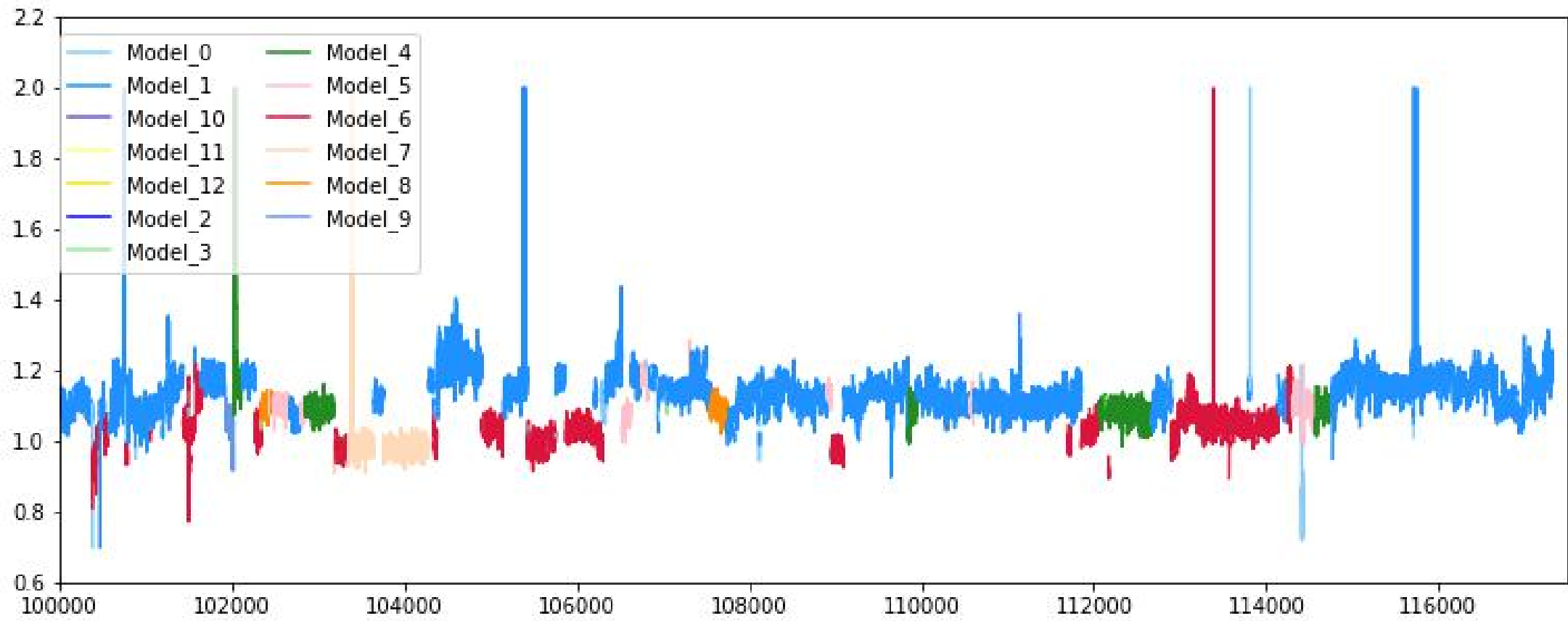
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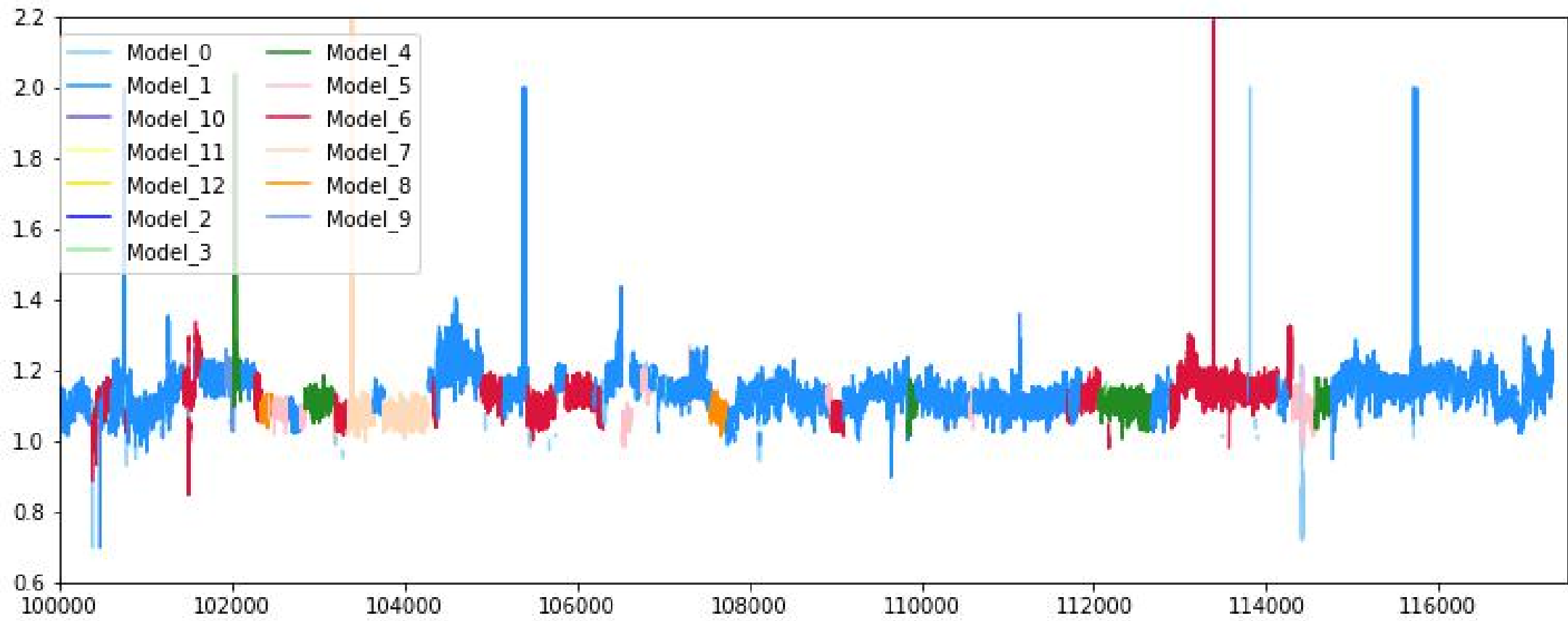
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Original



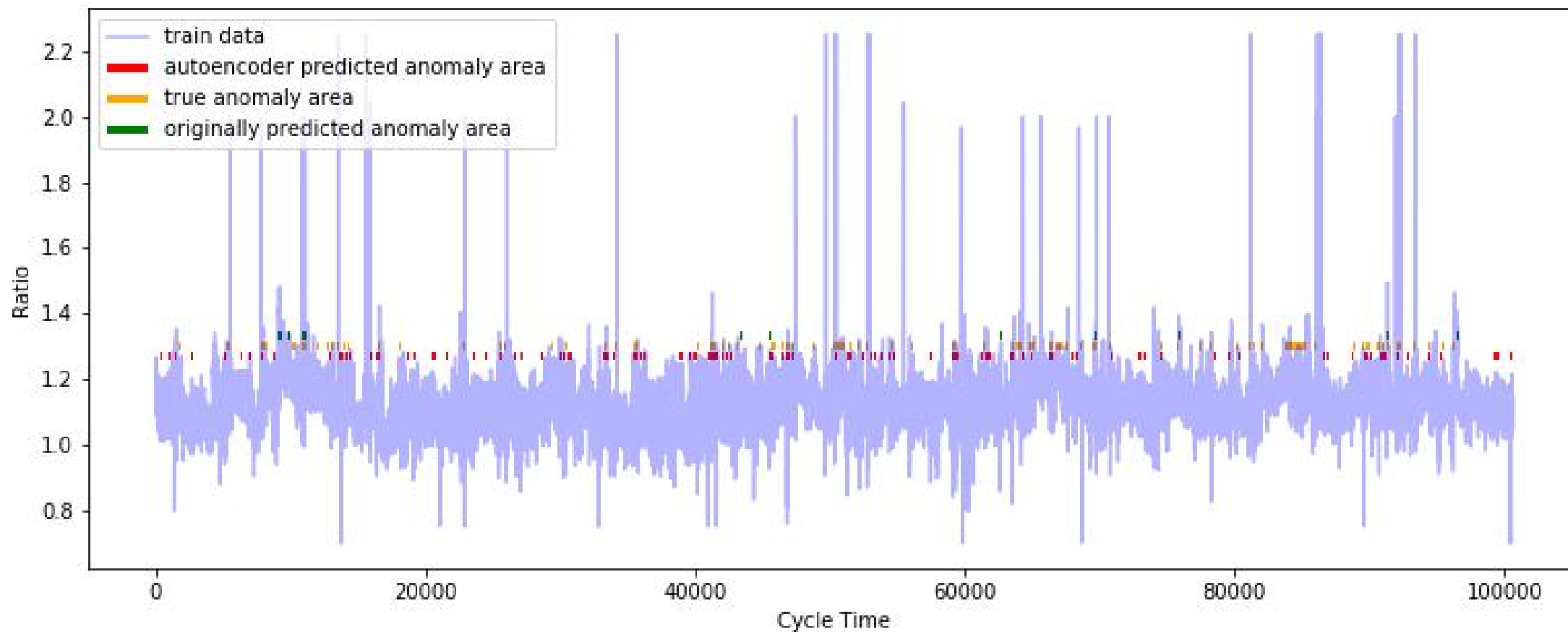
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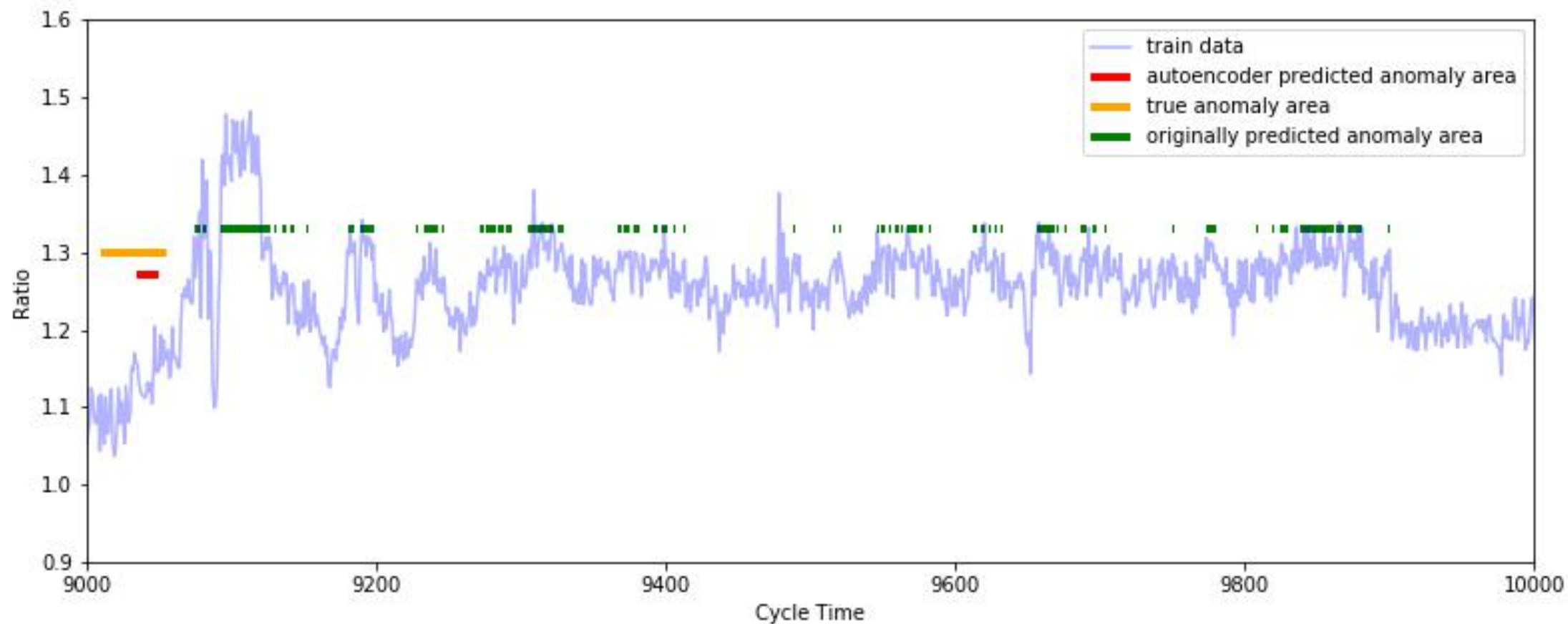
LSTM Auto-encoder

- use SVM to classify after reconstruction

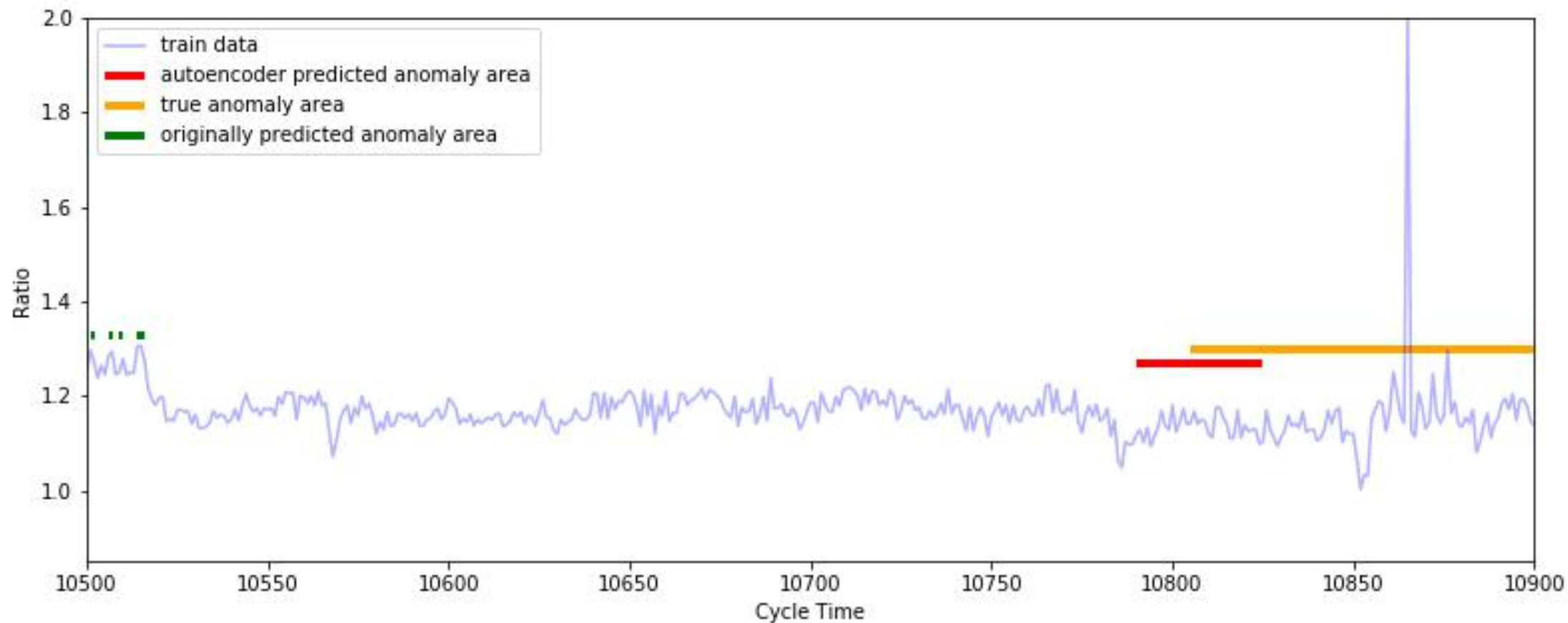
Training Set



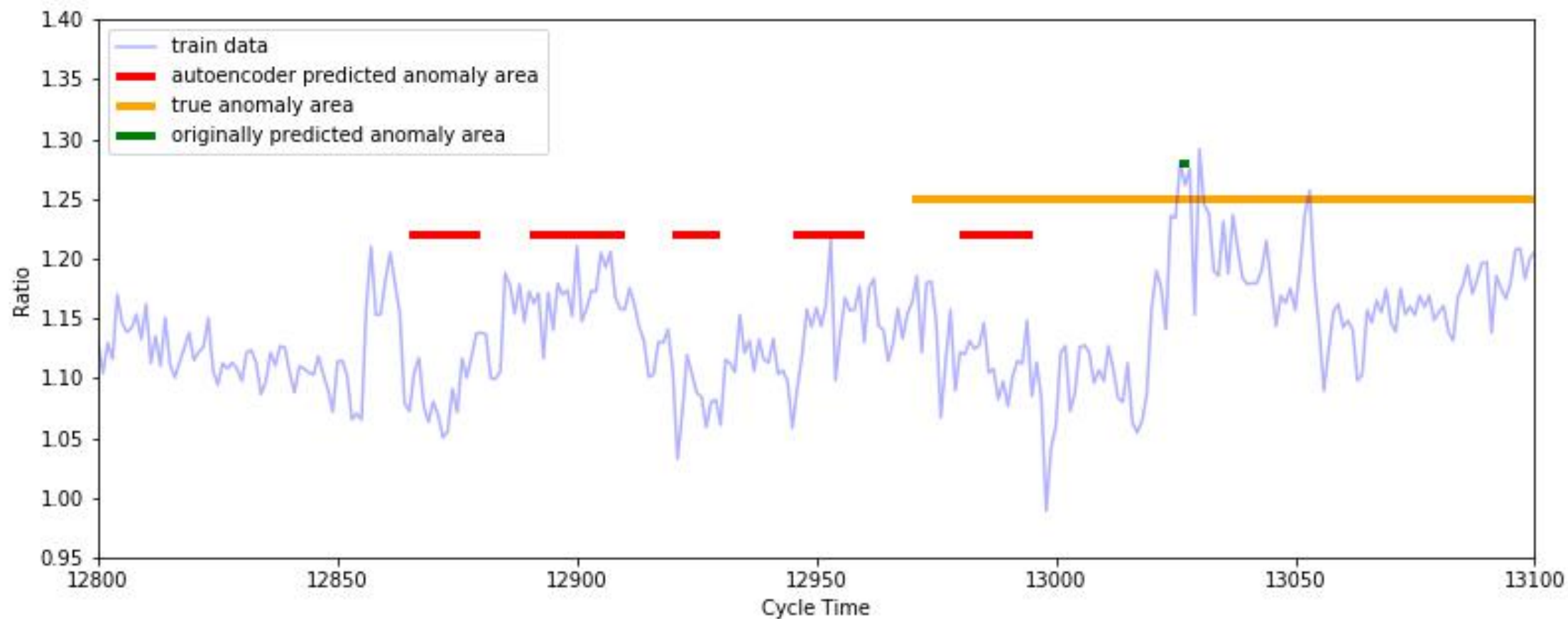
Training Set



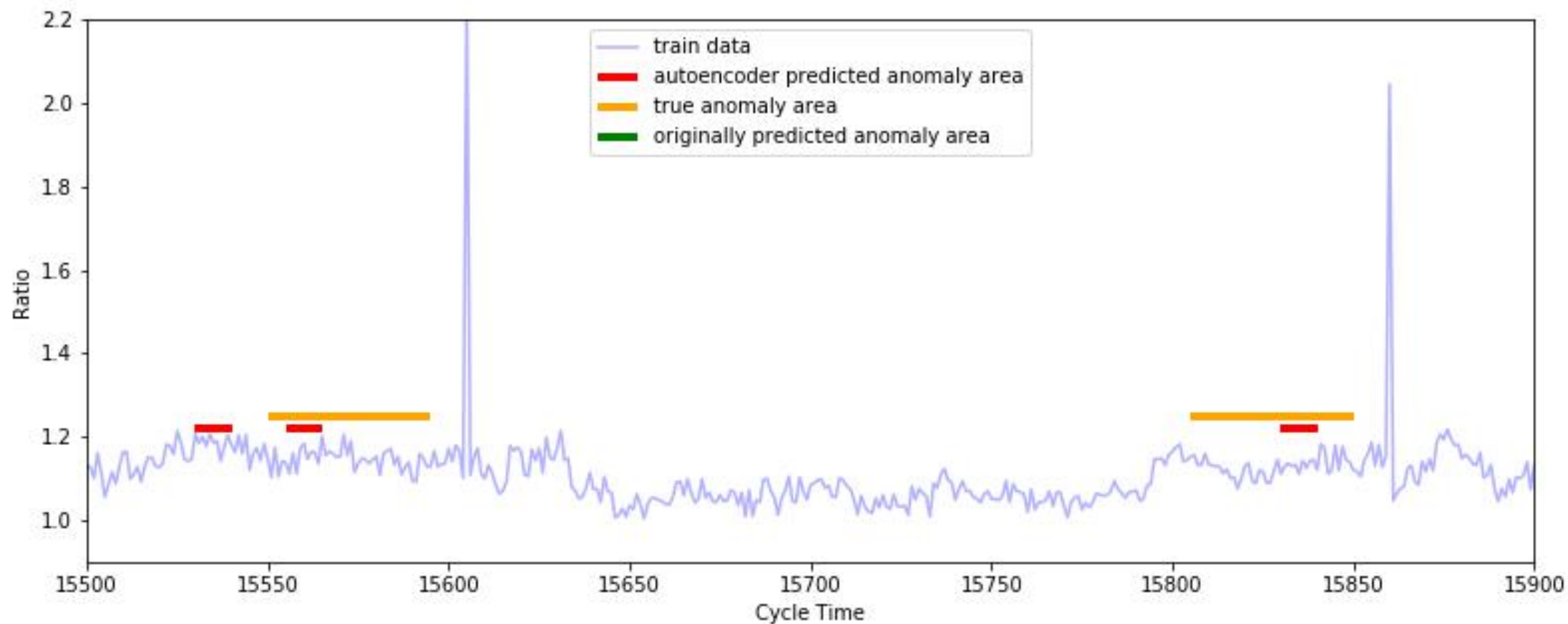
Training Set



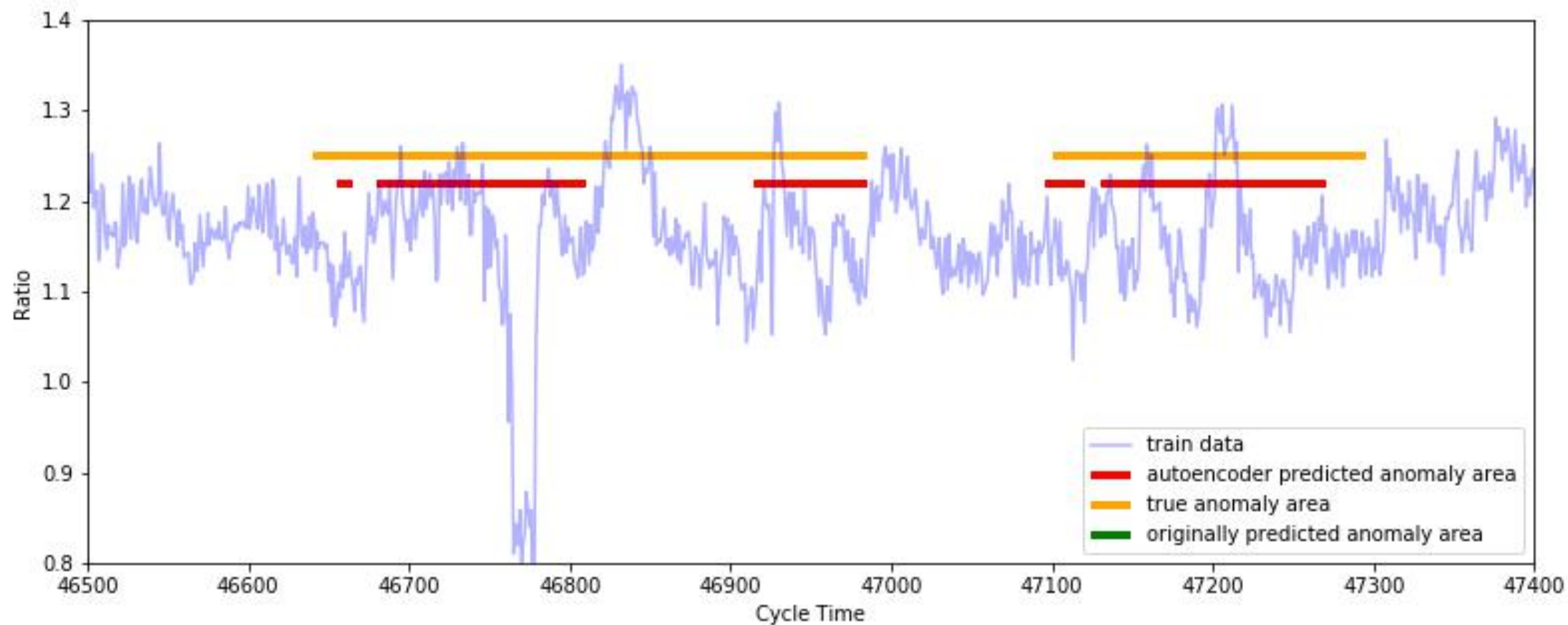
Training Set



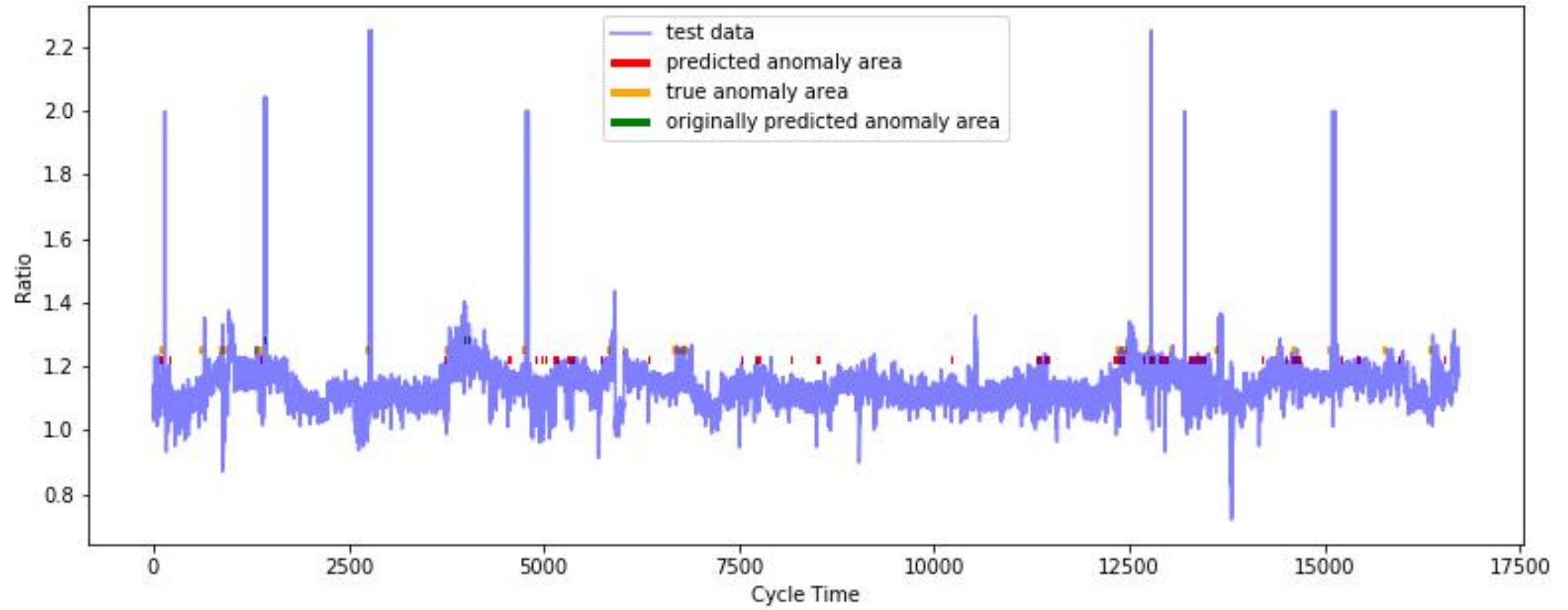
Training Set



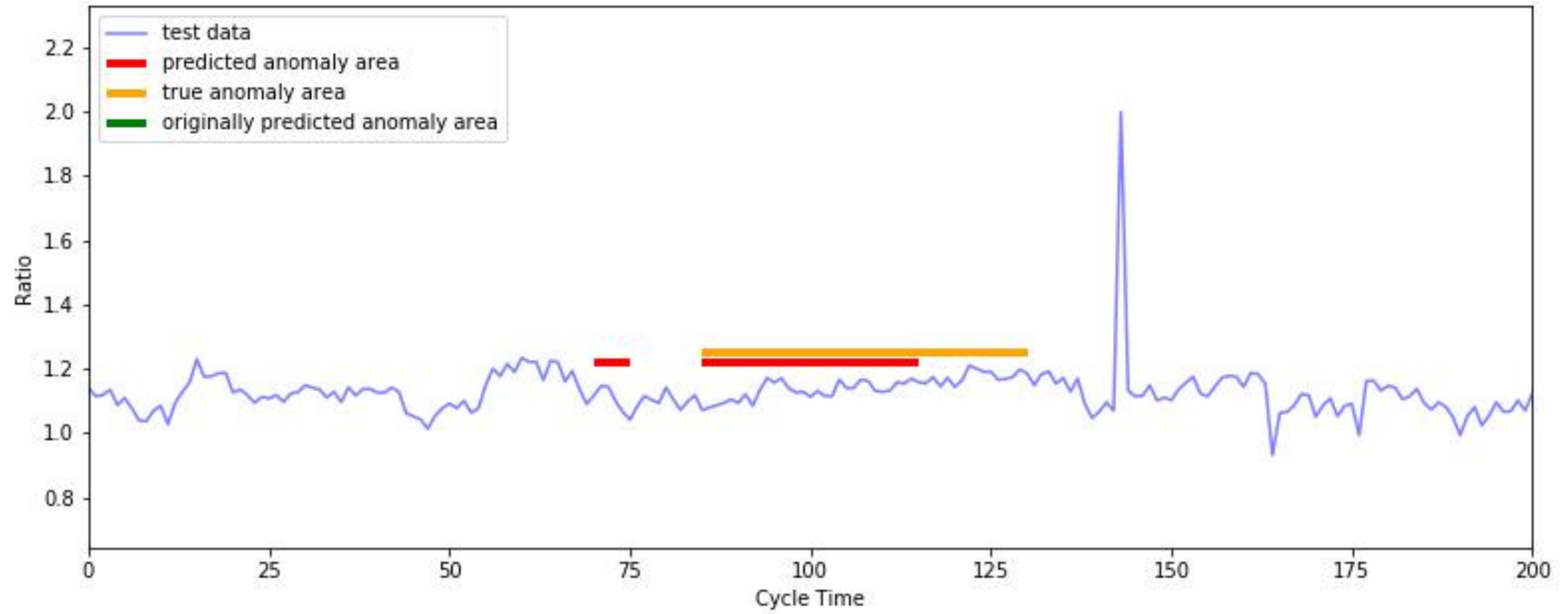
Training Set



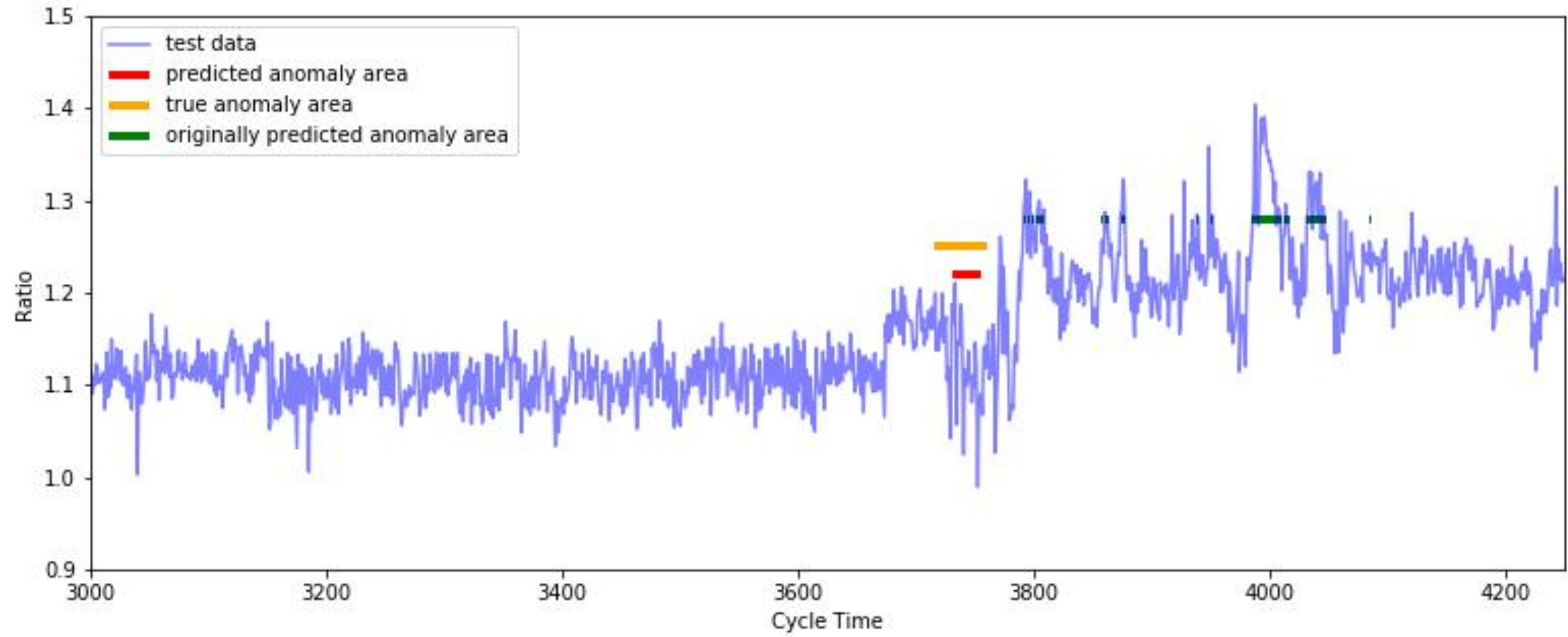
Testing Set



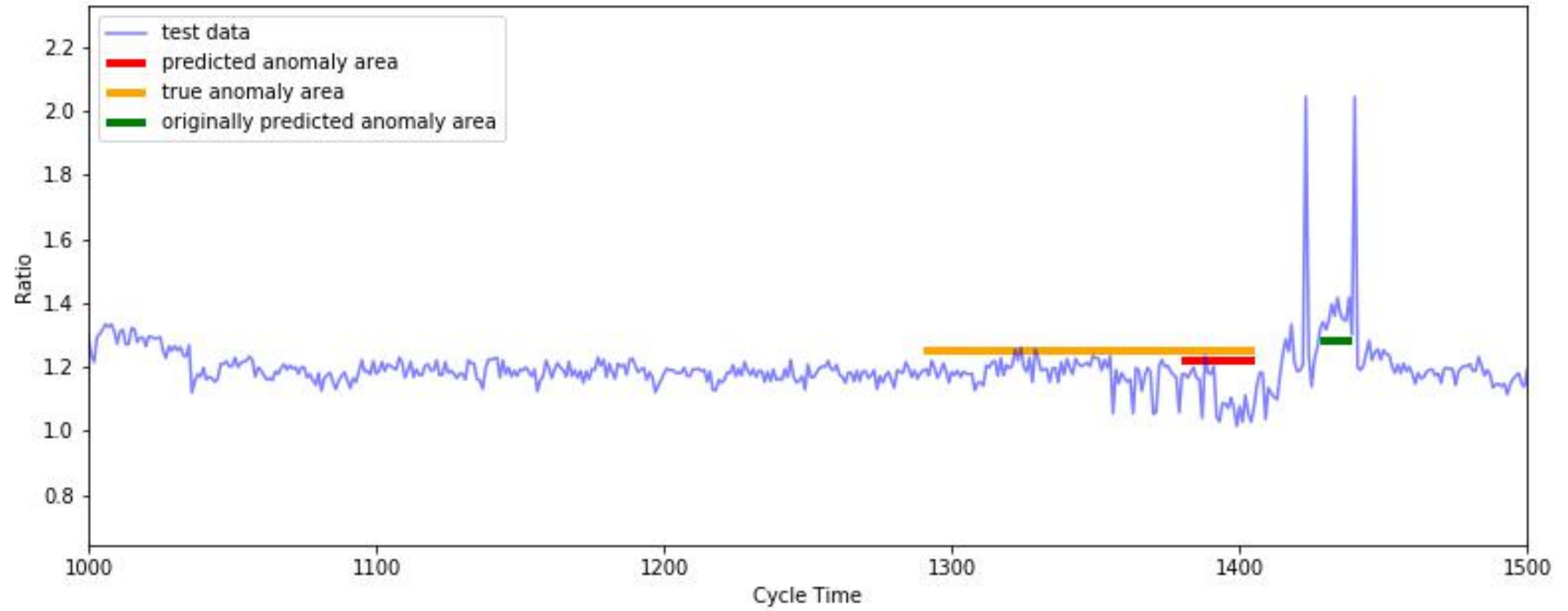
Testing Set



Testing Set



Testing Set



Testing Set

