

## Accepted Manuscript

Title: Sample data selection method for improving the prediction accuracy of the heating energy consumption

Authors: Tianhao Yuan, Neng Zhu, Yunfei Shi, Chen Chang, Kun Yang, Yan Ding



PII: S0378-7788(17)30497-8  
DOI: <https://doi.org/10.1016/j.enbuild.2017.10.006>  
Reference: ENB 8024

To appear in: *ENB*

Received date: 11-2-2017  
Revised date: 20-8-2017  
Accepted date: 2-10-2017

Please cite this article as: Tianhao Yuan, Neng Zhu, Yunfei Shi, Chen Chang, Kun Yang, Yan Ding, Sample data selection method for improving the prediction accuracy of the heating energy consumption, Energy and Buildings <https://doi.org/10.1016/j.enbuild.2017.10.006>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Sample data selection method for improving the prediction accuracy of the heating  
energy consumption

Tianhao Yuan <sup>\*</sup>, Neng Zhu, Yunfei Shi, Chen Chang, Kun Yang, Yan Ding

*School of Environmental Science and Engineering, Tianjin University, Tianjin 300072,  
China*

Highlights

1. A new sample data selection method is used to optimize similar days selection.
2. A grey correlation method is proposed to calculate the similarity coefficient.
3. Gaussian distribution function is introduced to generate virtual samples.
4. The new sample set is proved to be applicable for the BPNN model.

**ABSTRACT:** Back propagation neural network (BPNN) models and multiple linear regression (MLR) models are widely used to predict heating energy consumption. To improve the prediction accuracies for the BPNN and MLR models, we propose a novel sample data selection method (SDSM) combining the similar days selection with the virtual samples generation. First, a grey correlation method integrated with

---

\*Corresponding author.

E-mail address: [y.tianhao@163.com](mailto:y.tianhao@163.com) (T. Yuan)

Download English Version:

<https://daneshyari.com/en/article/6729281>

Download Persian Version:

<https://daneshyari.com/article/6729281>

[Daneshyari.com](https://daneshyari.com)