

**Stachura, M., Studzinski, J. Forecasting Hydraulic Load of Urban Water Supply System Using TSK Fuzzy Models. *Ochrona Srodowiska* 2014, Vol. 36, No. 1, pp. 57–60.**

**Abstract:** The paper presents possibilities of daily water demand forecasting for municipal water supply system. For this purpose, Takagi-Sugeno-Kang's (TSK) models were applied. In this type of models the conclusion is in the form of a classical linear function, which allows describing their structure as 'fuzzified linear models'. For the purpose of this study data from the water supply network for the city of Rzeszow was used (974 samples). It covered the period from 1 July 2005 to 29 February 2008. Based on the collected data weakly water demand values were compared for different seasons. Subsequent TSK models were described together with the way they were developed. It was shown that modeling could be based on weakly water demand data and that resulting model allowed predicting water demand values over a wide range of variability. The results received for different combinations of fuzzification and model conclusion structure selection were comparable. Therefore, it could be concluded that the method used for fuzzy model development might be used to determine dynamic properties of the processes for which the exact description of modeled phenomena was unknown.

**Keywords:** Water supply system, water demand, modeling, forecasting, fuzzy TSK models.