Dynamic modeling and multivariate analysis Of Reverse Osmosis desalination system

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This study proposes a systematic approach to dynamically modeling and multivariate analyzing the reverse osmosis desalination system. The dynamic model was developed to generate the output data sets (permeate salinity and flow rate) using the input data sets of the Busan desalination plant (feed water temperature, salinity and flow rate). In order to assess variables independently and to reduce dimensionality the principal component analysis (PCA) was carried out and control charts to monitor the system were applied. The correlation between output variables and input variables were investigated using partial least square (PLS) modeling and PLS regression model were applied on data sets. The results shows, the feed water temperature was found as the most important variable, which has the most influence on the process.