

Homework 2 (MATH 5490-01)
Due date: Monday, Oct. 5, 2009

Name (Print):

The file temp.dat contains 50,400 temperature measurements (of a stably stratified atmospheric boundary layer) in °C.

1. Use the data to calculate the temperature PDF by adopting three reasonable values for the filter interval. Explain which filter interval represents the most appropriate choice.
2. Calculate the skewness and flatness of the temperature PDF. Comment on the suitability of modeling the temperature PDF by means of a normal distribution.
3. Calculate the mean and variance of the temperature PDF derived from the data. Use these values to model the temperature PDF by a normal PDF.
4. Plot the temperature PDF derived from the measurements and the corresponding normal PDF. Comment on the suitability of modeling the temperature PDF by a normal distribution.
5. Use the derived normal PDF to calculate the probability for finding temperature values between 22°C and 23°C.