

Atmospheric Sciences 5270
Wind Power Meteorology
Exercise 1

This exercise deals with characterizing the observed wind resource. You will need to read Chapter 10 of the Wind Resource Assessment Handbook to complete the assignment.

You will complete a Matlab program and use it to calculate wind statistics from 15 years of 5-minute measurements from selected Oklahoma Mesonet stations. A template program is on the class web page <http://www.inscc.utah.edu/~krueger/5270/>. The (mostly) complete program is also available there.

1. Complete the template program by adding (that is, typing) the additional code that is in the complete program. Run your program and compare your results to those posted on the class web page.
2. Extend your program to calculate these additional statistics, as indicated in the program:
 - (a) mean annual wind power density for each station (values only) using a constant air density,
 - (b) mean daily wind speed versus day of year for each station (plot),
 - (c) mean hourly wind speed versus hour of day for each station (plot),
 - (d) mean turbulence intensity versus wind for each station (plot).