Matematisk statistik
KTH
Jan Enger

Inlämningsuppgift i kursen tillämpad matematisk statistik

Carbon Monoxide from a Freeway

Description
Hourly carbon monoxide (CO) averages were recorded on summer weekdays at a measurement station in Los Angeles. The station was established by the Environmental Protection Agency as part of a larger study to assess the effectiveness of the catalytic converter. It was located about 25 feet from the San Diego Freeway, which in this particular area is located at 145 degrees north. It was located such that winds from 145 to 325 degress (which in the summer are the prevalent wind directions during the daylight hours) transport the CO emissions from the highway toward the measurement station. Aggregate measurements were recorded for each hour of the day 1 to 24.

Hour - hour of the day, from midnight to midnight
CO - average summer weekday CO concentration (parts per million)
TD - average weekday traffic density (traffic count/traffic speed)
WS - average perpendicular wind-speed component,
wind speed x cos(wind direction - 235 degrees)

Analyse the data.

Source
Ledolter, J., and Tiao, G. C. (1979). Statistical methods for ambient air pollutants with special reference to the Los Angeles Catalyst Study (LACS) Data. Environmental Science and Technology, 13, 1233-1240.
Hogg, R. V., and Ledolter, J. (1992). Applied Statistics for Engineers and Physical Scientists, Second Edition. Macmillan, New York. Exercise 1.5-6.

Matematisk statistik
KTH
Jan Enger

Data:

Hour	CO	Traffic	Wind
1	2.4	50	-0.2
2	1.7	26	0.0
3	1.4	16	0.0
4	1.2	10	0.0
5	1.2	12	0.1
6	2.0	41	-0.1
7	3.4	157	-0.1
8	5.8	276	-0.2
9	6.8	282	0.2
10	6.6	242	1.0
11	6.6	200	2.3
12	6.3	186	3.8
13	5.8	179	4.6
14	5.5	178	5.4
15	5.9	203	5.9
16	6.8	264	5.9
17	7.0	289	5.6
18	7.4	308	4.9
19	6.4	267	3.8
20	5.0	190	2.5
21	3.8	125	1.4
22	3.5	120	0.6
23	3.3	116	0.4
24	3.1	87	0.1