

7 Moving average and autocorrelation coefficients

Data file CO2.TXT contains 96 monthly measurements of CO2 concentrations during 1975-1982. Analyse this time series by performing the following tasks:

- (a) make a plot of the time series.
- (b) compute simple moving average over interval $M = 3$ months. Make a plot of the computed series.
- (c) compute centered moving average over interval $M = 5$ months. Make a plot of the computed series.
- (d) compute exponential moving average for $\alpha = 0,1$ and $\alpha = 0,7$, respectively. Make a plot of the two computed series.
- (e) compute autocorrelation coefficients. Make a plot of the computed coefficients.

1	330.62
2	331.40
3	331.87
4	333.18
5	333.92
6	333.43
7	331.85
8	330.01
9	328.51
10	328.41
11	329.25
12	330.97
13	331.60
14	332.60
15	333.57
16	334.72
17	334.68
18	334.17
19	332.96
20	330.80
21	330.98
22	328.57
23	330.20
24	331.58
25	332.67
26	333.17
27	334.86
28	336.07
29	336.82
30	336.12
31	334.81
32	332.56
33	331.30
34	331.22
35	332.37
36	333.49
37	334.71
38	335.23
39	336.54
40	337.79
41	337.95
42	338.00
43	336.37
44	334.47
45	332.46
46	332.29
47	333.76
48	334.80
49	336.00
50	336.63
51	337.93
52	338.95
53	339.05
54	339.27

55	337.64
56	335.68
57	333.77
58	334.09
59	335.29
60	336.76
61	337.77
62	338.26
63	340.10
64	340.88
65	341.47
66	341.31
67	339.41
68	337.74
69	336.07
70	336.07
71	337.32
72	338.38
73	339.32
74	340.41
75	341.69
76	342.51
77	343.02
78	342.54
79	340.88
80	338.75
81	337.05
82	337.13
83	338.45
84	339.85
85	340.90
86	341.70
87	342.70
88	343.65
89	344.28
90	343.42
91	342.02
92	339.97
93	337.84
94	338.00
95	339.20
96	340.63

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