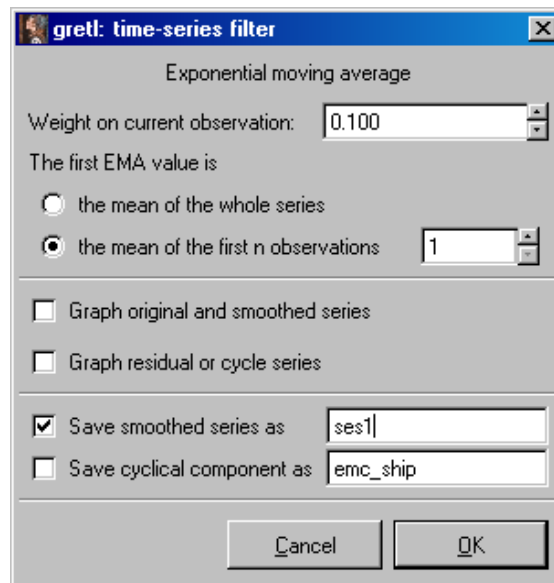


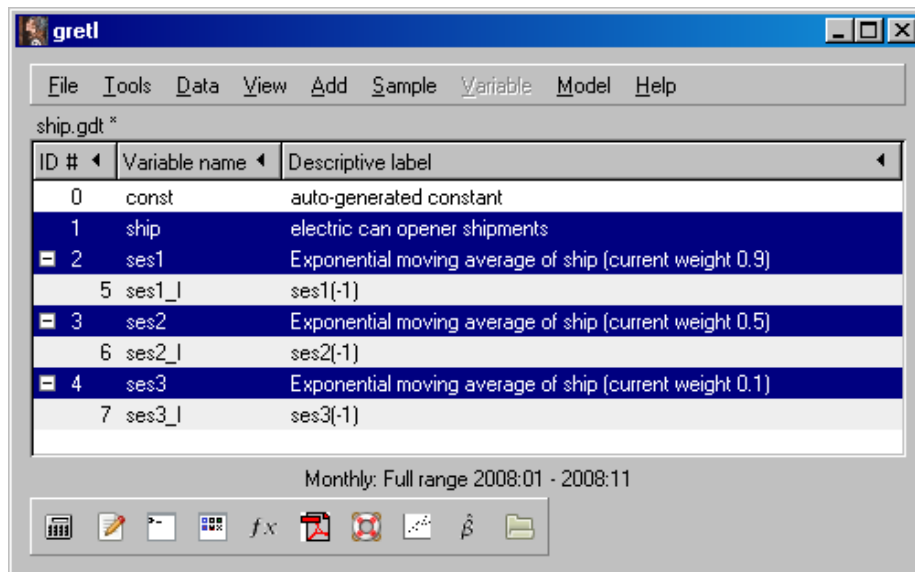
I believe there is a bug in the Exponential Smoothing code. Using the example from Makridakis, Wheelwright, Hyndman, "Forecasting Methods and Applications," 3e, table 4-3 on page 151, should provide,

	A	B	C	D	E
1			alpha	alpha	alpha
2	t	ship	0.1	0.5	0.9
3	1	200.0			
4	2	135.0	200.0	200	200
5	3	195.0	193.5	188	142
6	4	197.5	193.7	181	190
7	5	310.0	194.0	189	197
8	6	175.0	205.6	250	299
9	7	155.0	202.6	212	187
10	8	130.0	197.8	184	158
11	9	220.0	191.0	157	133
12	10	277.5	193.9	188	211
13	11	235.0	202.3	233	271
14	12		205.6	234	239
15		MSE	3438	4347	5039
16		MAPE	24.58	29.20	30.81
17		Theil's U	0.81	0.92	0.98

When running the same in GRETL using



for each series, we get



When displayed we get,

	ship	ses1	ses2	ses3
2008:01	200.0	200.0000	200.0000	200.0000
2008:02	135.0	193.5000	167.5000	141.5000
2008:03	195.0	193.6500	181.2500	189.6500
2008:04	197.5	194.0350	189.3750	196.7150
2008:05	310.0	205.6315	249.6875	298.6715
2008:06	175.0	202.5683	212.3438	187.3671
2008:07	155.0	197.8115	183.6719	158.2367
2008:08	130.0	191.0304	156.8359	132.8237
2008:09	220.0	193.9273	188.4180	211.2824
2008:10	277.5	202.2846	232.9590	270.8782
2008:11	235.0	205.5561	233.9795	238.5878

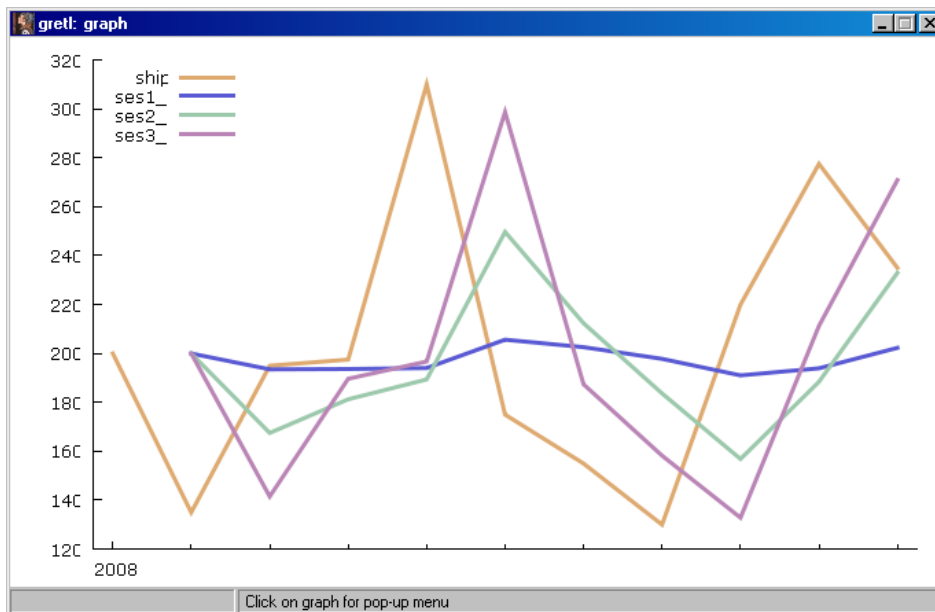
To get the same MSE as Makridakis we need,

```
? printf "MSE for SES1 is: %9.3f\n", sum((ship-ses1(-1))^2)/10
MSE for SES1 is: 3438.332
? printf "MSE for SES2 is: %9.3f\n", sum((ship-ses2(-1))^2)/10
MSE for SES2 is: 4347.237
? printf "MSE for SES3 is: %9.3f\n", sum((ship-ses3(-1))^2)/10
MSE for SES3 is: 5039.368
```

The calculated EMAs are correct, but need to be lagged.

	ship	ses1_1	ses2_1	ses3_1
2008:01	200.0			
2008:02	135.0	200.0000	200.0000	200.0000
2008:03	195.0	193.5000	167.5000	141.5000
2008:04	197.5	193.6500	181.2500	189.6500
2008:05	310.0	194.0350	189.3750	196.7150
2008:06	175.0	205.6315	249.6875	298.6715
2008:07	155.0	202.5683	212.3438	187.3671
2008:08	130.0	197.8115	183.6719	158.2367
2008:09	220.0	191.0304	156.8359	132.8237
2008:10	277.5	193.9273	188.4180	211.2824
2008:11	235.0	202.2846	232.9590	270.8782

Which provides a graph that matches their figure 4-7



--Peter