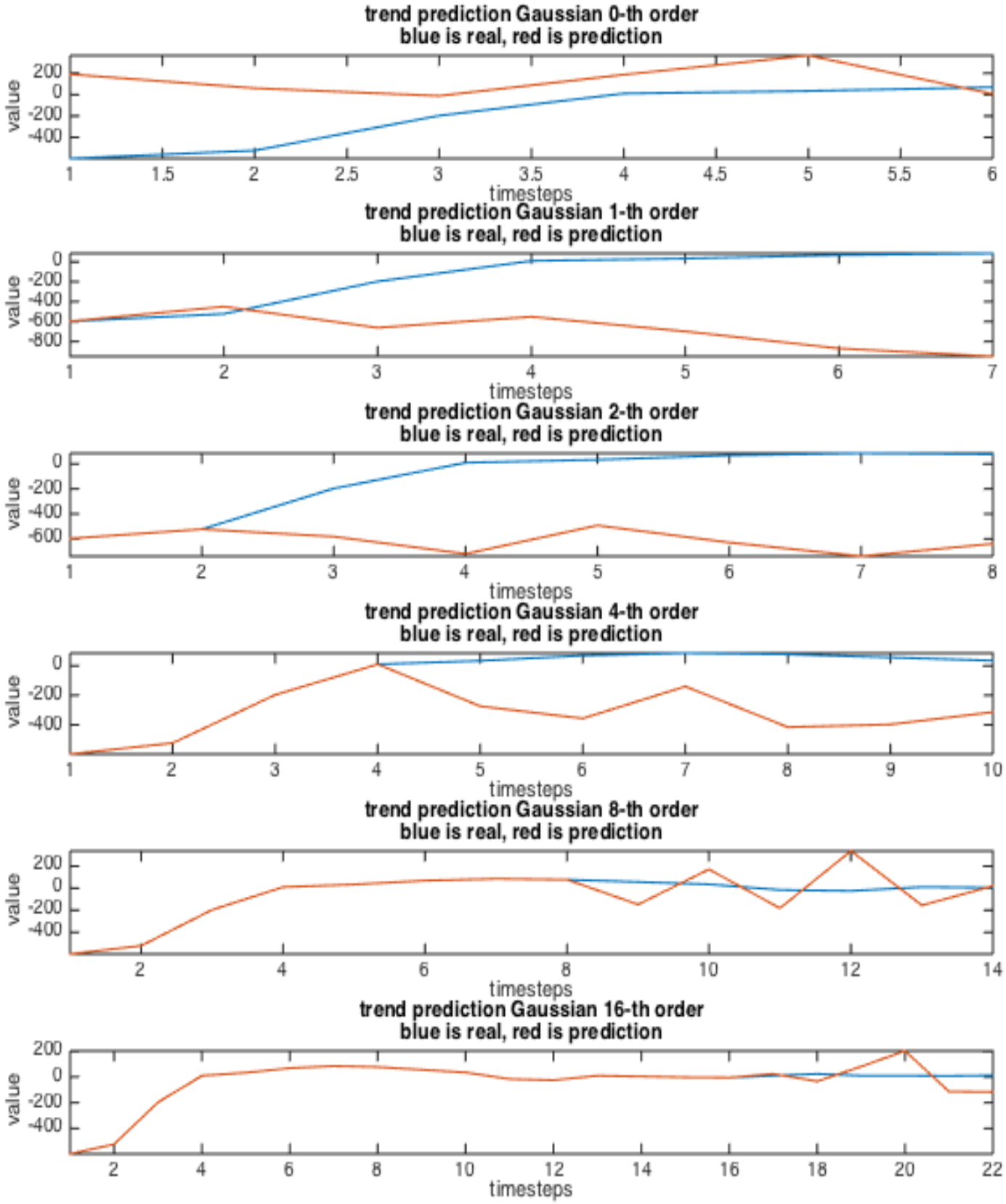
Machine Learning Task3 Po-Hsuan Huang

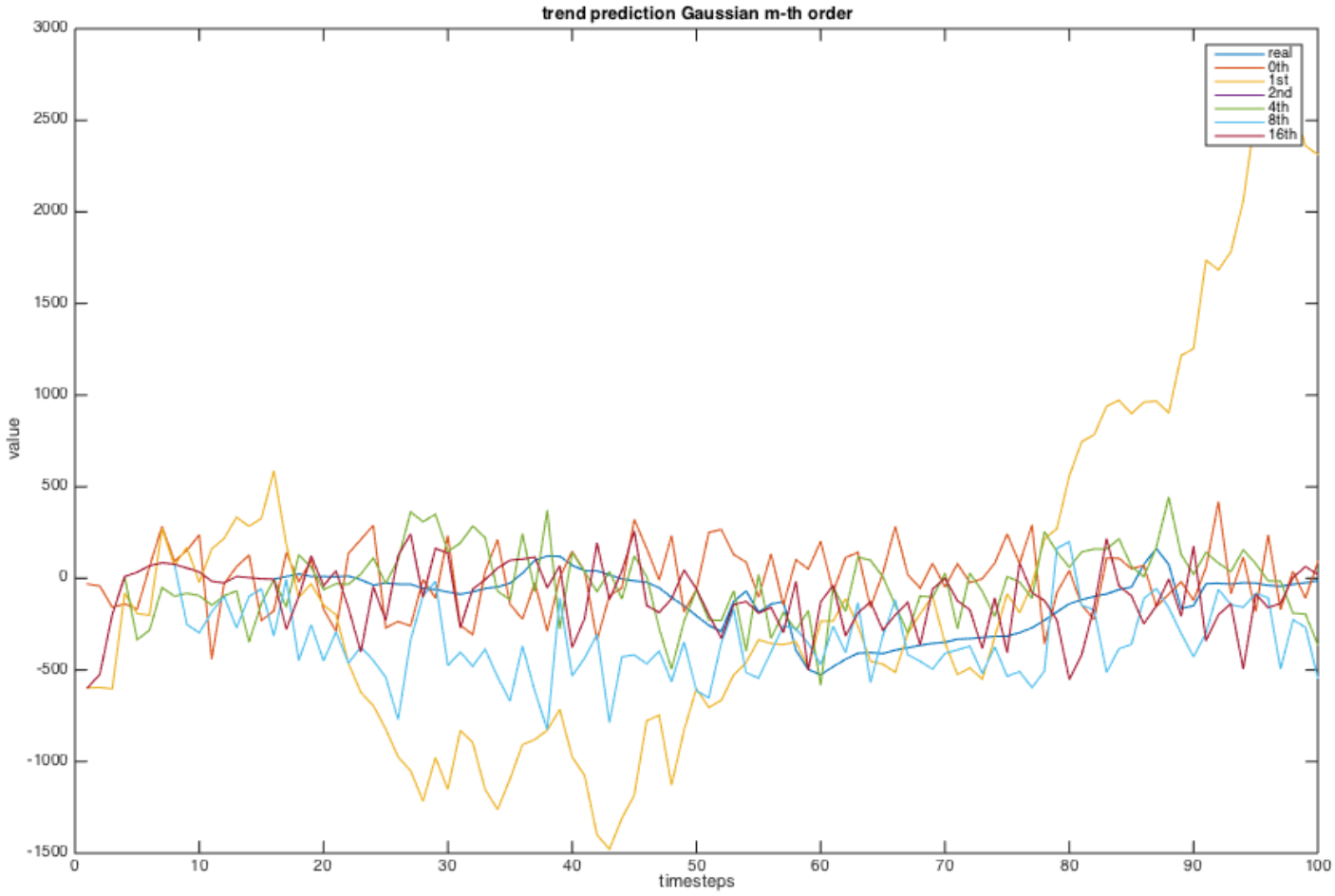
Task3 (a) Gaussian Linear Model

Weight of Gaussian process linear model of order {0,1,2,4,8,16} note: the last weight for each order is mean b					
0	1	2	4	8	16
>> Weight{1}	>> Weight{2}	>> Weight{3}	>> Weight{4}	>> Weight{5}	>> Weight{6}
ans =	ans =	ans =	ans =	ans =	ans =
1	0.9996	0.4974	0.2740	0.1179	0.0978
	0.0004	0.5018	0.2773	0.1035	0.0815
		0.0008	0.2403	0.1109	0.0721
			0.2093	0.1188	0.0676
			-0.0009	0.1216	0.0665
				0.1326	0.0613
				0.1407	0.0625
				0.1522	0.0630
				0.0017	0.0675
					0.0591
					0.0572
					0.0537
					0.0474
					0.0461
					0.0494
					0.0471
					0.0003

Predict future 5 samples for each order's Gaussian Process.



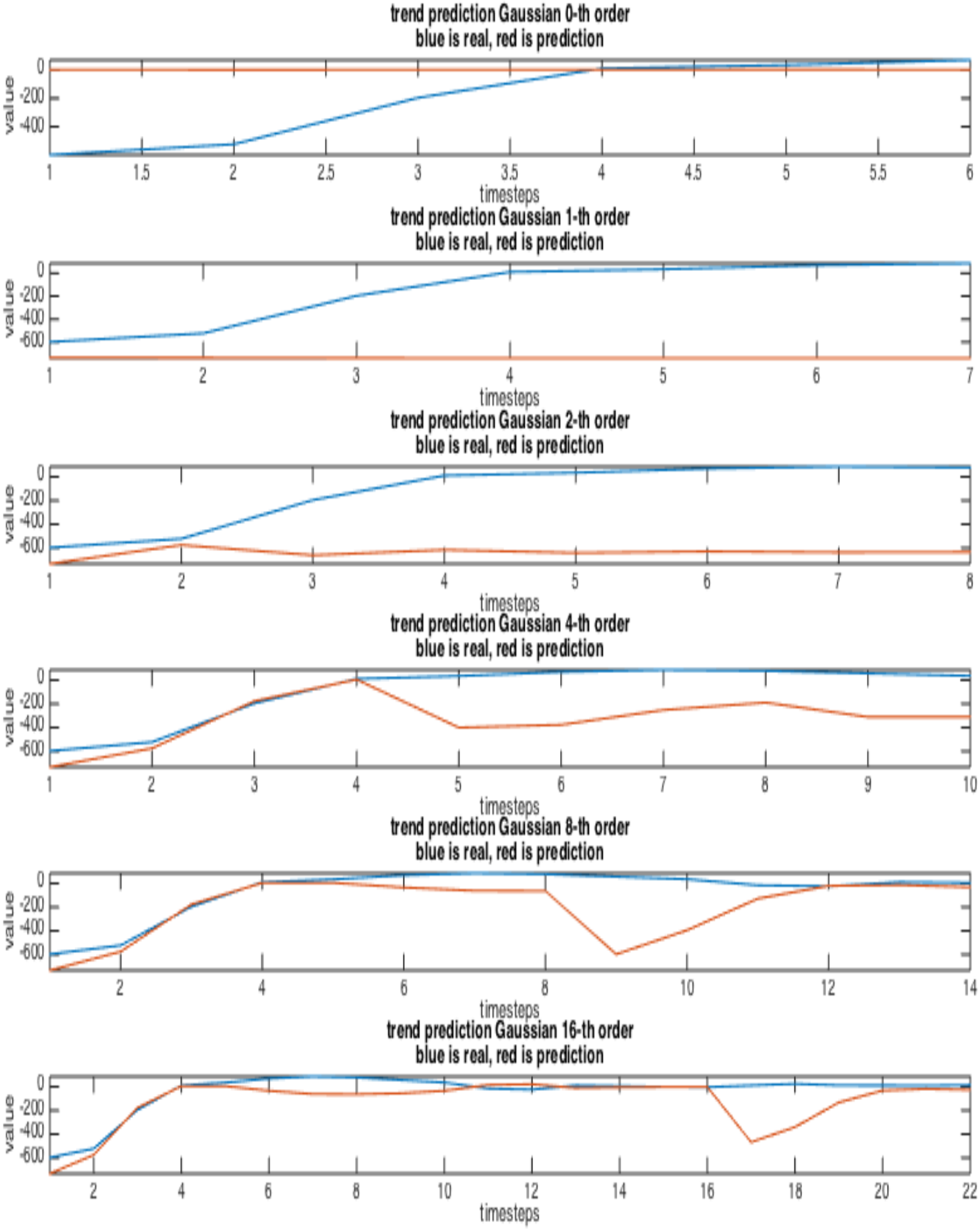
Prediction of one hundred steps



Task3 (c) Gaussian Linear Model

	Weight of Gaussian process with history dependent variance of order {0,1,2,4,8,16} note: the last weight for each order is mean b				
0	1	2	4	8	16
>> Weight{1}	>> Weight{2}	>> Weight{3}	>> Weight{4}	>> Weight{5}	>> Weight{6}
ans =	ans =	ans =	ans =	ans =	ans =
1	1.0028	0.4648	0.3025	0.0518	0.0816
	-0.0028	0.5373	0.1666	0.0285	0.0306
		-0.0021	0.1308	0.0112	-0.0005
			0.4056	-0.0148	-0.0117
			-0.0055	-0.0153	-0.0185
				0.0795	-0.0429
				0.3314	-0.0414
				0.5278	-0.0061
				-0.0001	0.0360
					0.0615
					0.0617
					0.0628
					0.0532
					0.0766
					0.2204
					0.4366
					0.0003

Task3 (c) Next 5 prediction for ARCH process.



Prediction of one hundred steps