We would like to thank Fahimi and El-Shafie(2013) for his comment on our recent paper Ismail et al. (2012) in which we proposed the hybrid model of SOM-LSSVM for monthly river flows forecasting. We will address each of these issues individually and provide brief explanations on each of the issues.

Response to Issue 1

In the original paper, Figure 8 represent observed versus predicted river flows for SOM-LSSM model is slightly different from the other observed versus predicted river flow for the other three methods. The reason of this situation is because the data that used to produce the graph were still in the clustering form and not because we using a different data. We didn't change the order of the data as we would like to demonstrate the capability of the proposed model. Figure 1 represents the new graph for SOM-LSSVM follows the original dataset structure. Meanwhile, Figure 2 shows the previous graph for SOM-LSSVM with data was still in clustering form. Based on these two figures, it indicate clearly that that data had major ordering changes especially starting from 1 (x-axis) to 40 (x-axis) or from January 2004 to April 2007.

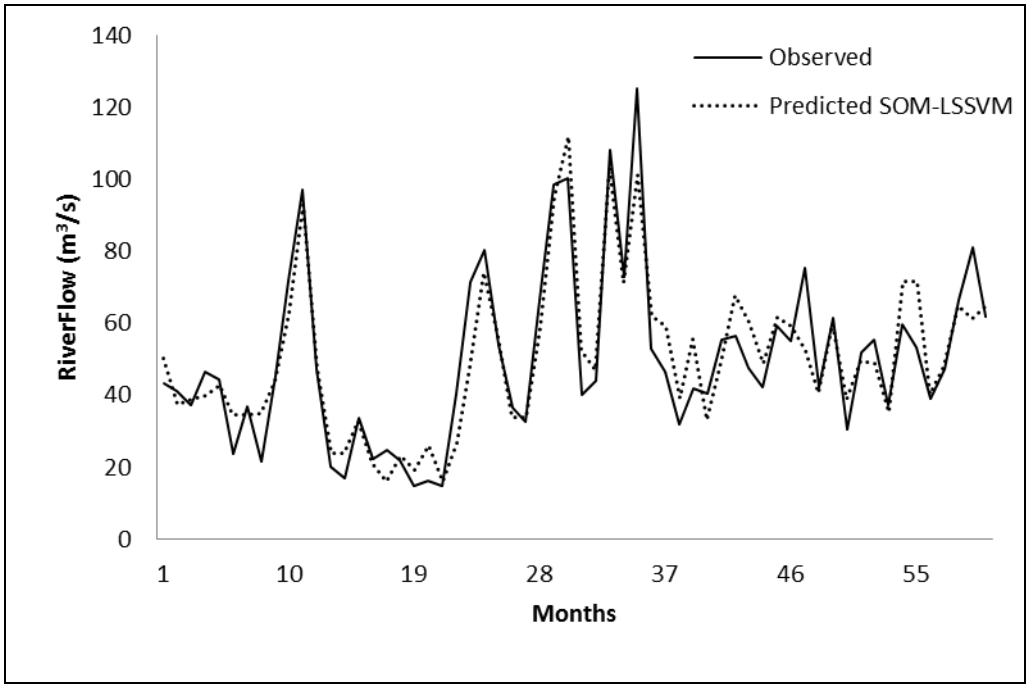

Figure 1: Predicted and Observed river flows during testing period by SOM-LSSVM follow the original dataset for Bernam River (re-organized).

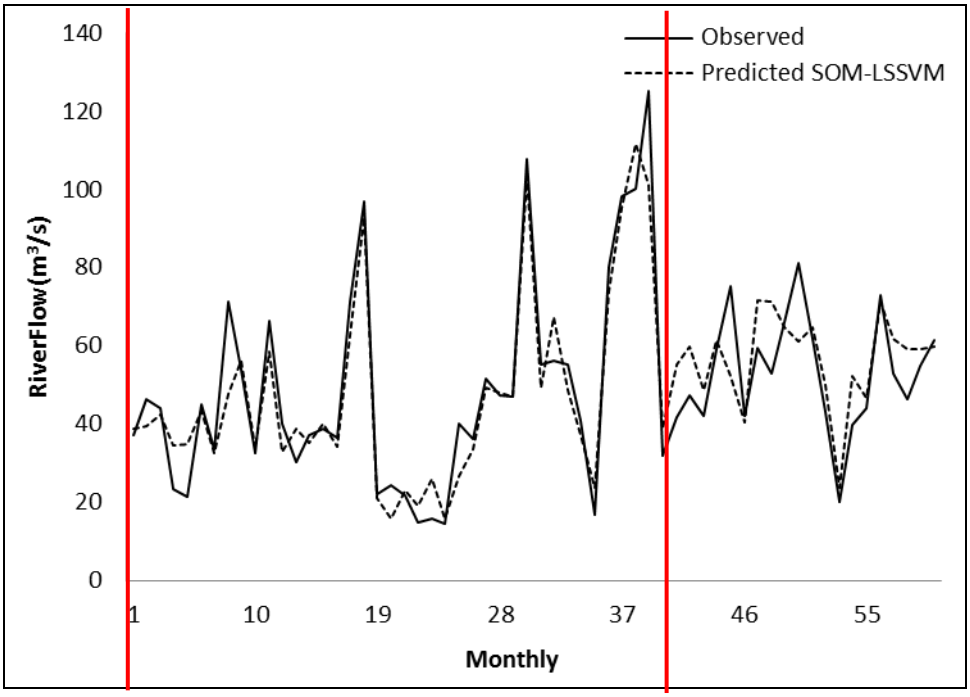

Figure 2: Predicted and Observed river flows during testing period by SOM-LSSVM for Bernam River (clustering form).

Response to Issue 2

In our study, we mapped the data into several map sizes of 2x2, 3x3, 4x4, and 5x5 based on trial and error approach. The data were then clustered into several disjoined cluster after visual inspection as per suggested by Lin and Chen (2006). After series of experiments conducted, we found that SOM_LSSVM provide an excellent performance whether it is mapped to a small or large map size. Therefore, we decided to share the results of experiments using a smaller map sizes to facilitate readers to understand our study and we are confident that SOM-LSSVM able to provide an alternative technique for forecasting purpose.

We also agree with the suggestions by, Abrahat and See (2000), Lin and Chen (2006) and Fahimi and El-Shafie(2013) that SOM provides better results when it's mapped into the larger ones. Therefore, we would like to provide other results for SOM-LSSVM model. In these new results, we used the same data as previous study and the data were also split in two set which are training and testing set. For training set, the first dataset consisting of 456 monthly records from January 1966 to December 2003, while the final dataset containing 60 mean monthly river flows from January 2004 to December 2008 was used for testing. In these new results 8x7 and 10x13 map sizes were utilized. Based on below table, our findings are suitable as per suggested by Fahimi and EL-Shafie(2013) as well as previous researcher.

Table 1 : The results for the training and testing using hybrid SOM-LSSVM for 6x6, 8x7, 10x13 Map Sizes.

Map Sizes	Input		Training		Testing		
		MAE	RMSE	R	MAE	RMSE	R
8x7_cluster5	M1	0.0820	0.1118	0.6633	0.0753	0.0967	0.6507
	M2	0.0417	0.0597	0.9203	0.0657	0.0841	0.7587
	M3	0.0641	0.0911	0.7956	0.0621	0.0787	0.7855
	M4	0.0218	0.0377	0.9699	0.0642	0.0824	0.7645
	M5	0.0643	0.0885	0.8275	0.0710	0.0939	0.6733
	M6	0.0787	0.1051	0.7238	0.0783	0.1009	0.5863
	M7	0.0706	0.0958	0.7800	0.0686	0.0910	0.7062
	M8	**0.0341**	**0.0471**	**0.9525**	**0.0318**	**0.0412**	**0.9471**
10x13_cluster3	M1	0.0830	0.1154	0.6397	0.0766	0.0999	0.6255
	M2	0.0640	0.0941	0.7779	0.0805	0.1013	0.6192
	M3	0.0601	0.0873	0.8264	0.0656	0.0816	0.7681
	M4	0.0544	0.0761	0.8662	0.0751	0.0952	0.6892
	M5	0.0347	0.0530	0.9406	0.0655	0.0832	0.7558
	M6	0.0707	0.0983	0.7545	0.0770	0.1003	0.6234
	M7	0.0429	0.0620	0.9255	0.0701	0.0925	0.6890
	M8	**0.0132**	**0.0264**	**0.9851**	**0.0289**	**0.0395**	**0.9524**
10x13_cluster4	M1	0.0615	0.0887	0.8045	0.0528	0.0758	0.8142
	M2	0.0504	0.0735	0.8727	0.0587	0.0791	0.7910
	M3	0.0536	0.0747	0.8721	0.0605	0.0806	0.7829
	M4	0.0633	0.0862	0.8339	0.0635	0.0794	0.7840
	M5	0.0542	0.0792	0.8562	0.0766	0.1036	0.6951
	M6	0.0597	0.0861	0.8464	0.0727	0.0985	0.6361
	M7	0.0410	0.0517	0.9640	0.0708	0.0991	0.6610
	M8	**0.0446**	**0.0567**	**0.9704**	**0.0329**	**0.0457**	**0.9339**
10x13_cluster5	M1	0.0735	0.1077	0.6959	0.0706	0.0973	0.6458
	M2	0.0704	0.1002	0.7424	0.0647	0.0899	0.7723
	M3	0.0482	0.0721	0.8840	0.0613	0.0786	0.7864
	M4	0.0435	0.0678	0.8985	0.0683	0.0974	0.6673
	M5	0.0295	0.0500	0.9461	0.0672	0.0861	0.7349
	M6	0.0707	0.0990	0.7507	0.07513	0.1031	0.6160
	M7	0.0468	0.0722	0.8863	0.0601	0.0803	0.7808
	M8	**0.0069**	**0.0146**	**0.9957**	**0.0233**	**0.0340**	**0.9708**

Response to Issue 3

We would like to apologize for the typo error and wrong explanations given on the previous manuscript. Here, we would like to amend the explanations of Eq. (2) for Section 3.2 (Artificial Neural Network).

" Mathematically, a three-layer MLP with *p* input nodes, *q* hidden nodes and one output node can be expressed as

$$y_t = g\left(\sum_{j=1}^{q} w_j f\left(\sum_{i=1}^{p} w_i x_{t-i}\right)\right) \quad (1)$$

where y_t is the output layers, x_{t-i} is the input of the network, w_i is the connection weights between nodes of input and hidden layers, w_j is the connection weights between nodes of hidden and output layers, *g* and *f* are activation functions. The most common of $g(.)$ is the linear function and $f(.)$ is the sigmoid function are adopted here."

Summary

We appreciate the time and effort spent in developing the comments on our paper. The goal of this reply is to clarify and correct several of mistakes that we have done on our previous paper.