

## SSN Combined and Individual Model Results

**Table B1.** Deposition 2023-2022 coefficient estimates and significance levels from individual and combined SSN models. Green cells are positively correlated, while brown cells are negatively correlated. Cells marked with (\*) denote  $0.01 < p < 0.05$ ; (\*\*) denote  $p < 0.01$ ; (') denote  $0.05 < p < 0.10$ . Light grey shading indicates  $p > 0.10$ ; dark grey indicates variable excluded.

Dependent Variable	Category Label	Independent Variable	CPF						ETF			
			Combined	ME	MM	UE	UM	UW	Combined	LM2	LPM	MM
Deposition 2023-2022	Other Topography	ch_curvature.median		0.07'				-0.11*				
		ch_valley.width		0.13**			0.10'		-0.09'			
		hs_curvature.median	-0.05*				-0.18**					
		hs_drainage.density										0.10'
		hs_hillslope.length									0.24**	
		ws_drainage.area.cdifff		-0.08'					0.08'	-0.16*		
	Precipitation	ws_10.min.storm.accum.mean	0.08**						0.12*			
	Slope	ch_slope.median	-0.18**	-0.12*		-0.14**		-0.18**	0.33**	0.19'	0.47**	
		ch_stream.power	0.19**	0.25**				0.10*	-0.12*			
		ch_stream.power.cdifff				0.06'		0.07'	0.09**	0.17**		0.08*
		hs_slope.median	0.04'				0.17**			0.17'	0.14'	
		ws_slope.mean	0.15**									
	Vegetation/ Soils	hs_dnbr.median							-0.08*			
		hs_ndvi.mean						0.10*				
		ws_clay.content	0.09**									

**Table B2.** Erosion 2023-2021/2020 coefficient estimates and significance levels from individual and combined SSN models. Green cells are positively correlated, while brown cells are negatively correlated. Cells marked with (\*) denote  $0.01 < p < 0.05$ ; (\*\*) denote  $p < 0.01$ ; (') denote  $0.05 < p < 0.10$ . Light grey shading indicates  $p > 0.10$ ; dark grey indicates variable excluded.

Dependent Variable	Category Label	Independent Variable	CPF						ETF			
			Combined	ME	MM	UE	UM	UW	Combined	LM2	LPM	MM
Erosion 2023-2021/2020	Other Topography	ch_curvature.median										
		ch_valley.width			-0.20**				-0.09**			-0.11**
		hs_curvature.median					-0.05'		0.06'			
		hs_drainage.density										-0.11'
		hs_hillslope.length	0.04'		0.09'						-0.09'	
		ws_drainage.area.cdifff					-0.06*					
	Precipitation	ws_10.min.storm.accum.mean	0.06*									
	Slope	ch_slope.median	0.12**		-0.15*	0.07'	0.18**		0.11*			
		ch_stream.power	0.04'		0.21**	0.07'		0.08'	-0.10*			
		ch_stream.power.cdifff							0.06*			0.08*
		hs_slope.median	0.04*				0.08**					
		ws_slope.mean	0.18**						0.15**			
	Vegetation/ Soils	hs_dnbr.median					-0.06*	0.10**				
		hs_ndvi.mean	0.06*			-0.06'		0.08'				
		ws_Kw										
		ws_ndvi.mean	-0.10**									

**Table B3.** Erosion 2023-2022 coefficient estimates and significance levels from individual and combined SSN models. Green cells are positively correlated, while brown cells are negatively correlated. Light grey shading indicates  $p > 0.10$ ; dark grey indicates variable excluded. Cells marked with (\*) denote  $0.01 < p < 0.05$ ; (\*\*) denote  $p < 0.01$ ; (') denote  $0.05 < p < 0.10$ .

Dependent Variable	Category Label	Independent Variable	CPF						ETF			
			Combined	ME	MM	UE	UM	UW	Combined	LM2	LPM	MM
Erosion 2023-2022	Other Topography	ch_curvature.median	0.12**	0.15**		0.12*				0.27**		
		ch_valley.width		-0.20**		-0.10'				-0.33**		
		hs_curvature.median	-0.05*	-0.17**			-0.18**					
		hs_drainage.density		-0.12'								-0.11'
		hs_hillslope.length	0.05*									0.13*
		ws_drainage.area.cdiff		0.13*		-0.08*						
	Precipitation	ws_10.min.storm.accum.mean										
	Slope	ch_slope.median				0.09'	-0.10'		0.09'		0.10'	
		ch_stream.power	0.16**	-0.40**				0.19**				
		ch_stream.power.cdiff				0.07'			0.09**	0.14*	0.18**	
		hs_slope.median		-0.12*			0.13**	-0.12*				
		ws_slope.mean	0.29**						0.41**			
	Vegetation/ Soils	hs_dnbr.median						0.14**				
		hs_ndvi.mean	0.06*	0.12*		-0.12*			-0.09*	-0.43**		
		ws_clay.content	0.09**									

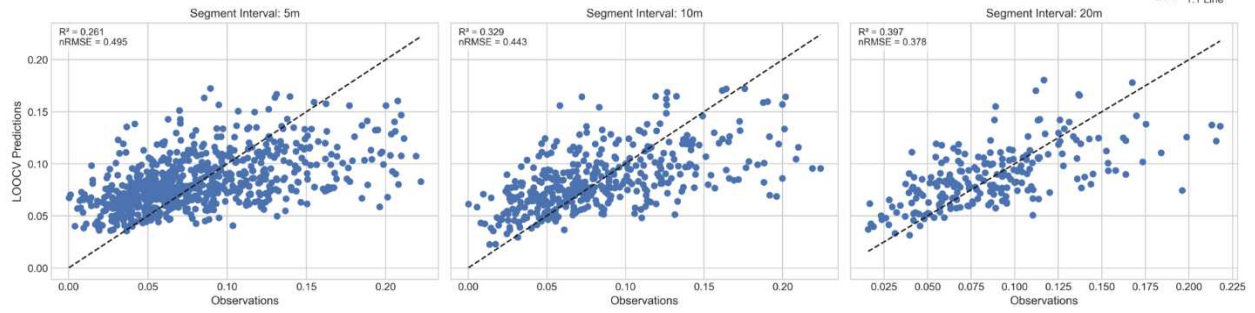
**Table B4.** Net Change 2023-2022 coefficient estimates and significance levels from individual and combined SSN models. Green cells are positively correlated, while brown cells are negatively correlated. Cells marked with (\*) denote  $0.01 < p < 0.05$ ; (\*\*) denote  $p < 0.01$ ; (') denote  $0.05 < p < 0.10$ . Light grey shading indicates  $p > 0.10$ ; dark grey indicates variable excluded.

Dependent Variable	Category Label	Independent Variable	CPF						ETF			
			Combined	ME	MM	UE	UM	UW	Combined	LM2	LPM	MM
Net Change 2023-2022	Other Topography	ch_curvature.median	-0.17**	-0.11'								
		ch_valley.width		0.23'			0.16*	-0.11*				
		hs_curvature.median		0.12'				-0.11'			-0.15*	
		hs_drainage.density					-0.67**					
		hs_hillslope.length										-0.22*
		ws_drainage.area.cdiff					0.12'					
	Precipitation	ws_10.min.storm.accum.mean										
	Slope	ch_slope.median	-0.23**			-0.22*	0.16'					
		ch_stream.power	0.17*									
		ch_stream.power.cdiff	-0.16**	-0.19**		-0.25**		-0.15**		0.20*	-0.52**	
		hs_slope.median	0.09'	0.23*			-0.31**					
		ws_slope.mean							-0.41'			
	Vegetation/ Soils	hs_dnbr.median								-0.31**		
		hs_ndvi.mean				0.22*	-0.18'					
		ws_clay.content										

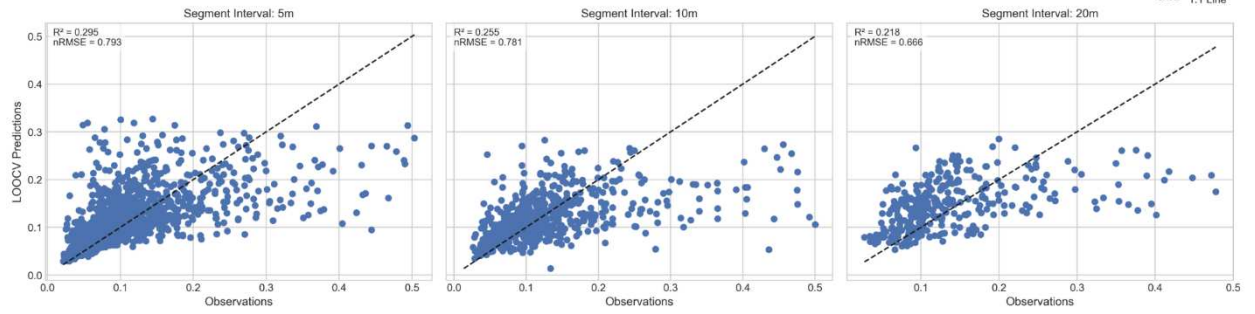
## Segment Interval Selection

The choice of a distance for the segmentation interval along the channel corridor is arbitrary. Below is an analysis of the normalized root mean square error (nRMSE) and  $R^2$  of the observations at each segment and leave one out cross validation (LOOCV) predictions along a reach for 5-, 10-, and 20-meter segmentation intervals. A  $R^2$  closer to one and nRMSE closer to 0 indicates the best performance. The 10-meter segmentation interval was selected because of its stable performance across independent variables and burn scars

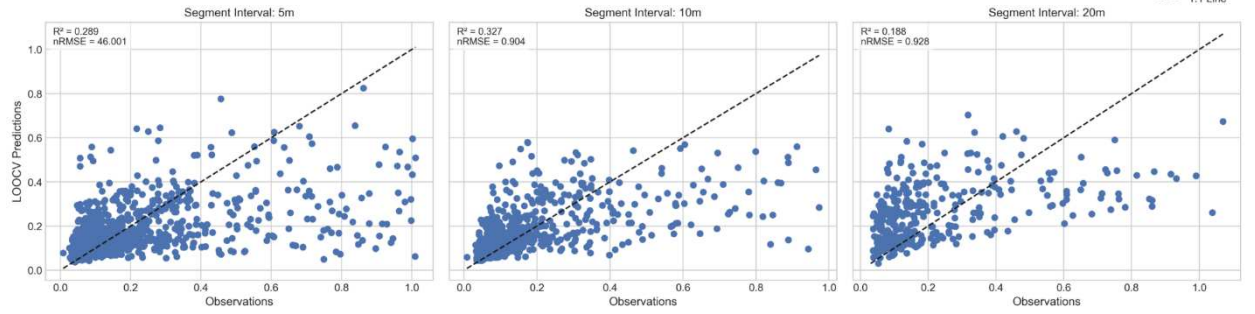
### CPF Erosion 2023-2021



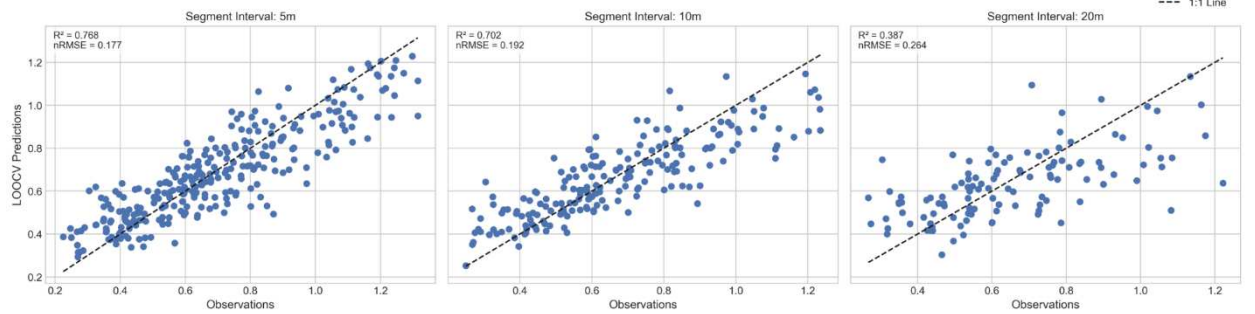
### CPF Deposition 2023-2022



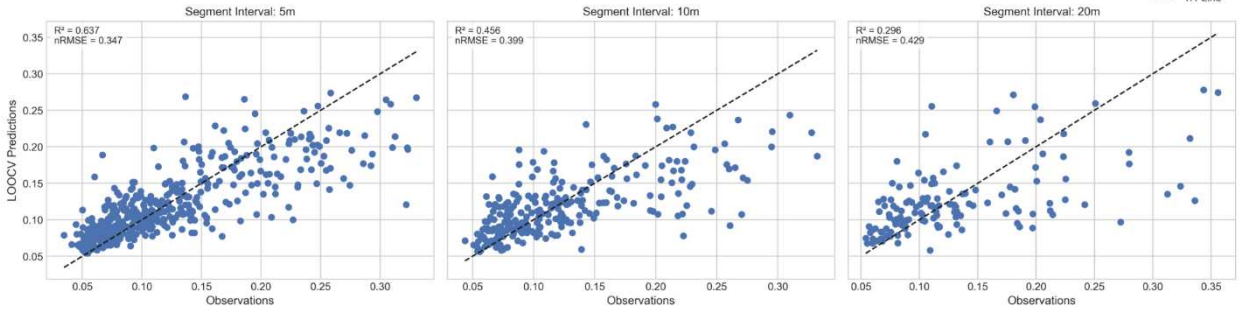
### CPF Erosion 2023-2022



### ETF Erosion 2023-2021



ETF Deposition 2023-2022



ETF Erosion 2023-2022

