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Supplement of

Evolution of submarine canyon-fan systems in fault-controlled margins: Insights from physical experiments

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Additional Supplement (Files uploaded separately)

Captions for Movie S1 to S6.

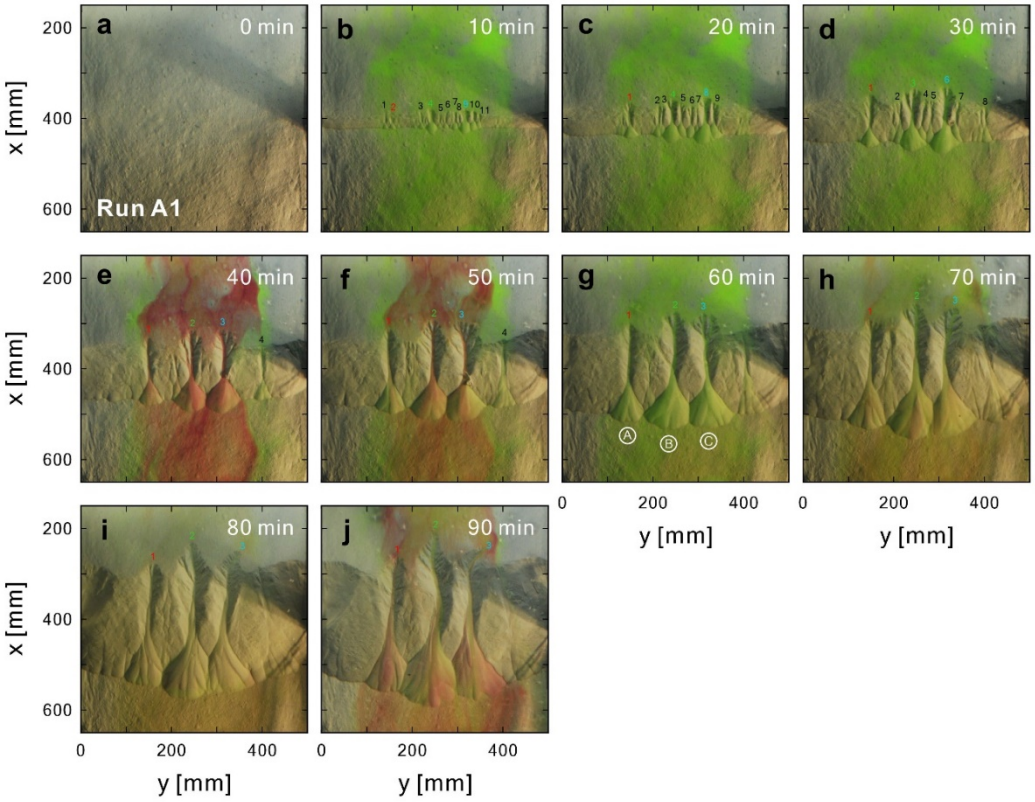

Figure S1-1. Orthophotos of Run A1 from t = 0 to 90 min. Stage interval is 10 min. Numbers at each canyon head represent each traced canyon-fan system. Color order of red, green, blue and orange represents the specific canyon-fan systems (e.g., Systems A, B, C and D, respectively).

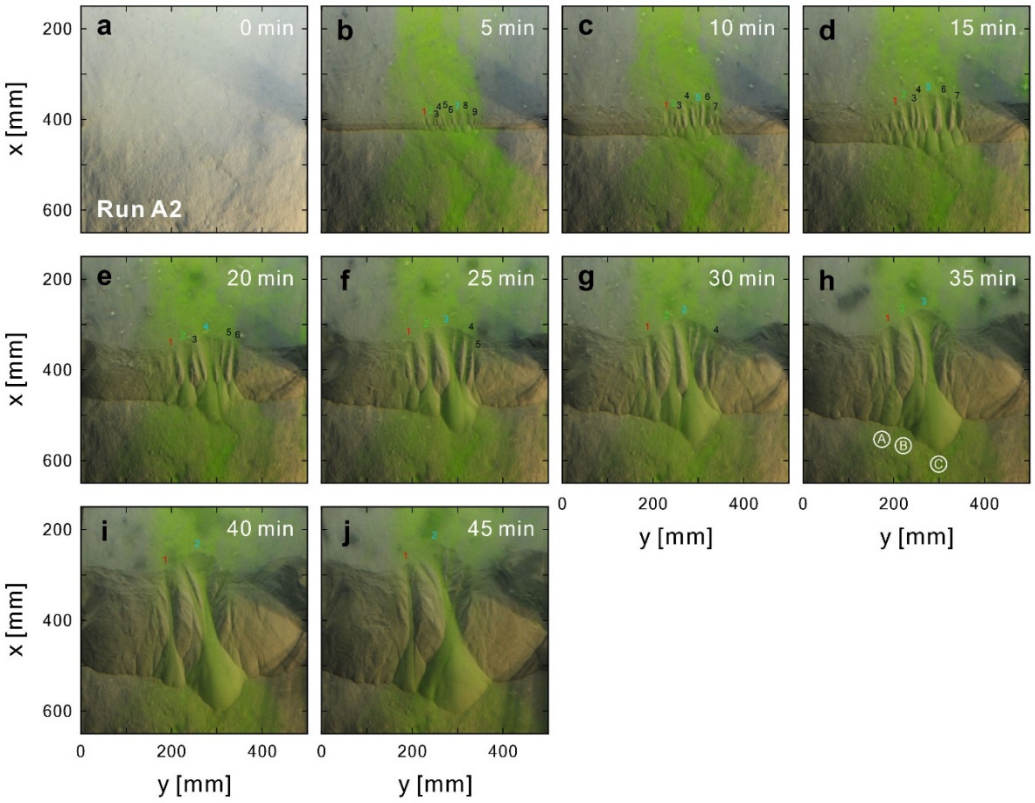

Figure S1-2. Orthophotos of Run A2 from t = 0 to 45 min. Stage interval is 5 min.

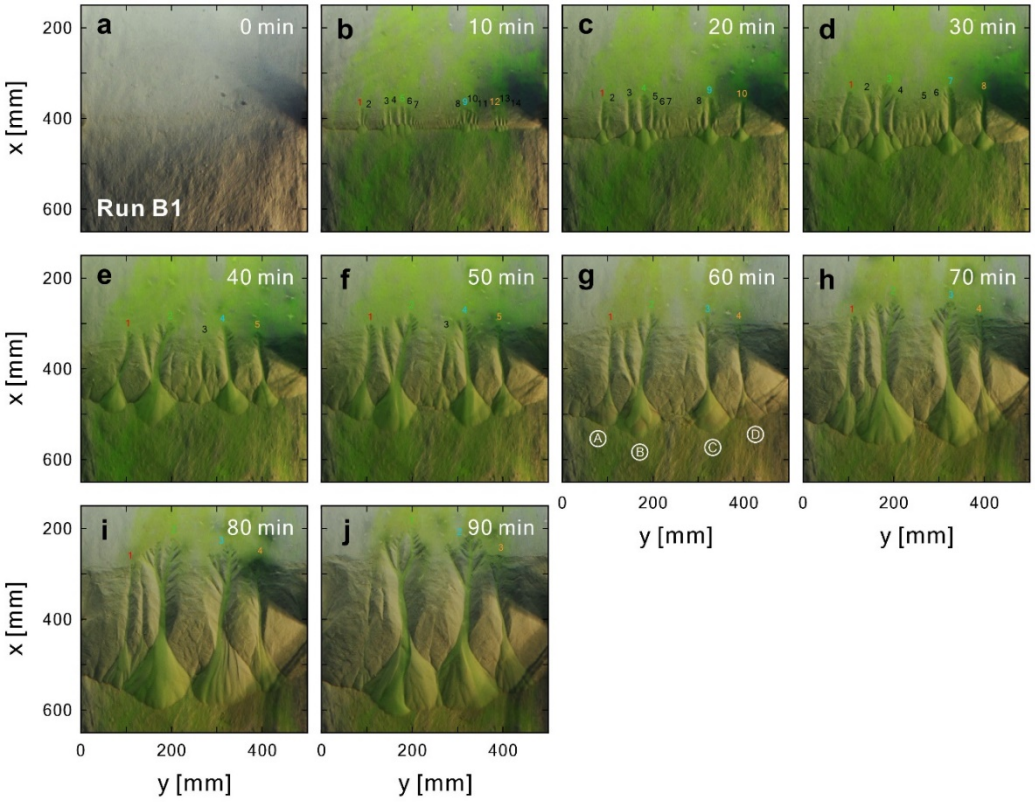

Figure S1-3. Orthophotos of Run B1 from t = 0 to 90 min. Stage interval is 10 min.

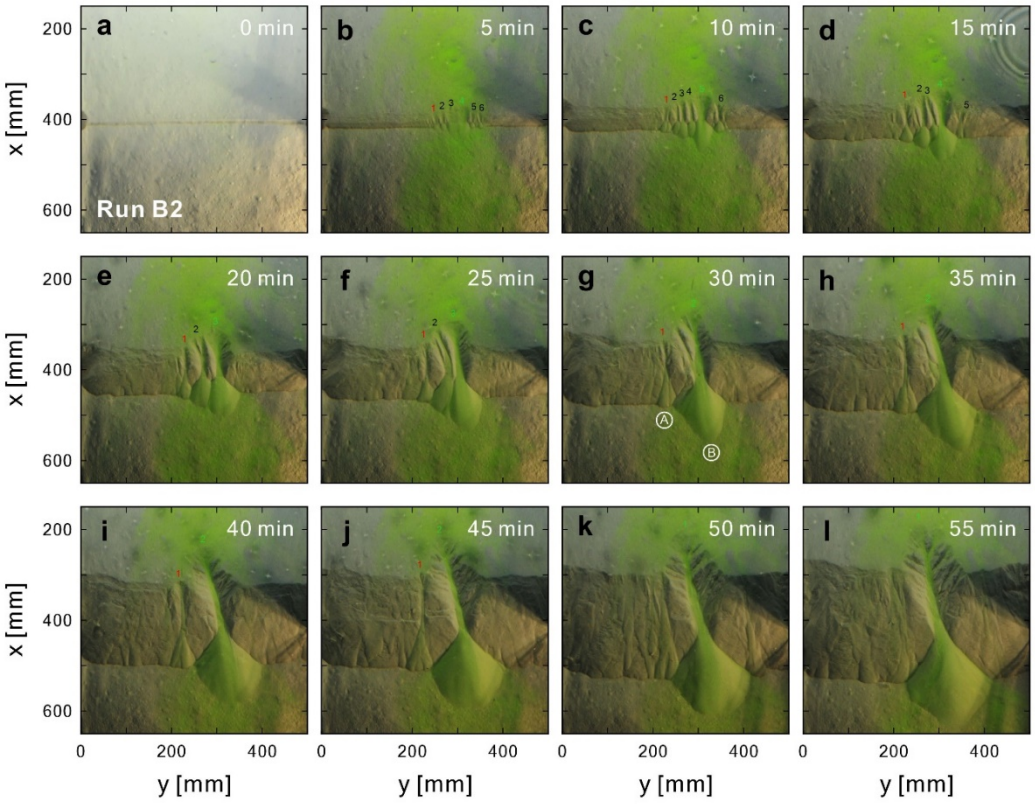

Figure S1-4. Orthophotos of Run B2 from t = 0 to 55 min. Stage interval is 5 min.

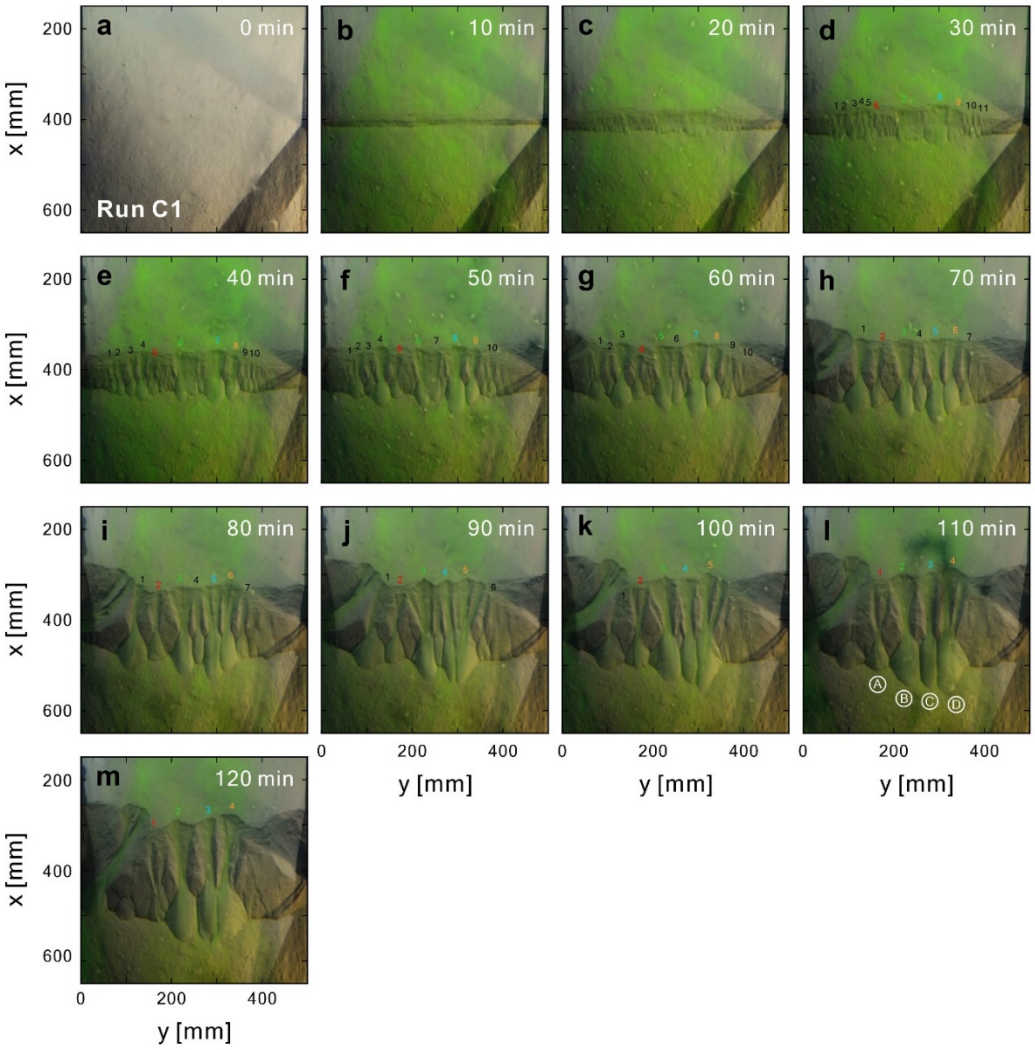

Figure S1-5. Orthophotos of Run C1 from t = 0 to 120 min. Stage interval is 10 min.

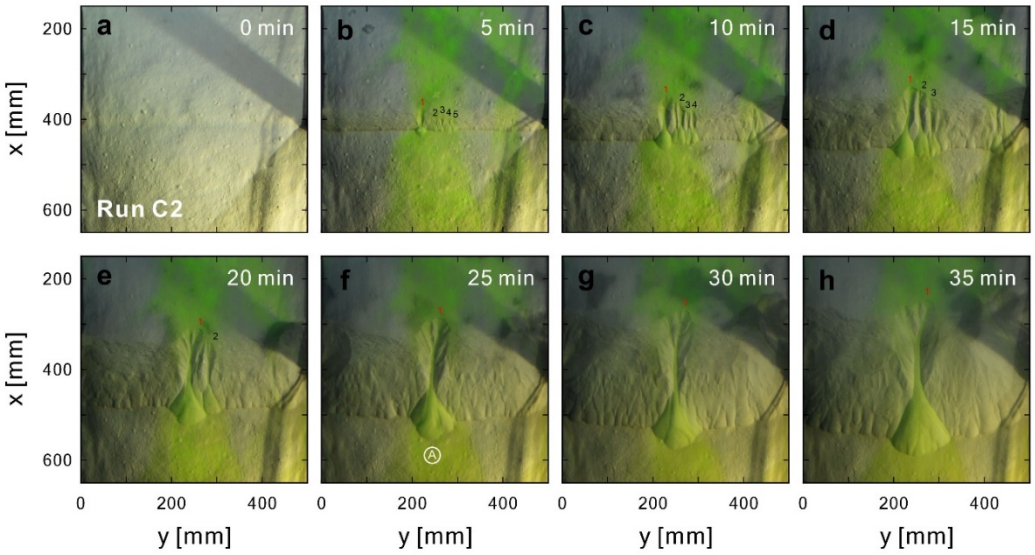

Figure S1-6. Orthophotos of Run C2 from t = 0 to 35 min. Stage interval is 5 min.

Table S1-1. Evolution history of identified and traced submarine canyon-fan systems of Run A1.

	System		**System A**			**System B**						**System C**			
	Type		**Shallow shelf-incising canyon-fan system**			**Deep shelf-incising canyon-fan system**						**Deep shelf-incising canyon-fan system**			
	Stage	**System number identified**													
	Stage01	1	2	3		4	5	6	7	8		9	10	11	
Run A1	Stage02		1	2	3	4	5		6	7		8	9		
	Stage03		1		2	3	4		5			6	7		8
	Stage04		1			2						3			4
	Stage05		1			2						3			4
	Stage06		1			2						3			
	Stage07		1			2						3			
	Stage08		1			2						3			
	Stage09		1			2						3			
	Total number of identified systems														42
	Numbers of traced system														27

Table S1-2. Evolution history of identified and traced submarine canyon-fan systems of Run A2.

	System	**System A**	**System B**					**System C**		
	Type	**Shallow shelf-incising canyon-fan system**	**Shallow shelf-incising canyon-fan system**					**Deep shelf-incising canyon-fan system**		
	Stage	**System number identified**								
	Stage01	1	2	3	4	5	6	7	8	9
Run A2	Stage02	1	2	3	4			5	6	7
	Stage03	1	2	3	4			5	6	7
	Stage04	1	2	3				4	5	6
	Stage05	1	2					3	4	5
	Stage06	1	2					3	4	
	Stage07	1	2					3		
	Stage08	1						2		
	Stage09	1						2		
	Total number of identified systems									45
	Numbers of traced system									25

Table S1-3. Evolution history of identified and traced submarine canyon-fan systems of Run B1.

Run B1	**System**	**System A**				**System B**						**System C**			**System D**		
	Type	**Shallow shelf-incising canyon**				**Deep shelf-incising canyon**						**Deep shelf-incising canyon**			**Shallow shelf-incising canyon**		
	Stage	**System number identified**															
	Stage01	1	2	3	4	5	6	7			8	9	10	11	12	13	14
	Stage02	1	2	3		4	5	6	7		8	9			10		
	Stage03	1		2		3	4			5	6	7			8		
	Stage04	1				2				3		4			5		
	Stage05	1				2				3		4			5		
	Stage06	1				2						3			4		
	Stage07	1				2						3			4		
	Stage08	1				2						3			4		
	Stage09					1						2			3		
	Total number of identified systems																57
	Numbers of traced system																35

Table S1-4. Evolution history of identified and traced submarine canyon-fan systems of Run B2.

Run B2	**System**	**System A**				**System B**		
	Type	**Shallow shelf-incising canyon-fan system**				**Deep shelf-incising canyon-fan system**		
	Stage	**System number identified**						
	Stage01	1		2	3	4	6	
	Stage02	1	2	3	4	5	6	
	Stage03	1		2	3	4	5	
	Stage04	1		2		3		
	Stage05	1		2		3		
	Stage06	1				2		
	Stage07	1				2		
	Stage08	1				2		
	Stage09	1				2		
	Stage10					1		
	Stage11					1		
	Total number of identified systems							33
	Numbers of traced system							20

Table S1-5. Evolution history of identified and traced submarine canyon-fan systems of Run C1.

Run C1	**System**						**System A**	**System B**		**System C**	**System D**		
	Type						**Slope-confined canyon-fan system**	**Shallow shelf-incising canyon-fan system**		**Shallow shelf-incising canyon-fan system**	**Shallow shelf-incising canyon-fan system**		
	Stage	**System number identified**											
	Stage01	No canyon-fan systems											
	Stage02	No canyon-fan systems											
	Stage03	1	2	3	4	5	6	7		8	9	10	11
	Stage04	1	2		3	4	5	6		7	8	9	10
	Stage05	1	2		3	4	5	6	7	8	9	10	
	Stage06		1		2	3	4	5	6	7	8	9	10
	Stage07					1	2	3	4	5	6	7	
	Stage08					1	2	3	4	5	6	7	
	Stage09					1	2	3		4	5	6	
	Stage10					1	2	3		4	5		
	Stage11						1	2		3	4		
	Stage12						1	2		3	4		
	Total number of identified systems												74
	Numbers of traced system												40

Table S1-6. Evolution history of identified and traced submarine canyon-fan systems of Run C2.

Run C2	**System**	**System A**				
	Type	**Deep shelf-incising canyon-fan system**				
	Stage	**System number identified**				
	Stage01	1	2	3	4	5
	Stage02	1	2	3	4	
	Stage03	1	2		3	
	Stage04	1			2	
	Stage05	1				
	Stage06	1				
	Stage07	1				
	Total number of identified systems					17
	Numbers of traced system					7

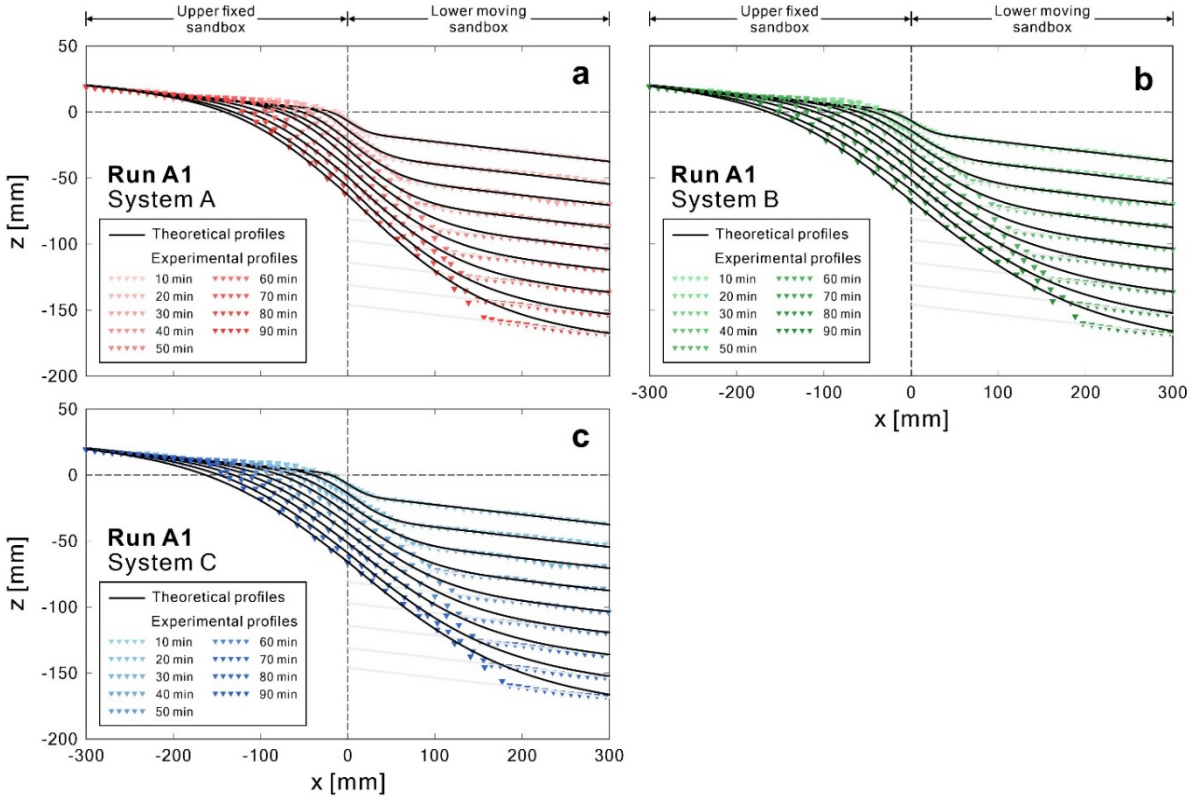

Figure S2-1. Comparisons between experimental and modeled submarine canyon-fan long profiles of each system at different stages for Run A1.

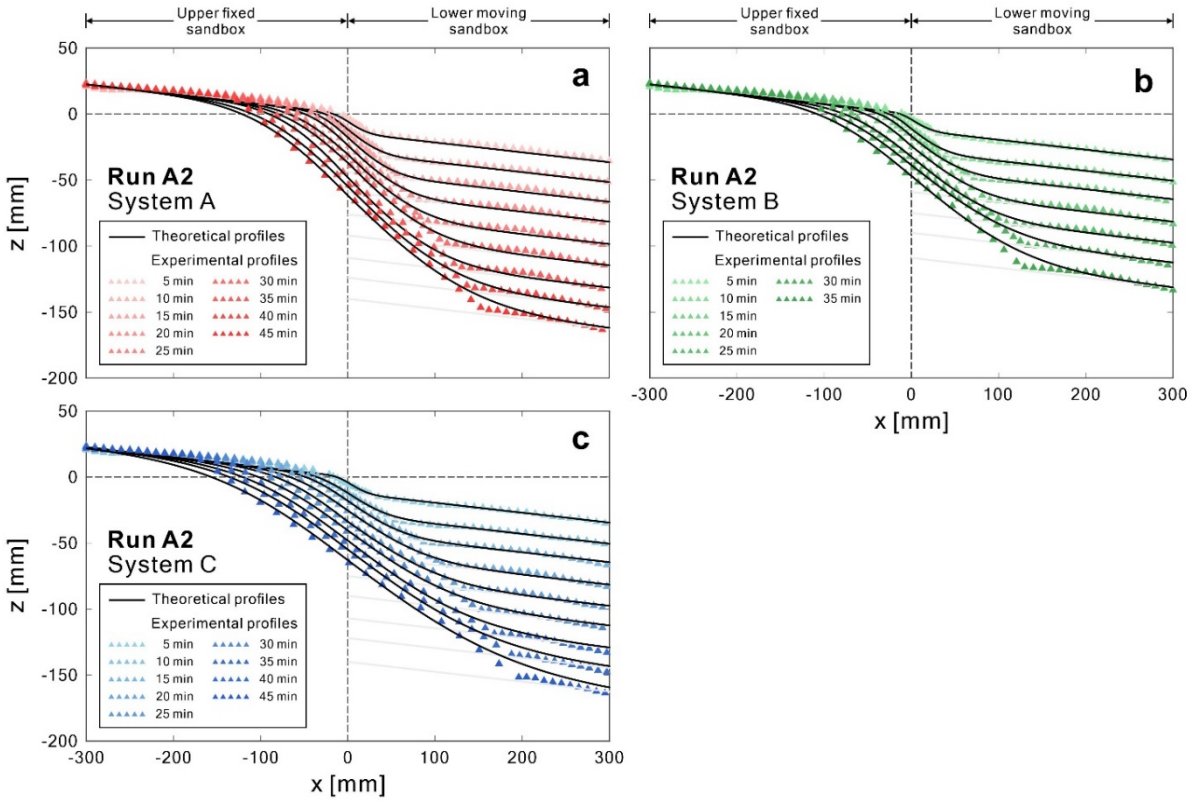

Figure S2-2. Comparisons between experimental and modeled submarine canyon-fan long profiles of each system at different stages for Run A2.

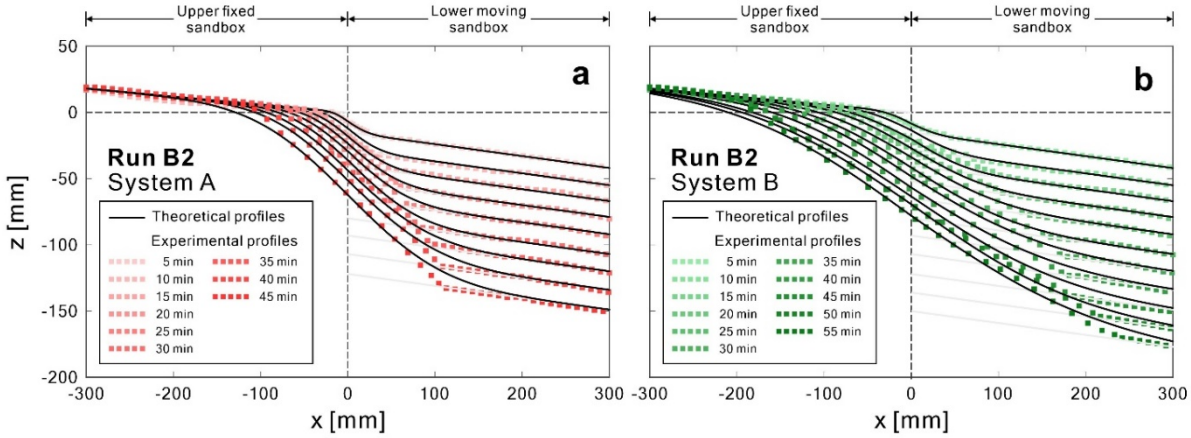

Figure S2-3. Comparisons between experimental and modeled submarine canyon-fan long profiles of each system at different stages for Run B2.

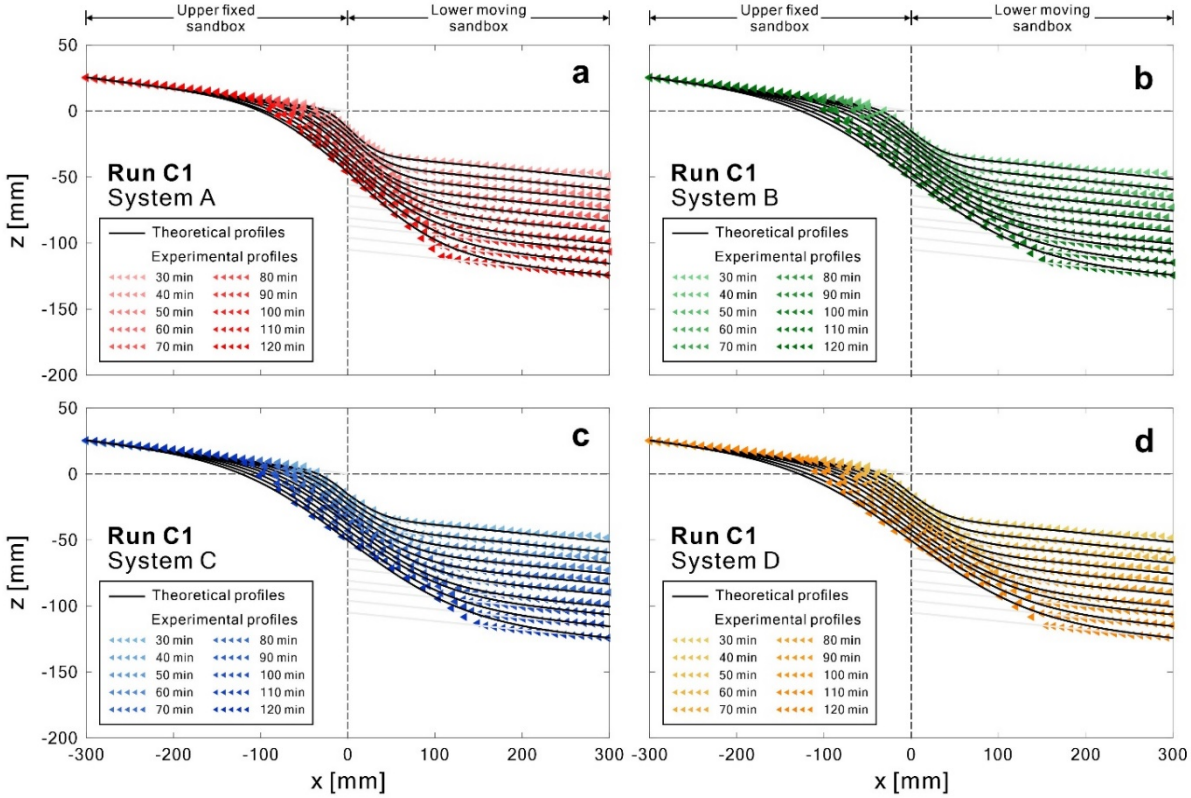

Figure S2-4. Comparisons between experimental and modeled submarine canyon-fan long profiles of each system at different stages for Run C1.

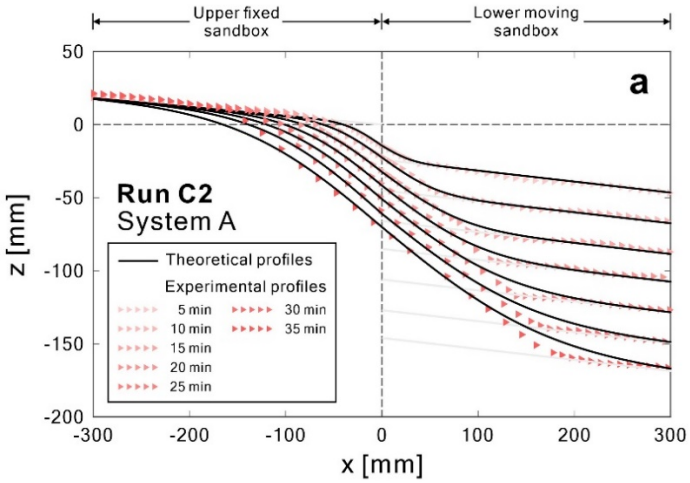

Figure S2-5. Comparisons between experimental and modeled submarine canyon-fan long profiles of System A at different stages for Run C2.

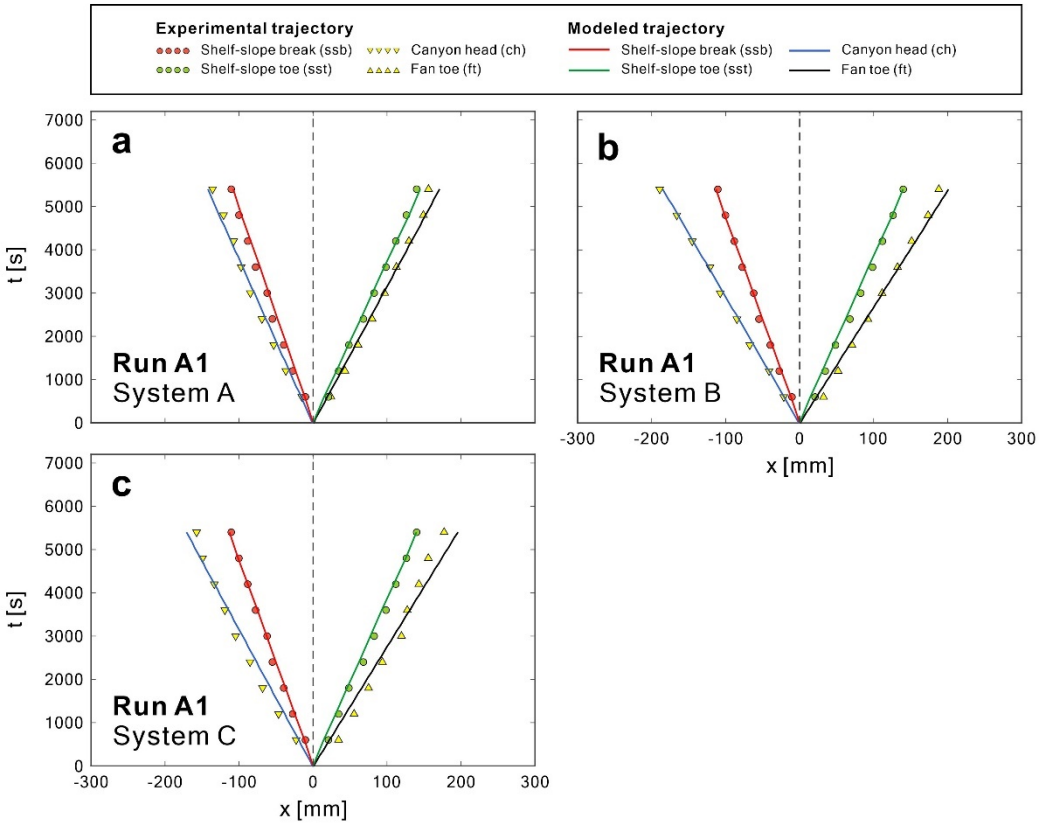

Figure S3-1. Comparison between experimental and modeled trajectories of shelf-slope break (ssb), shelf-slope toe (sst), canyon head (ch) and fan toe (ft) of each system for Run A1.

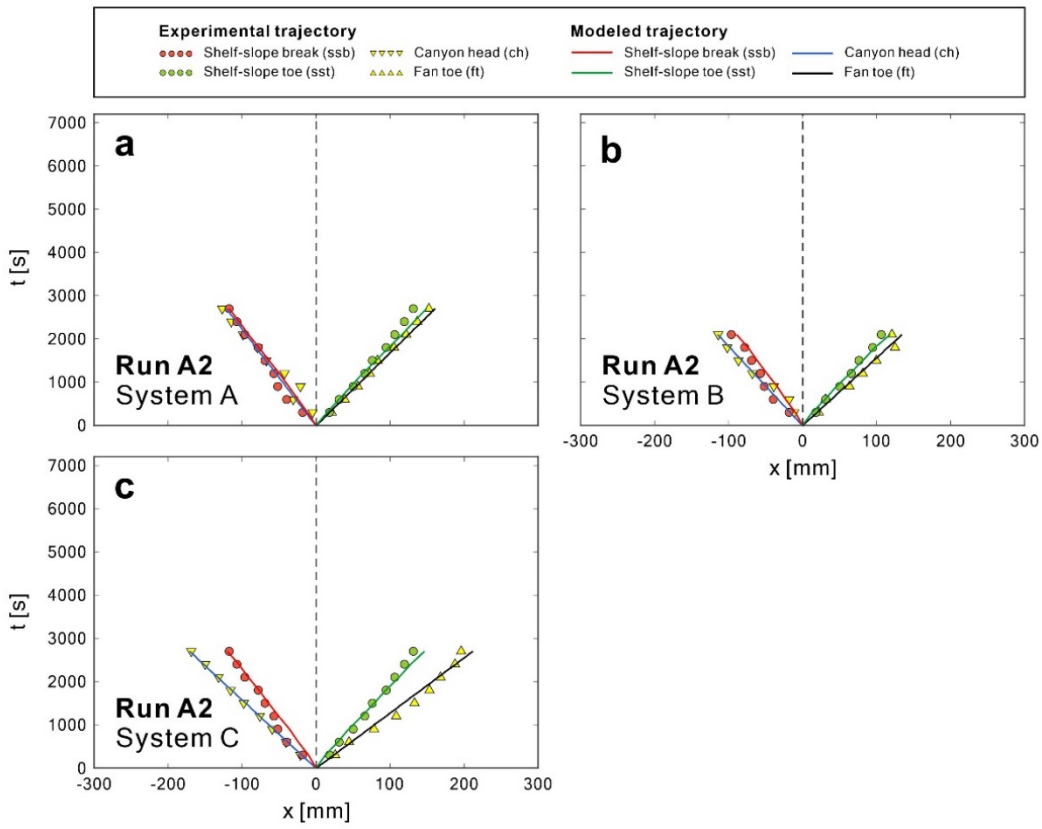

Figure S3-2. Comparison between experimental and modeled trajectories of shelf-slope break (ssb), shelf-slope toe (sst), canyon head (ch) and fan toe (ft) of each system for Run A2.

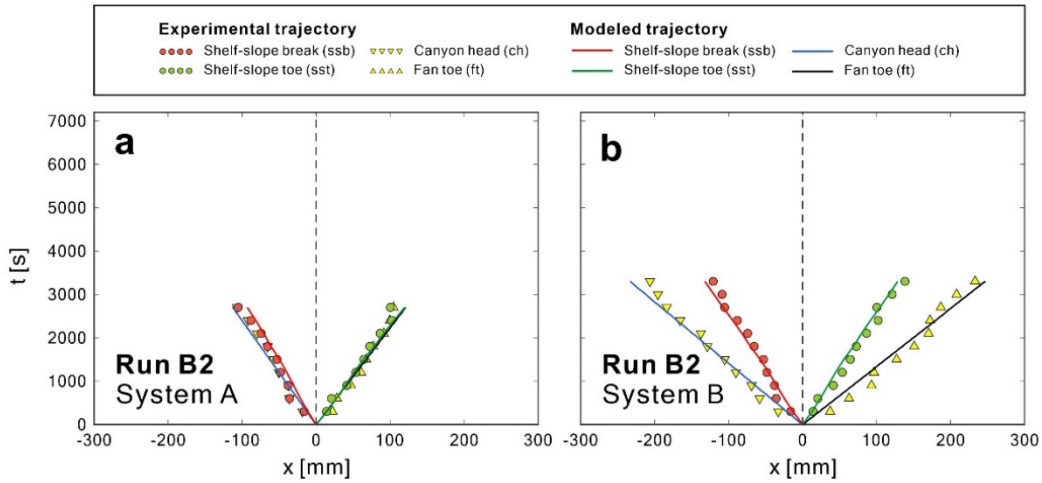

Figure S3-3. Comparison between experimental and modeled trajectories of shelf-slope break (ssb), shelf-slope toe (sst), canyon head (ch) and fan toe (ft) of each system for Run B2.

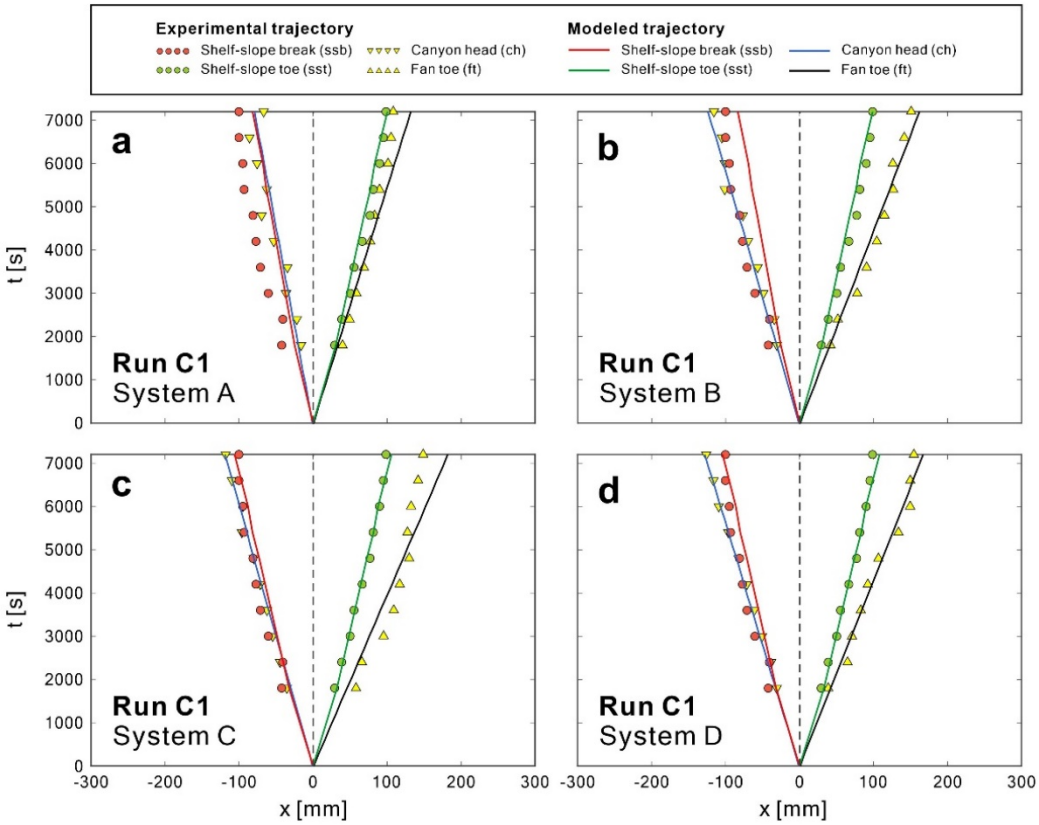

Figure S3-4. Comparison between experimental and modeled trajectories of shelf-slope break (ssb), shelf-slope toe (sst), canyon head (ch) and fan toe (ft) of each system for Run C1.

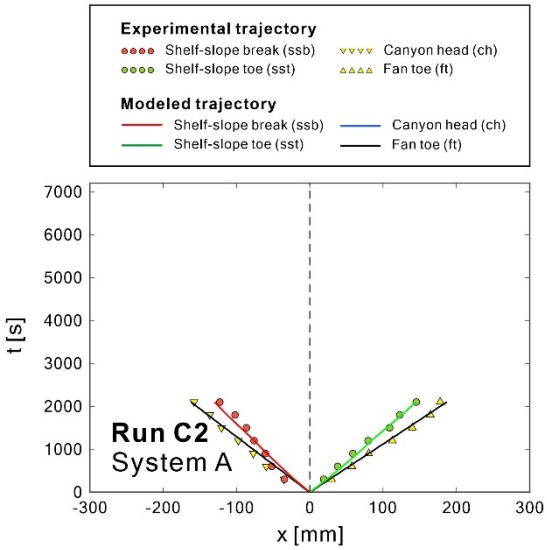

Figure S3-5. Comparison between experimental and modeled trajectories of shelf-slope break (ssb), shelf-slope toe (sst), canyon head (ch) and fan toe (ft) of each system for Run C2.

Captions for Movie S1 to S6

Movie S1. This film shows the evolution of submarine canyon-fan systems of Run A1 from $t = 0$ to 90 min.

Movie S2. This film shows the evolution of submarine canyon-fan systems of Run A2 from $t = 0$ to 45 min.

Movie S3. This film shows the evolution of submarine canyon-fan systems of Run B1 from $t = 0$ to 90 min.

Movie S4. This film shows the evolution of submarine canyon-fan systems of Run B2 from $t = 0$ to 55 min.

Movie S5. This film shows the evolution of submarine canyon-fan systems of Run C1 from $t = 0$ to 120 min.

Movie S6. This film shows the evolution of submarine canyon-fan systems of Run C2 from $t = 0$ to 35 min.