

Supplement 1: Year since erosion initiation near the polygons (if applicable), polygons size and detailed sensors layout. A complete gully erosion map model was presented in ((Godin and Fortier, 2012b), Figure 3). Size was obtained by measuring the length and the width of each polygon by calculating the distance from the surrounding ridges highest point, near their troughs. In the table, loggers^a model UTBI-001 and H21-002 and connected sensors were built by Onset and the CR1000 by Campbell Scientific. Temperature sensors^b TC Type-T refer to thermocouples wires Type-T. Moisture loggers^c and sensors^d built by Decagon were monitoring the near surface (top 10 cm) at TDR location in Figures 3 and 4. Temperature sensors were installed in boreholes identified as BH in Figures 3 and 4.

ID	Eroded since	Size (m)	Loggers ^a	Temp. sensors ^b	Temp. sensor depth (m)	Moisture loggers ^c	Moisture sensors ^d
331	1999 – 2000	20 x 12	UTBI-001		0.05	Em5b	5 x EC-5
			CR1000	107-L	0.2		
			CR1000	TC Type-T	0.5, 0.92		
333	1999 – 2000	11 x 11	UTBI-001		0.05	Em5b	5 x EC-5
			CR1000	107-L	0.2		
			CR1000	TC Type-T	0.5, 0.82		
563	1999 – 2000	20 x 20	H21-002	S-TMB-M006	0.05, 0.25, 0.5, 0.95	Em5b	4 x EC-5
573	Intact	11 x 11	UTBI-001		0.05	Em5b	5 x EC-5
			CR1000	107-L	0.2		
			CR1000	TC Type-T	0.5, 0.9		