Supplement

Tab. S1: Satellite imagery used for the shore change analysis.

Site	Date	Context	Source	Resolution
Tolosa	18th Oct 2013	21 days before Haiyan	Pléiades	0.5 m
	15th Nov 2013	7 days after Haiyan		
	20th May 2015	18 months after Haiyan		
Dolores	10th Sep 2013	59 days before Haiyan	Pléiades	0.5 m
	14th Nov 2013	6 days after Haiyan		
	20th May 2015	18 months after Haiyan		

Tab. S2: Calculated error margins related to spatial imagery analysis; see Table S1 for details on satellite imagery (RMS = root mean square).

Location	**Tolosa**	**Dolores**
Tide level variation (m)	0.81	1.16
Beach Slope (β)	0.06	0.03
Tidal maximum variation (m)	0.3	0.3
Horizontal shoreline change (m)	±5	±10
Run-up variation (m)	±10	±10
Total RMS Error (m)	**± 11.2**	**± 14.1**

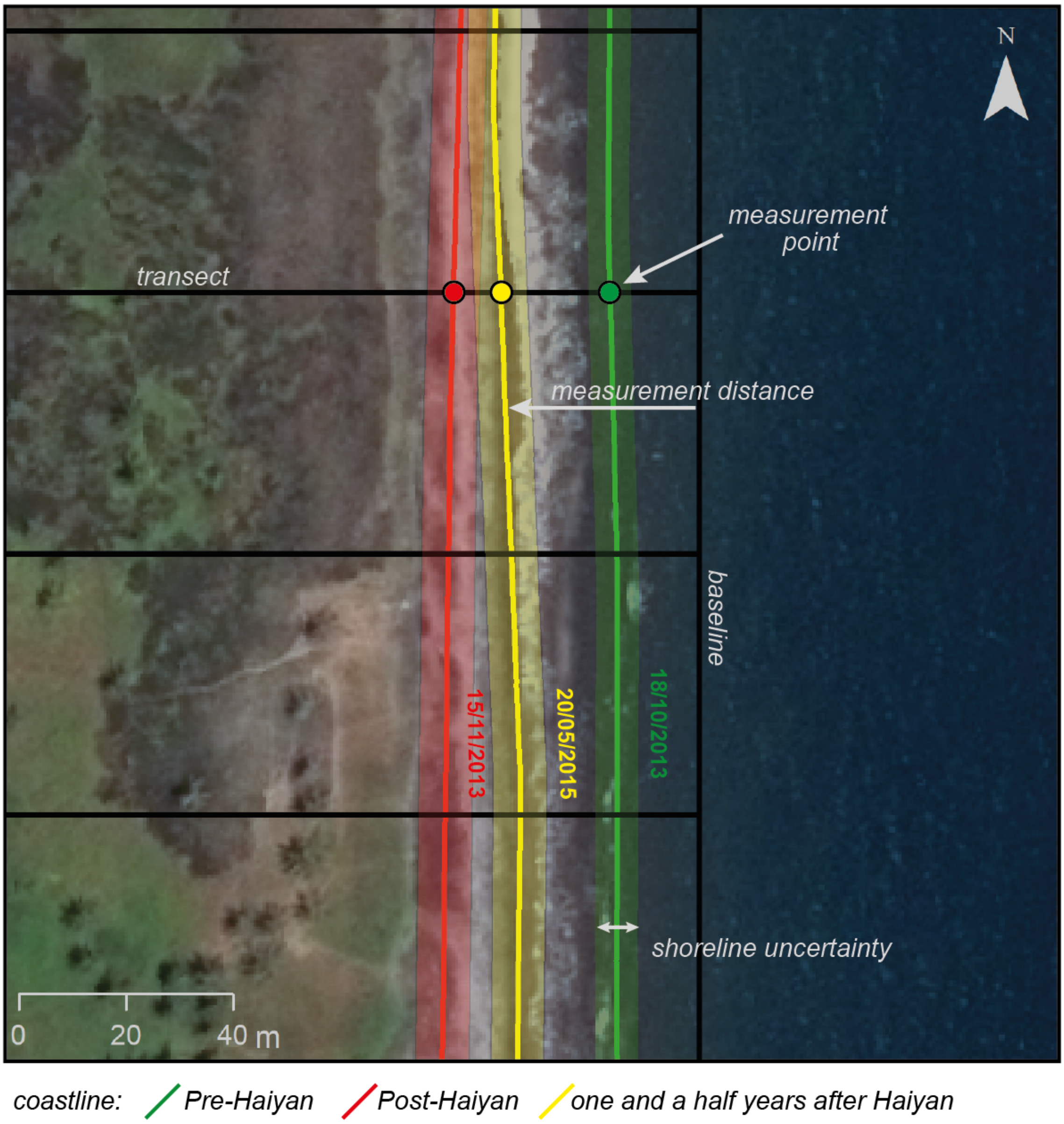

Fig. S1: Shoreline change analysis. Shorelines were digitized on satellite images from October 2013 to May 2015 (Table S1). The rate-of-change-statistics were computed using the Digital Shoreline Analysis System (DSAS) (THIELER et al. 2009). Shorelines are intersected by shore-perpendicular transects to calculate shoreline changes based on measurement of distances to a fixed baseline. The image section shows coastal changes in Tolosa. Note the large retreat after Typhoon Haiyan and the following recovery until 2015, depicted on an ESRI basemap.

Fig. S2: Local inundation limits at Tolosa. Typhoon Haiyan flooded the whole study area reaching inundation of >1000 m inland. The position of sampling points and topographical cross sections is shown in Figure 1c of the main text (basemap: Pléiades satellite image of 15th Nov 2013, Table S1).

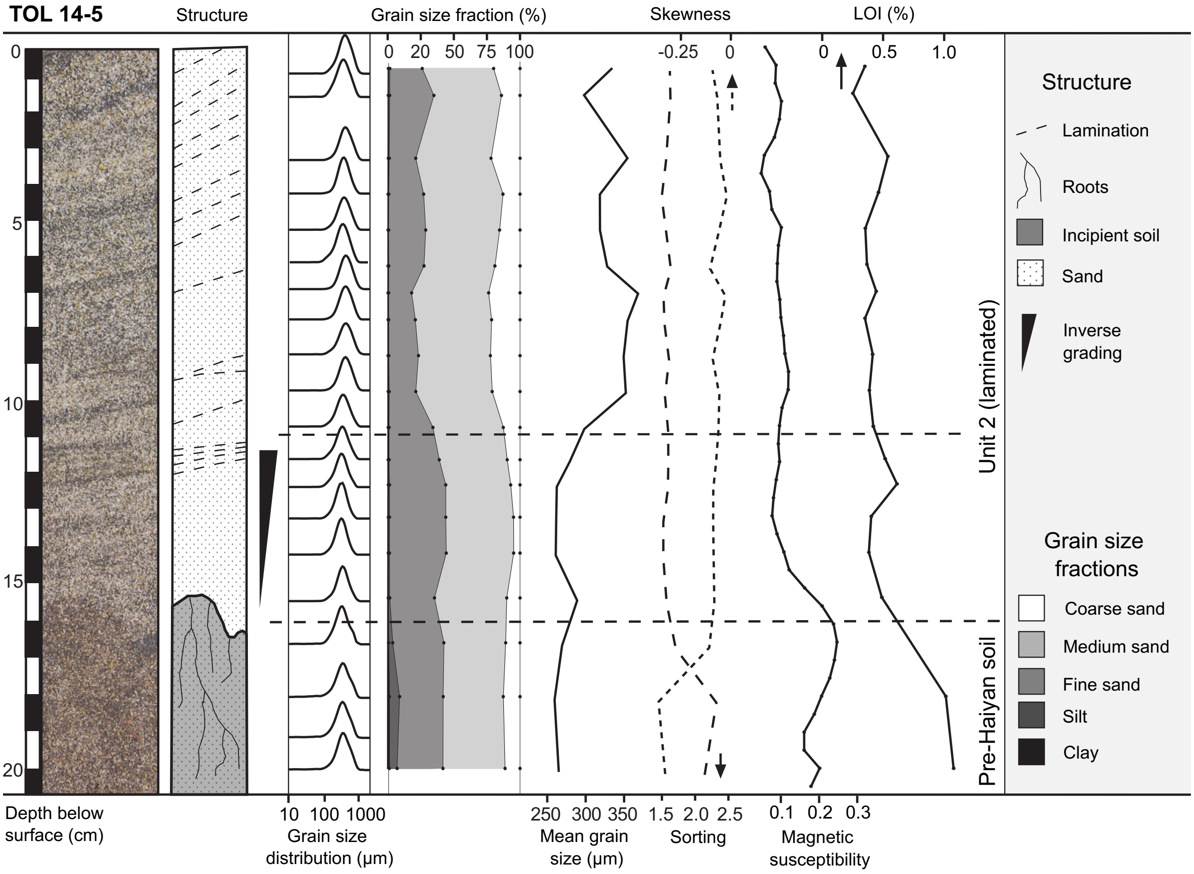

Fig. S3: Sedimentary characteristics of TOL 14-5 on top of the active barrier, as documented in 2014 shortly after Typhoon Haiyan (Fig. 2, main text). A core log, grain-size distributions, univariate grain-size measures, magnetic susceptibility and loss-on-ignition (LOI) values are shown. The 16 cm thick laminated typhoon unit consists of a horizontally laminated basal part and cross-bedded upper part, both representing the laminated Unit 2. The typhoon deposit can clearly be separated from the pre-Haiyan soil based on lower LOI and magnetic susceptibility, as well as its minor clay and silt component (slightly modified from BRILL et al. 2016).

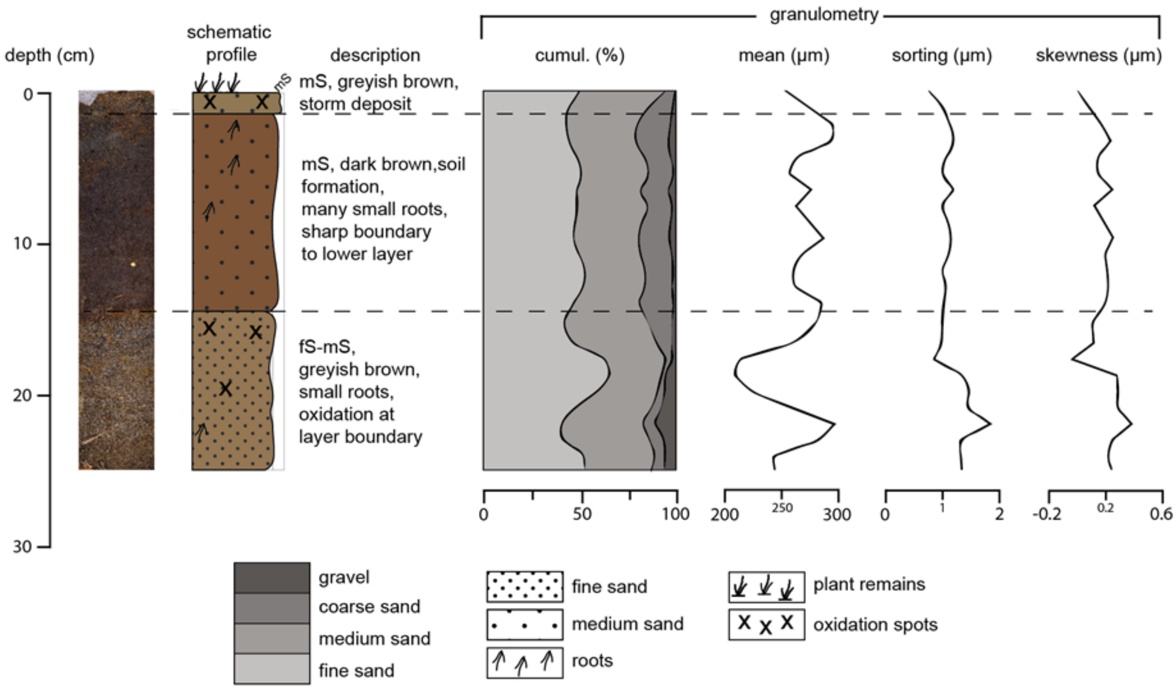

Fig. S4: Short core TOL 15-8 from 2015 with granulometric data (for location see Figure 2, main text).

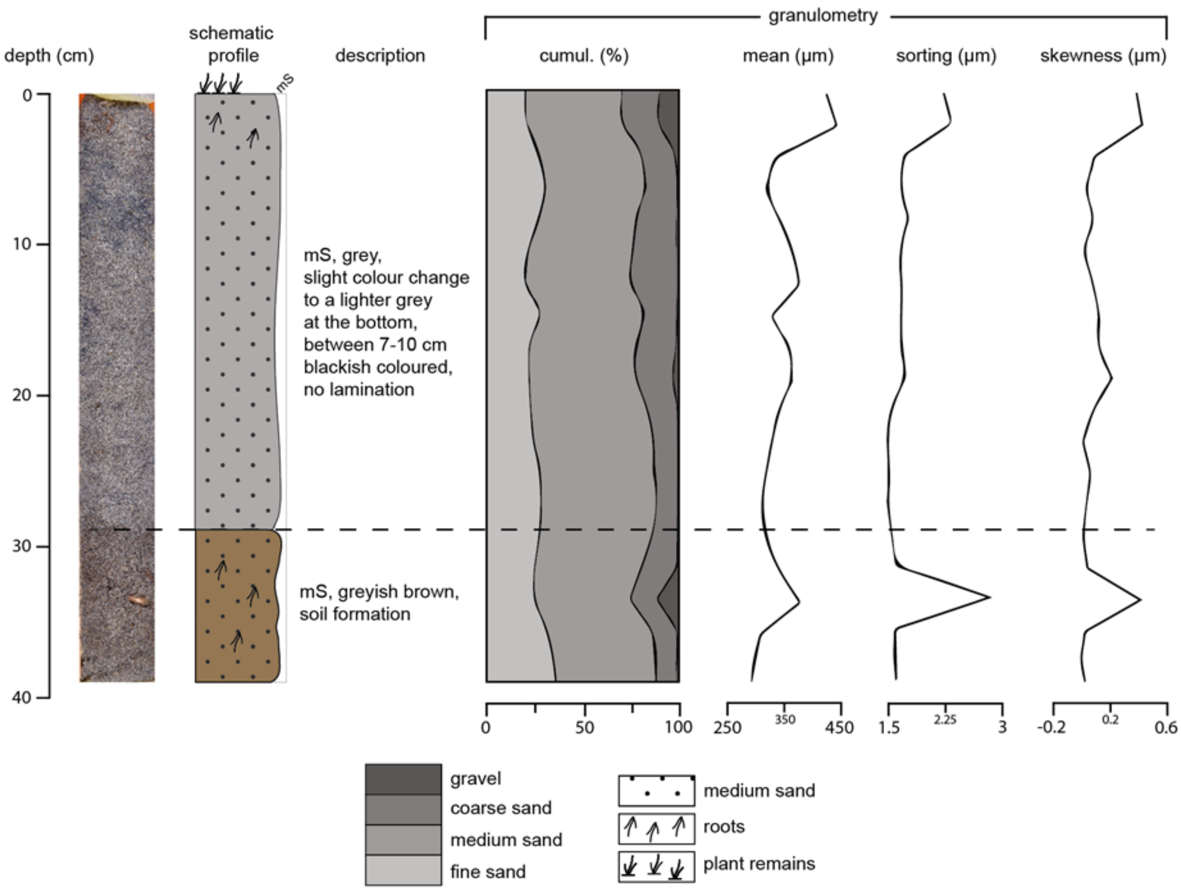

Fig. S5: Short core TOL 15-6 from 2015 with granulometric data (for location see Fig. 2, main text).

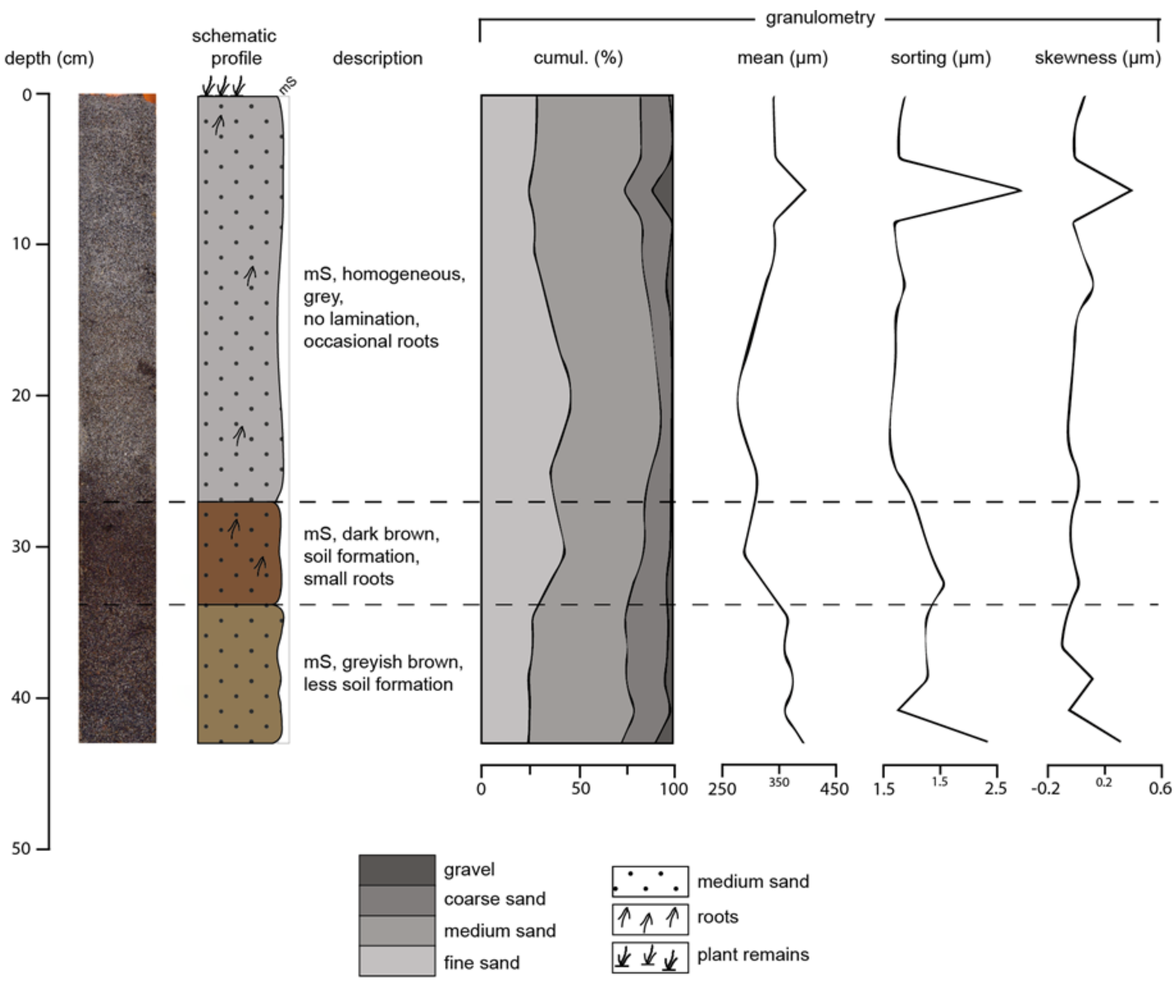

Fig. S6: Short core TOL 15-5 from 2015 with granulometric data (for location see Fig. 2, main text).

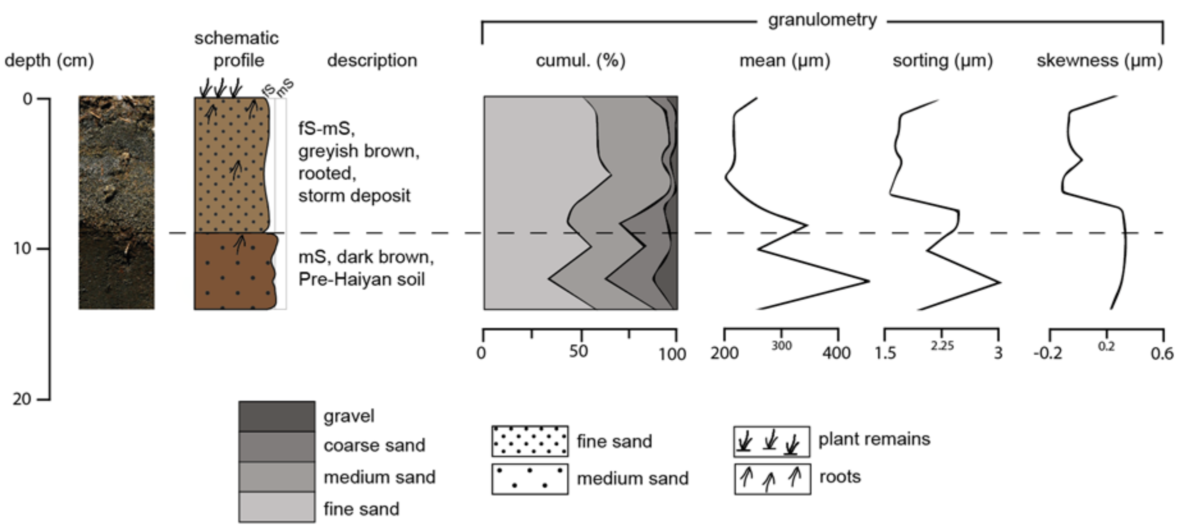

Fig. S7: Short core TOL 15-3 from 2015 with granulometric data (for location see Fig. 2, main text).

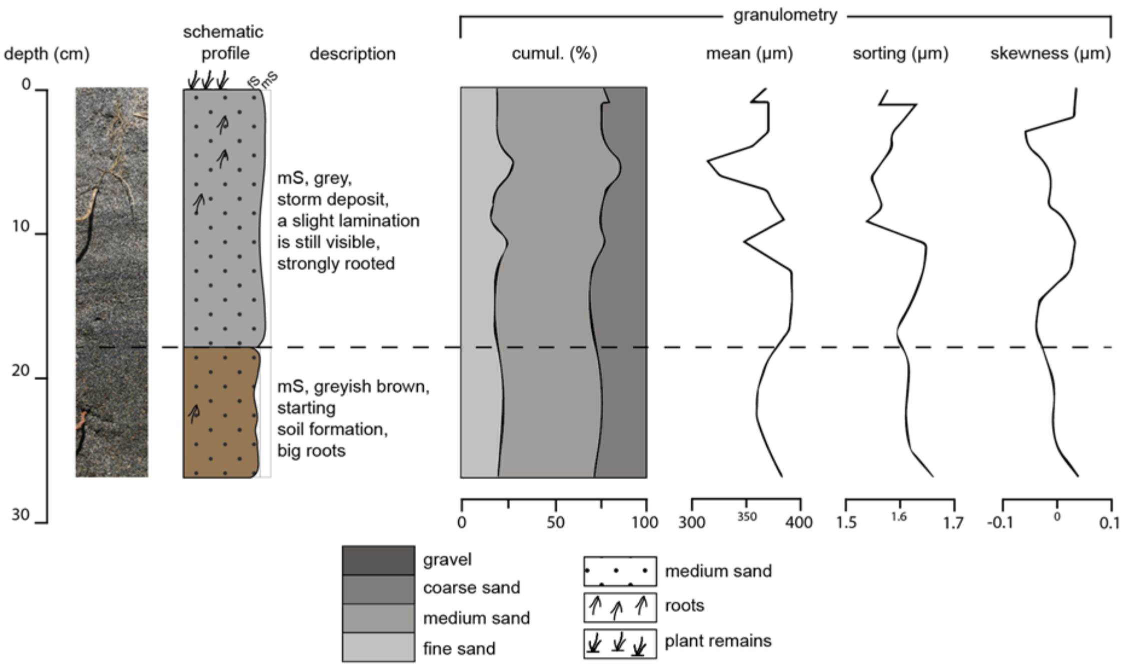

Fig. S8: Short core TOL 15-1 from 2015 with granulometric data (for location see Fig. 2, main text).

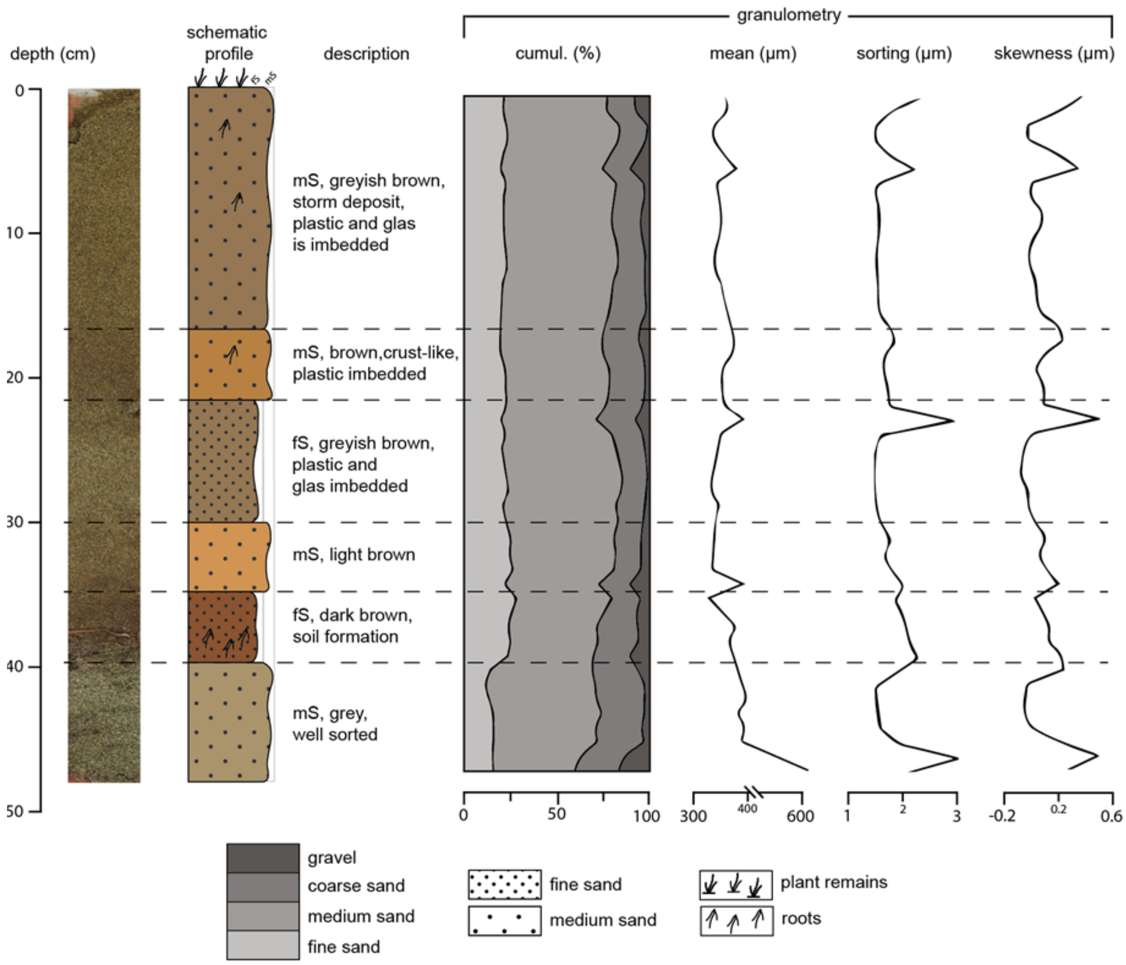

Fig. S9: Short core DOL 9 (2015) with granulometric data (for location see Fig. 5, main text).

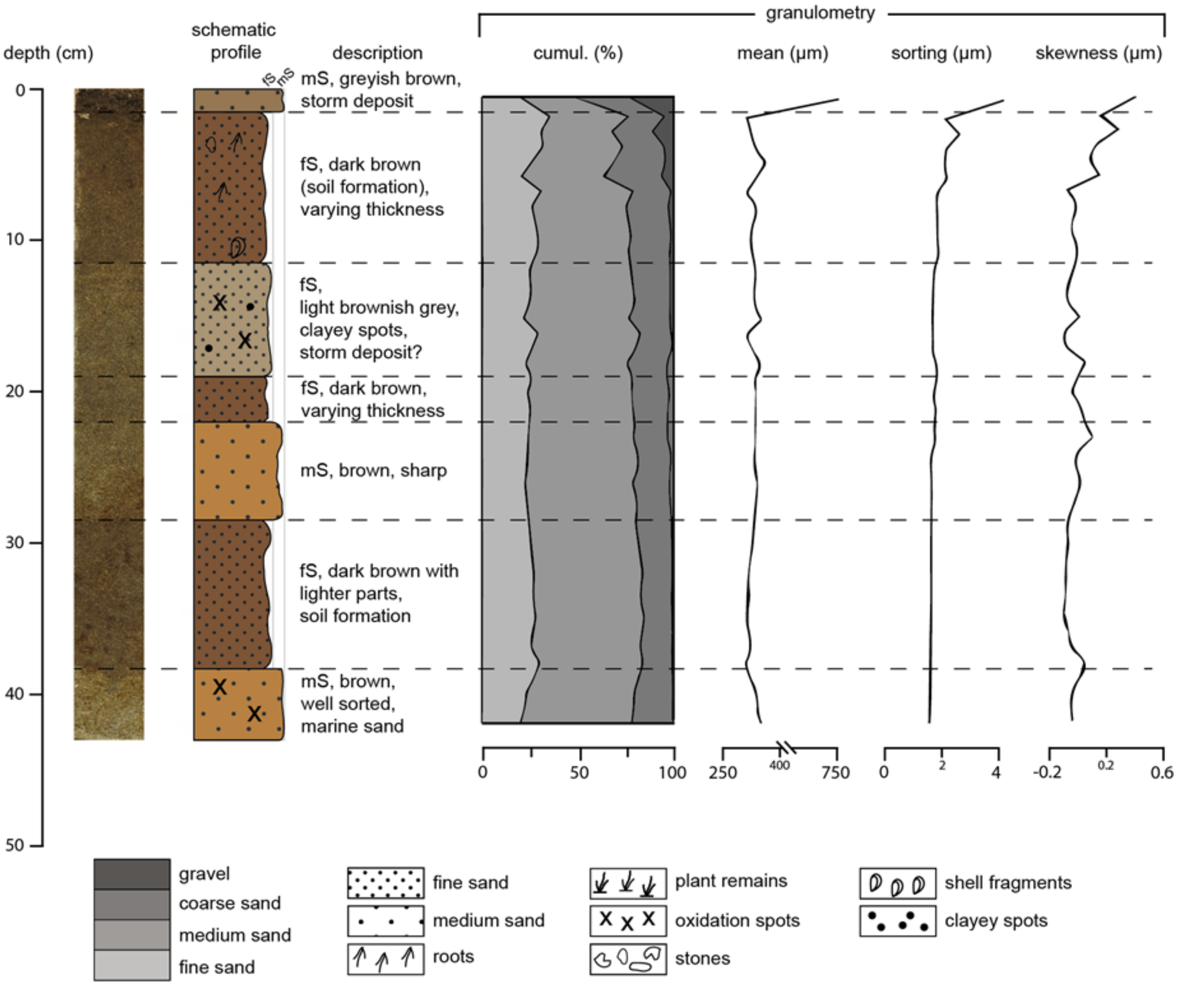

Fig. S10: Short core DOL 1 (2015) with granulometric data (for location see Fig. 1b, main text).

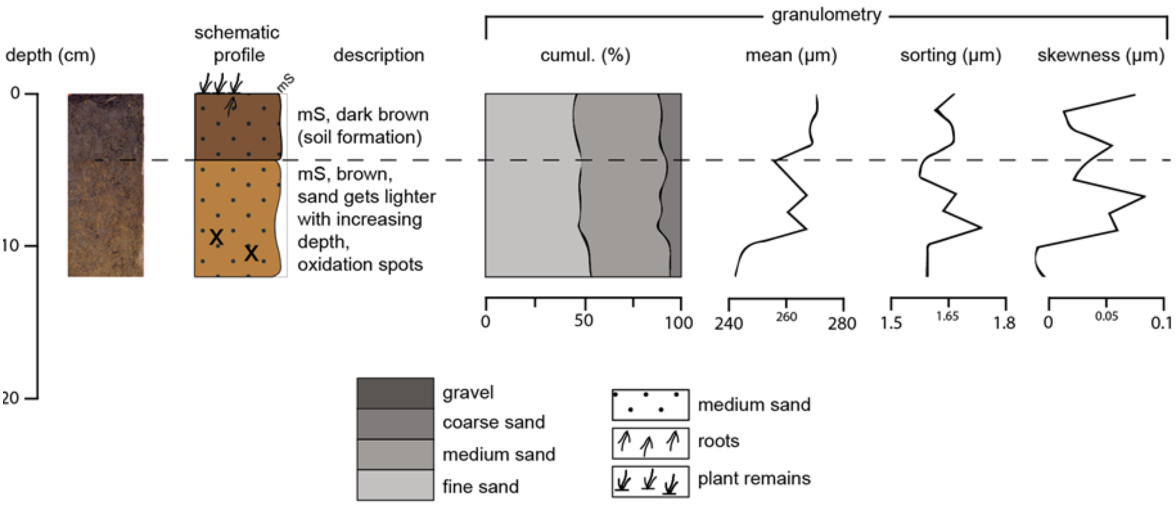

Fig. S11: Short core DOL 15 (2016) with granulometric data (for location see Fig. 5, main text).

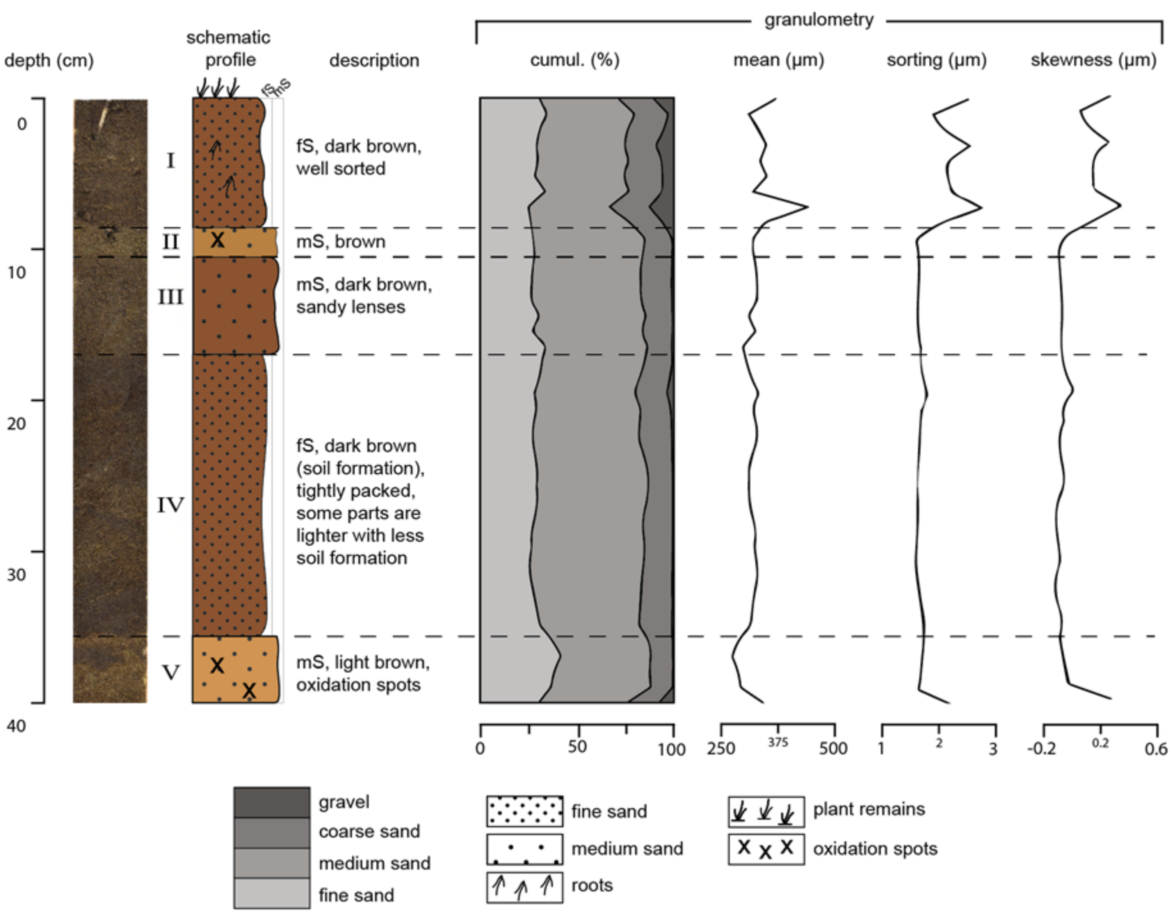

Fig. S12: Short core DOL 10 (2016) with granulometric data (for location see Fig. 1b, main text).

Tab. S3: Sampling location and mean grain size of offshore samples. Grain size significantly decreases with increasing water depth and distance to the shoreline.

Location	***Sample***	***Depth (m)***	***Distance to shoreline (m)***	***Mean grain size (µm)***
Tolosa	TOLO 1	1.2	25	246.0
	TOLO 2	3.1	70	231.6
	TOLO 3	4.3	120	391.8
	TOLO 4	10.6	230	68.11
	TOLO 5	13.2	400	19.31
	TOLO 6	13.4	480	32.84
Dolores	DOLO 1	0.9	1	282.8
	DOLO 2	2.1	10	217.0
	DOLO 3	4.0	100	130.9
	DOLO 4	4.8	200	106.9
	DOLO 5	5.1	300	110.0
	DOLO 6	6.1	600	70.36
	DOLO 7	8.6	1000	33.68
	DOLO 8	10.7	1500	18.66

Tab. S4: Net shoreline movement (NSM) at Tolosa and Dolores. The number of transects (in brackets) indicates at how many locations erosion or progradation was measured.

Location		**Tolosa**		**Dolores**	
Period		18/10/2013 – 15/11/2013	15/11/2013 – 20/05/2015	10/09/2013 – 14/11/2013	14/11/2013 – 19/05/2015
Progradation in m *(number of transects)*	*Average*	0	17 (198)	57 (164)	12 (80)
	Outlets	0	32 (46)	73 (101)	20 (21)
	Without outlets	0	12 (152)	31 (63)	9 (59)
Erosion in m *(number of transects)*	*Average*	- 26 (215)	- 9 (17)	- 15 (103)	- 26 (161)
	Outlets	- 35 (63)	- 9 (17)	- 5 (5)	- 51 (59)
	Without outlets	- 22 (152)	0	- 15 (98)	- 12 (102)
Average shoreline change in m *(number of transects)*		- 26 (215)	15 (215)	29 (267)	- 14 (241)

References

BRILL D, MAY SM, ENGEL M, REYES M, PINT A, OPITZ S, DIERICK M, GONZALO LA, ESSER S, BRÜCKNER H (2016) Typhoon Haiyan's sedimentary record in coastal environmentsof the Philippines and its palaeotempestological implications. *Natural Hazards and Earth System Sciences* 16: 2799–2822. https://doi.org/10.5194/nhess-2016-224

THIELER ER, HIMMELSTOSS EA, ZICHICHI JL, ERGUL A (2009) Digital Shoreline Analysis System (DSAS) version 4.0 — An ArcGIS extension for calculating shoreline change. *USGS Open-File Report* 2008-1278. https://doi.org/10.3133/ofr20081278