What are the required conditions for deltas at the shelf edge during rising sea level?

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Supplementary Materials

Summary of Contents

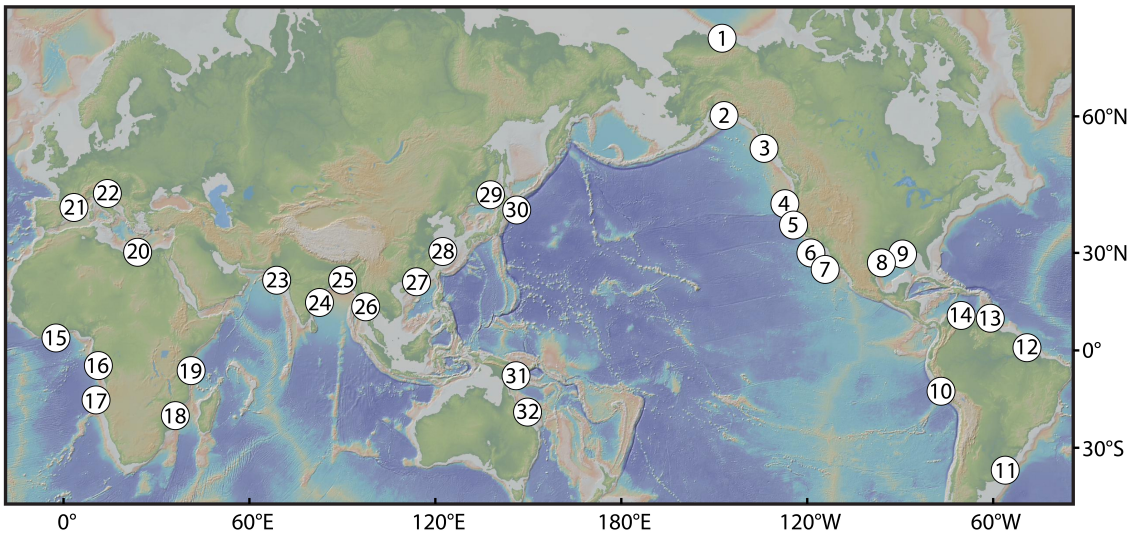

Figure DR1. Location of analysed shelf morphology used in this study. Refer to Table S1 for names and details. Base map is from GeoMapApp by Ryan et al. (2009).

No. (on Fig. DR1)	River	Sediment load	Average shelf width	Average shelf gradient	Delta system width	Delta foreset gradient
		Mt/yr	km	°	km	°
1	Mackenzie	100	199	0.020	178	0.027
2	Copper	70	123	0.070	25	0.391
3	Columbia	15	43	0.237	51	0.320
4	Pajaro and Salinas	2.6	17	0.448	38	0.792
5	Ventura, Santa Clara and Calleguas	4.8	7.4	0.561	37	1.704
6	Santa Ana	0.5	6.8	0.458	37	0.991
7	La Jolla*	0.6	4.7	0.619	75	1.320
8	Brazos	9.2	120	0.062	61	0.085
9	Mississippi	400	133	0.060	250	0.485
10	Santa	4.7	108	0.080	26	0.289
11	Parana	90	111	0.050	265	0.054
12	Amazon	1200	313	0.020	330	0.305
13	Orinoco	210	122	0.040	235	0.143
14	Magdalena	140	20	0.210	76	0.362
15	Niger	190	82	0.070	305	0.407
16	Zaire	43	87	0.080	62	0.195
17	Orange	11	177	0.050	82	0.307
18	Limpopo	26	32	0.180	24	0.261
19	Zambese	48	76	0.060	96	0.174
20	Nile	80	60	0.090	220	0.377
21	Rhone	59	66	0.140	96	0.561
22	Danube	67	97	0.080	99	0.154
23	Indus	250	168	0.060	240	0.101
24	Krishna and Godavari	128	18	0.300	220	0.194
25	Mahanadi and Gange	1488	293	0.030	412	0.176
26	Irrawady	360	175	0.034	151	0.061
27	Pearl	80	347	0.030	76	0.044
28	Yangtze	470	600	0.010	92	0.050
29	Ishikari	1.8	43	0.135	27	0.524
30	Tokachi	0.9	24	0.282	12	0.251
31	Fly	80	166	0.041	104	0.110
32	Burdekin	3.0	112	0.029	46	0.093

*supplied by San Juan Capistrano, San Mateo, Santa Margarita, San Luis, and San Dieguito rivers

Table DR1. Sediment load from supplied river(s) and shelf morphology of 32 analysed shelves. Sediment load from supplied river(s) is collected by Milliman and Farnsworth (2013). Average shelf width, average shelf gradient, and delta system width are all measured following the approach of Olariu and Steel (2009) using the Global Multi-Resolution Topography dataset of Ryan et al. (2009). The delta foreset gradient is

taken to be the steepest of either the subaerial delta (or shoreline) foreset slope or subaqueous delta slope (see definitions in Patruno et al., 2015).

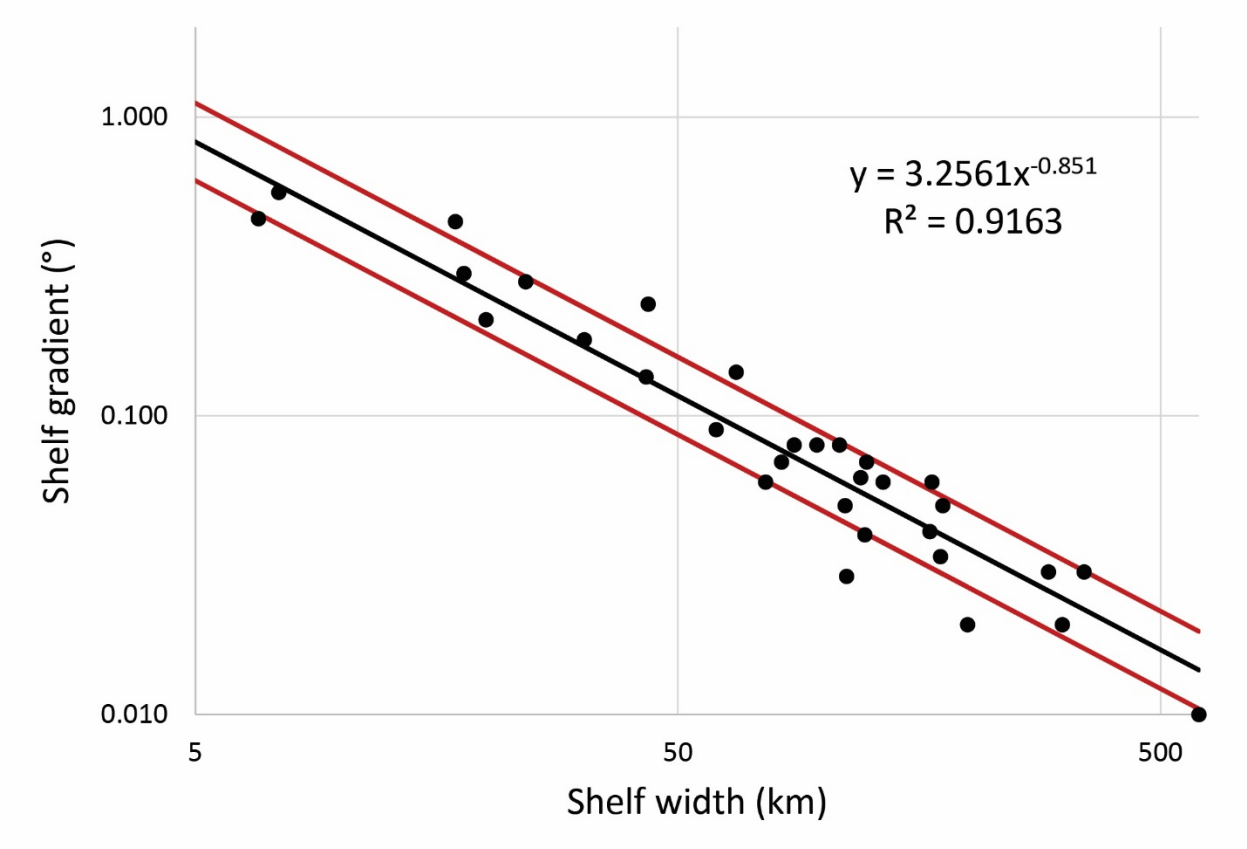

Figure DR2. The relationship between shelf width and shelf gradient of 32 analysed shelves. The best-fit relationship is in black and one standard deviation envelopes are in red.

REFERENCES CITED

Milliman, J. D., and Farnsworth, K. L., 2013, River Discharge to the Coastal Ocean: a Global Synthesis. Cambridge University Press.

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