



*Supplement of*

## **Grain size of fluvial gravel bars from close-range UAV imagery – uncertainty in segmentation-based data**

**David Mair et al.**

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<i>Survey</i>	<i>Field ID</i>	<i>GCP ID</i>	<i>Easting</i> (°)	<i>Northing</i> (°)	<i>Elevation</i> (m a.s.l.)	<i>3D Accuracy</i> (m)
K1	5	1	7.633978542	46.70262324	574.798	0.011
	11	2	7.633927207	46.7025746	574.987	0.013
	12	3	7.633982564	46.70254684	574.98	0.01
	16	4	7.634053643	46.70254345	574.518	0.011
	18	5	7.634035788	46.70250219	574.655	0.01
	21	6	7.633935624	46.70250925	575.014	0.01
	24	7	7.633929205	46.70254181	575.001	0.01
	28	8	7.634050443	46.70258424	574.545	0.011
	35	9	7.634009968	46.70250697	574.71	0.012
	38	10	7.633972221	46.70244858	574.809	0.01
	39	11	7.633921004	46.70245605	574.919	0.009
	43	12	7.633994576	46.70242267	574.732	0.01
	45	13	7.633940954	46.70241054	574.882	0.009
	50	14	7.633898189	46.70239369	574.969	0.009
	53	15	7.633965197	46.70236111	574.694	0.009
	55	16	7.633912057	46.70231872	574.802	0.011
L2	50	50	2634877.559	1165050.246	642.943	0.012
	51	51	2634878.472	1165054.814	642.835	0.014
	55	55	2634873.446	1165053.794	643.101	0.013
	57	57	2634872.512	1165058.06	643.026	0.013
	59	59	2634875.441	1165057.422	643.049	0.013
	61	61	2634877.773	1165060.181	642.867	0.012
	64	64	2634875.285	1165061.337	643.033	0.012
	66	66	2634871.587	1165063.16	643.074	0.013
	68	68	2634875.217	1165064.563	643.019	0.011
	70	70	2634878.698	1165064.415	642.822	0.011
	74	74	2634877.42	1165068.932	642.88	0.013
	76	76	2634876.905	1165067.568	642.835	0.012
78	78	2634872.733	1165067.317	643.063	0.013	
S9	GPS0039	1	2647708.532	1203191.269	723.871	0.02
	GPS0040	2	2647709.096	1203185.589	723.873	0.02
	GPS0041	3	2647711.491	1203173.93	724.102	0.05
	GPS0043	4	2647723.412	1203159.519	724.628	0.04
	GPS0045	5	2647731.832	1203151.353	724.639	0.02
	GPS0046	6	2647744.494	1203149.023	724.874	0.025
	GPS0047	7	2647745.243	1203158.811	724.88	0.03
	GPS0049	8	2647743.922	1203169.4	724.511	0.06
	GPS0051	9	2647738.787	1203174.019	724.636	0.03
	GPS0052	10	2647731.61	1203182.099	724.258	0.02
	GPS0053	11	2647725.964	1203175.669	724.35	0.025
	GPS0054	12	2647722.325	1203173.462	724.238	0.025
	GPS0055	13	2647720.225	1203179.026	724.1	0.03
	GPS0056	14	2647730.354	1203170.238	724.603	0.025

**Table S1:** Ground control points measured with a differential RTK GNSS.

Model name	Control point uncertainty						Check point uncertainty						Reprojection error (pix)	Image error (pix)
	(mm)						(mm)							
	X,Y RMSE	mean	Std	Z RMSE	mean	Std	X,Y RMSE	mean	Std	Z RMSE	mean	Std		
K1_1_C1	13.0	-0.2	9.6	45.9	2.6	49.0	12.7	-1.8	9.1	54.1	-4.9	57.6	0.9	1.8
K1_1_C2	13.3	-0.2	9.5	46.1	2.7	49.2	14.7	-2.3	10.5	66.2	-10.7	69.9	0.7	1.2
K1_1_C3	-	-	-	-	-	-	1034.7	-49.9	1182.6	967.1	-5024.7	246.8	0.9	1.9
K1_1_C4	-	-	-	-	-	-	2129.2	-146.2	1522.4	4274.8	-4236.2	591.9	0.7	1.1
K1_2_C1	13.1	-0.2	9.2	95.3	2.6	101.8	9.4	0.0	6.9	106.0	27.8	109.3	1.0	2.0
K1_2_C2	13.6	-0.2	11.4	119.5	2.8	127.7	17.7	-2.7	12.6	186.0	-52.4	190.8	0.9	1.5
K1_2_C3	-	-	-	-	-	-	1719.4	-51.3	1234.2	5289.0	-5280.6	307.4	0.9	2.1
K1_2_C4	-	-	-	-	-	-	2389.0	24.0	1716.1	5592.3	-5559.7	623.1	1.1	1.4
L2_1_C1	16.0	-2.2	17.7	13.3	0.1	24.3	24.1	0.1	11.7	22.2	-2.0	14.2	1.2	5.4
L2_1_C2	47.5	-1.2	34.9	41.5	1.4	44.8	40.6	3.0	29.8	50.8	-1.7	55.6	1.3	4.3
L2_1_C3	-	-	-	-	-	-	1853.9	1163.4	730.4	66554.0	-66913.7	150.6	1.4	4.5
L2_1_C4	-	-	-	-	-	-	2033.1	929.2	1118.7	68718.6	-68718.5	145.7	1.3	3.7
L2_2_C1	16.4	0.4	12.0	18.5	-1.2	20.0	20.8	0.1	15.2	18.0	-4.4	19.2	1.3	3.7
L2_2_C2*	16.2	0.0	10.9	11.2	-1.6	11.1	24.9	-6.7	17.2	82.0	-54.4	68.5	1.4	6.2
L2_2_C3	-	-	-	-	-	-	1853.9	1075.5	764.4	66554.0	-66552.3	497.6	1.4	3.5
L2_2_C4*	-	-	-	-	-	-	2126.8	1002.7	1117.9	66797.7	-66710.4	293.9	1.4	6.2
S9_5_C1	43.9	6.6	31.5	55.5	-53.6	15.8	63.6	8.8	45.8	38.6	-27.6	29.1	0.7	1.2
S9_5_C2	-	-	-	-	-	-	1555.3	1082.6	196.8	2.0E+05	-201007.3	208.7	0.8	0.5
S9_5_C3*	47.8	9.8	33.5	147.0	-2.2	158.8	57.2	17.1	38.1	211.3	-8.4	228.0835	0.6	0.7
S9_5_C4	-	-	-	-	-	-	1700.2	1147.0	366.6	201211.0	-201211.3	275.3	0.4	0.8
S9_5_C5	-	-	-	-	-	-	1556.2	1083.3	196.9	201008.0	-201007.8	205.3	0.6	1.1
S9_5_C6	-	-	-	-	-	-	1699.3	1146.3	367.0	201190.0	-201190.0	267.4	0.4	1.1
S9_6_C1	45.5	6.9	33.1	153.0	-122.0	103.2	40.4	11.7	27.4	143.1	-137.1	45.7	1.3	1.3
S9_6_C2	-	-	-	-	-	-	4565.1	2834.1	1585.4	201498.0	-201497.7	224.7	1.3	1.3
S9_6_C3*	30.7	-2.4	23.1	92.0	-70.4	68.2	33.4	6.3	24.3	213.7	-46.4	240.8	0.6	1.0
S9_6_C4*	-	-	-	-	-	-	4761.7	3294.9	1233.5	200488.0	-200426.0	185.8	0.6	1.6
S9_6_C5	-	-	-	-	-	-	4566.2	2834.9	1585.7	201506.0	-201506.0	226.5	1.4	1.2
S9_6_C6*	-	-	-	-	-	-	4917.0	3058.9	1698.8	201496.0	-201495.7	102.3	0.7	1.0

*\*pre-calibrated camera lens model used*

**Table S2:** SfM model reference accuracy and image errors. RMSE = root mean square error, Std = standard deviation, pix = pixel.

Model Name	Camera Pitch (°)				Tie Point Observation Distance (m)				Tie point number	After filtering	Avg. tie point multiplicity	M.K.P. size (pix)	Sparse point cloud precision (mm)								
	mean	Std	mean	Std	mean	Std	mean	Std					x	X Std	y	y Std	z	z Std	max. x	max. y	max. z
K1_1_C1	0.0	0.1	19.9	0.2	5.73	0.42	-	-	975,459	669,818	4.0	4.0	3.1	2.9	2.6	2.3	6.5	5.2	62.3	56.7	63.0
K1_1_C2	0.0	0.0	-	-	4.92	0.37	-	-	706,896	635,306	3.8	4.1	2.3	2.1	1.8	1.3	4.2	3.2	39.4	30.1	43.5
K1_1_C3	0.0	0.0	19.9	0.2	5.64	0.42	-	-	975,460	669,823	4.0	4.2	176.6	25.3	140.7	29.2	167.1	38.2	290.2	262.3	333.3
K1_1_C4	0.0	0.0	-	-	4.86	0.37	-	-	706,896	635,254	3.8	4.1	173.5	27.1	138.1	28.7	169.9	40.5	265.3	228.6	314.1
K1_2_C1	0.0	0.1	19.9	0.2	5.81	0.43	-	-	1,032,779	718,005	3.4	3.3	4.5	3.3	3.8	2.4	9.7	6.9	76.0	67.6	110.6
K1_2_C2	0.0	0.1	-	-	5.95	0.45	-	-	770,781	677,738	3.3	3.2	4.3	3.0	3.5	1.9	9.4	6.4	53.6	51.5	101.8
K1_2_C3	0.0	0.1	19.9	0.2	5.79	0.43	-	-	1,032,779	713,247	3.4	3.3	298.5	36.3	235.2	46.7	276.4	61.6	458.8	424.2	552.1
K1_2_C4	0.0	0.1	-	-	6.46	0.50	-	-	770,781	742,275	3.3	3.6	473.0	71.1	339.3	66.3	402.5	92.9	711.5	542.2	734.2
L2_1_C1	0.1	0.1	20.1	0.0	4.68	0.58	-	-	393,674	268,871	3.2	3.8	5.6	4.1	5.0	3.3	10.2	7.8	142.8	166.7	118.0
L2_1_C2	0.1	0.1	-	-	5.59	0.41	-	-	299,655	216,409	2.8	3.8	19.0	16.4	16.0	9.2	19.8	7.8	483.1	409.5	206.2
L2_1_C3	0.1	0.1	20.1	0.0	4.76	0.58	-	-	363,232	285,529	2.8	3.2	996.2	104.8	924.0	114.7	978.2	205.4	1685.9	1620.1	2063.1
L2_1_C4	0.1	0.1	-	-	6.28	0.46	-	-	299,655	186,239	2.8	3.8	523.0	103.8	522.9	103.8	972.0	107.6	876.7	876.7	1409.3
L2_2_C1‡	0.0	0.1	20.1	0.0	4.72	0.62	-	-	363,233	267,226	2.8	2.9	5.0	4.7	4.2	3.3	9.5	7.9	119.7	76.0	118.0
L2_2_C2*	0.0	0.1	-	-	4.48	0.38	-	-	257,798	206,015	2.6	2.8	7.8	3.7	7.0	2.5	12.9	8.4	63.2	40.8	113.7
L2_2_C3‡	0.0	0.1	20.1	0.0	4.58	0.59	-	-	363,232	285,529	2.8	3.2	655.3	73.0	621.7	77.3	649.9	134.8	1041.5	1022.0	1304.2
L2_2_C4*	0.0	0.1	-	-	4.32	0.36	-	-	257,797	205,839	2.6	2.8	734.0	75.4	692.5	80.4	729.5	161.7	1020.4	994.2	1319.3
S9_5_C1	0.3	0.3	25.2	0.0	5.32	0.50	10.86	0.42	556,712	448,054	3.0	4.4	7.1	5.9	6.1	4.4	13.2	11.4	197.8	197.6	213.3
S9_5_C2	0.3	0.3	25.2	0.0	5.33	0.50	10.89	0.42	651,027	509,757	3.3	4.4	192.9	29.0	187.6	29.5	205.4	41.3	304.7	299.5	386.9
S9_5_C3*	0.4	0.3	-	-	5.35	0.49	-	-	389,966	337,716	2.6	3.9	5.5	2.6	4.9	1.5	9.1	5.2	55.1	41.3	73.9
S9_5_C4	0.4	0.3	-	-	5.21	0.48	-	-	424,380	285,990	2.7	2.9	197.6	32.8	192.8	33.0	220.8	45.1	307.6	302.6	365.0
S9_5_C5	0.3	0.3	25.2	0.0	5.33	0.50	10.88	0.42	672,317	417,451	3.5	3.1	189.9	28.9	184.7	29.3	202.0	41.2	298.7	294.9	384.2
S9_5_C6	0.4	0.3	-	-	5.19	0.47	-	-	424,718	285,863	2.7	2.9	195.5	32.4	190.9	32.7	218.6	44.7	304.2	299.2	361.2
S9_6_C1	0.1	0.0	25.0	0.0	5.38	0.33	13.68	0.38	526,570	376,915	5.4	2.5	12.7	3.8	12.7	3.6	20.9	9.4	130.7	124.6	219.5
S9_6_C2	0.1	0.0	25.0	0.0	5.38	0.33	13.66	0.38	545,400	433,796	5.1	2.8	608.1	88.5	617.7	88.0	654.5	138.5	1001.0	1030.4	1413.0
S9_6_C3*	0.1	0.0	-	-	5.31	0.32	-	-	389,966	337,716	2.6	3.9	6.2	1.9	6.2	2.0	12.2	6.3	66.6	66.4	121.2
S9_6_C4*	0.1	0.0	-	-	5.00	0.30	-	-	651,297	552,997	2.9	2.5	212.8	35.0	212.2	36.1	196.6	3.3	352.8	351.6	212.6
S9_6_C5	0.1	0.0	25.0	0.0	5.38	0.33	13.68	0.38	529,677	399,029	5.3	2.3	594.8	89.3	604.5	88.9	639.7	137.5	972.8	1001.5	1255.4
S9_6_C6*	0.1	0.0	-	-	5.22	0.31	-	-	640,735	529,694	3.7	2.6	232.5	39.4	232.7	40.4	214.6	3.7	398.9	384.5	241.5

‡ additional oblique cameras with angles of 50° to 65° included

\* pre-calibrated camera lens model used

**Table S3:** SfM model characteristics and model precision. Std = standard deviation, pix = pixel, M.K.P. = mean key point, Avg. = average.

Model name	Orthoimage mosaics (OM)							Single images (SI)						
	n	rel. uncertainty			rel. difference between MC and measurement			n	rel. uncertainty			rel. difference between MC and measurement		
		median (%)	min. (%)	max. (%)	median (%)	min. (%)	max. (%)		median (%)	min. (%)	max. (%)	median (%)	min. (%)	max. (%)
K1_1_C1 A	353	11.7	3.9	69.2	4.6	0	7.2	1018	8.2	2.5	30.1	2	0	5.5
K1_1_C1 B	516	10.3	3.3	50.1	4.1	0	7.1	978	8.4	2.4	31.7	2.6	0	6.1
K1_1_C2 A	631	9.9	3.2	40.4	3.9	0	6.9	999	8.1	2.4	28.5	2.9	0	4.8
K1_1_C2 B	402	11.6	3.8	68	4.2	0	8.1	944	9.4	2.5	29.7	2.3	0	5.1
K1_1_C3 A	435	14.6	4	66	2.5	0.1	8.3	902	9	3.6	29.3	2.5	0.1	6.8
K1_1_C3 B	423	14.9	4	48.5	2.8	0	7.9	961	8.8	3.6	33.3	2.4	0.1	6.4
K1_1_C4 A	354	15	4.2	62.5	3.5	0.1	8.8	908	9.4	3.9	29.8	2.8	0.1	7.3
K1_1_C4 B	436	13.7	3.7	56.4	4.1	0	8.8	996	9.2	3.7	28.4	2.6	0	7.5
K1_2_C1 A	908	8.3	2.5	31.8	5.2	0.1	8.5	1308	7.3	2.3	29.6	3.2	0.1	5.7
K1_2_C1 B	937	8	2.4	31.7	5.7	0	8.6	1584	6.5	2.1	30.6	3.3	0.3	5.5
K1_2_C2 A	966	7.8	2.4	33.7	5.1	0	8.4	1232	8.1	2.4	27.4	3.2	0.1	7.6
K1_2_C2 B	1001	7.7	2.5	34.6	5.6	0.3	7.6	1600	6.5	2	26.6	3.5	0.7	6.3
K1_2_C3 A	981	9.1	2.5	35.9	4.1	0.1	7.3	1280	7.6	3.6	25.9	3	0.1	10.9
K1_2_C3 B	974	8.8	2.5	30.4	4.7	0	7.6	1512	7.1	3.4	22.9	3.4	0.1	11.3
K1_2_C4 A	1142	8.3	2.4	22.2	4.8	0.2	7.8	1214	8	4	26.9	2.3	0	16.2
K1_2_C4 B	997	9.1	2.5	21.6	4.5	0.1	8.2	1496	6.8	3.7	29.2	2.5	0	16.9
L2_1_C1 A	136	37.2	7.7	189.3	2.5	0	11.1	160	30.2	7.8	71.8	1	0	5.7
L2_1_C1 B	354	19.3	3.8	48.8	2.8	0	9.2	384	16.7	3.9	72	1.6	0	7.4
L2_1_C2 A	226	29.6	6.3	157.6	2.4	0	10.4	147	30.7	9.7	52.6	0.9	0	4.3
L2_1_C2 B	347	17.7	3.9	42.2	4.1	0.3	9.8	381	16	4.1	81	1.7	0	8.1
L2_1_C3 A	247	26.6	5.1	63.6	1.8	0	16	153	33.1	26.1	125.1	3.6	0	46.2
L2_1_C3 B	264	23.3	4	78.8	2.8	0.1	9.4	387	19.6	11.7	79.5	2.4	0	46.7
L2_1_C4 A	223	26	6.2	45.3	2.5	0.1	6.8	130	41.5	19.8	123.5	2.8	0	25.3
L2_1_C4 B	216	27.3	5.7	48.3	3	0.2	8.8	374	17.5	9.7	47.4	2.2	0	25.8
L2_2_C1 A	399	22.5	5.3	79.4	1.6	0	9	315	25.4	6	49.3	0.9	0	5.5
L2_2_C1 B	551	15.6	3.2	31.9	3.3	0.1	9.2	611	15.8	3.2	36.7	1.3	0	7.1
L2_2_C2 A*	379	21.5	5.4	89.4	1.4	0	11.2	288	26.8	6.5	77	0.9	0	5.8
L2_2_C2 B*	510	16.3	3.2	47.4	3.9	0	9	633	15.6	3.4	30.5	1.6	0.1	7.4
L2_2_C3 A	542	18.8	3.6	27.4	2.3	0	9.7	295	28.7	15.2	57.2	2.1	0	32.2
L2_2_C3 B	524	18	3.6	45.9	1.9	0	9.1	599	16.8	8.1	40.2	1.9	0	31
L2_2_C4 A*	570	17.3	3.6	23.3	3	0.1	19.6	279	29.3	16.5	71.3	3.3	0	36.2
L2_2_C4 B*	559	17.8	3.3	38	3.9	0.1	12.5	612	16.1	8.6	48.8	3.3	0.1	34.5
S9_5_C1 A	256	16.9	4.9	48.9	2.6	0	10	537	11.7	3.7	41.1	1.7	0.1	7
S9_5_C1 B	191	25.6	6.5	91.3	2.6	0	11.8	335	20.5	5.9	40.1	0.9	0	4.6
S9_5_C3 A*	508	12.2	4.1	81.1	4.4	0.1	9.1	547	11.3	4.1	59.4	3.2	0.1	8.1
S9_5_C3 B*	209	22.9	7	40.2	3.5	0.1	9.6	339	21	5.9	60.9	3	0.3	6.5
S9_5_C5 A	194	19.7	5.9	42.1	7.2	0.2	12.5	528	11.9	5.6	87.7	4.9	1	9.7
S9_5_C5 B	133	28.7	7.7	54.5	6	0.4	15.4	333	19.6	8	41	5	1.3	8.7
S9_5_C6 A	213	16.4	6	34.9	4.6	0.2	10.6	550	11.8	5.9	55	3.7	0	7.9
S9_5_C6 B	160	21.2	6.9	70.5	4.6	0.4	11	353	21.1	8.4	91.6	3.2	0.6	7.2
S9_6_C1 A	1058	8.2	2.4	32.3	3	0.1	9	1421	7.6	2.2	32.6	2	0	5.1
S9_6_C1 B	451	18.9	4.5	48.2	2.6	0.1	5.3	543	17.5	4.1	35.9	1.1	0	5.5
S9_6_C3 A*	1033	8.6	2.6	30.5	3.6	0.1	8.5	1267	7.7	2.3	30.8	2.9	0.1	6.2
S9_6_C3 B*	418	20.9	5.7	62.8	2.9	0	8.2	556	17.6	3.8	53.7	2.2	0.2	8.2
S9_6_C5 A	615	11.2	3.7	51.4	9.2	0.3	15.6	1451	7.9	4.8	35.1	8.9	0.7	28.4
S9_6_C5 B	277	18.4	5.1	41.3	9.1	0.9	17.5	570	17.7	8.3	35.1	8.1	0.4	22
S9_6_C6 A*	613	11.1	3.6	55.6	3.9	0.5	7.9	1256	7.8	3.4	30.9	3	0	6.7
S9_6_C6 B*	297	17.5	4.5	47.4	4.3	0	11.5	544	18.4	5.5	50.7	2.1	0	8.1

\* pre-calibrated camera lens model used

**Table S4:** Overall grain size percentile uncertainty (95% confidence interval) summary across all percentiles relative to photo-measured percentiles, and number of grains segmented.

<i>D</i>	<i>Grain size region</i>	<i>Orthoimage mosaics (OM)</i>									<i>Single images (SI)</i>								
		<i>median D (mm)</i>	<i>mean D (mm)</i>	<i>min D (mm)</i>	<i>max D (mm)</i>	<i>mean 95% CI (mm)</i>	<i>95% CI Std (mm)</i>	<i>mean Difference (mm)</i>	<i>Difference Std (mm)</i>	<i>rel. Uncertainty (%)</i>	<i>median D (mm)</i>	<i>mean D (mm)</i>	<i>min D (mm)</i>	<i>max D (mm)</i>	<i>mean 95% CI (mm)</i>	<i>95% CI Std (mm)</i>	<i>mean Difference (mm)</i>	<i>Difference Std (mm)</i>	<i>rel. Uncertainty (%)</i>
D50	K1 A	32.6	31.5	30.9	35.6	3.5	0.9	1.6	0.4	10.7	31.5	30.8	30.6	32.9	2.5	0.2	0.8	0.2	7.9
	K1 B	32.3	31.2	31.2	35.3	3.4	0.9	1.7	0.4	10.5	31.7	30.7	31	32.1	2.4	0.4	0.9	0.1	7.6
D84	K1 A	66.6	66.4	57.6	78.6	14.6	4.1	1.2	0.4	21.9	65.4	65.7	63.9	69.7	10.7	0.8	0.6	0.3	16.4
	K1 B	67.5	66.5	63.3	72.2	14.2	3.4	1	0.4	21.0	69.5	68.8	64.1	72.5	11.4	2.6	0.5	0.3	16.4
D96	K1 A	121.1	122.6	109	148.2	37.9	14.7	1.3	0.9	31.3	121.9	121.4	117	128.6	27.5	3.7	1.2	0.9	22.6
	K1 B	121.9	125.1	117.7	150.6	36.7	13.1	2	1.9	30.1	136.8	137.8	127.5	153.1	34.6	9.3	1.5	0.6	25.3
D50	L2 A	47	47	44.6	53.8	12.4	3.2	1	0.5	26.4	48.3	46.9	41.2	51.9	15.3	1	0.5	0.5	31.7
	L2 B	39	38.5	35.6	44.4	7.7	1.6	1.5	0.8	19.7	36.1	36.5	33.8	39.6	6.1	0.3	0.3	0.2	16.9
D84	L2 A	115.1	112.6	97.8	124.8	31.2	8.9	2.6	1.8	27.1	118.7	120	105.7	136.3	41	5.9	1.8	1.3	34.5
	L2 B	93	93.5	85.5	110	25.9	3.4	1.5	0.9	27.8	97.7	94.7	74.5	110.4	30.3	4.1	0.8	0.6	31.0
D96	L2 A	178.7	177.7	151.1	200.8	51.2	14.1	4.2	4.8	28.7	202.1	196.6	165.2	229.8	78.8	16.1	4.1	4.6	39.0
	L2 B	170.5	163.8	149	182.9	52.8	15	6.3	3.4	31.0	194.9	184.1	153	200.8	60.5	24.4	3.3	3.2	31.0
D50	S9 A	33.7	32.4	32.6	35.8	4.4	1.2	1.5	0.8	13.1	33.9	32.6	32.4	35.3	3.3	0.7	1.3	0.7	9.7
	S9 B	36.2	35.2	33.1	41.9	8	1.4	1.8	0.7	22.1	41.2	40.1	40.4	43.1	8.2	0.7	1.3	1	19.9
D84	S9 A	63.8	62.5	59.5	71.5	12.8	4.7	2.2	1.8	20.1	66.6	65.5	65.2	71.3	10.3	2.6	1.9	1.5	15.5
	S9 B	82.5	83.4	66	105.5	26.8	5.9	1.9	1.5	32.5	109.2	107	102.9	117.7	26.4	4.5	2.7	2.2	24.2
D96	S9 A	102.6	103.5	88.7	140.5	32.5	12.9	3.3	3.1	31.7	113.8	113.9	106.8	131.2	32.1	6.6	3	3.4	28.2
	S9 B	138	143	110.6	179.3	51.7	10	3.8	3	37.5	184.7	182.8	170.3	202.6	52.3	16.9	2.7	2.5	28.3

**Table S5:** Grain size results for the D<sub>50</sub>, D<sub>84</sub> and D<sub>96</sub> averaged across all surveys. Difference refers to the difference between measured and modelled percentile value. Std = standard deviation, CI = confidence interval.