

Table DR1: Summary of flow properties and depositional characteristics for all experimental flows. Note that these are time-averaged values of flow thickness (δ , position at $0.5u_{max}$), height of u_{max} , along with depth averaged and local values (at u_{max}) of u , ρ_{flow} , the Reynolds (Re_d) and densiometric Froude numbers (Fr_d). Standard deviation is included to reflect some of the current's temporal dynamics.

Slurry Conc.	δ_{ss}	Bed Morphology	δ (cm)		U (cm/s)		ρ_{flow} (kg/m ³)		Re_d ($\times 10^4$)	Fr_d
			Depth Avg.	at U_{max}	Depth Avg.	at U_{max}	Depth Avg.	at U_{max}		
5% mass (2% vol.)	70μm	Plane	16.3 ± 1.9	3.8 ± 1.3	19.8 ± 2.3	31.0 ± 4.4	1015 ± 5	1020 ± 6	2.16	1.63
	150μm	Plane	14.8 ± 1.8	3.6 ± 1.6	22.7 ± 4.8	35.6 ± 6.0	1014 ± 7	1020 ± 7	2.27	1.95
	230μm	3D Features	14.0 ± 3.8	3.1 ± 1.3	21.8 ± 11.0	34.3 ± 10.8	1012 ± 7	1014 ± 7	2.28	2.35
	330μm	3D Features	- ± -	- ± -	- ± -	- ± -	- ± -	- ± -	-	-
9.5% mass (4% vol.)	70μm	Plane	16.8 ± 1.6	5.4 ± 2.2	22.1 ± 0.6	35.4 ± 7.9	1040 ± 9	1050 ± 9	2.56	1.27
	150μm	Plane	14.8 ± 2.4	2.1 ± 1.4	27.0 ± 13.5	41.8 ± 14.9	1040 ± 13	1059 ± 19	2.90	1.47
	230μm	3D Features	12.5 ± 2.7	2.1 ± 1.4	27.0 ± 11.9	45.3 ± 13.5	1035 ± 15	1053 ± 28	2.45	1.64
	330μm	3D Features	11.7 ± 2.9	2.0 ± 1.1	26.0 ± 14.9	45.8 ± 19.3	1009 ± 6	1020 ± 55	2.39	6.17
17.5% mass (8% vol.)	70μm	Plane	17.1 ± 2.2	7.6 ± 3.2	20.1 ± 3.3	40.3 ± 6.5	1050 ± 13	1076 ± 12	2.35	0.82
	150μm	Plane	10.9 ± 2.4	4.6 ± 1.6	28.9 ± 17.7	46.3 ± 16.3	1084 ± 15	1137 ± 29	2.42	1.21
	230μm	Plane	9.8 ± 1.6	1.3 ± 0.5	33.3 ± 10.5	63.6 ± 12.2	1068 ± 27	1116 ± 31	2.36	1.56
	330μm	Plane	8.9 ± 2.8	5.7 ± 2.4	30.7 ± 20.3	57.2 ± 24.3	1090 ± 29	1098 ± 36	2.29	1.33