Dataset Title: Laser In Situ Scatterometer and Transmissometer-based Particle Size Distributions (LISST PSDs) from sinking materials collected from sediment traps at Station ALOHA in June 2019 onboard R/V Kilo Moana cruise KM1910

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In folder **"raw_data"**:

Filename	Description of dataset	Variables in dataset	Description	Units
ringarea_1421.asc	Sequoia-provided ringarea file for LISST serial number 1421. This is an input of Sequoia's 'getscat.m' processing script in 'lisst_process_traps.m'			
Example: '1A75_2.asc', '1A75_2.log' '1A75_2.psd' Where the first digit '1' identifies the first deployment (options: 1 or 2); 'A' = trap ID (out of 11 or 12, so ranging from A through L); '75' = 75 m (depth of trap, and alternatively 150m and 300m), and the last digit '2' identifies the replicate number (alternatively 1 or 3).	Raw signal obtained when running sediment trap samples on Sequoia's lisst.exe, during deployment. The log files are called by Sequoia's 'getscat.m' in 'lisst_process_traps.m'			
TRAP_CAL_061919_n*.asc, where * = 1, 2, or 3 (identifying triplicates), and TRAP_CAL_AVG.asc	Calibration data obtained for trap samples during the first day of trap deployments. TRAP_CAL_AVG.asc is the average of the triplicate calibration files, and it is called			

	in Sequoia's 'getscat.m' processing script in 'lisst_process_traps.m' See Cael and White (2020) for details.			
ST_D2_blankAtoF_rep(1, 2 or 3).asc, .log, and .psd and ST_D2_blankGtoL_rep(1, 2 or 3).asc, .log, and .psd Where D2 indicates Day 2 and AtoF and GtoL identify trap IDs.	Calibration data obtained for trap samples during the second day of trap deployments. Raw signal obtained when running trap blank samples on Sequoia's lisst.exe, during the second day trap deployment. See Cael and White (2020) for details.		ST_D2_blankAtoF_rep1.asc was used in the processing of traps A through F during the second deployment (in 'lisst_process_traps.m'). ST_D2_blankGtoL_rep1.asc was used in the processing of traps G through L during the second deployment deployment (in 'lisst_process_traps.m'). using the average or replicates instead of only replicated 1 did not alter the results	

In folder "**sed_trap_mat_files**":

Filename	Description of dataset	Variables in dataset	Description	Units
Example: '2B75_1.mat', where 2 = second deployment (day 2); B = trap ID (out of 11 or 12 traps per deployment); 75 = 75 m (depth of trap); 1 = replicate number (out of 3). Filename convention is the same as in the raw .asc, .psd, and .log files.	individual sediment traps' PSDs. These are the outputs of LISST inversion (processed using Sequoia's proprietary Matlab code) for spherical particles and computed volume concentrations for each of the 32 size bins for samples collected within each trap (~20 scans for each replicate and depth). Files generated using 'lisst_process_traps.m'. Final corrected data is "corr_vd"	cscat,	Raw scattering corrected for ringarea, output of Sequoia's getscat.m	
		data_out	raw data file, converted from binary, see LISST 100x Sequoia's manual for additional information	32 scattering bins + 8 additional ancillary variables
		dias	Particle diameter for each bin	micrometers
		matlab_date	Number of seconds since 1-Jan-1970 00:00:00 UTC	UTC
		scat	raw scattering signature, output of Sequoia's getscat.m	Digital counts
		vd	Volume concentration, output of invert.m	Microliter per L

		corr_vd	Corrected volume concentration, output of Sequoia's vdcorr.m	Microliter per L
		tau	optical transmission, output of Sequoia's getscat.m	Inverse meters

In folder "**processed_trap_mat_files**"

Filename	Description of dataset	Variables in dataset	Description	Units
1_75.mat, 1_150.mat, 1_300.mat (where 1 = deployment one and numbers identify depth of trap), and 2_75.mat, 2_150.mat, 2_300.mat (where 2 = deployment two and numbers identify depth of trap)	concatenated trap PSDs (average of several traps per depth per deployment). See Cael and White (2020)	D	particle concentration for each of the 60 replications, 32 bins, and 12 traps, for specific deployment and depth noted in filename	Numbers per liter
		I	diameter for each of the 32 bins, for specific deployment and depth noted in filename	meters
		M	volume-mean particle diameter for each of the 60 replications for each of the 12 traps, for specific deployment and depth noted in filename	meters

		N	total number of particles for each of the 60 replications for each of the 12 traps, for specific deployment and depth noted in filename	
		V	total particle volume for each of the 60 replications for each of the 12 traps, for specific deployment and depth noted in filename	Microliters per liter