Table 2: Column definitions for the customized *Dataview*.

Column No.	and Header	Definition
1	Id	System assigned experiment ID.
2	Title	Title of the project, group of experiments, simulations or surveys.
3	Experiment or Case ID	ID assigned by the source to the sample, specimen, case, survey, site, experiment or simulation: [Test ID]-[Test Day]-[Struct]-[ESN].
4	Event No	Sequential database event number.
Test Series Info		
5	Project Data Citation	Citation(s) that users must also cite, when heavily using this project data.
6	Project Title	The title of the project.
7	PI	The Principal Investigator of the project.
8	Co-PIs	The Co-Principal Investigator(s) of the project.
9	Sponsor	Sponsor(s)/funding source(s) of the project.
10	Test Researchers	Non-PI researchers of the test.
11	Test Site	Name of the facility that the test was conducted at.
12	Test Type	Categorization of the test (e.g., centrifuge, small-scale $1g$).
13	Equipment	Description of experimental equipment.
14	Container	Facility name for the container used.
15	L_con [m]	Inner dimension of the model container along x-axis.
16	B_con [m]	Inner dimension of the model container along y-axis.
17	H_con [m]	Inner height of the model container.
Event Info		
18	Event Date [yyyy-mm-dd]	Date of the event.
19	Test Day	Test day[1] number.
20	Struct	Database name of the structure in the event.
21	ESN	Event Sequence Number: the n-th motion in the shaking sequence of the test day[1].
22	Initial Conditions	Description of initial conditions at the start of the test day[1] relevant to the event (e.g., new model, local repair of damaged soil and reinstallation of the structure on level ground without tilting).
23	A*	Acceleration scale factor: model acceleration over prototype acceleration. For centrifuge testing, it should be reported at the base of the footing.
24	L*	Length scale factor: model length/displacement over prototype length/displacement.
25	T*	Dynamic time scale factor: model time over prototype time.
26	M*	Mass scale factor: model mass over prototype mass.
27	RPM	Revolutions per minute of the centrifuge bucket during the event.
28	g-field	Whether constant or variable g-field has been considered in the scaling and processing of the data.
29	Units Scale	Whether dimensional quantities are reported in prototype or model scale. For prototype scale, all quantities are consistently converted from model scale based on the provided scaling laws; for model scale, all quantities are reported as actual dimensions of the test without scaling, unless otherwise noted.

(*continued*)

Table 2: Column definitions for the customized *Dataview* (*continued*).

Column No.	and Header	Definition
Soil Profile Properties		
30	H_soil [m]	Initial[2] total thickness of the soil profile.
31	D_wat [m]	Initial[2] average depth of water table below (+) or above (-) the soil surface.
32	Saturation Fluid	Description of pore fluid, and viscosity if other than water.
33	Soil Layers No	Number of distinct constructed soil layers.
34	Soil Modification	Description of ground modification (e.g., piles, DSM, rigid inclusions).
35	Mat_L1	Material type of layer 1.
36	H_L1 [m]	Initial[2] thickness of layer 1.
37	Dr_L1 [%]	Initial[2] average relative density of layer 1, if it consists of sand.
38	Dr_stdev_L1 [%]	Estimate of standard deviation of relative density of layer 1, if it consists of sand.
39	Su_L1_t [kPa]	Undrained shear strength at the top of layer 1, if it consists of saturated clay.
40	Su_L1_m [kPa]	Undrained shear strength at the middle of layer 1, if it consists of saturated clay.
41	Su_L1_b [kPa]	Undrained shear strength at the bottom of layer 1, if it consists of saturated clay.
42	Su_stdev_L1_m [kPa]	Estimate of standard deviation of undrained shear strength at the middle of layer 1, if it consists of saturated clay.
43	rho_L1 [kg/m/m/m]	Initial[2] average total density of layer 1.
44	w_L1 [%]	Initial[2] average water content of layer 1.
45–54	—	Similar to Columns 35–44 for layer 2.
55–64	—	Similar to Columns 35–44 for layer 3.
Structural Properties		
65	Struct_Type	Idealized type of structure with respect to mass distribution and column/wall stiffness and strength.
66	Shape_f	Description of footing shape (e.g., rectangular, circular, I-shaped).
67	Mat_f	Description of footing material (e.g., steel, reinforced concrete).
68	L[3] [m]	Footing length, measured along x-axis.
69	B[3] [m]	Footing width, measured along y-axis.
70	B_min[3] [m]	Minimum footing width, measured along y-axis; only for trapezoidal footings.
71	t_w [m]	Thickness of the footing web; only for C- and I-shaped footings.
72	t_fl [m]	Thickness of the footing flange; only for C- and I-shaped footings.
73	MAR [%]	Missing plan area of a footing to become a complete rectangle, divided by the area of the circumscribed rectangle (MAR = 0% for rectangular and circular footings).
74	Skew_Angle[3] [deg]	Initial[2] angle between the footing length and x-axis, defined as (+) for footing rotation about an upward vertical axis following the right-hand rule.
75	D [m]	Initial[2] footing embedment depth, measured from the soil surface to the bottom of the footing.
76	t [m]	Footing thickness.
77	m_f [kg]	Structural footing mass.

(*continued*)

Table 2: Column definitions for the customized *Dataview* (*continued*).

Column No. and Header		Definition
78	I_f [kg-m-m]	Mass moment of inertia of the structural footing about its centroidal y-axis.
79	h_cf [m]	Height of the center of mass of the structural footing above the base of the footing.
80	m_o [kg]	Footing overburden mass: any mass on top of the structural footing other than the superstructure.
81	h_co [m]	Height of the center of mass of the footing overburden above the base of the footing.
82	Mat_c	Description of column/wall material.
83	H_c [m]	Clear column height between footing and deck fixity (or total superstructure height for non-footing-column-deck structures).
84	m_c [kg]	Mass of column (or mass of superstructure for non-footing-column-deck structures).
85	I_c [kg-m-m]	Mass moment of inertia of the column about its centroidal y-axis (or respective mass moment of inertia of the superstructure for non-footing-column-deck structures).
86	h_cc [m]	Height of the center of mass of the column above the base of the footing (or respective height of the superstructure for non-footing-column-deck structures).
87	m_d [kg]	Mass of deck (not applicable for non-footing-column-deck structures).
88	I_d [kg-m-m]	Mass moment of inertia of the deck about its centroidal y-axis (not applicable for non-footing-column-deck structures).
89	h_cd [m]	Height of the center of mass of the deck above the base of the footing (not applicable for non-footing-column-deck structures).
90	m_s [kg]	Mass of structure[4].
91	I_s [kg-m-m]	Mass moment of inertia of the structure[4] about its centroidal y-axis.
92	h_cs [m]	Height of the center of mass of the structure[4] above the base of the footing.
93	P_st [kN]	Total static axial load at the base of the footing.
94	q [kPa]	Bearing pressure of the footing, defined as P_st divided by the plan footing area.
95	T_0 [s]	Experimentally determined or analytically calculated elastic fixed-base fundamental period of the structure for response in the xz-plane.
Rocking System Properties[5]		
96	M/(VL)	Normalized moment-to-shear ratio at the base centroid of the footing, estimated as h_cs/L for essentially-rigid structures or as h_cd/L for flexible-column bridge pier structures.
97	FS_va	Analytically/empirically calculated initial[2] static factor of safety of the foundation with respect to vertical concentric loading.
98	FS_ve	Experimentally determined initial[2] static factor of safety of the foundation with respect to vertical concentric loading.
99	A/A_c0a	Analytically/empirically calculated initial[2] foundation critical contact area ratio neglecting shear effect: ratio between the plan footing area and the minimum contact area required to support the vertical load during rocking.

(*continued*)

Table 2: Column definitions for the customized *Dataview* (*continued*).

Column No.	and Header	Definition
100	A/A_ca	Analytically/empirically calculated initial[2] foundation critical contact area ratio including shear effect: ratio between the plan footing area and the minimum contact area required to support the vertical and shear loads during rocking.
101	A/A_ce	Experimentally determined initial[2] foundation critical contact area ratio: ratio between the plan footing area and the contact area corresponding to full mobilization of the foundation moment capacity during rocking.
102	M_cfa [kN-m]	Analytically/empirically calculated initial[2] moment capacity of the foundation about the base centroid of the footing.
103	M_cfe [kN-m]	Experimentally determined (i.e., from monotonic or slow-cyclic pushover testing) initial[2] moment capacity of the foundation about the base centroid of the footing.
104	M_cc [kN-m]	Experimentally determined or analytically calculated nominal moment capacity of the column.
105	C_r	Initial[2] foundation-rocking base shear coefficient: the ratio of the lateral force to the seismic weight of the structure required to mobilize the foundation moment capacity. C_r is estimated as M_cfa/(m_s·g·h_cs) for essentially-rigid structures or as M_cfa/[(m_d+0.5·m_c)·g·h_cd] for flexible-column bridge pier structures.
106	C_y	Column-hinging base shear coefficient: the ratio of the lateral force to the seismic weight of the superstructure required to mobilize the column nominal moment capacity. C_y is estimated similarly to C_r but with only the structural components located above the column hinge being considered.
107	T_1a [s]	Analytically/empirically calculated initial[2] flexible-base fundamental period of the rocking system.
108	T_1e [s]	Experimentally determined initial[2] flexible-base fundamental period of the rocking system.
Ground Motion Properties[6]		
109	Shaking DOFs	Shake table degrees of freedom used in the event: 1D, 2D-H (two-dimensional horizontal), 2D-V (one horizontal and one vertical) or 3D.
110	Motion Name	Facility name for the motion used.
111	Earthquake Event	Year and location of the corresponding earthquake.
112	Recording Station	Recording station and azimuth of the x-axis input base motion.
113	AF	Amplitude scaling factor applied to the x-axis input base motion if historical, or target peak absolute acceleration if artificial.
114	Motion Modification/Comment	Modification of the x-axis input base motion (e.g., filtering, superposition with pulse), or other comments.
115	PGA_B [g]	Peak absolute acceleration of the base motion.
116	PGV_B [cm/s]	Peak absolute velocity of the base motion.
117	PGD_B [cm]	Peak absolute displacement of the base motion.

(*continued*)

Table 2: Column definitions for the customized *Dataview* (*continued*).

Column No.	and Header	Definition
118	Tp_B [s]	Predominant period of the base motion: the period at the peak of the 5%-damped linear acceleration response spectrum.
119	Tm_B [s]	Mean period of the base motion: average of the discrete Fourier transform periods, weighted by the squares of the corresponding Fourier amplitudes (only harmonics with corresponding prototype periods between 0.02 and 4 seconds are considered).
120	Tbd_B [s]	Bracketed duration of the base motion: the time difference between the last and first exceedance of a 0.05g threshold acceleration.
121	Td_B [s]	Strong shaking duration of the base motion: the time difference between the 95% and 5% Arias intensity (Ia_B).
122	a_rms_B [g]	Root-mean-square acceleration of the base motion: square root of the mean square acceleration during the strong shaking duration (Td_B).
123	Ia_B [m/s]	Arias intensity of the base motion: integral of the square of the acceleration time series over the entire duration, normalized by $2g/\pi$.
124	cIa_B [m/s]	Cumulative Ia_B up to[7] and including the event.
125	CAV5_B [g-s]	Cumulative absolute velocity of the base motion: integral of the absolute acceleration time series over the entire duration with a 0.005g threshold acceleration.
126	cCAV5_B [g-s]	Cumulative CAV5_B up to[7] and including the event.
127–138	—	Similar to Columns 115–126 for the surface motion.
Performance Results[5]		
139	pkDR [%]	Peak drift ratio of the center of mass of the deck (or of the structure) relative to the free-field soil with respect to the initial[2] geometry.
140	ipkDR [%]	Incremental peak drift ratio of the center of mass of the deck (or of the structure) relative to the free-field soil with respect to the before-event geometry.
141	resDR [%]	Residual drift ratio of the center of mass of the deck (or of the structure) relative to the free-field soil at the end of the event with respect to the initial[2] geometry.
142	iresDR [%]	Incremental residual drift ratio of the center of mass of the deck (or of the structure) relative to the free-field soil at the end of the event with respect to the before-event geometry.
143	DR Ref. Point	Reference point of the structure used to compute drift ratio.
144–147	pkRot, ipkRot, resRot, iresRot [rad]	Similar to Columns 139–142 for footing rotation.
148	cRot [rad]	Cumulative footing rotation for the specific event: the sum of the absolute values of the local maxima and minima of the rotation time series (offset to start from a zero value and high-pass filtered to remove residual), if the difference between two neighboring local peaks is greater than 2 mrad.
149	ccRot [rad]	Cumulative cRot up to[7] and including the event.

(*continued*)

Table 2: Column definitions for the customized *Dataview* (*continued*).

Column No. and Header		Definition
150–153	pkSlid, ipkSlid, resSlid, iresSlid [%]	Similar to Columns 139–142 for the sliding of the base centroid of the footing relative to the free-field soil, normalized by the footing length.
154–155	resSet, iresSet [%]	Similar to Columns 141–142 for the total settlement (+) or uplift (-) of the base centroid of the footing, normalized by the footing length.
156–157	resSet_FF, iresSet_FF [%]	Similar to Columns 141–142 for the free-field soil surface settlement (+) or heave (-), normalized by the footing length.
158	maxP	Maximum axial load demand at the base centroid of the footing, normalized by P_st.
159	minP	Minimum axial load demand at the base centroid of the footing, normalized by P_st.
160	maxM	Maximum absolute moment demand at the base centroid of the footing, normalized by 0.5·P_st·L.
161	minM_cf	Minimum absolute moment capacity of the foundation due to transiently reduced axial load, normalized by 0.5·P_st·L. If the moment capacity is not mobilized for the specific event, set minM_cf = maxM.
162	maxV	Maximum absolute shear load demand at the base centroid of the footing, normalized by P_st.
163	Force Demands Filter	Description of filter (type, order, and corner frequency) used for removing unimportant high-frequency components when calculating maxP, minP, maxM, minM_cf and maxV.
164	T_1e_be [s]	Flexible-base fundamental period of the rocking system measured experimentally before the specific event.
165	T_1e_ae [s]	Flexible-base fundamental period of the rocking system measured experimentally after the specific event.
Miscellaneous		
166	Ref. Event ID	Identification used in the provided references for the specific event.
167	Project Website	Link to the project website.
Report(s)		
168	Critical Plot	Image of critical excitation, foundation, and structure response plots.
	System Properties Calculation Sources	Source(s) to the experimental and/or analytical/empirical procedures used for calculation of the rocking system properties.
	References	Reference(s)/source(s) of data specific to the test series (e.g., data report).
	Comments	Short document with important comments not covered previously.
Data		
169	Critical Data	Tab-delimited text file containing the time series of selected critical excitation and response parameters (see Table 3).
	Baseline Corrected Motions	Tab-delimited text file containing the pad-stripped baseline-corrected time series of the soil base and surface motions (see Table 4).

(*continued*)

Table 2: Column definitions for the customized *Dataview* (*continued*).

Column No.	and Header	Definition
	Response Spectra	Tab-delimited text file containing the 5%-damped linear response spectra for the soil base and surface motions (see Table 5).
	Supplemental Data	Tab-delimited text file containing the as-recorded time series of selected individual sensors (optional).
Photos, Videos, etc.		
170	Structure and Test Photos	Photo(s) of the model structure and test setup (optional).
Drawings/Diagrams		
171	Structure and Test Drawings	Drawing(s) of the model structure and test setup (optional).

[1]Test day: a shaking sequence during which the displacement field of the soil-structure models (e.g., footing rotation) remains essentially unchanged between successive shakes.

[2]*Initial* refers to the properties and geometry at the start of the test day relevant to the event. Also, note that if the same soil deposit is subjected to multiple test days, the initial conditions of subsequent test days do not typically account for the soil volumetric changes occurring during the previous ones, and instead, the soil packing achieved during initial construction is assumed.

[3]For a skewed footing, the definition applies to the theoretical aligned geometry and position of the footing before rotated about an upward vertical axis by the *Skew_Angle* to assume its testing position. Likewise, *Skew_Angle* is the footing rotation about a downward vertical axis that is required to align L and B with the x- and y-axes.

[4]Does not include the contribution of the footing overburden mass if the latter is non-structural and/or simply rests on top of the footing (e.g., soil overburden).

[5]Rocking system properties (i.e., M/(VL), A/A_c, M_cf, M_cc, C_r, C_y, and T_1) and performance results (e.g., pkDR, cRot, pkSlid, maxM, maxV, T_1e) are calculated for the response of the models in the xz-plane.

[6]Ground motion intensity measures are calculated for the achieved base and surface motions along x-axis.

[7]Unless otherwise noted, the contribution of previous events included in the test shaking sequence but not reported in the database is not accounted for.