DESIGNSAFE-CI
A NATURAL HAZARDS ENGINEERING COMMUNITY

A DATA MODEL FOR LIFECYCLE MANAGEMENT OF NATURAL HAZARDS ENGINEERING DATA

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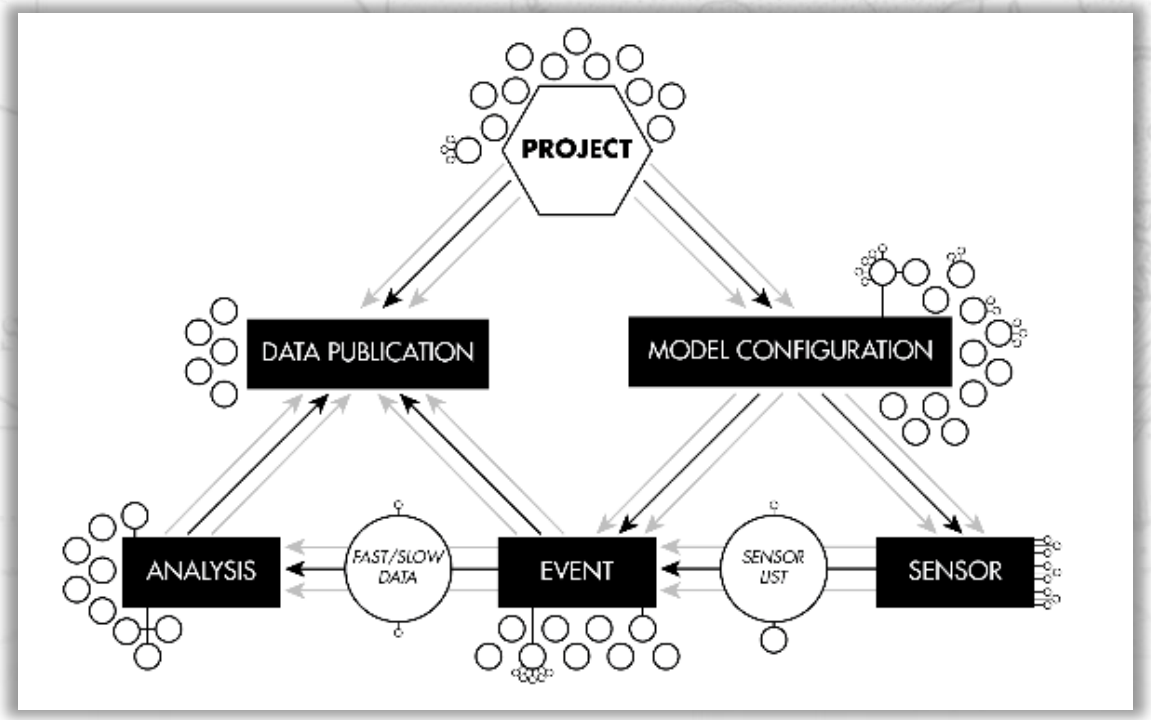
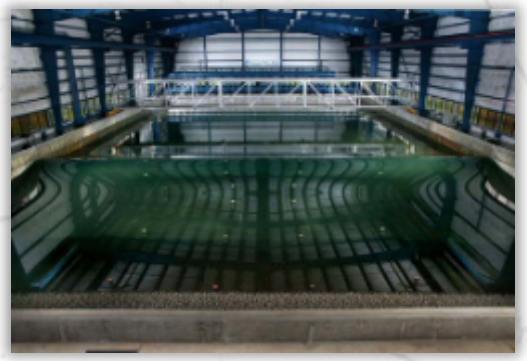
Natural Hazards Engineering Data

- Sophisticated experimental design
- Complex relationships



DesignSafe-CI

- Seven different experimental project types







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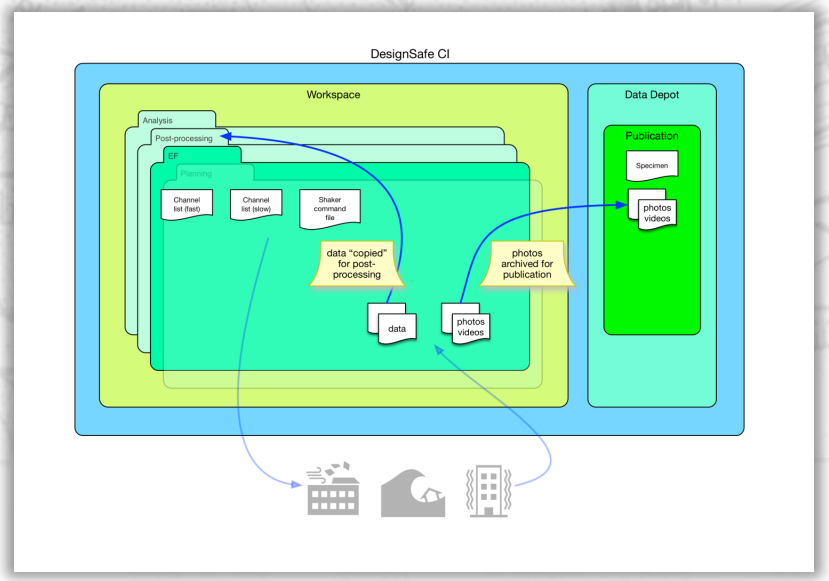
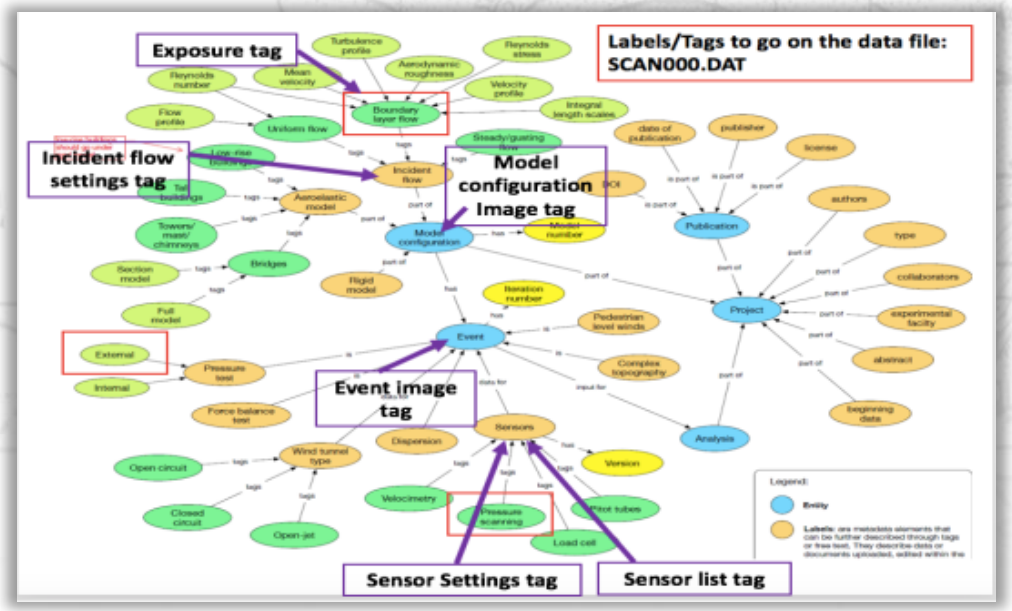
Modeling

- Draw workflows
- Equipment, processes, software, indispensable documentation



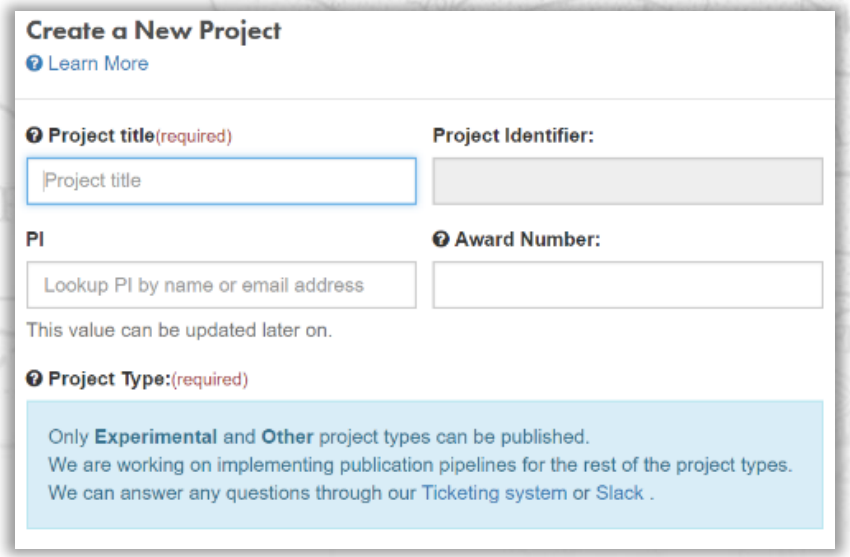
Modeling

- Analyze domain models to generalize entities
- Emphasize structure and provenance
- Document metadata



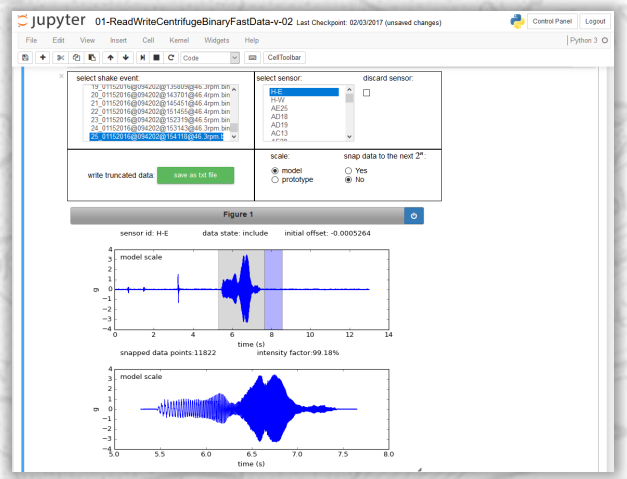
Progressive Curation: Project Creation

- Curate data throughout research process
- Minimal initial metadata
- Unique ID tracks with project through lifecycle



Progressive Curation: Project Data and Documentation

- Files enter CI, fulfilling key data model entities
  - Model configuration
  - Sensors
  - Data output
- Transformation and analysis



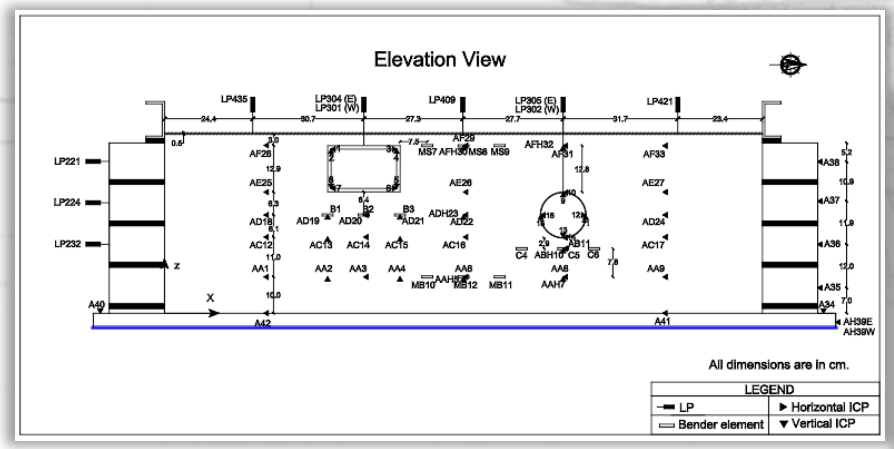
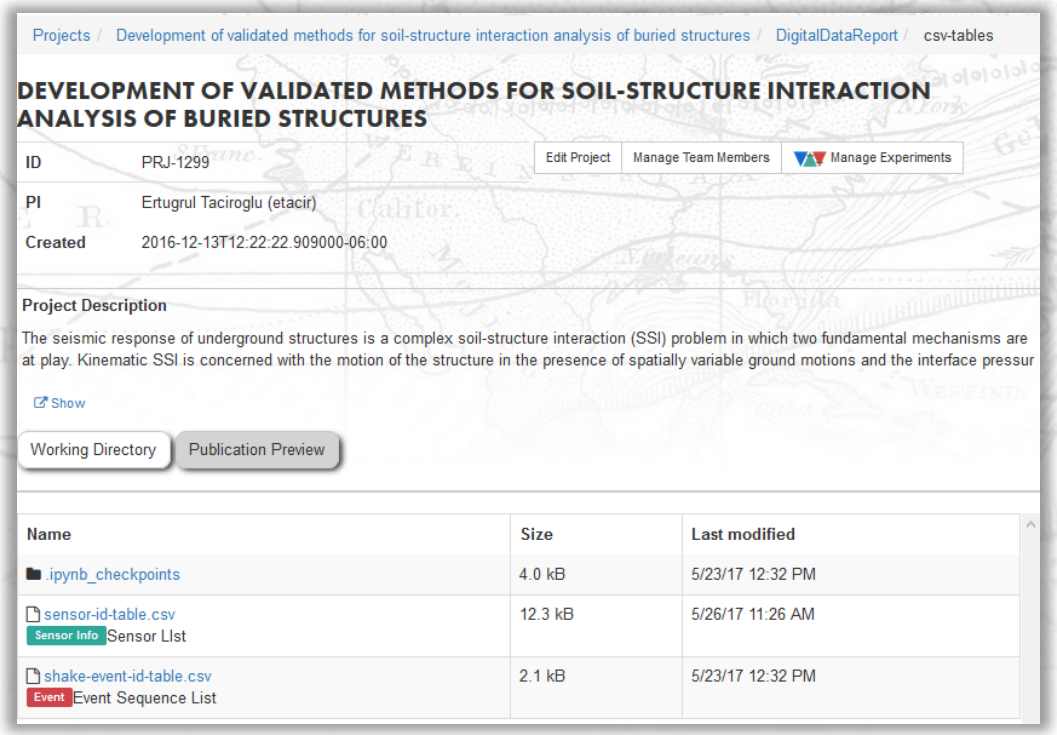


Table 7: The list of the sensors used in this study.

Sensor (XDCR) ID	X (cm)	Y (cm)	Z (cm)	i	j	k	Interface Channel	XDCR Serial Number	Sensitivity	Sensitivity Units	XDCR Range	XDCR Units	DAQ Range	DAQ Range Units	Excitation Value	Excitation Units
H-E	East shaker	-	-	-1	0	0	ICP1-0	6025	52.4	mV/g	100	g	5	Volts	2	mA
H-W	West shaker	-	-	-1	0	0	ICP1-1	6021	53.6	mV/g	100	g	5	Volts	2	mA
AA1	27.5	0.0	10.0	-1	0	0	ICP3-4	3166	106.5	mV/g	50	g	5	Volts	2	mA
AA2	45.0	-5.0	10.0	0	0	+1	ICP3-6	37003	48.8	mV/g	100	g	5	Volts	2	mA
AA3	55.0	0.0	10.0	-1	0	0	ICP3-5	96937	101.7	mV/g	50	g	5	Volts	2	mA
AA4	65.0	-5.0	10.0	0	0	+1	ICP2-2	6023	52.2	mV/g	100	g	5	Volts	2	mA
AAH5	82.6	0.0	10.0	-1	0	0	ICP2-4	3962	106.5	mV/g	50	g	5	Volts	2	mA
AA6	82.6	-5.0	10.0	0	0	+1	ICP2-3	37001	48.3	mV/g	100	g	5	Volts	2	mA
AAH7	110.1	0.0	10.0	-1	0	0	ICP6-2	3164	106.6	mV/g	50	g	5	Volts	2	mA

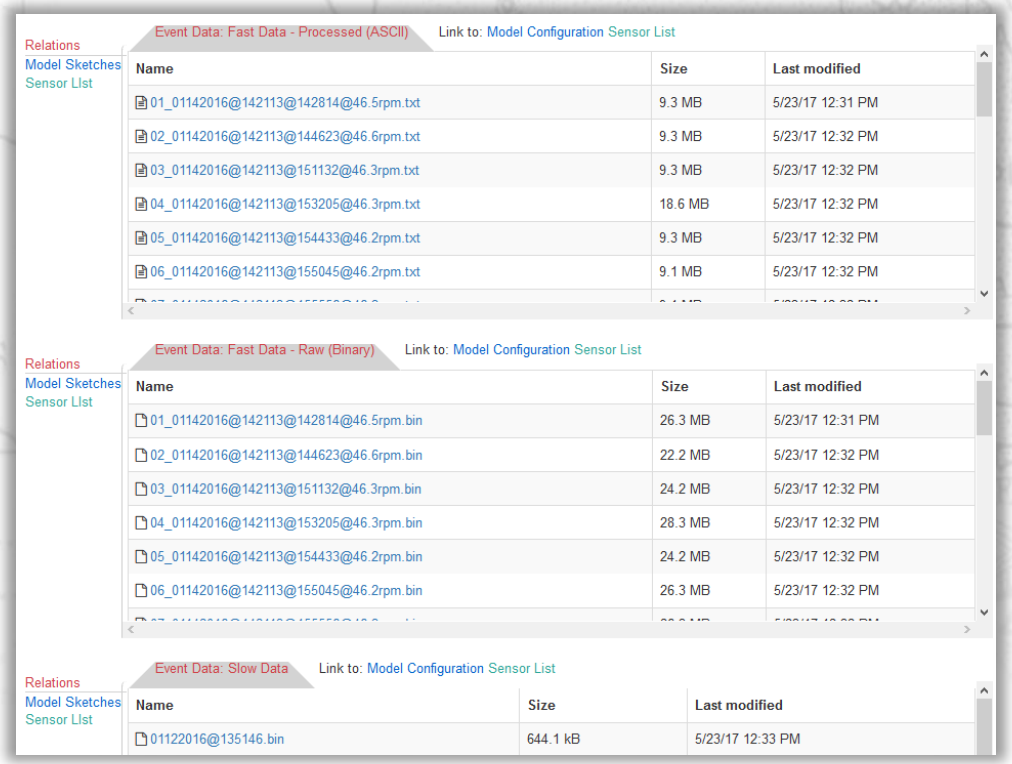
Progressive Curation: Categorizing and Linking

- Establish relationships
- Add further tags and description



Visualizing the Data Set

- Graphical tree diagram
- Integrated view of the research project



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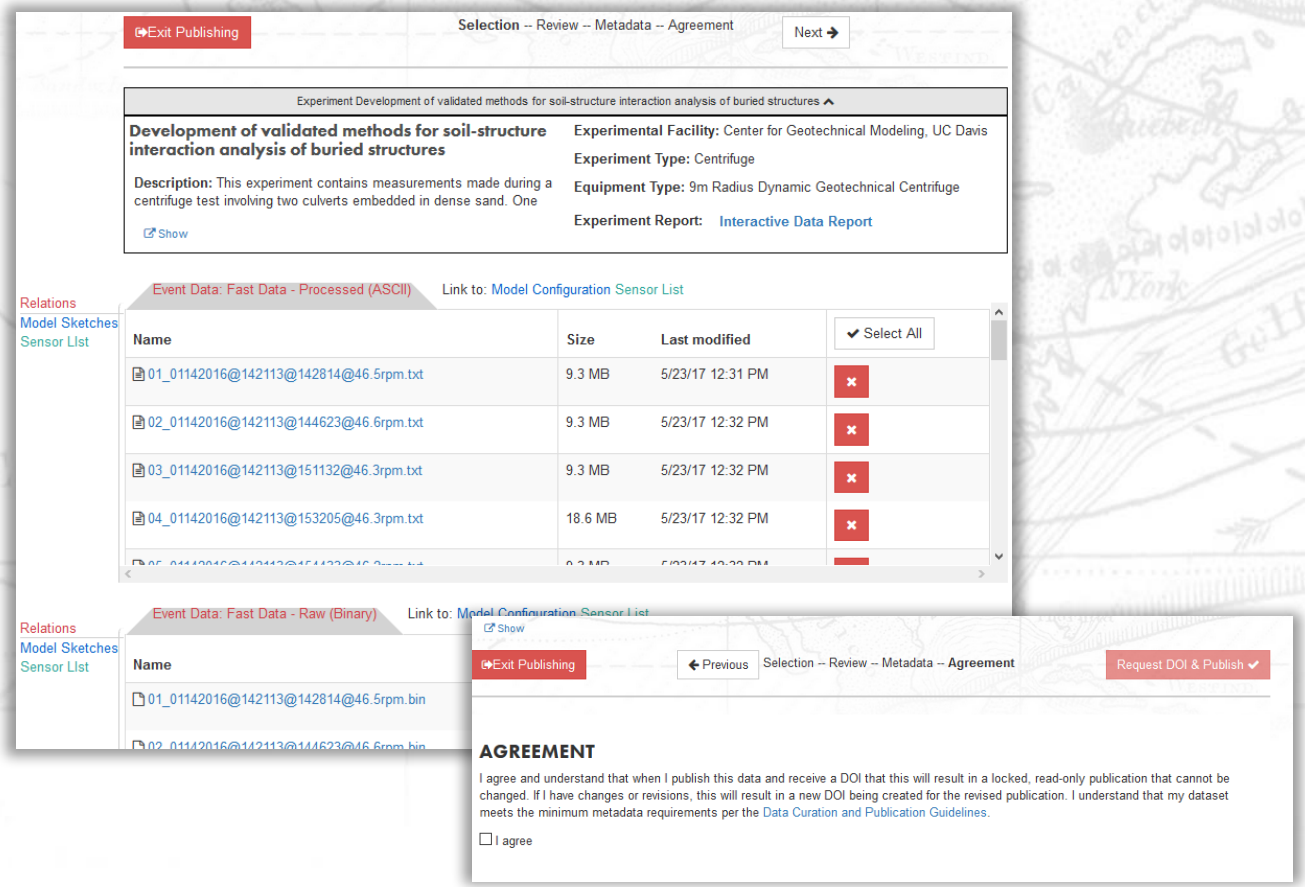
Publishing Data

- Preview
- Pipeline



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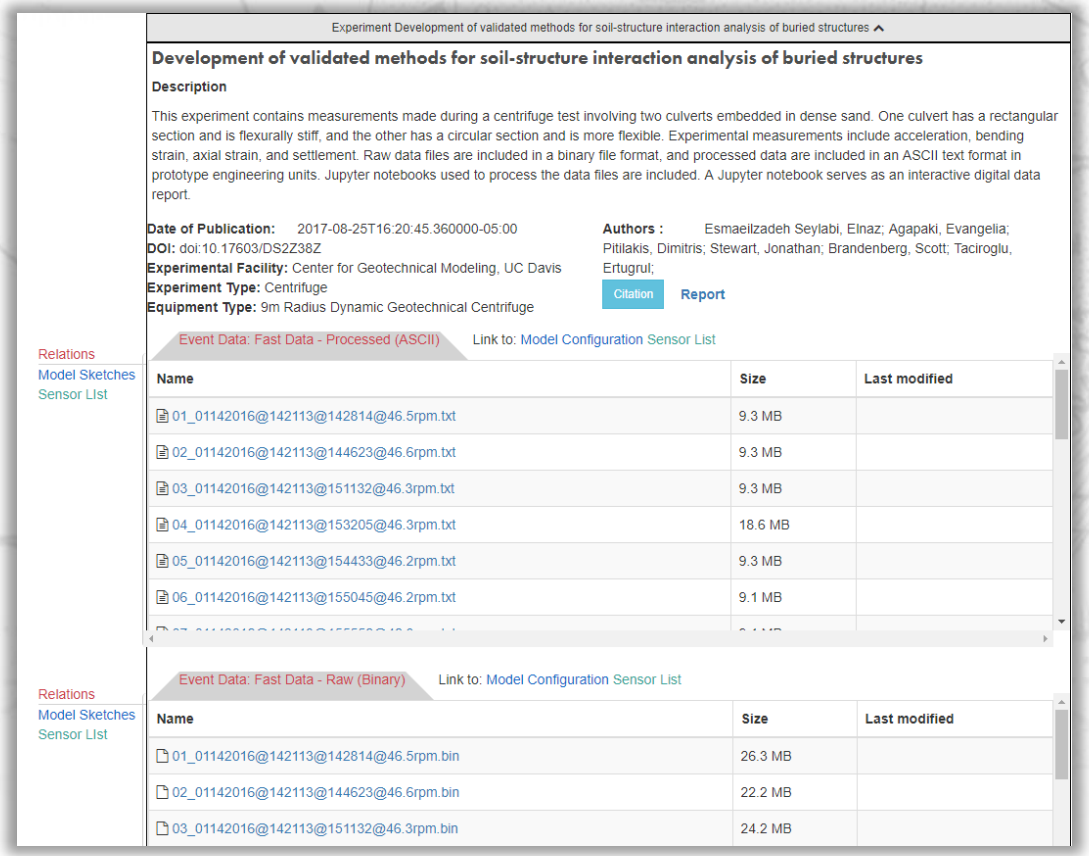
Published Data

- Enable understanding and reuse



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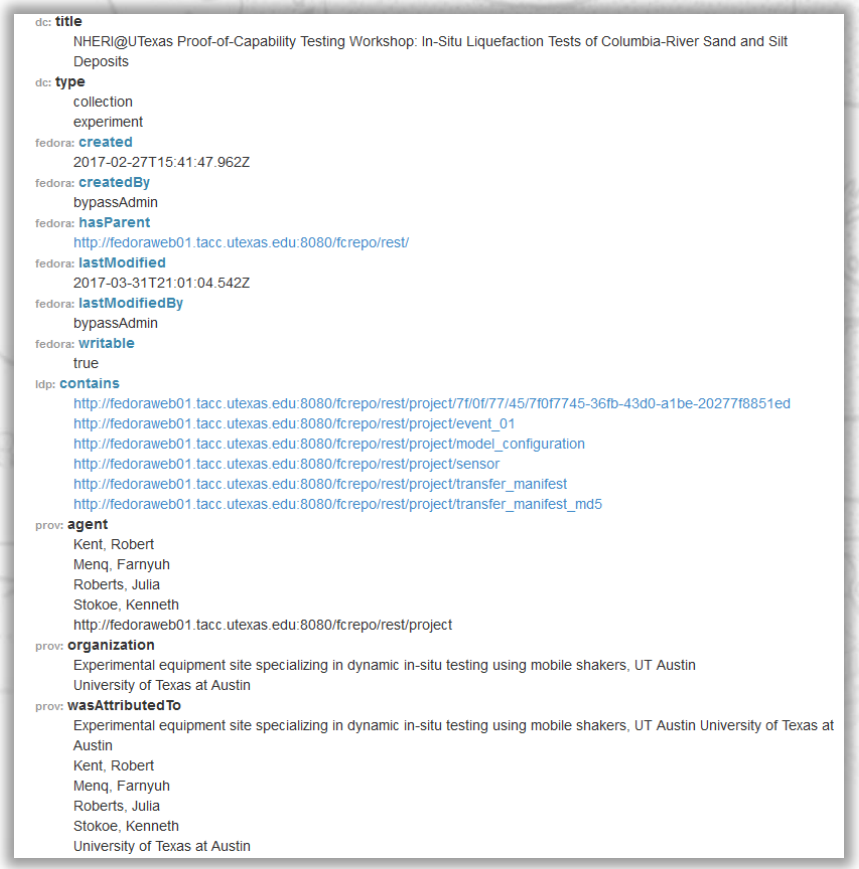
Preservation

- Maintaining structure, relationships, metadata



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Kent, Robert
Menq, Farnyuh
Roberts, Julia
Stokoe, Kenneth
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prov: **organization**
Experimental equipment site specializing in dynamic in-situ testing using mobile shakers, UT Austin
University of Texas at Austin
prov: **wasAttributedTo**
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Menq, Farnyuh
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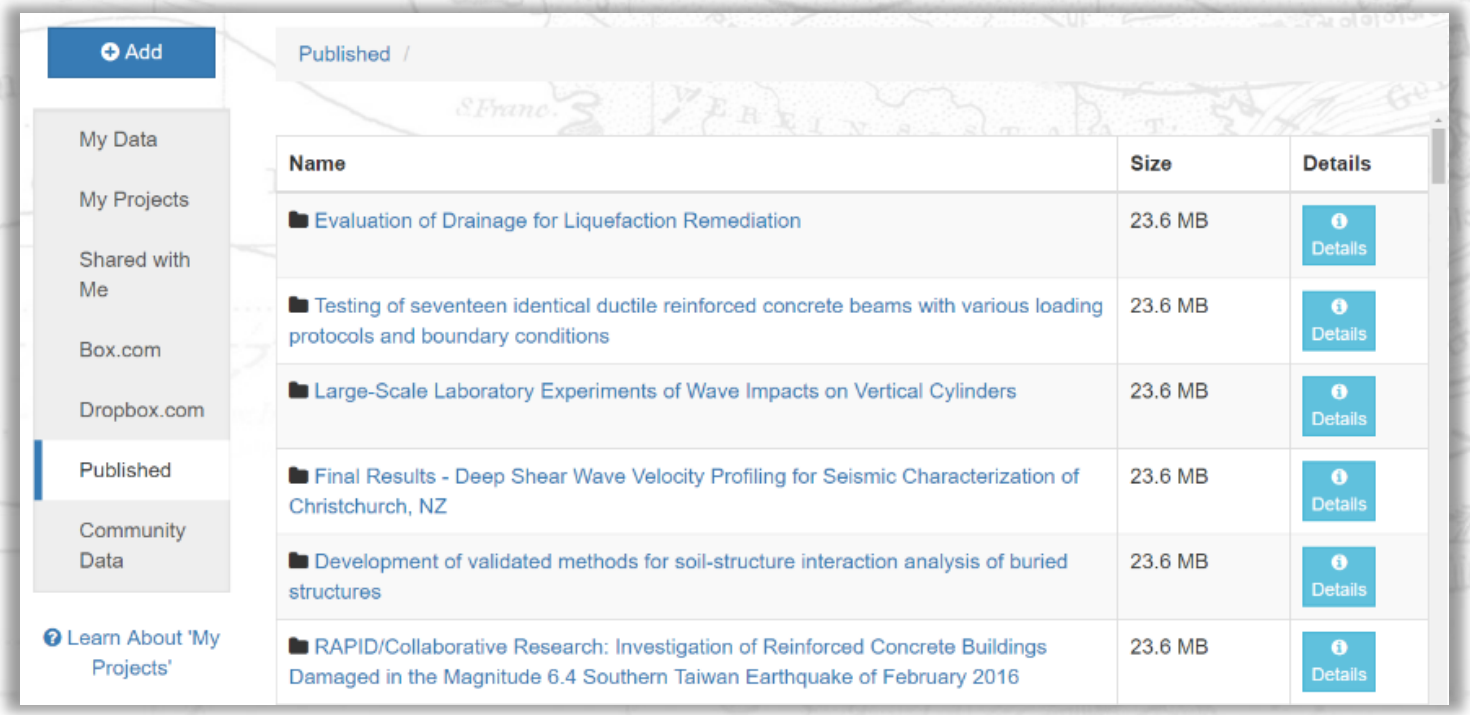
Conclusion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