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Opportunities and Challenges of Data Publication: A Case Study from Purdue

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- **Featured Dataset**
  - Linking Pressure and Separation through Interfacial Areas in Porous Media
    - By V. Buxó, A. Herrera, C. Pumplin, C. Darve, Purdue University, University of Illinois
    - Supplementary materials for the paper
    - Linking Pressure and Separation through Interfacial Areas in Porous Media
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Goal is to improve the efficiency of the Indiana transportation system and infrastructure
PUBLICATION WORKFLOWS
a) PI drafts proposal

b) Data Management Plan Created
c) PI submits proposal to funding agency
d) Proposal accepted by funding agency
e) PI submits draft report
f) SAC review of report
g) PI revises draft report
h) PA/PI & SAC confer
i) Final report production process

q) Post Production:
- Data/Tech Report Link
- Tech Summary
- DOIs
- Persistent URL
- Indexing
- Archiving
- Print on Demand

r) Measurements of Impact:
- Altmetrics
- Citations
- Downloads
- Access

PI = principal investigator
SAC = study advisory committee
PA = project administrator
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ALL HANDS MEETINGS
PUL AND JTRP

Meetings (March-June 2013):
• Purdue University Libraries (PUL)
• JTRP-PUL Meeting

Shared goals:
• Compliance with funder requirements
• Expose data
• Create an integrated publishing workflow linking tech reports and data

Actions:
• Identify use case
• Stage datasets in PURR
• Format and stage tech report
• Linking the data
**PURR WORKFLOW**

DATA MANAGEMENT PLANNING, COLLABORATION, PUBLISHING, & PRESERVATION

- a) PI drafts proposal
  - b) Data Management Plan Created
  - j) PI creates project in PURR
  - k) Project group collaborates in PURR
  - l) PI submits data set
  - m) SSL verifies data set
  - n) Data set published / archived with DOI

**Measurements of Impact:**
- Citations
- Downloads
- Access

**Notes:**
- PI = principal investigator
- PURR = Purdue University Research Repository
- SSL = Subject Specialist Liaison
Evolving Workflows

From...

To...

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S-1 Span Damage - Supplementary Materials for the Report: Effects of Realistic Heat Strengthening Repair on the Properties and Serviceability of Damaged Steel Beam Bridges

By Amit H. Varma, Youngmo Sohn

Purdue University

Supplementary Materials for the Report: Effects of Realistic Heat Strengthening Repair on the Properties and Serviceability of Damaged Steel Bridges

Abstract:

Guidelines for conducting heat strengthening repair have been developed by FTA and many DOTs. The guidelines establish limits for: (a) the maximum damage that can be repaired, (b) the maximum restraining force, and (c) the maximum heating temperature to prevent the side effects of heat strengthening repair process.

However, the heat strengthening guidelines are related to the first factor due to time and economic issues. These relations include, but are not limited to, (a) the amount of damage (130°F); (b) over heating above 130°F; (c) over straining above restraining force (6.5 Mpsi) and (d) multiple heat strengthening of the same beam more than twice.

Currently, there is a lack of research on the effects of these imperfections in the heat strengthening repair process on the condition and serviceability of the damaged-repaired beams. This knowledge is needed to develop more realistic guidelines for evaluating and replacing bridge members subjected to damage followed by imperfect heat strengthening repair.

The overall goal of this research is to develop recommendations and guidelines for evaluating steel beam bridges in Indiana subjected to damage followed by heat strengthening repair with imperfections (overstraining, overheating, or multiple heat strengthenings).

Cite this work:

Researchers should cite this work as follows:


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Tags:

- Damaged Steel Beam Bridges
- Heat strengthening repair
- Inhomogeneous bridge repair
- JTRP
- Purdue University Research Repository
-PURR
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COHESIVE WORKFLOWS
SECOND LINE
THIRD LINE
COHESIVE PUBLICATION WORKFLOW

1. DMP
2. DOI
3. Metadata

Pl = principal investigator
SAC = study advisory committee
PA = project administrator
PURR = Purdue University Research Repository
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JTRP LINKED PUBLICATIONS

TECHNICAL REPORT


DATA

Effects of Realistic Heat Straightening Repair on the Properties and Serviceability of Damaged Steel Beam Bridges

By Amit H. Varma and Youngho Sohn
Purdue University

Abstract
A realistic heat straightening repair (HSR) approach was developed and validated to ensure the long-term serviceability of damaged steel beam bridges. The approach incorporates realistic cooling (including drying and curing) and realistic heating (including pre-heating and post-heating) in the repair process. The approach also involves testing the performance of the repaired beam in the field.

Results
The repair approach resulted in a significant improvement in the serviceability of the damaged beam. The post-repair serviceability met the performance criteria for the beam.

Conclusions
The realistic heat straightening repair approach was found to be effective in improving the serviceability of damaged steel beam bridges.

Recommended Citation

DOI
10.5703/1288284315184

Comments
Supplementary videos for SPR-3105:

Effects of Realistic Heat Straightening Repair on the Properties and Serviceability of Damaged Steel Beam Bridges

Amit H. Varma
Youngmoo Sohn

SPR-3105 • Report Number: FHWA/IN/JTRP-2013/03 • DOI: 10.5703/1288284315184
CONCLUSIONS
BEST PRACTICES

• Linked work flows
  • Coordinate resources
  • Anticipate needs

• Early interaction with the data repository
  • Employ good data management principles and practices
  • Ease citation management
  • Increase impact

• Traditional publication attributes
  • Increase visibility and discoverability
  • Meet funder requirements
  • Measure and assess impact

• Usage and access metrics
  • Monitor and evaluate through quantitative and qualitative measurements
  • Communicate impact
Thank You

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RESOURCES


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