

Plan Overview

A Data Management Plan created using DMPTool

DMP ID: <https://doi.org/10.48321/D1TP8B>

Title: Occupant Protection for Legacy Rotorcraft

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Funder: Civil Aerospace Medical Institute ([faa.gov](https://www.faa.gov))

Template: Federal Aviation Administration (FAA) Data Management Plan (DMP) Template v1.1

Project abstract:

Rotorcraft aviation has a high injury and fatality rate from what should be survivable crashes. Only 10% of the U.S. fleet are compliant with the latest regulations with respect to the Emergency Landing Dynamic Condition Rule (14 CFR 27/29.562). Regulators are looking to reduce the risk of blunt force trauma in crashes of rotorcraft that do not meet the latest safety certification level. Dynamic research tests are needed to fill the knowledge gap in order to advance the crash safety for the existing rotorcraft fleet. This data can assist rotorcraft and seat manufacturers in the design of retrofit seats and structures and help industry groups in developing a set of guidelines to reduce the risk of injury to occupants. The Federal Aviation Administration (FAA) will be conducting a series of dynamic tests at the Civil Aviation Medical Institute's (CAMI) accelerator impact sled. The seat used in this test series will be the Reusable Energy Absorbing Lab Seat (REAL) developed by the Department of the Navy. The seat will be pitched back 30 degrees from vertical with zero degrees of roll and yaw. The REAL seat will be evaluated at five seat stroke distances: 2, 4, 6, 8 and 10 inches. Three sled input pulses will be evaluated: 21, 25 and 30 feet per second. Each seat stroke and input pulse combination will be tested three times resulting in a total of 45 tests. Data will be collected by means of an instrumented 50th percentile FAA Hybrid III Anthropomorphic Test Device (ATD). Acceleration measurements on the ATD will be collected at the head, spine and pelvis. Forces on the ATD will be collected at the upper neck and lumbar. Moments will be evaluated at the upper neck and lumbar. The REAL seat will be instrumented to measure seat pan acceleration and seat pan displacement. One channel on the accelerator sled will collect the acceleration results to verify the input pulse. ATD and seat motion during the dynamic test will be collected with two high speed cameras positioned perpendicular to X-Z and Y-Z planes of the sled coordinate systems. Outputs from this test series is anticipated to aid

manufacturers of rotorcraft and seats to develop seats for the existing fleet to reduce in blunt force trauma during an accident. This dataset could benefit the general aviation aircraft and Electrical Take Off and Landing (eVTOL) manufactures and designers.

Start date: 10-01-2020

End date: 09-30-2025

Last modified: 05-22-2023

Copyright information:

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Occupant Protection for Legacy Rotorcraft

Persistent Link

Include the persistent identifier (PID) that is associated with the dataset.

Question not answered.

Recommended Citation

The recommended data citation to be used when citing the dataset.

Question not answered.

Change Log

Document the changes that are made to the DMP, any and all changes should be noted to ensure a more complete documentation.

Change Log:

5/12/2023 - Initial DMP

5/22/2023 - Finalized DMP

Table of Contents

Optional table of contents included here, in order to better organize the DMP.

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0. Dataset and Contact Information

Please provide the following information:

- Name of the dataset or project for which data is being collected.
- Name of the FAA Line-Of-Business/Office for which the associated dataset is being generated.
- Email for the FAA Line-Of-Business/Office (key field).
- If applicable and as reference, project number, contract number, or other number used to link this DMP.

0. Dataset and Contact Information:

Name of Project: Occupant Protection for Legacy Rotorcraft

Project Number: 12.2 DYN-10087

PI: IAN HELLSTROM - ORCID #0000-0002-3972-3981

Contact Information: 6500 S. MacArthur Blvd, AAM-632, Oklahoma City, OK 73169,
ian.t.hellstrom@faa.gov, 405-954-5767

U.S. Department of Transportation, Federal Aviation Administration, Civil Aerospace Medical Institute,

URL:https://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/cami/

Initial DMP: 5/12/2023

1. Data Description

Name the data, data collection project, or data producing program. Provide high level narrative.

1. Data Description:

This data set includes sled test data used to evaluate the affect of seat stroke versus ATD response.

Describe the purpose of your research and whether results will be documented in a published document or report. How will it be used?

This project will investigate differences in ATD response versus amount of seat deformation and provide the FAA policy makers with information to update guidance material on the subject.

Describe the data that will be generated in terms of nature and scale (e.g., numerical data, image data, text sequences, video, audio, database, modeling data, source code, etc.).

Sensor output, pre & post test pictures, high speed video, and photometric results are provided.

Describe methods for creating the data (e.g., simulated; observed; experimental; software; physical collections; sensors; satellite; enforcement activities; researcher-generated databases, tables, and/or spreadsheets; instrument generated digital data output such as images and video; etc).

This data is created by physical experiments. Sensors include load cells and accelerometers. Data set also included video from high speed cameras and photos from still cameras.

Describe the period of time over which the data will be collected and frequency at which it will be updated.

Data from test series scheduled to be collected from 1/1/2023 to 6/1/2023. The dataset will be updated once after the testing is complete and the final report is published.

If using existing data, describe the relationship between the data you are collecting and existing data.

No existing will be used for this test series.

Describe potential users of the data and the expected manner in which they may use it.

Aircraft seat manufactures and test laboratories.

Discuss the potential value of having the data available not only to your institution but also for the public, e.g., might be renewed interest and value in reanalyzing the data with updated and more universally comparable metrics or recently developed analytical methods.

Data from the test series could be utilized to determine future requirements for certification testing and seat design for aircraft. Public use would provide a historical record of ATD dynamic response evaluation and datasets.

State clearly if data can be shared publicly or not. If you request permission not to make data publicly accessible, explain rationale for lack of public access.

Data will be made publicly available.

Indicate the party responsible for managing the data.

NHSTA, <https://www-nrd.nhtsa.dot.gov/database/veh/>

Describe how you will check for adherence to this data management plan.

A quarterly plan review will be conducted while the project is active. Once the test series and the project is complete, a full review will be conducted to ensure all data and external references are correct, all data accessible and the DMP outline is met.

2. Standards Employed

List in what format(s) the data will be collected. Indicate if they are open or proprietary.

2. Standards Employed:

Sensor output data will be published as ascii text. High speed video will be available in MP4 format. Still photos published as JPEG. Photometric data available as ascii text. Not using proprietary data formats.

If you are using proprietary data formats, discuss your rationale for using those standards and formats.

Not using proprietary data formats.

Describe how versions of data be signified and/or controlled.

Data's file formats are standard formats.

If the file format(s) you are using is(are) not standard to your field, describe how you will document the alternative you are using.

The file formats used are standard to our field.

List what documentation you will be creating in order to make the data understandable by other researchers.

The database ensures that all fields are properly defined and provides space for the test conditions to be defined.

Indicate what metadata schema you are using to describe the data. If the metadata schema is not one standard for your field, discuss your rationale for using that scheme.

The current metadata schema plan will follow a generic Metadata Object Description Schema (MODS). Likely to change based on future guidance or updated best practices.

Describe how will the metadata be managed and stored.

The metadata will reviewed for accuracy prior to publishing to the National Transportation Library (NTL).

Indicate what tools or software is required to read or view the data.

Necessary software tools: The file formats will include: .txt files, .csv, .jpeg, .mp4. The .txt and .csv file formats can be open with any text editor, such as Microsoft note pad. A free text editor available from Microsoft is Basic Text Editor. The .jpeg files can be viewed with Microsoft Photos, and a free version of One Photo Viewer is available.

Describe your quality control measures.

Once the data is published, all quality control measures will be at the direction and guidance from the Transport Research Board.

3. Access Policies

Describe what data will be publicly shared, how data files will be shared, and how others will access them.

3. Access Policies:

These data files are in the public domain and can be shared without restriction. The data file contain no sensitive information. Data will be publicly available through the NHTSA Crash Database, [https://www.nhtsa.gov/research-data/research-testing-databases#/.](https://www.nhtsa.gov/research-data/research-testing-databases#/)

Indicate whether the data contain private or confidential information. If so:

- **Discuss how will you guard against disclosure of identities and/or confidential business information.**
- **List what processes you will follow to provide informed consent to participants.**
- **State the party responsible for protecting the data.**

Not applicable.

If applicable, describe how you will deidentify your data before sharing. If not:

- **Identify what restrictions on access and use you will place on the data.**
- **Discuss additional steps, if any you will use to protect privacy and confidentiality.**

No human subjects and/or personal information will be utilized in this research project. No requirements for deidentifying subjects prior to sharing data. No restrictions will be placed on data access.

4. Re-Use, Redistribution, and Derivative Products Policies

Name who has the right to manage the data.

4. Re-Use, Redistribution, and Derivative Products Policies:

The data are managed by the Federal Aviation Administration, are in the public domain, and may be re-used without restriction.

Indicate who holds the intellectual property rights to the data.

No intellectual property rights apply to this data set.

List any copyrights to the data. If so, indicate who owns them.

No copyrights apply to this data set.

Discuss any rights that are transferred to a data archive.

There are no rights transferred to the permanent archive or repository to accompany this dataset described in this DMP.

Describe how your data will be licensed for reuse, redistribution, and derivative products.

The data are in the public domain, may be re-used without restriction, and will not be licensed.

5. Archiving and Preservation Plans

Discuss how you intend to archive your data and where (include URL).

5. Archiving and Preservation Plans:

This data set will be archived at the NHSTA database. Prior to archiving the data set will be stored on the CAMI server which is backed up daily.

URLs will be updated once assigned links.

Indicate the approximate time period between data collection and submission to the archive.

The data is expected to be submitted to the archive within six (6) months of completion of data collection.

Identify where data will be stored prior to being sent to an archive.

The data will be stored on a Federal Aviation Administration server until data is archived.

Describe how back-up, disaster recovery, off-site data storage, and other redundant storage strategies will be used to ensure the data's security and integrity, initially and for the long-term.

The FAA-CAMI server which is backed up daily.

Describe how data will be protected from accidental or malicious modification or deletion prior to receipt by the archive.

Computer security prior to transfer will be accomplished by FAA and the MyIT Service Center. Data will be transferred from a MyIT Service Center controlled computer.

Indicate how long the chosen archive will retain the data.

This dataset will be retained in perpetuity.

Indicate if the chosen archive employs, or allows for the recording of, persistent identifiers linked to the data.

Yes, persistent identifiers linked to the data are employed by the archive.

Discuss how your chosen data repository meets the criteria outlined on the [Guidelines for Evaluating Repositories for Conformance with the DOT Public Access Plan](#) page.

Archive location of data is directed by FAA and AVS guidance.

6. Policies Affecting this Data Management Plan

Include policies that the data management plan was created to meet, such as the DOT public access plan.

6. Policies Affecting this Data Management Plan:

This data management plan was created to meet the requirements enumerated in the U.S. Department of Transportation's "Plan to Increase Public Access to the Results of Federally-Funded Scientific Research" Version 1.1 << <https://doi.org/10.21949/1520559> >> and guidelines suggested by the DOT Public Access

website << <https://doi.org/10.21949/1503647> >>, in effect and current as of May 12, 2023.

Planned Research Outputs

Dataset - "Occupant Protection for Legacy Rotorcraft"

This info is addressed in the plan.

Data paper - "TBD"

This paper will summarize the tests conducted, summarize findings, and draw conclusions.

Planned research output details

Title	Type	Anticipated release date	Initial access level	Intended repository(ies)	Anticipated file size	License	Metadata standard(s)	May contain sensitive data?	May contain PII?
Occupant Protection for Legacy Rotorcraft	Dataset	2025-09-29	Open	None specified		Creative Commons Attribution Non Commercial 4.0 International	None specified	No	No
TBD	Data paper	2025-09-29	Open	ROSA P		Creative Commons Attribution 4.0 International	None specified	No	No