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ARMY DATA MANAGEMENT PLAN (DMP) TEMPLATE

PROJECT INFO

1. Date Created:

10/20/26

2. Date Modified *(if applicable)*:

3. DMP Contact Name(s) and Email Address(es):

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4. Project Title:

Atmospheric turbulence decorrelation through porous material interactions

5. Project Abstract:

It is commonly assumed that microphone windscreens reduce wind noise by averaging pressure distributed homogeneously over the windscreen surface. If this theory were valid, the surface pressures would average out in such a manner that the noise spectrum at low frequencies would approach that of an unscreened microphone. Experimental observations contradict this, and wind noise reduction (WNR) is observed even at infrasonic frequencies. We hypothesize that distortion of turbulence by a solid porous object alters the statistics of turbulent pressure received inside the object, in a manner directly related to the porous material properties. We will extend fundamental equations for turbulent distortion around nonporous objects to formulate a new approximation for flow impinging on a porous object, which will be tested against experimental work in a wind tunnel, and further verified in atmospheric turbulence

6. Performing Organization:

U.S. Army Engineer Research and Development Center (ERDC)

7. Funding Organization(s):

ASAALT

DATA PLAN

8. Data Description:

The dataset will contain primarily a large amount of pressure-time and velocity-time histories from microphones and anemometry probes, respectively. Accompanying the main data will be environmental data such as time series logs of temperature, humidity, ambient pressure, wind direction and velocity. Expected data size all together will be roughly 10 - 100 GB.

9. Method(s) of Data Acquisition:

Data will be acquired primarily from a variety of microphones and anemometry devices. Microphones will provide data for the internal pressures of porous objects. Hot-wire and hot-film anemometry probes will record the near-field turbulent structure about the porous object, and allow calculation of two-point correlation functions. Laser doppler and particle image velocimetry will also be used for flow characterization in the wind tunnel. In the outdoor testing, environmental variables such as temperature, humidity, and wind direction will be logged with sonic anemometers. Fine-wire thermocouples will be used for additional high frequency temperature measurements. Data will be recorded from these various sources either through a Yokogawa DL950 data logging socilloscope, a Dantek thermal anemometry DAQ and associated StreamWare software, or the data acquisition built into certain devices. All data will be backed up to a physical hard drive and RDEDrive as it is acquired.

10. Data Format(s):

Data output directly from the DAQs often feature proprietary formats, such as the .wvf format for the Yokogawa. Data from these methods will be converted to the Hierarchical Data Format 5 (HDF5) format for use and for long term storage, which is a

11. Data Standard(s):

The primary microphone within the porous material will conform to ANSI Type 1 standar

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DISTRIBUTION / LIMITATION OF DATA
12. Distribution of Data / Limitations to Sharing Data: Distribution A.
13. Rationale for Sharing Limitations: NA
14. Proposed Location of Data: ERDC CERL; requests for datasets should be directed to the DMP contact.
15. Plans for Data Archiving and Preservation: Data sets will be retained indefinitely or through the term of any patents arising from this data at the ERDC. All data and products resulting from these data will be reported and archived in technical publications in DTIC

INSTRUCTIONS FOR COMPLETING ARMY DATA MANAGEMENT PLAN (DMP)

PROJECT INFO

1. Date Created
Most recent date corresponding to when the DMP was created.

2. Date Modified (I*f Applicable*)
Most recent date corresponding to when the DMP was changed, updated or modified. Answer N/A if not applicable.

3. DMP Contact Name(s) and Email Address(es)
The name and email of the person to contact about the DMP.

4. Project Title
The name of the project which creates or uses the data described by the DMP.

5. Project Abstract
The description of the project which creates or uses the data described the DMP.

6. Performing Organization
The organization responsible for performing the research.

7. Funding Organization(s)
The organization(s) responsible for funding the research.

DATA PLAN

8. Data Description
The description of the dataset(s). Describe the types of data and products that will be produced in the course of the project. Describe the expected types of data to be retained. If known, state the rough data size and growth.

9. Method(s) of Data Acquisition
The method(s) used to acquire the data. Describe how you intend to capture the data during your project. If existing data is to be used, describe the origins of the data. Include the specific mechanisms such as software packages (include version and operating system), specialized equipment, active storage (local, cloud), data backups, procedures, methodologies, processes.

10. Data Format(s)
The format(s) in which the data or products are/will be stored to the extent known. Describe the format in which the data or products are/will be stored (e.g., ASCII, csv, html, FITS, VO compliant tables, XML files, Microsoft Office products, etc.) to the extent known. Nonproprietary open formats such as csv and XML are preferred. Where data are/will be stored in unusual or not generally accessible formats, explain how the data may be converted to a more accessible format or otherwise made available to interested parties. In general, solutions and remedies should be provided. The dataset should be able to be manipulated — a set of data in PDF format, such as an appendix to a report, is not acceptable.

11. Data Standard(s)
Standards followed for data creation and steps taken to meet the standards. If there is a de facto standard for this data type, state the standard and steps taken to meet it.

DISTRIBUTION / LIMITATION OF DATA

12. Distribution of Data / Limitations to Sharing Data

Detailed information on how the data can be distributed including any sharing limitations. Address the distinction between released and restricted data and how each would be managed. Federal policy requires public access to data sets "to the extent feasible and consistent with law; agency mission; resource constraints; U.S. national, homeland, and economic security." Data subject to security requirements and/or access restrictions will not be released to the public. Other possible exceptions to making data public: Some projects may involve proprietary or other restricted data. In addition, membership agreements, contracts, involvement with other agencies, and similar obligations may place some restrictions on data sharing. Data-sharing policies for awards that involve human subjects should recognize and address human subject protocols and the need to protect privacy and confidentiality.

If, for legitimate reasons, the data cannot be preserved and made available for public access, the plan will include a justification citing such reasons. If data is to be restricted, data should still be maintained and shared to authorized users to the extent possible. Audience limitations need to be noted in the DMP.

Describe the policies regarding the use of data provided via general access or sharing. For example, if you plan to provide the data on a website, the website should contain disclaimers regarding copyright protection and the conditions of use, modification and dissemination in other publications or products. The policies should provide clear guidance regarding use, creation of derivatives and dissemination of data. Describe policies for public access and sharing, including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements.

If the data is protected by copyright the Government must have permission from the copyright owner—via a license agreement or under the terms of a Government award—allowing third party use, modification or creation of derivatives and dissemination of the data provided on your website in a publication. If the data consists of facts, permission is not needed because copyright law doesn't protect facts.

Research centers and major partnerships with industry or other user communities must also address how data are to be shared and managed with partners, center members, and other major stakeholders.

State the conditions and provisions for re-use, re-distribution, and the creation of derivative works. Take into account the value of the data to others, and who is likely to use the data in the future.

13. Rationale for Sharing Limitations

Reasons/rationale for the distribution or sharing limitations applied to the dataset. Address the distinction between released and restricted data and how each would be managed. Exceptions to the basic data-management policy should be discussed with the cognizant program officer before submission of such proposals. See discussion under Distribution of Data/Limitations to Sharing Data.

14. Proposed Location of Data

Description of where and how data will be able to be accessed.

15. Plans for Archiving and Preservation

State the minimum retention period for the data. If known, state the time or event when the data will no longer need to be preserved. Take into account retention periods for specific specialized cases, such as:

- *when questions arise from inquiries or investigations with respect to research;*
- *when a student is involved, requiring data to be retained for a period after the degree is awarded, or;*
- *research data that support patents—retention should be, at a minimum, for the entire term of the patent.*

Long retention periods are required when data represent a large collection that is widely useful to the research community. For example, special circumstances arise from the collection and analysis of large, longitudinal data sets or basic research measurements. Project data-retention and data-sharing policies should account for these needs.

16. [Header and Footer] DMP Distribution Statement

Detailed information on how the DMP can be distributed including any sharing limitations as it should appear on the DMP headers and footers.

Distribution:
A - Approved for Public Release
B - U.S. Gov't Agencies Only
C - U.S. Gov't Agencies and their Contractors
D - DoD Agencies and their Contractors
E - DoD Components
F - Further dissemination only as directed by controlling agency