**MATLAB Script Usage**

This is an instruction file for the data set:

**Rees-Hughes, L., Barlow, N,L,M., Booth, A,D., West, L,J., Tuckwell, G., Grossey, T. 2020. An image segmentation algorithm to visualise timeslice data from a buried dunefield.**

For further information regarding the image segmentation algorithm and the ground-penetrating radar (GPR) acquisition procedure, we refer to the associated article.

**Data Format**

The data sets are stored as SEGY-files (\*.sgy). The following scripts used to analyse the data are made and operated in MATLAB.

**Data Sets**

Llanbedr Airfield 3D GPR Dataset.

This file includes the processed 3D GPR reflection data acquired across the Llanbedr Airfield survey grid.

*Data Files:* ***Llanbedr\_mig\_gain2.sgy***

**Code**

Image Segmentation Algorithm

We provide a detailed code to import, read and visualise the GPR dataset in MATLAB. We also include the code to perform the segmentation of the GPR dataset.

*Files:* ***TimesliceSegmentation\_ADB\_LRH\_2020.m***

***CoreIndexing\_ADB\_LRH\_2020.m***

In Appendix A of this readme-file, we provide step-by-step instructions for the usage of the MATLAB codes resulting in exemplary visualizations of the data sets.

**Code Usage Notes**

**Read & visualize data using MATLAB**

* Tested on Windows10 using MATLAB r2017a
* Note: Please install the SEGYmat toolbox: <https://github.com/cultpenguin/segymat>

1. Open a command window in a new MATLAB session
2. Navigate to folder containing provided MATLAB code and \*.sgy file
3. To load and visualize the GPR data run:

***TimesliceSegmentation\_ADB\_LRH\_2020.m***

1. To load and visualize the GPR Reflectivity Cores:

***CoreIndexing\_ADB\_LRH\_2020.m***