Welcome to the McMurdo Field Tool (MFT), based on the Android GPS software "Oruxmaps" (https://www.oruxmaps.com/cs/en) written by Jose XXX. As well as being a featured GPS, it also contains a range of custom data and features for use in the McMurdo Dry Valleys (MDV). This functionality includes:

- 1:50k Topographic base map
- Landsat Satellite imagery
- Locations of protected areas (ASPA), scientific, special and facility zones
- Geofenced warning with proximity to zones
- Specific ASPA maps
- Geological maps
- Surface sensitivity maps
- Digital permits for ASMA/ASPAs
- McMurdo Dry Valley Handbook

A complete user manual for the original Oruxmaps is available in a number of languages from https://www.oruxmaps.com/cs/en/manual. Be aware that this version of the manual is specific to the latest version and thus may not contain some features that have added after the development of the MFT. The manual you are reading bridges the gap and explains the Antarctic specific features and how to install both application and data without internet access.

Unfortunately, the application is Android only, with no iOS development happening in the foreseeable future. Given the relatively low cost of Android smartphone and tablets, we hope this is not too much of a hindrance and that this invaluable in your fieldwork within the McMurdo Dry Valleys

1.0 INSTALLATION

As the time of writing (March 2020), the DryVER Field App (referred to as the DFA) has been tested on Android versions 6 to 10 (Marshmallow to Q). Unfortunately, the application is not released for iOS. As the product is not available on the Google Play store at this time, it must be downloaded and installed manually.

1. Download the application from ~~either the Google Play store () or via~~ the DryVER website (URL). If internet access is available on your device, you can download the APK file directly and skip steps 2-3.

2. Connect the device to a computer via USB. If a dialog appears asking if you are charging or transferring files, choose the latter. Your device should be mount as an external drive.

3. Once mounted, open device in your computers file manager and copy over the APK file.

4. Double click on the "Dryver.apk" icon and follow the instructions. You may be prompted to allow installation of application from unknown sources, if so, choose yes.
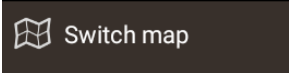
On first run, the application will also prompt to download additional datasets if required. These include:
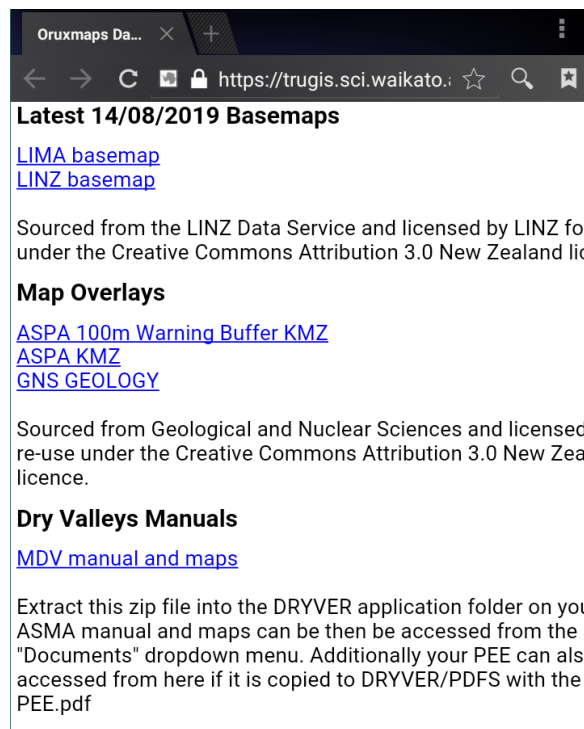
- 1:50k base map from Land Information New Zealand.

- Satellite imagery from the Landsat Image Mosaic of Antarctica.

- GNS Geology

- Surface sensitivity maps

- MDV PDF manuals and maps

1.1 DATA INSTALLATION WITHOUT INTERNET

1. Connect the device via USB (as above).

2. Extract the two datafiles, LINZ_MDV_201803.zip and LIMA_MDV_201803.zip from your local source into the DRYVER/MAPFILES folder. Depending on your android configuration, this folder is typically found on the top level of your device. Note that these files are relatively large (477 and 110 mb respectively).

1.2 DATA INSTALLATION WITH INTERNET

1. Start the Dryver application

2. Navigate to *Mapping* in the top menu

3. Select *Switch map*

4. Click the *plus button* in the top menu

5. You will now be redirected to a new webpage where the data can be downloaded directly from .

6. When a URL is clicked the data will be automatically downloaded and installed into the application

Additionally, the MDV maps and documents can be added to the app for easy access. You will need to install a PDF reader reader if this functionality is to be used. We suggest

This file needs to downloaded manually and extracted into a Dryver/PDF folder on your device. Your PEE (if kiwi) or permit can also be accessed from the application if it is renamed to PEE.pdf and placed within the same folder.

2.0 INTERFACE

The interface of the MFA is broken up into several key areas:

1) Top Menu

- Track menu. Loading, saving and managing previous tracks.

- Waypoint menu. Navigation to and from objects of interest, sites and sample locations.

- Route Menus. Create and manage routes

- Map menu. Toggles between LINZ and LIMA base-maps

- App Menu. Overall app settings units (units etc)

2) Bottom Dashboard

- Scale bar. Scale in units (meters/kilometres)

- Coordinate display. Current position in Decimal Degrees (DD). Press and hold on coordinate to convert to Degrees Decimal minutes (DDM)

3) Left-side Menu

- Toggle ASPA georeferencing

- Place/drop waypoint

- Switch base maps (LINZ and LIMA)

- Toggle GPS on/off

- Toggle Track Recording on/off (breadcrumbing)

2.0 OPERATION

2.1 BASIC USE

2.2 GEOFENCING

2.1 ADDING EXTERNAL DATA LAYERS

DryVER