TRAINING COURSE ON GPS AND MAPPING

COURSE NOTES

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Workshop 1,

Field skills for surveys

In order to take referenced data you need to be able to reliably give six figure grid-references. It is also a good field skill to be able to find your position from geographical reference points, and to be able to predict what an area is like by looking at the topography shown on a map.

The following exercises will ensure that you are able to carry out these simple tasks which can then be employed when carrying out surveying techniques.

Measuring distances on a map:

QUESTION: Using the map work out the distance between the following points:

1. the straight line distance between the peak of Morne Macaque and the police post at Pont Chase.
2. the distance of road between the ford in Geneva and the viewpoint in Grand Bay.
3. the Fond Figures river from the second 'L' of Fond Melle to the mouth of the main Castle Bruce river at St David Bay.
4. from the Goodwill Road church in Roseau to the Prime Ministers residence via Queen Mark Street and Bath Road.
5. the coastline from Pt St John north to Pte Mulâtre

Grid references:

QUESTION: Give the coordinates for the following points:

1. the hot springs at Morne Nicholis
2. the waterfall just north of Dubuc
3. the peak of Morne Negres Marron
4. the Microwave Relay Station near St Cyr
5. a large pink bird in the Syndicate

QUESTION: What can be found at the following points? Describe the immediate area in each case in as much detail as possible from the map.

1. 039,0C7
2. 098,0P2
3. 023,0D2
4. 091,0U5
5. Roseau D35,054

Topography:

From the map select and draw the following features, giving a grid reference for each one:

1. A steep slope

Coordinate:

2. A gentle slope

Coordinate:

3. A ridge

Coordinate:

4. A valley

Coordinate:

5. A summit

Coordiante:

Aspect:

QUESTION: Give the aspect of each of the slopes located at the following points:

1. 126,0S7
2. 051,0H8
3. 084,0H3

Bearings:

QUESTION 1: Using your compasses, give the bearing from the first to the second point in each case.

1. the sulphur spring to Soufriére police station
2. the emerald pool to the peak of Morne Trois Pitons
3. the school in Thibaud to the 692ft high point near Welsh
4. the high point at Borne to the Central Forest Reserve agricultural centre
5. the peak of Mosquito mountain to that of Morne Diablotins

QUESTION 2: Give the back-bearings if you wanted to return in a straight line when you had walked on an angle of:

1. 270^0
2. 135^0
3. 342^0
4. 90^0
5. 12^0

Triangulation

Magnetic variation: when working from the real world and using a compass to a map, and vice versa, you need to take into account the difference between magnetic (compass) north and grid (map) north.

The rule is: **Mag to Grid get rid, Grid to Mag add**.

QUESTIONS: In the following instances compensate for the magnetic variation.

1. From Bearings Question 1, (1) you actually need to walk the bearing from the map…
2. Applies the same approach to the result of Bearings Question 1, (2)..
3. Now imagine you have taken a bearing on a tree at 182^0 in the distance and want to check the terrain of your direction on the map, what it the bearing you should draw on?
4. What would be your back-bearing on the map if the tree was at 52^0 in real life?
5. Actual bearing from the map result of Bearing Question 1, (5)?

QUESTION: If you can see the following points at the following angles on the map where are you?- give a grid reference and description (& remember to take into account magnetic variation).

1. 04^0 to the 4500 southern viewpoint on Morne Diablotins & 59^0 to the peak of Mosquito Mountain
2. 347^0 to the Soufriére viewpoint & 102^0 to the school in Vielle Case
3. $292^0$to the southern slope of Mang Peak & 57^0 to the 1824 point in the Pagua Hills
4. 345^0 to the peak of Morne Trois Pitons & 09^0 to the peak of Morne Maraque

5. 72^0 to the waterfall over the River Jack & 108^0 to the high point of Foundland (in the South East)

Triangulation allows you to determine your position when your GPS has run out of batteries. It is therefore a very useful skill to have.

GPS usage

However, in forest conditions it is often not possible to see landmarks. Thus, GPS's (Global Positioning systems) provide an easy means of finding where you are to a reasonable degree of accuracy.

QUESTION: What map data do you need to calibrate your GPS? – list it below.

You should always test your equipment before you go into the field to check that it is accurate. Do this by using a known reference point

EXERCISE: Set up your GPS and test whether your GPS is correct, or how far out it is.

Is it correct? If not how far out does it seem to be?

QUESTION: Using the GPS get a fix and then save the positions of the following landmarks:

1.
2.
3.
4.
5.

QUESTION: What other information is displayed on the GPS that could potentially be useful for field surveys? (*use the menu to look through the main pages available*).

Distance estimation

In order to mark the length of transects without measuring them with a tape measure and in order to be able to judge how far away a given animal is you must be able to estimate distances with reasonable accuracy.

EXERCISE: Estimate the distance to the following markers:

1. a
2. b
3. c
4. d
5. e

EXERCISE: Now estimate the distances to the same markers whilst walking along the road, and give the angle at which they are 'first seen': Record both on paper.