WHERE ARE WE?
LOCAL INFORMATION AND BASIC NAVIGATION USING A GPS.

WHAT IS HERE?
Printed on waterproof paper
Property of Deep Cove Hostel
Please do not remove from Deep Cove.
USING THE GPS

Bruce Smart
2015
Use of a Global Positioning System (GPS) is not required to complete the well-marked tracks used by school parties in Deep Cove. However this material is intended as educational resource and a guide to people, both students and visitors staying at the Deep Cove Hostel.

It is a modern signpost system using Waypoints on a GPS instead of marker posts providing:

- BASIC INTERACTIVE EXPERIENCE FOR STUDENTS IN NAVIGATION USING A HANDHELD GPS.
- INFORMATION RELATING TO EACH OF THE WAYPOINTS
- PHOTOGRAPHS FOR USE AS A PLANE TABLE TO IDENTIFY FEATURES.

IMPORTANT

NOTE TO TEACHERS AND ADULTS IN SCHOOL PARTIES

Please ensure that all persons in your class or group are advised that the use of a GPs in Deep Cove does not require the user to leave either their group or the track on which they are walking. There will never be a need to go into or across any water except where there is a bridge or structure provided for that purpose.

Bruce Smart
2015
**USING THE GPS**

**Power On/Off:** Press the power button and wait, to turn the GPS either on or off.

**Back Button:** Pressing this will take you reverse back through the previous operations.

**Toggle Switch:** Press this left/right/up/down to move the cursor around the screen. Press on the button to select the item you have selected. Eg: Highlight “Map” on the index panel and press this key will take you to the Map. Pressing once will also turn on the panel back light.

**Increase/Decrease:** Use these keys to enlarge or decrease the map area.

Your present position will be marked on the map by a small blue triangle. The Satellite page will show your current position in latitude and longitude. These readings relate to the waypoints on the tracks sheet.

For the purposes of the exercises you will do at Deep Cove the Map and Satellite pages should be sufficient. Moving or making changes to these or other settings only makes it confusing for other classes. Please refrain from doing so. GPS compasses are usually not as reliable as magnetic ones.

Bruce Smart
2015
A GPS unit allows the user to establish their location anywhere on the surface of the earth by receiving signals from satellites circling the globe. A GPS unit is a receiver only and does not transmit a signal but it is essential that the unit has as clear a view of the sky as possible. Use inside a building, vehicle or in the bush may adversely affect the results.

A GPS unit requires a signal from at least 3 satellites and using the information received it can work out both the distance and angle that it is away from each satellite and then by a process of triangulation can accurately establish its position in relation to the earth’s surface.

The surface of the earth has been divided into vertical and horizontal lines that allow us to relate the data received from a GPS unit and locate it on a map of the earth. These lines are known as lines of Latitude and Longitude, commonly known as Lat and Long.

The lines of latitude run around the world in an East/West manner and are evenly spaced from the equator to the North and South poles, each covering 90 degrees. These lines run parallel to each other and are thus known as parallels. The Equator is Zero degrees latitude while the North and South poles are each the 90th parallels. The 45th parallel (South) crosses the Milford Road and runs across the South Island just to the North of Oamaru and Queenstown.

The lines of Longitude run in a North South manner from the North to the South Pole with ‘0’ degrees being a line that passes through Greenwich in England. This is known as the Greenwich Meridian or Greenwich Mean Time. Spaced evenly to the West and East for 180 degrees from the Greenwich Meridian are the meridians of Longitude. The meridian at 180 degrees in either direction is known as the International Date Line.

We can now talk about Parallels of Latitude being to the North and South of the Equator and lines of Longitude to the East and West of the Greenwich Meridian.

Our GPS units are set to display readings in Degrees, Minutes and Seconds (Actually fractions of a second). There are 10 degrees between each of the parallels or Meridians and each of these is divided into 60 minutes and these are broken down to fractions of a second. Readings are always given with the North/South readings first followed by the East/West readings, hence we see:

South 45 degrees 27 minutes .488 seconds and 167 degrees, 9 minutes, .130 seconds.

Reading as S 45 – 27- 488 E 167 – 9- 130

When using a GPS we are unlikely to see any movement of the degrees, unless you have taken a big lunch or are on the way home. We are also unlikely to see a great movement of minutes although this is possible and we will see considerable movements in the seconds readings.

Movement towards the North will be represented by a decrease in the seconds numbers while moving South will result in an increase. Likewise movement towards the East will decrease the number of seconds while movement in a Westerly direction will increase them.
A SIMPLE EXERCISE

The sport of Geo Caching is growing rapidly all over the world with millions of caches being hidden in almost every country. There is one here in Deep Cove and another at West Arm. Apart from providing entertainment for individuals, families or groups it encourages many people to go to places of interest or beauty which many would overlook.

Geo Caching as a sport usually means that one is looking for a container, often plastic, with a notebook inside where you can record your find. The finder later enters this onto the internet and a message is sent to the owner of the cache indicating a find. Caches can be found at the web site: www.geocaching.com - Other caches and items can be found at this and other web sites.

It should be remembered that a GPS is not a tool to take one to exactly the same spot each time. It will however be capable of taking the user to a spot which will be within 3 or 4 meters of the spot they are looking for.

For this reason if you wanted to bury a treasure and come back for it in a few years, a GPS unit would not be the tool for the job unless you are really keen on digging. In this instance it would be better to mark a prominent point or structure using the GPS and then walk and measure a compass line to where you wish to bury your treasure. When you wish to recover the treasure use the GPS to locate the prominent point or structure and then again walk and measure the compass line resulting in a great deal less digging. Locating a Geo Cache will usually require some searching as well.

Here is a simple exercise to assist first time users of a GPS unit to get a feel for things. In this case it is only the “seconds” reading that will change and that as you move to the North the South readings will decrease and that moving to the East will also decrease the East readings. So let’s go and see if you can find what is to be seen at:

$45.27 .797 E167.09 .213$

Use this decryption key as used by GeoCaching.com: to see if you are CORRECT AVPXF YNAQVAT

(Correct the above equals below, and vice versa)
LOCATION INFORMATION

Information on this page relates to the photograph on next page.

Mount Barber:
Named after George Barber who in January 1889 along with Robert Murrell were the first Europeans to walk into Doubtful Sound. They did so while searching for Professor Mainwaring Brown who went missing in the Disaster Burn in December of 1888. He has not been seen since.

In the same year Barber along with William Homer discovered the Homer Saddle above the Homer Tunnel on the road to Milford Sound.

Mount Wilmot:
Named after Surveyor W H Wilmot who in 1897 surveyed and confirmed the route via the Wilmot Pass.

Stella Falls:
Named after the Government Steamer SS Stella which was used to supply “Ship Wrecked” cairns or depots that were situated at the head of the Sounds in Fiordland. These were maintained to assist sailors who were ship wrecked around the coast as there were no means of communication such as radio in those times.

Helena Falls:
Named after Helena Fels who visited the area in 1902. It is reputed that she was the first European woman to walk into Doubtful Sound.
Old Doubtful Sound Track

HOLE IN GROUND

GPS location:  S 45. 28. 855 - E 167.10.270

Note the hole in the ground to the right (away from river) of track.

Q  Why would this hole have been dug?

A  The hole would have been made to obtain gravel to form the track.

Q  But isn’t this a National Park?

Q  Should we be digging in a National Park?

A  Prior to 1952 this was not a National Park, although for a short time it was known as the Sounds National Park. This hole was probably dug prior to that time when there were no controls over this area.

This used to be a common way of getting gravel near to the site where it was needed.
Glacier Marks

GPS S45  O 28.990  E 167° 10.410

At this point you should beside a large rock on the edge of the track. This rock will have standing trees and the remains of dead trees on top of it. Where did this rock come from and how did it get here, as there are no similar rocks in the vicinity.

How long do you think it has been here? (Some of the trees on top would have lived for 400 to 500 years and many have been replaced.)

On the front face beside the track there are parallel ripple like marks in the rock. What would have caused these? (Created by hard pieces of rock being trapped between the glacier and this rock as it moved here, gouging out the softer rock.)

The last ice age is believed to have been some 10,000 to 15,000 years ago so this rock and these marks were here before Maori arrived in NZ.

Look at the uphill end of the rock (right hand end) where there are even deeper gouge marks which were made in the same manner.
Look to the side of the track (Left side facing uphill) and note the big tree a couple of meters into the bush.

How old do you think this tree might be? Only a guess but it could be something like 500 years old.

How tall would you estimate the tree to be?

What would the girth of the tree be?

How many arms lengths does it take to reach right around the tree?
You should now be on the bridge which takes the road across the stream at the top of the Old Doubtful Sound Track.

Before the road was put in the only way people could get into Deep Cove from Lake Manapouri was via the Old Doubtful Sound walking track. This track came from West Arm, over the Wilmot Pass and down into Deep Cove.

Look up stream and note the log across the stream. This was used as a bridge by people walking the track. It still has the remains of metal netting on top of it which was used to stop people slipping.

Look downstream – Note the amount of concrete work used in the construction of the bridge and the way that the water flow has exposed the reinforcing rods.

Walk up the road to find the start of the Stella Burn track. Take care and keep your group to one side of the road. **WATCH FOR BUSES and OTHER VEHICLES**