Thoughts on Buying a GPS Unit

November 2010 by David Brawn and John Thorn

Introduction

As we move rapidly towards Christmas many walkers who do not already have a gps unit could be thinking of buying, or receiving as a Christmas gift, a gps unit for the first time. Trying to decide on what unit to buy, or whether to buy at all, is a fraught decision for outdoor adventurers (walkers) and even more difficult if non-walkers are buying for a walker. We are hoping that this short paper will help you make a considered choice on:-

- whether you will benefit from owning a gps unit.
- what sort of specifications and price of gps unit will meet your needs
- a review of the latest developments including the latest mapping gps units and gps equipped smart phones.

The things to remember…

- A GPS unit is a computer. It receives signals from satellites and calculates its position: latitude, longitude and altitude.
- Almost all GPS units on the market use the same basic 'chip' [Sirf III] so they will all be equally accurate.
- The US government controls some of the level of accuracy by encrypting the finest detail. Pure GPS is accurate to centimetres; consumer GPS is accurate to a few metres – but if the US goes to war the whole thing may become unavailable; pre-2000 'selective availability' reduced gps accuracy to 50+ metres.
- Accuracy depends on a clear view of the sky. Things will get worse under trees, in deep valleys or gorges or in town between high buildings. GPS will not work at all in tunnels or indoors.
- Because it is a computer it can be programmed to do many things beyond finding a position. You need to decide what you want to enable you to chose the right specification for your own needs.

Why Buy and Use a GPS Unit?

Back in 2003 arguments raged about the efficacy of 'Map & Compass' navigation versus GPS navigation. It all ended up being swept away as the simple truth was, and still is, that 'GPS is the most accurate location system available' and no amount of posturing by certain walking writers could overcome this simple fact. Sat-Nav, which is simply gps technology applied to vehicle navigation on road systems, is widely accepted. While Sat-Nav is widely used by drivers comparitively few walkers use a gps, though this is steadily changing and might rapidly change with the new mapping gps units and gps equipped smart phones.

We assume you are a leisure walker, by which we mean you walk for pleasure and your walking could range from easy strolls through all the levels up to pioneering new routes in previously unexplored country.

So what do you want, or need, from a GPS unit?

This guide is a spin-off from the Walk! books – so it is primarily aimed at walkers. But walkers do other things. Are you a cyclist or an off-road driver – or even a pilot or a yachts(wo)man?
Do you need a GPS to support these activities too?

If you normally walk in a group (eg Ramblers), or only walk on well marked walking trails, then ask yourself - 'How often do I need to know my position to an accuracy of 5 metres?' - if your answer is hardly ever, and your route finding is easy, then GPS is unlikely to add to your walking pleasure.

If you walk alone, or as a couple, then you do not have the group knowledge and need to decide your own navigation. Here GPS can help you a lot by taking out the uncertainty of 'Where are we?' situations.

Do you go out into the wilderness where the ability to retrace you path is important?
Almost all gps units offer a 'track back' facility, or can be used to retrace your outward track; this can be a lifesaver if worsening weather conditions find you in fog or a 'white out'.

Do you want to mark specific places (waypoints) as you pass them?
Almost all gps units offer this facility. Similarly, you can load a list of waypoints to your gps memory and ask the unit to (guide you to) follow them in sequence.

Do you walk in very bad weather?
Does a unit have to be fully waterproof or are you happy to provide some sort of extra casing (or just a dry pocket)?

How long do you walk for?
GPS units all need some sort of batteries for power. With some you can carry a spare set of AAs and swap them when necessary. Others have non-replaceable rechargeable batteries so you need an independent power source. (Don't rely on the current generation of solar units!) Extra features such as an electronic compass drain the batteries faster.

Do you want a unit with a moving map display that shows you where you are on a map?
I (John - see Appendices) have had a unit like this for 3 years and it is a totally different (and improved) experience from trying to locate

coordinates on a soggy map in a gale.

If you choose a map-based unit where are you going to walk?
The business model of many suppliers relies on making a margin (profit) from supplied maps. With more digital mapping becoming free, some suppliers will not permit alien (free) maps onto their systems. So even if you live and walk in the UK and buy a unit with UK mapping, maybe you are thinking of a walking holiday in France, Spain, Turkey, Morocco,…? And if you buy copyrighted maps supplied for one unit they almost never work on another; incompatibility betwen gps units and gps software seems inherent in this industry.

How 'savvy' are you technically?
Are you confident installing software on a PC (or Mac) and connecting the unit to your computer? If you are not confident then a mapping unit is, probably, not for you.

Are you interested in archiving your walks on a computer?
Perhaps plotting distance against time or speed against altitude. Any unit with a PC link will support this but you need some software (see below).

Do you plan to travel a lot in areas with poor reception – canyons, forests, etc?
If so, some units offer a socket into which you can plug an external aerial which improves the reception of satellite signals (David - see Appendices).

What is your budget – and what are the parameters?
You can buy the simplest unit for less than £60 – but you can pay many times more. Maps add to the price, too. Think in terms of £100 for OS 1:50000 mapping for the UK. Some units work with maps downloaded 'over the air' so there is an ongoing charge to your mobile phone bill.

GPS Software - Unleashing Your GPS

My (David) Garmin eTrex Legend HCx comes with a usb connector lead and a CD containing Garmin Mapsource Trip & Waypoint Manager, and while this CD is useful for saving gps tracks and waypoints (only in Garmin file format) there is some much more useful third party software available.
With my first Garmin 12XL unit I also downloaded and upgraded to full version the Oziexplorer gps software designed by Des Newman (Brisbane) - a later coincidence as Ros and myself are based in Brisbane when in Australia and the country's leading mapping company, Hema Maps, is also in the city - with the result that I started designing my own maps based on gps surveys rather than licensing in the ages-out-of-date official mapping we had previously used for our walking guides.
I also downloaded and upgraded to full version Alan Murphy's GPS Utility software, similar functions to Oziexplorer but with amazing ability to convert gps file formats to other gps file formats either file by file or with a 'Batch File Convertor'. If you want a simple program to save and transfer gps tracks and waypoints then you might look at EasyGPS.
See the following websites to download trial versions of:-
GPS Utility www.gpsu.co.uk
Oziexplorer www.oziexplorer.com
Both GPSU and Ozi enable you to import digital map images and calibrate them enabling you to use any mapping that is available. Cost to upgrade to full versions is about $50.

If all, or possibly most, of your walking adventures are in UK then you will be obtaining your OS digital mapping either by scanning printed maps or from the digital mapping companies such as Memory Map, Mapyx Quo, Anquet and Trail Logs plus SatMap for SatMap users. The first two of these are the gogetters of UK digital mapping and if starting now I would suggest choosing one of memory Map or Mapyx Quo as your OS digital map supplier.
Their software has similar functionality to GPSU and Oziexplorer so for more info see their websites at:-
Memory Map www.memory-map.co.uk
Mapyx Quo www.mapyx.com
We'll talk more about these companies in Mapping Resources.

John Thorn's own Mapc2Mapc software must be mentioned here as it is a remarkable piece of gear that will write the range of calibration files from a calibrated map image (that's how we get all those calibration files in the digital editions of Tour & Trail Maps). It also accepts your gps data and then writes a map containing that info as an overlay. A very useful ability is being able to stitch calibrated map sections together into a new calibrated map irrespective of the scale of the original maps. Remarkable and you'll hear more of Mapc2Mapc when we talk about smart phones.
See www.the-thorns.org.uk/mapping for more info.

So what will gps software do?

Well almost everything you can think of in gps wants; join tracks together, merge track and waypoint files, create new file formats, allow you to plot routes on digital maps, etc etc. It won't boil an egg but these programs will do almost everything you can think of and then some.

Map Sources and Resources

Once you are using gps software you'll want digital maps so that you can see your gps tracks and waypoints as a layer on a map. For UK that means OS or Harvey Maps plus the newly free OS Open Data and Open Street Plan.

The cheapest way to get digital mapping is to scan the paper maps you already have. A simple scanner/printer unit is sufficient for producing the images, then you calibrate those images in your gps software. If your scanning is accurate, without 'rubber sheeting' or wrinkles, then you could stitch the A4 digital map pieces together using Mapc2Mapc to produce a bigger map but this does rely on accurate scanning at the first stage.
If you are thinking of scanning a Tour & Trail Map sheet, typically 840mm by 640mm, into A4 colour images (12 or more images), trimming those images and stitching them together again as a digital map, then remember these only cost £2.99 for the digital map sheet from www.instant-books.org

Free digital mapping is available from OS Open Data, though it is far less detailed (no paths or dirt roads) than the commercial OS mapping. Other EU agencies are also making available free digital mapping, you'll just need to find it and work out how to download it - not always a simple task.

OS digital fully detailed mapping, at 25K and 50K scales, is available for purchase at Mapyx Quo, Memory Map, Anquet and Track Logs just to name four companies, plus SatMap for SatMap users. Normally who you buy from depends upon whose gps software you are using as there are no common calibration file specifications.

Tour & Trail mapping is available at just £2.99 per digital map sheet, each sheet coming in a zip file complete with a range of calibration files enabling you to use T&T mapping across a wide range of gps software. At £2.99 I don't think its worth you trying to scan a T&T map on your scanner/printer and then trying to stitch the scans together into a copy of the original printed map.
See our Instant-Books website at:- www.instant-books.org
then go to 'Shop' and then select 'Digital Maps' in the 'Search' box.
When you have paid for the maps you want DO remember to return to the Instant-Books website to download your T&T maps - don't click out of PayPal or Worldpay payment sites thinking we will deliver your maps!

As I write this I am in discussions with the main digital map companies with a view to licensing Tour & Trail mapping for use on their digital platforms, still at the bargain price of £2.99 per digital map sheet - see future eNews for details of when this happens.

GPS Resources

So far you've only got your own gps track and waypoint records, but why not use other people's gps records for your own walking adventures.

As DWG we are very proud of having pioneered the use of downloadable gps track and waypoint records and we're still the only publisher to offer this service for all of our Walk! guide books. Our PNFs CD version 5.01 contains over 900 gps walking routes in a variety of popular formats including Google Earth and includes a special version of GPS Utility software for you to load the info into your gps unit in seconds. While we do sell the PNFs CD for £12.99 (including VAT) we much prefer to give it away free with all orders over £25. When you have a PNFs CD we offer a no-charge upgrade to the latest edition, you simply send me (David) your old CD with an SAE and I send you the latest version by return. I can only do this when I am in UK so its a limited time window but I'm always pleased to oblige with this personal service when I am available.

We've known David and Christine Stewart of WalkingWorld from before their revolutionary website went live, and we're still friends and collaborators; even when we are competitors - which isn't often. For an annual subscription you can download as many walking route instructions as you like with the option of also having the gps records. Its great value and we are of course a subscribers.
WalkingWorld set the pace for digital delivery of walking information so it's no surprise to find companies like Going4awalk and others also entering this market.

TrailZilla is a new venture by Memory Map that also allows free downloads of gps tracks and waypoints in gpx file format as well as selling packages such as the AA Walks bundle. The TrailZilla is linked to Memory Map so that you can also order the digital mapping for the gps routes you are downloading.

As well as commercial resources there are a number of sites 'swaping' gps info or with free info. Having trawled the net for these resources I have yet to find anything comparable with the commercial gps information but on the web you never know what you might turn up.

Review of Basic GPS Units, Map Resources, GPS Resources

Before looking at the 2010 developments it seems a good idea to review basic gps so far as you might well find, especially as a new user, that all your needs can be satisfied at comparatively low cost.

GPS Software

- gps software is a recommended try for a trial version and upgrade to a full version. This will allow you to see your gps track and waypoints on a screen map, analyse your gps records, plan new walking routes, exchange gps information with other users - plus loads more.

Map Resources

- digital maps can be created from paper maps using a scanner and gps software.
- there are some sources of free Digital Mapping such as OS Open Data that you can use.
- Digital mapping platforms (companies) can supply OS mapping and some overseas mapping. See Mapyx Quo, Memory Map, Anquet, Track Logs and others and they usually supply their own software.

GPS Resources

- get our PNFs CD for free with an order for over £25 or one of our Walk! Book + Tour & Tail Map packages that include the CD for free. That's gps info for over 900 walking routes plus GPSU software (trial version).
- Check out commercial walking route sites such as WalkingWorld (recommended), Going4awalk and the new TrailZilla website by Memory Map.

At November 2010 prices I estimate that you could have a full basic gps setup with software and mapping for £200 or less. If all of your planned walking is to be in UK then you could look at Memory Map and Mapyx Quo as your digital map supplier and use their gps software. Do make sure that you buy a SiRFstarIII chip equipped gps rather than the earlier editions.

A couple of points on gps before we move on to 2010 developments:-

Always keep batteries in your gps.

When you get your gps and install the batteries always keep the batteries in the unit, do not take them out to save batteries! On the gps circuit chip is a tiny battery that powers the unit's memory, and recharges itself from the main batteries. If you take the batteries out of your gps the memory battery will eventually run down to the point where it cannot be recharged so leaving you with a dead gps unit.

Why does SatNav work in tunnels but GPS doesn't?

SatNav and GPS are the same technology just put to slightly different uses. Neither will work in a tunnel due to no satellite signals, but the SatNav does a clever trick of calculating where you are by using the heading and speed when it lost reception. As we normally travel at constant speed in a tunnel, and most tunnels are straight, the most you are likely to notice is a slight jump in the SatNav screen when you emerge from the tunnel and satellite reception is restored.

How many 'Channels' Should a gps receiver have? Does more 'Channels' mean more accurate?

Gps receivers quote how many channels, satellites, they can process at one time. An 8 channel receiver can handle up to 8 satellites, a 12 channel receiver can process up to 12 satellites at once.

It would seem that the more channels you have, the more satellites your gps can receive information from, so (theoretically) giving you more accuracy - Except, in practice you only need four satellites for 3D navigation meaning X and Y grid coordinates pluz a Z altitude. If you have reception from five or six satellites then that is about as accurate (5-10 metres accuracy) as you are likely to need; better if you have eight or twelve but not strictly necessary.

The NAVSTAR satellite system has 24 satellites operational at any one time, of which you can only 'see' a maximum of 12 at any one time because the other 12 are on the other side of the world. You might have a receiver with more than 12 channels but the maximum NAVSTAR satelites you can see at any one time is 12 so any more channels are redundant.

People have been talking about the European and Russian gps satellite systems for years, along with WAAS (wide angle augmentation system - only works in the US), but for our navigation only the basic NAVSTAR system is likely to be available for the foreseeable future.

That's our review of where gps is to date and before we go into new developments you might find it useful to look at our Appendices at the end of our paper:-

Part 2 Mapping GPS Units, Smart Phones & Latest Developments

Latest Developments GPS Tracking - New Sim Card/GPS Units

Taking the last first I'd just like to acquaint you with a remarkable gps application that illustrates just how fast the technology is moving. You remember my free flight competition model aircraft where I use gps to plot the flight line, the models also carry a transmitting beacon while I carry a receiver tuned to the beacon. Even with this technology I can lose models such as last years Anglia Gala held on Sculthorpe airfield. In the international glider class my third round flight was soaring up in a tremendous thermal to disappear inside a storm cloud. After half an hour the transmitter signal ceased and I had little idea where the model was, I assumed it was still in the storm cloud and had simply gone out of range of my receiver, approx 8kms.

Nine weeks later I got a phone call from a farmer near Diss saying he had found my glider while combining his wheat fields, so packing a complimentary couple of bottles of wine we headed off for rural Norfolk to collect my glider and say thank you.
My glider had flown about forty miles, way beyond the range of my gps and tracker retrieval techniques and was retrieved by luck.
In 2010 new gps tracking devices have come on the market which combine the SiRFstarIII gps chip with a phone chip, lipo battery and patch aerial. Clip in a prepaid sim card and the unit has its own telephone number; the whole unit weighing about 30 grams.

When you call the sim card number it activates the gps chip, takes a position reading, and texts it back to the phone you are calling on!!!!!!!
At 30grms the units are still a tad heavy for competition free flight model aircraft but we'll soon have that down to an acceptable 10grms at which time all I'll have to do when my model flies away is; call it, it texts me back its grid coordintates, I enter the coordinates into my gps - if its a mapping gps, or smart phone, I can see exactly where the model is on a map - then go to those coordinates and pick up my errant model.

If you think this is all in the land of 'spooks' have a look at these websites, units start from £40 upwards:-

www.spy-craft.co.uk/gps_tracking_equipment.htm - covert surveillance units
www.chinavasion.com/product_info.php/pName/global-gps-tracker-with-two-way-calling-sms-alerts
www.chinavasion.com/index.php/cName/electronic-gadgets-gps-gadgets

Mapping GPS Units

We've had 'mapping gps' units available for a few years so let me define between the old units and new units. New style 'mapping gps' units use digital OS mapping while the older units use the manufacturer's own maps and you can only use maps provided by that manufacturer.

Garmin's Oregon, Dakota, Nevada units, and Magellan's equivalents are examples of the old mapping gps units. Garmin did change its protocols to allow third party mapping but this was limited to a map size of 100 'tiles' of 1,024 pixels by 1,024 pixels, not a very big map!
John Thorn and I produced a series of 'Garmin Maps' for all of DWG's Walk! Abroad titles using Tour & Trail mapping, basically one Garmin Map relates to one walking route. If you have one of these Garmin units you might be interested in these digital 'Garmin Maps' which are available at £2.99 per destination from
www.instant-books.org go to Shop then select Digital Maps in the drop down Search box.

Satmap Active 10 Plus GPS

Satmap were the first UK mapping gps using proper OS mapping, and we (Ros and myself) were there at the Outdoors Trade Show when Satmap were doing a big presentation hoping to encourage outdoor retailers to stock this revolutionary gps when it became available the following year. We talked to the Satmap people, they probably don't remember us as they seemed completely unaware that people walked for pleasure anywhere outside of OS territory. Ideas of licensing Tour & Trail mapping for European destinations were met with blank looks.
When the first working Satmap was launched in 2006 it followed the theme set by Garmin and Magellan in being incompatible with any other product, meaning that you can only use OS mapping supplied by Satmap on your Satmap; possibly not a problem if you always stay in UK but we occasionally get asked by our DWG client family - 'Why isn't Tour & Trail mapping available for Satmap?' Well since our early approach we do email them with this idea but so far we've had no positive replies.
Reviews of the Satmap in the press were glowing but the unit soon attracted some hostile 1 star Amazon readers Reviews - see www.amazon.co.uk and search for Satmap.
For me if I can't use my Tour & Trail Maps on a mapping gps it goes off my 'wish list', and with Satmap's built-in incompatibility its no for me.
If you are thinking of buying this unit I would have a close look at those 1 and 2 star Amazon reviews. Readers reviews can always be a bit debatable for influencing a buying decision and the Satmap Active 10 Amazon Reader Reviews (at 30/10/2010) are 22 5-star, 8 4-star, 3 2-star and 7 1-star
Note: Both 'Trade' and 'Reader' Reviews are subject to bias, one unhappy customer can feel enraged enough to post a bad review while a hundred satisfied customers might not post at all.

Hema Navigator by Hema Maps

Just as Satmap were launching in UK our Australian adventure was just beginning, resulting in us having a Brisbane base just a short hop up the road from Hema Maps' HQ at Eight Mile Plains. It's not often we get to talk to mapping friends on the other side of the world so I called Peter Jones (sales director) to arrange a social/updating meeting. We arrived for a couple of hours friendly updating to find Hema working on a hush-hush project which became the Hema Navigator -arguably the world's leading combined on/off road SatNav and GPS unit. Check out the specs at:-
www.hemanavigator.co.au

Hema Navigator ticks lots of boxes; 5 inch screen, SatNav software, Oziexplorer software, Memory Map software, rechargeable battery (but only 4 hour battery life), and 64 channels (bit of a mistake that as it just means 52 redundant channels). If there is a problem with the Navigator it's the price - a whacking A$990 (or £635) meaning you can buy separate SatNav and gps units for less than the Navigator.

Mapping GPS Units - Outdoors Trade Show September 2010

If I'm in UK at the time I go across to Stoneleigh Park for The Outdoors Trade Show; I get a 'Press' name label due to working with the organisers on some articles a few years back. Normally its a rather depressing show, it looks bright and lively but you can only take so much 'fashionista' outdoor wear and survival equipment, especially at close quarters walking past stall after stall of hearty outdoor survival types - surely I'm not the only one who sees the outdoors as a pleasurable adventure rather than a scene of bitter survival; and I don't change my hiking gear annually just to be in fashion preferring to continue with the gear that works for me until it needs replacing. Well there are bright spots amongst this strange combination of fashionistas rubbing shoulders with survivalists. I always renew friendships with Harvey Maps and call in on the Cicerone Press stall.

For September 2010 I am making my OTS visit with a purpose, I actually went for two of the three days, in that I want to chat to Steve Wood of Mapyx Quo and Ray Badminton of Memory Map about the possibilities of licensing my Tour & Trail mapping onto their digital platforms. Earlier I described these as the 'gogetters' and they are. In a few seconds with either Steve or Ray you know these guys are on the ball for digital mapping and how it is used in practice. I had the opportunity of calling in on the Garmin area to see their new mapping gps units but based on last year's experience I could anticipate their response to questions like 'What mapping is available?' where they would explain at length the incredible mapping resources of Garmin except they do not have the hiking maps I want - Tour & Trail - so I judged it would not improve my day. I could imagine it being similar to previous conversations with Satmap and Anquet (at their HQ in the old Officers Mess at RAF Little Rissington).

Mapyx Quo (MQ) & Memory Map (MM) - Mapping GPS units

Both companies sell OS mapping through their digital platforms, provide their own gps software, and are involved in the new generation of mapping gps units. Its difficult for me to be unbiased as I am expecting both MQ and MM will licence my Tour & Trail mapping for sale to their clients; at the same prices of £2.99 per digital map sheet as we presently sell through www.instant-books.org and both mds agree with this pricing model; which was a pleasant surprise at OTS as I expected this to be a sticking point.

MM and MQ are both into mapping gps units but in slightly different ways so choosing between the two is likely to come down to personal choice rather than technical specifications; both MQ and MM having generously loaned units for myself and John to 'trail test'.

MQ Lowrance Endura series see www.mapyx.com
Out&Back £299.99, Safari £399.99, Sierra £449.99

Since taking over Mapyx Quo md Steve Wood has revitalised the company with improved software, partnering with Navicom gps manufacturer of Lowrance units, and has collected an impressive list of endorsements by 'Search & Rescue' organisations; Quo software, and Lowrance Endura gps units, having sewn up the S&R market in UK. Given the rugged environment of S&R you can be assured that the Quo Mobile software and Lowrance Endura hardware have been thoroughly tested in the toughest conditions you are ever likely to face.

MQ have sent me a top of the range Sierra for trail testing and it certainly looks the gear though as a buyer I would most likely opt for the Out&Back basic unit, and its yellow easily seen colour, rather than the fully functioned Sierra.
Out of the box you simply activate the unit online in your Quo account, which then activates the Quo Mobile software in the Sierra (same for other models). I'm passing the Sierra on to John Thorn after only a few days - John and Pam are off to Tenerife so John can load up Tenerife Hiking Map and CNIG free digital mapping for testing in the Anaga and Teide/Las Canadas - so the only testing has been out on Harlestone Heath made famous by my Spencer Raceway practical exercise in GPS The Easy Way; hardly extreme conditions.

Pictures of the Endura range on MQ's website make them look a bit plasticky but out of the box the Sierra is a rugged metal and rubber hand sized unit that is tactilely friendly (pleasing to handle) with a good screen size. Quo Mobile means you are straight into the preloaded OS 50K mapping, you might prefer OS 25k and Tour & Trail 40k mapping for hiking, with a wide choice of zoom levels.
While I have only 'soft trailed' the Sierra I really do like its handleability, the large front mounted buttons in addition to touch screen capability, plus its rugged go-anywhere construction combined with good screen size. I am not a fan of extra functions so my first choice would be for the base model Out& Back at £299 ready loaded with OS 50k mapping, but see later.
Having been impressed with the Sierra two items, or should I say two omissions, surprised me:-
- there is no provision to use an external aerial, which is surprising given that the Safari and Sierra have a SatNav option.
- in recording waypoints there is no provision for 'projecting' a waypoint along a compass direction.
These two omissions are probably only important for my particular use of a gps, and should hardly affect your own choice.

One final, but very important, point about the Lowrance Endura range is that MQ have produced an excellent pdf manual for the units, plus the units coming preloaded with maps and software. If you do decide on these units then buy them from Mapyx Quo or one of their official stockists. Buying a Lowrance Endura bare unit and then trying to load all the software and maps yourself could be a fraught experience given the poor Lowrance manual.

MM Adventurer mapping gps units see www.memory-map.co.uk
Adventurer 2800 £250-295 Adventurer 3500 £320-380

Memory Map have taken a slightly different approach to mapping gps units by going for a fully touch-screen driven menu, resulting in the units looking more like smart phones than traditional gps units. I was originally in line to trail test the new Adventurer 2800 in Sept/Oct 2009 but then a slight delay in deliveries and our approaching departure for Oz meant that I gave up my opportunity so someone else could give it a go. Now there is a 3500 (larger screen and case but otherwise similar to the 2800) is on its way but hadn't arrived as I'm writing this. The 2800 has had good reader reviews, comes in at a good price with its mapping, and ticks a lot of boxes for a lot of people. You can use Tour & Trail mapping as we produce the digital maps to MM specs and they use the JPR calibration file format, though of course it would be easier if MM were to supply these.

How you get on with the 2800/3500 probably depends upon where you come from. If you are used to a smart phone with touch screen menus then you'll probably be straight into these units. If, like me, you come from button pushing gps (and button pushing mobile phone) then the new touch screen interface could take some getting used to, just like all new gadgets.
Adventurers look well specified, even a 50 channel receiver (see earlier), and rugged enough for prolonged outdoor use. While most gps units run on a couple of AA batteries the Adventurers use a rechargeable lithium ion battery, so while I'd always carry spare AA batteries in my backpack, with the 2800/3500 I would opt for a 2800 extended battery kit (£30) or spare battery pack for a 3500; these are possibly a bit pricey compared to a pair of AAs.

Basic Thoughts on Choosing a Mapping GPS

The competition for your purchase price basically comes down to choosing between Satmap, Garmin, Mapyx Quo Lowrance Endura, and Memory Map Adventurer 2800/3500; plus smart phones - see next section.
Your decision really depends on where you are now with gps.

MQ Lowrance Endura & MM Adventurer - both a possibility for me.
If you already have a lot of digital mapping (almost certainly OS) from MM or MQ then you won't want to buy all that mapping again so Quo users will probably choose the Lowrance Endura units, while Memory Map users would go for the Adventurer.
If you are upgrading from basic gps then you would probably find the Quo Lowrance quicker to get acclimatised to than the Adventurer, but then you will have these units a long time so perhaps acclimatisation time isn't very important.

Satmap - not for me.
I am not recommending Satmap due to two factors. I need complete reliability so the amazon reader reviews of 'the unit freezing' are very worrying, I don't want this happening when I am surveying and it could be disastrous in dangerous mountain terrain. Also the cost of Satmaps digital mapping is high (imho) and you are trapped into using their mapping with no opportunity of getting digital mapping from any other suppliers.

Garmin -good for me previously but not their mapping units and maps.
I've used Garmin units for a couple of decades, every unit operating reliably all the time except that once when I took the batteries out of my 12XL for six months and the memory battery ran down. I've had 128s, 48s, 76s, GPS60, 201s, eTrex Legends, 12s and 12XLs and all have been good and reliable. The problem with Garmin, as with Satmap, is that the mapping is both expensive (actually very expensive imho eg £127 for the Cotswold Way!) and you can only use Garmin mapping. Garmin's exclusive incompatibility will mean that when I make a decision on a mapping gps unit it will not be a Garmin.

GPS Smart Phones - A 2010 Must Have?

Smart phones , at £400+ a pop or plenty a month on contract, have been the hit of 2010 [but John Thorn has just bought one, legally, for £109!]; voted most wanted Christmas present by 7-16 year olds in a recent survey. The smart phone technology has been around for a while but previously was seen as a business device, eg Blackberry, but now are being seen as the next phone to have. The new generation hitting the shops combines mobile telephony and internet access with PDA style computing power. Previous models with gps chips would require you to be online to receive your mapping resulting in some hefty phone charges if you used your phone as a gps navigator. The important change is that your smart phone can now run its apps, including gps navigation without needing to be online - so no call charges - by using specially adapted mapping on SD cards.

If you are planning to use your smart phone for walking then you are going to need a gps software app and mapping. Viewranger - www.viewranger.com - is popular and sells OS mapping plus some European mapping - but not currently Tour & Trail Maps. Memory Map have an iPhone app so you can use your MM supplied mapping on your Apple device. There are free applications, too – we like Trekbuddy (www.trekbuddy.net)

One way of getting maps for your smart phone is to convert the digital mapping you have now into the format needed by your phone's gps app - see earlier Mapping resources - and this is where John's Mapc2Mapc software will be your friend with its straightforward facility of converting digital mapping into smart phone compatible maps.
Now as John is the expert in this area, actually not just this area, I'll hand over to John after my own thoughts of using smart phones as mapping gps units for walking.

David Brawn's Smart Phones for Walking Summary

As a general rule I like dedicated single use devices, I'd rather have my compass on a shoelace lanyard round a belt loop than have an electronic compass on my gps. Whenever I want to scan a document/map I wish we still had the dedicated A3&4 scanners of old rather than these cheap three in one printer, scanner, fax units. Maybe I should be called the grumpy old man of the mountains except it makes me out to be one of the anti-gps flat earthers.
Smart phones though could be the combined functions device that changes my mind. You've got telephony in the size of a mobile phone, plus a whole lot more computing power that can be put to good use; internet communication such as picking up and replying to emails, gps navigation for both on and off road adventures. Possibly the only current device to come close to smart phones is the iPad for a combination of portability and usability.
For my own walking I would be happy using a gps smart phone so long as it had the durability of a gps unit and had sufficient battery life (carry a battery booster pack). I would still carry a separate mobile as an emergency phone, packed in a backpack inner pocket along with my emergency whistle. For our surveying work I can't see the smart phone replacing our gps units but it would be a useful additional resource; so for leisure its a maybe while for work its a no.

John Thorn's Thoughts on GPS Use and Smart Phones

Three years ago, I set out to buy a new GPS unit. I was looking for one that offered a moving map and the ability to add my own. I bought an IPAQ and installed the mobile version of Memory-map. This IPAQ is just a PDA, not a phone. I have been very happy with it, installing David's Maps of La Palma, Tenerife etc as well as free maps from Open Street Map and Spain's national mapping agency. The same unit also works as a driving satnav : in La Palma I entered the locations of all David's walks and the unit directed me to the walk start where I switched modes. The disadvantages are limited battery life (about 8 hours) and lack of water resistance – but everything is a compromise.

I've wondered about a Smartphone solution but could never justify the cost to myself, especially as my mobile phone is rarely used (my average bill is less than a fiver a month).

But there as been a step-change in cost. I have just bought an Orange San Francisco for £109 without a contract. I've loaded Trekbuddy and will try it in Tenerife alongside the IPAQ and the Endura. Watch this space!

Appendices

GPS The Easy Way author David Brawn published by Discovery Walking Guides £4.99

My little guide to GPS, originally published in 2003 has helped thousands of walkers understand how a gps can be used - well its sold tens of thousands of copies and I get more fan mail about this book than any of my other titles so it must be working for a lot of people. However the book is looking a little bit dated, despite recent updating, due to the rapid changes in technology led by the new generation of mapping gps units and the flood of gps equipped smart phones that have been launched in 2010.

However if you are looking at your first gps unit and are looking for a basic gps unit costing about £100 then I would recommend you read through GPS The Easy Way before making a decision on whether to buy, and what to buy. All gps units work on the same technology and increasing price usually means having more features working off that basic gps technology. Since Garmin made the SiRFstarIII gps chipset (faster processing and lower battery usage) standard across its range of units then a higher price does not mean any improvement in speed or accuracy. I still use a basic Garmin GPS60 unit (approx £110) for the majority of my work and carry a Garmin eTrex Hcx (approx £150) as a spare.

My (David Brawn's) Use of GPS in the Field

My gps use is probably quite different to how you might be using your unit. As DWG we are usually out surveying using the gps to record everywhere we have been (gps track) and all the features (waypoints) along the way, which we then download and interpret to produce Walk! guidebooks, Tour & Trail mapping and our PNFs CD. This surveying can include everything from precarious mountain paths right through trails, tracks, country roads, main roads and motorways; speeds while surveying varying from 3kmh to 140kmh. When we are rewalking a route for a new Walk! Edition we have one gps with the original track and waypoints on, and a second gps recording the rewalked route with any changes.
As we are often surveying in somewhat extreme conditions good reception of the gps satellite signals is a key priority as 'Good Reception = Good GPS Records'.

When not out surveying for DWG I may be indulging my hobby of flying free flight model aircraft in competitions, a rather crazy sport when you launch your carefully crafted model aircraft and then the wind take sit away. Retrieving these models from long flights involves having the compass bearing of the models flight (the wind direction) and then projecting a waypoint along this compass bearing. Join the launch point waypoint with the projected waypoint using the 'GoTo' gps function and we have a straight line along which the model should be found. On long flights the flight line can extend to many kilometres/miles.
For this specialist, and possibly arcane, use of gps it is essential that the unit has a 'projected waypoint' facility; not all units do.

For DWG road surveying we used to use large Garmin 128 marine units with external aerial including 15 metres of coaxial aerial cable with a BNC connector, while for walk surveying we used a Garmin 12XL mounted either on my backpack shoulder strap or in the breast pocket of my walking shirts (note shirts not shorts). Add in a laptop, cameras, voice recorder et al and this was becoming quite a bundle of equipment we had to take as airline luggage. Two pieces of simple equipment, plus downsizing from laptop to netbook, have eased our luggage problems.

Magnetic external aerials, about £10 on eBay, allow us to use the same handheld gps for both road (by car) and walk (on foot) surveying. Simply stick the magnetic aerial on the roof above the driver's side (towards the centre of the road) bring the lead through the window and plug into the external aerial socket of the handheld gps unit - the 12Xl has been replaced by a GPS60. We get exceptional satellite reception in all but the most adverse conditions such as tunnels (nil reception) and narrow town streets. A bonus of the magnetic aerial seems to be that the car body acts as an extended reradiating aerial increasing signal strength even further.

A pack of steel washers, about £2 from Wickes, allows me to use the magnetic external aerial on my hat when walking. Simply hold a steel washer on the inside, bring the magnetic aerial to the outside of the washer and my aerial is in place. It might sound daft but it really works. My aerial is at the highest point of my body and I can put my GPS60 into a convenient pocket, reception is the equivalent of holding your gps above your head all the time. So if you do bump into a weird looking guy with his hat wired up like a lightning conductor it'll probably be me - although I try to encourage our authors to adopt this 'good reception' approach thay have proved a bit fashionista about using my idea!

John Thorn's Thoughts on Gps Use

I bought my first GPS in 1999. It was a Garmin GPS12 and quite chunky, needing 4 AA batteries. Once I had got past the stage of being amazed at it knowing (almost) exactly where I was, I installed GPSU and would scan and calibrate maps to plan my routes. I would upload these routes to the GPS and use the 'follow route' function to guide my journey. If I wanted to know where I was, I would transfer the coordinates to a map or just relate my position to waypoints displayed on the unit. My second GPS was a quarter the size with an altimeter, compass and much more storage - but I still used this Garmin Geko in the same way.

Three years ago, I set out to buy a new GPS unit. I was looking for one that offered a moving map and the ability to add my own maps to whatever the supplier could sell me. I bought an IPAQ and installed the mobile version of Memory-map. This IPAQ is just a PDA, not a phone. It has changed the way I use it. I still work out a route beforehand (usually in Memory map which is also the means for downloaded maps to the IPAQ) but I never bother to transfer the route to the unit - I just follow the map and am forgetting the jargon of waypoints, routes etc. But I still upload my tracks to GPSU which has better analysis function than Memory-map.

I have been very happy with the IPAQ, installing David's Maps of La Palma, Tenerife etc as well as free maps from Open Street Map and Spain's national mapping agency. Most recently, I scanned and calibrated maps of South Africa for walking in the Drakensberg Mountains. The same unit also works as a driving satnav : in La Palma I entered the locations of all David's walks and the unit directed me to the walk start where I switched modes. The disadvantages are limited battery life (about 8 hours) and lack of water resistance – but everything is a compromise.

What really surprises me it that I have never, when out walking, met anyone with a similar device. When someone asks for directions they are amazed to be shown a map with a flashing red dot 'you are here'! I have about half the UK at 1:50000 installed on it; for anywhere else I download maps : Mobile Atlas Creator is very good for this with Google, Open Street Map, Yahoo and a number of national maps. I can't imagine being without a mapping GPS, now.

I've wondered about a Smartphone solution but could never justify the cost to myself, especially as my mobile phone is rarely used (my average bill is less than a fiver a month).

But there as been a step-change in cost. I have just bought an Ornage San Francisco for £109 without a contract. I've loaded Trekbuddy and will try it in Tenerife alongside the IPAQ and the Endura. Watch this space!