

## Why Use Intermediate Points?

- Run Sheet combines position and target time
- Course has unknown check points where your actual arrival time is checked against ETA
- Intermediate points check your progress on a leg
- Are you too fast or too slow?
- Add your own intermediate points to your route AND your running sheet or timing guide
- Keep it simple !! Intermediate points optional



SKIPPER NAME: Roger Hartley  NAVIGATOR NAME: Brendan O'Donoghue				SPEED: 10 KN		BOAT NAME: Black Pearl					
						TACK-TRACKER No: BMYS 1			RACE No: 9		
POSITION	DIST	SPEED	TIME	TOTAL DIST	TOTAL TIME	ETA	LAT.		LONG.		TURNNo
START HEAD 220 TRUE	0.000	10	0:00:00	0.000	0:00:00	9:30:00	37:59:550	S	145:02:750	Е	START
	0.000										
TURN TO 190 TRUE	0.900	10	0:05:24	0.900	0:05:24	9:35:24	38:00:239	S	145:02:017	Ε	1
Intermediate Position 1A	0.450	10	0:02:42	1.350	0:08:06	9:38:06	38:00:685	S	145:01:912	Ε	
Intermediate Position 1B	0.480	10	0:02:53	1.830	0:10:59	9:40:59	38:01:160	S	145:01:805	Ε	
Intermediate Position 1C	0.670	10	0:04:01	2.500	0:15:00	9:45:00	38:01:825	S	145:01:659	Ε	
	0.000										
TURN TO 138 TRUE	2.220	10	0:13:19	3.120	0:18:43	9:48:43	38:02:423	S	145:01:528	Е	2
	0.000										

### Plotting the Course – Intermediate Coordinates

**GPS Visualizer** 

http://www.gpsvisualizer.com/calculators

#### Find the coordinates at a given distance and bearing

This form will tell you what point lies at any distance and bearing from another point. If you don't supply units in the distance box itself (e.g., "100 mi"), it will default to kilometers. (The formula used here was adapted from "Sprong" by Dale Bickel at the FCC.)

Starting Lat., Lon.

0.9 nm

Bearing o

->

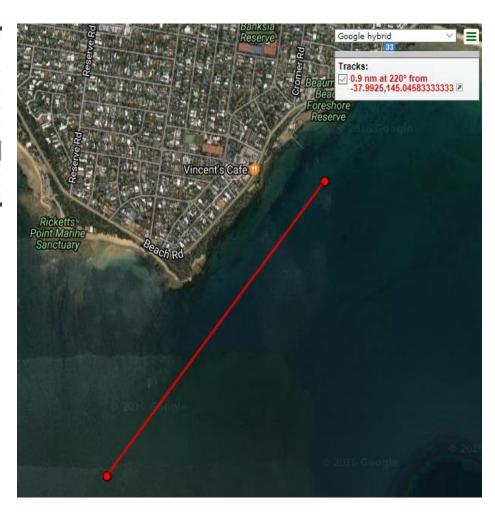
Ending Lat., Lon. -38.0039829379, 145.033€

Convert to DMM/DMS format

output format: Google Map

Draw map

Turn 1 from Start 0.9 NM at 220 degrees Leg 1 Intermediate
Change distance
to 0.45 NM



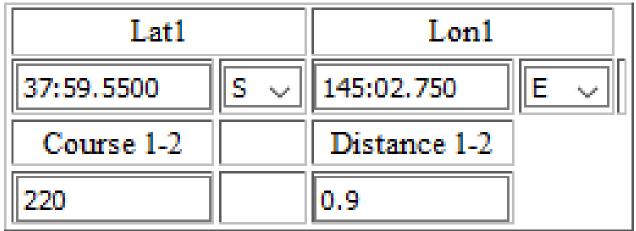
## Plotting the Course – Intermediate Coordinates 2

**Great Circle Calculator**<a href="http://edwilliams.org/gccalc.htm">http://edwilliams.org/gccalc.htm</a>

Compute lat/lon given radial and distance from a known point

Enter lat/lon of initial point, true course and distance. Select distance units and earth model and click "compute". Lat/lons may be entered in DD.DD, DD:MM.MM or DD:MM:SS.SS formats.

#### Input data



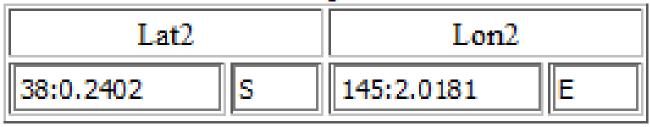
Turn 1 from Start 0.9 NM at 220 degrees

Leg 1 Intermediate
Change distance 1-2
to 0.1 NM

#### **Latitude Facts**

- 1 NM = 1852 M
- 1 degree Lat = 60NM
- 1 minute Lat = 1 NM
- 0.1 minute = 185.2M
- 0.001 minute =1.852M
- 0.0001 minute = 0.1852M

Output



Units: nm 🗸 Earth model: WGS84/NAD83/GRS80 🗸

# Plotting the Course – Waypoint Coordinates 3

**Movable Type Scripts** 

http://www.movable-type.co.uk/scripts/latlong.html

Destination point given distance and bearing from start point

Given a start point, initial bearing, and distance, this will calculate the destination point and final bearing travelling along a (shortest distance) great circle arc.

Destination point along great-circle given distance and bearing from start point

Start point: 37°59.55'S , 145°02.75'E

Bearing: 220°

Distance: 1.67 km

Destination point: 38°00'14"S, 145°02'01"E

Final bearing: 220°00′27"

hide map

Turn 1 from Start Leg 1 Intermediate
0.9 NM at Change distance 1-2
220 degrees to 0.1 NM

