

Mull Submarilyns - Creach Bheinn, Cruach Torr an Lochain, Carn Mor (17E)

Report of surveys carried out by Alan Dawson on 31 March and 1 April 2014

Background

There are three Submarilyns on Mull, all of which were surveyed over two days in Spring 2014. According to OS maps, Cruach Torr an Lochain has a drop of 149m, Carn Mor 147m and Creach Bheinn 146m. The aim of the surveys to measure the height and drop of each and to find out whether any of them had the 150m drop that would elevate them to Marilyns. Heights were measured using a Leica Geosystems RX 1250 GPS antenna and controller, with subsequent processing using OS Rinex data to obtain precise results. Conditions for the surveys were good: dry and clear but with a cold east wind.

Creach Bheinn survey (hill 1315)

This hill is located on the empty Ardmeanach peninsula on the west coast of Mull. It was approached via the minor road that leads west from the B8035 to the Tiroran Hotel and the NTS car park for the Burg Estate and the fossil tree. The summit of Creach Bheinn has a 491m trig point, while the col height was estimated to be about 345m. The west coast of Ardmeanach has a long line of high steep cliffs that make any approach from that side very difficult, though not impossible. The col is broad and flat so it was difficult to identify the optimum survey point with any precision. There was therefore a relatively large margin for error at the col, judged to be up to 35cm.

Summit feature: Triangulation pillar

Summit survey time: 40 minutes

Antenna height at summit: 1.24m (antenna on top of trig pillar)

Margin for error: 0m

Base station data:

<i>Base station:</i>	ARIS	LOCG	OBAN	TIRE
<i>Distance away:</i>	62	61	46	45
<i>Summit ellip height:</i>	547.196	547.164	547.142	547.127
<i>Col ellip height:</i>	401.479	401.448	401.453	401.465

Col survey time: 40 minutes

Antenna height at col: 0.81m

Margin for error: 0.35m

Only the four nearest base stations were used for processing as all others were over 100km away.

Mean elliptical summit height: 547.16m

Mean elliptical col height: 401.46m

WGS84 to OSGB36 adjustment: 55.667 for summit, 52.689 for col

Adjustment constant: 0.16m

Result:

Summit: 491.65m

Latitude: 56° 23' 01.255" N

Longitude: 6° 10' 55.048" W

Summit gridref: NM 41948 29120

Col: 345.93m

Col gridref: NM 4321 2984

Drop: 145.7m

Outcome: No status change, Creach Bheinn remains a Submarilyn

Cruach Torr an Lochain survey (hill 1323)

This hill has a summit height of 348m and a col spot height of 199m on OS maps, giving it a drop of exactly 149m. The summit is not far from the B8035 between Salen and Gruline but is not easily approached, as there are large areas of impenetrable rhododendrons on its lower western slopes. The summit is well-defined and marked by a substantial cairn. The col is at the edge of a line of trees near Loch na Dairidh and it difficult to locate with any precision. The survey point was set up a couple of metres from the treeline, but it is possible that there is slightly lower ground just inside the edge of the trees. There was therefore a large margin for error at the col, estimated at up to 0.5m.

Summit feature: Cairn

Summit survey time: 60 minutes

Antenna height at summit: 0.66m

Margin for error: 0.05m



Cruach Torr an Lochain summit survey in progress, looking north

Base station data:

<i>Base station:</i>	ARIS	LOCG	OBAN	TIRE
<i>Distance away:</i>	47	62	33	56
<i>Summit ellip height:</i>	403.352	403.32	403.354	403.355
<i>Col ellip height:</i>	254.419	254.408	254.44	254.425

Col survey time: 60 minutes

Antenna height at col: 0.80m

Margin for error: 0.5m

Only the four nearest base stations were used for processing as all others were over 100km away.

Mean elliptical summit height: 403.35m

Mean elliptical col height: 254.42

WGS84 to OSGB36 adjustment: 55.764 for summit, 55.753 for col

Adjustment constant: 0.16m

Result:

Summit: 347.74m
 Latitude: 56° 29' 28.883" N
 Longitude: 5° 57' 31.575" W
 Summit gridref: NM 56407 40278
 Col: 198.93m
 Col gridref: NM 5764 4056
 Drop: 148.9m
 Outcome: No status change, Cruach Torr an Lochain remains a Submarilyn



Survey of Cruach Torr an Lochain col

Carn Mor survey (hill 1324)

This hill lies in north Mull, south of the road from Calgary to Dervaig. Its summit has a 343m spot height on OS maps. This point refers to a substantial cairn at the northern end of the summit plateau. Two-way sightings with a laser level showed that a distinctive rock about 100 metres further south was slightly higher than the base of the cairn, so this rock was used as the survey point. The col has no spot height on OS maps but was estimated at 196m, giving the hill a drop of 147m. The col area is broad and largely flat but has a small knoll in the middle, which meant that the col itself could be either west or east of this knoll. A survey point was set up on the east col, very near to the minor road from Achleck to Dervaig. It was recognised that if the survey showed this col to be 149m or more lower than the summit then it would be necessary to carry out a survey at the west col, in case it was lower. This turned out not to be necessary, as the east col was only 146m lower than the summit, and there was judged to be less than one metre difference in height between the west and east cols, though it was not known which was lower.

Summit feature: Rock

Summit survey time: 50 minutes

Antenna height at summit: 0.45m

Margin for error: 0.04m

Base station data:

<i>Base station:</i>	ARIS	BARR	LOGC	OBAN	TIRE
<i>Distance away:</i>	46	89	77	50	40
<i>Summit ellip height:</i>	398.734	398.743	398.724	398.735	398.773
<i>Col ellip height:</i>	252.47	252.482	252.425	252.463	252.491

Col survey time: 96 minutes

Antenna height at col: 0.80m

Margin for error: 0.5m

Only the five nearest base stations were used for processing as all others were over 100km away.

Mean elliptical summit height: 398.74m

Mean elliptical col height: 252.47m

WGS84 to OSGB36 adjustment: 55.833 for summit, 55.816 for col

Adjustment constant: 0.16m

Result:

Summit: 343.07m

Latitude: 56° 33' 34.105" N

Longitude: 6° 14' 04.520" W

Summit gridref: NM 39908 48866

Col: 196.8m

Col gridref: NM 4203 4810

Drop: 146.3m

Outcome: No status change, Carn Mor remains a Submarilyn



Carn Mor summit survey, looking north toward the cairn