

# Survey of Rhobell Ganol

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The Team:

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## 1) Introduction

Rhobell Ganol (Hill Number 3390, Section 30D, OS 1:50000 Map 124, OS 1:25000 Map 23E, Grid Ref SH785274) is classed as a Dewey with 34m of drop. Neither the OS 1:50,000 map nor the 1:25000 map has a spot height but both have one or more 520m contour rings and the height is estimated to be 521m. The summit area is extensive and contains four obvious high points. A previous visitor had used an Abney level to locate the summit, although subsequent visitors had commented on the confusing number of small tops in the summit area.

The purpose of this survey was to confirm the highest point of Rhobell Ganol and determine its height relative to the other tops.

## 2) Equipment used and Conditions for Survey

Ground surveys to determine the positions and relative heights of the high points were carried out using a Leica NA730 Professional Automatic level (X30 telescopic system)/tripod system and a "1m" E-staff extendable to 5m.

Conditions for the survey, which took place between 11.00hr and 13.00hr GMT, were fair. The weather was cold, 3 degrees Celsius, and overcast, but visibility was satisfactory. However, a strong wind, estimated to be gusting to +40mph, limited the use of the staff to just the one metre section.

## 3) The Survey

### 3.1) Character of Hill

Rhobell Ganol and its near neighbour Rhobell-y-big are situated on the northern flanks of Rhobell Fawr and are very much overshadowed by the bulk of their larger neighbour. Nevertheless, both hills have character of their own with tiers of small crags rising to their rocky summits. This description is particularly true of Rhobell-y-big. They are best approached via the minor road that runs across wild country from Bronaber on the A470 to Llanuwchllyn on the A494 just South of Llyn Tegid. From Bronaber the minor roads forks at SH730315, the right-hand branch, which is taken, being signposted Dolgellau. After 5km the road crosses a bridge over the Afon Mawddach and there is a small parking place here for three or four cars. Alternatively there is room for one car at a road junction half a kilometre further along the road. From this road junction, a short walk of about one kilometre along the road to Rhiw Felen gives access to the open hillside. There are no barbed wire fences just here and field boundaries comprise dry-stone walls which are easily crossed. The going to the foot of Rhobell-y-big is easy on short and rough grass but beyond, although the terrain is more boggy, it is nowhere difficult.

### 3.2) The Survey

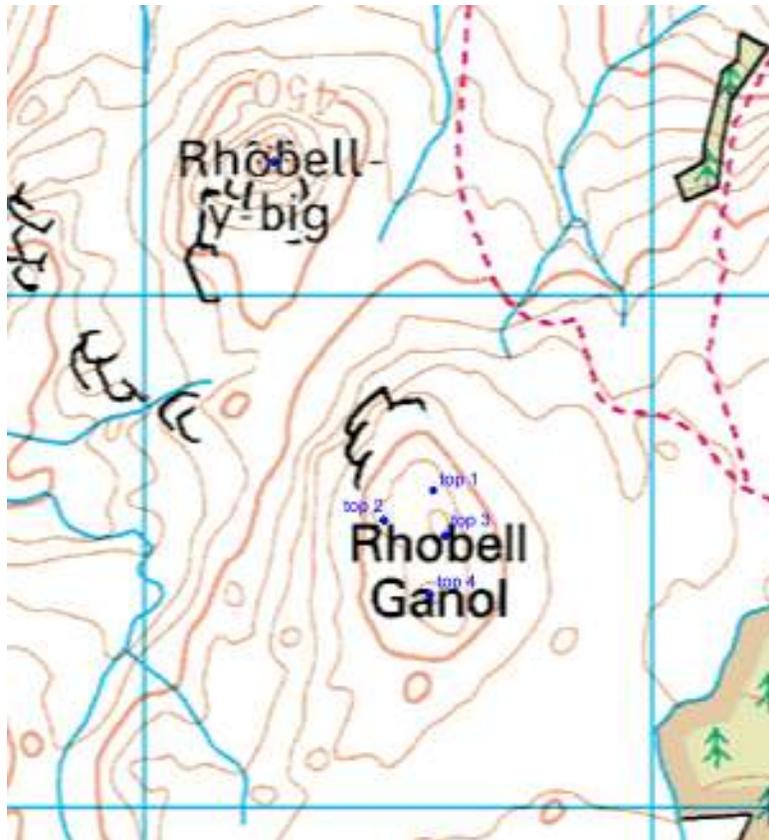
The first top we arrived at contained a small cairn and we have designated this top 1. The Leica NA730 level was set up on the tripod adjacent to the cairn and the summit area was scanned to determine if there were higher features. This preliminary survey quickly showed three higher

features amid the mounds and outcrops. One was an outcrop about 100m to the SW which was very prominent and from this position appeared to be highest to the unaided eye (top 2). Another was a rounded mound about 100m SSE (top 3) and finally an outcrop about 200m South (top 4) was also shown to be higher. Having identified the four contenders we next moved to top 3 which gave us good views of all the three other tops. The Leica NA730 level was set up on the tripod adjacent to the highest point and the tripod's height adjusted until it was set to the level of the highest point of top 3. Once again the three other tops were scanned. Tops 1 and 2 were determined to be at least 2m lower than top 3 while top 4 proved to be higher by about half a metre. Next the level was moved to top 4 and set up adjacent to the rock tor that comprised its summit. A staff reading was then taken to top 3 and to the summit of top 4.

Staff reading on top 3 = 0.865m

Staff reading on top 4 = 0.405m

Therefore top 4 is the highest point of the hill and is 0.46m higher than top 3.



Regrettably the wind was sufficiently strong to preclude quantitative measurements of the heights of tops 1 and 2 relative to top 4, as this would have required the staff to be extended to 3m and under the prevailing conditions it would have proved impossible to hold the staff steady.

The ten-figure Grid References recorded for the four tops were:-

Top 1

Garmin Etrex 20	SH 78578 27641	Height = 522m
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Top 2

Garmin Oregon 450	SH 78492 27560	Height = 522m
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Top 3

Garmin Oregon 450	SH 78609 27528	Height = 528m
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Top 4

The ten-figure Grid References recorded for summit were:-

Garmin Montana 600	SH 78583 27413	Height = 526m
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Garmin Etrex 20	SH 78582 27414	Height = 527m
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Garmin Oregon 450	SH 78580 27413	Height = 529m
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#### 4) **Discussion of Results**

The largest error in the measurement was associated with the strong and gusting wind which made reading the staff through the level difficult. Nevertheless, we are confident that this was achieved to 1cm or better. Regrettably, the height differences between top 4 and tops 1 and 2 remain estimates as the wind precluded accurate measurement.

#### 5) **Summary and Conclusions**

The **summit of Rhobell Ganol** is at grid reference \* **SH 78582 27413** and is a rock tor and this result confirms the earlier measurement made with an Abney level by Simon Edwardes. It is higher than top 3 by 0.46m and higher than tops 1 and 2 by at least 2m.

\* NB average hand-held Garmin/Magellan GPS grids are quoted in the summary.

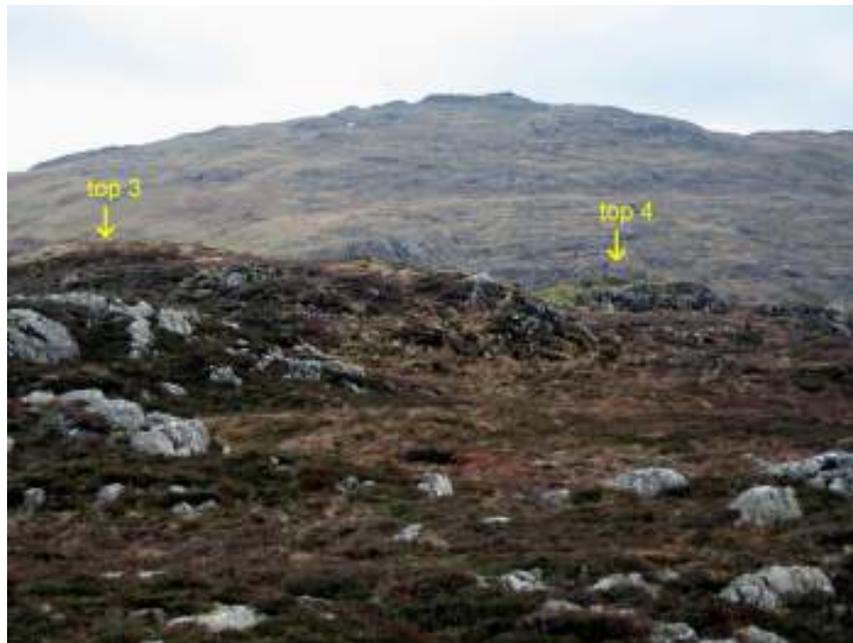
John Barnard, Chris Crocker and Graham Jackson, 25 February 2014.

## Appendix

Cairn on Top 1 with Top 2 in the distance



Tops 3 & 4 with the summit of Rhobell Fawr in the background from Top 1



Top 3 from Top 4 with Top 1 in far distance



Top 2 from Top 4

