

Blake-Larsen
SUNSHINE RECORDER

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REPORT

Comparison of
Blake-Larsen Sun Recorder performance
with
UK Metoffice data

September 25th, 2011

The Blake-Larsen sun recorder has recently been installed at a UK Met Office site in Cornwall for the purpose of comparing the sun recorders performance against official Met Office data.

The MO staff was most helpful in setting up this trial.

The trial period was one month.

The B-L recorder was placed within a metre of the MO Kipp and Zonen pyrhelimeter so the results were directly comparable in terms of geographical location.

Although there were some differences on an hourly basis, the daily figures showed quite a strong agreement.

It would be expected that the B-L recorder should on some days show rather higher sun shine hours than the official figures as the B-L recorder can detect sunshine from the horizon at sunrise and sunset.

The hourly differences could, in part, be explained by the methods used by each device for calculating the sun ON situation.

The B-L recorder checks for sunshine every second whereas the MO system uses a method that checks the average radiation of 30 readings at 2 second intervals.

This means that if the sun is shown to be just above the threshold for a period followed by low radiation readings, the average could decide that the sun was OFF for that minute whereas the B-L recorder would have logged the ON period.

Similarly a period of high radiation could tip the MO average to an ON minute although the sun may have been visible for a short time only.

Obviously this effect would be more pronounced with fast moving fairly small clouds so we would expect any difference to be greater on days with rather less sunshine recorded.

The total difference in registered sun shine hours was 2.6%.

Figure 1.

Compares the data per hour on a daily basis (horizontal axis shown as day).

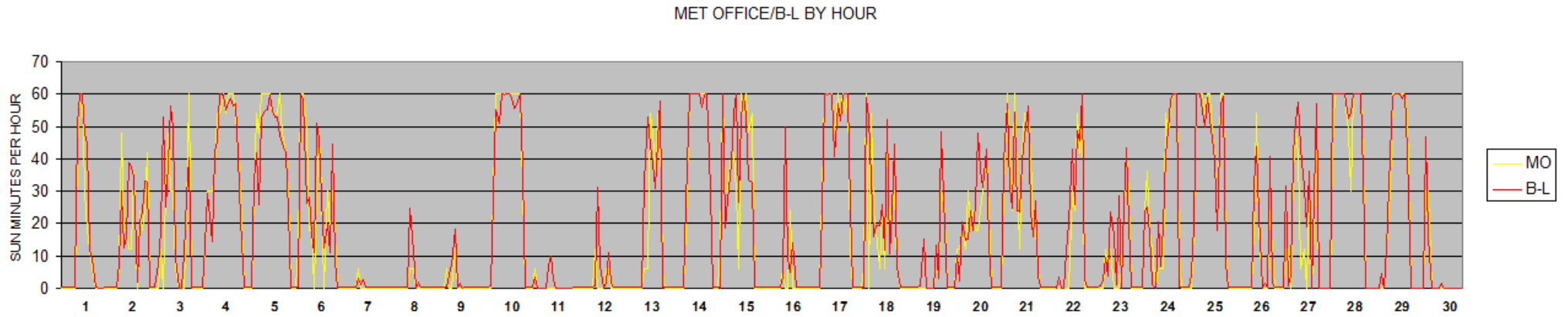
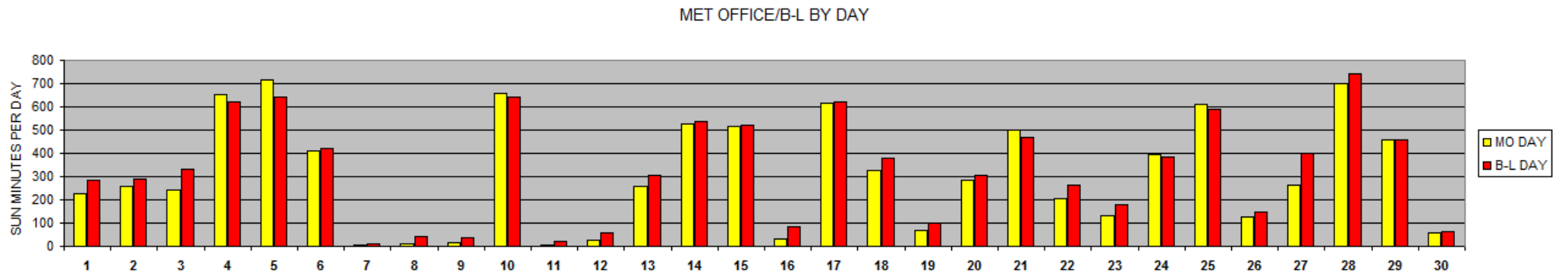


Figure 2.

Compares the total sun shine hours per day.



Conclusion.

The result of the trial shows that the B-L sun recorder is able to measure sun shine hours with an accuracy which is fully acceptable compared with the state of the art methods used today.