

122°0'0"W121°55'0"W121°50'0"W121°45'0"W121°40'0"W121°35'0"W121°30'0"W

50°35'0"N

50°30'0"N

50°25'0"N

50°20'0"N

50°15'0"N

50°10'0"N

50°35'0"N

50°30'0"N

50°25'0"N

50°20'0"N

50°15'0"N

50°10'0"N

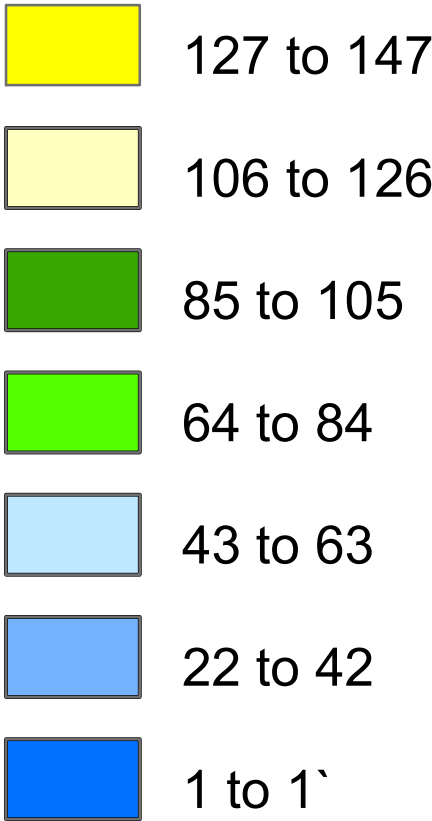
# Calculated Solar Radiation

## Big Bar-Lillooet-Lytton

### Map 3 of 3

September

(kWh/m2)



- iButton
- Study Area
- Private Land
- Agricultural Land Reserve (as of April 30 2011)
- Indian Reserve
- Water

Supplementary iButton\* Data

iButton Number	Elevation (m)	Extreme Minimum Winter Temperature (°C)				Growing Degree Days (Base 10°C) <sup>1</sup>			Frost Free Period (FFP) <sup>3</sup>								
		2007	2008	2009	2010	2008	2009	2010	FFP (# Days >0°C)			Last Day of Spring Frost		First Day of Fall Frost			
2	190	-18.1	-22.8	-18.9	-15.3	1055	1302	1088	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
3	217	-17.6	-23.6	-19.9	-15.4	1206	1492	1196	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
4	341	-18.0	-23.5	-19.9	-16.1	1148	1458	1179	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
5	336	-18.3	-23.9	-20.4	-16.5	1108	1398	1131	169	167	177	Apr 26	Apr 24	Apr 23	Oct 12	Oct 08	Oct 17
6	328	-19.5	-24.1	-19.9	-16.9	1065	1338	1015	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
14	271	-18.2	-22.2	-18.9	-15.3	1286	1604	1312	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
15	297	-18.0	-22.4	-19.2	-15.3	1289	1580	M	166	166	189	Apr 26	Apr 27	Apr 11	Oct 09	Oct 10	Oct 17
16	263	-19.2	-23.7	-20.1	-16.9	1131	1450	1153	166	167	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 08	Oct 17
17	297	-19.3	-23.5	-19.4	-17.2	1197	1493	1176	166	167	190	Apr 26	Apr 26	Apr 11	Oct 09	Oct 10	Oct 18
18	339	-17.7	-23.2	-19.4	-16.9	1247	1528	1170	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
19	316	-17.7	-23.5	-19.7	-16.6	1229	1522	1205	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
20	241	-17.7	-22.6	-18.6	-15.9	1295	1654	M	166	169	190	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 18
21	267	-17.0	-23.6	-19.6	-15.9	1278	1615	1288	169	167	189	Apr 23	Apr 26	Apr 11	Oct 09	Oct 10	Oct 17
24	369	-17.1	-23.7	-19.9	-16.7	1296	1596	1264	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
25	375	-17.3	-24.4	-20.5	-16.7	1291	1563	1230	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
26	352	-17.8	-23.5	-19.5	-16.5	1266	1546	1223	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
27	318	-17.6	-23.4	-19.9	-16.5	M	1588	1282	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
33	255	-16.6	-22.2	-18.6	-15.2	1247	1534	1243	168	169	175	Apr 26	Apr 24	Apr 25	Oct 11	Oct 10	Oct 17
34	264	-16.3	-22.5	-18.3	-15.0	1321	1605	1321	168	169	189	Apr 26	Apr 24	Apr 11	Oct 11	Oct 10	Oct 17
35	310	-16.3	-23.2	-19.2	-15.6	1318	1613	1272	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
36	415	-16.9	-24.1	-20.0	-17.5	1222	1471	1218	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
37	352	-16.5	-23.5	-19.5	-17.2	1249	1537	1218	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
38	243	-14.6	-24.1	-19.2	-17.2	1352	1630	1333	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
39	265	-14.8	-24.3	-19.1	-17.3	1315	1598	1274	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
40	266	-15.3	-24.2	-18.8	-16.0	1280	1569	1259	172	169	221	Apr 22	Apr 24	Apr 11	Oct 11	Oct 10	Nov 18
41	287	-15.2	-23.7	-19.6	-17.9	1364	1582	1288	172	170	190	Apr 22	Apr 23	Apr 10	Oct 11	Oct 10	Oct 17
42	255	-15.3	-23.4	-19.1	-16.0	1308	1603	1305	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
43	240	-15.3	-23.9	-18.7	-16.4	1236	1495	1198	169	169	215	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Nov 12
44	520	-17.6	-23.3	M	-21.6	921	1190	888	159	M	148	May 02	M	May 21	Oct 08	Oct 08	Oct 16
45	412	-18.0	-24.3	-20.8	-16.3	1184	1477	1180	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
46	285	-18.1	-24.6	-20.7	-15.9	1166	1510	1181	166	167	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 08	Oct 17
47	256	-17.0	-23.4	-19.6	-15.6	1285	1609	1310	171	169	189	Apr 23	Apr 24	Apr 11	Oct 11	Oct 10	Oct 17
50	190	-15.9	-22.7	-18.4	-17.1	1308	1565	1312	160	167	188	May 02	Apr 24	Apr 11	Oct 09	Oct 08	Oct 16
51	175	-16.1	-23.4	-19.4	-16.6	1233	1526	1263	160	167	144	May 02	Apr 24	Apr 25	Oct 09	Oct 08	Sep 16
52	157	-16.3	-23.3	-19.1	-16.6	1298	1590	1286	160	160	174	May 02	May 01	Apr 25	Oct 09	Oct 08	Oct 16
58	382	-17.3	-24.6	-20.9	-16.6	1225	1561	1259	169	189	190	Apr 23	Apr 04	Apr 10	Oct 09	Oct 10	Oct 17
59	302	-20.0	-24.8	-20.0	-17.8	1154	1476	1127	166	160	163	Apr 26	May 01	May 06	Oct 09	Oct 08	Oct 16
61	158	-15.1	-24.1	-19.4	-16.7	1321	1599	1310	160	160	174	May 02	May 01	Apr 25	Oct 09	Oct 08	Oct 16
62	250	-16.2	-22.5	-18.3	-15.2	1272	1566	1240	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
63	275	-16.2	-22.8	-18.4	-15.7	1250	1537	1240	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
64	250	-16.3	-23.4	-19.8	-16.1	1278	1575	1311	166	167	214	Apr 26	Apr 24	Apr 11	Oct 09	Oct 08	Nov 11
65	274	-17.3	-24.1	-21.4	-18.2	1310	1586	1293	169	169	188	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 16
66	200	-16.6	-22.9	-18.8	-15.7	1315	1609	1323	122	169	189	Apr 26	Apr 24	Apr 11	Aug 26	Oct 10	Oct 17
67	275	-16.9	-22.9	-18.7	-16.0	1258	1579	1344	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
68	302	-16.7	-23.6	-19.1	-16.0	M	1540	1346	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
69	288	M	-25.4	-20.6	-18.3	1224	1555	1206	166	160	160	Apr 26	May 01	May 09	Oct 09	Oct 08	Oct 16
70	277	-18.4	-24.4	-19.6	-17.5	1160	1449	1105	160	165	163	May 02	Apr 26	May 06	Oct 09	Oct 08	Oct 16
71	318	-17.1	-23.6	-19.7	-16.0	M	1594	1253	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
80	222	-17.4	-22.1	-18.5	-15.5	1345	1668	1359	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
81	182	-17.3	-21.4	-17.8	-15.0	1302	1611	1306	171	169	189	Apr 23	Apr 24	Apr 11	Oct 11	Oct 10	Oct 17
86	308	-19.2	-24.8	-19.5	-17.1	1292	1621	1248	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17
87	400	-16.7	-23.9	-20.0	-18.1	1269	1553	1225	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17

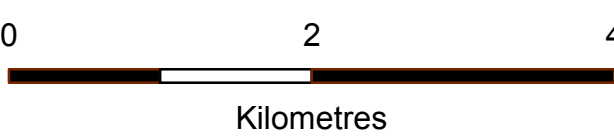
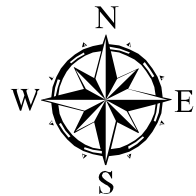
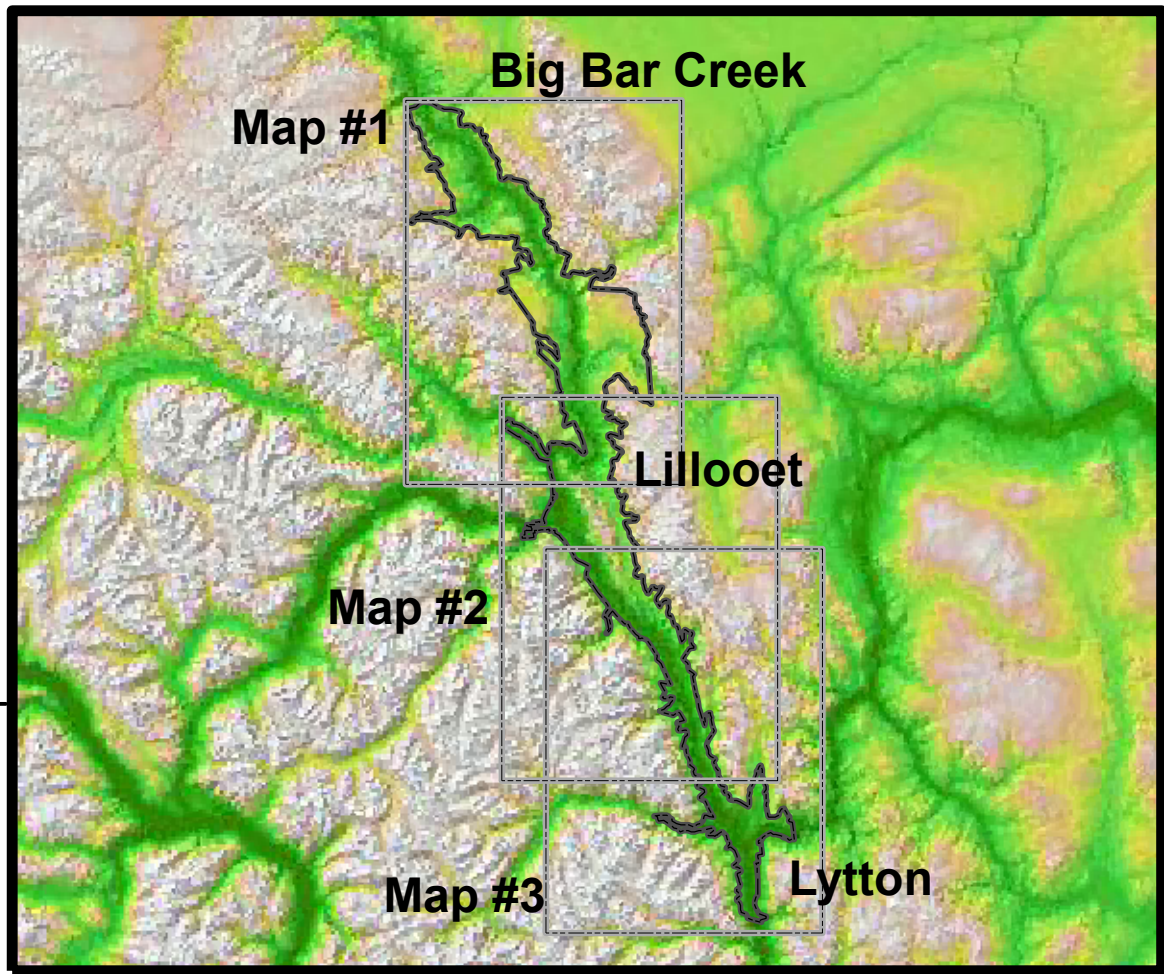
Notes:  
The table contain data based on annual summaries while the maps are based on monthly data.  
\*iButtons are portable data loggers designed to withstand harsh environments  
M = Missing due to incomplete data  
1 Growing degree days (GDD) are calculated as total GDD and may include GDD units outside the period April 1st to October 31st. GDD are not available for 2007  
2 Growing degree days for 2010 were calculated using the average hourly temperature over a 24-hour period instead of the daily mean temperature  
3 Frost free period is calculated as the difference between the Julian date of first Fall frost and the Julian date of the last Spring frost. FFP is not available for 2007

This series of maps was produced by Dave Whiting and Associates pro bono using the Solar Analyst module within the Spatial Analyst Extension of ArcGIS 9.2. This modelling tool calculates the potential radiation in Killowatt Hours per Square Metre (kWh/m2). The topography of the landscape was incorporated using a Digital Elevation Model at a 25 metre resolution. This map shows potential solar radiation that has been calculated by the model and aggregated for a month. Atmospheric conditions such as cloud and smoke were excluded in the calculations. This map is one of 36 map sheets (Three map sheets are required to show the geographical extent of the area between Lytton and Big Bar at a 1:50,000 scale; map sheets are available for each month).

These maps products can support a variety of planning and assessment processes associated with agricultural development, solar energy utilization, forestry, environmental assessment and ecological research. They have been produced in support of developing a "Climate and Feasibility Assessment of Growing Wine Grapes in the Lillooet- Lytton Area, British Columbia" - a research partnership that includes the British Columbia Grape Growers' Association, local property owners, Investment Agriculture Foundation of BC, and provincial and federal agencies. Further information on this project including additional long-term climate data, progress reports, specific grape trial information can be found at [www.grapegrowers.bc.ca](http://www.grapegrowers.bc.ca) Other web sites that host reports on this project are:

- [www.lillooetbc.com/business.aspx](http://www.lillooetbc.com/business.aspx)
- [www.lytton.ca/siteengine/activepage?PageID=78](http://www.lytton.ca/siteengine/activepage?PageID=78)
- [www.al.gov.bc.ca/grape/fctsheets/htm](http://www.al.gov.bc.ca/grape/fctsheets/htm)
- [www.fraserbasin.bc.ca/publications/fbc.reports.html](http://www.fraserbasin.bc.ca/publications/fbc.reports.html)

The solar radiation maps have been produced by Dave Whiting and Associates. Information on the solar radiation map team and access to free downloadable PDF files of the maps can be found at <http://www.solarrradiationmapping.ca> Special thanks to Steve Losso for providing iButton climate data and John Vielvoye, P.Ag. for his invaluable input and expertise.



1:50,000

Date: July 10 2011  
Projection: BC Albers  
Datum: NAD 83

British Columbia Grapegrowers' Association  
<http://www.grapegrowers.bc.ca>

Dave Whiting and Associates  
<http://www.solarrradiationmapping.ca>

122°0'0"W121°55'0"W121°50'0"W121°45'0"W121°40'0"W121°35'0"W121°30'0"W