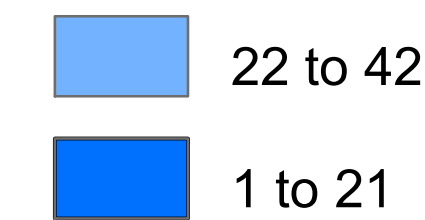


# Calculated Solar Radiation

## Big Bar-Lillooet-Lytton

### Map 2 of 3

December

(kWh/m<sup>2</sup>)

## # iButton

 Private Land Agricultural Land Reserve (as of April 30 2011) Indian Reserve

Water

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 Kilowatt Hours per Square Metre (kWh/m<sup>2</sup>). 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, provincial 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:

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

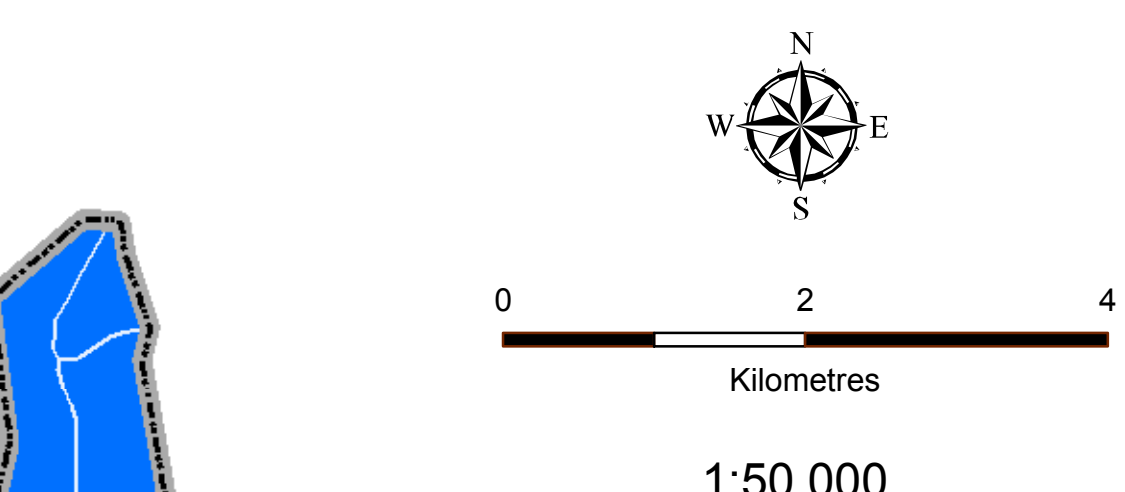
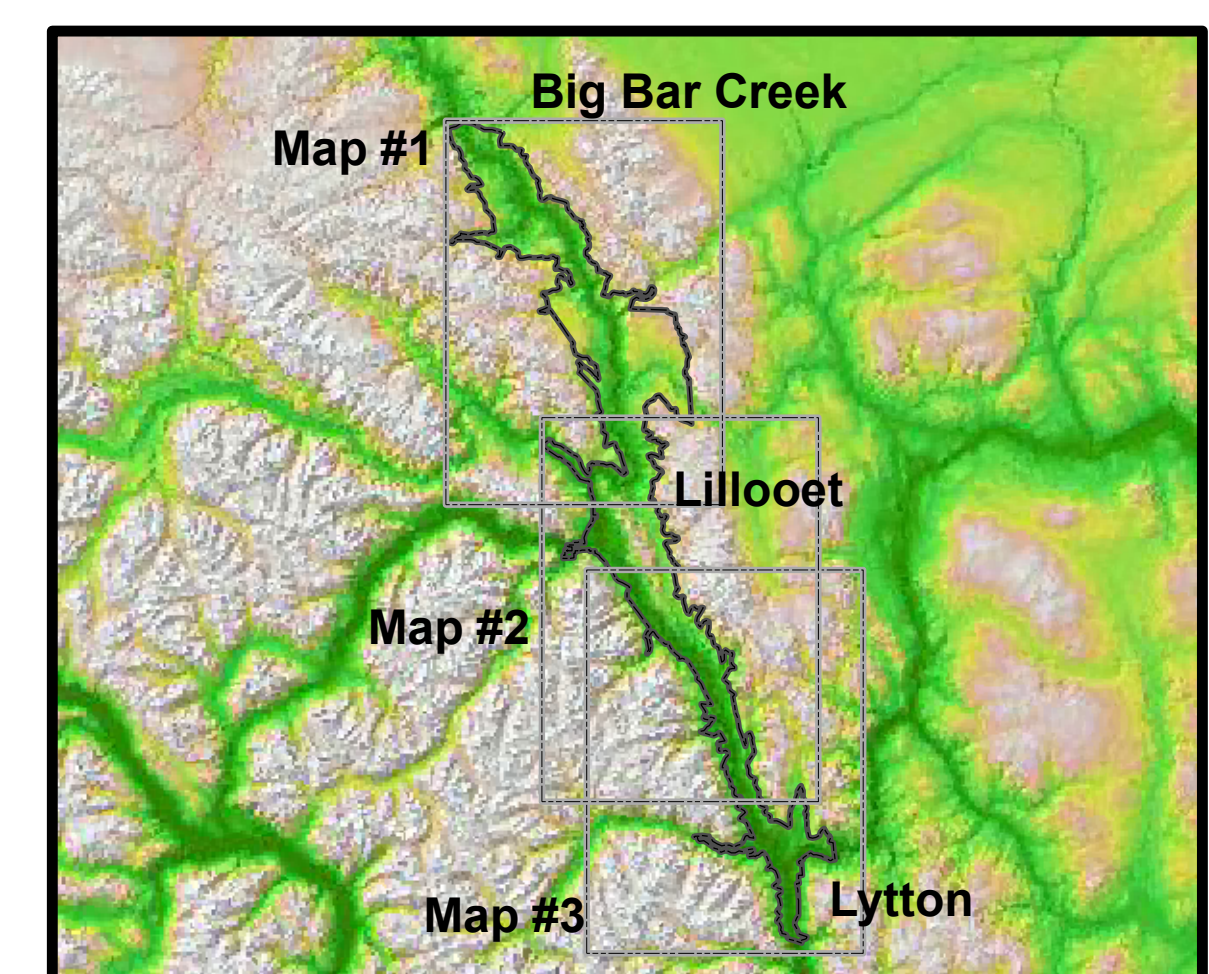
The solar radiation maps have been produced by Dave Whiting and Associates. Information on the solar radiation map team and access to free downloadable PDF files of the maps can be found at <http://www.solarradiationmapping.ca>. Special thanks to Steve Lusso for providing iButton climate data and John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

### 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>2</sup>									
										FFP (# Days >0°C)			Last Day of Spring Frost			First Day of Fall Frost			
		2007	2008	2009	2010	2008	2009	2010	2011	2008	2009	2010	2011	2008	2009	2010	2011		
1	340	-17.3	-24.1	-21.0	-16.6	1310	1708	1420	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17		
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		
7	309	-17.8	-26.3	-22.4	-18.1	1403	1682	1381	171	178	189	Apr 23	Apr 15	Apr 11	Oct 11	Oct 10	Oct 17		
9	340	-17.7	-26.5	-22.4	-17.5	1320	1621	1310	169	169	190	Apr 23	Apr 24	Apr 10	Oct 09	Oct 10	Oct 17		
10	315	-18.5	-25.5	-20.9	-17.6	1282	1579	1239	160	167	188	May 02	Apr 26	Apr 11	Oct 09	Oct 10	Oct 16		
11	225	-16.4	-24.2	-20.1	-17.1	1301	1586	1299	166	165	188	Apr 26	Apr 26	Apr 11	Oct 09	Oct 08	Oct 16		
12	349	-17.8	-25.7	-21.3	-16.4	1306	1612	1271	166	169	190	Apr 26	Apr 24	Apr 10	Oct 09	Oct 10	Oct 17		
13	300	-20.4	-25.3	-20.4	-16.9	1175	1528	1203	166	152	160	Apr 26	May 09	May 09	Oct 08	Oct 09	Oct 16		
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	1313	1440	1153	166	167	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	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		
22	284	-20.1	-26.3	-20.9	-17.2	1220	1530	1221	160	165	164	May 02	Apr 26	May 06	Oct 09	Oct 08	Oct 17		
23	200	-18.2	-24.2	-19.6	-16.1	1252	1573	1341	166	167	189	Apr 26	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		
28	375	-22.5	-29.1	-22.5	-22.9	1141	1423	1135	160	159	160	May 02	Apr 29	May 09	Oct 09	Oct 05	Oct 16		
29	385	-21.9	-28.6	-22.1	M	1131	1442	1124	159	160	160	May 02	Apr 28	May 09	Oct 08	Oct 05	Oct 16		
30	405	-18.6	-27.6	-23.2	-18.7	1202	1493	1165	168	169	163	Apr 26	Apr 24	May 06	Oct 09	Oct 10	Oct 16		
31	413	-18.8	-28.2	-23.5	-18.7	1291	1557	1283	169	169	160	Apr 23	Apr 24	May 09	Oct 09	Oct 10	Oct 16		
32	238	-17.2	-24.7	-20.6	-16.8	1324	1639	1354	166	165	190	Apr 26	Apr 26	Apr 10	Oct 09	Oct 08	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		
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		
48	210	-16.8	-23.2	-19.2	-15.0	1220	1549	1261	171	167	189	Apr 23	Apr 26	Apr 11	Oct 11	Oct 10	Oct 17		
49	196	-17.7	-23.6	-19.1	-15.2	1311	1642	1379	166	167	189	Apr 26	Apr 28	Apr 11	Oct 09	Oct 10	Oct 17		
53	348	-18.9	-25.4	-20.7	-16.4	1089	1439	1066	165	169	189	Apr 26	Apr 28	Apr 11	Oct 09	Oct 08	Oct 17		
54	353	-18.2	-24.7	-20.6	-16.5	1130	1698	1252	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17		
55	364	-17.6	-24.8	-21.1	-16.8	1164	1579	1162	166	169	189	Apr 26	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17		
56	364	-17.3	-25.3	-21.5	-16.5	M	1516	1163	166	169	190	Apr 26	Apr 24	Apr 10	Oct 09	Oct 10	Oct 17		
57	416	-17.4	-25.1	-21.3	-16.5	1166	1450	1160	169	169	189	Apr 23	Apr 24	Apr 11	Oct 09	Oct 10	Oct 17		
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		
60	402	-22.5	-28.9	-23.4	-19.2	1128	1423	1073	158	160	160	May 02	May 01	May 09	Oct 07	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		
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	1686	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		
82	300	-17.0	-24.7	-20.7	-18.7	1240	1578	1266	161	160	160	May 02	May 01	May 09	Oct 10	Oct 08	Oct 16		
84	304	-18.0	-24.9	-20.8	-18.2	1304	1613	1323	160	160	160	May 02	May 01	May 09	Oct 09	Oct 08	Oct 16		
85	210	-16.4	-24.0	-19.3	-16.2	1268	1607	1312	160	167	189	May 02	Apr 26	Apr 11	Oct 09	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.
- \*Buttons 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 of 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. FPF is not available for 2007



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.solarradiationmapping.ca>