Summer 2012 VHF Report: Unique *E*-Region VHF Propagation Events

Despite this past summer's overall dismal VHF propagation, there were some unique highlights. WB2AMU reports on four of them and summarizes their respective effects.

By Ken Neubeck,* WB2AMU

For many VHF operators located in North America, the summer of 2012 was not an exceptionally good one in comparison to previous summer seasons. For some areas of North America there did not seem to be as many sporadic-*E* openings present and only a handful of transatlantic openings occurred. In fact, for many located in the southeast U.S., it seemed to be a bad summer overall for 6-meter sporadic-*E* activity.

As mentioned in my last article published in the Summer 2012 issue of *CQ VHF* magazine, the June ARRL VHF contest had significant 6-meter sporadic-*E* activity that was observed in many areas of North America on both days of the contest. However, sporadic-*E* activity for the balance of June and July seemed to be uneven at best.

With regard to 6-meter transatlantic openings from my location on Long Island, New York (Grid FN30), I observed a few days of 6-meter activity into Europe during the summer. Early in the season, on June 8th, I worked CU1JT at 1410 UTC off the back of the beam on CW. This opening followed an evening of heavy activity from my QTH into the Midwest, along with some double-hop into Arizona and New Mexico.

My most significant opening into Europe occurred on the evening of June 22, when at 2315 UTC, from my home station, I worked MMØAMW on CW, followed by several more UK and western European stations worked on CW over the next 90 minutes: G4RRA, EI4DQ, G4RGK, G4IGO, G3WZT, and F6KHM. My final opening to Europe occurred while I was at work during the morning of July 3 using my portable setup from my car, 50 watts and a mag mount vertical. I worked GØTSM and G4BUE at 10:35 a.m. local time.

However, in general, for most 6-meter stations located in the Northeast, the number of transatlantic openings seemed to be somewhat fewer compared to the summer of 2011. For many stations in the U.S. it appeared that there were less sporadic-*E* openings overall, but there were a few very good ones in terms of quality, such as the major June 6-meter opening between the Pacific Northwest and Europe, along with a significant 2-meter July opening in the eastern U.S. These would be joined by other *E*-layer events

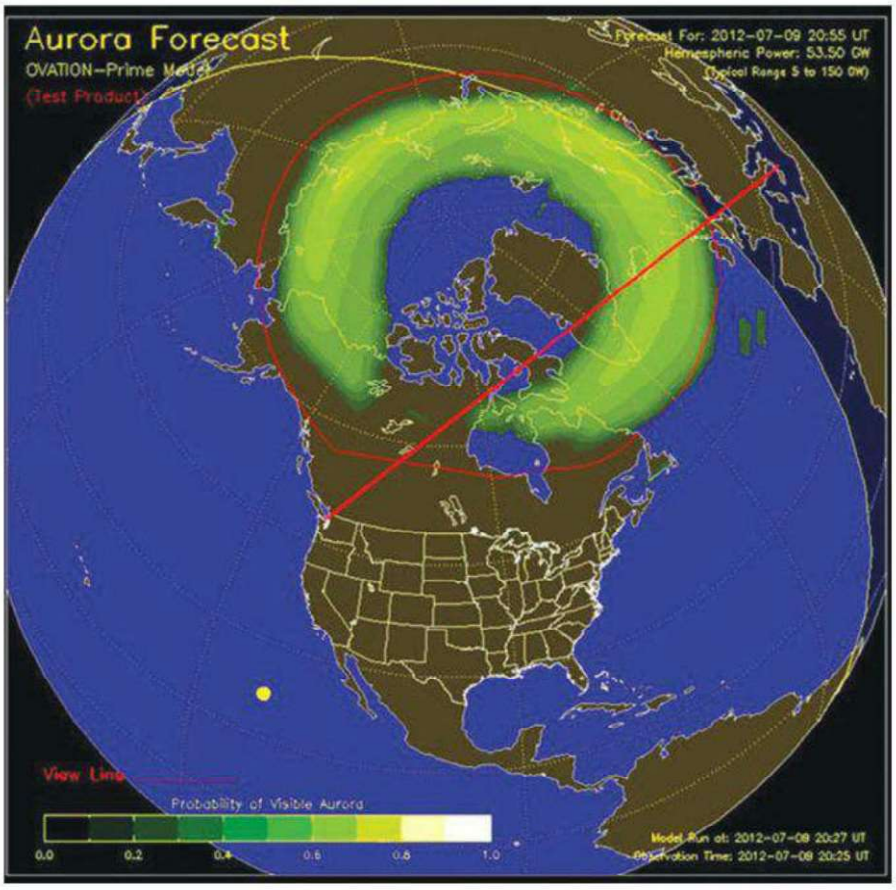

Figure 1. This is a general plot of the path between the Pacific Northwest and Europe on June 29. (NOAA ovation plot modified by Steve McDonald, VE7SL to show path).

**CQ VHF Features Editor*
1 Valley Road, Patchogue, NY 11772
e-mail: <wb2amu@cq-vhf.com>

such as aurora and combination modes that are discussed in detail in the following sections of this article.

Event 1: 6-meter Sporadic-*E* opening between the Pacific Northwest into Europe

A major event occurred on June 24 with a multiple-hop sporadic-*E* opening between the Pacific Northwest (PNW) and Europe. This report comes primarily by way of Steve McDonald, VE7SL, in British Columbia, who was one of the more active stations during the opening and was kind enough to provide me with details of his observations, along with reports from others in his area.

On the morning of June 24, Steve checked the ON4KST spotting site (http://www.on4kst.com) for possible 6-meter activity when he saw that W7FI, also from the Pacific Northwest area, worked CT1HZE on CW on 6 meters. Steve quickly went into his shack, heard and then worked Joe, CT1HZE, on CW. After working Joe, Steve was hearing other weak CW signals, all at less than 559 signal strength and not lasting for more than 30 to 60 seconds before fading. Propagation continued in this manner with signals coming and going in waves, as it was either feast or famine. Steve noted that during the entire four-hour opening no European TV video signals in the 40-MHz range were heard. However, all three VE4 beacons and station VA5MG were loud and fluttery throughout. At times VE6TA (very rarely even heard at his QTH) was as strong as local VE7XF. Steve's contacts are provided in Table 1 with the new 6-meter DXCC countries for him shown in bold. Figure 1 shows the general path as plotted by Steve from the PNW into Europe.

In addition to Steve, several other stations from the PNW did well, also with QSOs into Europe. Stations such as N7DB, W7EW, VE7AG, K7RWT, and VE7XF worked some of the stations that Steve worked, particularly the UK and Scotland, with both W7EW and K7RWT managing to work SV1DH. All of these stations noted that many of the signals from Europe were weak and these stations found CW as the best way to go.

Steve also managed to score another new country on 6 meters, a QSO with 4Z4UF on July 13 at 1440 UTC, which is early in the day (7:40 a.m. PDT). Steve noted that overall the sporadic-*E* season for the summer of 2012 in his area was the worst in many years in terms of "hours of *Es*" but was the best in his 40+ years on 6 meters in terms of the quality of openings, leading to a very odd summer indeed.

This opening is of special importance to the PNW stations because a multiple-hop sporadic-*E* event in the right direction is pretty much the only propagation mode that would allow them to work Europe on 6 meters. *F2* openings on 6 meters typically are one-hop paths when running the east-west direction, covering about 3000 miles in one hop, so that method is not too promising. Thus, this was a major event for the PNW stations in working new DXCC countries on 6 meters!

QSOs made by VE7SL (CN88) June 29, 2012

Time (UTC)	Callsign	Frequency (MHz)	Mode
1321	CT1HZE	50.0	CW
1341	DJ6YX	50.0	CW
1347	CT1HZE	50.1	SSB
1350	**SP3RNZ**	50.0	CW
1355	SP2DDX	50.0	CW
1411	DL7CM	50.0	CW
1414	DL9USA	50.0	CW
1415	**F8DZY**	50.0	CW
1418	F8GGD	50.0	CW
1421	DK3WG	50.0	CW
1436	CT1FJC	50.0	CW
1439	ON4AXU	50.0	CW
1452	**GM3YTS**	50.0	CW
1508	IT9TYR	50.0	CW
1509	GM4WJA	50.0	CW
1510	**LZ2WO**	50.0	CW
1517	SP3AGE	50.0	CW
1524	LZ2CC	50.0	CW
1525	F5BZB	50.0	CW
1605	**SV1DH**	50.0	CW
1610	**LY2IJ**	50.0	CW
1630	**EI4KF**	50.0	CW
1638	G4RGK	50.0	CW
1640	G4WJS	50.0	CW
1649	G4FUF	50.0	CW
1651	S57RR	50.0	CW
1655	S57A	50.0	CW
1658	IK5MEJ	50.0	CW
1706	EA8CQS	50.0	CW
1706	MMØAMW	50.0	CW
1724	ON4IQ	50.0	CW

Table 1. Stations VE7SL worked on June 29, 2012. Note: New DXCC countries on 6 meters for VE7SL are shown in bold.

Event 2: 6-meter Aurora Opening on July 15, 2012

Through tracking of solar activity during the second week of July, it could be seen that there was the possibility of Earth-directed solar events from active sunspot regions of the Sun. Indeed, the warnings were sounded with the *Kp* index reaching 6 on Sunday, July 15. VHF operators in North America stood by patiently to see when the aurora borealis would extend into the lower latitudes in order to reflect radio signals.

It appears that the approximate time this occurred was 1900 UTC, or 3 p.m. EDT (1900 UTC). At that point I was hearing a number of Canadian stations from Ontario such as VE3KU, VE3EN, VE3FGU, and VE3NG. Their signals were readable but unfortunately not to the point where they could hear my sig-

Two-meter QSOs made by WB2AMU (FN30) on July 24, 2012
Station Setup: Mobile, 40 Watts, 3-element Yagi @ 12 feet

Time (UTC)	Callsign	Grid	Frequency (MHz)	Mode
2217	K8TQK	EM89	144.195	SSB
2220	KØWYN	EM48	144.190	SSB
2221	KF4WE	EM56	144.200	SSB
2251	KB5MR	EM25	144.190	SSB
2256	KØCIY	EM25	144.210	SSB
2300	K5SW	EM25	144.170	SSB
2304	WØBLD	EM37	144.225	SSB

Table 2. Two-meter QSOs made by WB2AMU (FN30) on July 24, 2012.