

The ARRL International DX Contest —A Long View

We all remember certain contests particularly special, and the 2013 ARRL International DX CW was particularly special for me. NCJ Editor Kirk Pickering, K4RO, had seen an earlier summary and asked if I would edit it for the magazine's 40th anniversary year. In the process, I realized that this was also the 40th anniversary of another special contest for me, the 1973 ARRL International DX SSB. Recalling that event caused me to reflect on what has changed and what has *not* in four decades. Here are both the tactical action report and the strategic big picture from this vantage point, the flag bridge of *Battleship New Hampshire*.

One happy surprise of the last two years has been meeting and partnering with Woody Beckford, WW1WW. Together we have worked to build (actually, *he* builds, *I* kibitz) and operate a major contest station in New Hampshire, which for all the right reasons has been christened "Battleship New Hampshire." It's been fun and enlightening.

This was the third time I'd operated the ARRL DX CW as KØDQ from the Battleship, and things had come a long way since the first occasion. We did well in 2011 with a No 1 US/No 2 W/VE finish (close behind VY2ZM), and a clear win in

2012, just missing the overall US SOAB HP record by one multiplier (actually, fat fingering BA1RB's power as "599" instead of "500"). The last two contests in 2012 were not quite as successful. Alex, LZ4AX, operating at K3CR (newly christened "The Yellow Submarine" — don't ask) beat me by one multiplier in the CQ WW WPX CW and had a slightly higher claimed score in the CQ WW CW. So, I went into the ARRL DX CW licking a few wounds but with three goals: (1) to win, (2) to set a new SOAB HP record, and (3) to break the 5000 QSO (after dupes) "barrier" for W/VE.

While it's never over 'til the log checking's over, things look pretty good on all three counts. The final (claimed) results were 5205 contacts after dupes and 526 multipliers, for a total score of 8,210,334. This was about 850,000 ahead of Alex, K3CR, and *that* score exceeded the earlier record, set in the previous sunspot cycle by W4PA (@ K5ZD) by nearly 25 percent. So, my 2013 score not only breaks the previous W/VE record but sets an all-time record for a CW single operator for both US and DX, surpassing PJ4A's 2011 score of

7,477,128. More to the point, it represents the first time a W/VE station has passed the 5000 QSO mark (after dupes) on either CW or SSB.

The 2013 ARRL DX CW: An After-Action Tactical Report

Unlike last year's ARRL DX CW — and indeed unlike most of the major contests in the intervening year — conditions were stable this year for the entire weekend, without serious disturbances. Although earlier predictions had foreseen solar flux levels in the 120 to 130 range, these were progressively downgraded to the 100 level, which typically places 10 meter openings to Europe in the "iffy" category.

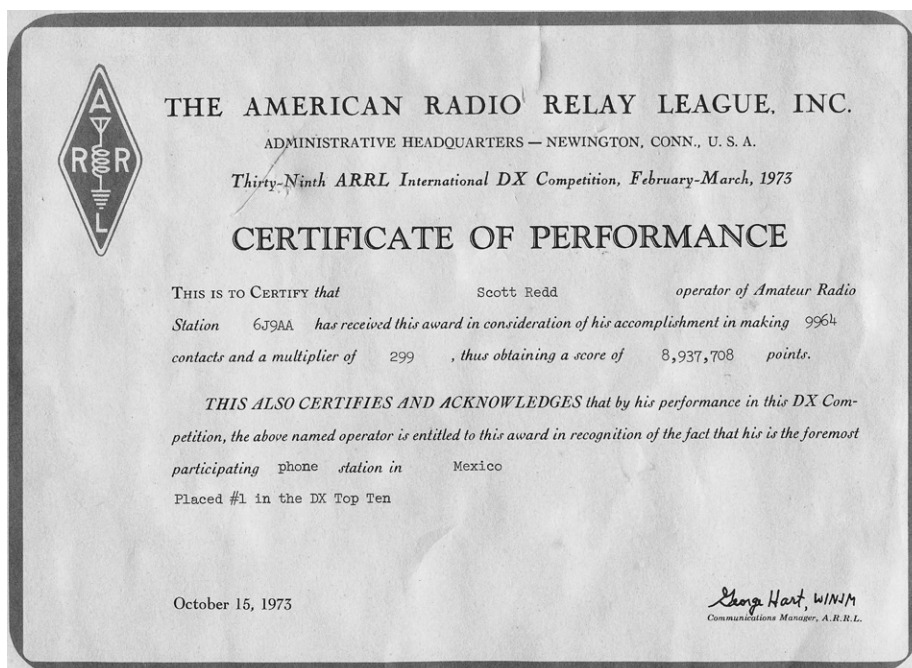
During discussions with a long time friend (rookie tester W2GD/P4ØW), I was struck that this contest has become more like the high-rate operations we had shared from P4 than traditional contesting from the US. That was especially true during the US morning and European sunrise runs. This contest saw a new CW personal high 60 minute rate (from the US) of 241 at around 1240 UTC on Saturday, comparing favorably with my best rate from P4 in

Table 1
2013 ARRL International DX CW
Summary Sheet for KØDQ @ WW1WW

Call Sign: KØDQ
Operator: KØDQ
Station: WW1WW
Class: SOAB HP
QTH: New Hampshire
Operating Time: 45 hours
Radios: SO2R
Club: Potomac Valley
Radio Club

Band	QSOS	Mults
160	94	55
80	483	83
40	1570	97
20	1215	99
15	1163	99
10	680	93
Total:	5205	526

Claimed Score: 8,210,334



The 6J9AA ARRL International DX Contest world champion phone certificate [KØDQ photo]

any contest. The contact total (5367 with dupes) works out to just a hair higher than 120 per hour for the entire 44.67 hours of operation (not including a few pit stop breaks and a brief power outage).

According to the *CBS* program (a Ca-brillo log statistics generator), I had 317 second-radio QSOs (6.1 percent). I'm finally fairly comfortable with the *Win-Test* setup for second radio (thanks especially to N6TV for writing more than a few scripts). In fact, the second-radio usage was fairly successful, even at rates well in excess of 120 per hour. An additional factor was a new prototype solid state amplifier that Woody designed and built; it makes SO2R and band changing a breeze — literally like operating with two 1400 W transceivers. The only instrumentation is two Bird watt meters, and I say 1400 W because the current power supply is such that it trips off above that — no "smash power" (N6TJ's term) here.

In that vein, there's been a lot of chatter on the CQ-Contest reflector recently about SO2R operators abandoning their frequencies. Except for maybe five or six stubborn multipliers on the second radio, though, I always had a receiver on the run frequency and made noise every few seconds. On the one or two occasions I tarried too long over a second-radio multiplier, I lost my run frequency, which is as it should be.

Best Ever

The first day was the best I've ever had from the US — 3345 QSOs, including a 40 meter run at European sunrise that extended well into their daylight. The first-day multiplier totals were also decent (417 overall), partly as a result of good and quiet low band conditions the first night (50 mults on 160 and 77 on 80). Thanks to Frank, W3LPL, and his tutoring, I had looked at the NOAA Space Weather forecasts just before the contest. No new storms were predicted, with a slight uptick in SFI expect-

ed for Sunday over Saturday. I knew that breaking 5000 Qs would almost certainly require a 10 meter opening to Europe with some quantity. So, when 10 was only very marginally open to Europe on Saturday, I decided to bet the ranch (hoping not to buy the farm) and stay on 15 most of the time to keep up my rate (even though I heard K3CR working some Europeans on 10 that I couldn't hear). As a result, I ended up with only 68 Qs and 45 mults on 10 the first day, mostly Caribbean/South America and a few Mediterranean rim.

Sunday's morning openings to Europe on 20 and 15 meters were quick and dramatic, encouraging hope that I had gambled correctly, and 10 would come in. When I heard a loud HA on 28.006 MHz at 1220 UTC, I let out a war whoop that woke up Woody and brought him running to see what had happened. *Thank you, Lord!* Although the MUF seemed to be hovering right around 28.000 MHz, I managed to



We all know the signal strength of 6J9AA (XE1IIJ, KØDQI, etc.) and now we see why he is so strong. Above: The Veracruz viper's shot to the U.S.A. taken from the top of the tower. Nothing but sea water between us and overload. Top right: The antenna farm (things grow better in tropical climates). The big tower holds 2 elements for 40 at 80 feet, 4 elements for 20 at 75 feet and assorted slopers for 75/80. The short tower supports an interlaced 10/15 meter beam at 60 feet. During the contest this was changed to separate monobanders. Antennas don't stay up too long at this site. Winds of 100 MPH are common and on December 15 they had a gusty one of 159 MPH. Right: The Veracruz viper in the flesh (almost) during the calm before the storm (I know it's before because his eyes are open). Scott uses a Drake-Line and L4-B plus an SB-101. Anyone that can sit thru 10K QSOs and dupe the log *deserves* to get his picture in *QST*. FB job indeed by the Scott-ish Terrorier of the airwaves.



Even back in the 1970s the author's formidable presence as 6J9AA/XE1IIJ from Mexico was well known, judging from *QST*. ("Results 39th Annual International DX Competition," by Rick Niswander, WA1PID/WA8VRB, Oct 1973 *QST*, pp 52-68.)

put away 573 Qs in 5 hours and ended the contest with 690 Qs on 10 meters. I probably should have headed back to 15 earlier, but every time I started to hit the band switch, a small covey from a new grid square corner would call in, often with 5 W and an S-9 signal. All in all, the gamble paid off. It was a great second day, the highlight of which was looking at the monitor about 1500 UTC Sunday to realize that the old record was history — and with 9 hours yet to go!

Not everything was rosy. Ten meters lived up to its billing as a fickle friend. Woody has a six-stack of 34 elements (1 x 9 elements + 5 x 5 elements) on a 200 foot rotating tower — some pretty mean stuff. About 50 minutes after the first opening, I noticed I had competition on the frequency from a W2 whose call I didn't recognize — probably using a tribander at 50 feet. The W2 apparently had spotlight propagation to another grid square in Europe, and that was preventing me from working some of the weak stuff. I finally figured out that splitting the big stack with Woody's 6 element cross-polarized Yagi at 50 feet seemed to bring a steadier flow of takers. Whether it was high arrival angle, vertical polarization, my imagination or all three, I *felt* louder.

While the 10 meter opening was the "ecstasy" event, the "agony" had arrived the night before. Around 0200 UTC I had one of those "I can't go on" moments. I'd worked the second radio *really* hard the first day, was tired and sore from leaning forward in the chair, and simply hit the wall. I knew I couldn't quit, but I didn't know how I could keep going for another 24 hours either.

Before the contest I'd exchanged some e-mails with Tom, W2SC, on "catnapping," and I was intending to try the 15 minute nap thing. That idea was inspired by Alex, K3CR's iron man 48 hour performance in the CQ WW CW, in which he destroyed my QSO advantage as I slept. My mind finally cleared enough to realize that I already had a strong score and that this was not the time to explore new horizons in physiology. So, I hit the shower at 0300 UTC and slept for 2.5 hours. That did the trick, and life looked better at 0600, getting better yet when 10 opened. As it turned out this time, Alex later posted that his brain had switched into zombie mode at the 36 hour point, which is probably 10 hours later than mine would have, had I tried to continue. As some (Randy, K5ZD, and Kirk, K4RO, among them) have noted, above a certain skill and station level, the discriminator at the top of the game is often drive and mental toughness. While I understood that intellectually at 0200 UTC, it didn't make it any easier to plow through.

It always amazes me how utterly in the dark I am during the contest in terms of rel-



Scott, KØDQ (L), and Woody, WW1WW at "Battleship New Hampshire" [WW1WW photo]

ative performance. I think I only heard Alex, K3CR, two or three times. Conversely, I heard Andy, N2NT (another 48 hour iron man), Rich, NN3W, and Dave, K1ZZ, with his new 40 meter beam, fairly often. Also, although Jeff, VY2ZM, was at PJ4X, I knew VY2TT was a threat from a great location. Bottom line: I knew I was doing better than last year but wouldn't have been surprised if any one of them had posted at 9 million.

In terms of hardware the station was awesome. We are clearly on the flat part of the curve at the Battleship. Woody has continued to improve things, large and small alike. In addition to the solid state amp, Woody had largely solved the lack of fixed "south antennas" problem. Besides, the solid state amp largely solved the "south antenna" problem by offsetting the lower 15 and 20 meter antennas on (rotating) tower 3 by 120°, making it fairly easy to keep something pointed to the rich Caribbean multiplier field.

In sum, it was a great contest — one I'll long remember. As always, there's room for improvement. For example, I moved precious few multipliers from band to band. Maybe next time 10 will open to Europe on *both* days. Risking the wrath of another Navy vet, KØHB (of "Just a boy and his radio" fame), maybe it's time to try that *assisted* stuff that K3WW and K5ZD have been doing so well! So, thanks for the QSOs, and I'll see you in the next one, when we will all start with a clean slate.



The WW1WW 6 element, 10 meter cross-polarized antenna [KØDQ photo]

The 1973 ARRL DX SSB

To put this tale into broader strategic perspective, go back with me 40 years to 1973. I was a young Navy lieutenant stationed at the Mexican Naval Academy in Veracruz and licensed as XE1IIJ. Armed with special call signs and the last decent station I'd built myself, I had won the world in four out of five of the major contests the previous contest season, including both modes of the ARRL DX.

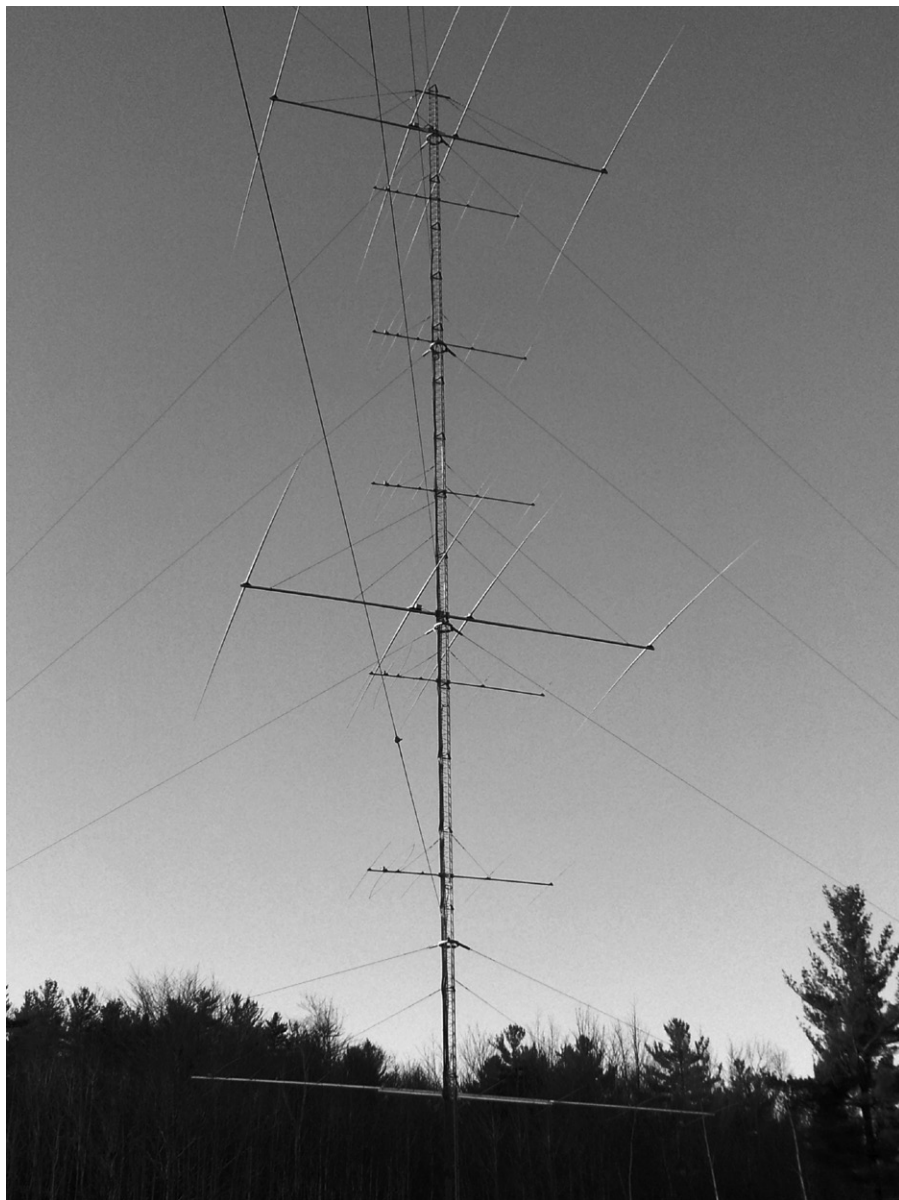
The 1973 running of the ARRL DX SSB turned out to be another perfect storm. Conditions were *not* good overall, but that played to my advantage (and still does today; ask P4ØW). As Rick Niswander (now K7GM) put it in the *QST* writeup, "When Europe and JA don't come in very well, people turn their antennas and, lo and behold, there is 6J9AA (or whatever) 40 over 9."

When the dust cleared, 6J9AA had logged more than 10,600 contacts before dupe checking, all by hand, in several of those college examination composition books. This marked the first time a single operator had made 10,000 contacts in a contest. After 2 weeks of manual dupe checking the total fell to 9964 (yes, I was tempted to stop dupe checking before finding those last 36, but the Naval Academy's honor indoctrination triumphed). My final official score was 8,937,708 points with 299 multipliers.

Some of the younger set might begin to be impressed, but those were the days of *two* weekends per mode. This also was before the days of Novices and Technicians on 10 meter phone, and 5-Band DXCC either hadn't begun or taken hold yet. So, the low bands were a wasteland, as indicated by my multiplier total, and I slept at least 4 hours a night. As far as I know that score still stands as the two-weekend, all-time record for either mode, albeit with a Babe Ruth asterisk. It pales in comparison, however, to the current all-time SSB record, which Rich Smith, N6KT, set 20 years later at HC8A. "Mr Fast" made 10,938 QSOs (10,470 after weeding out the dupes) in a single weekend for a final score of 10,114,020! That's an average of 227 contacts per hour, and it still stands as the best QSO and overall score for either mode.

What Difference Has 40 Years Made?

Reflecting on the intervening 40 years, I asked myself, "What's changed?" Frankly, technology hasn't changed dramatically. The Drake 4B line I used would still give a pretty good account of itself today, although I'd probably be happy for a narrower roofing filter on CW. The antennas (Shorty 40 at 90 feet, 4 element monobanders on 10 through 40) would be more than adequate



Tower 1 at WW1WW: 4-over-4 OWA on 40 meters, five 5 element LFA over 9 element LFA on 10 meters [WW1WW photo]

today to win anywhere from the Caribbean and Central America. Computer logging today simplifies logistics but doesn't help me talk faster (there were some high-300 hours in that total). So what's different?

There are some clear differences on the positive side. First, the growth of interest in 5BDXCC and Top Band — not to mention contesting — has inspired numerous stations that can field good signals on five or six bands. Second, activity levels are up significantly. Both factors have helped lift DX and US scores alike. But who benefits more — the DX or the domestic (US) station?

The answer, it would appear, is "It depends" — and specifically on which mode you operate. The ARRL website has a

very handy page for parsing the scores of League-sponsored contests, including the last 11 years of the ARRL DX, from 2002 to 2012. You choose a contest by year, mode and category and quickly see all entrants side by side.

Recent History of the ARRL DX SSB

When you do that analysis, one of the first things you notice is that the W/VE has not won the world championship on SSB in the last dozen years. In fact, I don't know that a W/VE station has *ever* won the world in the ARRL DX SSB, and if one has, I would strongly suspect it was because of lack of serious competition on the DX side. The reason is also immediately apparent. Take the 2012 SSB run. Tom, 8P5A

(W2SC), won the event (he's won six of the last 11) and set an all-time record with 9.7 million points. The key was 9367 QSOs in a single weekend, all W/VEs! His multiplier was a very respectable 348 (out of a possible 378).

The only W/VE to come close to placing first in the world on phone is Jeff, VY2ZM. Jeff has won for W/VE each of the nine times he's competed in the last 11 years and perennially stands in the Top 10 worldwide. He obviously is a tremendous operator who knows what he's doing. Despite his superb station (I speak from personal experience), great location and the ability to operate outside the US phone band, the best he has managed is a No 3 world finish (2005 and 2006). Indeed, from the US proper, only three stations have managed to place among the Top 10 in the world over the past 12 years — KQ2M (4) and K4ZW (9) in 2002 and KM3T (@ K5ZD) in 2002 (7) and 2009 (9). This was in spite of the fact that the W/VEs have a much higher multiplier pool. While DX stations are limited to a theoretical high of 378 multipliers (63 per band), the practical W/VE multiplier pool is up to 70 percent greater. The single op unassisted high-water mark that KQ2M set in 2002 was 503, and multi-multi stations have crept across the 600 line (official results of the 2013 ARRL International DX SSB had not been posted as this article went to press).

The issue, pure and simple, is contact totals; DX contact totals on phone simply overcome the W/VE advantage in multipliers. The overwhelming number of native English speakers in W/VE and the inherent higher rates in phone operation, combined with the rate limitations of running Europe on phone from W/VE on the low bands, that asymmetry seems likely to persist for the foreseeable future.

Recent History of ARRL DX CW

On CW the picture is somewhat different. W/VE stations have won the world four out of the last 11 years (not counting 2013). Here the differences are obvious.

First, CW rates are lower than phone rates — dramatically so. To illustrate the magnitude of the differences (per OH1NOA's website listing high rates, all in the CQ WW), N5TJ's best hourly CW rate is 251, while his top phone hour is 480 — 91 percent greater. For W2SC (@ 8P5A), the figures are 247 and 422, a 70 percent differential. While peak rates do not a contest make, the point is clear. Second, CW is easier to copy at less favorable signal-

to-noise ratios, something that's critical on the low bands, when digging out second and third-level callers in a high band pileup, and on marginal propagation paths. Third, there are no CW subbands as there are on phone, so the whole spectrum is available to all players.

These differences are important but not new. The fact that W/VE stations have won the world in a third of the last 11 years indicates that some semblance of equilibrium already exists in the CW event. It still favors the DX side, but not overwhelmingly so. We may be near the tipping point, though.

Perhaps the most important difference in recent years is a subtle one — the slow but steady growth in numbers and skill level of the DX operator pool, especially in Europe and "Near Asia" (UA9). Several years ago a top European operator contesting from P4 noted that at a certain time in the afternoon he had a decision to make: (1) Run W/VE for rate or (2) run Europeans for multipliers (but at a significantly lower rate). I have faced the same dilemma. Now, I believe, that this rate difference has evaporated for all practical purposes. I observed essentially no difference between running Europeans from KØDQ in this year's ARRL DX CW and running W/VEs from P4ØQ in the CQ WW — an observation arguably confirmed by the rates. As I've remarked elsewhere, I cannot recall a single instance in this year's ARRL DX CW of being frustrated at a sloppy or inept operator who broke the rhythm of the pileup. Even slower operators knew how to get in and get out of a QSO without slowing things down. That most certainly has not always been the case. There may be a similar improvement in US stations and of other DX skill levels, but I believe the primary impact of this European "radio renaissance" is to favor US operators, notably those on the East Coast, in the battle for top world standing.

To illustrate the point, look at the "headroom" potential for both groups. Take the highest official DX CW score to date; in 2011 RD3A operating at PJ4A racked up 7,477,128 points with 7189 QSOs and 348 multipliers. Now assume that by some miracle VY1, VYØ and VO2 all had showed up in force, and PJ4A had worked all 378 possible multipliers (no one has worked more than 353 to date). In that circumstance, his score would have been 8,121,708, which is comparable with the top W/VE claimed score this year. (By the way, it's noteworthy that PJ4A's QSO total was an abnormality. PJ4 was a new DXCC

entity that year, and the QSO total was nearly 600 contacts greater than the next-highest DX QSO total ever, set by VE3DZ operating 6Y2T in 2012).

On the other hand, the headroom potential for W/VE is much greater. This year, while good, was not an unusually great propagation year for W/VE. In terms of contact numbers, had 10 been wide open to Europe both days it may have been possible to log 5500 or even 6000 contacts from W/VE. On the multiplier side, I missed some easy ones (eg, KH6 on 40!). On the multiplier side, the potential for W/VE is indicated by the single op assisted scores of K3WW and K5ZD, who posted 558 and 569 multipliers, respectively. That's 43 more multipliers than a better operator than I might have worked. In short, the growth potential for W/VE is arguably greater than for DX, both in contact numbers and multipliers.

This is not to say that a W/VE is more likely to win every year. Propagation plays a key role, especially on 10 meters. Those cries of joy in the US on Sunday morning were met by tears of dismay in the Caribbean, as W/VE beams moved to the northeast, and rates took a dive in P4 and environs. That said, although three of the four W/VE CW worldwide wins came in higher sunspot years, one occurred during a solar minimum. While I cannot say this with certainty, I believe the increase in European activity and skill may shift the balance to a point where W/VE operators have an equal shot with DX stations at posting a world high score and may actually have the advantage.

Looking Ahead

While the focus on world records may not be of great interest to those living in the Black Hole or on the West Coast, the factors that drive those records should be. A rising tide of savvy DX operators lifts all boats, affecting results in regional as well as worldwide competition.

In addition, looking back 40 years is also instructive in the big picture. The top two phone stations in 1973 were W7RM (op Chip, K7JA, nee K7VPF) and Gordon, W6RR. Who knows? Maybe 40 years from now in 2053 a younger version of K7JA will again work enough East Asians from the West Coast to overcome the East Coast multiplier advantage.

How do you say "5-9 California" in Mandarin?

NCJ