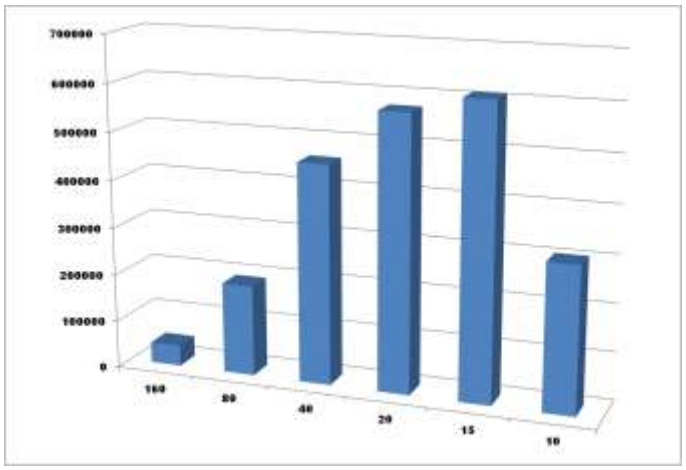
ARRL International DX CW Contest 2013 Results

By Rick Lindquist, WW1ME

"Bottom line: Had fun, did great, can't wait to do it all again next year!" — Ron, W3WN

Just hours before the kickoff of the 2013 ARRL International DX Contest CW weekend, a large meteor blazed across the daytime sky over Russia's Ural Mountains and exploded. The shockwave broke windows, damaged buildings and injured hundreds. Not long after that spectacular incident and fewer than 5 hours before the contest starting bell, Asteroid 2012 DA14 streaked past Earth in a record-setting near-miss flyby. Rumors that these two unrelated events portended ominously for the contest turned out to be unfounded.

The real blast and record-setting began February 16 at 0000 UTC, when the bands exploded with the activity of thousands of hams around the globe, enjoying what turned out to be marvelous conditions. More than 4100 logs were submitted, scores by and large were substantially larger than last year's, and participants set some new records.

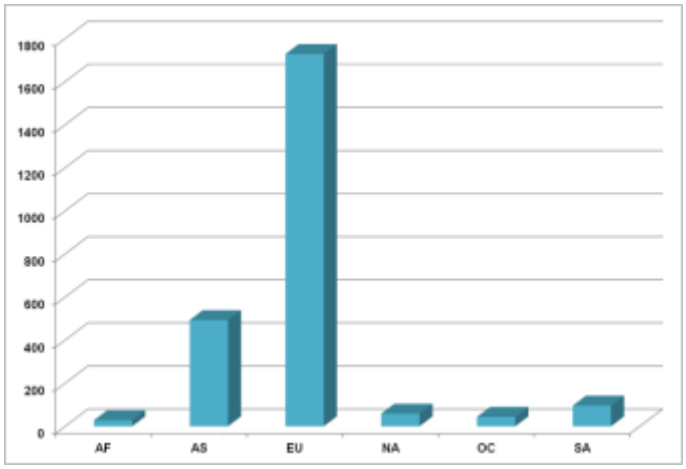


QSO distribution by band — all competitors and entry categories: Results were comparable for either W/VE or DX participants taken separately.

Propagation Worries

A day before the contest Spaceweather.com reported that the Polar Light Center in Norway observed a magnetic storm that caused wild swings in the local magnetic field and "some fantastic auroras" overhead, according to the Center's Rob Stammes. The event raised slightly the probability of active storms at mid-latitudes (K = 4) up to 48 hours out, and of active, minor and severe storms at high latitudes (K = 5, 6) up to 48 hours out. As it turned out, no storms occurred during the contest.

With a sunspot number of 25, a solar flux around 100 and an A Index of 10 as zero hour approached, conditions appeared favorable for 20, 40, 80 and 160, not so much for 15 and — even worse — 10 meters. As it turned out, operators on both sides of the competition often found 15 meters to be their most productive portion of spectrum as seen in the adjacent figure "QSO Distribution by Band". Stations in Asia and Oceania were scarce this year among the leaders.



A graphic comparison of DX station participation by continent. A total of 1728 European stations took part, along with 493 Asian stations, most from Japan, 96 South American stations, 59 North American station, 44 Oceania stations and 28 African stations.

Among the more thrilling results were the astonishing razor-thin margins between HK1NA and PJ4X for the top two spots in the DX Multioperator High Power category, and between TI5W and VP2ME in the DX Multioperator, Two Transmitter category. In addition, Scott, KØDQ established yet another W/VE benchmark in the Single-Operator, High Power category. The drama in most other entry categories on either side of the contest was greatly subdued, with clear winners claiming most top spots. [*As you read through the results summaries, watch for notes to alert you to the extra in-depth reportage – "the rest of the story" – at the end of the article! – Ed.*]

W/VE Results

W/VE Single-Operator, High Power

Scott, KØDQ doesn't believe in "close enough." Far out in front in SOHP with 6.58 million points in 2012, he was still just shy of the 6.588 million point record set in 2004 by another Scott, W4PA operating from K5ZD's superb Western Massachusetts station. KØDQ says he went into this year's ARRL DX CW "licking a few wounds" but aiming to set a new SOHP record and to break the mythical 5000-contact "barrier" (on either CW or SSB) for W/VE stations. Once again operating SO2R from the WW1WW "Battleship New Hampshire" superstation, he soldiered on (or, in Scott's case, perhaps we should say "sailed on") to 5170 contacts with 524 multipliers for 8.08 million points. Forty meters was his money band with 20 and 15 not far behind.

SOHP Leader Scott, KØDQ (L), with "Battleship New Hampshire" station owner WW1WW. (WW1WW photo)

His 2013 score not only breaks the previous W/VE SOHP record but sets an all-time record for a CW single operator for both W/VE and DX, topping PJ4A's 2011 score of 7.48 million points. From his perspective, the biggest difference was propagation.

"What a contest!" he exclaimed afterward. "This was the second contest shakedown cruise with a completely outfitted 'Battleship New Hampshire.' Essentially, Woody, WW1WW, has taken away all my hardware excuses. There may still be a little improvement in 80 meter antennas and station automation, but other than the great equalizer of propagation, we can hold our own with most in a pileup. I knew that 8 million points was very possible, and the key was 10 meters being open to Europe." See the sidebar "KØDQ Runs and Runs to Another SOHP Crown" for his story.

Taking second place in SOHP again this year was Alex, LZ4AX operating from another East Coast station, K3CR in Western Pennsylvania. He put 4646 contacts into the log with 515 mults for a final score of 7.14 million points. If any doubted that conditions augured well this time, his second place score was well ahead of last year's first place SOHP tally. Most agree that this is a contest for East Coasters to lose, and while no stations outside of the East placed in the SOHP Top 10, Pat, N9RV was just off the mark at number 11 from Montana.

Veteran Connecticut contester Jack, W1WEF who finished back in the pack with slightly more than 3 million points, reports that at times the noise floor was the lowest he's ever heard — absolutely quiet. And he deemed overall conditions "superb." He observes:

"Biggest thrill: Having T6MO call me on 20, puny weak but a thrill of a mult. Also 9V1YC called me with a real big signal when the band was almost out. If I have a big score reduction for busted calls this time, it will be because with the super sharp and narrow filters in the FTDX5000 I might have worked stations that were actually responding other stations outside of my passband."

W/VE Single-Operator, Low Power

Picking off the top spot in the SOLP category was Vermont's N1UR, who pulled way ahead in the crowd of 432 contestants, racking up 3224 contacts with 429 mults for 4.11 million points. Battling illness last year, Ed still managed a strong second place finish; this time he dominated once more, beating his old first district record of. 3.47 million points, set in 2011, but still falling short of the overall 4.24 million point SOLP record that N2NL set from K4XS in 2001. In the second spot was N4TZ in Indiana, who logged 2394 contacts and 428 mults for 3.06 million points. Placing third was N5AW with 3.024 million points. Coming in fourth with 2.38 million points was NA8V in Michigan. Nate, N4YDU in North Carolina ended fifth with 2.12 million points, moving up one place on the Top 10 list from 2012.

Even operators who do not choose to be competitive can have a great time in the ARRL DX CW. Since his amp was in the shop, Steve, NN4X says it was low power, QRP or no power. He opted for the first and had lots of fun, finishing 19th with 1.12 million points from Southern Florida, running 100 W to a single Yagi. He operated for 23 hours.

"After thinking about it, I decided that I prefer getting adequate sleep, so that knocked out a competitive effort. I wasn't sure I had the stomach for QRP, so that was out. I was mostly S&P, thinking that I could work stations

about as fast as trying to run with 100 W. I eventually realized that running stations was an option, and I worked that in whenever I could.

"Probably the most fun was on Saturday evening. I was S&Ping on 80 and noticed that whomever I called answered me first call, and if multiple stations were calling, I was almost always the first one they answered. As I got to 3.530, I found it clear and starting calling "CQ," not expecting much. I was astonished that stations not only answered, but continued to answer! I expected that someone would try to muscle me off the frequency, but that didn't happen, so I continued to rock 'n' roll, having a hassle-free 88 hour. Very cool! I only stopped because I wanted to get some sleep."

W/VE Single-Operator, QRP

Once again leading the flea power (SOQRP) crowd was Bob, K3PH in Eastern Pennsylvania, who edged out John, W2ID in Northern New Jersey for the top spot, 1.1 million to 1.09 million points. Bob logged 1168 contacts with 315 mults, while W2ID had 1159 contacts with 313 multipliers — close in anyone's book! Both took most advantage of 20 and 15. According to W2ID's QRZ.com bio, all of his antennas for the low bands are wires, while he has a 2 element quad for the high bands. Doug, W9WI in Tennessee, placed third, with 976,950 points. N1IX in New Hampshire took fourth, with 816,024 points, while VA3SB managed a fifth place finish (and Central Regional SOQRP leader) from Greater Toronto Area with 790,938 points.

It's noteworthy that two stations in the West made it onto the QRP Top 10 list: N7IR in Arizona, and W6JTI in San Francisco. Just FYI: The SOQRP record to beat is 3.42 million points, set by Jeff, K1ZM in 2001 — not exactly low-hanging fruit!

Among the other perennial gluttons for QRP punishment was Bert, N4CW who finished seventh from North Carolina. He sat in the chair 26 hours, logging 849 contacts and 300 mults (including four contacts on 160) for a score of 759,600. Bert says, "As usual, 99 percent S&P. I tried running (two times!) and managed a total of 10 QSOs in that mode. I missed several, because 5 W just wasn't enough to break through the pileups, but, as usual, lots of good ops out there worked until they got it correct. It was a fun contest and taxed my abilities for searching out new mults."

Top 10 — US/VE Single-Operator

High Power	
KØDQ	8,084,796
K3CR (LZ4AX, op)	7,134,810
N2NT	6,906,060
VY2TT (K6LA, op)	6,722,772
NN3W	6,338,514
K1ZZ	6,332,172
K5GN	5,579,925
N2IC	5,259,366
AA1K	4,904,256
WC1M	4,755,195
Low Power	
N1UR	4,110,678
N4TZ	3,061,056
N5AW	3,024,120
NA8V	2,382,615
N4YDU	2,111,910
N4UA	2,108,832
N9CK	1,912,950
WØUO	1,742,895
K3AJ	1,618,650
K1VSJ	1,477,701
QRP	
K3PH	1,099,980
W2ID	1,080,789
W9WI	976,950
N1IX	816,024
VA3SB	790,938
K8CN	772,200
N4CW	759,600
N1TM	619,776
N7IR	577,404
W6JTI	464,928

W/VE Single-Operator Unlimited, High Power

Going head to head for another year were Eastern Pennsylvanians (and fellow FRCers) Chas, K3WW and Bud, AA3B in the SOUHP category. K3WW prevailed once again, racking up 7.8 million points to AA3B's 7.2 million. Chas made 4757 contacts with 551 mults, while Bud compiled 4510 contacts with 534 mults. Randy, K5ZD repeated in third, with 6.7 million points, managing a few more multipliers (568) than either the first or second place stations. All three operators made hay on 40, 20 and 15 meters.

Bettering his fifth place finish in 2012, veteran contest maven John, K1AR in New Hampshire made 3316 contacts with 552 multipliers for 5.46 million points to place fourth this year. Bill, N3RR in Maryland-DC took fifth place with 2.79 million points (2789 contacts with 517 multipliers.

A too-high error rate (2.2 percent) kept Gordon, W3GK in Pennsylvania, from meeting his goal of posting his first 1 million point score in an ARRL operating event. He ended up with 994,032 points in SOUHP after log checking was said and done. Gordon reports that 20 and 15 played well for him, accounting for 479 of his 960 contacts with 351 mults. Gordon comments, "It was all S&P. I have trouble with quick keyboard entry when

getting called, so I don't do any CQing. I didn't have this trouble back in the paper log days, since I always wrote what I heard, but for some reason I get rattled doing keyboad entries quickly. I'm sure this hurts my score for the big effort I put in. I probably should partner with someone who just likes to run and will let me do the searching."

Tim, N3QE who logged 3.09 million points from Maryland-DC, reported one "uncommonly cool thing" — being called by A65BP on 80 meters. "For me, it happened on the very first CQ I made on 80 Saturday Night. Wow!"

W/VE Single-Operator Unlimited, Low Power

Only two of the top five finishers from 2012 showed up in the top five this year, and neither managed to snag top honors. This time around Bill, K4XS in Northern Florida, succeeded Brad, W1NT to take the SOULP gold, as W1NT sat out this year's DX CW along with Dan, K2YWE who had posted a close second place finish from K3AU in 2012. K4XS compiled 4.6 million points (2914 contacts with 531 mults) for a clear win this time.

The No. 1 200-foot rotating tower of Rohn 65 at K4XS supports 5 element stacks for 20 meters at 200, 150, 100 and 50 feet and 7 element stacks for 10 meters at 120, 90, 60 and 30. (Photo by K4XS)

"Funny: As a 66 year old, the thought of doing a full iron-butt 48 hours seemed daunting, and I almost made it," Bill recounts. "Around 1 PM Sunday, after having a bit more to eat than I should have had, the lack of sleep finally caught with me. I told my wife I would take a 45 minute nap and to wake me up.

"She did, and I stumbled into the radio room. I felt a bit like 'Rainman,' trying to figure out how to use the logging program, which buttons to push, how to point and click a station. I was so foggy and confused that it took me about 10 minutes to make my first contact — this after logging about 2500 contacts in 40 hours. I finally caught on, but it made me realize how complex contesting has become.

"Sad: Probably nothing can be done about this, but even when asked to ID after a contact, many DX stations failed to do so. With spots posted by people who can't copy, one cannot enter a call sign into the log based on a spot. I can understand not identifying after every contact, but one should not have to wait 3 minutes for an ID, as I had to do for one station."

The runner-up was Keith, W3KB in Eastern Pennsylvania, who bettered his fifth place 2012 performance with 2.37 million points. Taking third through fifth respectively were WD4AHZ (2.12 million points) in West Central Florida, up from fourth place last year; WO1N (2.09 million points) in Eastern Massachusetts, who was nowhere to be seen in last year's Top 10 list, and WW3S (1.94 million points) in Western Pennsylvania. Last year's third place finisher, Chris, N4CJ operated from the other side of the pond this year as G4BUE (and wound up not doing quite as well as he did from West Central Florida in 2012).

Jeff, K3OQ says that while he didn't run up a very big SOULP score — on the order of 230,000 points — the 2013 ARRL International DX CW marked his "first semi-serious effort" from his apartment. His setup was a Yaesu FT-2000 and a 170 foot wire. "The biggest thrill was working my first-ever JA, ZL, and VK from the apartment," he reports. His second big thrill was keeping a 114 per hour rate for 10 minutes at one point and a 54 per hour rate for 1 hour at another, all S&P and assisted. "Before this weekend, I would never have thought either of these would be possible. It was a really fun contest, even with breaks for family activities and walking the dog."

Top 10 — US/VE Single-Operator Unlimited

High Power	
K3WW	7,783,977
AA3B	7,204,194
K5ZD	6,693,312
K1AR	5,464,800
N3RR	4,293,168
N2MM	4,275,534
N8BJQ	3,502,680
W1GD	3,344,229
N2SR	3,339,708
KO7AA	3,225,150
Low Power	
K4XS	4,616,514
W3KB	2,373,030
WD4AHZ	2,116,500
WO1N	2,088,801
WW3S	1,940,400
W9XT	1,766,937
N5DO	1,674,090
WE9R	1,396,236
KE7X	1,349,400
K2ZC	1,284,981

W/VE Multioperator Roundup

In the Multioperator, Single Transmitter, High Power category it was a battle between New York teams for the top two spots. The operators at W2FU (K2TJ, NW2K, N2ZN, KØSM and K2AXX) in Western New York pulled off the win with 9.06 million points. Repeating this year in second place, the W2RE team (W2RE, WW2DX, AB3CX, K2CYE, W2EG and N1EU) in Northern New York was not too far off the mark with 8.53 million points — the biggest deciding factor likely being the 20 additional mults the W2FU team logged (the two teams were just 110 contacts apart). The W2FU team's score tops the previous category world record of 8.69 million points, set last year by the K1LZ superstation, which competed this time as a Multioperator, Multitransmitter entry. (*Version 1.1 corrects the call of winning MSHP station to W2FU – apologies. Ed.*)

Occupying third, fourth and fifth places in the category were the K2QMF team in New York-Long Island with 5.95 million points, the Central Region winning MSHP K8AZ team in Ohio with 5.88 million points, and the South Texas K5TR gang with 4.65 million points.

In the MS Low Power category, which attracted just eight entries, it was West versus East for top honors. The West Coast (Oregon) team at K2PO (K2PO, K7RF, WI7N, WS7L and W8NF) vanquished the field with an impressive 1.97 million points. That's nearly 1 million points ahead of the W1TM first place finish in 2012. Nipping at their heels from the Extreme East (Maritime Canada) were the two operators at VE9ML (VE9ML and VE9BK), who logged 1.86 million points for second place. In the third spot was the W3YI team (AB3LS and W3YJ) in Western Pennsylvania, with 548,301 points. None of the top three stations made the Top 10 last time. Last year's leader, W1TM, placed eighth out of eight this year, 2012 second place finisher KU1CW did not compete this time, and 2012 third place finisher N4AU competed as a single op this year. Another West Coast team at VA7DZ in British Columbia (VA7DZ and VE7GTU), repeated in fourth this year with 450,177 points, while the KØUK operators in Colorado placed fifth with 357,048 points.

Ron, W3WN who finished sixth with 180,297 points from Western Pennsylvania, concedes he's no Big Gun and likely never will be, but he does set goals for his contest efforts. "I set some goals and exceeded all but one," he says. Read about his MSLP effort with W3WH in the sidebar "Exceeding Goals."

Top 10 — US/VE Multioperator

Multioperator, Single Transmitter, High Power	
W2FU	9,0554,58
W2RE	8,527,356
K2QMF	5,944,560
K8AZ	5,883,768
K5TR	4,648,518
K1HI	4,373,460
N3BNA	3,974,940
K5RX	3,580,962
KØTV	3,567,174
NØNI	3,130,116
Multioperator, Single Transmitter, Low Power	
K2PO	1,966,536
VE9ML	1,862,574
W3YI	548,301
VA7DZ	450,177
KØUK	357,048
W3WN	180,297
WDØGTY	158,412
W1TM	54,693
Multioperator, Two Transmitters	
N3RS	11,809,854
NY4A	10,990,662
K5GO	10,811,604
K9CT	9,855,360
VE3JM	9,612,504
W4RM	9,086,820
KB1H	8,933,604
K4TCG	7,215,831
K2AX	5,902,671
W7RN	5,162,289
Multioperator, Multi-Transmitter	
K3LR	18,046,977
W3LPL	17,296,773
K1LZ	15,810,600
NR4M	14,169,168
NQ4I	13,774,563
WK1Q	11,852,292
WØAIH	7,264,770
K1RX	6,021,432
N6RO	5,886,609
K1KI	5,755,263

The Multioperator, Two Transmitter category saw the superb N3RS team (N3RS, N3AD, N3NA, N3RD, W3FV and W8FJ) in Eastern Pennsylvania repeat in the top spot with 11.81 million points. This was about 1

million ahead of last year's finish and bests the N3RS Third District record of 11.5 million set in 2001. Securing the second spot was the NY4A team in North Carolina (N4AF, K4QPL, AA4FU and K7GM) with 10.99 million points. K4QPL offers this anecdote. "I opened 20 early Sunday morning, running at 14.002. Not long afterward a loud carrier with periodic modulation that sounded like a bell or a gong came right on top of me, making the frequency unusable. There was not enough room to move away, so I S&Ped for a while to pick up a few spots and look for a new frequency. About 10 minutes later, I jumped back to 14.002, and whatever it was had miraculously disappeared. But the real miracle was that no one else was there. I resumed my run. I don't recall ever having left a run frequency for more than a few seconds without its being taken!"

Just a scootch behind the NY4A team with 10.8 million points was the K5GO contingent (K5GO, N5RR, K5LG, N5DX, KM5G, KM5PS, N5WR and K9BGL) in Arkansas. K5GO had 29 more mults than NY4A and 25 more than the leader but not enough QSOs to make the difference. K5GO placed second in this category in 2012 (with 8.8 million points). Six of this year's Top 10 scorers were in the Top 10 last year. Picking off the number four and five spots with fairly close scores were the K9CT team (K9CT, K3WA, K9ZO, KB9OWD, NK9E and WE9V) in Illinois, moving up from a 2012 fifth place finish with 9.86 million points this time, and the VE3JM trio (VE3JM, VE3AAQ and VE3EY) in Ontario with 9.61 million points.

Within a rather shallow 15-entry field in the Multioperator, Multitransmitter category, the competition once again focused on the Battle of the Titans, pitting the team at K3LR (K3LR, K3UA, W5OV, N2NC, W2RQ, N3SD, VE3EJ, VE3NE, K1DG, NØAX, N3GJ and VE3RA) in Western Pennsylvania against the equally talented W3LPL crew (W3LPL, K1DQV, K1HTV, K3KU, K3MM, N3OC, KE3Q, K3RA, W3UR, WR3Z, KD4D and N4QQ) in the Maryland-DC Section. In a turnaround from 2012's MM battle, the K3LR team this time overtook the W3LPL ops by a fairly healthy 750,000 point margin, setting a new world record in the process. K3LR's 18.047 million points tops the previous record of 17.54 million points that KC1XX set in 2002 (KC1XX, which finished third in this category last year, did not compete this time around). The W3LPL team wound up with 17.3 million points.

Tim, K3LR called it "another fabulous radio contest weekend." He continues, "Certainly the competition in US MM is intense. Year after year on the big stage, it comes down to K3LR and W3LPL The scores are always close. Either team can be the winner. We have to show up and bust our butts for 48 hours nonstop." Tim directs readers to a YouTube video of the after-contest scoring reports at www.youtube.com/watch?v=CJgblG09FAg.

At the K3LR MM, Bob, W5OV (L) and Phil, K3UA seem to be enjoying themselves working the pileups on 80 meters. (Photo from K3LR)

K3LR congratulated all of the other MM teams and praised his own delegation of DX contest veterans. "The top two US MM stations broke the existing US MM record for the ARRL DX CW!" he said. "Pretty amazing stuff given the solar flux. The operators at K3LR really pushed hard and made the most of the radio conditions." K3LR's station details are at www.k3lr.com (click on the "Hardware" tab).

In third place was the team at K1LZ (K1LZ, W1UE, W1VE, K1VR, KØDXC, W2GB, N8BO, K3JO, KB1RDZ, WA1Z and K1XM) in Eastern Massachusetts, with 15.8 million points. As noted, K1LZ last year took first place in the Multioperator, Single Transmitter HP category. Rounding out the top five were the NR4M team (NR4M, N3ND, WØUCE, N1LN, K7SV, K4GM, K4GMH, K4EC, KC4D, K1SE, N3UA, N2YO and K4IA) in Virginia, with 14.17 million points, and the ops at NQ4I (NQ4I, WW4B, AA4LR, W4IX, VE7ZO, N4XL, KY4F, W8ZF, K4TD, AG4W, K4BAI and K5AUP) in Georgia, with 13.77 million points. NQ4I placed fourth, while NR4M placed fifth in 2012.

The K4VV team placed just 13th out of the 15 station pool of competitors this year, but its style of operation may be one for the record books nonetheless, and at the very least it may set a new trend in MM contesting. K4VV consisted of three operators at four discrete locations in different states! Team member Mike, WØYR reported that things went "very, very well." Read all about it in the sidebar "K4VV Remote Contest Station Maiden Voyage." Mike wants to know if there are other remotely operated MM stations, so they can compare notes. Contact him at w0yr@aol.com.

W/VE Single-Band Entries

To paraphrase Clint Eastwood's "Dirty Harry" character, contesters gotta know their limitations and those of their stations, but they have to know the strengths of both as well. Not everyone can field a bodacious DX contest signal on every band, but some otherwise modest setups do excel on one or two bands. Too, certain contesters prefer to operate on favorite and familiar bands (mine are 40 and 160). Enter the Single-Banders!

The 10 meter top score lagged somewhat behind that of last year's leader (W4ZV — back on 160 this year; see below), but overall scores were up substantially from a year ago. Indeed eight of last year's Top 10 would not even have made the list this time with the same scores — not even close, in most instances. Taking the gold for SOSB on 10 meters was K2SSS in Western New York, with a whopping 220,320 points. The rest of the field was well off that mark. In second place was W3EP in Connecticut, with 166,725 points. Occupying the third spot was a contest beacon out of the Midwestern — WB9Z in Illinois, who logged 136,980 points. In fourth and fifth respectively were K2PS in Maryland-DC, and K6TA in Sacramento Valley — the sole West Coaster in the Top 10 on 10.

On 15 meters, where conditions held up better overall throughout the weekend, the top five were East Coast stations. Leading the pack was K3RV in Virginia, with 643,926, followed by KI1G in Rhode Island, not far behind with 615,942 points. Both stations were close, with just 15 contacts and 4 mults separating them. KD2RD, just down the coast in New York-Long Island, took third place, with 540,756 points. Sitting in fourth place was N4PN in Georgia, with 531,573 points. Coming in fifth was K9OM in Northern Florida, with 429,948 points.

Top 10 — US/VE — Single-Operator, Single Band

10 Meters	
K2SSS	220,320
W3EP	166,725
WB9Z	136,890
K2PS	108,612
K6TA	104,640
VE3KZ	102,573
N4OX	88,740
K4WI	81,198
N2WN	67,392
K9WZB	59,976
15 Meters	
K3RV	643,926
KI1G	615,942
KD2RD	540,756
N4PN	531,573
K9OM	429,948
N7AT (K8IA, op)	397,872
NE8P	393,366
N2WQ/VE3	358,455
K4FJ	356,304
W5TM	280,692
20 Meters	
K2XA	656,544
N2PP	530,424
N4TB	470,322
N4ZZ	360,600
WØEWD	261,096
N8AGU	260,580
W9ILY	247,848
K9IL	138,699
K5UTD (HK1A, op)	132,066
WR2G	112,992
40 Meters	
W7WA	338,724
W3BGN	192,276
N6MA	191,808
K9NR	188,376
VE6WQ	179,118
N7WA	172,320
K7WP	163,116
WA1FCN	161,925
W8WA	88,800
K4VU	77,034
80 Meters	
W1MK	286,650
WX4G	166,608
N3IQ	154,704
KØKT	72,210
K3JGJ	65,268
W1MO	63,156
W1XX	56,628
N8II	49,536
VE3OSZ	49,446
K9KU	48,348
160 Meters	
W4ZV	83,808
W4SVO	40,635
N4XD	34,404
W8TOP (W8UVZ, op)	29,484
W2MF	16,995
W3GH	16,854
N7GP	11,070
NØTT	9828
K4EJQ	8103
N2GC	7965

The scores for the 20 meter Single Banders in the top five were comparable to those of the 15 meter aficionados. K2XA in Eastern New York topped the field with 656,544 points, while N2PP, in Western New York, logged 530,424 points for a second place finish. Coming in third was N4TB in West Central Florida, with 470,322 points, followed by N4ZZ in Tennessee with 360,600 points, and WØEWD in Iowa, who logged 261,096 points. The sharp dropoff in score totals from first to fifth place is noteworthy — the score of the fifth place station is less than one-half the score of the second place station, while the score of the first place station is nearly six times greater than the 10th place station (WR2G in Northern New Jersey).

Overall scores were significantly lower on 40 meters than on 20 or 15, but there was less of a point spread among the top five. The leader in the category was W7WA in Western Washington, with 338,724 points. Well behind in second place was contesting chestnut W3BGN in Eastern Pennsylvania, with 192,276 points, followed in close order by N6MA in Arizona, with 191,808 points. Coming in fourth was K9NR in Illinois, with 188,376 points, while VE6WQ in Alberta took fifth with 179,118.

Moving into the HF netherworld, we find W1MK in Eastern Massachusetts leading the 80 meter contingent with 286,650 points. Eating the leader's dust in second place was WX4G in North Carolina, who logged 166,608 points. Not too far in his wake was N3IQ in Maryland-DC, with 154,704 points, followed by KØKT in Iowa, with 72,210 points and K3JGJ in Eastern Pennsylvania, not too far behind with 65,268 points. The biggest spread between the first place and fifth place stations was in contacts — 1070 versus 299. It may say something for conditions that the error rates of the top five stations all exceeded 3 percent, and in one case exceeded 5 percent (they were somewhat better for the sixth through 10th place stations).

Among the adventurous souls putting their money on 160 meters this outing was Top Band stalwart Bill, W4ZV in North Carolina, who led the pack with 83,808 points. Last year Bill led the SOSB field on 10 meters, taking advantage of improved sunspots. VY2ZM's SOSB 160 meter record of 127,800, set in 2002, remains intact, though, and the rest of this year's field was well off W4ZV's mark. Southerners occupied the next two slots. In second place was W4SVO in Southern Florida, with 40,635 points, followed by N4XD in North Carolina, with 34,404 points. W8UVZ piloted W8TOP in Michigan to a fourth place finish, with 29,484 points, and W2MF in Southern New Jersey finished fifth with 16,995 points. The point spread between first place and 10th place was 75,843 points — almost as great as the leader's score. Error rates, other than that of the first place station (almost, but not quite, a Golden Log) trended on the high side within the Top 10 — from 0.3 percent to 5.7 percent. Only three of the Top 10 stations in the SOSB 160 category were not on the East Coast.

DX Results

Continental Leaders

Category	*Call*	*Score*
	Africa	
SOHP	6V7S (RK4FF, op)	4,727,709
SOLP	EF8R (EA8RM, op)	3,766,116
SOUHP	CT3BD	4,320
SOULP	CN8WW	277,140
SOSB-10	EA8CN	251,871
SOSB-15	6W/HAØNAR	226,896
SOSB-20	5C5W (CN8KD, op)	201,666
SOSB-40	EA8CMX (OH2BYS, op)	288,840
MSH	CR3A	6,551,010
MSL	5C5T	367,200
	Asia	
SOHP	5B/UW2M (URØMC, op)	2,763,996
SOLP	JH4UYB	706,848
SOQRP	JR4DAH	84,240
SOUHP	JS3CTQ	1,108,530
SOULP	UAØIT	139,590
SOSB-10	JA1BPA	46,956
SOSB-15	RUØFM	152,790
SOSB-20	JF1NHD	135,432
SOSB-40	JA1XMS	91,260
SOSB-80	JH1AEP	21,312
SOSB-160	JA8NFV	1,056
MSH	C4N	1,864,800
M2	RTØC	1,659,792
MM	JA3YBK	2,834,166
	Europe	
SOHP	CR2X (OH2UA, op)	5,916,003
SOLP	MD2C (MDØCCE, op)	2,196,150
SOQRP	GJ2A (MJØASP, op)	728,739
SOUHP	SN7Q (SP7GIQ, op)	2,973,267
SOULP	S53F	1,521,795
SOSB-10	CR1Z (OH2BH, op)	314,529
SOSB-15	TF3Y	222,666
SOSB-20	OH8X (OH6KZP, op)	239,058
SOSB-40	CQ8X (OH2PM, op)	270,396
SOSB-80	F5CQ	135,432
SOSB-160	S59A	56,304
MSH	EI7M	4,287,825
MSL	OL1C	1,024,632
M2	TM6M	7,053,984
MM	9A1A	5,853,960

North America		
SOHP	6Y2T (VE3DZ, op)	6,739,200
SOLP	VP9/W6PH	4,056,156
SOQRP	VQ5RP (KØUU, op)	479,220
SOUHP	KL2R (N1TX, op)	775,890
SOSB-10	V31YN (DJ4KW, op)	60,444
SOSB-15	J35X	302,064
SOSB-20	C6AZZ (KQ8Z, op)	238,242
SOSB-40	C6AKQ (N4BP, op)	326,598
SOSB-80	C6APG (K4PG, op)	241,338
SOSB-160	CO6LP	21,645
MSH	KP2M	5,955,672
MSL	V31TP	5,653,260
M2	TI5W	9,492,102
Oceania		
SOHP	ZL3IO	2,295,657
SOLP	VK7CW	181,440
SOQRP	N7ET/DU7	9,135
SOUHP	NH2T	1,259,298
SOULP	KH6/WØZT	83,385
SOSB-10	NH2DX (KG6DX, op)	85,104
SOSB-15	VK4TJF	19,224
SOSB-20	VK7GN	60,489
SOSB-40	KH7M (KH6ZM, op)	181,272
SOSB-80	WB4JTT/KH6	55,008
MSL	3D2RX	1,489,665
M2	KH7X	6,847,995
MM	KH6LC	7,194,795
South America		
SOHP	PY2NDX	3,965,826
SOLP	P4ØW (W2GD, op)	5,223,456
SOUHP	CE3CT (LU5DX, op)	3,424,065
SOULP	LU7HZ	482,664
SOSB-10	XQ1KZ	241,164
SOSB-15	PX2C (PY2BK, op)	228,969
SOSB-20	FY5KE (F6FVY, op)	394,887
SOSB-40	YV5OIE	36,378
MSH	P4ØL	6,511,512
MSL	P49V	4,450,797
M2	PJ2T	8,617,176
MM	HK1NA	10,696,152

DX Single-Operator, High Power

Stations in North America again took the top three places in the SOHP category from the DX side. The top two stations flipped positions from 2012. Jamaica's 6Y2T with Yuri, VE3DZ at the helm, wrested away the top spot this year in a close race, posting 6.74 million points, while ZF2AM, piloted by John, K6AM, was a close second from the Caymans with 6.38 million points. The difference was Yuri's 115 more contacts and one more multiplier, although the record of 6.8 million points that John set last year stands.

Yuri operated SO2R for 46.5 hours from 6Y5WJ on the south side of the island nation. He availed himself of the favorable propagation on 10 and 15 — and, to a lesser degree — 20 meters to build a log filled with 6419 contacts and 351 mults. He reports that the biggest improvements at the station compared to a year ago included moving a bottom-loaded short 160 meter vertical uphill and making it into a full-size inverted L with a 65 foot vertical section. Two Beverages were aimed at Europe and the US, and Yuri said they helped "big time" on 160, 80 and even on 40. In addition, the second radio now is a 200 W FT-1000MP Mark V, line noise is gone, and a "simple yet relatively effective second radio antenna — vertical dipoles for 20, 15 and 10 fed with single coax some 200 feet away from the main antenna" were erected. Yuri tells how he went into the contest sleepy, in the sidebar "Sleep Deprived" (this did not seem to affect his excellent error rate, however).

Moving up a notch from fourth to third place this year with 6.27 million points was TO5X, with Valery, R5GA (*corrected version 1.1*) at the wheel (last year's third-place finisher, Andy, AE6Y/P49Y, was among the missing this year). Placing fourth but setting a new European record was CR2X, operated by OH2UA, with 5.92 million points, followed by 6V7S in Senegal, operated by RK4FF, who moved up from an eighth place finish in 2012 with 4.73 million points.

DX Single-Operator, Low Power

Dropping back by approximately 12 dB did not seem to hurt contesting pro John, W2GD, who ran up 5.2 million points at P4ØW to lead a crowded DX SOLP category, in the process topping his own South American record of 4.77 million points set in 2004. More than 1.1 million points off the mark but moving up from a third place finish in 2012, Kurt, VP9/W6PH took second this time with 4.06 million points. Last year's fourth place finisher also moved up a notch this year to third place, as EF8R, this time with EA8RM at the helm, logged 3.77 million points. Advancing from fifth to fourth this time was J88DR, piloted by Dave, G3TBK with 3.7 million points, followed by HQ2N with JA6WFM at the controls, posting 2.72 million points.

Top 10 — DX Single-Operator

High Power	
6Y2T (VE3DZ, op)	6,739,200
ZF2AM (K6AM, op)	6,379,800
TO5X (R5GA, op)	6,267,861
CR2X (OH2UA, op)	5,916,003
6V7S (RK4FF, op)	4,727,709
PY2NDX	3,965,826
NP2N (W2VJN, op)	3,846,456
G6PZ (GIØRTN, op)	3,620,295
DL6FBL	3,589,074
9A6XX	3,552,660
Low Power	
P4ØW (W2GD, op)	5,223,456
VP9/W6PH	4,056,156
EF8R (EA8RM, op)	3,766,116
J88DR (G3TBK, op)	3,732,183
HQ2N (JA6WFM, op)	2,716,623
HC2/RC5A	2,589,120
MD2C (MDØCCE, op)	2,196,150
PY2YU	1,694,115
PY2NY	1,253,079
F6EYB	1,094,016
QRP	
GJ2A (MJØASP, op)	72,8739
VQ5RP (KØUU, op)	47,9220
HB9BMY	38,0460
OK3C (OK2ZC, op)	36,0570
HI/K8MR	30,2940
YUØW	28,0449
F/E73CQ	19,2852
G4DBW	14,5536
UU2CW	14,4324
EA7AAW	12,7368

DX Single-Operator, QRP

Just two operators who were in last year's Top 10 in the challenging SOQRP category repeated this year, and only one was at the same station. Eight of the top 10 stations were in Europe this year; the other two were in North America — quite a change from the geographical distribution in the other SOAB sub-categories. Well ahead of the pack in the top spot was GJ2A on Jersey (Island, not Shore), with Mathieu, MJØASP in the chair, posting a very respectable 728,739 points. Over the course of his 34 hours on the air, Mathieu capitalized on good conditions on 20, 15 and 10, and eschewed 160 altogether.

"This operation was from our club station on the west coast of the Island of Jersey, with a clear sea path to North America," he comments. "I had planned for my winter holidays to cover the contest weekend, so I would have lots of time to rest and set up all the gear. On Thursday morning, I had a look around the station and checked that nothing had fallen down. The beam wouldn't go up higher than 35 feet because of a winch problem, and the 80 meter and Top Band dipoles were out of order. Not a very good start!

"Eighty was eventually fixed, but I decided to give 160 a pass. Saturday was spent mostly S&P, working all the loud ones. Only took a 3 hour nap the first day. Eighty performed better than expected, but the 40 meter dipole started acting up because of high winds and was showing very high SWR at times. It was a big disappointment only to log 24 states on this band. At this coastal location, our aerials get a battering every winter, and it is a struggle to keep things in the air. On Sunday, I had a ball. Took great advantage of the 10 meter opening, and I was able to run most of the time. Fifteen and 20 were also in very good shape and produced the highest QSO numbers. Thank you for all the Qs. I enjoyed giving out the GJ multiplier."

A sizeable gap of some 250,000 points looms between the leader and the runner-up. At the helm of VQ5RP in Turks and Caicos, Jeff, KØUU logged 479,220 points to finish second. (Last time around, Jeff guided V31SG into the number three slot.) Back in Europe HB9BMY posted 380,460 points for a third place finish, followed by OK3C, with OK2ZC at the helm, not very far behind in fourth place with 360,570 points.

Operating as HI/K8MR from the Dominican Republic while on vacation, Jim, K8MR racked up 302,940 points to end up in fifth place. Judging from his post-contest comments it's not clear he anticipated landing among the top five from his place in the sun.

"My wife and I enjoy winter vacations in Punta Cana in the Dominican Republic. In the past few years our friends Jim (W8WTS) and Jan Galm have also discovered Punta Cana. This year we decided to do the trip as a foursome.

"This was a vacation with ham radio, not a serious ham radio expedition. I took my new KX3, an assortment of wire, and the willingness to improvise when we arrived. We did ask for and get top-floor rooms and were able to hang quarter-wave wires for 80 and 40, tied together, from the balcony with similar counterpoise wires hanging down the building. This was our evening and nighttime operating position.

"More interesting was the 'afternoon' operating position: The KX3 and 10 feet of wire strung up into a thatched roof beach shelter. I used a spring clamp with an attached 4 × 4 electrical box cover, clamped on the side of the lounge chair, with a magnetic mount Bulldog paddle. One hundred feet from the ocean, it worked very well.

K8MR scans the beach as well as the bands, as HI/K8MR. Jim reports he maintained a 140/hr rate for more than an hour on 15 and 10 meters Saturday afternoon from this position. (K8MR photo)

"While the EU-USA path was open in the morning, we skipped the radio. But by about 1700 UTC things really picked up. The first day I wasn't totally set up but ended up with a great run (140/hour) on 15 and 10 meters, sending all by hand and logging on paper. Later we hooked up the WinKey memory keyer and recorded things on a digital voice recorder for truly laid-back operation. The afternoon operating ended abruptly both days when the KX3 batteries gave out. Next time: Extra external battery power!

"A sunny warm beach, good people watching, a cold beer, and a great ham radio contest. Life doesn't get much better!"

DX Single-Operator Unlimited, High Power

In a packed SOUHP field of nearly 350 entrants, the leader was from South America. CE3CT in Chile, operated by Argentine Martin, LU5DX, took first place with 3.42 million points. The rest of the Top 10 was in Europe. Although he didn't set any records, Martin recorded nearly 1000 contacts more than runnerup SN7Q, with SP7GIQ at the helm, who picked up 32 more mults while racking up 2.97 million points (chief op Kzryztof piloted his own station to a second place finish last year). All but one other station in the Top 10 logged more multipliers than the leader, whose money band was 10 meters (CE3CT made only 83 contacts on 80). A familiar call sign, DL5AXX, managed third place with 2.86 million points and the highest mult count among the Top 10 (305), followed by IR2C, with IK2JUB in the chair, with 2.79 million points, and G9W, with MØDXB operating, with 2.58 million points. Last year's category leader, E77DX (at E7DX), did not compete this year; only two of this year's Top 10 (but just one operator) repeated this year, and both stations finished in the same positions.

Vassilis, SV1DPJ was Single-Operator Unlimited, High Power from the Radio Association of West Greece contest station SZ1A. Kostas, SV1DPI reports that Vassilis had "a great time and made a great score," possibly a record from Greece. His official tally was 913,824 points (1354 contacts with 228 mults). (Photo from SV1DPJ)

Top 10 — DX Single-Operator Unlimited

High Power	
CE3CT (LU5DX, op)	3,424,065
SN7Q (SP7GIQ, op)	2,973,267
DL5AXX	2,863,950
IR2C (IK2JUB, op)	2,794,806
G9W (MØDXR, op)	2,576,286
HB9FAP	2,364,600
OQ5M (ON5ZO, op)	2,200,752
EA7TG	1,847,316
OL5Y	1,774,404
DK2OY	1,763,160
Low Power	
KP4EE	4,352,616
S53F	1,521,795
GIØRQK	1,432,458
EC4TA	1,306,818
DK5DQ	1,063,620
HI3TT	811,797
SP1NY	799,008
HA6NL	666,855
OK6Y (OK2PTZ, op)	605,655
LU7HZ	482,664

DX Single-Operator Unlimited, Low Power

Single-Operator Unlimited, Low Power competitors enjoyed almost as large a field as their high power competition, and Joachim, KP4EE was king of the hill with 4.35 million points — well ahead of his nearest challenger, S53F, who placed second with 1.52 million points. As with the HP contingent most of this year's Top 10 stations (7) were in Europe. Last year's chart topper, DF9ZP, was well out of the running this time. KP4EE mined 10 and 15 meters for 2188 of his 4532 contacts,

although his 324 multipliers were spread roughly equally among all the bands (160 meters not so much). Repeating in third place was Colin, GIØRQK who put almost twice as many points in the log this year — 1.43 million — as last. Rounding out the top five were EC4TA, with 1.31 million points, and DK5DQ, with 1.06 million points. The only other station appearing in last year's Top 10 to make the list this time — SP1NY — repeated his seventh place finish this year, although with some 300,000 more contacts.

Top 10 — DX Multioperator

Multioperator, Single Transmitter, High Power	
CR3A	6,551,010
P4ØL	6,511,512
KP2M	5,955,672
KP3Z	5,470,575
XE7S	5,384,610
VP5S	5,029,065
EF8USA	4,555,524
EI7M	4,287,825
LX7I	4,284,960
EA5RS	3,921,876
Multioperator, Single Transmitter, Low Power	
V31TP	5,653,260
P49V	4,450,797
PY1SL	1,614,750
3D2RX	1,489,665
OL1C	1,024,632
S5ØXX	1,009,086
LZ9R	402,150
5C5T	367,200
YE1ZAT	153,780
DK5TX	89,544
Multioperator, Two Transmitters	
TI5W	9,492,102
VP2ME	9,461,772
PJ2T	8,617,176
TM6M	7,053,984
KH7X	6,847,995
EF7X	5,878,152
M5E	5,522,457
OL7M	4,500,876
DL1A	3,996,342
DR4A	3,654,384
Multioperator, Multitransmitter	
HK1NA	10,696,152
PJ4X	10,638,459
KH6LC	7,194,795
9A1A	5,853,960
LZ9W	4,511,367
HA3ØS	3,665,310
JA3YBK	2,834,166
JE1ZWT	1,443,918
9A5CW	131,040

DX Multioperator Roundup

In the DX Multioperator Single Transmitter, High Power race, the CR3A team (OM3GI, OM3RM and OM7JG) earned the trophy with 6.55 million points. It was a tight race, however, with runner-up P4ØL (W6LD and WØYK) just falling short with 6.51 million points. The major difference was in contacts; P4ØL worked one more mult, and error rates were comparable. Last year's leader, KP2M (KT3Y, K9VV and WP2XX), placed third this time with 5.96 million points. KP3Z (NP4Z and NP3A) weren't too far behind, finishing fourth with 5.47 million points, while the XE7S team (XE2/W8TK, XE2/N7DD, XE2S, XE2ST and XE2K) posted 5.38 million points for fifth place. Last year's fourth place MSHP finisher, KH7X, competed in the M2 category this time.

In the Multioperator, Single Transmitter, Low Power competition, the V31TP team (WCØW, K5PI and AG9A) scrambled to the top of the heap with 5.65 million points. Last year, V31TP placed second in the MSHP category. P49V (AI6V and K2LE) repeated in second place with 4.45 million points, well short of their 2012 score. In third was PY1L (PY1L, PY1NX and PY7RP), even farther back from the leaders with 1.6 million points. Finishing fourth was the 3D2RX squad (N7OU and W7YAQ) on Rotuma, who racked up 1.49 million points. Bob, W7YAQ, says, "We were very happy to operate this ARRL DX contest from the beautiful island of Rotuma. Our QTH was the village of Maftoa on the northwest side of Maka Bay." He reports they set up their station in the kitchen of an abandoned house on a bluff. The sidebar "3D2RX: If You Can't Stand the Pileups, Get Out of the Kitchen!" details their experiences. OL1C took the fifth spot with 1.02 million points. Last year's MSLP winner, VP5OU, was nowhere to be found. Only 14 stations competed in this category, which likely explains the remarkable point spread — from 5.65 million points at the top to 89,544 points at the bottom of the Top 10 list (the 14th place score was 2592 points).

WCØW, AG9A, and K5PI (behind the camera) teamed up for a winning MSLP effort from V31TP in Belize. "AG9A brought his experience and EZNEC skills to bear this year to give us a very nice upgrade to our 160 meter antenna," reports Robert, K5PI. "We decided to go low power this year but actually did a bit better on Top Band than we have in past years with high power." (K5PI photo)

As Judas Priest once sang, "That's right. Here's where the talkin' ends!" And the spectacle starts. The claim to the DX Multioperator High Power crown this year turned on error rate. Claimed scores had PJ4X edging out HK1NA by 16,299 points in a well-fought battle for top honors. No one wants to know how the sausage is made, but after log checking, the official score revealed that the HK1NA team (HK1R, HK1T, HK1X, HK1N, HK1M, LU8EOT, and OH2MM/PY2ZEA) had topped PJ4X by a more generous margin of 57,693 points — still close. The final tally had HK1NA with 10.7 million points and PJ4X with 10.64 million points.

If ever there was a dramatic demonstration that careful logging counts, this is surely it. While the PJ4X team's error rate was a respectable 0.8 percent, the HK1NA group held theirs to just 0.5 percent, "and that made all the difference," to paraphrase Robert Frost (see the "Accuracy Leaders" tables for a closer look at this factor).

Part of the winning HK1NA MM operation: (L-R) Jim, HK1N; Jorge, HK1R, and Mark, LU8EOT. The motto of the Jumanji Contest Station HK1NA is "Jumanji, siempre con sus puertas abiertas en pro de la Radioaficion Nacional y Mundial" (Jumanji, with its doors always open to Amateur Radio across the nation and around the world.) (HK1NA Team Photo)

In comments ironic in retrospect, PJ4X team member George, K5KG, allowed before the official results were posted, "At the end of 48 hours, it comes down to the log checkers and operator accuracy. Congratulations to the guys at HK1NA and thanks to the many people that gave us contacts."

HK1NA ended with 10,262 contacts and 349 multipliers, while the seven operators at PJ4X (K1XX, K1ZM, W1MD, K1EA, K1QX, K5KG, and WI9WI) emerged from log checking with 10,182 contacts and 351 mults. Neither of these excellent teams lost any multipliers during log checking, but the QSO margin was a mere 80 contacts. Things certainly could have gone either way.

Good propagation definitely helped both HK1NA and PJ4X, although it wasn't quite enough for the HK1NA team at the Jumanji Contest Station to top the South America record that had been held by PJ2T. The leaders also were unable to beat Murphy at his own game. Nonetheless, they were no slouches, exploiting 10 and 20 and, to a somewhat lesser degree, 15 meters.

"Unfortunately, the 15 and 40 meter antenna system had some problems, and we lost some Qs," said Jorge, HK1R, post-contest. "The 40 meter system had a problem with the rotators, antennas locked facing north, and that made us lose many contacts with the West Coast" (see the sidebar "HK1NA y el Cuento de los Ratones"). Jorge said his team was unaware of the progress of the PJ4X team while the contest was underway.

Installation before the contest of a receive-only tribander about one-quarter mile from PJ4X: Jeff, K1ZM is doing the heavy lifting on the tower. Supervising, supporting and encouraging from the ground were (L-R) Charlie, K1XX; Ken, K1EA, and Jim, WI9WI. (PJ4X Team Photo)

PJ4X moved up one spot this year in a field of nine entrants. "We knew it was going to be tight during the contest, since HK1NA was posting their score on the Russian real-time reflector," K5KG, said post-contest on 3830. "We were ahead early in the contest, and at about the 24-hour point the HK1NA folks drew even and then a bit (roughly 100,000 points) ahead. This went on until Sunday morning when our power went out. We saw a power truck down the road that appeared to be fixing an insulator. Fortunately, the power was out for only about 30 minutes (for "the rest of the story," see the sidebar "PJ4X: Retrenching after the Power Outage").

The drama at the top almost renders the remainder of the DX MM results anticlimactic. With such a narrow field, there was only a "Top Nine." KH6LC posted 7.19 million points from Hawaii to place third, up from fourth place last time. 9A1A, which placed fifth last year, also moved up one spot, logging 5.85 million points. LZ9W rounded out the top five with 4.5 million points. JA3YBK, the only other station in the Top 10 last year to show up again this time, dropped back one slot to seventh.

It was another tight race for the top between the teams at TI5W and VP2ME in the DX Multioperator, Two Transmitter category. When the brass pounding ended, though, final scores put the three-operator TI5W team (N3KS, NI1N and KL9A) at 9.49 million points, a mere 30,330 points up on the five operators at VP2ME (W9RE, N5OT, AA4NC, N4GG and W6DR). TI5W snagged just 10 more contacts and harvested one additional - and very crucial - multiplier.

The TI5W team (L-R): Freddy (our local Point Of Contact for everything), N3KS, KL9A and NI1N. (TI5W Team Photo)

For TI5W, which set a North American MM record of 11.5 million points in 2012, this year's operating category was in question until shortly before the contest. "When WX3B had to bail, the team decided to operate multi-two and ended up having "a great time," team member Kam, N3KS explained post-contest on 3830. "Conditions seemed great on the low bands both nights, and the high band conditions were excellent on Saturday, as we reached 6000 contacts at the midpoint of the contest. Sunday was a different daytime story. Neither 10 nor 15 opened fully for us, and it was very slow going. Our goal was to exceed the longstanding multi-two record (9.3 million points) set by 6Y1LZ, and we managed to just squeak past near the end of the contest." For more details, see the sidebar "TI5W Contends with Murphy."

The VP2ME operators were gracious in their post-contest comments on 3830. "Another fun contest for our M2 operating team. Congratulations to the TI5W crew for their great M2 effort — and with only three ops! Conditions were excellent, and it was a real thrill to break through the existing NA and world M2 records." VP2ME ran the legal limit for Montserrat, 1000 W, although at times they used a 500 W amp. They report that 10 sounded poor the week preceding the contest but turned out to be a pleasant surprise. On Saturday at VP2ME, "10 and 15 were bottomless pits," while Sunday was "nearly as good." For more details, see the sidebar "VP2ME Almost Didn't Happen."

*Cheers! Getting ready **before** the contest are (L-R) Hal, N4GG; Mike, W9RE; and Mark, N5OT (AA4NC photo)*

The PJ2T team — which racked up MM South American records in 2010 and 2012 and a new World Record in 2011 — placed third in the M2 category this time with 8.6 million points. "We tip our hats to the TI5W and VP2ME crews, who put on a tremendous show," PJ2T team member Kelly, NØVD commented. "This was PJ2T's first operation in M2 for the ARRL CW since 2009. For the last 3 years we had operated MM with great results. Despite a great effort in 2012, we were

humbled by the TI5W crew as they solidly took the win and also set a new World Record," he explained, "however, this was PJ2T's best finish in the M2 category was good enough to break the South American record set by HC8N in 1999." PJ2T also initially waffled between MM and M2 this time. "This year proved to be a recruiting challenge, however," Kelly said, "and after one op dropped out at the 11th hour [this is starting to sound familiar — Ed.], we came to the decision that M2 made the most sense." Kelly continues the PJ2T story in the sidebar "PJ2T Sets a New South American M2 Record."

At PJ2T, (L-R) Kelly, NØVD checks the log, while Bill, W9VA helms Run 2, and Geoff, WØCG/PJ2DX handles Run 1. (Someone must have said something funny.) (PJ2T Team Photo)

Wrapping up the top five were TM6M, which set a new European M2 record with 7.05 million points, and KH7X, which set a new Oceania M2 record, with 6.85 million points. All top five scores bested that of last year's DX M2 leader CR3L, which did not compete this year.

DX Single Band

The peripatetic Martti, OH2BH piloted CR1Z to the SO-10 crown and a new European record this year with 314,529 points. While the multiplier tallies within the Top 10 on 10 were comparable, Martti zoomed ahead of runnerup EA8CN by 361 contacts (and nearly 63,000 points). EA8CN came up with 251,871 points. In third place from Chile was XQ1KZ, with 241,164 points. Rounding out the top five were CE3DNP with 195,576 points and LU6UO with 171,216 points. Seven of the Top 10 stations were in South America. OH2BH's first place score this year would only have sufficed for fourth or fifth place last year.

Top 10 — DX — Single-Operator, Single Band

10 Meters	
CR1Z (OH2BH, op)	314,529
EA8CN	251,871
XQ1KZ	241,164
CE3DNP	195,576
LU6UO	171,216
LW8DQ	169,455
PY2MTS	160,272
PS2R	120,726
LU5FR	114,345
CT1AOZ	89,964
15 Meters	
J35X	302,064
KL7RA	289,674
PX2C (PY2BK, op)	228,969
6W/HAØNAR	226,896
TF3Y	222,666
C6ASP (W6KW, op)	218,022
S5ØK	214,368
OT1A (ON4CCP, op)	202,188
TMØR (F5MNK, op)	188,271
EA8NC	187,758
20 Meters	
FY5KE (F6FVY, op)	394,887
CE1/K7CA	275,268
OH8X (OH6KZP, op)	239,058
C6AZZ (KQ8Z, op)	238,242
9A3TR	232,812
OK7K (OK1GK, op)	225,378
OH8R (OH8WW, op)	209,304
S53MM	205,542
5C5W (CN8KD, op)	201,666
OH8L (OH8LQ, op)	201,318
40 Meters	
C6AKQ (N4BP, op)	326,598
EA8CMX (OH2BYS, op)	288,840
CQ8X (OH2PM, op)	270,396
YU1LA	262,218
S57AL	229,158
E77W	227,430
S5ØC (S53RM, op)	219,066
S57Z	218,709
EF8N	199,056
SN3R (SP3HRN, op)	196,968
80 Meters	
C6APG (K4PG, op)	241,338
KP2MM	151,164
F5CQ	135,432
E71A	109,074
DM7C (DL6CX, op)	103,350
CO3IT	100,128
UU7J (UUØJM, op)	93,933
YUØT	92,448
HA8A (HA8DZ, op)	92,160
OK1IC	91,953
160 Meters	
S59A	56,304
YU7AV	34,770
SV3RF	33,720
DJØMDR	30,894
CO6LP	21,645
OK2W	19,530
LY7M	16,833
OK1AXB	15,456
UYØZG	9144
EW1DO	5874

Perhaps attesting to declining or shifting propagation in this solar cycle, overall scores in last year's Top 10, largely made by stations in South America, outstripped this year's Top 10 postings by a considerable margin. A few of last year's Single Band Top 10 finishers elected to drop down by a band or two this time.

Fifteen meters supported the largest number of contacts that competitors on both sides made this year on any given band, but no new records were set there. Topping the heap for SO-15 was Grenada's J35X with 302,064 points (1737 contacts with 58 mults). Close in Derek's wake but not even in the same geographical or climatological vicinity of North America was Rich, KL7RA who placed second with 289,674 points (1708 contacts with 57 mults). PX2C, with PY2BK on the bridge, was a more-distant third, with 228,969 points. The fourth place station was in Senegal, where HAØNAR, operating as 6W/HAØNAR, logged 226,896 points. Not far behind in fifth place from Iceland was TF3Y, with 222,666 points. Stations from Europe dominated the top scorers below the first four places.

This year's SO-20 leader was last year's SO-15 top scorer — F6FVY in the chair at the Kourou Amateur Radio Club's FY5KE in French Guiana. Larry posted 394,887 points, setting a new South American record. Another South American station, the seemingly ubiquitous CE1/K7CA, finished a bit back in second place with 275,268 points (the deciding factor was FY5KE's 647 more QSOs and 1 more mult). Third through fifth places were rather closely bunched. In third was Radio Arcala's OH8X, with OH6KZP at the helm, with 239,058 points. OH8X (with OH6UM as operator) holds the current European SO-20 record. Finishing fourth from Grand Bahama Island was George, C6AZZ (KQ8Z) posting 238,242 points, while 9A3TR logged 232,812 points to end in fifth. Last year's 20 meter leader, EF8S (with OH2BYS at the wheel) was not on this year, and Mauri put in a respectable performance in SO-40 this year (see below).

In the SO-40 race, Bob, N4BP captained C6AKQ in the Bahamas to the win with 326,598 points — somewhat short of his 2007 North American record performance of 373,824 points. The abovementioned Mauri, OH2BYS camped out at EA8CMX and earned second place with 288,840 points. In his wake at the Radio Arcala Azores outpost CQ8X was fellow Finn Pertti, OH2PM who managed third place with 270,396 points. Two Europeans finished out the top five — YU1LA, with 262,218 points, and S57AL with 229,158 points for fourth and fifth, respectively.

Larry, N6NC who had planned to operate SO-40, advises entrants in all categories to know the rules before diving in. Larry recounts, "I just designed and built a new low-profile 40 meter 2 element wire beam. It worked great. For the first time ever, I worked 80 countries on 40 from the West Coast. Well, I learned after the contest that you cannot operate assisted as a single-band entrant, so, as they say, 'Read the rules!'" He landed in the Single Operator Unlimited, High Power category.

As they did last year, North Americans and Europeans this year dominated the Top 10 in the SO-80 category. The clear leader was Kevin, C6APG (K4PG) posting 241,338 points — not quite enough to surpass his 2009 North American record score of 277,890. Second place finisher KP2MM was well off the leader's pace with 151,164 points, followed by F5CQ at 135,432 points, E71A with 109,074 points, and DM7C (DL6CX operating) with 103,350 points. It was an entirely different Top 10 in SO-80 this time. OH2BH, who led CR2A to the SO-80 win in 2012, was the SO-10 trophy winner this time.

The landscape also looked rather different in the SO-160 Top 10 this time, and no new records were set. S59A topped the field of 26 entries with 56,304 points, followed by YU7AV at 34,770 points, SV3RF (No. 9 last year) not far behind at 33,720 points, DJØMDR with 30,894 points and CO6LP rounding out the top five finishers with 21,645 points. Last year's category leader, V31YN, with DJ4KW at the helm, competed this year in the SO-10 category. Last year's seventh place station, JA8NFV, was out of the running this time; 2012 10th place station OM7RU operated Single-Operator, High Power this time. Among the notables missing this year was Herb, KV4FZ who has over the years been a virtual Top Band beacon.

Logging Accuracy

When it comes right down to it in a contest such as this one, it's not necessarily just "location, location, location," but "accuracy, accuracy, accuracy" that count. It's no surprise that the scoring leaders and the operators with the best logging accuracy coincide year after year.

Accuracy Leaders

Call Sign	*Cat*	*QSOs*	*Error Rate%*	*Index*
W/VE				
Single-Operator				
KØDQ	SOHP	5170	0.7	13.643
K1ZZ	SOHP	4368	0.3	13.610
N2NT	SOHP	4721	1.1	13.564
K3CR (LZ4AX, op)	SOHP	4646	1.3	13.537
N2IC	SOHP	3758	0.7	13.505
Single-Operator Unlimited				
AA3B	SAH	4510	0.5	13.604
K5ZD	SAH	3944	0.6	13.536
K3WW	SAH	4757	1.9	13.487
K4XS	SAL	2914	0.7	13.394
K1AR	SAH	3316	1.6	13.361
Multioperator				
K3LR	MM	8790	1.3	13.814
W3LPL	MM	8664	1.8	13.758
NQ4I	MM	7390	1.4	13.729
N3RS	M2	6647	1.1	13.713
K1LZ	MM	8214	2.1	13.705
DX				
Single-Operator				
6Y2T (VE3DZ, op)	SOHP	6419	0.3	13.777
ZF2AM (K6AM, op)	SOHP	6104	0.5	13.736
CR2X (OH2UA, op)	SOHP	5716	0.6	13.697
TO5X (R5GA, op)	SOHP	6089	1.2	13.665
6V7S (RK4FF, op)	SOHP	5229	0.7	13.648
Single-Operator Unlimited				
KP4EE	SOULP	4532	1.3	13.526
CE3CT (LU5DX, op)	SOUHP	4339	1.5	13.487
IR2C (IK2JUB, op)	SOUHP	3259	0.5	13.463
DL5AXX	SOUHP	3145	0.5	13.448
SN7Q (SP7GIQ, op)	SOUHP	3369	1	13.428
Multioperator				
HK1NA	MM	10262	0.5	13.961
VP2ME	M2	9092	0.3	13.929
PJ4X	MM	10182	0.8	13.928
TI5W	M2	9102	0.4	13.919
PJ2T	M2	8301	0.6	13.859

Scott, KØDQ not only repeated as Single-Operator, High Power leader this year, but he also had the highest accuracy (see the "Accuracy Leaders" tables), according to our calculated Accuracy Index. This index measures the accuracy of a particular operator's log, taking log size into account. Error rate, while a useful individual benchmark, does not, and error rates for logs containing greater than 100 contacts ranged as high as 29.7 percent on the W/VE side to 17.4 percent on the DX side. Note that the Top 10 Golden Logs (error-free) all have QSO totals of less than 800.

There is no shortage of role models. Other frequent paragons in the accuracy realm include three-time WRTC co-champion Dan, K1TO who was just out of the Top 10 in terms of accuracy index this time (he was No. 2 last year, supplanted this time by Dave, K1ZZ), as well as Andy, N2NT and Steve, N2IC. LZ4AX repeated again in the top five from K3CR. Jon, AA1K — the Top Band beacon from Delaware — also was among those who made the Top 10 in scoring and in accuracy. In the SOU category, AA3B, K5ZD and K3WW — familiar Top 10ers all — repeated as the top three in accuracy, respectively. Of course, perennial MM rivals W3LPL and K3LR were first and second respectively in accuracy (although K3LR took the MM crown this year), while NQ4I placed third.

On the DX side, let's not forget that the MM battle for supremacy hinged on error rate. PJ4X's error rate has always been good, but HK1NA won the trophy as a result of superb accuracy. Ditto for the TI5W and PJ2T teams. Yuri, VE3DZ led the Single-Operator accuracy index list from 6Y2T this year just as he did last time, despite being "sleep deprived." Some other examples: K6AM at ZF2AM repeated in second place in the accuracy sweepstakes, while R5GA at TO5X made the list this year again in fourth place.

Top 10 Golden Logs

Call Sign	QSOs
W7PU (N7EPD, op)	716
AA6KJ	571
N6MU	549
S57WJ	520
OK8DD	393
N8WS	368
WQ5L	364
CO2VE	352
E21EIC	341
DJ1OJ	323

Many factors can affect logging accuracy from one event to another — conditions, fatigue, overall health, age, hearing, vision, inattention, even keyboard skill…the list goes on. Any contester knows how easy it is to copy a call sign or exchange correctly and yet mistype it in the log. We've seen this year, though, how the ultimate leader in a close race can prevail primarily on the basis of accuracy. In the final analysis, individual operators must determine the worth of taking time to make sure they've copied and recorded the exchange correctly — and it just might be if the other station is a needed and rare multiplier.

Just Not in the Stars…

WRTC 2014 possible Katsuhiro "Don" Kondou, JH5GHM in Tokyo wrote to say that it simply wasn't in the stars for him to take part in the contest this year. "Until just before the contest, I was going to travel to the radio shack located in Yamanashi to be on as JH1GBZ, but I gave up. My wife asked me not to go to the shack, since the bearing from my home and star position would be quite bad contest weekend, according to Nine Star Ki

[*basically the study of energy relationships within the time domain — Ed*]. She's always been supportive of my contesting and respects my devotion to it, so this time, I regretfully decided not to be on — for her honor. She's not deep believer; rather she wanted me to stay home with her, since I had been out for many weekends the past 2 years."

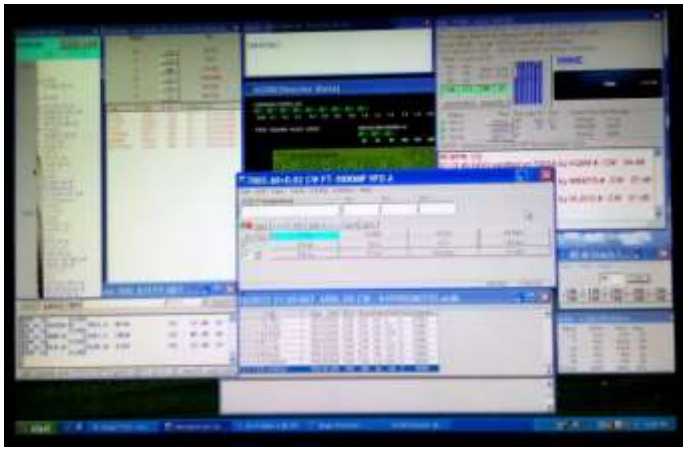
Taking a minimalist approach, Mike, W7DRA worked just one station in the ARRL DX. "I am thinking of joining the Single Digit Contest Club. Turned on the ol' 211 and NC-183 and worked a KL7 on 160," he explained.

Meteors, asteroids, solar flares and Nine Star Ki aside, for those who have never stuck a toe in the water for this event, the ARRL International DX Contest (CW or phone) is a terrific opportunity to log some new ones, since DX participants only work the US and Canada. Even with a modest setup and no special contesting skills it is feasible to attain DXCC in a weekend! There's an operating category for you. Mark your calendars!

K4VV Remote Contest Station
The Maiden Voyage

What may be novel about the K4VV Multioperator, Multitransmitter, High Power operation in the ARRL International DX Contest CW is not the three operators who participated but that they participated from four separate locations — states apart! And before you ask, team member Mike Lonneke, WØYR says the group checked with the ARRL Contest Branch before going forward. "They stated that as long as all rigs and antennas were within a 500 meter circle, it made no difference where the operators were." Will this be a new trend?

"Things went very, very well, with only a small rotator problem on one of the Berthas (quickly resolved), a amp kicking off for no known reason (quickly reset) and the Internet slowing down at N9NC's New Hampshire QTH for about 20 minutes during a storm," reports Mike. "Aside from that, the control link (LogMeIn), contesting and rotator control software (N1MM Logger), automatic antenna selection (TopTen Devices) and audio link (Skype) all worked perfectly. Internet latency was not a problem." Mike expressed the group's gratitude to Jack, K4VV, "for letting us try this."



A screen shot taken at K4VV position 1. The operator, N9NC, was running on 40 and, when this photo was taken, had a rate of 164/hr for the last 10 Qs and 111/hr for the last 100. The operator was hundreds of miles away! Operators have complete control of radios, antennas and software from their remote locations. (Photo WØYR)

N9NC operated from New Hampshire, K3WI from his home in Maryland and WØYR either from his home shack or from the K4VV site. Mike reports "several breaks or interruptions at the actual station location resulted from having to fix things or to sleep.

Putting in 40 hours total from their respective chairs, N9NC, K3WI and WØYR posted a box score of 3182 contacts with 476 mults and a score of 4.48 million points. Forty meters was the team's money band, with 20 not too far behind, and they drilled for mults on 10 and 15. They logged no Qs on 160 and only 243 on 80.

"Overall, it was a very successful test!" Mike summarized. "For our initial test we used three different full-featured and remotely accessible operating positions. It was truly amazing to operate a 1.5 kW station with full control from miles and miles away. This included remote control and monitoring of Acom 2000 amps and the ability to change antennas and rotate them from far away."

WØYR's biggest kick was breaking through the gargantuan 20 meter pileup on James, 9V1YC. "The 6/6 stack would not do it, so I rotated the second Bertha into position with its 4/4 stack — an idea from Frank, W6KPC (SK). With the 6/6 and 4/4 together, I got him on the first call." Mike then went on to work many JA QRP and even mobile stations with that configuration as well as attracting calls from China and Korea. "That was a hoot!"

Tom, N9NC sat at his dining room table as the contest got underway and held 7.000.9 MHz "until he wore himself out," using a 4/4 40 meter Yagi stack.

Mike says the team developed a long list of possible modifications and improvements for future outings, but "it all came together."

KØDQ: An After-Action Tactical Report

(*The initial version of this writeup was erroneously based on 2012 commentary and has been updated to this year's events in version 1.1 – Ed.*)

Scott, KØDQ, says that unlike last year's ARRL International DX CW and unlike most other major contests in the intervening year, conditions were stable this year for the entire weekend, without serious disturbances. He relates his experience this time.

"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.

Scott, KØDQ captained "Battleship New Hampshire" WW1WW to another first place finish in the SOHP category. (WW1WW Photo)

"During discussions with a longtime friend (rookie contester 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 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 any contest. The contact total (5367 before dupes) works out to just a hair greater than 120 per hour for the entire 44.67 hours of operation, which included a few pit stop breaks and a brief power outage. According to the *CBS* program (a Cabrillo log statistics generator by K5KA (SK) and N6TV), I had 317 second-radio QSOs (6.1 percent). 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 first day was the best I've ever had from the US — 3345 OSOs, 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 SpaceWeather.com forecasts just before the contest. No new storms were predicted, with a slight uptick in SFI expected for Sunday over Saturday. I knew that breaking 5000 contacts 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 (this, even though I heard K3CR working some Europeans on 10 that I couldn't hear). As a result, I ended up with only 68 contacts 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 that 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 MHz, I managed to put away 573 contacts in 5 hours and ended the contest with 690 Qs on 10. 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 × 9 elements + 5 × 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 and 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 had considered trying to go all 48 hours but 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 0600Z, getting better yet when 10 opened.

"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."

Tower No 1 at WW1WW supports a 4-over-4 OWA for 40, and five 5 element LFA-over-9 elements LFA on 10. (WW1WW photo)

TI5W Contends with Murphy

"This was the third in what can now be called a series of contest expeditions to the 'jungle' house on the side of a volcano in Costa Rica," team member Kam, N3KS posted on the 3830 website. "Our intent this year was to operate in the one-team category, which we had not done up until then — multi-two. Each year we have added more antennas and capabilities to the station, and this year we had a lot in place until Murphy struck."

Kam explained that the original five-member TI5W team was cut to three after Filipe, CT1ILT was forced to cancel, and Jim, WX3B caught the flu and did not recover in time for the contest. "This was unfortunate for Jim, as he had organized a lot of the expedition details and equipment logistics — and was bringing replacement parts for a blown amplifier," Kam continued. "So, we ended up with a team of three and proceeded to amend our antenna installation and setup plans accordingly. In the end, we got everything done in time but had only a half-legal limit amplifier available for one of our two operating positions." Joining the "core" TI5W team of Jim, WX3B; Tom, NI1N, and Kam, N3KS this year was Chris, KL9A.

The TI5W QTH: The 80 foot tower supports an M2 log periodic at the top, 10 and 15 meter stacks and a SteppIR — all bolted to the sides. The tall tree supported one corner of a 160 meter loop. (TI5W Team Photo)

"To make matters worse," Kam said, "Freddy, a Costa Rican friend of mine and key player in getting licenses, permits and also supplying labor as needed with his contacts — in short, an indispensable person and someone who always 'knows a guy' to help with the myriad issues that always pop up — was busy that week and not available to support as much as he has been able to in the past."

According to Kam, the TI5W station has grown over the 4 years since it started out with a single log periodic antenna on an 80 foot tower. Situated between the Tenorio and Miravailles volcanoes in northern Costa Rica, it's undeniably remote, some 2100 feet above sea level on the side of the volcano "with a great shot toward the north. So it is ideal for this contest," Kam points out.

Some Operating History

In 2011, Kam said, the team did a multi-single operation for the ARRL DX CW, using the call sign TI5A and "had a blast," winning its category and setting a world record. "For that contest we put up a fixed, side-mounted 3 element SteppIR about 43 feet up the tower in addition to the log periodic antenna and used a single vertical for 80 and a wire vertical in the trees for 160.

"In 2012, our original plan was to try M2, but we had a large contingent of friends who were part of the team, so we decided to do MM instead, and we used the call sign TI5W," Kam recounted. To support the MM operation the team added a 2 element Yagi for 15 meters on the tower at 30 feet and hung a 3 element Yagi from a tree branch for 10. "Our 160 meter antenna definitely improved over the previous year — a full-wave delta loop fed at an upper corner gave us great results, and our 80 meter antenna graduated to a pair of phased verticals. The results we again gratifying, with a win in that category and another world record," he said.

For 2013, Kam noted, "We decided to "upgrade the station significantly for M2, since it is arguably the most competitive team category on the international side." Down came the 2 element 15 meter Yagi, and a pair of Force12 5 element stacked Yagis went up in its place on the tower, "one pointed at the East Coast and one (higher) pointed at the West Coast."

Kam said the branch-hanging 10 meter antenna yielded to a pair of Force12 stacked 6 element Yagis aimed at the both US coasts. Except for the log periodic at the top of the tower, all other antennas are side-mounted, including the 3 element SteppIR fixed at the East Coast, 43 feet up.

Supporting the aluminum is a AN Wireless HD-80 self-supporting, three-face tower. "Serendipitously one face of the tower is parallel to the direction of the US East Coast, so the SteppIR and low 10 and 15 meter Yagis are fixed to that side," Kam explained.

According to Kam, being in Costa Rica means you need two reasonably high-gain Yagis to effectively cover the entire US on the high bands. Since the West Coast is a slightly more distant, the high 10 and 15 meter Yagis are mounted on the tower face that's 60° west of the East Coast face. "This is not optimal," he said. "It would be better at 45° offset, but we live with our constraints. But the west-facing antennas seemed effective. "One thing that did stand out to us was the number of Oregon and Washington contacts we made on 10 and 15; it seemed like we worked every contest-active ham in those two states," he reported.

Kam said that since they used the log periodic at 80 feet as their 40 meter antenna — he said they found it, at best, as effective as a shortened dipole — they added a 40 meter 4-square to the mix. "Although it seemed to be operating electrically as well as it could (amazing F/B), we could never get consistently better signals from it than from the log periodic, so we ended up phasing them together (just because we could.) It actually was a useful thing to do since the LP was stretching its bandwidth at the bottom end of 40, and the stack with the 4-square gave us some extra, low-SWR bandwidth. The next station upgrade priority will definitely be some sort of 2 element Yagi for 40."

Gearing Up in the Ant Farm

Kam said that upon their arrival, Tom, NI1N and he immediately set about assembling the station, installing the 80 meter phased verticals and 40 meter 4-square antennas and restringing the 160 meter loop that had fallen from the trees over the past year. "It was going to take a lot of work to get everything together with a three-man team," he said.

"Our battle plan was to get the 80 meter phased verticals up, since we were experienced with that and knew we could finish that off, then concentrate on the more difficult task of getting the 160 meter loop high in the trees, and then, if time permitted, put up the 40 meter 4-square. Nighttime was reserved for inside-the-shack work — getting the PCs networked, radios set up, WinKeyers etc. We discovered early on that one of the amplifiers was broken, but since WX3B was planning to bring a replacement with him, we were not too concerned.

"The 80 meter verticals went up with no problems, and we started in on getting the 160 meter loop back up in the trees. Fortunately we had access to a crossbow and

tracking line — sort of like dental floss that attaches to the bolt [*crossbow arrow — Ed*] and allows line/wire to be strung behind the shot — so we were optimistic about getting the antenna higher in the air than it had been. One thing we did not think of was that it might take a few shots before we got the weighting of the bolts properly set — too light, and the thing would shoot off to the moon and drift far away from the target tree before it came down; too heavy, and it would not go over the top of the tree. It took four tries to get one corner properly over a tree, with Tom coming up with just the right weighting instrument to tape to the front of the bolt — a number 7 Allen key. We only had six bolts, however. That was a lot of pressure on the second tree shot. Unbelievably, the first shot over the second 120 foot tree was perfect.

"For the lower attachment of the 160 meter loop, we decided to run it over the low-branch fork of a tree and use a strain-relief weight through a pulley, so the antenna could survive the wind. With a leg up from Chris, KL9A I started shinnying up the tree. As soon as I got to the fork and was about to tie the pulley in place, I felt a burning sensation all over my arms. Sure enough, there was a nest of some sort of fire ants right at the fork, and they were mad! I basically left a lot of skin on the tree as I hastily retreated; some ants even fell out of the tree and chomped on Chris! We decided to forego that strain relief idea.

Kam said all the primary projects went more smoothly sans ants, and they had time to install the 40 meter 4-square. "Tom took the lead with all the verticals. His patience and energy in directing the installation of the miles of radials we laid out was awesome. Chris, being a true Alaska/Montana man at 6-4, basically lifted each vertical and held it in place while we ran around with light rope and guyed each."

Plan B

With WX3B also unable to make the trip, the TI5W team found itself at three members and determined that M2 was its best bet. "Our operator plan was simple," Kam explained. "Chris and I would start the contest, Tom would take over from Chris for the night shift, and then Chris would come back on Saturday morning and work straight through the entire rest of the contest. I would keep going until Saturday night, take an overnight break with Tom taking over at night and I would start up again on Sunday morning until the end. Tom would be relief during the day, and Chris would be relief the first night and me the second night. We were configured with two radios plus a third laptop on the network with no radio; it was a spot for the relief operator to monitor progress without looking over anyone's shoulder."

Ignoring the Competition

"We weren't quite sure who our competition would be, and my personal take was that it never really mattered. We have always tried to make every Q and every mult we could make, as fast as we could. Chris knew the guys at VP2ME, and we knew they would be M/2, but we did not know if PJ2T or PJ4X would be or not. In any case, our strategy would be the same. Since 10 and 15 are typically open a bit later for us than for those in the eastern Caribbean and the low bands didn't open as early for us, we would try to build a bit of a QSO lead on 10 and 15 in the very first hour or two by spending some time on those bands instead of on 40 or 80. Chris was to start on 20, which we knew would be hot, and speed-smoke that band for all it was worth early.

When the contest started, 20 meters went according to plan, and Chris had a first hour close to 240 Qs. Our high-band plan didn't go as well though. Ten was empty and 15 was lighter than it should have been. We managed a few dozen contacts on 15 before I switched to 40, where the rate ended up being excellent. After Chris had handled the 20 meter surge, Tom fired up on 80. His rate was awesome, with close to 180/hour early on. Since we were operating at one-half legal power on one of the stations, we generally tried to keep that station on the highest frequency band in operation. So, with few exceptions, Tom transitioned between 80 and 160, while I plugged away on 40 the first night. When morning came, we were pretty happy with our results to that point. Rate had been really good, and our antennas seemed to be performing very well.

"As Saturday started, we had to remind ourselves that the mornings are the slow time from Central America; most of the US is pointing their antennas at Europe, and we'd just have to wait our turn. At around 1700, it became our turn. What fun! Chris and I were off to the races, with at least 1 hour where we simultaneously clocked more than 200 Qs each on 10 and 15. The fun lasted most of the day, and at exactly (no joke, exactly) the 24-hour point, we hit 6000 QSOs. We were feeling pretty good at this point, but then Saturday night was a bit of a grind. We did not make as many Qs as we expected, but our expectations were possibly too high for the second low-band night of this contest.

The Waiting Game

"Sunday arrived, and we struggled through the requisite morning wait for 'our turn' — and we waited and waited and waited — nearly all day. It was very strange. Chris reported he could hear VP2ME and other East Caribbean stations working at a good clip on the high bands, but for us the band seemed almost dead. Signals had a hollow

sound to them, and our skimmer spots were comparatively weak for most of the day. It was literally 50 contacts/hour on each band we tried. Nothing seemed to work. Toward the end of Sunday, the bands started to come alive for us, and our rates improved from painfully slow to just slow. At that point we did a lot of band hopping, trying to gather every Q we could. Ten finally dropped out, then 15, and we finished on 20 and 40."

Kam reported that with just an hour to go, the TI5W team managed to top the old M2 record set by 6Y1V. "This made us feel good," he said, "but with the poor Sunday we'd had, we were pretty certain we were not the only station to do so." As it turned out, Kam said, VP2ME had eclipsed the world record about 30 minutes before TI5W did, "but probably got bit by the high bands closing for them but opening slightly for us near the end of the contest, which allowed us to catch up at the finish line.

"So, after 48 hours of operating as hard as we could, more than 9100 unique QSOs and a very interesting contest — fantastic first day, frustrating second day — we and VP2ME ended up in a dead heat with the equivalent of about 20 contacts' difference in score. About one salt molecule in the entire ocean so to speak," Kam said. "At the end of the day, it was a great contest. It seems to me that both the TI5W and VP2ME teams put in an effort worthy of a win. "We tip our hats to them, and look forward to another shootout some day."

HK1NA y el Cuento de los Ratones

The HK1NA ops didn't run into problems with the 40 meter antenna rotators until a few hours into the contest. Jorge says trying to repair the problem overnight would have been difficult, so they decided to wait until the next day to suss things out. By dawn they also were having trouble with 15 meters."

The home of Jumanji Contest Station HK1NA (HK1NA Team Photo)

"One of the major problems of our station is that we never have enough operators, so we had to decide what to do, since if we focused on solving all the problems, we would have to stop operating on more than one band," Jorge told us. "We decided to leave the 40 meter antennas in the position that had been (north) and focus on addressing the problems on 15 meters, as it is a band that gives us a greater number of contacts. This led us to sacrifice 4 very productive hours on 15."

The "underlying" problem turned out to be cable-eating rats. "All of our cables are in pipes underground, and we had an invasion of rats," he explained, pointing out that the station is in country away from the city (Tubara), "so we don't have a good pest control," he added. "Now we have to." He was philosophical, however. "Radio contests are like auto racing," he said. "Sometimes you have problems with tires or in the pit. All this is part of the game." Jorge said the team's strategy was simple — aiming for the most contacts and multipliers that come along and work the necessary Canadian sections. "This time we lost a large number of contacts on 15 to 40 meters, and this did not allow us to reach our goal."

"Forming multinational teams for competitions has been a pleasant experience at HK1NA," Jorge said. For the ARRL International DX CW, the HK1NA team was comprised of Jorge, HK1R; Salim, HK1T; Pedro, HK1X; Jaime, HK1N; Bolmar, HK1M; Mariano (Mark), LU8EOT, and Ville, PY2ZEA (aka OH2MM). "We should not forget that one of the objectives of Amateur Radio is to encourage friendship around the world," and he hopes contesters around the world are eager to share the fun of contest season. As it says on the DX Amateur Radio Club of Colombia website, "Argentina, Brazil and Colombia, united toward a single end."

PJ4X: Retrenching after the Power Outage

"Once we were back on the air, we found ourselves about 250,000 points behind HK1NA. Although we closed the gap somewhat, it appeared we were going to fall short in the end. However, late Sunday afternoon, things really started to click. K1ZM was on 20, K1EA on 15, and WI9WI on 10. Each op asked many of the contacts to QSY to a band where we did not have a contact. A lot of people moved when asked. About 2 hours from the end of the contest we pulled back into a tie after being down. It was something to watch!

At PJ4X (foreground L-R): George, K5KG and Hans, PJ4LS. In the background, Jeff, K1ZM searches for mults on a packet-only laptop. Notice the preponderance of Florida Contest Group "OJ" shirts, honoring K4OJ (SK). (PJ4X Team Photo)

"Wednesday before the contest we discovered that even though the house had 120 V power, the 240 V feed for the amplifiers and one of the two air conditioners was missing. You have to see the burned up terminal block at the base of the ac power meter! It was a wonderful education in 3-phase ac power."

In a separate post a week later on the CQ-Contest reflector, George, K5KG expanded on the topic of moving stations. "Something that I have noticed for years is that when trying to get another CW station to QSY to another band, typically because you need him as a mult, I will get no response to the 'PSE QSY TO...' request," he said. "In last week's ARRL DX CW contest from PJ4X, we tried repeatedly to get stations to move to other bands, but were more often than not met with the 'deer-in-the-headlights' blank stare!"

"In comparing notes after the contest," George continued, "we concluded that if the other station was loud and fast, there was a good chance that we would get a successful QSY. Otherwise, generally, no response at all. Can it be that so many stations are (1) not really copying (or can't copy) the code, (2) not interested or able to go to another band, or (3) quickly moving off the frequency before we can even send the QSY request? With respect to the last point, we tried different canned QSY requests in our 'TU' message. We tried 'R PSE QSY TO…,' 'TU PSE QSY TO…,' and bluntly 'PSE QSY TO…' My guess is that we got successful responses to fewer than 10 percent of the requests."

VP2ME Almost Didn't Happen

VP2ME said its problems centered on 160 and, to a lesser degree, on 80. "Accurate signal reports indicated we were not loud on 160, and our low band receive antenna wound up not working, with no time to make it right," the group reported post-contest on 3830. The "missing mult" turned out to be VE4 on 160. Gremlins were up to their old tricks too, with radios inexplicably going into split, resulting in several minutes of no callers.

But the contest DXpedition almost didn't happen, explained VP2ME team member Mike, W9RE. "We were late making a decision on where to go and even whether to go on an expedition for the 2013 ARRL DX CW. It had been 5 years since the last time we had gone on an expedition." That was as PJ4R in 2008, from the now well-known station on Bonaire and established by Noah, K2NG. Mike asked John, W2GD if he knew of any Caribbean locations that could support a multi-two operation. He, in turn, suggested contacting George, K2DM who had antennas and equipment stored at Gingerbread Hill rental on Montserrat.

"We contacted the owners, David and Clover Lea, but they said that the third story of their rental — where most of the antennas go — had already been rented by Will, AA4NC. Since Mark, N5OT, and I know Will, we contacted him and asked if he was interested in combining with the three of us (Mark, N5OT; Hal, N4GG, and me) for a competitive M2 operation. He said 'yes,' and we were off and planning.

The VP2ME station setup: N5OT (L) and W9RE, with N4GG in the background. (AA4NC photo)

"Will and I had K3s and there was a TS-570 on site, so we were all set radiowise, but the amplifier situation was another matter. George had brought back to the mainland

a broken Ameritron AL-80 that he was having repaired, and on site were a broken Alpha 76PA and a broken Clipperton L. David, W6DR joined our group and took on the task of bringing a set of tubes plus all the repair parts needed to fix the Alpha. A prior visitor had provided photos of the Clipperton, which gave us some idea what was needed. We also put the AL-80 on a container vessel around Christmas in the hope that it would be there by the February contest. We would need two good amps and figured we could get one of the amps repaired and hoped the AL-80 would arrive in time. W6DR also brought along an Elecraft KPA-500 — just in case.

"The four of us rendezvoused in Miami en route to Montserrat via Antigua. Gingerbread Hill owner Dave was at the Montserrat airport with a car and a taxi, ready to transport us and all our baggage. Dave also had dinner ready for us, and we settled into our new home for the next week.

"There is a 56 foot crank-up tower that we planned to use, and I started to assemble the antennas. We had two tribanders, a 2 element shorty 40, an 80 meter inverted V and an inverted L for 160, plus a K9AY receive antenna that Mark brought and erected. We had everything pretty well ready to go Thursday night, and I even operated in the Thursday night NS event to test our antennas. Since my K3 was using the AL-80 I decided to set the TX Delay to a higher value to compensate for a slower relay in the amp. At the time I did not know that doing this created choppy keying. We had one report of this prior to the contest but were stumped as to how to correct it.

"Hal worked on the computers and network and made repairs to the amps. We discovered early on that the 160 and 10 meter band switch positions on the Clipperton L were burned, so we were counting on the Alpha and the AL-80. After a lot of work, the Alpha was repaired, and after a lot of time in customs with the shipping case, Hal, N4GG had the AL-80, which required a few minor repairs evidently incurred from rough seas in transit.

At VP2ME, AA4NC (L) and N4GG power on through the pileups. (VP2ME Team Photo)

"We had good success with our Internet connection, and Hal had the network handling all the spots without any problems. We did have a third radio setup of the TS-570/KPA-500 and used it for spotting. Mark brought parts, and he and David designed and built an interlock system to prevent the spotting station from transmitting at the same time the station it was interlocked to was transmitting.

"Will started out the contest on 20, and Mark started on 15, which lasted for about 20 minutes before he headed off to 40. Will had a 195 hour to start, which put us off to a good start, and when 40 got going, Mark was tooling along at about the same rate. The contest continued with good rates throughout."

Mike said that in past outings the team managed contact totals in the high 7000s and low 8000s, but there had been times — especially Sunday mornings — when the rate was "pretty dismal."

"This time the rates were somewhat higher, and the contest was more enjoyable, since we logged an additional 1000+ Qs. All hours combined topped 100 Qs per hour, except for the period 0600 to 1300 UTC the second day. We worked 253 stations on six bands, and 337 on five bands."

The team's contact total increased by band, with 497, 1094, 1653, 1750, 1904 and 2194 from 160 to 10 meters, respectively. "We logged several DX stations during the contest but unfortunately realized after the contest that WriteLog counted these as valid Qs, where in the past it had not. Our best hour per transmitter was by N5OT on 40 — a 202 and combined 383 hour. The worst was 18 and a combined 51 Qs/hour."

"We kept a sheet with needed multipliers and made several moves/skeds with a couple of VE4 stations for 160, but we were unsuccessful. During initial testing our K9AY seemed to be slightly better than our transmit antenna, but during the contest both seemed about equal. Afterward we learned that we did not hear that well on 160. "I'm not sure what we could have done, as the K9AY was several hundred feet away from our transmit antenna," Mike recounted, "although it was close to a low-voltage power line, and we did seem to have a little line noise."

"We were hoping for good conditions and a new world record, and early on Sunday afternoon we broke the existing world record and briefly celebrated with a beer. We knew we had some Caribbean competition with PJ2T, maybe PJ4X and TI5W, but we had no idea where we all stood in terms of score or entry category. As it turned out PJ4X was a MM, so it came down to TI5W and us. We learned Sunday night that our scores were almost exactly the same. We had a few more contacts, and they had one more multiplier."

Mark, N5OT, said, "RBN and skimmers have completely revolutionized everything since our last outing in 2008. They were potent tools, allowing us to keep an eye on TI5W, our only confirmed rival, and, of course, the RBN helpfully kept us informed that we were weaker than everyone else on every band — or so it seemed.

"Several of our operators commented that, although we mostly slowed down our telegraph keys as the contest went on and wound up more in the 27 to 29 WPM range, the TI5W guys never seemed to drop below about 38 WPM. How interesting that two distinctly different operating philosophies appeared to make little, if any, difference — all other things being equal; that is, if all other things are equal. That's the unanswered question for radio contesters, I suppose."

Mike reported that on Monday morning the team took down all the antennas and dismantled the station. "On Monday afternoon we toured the island, including the volcano destroyed capital city of Plymouth and the famous recording studio, Air Studio," he said. "Mark, Hal and I departed Tuesday morning and were home Tuesday night without any problems but a lot of memories."

PJ2T Sets a New South American M2 Record

"For 2013 we had debated whether or not to enter MM again or try M2," says PJ2T team member Kelly, NØVD. "We learned several lessons after analyzing our 2012 effort, and we knew that to be competitive in MM we would need five operating positions instead of our typical four. For the past several years we had plenty of ops to be able to staff our 4 stations. Yet, for whatever reason, this year proved to be a challenge in the recruitment department. After NP2L had to suddenly drop out at the 11th hour, we came to the decision that M2 made the most sense.

"We knew M2 would involve a little more strategy than MM, so as part of our preparation we spent a significant amount of time analyzing our logs from 2009-2012. In MM it's just a matter of run, run, run. Because band changes would be involved with M2, we wanted to get an idea from the past 5 years which bands produced the most Qs in which hours. We also took into consideration the SFI numbers over the past 5 years. In 2009 — our last M2 operation — we made a total of 137 contacts on 10. We all knew we'd have significantly more on 10 this year, since the WWV numbers were pretty close to what we saw in 2011. After all of the analysis, we drafted an operating schedule that had Run 1 operating on 10, 20, 80 and 160, and Run 2 handling duties on 15 and 40.

"It was basically at the operator's discretion as to when to change bands. We knew that 20 would likely be our 'neglected' band, since it shared time with 10 — and from the Caribbean, when 10 opens, it opens! Beginning Sunday morning, though, we began alternating between 15 and 20 on Run 2, while Run 1 was going gangbusters on 10.

"We also knew that rate would be king; this is quite evident as the results show that TI5W and VP2ME outgunned us by running about 9 percent faster. Furthermore, we knew that we had to concentrate on mults and passing them between bands. We were semi-successful in that regard.

"This was also our first foray with N1MM as our logger. I'm a firm believer that the logger should 'just work' and let the team concentrate on the task at hand. Unfortunately, we have not always had this 'luxury' in the past. While there was a bit of a learning curve for some of the guys, in the end everybody agreed that it played well despite having to relearn some keystrokes.

"Overall we're very happy with the results. This was PJ2T's highest M2 score in the history of the station,

breaking the 14 year old M2 South American record set by HC8N in 1999. Everybody on the team feels that's a huge accomplishment."

3D2RX: If You Can't Stand the Pileups, Get Out of the Kitchen!

"Our shack was the kitchen of an abandoned house on a bluff above a north-facing coral sand beach with black volcanic rock outcroppings, on which we placed an HF9V vertical.

"Our operating hours were limited by our reliance on the village diesel generator, which is normally on for only 3 hours each evening. We arranged with the village chief (our next-door neighbor) and residents for the generator to be on for 30 of the 48 contest hours, ones in which we thought we had the best chance of working North America.

"We purchased two 44 gallon drums of diesel from the island supply for extra hours of electricity for us and the villagers during our 2 week stay. We ran a long extension cord from the house of the chief to our shack. Voltage ranged from about 170 V to 210 V, depending on what the other villagers had plugged into the grid. Fortunately, except for some curious swings in the K3's power output and flicker of the table lamp, the gear withstood the fluctuations.

"We did not use the KPA500 amp during the contest, because in the previous days of operation the amp would shut down during low voltage swings without communicating to the K3, leaving us running on drive power only.

"We had an MA-160V vertical for 160 on the bluff, but after futile calls to a number of the Big Gun stations, we decided our time was better spent on 40 and 80. Our power was off from 0200 to 0630 both days, thus we missed some prime time on 20, which showed in our results. Forty, 15 and happily 10 were the money bands. We had no Internet access while on Rotuma and experienced a 3 day delay getting off the island due to weather. We are glad the ARRL did not impose a 5 day deadline to submit contest logs! Many thanks for another opportunity to work the great W/VE operators from the Pacific. — Bob, W7YAQ

Exceeding Goals

"I live on a decent-sized suburban lot, and my antennas are all verticals and wires — and I run barefoot, no linear," says Ron, W3WN. "So, if I try to go head to head with the Big Guns, nine times out of 10, I don't win. Compound that with time limitations: Some "work things" that had to be done over the weekend, playing chauffer for my daughter, who's got practices for the upcoming school play and so forth, and mounting a full-time effort becomes difficult.

"Even with all of that in mind, it's possible to set goals and achieve them. That, and having friends over to help operate, is what makes the event fun. Winter weather and work concerns kept a few of my 'regulars' away, but I did enjoy spending some time on Saturday afternoon with Bill, W3WH who was operating (nights only) his own station as a 160 meter single band entry. Bill is one of the best CW operators I've ever known — certainly better than I'll ever be. It's a true pleasure to watch him operate, and I think he enjoys using my TEN-TEC OMNI VI+, so it's a win-win.

"I set a goal of a new high number of contacts from this shack (I'd rather not say what it is. To many of the Big Guns it's laughably modest) and exceeded it. I wanted to work some of the Big Guns on all five HF bands — more than usual. Did that. I wanted to work some of the not-so-big guns on at least four HF bands. Did that. I wanted to make a few band fills on some DX. Did that. And I wanted to work a few new ones, which is getting tougher to do now that I'm at 300+ entities confirmed. Did that.

"The only goal I missed? Improving my country total on 160. Now, you have to understand that 2 years ago, I had some success on 160 with an inverted L using a neighbor's tree (with permission) at a vertical height of about 65 to 70 feet on the upper branches. Unfortunately for me, that tree had some disease problems and is now down to a main trunk at about 40 feet. As a result of the tree surgery, the antenna was now more of an end-fed V than a true inverted L. Not nearly as effective.

"A few weeks back, W3WH and I broke my old Butternut HF2V out of storage, and that is now the vertical section of the L. It's worked a little better, but I still am missing the additional height, and I don't have all the radials relocated or repositioned yet. So, my net result on 160 was one contact. At least it was for an entity that I'd only worked once before but didn't have confirmed yet. A disappointment, to be sure, but now I have something to work on for the summer.

"Bottom line: Had fun, did great, can't wait to do it all again next year!" — Ron, W3WN

Sleep Deprived

Among his problems this year, Yuri, VE3DZ who placed first in the Single-Operator, High Power category as 6Y2T, cited not enough sleep before the contest "as usual" and the fact that N1MM Logger doesn't support PTT on a second radio via CAT, "so, not having a WinKey this time, I had to sacrifice CAT on a second radio in favor of PTT/CW," he explained. This meant he had to change bands manually in N1MM and on the second radio. He says his laptop would sometimes send "broken CW," and he was unable to determine why. He said that while the second radio was a 200 W unit, it still didn't run enough power, and he did not have 160 and 80 on a second radio either. Yuri picks up the story.

"The contest started for me on 15 meters, where I could not get rid of the JA pileup for a good 15 first minutes (I was running JAs before the contest). The conditions were pretty good, but I could not achieve my goal of 1000 Qs in the first 5 hours — something I've done for the last few years in this contest. I was some 100 Qs short.

"By the mid-contest mark I was way over 3900 Qs and hoping for a good finish. However, fatigue took over and I was fighting sleepiness for many hours. I did not fall asleep on a keyboard this time, but I would send an exchange and then would find myself in some kind of a coma after a minute or two, having not typed the reply exchange into the computer. I even took a short half-hour nap.

Fighting off sleep VE3DZ operates 6Y2T in the middle of the night on the second day of the contest. (6Y5WJ photo)

"In the early morning hours Sunday I just could not get it going — jumping between 40, 20, 15 and 10 and making only 70 to 80 contacts per hour. For those who might have heard me 'on two bands at the same time,' I was doing a lot of dual CQing. The last two hours on 20 were terrific, with 200+ each hour, which kind of helped me to save face.

"Thanks to all who moved for me. I recall N8HM who gave me DC on three bands, but did not have antenna for lower bands, some VE4, VE5, OK, MS, ND and SD stations who moved for me. I recall having a QSO on 40 with KD4POJ in ND, who then graciously agreed to QSY and give me my last multiplier on 160. Special thanks to Josh, 6Y5WJ for letting me use his station, and to his lovely wife Jenny, for taking a good care of me." — Yuri, VE3DZ

Fun and Suffering

"Since I moved to Cologne, Germany, I have to go to DR1D to be in a contest, but I need to be invited," says Alex, PY1KS/DL1NX. "Since that did not happen, I put a small inverted V for 15 inside my balcony and tried to be on the air. It was 8 hours of fun and suffering to be heard. At least I got 312 QSOs and 48 states/provinces worked; for me that was awesome, because with this setup, I can't complain at all. No chance to go to WRTC 2014 anymore, since I moved — no more competition. But we must have fun, and I did! — Alex, PY1KS/PY2SEX/DL1NX

This extremely modest balcony dipole helped Alex, DL1NX to nab more than 300 contacts in 8 hours from Germany. (DL1NX Photo)

Contest as Game Show

Eric, NC6K reports having a great time operating in the 2013 ARRL International DX CW. His primary radio was in the shop, so he made do with his 12-year-old backup.

"Conditions were good, but not fantastic, and 10 meters was usable both days. Being on the West Coast now [he is ex-WB2KIH and grew up on the East Coast — Ed], I always feel like I'm at a disadvantage, but quite a few Europeans reached California early in the day, as did a lot of Pacific stations in the afternoons. Eighty meters was very good here, and that's not always the case in my suburban area, while 160 seemed decent — I actually worked eight or nine DXCC entities in North America.

"I had to use my 12 year-old ICOM IC-756PROII, as my FTDX5000 was still at Yaesu for repairs. The 'old' radio performed admirably, and I was able to score more than 150,000 points in about 14 hours of semi-serious operating. Of course, 1500 W with a Hex-Beam on the higher bands makes a big difference from the old days of 100 W and a wire dipole.

"I find it nearly impossible to work an entire contest nowadays with the family, house and the like pulling me away from the radio. I also find that staying up all night doesn't have the charm it once did. I keep telling myself that one day I'll actually work the limit for a contest, but that day never seems to come.

"As in life, listening is a virtue. Many stations in the pileups were sending their call signs endlessly, causing the rarer DX to have to repeat exchanges due to being covered up. This made everyone have to wait longer for a contact. The pileups were frustrating at times, but if you send your call sign more than twice, you're probably going to miss being called back. We all occasionally transmit on top of the station we're trying to work, but it's very frustrating to hear the DX call you back while two US stations are repeating their call signs at twice the signal level.

The Hex-Beam at NC6K did yeoman's duty on the higher bands. (NC6K Photo)

"While I'm stressing listening, DX stations should wait a minimum of 3 or 4 seconds between CQs. I sometimes feel like I'm on a game show, where if I don't hit the buzzer immediately, I'll miss my turn! This was even true of stations that were calling without responses. You won't lose the frequency if you listen for 5 seconds. I played around with the AutoCQ delay and found that 5 seconds was optimal for me, but this is a personal preference. Any longer and I felt like I was wasting time; any shorter, and I was afraid I'd call on top of a responding station.

"All stations: If you are calling 'CQ' and getting infrequent responses, why do you need to send at 40 WPM? You take more time repeating exchanges with stations that miss something at that speed than if you were just working at 20 or 25 WPM. I can easily copy 30 WPM during a contest, but it seemed a few folks out there are either ex-Western Union or were using PC-generated high speed CW. I also wonder how many

stations were scared off because they were not sure they could copy code sent that rapidly.

"There sure are some crazy call signs out there. I heard some impressive pileups on Mexican and Cuban stations with 'exotic' call signs. I guess some folks are chasing those new prefixes.

"Overall it was a very enjoyable contest, and I worked three new DXCC entities and quite a few new band-entities and tripled my country total on 160 and 80. See you all next year!" — Eric, NC6K

The HSØZCW antennas cast in the light of a South East Asia evening. (HSØZCW Photo)

Seeing Contests from Both Sides Now

Charly Harpole, K4VUD/HSØZCW says he enjoyed ARRL DX contests (CW and SSB) for more than 30 years from the US as K4VUD, but he did not operate in the 2013 ARRL DX CW.

"I never knew that all the DX I worked was actually there in service to me. Now that I am 10 years as full-time DX as HSØZCW, I see ARRL contests from an entirely different perspective.

"In contests where the US works the world, if one cannot hear the US, one gets bored very quickly. Add to that the fact that even if one can hear the US, most Yagis are pointed from NA to EU and even JA. As a result, those of us in South East Asia find it lots more difficult to work the US. My response is to listen a few minutes and then go off to 30, 17 and 12 meters.

"I think many DX hams skip the ARRL contests for the same reasons. It is just no fun for me to wait around for US operators to finally start hunting mults from the 'odd' parts of the world. ARRL contests then devolve into US-to-EU contests because of their structure. They are not fun for most of the world, I suspect, and thus participation must be down from SEA, SA, most of Asia and Africa, and all of VK/ZL. I do not want to reduce Americans' fun, but that is a whole lot of the world to ignore; however, I can get a pile up on 30, 17 and 12 meters and still make contacts on my own." — Charly, HSØZCW

Division Winners

Single-Operator, High Power

Atlantic	K3CR (LZ4AX, op)	7,134,810
Canada	VY2TT (K6LA, op)	6,722,772
Central	K9NW	3,351,765
Dakota	KØSR	2,255,625
Delta	K4RO	3,490,362
Great Lakes	N8AA	3,963,360
Hudson	N2NT	6,906,060
Midwest	KØJPL	624,312
New England	KØDQ	8,084,796
Northwestern	N9RV	4,379,625
Pacific	K6XX	2,756,073
Roanoke	KØZR	2,493,810
Rocky Mountain	N2IC	5,259,366
Southeastern	AD4Z	4,196,760
Southwestern	W6YI (N6MJ, op)	3,859,728
West Gulf	K5GN	5,579,925

Single-Operator, Low Power

Atlantic	K3AJ	1,618,650
Canada	VE1RGB	1,153,848
Central	N4TZ	3,061,056
Dakota	NAØN	1,021,293
Delta	K5KU	1,145,238
Great Lakes	NA8V	2,382,615
Hudson	K2TTM	937,950
Midwest	KIØI	500,625
New England	N1UR	4,110,678
Northwestern	N7ZG	1,234,341
Pacific	K7ACZ	287,040
Roanoke	N4YDU	2,111,910
Rocky Mountain	WØETT	673,182
Southeastern	NN4X	1,120,278
Southwestern	N6RV	741,426
West Gulf	N5AW	3,024,120

Single-Operator, QRP

Atlantic	K3PH	1,099,980
Canada	VA3SB	790,938
Central	N1RU	100,050
Dakota	NTØZ	22,515
Delta	W9WI	976,950
Great Lakes	KT8K	458,880
Hudson	W2ID	1,080,789
Midwest	KØOU	362,082
New England	N1IX	816,024
Northwestern	N7RCS	10,710
Pacific	W6JTI	464,928
Roanoke	N4CW	759,600
Rocky Mountain	NO2D	1,080
Southeastern	AA4GA	207,060
Southwestern	N7IR	577,404
West Gulf	WA5RML	20,520

Single-Operator Unlimited, High Power

Atlantic	K3WW	7,783,977
Canada	VA2WA (VA2WDQ, op)	2,910,600
Central	K9IMM	2,638,272
Dakota	KØKX	2,369,547
Delta	AD4EB	2,417,661
Great Lakes	N8BJQ	3,502,680
Hudson	W1GD	3,344,229
Midwest	WDØECO	744,072
New England	K5ZD	6,693,312
Northwestern	KG7H	1,461,396
Pacific	N6JV	1,339,416
Roanoke	K5EK	2,577,198
Rocky Mountain	K7UA	1,684,095
Southeastern	N4WW	2,305,800
Southwestern	KO7AA	3,225,150
West Gulf	K5CM (W5CW, op)	1,579,095

Single-Operator Unlimited, Low Power

Atlantic	W3KB	2,373,030
Canada	VA3EC	985,500
Central	W9XT	1,766,937
Dakota	KØAD	1,109,808
Delta	W4TTM	313,470
Great Lakes	N9AUG	721,809
Hudson	K2ZC	1,284,981
Midwest	AAØAI	269,874
New England	WO1N	2,088,801
Northwestern	KE7X	1,349,400
Pacific	K6AAB	267,741
Roanoke	AA4R	576,870
Rocky Mountain	KØRI	1,106,448
Southeastern	K4XS	4,616,514
Southwestern	K6WSC	611,064
West Gulf	N5DO	1,674,090

Single-Operator, Single Band [10]

Atlantic	K2SSS	220,320
Canada	VE3KZ	102,573
Central	WB9Z	136,890
Delta	N2WN	67,392
Great Lakes	WS8K	11,730
Hudson	WB2AMU	17,907
New England	W3EP	166,725
Pacific	K6TA	104,640
Roanoke	K8OWL	1,560
Rocky Mountain	AA7DJ	38,415
Southeastern	N4OX	88,740
Southwestern	K9WZB	59,976
West Gulf	W5GAI	57,456

Single-Operator, Single Band [15]

Atlantic	K3GW	113,781
Canada	N2WQ/VE3	358,455
Central	N9CO	192,570
Dakota	KØTT	72,900
Delta	K4AMC	107,172
Great Lakes	NE8P	393,366
Hudson	KD2RD	540,756
Midwest	KFØIQ	26,784
New England	KI1G	615,942
Northwestern	K7ZA	130,491
Pacific	N6ZFO	139,500
Roanoke	K3RV	643,926
Rocky Mountain	N7DR	141,183
Southeastern	N4PN	531,573
Southwestern	N7AT (K8IA, op)	397,872
West Gulf	W5TM	280,692

Single-Operator, Single Band [20]

Atlantic	N2PP	530,424
Canada	VE1AYY	48,090
Central	W9ILY	247,848
Delta	N4ZZ	360,600
Great Lakes	N8AGU	260,580
Hudson	K2XA	656,544
Midwest	WØEWD	261,096
New England	KG1V	54,390
Northwestern	K7MH	36,381
Pacific	N6LL	4,092
Roanoke	N4HA	99,900
Southeastern	N4TB	470,322
West Gulf	K5UTD (HK1A, op)	132,066

Single-Operator, Single Band [40]

Atlantic	W3BGN	192,276
Canada	VE6WQ	179,118
Central	K9NR	188,376
Dakota	NEØU	55,161
Great Lakes	W8WA	88,800
Hudson	K2GV	13,851
New England	W1FQ	33,462
Northwestern	W7WA	338,724
Roanoke	W4JKC	41,400
Rocky Mountain	K5TA	17,442
Southeastern	WA1FCN	161,925
Southwestern	N6MA	191,808
West Gulf	KN5L	13,938

Single-Operator, Single Band [80]

Atlantic	N3IQ	154,704
Canada	VE3OSZ	49,446
Central	K9KU	48,348
Dakota	NXØX	27
Delta	K5FNQ	17,226
Great Lakes	AC8CE	9,180
Hudson	K2BB	23,562
Midwest	KØKT	72,210
New England	W1MK	286,650
Pacific	W6RKC	11,223
Roanoke	WX4G	166,608
Rocky Mountain	N5FO	45,144
Southeastern	W1MO	63,156
West Gulf	KIØG	9,450

Single-Operator, Single Band [160]

Atlantic	W2MF	16,995
Canada	VE3CV	3,999
Central	NE9U	1,380
Delta	K4EJQ	8,103
Great Lakes	W8TOP (W8UVZ, op)	29,484
Hudson	N2GC	7,965
Midwest	NØTT	9,828
Northwestern	W7WR	450
Pacific	K6XM	504
Roanoke	W4ZV	83,808
Southeastern	W4SVO	40,635
Southwestern	N7GP	11,070

Multioperator, Two Transmitter

Atlantic	N3RS	11,809,854
Central	K9CT	9,855,360
Dakota	KDØS	559,116
Delta	K5GO	10,811,604
Hudson	W2CG	3,689,700
New England	KB1H	8,933,604
Pacific	W7RN	5,162,289
Roanoke	NY4A	10,990,662
Canada	VE3JM	9,612,504

Multioperator, Multitransmitter

Atlantic	K3LR	18,046,977
Central	WØAIH	7,264,770
Delta	W5RU	5,208,000
New England	K1LZ	15,810,600
Pacific	N6RO	5,886,609
Roanoke	NR4M	14,169,168
Rocky Mountain	AA5B	2,124,330
Southeastern	NQ4I	13,774,563

Multioperator, Single Transmitter, High Power

Atlantic	W2FU	9,055,458
Canada	VE7IO	220,176
Central	AA9A	2,967,888
Dakota	KØJA	691,560
Great Lakes	K8AZ	5,883,768
Hudson	K2QMF	5,944,560
Midwest	NØNI	3,130,116
New England	K1HI	4,373,460
Northwestern	W7DK	5,445
Pacific	W6YX	2,565,300
Rocky Mountain	W7DXX	166,002
Southeastern	N4GI	2,194,359
Southwestern	K6LL	2,852,496
West Gulf	K5TR	4,648,518

Multioperator, Single Transmitter, Low Power

Atlantic	W3YI	548,301
Canada	VE9ML	1,862,574
New England	W1TM	54,693
Northwestern	K2PO	1,966,536
Rocky Mountain	KØUK	357,048
West Gulf	WDØGTY	158,412

Regional Leaders

SOQRP/LP/HP = Single-Op All-Band; SOULP/HP = Single-Op Unlimited; MSL/MSH = Multioperator, Single Transmitter

Northeast Region

New England, Hudson and Atlantic Divisions; Maritime and Quebec Sections

Call	Score	Cat
KØDQ	8,084,796	SOHP
K3CR (LZ4AX, op)	7,134,810	SOHP
N2NT	6,906,060	SOHP
N1UR	4,110,678	SOLP
K3AJ	1,618,650	SOLP
K1VSJ	1,477,701	SOLP
K3PH	1,099,980	SOQRP
W2ID	1,080,789	SOQRP
N1IX	816,024	SOQRP
K3WW	7,783,977	SOUHP
AA3B	7,204,194	SOUHP
K5ZD	6,693,312	SOUHP
W3KB	2,373,030	SOULP
WO1N	2,088,801	SOULP
WW3S	1,940,400	SOULP
K2SSS	220,320	SO-10
W3EP	166,725	SO-10
K2PS	108,612	SO-10
KI1G	615,942	SO-15
KD2RD	540,756	SO-15
W2AW	223,635	SO-15
K2XA	656,544	SO-20
N2PP	530,424	SO-20
WR2G	112,992	SO-20
W3BGN	192,276	SO-40
W1FQ	33,462	SO-40
KM2T	19,008	SO-40
W1MK	286,650	SO-80
N3IQ	154,704	SO-80
K3JGJ	65,268	SO-80
W2MF	16,995	SO-160
W3GH	16,854	SO-160
N2GC	7,965	SO-160
W2FU	9,055,458	MSH
W2RE	8,527,356	MSH
K2QMF	5,944,560	MSH
VE9ML	1,862,574	MSL
W3YI	548,301	MSL
W3WN	180,297	MSL
N3RS	11,809,854	M2
KB1H	8,933,604	M2
K2AX	5,902,671	M2
K3LR	18,046,977	MM
W3LPL	17,296,773	MM
K1LZ	15,810,600	MM

Southeast Region

Delta, Roanoke and Southeastern Divisions

Call	Score	Cat
W9WI	976,950	SOHP
N4CW	759,600	SOHP
AA4GA	207,060	SOHP
N4YDU	2,111,910	SOLP
N4UA	2,108,832	SOLP
K5KU	1,145,238	SOLP
AD4Z	4,196,760	SOQRP
K4RO	3,490,362	SOQRP
K1TO	3,440,625	SOQRP
K5EK	2,577,198	SOUHP
K2SX	2,517,564	SOUHP
W4MYA	2,459,040	SOUHP
K4XS	4,616,514	SOULP
WD4AHZ	2,116,500	SOULP
K1KNQ	989,457	SOULP
N4OX	88,740	SO-10
K4WI	81,198	SO-10
N2WN	67,392	SO-10
K3RV	643,926	SO-15
N4PN	531,573	SO-15
K9OM	429,948	SO-15
N4TB	470,322	SO-20
N4ZZ	360,600	SO-20
K9IL	138,699	SO-20
WA1FCN	161,925	SO-40
K4VU	77,034	SO-40
W4JKC	41,400	SO-40
WX4G	166,608	SO-80
W1MO	63,156	SO-80
N8II	49,536	SO-80
W4ZV	83,808	SO-160
W4SVO	40,635	SO-160
N4XD	34,404	SO-160
N4GI	2,194,359	MSH
AD4ES	195,975	MSH
NY4A	10,990,662	M2
K5GO	10,811,604	M2
W4RM	9,086,820	M2
NR4M	14,169,168	MM
NQ4I	13,774,563	MM
W5RU	5,208,000	MM

Central Region

Central and Great Lakes Divisions; Ontario Section

Call	Score	Cat
VA3SB	790,938	SOHP
KT8K	458,880	SOHP
W8RTJ	365,484	SOHP
N4TZ	3,061,056	SOLP
NA8V	2,382,615	SOLP
N9CK	1,912,950	SOLP
VB3E (VE3AT, op)	4,693,380	SOQRP
N8AA	3,963,360	SOQRP
K8GL	3,472,896	SOQRP
N8BJQ	3,502,680	SOUHP
W8MJ	3,111,426	SOUHP
K9IMM	2,638,272	SOUHP
W9XT	1,766,937	SOULP
WE9R	1,396,236	SOULP
VA3EC	985,500	SOULP
WB9Z	136,890	SO-10
VE3KZ	102,573	SO-10
WS8K	11,730	SO-10
NE8P	393,366	SO-15
N2WQ/VE3	358,455	SO-15
N9CO	192,570	SO-15
N8AGU	260,580	SO-20
W9ILY	247,848	SO-20
VE3FJ	46,872	SO-20
K9NR	188,376	SO-40
W8WA	88,800	SO-40
K9CJ	50,310	SO-40
VE3OSZ	49,446	SO-80
K9KU	48,348	SO-80
K9ZM	25,296	SO-80
W8TOP (W8UVZ, op)	29,484	SO-160
VE3CV	3,999	SO-160
NE9U	1,380	SO-160
K8AZ	5,883,768	MSH
AA9A	2,967,888	MSH
WN9O	1,861,704	MSH
K9CT	9,855,360	M2
VE3JM	9,612,504	M2
VE3YAA	4,197,960	M2
WØAIH	7,264,770	MM

Midwest Region

Dakota, Midwest, Rocky Mountain and West Gulf Divisions; Manitoba and Saskatchewan Sections

Call	Score	Cat
KØOU	362,082	SOHP
VE5VA	81,312	SOHP
N8LA	30,240	SOHP
N5AW	3,024,120	SOLP
WØUO	1,742,895	SOLP
NAØN	1,021,293	SOLP
K5GN	5,579,925	SOQRP
N2IC	5,259,366	SOQRP
K5WA	3,928,905	SOQRP
KØKX	2,369,547	SOUHP
NØAT	1,782,426	SOUHP
KØIR	1,701,063	SOUHP
N5DO	1,674,090	SOULP
KØAD	1,109,808	SOULP
KØRI	1,106,448	SOULP
W5GAI	57,456	SO-10
AA7DJ	38,415	SO-10
K9BWI	27,900	SO-10
W5TM	280,692	SO-15
N7DR	141,183	SO-15
KØALT	136,038	SO-15
WØEWD	261,096	SO-20
K5UTD (HK1A, op)	132,066	SO-20
N4IJ	47,064	SO-20
NEØU	55,161	SO-40
K5TA	17,442	SO-40
KN5L	13,938	SO-40
KØKT	72,210	SO-80
N5FO	45,144	SO-80
KIØG	9,450	SO-80
NØTT	9,828	SO-160
K5TR	4,648,518	MSH
K5RX	3,580,962	MSH
NØNI	3,130,116	MSH
KØUK	357,048	MSL
WDØGTY	158,412	MSL
KDØS	559,116	MSL M2
AA5B	2,124,330	MM

West Coast Region

Pacific, Northwestern and Southwestern Divisions; Alberta, British Columbia and NWT Sections

Call	Score	Cat
N7IR	577,404	SOHP
W6JTI	464,928	SOHP
W6QU (W8QZA, op)	217,752	SOHP
N7ZG	1,234,341	SOLP
K7BG	1,225,269	SOLP
WJ9B	857,805	SOLP
N9RV	4,379,625	SOQRP
W6YI (N6MJ, op)	3,859,728	SOQRP
K6XX	2,756,073	SOQRP
KO7AA	3,225,150	SOUHP
AA7A	3,185,808	SOUHP
VE7JH	2,600,829	SOUHP
KE7X	1,349,400	SOULP
VE6TN	678,192	SOULP
K6WSC	611,064	SOULP
K6TA	104,640	SO-10
K9WZB	59,976	SO-10
W7ZR	34,692	SO-10
N7AT (K8IA, op)	397,872	SO-15
N6ZFO	139,500	SO-15
K7GK	135,903	SO-15
K7MH	36,381	SO-20
VE7NI	6,786	SO-20
N6LL	4,092	SO-20
W7WA	338,724	SO-40
N6MA	191,808	SO-40
VE6WQ	179,118	SO-40
W6RKC	11,223	SO-80
KJ6MBW (VK2IMM, op)	9,690	SO-80
N7GP	11,070	SO-160
K7HP	1,638	SO-160
N6TI	1,035	SO-160
K6LL	2,852,496	MSH
W6YX	2,565,300	MSH
K6MMM	853,224	MSH
K2PO	1,966,536	MSL
VA7DZ	450,177	MSL
		MSL
W7RN	5,162,289	M2
N6RO	5,886,609	MM