Don Field, G3XTT

World Radiosport Team Championship 2010—Russia

Take more than 150 of the world's top contesters. Put them in one place on the outskirts of Moscow at 48 near-identical locations. Add a handful of Russian hospitality and a generous dollop of great weather. Fold all ingredients into an Amateur Radio competition among 48 two-person teams from 26 countries, coinciding with the IARU HF World Championship. Allow to marinate for 24 hours. It all adds up to recipe for lots of fun and international goodwill. Read on!

World Radiosport Team Championship 2010 took the WRTC concept full circle. The first WRTC, in Seattle in 1990, was organized in connection with the Goodwill Games, bringing together competitors from Russia and the US in a unique way. There was therefore a particular poignancy to having Russia host WRTC 2010.

It was obvious from the moment in Brazil in 2006 when the Russians offered to host the 2010 WRTC that this year's event would be special. The hosts were quite clearly determined to make it so. In addition there was the promise of a new and challenging format, based on a formula in use for some years for the internal Russian Radio Team Championship (RRTC) event (see "To Russia with RF," by Roger Western, G3SXW, Nov/Dec 2009 *NCJ*).

The RRTC format translated well to the WRTC, establishing as nearly as possible a level playing field among teams. Despite the best efforts of previous organizers, however, there has inevitably been some station-to-station variation, by virtue of location (terrain, nearby noise sources, etc). In Brazil, for example, WRTC stations were scattered over a rather wide area, with some on the coast, some inland on high ground, some in rural areas and some in urban locations. The Brazilian organizers did a fantastic job of finding more than 50 willing hosts and erecting identical antenna installations at every one of them, but compromises were inevitable.

The WRTC 2010 concept called for setting up Field Day-style stations in relatively close proximity in the Domodedevo region of Moscow. Domodedevo is fortunate in having a ham as its mayor — not just a ham, but an active contester, Leonid Kovalevskiy, RZ3DU. Because of this, Domodedevo has become the ham radio capital of Russia, hosting the RRTC events and an annual convention.

My own prior WRTC experience was as a referee in Brazil for WRTC 2006. My plan this year was to travel to Moscow in the same role, having been nominated by the Cyprus team (Marios, 5B4WN/GØWWW, is an old friend who helps MMØBQI and me to run the popular Islands on the Air contest). Roger, G3SXW, an old hand at WRTC, had to cancel his travel plans, however, and I was asked to take his place as one of the judges, an honor indeed (Roger remained available via the Internet as a source of wisdom and experience). This gave me a great opportunity to observe the workings of WRTC from the inside and to have extensive access to the various teams.

What's New?

Every WRTC has a new and unique flavor, and WRTC 2010 in Russia was no different. In Brazil, for example — given the location and time of year — competitors for the first time were allowed to use linear amplifiers and provided with a 40 meter Yagi. The primary twist in Russia was the Field Day style of operating already noted. Russian volunteers (some traveled great distances, from the far reaches of UA9/Ø) had set up 50 comparable sites, consisting of an 11 meter (approximately 36 feet) mast, with a tribander (think Force 12 C3 — two full-sized elements on each band, with a single feed point) and inverted Vs for 40 and 80. Each operating location had an operating tent (with tables), latrine tent and generator. The locations were spread around nine large fields over an area of approximately 150 square miles. Organizers made an effort to check aspects such as site elevation, to ensure the locations were as similar as possible.

Stations were sited at least 500 meters apart, and each field had a "captain" and support crew available to deal with any logistical problems, such as a faulty generator. At each location was a small team of volunteers to take care of the operators, whether with setting up equipment, calling for outside help if needed and keeping the generator fueled throughout the 24 hours of the contest.

Volunteers at some locations included young people from the RK3RXK radio club, which is linked to a local orphanage. We were delighted to see how motivated these young people were, and we look forward to their becoming leading Russian hams of the future.

EY8MM

Figure 1 — Judges G3XTT (left) and K1ZZ with one of the young helpers from club RX3RXK

Drawing again from Russian experience with the RRTC, the rules represented a bit of a departure from past WRTCs. Principally, this meant that both members of each two-person team could operate, but only one signal could be on the air at a given time. The benefit was that both operators could participate fully in the contest, whether in "run" or "search-and-pounce" mode, making for a much more fulfilling contesting experience.

The challenge, though, not only was to design a switching system to prevent simultaneous transmission from both radios (what many readers will know as an "octopus") but also to implement a triplexer to allow both transceivers simultaneous access to the triband Yagi, such that one operator could listen on the Yagi while the other was transmitting. A handful of teams made do *without* a triplexer by, for example, using the 40 meter inverted V on 15, but doing so put them at an obvious disadvantage. The various requirements led to some very complex arrangements of switches and filters!

This brings us nicely to the stations. WRTC 2010 rules did not permit linears — stations were limited to 100 W — or 40 meter Yagis. Competitors could choose whatever transceiver they wished. For most teams, the main constraint was airline baggage allowances, given at least two transceivers (backups were allowed), two PCs, keyers, station controllers, triplexers and so forth to be brought to Russia. Some of the European teams chose to drive, which allowed fewer constraints in transporting gear, but all teams managed to bring what they needed, even if it did mean cutting down on clothes and other "non-essentials."

The choice of radios was revealing. By far the most popular was the Elecraft K3, chosen by approximately half of the teams, largely, one might suspect, for reasons of size and weight, along with excellent performance. It is a sobering thought to reflect that this radio did not even exist when the last WRTC took place. Following in popularity were the ICOM IC-756 in various iterations and several models of the Yaesu FT-1000 series, typically the FT-1000MP. One team deployed a pair of IC-7800s, a great radio but somewhat on the large and heavy side. Apart from these, I noted an IC-775 and a Kenwood TS-850 among the "second" radios.

Those backups came in handy after a storm took out the Austrian team's K3s. The operators resorted to using a pair of FT-857s and still managed to put in a very creditable performance (see "World Radiosport Team Championship 2010 Final Scores," elsewhere in this issue for more details).

EY8MM

Figure 2 — All that filtering and switching didn't necessarily make for the tidiest arrangements at R33A (ES5TV and ES2RR), which placed second).

G3XTT

Figure 3 — A typical operating position: At R37Q, ops 5B4WN and 5B4AFM used a K3 and an IC-756, plus *Win-Test* for logging.

Schedule

Some competitors chose to arrive a few days before the WRTC, so they could fully adjust to local time and do some sightseeing. The majority arrived in Domodevedo on the Thursday before the contest. They were met at the main airports or railway station by local volunteers, who helped them negotiate Russian immigration and customs and transported them to the Atlas Park hotel, WRTC headquarters for the duration. The Atlas Park is a splendid hotel in its own wooded grounds, bounded on one side by a pretty river and having carefully manicured gardens. For anyone holding negative preconceptions about Soviet-era hotels, the Atlas Park was a very pleasant surprise.

There was a formal opening ceremony on the Thursday evening, in a large marquee in the hotel grounds. The teams paraded in to a welcome by the organizers and the mayor of Domodevedo, to be entertained by Russian singers, dancers and

musicians — getting us attuned to the local culture. Friday morning saw the drawing for location and call sign (to be kept in a sealed envelope until 15 minutes before the start of the contest), along with the appointment of team referees.

An open forum for competitors and referees alike offered an opportunity to ask questions about rules, logistics and other topics. To help acquaint everyone with what they would find on site, the organizers had set up a typical location (tent, tables, antennas and generator) on the hotel grounds. A referees' meeting later in the day dealt with any questions and issued checklists, a power monitor (three LEDs: green for 25+ W, yellow for 105+ W and red for substantial excess power) and a wireless router with GPRS "dongle" to send scores from each location at 10 minute intervals for posting on the WRTC 2010 Web site. Referees each got a cell phone, both as a backup to the wireless router and to enable contact with WRTC HQ in case questions, issues or an emergency arose. As it turned out, the routers failed to perform as intended, so the cell phones proved invaluable.

Saturday saw an early start, with buses provided to take competitors and referees to their appointed locations. Most were set up well before the contest, but the intention was to allow time for any problems, such as interstation interference, to be hammered out before the event got under way. Very few such problems arose, although two teams were moved to alternate locations to avoid power line noise that had arisen since the initial site surveys. Some competitors took advantage of the spare time to get a quick nap on site; others arranged car transport back to the hotel to do the same.

G3XTT

Figure 4 — WRTC 2010 winners RA1AIP (left) and RW1AC flank event organizers RA3AUU and RZ3AA

N6TV

Figure 5 — Members of Team USA prepare for the opening ceremony.

The Contest

Russian authorities issued call signs in the R3##X block. Fifteen minutes before the start, helpers were asked to leave the operating tents, volume controls were turned down and envelopes were opened. Call signs then could be programmed into the logging software, and it was time to take a deep breath and wait for the contest to start. Referees were charged with listening on headphones throughout the 24 hours (and not falling asleep!), making notes of any rule infringements or anything that might assist in contest adjudication (such as broken call signs). Like the IARU, the WRTC is a mixed-mode event; unlike the IARU, it does not include 160 meters (more for practical reasons than anything else).

Most teams elected to start on CW, perhaps with one operator running and one in search-and-pounce mode. WRTC scoring would be based on DXCC entities and IARU headquarters stations as multipliers, unlike the IARU event which uses ITU zones rather than DXCC entities. Some teams, even from the outset, had both operators in run mode, which must have been quite a challenge in timing and coordination given the lockout system.

I had the opportunity to listen to the start of the event, using a nice new FTDX5000 loaned by Yaesu, a WRTC sponsor, from the demonstration station at the hotel. It was quite eerie to hear the bands go from very quiet to total cacophony in a matter of seconds!

Moscow is a very long way from the sea, a bit like living in the US Midwest I would imagine. What might be achieved with 100 W to a tribander at 36 feet? Obviously Western European contacts were likely to predominate, but after looking at some of the WRTC logs, it became clear that Japan was workable right from the start both on 20 and 15, while stronger US East Coast stations were workable on 20 pretty much from the outset.

As darkness approached, 40 meters

opened to UA9 and JA, while 15 and even 10, were producing multipliers from Africa and South America as well as some short-skip (E_s) propagation around Europe. Through the night 80 allowed good runs to Europe (much easier on CW than SSB) plus a few close-in DX stations such as UN and ZC4. As the sun came up there were more Asian multipliers to be worked on 20, 15 and occasionally 10, and the more successful WRTC stations were aggressively moving these mults from band to band. Perhaps most interesting, though, was the 20 meter opening to the US West Coast around the 0200-0400 UTC period (daybreak in Moscow). That must have led to quite a feeding frenzy in W6/7-land, to catch as many WRTC QSOs as possible.

In terms of QSO totals, the end result was well above what most competitors had anticipated. I believe it was N6XI who reflected, "If you had told me you could go on a Field Day-style operation, taking all your gear — except antennas — on an aircraft, and make over 3000 QSOs in 24 hours, I would have said you were crazy!" CW was by far the preferred mode, accounting for about 70 percent of contacts.

The main challenge for many of the teams was a sudden electrical storm that passed through the Domodedevo area soon after the contest started. Some teams chose to shut down for a short period. Others took the view that if they kept going there was a slight risk of equipment damage, but that if they went off the air even for a short while, there was a 100 percent chance that other teams would forge ahead of them.

The other challenge was local bugs which, if they bit you, seemed to have the effect of making you drowsy (or maybe it was just the lack of sleep). It was pretty hot in the tents, but most support teams had brought along reflective aluminium foil, which they draped over the tents' exteriors. This seemed to be quite effective at fending off the sun's rays.

Team referees faced quite a challenge in this WRTC, having to listen simultaneously to two radios for 24 hours without the benefit of the adrenaline that comes from actually running the pileup. It is to their credit that not only did they all achieve this, but that their notes and observations were helpful to the judges during the final adjudication. It should be noted, too, that all teams were asked to record their audio for possible checking after the contest. In these days of large hard disks, recording 24 hours of audio from two radios is no big deal, of course.

After the Event

The contest wrapped up at 4 PM local time, and by 6 PM, most teams had packed their gear and were back at the hotel for much-needed showers and a rest. The Judging Committee collected logs and audio files and prepared for a long night of its own. IARU contest participants throughout the world had been invited to send in their logs during a six-hour window after the contest ended. By 10 PM local time some 1200 logs were available to assist with the adjudication process. The log-checking software was a modified version of that used annually for the RRTC contests. It was able to produce an LCR in just a few minutes. It very quickly became clear, however, that a number of the logs received from around the world were not compliant for one reason or another. Some, for example, showed CQ zone rather than ITU zone; others were in local time rather than UTC. It was possible to edit some of these logs and retain them in the database, but others had to be discarded.

The greatest challenge the judges faced was the closeness of the scores. After 24 hours and QSO rates peaking at 150 to 200 per hour, just a handful of QSOs and/or multipliers separated the leading stations. Clearly the "level playing field" challenge really had been met, but it meant that the highest-scoring logs would have to be scrutinized very closely by the good old fashioned "eyeball" method to ensure that everything was as fair as possible.

The judging team worked on the logs until about 5 AM, grabbed a couple of hours sleep, met for breakfast, and then resumed the adjudication process, finishing late on Monday morning. At that point we rushed the results to Harry, RA3AUU, to prepare final listings, trophies and so forth in readiness for the gala dinner that evening.

I wish to express thanks to fellow judges K1ZZ, EY8MM, and UA9PM, all of whom applied a great deal of professionalism and experience to the adjudication process.

G3XTT

Figure 6 — The Atlas Park Hotel was WRTC 2010 headquarters.

Results

NCJ readers will, I feel sure, already be familiar with the final results, published on the WRTC 2010 Web site as well as in many other places. One innovation of WRTC 2010 had been a live webcam feed over the Internet, with a camera in the hotel and a roving camera visiting a number of the operating sites. Consequently, it was possible to announce the results of WRTC 2010 live on the Internet.

R32F came in first, with Russian operators Vladimir Askenov, RW1AC, and Alexey Mikhailov, RA1AIP, just barely edging out the Estonian team of Tonno Vahk, ES5TV, and Toivo Hallikivi, ES2RR, who operated as R33A. The Russian team's winning margin was less than 0.33 percent! This year's event marked the first time a North American team did not win. Coming in third with an amazing 3549 contacts — the most in the event — was the R33M team of Dan

N6TV

Figure 7 — Local musicians and dancers at the opening ceremony provided some local color.

Craig, N6MJ, and Chris Hurlbut, KL9A, who did not lose a single multiplier during log checking.

The number one team of Vlad and Alex had operated together on many occasions at the RU1A contest station, and their WRTC referee commented that they barely spoke to each other during the contest, seeming almost telepathic in the way they worked as a team.

The presentation dinner was a superb affair, with plenty of food, wine (and vodka, naturally) and more local entertainment, as well as commemorative plaques for those involved as competitors and referees and in other key roles. It was a fitting conclusion to a wonderful few days.

Reflections

What does winning a WRTC mean? Prior to this year's event, there was quite a lot of Internet chatter about the rules and what they meant for the overall result. Some teams were eager to promote the use of leading-edge technology. Others felt this detracted from a test of basic operator skill. Some felt a CW-only event would more fair, since it would be harder for contesters around the world to identify particular teams and, perhaps, indulge in some cheerleading.

At the end of the day it has to be recognized that a WRTC cannot identify a "world's best contester," if only because that's a meaningless concept. Some contesters are best at rate, others at accuracy. Some are best at CW, others at phone. Some would prefer to include data modes. Others only perform at their best from their home stations, where they know the gear and the propagation. Still others are adept at dealing with new situations.

What a WRTC does nonetheless is to allow teams of two (not individuals) to pit themselves against similar teams from around the world in the nearest thing that Amateur Radio has to the mythical "level playing field." But it is much more. As I said in my introduction, it is a forum for the creation and development of international friendships. It is a focus, during the qualifying stages, for enthusiastic contesters to hone their skills and maximize their scores in various qualifying events.

How did WRTC 2010 pan out for those at the "other end" of the pileup? The organizers made every effort to include everyone, with awards available to those working a predetermined number of WRTC stations, live video feeds of the major WRTC ceremonies and regular updates of the team scores on the Web site. All this appears to have generated a sense of involvement around the world and promises to make the *next* WRTC even more of a success.

No date or venue had been set for the next WRTC as this article was being written. The Field Day approach to achieving a level playing field met with strong approval from all competitors, but it demands a huge amount of logistics to be successful. Tentative proposals have reportedly been received from the New England area and from Bulgaria. We can hope a firm date and location will be announced by the WRTC Sanctioning Committee in the near future, along with details of how to qualify for the event.

Thanks

The job of putting on a WRTC event is mammoth, not to mention the substantial costs involved. Thanks are due especially to the leaders of the organizing committee, Harry, RA3AUU (well known as a contester and frequent DXpeditioner), and Roman, RZ3AA, and to their team including RZ3DU, the mayor of Domodedevo, who was able to provide locations for the WRTC stations, along with other local help. Forty-eight identical masts and antennas had to built, consuming some 12 large truckloads of steel and aluminium.

Thanks also to the support teams. Each and every one of the competitors had nothing but praise for these men and women who organized food, generator refueling and other logistics before, during and after the contest.

Thanks to the sponsors, corporate and individual, who helped cover the high cost of staging WRTC 2010. They are listed in full on the WRTC Web site. Thanks also to Reisebuero WELT, the agency that played a major role part in helping with travel, visas, accommodation and excursions.

If you want to know more, the PVRC's excellent series of webinars include one pre-WRTC 2010 presentation and couple of post-event ones. Check out the PVRC Web site, **www.pvrc.org/webinar/webinars.htm**. NCJ