

Measurement News

March 2003 • Number 118



Paula Radcliffe ran a WR time of 30:21 at the World's Best 10k in San Juan, Puerto Rico. Here we see, escorted by San Juan police, validators on the course the next day. Left to right: Police escort, Pedro Zapata, technical director of the race, Pedro's son Willie (who finished both the triathlon and the 10k the previous day), and Pete Riegel, race observer.

Photo by Jose L. Cruz
Candelaria/PRIMERA HORA Newspaper

MEASUREMENT NEWS

#118 – MARCH 2003

Editor: Jim Gerweck
156 Fillow Street, Norwalk, CT 06850-2315.

Telephone: 203-838-2748 (home, not after 10 PM Eastern time)
FAX: 203-838-2748 (home - call before faxing)
Email: zgerweck@optonline.net

RRTC Chairman: Mike Wickiser
2939 Vincent Road, Silver Lake, OH 44224.
Phone/fax: 330-929-1605
Email: MikeWickiser@neo.rr.com

Subscription cost:

MN is sent free to RRTC officers and certifiers, and AIMS/IAAF measurers. Others may obtain MN by sending \$20 (for a one year subscription - six issues) to the editor.

Deadlines

Material intended to be included in the May 2003 issue must be in the Editor's hands by April 24. Next issue will be mailed in early May.

ONLINE MEASUREMENT FORUM

All it takes to become a subscriber is access to email. Simply send to mnforum-request@rrtc.net with "subscribe" as the subject (and to unsubscribe, use "unsubscribe" as the subject).

To post messages to the list, send email to mnforum@rrtc.net. Please keep your comments in the body of the email (no attachments please). Also, please send only plain text; i.e., avoid formatted (HTML) messages (If you use HTML formatting, the formatting will be removed).

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Visit the RRTC website at:

<http://www.rrtc.net>

A complete list of certified courses may be downloaded from this site.

A complete USATF measurement book can be downloaded from this site.

ABOUT MEASUREMENT NEWS

Measurement News (MN) is the newsletter of the Road Running Technical Council (RRTC) of USA Track & Field (USATF). MN is our way to talk to one another, so that we all know what's going on.

MN is also sent to many foreign measurers associated with AIMS and IAAF, who are also invited to participate in the dialogue.

MN is published bimonthly beginning in January (six issues per year).

If you wish to reproduce or report on anything in MN, go ahead, but an attribution would be appreciated.

MN wants to make road course measurement as good as it can be. All opinions and grievances are solicited. No cows are sacred. If you have a new measurement technique, or if you think things should be done differently, send in your contribution to MN. Your opinion will be given space. Nothing changes until somebody tries!

Electronic copy or clean typed material is most welcome, but send what you can.

* * * * *

Chairman's Clatter - From Mike Wickiser

I generally try to write about something new or interesting regarding the RRTC. From time to time there is so much activity it is difficult to fit everything in. This month is not one of those times. I recently managed to get out and finish up with the Akron Marathon. Since this new race will be a Championship Ekiden relay I certified the course on one certificate and certified each 5k along the course on a separate certificate showing the drop and separation for each certified split. The course starts inside the old Goodyear Air Dock where the blimps were built and runs past several Akron landmarks finishing downtown inside the Akron Aeros baseball stadium with plenty of elevation changes along the way. Doing any measuring this winter has been a real feat. My home calibration course is marked on both sides of the street. One side has been covered with ice & snow since Christmas. The other side has been only available for a few days this year. Add to that, the daytime temperature seldom gets close to zero Celsius. I am not complaining. I haven't had to mow grass, swat mosquitoes, or wear sunscreen since I can remember when. I just thought the folks "down South" would like to hear about what they were missing. I enjoy the change of seasons and I am really ready for winter to change.

My apologies for the long lead between the electronic posting of January MN and the print and mailing. I suggested using the USATF printing office to hold down the cost. Future printing and mailing of this newsletter will be done with more attention to timeliness than cost.

Last year's courses: Most if not all of the 2002 Course Measurement certificates are or should be in by now. The complete course listing tops 22491 courses with 1190 certified courses for 2002. Quite an achievement! Thanks to all the regional certifiers for their part in measuring, reviewing, and maintaining the high standards of Course Certification.

Olympic Trials Pre-Validations: Both courses are a bit different from the normal loop or out/back configuration. Both courses (Men's, AL02017JD and Women's, MO03001BG) are criterium type with repeated loops of between 8.8 and 10.6 kilometers respectively. The Men's Marathon course starts out with a 9.5-mile leg that is downhill leg for the first 5k then follows a repeated 8.8km loop and finishes in front of the Birmingham City Hall. The Women's course Starts on the Washington University track for 3+ laps then reaches Forest Park for the 10.6 km loop or criterium section for almost 4 laps and finishes at the World's Fair Pavilion. Men will be running a net drop of 1.94 m/km. Women will see a net drop of 0.59 m/km.

Doug Loeffler and Amy Morss are working on the details for group validations of the Men's & Women's Olympic Marathon Trials courses. Copies of the course maps are included in this issue of Measurement News. Anyone interested in participating needs to get in touch with Doug or Amy so they can plan for bikes and accommodations.



Mike Wickiser

Measurement of the Month

Pete Riegel

VALIDATION OF WORLD'S BEST 10K

SAN JUAN, PR

19 FEBRUARY 2003

In August of 1999 I was asked to come to San Juan, Puerto Rico, to measure the route of the *World's Best 10k*. The story of the measurement appeared in *Measurement News* #97, September 1999.



Every year since my initial measurement of the course I have attended the event as official observer. Pedro Zapata, technical director of the race, who measured with me in 1999, has since measured several courses in Puerto Rico and South America, and has been appointed an IAAF/AIMS "B" level measurer. He recently conducted an IAAF measurement seminar in Mexico. In 2002 the location of the start and finish was changed, and Pedro measured the new course. I certified it as PUR 02004 PR.



Race observer and validator Pete Riegel with pace car driver Charles Alvarado. Charles runs the Puerto Rico Mazda organization, which is one of the race's major sponsors. A Mazda automobile is given out by random drawing at the awards ceremony, assuring good attendance, since the winner must be present to win. The crowd loves it when a name is drawn and the person isn't there. Flags lining the Teodoro Moscoso Bridge give an indication of the strength of the side wind.

The course is mostly on the wide Teodoro Moscoso Bridge over San Jose Lagoon, between the cities of Carolina and San Juan, with a median divider, a cloverleaf at one end and a ramped automobile overpass at the other end. The race begins and ends in the middle of the loop, near the toll booths of the bridge. The runners cross this bridge twice as they run back and forth. The length of the closed loop of the course is 10,100 metres, which means that the start and finish are separated by 100 metres.

As observer, I was taken to the start/finish area several hours before the race started, and had a chance to inspect the setup. I observed that the ChampionChip mats were set up as recently recommended. The start mat was set up BEFORE the start line and the finish mat was set up AFTER the finish line. I paced off the separation between

the start and finish and concluded that the two were very close to 100 metres apart.

I found the pace car in which I was to ride, and took my seat. Just before the race started a giant Puerto Rico flag was unfurled from a crane. The sidewind carried it across the road where it billowed. It was told it was the biggest flag ever made in Puerto Rico. We took off at the gun. The men's race was quite competitive, and I watched it from the right-hand rear-view mirror. The driver, Charles Alvarado, said I could sit sideways on the door, but as this blocked his view of the right-side mirror I didn't do this.



A huge Puerto Rico flag was unfurled just before the start. Here we see two photographers scrambling to get out of the way.

At 4 km a press helicopter hovered too closely over the road, and a great cloud of dust and debris was generated by the rotor downdraft. Furious fist-shaking by pace car occupants and lead runners may have done some good, as the helicopter backed off some and did not repeat the act.

After making the turn just after 8 km, I looked across the road and saw Paula Radcliffe, unaccompanied by any women, moving fast. The organizers were hoping for a WR from her and had posted a \$100,000 bonus for it, in addition to the \$20,000 first prize.

Charles dropped me off at the finish, and I saw Ramaala inexplicably back off and coast the last 3 metres to the finish. This was an unwise move, as Linus Maiyo was on his shoulder, and nearly caught him - it was almost a photo finish.

A few minutes later Radcliffe appeared, charging hard, and crossed the line in WR time (30:21). The crowd was ecstatic, and so were the organizers. After the race Pedro requested that I do a validation measurement the next day. I agreed.

Next day Pedro and I rode the race course. We used a calibration course that Pedro and I and laid out in 1999. We checked its length as part of the validation. Pedro led the ride, and fearlessly encouraged me to measure as tightly as I could. He had faith that the course would survive, and it did.

I obtained a measured length of 10009.3 metres, and Pedro got 10013.7 metres, both without including the 1.001 short course prevention factor. Thus the course clearly exceeded the certified 10 km in length. I was relieved, as I didn't want to be the bearer of bad tidings.

I think the race has earned its name.

VALIDATION MEASUREMENT OF WORLD'S BEST 10K						
Validated by Peter Riegel - February 25, 2011						
Also measuring was Pedro Zapata, the measurer of the certified course						
Calibration on Puerto Tombsas Mesones 357.00 m - HGATE Certificate FF-90002 FF						
The length of the calibration course was checked						
Length as measured: 15x30m + 7.004 m = 357.004 m						
Temperature: 85F						
Correction factor: 1.000120						
Corrected length: 357.0553						
This is close to the certified 357.50 m. The certified length is used in calculations.						
All calculations use average constant WITH (X) 1.001 Short Course Prevention Factor						
Pre-alibration - 10:45 AM / clear, sunny, 85F						
Pete			Pete			
16320			50920			
15971	4631	4630.25 average	37164.5	4664.5	4664.125 average	
24604.5	4633.5	11.64467 Counts/m	41829.5	4655	11.7248 Counts/m	
25234.5	4630		46482.5	4650		
33669	4634.5		51190.5	4654		
Post-alibration - 11:52 AM / clear, sunny, 87F						
Pete			Pete			
56120			94100			
70752	4630	4630.25 average	58654.5	4664.5	4664 average	
75390	4634	11.64467 Counts/m	93339	4664.5	11.7248 Counts/m	
80116	4638		93992.5	4663.5		
94649	4633		103696	4663.5		
Days Constant: 11.64467 Counts/m						
11.7248 Counts/m						
Measurements:						
	Pete	Pete	Pete	Pete	Pete	Pete
	Counter	Interval	Interval	Counter	Interval	Interval
	Reading	Counts	Metres	Reading	Counts	Metres
Finish	41340			58200		
Start	147895	11655	10309.30	176507	117407	10013.73
Finish	159200	1171	100.05	176700	1173	100.05

Age Grading Running Races

Alan Jones (AlanJones@stny.rr.com)

In a June 2002 20 km race that I score, 12-year-old Ben Nichols ran a time of 1:31:22 which is better than the USATF/RRIC (Road Running Information Center) Performance Guidelines. However, when we did the age-grading using the 1994 WAVA (World Association of Veteran Athletes which is now called the World Masters Athletics) tables, he did not get an award even though we gave awards to the first 27 finisher based on age grading. And this was a race of only 123 finishers. The following table shows the results for the first 30 finishers. (The top three men and women were removed since they received open awards.) The first time after each name is the time run and the second time is the age- and sex-adjusted time.

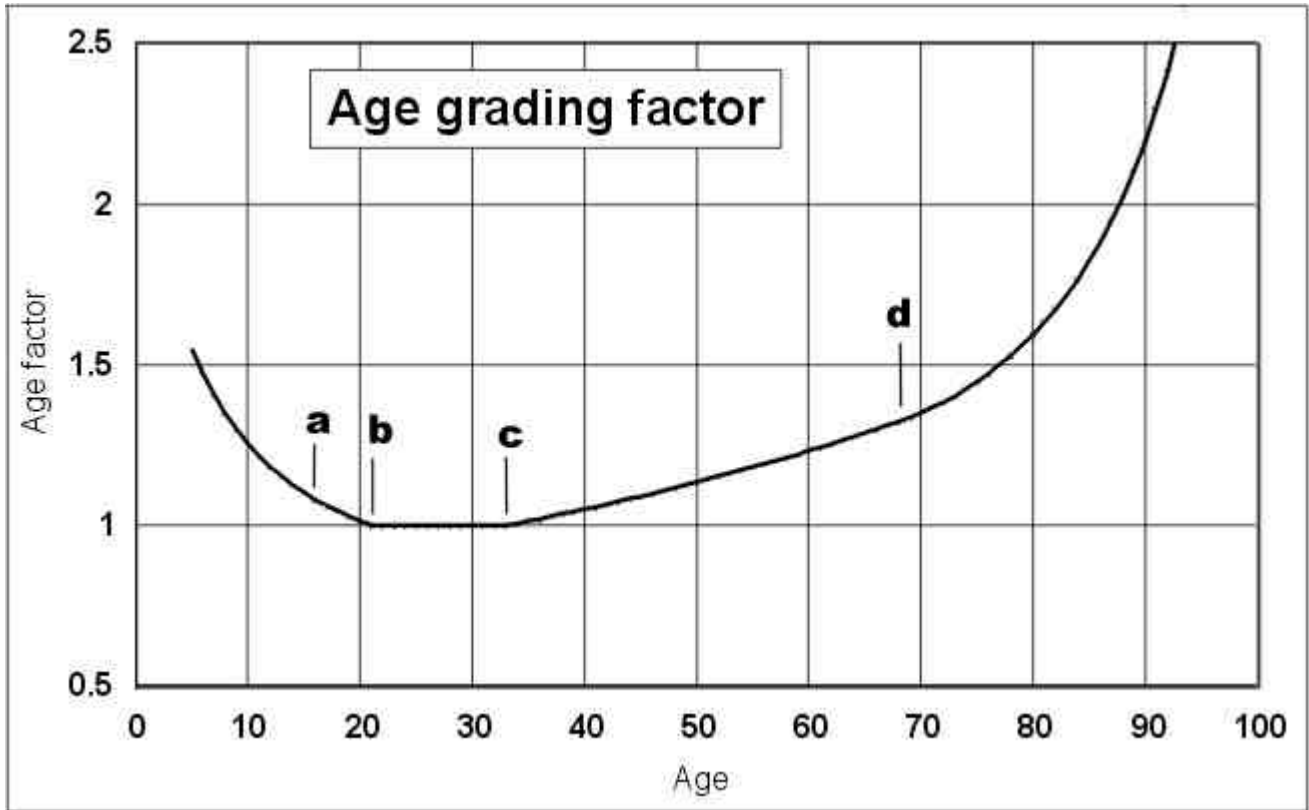
1 Margret Betz	65 F	1:36:08	1:04:01	16 Barbara Morrissey	54 F	1:46:14	1:19:43
2 Tom Carter	50 M	1:18:30	1:11:00	17 Paul McMahon	53 M	1:30:47	1:20:07
3 Charles Woidt	48 M	1:19:08	1:12:42	18 Terry Delaney	45 M	1:25:30	1:20:22
4 Bong Joon Yoon	55 M	1:24:24	1:13:16	19 Michael Olson	36 M	1:20:28	1:20:28
5 Jeffrey Juran	45 M	1:18:02	1:13:21	20 Chris Francisco	24 M	1:20:40	1:20:40
6 John Whitman	48 M	1:20:52	1:14:18	21 Markus Smith	37 M	1:21:26	1:21:03
7 Zeb Lang	21 M	1:14:47	1:14:47	22 Chungsik Choi	41 M	1:23:50	1:21:08
8 Dan Dominie	38 M	1:16:48	1:15:54	23 Eric Maki	40 M	1:23:17	1:21:10
9 Tim Rent	45 M	1:20:58	1:16:06	24 Fred Bostrom	64 M	1:42:04	1:21:25
10 Tom Powers	52 M	1:25:46	1:16:19	25 Ed Jenner	47 M	1:28:36	1:22:01
11 Gabe Yankowitz	52 M	1:26:14	1:16:44	26 Benjamin Behun	25 M	1:22:03	1:22:03
12 Drew Wasko	49 M	1:25:17	1:17:45	27 Jeff Felice	35 M	1:22:10	1:22:10
13 George Groome	62 M	1:35:39	1:17:50	28 Bill Kroll	30 M	1:22:26	1:22:26
14 Theresa Fulgieri	46 F	1:36:38	1:18:03	29 Benjamin Nichols	12 M	1:31:22	1:22:32
15 Ron Jess	70 M	1:45:59	1:19:06	30 Harland Bigelow	55 M	1:35:08	1:22:34

Notice Ben Nichols in 29th place – 2 places out of a prize.

Linda Honikman (Road Running Information Center of the USATF) provided me with the U.S. single-age records. They are also available at the web site: http://www.runningusa.org/index_rankings.html. I plotted the records against age. I then plotted the times as given by the WAVA tables. To do this, I took the WAVA factors and divided them into the open record. I noticed right away that, whereas the masters runners' factors seemed to be okay, the youth records looked like they did not give enough correction. I then set out to see if I could create tables that would treat youth runners' times more fairly. To be fair to the WAVA tables, when the youth tables were added in 1994, it was stated that they did not have as much data as they had for the masters and veteran age-groups and that the factors were to be considered only a first attempt.

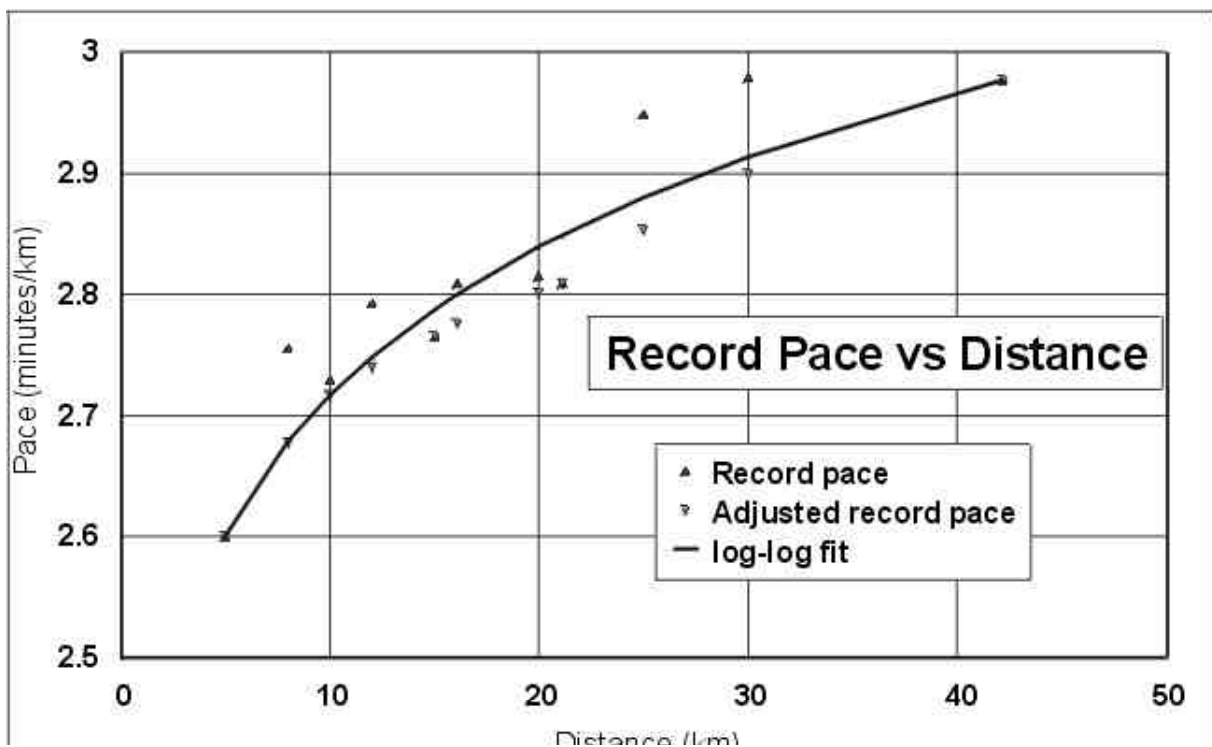
After looking at the single-age records and the 1994 WAVA tables, I created a formula that consists of a flat section equal to one for open runners. Then it increases linearly for masters followed by a parabola for the oldest runners. For the youth runners, the same approach is followed: a linear section and a parabola as one goes to the younger ages. The following is the formula used to generate the factor where x is the age:

$$\begin{aligned}
 f &= 1 - B(b - x) - A(a - x)^2 && \text{for } x < a \\
 f &= 1 - B(b - x) && \text{for } x \geq a \text{ and } x < b \\
 f &= 1 && \text{for } x \geq b \text{ and } x < c \\
 f &= 1 - C(x - c) && \text{for } x \geq c \text{ and } x < d \\
 f &= 1 - C(x - c) - D(x - d)^2 && \text{for } x \geq d
 \end{aligned}$$



Notice that there are eight parameters: a, b, c, d, A, B, C, D. These can be adjusted to fit the single age records. The factor (f) in the age-graded tables is always a number equal to or less than one. What is plotted is the reciprocal (1/f) so that the plot is proportional to the time expected for runners at each age. When doing age-grading, a person's time is multiplied by the factor f to obtain a time that this person should be able to run as an open athlete.

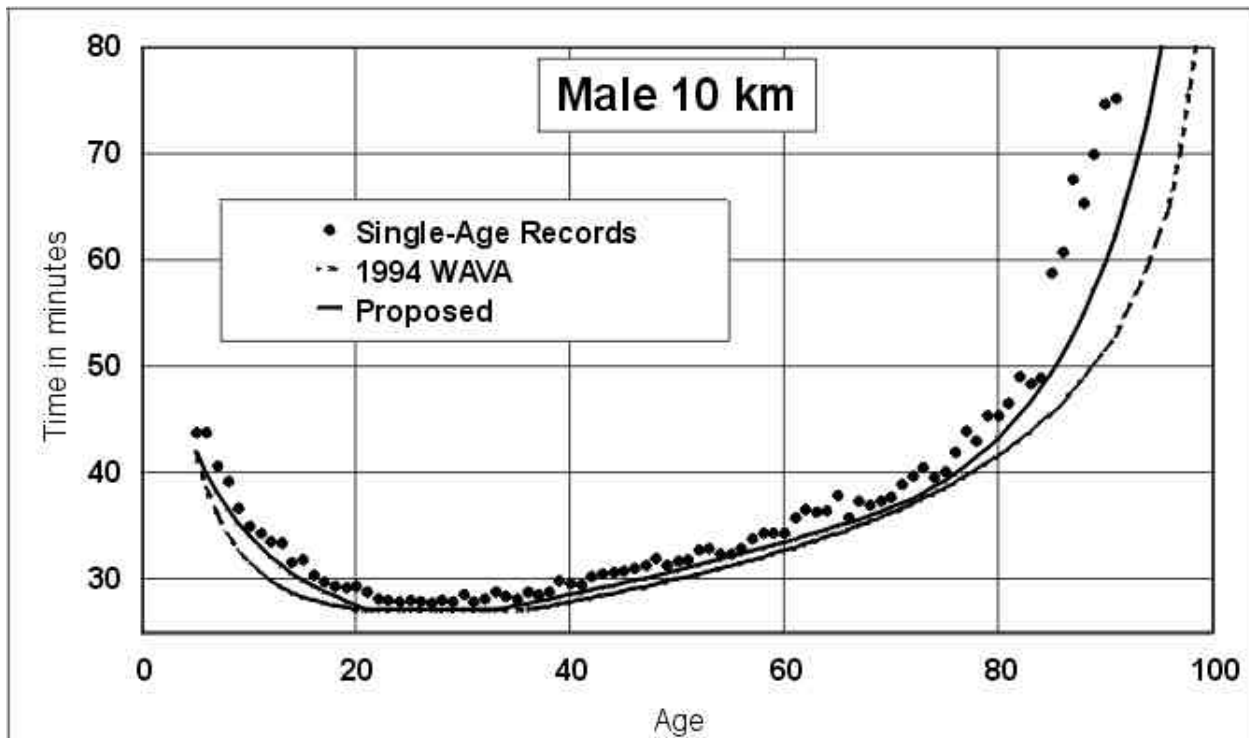
All results are relative to the world record for the event. However, not all world records are equal. The more popular events such as 5 km, 15 km, and marathon have better times than those less popular events such as 30 km. This can be seen in the next graph of Pace (minutes/km) vs Distance (km) for males.



Notice that the 5 km, 15 km, half-marathon, and marathon are either on the log-log fit line or below it. All other records are above. What I've done is adjust the records above the line to fit on an imaginary line just below the log-log line. I'm conjecturing that these adjusted records are what the best runner in the world could run on his best day. The table shows the records and their adjusted quantities.

Distance	Record H:MM:SS	Rec. (sec)	Adjusted (sec)	Adjusted Rec
5K	00:13:00	780	00:13:00	780
8K	00:22:03	1323	00:21:25	1285
10K	00:27:18	1638	00:27:10	1630
12K	00:33:31	2011	00:32:53	1973
15K	00:41:29	2489	00:41:29	2489
10MI	00:45:12	2712	00:44:40	2680
20K	00:56:18	3378	00:56:02	3362
H. Mar	00:59:17	3557	00:59:17	3557
25K	01:13:44	4424	01:11:20	4280
30K	01:29:23	5363	01:27:00	5220
Marathon	02:05:38	7538	02:05:38	7538

The plot below shows all of the single-age records for the 10 km distance along with the best times for each age as estimated using the 1994 WAVA tables and the new proposed tables using the above formula. The curves are generated by taking the adjusted world record for 10 km and dividing by the age factor.



Notice that the proposed age-graded line is roughly parallel to the 1994 WAVA line for runners in the 35 to 70 age. Above 70 it gives more correction. For the youth runners, the proposed factors more closely approximate the records thus giving youth runners a better chance for awards. The table below shows how the eight parameters vary over the standard road race distances. The

parameters were adjusted by eye until the curve followed the data but stayed below the best times. Exceptions had to be made for some times that seemed too good. These were mostly records designated “U” which means unverifiable.

Distance	a	b	c	d	A	B	C	D
5K	17	21	33	68	0.01600	0.00080	0.00070	0.00030
8K	17	21	33	68	0.01600	0.00080	0.00070	0.00030
10K	17	21	33	68	0.01500	0.00080	0.00070	0.00030
12K	17	22	33	68	0.01500	0.00080	0.00070	0.00030
15K	17	22	33	68	0.01400	0.00090	0.00070	0.00030
10MI	17	22	33	68	0.01400	0.00100	0.00070	0.00030
20K	17	23	33	67	0.01400	0.00100	0.00070	0.00030
H. Mar	17	23	34	66	0.01400	0.00110	0.00070	0.00030
25K	18	23	34	65	0.01400	0.00110	0.00070	0.00030
30K	19	23	34	63	0.01300	0.00120	0.00070	0.00032
Marathon	19	24	35	62	0.01100	0.00130	0.00070	0.00033

Notice that the parameters change in a monotonic fashion or, in some cases, don't change at all. The female records were harder to fit and did not follow this pattern.

What do the above parameters tell us? It is interesting that the slope of the line for runners from roughly 33 to the 60s is the same over this entire distance range. Where the line curves for the upper ages, it does not change a lot. However, the spot where the transition from a straight line to a parabola happens is at younger and younger ages as the distance goes up. Does this say that the longer distances are tougher on the older guys so we have to give them a larger correction? This is interesting since the female data goes in the other direction! The transition for the youth runners happens at older ages as the distance goes up.

To see all of the factors as plots for distances from 5 km to Marathon for both male and female, go to:

Since this work was started, I have been in touch with Rex Harvey who has prepared all of the WAVA tables and is currently working to update the 1994 tables. His new factors, for runners above 30 years of age, are fairly close to the proposed factors. He has not attempted to correct the youth factors but Chuck Phillips has been working on these. So, at the present time this work is becoming a three-way collaboration which, I am sure, will represent a big step forward in age-grading.

Let's see what happens with these new tables to the results of our 20 km race:

1 Margret Betz	65 F	1:36:08	1:02:53	16 Theresa Fulgieri	46 F	1:36:38	1:18:15
2 Tom Carter	50 M	1:18:30	1:09:10	17 Ron Jess	70 M	1:45:59	1:18:15
3 Charles Woidt	48 M	1:19:08	1:10:50	18 Terry Delaney	45 M	1:25:30	1:18:20
4 Bong Joon Yoon	55 M	1:24:24	1:11:25	19 Stephen W. Nichols	14 M	1:30:49	1:18:29
5 Jeffrey Juran	45 M	1:18:02	1:11:29	20 Michael Olson	36 M	1:20:28	1:18:47
6 John Whitman	48 M	1:20:52	1:12:23	21 Chungsik Choi	41 M	1:23:50	1:19:09
7 Zeb Lang	21 M	1:14:47	1:12:42	22 Markus Smith	37 M	1:21:26	1:19:10
8 Dan Dominie	38 M	1:16:48	1:14:07	23 Eric Maki	40 M	1:23:17	1:19:13
9 Tim Rent	45 M	1:20:58	1:14:10	24 Barbara Morrissey	54 F	1:46:14	1:19:52
10 Tom Powers	52 M	1:25:46	1:14:22	25 Ed Jenner	47 M	1:28:36	1:19:56
11 Gabe Yankowitz	52 M	1:26:14	1:14:46	26 Fred Bostrom	64 M	1:42:04	1:19:56
12 Benjamin Nichols	12 M	1:31:22	1:14:48	27 Harland Bigelow	55 M	1:35:08	1:20:29
13 Drew Wasko	49 M	1:25:17	1:15:44	28 Chris Francisco	24 M	1:20:40	1:20:40
14 George Groome	62 M	1:35:39	1:16:14	29 Graham Upton	47 M	1:29:48	1:21:00
15 Paul McMahan	53 M	1:30:47	1:18:05	30 Jeff Felice	35 M	1:22:10	1:21:01

Notice that Ben Nichols has moved from 29th place to 12th place! Quite a change! His corrected time went from 1:22:32 to 1:14:48. Also, due to better factors for the masters, Harland Bigelow moved from 29th place to 27th. There was some other juggling of places.

It is hoped that within a few months, new tables will be established for the entire range of runners from the youngest to the eldest.

Recently I have been in touch with Rex Harvey, (WMA nee WAVA) and Chuck Phillips. Chuck did the youth stuff for WAVA in 1994 but since then he has done a beautiful job on the entire age range from 5 to 100 for distances from 55 m to 200 km! He does a curve fit in distance and another in age to get a three-dimensional surface. His and my age grade factors are very similar except when we get up to the 80 year olds. The data for these older runners is so sparse that one can't tell who has the better fit.

Since then, I have recommended to Linda Honikman at RRIC/USATF that they go with Chuck Phillips' standards. He has done a really great job and Linda followed my recommendation. She hopes to have stuff posted on their web site by the beginning of the new year.

As far as WMA (nee WAVA) is concerned, it's a bit sticky. The main guy doing the work for WMA is Rex Harvey. These two guys are talking to each other and copying me so I think it will work out.

From MNFORUM

HISTORICAL QUESTION

The original marathon, in which a military messenger ran the course was in Greece. This was long before the French had blessed us with the meter. The Pyramids had been built over years and years of time without a meter. The Romans had build their aquaducts without meters. Stonehenge had been built without meters.

So, here is the question. I know where the mile comes from. It is one thousand full strides of a Roman legionare. What were the measurement units used by the Greeks at the time of Marathon? Anybody know?

George Pollock
gpollack@ix.netcom.com

I know where the mile comes from. It is one thousand full strides of a Roman legionare.

If this is correct each Roman Legionare's stride had to be 5.28 feet. Maybe that was a quick time pace.

Paul Oerth
poerth@aol.com

ROMAN STRIDES

Isn't this a double pace - "left-right" - so that the feet would only have to make ground contact at 0.8m intervals for 2 x 1000 of them to make a mile? Given that our ancestors were supposed to be smaller than us, that would seem about right.

Hugh Jones
aimssec@aol.com

When I read that a mile was 1000 paces I doubted it at first as well, but I found this:

The Romans made important contributions to the development of weights and measures. They used a base-12 system and divided both the foot and the pound into 12 unciae ("parts," from which were derived the words inches and ounces). The English abbreviation lb. for the pound was derived from the libra, a Roman unit of weight. The Romans established five feet as a pace, or double step. To measure longer distances, they adopted the mille passus (mile), which was equal to 1,000 paces, or 5,000 feet. but more interesting was this definition of a rod: An example of the lack of uniformity can be seen in the directions for establishing the length of a rod ("rood") as given in a 16th-century German treatise on surveying: "Stand at the door of a church on Sunday and bid 16 men to stop, tall ones and small ones, as they happen to pass out when the service is finished; then make them put their left feet one behind the other, and the length thus obtained shall be a right and lawful rood to measure and survey the land with, and the 16th part of it shall be a right and lawful foot."

Compton's Interactive Encyclopedia

Paul Adams
pauladams@telus.net

1984 WOMEN'S OT MARATHON

Does anyone have start and finish separation and elevations for both (or at least the net drop) for the 1984 Women's Olympic Trials Marathon? I remember walking down what was a significant hill to get to the finish area from the starting area. I estimate the height of the hill as some 30-40 meters altho this is very rough. The question is whether or not the drop exceeds the 1 m/km allowable for a standard course. The start/finish separation was certainly less than 30%.

I also understand the in addition to the ill-advised 50% start/finish separation for record-quality road courses, the IAAF intends to allow pacing of the top women by men (in mixed races). This will pretty well kill the trend toward separate (early) starts for the elite women as races that are after records will opt to use male pacers to enhance their chances of breaking records. I suspect that one motivation for races to have separate elite women starts was in anticipation of the IAAF making this a requirement for a world record. I suggest that the RRTC and AIMS both make strong, public statements in support of a 30% limit to S/F separation and for women's world records to be set in situations without the possibility of pacing by male runners. Credit the IAAF with taking one giant step backwards!!!

Note: In a recent issue of the Analytical Distance Runner, I published the results of an improved model to assess the effects of wind on times achieved on point-to-point courses as a function of S/F separation. Anyone who would like a copy of that issue of ADR and/or a copy of the model (written in Excel 97) may have one for the asking. Be warned that the model is "user hostile".

Ken Young
kcy@inreach.com

WINTER MEASUREMENT

Last year was quite a light one for me, measurement-wise. I measured only five courses. This year started properly, however, as I was contacted by my former running club early this month. The Columbus Roadrunners' Winter Run, an out-back 15 and 3 miler, had expired, and they wanted it measured again.

The race will be early next month. I was put out of joint a bit, as it has been very cold, and they had a year to wake up, but waited until January to let me know. I grumblingly said OK, I'd do it on the first day the pavement was dry enough to take spray paint.

Lately the central Ohio the AM temperatures have been around 0 to 10 F. I can measure at those temperatures, and have, but I don't like it. I have taken to wearing an old pair of rubber wellies with thick rag socks on days like that, and thick gloves, and enough sweaters and double pants so as to resemble the Michelin Man.

The 15 miler was not too bad - a balmy 30 at 9 AM when I started and 40 at 2 PM when I was done. The course was easy - out-back, heading out east and back west. The roads had been repaved and no previous marks were visible. Just like the race itself, on the way back I had a strong headwind. I marked and recorded the 8 mile point, and enroute to mile 9 was chased by a farm dog who nipped my ankle. Fortunately the rubber boots prevented damage. When I arrived at mile 9 I reached for my notebook and it wasn't there! It had fallen out of my pocket. I felt sick.

So it was a slow ride back past the farm dog back to mile

8, and didn't find it. Then slowly back to 9, and I finally saw it in the dog's yard. He ran up to me as I fetched it, but made no attempt to bite. I sure was relieved to find that notebook, as I had invested heavily in the day. When I finally finished the ride I had covered around 20 miles, and was aware that I am no longer fit enough for an uninterrupted marathon course ride. This was not a surprise. Sooner or later it comes to all of us. I can still measure marathons, but only at my own pace, and usually I'll take several days to do it in bits and pieces.

Pete Riegel
riegelpete@aol.com

This winter has been a bear in the Northeast. Really it's been average, but the past few have been so mild we've gotten soft and spoiled. This year it came earlier and with more snow, and the last weeks of January saw more single digit (Fahrenheit) temps than we're used to. Running was tough enough; going out on a bike to measure was out of the question.

Fortunately, Mother Nature provided a brief window the weekend after Christmas when the temps climbed into the 50s. I took this opportunity to do a single ride of a 10km course that would be run the following weekend. It's a loop that's been used for our annual winter series for 25 years, but this time the start and finish were moved to another school about a km from the traditional start.

I did only one ride just to make sure the distance was right and to relocate the split points, as I figured we'd return to the old course next year. However, the runners liked the change so much it will probably be a permanent switch, so come spring I will have to do a second ride.

Jim Gerweck
zgerweck@optonline.net

WINTER STORIES

Yes, this winter hasn't exactly been a measurer's dream, has it? Thanks for those stories, they make me realize I'm not the only crazy buzzard out there trying to measure courses in below freezing weather. A few times I started wondering if I'd have to carry a blow torch to get some dry pavement to put a paint mark, but it hasn't come to that yet. I find that I'm OK down to about 20 degrees if I wear enough layers. Haven't gone to the Wellies yet but have in other years.

My wildest one was a cross-country course in what is basically a horse park, that uses mostly gravel roads and dirt tracks, with a small amount of paved surface for variety. On the day I measured (and there weren't a lot of choices), the Leesburg, VA area was emerging from its own local ice age, such that the top 2 or 3 inches of ground had thawed but below that the earth was still frozen. Can you picture the amount and the consistency of the mud?! At least a half dozen times, I had to completely stop, just

to scrape mud out from my forks and brakes to be able to keep riding. I charged them a "mud fee", as it took over an hour to clean my bike once I got home-- but I also told them I want to get out there when conditions have been dry for a while so I could take another measurement, no additional charge.

There will be some time in the summer when all of us will look back wistfully on the cooler weather-- but I'll be thinking of other winters, not this one, when I do.

Bob Thurston
thurret@aol.com

Bob's comment about carrying a blowtorch to dry the pavement for painting came to mind while marking the course for yesterday's 20km Boston Buildup race in Fairfield.

The half foot of snow that fell on Friday had been plowed, but many sections of the road were either wet from melting or had packed snow on them when I went to mark the route Saturday afternoon. I figured I'd do them Sunday morning before the race, and sure enough most were clearer/drier then. There were still some sections with snow, so I painted right on it - fluorescent pink spray chalk really pops on white snow.

The only problem was that between the time I painted it and the start of the race, traffic, mainly heading to church, had worn it away. Fortunately I was driving the lead car and leapfrogged ahead of the runners to refresh the marks.

But my worst experience in course marking came during a Buildup race several years ago. It was raining and the roads were soaked - no way chalk or even paint would last more than a few minutes. So I drove ahead of the runners to each intersection, waited until the leader got there, directed him, then painted a few arrows that I hoped would last until the main body of runners got there and the "follow the leader" effect would get everyone through. It obviously did, as no one DNF'd that day.

Jim Gerweck
zgerweck@optonline.net

AMERICAN RUNNER LOSES OUT AS THE RULES ARE BENT TO BENEFIT JAPANESE RUNNER

American ultrarunner, Ann Trason, lost out on the world 100km road "best" as recognized by the International Association of Athletic Federations [IAAF] as that organization recently decided to discard its established guidelines and recognise a Japanese mark instead. Trason's mark was set in international competition and fulfilled all the previously accepted criteria for a world road record. She was tested for drugs and her mark was set on a loop course that had no separation between the start and finish. The course on which she set the mark was

measured by an IAAF Grade A measurer who was present and able to validate the course that day.

Heretofore, marks made on courses whose start and finish lie more than 30% of the race distance apart have not been considered eligible for records. Now the IAAF has thrown out this scientifically-determined criterion at the insistence of the Japanese President of AIMS (Association of International Marathons). The Japanese 100km mark was set by Tomoe Abe on a course with at least a 40% separation between start and finish. There is considerable evidence that this mark was wind-aided since more than 70 km of the race was run with a tail-wind.

It should be noted that the criteria used by the IAAF in recognising the Japanese performance are in direct conflict with those in the Ultra Marathon Race Handbook, the Ultrarunning rule book that the IAAF itself recommends in its own Distance Running Manual. Ann Trason's mark meets all the criteria listed in the Handbook.

It is highly likely that this decision will be to the financial detriment of Ann Trason, in terms of all-expenses paid invitations to races, endorsements, and similar benefits. Road-record expert Ken Young warned recently that "placing technical decisions of this nature in the hands of IAAF politicians can only be detrimental to the sport of road-racing." Holding a world road record confers status and can bring financial advantage; losing that status and financial advantage through the whim of official bureaucracy can only lead to controversy and litigation.

Ken Young
kcy@inreach.com

WORLD BEST 30K

This was posted by Marty Post of Runner's World on the T&F newlist:

"Takayuki Matsumiya won the Kumanichi 30-K in Kumanoto, JPN on Sunday in 1:28:36, a pending IAAF world road best.

Splits reported for him, taken every 5-K:
15:22/30:35/45:29/1:00:24/1:14:19/1:28:36.

That means two halves in 45:29 then 43:07. His three 10-Ks were 30:35, 29:49 and 28:12.

Course is out and back, starting at 10m of elevation and rising to just over 90m at peak. Big drop between 21 and 26 on the return. [see map at

<http://kumanichi.com/fsports/30km/30km47/20030212/kiji01.html>]

Not known if there was any headwind/tailwind going out and back."

From
The Mapmakers
by John Noble Wilford, Vintage Books NY, 2001

Chapter 7
The Matter of a Degree
(excerpt, pp.112-113)

Jean Fernel was a brilliant professor of medicine in Paris, physician to the king of France and ahead of his time in the application of anatomical knowledge to physiological theory. But in the history of Cartography Fernel is best known for a carriage ride he once took from Paris to Amiens. The year was probably 1525.

It had occurred to Fernel that no one really knew the length of a degree of latitude. What does one part in 360 mean in standard linear measurement? Eratosthenes had come close with his calculation that Earth's circumference was 46,000 km, which should mean that a degree is 127.7 km. But who could be sure of such an ancient estimate? Columbus had used estimates of about 83 km. Where, Fernel wanted to know, lay the truth? Not being one to sit around and theorize, Fernel called for his carriage and set forth to find the answer by measuring an arc, or segment, of the meridian.

At the starting point in Paris Fernel made a measurement to establish his north-south position, or latitude. He used an angle-measuring device, a crude quadrant, which was a version of the ancient astrolabe. The quadrant was a simple wood or brass instrument in the shape of a quarter circle, with a graduated scale of 90° marked along its arc. Astronomers had for centuries used variations of such an instrument, and now mapmakers and mariners were beginning to use it for finding latitude. Finding latitude involves measuring the height above the horizon of the Sun at apparent noon or of some prominent star – not in kilometres of course, but in angular degrees. Fernel aligned the sights of his quadrant on the noonday Sun. A plumb line extending from the point of suspension dropped across the arc of the quadrant, the point of the intersection on the scale indicating the angle of the Sun to the horizon.

The Sun, as the ancients had observed, seems to travel a set course through the sky, varying predictably from day to day during the year. Each noon the Sun appears a little higher or lower, according to the day and the place from which it is observed; tables of these variations were devised by ancient astronomers and refined somewhat by the time of Fernel. By referring to such tables, Fernel could convert his Sun angles into the latitude of his position north of the Equator.

Next, Fernel measured with great care the circumference of one of his carriage wheels. The wheel became his odometer. Ever since the Romans, surveyors had used the wheel in one way or another to measure distances. As Fernel drove slowly north, he counted each revolution of the wheel – 17,024 revolutions, we are told, between Paris and Amiens. At the end of the journey, Fernel took another angle of the Sun to find the latitude of Amiens. Paris and Amiens were almost exactly 1° of arc apart. The distance between the two, Fernel concluded, must be the length of a degree of latitude.

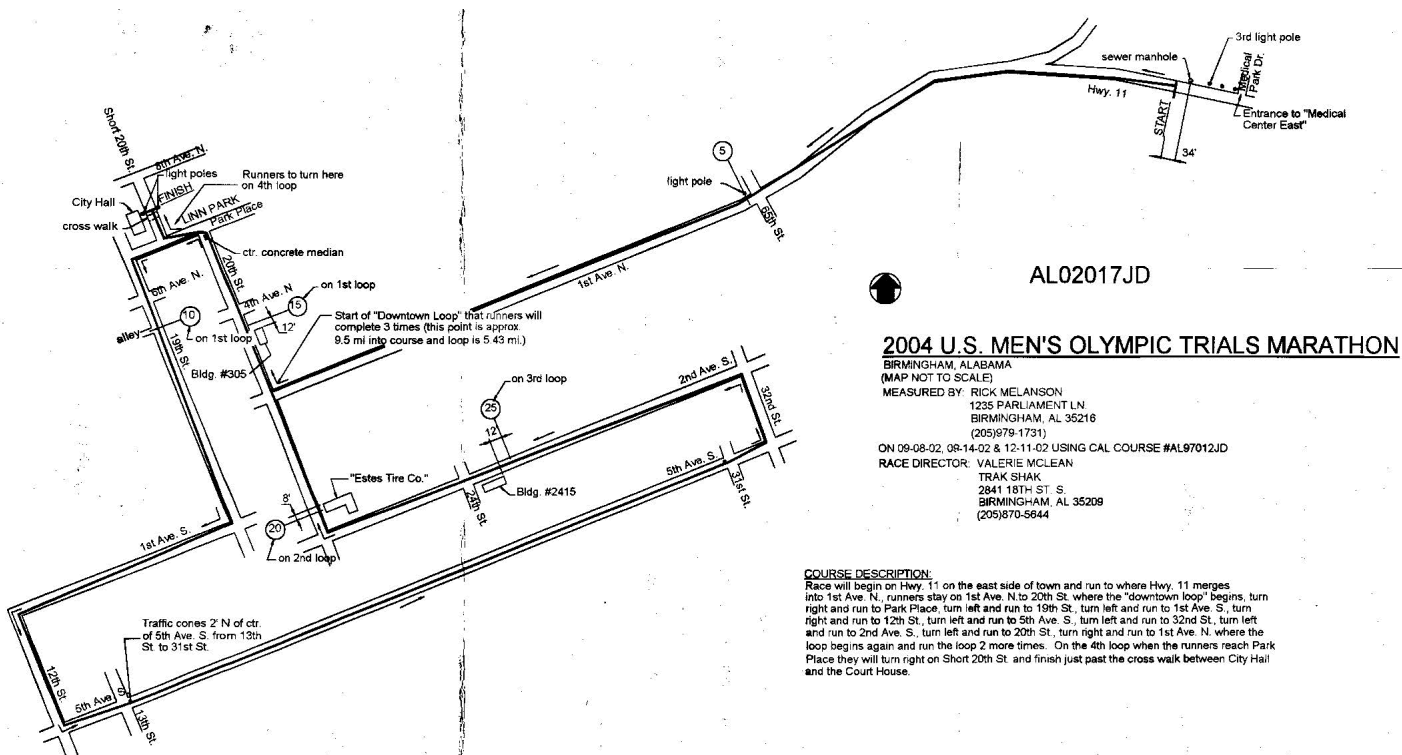
It could not have been the most accurate of measurements, considering the unevenness of terrain, the twists and bumps in the road, the quadrant's lack of precision, and the many opportunities for human error. But, by an astounding series of compensating errors, Fernel computed the length of a degree - and came very close to the truth. He then multiplied the length of his degree by 360 and arrived at a circumference of the Earth that was only one-tenth of one percent in excess of the true value.

As far as anyone knows, this was the first degree measurement in Europe. In geodesy, as in physiology, Fernel was ahead of his time. A century would pass before scientists possessed the surveying tools and the mathematical sophistication to undertake more precise measurements of a degree.

MEN'S OLYMPIC MARATHON TRIALS COURSE MEASUREMENT

A group is being formed to perform a pre-race validation measurement of the Men's Olympic Marathon Trials course in Birmingham AL. The measurement will be led by Doug Loeffler and will tentatively take place in July or August 2003. All or part of hotel and meal expenses will be covered by USATF, depending on the number of participants. Individuals who are interested in participating should contact Doug Loeffler at:

Doug Loeffler
1399 W. Royal Palm Rd.
Boca Raton, FL. 33486
561-391-2880
e-mail: dougloeffler@aol.com



USATF/RRTC CERTIFIED COURSE LIST
New Entries, January - February 2003

DISTANCE	COURSE ID	ST	LOCATION	COURSE NAME/RACE	m/km DROP	pct SEP	MEASURER	REPLACES
42.195km	AL 02017 JD	A	Birmingham	2004 Trials Marathon	1.94	34.6	R Melanson	
Cal	AL 03001 JD	A	Sheffield	Raleigh Ave 1633 ft.	0	100	D Michael	
15km	AL 03002 JD	A	Sheffield	Huff-N-Puff on the Bluff 15k	-0.3	0.7	D Michael	
42.195km	AZ 02007 GAN	A	Golden Canyon	Lost Dutchman's Marathon	4.3	48	G Newman	AZ02002ETM
5km	AZ 03001 GAN	A	Tucson	Sun Run 5k	0	1.5	D Quigley	
Cal	AZ 03002 GAN	A	Phoenix	P.V. Park 40th St. 1000 meter	0	100	F Cuda	
10km	AZ 03003 GAN	A	Paradise Valley	Runners Den 10k	0	1.2	R Strachan	
1.0045km	AZ 03004 GAN	A	Phoenix	P.V. Park Loop	0	0	F Cuda	
10km	AZ 03005 GAN	A	Phoenix	Trot for Tots 10k	0	4	T Lablonde	
5km	AZ 03006 GAN	A	Phoenix	Trot for Tots 5k	0	8	T Lablonde	
10km	CA 02005 RS	A	Los Angeles	Nike Run Hit Wonder 10km	0.2	2.35	R Scardera	
Cal	CA 02039 RS	A	Redding	Shasta College 1000 ft. Calibration	0	100	M Hannaford	
42.195km	CA 02040 RS	A	Redding	Redding Marathon	3.25	38	M Hannaford	
5km	CA 02041 RS	A	Sacramento	Run to Feed the Hungry 5km	0	4.8	R Hanna	CA99067 RS
10km	CA 02042 RS	A	Sacramento	Run to Feed the Hungry 10km	0	2.45	R Hanna	
5km	CA 02043 RS	A	Fontana	California Speedway 5000	0	5.5	R Scardera	
42.195km	CA 03001 RS	A	Huntington Beach	2003 Pacific Shoreline MAR	0	0.29	R Scardera	
21.0975km	CA 03002 RS	A	Huntington Beach	2003 Pacific Shoreline HMAR	0	0.59	R Scardera	
10mi	CA 03003 RS	A	Redding	NorCal 10 Mile	0.25	2.5	J Lucus	
5km	CA 03004 RS	A	Fountain Valley	Mile Square Park 5 km	0	1.5	R Scardera	CA02001 RS
42.195km	CA 03006 RS	A	San Diego	San Diego Marathon	0	0	G Rahill	CA02005 RS
21.0975km	CA 03007 RS	A	San Diego	San Diego Half Marathon	0	0	G Rahill	CA02006 RS
1mi	CA 03008 RS	A	San Diego	San Diego Marathon Super One	0	0	G Rahill	
42.195km	CA 03009 RS	A	Los Angeles	2003 Los Angeles Marathon	0.16	0.3	R Scardera	
5km	CO02030 DP	A	Lafayette	Lafayette Oatmeal Festival	0.2	5	B Durden	CO02001 DP
5km	CT 02017 DR	A	Cheshire	Cheshire Canal Canter	0	0	Guido Bros	
5mi	CT 02018 DR	A	Madison	Madison Jaycees Turkey Trot N.	0	0	Guido Bros	
5mi	CT 02019 DR	A	Madison	Madison Jaycees Turkey Trot	0	0	Guido Bros	
10mi	DC02039 RT	A	Washington	Army 10 Miler 0.12	2	R	Thurston	
42.195km	DC02040 RT	A	Washington	Marine Corps Marathon	-0.4	1	R Thurston	
10km	DC02042 RT	A	Washington	United We Stand 10k	0	0	R Thurston	
10km	DC02044 RT	A	Washington	Jingle Bell Run (10k)	0	0	R Thurston	
5km	DC02045 RT	A	Washington	Jingle Bell Run (5k)	0	0	R Thurston	
Cal	FL 02036 DL	A	Miami	NE 8th St. Miami Tropical 1000 ft.	0	100	D Matuszak	
5km	FL 02037 DL	A	Tampa	Great Chase 5k	0	1.8	E McDowell	
5km	FL 02038 DL	A	Tampa	Ryka 5k	0	4.6	E McDowell	
5km	FL 02039 DL	A	Miami	Miami Dade Parks Turkey Trot 5k	0	3.7	D Matuszak	
42.195km	FL 02040 DL	A	Tampa	HOPS by Tampa Bay Marathon	0	1.7	T Ward	FL 01044 DL
5km	FL 02041 DL	A	Tampa	Gasparilla Distance Classic 5k	0	5.2	T Ward	
5km	FL 02042 DL	A	Coconut Creek	Coconut Creek 5k	0	4.5	GWitkowski	FL 90018 DL
42.195km	FL 02043 DL	A	Miami	Miami Tropical Marathon	0	0.5	D Matuszak	
5km	FL 02044 DL	A	Tallahassee	Race Judicata	0	4.5	B McGuire	
5km	FL 02045 DL	A	Ft. Lauderdale	Imperial Point Road Race	0	3	GWitkowski	FL 95013 DL
5km	FL 02046 DL	A	Ft. Lauderdale	Dr. Chris G. Smith 5k	0	2.2	GWitkowski	
10mi	FL 02047 DL	A	Tallahassee	GWT 10 Mile Challenge	0	0	B McGuire	
5km	FL 02048 DL	A	Lakeland	Lake Hollingsworth 5k	0	6.4	R Mistretta	
5km	FL 02049 DL	A	Coconut Creek	Run for the Whisper 5k	0	1.7	GWitkowski	FL 90018 DL
21.0975km	FL 02050 DL	A	Orlando	OUC Orlando Half Marathon	0	0	T Ward	
10km	FL 02051 DL	A	Lakeland	Lake Hollingsworth 10k	0	6.4	R Mistretta	
5km	FL 02052 DL	A	Davie	Bamford 5k (Clockwise)	0	4.4	J Musters	
5km	FL 02053 DL	A	Davie	Bamford 5k (Anti-Clockwise)	0	4.4	J Musters	
21.0975km	FL 02054 DL	A	Madeira Beach	Florida Gulf Beaches 1/2 Marathon	0	61	C Lauber	
15km	FL 02055 DL	A	Davie	Bamford 15k	0	2	J Musters	
5km	FL 02056 DL	A	Tallahassee	2002 Turkey Trot	0	0	B McGuire	

DISTANCE	COURSE ID	ST	LOCATION	COURSE NAME/RACE	m/km DROP	pct SEP	MEASURER	REPLACES
5km	FL 02057 DL	A	Tallahassee	2002 Turkey Trot (A)	0	0	B McGuire	
21.0975km	FL 02058 DL	A	Miami	Miami Tropical Half Marathon	0	1.2	D Matuszak	
21.0975km	FL 03001 WN	A	Lake Buena Vista	Walt Disney World 1/2 Marathon	0.072	22.9	T Ward	FL 02002WN
5km	GA02011 WC	A	Statesboro	Jingle Bell Reindeer Run	0	3.2	T Crute	
10km	GA02012 WC	A	Savannah	May Howard School 10k	0	0.2	C Stratton	
5km	GA03001 WC	A	Warner Robbins	Museum of Aviation Foundation	0.98	2.6	J Hunter	
42.195km	GA03002 WC	A	Warner Robbins	Museum of Aviation Marathon	-0.18	0.65	J Hunter	GA99022 WC
21.0975km	GA03003 WC	A	Warner Robbins	Museum of Aviation 1/2 Marathon	0.1	0.9	J Hunter	GA99021 WC
Cal	IA 02008 MF	A	Mason City	Taft Ave-Newman 1640ft Cal.	0	100	T McCarthy	
Cal	IA 03001 MF	A	Cedar Rapids	CRFD Mem 1000 ft. Calibration	0	100	J Shimek	
5km	IA 03002 MF	A	Cedar Rapids	CRFD Memorial 5k	0.1	2	J Shimek	
21.0975km	IA 03003 MF	A	Cedar Falls	Sturgis Falls Half Marathon	-0.05	0.6	DWilliams	
42.195km	IA 03004 MF	A	Mason City	On the Road for Education M'thon	-0.3	11.8	C Bonzer	
10km	IL 02089 JW	A	Highland Park	Run For The Health Of It	0	3.5	C Hinde	
5km	IL 02091 JW	A	Elmhurst	Tour de Foot 5k	0	1	J Wight	IL 97005 JW
10km	IL 02092 JW	A	Hampshire	Coon Creek Classic 10k	0	0.2	C Hinde	
5km	IL 02093 JW	A	Warrenville	Reindeer Run	0	3	C Hinde	
5km	IL 02095 JW	A	Quincy	Jingle Bell Run 5k	0	2	J Wight	
5km	IL 02096 JW	A	Chicago	Chicago South Lakefront 50k	0	0.2	C Hinde	IL 01011 JW
50mi	IL 02097 JW	A	Chicago	Chicago South Lakefront 50 Mile	0	0.125	C Hinde	
5km	IL 02098 JW	A	Lincolnwood	Turkey Trot 5k alternate	0	6	C Hinde	
5km	IL 02099 JW	A	Bensenville	Blue Hawaiian 5k	0	2	C Hinde	IL 02048 JW
5km	IL 02100 JW	A	Des Plaines	Y Not Run	0	3	C Hinde	IL 92007 JW
5km	IL 02101 JW	A	Chicago	Kevin Fest	0	3	C Hinde	IL 01082 JW
5km	IL 02102 JW	A	Mohena	Meteor May 5k	0	3	C Hinde	IL 99008 JW
5km	IL 02103 JW	A	Mohena	Downs Syndrome Charity Classic	0	0.3	C Hinde	
21.0975km	IL 02104 JW	A	Cary	March Madness	0	0.58	C Hinde	IL 01112 JW
5km	KS 02053 BG	A	Wichita	Sprint for Sight	0	3	C Ensz	
5km	KS 02054 BG	A	Wichita	Bradley Fair 5 km	0	100	C Ensz	
Cal	KS 02055 BG	A	Wichita	Rock Road 300 meter Calibration	0	100	L Wood	
42.195km	KS 02056 BG	A	Wichita	Wichita Marathon 02	0.166	38	C Ensz	KS96049 BG
Cal	KS 03002 BG	A	Derby	Derby #2 1000 ft.	0	100	L Richardson	
8km	KS 03003 BG	A	Wichita	St. Pat's 8k	0	1.9	L Richardson	
Cal	KS 03004 BG	A	Lawrence	Clinton Parkway 1000 ft.	0	100	S Riley	
5km	MA02022 RN	A	Lowell	Mill City 5k	0.3	8	S Vaitones	
5km	MD02020 JS	A	Bowie	Turkey Trot 5k alternate	0	6.4	J Sissala	
42.195km	MD02021 JS	A	Sparks	Northern Central Trails Marathon	0.4	4.6	B Diegel	
5km	MI 02042 SH	A	E. Grand Rapids	Heart and Sole	0	0	R Dewey	
4mi	MI 02043 SH	A	E. Grand Rapids	Resolution Run	1.6	5	R Dewey	
5km	MI 02044 SH	A	Brooklyn	Physical Evidence Holiday	0	2	S Hubbard	
42.195km	MO03001 BG	A	Clayton	2004 Olympic Trials Marathon	0.59	8.6	T Eckelman	
21.0975km	MS02005 RH	A	Madison	MTC Half Marathon	0	0.53	R Eades	
5km	MS02006 RH	A	Jackson	Legal Beagle 5k	0.3	12.07	R Eades	
5km	NC02053 PH	A	Winston-Salem	Ardmore 5k	0.49	6	K Stone	
42.195km	NC02054 PH	A	Raleigh	Raleigh Marathon	-0.3	1	P Hronjak	
21.0975km	NC02055 PH	A	Raleigh	Raleigh Half Marathon	-0.6	2	P Hronjak	NC01067 PH
5km	NC02056 PH	A	Harrisburg	Harrisburg 5k	0	0	D Joffe	
5km	NC02057 PH	A	RTP	Jingle Bell Run for Arthritis	0.18	1.2	P Hronjak	NC00048 PH
5km	NC03001 PH	A	Lumberton	Lumber River Run	0	4	P Hronjak	NC01002 PH
5km	NC03004 PH	A	Winston-Salem	Komen Race for the Cure	0	5.5	W Walker	NC00069 PH
8km	NC03005 PH	A	Salisbury	Winter Flight	-0.57	2	D White	NC01005 PH
5km	NH02016 WN	A	Rochester	Girls Inc. of NH 5k Road Race	0	3.1	R Fitzpatrick	
5km	NJ 02001 WB	A	Camden	Camden City Street Run 5k	0.2	0.96	B Belleville	

DISTANCE	COURSE ID	ST	LOCATION	COURSE NAME/RACE	m/km DROP	pct SEP	MEASURER	REPLACES
5km	NJ 0LMB A	West Windsor		Carnegie Center 5 km	-0.3	2.4	L Baldasari	NJ 01031 GAN
10mi	NJ 02004 DB	A	Maplewoods	USATF - NJ 10 Mile	0	1.3	D Brannen	
5km	NJ 02005 LMB	A	Hoboken	Hoboken Police 5k	0.3	8.2	P Hess	
5km	NJ 02008 LMB	A	Plainfield	Sleepy Hollow 5k	-0.2	3.5	P Hess	
5km	NJ 02009 LMB	A	Stone Harbor	Stone Harbor Lions 5k	0	0.23	G Hoopes	
5km	NJ 02010 LMB	A	Delanco	Delanco 5k Run/Walk	0	0	G Hoopes	
5km	NJ 02011 LMB	A	Franklin Lakes	Franklin Lakes 5k	0.18	1.7	P Hess	
Cal	NJ 02012 LMB	A	Hamilton Twp	Line Road 1/4 Mile	0	100	L Baldasari	
4mi	NJ 02013 LMB	A	Perth Amboy	Perth Amboy 4 Mile	-0.047	1.27	P Hess	
5km	NJ 02014 LMB	A	Fair Lawn	Fair Lawn 5k	0.12	2.6	P Hess	
5km	NV 03001 BC	A	Las Vegas	Las Vegas Race for the Cure	0	22	B Callanan	NV01001 BC
5km	NY 02059 AM	A	Binghamton	Sara's Eastside Poker Run	0	1	R Nichols	
21.0975km	NY 02060 AM	A	Oswego	Pumpkin Run Half Marathon	-0.25	0.6	D Oja	
42.195km	NY 02064 AM	A	Schenectady	Mohawk Hudson River Marathon	2.7	50	J Gilmer	
5km	NY 02065 AM	A	Niagara Falls	Jack O' Lantern 5k	0	1.8	J Felix	
15km	NY 02066 AM	A	Schenectady	Stockade -athon	-0.1	1.6	J Gilmer	NY99058 AM
5km	NY 02067 AM	A	Fairport	Parkinson's Canal 5k	0	0	GTillson	
5km	NY 02068 AM	A	East Rochester	Despatch Days 5k	0	2.9	GTillson	
Cal	OH03001 PR	A	Canton	Maple Ave NE 1320.49 ft.	0	100	J Wilhelm	
42.195km	OH03001 MW	A	Akron	Road Runner Akron Marathon	0.69	16.2	MWickiser	
42.195km	OH03002 PR	A	Cincinnati	Cincinnati Flying Pig Marathon	0.6	1.43	J Glaze	OH00048 PR
5km	OH03002 MW	A	Akron	Akron Marathon Certified split	3.2	58	MWickiser	
10km	OH03002 MW	A	Akron	Akron Marathon Certified split	-0.7	35	MWickiser	
15km	OH03002 MW	A	Akron	Akron Marathon Certified split	-0.3	37	MWickiser	
20km	OH03002 MW	A	Akron	Akron Marathon Certified split	3.7	46	MWickiser	
25km	OH03002 MW	A	Akron	Akron Marathon Certified split	3.6	53	MWickiser	
30km	OH03002 MW	A	Akron	Akron Marathon Certified split	0.86	51	MWickiser	
35km	OH03002 MW	A	Akron	Akron Marathon Certified split	0.2	34	MWickiser	
40km	OH03002 MW	A	Akron	Akron Marathon Certified split	0.6	21	MWickiser	
3mi	OH03003 PR	A	Pickerington	The Winter Run	0	3.2	P Riegel	OH91066 PR
15mi	OH03003 PR	A	Pickerington	The Winter Run	0	0.06	P Riegel	OH91066 PR
5km	OH03004 PR	A	Columbus	Arnold 5k & Arnold 5k Pump & Run	0	2.5	P Riegel	
5km	OK03001 BB	A	Edmond	Balto 5 km Run	-0.4	6	E Lessing	
5km	OK03003 BB	A	Oklahoma City	OKC Running Club 5 km	0	0	D Garrett	OK84068 BB
8km	OK03004 BB	A	Oklahoma City	OKC Running Club 8 km	0	0	D Garrett	OK84069 BB
10km	OK03005 BB	A	Oklahoma City	OKC Running Club 10 km	0	0	D Garrett	OK84071 BB
12km	OK03006 BB	A	Oklahoma City	OKC Running Club 12 km	0	0	D Garrett	OK84072 BB
5km	OK03007 BB	A	Oklahoma City	NASACT 5 km Run	0	0	J Smith	
8km	OK03008 BB	A	Lawton	Mt. Scott Kiwanis Turkey Trot	0	1.7	J Smith	OK95055 BB
5km	OK03009 BB	A	Tulsa	Glen's Shelter #3 Rental 5km	0	4	G Lafarlette	
10km	OK03010 BB	A	Tulsa	Glen's Shelter #3 Rental 10km	0	4	G Lafarlette	
5km	OK03011 BB	A	Stillwater	Stillwater Heritage Run	-0.4	2.2	G Lafarlette	
5km	OK03012 BB	A	Bixby	Haikey Creek Out & Back 5km	0	0	G Lafarlette	
5km	OK03013 BB	A	Tulsa	KilKenny St. Patrick's Run	0.2	2.5	G Lafarlette	
Cal	OK03002 BB	A	Edmond	Edmond Thomas Dr. 550.737m	0	100	E Lessing	
8km	OR03001 LB	A	Portland	Shamrock Run 8km	0	0.4	L Barrett	OR93001 LB
8km	PA 02021 WB	A	Philadelphia	Rothman Institute 8k	-0.04	1.7	B Belleville	
5km	PA 02023 WB	A	Swarthmore	Swarthmore Recreation Assn. 5k	0	0	B Belleville	
5mi	PA 03001 WB	A	Ambler	Ambler Frostbite 5-Miler - 0.6	13.3	B	Belleville	PA 00001 WB
10km	RI 02010 RN	A	Narragansett	Narrow River Run	1.52	64.6	R Nelson	
5km	SC 02028 BS	A	Union	Union 5k	0	6.4	D Joffe	
8km	SC 02029 BS	A	Folly Beach	Messa 8k	0	0.94	MDesrosiers	
21.0975km	SC 02030 BS	A	Kiawah Island	Kiawah Island Half Marathon	0	0	MChodnicki	SC01037 BS
42.195km	SC 02031 BS	A	Kiawah Island	Kiawah Island Marathon	0	0	MChodnicki	SC01036 BS
5km	SC 02032 BS	A	Charleston	Reindeer Run	0	1.2	MDesrosiers	

DISTANCE	COURSE ID	ST	LOCATION	COURSE NAME/RACE	m/km DROP	pct SEP	MEASURER	REPLACES
5km	SC 03001 BS	A	Charleston	Resolution 5k	0	0	MDesrosiers	
3.1mi	SC 03002 BS	A	Spartanburg	Walk With the Docs	0	0.12	K Johnson	
21.0975km	SC 03002 BS	A	Myrtle Beach	Myrtle Beach Half Marathon	0	0.095	D White	
42.195km	SC 03004 BS	A	Myrtle Beach	Myrtle Beach Marathon	0	0.05	D White	SC01011 BS
5km	TN 02031 RH	A	Clarksville	APSU Homecoming 5k	-0.4	7.9	J Lander	
5km	TN 02032 RH	A	Knoxville	Lady Vols 5k	0	1.37	A Morgan	
5km	TN 02033 RH	A	Maryville	Reindeer Run	0.3	4.83	A Morgan	
8km	TN 02034 RH	A	Knoxville	Autumnfest 8k	0	0.11	A Morgan	TN95013 RH
5km	TN 02036 RH	A	Morristown	Mats Run for Shelter 5k	0.4	8.04	A Morgan	
5km	TN 03001 RH	A	Nashville	Predators 5k	0	1.93	J Zeigler	
5km	TX 02105 ETM	A	Houston	Resolution Race 0	4.7	E	McBrayer	
4mi	TX 02109 ETM	A	Houston	24 Hour Fitness 4 Miler	0	3.8	E McBrayer	
21.0975km	TX 02110 ETM	A	Houston	ep 13.1 Miler	0	1.3	E McBrayer	
42.195km	TX 02111 ETM	A	Houston	ep Houston Marathon	0	0.7	E McBrayer	
42.195km	TX 02112 ETM	A	Kingwood	Texas Marathon 0	0	R	Barnhill	
5km	TX 02113 ETM	A	Dallas	Jog'r Egg Nog'r 5k	5.4	16	K Ashby	
15km	TX 02114 ETM	A	Dallas	Jog'r Egg Nog'r 15k	1.8	5.3	K Ashby	
5km	TX 03001 JF	A	Austin	Fertile Hope 5k	0	0	J Ferguson	
5km	TX 03002 ETM	A	Fort Worth	Tarrant City. Race for the Cure	0	2.2	C Clines	TX01019 ETM
21.0975km	TX 03002 JF	A	Austin	Austin Motorola Marathon	3.2	47.4	J Ferguson	TX01012 JF
42.195km	TX 03002 JF	A	Austin	Austin Motorola Marathon	5.6	85	J Ferguson	TX01012 JF
5km	TX 03003 ETM	A	Fort Worth	Victory Over Violence	0	22	C Clines	TX00042 ETM
42.195km	TX 03003 JF	A	Austin	Austin Motorola Marathon	3.2	47.4	J Ferguson	TX03002 JF
21.0975km	TX 03003 JF	A	Austin	Austin Motorola Half Marathon	5.6	85	J Ferguson	TX03002 JF
10km	TX 03004 ETM	A	Kemah	Kemah 10 km	0	1.1	W Vanderbrink	
5km	TX 03005 ETM	A	Kemah	Kemah 5 km	0	2.1	W Vanderbrink	
5km	TX 03006 ETM	A	Pasadena	Burke-Crenshaw 5 km	-0.2	3.2	W Vanderbrink	
5km	TX 03008 ETM	A	Dallas	St. Paddy's Dash Down Greenville	0	3.6	C Clines	
5km	TX 03009 ETM	A	Plano	Prestonwood Foundation 5k	0	0	C Clines	
5km	TX 03010 ETM	A	Alvin	Frontier Days 0	0	E	McBrayer	TX90083 ETM
3.2316km	TX 03012 ETM	A	Houston	Bear Creek Park Loop	0	0	E McBrayer	
100km	TX 03012 ETM	A	Houston	Bear Creek Park Loop	0	5.6	E McBrayer	
50mi	TX 03012 ETM	A	Houston	Bear Creek Park Loop	0	10	E McBrayer	
322.78km	TX 03013 ETM	A	Houston	Bear Creek Park Loop Add On	0	100	S Demeree	
5mi	TX 03015 ETM	A	Dallas	Borden Uptown Run & Trolley Walk0	0.9	0.9	C Clines	TX02012 ETM
8km	TX 03015 ETM	A	Dallas	Borden Uptown Run & Trolley Walk0	0.9	0.9	C Clines	TX02012 ETM
Cal	VA 02001 PH	A	Virginia Beach	Mt. Trashmore South blvd. 1000 ft.0	0	100	P Hronjak	
5km	VA 02041 RT	A	Ashburn Farm	Ashburn Farm 5k	0.6	1.8	R Thurston	
5km	VA 02043 RT	A	Newport News	Fellowship of Christian Athletes 5k	0	0	S Bartram	
10km	VA 02048 RT	A	Newport News	Fort Eustis 10k	0	2.3	S Bartram	
8km	WI 02090 JW	A	Wauwatosa	Steve Cullen Healthy Hearts Run	0	0.45	K Gilgenbach	
5mi	WI 02094 JW	A	Madison	Finnish Five	0	0	E Harmon-Jones	
21.0975km	WI 02105 JW	A	Trempealeau	Health Mission Half Marathon	0.14	90	S Hammond-Gonia	
2mi	WI 02106 JW	A	Menasha	Otto Grunski Runski	0.95	10	D Moore	
10km	WI 02107 JW	A	Menasha	Otto Grunski Runski	0.3	3.77	D Moore	
Renewed								
10km	CA 87033 CW	A02	San Francisco	Run to the Far Side	0	3.05	CWisser	
15km	FL 92001 WN	A02	Tampa	Gasparilla Distance Classic	0.1	5	W Nicoll	
20km	IA 92005 MF	A02	Des Moines	Dam to Dam	1.6	74	MFranke	
5km	OK92058 BB	A03	Enid	Enid Land Run	0	0	G Lafarlette	
Various	TX 93011 ETM	A03	Houston	Bear Creek RW Loop	0	3.1	E McBrayer	

Copies of these certificates available from:

Karen Wickiser - Course Registrar
2939 Vincent Road
Silver Lake, OH 44224-2916
Phone 330-929-1605 FAX 509-351-5383
mikewickiser@neo.rr.com

(Send course name & ID number and \$3.00)

Each certificate includes a course map.

A complete listing of USATF Certified courses is available at:

www.RRTC.net

PUBLICATIONS AVAILABLE FROM RRTC

Printed Course Lists - You can obtain a list of certified courses for any state. Send \$2.00 for any state list. You will receive a list that is current as of the last published Measurement News. If you wish the courses to be sorted in a special way, let us know. Otherwise it will be sorted by distance as the list appears in MN. You can obtain other specially-sorted lists - for instance, you might want to have all the 5k's in IL, IN, and MO. It can be done. Just say what you want. If you are online, lists can be sent that way. Contact Mike Wickiser at MikeWickiser@neo.rr.com

Attention RRTC certifiers: Your lists are free. Any time you want one let us know. You can mark up any mistakes and we will correct it and send you a new copy.

Web Page Access to Course Lists: The complete list can be downloaded from the RRTC website at www.rrtc.net/download/ Also, try the certified course Search Engine at the central USATF site www.usatf.org/events/courses/search/

Individual Certificates - These may be obtained by sending the course number and \$2.00 per course desired. **SEND THE COMPLETE ID, INCLUDING PREFIX AND SUFFIX LETTERS.** Thus: CA92057 RS. Send course name, length and location as well. If you are thinking of hiring a measurer, this is an excellent way to see the sort of work you can expect. In addition, you may wish to check out a course you intend to run. Bring the map to the course and see if the race director got it right!

Above material may be obtained from: Mike Wickiser - 2939 Vincent Rd. - Silver Lake, OH 44224-2906

Measurement Calculation Computer Program by Bob Baumel, version 1.2 for Macintosh or IBM PC. This software can be downloaded for free from the RRTC website at www.rrtc.net/download/ or Bob will distribute it by email attachment (send requests to webmaster@rrtc.net) or on floppy disks (send blank, formatted diskette and stamped return mailer to Bob at: 129 Warwick Road, Ponca City OK 74601-7424). Be sure to specify Mac or PC version.

Electronic Certificate Templates (available to Certifiers only), now in an Adobe Acrobat format which isn't tied to any word processor. Requires Acrobat or Acrobat Reader 4.0 or greater (Current Acrobat Reader may be downloaded for free from www.adobe.com). The template allows you to fill in certificates on the computer and print them. Available in both FS and non-FS version. Distributed by Bob Baumel by email or diskette [same addresses as for Measurement software]. Bob can customize the template with certifier's personal info at the bottom (name, address, phone, etc.) so you can avoid re-typing it every time (Be sure to specify exact ID text desired when requesting a template). **Online course measurement book**, edited by Bob Baumel. It's a revision of the one you can buy from USATF, but the basic procedures have not changed. Available at: www.rrtc.net

Course Measurement Procedures - the Bible of course measurement. Complete instructions for measuring courses for USATF certification. The same procedures are now used for IAAF and AIMS courses. \$9.00 postpaid. Available from: USATF - Book Order Dept. - PO Box 120 Indianapolis, IN 46206

Course Measurement Video - a concise 17 minute introduction to course measurement, intended as a supplement to Course Measurement Procedures. See how it's done! Version 2 sells for

\$10 but there are still a few copies of the original version available for \$7.50. Send to: Tom McBrayer - 4021 Montrose - Houston, TX 77006-4956.

OTHER PUBLICATIONS AND EQUIPMENT

Road Race Management is a monthly newsletter providing race organizing ideas and news for race directors. \$97 per year from: Road Race Management - 4904 Glen Cove Pkwy - Bethesda, MD 20816 Phone: 301-320-6865 Fax: 301-320-9164

Jones/Oerth Counters - Write to: Paul Oerth - 2455 Union St - Apt 412 - San Francisco, CA94123. Phone: 415-346-4165 Fax 415 346 0621. Email: Poerth@aol.com. US Price is \$70 for the 5 digit model, \$80 for the 6 digit model, postpaid. Foreign price is \$75/\$85 plus postage. Foreign orders shipped by airmail. Visa, MasterCard, American Express cards accepted. Note: Payment in advance is required.

RunScore - The flagship of IBM-style finish line programs. For information contact: Alan Jones - 3717 Wildwood Dr - Endwell, NY 13760. Or check it out on the internet at: www.runscore.com

Apple Raceberry JaM - Race management software for Macintosh and Windows. Check it out on the Internet at www.raceberryjam.com or call Jack Moran at (952) 920-0558.

TOPOGRAPHIC MAPS

USATopographic maps are available from:

U. S. Geological Survey 303-202-4200
USGS Map Sales
PO Box 25286, Bldg 810
Denver Federal Center
Denver, CO 80225

Delivery will be made in approximately 4 weeks. Ask for latest price.

Maps can be located and ordered online at: www.usgs.gov

Maps can be obtained in just a few days from:

Map Express - PO Box 280445 - Lakewood, CO 80228-0445

1-800-MAP-00EX (1-800-627-0039)

Maps can be located and ordered online at: www.mapexp.com

Topo Maps on CD-ROM - 3-D TopoQuads includes authentic USGS 7.5-minute quadrangle maps, assembled into one seamless database

See an interactive online demo at www.delorme.com

Also - check out Street Atlas USA from the above - it's a seamless street map of the whole USA at a decent price.

USGS TOPOGRAPHIC MAPS ONLINE - FREE

Maps.Com has a section where you can click on to all USGS maps, free. This can be very handy for obtaining accurate elevation information.

Check out: www.maps.com

ROAD RUNNING TECHNICAL COUNCIL

Chairman: Mike Wickiser – 2939 Vincent Rd – Silver Lake, OH 44224
Phone/fax: 330-929-1605 email: MikeWickiser@neo.rr.com

REGIONAL CERTIFIERS - CONTACT THESE PEOPLE FOR CERTIFICATION INFORMATION

	Telephone	Email address
AK - Frederic Wilson - 2420 Glenwood - Anchorage, AK 99508	907-279-2773	uphere@alaska.net
AL - John DeHaye - 824 Annlau Ave - Huntsville, AL 35802	256 881-9326	jjdehaye@yahoo.com
AR - Don Potter - #7 Kali Court - Conway, AR 72032	501-796-4081	donp@tcworks.net
AZ - Gene Newman – 920 N. Night Heron Dr – Green Valley, AZ 85614	520-648-3353	newmangc@cox.net
CA - Ron Scardera - 5660 Valley Oak Dr - Los Angeles, CA 90068	323-467-7750	rscar@pacbell.net
CO - Dave Poppers - 5938 S Franklin St - Centennial, CO 80121	303-795-9743	dpoppers@earthlink.net
CT - David Reik - 87 Wood Pond Road, West Hartford, CT 06107	860-677-2724	Davidreik@attbi.com
DC - Robert Thurston - 13 Kennedy St NE - Washington, DC 20011	202-726-1518	Thurret@aol.com
DE - Paul Hess – PO Box 501 – Gladstone, NJ 07934	908-781-0027	mastrmilr@aol.com
FL - Doug Loeffler - 1399 W. Royal Palm Rd - Boca Raton, FL 33486	561-391-2880	DougLoeffler@aol.com
GA - Woody Cornwell - 1701 Violet Way - Dalton, GA 30720	706-226-5207	ewcornwell@cs.com
HI - Peter Riegel - 3354 Kirkham Rd - Columbus, OH 43221-1368	614-451-5617	Riegelpete@aol.com
IA - Michael Franke - 3824 51st St - Des Moines, IA 50310	515-276-3140	Mfranke@worldnet.att.net
ID - Michael Renner – East 1606 19th Ave – Spokane, WA 99203	509-535-2822	
IL - Jay Wight - 4556 Opal Drive - Hoffman Estates, IL 60195-1185	847-359-4598	Jaywight@earthlink.net
IN - Mike Wickiser – 2939 Vincent Rd – Silver Lake, OH 44224	330-929-1605	MikeWickiser@neo.rr.com
KS - Bill Glauz - 2704 W. 137th St. - Leawood, KS 66224-4529	913-402-1501	wglauz@kcnet.com
KY - Peter Riegel - 3354 Kirkham Rd - Columbus, OH 43221-1368	614-451-5617	Riegelpete@aol.com
LA - John Ferguson - 3026 Sesbania - Austin, TX 78748-1912	512-282-4175	fergusonj@haycisid.net
MA - Ray Nelson - 3524 West Shore Road - Apt. 705 - Warwick, RI 02886	401-737-2416	ride9336@ride.ri.net
MD - John Sissala - 120 Evans St - Rockville, MD 20850	301-340-8107	sissala@starpower.net
ME - Ron Fitzpatrick - 33 Rand Rd - Center Barnstead, NH 03225	603-776-1999	rjfitz@worldpath.net
MI - Scott Hubbard - 1453 W. Hill Rd. - Flint, MI 48507	810-234-8993	Runningshorts@aol.com
MN - Rick Recker - 19 South 1st Street #2203 - Minneapolis, MN 55401	612-375-0805	rick_recker@hotmail.com
MO - Bill Glauz - 2704 W. 137th St. - Leawood, KS 66224-4529	913-402-1501	wglauz@kcnet.com
MS - Bob Harrison - 1736 Meadow Oak Court - Montgomery, AL 36117-6830	334-279-5517	rnharrison@knology.net
MT - George Tuthill - 810 S 7th Ave - Bozeman, MT 59715	406-587-2289	tuthill@physics.montana.edu
NC - Paul Hronjak - 4413 Pinehurst Drive, Wilson, NC 27896	252-237-8218	hronjak@simflex.com
ND - Peter Riegel - 3354 Kirkham Rd - Columbus, OH 43221-1368	614-451-5617	Riegelpete@aol.com
NE - Karl Ungurean - 203 E. Denison - Davenport, IA 52803	563-324-2250	UngureanK@aol.com
NH - Ron Fitzpatrick - 33 Rand Rd - Center Barnstead, NH 03225	603-776-1999	rjfitz@worldpath.net
NJ - Larry Baldasari – 3448 Nottingham Way – Hamilton Square, NJ 08690	609-890-8343	larsurf@aol.com
NM - Don Shepan - 3007 Ronna Dr - Las Cruces, NM 88001	505-524-7824	DrShepan@aol.com
NV - Bill Callanan - 5209 Copper River Ave - Las Vegas, NV 89130	702-656-3741	Callan@lvcm.com
NY - Amy Morss - 248 Spring Hill Rd., Sharon, NH 03458	603-924-4164	Amorss@koko.mv.com
OH - Peter Riegel - 3354 Kirkham Rd - Columbus, OH 43221-1368	614-451-5617	Riegelpete@aol.com
OK - Bob Baumel - 129 Warwick Road - Ponca City, OK 74601-7424	580-765-0050	bobbau@earthlink.net
OR - Lee Barrett - 3027 NE 20th Ave - Portland, OR 97212	503-284-2809	cudapdx@attbi.com
PA - Bill Belleville - 2902 Morris Road - Ardmore, PA 19003	610-649-4278	Wjbellevil@aol.com
RI - Ray Nelson - 3524 West Shore Road - Apt. 705 - Warwick, RI 02886	401-737-2416	ride6887@ride.ri.net
SC - Brian N. Smith - 1465 Winton Rd - Mount Pleasant, SC 29464-3921	843 881 5566	Bnewbatt@awod.com
SD - Peter Riegel - 3354 Kirkham Rd - Columbus, OH 43221-1368	614-451-5617	Riegelpete@aol.com
TN - Bob Harrison - 1736 Meadow Oak Court - Montgomery, AL 36117-6830	334-279-5517	rnharrison@knology.net
TX - E. T. McBrayer - 4021 Montrose - Houston, TX 77006-4956	713-523-5679	mametm@aol.com
UT - Dave Poppers - 5938 S Franklin St - Centennial, CO 80121	303-795-9743	dpoppers@earthlink.net
VA - Robert Thurston - 13 Kennedy St NE - Washington, DC 20011	202-726-1518	Thurret@aol.com
VT - Ron Fitzpatrick - 33 Rand Rd - Center Barnstead, NH 03225	603-776-1999	rjfitz@worldpath.net
WA - Bob Langenbach – 4261 South 184th St – SeaTac, WA 98188	206-433-8868	boblang@wolfenet.com
WI - Jay Wight - 4556 Opal Drive - Hoffman Estates, IL 60195-1185	847-359-4598	Jaywight@earthlink.net
WV - Robert Thurston - 13 Kennedy St NE - Washington, DC 20011	202-726-1518	Thurret@aol.com
WY - Tom Knight - 307 Dartmouth Ave - San Carlos, CA 94070	650-594-9406	Tdk@stanford.edu
FOREIGN - Peter Riegel - 3354 Kirkham Rd - Columbus, OH 43221-1368	614-451-5617	Riegelpete@aol.com

CERTIFIERS - Please check this listing to be sure we have your data correct.

December 29, 2002