Measurement News

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This rather desolate piece of real estate is part of the course of the Augrabies Extreme Marathon in the Republic of South Africa. Norrie Williamson used the event as a test of GPS measurement, a technique that may make courses over rugged terrain such as this measurable, if not certifiable.

MEASUREMENT NEWS

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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

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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 March 2003 issue must be in the Editor's hands by February 24. Next issue will be mailed in early March.

ROAD RUNNING TECHNICAL COUNCIL

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ONLINE MEASUREMENT FORUM

All it takes to become a subscriber is access to email. Simply send to **mnf-list-on@rrtc.net** (It makes no difference what you put in the subject and body of these email requests.)

Note: After sending a request to subscribe or unsubscribe as described above, you will receive an automatically emailed confirmation request. Reply according to instructions in that email in order to complete the subscription or unsubscription process.

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).

Visit the RRTC wesbsite 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

2002 is nearly history now and what a year. The complete course listing tops 22,260 courses with almost 1,100 new certified courses this year. Once all the courses are in and filed there will surely be an excess of 1,100 new certifications. I used to think measurement activity slowed down during the winter but I also used to believe in the tooth fairy. With the flurry of activity for the convention over it is now time to start planning next year's projects.

USATF National Convention: I was unable to attend this year's convention but understand there was a flurry of activity there. Tom McBrayer handled RRTC meetings and was assisted by Bob Baumel & Pete Riegel with several other pressing issues. Bill Glauz put on an excellent pacing contest. All in all the convention was productive in several areas. My many thanks to Tom, Pete, Bob, and Bill for their participation.

Olympic Trials Pre-Validations: The Men's & Women's Olympic Marathon Trials courses will be pre-validated this year with the races taking place early in 2004. The Trials for Women will be in St. Louis on April 04, 2004. The Men's Trials will be in Birmingham on Feb. 07, 2004. Measurement teams are needed to participate. In the past teams of women measured the Women's Trials and men measured the Men's Trials. No dates have as yet been selected but I would expect these courses to be ready some time this summer. Any interested measurers are welcome to participate. Please let me know if you wish to be a part of either the Women's or Men's team.

Maps on the Web: I have been talking about this subject for some time and there remains about 2500 maps to be scanned. There is, however, adequate information available to get going with the project. This was the consensus between Keith Lively and myself just before the convention. Available now is an excellent search engine of the entire Active course list with printable views of many course maps. While the maps are still being prepared and added regularly, it will likely be late spring before all active certified course maps will be available. The course list can presently be searched in any way imaginable. "Search Certified Courses and View Course Maps" can be accessed from

http://www.rrtc.net

or directly at

http://www.usatf.org/events/courses/search/

The search engine uses the latest course list available so it is imperative that certifiers forward measurement certificates promptly. Certified course info is being displayed on the USATF website now (both data and maps) and certifications need to be posted as quickly as possible so we can serve our "customers" well.

Karen & I hope you all had a happy holiday and wish you a peaceful new year,

Mike Wickiser

From MNForum

CHANGING "POLE-ARITY"

Last weekend I was at a local 5k that I had measured a few years ago. Before
the race I jogged the course with a can of spray chalk, to put down the mile and km marks. I got to where the 500m mark was supposed to be and couldn't find the utility pole that was indicated on the course map. Same thing happened at 1 km. I knew where both spots were, but the poles were nowhere to be found. Instead, there were new poles, which apparently received new numbers when they were put in. On previous occasions, I've seen new poles but they had the same ID numbers put on them.

Anyone know what's the standard procedure for utility companies when replacing poles? If new numbers are standard then this may be more of a concern than road construction in renewing courses.

Jim Gerweck
zgerweck@optonline.net

I recently had new numbers placed on old telephone poles that are at the start and end of a calibration course that I routinely use. And just last week in a different municipality, I noticed the old TP that marks the finish line had a new number on it. I have no clue, though as to when and why the pole numbers are changed.

Larry Baldasari
larsurf@aol.com

This leads me to believe that utility poles may not be the best landmarks, especially for calibration courses or start/finish points. That's why I always try to landmark off of at least three points - the odds against all of them disappearing over the 10 year lifespan of a course are pretty thin.
When I was measuring in Central Park with Paul Hess I think he told me they had renumbered all the poles there a few years ago as well. What I really find mystifying is when houses are renumbered (I've had this happen, too). Must play havoc with the homeowners and the Post Office, never mind the measurers.

Jim Gerweck
zgerweck@optonline.net

UTILITY POLES CONTINUED

For what it's worth, I have been using utility poles as reference points for about 20 years and I have never seen them renumbered, at least not in this area (DC and vicinity). I've seen new numbers added to the old ones with the old ones left on. Maybe this is a regional thing.

Bob Thurston
thurret@aol.com

I can confirm the experience of disappearing lamp-posts. A lamp post often needs a verbal description of the location, as re-numbering is such a problem, but sometimes the position changes as well as the number.

Two of my London Marathon references, that at 5km and that at 12 miles, have recently migrated. The 2001 reference was rebuilt 1.1m further into the course than it had been in previous years, and the 2003 12 mile reference will now appear 1.25m further into the course than has previously been the case. Luckily, spray paint often leaves some traces of the original markings, but the reconstruction may be so comprehensive that only constant vigilance will allow these sort of changes to be picked up.

Hugh Jones
aimssec@aol.com

I've sometimes been puzzled as to what to call a wooden pole when using it as a reference point. Is it a "power pole?" Is it a "telephone pole?" I generally call them telephone poles.

There are other sorts of poles in the city. Common is the "traffic light support pole." Poles are made of metal or wood. Unless one is quite precise it is possible to record a confusing description.

Here is a description typical of a rural pole: "Point is on Ackerman Road, 17 feet south of telephone pole # A4-332. Pole is the 5th wooden pole south of Case Road on the west side of the road."

In the city it can be simpler, as distinct landmarks are more numerous. "Point is on Sixth Avenue, 6 feet west of the telephone pole located in front of house #312.

In the city I prefer to use the curblines of intersecting streets for reference points, as they are rarely modified. "Point is on Jermine Street, 21 feet west of the linear extension of the west curbline of 5th Avenue." You just line yourself up with the west curbline, and the point is 21 feet west of you. Curblines make great reference points, but be sure to be careful to make sure you get the proper side described. Don't say "east" when you mean "west." The middle of the street would be less ambiguous, but it's not as easily defined. Try to avoid intersections where the streets don't intersect at 90 degrees.

Pete Riegel
riegelpete@aol.com

CURB LINES EXTENDED

Just a small note to add on to Pete's comments about extended curb lines: not only do you have to be careful to refer to the correct curbline, but you need to look both ways to see if the road lines up on both sides. So, if your course is running east or west, you might have to refer to the west curbline of (some north-south) street, as deter-

mined from the north side or the south side.
Tom McBrayer's comments reminds me of seeing folks at race expositions (is that what they're called?) raking in lots of money from the sale of slick and pretty maps of courses. In my experience the runner would be lucky if that course map is accurate. I don't know if we have any role in this at all— if they sell or give out inaccurate maps, I wouldn't want my name on it at all. But if they take the trouble to get the maps right, they should check with the course measurer, and then at least acknowledge us.

Bob Thurston
thurret@aol.com

Utility poles are common reference points for course maps. I can't say I have seen any get renumbered but I have found numbers missing and poles that had no number what so ever. When this happens I usually note the pole in reference to some other landmark but that even has problems. A local race finished at an unmarked UP. I noted it as the first pole South of an intersection. When I went back a few years later to make an adjustment to the course, there was a new pole in between the intersection and the Finish line pole. Fortunately I also had the length from a curbline to locate the Finish.. I recall another race that I was checking for a validation where the Finish was a storm drain near a tennis court. The race director set the course up as he believed was correct. Upon validation the course was 300 feet short!! The explanation was found to be another storm drain 300 feet further down the road, also near tennis courts.
I guess the point of all this is; For key course locations (Start, Finish, and Turnarounds) a little extra work documenting can be very important for future races.

Mike Wickiser
mikewickiser@neo.rr.com

SETTING OUT TIMING MATS

I remember some time ago a debate on MNF about the correct way to set up timing mats when the timing chip is used, but I can't remember the conclusion. Can someone please help me out.

I would think that for a course where there is a different start and finish, or for a loop course where the runners are passing over the mat in the same direction at the start and at the finish, the critical point is that the start and finish are set up in exactly the same way; for example, the leading edge of the 1st mat on the measured line.

I am less confident about the case where you have an out and back course and use the same mats for the start and finish. Do you align the mats such that the start/finish line is on the trailing edge of the second mat (as see from the start) and the leading edge of the first mat (as see from the finish) thus ensuring that the race is more than the measured distance. Or is some other alignment acceptable?

I assume that the second set of mats is to ensure that if a chip is not detected by the first set it is caught be the second. Does anyone know what percentage of chips are missed by the first mat?

Paul Adams
adamspaultb@hotmail.com

The finish line mat placement is simple- the front edge of the first set of mats is the finish line.
The start is a little tricky. The mats should be placed prior to the starting line with the far edge of the second set of mats at the starting line. Nearly every chip race in the world is wrong!
Timing software should be set up to take the last time (from multiple reads on the mats) at the start and the first time at the finish.
The reason for this should be obvious. Starting mats placed on the course side of the starting line would be registering start times for the runners anywhere from one to seven meters into the course!
At the USATF Convention, the rules committee approved Net times for masters age group records as long as the starting mats are placed prior to the start. And that the record setter wins his/her division.

David Katz
katz@flrrt.com

RACE WALKING CERTIFICATION

I am about to embark on marking an 8K course for Race Walkers. Since I am not a race walker and have only assisted in certifying 2 courses, I am wondering if your expertise could assist me in this undertaking. I am wondering if race walkers prefer to have splits marked as 1K, 2K, 3K or if they, like most runners in the USA, prefer to have mile markers and a finish at the 8K or a combination or both.

The other quandry that I have proposed to the Race Director, being that walkers will share the same course as a 5K and 10K event is timing for the start of these events proposed:
5K Road Race 7:00 a.m. Start
8K Race Walk & 5K Fitness Walk Start 7:05 Start
10K Road Race 7:30 a.m. Start

Would using different colored Mile markers keep things less confusing out there that are clearly labeled for each event (since they all share the same Finish Line on an out and back course with different turnarounds and slightly different start lines) or is there a better way—what would you guys do? Is this too ambitious for one course?

Matthew Sonneborn
nfn03449@naples.net

It may be different in US but in UK RW and RR splits are generally in the same "currency" as the total race distance.

Most RW races now are (or appear to this occasional RW dabbler in distant past) to be in kilometre distances. e.g. 3, 5, 10, 20 on track; 10, 20, 50 on roads.

Championship road RW courses are often in laps of a round, precise k distance e.g. 2.0 or 2.5 k and this is actually a recommendation of the RWA and/or the IAAF for such races. There's usually an out and back portion somewhere with easy to adjust turn point to get this right.

This is (I think) largely a convenience for judging teams in terms of giving judges maximum opps to observe without moving too far from base and also to keep judges in reach (by walky talky or runners) of judging HQ which needs to collate warnings etc. Also good for supporters, waterers, team management, road or path closures etc.

But there is not an absolute prohibition of say a 20k being on a single loop or point to point, but most races are walked on smallish laps.

And there is no prohibition of shorter laps .I am familiar with one British Isles Grand Prix Race which is on a much shorter lap (800 metres). That's on the Isle of Man at the National Sports Centre.

My impression is that most race walkers work in ks not Ms. More so than runners. But UK runners are used to the "same currency" approach with the occasional luxury (confusion?) of both currencies being displayed.

I am copying this reply to Andi Drake from UK Athletics and Al Heppner from the US RW Team. They may also be better placed to comment on proposed schedule and marking. But quickly :

The leading walkers could be clocking 4 minute ks or better but the slowest in the fitness walk could be poor - certainly some at 10 minute ks, perhaps even slower.

The fastest walkers could catch the slowest runners with a k or so to go - unless this is elite only? And although the 10k runners may not quite catch the 8k and 5k walkers they may descend on the finish fairly soon after the back marker walkers
in both events get there. Not too serious but an extra few minutes could be useful.

Using just k markers might allow a much less confusing situation is my observation. Different colours and potentially different currencies is wild!!!

You might use ks "from start" all the way OUT and ks "to go" all the way back. Needs a little mental arithmetic from runners and walkers but means who won't have a 4, a 7 and a 9 sign all competing for attention at "1k to go" ... the signs will be right whoever you are.

Chris P
idea@mcr1.poptel.org.uk

If I were measuring this course I would leave it in km and have the start and finish at the same point. This way the km splits for the 1 km and 2 km would be the same point for all three races. The 5 km would turnaround at the 2.5 km point and the original 2 km and 1 km points would be the 3 km and 4 km points. The 8 km turnaround would be at the 4 km point of the 10 km race. Placement of the km signs would be a cinch since many of them would be coincidental in the different races. Timing by the runner's own watches would be much easier if the starts were all at the same point since they wouldn't have to worry about which mile or km marker of which race they were running.
I would never suggest measuring a 10 mile race in km so why measure a 5, 8, or 10 km in miles? Most runners know what total time they wish to run for each of these races. Dividing this time by 5 or 8 or 10 in order to find your time per km is easier than trying to divide the time by 6.2 in order to find your pace per mile.

Bernie Conway (a biased Canadian Measurer)
measurer@ican.net

I am a former racewalker with over 40 years of racing, training, instructing and judging experience. I have been designing and measuring racewalk courses for over 30 years. Here are my thoughts regarding your rather ambitious project. Is your 8K racewalk really a racewalk? Are your participants really racewalkers? Do you have USATF certified racewalk judges? Is the 8K distance certified? Is it USATF sanctioned? If any of these answers are "no", then you should forget the racewalk and have your potential racewalkers join the others in the 5K fitness walk.
Regarding split markers, all racewalk records are achieved at kilometer distances, so the splits should be in kilometers (I feel the same way about the runs at kilometer distances, but it is a hard sell). Colored split markers would work out as good as anything in this event.
The course design you have is not really suited for racewalking. Most racewalk courses are laid out on a certified, flat or mildly rolling multiple loop course. This is needed to allow judges maximum observation of the walkers so it can be determined if the athlete is walking according to the rules of the sport. The time sequence of your starts seems OK but I wonder how you will sort out all finishers to place them in the correct event. Good luck.

Wayne Nicoll
nicoll57@webtv.net

If potential 5 kilometer race walk road records are to be approved, a single 2.5k turnaround won't do. USA records at that distance require a smaller loop (like 1.25k?) so that more or less stationary judges can observe the walkers more than a couple of times.

Bev LaVeck
bevlaveck@aol.com

COMPUTER DRAWN COURSE MAPS

At the risk of addressing a subject one more time, I received a note last night from a measurer asking about drawing a course map with a computer.
I draw mine by hand although I would not be opposed to using a computer if that were a better answer.

For those of you who do use a computer to draw your course maps, what software do you use? What platforms does it work on? What is the approximate cost?

Jay Wight
jaywight@earthlink.net

I have used FreeHand by Macromedia almost since I started measuring seriously four or five years ago. It runs on Mac but it comes in PC flavor as well. What I like about it is the ability to import a scanned map and use it as a template for creating the actual course map with route and SPR indicated. It also makes exporting the final file as a GIF easy for posting to race web sites.
For some examples, go to
www.clubct.org/Buildup/BBMaps.html

Jim Gerweck
zgerweck@aol.com

I prepare my course maps with TurboCad, version 7.0 by IMSI. It is a Windows based, full featured, 2-D CAD program. The cost is less than $40, so it is particularly suitable for a nonprofessional or infrequent user.
In addition to map preparation, I also use TurboCad to process digital maps submitted with course applications. As a minimum, this involves adding the course number, final sizing and printing. A high quality print is a big bonus. Digital course maps are by far the preferred approach here in Alabama. So far this year, I have processed 17 course applications and all have used computer generated maps. I think digital maps will only become more common and could certainly help support the central data base.

John DeHaye
jdehaye@comcast.net

I've been generating computer maps for quite sometime. I'm using Corel Draw. It's a versatile but complex software package and unfortunately it's quite expensive ~$400, but doing a web search I found older versions on sale for a bit over $100. The current version is 11. I'm using version 8. There are both PC and Mac versions. I too use scanned bitmap as a template. I've used this software to generate race brochures and diagrams of race staging areas. Examples of maps that I have generated can be found at

http://mcrrc.org/rockville10k/map10k.htm
http://mcrrc.org/rockville10k/map5k.htm

Phil Quinn
quinnphi@erols.com

I switch between computer and hand-drawn maps. I use ClarisWorks for drawing with the computer, an older version of AppleWorks. It's a Mac application, but PC versions are out there. It has database, spreadsheet, word processing and drawing/painting capabilities. Windows XP updates are available but I don't know if a Windows version is currently available. I now use an Intel machine with Windows XP and I find that ClarisWorks is superior to Word when it comes to integrating text and graphics. It costs $79.00 US.

Laurent Lacroix
llacroix@mb.sympatico.ca

I use Corel Presentations. it has an option of creating a drawing. It's surprising how easy it is with a few straight lines, rectangles, and circles to make a map. What word processing program do you use? Most have a drawing program built in.

Bernie Conway
measurer@ican.net

I use Adobe Illustrator which is excellent for the kind of maps that I do. It has some really cool features, for example, I draw all the roads using a "style" that is two lines separated by an appropriate distance, but the really cool part is when I change the "appearance" of the layer and presto, all the corners appear without the lines crossing. I am not sure what the price is in the US, probably in the $200 plus range. If anyone would like to see an example I can send a pdf copy of one of my maps.

Paul Adams
adamspaultb@hotmail.com

NON-CERTIFICATION MEASUREMENTS

Twice in the past month and a half I've been asked to measure courses for one-time use, as the race directors know they are going to use a different layout next year, but at the same time want the temporary course to be as accurate as possible (i.e. "certifiably accurate").

My question, mainly philosophical, is, how much (if at all) can corners be cut in such instances? My own guy feeling is to omit the course map, or at least keeping it to a bare minimum, and certainly no paperwork (calibration and course measurement sheets, etc), since the course isn't going to be certified.

The actual physical measurement I tend to keep more to the prescribed procedure, as this has a greater effect on the accuracy of the course. I have to admit that last weekend dropping temperatures and diminishing daylight limited me to one ride of a course. While that wouldn't suffice for certification, it's probably more accurate than 99 per cent of courses measured by car or even hand-pushed wheel. And if somehow it needs to be certified, all it will take is one more ride to meet the standard.

Just wondering if anyone else has been in similar situations.

Jim Gerweck
zgerweck@optonline.net

I have measured numerous courses which the race directors want accurately measured but not certified (usually for small events). I do a pre bike calibration and include a SCPF to determine my constant. No post measurement cal. But I ride the route in accordance with USATF guidelines. I only ride the course one time. I also provide the race director with a course map and list of measured points. Quite similar to a regular cert map. And no formal USATF data sheets are prepared.

Larrry Baldasari
Larsurf@aol.com

There are lots of situations where it makes sense to measure a course using a Jones counter, but it doesn't make sense to apply for certification of the course. But I cringe when I read Jim Gerweck's phrase "certifiably accurate" applied to non-USATF certified courses. That phrase seems designed to give the impression that the course is USATF certified, when it is not.

Actually, the fact, alone, that the course is to be used only once doesn't seem to me to be a good reason to not go all the way and get the course certified, complete with map. What if there is some sort of record achieved, and a validation is in order? It's hard to do a validation without a map, and impossible without certification. And how about runners in the race who might like to see their performances in the race ranked on the runningusa site? Can that happen if the course isn't certified?

I agree, almost any sort of Jones counter measurement is better than a car measurement; we all do what we can. But we don't want to give the impression we've done what we haven't. We shouldn't use any variant of the word "certified" to describe a non-USATF certified course.

David Reik
davidreik@attbi.com

I would not want to do a measurement with only one ride, even if the race is not going to be certified. I know that I have too great a tendency to bungle things, perhaps by transposing a number or adding segments together incorrectly. If my two rides don't match within a few metres - I've goofed somewhere. Perhaps other measurers are better at keeping track of all those numbers, but unless it is really straight forward I don't have that much confidence. My preference is to do the second ride and not be the measurer for an event that is the short or long.

Paul Adams
adamspaultb@hotmail.com

HISTORICAL MATERIAL AVAILABLE ON CD

Two items of historical interest are available.

A complete set of every issue of Measurement News from #1 (1982) to #115 (2002) has been scanned and put onto a set of two CD's, in PDF format. It can be read, and printed if desired, using Adobe Acrobat Reader, a free download available at **www.adobe.com**. Cost of the set is $10, postpaid.

A set of historical files has been collected and put on a single CD. The set includes Olympic and World Championships measurement reports, reports of seminars, and technical articles. It includes the original US Measurement and Finish line Manuals, as well as the original AIMS and IAAF measurement manuals. It includes copies of NRDC News from #19 (1981) to # 78 (last issue, 1986). Of special interest is a file from circa 1980 telling of the early certification activity in California. Cost of this archive disk is $5.00, postpaid.

Both items are available from:

Pete Riegel
3354 Kirkham Road
Columbus, OH 43221-1368
Riegelpete@aol.com
Phone 614-451-5617
Fax 614-451-5610

American Bob Sitler standing in the Orange River after the 77km overnight leg of the Augerbies Extreme Marathon, this issue's Measurement of the Month. This was a special oasis along the route.Norrie Williamson's account begins on page 18.

Minutes — Road Running Technical Council
USATF 2002 National Convention — Kansas City, MO

1st Meeting — Thursday, December 5, 2002

Attending: Bob Baumel, Jerry Crockett, Michael Franke, Bill Glauz, Basil Honikman, Linda Honikman, Justin Kuo, Bob Langenbach, Carole Langenbach, AC Linnerud, Mary Anne McBrayer, Tom McBrayer, Ron Pate, Pete Riegel, Don Shepan

In the absence of RRTC Chairman Mike Wickiser, the meeting was called to order by Western Vice-Chairman Tom McBrayer at 15:10. All present introduced themselves.

Officers' Reports

Many of the RRTC officers weren't present but had submitted written reports which will appear in January 2003 *Measurement News* and were summarized by Tom. The only officers who were present to give reports were Bob Baumel and Tom McBrayer.

Webmaster & Secretary, Bob Baumel: Bob mentioned that our Course Measurement Procedures manual is online at our website www.rrtc.net (It's been available in web page format since mid-1999 and downloadable PDF version since Nov 2001). Several at this meeting noted that online availability of our manual has helped greatly in communicating with measurers.

Bob commented briefly on the new USATF certified course search engine and online scanned maps—a topic discussed more extensively later during this meeting.

Bob noted that the latest issue of our RRTC journal *Measurement News*—now edited by Jim Gerweck who replaced Pete Riegel in November—is now always available in PDF form on our website. Also, since the beginning of 2002, our email discussion forum *MNForum*, moderated by Jim Gerweck, has been hosted using the rrtc.net server which also hosts our website. To join the email discussion, go to www.rrtc.net/mnforum.html

Chairman, Mike Wickiser (not at meeting, written report submitted): Mike conducted validations of three New York road courses and a measurement seminar for prospective measurers in Phoenix. Mike has also been busy scanning maps for posting on the web (see additional discussion on this topic below). So far, he has scanned approximately 7000 maps.

Vice-Chairman West, Tom McBrayer: In the West, Bob Langenbach replaced Mike Renner as Washington certifier, and Gene Newman became Arizona certifier after moving from New Jersey. A measurement seminar in Phoenix was hosted by Tom LaBlonde of Scottsdale, conducted by Mike Wickiser, Pete Riegel, Tom McBrayer and Gene Newman, and helped to train 5 new measurers. Also this year, two Texas measurers, Andy Beach and Charles Clines, were appointed AIMS/IAAF "B" measurers.

Vice-Chairman East, Paul Hronjak (not at meeting, written report submitted): In the East, long-time certifier Wayne Nicoll retired and was replaced by Ron Fitzpatrick who is now the certifier for NH, VT and ME. Larry Baldasari is now certifier for NJ, and Paul Hess for DE, replacing Gene Newman who had been certifier for both states before moving to Arizona.

Validations Chairman, Doug Loeffler (not at meeting, written report submitted): During 2002, validations were conducted of 34 courses, while 5 courses are still pending validation. Of the 34 validated courses, 8 required remeasurement. All remeasurements found the courses long enough to approve the records (although in one case, the course was found short by 0.046% which is just barely within the allowance for error in validation; in such a case, the course technically fails validation but the record is considered acceptable).

Course Registrar, Karen Wickiser (not at meeting, written report submitted): 1011 courses have been certified so far in 2002. We appear to be on track to come close to the record 1245 courses certified in 2001. As in other recent years, 5 km remains the most popular distance, comprising about half of all certified courses.

Other Business

Proposed Rules Changes: RRTC had been asked for recommendations on two sets of proposed changes to the Rules of Competition:

1) A proposal to amend the Rule on acceptability of road records (Rule 185.5) by increasing the Start-to-Finish separation limit from 30% to 50% while also dropping the exception that allows records on courses with arbitrary separation when it can be shown that there is no significant tailwind.
2) A pair of proposed Rules changes (submitted by David Katz) to make Transponder 'Net' times ('chip' times) acceptable for age group records, provided that the times are measured between mats set up **before** the starting line and **after** the finish line.

The stated reason for (1) was to match IAAF. In our discussion, it was noted, however, that IAAF hadn't officially adopted this standard yet. Therefore, RRTC recommended that USATF avoid changing our rule until we know for sure what IAAF is doing.

Regarding (2), the consensus seemed to be that the question of allowing net times as records is a philosophical rather than technical issue, so RRTC couldn't really offer a recommendation. Several participants in our discussion did feel strongly, however, that **if** net times are to be accepted as records, the timing mats must be set out as specified in the proposed rules.

Online Maps and new USATF Search Engine: Mike Wickiser has been busy scanning course maps for online posting. Mike is working closely on this project with Keith Lively (webmaster for the central USATF website at www.usatf.org), who assures us that all necessary server space will be provided, and has designed a new certified course search engine now available at www.usatf.org/events/courses/search/ which allows searching the active course list by various criteria. Lists of courses returned by this search engine display a "map" link for each course whose map is currently online. Clicking this "map" link displays the course's map in a popup window allowing users to choose a map version optimized for on-screen viewing or for printing.

At our meeting, Tom and Mary Anne McBrayer distributed printouts illustrating use of the new search engine, along with a sample of the maps available online. There was a lot of discussion, and all agreed that this will be a great resource.

The meeting was adjourned at 17:00.

2nd Meeting — Friday, December 6, 2002

Attending: Bob Baumel, Bill Glauz, Justin Kuo, AC Linnerud, Mary Anne McBrayer, Tom McBrayer, Calvin McGill, Ron Pate, Pete Riegel, Don Shepan, Larry Smithee, Lloyd Stephenson

The meeting was called to order at 16:11 by Tom McBrayer. As is customary for our 2nd RRTC meeting, the first item of business was to present results of our Pacing Contest.

Measurement Contest: The contest course in Washington Park, a block west of the Convention hotel, had been laid out by Kansas/Missouri certifier Bill Glauz who also presented the awards at this meeting. Ten people entered the contest. The three closest estimators were 1) Mary Anne McBrayer, 2) Pete Riegel and 3) Bob Baumel, all of whom received gifts commemorating Kansas City. Full results may be viewed on our website at www.rrtc.net/news/ and will also appear in January 2003 *Measurement News*.

RRTC Budget for 2003: Pete Riegel reported on the USATF Budget meeting at which he represented RRTC. Prior to that meeting, RRTC had requested $17,500 but was allotted only $10,000. Pete gave a three-minute pitch (in contrast to other committee representatives who spoke for a half hour or more) asking for an additional $4,000 to enable us to do pre-validation measurements of the Olympic Trials Marathon courses, as we normally do prior to each Olympic year. RRTC's position was reinforced by LDR Division Chair Jerry Crockett, who pointed out that pre-validation is necessary to avoid problems such as the short course Alberto Salazar ran on in 1981. Final results of the budgeting process weren't known at the time of our meeting, but we were told by USATF Treasurer Ed Koch to plan for the Olympic Trials pre-validations—and they will be covered.

Note: the Men's Olympic Trials course will be in Birmingham, AL (race to be held Feb 7, 2004) while the Women's course will be in St. Louis, MO (race to be held April 4, 2004).

Other Discussion: Calvin McGill reported on status of proposed Rules changes in the LDR sport committees. [Note – Final status of these changes by end of the Convention was: 1) The proposal to increase the separation limit from 30% to 50% was rejected; thus, the pre-existing version of Rule 185.5 remains in effect for USATF road records. 2) The proposal to allow 'net' times for age group records was accepted, provided that timing mats are set out as in the proposal, and provided also that the record-setter wins his or her age group in the race.]

There was more discussion about the online Search Engine. Tom and Mary Anne McBrayer distributed printouts illustrating more of the options. Also, between our Thursday and Friday meetings, Bob Baumel had added links on our RRTC site at www.rrtc.net pointing to the new search engine, so you don't have to remember a long URL to access the search engine.

Tom McBrayer stated that increased efforts are needed to promote course certification in our areas. It was noted that in states with a state record keeper and state records, such a system can help motivate race directors to get courses certified. All agreed that certifiers should take every opportunity to promote certification in their areas.

The meeting was adjourned at 16:52.

Minutes prepared by Bob Baumel, RRTC Secretary

THE 2002 PACING CONTEST AT THE ANNUAL MEETING

The course was laid out and measured by Bill Glauz, certifier for the states of Missouri and Kansas. He apologizes for the complexity of the course, but the brick paths were what he had to work with. He used a steel tape for the measurements, and was assisted by his wife, Barb. To handle the multitude of turns, nails were driven between the bricks at appropriate locations, and the tape stretched between the nails. This multitude of turns probably accounts for the generally longer courses by pacing, because it is difficult to estimate partial paces.

The prizes included a number of gifts commemorating Kansas City, including:

- A gift from Hallmark, the Kansas City company with headquarters where the convention was held, Crown Center, named after the Hallmark Crown.
- Barbecue sauce, from a city where barbecue is world famous.
- Pasta from the American Italian Pasta Company, headquartered in Excelsior Springs, MO, a northern suburb of Kansas City.
- Chili seasoning from Williams Foods of Lenexa, Kansas, a western suburb of Kansas City.
- Green Rice Seasoning, for making a featured dish from the famous Stephenson's restaurants and apple farm on the eastern edge of Kansas City.

L to R: Bob Baumel, Mary Anne McBrayer,Bill Glauz, Pete Riegel - photo by Justin Kuo

This year we had no problems with award winners not being present. As an aside, Bill paced the course during the layout activity ***before*** he measured the course. His error, determined after the fact, was + 3.172 meters (0.675%), which would have narrowly defeated Pete. However, he had the home town advantage of knowing the course, so being a gracious host, he refused any prize.

Bill Glauz

2002 Measurement-by-Pacing Contest
USATF Convention - Kansas City, Missouri

Official Distance: 470.078 Meters

		Estimated Meters	Error Meters	Error Percent	Place	Prize
Mary Anne	McBrayer	468.495	-1.583	-0.34%	1	Kansas City Gifts Plus Tile
Pete	Riegel	466.855	-3.223	-0.69%	2	Kansas City Gifts Plus Coffee Mug
Bob	Baumel	474.669	4.591	0.98%	3	Kansas City Gifts
Bob	Langenbach	474.840	4.762	1.01%	4	
Steve	Vaitones	475.910	5.832	1.24%	5	
Tom	McBrayer	461.816	-8.262	-1.76%	6	
Justin	Kuo	480.890	10.812	2.30%	7	
Don	Shepan	482.100	12.022	2.56%	8	
Andrew	Heckler	499.100	29.022	6.17%	9	
Dave	Gwyn	650.084	180.006	38.29%	10	
Mean*		476.075	5.997	1.28%		
Median*		475.910	5.832	1.24%		
Std.Dev.*		10.834				

* Based on Estimates 1-9, only, assuming that # 10 misunderstood map.

Note: It was later reported by Bob Langenbach that Bob Springer did a GPS measurementy of the course. He reported:

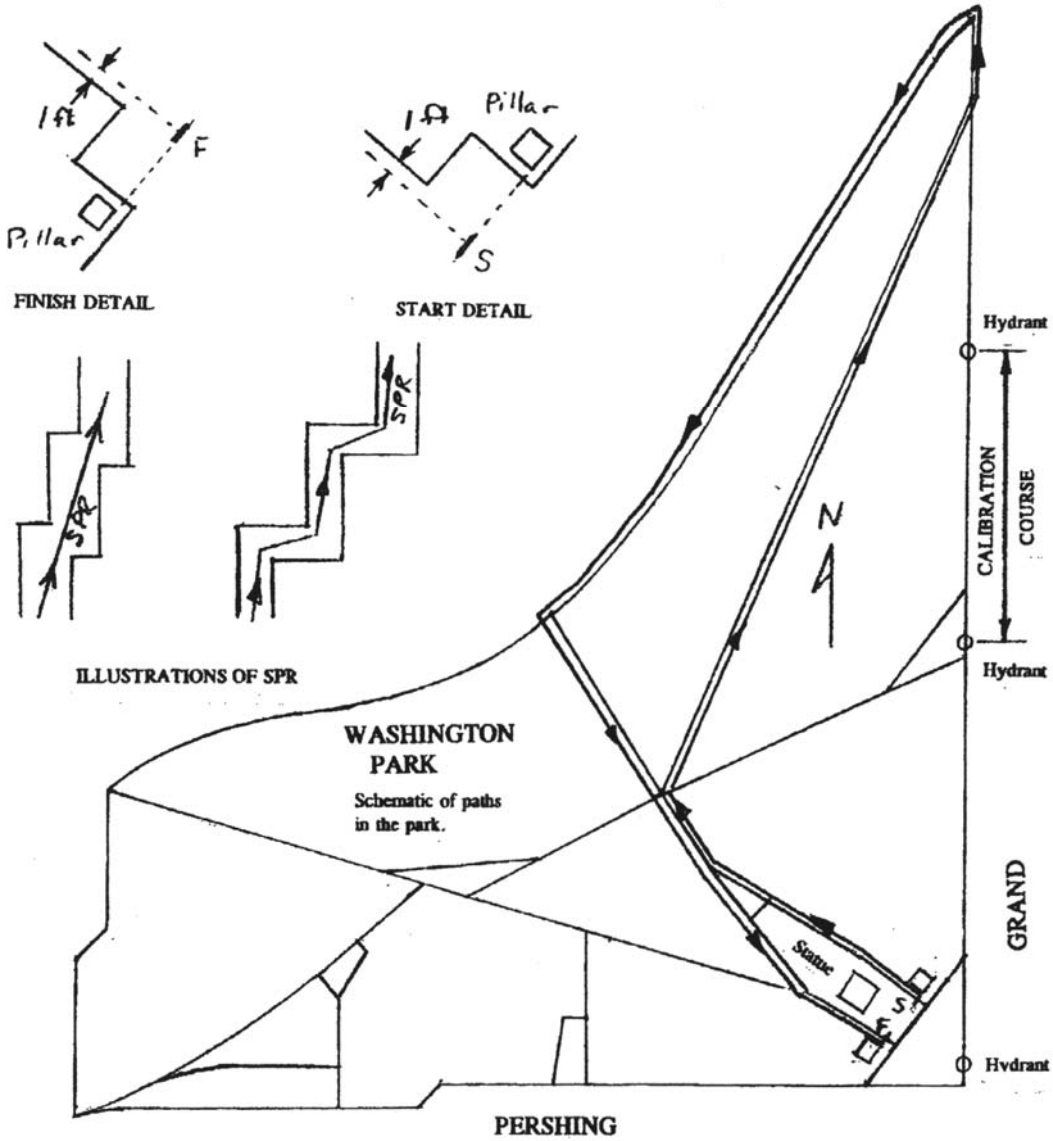
"My distance with the GPS was 424 meters. That was done walking at 2.5 to 3 miles per hour. It is very likely that the distance would be slightly higher with a slower speed as we discussed."

RRTC MEASUREMENT CONTEST

USA TRACK & FIELD 24TH ANNUAL MEETING : 2 DEC to 8 DEC 2002
Kansas City Hyatt Regency Crown Center Hotel

The course and the calibration course are both in Washington Park, one block West of the Hyatt. The calibration course is 56.91 meters long.

The course is laid out along paved paths in the park. Most of the paths are of brick, which is laid out in a North-South, East-West fashion. Therefore, when the path runs at an angle, the paving has jogs in it. See the illustrations below. The course is to be measured using SPR, except you must stay on the paths and off the grass. The official measurements were made SPR, using a 100-ft steel tape, but always keeping at least 1 foot from the edge of the path, from the bridge rail, and from light posts.



Complete the form below, tear off at line, and place it in the contest entry box not later than 4 p.m. Friday. Measure as often as you like, but limit your participation to only one entry. Prizes at RRTC meeting, 4 p.m. Friday. You must be present to win.

Name: _____ Course Length in Meters, to nearest mm: _____

PERCENT ERROR RECORDED IN RRTC PACING CONTESTS

		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Average
Wayne	Armbrust								1.15	1.86	1.74	-1.44						0.83
Bob	Baumel	0.07		-3.03	-0.91	2.63	-0.72	-1.03	-1.18	-0.52	0.29	2.63	2.26	-0.17	-0.66	0.77	0.98	0.09
Marcia	Baumel	0.02				4.37												2.19
Andy	Beach					-5.36	-2.42			-4.54								-4.11
Ken	Bernard											-4.82						-4.82
Michael	Blanchard						1.14											1.14
Bob	Boal				27.76	-0.19	-4.33	1.72	2.75									5.54
Haig	Bohegian				6.72													6.72
Norm	Brand	41.61	8.07	0.80	-0.90	9.56	-24.63	-4.00	-6.84	1.44		3.29				-2.11		2.39
Dan	Brannen		-0.21															-0.21
Margaret	Brooke	-6.52																-6.52
Nick	Brooke	-6.61																-6.61
Jim	Brown			0.36						-0.48								-0.06
Frances	Childs					10.46					-27.34							-8.44
Felix	Cichocki	2.14	0.76	6.51	0.99			-1.89										1.70
Sal	Corrallo								-11.38	-10.11	-1.67							-7.72
David	Coyne													-1.83				-1.83
Robert	DeCelle				187.61													187.61
John	Dunaway			4.58														4.58
Jim	Gerweck												25.95	2.04	2.54			10.18
Karen	Gerweck														-0.61			-0.61
Miriam	Gomez		-3.86															-3.86
Sharon	Good								3.13		15.90			5.57				8.20
Barb	Grass					-1.11	12.17	-0.60										3.49
Bill	Grass					-0.83	-3.73	-2.57			-3.13	-0.06	-0.94					-1.88
Dave	Gwyn	-3.33		4.91	0.65	1.86	-10.20		0.63	4.55	-6.82	4.69	-91.41		7.4	2.58	38.29	-3.55
Ben	Hablutzel	-3.05																-3.05
Finn	Hansen	3.31	4.16	-1.02	4.28		-0.07	-1.04	2.05	2.75	1.46							1.77
Bob	Harrison								-0.83		1.26					-12.83		-4.13
Andrew	Hecker															-0.11	6.17	3.03
Walter	High						-3.34											-3.34
Basil	Honikman			5.67	-1.22	-29.89	-0.17	1.35	2.52	-0.06								-3.11
Linda	Honikman								3.28									3.28
Bard	Horton				-0.47													-0.47
Paul	Hronjak									0.64					1.12			0.88
Jim	Jacobs				28.14													28.14
Alan	Jones			0.01	1.27													0.64
Clain	Jones				0.09													0.09
Bill	Keesling					22.29												22.29
Bill	Kehoe												1.10					1.10
Tom	Knight	1.50																1.50
Carol	Kuo					0.72			0.34	0.03	-0.61	3.08						0.71
Justin	Kuo			17.14	-1.61	0.07	-2.85	40.21	-1.09	0.16	1.43	6.00	-0.51	1.75	1.08	-0.72	2.30	4.53
Bob	Langenbach	-0.66		3.50		-0.93	0.33	0.42	-0.52	13.55	-3.21	3.91	1.08	3.53	-0.29	1.77	1.01	1.68
Carole	Langenbach						1.76		-2.23		1.06		-1.12	-0.18				-0.14
Mel	Lemon								157.85									157.85
Tom	Mayda				-0.21													-0.21
Mary Anne	McBrayer	-2.91	0.14	4.06	-1.69	0.61	2.54	2.40				3.69		-1.58	1.85	1.21	-0.34	0.83
Tom	McBrayer	-3.66	-2.38	-1.48	-0.90	3.07	-0.43	0.52		-1.53	1.34	4.10	-0.69	-0.20	0.82	1.41	-1.76	-0.12
G	Mercator											-0.70						-0.70
Dick	Mochrie						-6.11	2.13										-1.99
Gilberto	Moreno														-37.3			-37.30
Wayne	Nicoll	-1.11		-10.34	0.54	-2.55		1.32	-1.26	0.10								-1.90
Ron	Pate				-7.62											-2.80		-5.21
Bob	Rauch											36.38				5.90		21.14
Rick	Recker	-0.79	-2.22	-0.17	-1.96													-1.29
Joan	Riegel		1.74	-3.35	-1.40	2.28		-1.17				13.65	-4.38					1.05
Pete	Riegel	-1.00	0.95	0.08	-0.52	-1.25	-0.39	0.13	-0.99	1.16	-1.03	3.50	-0.46	0.60	0.11		-0.69	0.01
Bruce	Robinson								4.00									4.00
Ron	Scardera										-4.52							-4.52
Larry	Schloss			2.07														2.07
Don	Shepan								-0.82		2.75	67.39	-1.19	-0.86		-1.90	2.56	9.70
Jim	Skelly								0.15									0.15
Jim	Smith	0.86																0.86
Christine	Steele						-1.83											-1.83
Phil	Stewart								6.48									6.48
Stephen	Tabb	0.62																0.62
Bob	Thurston		0.84															0.84
George	Tillson								-1.65	2.43								0.39
Peter	Torres, Jr.				33.21													33.21
David	Troy					18.38												18.38
Steve	Vaitones										-5.57				1.22	0.75	1.24	-0.59
George	Vernosky				27.30	-1.49	-4.68	1.31	0.50									4.59
Karen	Wickiser				-1.53		-5.02			0.19								-2.12
Mike	Wickiser				2.49	0.22	-0.86	2.36	0.00	0.98	2.39				3.76	-1.62		1.08
Ric	Wilson											-2.92						-2.92
New Eye in the Sky																0.95		0.95

Contestants	18	11	18	26	22	22	18	25	19	19	17	10	11	13	15	10
Median	-0.72	0.76	0.58	-0.06	0.42	-1.83	0.47	0.15	0.19	0.29	3.50	-0.49	-1.58	-1.12	-1.62	1.13
Average	1.19	0.71	1.68	10.85	0.83	-2.30	2.37	7.18	0.56	-1.24	9.08	-5.86	0.79	-2.18	-0.45	4.98
Std Deviatior	11.13	3.45	5.57	40.42	9.61	7.15	10.24	34.70	4.76	8.23	18.08	28.04	2.26	11.87	4.06	11.91
High	41.61	8.07	17.14	187.61	22.29	12.17	40.21	157.85	13.55	15.90	67.39	25.95	5.57	7.40	5.90	38.29
Low	-6.61	-3.86	-10.34	-7.62	-29.89	-24.63	-4.00	-11.38	-10.11	-27.34	-4.82	-91.41	-1.83	-37.30	-12.83	-1.76

USATF/RRTC CERTIFIED COURSE LIST
New Entries, November - December 2002

DISTANCE	COURSE ID	ST	LOCATION	COURSE NAME/RACE	m/km pct DROP	SEP	MEASURER	REPLACES
10 km	AR 02010 DLP	A	Hot Springs	SPA 10k West Mountains	-0.6	1.8	R Rowland	
10 km	AZ 00203 GAN	A	Phoenix	Phoenix New Times 10 km	0	0.7	R Strachan	AZ98004 FC
10 km	AZ 02001 GAN	A	Fort Huachuca	M I Heritage Run	0	1	G Newman	AZ99014 FC
5 km	AZ 02002 GAN	A	Phoenix	Phoenix New Times 5 km	0	3.7	R Strachan	AZ98005 FC
5 km	AZ 02004 GAN	A	Tucson	Race for the Cure	0	1.2	R Strachan	
21.0975 km	AZ 02005 GAN	A	Mesa	Valley of the Sun Half Marathon	5.2	29.8	G Newman	
42.195 km	AZ 02006 GAN	A	Mesa	Valley of the Sun Marathon	2.6	14.9	G Newman	AZ02008 ETM
42.195 km	CA 02009 TK	A	San Jose	Silicon Valley Marathon	0	0.76	T Knight	CA99013 TK
50 km	CA 02010 TK	A	Stanford	Silicon Valley Speedster Ultra	0	0	T Knight	
1 km	CA 02011 TK	A	Stanford	Silicon Valley Speedster Ultra	0	0	T Knight	
42.195 km	CA 02030 RS	A	Culver City	Western Hemisphere Marathon	0	0	R Scardera	
21.0975 km	CA 02031 RS	A	Culver City	Western Hemisphere Hmar	0	0	R Scardera	
5 km	CA 02032 RS	A	Sacramento	Goore's Pregnant Walk & 5k Run	0	0.6	D Thurston	
42.195 km	CA 02033 RS	A	Santa Clarita	2002 Santa Clarita Marathon	3.29	36.25	R Smith	CA99021 RS
1 mi	CA 02034 RS	A	Agoura Hills	Disco Dash Mile	0	2.48	R Scardera	
5 km	CA 02035 RS	A	San Diego	San Diego Thanksgiving Day 5 km	13.2	48	G Rahill	
5 km	CA 02036 RS	A	Guasti	Manna Relief 5k Run/Walk	0	9	R Scardera	
5 km	CA 02037 RS	A	La Habra	I love La Habra 5 km	0	0.06	R Scardera	
10 km	CA 02038 RS	A	La Habra	I love La Habra 10 km	0	0.03	R Scardera	
5 km	CO02028 DP	A	Severance	Paint Brush Plod	0	0	S Forrester	
10 km	CO02029 DP	A	Severance	Paint Brush Plod	0	0	S Forrester	
42.195 km	CT 02015 DR	A	East Lyme	Mystic Places Marathon	0	0	Guido Bros	
4 mi	CT 02016 DR	A	Wallingford	Fishbein 4 Miler	0	0.7	B Stephenson	
5 km	FL 02032 DL	A	Sunny Isles	POAT 5k Run/Walk	0	2.4	G Witkowski	
5 km	FL 02033 DL	A	Apalachicola	Redfsh Run	0	0.2	B McGuire	
Cal	FL 02034 DL	A	Islamorada	Islamorada MM80 1000 ft.	0	100	D Nelson	
10 km	FL 02035 DL	A	Islamorada	Islamorada Columbus Day 10k	0	98.1	M Nelson	
5 km	IL 02077 JW	A	Evanston	Adrenaline Rush 5k	0	0.8	J Knoedel	
21.0975 km	IL 02078 JW	A	Chicago	Chicago Half Marathon	0	0	J Knoedel	IL 01086 JW
5 km	IL 02079 JW	A	Lake Zurich	Lake Zurich 5k	0	4	C Hinde	
10 km	IL 02080 JW	A	Lake Zurich	Lake Zurich 10k	0	2	C Hinde	
5 km	IL 02081 JW	A	Wheaton	Run For the Mind 5k	0	0.08	C Hinde	
10 km	IL 02082 JW	A	Wheaton	Run For the Mind 10k	0	0.6	C Hinde	
5 km	IL 02083 JW	A	Morris	Cornfest 5k Fun Run	0	0	C Hinde	IL 02035 JW
5 km	IL 02084 JW	A	Downers Grove	Trick or Treat 5k	0	7	C Hinde	
5 km	IL 02085 JW	A	Arlington Heights	Fan Fest 5k	0	0.7	C Hinde	
5 km	IL 02086 JW	A	Brookfield	Brookfield Zoo Run Run 5k	0	1.6	C Hinde	IL 90012 JW
4.1384 km	IL 02087 JW	A	Huntley	24 Hour Inline Skate	0	0	C Hinde	IL 02057 JW
42.195 km	IL 02088 JW	AV	Chicago	LaSalle Bank Chicago Marathon	0	5.1	C Hinde	IL 01100 JW
21.0975 km	IN 01020 MW	A	Indianapolis	2001 World Police & Fire Games	-0.15	17	J Sauer	
Cal	IN 01501 JG	A	Indianapolis	I.U.P.U.I. 1000 feet Calibration	0	100	J Sauer	
8 km	IN 02009 JG	A	Bloomington	I.U. Scholarship Run 8k	0	5	J Sauer	
5 km	IN 02010 JG	A	Bloomington	Bloomington YMCA 5k	0	2.2	J Sauer	
5 km	IN 02012 MW	A	Elletsville	Quarters for Kids 5k	0	0	J Sauer	
5 km	IN 02012 JG	A	Bloomington	Jill Behrman Run for the End Zone	0	3	J Sauer	
Cal	IN 02013 MW	A	Indianapolis	Lawton Loop 1000 ft. Calibration	0	100	J Sauer	
Cal	IN 02014 MW	A	Indianapolis	Sedlack Lane 1000 ft. Calibration	0	100	J Sauer	
5 km	IN 02015 MW	A	Indianapolis	Heather Hills Baptist Church 5k	0	0.06	J Sauer	
Cal	IN 02505 JG	A	Bloomington	Indiana University 1000 feet	0	100	J Sauer	
5 km	KS 02041 BG	A	Wichita	Great Pumpkin Run	-0.6	3.6	L Richardson	KS92036 BG
42.195 km	KS 02046 BG	A	Abilene	Eisenhower Marathon	0	0	L Richardson	

DISTANCE	COURSE ID	ST	LOCATION	COURSE NAME/RACE	DROP	SEP	MEASURER	REPLACES
4 mi	LA 00004 PR	A	New Orleans	Crescent City Classis (4mile split)	0.23	52	P Riegel	
5 mi	LA 00005 PR	A	New Orleans	Crescent City Classis (5mile split)	0.19	57	P Riegel	
2 mi	LA 00006 PR	A	New Orleans	Crescent City Classic (2 mile split)	0.47	21.5	P Riegel	
5 km	LA 00007 PR	A	New Orleans	Crescent City Classis (5 km split)	0.3	40	P Riegel	
21.0975 km	MA02025 RN	A	Boston	B.A.A. Half Marathon	0.03	1.08	R Nelson	MA01028 RN
8 km	MD02018 JS	A	Baltimore	JFX 8k	0	0	J Sissala	MD99009 JS
42.195 km	ME02003 RN	A	Bar Harbor	Mount Desert Island Marathon	0.07	36.73	R Nelson	
8 km	MN02027 RR	A	Hastings	Gobble	0	0.1	R Recker	
5 km	MN02028 RR	A	White Bear Lake	Bear Tracks	-0.2	1.5	D Wright	
5 km	MN02029 RR	A	Minneapolis	Reindeer Run	0.2	1.7	D Wright	
5 km	MN02030 RR	A	Edina	Winter Waddle	0	0	D Wright	
10 km	MO02042 BG	A	St. Louis	Spirit of St. Louis	0	0.61	T Eckelman	
21.0975 km	MO02043 BG	A	Kansas City	Humana River Crown Plaza	0.28	0.078	L Joline	
42.195 km	MO02044 BG	A	Kansas City	Humana River Crown Plaza	0.28	0.039	L Joline	
5 km	MO02045 BG	A	St. Charles	Stop the Violence	0	12.9	D Spetnagel	
5 km	MO02047 BG	A	Town & Country	Queeny Park 5k	0.6	3.2	D Spetnagel	
5 km	MO02048 BG	A	Overland Park	Thanksgiving Day Sprint & Stroll	0	4.1	K Raymer	
4 mi	MO02049 BG	A	Kansas City	Ward Parkway Fall Festival	0	0	L Joline	
5 km	MO02050 BG	A	Kirkwood	Road to Healing	0	12.9	P Quigg	
10 km	MO02051 BG	A	Kirkwood	Road to Healing	0	6.4	P Quigg	
21.0975 km	MO02052 BG	A	Topeka	Topeka to Auburn	-1	76	L Joline	
5 km	NC02048 PH	A	Raleigh	Second Empire (alternate)	0	0	P Hronjak	
5 km	NC02049 PH	A	Raleigh	Delores Reardon Memorial	-0.55	2.4	P Hronjak	
1 mi	NC02050 PH	A	Raleigh	Delores Reardon Memorial	3.6	13	P Hronjak	
Cal	NC02050 PH	A	Charlotte	Bob Beatty Rd. 1000.5989 ft	0	100	T Rhodes	NC01038 PH
5 km	NC02051 PH	A	Charlotte	Hopebuilders 5k	0	2.7	T Rhodes	NC97048 PH
8 km	NC02052 PH	A	Cary	Care ‘N Share 8k	0	0	P Hronjak	NC00049 PH
5 km	NJ 02004 LMB	A	Millstone Twp.	Witches Hollow Run	0	0	L Baldasari	
5 km	NJ 02006 LMB	A	Maplewood	Maplewood 5k	0	0.13	P Hess	
5 km	NJ 02007 LMB	A	Edison	Lightning 5k 2002	0	0	P Hess	
42.195 km	NM02003 DS	A	Las Cruces	Rio Grande Marathon	0	0.25	D Shepan	
10 km	NY 02051 AM	A	Baldwinsville	Bud Run 10k	0	1	D Hughes	NY00045 AM
5 km	NY 02055 AM	A	Saratoga Springs	Saratoga Spa State Park 5k	0	6.9	J Gilmer	
10 km	NY 02061 AM	A	Old Forge	CAA/CM7 10k	0	0	D Oja	
5 km	NY 02062 AM	A	Old Forge	CAA/CM7 5k	0	0	D Oja	
10 km	NY 02063 AM	A	Endwell	Octoberfast 10k	0	0.19	A Mazza	NY89025 AM
5 km	OH02048 PR	A	Monclava	Wabash-Montclava 5k	0	0.96	E O’Reilly	
21.0975 km	OR02004 LB	A	Sunriver	Pacific Crest Half Marathon	0	2.6	J Atherton	
42.195 km	OR02005 LB	A	Sunriver	Pacific Crest Marathon	0	1.3	J Atherton	
50 mi	PA 02020 WB	A	Boalsburg	Tussey Mountain 50 Mile Relay	0	0	B Boozer	
42.195 km	RI 02008 RN	A	Providence	Ocean State Marathon	0.45	1.66	R Nelson	RI 01010 RN
5 km	SC 02023 BS	A	Isle of Palms	Isle of Palms Connector 5k	0	3.4	M Desrosiers	
21.0975 km	SC 02024 BS	A	Columbia	Governor’s Cup Half Marathon	0.09	2.5	T Rhodes	SC96032 BS
5 km	SC 02025 BS	A	Tega Cay	Grande View 5k	0	0.91	E Guettler	
5 km	SC 02026 BS	A	Summerville	Run With the Dolphins 5k	0	3.4	M Chodnicki	
10 km	SC 02027 BS	A	Spartanburg	Space Race 10k	2	1.8	R Johnson	
42.195 km	TN 02029 RH	A	Memphis	St. Jude Memphis Marathon	0.2	0.66	R McCrarey	
21.0975 km	TN 02030 RH	A	Memphis	ST. Jude Memphis Half Marathon	0.43	1.3	R McCrarey	
Cal	TN 02047 PR	A	Clarksville	Hwy 13 & 48 Calibration 300.72m	0	100	P Riegel	

DISTANCE	COURSE ID	ST	LOCATION	COURSE NAME/RACE	DROP	SEP	MEASURER	REPLACES
21.0975 km	TX 02018 JF	A	Austin	Motive Bison Stampede Hmar	0	0.48	J Ferguson	
5 km	TX 02019 JF	A	Canyon Lake	Elf Tabitha 5k	-9	8	J Ferguson	
5 km	TX 02020 JF	A	Austin	3M 5k	7.4	80	J Ferguson	
5 km	TX 02021 JF	A	Austin	Race for the Cure	-1	20	J Ferguson	TX02016 JF
5 km	TX 02022 JF	A	Lake Travis	Hill Country 5k	0	0	J Ferguson	
42.195 km	TX 02023 JF	A	Abilene	Marathon of the Great Southwest	0	0	J Ferguson	
21.0975 km	TX 02024 JF	A	Austin	3M Half Marathon	6.1	83.9	J Ferguson	
12 mi	TX 02026 JF	A	Austin	Decker Challenge	0	0	J Ferguson	
25 km	TX 02027 JF	A	Austin	Strasburger 25k Run for the Hills	0	0.6	J Ferguson	TX01026 JF
30 km	TX 02028 JF	A	Buda	RunTex 30k	0	0.3	J Ferguson	TX99116 ETM
5 km	TX 02046 PR	A	Keller	SEAS Fall Fest 5k V.2.0	0	1.8	B Boerner	TX01055 PR
42.195 km	TX 02093 ETM	A	San Antonio	San Antonio Marathon	-0.14	0.3	MValencia	TX01096 ETM
10 km	TX 02094 ETM	A	Houston	Houston Press Dome Run	0	3	E McBrayer	TX01016 ETM
5 km	TX 02095 ETM	A	Dallas	Trek for Tech	0	2	C Clines	
42.195 km	TX 02096 ETM	A	Dallas	Dallas White Rock Marathon	0	0	A Beach	
5 km	TX 02097 ETM	A	Sugar Land	Run for the Son 5k	0	0	R Barnhill	
5 km	TX 02098 ETM	A	Houston	Conoco Phillips Rodeo Run 2003	-0.9	11.6	E McBrayer	
10 km	TX 02099 ETM	A	Houston	Conoco Phillips Rodeo Run 2003	-0.44	16	E McBrayer	TX01116 ETM
10 km	TX 02101 ETM	A	Fort Worth	Fort Worth YMCA Turkey Trot	1	2.25	C Clines	TX99081 ETM
10 km	TX 02102 ETM	A	Mission	Friendship Run 10k	-0.4	71	R Soler	TX01103 ETM
5 km	TX 02103 ETM	A	Fort Worth	Jingle Bell Run for Arthritis	0	3.2	C Clines	TX01111 ETM
8 km	TX 02104 ETM	A	Houston	Law Week	-0.18	1.8	E McBrayer	
5 km	TX 02106 ETM	A	Dallas	Jingle Bell Reunion Arena	-1.4	10	S Gehrig	
5 km	TX 02107 ETM	A	San Antonio	UTSA Diploma Dash 2003	0	0	D Blick	
5 km	TX 02108 ETM	A	San Antonio	Komen Race for the Cure 2003	0	4	R Soler	
10 km	TX 20100 ETM	A	Houston	Houston Press Dome Run II	0	3	E McBrayer	
5 km	TX 02020 JF	A	Austin	3M 5k	7.4	80	J Ferguson	TX02020 JF
5 km	VT 02007 WN	A	Richmond	GMAA Round Church Wmn's Run	0	0	B Lorenz	
10 km	VT 02008 WN	A	Richmond	GMAA Round Church Wmn's Run	0	0	B Lorenz	
5 km	WA02006 BL	A	Issaquah	Issaquah Salmon Days 5k	0	2.3	T Cotner	
10 km	WA02007 BL	A	Issaquah	Issaquah Salmon Days 10k	0	0.01	T Cotner	
5 km	WA02008 BL	A	Tacoma	2002 Bank to Bay 5k	0	0	D Mora	
10 km	WA02009 BL	A	Tacoma	2002 Bank to Bay 10k	0	0	D Mora	
10 mi	WA02010 BL	A	Richland	Columbia River Classic 10 Mile	0	2.4	A Dausman	
2 mi	WA02011 BL	A	Richland	Columbia River Classic 2 Mile	0	12	A Dausman	
10 km	WA02012 BL	A	North Bend	North Bend Alpine Days 10 km	0	0	M Stitstel	
Cal	WA02013 BL	A	Chelan	Chelan Airport 343 meter	0	100	T Cotner	
42.195 km	WA02015 BL	A	Richland	Welch's Tri-Cities Marathon	0	0.1	A Dausman	
21.0975 km	WA02016 BL	A	Woodinville	Super Jock 'n Jill Half Marathon	0	0.04	T Cotner	
5 km	WA02017 BL	A	Seattle	Tom Wales Memorial 5k	0	0.86	T Cotner	
5 km	WA02018 BL	A	Seattle	Shore Run 5k	-0.3	80	T Cotner	
5 km	WI 02076 JW	A	Milwaukee	Make-a-Wish Run to Fiesta	0	0	K Gildenbach	WI 97008 WG
42.195 km	CAY02053PR	A	7 Mile Beach	Cadet Corp Marathon	0	0	P Zapata	
10 km	PUR02050PR	A	Guayanilla	Maraton Femenino Internacional	1.1	8	P Zapata	

Renewed

2.83836 mi	FL 89043 BH	A02	Lakeland	Last Chance 50 Miler	0	0	F Seivenpiper	
1 mi	FL 91073 DL	A02	Lakeland	South Carter Road Mile	0	100	M Porter	
5 mi	NJ 86013 GD	A02	Hamilton	Hamilton Veterans Park	0.7	4.8	L Baldasari	
5 km	NJ 91004 DB	A02	Hamilton	Hamilton Veterans Park 5k	0	0.09	L Baldasari	
Cal	TN 92004 EL	A02	Clarksville	West Regent 1400 ft. Calibration	0	100	E Longton	
5 km	TX 93005 ETM	A02	San Antonio	UTSA Diploma Dash	0	0.4	D Blick	
21.0975 km	VT 92003 WN	A02	Essex Center	Rollin Irish Half Marathon	0	0	B Everett	

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

Measurement of the Month

AUGRABIES EXTREME MARATHON
20 – 26 October 2002
MEASUREMENT

Background:
The Augrabies Extreme Marathon is a 7-day self-survival event with 6 running stages over off-road terrain with fairly long sections in deep soft sand. In addition there are some sections of rock hopping along the riverbank. The event is a member of AIMS, but had been given a dispensation on course measurement due to the terrain, and inability to use a Jones counter measurement system.

The recent commercial introduction of the Timex GPS system, prompted the concept that this system could be used for measurement of events which did not lend themselves to the Jones counter measurement. Trial measurements using the system had been undertaken over track distances as well as a 4 day 1000 mile continuous relay. The objective of this measurement was to attempt a measurement of the event with the procedures refined from previous trials.

The only other known event of this nature in the world is the Marathon de Sables in Nothern Africa, and athletes who had previously completed that event stated that the terrain and weather conditions in the Augrabies Extreme marathon make this tougher.

Method:
The Timex GPS system would be used for each stage of the course, with readings taken both on the odometer meter on the watch and with using the chronometer mode, which only records movements while the watch is running. The odometer mode records all movement while the monitor is in reading range (1.5metres) of the receiver watch.

The chronometer was stopped when the runner required to leave the normal running course (e.g. pit stops etc), and re-started on return to the course at the same point. For this reason the odometer reading will always indicate a greater distance than the chronometer.

In order to cover for any problems with inaccuracy on low battery levels (a problem that had been identified in earlier trials), new batteries were used for each new stage of the event, and in the overnight 70km run section, batteries were replaced at the 4th refreshment point around 40kms into the stage.

Notes were also left at a number of intermediate refreshment stations on each day's stage. This would allow for some form of back up should there be a problem later on that stage.

The day prior to the commencement of the run, a 300metre calibration distance was set out in the village close to the start of the event, and 3 walk / runs taken over that

distance to compare accuracy. Care was taken to ensure the alignment of the GPS receiver with the nails of the calibration distance.

Readings confirmed that the GPS read 1 metre short on each occasion over the 300metre length. The consistencies of these readings were impressive and also were in line with the similar 'calibrations' undertaken in other venues. This seems relatively constant irrespective of altitude, temperature, and venue.

In order to avoid having the receiver on the runners arm, it was attached to the centre and rear of the rucksack (back pack) being carried. This also meant the GPS measured the centreline of the runner's movement.

Comments

As can be seen the odometer tended to provide a greater reading than the chronometer and this is entirely correct as the runner did stop the chronometer at the refreshment points (+-10km intervals) to leave the course. Also there were times when having crossed the line a few extra steps were taken before the GPS receiver was switched off and this is reflected in the difference of odometer reading between the finish of one day and the start of the next. These do not feature in the overall distance.

In the night run which was undertaken from mid afternoon on the 22 October through the night to the early morning of the following day, the receiver on the back of the rucksack was incorrectly positioned prior to leaving the 2nd refreshment point. This resulted in the loss of reading for a period of 47 minutes (identified by the fact the stopwatch was still running), and then corrected prior to the 3rd refreshment station. Based on the average pace for the 3rd to 4th refreshment, which was of similar terrain, it is estimated that a distance of 4.257km was lost in this section. This is provided for interest of the event competitors not as part or intended as an 'accurate' measurement.

It needs stating that the purpose of this trial was to prove the use of the system for the off road events. This particular event is an extreme as the runner has to carry all kit, food and a 2 litre supply of fluid in the backpack throughout the event. Temperatures were typically up to 44 o C during the day. This can inflict fatigue and distractions that would not be apparent in single day, held in daylight or shorter events of this nature, and hence this sort of 'mistake' is less likely.

Effectively this trial involved the measurement of 6 'individual' races on consecutive days. Although comparison between the Jones Counter method is not available, nor any other accurate method, the use of the GPS system appears reliable for off road events.

It is suggested that AIMS and other measurement organisations give consideration to adopting this protocol for the measurement of off road or water sections or events. These could include the swim sections of triathlons, canoe events etc:

1. Set out 300m calibration course

2. Install new batteries in GPS unless it can be ascertained that current battery life is less than 10 hours and that the complete measurement will be completed prior to reaching that threshold.
3. Calibrate Times GPS against the known distance with 4 traverses at approximately the same estimated pace as expected in the measurement.
4. identify correction factor per km and apply a SCPF:-
    - (calibration distance / Reading over calibrated distance)/ 1.001 = factor to multiply measured distance by.
5. Locate GPS receiver on body ideally on centreline and with clear view of sky for reading.
6. Activate GPS receiver and await the ‘searching’ period until both GPS signal and radio signal have been confirmed.
7. Line up with receiver in line with start (or finish if measuring in reverse) – Note the odometer reading, - zero chronometer reading. –
8. Commence reading and stopwatch as crossing the line.
9. Follow the line of the shortest possible route by cutting tangents between corners in the same fashion used in Jones Counter method.
10. During any stops or reasons for leaving the route, stop the chronometer, only re-starting when returning to the course. An alternative is to use the lap feature on the watch to identify these off-course excursions. In the ideal situation such stopping or lap marking should be written up in notes as the measurement progresses. At any interim point where readings are taken note both the chronometer and odometer as these provide a double check. Note that in distances up to 10km a reading can be provided to 0.001km in the chronometer mode.
11. Continue in this manner until crossing the finish line or identifying the correct finish distance.
12. Record the reading of both the chronometer and odometer at the finish. Note: It is important to complete the readings and make a note of them prior to taking any further steps as the odometer will continue to record distance even if the chronometer has been turned off.
13. Wherever possible a re-calibration should be made over the calibration distance and this used in the same fashion as pre and post calibrations with the Jones counter method. (However it is worth noting that if the batteries are kept within the 10 hour limit no difference has been experienced in pre to post calibrations)

Prepared by
Norrie Williamson
30 October 2002

Results:- Measurement readings for each stage of the Augrabies Extreme Marathon 2002

	Start	table 1	table 2	table 3	table 4	table 5	table 6	table 7	finish	Date
Day 1	0	11.8	24.45						***33.51***	20-Oct
Odometer	267.06	278.89							300.58	
Split		11.83							33.52	
Day 2	0	6.089	16.15	25.91					***35.03***	21-Oct
Odometer	300.64	306.82	316.88	326.64					335.8	
Split		6.18	16.24	26					35.16	
Day 3 / 4	0		19.8	25.27	35.05	42.41	51.61	60.27	***68.42***	22 - 23 Oct
Odometer	335.8		47 mins lost on the next section - ave pace of next section =4.257km	361.19	370.97	378.33	387.51	396.16	404.35	
Split				25.39	35.17	42.53	51.71	60.36	68.55	
Day 5	0		20.77	29.87					***39.33***	24-Oct
Odometer	404.35								444.24	
Split									39.33	
Day 6	0								***24.37***	25-Oct
Odometer	444.24								468.67	
Split									24.43	
Day 7	0	10.28							***20.43***	26-Oct
Odometer	468.75								489.18	
Split									20.43	

PRE-CALIBRATION OF GPS AGAINST 300M DISTANCE						Total on Chrono	221.09
	Dist read		**actual dist**	300	metres	**Total on odometer**	**221.42**
walk 1	299		error per walk =	1	metres	Estimated loss in long run	4.257
walk 2	299		Correction factor per km =	1.003344		**Total estimate for run**	**225.347**
walk 3	299		Error corrected run distance =	221.8294			
Average	**299**		Allow for SCPF=	221.6078			
			Allow for 'loss' =	**225.8648**		1.00234	

The organiser had stated the following distances for each day during the event:-

		Stated	**Measured**	**Corrected with SCPF**
Day 1	-	33 km	33.51 km	33.588 km
Day 2	-	37 km	35.03 km	35.112 km
Day 3	-	77 km	72.677 km (Incl estimate lost distance)	72.847 km
Day 5	-	40 km	39.33 km	39.422 km
Day 6	-	20 km	24.37 km	24.427 km
Day 7	-	20 km	20.43 km	20.478 km
Total		**227 km**	**225.477 km**	**225.874km**

Notes: –

- Difference in totals relates to the decimal point calculations of individual calcs versus overall calculations – error 10metres
- Organiser used large-scale map, driving of larger tracks, and estimation of distance in steep valleys, rocks, soft sand using a fac
  This is reflected in the ‘errors’ found on days where greater % of distance in ‘estimation-type’ terrain.

Overall –given the nature of this event the accuracy of the distance overall was good, but the individual stage accuracy was not as effe and in the adverse weather conditions, and the need for hydration (44 o C) the addition of 2-4km on any stage, or between water replacement points can have significant effect.

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 new USATF Search Engine linked from **www.rrtc.net** or directly at **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 USAfrom the above – it's a seamless street map of the whole USAat 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@hayscisd.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