

# Measurement News



September 1999

Issue #97



Bernie Conway traveled to Winnipeg to pre-validate the course of the 1999 Pan American Games marathon and racewalk courses. Both courses passed. As it turned out, measurement day was significant. Laurent Lacroix, who was the original measurer of the courses, noted "It was Bernie's birthday that Saturday, which made the measurement more meaningful for all involved. Here Bernie blows out his candle on the Birthday Nail."

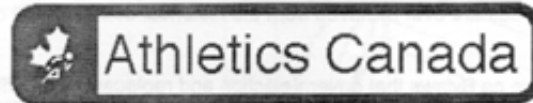
**Measurement News**  
**#97 - September 1999**

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**CANADIAN COURSE MEASUREMENT AND CERTIFICATION RESTRUCTURED**

Athletics Canada has given its blessing to a new structure which puts all responsibilities for course measurement and certification into the hands of measurers and certifiers. Bernie Conway of London, Ontario is now the nation's head certifier and national course registrar. Athletics Canada's liaison for course measurement is Mary Beth Challoner.

Source:



Welcome to the Athletics Canada/Run Canada Committee  
Road Running Course Measurement Site.  
<http://www.mbnet.mb.ca/~llacroix/crrcma.html>

**RECORDS SAVED BY MEASURER AT PAN AM GAMES**

Dear Bernie and Pete,

When I arrived at the 20 km race walk course an hour before the start time, I picked up a couple of brooms and, on foot, did a lap of the course looking for debris to sweep away while I did the course check. The turn-around was improperly set, cutting at least four metres from the loop and at least 32 metres from the course. The nail that indicates the point from which the two metre radius was measured was thought to be the actual turn-around point and was the apex of a smaller, arbitrary semi-circle.

The course certificate had been provided, but no one thought to make a copy of the map and pass it on to the person in charge of set-up. I placed the cones as per the certified measurement and continued on my way. The location of the start line and splits was changed again, but because the course is a closed loop there was no impact on the distance covered. I observed the races from various points on the course.

Both the men's and women's races had a lead pack, and there wasn't much of an opportunity for the winners to follow the SPR for the whole race. Of those that fell off the pace, some would occasionally follow the SPR as measured, but they mostly stayed approximately 30 to 50 cm away from the edge of the road. A couple of athletes were very good at determining and sticking to the SPR, while a couple of others were abysmal at it. The winner of the men's event won in an unofficial men's time of 1:20:17 - a new Pan American Games record. The top Canadian male was fifth, setting a Canadian record with an unofficial time of 1:22:03.

The women's Pan American Games record was also broken with new mark of 1:34:19 (unofficial). Unfortunately I was unable to stick around for the top Canadian woman's finish as I was asked to drive a Cuban delegate to the IAAF Congress at the university. The course was walked as measured, and barring protests or disqualification, these records should stand for another four years or more.

Best regards,

Laurent Lacroix (Canadian IAAF "B" Measurer)

## SUGGESTIONS FOR IMPROVEMENT

Bob Letson, longtime measurer and early contributor to certification, has started to publish his own newsletter ("RRTC Research & Development - Measurement Noose") and send it to certifiers, calling for change. I suggest you write to him and see whether he wishes to add you to his subscription list. You can reach him at: Robert Letson - 2870 Amulet St - San Diego, CA 92123-3137. Bob describes our problems and his wishes as follows:

### *RRTC Problems*

- P1. LIST: It is incorrect to say unlisted certifications are "not certified" or "decertified." The correct descriptor is "unlisted." Certification drives the list, not vice versa.
- P2. RE-LIST: Peter Riegel demands restoring old listings by having other people mail copies of old certificates through all normal channels, yet he says "no courses are ever removed from the historical data and (old course data) can be recovered at will."
- P3. BYLAWS: RRTC appears to have no Bylaws that govern election and replacement of officers, duties/constraints of officers, procedures for making decisions, protection against abuses, and purposes/goals of RRTC. Decisions pronounced by the RRTC chairman seem to be made without adequate airing of pros and cons, or vote by all RRTC members.
- P4. #RIDES/BASELINE: The CMP book requires 4 rides/baseline. 2 rides are sufficient to sample both directions and provide confirmation. The difference between 2-rides and 4-rides is only 1m/10km, which is insignificant. More than 2 rides are unnecessary.
- P5. SLOPPY BASELINE RIDES: The CMP book says "calibration rides must not have a range of more than 0.07%. However, sloppy calibrating suggests a high probability of sloppy measuring. Careful calibrating and sloppy measuring creates short courses.
- P6. REASONABLY ACCURATE: We certify that courses are "...reasonably accurate...", but we are not allowed to certify accurate courses (SCPF=0).

### *Best Wishes*

- W1. "Certification" = certificate. "Listed" = in the List Retrieve data from files "Unlisted" = not in the List.
- W2. Avoid unnecessary mail
- W3. Use Bylaws to define RRTC's mission, methods and safeguards.
- W4. Revise the CMP book (page 6, items 2 and 4) to require "two" (instead of "four") baseline rides, one in each direction, before/after measuring. During measuring, baselines embedded in the race course may be ridden once.
- W5. Revise the CMP book (page 11, item 7) to use - not omit - sloppy baseline data to reduce the possibility of creating a short course.
- W6. Replace the Measurement Certificate phrase "...reasonably accurate..." with a more correct phrase (e.g. .... oversized..."), and include the SCPF (e.g., 0.001 /bicycle, 0.0002/steel, 0.00004/infrared) and actual (average) measured length in the Certificate.

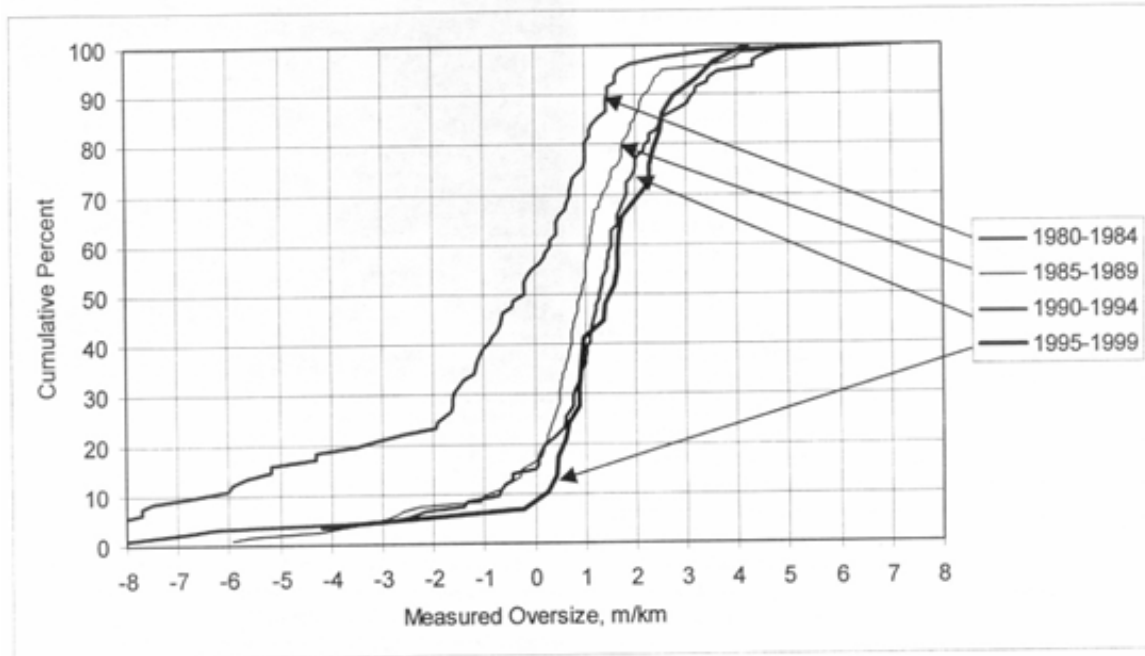
Most of Bob's objections to what we do were settled 10 to 15 years ago, after due discussion, and I do not believe it is productive to discuss things ad infinitum. I could be wrong. Still, I'm unwilling to participate in endless rehashing of decisions already made. You have Bob's mailing address. He has no email address of which I am aware, and presumably has not been able to see the huge volume of ongoing discussion in MNForum, which is where the majority of our ongoing discussions now take place.

If you have strong feelings on Bob's proposals, let him know. He can then conduct a discussion of their pros and cons, and perhaps progress will result.

## IMPROVEMENTS IN THE MEASUREMENT PROCESS

RRTC has conducted validations of courses on which records are set since the early 1980's. Beyond serving their original purpose, which is to assure that records are set on credible purposes, they provide the only measure we have on how well our measuring is being done.

The graph below illustrates that we have made some progress since we started.



Year originally measured	1980-1984	1985-1989	1990-1994	1995-1999
Number validated	82	120	94	29
Median oversize, m/km	-0.20	0.92	1.29	1.49
Average oversize, m/km	-1.13	0.78	1.12	1.43
Percent less than -0.5 m/km oversize	46.34	11.67	11.70	3.45
Percent less than 0 m/km oversize	54.88	15.83	13.83	6.90

We have made huge improvement since the early 1980's. Part of this was caused by the institution of the 1.001 Short Course Prevention Factor (SCPF) in 1982. Later, in 1989, Bob Baumel's idea of using the larger constant was made part of the standard layout procedure, although use of the average remains permitted.

In the last five-year period we see a very few courses failing validation, and appear to be approaching a steady state. However, we have a lot less data for the last 5 years than we do for the other periods. Data for the present period should increase as more courses are validated.

Are courses getting too long? If they are, the only apparent remedy would be to reduce the size of the SCPF. This would indeed reduce the number of courses that seem to be too long, but at the price of increasing the number found short. As the present SCPF is in universal use, and is accepted all over the world, a change could be counterproductive. Also, too long or not, the courses that passed validation all had records set on them.

**Reader commentary on this is invited.**

## Friendly Manitoba - Not Just A Cute License Plate Motto

### Validation of the Pan American Games Racewalk and Marathon For the IAAF

In May I received a phone call from John Craig of the Ontario Track & Field Association asking me if I was interested in doing the validation measurement of the Racewalk and Marathon Courses for the Pan American Games, I of course said yes. The 1999 Pan Am Games (PAG) are being held in Winnipeg, Manitoba. They start July 23rd with the 20 km Racewalk on July 24th, the Marathon on July 25th, and the 50 km Racewalk on July 26th.

Near the end of June I received a call from Laurie Penton, the Technical Coordinator of the PAG Marathon. Laurie asked what dates in early July were convenient. The two dates were either July 9-12 or July 16-19. I favoured the latter but it turned out to be the former. The earlier date included my birthday and my sister-in-law had ordered a cake and was having a family reunion. C'est la vie.

I was to leave the London, Ontario airport at 10:20 AM on Friday but showed up early enough that I was asked if I would rather take an earlier flight which I did. This flight was delayed because of problems in Toronto but I arrived with time to spare for my connecting flight to Winnipeg. If I had left at my originally scheduled time I would not have missed that plane to Winnipeg. I arrived in Winnipeg at 1:15 PM and was met by Laurie Penton, who I mentioned earlier, as well as Laurent Lacroix (the Canadian Measurer in charge of the measurement of the Marathon and Racewalk) and Patrick Riddell (President of Manitoba Athletics). Laurent has been a measurer in Canada since about 1982 and was one of the Canadians that had taken the



Laurent Lacroix crowning the official ox of the Pan Am Games with his bike helmet.

IAAF Measurement Seminar that Pete had given in Vancouver. Pat had graciously agreed to billet me at his house and did a great job showing me many of the features of Winnipeg.



The measurement team relaxing in Assiniboine Park after the measurement, next to the Red River Cart. Left to right: Laurie Penton, Randy Bannister, Maureen Jay-Goldman, Laurent Lacroix, Pat Riddell, Bernie Conway

With less than three days to measure since my return flight was scheduled for Monday at 8:45 AM, we had an early meal and went to the Kelvin St. 300 m calibration course Friday evening, July 9th. As part of my validation of the Racewalk I checked the length of this calibration course with the help of Pat. While we were doing this Laurie Lacroix and Randy Bannister, who also attended the Vancouver Seminar, extended the calibration course by a further 200 m so that we now had a 500 m calibration course which is the minimum length suggested by the IAAF. I checked the other 200 m with the help of Laurie. Checking the temperature we laid out a 500 m calibration course so that it would be ready for us the next morning when we would be checking the length of the PAG Racewalk Course.

On Saturday morning the measurers who were there Friday night were joined by another Winnipeg measurer, Maureen Jay-Goldman. We calibrated our bikes on the Kelvin St. 500 m calibration course and then rode to Assiniboine Park, the site of the 2.5 km closed loop course to be used for the 20 km and the 50 km Racewalks. The course was found to be at least 2.5 km in length by not only myself but all five of the other measurers, all with close agreement. That afternoon we drove over to the University of Manitoba Stadium, where the PAG would be held. We measured out another 500 m calibration course and replaced the lost end of the 300 m calibration course that had been lost due to road paving for the Pan Am's. This calibration course would be used the next day as our pre and post calibration course.

Five measurers, we had lost Maureen due to her having a previous commitment, met at the calibration course by 6:20 AM

to calibrate our bikes. The police arrived shortly afterwards and we rode to the temporary start. Laurent was our lead rider and he made marks at the 1 km, 1 mile, and every 5 km to the 20 km mark. The rest of us rode to those marks and recorded them. We then had a break and a mid-calibration in case of problems.



Note the Jones/Oerth counter affixed to the Red River Cart. We eagerly await measurement data.

Actually just prior to the 20 km mark Laurie had a flat in his back tire and we stopped while he fixed it. After the break and mid-calibration Laurent continued from the 20 km point marking each of the remaining 5 km splits to the 40 km. From there we rode the remaining distance to the required finish on the track. However this section of the ride was not without incidences. Randy Bannister wore shoes with a locking device to the bike's pedal. At one point he slowed and tried to put his foot down but it didn't unlock and he went down. Hearing the crash as his bike hit the road I saw Randy's back wheel spinning like crazy but Randy had made sure that as he fell he kept hold of the front brake and he never lost a count. Now there is a measurer with determination. The police were very helpful as part of the course was on a highway which had cars travelling at 80 km/h and we also had to use two clover leaves, one in the second lane of traffic. We then did our post calibration and calculated the distance of the course and how much we were short. Laurent had the shortest course of the Winnipeg measurers and so we used his data which showed that the marathon was 60.0 m short. Since

the finish was at a predetermined spot on the U of M track opposite the tower used for photo finishes, the start and each of the splits we had marked previously were all moved by 60.0 m toward the start. Each of these splits were then marked and measured from an easily found point.

Validating the course I measured with no short course prevention factor and I tried to stay as close to 30 cm around curves as possible. I found the course to be short by 12.522 m. This plus the addition of 42.195 m meant the marathon would be short by 54.717 m, however the addition of 60.0 m means that the marathon was found to be long by 5.283 m and so passed validation.

Pat Riddell had originally been slated to go to Vancouver for Pete's Measurement Seminar but was unable to do so because of being in charge of the PAG site. Pat inquired from Pete about having me check out his measuring ability, which I was pleased to do. I also checked the work of Laurie Penton and found them both to be excellent measurers well deserving of receiving their IAAF Grade C certification. I am awaiting the data from Maureen Jay-Goldman. I volunteered to check the data of Pat, Laurie, and Maureen should they wish to send it to me prior to sending it in to Pete. Pete has indicated that if the map and data are of sufficient quality for some number of courses that are sent in, then these measurers as well as those who were at the Vancouver Seminar would be eligible to advance to IAAF Grade B. Many of these measurers have had experience back several years but have found it frustrating advancing through the Provincial and National Sports Agencies as measurers and certifiers. Recent discussions among the Provincial and National Sports Agencies may rectify this problem. Laurent has an Internet site for Canadian Measurers that is now accepted by Run Canada. The site is at:

[www.mbnet.mb.ca/~llacroix/crrcma.html](http://www.mbnet.mb.ca/~llacroix/crrcma.html)

Did you know that Winnipeg with a population of 600 000 has seven measurers, five of which are now IAAF grade C?

Bernie Conway  
IAAF Grade A Measurer  
London, Ontario, Canada

**Ed. Note: Laurent Lacroix is now grade "B"**



## A NOTE FROM SOUTH AFRICA

Here are a couple of photo's taken this weekend at Johannesburg during the measurement of the Walk and Marathon routes. I hope to send you some reports / calcs for your comments this week. - as I would value your scrutiny. However thought the photo's would be of interest.

The 'street' shots are take in Hillbrow the so called Murder capital of Johannesburg.. - but all you will see is people enjoying themselves.

I have now twice run through the ' so called terrible city centre' with a female athlete who I coach who has been lectured for the SA team for the marathon. Only a lot of fun and encouragement from the crowds... Perhaps people need to see a different side of SA!?

The one on the track was taken while people rehearsed for the opening ceremony

Kind regards to you and Joan, Norrie Williamson



## ANSWERS TO LAST MONTH'S PUZZLE

**From Malcolm Heyworth:** I'm not sure where the 8 chips mentioned in Note 1 really fit in but there seem to be 14 Age Group chips (3976 - 3962) not crossing the start, and another 3 on relay runners.

**From Ken Young:** I don't know what marathon it was but I suspect it is the Grandma's (MN/USA) Marathon. That would be about the right size. The discrepancy is obviously in the start numbers. The top section gives 4633 starters whereas the lower section gives 4600 starters. 16 of the discrepancy is due to the wheel chairs starting in front of the start mats. The start #s for the relay and age groups are also in disagreement. Note that the relay actually gained two runners between the start and the 10K. In short, there are numerous discrepancies in the statistics provided.

This example certainly doesn't enhance one's confidence in chip timing.

**From Pete Riegel:**

It was not Grandma's Marathon.

There were a few small discrepancies I saw, and discounted, since I don't expect perfection in race results. However, what struck me was the extremely high finish percentage. According to the results, 4633 started the race and 4517 finished it. This marathon took place on a day when the temperatures ranged from low 70's to mid 80's, and sunny. A 97 percent finish rate is mighty impressive for any marathon. I don't think I've ever heard of a marathon of any size with a finish rate like that.

## IAAF/AIMS MEASURING FEES

Subj: IAAF Fees  
Date: 7/29/99 10:26:05 PM Eastern Daylight Time  
From: measurer@ican.net (Bernard Conway)  
To: riegepete@aol.com

Pete,

I would like to see the cost of the basic fee for validation raised from \$75 (U.S.) to \$100 (U.S.) per day. I don't imagine that the PAG Committee would have had any problem with this fee since Run Canada was willing to pay \$200 000 to Donovan Bailey just to be a spokesperson. I don't expect that my agreement is retroactive to them anyway. The trip to Winnipeg was a great treat that would have compensated me even if I were not paid.

However, I have been contacted by Jim Ralston for the Buffalo to Niagara Falls Marathon Committee and they are only expecting to pay the IAAF/AIMS fee plus costs. Their primary sponsor is Casino Niagara and I am sure they could cover \$25 more per day. What about a minimum fee of 3 days (\$300) for a validation? What are your thoughts about passing on these concerns to AIMS/IAAF? Do you agree or not?  
Bernie

Subj: Re: IAAF Fees  
Date: 7/30/99  
To: measurer@ican.net  
CC: grogers@intergate.bc.ca, aimssec

Dear Bernie,

I have seen this problem coming for a long time. In the early days, an AIMS course was supposed to be measured by a foreigner, to prevent the possibility of collusion if a home-town measurer decided to "help" the race with a deliberately short course. This stance has been relaxed in recent years, and any person holding AIMS/IAAF "B" or higher status can measure any AIMS/IAAF race except WC or Olympics.

The first time I was asked to measure the London Marathon I was ecstatic. Nine days in London, all expenses paid! And a small daily honorarium on top of that. The reward of seeing foreign places was a large part of the reward for me, and the fee was almost irrelevant.

London has always been exceptional, as when I arrive someone else has always done the hard work of getting the course right. This used to be John Disley, now it's Hugh Jones. As both are London dwellers, I doubt they consider the work as exotic as I do. It's simply a lot of time-consuming labor, satisfying but often inconvenient. My work there has rarely had more effect than to shift the start a few meters one way or the other.

I also measure in the US, and my fees are always negotiated ahead of time with whoever engages me. I am bound by no constraints except those of the market place.

Some races pay me a pretty fat fee (by measurer standards) to do the work. Others may pay me nothing at all. I have never felt guilt over this, as many race organizations have more money than time, and may wish to hire done what they are authorized (within our system) to do themselves.

Since I am a US certifier, my FIRST offer to anyone wishing me to measure is to help them do it themselves, by telephone, mail, fax, email - I provide the advice, they provide the manpower. This advice and help is absolutely free (except for the \$15 paperwork review fee I charge) - it's part of my primary duty as a certifier. Some accept, some decline. If the course is far from home, I will give them the name of a measurer near them who may be willing to help.

AIMS is making more and more headway within the US. In the past I have been asked to provide lists of people who belong on the "A" or "B" level lists. All US certifiers are at least "B" level. Some are "A" level. Those on the list are sometimes unaware they are on it, as it is irrelevant to what they do within the US.

The fact that these people are qualified on this level does not, in my mind, bind them to accept the conditions defined by AIMS. I don't consider myself bound by them, as I accepted the AIMS position under conditions that have since changed.

Thus far there has been no serious conflict, as my AIMS work has heretofore been foreign, and I enjoy travel. However, if, for example, the New York City or Chicago Marathon, each an AIMS member, should ask me to measure their course, they would find me reluctant to do so for \$75 per day or even \$100. I consider that pitiful recompense for what is involved in doing a proper job.

AIMS/IAAF standards require only a single measurement of a course, that to be done by an "A" or "B" measurer. Some IAAF/AIMS measurers actually do only one measurement - others (like me) try to recruit a second rider to accompany them so as to get another measurement as a check.

If you should measure say, Chicago, for AIMS, you could do so in a single ride, unaccompanied by anyone else, and generate an IAAF/AIMS certificate. However, to obtain USATF certification you would need two or more measurements. Thus it's possible that if a world best were to be set at a singly-measured Chicago, it could be unrecognized in the US. We have yet to deal with that.

The AIMS/IAAF single-measurement standard was originally set up, I believe, in recognition that a foreigner has not got all the time in the world to do the job. On many of my foreign trips I've had to work fast and furious to get the work done, and even then it is rarely done to a standard I would consider as acceptable in the US. Good measurement takes time, and traveling people don't have all the time needed. And often they are hampered by race



organizations who are ill-prepared and have higher-than-realistic expectations.

If AIMS is telling their members that membership entitles them to cheap measurement, they should be aware that many measurers are not willing to accept the present conditions. I'd have no problem finding people to travel to exotic places for a measurement job at low pay, but I'd have a lot more trouble finding people to do the same thing in a US city 200 miles from their home.

Evolution has changed the measurement game within AIMS - the foreign measurer seems no longer required. I accepted AIMS terms under the former conditions, but since they have changed I don't consider myself bound. I've not yet been asked to do a US AIMS measurement at the AIMS rate.

As for your negotiations with Casino Niagara, I can't help. In my own case, I wouldn't be willing to accept the job at the AIMS/IAAF rate. I am sure that one of the European measurers would leap at the opportunity. But then the organizers would have an air ticket to buy.

John Grandits has done acceptable measurement in the past, and is an experienced measurer, with 54 courses under his belt. He is acceptable as a USATF measurer. We feel that our somewhat more stringent measurement standard - plus a validation check if a record is set - provides the necessary assurance of accuracy. Casino Niagara can receive a USATF certificate if Grandits measures the course to USATF standards.

I'm not sure how AIMS may choose to resolve this. It's their call, not mine. I'm copying Gordon Rogers and Hugh Jones so they can be informed.

Best regards, Pete

Subj: Re: IAAF Fees  
Date: 7/30/99 11:41:12 AM Eastern Daylight Time  
From: Aimssec  
To: Riegelpete

Dear Pete,

Thanks for copying Bernie's proposal to me. This is something that you should push at the AIMS/IAAF meeting. The IAAF always set the pace on these questions of remuneration. I recognise that many \$75 per dayers are paid for sitting around on their arses all day - and I don't mean in a bike saddle.

This doesn't solve any longer-term issue. There are issues to be resolved here. I must admit I would be cheesed off if London were to turn around and tell me they'll only pay the standard fee. I would have to stretch the measurement over a couple of weeks to make it pay properly.

Get back to me if anything develops further.

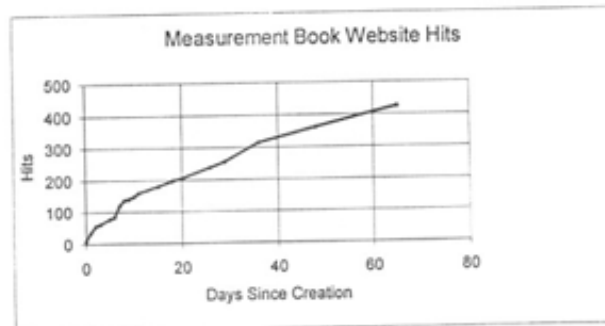
Regards,

Hugh

## ONLINE COURSE MEASUREMENT BOOK – PRELIMINARY ACTIVITY

Hits on Bob Baumel's RRTC web site indicate a high interest in the online measurement book. Below you can see how things looked on August 19. These are the hits on the book download page.

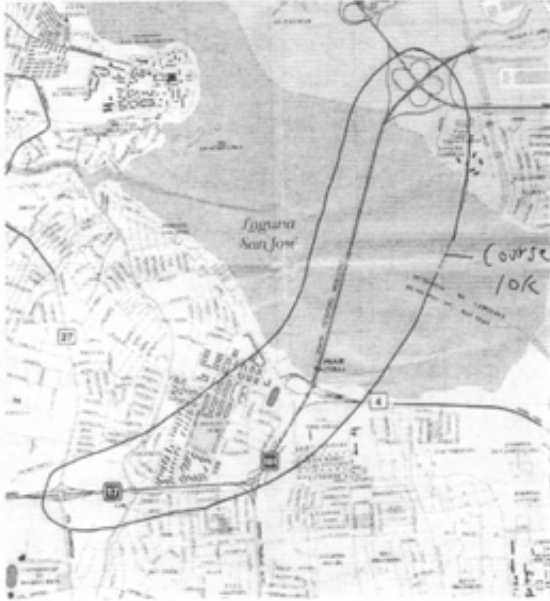
While I was in Puerto Rico, measuring the World's Best 10k, and while in pre-measurement conference, noticed a copy of the online book, printed out and bound in an acetate cover. It was greatly appreciated by the Puerto Rican measurers.



## WORLD'S BEST 10K

### San Juan, Puerto Rico

This modest title is borne by a race that is just starting its second year. It takes place on the Teodoro Moscoso Bridge, which spans the San José Lagoon, connecting, on its north side, the Luis Muñoz Marín International Airport and areas of high income housing along the Atlantic coast (e.g. Isla Verde) with the commercial, retailing and residential sectors of Hato Rey and Río Piedras to the south.



This year the race joined AIMS, and it has a pretty impressive prize structure - \$20,000 for the win, \$100,000 for the world record. The race will be held February 27, 2000. Check out the web page at: [www.worldbest10k.com](http://www.worldbest10k.com)

I was asked to come down and measure the course. I sent a list of things I needed, and to my great delight, everything was ready, thanks to Pedro Zapata, who organized the measurement session. The course could not have been more convenient to measure. The start and finish are located near the toll booths on the bridge, and the straight bridge provided room a for a calibration course, which Pedro and I laid out on the evening of my arrival. Then we attached Jones/Oerth counters to two "policia" bicycles. We were ready for the Sunday morning ride.

The control center for the bridge is located adjacent to the toll booths, and was a pleasant air-conditioned place for bike storage and calculation. On Sunday morning Pedro and I were joined by Roberto, and we put a counter on his bike. Also joining us was an entourage of photographers and officials. I gave Pedro and Roberto some brief instruction about calibration, and we did it. All the splits had been marked, and we collected data at each kilometer and each mile.



Pete took data from the counters at each intermediate point. Here he records Roberto's count.



Roberto mounts the Jones/Oerth counter to his bike, while Pete and Pedro look on. We had good luck - all counters fitted the bikes with no need for washers.

Upon reaching the finish line, we had a brief photo session, then recalibrated. The calibration riding of Pedro and Roberto was a bit shaky, as it was the first time either had done it, but upon calculation all three rides agreed within a meter, at 9959 meters. We added 41 meters, and the course was all set. We also calculated the correct distance to move each of the splits.

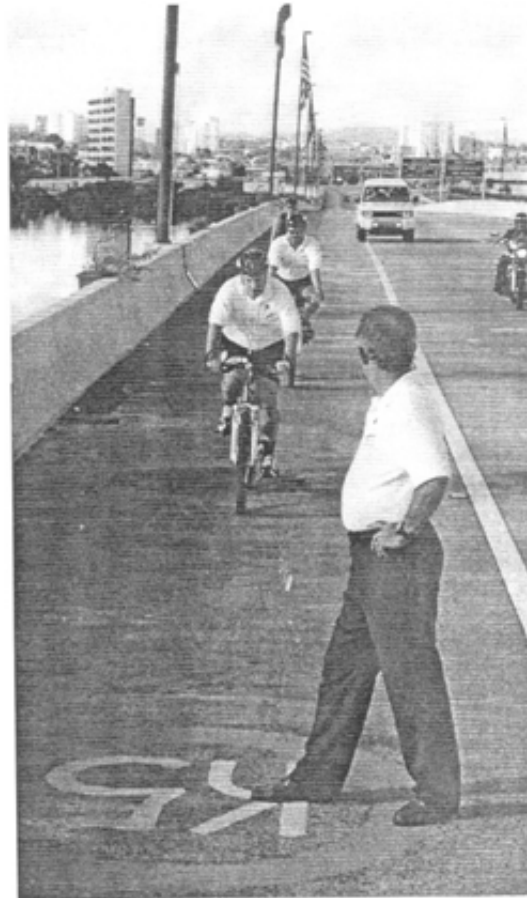
The course was a delight to ride. It's entirely on a wide freeway-type road, with a cloverleaf at one end for a turnaround, and a ramped automobile overpass at the

other. There are no hills, only some small undulations. It was very easy to ride, especially with the support vehicles preceding us and stopping at the proper splits.

The best part of the whole thing was to meet the people involved with the race. As usual, everyone was enthusiastic, especially when the work was done and no problems arose from the final adjustment to the course.



Stopping for a count at 8 km.



Half way. At each split, the lead vehicle stopped and someone marked the spot. The measurers never had to wonder where to stop.

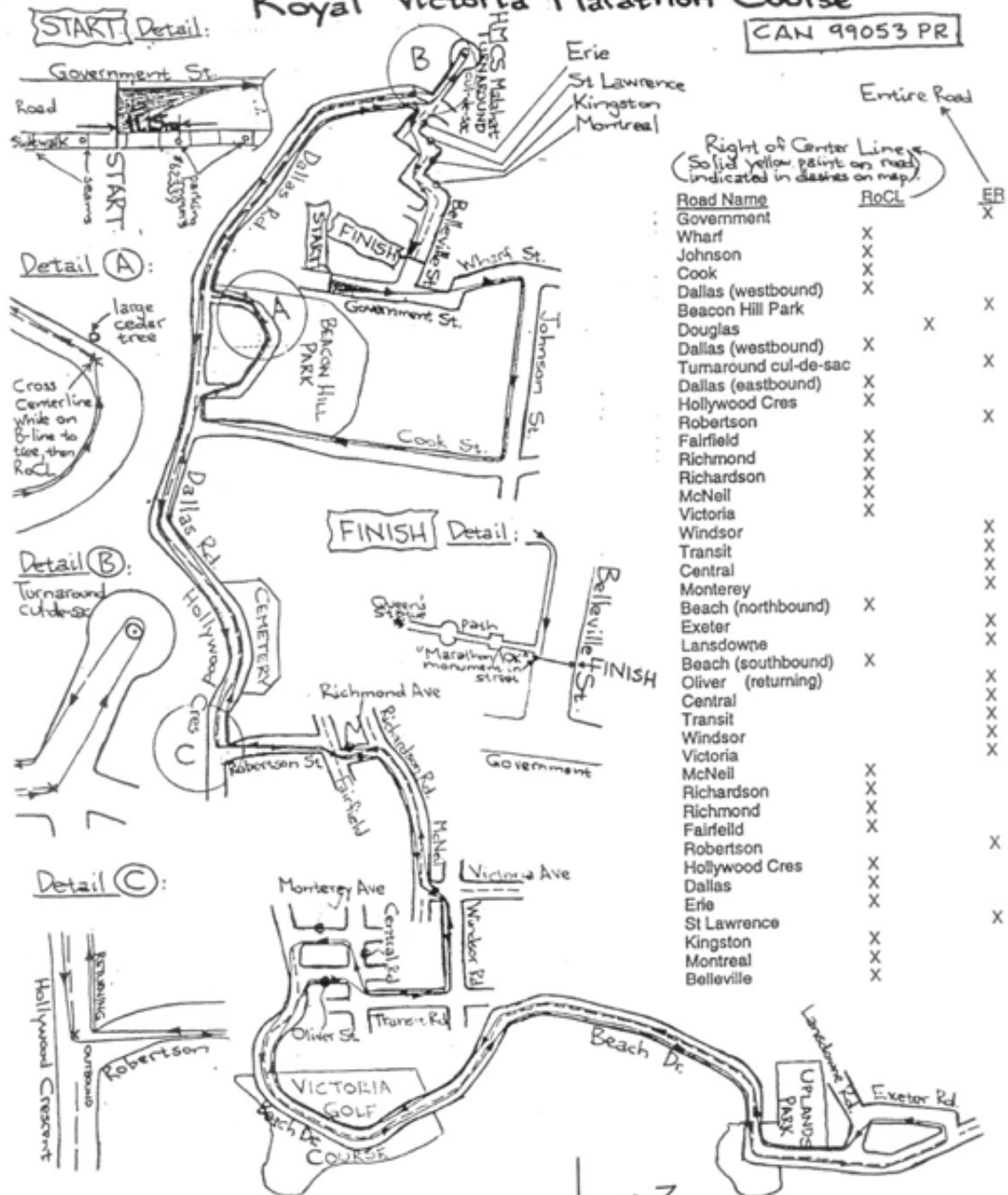
At right we see the official exhibition of the AIMS/IAAF certificate.

Left to right:  
Pedro Zapata - Operations and Administration Director,  
Teodoro Moscoso Bridge & Technical Director for the  
World's Best 10k.  
Johnny Rodriguez, Technical Advisor, Puerto Rico Long  
Distance Federation.  
Pete Riegel, IAAF/AIMS Measurer.  
Wilfredo Mercado, Sports Coordinator, City of Trujillo Alto.



# Royal Victoria Marathon Course

CAN 99053 PR



Right of Center Line  
(Solid yellow paint on road)  
indicated in dashes on map.

Road Name	RoCL	Entire Road
Government		X
Wharf	X	
Johnson	X	
Cook	X	
Dallas (westbound)	X	
Beacon Hill Park		X
Douglas		X
Dallas (westbound)	X	
Turnaround cul-de-sac		X
Dallas (eastbound)	X	
Hollywood Cres	X	
Robertson		X
Fairfield	X	
Richmond	X	
Richardson	X	
McNeil	X	
Victoria	X	
Windsor		X
Transit		X
Central		X
Monterey		X
Beach (northbound)	X	
Exeter		X
Lansdowne		X
Beach (southbound)	X	
Oliver (returning)		X
Central		X
Transit		X
Windsor		X
Victoria		X
McNeil	X	
Richardson	X	
Richmond	X	
Fairfield	X	
Robertson		X
Hollywood Cres	X	
Dallas	X	
Erie		X
St Lawrence		X
Kingston	X	
Montreal	X	
Belleville	X	

START Detail:



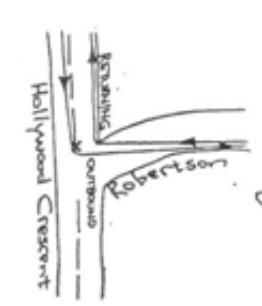
Detail (A):



Detail (B):



Detail (C):



"X"ed points in Detail sketches will be traffic-coned

MAP OF THE MONTH  
BY TOM DURANTI

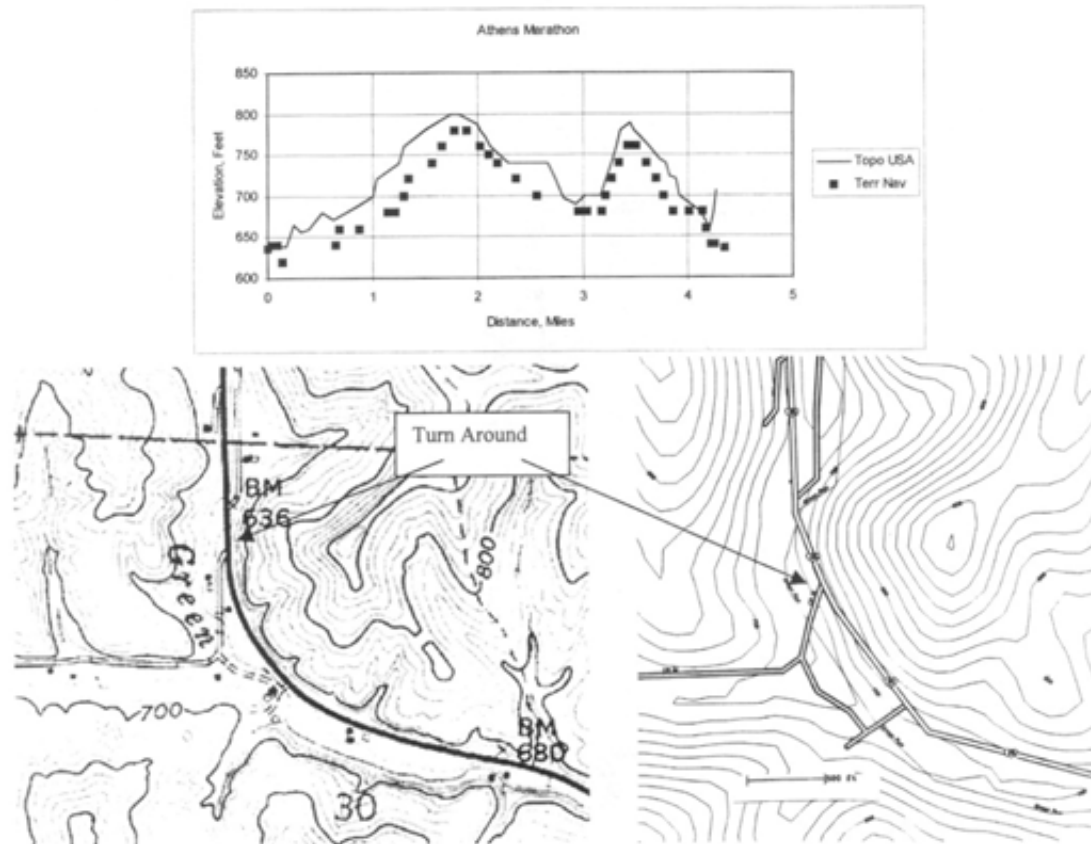
## A COMPARISON OF TWO MAPPING PROGRAMS

I have been using a map program called Toposcout (now called Terrain Navigator) for several months. At a cost of \$270 it contains all the USGS topographic maps for the state of Ohio – over 700 of them. I have been quite satisfied with it. It's available at <http://www.maptech.com>

I recently saw a new product called Topo USA, available from Delorme, at <http://www.delorme.com>. It contains, on six compact disks, topographic maps of the entire United States, and cost me \$70. There was one drawback – this product has contour lines at a minimum of 20 foot intervals, where the USGS maps in Ohio generally use 10 foot intervals.

I used each program to plot a hilly section of the Athens (Ohio) Marathon. The plot shows mile 8 to mile 13.1. The runners go to 13.1, then retrace their steps, giving them four nice hills to run in the middle of the race. The plots came out similar, but not exactly the same, as you can see below:

I was not particularly bothered by the slight offset, but the 60 foot difference at the turnaround caught my eye.



At left is the USGS map of the turn area, at right the Topo USA map. The route comes along the country road from the left side. In order for Topo USA to get all the topographic data on six disks, it was necessary for them to digitize the data into points and lines. The difference in elevation at the turnaround is a result of this. The main highway, State Route 50, follows the edge of a stream called Green Run. In Topo USA's digitization, the highway cut across some of the hillside contour lines, producing an erroneous elevation.

In spite of the drawbacks, I like Topo USA, but have learned to use it with caution. USGS maps are our best source for elevation information, but if absolute accuracy is not needed, Topo USA works fine. It's especially nice to be able to zoom in close when contour lines are closely spaced, and hard to read accurately on a USGS map.

*John*