

# SOLAR EXPRESS

POST-WORLD SOLAR CHALLENGE ISSUE

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BACK COVER

## WSC RESULTS

By Eric Beaser, Interim Project Manager

The World Solar Challenge (WSC) is the world championship of solar car racing. This grueling event winds through the outback of Australia, and attracts the fastest solar cars from around the world. This year's race began in the northern coastal town of Darwin on Oct. 16, and finished in the southern city of Adelaide less than 5 days later.

After 3,010 kilometers and over 48 hours of racing, the World Solar Challenge for 1999 has been quite an experience. This year's WSC Champions is the team from Aurora Vehicle Association of Melbourne, Australia who developed and raced their car, *Aurora 101*. Close on their heels was Queens University in *Radiance* from Ontario, Canada, and placing third was *Sunshark* from University of Queensland.

Our team placed ninth overall in the world

### Final Standings

Team	Time (Hr:Min)
[1] Aurora 101	41 : 06
[2] Radiance 100	41 : 33
[3] Sunshark 52	41 : 50
[4] Desert Rose 15	42 : 14
[5] KIT Golden Eagle	44 : 33

and we were the second US team to cross the finish line. Officially, we crossed the timing station at 2:04pm (12:30am EST) on our 6th day of racing and crossed the finish line in downtown Adelaide a few kilometers further down the road.

We are very happy to be ranked one of the top 10 solar car teams in the world and feel very privileged to have competed with such incredible competition. There were only two hours between us and MIT who earned 8th place this year, and only 6 hours between us and the leaders.



MaizeBlaze Crew in Adelaide, Australia

The sheer difficulty of the race route tested not only the mechanical ingenuity of our engineers but also the spirit of our entire race crew. The team survived temperatures of over 110 degrees everyday, not to mention sleeping in tents with the nearest toilet thousands of kilometers away.

That is not to say we were  
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EXPRESSPOST-WSC  
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## Special Thanks for AFTS

Skipping school and traveling 10,000 miles from home can be scary, especially if you don't know where you're going to stay. Thanks to the kindness of Mr. Peter Goon of **Australian Flight Test Services**, the *MaizeBlaze* crew didn't have to contend with that particular problem.

Through Mr. Goon's efforts, AFTS provided the team with space in Hangar 51 at Parafield Airport, South Australia. The hangar, which normally serves as auxiliary work and storage space for AFTS, served as our workshop, living quarters, and base of operations as team members spent up to one and a half months in Australia. The hangar turned out to be both spacious and well-appointed; we had enough space to prepare *MaizeBlaze* and all our support equipment, and we were still able to move around! If that wasn't enough, the hangar was equipped with a bathroom, kitchen, hot shower, and space to park the semi! Mr. Goon was even able to help us arrange for some test-drive time on Parafield

Airport's runway for some final power testing before the race.

AFTS is one of the most versatile companies, serving all sectors of the aviation industry. AFTS's projects range from remote-sensing and communications systems to manufacturers to private aviation buffs to the Royal Australian Air Force. Mr. Goon himself is a former RAAF test pilot, and AFTS operates a small fleet of testbed aircraft from their two hangars at Parafield.

Our hearty thanks go out to Mr. Goon and everyone at AFTS who made our stay in Australia so pleasant and productive.



**Hangar 51:** Home Away from Home

## Congratulations

We are happy to announce three recent wedding engagements!

In early October, Ryan Smith (*MaizeBlaze* Materials & Manf. Director) was engaged to Heather Nettle (Electrical Engineer, *MaizeBlaze* Race Crew). Ryan is a graduate student in Materials Science Engineering, and Heather is pursuing dual B.S. E.'s in Mechanical & Electrical Engineering.

Also, just after the end of the race, Chris Schooley (Operations, *MaizeBlaze* Race

Crew) and Michelle Strehle (Electrical Engineer, *MaizeBlaze* Race Crew) were engaged in Sydney as did Dale Patterson (Operations, *MaizeBlaze* Race Crew) and Julie Bissiri. Chris is pursuing a B.S. in Computer Science, and Michelle is finishing her B.S.E. in Aerospace Engineering. Dale is completing a B.S.E. in Electrical Engineering, and Julie is a recent University of Michigan graduate.

We wish all three couples farewell and the best of luck in the future.

# Experience of a Lifetime

By Dave Jordan, *MaizeBlaze* Crew Chief

What do you get when you combine the world's most ambitious students and engineers with space-age technology and the challenge to cross one of the world's most treacherous stretches of road, using only the power of the sun?

Hans Tholstrup's "Brain Sport" - THE WORLD SOLAR CHALLENGE.

Hans kicked-off the event in 1987 after crossing the Australian Outback in his own solar-powered vehicle in 1984, and in 1999 the event is still the world's finest and most competitive solar racing event. The race is exciting and fast-paced with an open road-racing format. The competition is top-notch, and teams get an up-close-and-personal look at some of the world's most breathtaking vistas. The Outback and the Stuart Highway between Darwin and Adelaide are areas that, according to a man we met in Sydney, "most tourists don't make it to and most locals don't bother with."

Students from our team met with students and professional engineers from around the United States, Canada, Italy, Germany, Australia, Japan, England, France, and Denmark. We exchanged ideas with them about solar car racing in general, and learned



The MaizeBlaze Team:  
dirty and tired in the outback

from each other throughout competition. We saw the culmination of two years and thousands of hours of hard work as *MaizeBlaze* sailed down the road, leaving behind all those frustrating breakdowns, failures, and those confounded Sunrayce clouds and rainstorms. "The Last Great Adventure of the Millennium" was certainly the experience of a lifetime for the *MaizeBlaze* crew...

...even though I only saw three kangaroos...

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## Post-WSC Travel Destinations

- Nader Shwayhat
  - Sydney, Gold Coast
- Jed Christiansen
  - United States Navy
- Jason Krumb
  - Grampians, Sydney, Cairns, Blue Mountains, Melbourne
- Russ Moerland
  - Melbourne, Brisbane, Sydney
- Reuben Rohrschneider
  - Grampians, Cairns, Sydney, Blue Mountains, Melbourne
- Joe Lambert
  - Sydney, Gold Coast
- Heather Nettle
  - Sydney, Frederick MD (Co-op with Solarex)

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# Ann Arbor Update

By Eric Beaser, Interim Project Manager

Well, it has been an exciting semester for the Michigan Solar Car Team. A lot has been going on during the last few months, all of which has involved an enormous amount of innovative changes and fresh new faces.

Returning from our breakneck finish in sunny Australia, team members past and present have come together to plan our next series of races two years from now. As a result of many weeks of work, I would like to be the first to introduce you to *MPulse*, our 6<sup>th</sup> generation solar vehicle. Based on a tradition of excellence and hard lessons learned, this car will combine the collective knowledge of past team members via the newly formed Solar Car Alumni Club and the radically fresh ideas from students new to the team.

We have only entered the preliminary design stages for *MPulse*, but I can tell you that the car will be very exciting to watch in 2001. We look forward to facing once again the stiff and incredibly professional competition that has marked this year's Sunrayce and World Solar Challenge.

In order to prepare our new members for the creation and birth of our newest car, we have spent this last semester renovating and refurbishing *Wolverine*, our 1997 car. By taking the unprecedented step of working on a car from years past, we hope to teach many of the skills our team members will need once we start work on *MPulse*. If all goes well, we should submit a fully reworked solar car for competition in the Formula Sun Race this May.



Refurbishing *Wolverine* for Formula Sun

I would be remiss without giving some introduction to the *MPulse* leadership team. Nader Shwayhat has been chosen to lead the team for the next two years and has graciously accepted to be our new Project Manager. Most will recognize him as *MaizeBlaze*'s Business Team leader and I'm sure all of your numerous congratulations go out to him in his new post. Joining Nader is Hiroumi Kitajima who will work as the Assistant Project Manager for the *MPulse* team. Dave Jordan will fill the shoes of our Administrative Director, and Joe Lambert will take on the role as the Vehicle Systems Coordinator. Last, but hopefully not least, is myself stepping into the role of head strategist for the Strategic Systems Division.

As you can see, the last few months have been an emotional time of good-byes to old friends and greetings to our new team members. I know I speak for all when I say good luck to Jed Christiansen and the rest of the *MaizeBlaze* team as they begin to pursue their interests beyond the solar car team.

## WSC RESULTS

Continued from page 1

without mechanical difficulties. Our motor controller cables became detached and we had to stop for a total of 15 minutes. However, this makes our total pit-stop time for the race a miniscule 17 minutes over the 48 hours of WSC. We are extremely happy with the performance of the car that we have spent the last two years designing.



Team Members visit Emerson Middle School

# Sponsor Spotlight

By Dave Jordan, *MaizeBlaze* Crew Chief

The Australian adventure is over, and after a fantastic week of racing and some Australian sight-seeing, the *MaizeBlaze* crew are on their respective ways back to classes, jobs, graduate schools, and other various versions of everyday life. However, we would be remiss if we did not mention all those that stepped up at the last minute to make it all possible. From solar cells to housing to moral support, our sponsors have yet again made all the difference.

*MaizeBlaze* was propelled down the road using the latest and greatest cells that **SunPower** and **BP Solarex** have to offer. **NYK Line**, **Northwest Airlines**, **Airborne Express**, **Beaver Packaging**, and **Malaysia Airlines** teamed up to help us overcome the greatest logistical hurdle we could imagine – shipping a solar car, 20 team members, a semi trailer, and many tons of equipment to the other half of the world! In Australia, Mr. Peter Goon of **Australian Flight Test Services** played the perfect host at our temporary home in Hangar 51, Parafield Airport. **Hertz** and **Holden, Australia** ensured that the team traveled in style in two Toyota Taragos and a Holden Jackaroo. We also had a little help from the inimitable **Mr. Helmut Barenfanger**, our lead driver, and **Mr. Mike Harbison's** '71 Land Rover. The expertise of **Mr. Bob Allan** of **Orbis Technology** kept

us on track with communications, on top of the weather game, and enabled us to send frequent reports to the people we left at home.

We'd also like to thank everyone that helped us at the last minute, enabling us to make those small but remarkable improvements to the car: **Vlasic Holdings**, **Abacom Technologies**, **Parallax, Inc.**, **SAIC**, **The SIFCO Foundation**, and **Quorum Communications**. To these, and to all of our other sponsors, and our many Buy-A-Cell patrons, we offer our most sincere thanks and the hopes that you have been proud to be a part of the *MaizeBlaze* experience.

Special thanks to the ever-loyal and inspiring **Mr. Chuck Hutchins**, sponsor, mentor, and friend of the team. He has yet again offered us his untiring support, advice, applause, criticism, and friendship as he accompanied us on yet another grueling solar journey.

In closing, we would like to thank and bid an official farewell to **Dr. Gene Smith**, our faculty advisor for over ten years. He has joined us on eight races and has seen the team through all our ups and downs. "Dean Gene" has officially retired from the faculty here at the University of Michigan, and he will be greatly missed by everyone. Let's just see how long he can stay away from the solar car.



Our 48 foot moving billboard with your name on it.

# UNIVERSITY OF MICHIGAN SOLAR CAR TEAM

## Buy-A-Cell Program

The University of Michigan Solar Car Team is celebrating over ten years of successful racing with our sixth-generation car, *MPulse*. We will be competing in the World Solar Challenge, racing across the Australian Outback in October of 2001.

To make a run for what could be our third national championship, we need your help! By "Buying" a Solar Cell for *MPulse's* solar array, you will be directly contributing to the success of our team. Your contribution also signifies your commitment to education and environmental objectives.

We hope that you will Buy-A-Cell and join the winning Michigan Solar Car Team tradition!



### BENEFITS OF THE BUY-A-CELL PROGRAM

- CERTIFICATE WITH A MAP OF THE PLACEMENT OF YOUR SOLAR CELL ON *MPULSE*
- SUBSCRIPTION TO SOLAR EXPRESS, THE SOLAR CAR TEAM NEWSLETTER
- RECOGNITION ON THE TEAM'S SUPPORT TRAILERS

We are also offering a special student's Buy-A-Cell package for \$25. Please call the Solar Car Team Office for more details.

<p><b>UNIVERSITY OF MICHIGAN SOLAR CAR TEAM</b></p> <p><b>3411 EECS 1301 Beal Avenue Ann Arbor, Michigan 48109</b></p> <p>Phone: 734-764-2257 Fax: 734-647-4746 Email: M-Pulse@umich.edu</p>	<p style="text-align: right;"><a href="http://www.engin.umich.edu/solarcar">http://www.engin.umich.edu/solarcar</a></p> <p>_____ Name _____</p> <p>_____ Address _____</p> <p>_____ Phone _____</p> <p>_____ Signature _____</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;"></th> <th style="width: 20%;">Qty.</th> <th style="width: 20%;">Price</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><b>Solar Cell</b></td> <td style="text-align: center;"></td> <td style="text-align: center;">\$100</td> </tr> </tbody> </table> <p style="text-align: right; margin-top: 20px;"><b>Total:</b> _____</p> <p style="text-align: center; margin-top: 10px;">Payment by check only please.</p>		Qty.	Price	<b>Solar Cell</b>		\$100
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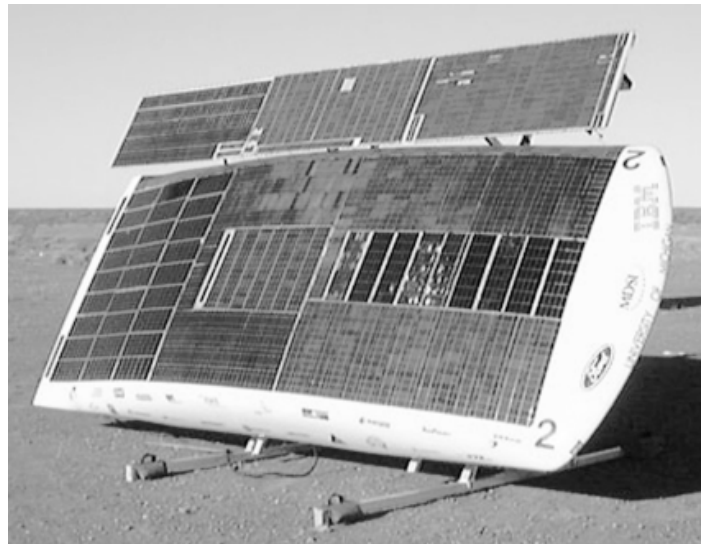
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MaizeBlaze in Australia, Racing and Charging the Array



2

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