

Preface and Acknowledgements

It is with profoundly mixed feelings that I approach the writing of this, my last Proceedings preface as the Director of the Wisconsin Space Grant Consortium. The year I took over the Directorship of the WSGC, NASA was still reeling from the dual loss of Mars Climate Orbiter and Mars Polar Lander, a loss that many attributed to the “Faster, Better, Cheaper” philosophy that was the agency’s motto at the time. Deep Space 2 had also gone missing. The 2001 Mars lander had been mothballed; there were no plans to use this half-built lander. The plans for planetary missions were all under review. My field of planetary science was on the ropes.

Fast-forward fourteen years. Mars Odyssey, Mars Reconnaissance Orbiter, the Mars Exploration Rovers Spirit and Opportunity, the Mars Science Laboratory Curiosity, and Lunar Reconnaissance Orbiter all successfully launched and executed their primary missions (all but Spirit are still going strong). Cassini arrived at Saturn; the Huygens probe soft-landed on the surface of Saturn’s moon Titan; NEAR and Deep Space 1 encountered the bodies Eros, Braille and Borrelley; Stardust acquired the first samples from a comet; Deep Impact purposely impacted into comet Tempel 1; MESSENGER began its mapping mission of Mercury; the New Horizons mission launched to the dwarf planet Pluto; Juno launched to Jupiter; and MAVEN launched to Mars. And these are only some of the planetary missions with which NASA was and is involved.

What does this fantastic turnaround teach us? It certainly reminds us that out of great failure can come great progress, as long as you are willing to bravely face and learn from those failures. But more salient here is the fact that every great endeavor is in process — it is always in a state of becoming. Such is true for the WSGC. From 17 members struggling under a small Program Grant, we have grown to 41 members across the state, representing every congressional district, working together to best utilize the funds from our higher-level Designated Grant. The statewide and Midwest regional Collegiate Rocket Competitions, the First Nations Launch, the Elijah High-Altitude Balloon programs, and the greatly expanded NASA student intern program, all started and grew strong within the last ten years. Slowly but surely, the WSGC has changed, and continues to change, the face of aerospace education and research in Wisconsin. This volume represents the best of those game-changing, “becoming” activities.

The Wisconsin Space Grant Consortium office especially thanks our most excellent host for this conference, Marquette University, starting with Conference lead Professor Christopher Stockdale, Associate Director for Higher Education Professor John Borg, and the Marquette staff of volunteers who kept our schedule moving smoothly. We are grateful as well for the work of our session moderators for their conscientious work and their strong support for our students. Our keynote speakers are also to be thanked for adding so much to our conference: Professor J. Val Klump, Senior Scientist and Director of the Great Lakes Water Institute, whose topic was “What Lies Ahead for the Future of Freshwater and Our Great Lakes,” and Professor Hector Bravo, Chair of Civil Engineering and Mechanics, University of Wisconsin-Milwaukee, who spoke to us about “Two Case Studies on Effects of Climate Variability and Climate Change on the

Laurentian Great Lakes.” Finally, we extend our thanks to all those who contributed papers to this volume. The students, educators, faculty and other professionals who have put their best effort into this Proceedings are the ones who advance our Consortium, our state, our country and our species into the next frontier.

As a final note, I want to extend my personal, heartfelt gratitude to the Institutional Representatives and Associate Directors — all volunteers — of the Wisconsin Space Grant Consortium. Fourteen years ago, I was a freshly-minted graduate student with little experience, but lots of enthusiasm and a deep and abiding love for the national Space Grant program. The Advisory Council and Executive Committee members were patient with my mistakes, supported me unfailingly through my very steep learning curve, and gave generously of their time, experience and talents to the WSGC. We became friends as well as colleagues, and for that I will always consider myself incredibly fortunate. Thanks to all, I can’t wait to see what you and the WSGC become. And as always....

Forward!

R. Aileen Yingst, Ph.D.
Director