President's Column – Debra Meloy Elmegreen – Jan.-Feb. 2012

It was an eventful autumn for astronomy, with spotlights on the Mars Science Laboratory (MSL), the Nobel Prize in Physics for the discovery of dark energy, and the ongoing Congressional budget debates.

How exciting that MSL has successfully launched! The hard-working Mars Exploration Rovers Spirit (now silent) and Opportunity will have company when the sophisticated and much larger Curiosity rover lands on Mars next August to assess atmospheric evolution and analyze soil and rocks for signs of past habitability. MSL was a key priority of the previous planetary decadal survey, though it has evolved considerably since its general description in the 2003 report. It's easy to overlook the awe of such an accomplishment - how remarkable, really, that something like MSL can be done. We have come to take it for granted that such achievements are possible, even commonplace, yet missions to Mars have often proved challenging.

I was transported back in time a few weeks ago when I took a busman's holiday and went to the Kennedy Space Center and the NASA Then and Now Tour through Cape Canaveral. The sites where the first rockets lost control, where NASA eventually launched satellites successfully, and where the courageous Mercury and Gemini astronauts further paved the way to space, followed of course by the Apollo and Shuttle astronauts, underscored the perilous and proud achievements of the US space program. I realized I had first seen the gantries exactly 42 years ago, as an impressionable teenager awed by all things space, at a time when reaching it was a very new US vision. But I didn't recall thinking about details like how some Gemini astronauts spent two weeks strapped in their seats in a tiny capsule orbiting the Earth. I marveled at how the computer power for that achievement can now fit in an inexpensive wristwatch today. And I saw MSL sitting on Launch Complex 41 just days before it began its journey to Mars. The "wow" factor is undeniable there.

Through my adult eyes, I look back in amazement that reaching space, by machine or man, happened so quickly. The Cape visit made me appreciate all the more the technological and scientific marvels that we have achieved, and made me eager for the next great ventures. As the Austin meeting approaches while I write this, I look forward especially to celebrating 50 years of spaceflight through the eyes of astronaut/astronomer Steve Hawley (who used the robotic arm to deploy the Hubble Space Telescope), just as NASA director Charlie Bolden and astronaut John Grunsfeld (at the time of this writing, a candidate to become NASA's new Associate Administrator for the Science Mission Directorate) inspired us with tales of their HST launch and servicing missions at the AAS meeting in Washington two years ago.

My tourist view of NASA via Cape Canaveral came on the heels of a NASA Headquarters visit in November. There, AAS Committee on Astronomy and Public Policy chair Jack Burns and AAS Executive Officer Kevin Marvel and I were fortunate to have a meeting with Director Bolden, Acting Associate Administrator Charles Gay, and Assistant Associate Administrator Colleen Hartman. During our chat, Mr. Bolden

stated how he hoped NASA could continue to do the things it does well. We talked about the decadal surveys, and he underscored the value of having community priorities from the planetary science and astronomy & astrophysics and upcoming solar and space physics reports. He appreciated how crucial it is to have a suite of small and medium and large missions going on in each of the different divisions within the Science Mission Directorate in order to let different fields flourish. He also reiterated his view of the importance of doing outreach to engage youngsters in the glories of science, so that we keep inspiring the dreamers of today to become the achievers of tomorrow.

And what better role models than our new Nobel Laureates? December brought the celebration of astronomers Saul Perlmutter, Brian Schmidt, and Adam Reiss. We congratulate them and all of their team members who shared in the discovery of dark energy. Before heading to Stockholm, the laureates had a private meeting with President Obama in the Oval Office, followed by a reception at Blair House hosted by the State Department and Presidential Science Advisor John Holdren. Kevin Marvel and I, along with other astronomers and guests, were delighted to help honor them along with the other American Nobel laureates. We are proud to count them among our AAS membership. Their recognition was also timely in bringing astronomy to the public eye while important Congressional budget decisions were being made.

During the fall, I attended meetings as a member of the Astronomy and Astrophysics Advisory Committee (AAAC), which is a Congressionally mandated committee that provides advice to NSF, NASA, and DOE on interagency and decadal matters), and the National Academies' Board of Physics and Astronomy (BPA). The news we received from the funding agencies was grim in terms of accomplishing the visions of the decadal reports; the agencies are working as hard as they can to achieve the priorities within the confines of their budgets. At the end of November, there was a "minibus" on science that was voted in by the House and Senate, following their joint conference on the Appropriations subcommittee on Commerce, Justice, Science and Related Agencies, and subsequently signed into law by President Obama. It included money to keep James Webb on track for a 2018 launch, along with budgets for NASA planetary and astrophysics and heliophysics divisions and for NSF that are better than we might have expected in this terrible economy, though less than we had initially hoped. We'll continue to advocate for our diverse AAS interests as we move into the FY2013 budget process, hoping that other priorities such as the top large planetary and astrophysics missions Mars MAX-C and WFIRST can ultimately be achieved, and that the LSST (Large Synoptic Survey Telescope) can eventually make its way into the MREFC (Major Research Equipment and Facilities Construction) line.

NSF Astronomy will be dependent on the Portfolio Review to help find its way forward. The portfolio review process is important regardless of the economic situation, since it affords an opportunity to assess the needs of the community and the proper balance of grants and old and new facilities and instruments and development. In the present situation, we have to accept that there cannot be new

starts in NSF without some tough decisions, just as NASA relies on senior reviews to fold in new missions while phasing out older ones, so it's critically important for individual astronomers to weigh in on the process with their views. Remember that your comments on NSF astronomy are due by Jan. 31, as detailed on http://www.nsf.gov/mps/ast/ast_portfolio_review.jsp#link1.

As you look back on the wonderful science presented at the Austin AAS meeting that will have ended by the time you read this, be sure to take time to reflect on all the amazing accomplishments we can achieve collectively. However uncertain the budget outlook may be at times, we live in an extraordinary age of technological capability and scientific discovery. It's not something to take lightly.