

## Dr. Donald M. Hassler

**Born:** December 19, 1961 (Age 55)  
Montreal, Canada (US Citizen)

**Education:** Ph.D. Physics, University of Colorado, Boulder, 1990  
M.S. Physics, University of Colorado, Boulder, 1988  
B.A. Physics, Kenyon College, Gambier, Ohio, 1984



### Professional Background:

Program Director, Southwest Research Institute (SwRI), Space Science & Engineering Division, Boulder, CO (1997 – present)

Director, Institut d’Astrophysique Spatiale (IAS), CNRS, Orsay, France. (2014 – 2016)

*IAS is a French CNRS Space Science Laboratory with ~180 Scientists & Engineers and 4 scientific groups specializing in Solar & Stellar Physics, Planetary Science, Astrophysics/Cosmology & Astrobiology/Astrochemistry. IAS is responsible for instruments on many French, ESA, NASA & other international space missions including Solar Orbiter, SOHO, OSO-8, Rosetta, Exomars, Mars Express, Hayabusa-2, BepiColombo, JUICE and PLANCK.*

Scientist, High Altitude Observatory (HAO), National Center Atmos. Research (NCAR), Boulder, CO (1994 - 1997)

Physicist, Harvard Smithsonian Center for Astrophysics, Cambridge, MA (1992 - 1993)

NSF-NATO Postdoctoral Fellow, Institut d’Astrophysique Spatiale (IAS), Orsay, France (1991, 1994)

Scientist, Laboratory for Atmospheric and Space Physics (LASP), University of Colorado, Boulder, CO (1990)

**Biographical Sketch:** Dr. Hassler is Program Director at Southwest Research Institute in Boulder, CO and Former Director of the Institut d’Astrophysique Spatiale in Orsay, France. He is a leader in several scientific fields, ranging from Planetary Science to Solar Physics & Heliophysics, and is PI of the RAD instrument on the NASA Mars Science Laboratory currently operating on Mars. Dr. Hassler is also the selected PI of the SPICE instrument on the ESA/NASA Solar Orbiter mission, as well as PI of the NASA RAISE sounding rocket program, and is actively involved in enabling, coordinating and facilitating current & future international space science & exploration missions in the US, Europe and other countries.

### Experience and Qualifications:

- **Principal Investigator**, “Radiation Assessment Detector (RAD) Instrument on the Mars Science Laboratory (MSL)” (2004-present)
- **Principal Investigator**, “Radiation Assessment Detector (RAD) Instrument for the International Space Station (ISS)” (2010-present)
- **Principal Investigator**, “Spectral Imaging of the Coronal Environment (SPICE) Ultraviolet Imaging Spectrograph Instrument on the ESA/NASA Solar Orbiter Mission” (2009-2011)(2016-17)

- **Principal Investigator**, NASA Sounding Rocket Program “RAISE (Rapid Acquisition Imaging Spectrograph)” (2003-present)
- **Principal Investigator**, Ball Aerospace Commercial Program “Solar Electric Propulsion (SEP) Mission Study – Instrument Payload” (2012)
- **Deputy Principal Investigator**, “TGE Mars Scout Mission (Phase A)” (2006-2008)
- **Principal Investigator//Co-Investigator** of 8 NASA Sounding Rocket Flights (1987-2014)
- **Principal Investigator**, “Lunar Sortie Mission Design Study: RAD Lunar Regolith Shielding Experiment” (2007-09)
- **Principal Investigator**, “Solar Wind Instrument Package” for NOAA Mission Study (2005-06)
- **Project Scientist**, “Mauna Loa Solar Observatory (MLS0) Advanced Coronal Observing System” (1994-1997)
- **Co-Investigator** on the NASA/ESA SOHO Mission (1990-present)
- **Co-Investigator** on the NASA STEREO Mission (2003-present)
- **Co-Investigator** on the NASA Solar Dynamics Observatory Mission (2004-present)
- **North American Coordinator** for International Heliospheric Year (IHY) Program (2005-2009)

#### **Committees & Community Service:**

- NASA Mars International Collaboration Science Analysis Group (MIC-SAG) (2016-17)
- UN COPUOS Space Weather Roadmap Working Group Chair (2016)
- *Chair of Organizing Committee, Mars Space Radiation Modeling Workshop (Boulder, 40 people) (2016)*
- Board of Directors, Colorado French-American Chamber of Commerce, Denver (2014-present)
- ESA Solar Orbiter SPICE Executive Steering Committee (2012-present)
- *Chair of Organizing Committee, Solar Orbiter Workshop (Telluride, 180 people) (2012)*
- External Evaluation Committee for the Laboratoire d'Etudes Spatiales et d'Instrumentation en Astrophysique (LESIA), Meudon, France (2010)
- *Chair of Organizing Committee - AAS/SPD Meeting (Boulder, 320 people) (2009)*
- NASA Strategic Planning Advisory Committee, NASA Advanced Planning & Integration Office (APIO) (2004-2005)
- NASA Heliophysics Roadmap Committee (2001-07)
- NASA Living with a Star (LWS) MOWG Committee (2006-2008)
- NASA Lunar Exploration Analysis Group (LEAG) (2004-2005)
- NASA Heliophysics at Mars Exploration Working Group (2006-2007)
- NASA Solar Probe Science & Technology Definition Team (2003-09)
- ESA Solar Orbiter Science Definition Team (2002-03)
- NASA Solar Dynamics Observatory Science Definition Team (2000-01)

#### **Academic Service:**

- PhD Thesis Committees (2004-present)
  - Rapporteur, Diplome D'Habilitation A Diriger Des Recherches (Member of Faculty Advisory Committee) for Dr. Karine BOCCHIALINI, Universite de Paris XI, 2004.
  - Rapporteur, PhD Thesis Committee Member, Anne MILLARD, Universite de Paris XI, “IFTSUV: Un Spectrometre Imageur a Transformee de Fourier dans l'Ultraviolet Pour les Prochaines Missions Spatiale Solaire”, 2005.
  - Rapporteur, PhD Thesis Committee, Sebastien VIVES, Universite de Marseille, “Etude de coronographes solaires de nouvelle generation”, 2004.
  - Rapporteur, PhD Thesis Committee Member, Claudia RUIZ de GALARRETA, Docteur en Sciences de l'Universite Paris XI Orsay, “Conception et Realisation d'un spectro-imageur a transformee de Fourier dans l'UV lointain”, 2013.

- Graduate Student Advisor (1997-2004)
  - 2 students at the University of Colorado, Boulder, Colorado.
  - 1 student at University of Paris XI, Orsay, France.

**Awards/Medals:**

NASA Group Achievement Award (MSL Extended Mission Science & Operations Team) (2017)  
 NASA Group Achievement Award (MSL Prime Mission Science & Operations Team) (2015)  
 NASA Outstanding Public Leadership Medal (MSL) (2013)  
 NASA Achievement Award (MSL RAD Instrument Development and Science Team) (2013)  
 ESA Achievement Award (SOHO Mission) (1998)

**Leadership & Management Training:**

- CNRS “Leadership Training for Laboratory Directors” (3 weeks, 2014-15)
- Center for Creative Leadership (CCL), “Leading Strategically” Course (1 week, 2014)
- SwRI Executive Director Leadership Development Course (2 weeks, 2011-12)

**Professional Society Memberships:**

American Geophysical Union (AGU)  
 International Astronomical Union (IAU)  
 American Astronomical Society (AAS)  
 Solar Physics Division (SPD/AAS)  
 Division of Planetary Science (DPS/AAS)  
 European Geosciences Union (EGU)  
 European Astronomical Society (EAS)  
 Société Française d’Astronomie et d’Astrophysique (SF2A)

**Other Languages:**

- French (fluent)

**Extra-Curricular Activities:**

- *Volunteer Firefighter*, Boulder Mountain Fire Protection District (BMFPD) (2004-present)
- *Scuba Diver*, PADI Advanced Open Water & Nitrox Certified (1999-present)
- *Eagle Scout*, Boy Scouts of America (1979)

## Publications:

2017

**Hassler, Donald M.**, John Norbury, Guenther Reitz (2017). MSL-RAD Modeling Workshop, *LSSR*, <https://doi.org/10.1016/j.lssr.2017.06.004>.

**Hassler, Donald M.**, et al. (2017). Regolith Shielding on Mars : Observations from RAD on Curiosity at Murray Butte, *Science*, in preparation.

Ehresmann, Bent, **D.M. Hassler**, et al. (2017). MSL RAD Charged Particle Observations to compare with Modeling Workshop Results, *LSSR*, <https://doi.org/10.1016/j.lssr.2017.07.004>.

Guo, Jingnan, **Donald M. Hassler**, et al. (2017). MSL RAD Neutral Particle Observations to compare with Modeling Workshop Results, *LSSR*, <https://doi.org/10.1016/j.lssr.2017.06.001>.

Matthiä, Daniel, **Donald M. Hassler**, et al. (2017). Comparison of MSL-RAD Observations with Models..., *LSSR*, <https://doi.org/10.1016/j.lssr.2017.06.003>.

Tate, C.G., J. Moersch<sup>2,1</sup>, I. Mitrofanov<sup>3</sup>, M. Litvak<sup>3</sup>, W.V. Boynton<sup>4</sup>, D. Drake<sup>5</sup>, B. Ehresmann<sup>6</sup>, F. Fedosov<sup>3</sup>, D. Golovin<sup>3</sup>, C. Hardgrove<sup>7</sup>, K. Harshman<sup>4</sup>, **D. M. Hassler**, I. Jun<sup>8</sup>, A.S. Kozyrev<sup>3</sup>, R. Kuzmin<sup>3</sup>, D. Lisov<sup>3</sup>, A. Malakhov<sup>3</sup>, R. Milliken<sup>9</sup>, M. Mischna<sup>8</sup>, M. Mokrousov<sup>3</sup>, S. Nikiforov<sup>3</sup>, A.B. Sanin<sup>3</sup>, R. Starr<sup>10</sup>, A.Vostrukhin<sup>3</sup>, C. Zeitlin (2017). Results from the Dynamic Albedo of Neutrons (DAN) Passive Mode Experiment: Yellowknife Bay to Amargosa Valley (Sols 201 – 753), *Icarus*, **299**, 513-537, [doi.org/10.1016/j.icarus.2017.08.022](https://doi.org/10.1016/j.icarus.2017.08.022).

Witasse, O., B. Sánchez-Cano<sup>2</sup>, M. L. Mays<sup>3,4</sup>, P. Kajdič<sup>5</sup>, H. Opgenoorth<sup>6</sup>, H. A. Elliott<sup>7</sup>, I. G. Richardson<sup>4,13</sup>, I. Zouganelis<sup>8</sup>, J. Zender<sup>1</sup>, R. F. Wimmer-Schweingruber<sup>9</sup>, L. Turc<sup>1</sup>, M. G. G. T. Taylor<sup>1</sup>, E. Roussos<sup>10</sup>, A. Rouillard<sup>11</sup>, I. Richter<sup>12</sup>, J. D. Richardson<sup>14</sup>, R. Ramstad<sup>15</sup>, G. Provan<sup>2</sup>, A. Posner<sup>16</sup>, J. J. Plaut<sup>17</sup>, D. Odstreil<sup>18</sup>, H. Nilsson<sup>15</sup>, P. Nieminen<sup>1</sup>, S.E. Milan<sup>2</sup>, K. Mandt<sup>7,19</sup>, H. Lohf<sup>9</sup>, M. Lester<sup>2</sup>, J.-P. Lebreton<sup>20</sup>, E. Kuulkers<sup>1</sup>, N. Krupp<sup>10</sup>, C. Koenders<sup>12</sup>, M.K. James<sup>2</sup>, D. Intzekara<sup>8,1</sup>, M. Holmstrom<sup>15</sup>, **D. M. Hassler**<sup>21,22</sup>, B.E.S. Hall<sup>2</sup>, J. Guo<sup>9</sup>, R. Goldstein<sup>7</sup>, C. Goetz<sup>12</sup>, K.H. Glassmeier<sup>12</sup>, V. Génot<sup>11</sup>, H. Evans<sup>1</sup>, J. Espley<sup>23</sup>, N. J. T. Edberg<sup>6</sup>, M. Dougherty<sup>24</sup>, S. W. H. Cowley<sup>2</sup>, J. Burch<sup>7</sup>, E. Behar<sup>15</sup>, S. Barabash<sup>15</sup>, D. J. Andrews<sup>6</sup>, N. Altobelli (2017). Interplanetary coronal mass ejection observed at STEREO-A, Mars, comet 67P/Churyumov-Gerasimenko, Saturn, and New Horizons en-route to Pluto. Comparison of its Forbush decreases at 1.4, 3.1 and 9.9 AU, *JGR*, DOI:10.1002/2017JA023884.

Appel, J.K., J. Köhler, J. Guo, B. Ehresmann, C. Zeitlin, D. Matthiä, H. Lohf, R.F. Wimmer-Schweingruber, **D.M. Hassler**, D.E. Brinza, E. Böhm, S. Böttcher, C. Martin, S. Burmeister, G. Reitz, S. Rafkin, J. Peterson, G. Weigle (2016). Detecting upward-directed charged particle fluxes in the Mars Science Laboratory Radiation Assessment Detector, *Astronomy & Astrophysics*, **in press**.

2016

Ehresmann, B., **D.M. Hassler**, C. Zeitlin, J. Guo, J. Köhler, R. F. Wimmer-Schweingruber, J.K. Appel, D.E. Brinza, S. Rafkin, S. Böttcher, S. Burmeister, H. Lohf, C. Martin, E. Böhm, D. Matthiä, G. Reitz (2016). Charged Particle Spectra measured during the transit to Mars with the Mars Science Laboratory Radiation Assessment Detector (MSL/RAD), *Life Sciences in Space Research (LSSR)*, <http://dx.doi.org/10.1016/j.lssr.2016.07.001>.

Gordino, M., F. Auchere, J.-C. Vial, K. Bocchialini, **D.M. Hassler** (2016). Empirical Relations between Lyman Lin Intensities of H and He+, *A & A*, **in press**.

Köhler, J., R. F. Wimmer-Schweingruber, J. Appel, B. Ehresmann, C. Zeitlin, **D. M. Hassler**, G. Reitz, D. E. Brinza, S. Böttcher, E. Böhm, S. Burmeister, J. Guo, A.-M. Harri, H. Kahanpää, J. Krauss, H. Lohf, C. Martin, D. Matthiä, A. Posner, and S. Rafkin, 2016. “Electron/positron measurements obtained with the Mars Science Laboratory Radiation Assessment Detector on the surface of Mars”, *Astronomy & Astrophysics, Ann. Geophys.*, **34**, 133-141 (DOI:10.5194/angeo-34-133-2016).

Laurent, Glenn T., **Donald M. Hassler**, Craig DeForest, David D. Slater, Roger J. Thomas, Thomas Ayres, Michael Davis, Bart De Pontieu, Jed Diller, Roy Graham, Harald Michaelis, Udo Schuele and Harry Warren, 2016. The Rapid Acquisition Imaging Spectrograph Experiment (RAISE) Sounding Rocket Investigation, *Journal of Astronomical Instrumentation*, **Vol. 5**, No. 1, DOI: 10.1142/S2251171716400067.

Matthiä, Daniel, Bent Ehresmann, Henning Lohf, Jan Köhler, Cary Zeitlin, Jan Appel, Tatsuhiko Sato, Cesar Martin, Thomas Berger, Günther Reitz, **Donald M. Hassler**, Robert F. Wimmer-Schweingruber (2016). Particle spectra on the Martian surface – A comparison of models and MSL-RAD measurements, *Journal of Space Weather & Space Climate*, **6**, A13 (DOI: 10.1051/swsc/2016008).

Wimmer-Schweingruber, Robert F., **Donald M. Hassler** (2016). Tracing Heliospheric Structures to their Solar Origin, *Conf. Proc. Solar Wind 14*.

Zeitlin, C., **D. M. Hassler**, R. F. Wimmer-Schweingruber, B. Ehresmann, J. Appel, E. Böhm, S. Böttcher, D. E. Brinza, S. Burmeister, J. Guo, J. Köhler, H. Lohf, C. Martin, A. Posner, S. Rafkin, G. Reitz, M. Vincent, G. Weigle, Y. D. Tyler, Y. Iwata, H. Kitamura, T. Murakami (2016). Calibration Report of the RAD Instrument on the Mars Science Laboratory, *Space Science Reviews*, DOI: 10.1007/s11214-016-0303-y.

## 2015

Guo, J., C. Zeitlin, R. F. Wimmer-Schweingruber, **D. M. Hassler**, B. Heber, A. Posner, J. Kohler, S. Rafkin, B. Ehresmann, J. K. Appel, E. Bohm, S. Bottcher, S. Burmeister, D. E. Brinza, H. Lohf, C. Martin, G. Reitz (2015). Variations of Dose Rate Observed by MSL/RAD in Transit to Mars, *A&A*, **577**, A58. (DOI: [10.1051/0004-6361/201525680](https://doi.org/10.1051/0004-6361/201525680)).

Guo, J., C. Zeitlin, R. F. Wimmer-Schweingruber, **D. M. Hassler**, B. Heber, A. Posner, J. Kohler, S. Rafkin, B. Ehresmann, J. K. Appel, E. Bohm, S. Bottcher, S. Burmeister, D. E. Brinza, H. Lohf, C. Martin, G. Reitz (2015). Modeling the variations of Dose Rate measured by RAD during the first MSL Martian year : 2012-2014, *ApJ*, **810**, 24, DOI: [10.1088/0004-637X/810/1/24](https://doi.org/10.1088/0004-637X/810/1/24).

Guo, J., C. Zeitlin, R. F. Wimmer-Schweingruber, **D. M. Hassler**, B. Heber, A. Posner, J. Kohler, S. Rafkin, B. Ehresmann, J. K. Appel, E. Bohm, S. Bottcher, S. Burmeister, D. E. Brinza, H. Lohf, C. Martin, G. Reitz (2015). MSL-RAD Radiation Environment Measurements, *Radiation Protection Dosimetry*, **166 (1-4)**, 290-294.

Köhler, J., C. Zeitlin, B. Ehresmann, R.F. Wimmer-Schweingruber, **D.M. Hassler**, G. Reitz, D.E. Brinza, G. Weigle, J. Appel, S. Bottcher, E. Bohm, S. Burmeister, J. Guo, C. Martin, A. Posner, S. Rafkin, and O. Kortmann, 2015. “Measurements of the Neutron Spectrum in transit to Mars on the Mars Science Laboratory”, *Life Sciences in Space Research*, **5**, 6-12, <http://doi.org/10.1016/j.lssr.2015.03.001>.

Tate, C. G., J. Moersch, I. Jun, D.W. Ming, I. Mitrofanov, M. Litvak, A. Behar, W.V. Boynton, L. Deflores, D. Drake, B. Ehresmann, F. Fedosov, D. Golovin, C. Hardgrove, K. Harshman, **D.M. Hassler**, A.S. Kozyrev, R. Kuzmin, D. Lisov, A. Malakhov, R. Milliken, M. Mischna, M. Mokrousov, S. Nikiforov, A.B. Sanin, R. Starr, A. Varenikov, A. Vostrukhin, C. Zeitlin, 2015. Water Equivalent Hydrogen Estimates from the First 200 Sols of *Curiosity's* Traverse (Bradbury Landing to Yellowknife Bay): Results from the Dynamic Albedo of Neutrons (DAN) Passive Mode Experiment, *Icarus*, **262**, 102-123. (DOI: 10.1016/j.icarus.2015.09.002).

Wimmer-Schweingruber, R.F., **Donald M. Hassler**, J. Kohler, J. Guo, J. Appel, C. Zeitlin, B. Ehresmann, E. Bohm, S. I. Bottcher, D. E. Brinza, S. Burmeister, H. Lohf, C. Martin, A. Posner, A. Kharytonov, G. Reitz, S. Rafkin, and F. Cucinotta (2015). Solar Particle Events Measured by MSL/RAD en Route to Mars, *JGR*, **in preparation**.

Wimmer-Schweingruber, R.F., J. Kohler, **Donald M. Hassler**, J. Guo, J. Appel, C. Zeitlin, E. Bohm, B. Ehresmann, H. Lohf, S. I. Bottcher, S. Burmeister, C. Martin, A. Kharytonov, D. E. Brinza, A. Posner, G. Reitz, D. Matthia, S. Rafkin, G. Weigle, and F. Cucinotta (2015). Zenith-Angle Dependence of the Martian Radiation Environment at Gale Crater Altitudes, *Geophys. Res. Lett.*, **42**, 10,557–10,564 (DOI:10.1002/2015GL066664).

## 2014

**Hassler, D.M.**, C. Zeitlin, R. F. Wimmer-Schweingruber, B. Ehresmann, S. Rafkin, J. L. Eigenbrode, D. E. Brinza, G. Weigle, S. Böttcher, E. Böhm, S. Burmeister, J. Guo, J. Köhler, C. Martin, G. Reitz, F. A. Cucinotta, M.-H. Kim, D. Grinspoon, M. A. Bullock, A. Posner, J. Gómez-Elvira, A. Vasavada, and J. P. Grotzinger, and the MSL Science Team (2014). Mars' Surface Radiation Environment Measured with the Mars Science Laboratory's Curiosity Rover, *Science*, **343**, 6169, DOI: 10.1126/science.1244797.

**Hassler, D. M.**, W. B. Deininger, N. Nickles, B. Unruh (2014). Space Environment Monitoring Suite (SEMS) for Near-Earth Environment Characterization During SEP Ops, *IEEE*, p. 1, DOI: [10.1109/AERO.2014.6836466](https://doi.org/10.1109/AERO.2014.6836466).

Ehresmann, Bent, Cary Zeitlin, **Donald M. Hassler**, Robert F. Wimmer-Schweingruber, Eckart Boehm, Stephan Boettcher, David E. Brinza, Soenke Burmeister, Jingnan, Guo, Jan Kohler, Cesar Martin, Arik Posner, Scot Rafkin, and Guenther Reitz (2014). Charged particle spectra obtained with the Mars Science Laboratory Radiation Assessment Detector (MSL/RAD) on the surface of Mars, *J. Geophys. Res. Planets*, **119**, <http://dx.doi.org/10.1002/2013JE004547>.

Kim, Myung-Hee Y., Francis A. Cucinotta, Hatem N. Nounu, Cary Zeitlin, **Donald M. Hassler**, Scot C. R. Rafkin, Robert F. Wimmer-Schweingruber, Bent Ehresmann, David E. Brinza, Stephan Böttcher, Eckart Böhm, Soenke Burmeister, Jingnan Guo, Jan Köhler, Cesar Martin, Guenther Reitz, Arik Posner, Javier Gómez-Elvira, Ari-Matti Harri, and the MSL Science Team (2014). Comparison of Martian surface ionizing radiation measurements from MSL-RAD with Badhwar-O'Neill 2011/HZETRN model calculations, *J. Geophys. Res. Planets*, **119**, <http://dx.doi.org/10.1002/2013JE004549>.

Köhler, J., C. Zeitlin, B. Ehresmann, R.F. Wimmer-Schweingruber, **D.M. Hassler**, G. Reitz, D.E. Brinza, G. Weigle, J. Appel, S. Bottcher, E. Bohm, S. Burmeister, J. Guo, C. Martin, A. Posner, S. Rafkin, and O. Kortmann (2014). Measurements of the neutron spectrum on the Martian surface with MSL/RAD, *J. Geophys. Res. Planets*, **119**, 594–603, <http://dx.doi.org/10.1002/2013JE004539>.

Rafkin, Scot C.R., Bent Ehresmann, Bent, Cary Zeitlin, **Don Hassler**, Jingnan, Guo, Jan Kohler, Robert F. Wimmer-Schweingruber, Javier Gómez-Elvira, Ari-Matti Harri, Henrik Kahanpää, David E. Brinza, Gerald Weigle, Stephan Böttcher, Eckart Böhm, Sönke Burmeister, Cesar Martin, Güenther Reitz, Francis A. Cucinotta, Myung-Hee Kim, David Grinspoon, Mark A. Bullock, Arik Posner, and the MSL Science Team (2014). Diurnal variations of energetic particle radiation at the surface of Mars as observed by the Mars Science Laboratory Radiation Assessment Detector, *J. Geophys. Res. Planets*, **119**, 1345–1358, <http://dx.doi.org/10.1002/2013JE004525>.

## 2013

**Hassler, Donald M.** (2013). Measuring the Radiation Environment on Mars, *Technology Today*, Winter 2013, p. 6-9.

Zeitlin, C., **D. M. Hassler**, B. Ehresmann, R. F. Wimmer-Schweingruber, D. E. Brinza, S. Kang, G. Weigle, S. Böttcher, E. Böhm, S. Burmeister, J. Guo, J. Köhler, C. Martin, A. Posner, S. Rafkin, G. Reitz, and F. A. Cucinotta (2013). Measurements of Energetic Particle Radiation in Transit to Mars on the Mars Science Laboratory. *Science*, **340**, No. 6136, pp. 1080-1084. (DOI: 10.1126/science.1235989).

Farley, K.A., C. Malespin, P. Mahaffy, J. Grotzinger, P. Vasconcelos, R. Milliken, M. Malin, K. Edgett, A. Pavlov, J. Hurowitz, J. Grant, H. Miller, R. Arvidson, L. Beegle, F. Calef, P. Conrad, W. Dietrich, J. Eigenbrode, R. Gellert, S. Gupta, V. Hamilton, **D. M. Hassler**, K. Lewis, S. McLennan, D. Ming, R. Navarro, S. Schwenzer, A. Steele, E. Stolper, D. Sumner, D. Vaniman, A. Vasavada, K. Williford, R. Wimmer and the MSL Science Team (2013). In-situ Radiometric and Exposure Age Dating of the Martian Surface, *Science*, DOI: 10.1126/science.1247166.

Posner, A., D. Odstrčil, P. MacNeice, L. Rastaetter, C. Zeitlin, B. Heber, H. Elliott, R. A. Frahm, J. J. E. Hayes, T. T. von Roseninge, E. R. Christian, J. P. Andrews, R. Beaujean, S. Böttcher, D. E. Brinza, M. A. Bullock, S. Burmeister, F. A. Cucinotta, B. Ehresmann, M. Epperly, D. Grinspoon, J. Guo, **D. M. Hassler**, M.-H. Kim, J. Köhler, O. Kortmann, C. Martin Garcia, R. Müller-Mellin, K. Neal, S. C. R. Rafkin, G. Reitz, L. Seimetz, K. D. Smith, Y. Tyler, E. Weigle, and R. F. Wimmer-Schweingruber (2013). The Hohmann-Parker Effect Measured by the Mars Science Laboratory on the Transfer from Earth to Mars: Consequences and Opportunities, *Planetary & Space Science*, <http://DOI 10.1016/j.pss.2013.09.013>.

Ehresmann, B., **D.M. Hassler**, R.F. Wimmer-Schweingruber, C. Zeitlin, S. Boettcher, S. Burmeister, J. Koehler, C. Martin, D.E. Brinza, S. Rafkin, G. Reitz (2013). Analyzing the Present-Day Martian Radiation Environment with MSL/RAD - Implications for Differences in the Early-Mars Period. *44th Lunar and Planetary Science Conference, March 18-22, 2013, The Woodlands, Texas*, LPI No. 1719, p.2324.

Wimmer-Schweingruber, R. F.; **D.M. Hassler**, S. I. Böttcher, C. Martin, C. Zeitlin, D.E. Brinza, A. Posner, G. Reitz, S. Burmeister, J. Köhler, B. Ehresmann, J. Guo, J.K. Appel, R. Muller-Mellin, E. Boehm, and A. Kharytonov (2013). Onset Times of Solar Particle Events Observed by MSL/RAD — Constraints on Particle Transport. *44th Lunar and Planetary Science Conference, March 18-22, 2013, The Woodlands, Texas*, LPI No. 1719, p.1450.

Grotzinger, J. P.; Blake, D. F.; Crisp, J.; Edgett, K. S.; Gellert, R.; Gómez-Elvira, J.; **Hassler, D.M.**; Mahaffy, P.; Malin, M. C.; Mitrofanov, I. G., M. Meyer, A.R. Vasavada, and R.C. Wiens (2013). Mars Science Laboratory: First 100 Sols of Geologic and Geochemical Exploration

from Bradbury Landing to Glenelg. *44th Lunar and Planetary Science Conference, March 18-22, 2013, The Woodlands, Texas*, LPI No. 1719, p.1259.

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