

Accomplishments – 2021 – Patricia H. Reiff, Rice University

Major accomplishments:

1. Continued work on pathbreaking MMS mission. Graduate students James Webster and Andrew Marshall published several papers.
2. Outreach program still mostly virtual but still reached many in person and in virtual lectures and events. Several teacher workshops. Three teachers received MST degrees May 2021 under Reiff direction.
3. “Reach for the Stars” Festival for 2021 held April 17 with 185 middle school girl participants, 28 presenters and volunteers, and 50 adults. Additional outreach events for Hispanic students in June in South Texas and in October for Houstonians at the Lone Star Flight Museum.
4. Several keynote and invited talks; helped organize student questions from space “Let’s Talk Space” <https://www.youtube.com/watch?v=HdrNqSBK6FA> and <https://www.youtube.com/watch?v=6AhAy6XprC4>
5. Space Weather article on front page of Houston Chronicle March 23.

Invited Talks

1. “Space@Rice: a personal history of space research at Rice University”, Houston Spaceport lecture, Rice U, 9/17/21, https://youtu.be/oL_r5uhbNP0
2. Panelist, special showing of “Full Spectrum”, 3/26/21, <https://youtu.be/8ZdMDq4TMo>

Media Appearances/Articles:

1. Article on Space Weather (page 1 of Houston Chronicle, March 23): <https://www.houstonchronicle.com/news/houston-texas/space/article/Gigantic-space-hurricane-with-4-000-mph-winds-16035618.php>
2. 4/13/21: Helped organize student questions from space “Let’s Talk Space” <https://www.youtube.com/watch?v=HdrNqSBK6FA> and <https://www.youtube.com/watch?v=6AhAy6XprC4>

Keynote Speaker

- “Texas Nexus – Observing the Eclipses”, All Clubs Annual meeting, October 15, 2021

Lectures/Conferences

1. MMS workshop presentation, October 18, 2021
2. 2 papers, fall AGU 2021 meeting (virtual)

Publications

Chappell, R., J. L. Burch, P. H. Reiff and Jackie Reasoner, “Brian J. O’Brien: From the Earth to the Moon”, in *The Impact of Lunar Dust on Human Exploration*, Ed. J. S. Levine, Cambridge U Press, ISBN 1-5275-6308-1, (2021).

Farrugia, C. J., A. Rogers, R. B. Torbert, K. J. Genestreti, T. Nakamura, B. Lavraud, P. Montag, J. Egedal, D. Payne, A. M. Keesee, N. Ahmadi, R. E. Ergun, P. H. Reiff, M. R. Argall, H. Matsui, L. B. Wilson, N. Lugaz, J. L. Burch, C. T. Russell, S. A. Fuselier, and I. Dors, “An Encounter with the Ion and Electron Diffusion Regions at a Flapping and Twisted Tail Current Sheet”, (in review), *J. Geophys. Res.*, doi: [10.1029/2020JA028903](https://doi.org/10.1029/2020JA028903) (2021).

Reiff, P. H. and Summers, C. T., “Texas Nexus Eclipse 2023-2024, Fall 2022 AGU e-Poster, <https://agu2021fallmeeting-agu.ipostersessions.com/Default.aspx?s=A9-9A-0C-0B-96-48-F4-57-80-A6-FF-7D-73-75-1B-75>, DOI: doi.org/10.1002/essoar.10510157.1

Marshall, A.T., J. L. Burch, P. H. Reiff, J. M. Webster, R. E. Denton, L. Rastaetter, R. B. Torbert, R. E. Ergun, C. T. Russell, D. J. Gershman, “Lower Hybrid Drift Wave Motion at a Dayside Magnetopause X-Line with Diffusion Dominated by a Parallel Electric Field”, *Physics of Plasmas*, Special Issue, (in press, 2021).

Outreach Events

2021	Event	Location (web link if possible)	Students	Public	Teachers or formal / informal educators
Jan-April	ASTR 530 “Teaching Astronomy Lab” Course	Rice University	0	0	7
3/21/21	Equinox Event at HMNS	HMNS/Rice	80	40	10
3/26/21	“Full Spectrum” screening and panel discussion (online)	Sponsored by UC Berkeley https://multiverse.ssl.berkeley.edu/FullSpectrum https://youtu.be/_8ZdMDq4TMo (panel) https://youtu.be/ruwAtBAoDyw (movie)	50	150	0
4/8/21	“Let’s Talk Space” – students questions to ISS astronauts	https://www.youtube.com/watch?v=HdRNqSBK6FA https://www.youtube.com/watch?v=6AhAy6XprC4	30	1030	12
4/17/21	“Reach for the Stars” event for middle school girls	Rice University	185	64	
5/30/21	Total Lunar Eclipse LIVE	Live event at HMNS and online	4	75	6
6/21/21	Solstice at the Sundial* <i>*Note includes 27 in person</i>	Live event at HMNS and online	0	32	0
6/30-7/1/21	STEM Academy, Santa Rosa Texas	Planetarium show on eclipses and safe observing (dome and in person)	300		28
8/11/21	“Perseids Live”	Webcast from Waller County		38	
8/11/21	“Eclipse Animation	Presentation to IPS virtual			48

	Training	Conference			
9/15/21	"Space Outreach at Rice"	Presentation to K-12 Council, Rice U			34
9/17/21	"Space@Rice: a personal history of space research at Rice University"	Houston Spaceport lecture, Rice U https://youtu.be/oL_r5uhbNPO	18	80	6
9/23/21	Teaching Eclipses (LIPS meeting)	Planetarian training on eclipse animations			48
10/2/21	GOE STEM FEST	Lone Star Flight Museum, http://goestemfest.org	185	45	6
10/15/21	"Space Weather and Eclipses"	All Clubs Meeting (Amateur astronomers)	3	65	20
10/16/21	"Observe the Moon Night"	Rice Campus Observatory	25	70	6
11/1/21	"Space Weather"	Zoom talk to freshman class, St. Edwards University	35	0	1
11/11/21	"Texas Nexus – Observing The 2023/2024 Eclipses Safely"	Presentation to CAST teacher workshop, Fort Worth, TX			364
12/1 and 12/3/21	"Sun and Space Weather" "Eclipses for Novices"	Talk on eclipse expedition, "La Boreal"		194	0
12/13/21	"Texas Nexus Eclipse 2023-2024"	AGU e-Poster https://agu2021fallmeeting- agu.ipostersessions.com/Default.aspx?s=A9-9A-0C-0B-96-48-F4-57-80-A6-FF-7D-73-75-1B-75	8		25
8/20-12/15/21	ASTR 502 "Teaching Earth and Space Science"	Rice University			12
	TOTALS		923	1883	633

Total reached in person in public talks, online and outreach events: **3,439**
(not including media appearances)