References

Akhtemov, Z. S., & Tsap, Y. T. (2019). On the dependence of the solar wind velocity on the fractional area of coronal holes in latitude. *Astronomical and Astrophysical Transactions*, *31* (2), 193–198.

Allen, R. C., Lario, D., Odstrcil, D., Ho, G. C., Jian, L. K., Cohen, C. M. S., Badman, S. T., Jones, S. I., Arge, C. N., Mays, M. L., Mason, G. M., Bale, S. D., Bonnell, J. W., Case, A. W., Christian, E. R., de Wit, T. D., Goetz, K., Harvey, P. R., Henney, C. J., Hill, M. E., Kasper, J. C., Korreck, K. E., Larson, D., Livi, R., MacDowall, R. J., Malaspina, D. M., McComas, D. J., McNutt, R., Mitchell, D. G., Pulupa, M., Raouafi, N., Schwadron, N., Stevens, M. L., Whittlesey, P. L., & Wiedenbeck, M. (2020). Solar Wind Streams and Stream Interaction Regions Observed by the Parker Solar Probe with Corresponding Observations at 1 au. , *246* (2), 36. doi:10.3847/1538-4365/ab578f.

Altschuler, M. D., & Newkirk, G. (1969). Magnetic Fields and the Structure of the Solar Corona. I: Methods of Calculating Coronal Fields. , *9* (1), 131–149. doi:10.1007/BF00145734.

Alves, M. V., Echer, E., & Gonzalez, W. D. (2006). Geoe ectiveness of corotating interaction regions as measured by Dst index. *Journal of Geophysical Research (Space Physics)*, *111* (A7), A07S05. doi:10.1029/2005JA011379.

Antiochos, S. K., Miki´c, Z., Titov, V. S., Lionello, R., & Linker, J. A. (2011). A Model for the Sources of the Slow Solar Wind. , *731* (2), 112. doi:10.1088/0004-637X/731/2/112. arXiv:1102.3704.

Arge, C. N., Luhmann, J. G., Odstrcil, D., Schrijver, C. J., & Li, Y. (2004). Stream structure and coronal sources of the solar wind during the May 12th, 1997 CME. *Journal of Atmospheric and Solar-Terrestrial Physics*, *66* (15-16), 1295–1309. doi:10.1016/j.jastp.2004.03.018. Arge, C. N., & Pizzo, V. J. (2000). Improvement in the prediction of solar wind conditions using near-real time solar magnetic field updates. , *105* (A5), 10465–10480. doi:10.1029/1999JA000262.

Asvestari, E., Heinemann, S. G., Temmer, M., Pomoell, J., Kilpua, E., Magdalenic, J., & Poedts, S. (2019). Reconstructing Coronal Hole Areas With EUHFORIA and Adapted WSA Model: Optimizing the Model Parameters. *Journal of Geophysical Research (Space Physics)*, *124* (11), 8280–8297. doi:10.1029/2019JA027173. arXiv:1907.03337.

Bale, S. D., Badman, S. T., Bonnell, J. W., Bowen, T. A., Burgess, D., Case, A. W., Cattell, C. A., Chandran, B. D. G., Chaston, C. C., Chen, C. H. K., Drake, J. F., de Wit, T. D., Eastwood, J. P., Ergun, R. E., Farrell, W. M., Fong, C., Goetz, K., Goldstein, M., Goodrich, K. A., Harvey, P. R., Horbury, T. S., Howes, G. G., Kasper, J. C., Kellogg, P. J., Klimchuk, J. A., Korreck, K. E., Krasnoselskikh, V. V., Krucker, S., Laker, R., Larson, D. E., MacDowall, R. J., Maksimovic, M., Malaspina, D. M., Martinez-Oliveros, J., McComas, D. J., Meyer-Vernet, N., Moncuquet, M., Mozer, F. S., Phan, T. D., Pulupa, M., Raouafi, N. E., Salem, C., Stansby, D., Stevens, M., Szabo, A., Velli, M., Woolley, T., & Wygant, J. R. (2019). Highly structured slow solar wind emerging from an equatorial coronal hole. , *576* (7786), 237–242. doi:10.1038/s41586-019-1818-7.

Bauer, M., Amerstorfer, T., Hinterreiter, J., Weiss, A. J., Davies, J. A., M¨ostl, C., Amerstorfer, U. V., Reiss, M. A., & Harrison, R. A. (2021). Predicting CMEs Using ELEvoHI With STEREO-HI Beacon Data. *Space Weather* , *19* (12), e02873. doi:10.1029/2021SW002873. arXiv:2108.08072.

Bemporad, A. (2017). Exploring the Inner Acceleration Region of Solar Wind: A Study Based on Coronagraphic UV and Visible Light Data. , *846* (1), 86. doi:10.3847/1538-4357/aa7de4.

Bemporad, A. (2021). Possible advantages of a twin spacecraft heliospheric mission at the sun-earth lagrangian points l4 and l5. *Frontiers in Astronomy and Space Sciences*, *8* . doi:10.3389/fspas.2021.627576.

Bisi, M. M., Fallows, R. A., Breen, A. R., & O'Neill, I. J. (2010). Interplanetary Scintillation Observations of Stream Interaction Regions in the Solar Wind. , *261* (1), 149–172. doi:10.1007/s11207-009-9471-1.

Bloch, T., Watt, C., Owens, M., McInnes, L., & Macneil, A. R. (2020). Data-Driven Classification of Coronal Hole and Streamer Belt Solar Wind. , *295* (3), 41. doi:10.1007/s11207-020-01609-z.

Breen, A. R., Moran, P. J., Varley, C. A., Wilkinson, W. P., Williams, P. J. S., Coles, W. A., Lecinski, A., & Markkanen, J. (1998). Interplanetary scintillation observations of interaction regions in the solar wind. *Annales Geophysicae*, *16* (10), 1265–1282. doi:10.1007/ s00585-998-1265-5.

Broiles, T. W., Desai, M. I., & McComas, D. J. (2012). Formation, shape, and evolution of magnetic structures in CIRs at 1 AU. *Journal of Geophysical Research (Space Physics)*, *117* (A3), A03102. doi:10.1029/2011JA017288.

Bruno, R., & Carbone, V. (2013). The Solar Wind as a Turbulence Laboratory. *Living Reviews in Solar Physics*, *10* (1), 2. doi:10.12942/ lrsp-2013-2.

Bu, X., Luo, B., Shen, C., Liu, S., Gong, J., Cao, Y., & Wang, H. (2019). Forecasting High-Speed Solar Wind Streams Based on Solar Extreme Ultraviolet Images. *Space Weather* , *17* (7), 1040–1058. doi:10.1029/2019SW002186.

Burlaga, L., Sittler, E., Mariani, F., & Schwenn, R. (1981). Magnetic loop behind an interplanetary shock: Voyager, Helios, and IMP 8 observations. , *86* (A8), 6673–6684. doi:10.1029/JA086iA08p06673.

Burlaga, L. F., Ness, N. F., Mariani, F., Bavassano, B., Villante, U., Rosenbauer, H., Schwenn, R., & Harvey, J. (1978). Magnetic fields and flows between 1 and 0.3 AU during the primary mission of Helios 1. , *83* (A11), 5167–5174. doi:10.1029/JA083iA11p05167.

Camporeale, E. (2019). The Challenge of Machine Learning in Space Weather: Nowcasting and Forecasting. *Space Weather* , *17* (8), 1166–1207. doi:10.1029/2018SW002061. arXiv:1903.05192.

Camporeale, E., Car`e, A., & Borovsky, J. E. (2017). Classification of solar wind with machine learning. *Journal of Geophysical Research: Space Physics*, *122* (11), 10,910–10,920. doi:https://doi.org/10.1002/2017JA024383.

Cane, H. V., Kahler, S. W., & Sheeley, J., N. R. (1986). Interplanetary shocks preceded by solar filament eruptions. , *91* (A12), 13321–13330. doi:10.1029/JA091iA12p13321.

Cane, H. V., & Richardson, I. G. (2003). Interplanetary coronal mass ejections in the near-Earth solar wind during 1996-2002. *Journal of Geophysical Research (Space Physics)*, *108* (A4), 1156. doi:10.1029/2002JA009817.

Caplan, R. M., Downs, C., Linker, J. A., & Mikic, Z. (2021). Variations in Finite-di erence Potential Fields. , *915* (1), 44. doi:10.3847/ 1538-4357/abfd2f. arXiv:2102.05618.

Cohen, C. M. S., Christian, E. R., Cummings, A. C., Davis, A. J., Desai, M. I., Giacalone, J., Hill, M. E., Joyce, C. J., Labrador, A. W., Leske, R. A., Matthaeus, W. H., McComas, D. J., McNutt, J., R. L., Mewaldt, R. A., Mitchell, D. G., Rankin, J. S., Roelof, E. C., Schwadron, N. A., Stone, E. C., Szalay, J. R., Wiedenbeck, M. E., Allen, R. C., Ho, G. C., Jian, L. K., Lario, D., Odstrcil, D., Bale, S. D., Badman, S. T., Pulupa, M., MacDowall, R. J., Kasper, J. C., Case, A. W., Korreck, K. E., Larson, D. E., Livi, R., Stevens, M. L., & Whittlesey, P. (2020). Energetic Particle Increases Associated with Stream Interaction Regions. , *246* (2), 20. doi:10.3847/1538-4365/ab4c38. arXiv:1912.08244. Cohen, O., Sokolov, I. V., Roussev, I. I., & Gombosi, T. I. (2008). Validation of a synoptic solar wind model. *Journal of Geophysical Research: Space Physics*, *113* (A3). doi:https://doi.org/10.1029/2007JA012797.

Conlon, T. M., Milan, S. E., Davies, J. A., & Williams, A. O. (2015). Corotating Interaction Regions as Seen by the STEREO Heliospheric Imagers 2007 - 2010. , *290* (8), 2291–2309. doi:10.1007/s11207-015-0759-z.

Cranmer, S. R. (2002). Coronal Holes and the High-Speed Solar Wind. , *101* (3), 229–294. doi:10.1023/A:1020840004535. Cranmer, S. R. (2009). Coronal Holes. *Living Reviews in Solar Physics*, *6* (1), 3. doi:10.12942/lrsp-2009-3. arXiv:0909.2847.

Cranmer, S. R., Gibson, S. E., & Riley, P. (2017). Origins of the Ambient Solar Wind: Implications for Space Weather. , *212* (3-4), 1345–1384. doi:10.1007/s11214-017-0416-y. arXiv:1708.07169.

Cranmer, S. R., & van Ballegooijen, A. A. (2005). On the Generation, Propagation, and Reflection of Alfv´en Waves from the Solar Photosphere to the Distant Heliosphere. , *156* (2), 265–293. doi:10.1086/426507. arXiv:astro-ph/0410639.

Cranmer, S. R., & Winebarger, A. R. (2019). The Properties of the Solar Corona and Its Connection to the Solar Wind. , *57* , 157–187. doi:10.1146/annurev-astro-091918-104416. arXiv:1811.00461.

Crooker, N. U., & McPherron, R. L. (2012). Coincidence of composition and speed boundaries of the slow solar wind. *Journal of Geophysical Research (Space Physics)*, *117* (A9), A09104. doi:10.1029/2012JA017837.

Dasso, S., Mandrini, C. H., D´emoulin, P., & Luoni, M. L. (2006). A new model-independent method to compute magnetic helicity in magnetic clouds. , *455* (1), 349–359. doi:10.1051/0004-6361:20064806.

Davies, E. E., Forsyth, R. J., Winslow, R. M., M¨ostl, C., & Lugaz, N. (2021). A Catalog of Interplanetary Coronal Mass Ejections Observed by Juno between 1 and 5.4 au. , *923* (2), 136. doi:10.3847/1538-4357/ac2ccb. arXiv:2111.11336.

DeForest, C. E., Howard, R. A., Velli, M., Viall, N., & Vourlidas, A. (2018). The highly structured outer solar corona. *The Astrophysical Journal* , *862* (1), 18. URL: https://doi.org/10.3847/1538-4357/aac8e3. doi:10.3847/1538-4357/aac8e3.

Desai, M. I., Mitchell, D. G., Szalay, J. R., Roelof, E. C., Giacalone, J., Hill, M. E., McComas, D. J., Christian, E. R., Schwadron, N. A., McNutt, J., R. L., Wiedenbeck, M. E., Joyce, C., Cohen, C. M. S., Ebert, R. W., Dayeh, M. A., Allen, R. C., Davis, A. J., Krimigis, S. M., Leske, R. A., Matthaeus, W. H., Malandraki, O., Mewaldt, R. A., Labrador, A., Stone, E. C., Bale, S. D., Pulupa, M., MacDowall, R. J., & Kasper, J. C. (2020). Properties of Suprathermal-through-energetic He Ions Associated with Stream Interaction Regions Observed over the Parker Solar Probe's First Two Orbits. , *246* (2), 56. doi:10.3847/1538-4365/ab65ef.

Dudok de Wit, T., Krasnoselskikh, V. V., Bale, S. D., Bonnell, J. W., Bowen, T. A., Chen, C. H. K., Froment, C., Goetz, K., Harvey, P. R., Jagarlamudi, V. K., Larosa, A., MacDowall, R. J., Malaspina, D. M., Matthaeus, W. H., Pulupa, M., Velli, M., & Whittlesey, P. L. (2020). Switchbacks in the Near-Sun Magnetic Field: Long Memory and Impact on the Turbulence Cascade. , *246* (2), 39. doi:10.3847/1538-4365/ab5853. arXiv:1912.02856.

Dumbovi´c, M., Cˇalogovi´c, J., Vrˇsnak, B., Temmer, M., Mays, M. L., Veronig, A., & Piantschitsch, I. (2018). The Drag-based Ensemble Model (DBEM) for Coronal Mass Ejection Propagation. , *854* (2), 180. doi:10.3847/1538-4357/aaaa66. arXiv:1801.07473.

Ebert, R. W., McComas, D. J., Elliott, H. A., Forsyth, R. J., & Gosling, J. T. (2009). Bulk properties of the slow and fast solar wind and interplanetary coronal mass ejections measured by Ulysses: Three polar orbits of observations. *Journal of Geophysical Research (Space Physics)*, *114* (A1), A01109. doi:10.1029/2008JA013631.

Eyles, C. J., Harrison, R. A., Davis, C. J., Waltham, N. R., Shaughnessy, B. M., Mapson-Menard, H. C. A., Bewsher, D., Crothers, S. R., Davies, J. A., Simnett, G. M., Howard, R. A., Moses, J. D., Newmark, J. S., Socker, D. G., Halain, J. P., Defise, J. M., Mazy, E., & Rochus, P. (2009). The Heliospheric Imagers Onboard the STEREO Mission. , *254* (2), 387–445. doi:10.1007/s11207-008-9299-0.

Eyni, M., & Steinitz, R. (1980). An empirical relation between density, flow velocity and heliocentric distance in the solar wind. In M. Dryer, & E. Tandberg-Hanssen (Eds.), *Solar and Interplanetary Dynamics* (pp. 147–149). volume 91.

Fisk, L. A., & Kasper, J. C. (2020). Global Circulation of the Open Magnetic Flux of the Sun. , *894* (1), L4. doi:10.3847/2041-8213/ab8acd. Fisk, L. A., Schwadron, N. A., & Zurbuchen, T. H. (1998). On the Slow Solar Wind. , *86* , 51–60. doi:10.1023/A:1005015527146.

Fox, N. J., Velli, M. C., Bale, S. D., Decker, R., Driesman, A., Howard, R. A., Kasper, J. C., Kinnison, J., Kusterer, M., Lario, D., Lockwood, M. K., McComas, D. J., Raouafi, N. E., & Szabo, A. (2016). The Solar Probe Plus Mission: Humanity's First Visit to Our Star. , *204* (1-4), 7–48. doi:10.1007/s11214-015-0211-6.

Fujiki, K., Tokumaru, M., Iju, T., Hakamada, K., & Kojima, M. (2015). Relationship Between Solar-Wind Speed and Coronal Magnetic-Field Properties. , *290* (9), 2491–2505. doi:10.1007/s11207-015-0742-8. arXiv:1507.03301.

Garton, T. M., Murray, S. A., & Gallagher, P. T. (2018). Expansion of High-speed Solar Wind Streams from Coronal Holes through the Inner Heliosphere. , *869* (1), L12. doi:10.3847/2041-8213/aaf39a. arXiv:1811.11605.

Geranios, A. (1982). Long-period observations of the solar wind plasma between 0.3 and 1.0 AU — Solar activity. , *81* (1-2), 333–343. doi:10.1007/BF00676158.

Geyer, P., Temmer, M., Guo, J., & Heinemann, S. G. (2021). Properties of stream interaction regions at Earth and Mars during the declining phase of SC 24. , *649* , A80. doi:10.1051/0004-6361/202040162. arXiv:2102.05948.

Gonzi, S., Weinzierl, M., Bocquet, F., Bisi, M. M., Odstrcil, D., Jackson, B. V., Yeates, A. R., Jackson, D. R., Henney, C. J., & Nikolos Arge, C. (2020). Impact of Inner Heliospheric Boundary Conditions on Solar Wind Predictions at Earth. *Space Weather* , (pp. 1–40). URL: https://onlinelibrary.wiley.com/doi/abs/10.1029/2020SW002499. doi:10.1029/2020SW002499.

Gopalswamy, N. (2006). Properties of Interplanetary Coronal Mass Ejections. , *124* (1-4), 145–168. doi:10.1007/s11214-006-9102-1.

Gopalswamy, N., Lara, A., Lepping, R. P., Kaiser, M. L., Berdichevsky, D., & St. Cyr, O. C. (2000). Interplanetary acceleration of coronal mass ejections. , *27* (2), 145–148. doi:10.1029/1999GL003639.

Gopalswamy, N., Ma¨kel¨a, P., Xie, H., Akiyama, S., & Yashiro, S. (2009). CME interactions with coronal holes and their interplanetary consequences. *Journal of Geophysical Research (Space Physics)*, *114* (A3), A00A22. doi:10.1029/2008JA013686.

Gopalswamy, N., Xie, H., Akiyama, S., M¨akel¨a, P., Yashiro, S., & Michalek, G. (2015). The Peculiar Behavior of Halo Coronal Mass Ejections in Solar Cycle 24. , *804* (1), L23. doi:10.1088/2041-8205/804/1/L23. arXiv:1504.01797.

Gopalswamy, N., Yashiro, S., Kaiser, M. L., Howard, R. A., & Bougeret, J.-L. (2001). Radio signatures of coronal mass ejection interaction: Coronal mass ejection cannibalism? *The Astrophysical Journal* , *548* (1), L91–L94. URL: https://doi.org/10.1086/318939. doi:10.1086/ 318939.

Gosling, J. T. (1996). Corotating and Transient Solar Wind Flows in Three Dimensions. , *34* , 35–74. doi:10.1146/annurev.astro.34.1.35.

Gosling, J. T., Baker, D. N., Bame, S. J., Feldman, W. C., Zwickl, R. D., & Smith, E. J. (1987). Bidirectional solar wind electron heat flux events. , *92* (A8), 8519–8535. doi:10.1029/JA092iA08p08519.

Gosling, J. T., & Pizzo, V. J. (1999). Formation and Evolution of Corotating Interaction Regions and their Three Dimensional Structure. , *89* , 21–52. doi:10.1023/A:1005291711900.

Gressl, C., Veronig, A. M., Temmer, M., Odstrˇcil, D., Linker, J. A., Miki´c, Z., & Riley, P. (2014). Comparative Study of MHD Modeling of the Background Solar Wind. , *289* (5), 1783–1801. doi:10.1007/s11207-013-0421-6. arXiv:1312.1220.

Gruesbeck, J. R., Lepri, S. T., Zurbuchen, T. H., & Antiochos, S. K. (2011). Constraints on Coronal Mass Ejection Evolution from in Situ Observations of Ionic Charge States. , *730* (2), 103. doi:10.1088/0004-637X/730/2/103.

Habbal, S. R., Woo, R., Fineschi, S., O'Neal, R., Kohl, J., Noci, G., & Korendyke, C. (1997). Origins of the Slow and the Ubiquitous Fast

Solar Wind. , *489* (1), L103–L106. doi:10.1086/310970. arXiv:astro-ph/9709021.

Haines, C., Owens, M. J., Barnard, L., Lockwood, M., Ru enach, A., Boykin, K., & McGranaghan, R. (2021). Forecasting Occurrence and Intensity of Geomagnetic Activity With Pattern-Matching Approaches. *Space Weather* , *19* (6), e02624. doi:10.1029/2020SW002624.

Hapgood, M. (2017). *Space Weather* . doi:10.1088/978-0-7503-1372-8.

Heidrich-Meisner, V., & Wimmer-Schweingruber, R. F. (2018). Chapter 16 - solar wind classification via k-means clustering algorithm. In E. Camporeale, S. Wing, & J. R. Johnson (Eds.), *Machine Learning Techniques for Space Weather* (pp. 397–424). Elsevier. doi:https://doi.org/10.1016/B978-0-12-811788-0.00016-0.

Heinemann, S. G., Hofmeister, S. J., Veronig, A. M., & Temmer, M. (2018a). Three-phase Evolution of a Coronal Hole. II. The Magnetic Field. , *863* (1), 29. doi:10.3847/1538-4357/aad095. arXiv:1806.10052.

Heinemann, S. G., Jerˇci´c, V., Temmer, M., Hofmeister, S. J., Dumbovi´c, M., Vennerstrom, S., Verbanac, G., & Veronig, A. M. (2020). A statistical study of the long-term evolution of coronal hole properties as observed by SDO. , *638* , A68. doi:10.1051/0004-6361/202037613. arXiv:1907.02795.

Heinemann, S. G., Saqri, J., Veronig, A. M., Hofmeister, S. J., & Temmer, M. (2021). Statistical Approach on Di erential Emission Measure of Coronal Holes using the CATCH Catalog. , *296* (1), 18. doi:10.1007/s11207-020-01759-0. arXiv:2102.13396.

Heinemann, S. G., Temmer, M., Farrugia, C. J., Dissauer, K., Kay, C., Wiegelmann, T., Dumbovi´c, M., Veronig, A. M., Podladchikova, T., Hofmeister, S. J., Lugaz, N., & Carcaboso, F. (2019). CME-HSS Interaction and Characteristics Tracked from Sun to Earth. , *294* (9), 121. doi:10.1007/s11207-019-1515-6. arXiv:1908.10161.

Heinemann, S. G., Temmer, M., Hofmeister, S. J., Veronig, A. M., & Vennerstrøm, S. (2018b). Three-phase Evolution of a Coronal Hole. I. 360° Remote Sensing and In Situ Observations. , *861* (2), 151. doi:10.3847/1538-4357/aac897. arXiv:1806.09495.

Hellinger, P., Matteini, L., Sˇtver´ak, Sˇ., Tr´avn´ıˇcek, P. M., & Marsch, E. (2011). Heating and cooling of protons in the fast solar wind between 0.3 and 1 AU: Helios revisited. *Journal of Geophysical Research (Space Physics)*, *116* (A9), A09105. doi:10.1029/2011JA016674.

Hellinger, P., Tra´Vn´ıˇcek, P. M., Sˇtver´ak, Sˇ., Matteini, L., & Velli, M. (2013). Proton thermal energetics in the solar wind: Helios reloaded. *Journal of Geophysical Research (Space Physics)*, *118* (4), 1351–1365. doi:10.1002/jgra.50107.

Hofmeister, S. J., Utz, D., Heinemann, S. G., Veronig, A., & Temmer, M. (2019). Photospheric magnetic structure of coronal holes. , *629* , A22. doi:10.1051/0004-6361/201935918. arXiv:1909.03806.

Hofmeister, S. J., Veronig, A., Temmer, M., Vennerstrom, S., Heber, B., & Vrˇsnak, B. (2018). The Dependence of the Peak Velocity of High- Speed Solar Wind Streams as Measured in the Ecliptic by ACE and the STEREO satellites on the Area and Co-latitude of Their Solar Source Coronal Holes. *Journal of Geophysical Research (Space Physics)*, *123* (3), 1738–1753. doi:10.1002/2017JA024586. arXiv:1804.09579.

Howard, T. A., Bisi, M. M., Buffington, A., Clover, J. M., Cooke, M. P., Eyles, C. J., Hick, P. P., Holladay, P. E., Jackson, B. V., Johnston, J. C., Kahler, S. W., Kuchar, T. A., Mizuno, D. R., Penny, A. J., Price, S. D., Radick, R. R., Simnett, G. M., Tappin, S. J., Waltham, N. R., & Webb, D. F. (2013). The Solar Mass Ejection Imager and Its Heliospheric Imaging Legacy. , *180* (1-4), 1–38. doi:10.1007/s11214-013-9992-7.

Hundhausen, A. J. (1972). Coronal Expansion and Solar Wind. *Physics and Chemistry in Space*, *5* . doi:10.1007/978-3-642-65414-5.

Isavnin, A., Vourlidas, A., & Kilpua, E. K. J. (2013). Three-Dimensional Evolution of Erupted Flux Ropes from the Sun (2 - 20 R) to 1 AU. , *284* (1), 203–215. doi:10.1007/s11207-012-0214-3. arXiv:1211.2108.

Jackson, B. V., Buffington, A., & Hick, P. P. (2001). A heliospheric imager for Solar Orbiter. In B. Battrick, H. Sawaya-Lacoste, E. Marsch, V. Martinez Pillet, B. Fleck, & R. Marsden (Eds.), *Solar encounter. Proceedings of the First Solar Orbiter Workshop* (pp. 251–256). volume 493 of *ESA Special Publication*.

Jackson, B. V., Hick, P. P., Buffington, A., Bisi, M. M., Clover, J. M., Tokumaru, M., Kojima, M., & Fujiki, K. (2011). Three-dimensional reconstruction of heliospheric structure using iterative tomography: A review. *Journal of Atmospheric and Solar-Terrestrial Physics*, *73* (10), 1214–1227. doi:10.1016/j.jastp.2010.10.007.

Janvier, M., Winslow, R. M., Good, S., Bonhomme, E., D´emoulin, P., Dasso, S., Mo¨stl, C., Lugaz, N., Amerstorfer, T., Soubri´e, E., & Boakes, P. D. (2019). Generic Magnetic Field Intensity Profiles of Interplanetary Coronal Mass Ejections at Mercury, Venus, and Earth From Superposed Epoch Analyses. *Journal of Geophysical Research (Space Physics)*, *124* (2), 812–836. doi:10.1029/2018JA025949. arXiv:1901.09921.

Jarolim, R., Veronig, A. M., Hofmeister, S., Heinemann, S. G., Temmer, M., Podladchikova, T., & Dissauer, K. (2021). Multi-channel coronal hole detection with convolutional neural networks. , *652* , A13. doi:10.1051/0004-6361/202140640. arXiv:2104.14313.

Jeong, H.-J., Moon, Y.-J., Park, E., & Lee, H. (2020). Solar Coronal Magnetic Field Extrapolation from Synchronic Data with AI-generated Farside. , *903* (2), L25. doi:10.3847/2041-8213/abc255. arXiv:2010.07553.

Kahler, S. W. (2004). Solar Fast-Wind Regions as Sources of Shock Energetic Particle Production. , *603* (1), 330–334. doi:10.1086/381358.

Kay, C., Mays, M. L., & Verbeke, C. (2020). Identifying Critical Input Parameters for Improving Drag-Based CME Arrival Time Predictions. *Space Weather* , *18* (1), e02382. doi:10.1029/2019SW002382.

Kay, C., Opher, M., & Evans, R. M. (2013). Forecasting a Coronal Mass Ejection's Altered Trajectory: ForeCAT. , *775* , 5. doi:10.1088/0004-637X/775/1/5. arXiv:1307.7603.

Kay, C., Opher, M., & Evans, R. M. (2015). Global Trends of CME Deflections Based on CME and Solar Parameters. , *805* , 168. doi:10.1088/0004-637X/805/2/168. arXiv:1410.4496.

Kilpua, E. K. J., Balogh, A., von Steiger, R., & Liu, Y. D. (2017). Geoe ective Properties of Solar Transients and Stream Interaction Regions. , *212* (3-4), 1271–1314. doi:10.1007/s11214-017-0411-3.

Ko, Y.-K., Raymond, J. C., Zurbuchen, T. H., Riley, P., Raines, J. M., & Strachan, L. (2006). Abundance Variation at the Vicinity of an Active Region and the Coronal Origin of the Slow Solar Wind. , *646* (2), 1275–1287. doi:10.1086/505021.

Krieger, A. S., Timothy, A. F., & Roelof, E. C. (1973). A Coronal Hole and Its Identification as the Source of a High Velocity Solar Wind Stream. , *29* (2), 505–525. doi:10.1007/BF00150828.

Laming, J. M. (2015). The FIP and Inverse FIP E ects in Solar and Stellar Coronae. *Living Reviews in Solar Physics*, *12* (1), 2. doi:10.1007/lrsp-2015-2. arXiv:1504.08325.

Landi, S., Hellinger, P., & Velli, M. (2006). Heliospheric magnetic field polarity inversions driven by radial velocity field structures. , *33* (14), L14101. doi:10.1029/2006GL026308.

Lang, M., Witherington, J., Turner, H., Owens, M. J., & Riley, P. (2021). Improving Solar Wind Forecasting Using Data Assimilation. *Space Weather* , *19* (7), e02698. doi:10.1029/2020SW002698. arXiv:2012.06362.

Larosa, A., Krasnoselskikh, V., Dudok de Wit, T., Agapitov, O., Froment, C., Jagarlamudi, V. K., Velli, M., Bale, S. D., Case, A. W., Goetz, K., Harvey, P., Kasper, J. C., Korreck, K. E., Larson, D. E., MacDowall, R. J., Malaspina, D., Pulupa, M., Revillet, C., & Stevens, M. L. (2021). Switchbacks: statistical properties and deviations from Alfv´enicity. , *650* , A3. doi:10.1051/0004-6361/202039442.

arXiv:2012.10420.

Lavraud, B., Ru enach, A., Rouillard, A. P., Kajdic, P., Manchester, W. B., & Lugaz, N. (2014). Geo-e ectiveness and radial dependence of magnetic cloud erosion by magnetic reconnection. *Journal of Geophysical Research (Space Physics)*, *119* , 26–35. doi:10.1002/2013JA019154.

Li, H., Wang, C., Tu, C., & Xu, F. (2020). Machine learning approach for solar wind categorization. *Earth and Space Science*, *7* (5), e2019EA000997. doi:https://doi.org/10.1029/2019EA000997.

Linker, J. A., Caplan, R. M., Downs, C., Riley, P., Mikic, Z., Lionello, R., Henney, C. J., Arge, C. N., Liu, Y., Derosa, M. L., Yeates, A., & Owens, M. J. (2017). The Open Flux Problem. , *848* (1), 70. doi:10.3847/1538-4357/aa8a70. arXiv:1708.02342.

Linker, J. A., Heinemann, S. G., Temmer, M., Owens, M. J., Caplan, R. M., Arge, C. N., Asvestari, E., Delouille, V., Downs, C., Hofmeister, S. J., Jebaraj, I. C., Madjarska, M. S., Pinto, R. F., Pomoell, J., Samara, E., Scolini, C., & Vrˇsnak, B. (2021). Coronal Hole Detection and Open Magnetic Flux. , *918* (1), 21. doi:10.3847/1538-4357/ac090a. arXiv:2103.05837.

Lionello, R., Linker, J. A., & Miki´c, Z. (2009). Multispectral Emission of the Sun During the First Whole Sun Month: Magnetohydrodynamic Simulations. , *690* (1), 902–912. doi:10.1088/0004-637X/690/1/902.

Lionello, R., Titov, V. S., Miki´c, Z., & Linker, J. A. (2020). Slip-back Mapping as a Tracker of Topological Changes in Evolving Magnetic Configurations. , *891* (1), 14. doi:10.3847/1538-4357/ab68d9. arXiv:1905.01384.

Liu, Y. D., Luhmann, J. G., Kajdiˇc, P., Kilpua, E. K. J., Lugaz, N., Nitta, N. V., M¨ostl, C., Lavraud, B., Bale, S. D., Farrugia, C. J., & Galvin, A. B. (2014). Observations of an extreme storm in interplanetary space caused by successive coronal mass ejections. *Nat. Commun.*, *5* , 3481. doi:10.1038/ncomms4481. arXiv:1405.6088.

Lugaz, N., Farrugia, C. J., Davies, J. A., M¨ostl, C., Davis, C. J., Roussev, I. I., & Temmer, M. (2012). THE DEFLECTION OF THE TWO INTERACTING CORONAL MASS EJECTIONS OF 2010 MAY 23-24 AS REVEALED BY COMBINED IN SITU MEASUREMENTS AND HELIOSPHERIC IMAGING. *The Astrophysical Journal* , *759* (1), 68. URL: https://doi.org/10.1088/0004-637x/759/1/68. doi:10.1088/0004-637x/759/1/68.

Lugaz, N., Farrugia, C. J., Winslow, R. M., Small, C. R., Manion, T., & Savani, N. P. (2017a). Importance of CME Radial Expansion on the Ability of Slow CMEs to Drive Shocks. , *848* (2), 75. doi:10.3847/1538-4357/aa8ef9. arXiv:1707.06676.

Lugaz, N., Salman, T. M., Winslow, R. M., Al-Haddad, N., Farrugia, C. J., Zhuang, B., & Galvin, A. B. (2020). Inconsistencies Between Local and Global Measures of CME Radial Expansion as Revealed by Spacecraft Conjunctions. , *899* (2), 119. doi:10.3847/1538-4357/aba26b. arXiv:2007.01699.

Lugaz, N., Temmer, M., Wang, Y., & Farrugia, C. J. (2017b). The Interaction of Successive Coronal Mass Ejections: A Review. , *292* (4), 64. doi:10.1007/s11207-017-1091-6. arXiv:1612.02398.

Lugaz, N., Vourlidas, A., Roussev, I. I., & Morgan, H. (2009). Solar - Terrestrial Simulation in the STEREO Era: The 24 - 25 January 2007 Eruptions. , *256* (1-2), 269–284. doi:10.1007/s11207-009-9339-4. arXiv:0902.2004.

Luhmann, J. G., Gopalswamy, N., Jian, L. K., & Lugaz, N. (2020). ICME Evolution in the Inner Heliosphere. , *295* (4), 61. doi:10.1007/s11207-020-01624-0.

Mackovjak, Sˇ., Harman, M., Maslej-Kreˇsnˇ´akov´a, V., & Butka, P. (2021). SCSS-Net: solar corona structures segmentation by deep learning. , *508* (3), 3111–3124. doi:10.1093/mnras/stab2536. arXiv:2109.10834.

Manchester, W. B., Gombosi, T. I., Roussev, I., Ridley, A., de Zeeuw, D. L., Sokolov, I. V., Powell, K. G., & T´oth, G. (2004). Modeling a space weather event from the Sun to the Earth: CME generation and interplanetary propagation. *Journal of Geophysical Research (Space Physics)*, *109* , A02107. doi:10.1029/2003JA010150.

Manchester, W. B., IV, Gombosi, T. I., De Zeeuw, D. L., Sokolov, I. V., Roussev, I. I., Powell, K. G., K´ota, J., T´oth, G., & Zurbuchen, T. H. (2005). Coronal Mass Ejection Shock and Sheath Structures Relevant to Particle Acceleration. , *622* , 1225–1239. doi:10.1086/427768.

Manoharan, P. K. (2012). Three-dimensional Evolution of Solar Wind during Solar Cycles 22-24. , *751* (2), 128. doi:10.1088/0004-637X/751/2/128. arXiv:1203.6715.

Mays, M. L., Taktakishvili, A., Pulkkinen, A., MacNeice, P. J., Rasta¨tter, L., Odstrcil, D., Jian, L. K., Richardson, I. G., LaSota, J. A., Zheng, Y., & Kuznetsova, M. M. (2015). Ensemble Modeling of CMEs Using the WSA-ENLIL+Cone Model. , *290* (6), 1775–1814. doi:10.1007/s11207-015-0692-1. arXiv:1504.04402.

McComas, D. J., Ebert, R. W., Elliott, H. A., Goldstein, B. E., Gosling, J. T., Schwadron, N. A., & Skoug, R. M. (2008). Weaker solar wind from the polar coronal holes and the whole Sun. , *35* (18), L18103. doi:10.1029/2008GL034896.

McGregor, S. L., Hughes, W. J., Arge, C. N., Owens, M. J., & Odstrcil, D. (2011). The distribution of solar wind speeds during solar minimum: Calibration for numerical solar wind modeling constraints on the source of the slow solar wind. *Journal of Geophysical Research (Space Physics)*, *116* (A3), A03101. doi:10.1029/2010JA015881.

Mishra, W., & Srivastava, N. (2014). Morphological and Kinematic Evolution of Three Interacting Coronal Mass Ejections of 2011 February 13-15. , *794* (1), 64. doi:10.1088/0004-637X/794/1/64. arXiv:1408.4604.

Mishra, W., Srivastava, N., & Singh, T. (2015). Kinematics of interacting CMEs of 25 and 28 September 2012. *Journal of Geophysical Research (Space Physics)*, *120* (12), 10,221–10,236. doi:10.1002/2015JA021415. arXiv:1511.06970.

Mishra, W., Wang, Y., & Srivastava, N. (2016). On Understanding the Nature of Collisions of Coronal Mass Ejections Observed by STEREO. , *831* (1), 99. doi:10.3847/0004-637X/831/1/99. arXiv:1607.07692.

Mishra, W., Wang, Y., Srivastava, N., & Shen, C. (2017). Assessing the Nature of Collisions of Coronal Mass Ejections in the Inner Heliosphere. , *232* (1), 5. doi:10.3847/1538-4365/aa8139. arXiv:1707.08299.

Moldwin, M. B., Ford, S., Lepping, R., Slavin, J., & Szabo, A. (2000). Small-scale magnetic flux ropes in the solar wind. , *27* (1), 57–60. doi:10.1029/1999GL010724.

M¨ostl, C., Rollett, T., Frahm, R. A., Liu, Y. D., Long, D. M., Colaninno, R. C., Reiss, M. A., Temmer, M., Farrugia, C. J., Posner, A., Dumbovi´c, M., Janvier, M., D´emoulin, P., Boakes, P., Devos, A., Kraaikamp, E., Mays, M. L., & Vrˇsnak, B. (2015). Strong coronal channelling and interplanetary evolution of a solar storm up to earth and mars. *Nature Communications*, *6* (1). URL: https://doi.org/ 10.1038/ncomms8135. doi:10.1038/ncomms8135.

Mozer, F. S., Agapitov, O. V., Bale, S. D., Bonnell, J. W., Case, T., Chaston, C. C., Curtis, D. W., Dudok de Wit, T., Goetz, K., Goodrich, K. A., Harvey, P. R., Kasper, J. C., Korreck, K. E., Krasnoselskikh, V., Larson, D. E., Livi, R., MacDowall, R. J., Malaspina, D., Pulupa, M., Stevens, M., Whittlesey, P. L., & Wygant, J. R. (2020). Switchbacks in the Solar Magnetic Field: Their Evolution, Their Content, and Their E ects on the Plasma. , *246* (2), 68. doi:10.3847/1538-4365/ab7196.

Mozer, F. S., Bale, S. D., Bonnell, J. W., Drake, J. F., Hanson, E. L. M., & Mozer, M. C. (2021). On the Origin of Switchbacks Observed in the Solar Wind. , *919* (1), 60. doi:10.3847/1538-4357/ac110d. arXiv:2105.07601.

Mu¨ller, D., St. Cyr, O. C., Zouganelis, I., Gilbert, H. R., Marsden, R., Nieves-Chinchilla, T., Antonucci, E., Auch`ere, F., Berghmans, D., Horbury, T. S., Howard, R. A., Krucker, S., Maksimovic, M., Owen, C. J., Rochus, P., Rodriguez-Pacheco, J., Romoli, M., Solanki, S. K., Bruno, R., Carlsson, M., Fludra, A., Harra, L., Hassler, D. M., Livi, S., Louarn, P., Peter, H., Schu¨hle, U., Teriaca, L., del Toro Iniesta, J. C., Wimmer-Schweingruber, R. F., Marsch, E., Velli, M., De Groof, A., Walsh, A., & Williams, D. (2020). The Solar Orbiter mission. Science overview. , *642* , A1. doi:10.1051/0004-6361/202038467. arXiv:2009.00861.

Nakagawa, Y., Nozawa, S., & Shinbori, A. (2019). Relationship between the low-latitude coronal hole area, solar wind velocity, and geomagnetic activity during solar cycles 23 and 24. *Earth, Planets and Space*, *71* (1), 24. doi:10.1186/s40623-019-1005-y.

Neugebauer, M., Reisenfeld, D., & Richardson, I. G. (2016). Comparison of algorithms for determination of solar wind regimes. *Journal of Geophysical Research: Space Physics*, *121* (9), 8215–8227. doi:https://doi.org/10.1002/2016JA023142.

Neugebauer, M., Steinberg, J. T., Tokar, R. L., Barraclough, B. L., Dors, E. E., Wiens, R. C., Gingerich, D. E., Luckey, D., & Whiteaker, D. B. (2003). Genesis on-board determination of the solar wind flow regime. , *105* (3), 661–679. doi:10.1023/A:1024478129261.

Newkirk, J., Gordon (1967). Structure of the Solar Corona. , *5* , 213. doi:10.1146/annurev.aa.05.090167.001241.

Nieves-Chinchilla, T., Vourlidas, A., Raymond, J. C., Linton, M. G., Al-haddad, N., Savani, N. P., Szabo, A., & Hidalgo, M. A. (2018). Understanding the Internal Magnetic Field Configurations of ICMEs Using More than 20 Years of Wind Observations. , *293* (2), 25. doi:10.1007/s11207-018-1247-z.

Nitta, N. V., Mulligan, T., Kilpua, E. K. J., Lynch, B. J., Mierla, M., O'Kane, J., Pagano, P., Palmerio, E., Pomoell, J., Richardson, I. G., Rodriguez, L., Rouillard, A. P., Sinha, S., Srivastava, N., Talpeanu, D.-C., Yardley, S. L., & Zhukov, A. N. (2021). Understanding the Origins of Problem Geomagnetic Storms Associated with "Stealth" Coronal Mass Ejections. , *217* (8), 82. doi:10.1007/s11214-021-00857-0. arXiv:2110.08408.

Nolte, J. T., Krieger, A. S., Timothy, A. F., Gold, R. E., Roelof, E. C., Vaiana, G., Lazarus, A. J., Sullivan, J. D., & McIntosh, P. S. (1976). Coronal holes as sources of solar wind. , *46* (2), 303–322. doi:10.1007/BF00149859.

Odstrcil, D. (2003). Modeling 3-d solar wind structure. *Advances in Space Research* , *32* (4), 497–506. doi:https://doi.org/10.1016/S0273-1177(03)00332-6. Heliosphere at Solar Maximum.

Odstrcil, D., & Pizzo, V. J. (2009). Numerical Heliospheric Simulations as Assisting Tool for Interpretation of Observations by STEREO Heliospheric Imagers. , *259* (1-2), 297–309. doi:10.1007/s11207-009-9449-z.

Odstrˇcil, D., & Pizzo, V. J. (1999). Three-dimensional propagation of CMEs in a structured solar wind flow: 1. CME launched within the streamer belt. , *104* (A1), 483–492. doi:10.1029/1998JA900019.

Ofman, L. (2004). The origin of the slow solar wind in coronal streamers. *Advances in Space Research* , *33* (5), 681–688. doi:10.1016/S0273-1177(03)00235-7.

Ohmi, T., Kojima, M., Tokumaru, M., Fujiki, K., & Hakamada, K. (2004). Origin of the slow solar wind. *Advances in Space Research* , *33* (5), 689–695. doi:10.1016/S0273-1177(03)00238-2.

Owens, M. J. (2018). Solar Wind and Heavy Ion Properties of Interplanetary Coronal Mass Ejections. , *293* (8), 122. doi:10.1007/s11207-018-1343-0.

Owens, M. J. (2020). Solar-wind structure. doi:10.1093/acrefore/9780190871994.013.19.

Owens, M. J., & Forsyth, R. J. (2013). The Heliospheric Magnetic Field. *Living Reviews in Solar Physics*, *10* (1), 5. doi:10.12942/lrsp-2013-5.

Owens, M. J., Spence, H. E., McGregor, S., Hughes, W. J., Quinn, J. M., Arge, C. N., Riley, P., Linker, J., & Odstrcil, D. (2008). Metrics for solar wind prediction models: Comparison of empirical, hybrid, and physics-based schemes with 8 years of L1 observations. *Space Weather* , *6* (8), S08001. doi:10.1029/2007SW000380.

Palmerio, E., Kay, C., Al-Haddad, N., Lynch, B. J., Yu, W., Stevens, M. L., Pal, S., & Lee, C. O. (2021). Predicting the magnetic fields of a stealth CME detected by parker solar probe at 0.5 au. *The Astrophysical Journal* , *920* (2), 65. URL: https://doi.org/10.3847/ 1538-4357/ac25f4. doi:10.3847/1538-4357/ac25f4.

Palmerio, E., Kilpua, E. K. J., James, A. W., Green, L. M., Pomoell, J., Isavnin, A., & Valori, G. (2017). Determining the Intrinsic CME Flux Rope Type Using Remote-sensing Solar Disk Observations. , *292* (2), 39. doi:10.1007/s11207-017-1063-x. arXiv:1701.08595.

Palmerio, E., Kilpua, E. K. J., Mo¨stl, C., Bothmer, V., James, A. W., Green, L. M., Isavnin, A., Davies, J. A., & Harrison, R. A. (2018). Coronal Magnetic Structure of Earthbound CMEs and In Situ Comparison. *Space Weather* , *16* (5), 442–460. doi:10.1002/2017SW001767. arXiv:1803.04769.

Parker, E. N. (1958). Dynamics of the Interplanetary Gas and Magnetic Fields. , *128* , 664. doi:10.1086/146579.

Perrone, D., Stansby, D., Horbury, T. S., & Matteini, L. (2019a). Radial evolution of the solar wind in pure high-speed streams: HELIOS revised observations. , *483* (3), 3730–3737. doi:10.1093/mnras/sty3348. arXiv:1810.04014.

Perrone, D., Stansby, D., Horbury, T. S., & Matteini, L. (2019b). Thermodynamics of pure fast solar wind: radial evolution of the temperature-speed relationship in the inner heliosphere. , *488* (2), 2380–2386. doi:10.1093/mnras/stz1877.

Pinto, R. F., & Rouillard, A. P. (2017). A Multiple Flux-tube Solar Wind Model. , *838* (2), 89. doi:10.3847/1538-4357/aa6398. arXiv:1611.08744.

Pizzo, V. J., de Koning, C. A., Cash, M., Millward, G., Biesecker, D. A., Puga, L., Codrescu, M., & Odstrcil, D. (2015). Theoretical basis for operational ensemble forecasting of coronal mass ejections. *Space Weather* , *13* (10), 676–697. URL: http://doi.wiley.com/10.1002/2015SW001221. doi:10.1002/2015SW001221.

Plotnikov, I., Rouillard, A. P., Davies, J. A., Bothmer, V., Eastwood, J. P., Gallagher, P., Harrison, R. A., Kilpua, E., M¨ostl, C., Perry, C. H., Rodriguez, L., Lavraud, B., G´enot, V., Pinto, R. F., & Sanchez-Diaz, E. (2016). Long-Term Tracking of Corotating Density Structures Using Heliospheric Imaging. , *291* (6), 1853–1875. doi:10.1007/s11207-016-0935-9. arXiv:1606.01127.

Poedts, S., Lani, A., Scolini, C., Verbeke, C., Wijsen, N., Lapenta, G., Laperre, B., Millas, D., Innocenti, M. E., Chan´e, E., Baratashvili, T., Samara, E., Van der Linden, R., Rodriguez, L., Vanlommel, P., Vainio, R., Afanasiev, A., Kilpua, E., Pomoell, J., Sarkar, R., Aran, A., Sanahuja, B., Paredes, J. M., Clarke, E., Thomson, A., Rouilard, A., Pinto, R. F., Marchaudon, A., Blelly, P.-L., Gorce, B., Plotnikov, I., Kouloumvakos, A., Heber, B., Herbst, K., Kochanov, A., Raeder, J., & Depauw, J. (2020). EUropean Heliospheric FORecasting Information Asset 2.0. *Journal of Space Weather and Space Climate*, *10* , 57. doi:10.1051/swsc/2020055.

Pomoell, J., & Poedts, S. (2018). EUHFORIA: European heliospheric forecasting information asset. *Journal of Space Weather and Space Climate*, *8* , A35. doi:10.1051/swsc/2018020.

Posner, A., Arge, C. N., Staub, J., StCyr, O. C., Folta, D., Solanki, S. K., Strauss, R. D. T., E enberger, F., Gandorfer, A., Heber, B., Henney, C. J., Hirzberger, J., Jones, S. I., Ku¨hl, P., Malandraki, O., & Sterken, V. J. (2021). A multi-purpose heliophysics l4 mission. *Space Weather* , *19* (9), e2021SW002777. doi:https://doi.org/10.1029/2021SW002777.

Prise, A. J., Harra, L. K., Matthews, S. A., Arridge, C. S., & Achilleos, N. (2015). Analysis of a coronal mass ejection and corotating interaction region as they travel from the sun passing venus, earth, mars, and saturn. *Journal of Geophysical Research: Space Physics*, *120* (3), 1566–1588. doi:https://doi.org/10.1002/2014JA020256.

Raju, H., & Das, S. (2021). CNN-Based Deep Learning Model for Solar Wind Forecasting. , *296* (9), 134. doi:10.1007/s11207-021-01874-6.

arXiv:2108.09114.

Reiss, M. A., Temmer, M., Veronig, A. M., Nikolic, L., Vennerstrom, S., Sch¨ongassner, F., & Hofmeister, S. J. (2016). Verification of high-speed solar wind stream forecasts using operational solar wind models. *Space Weather* , *14* (7), 495–510. doi:10.1002/2016SW001390. arXiv:1607.07048.

Richardson, I. G. (2014). Identification of Interplanetary Coronal Mass Ejections at Ulysses Using Multiple Solar Wind Signatures. , *289* (10), 3843–3894. doi:10.1007/s11207-014-0540-8.

Richardson, I. G. (2018). Solar wind stream interaction regions throughout the heliosphere. *Living Reviews in Solar Physics*, *15* (1), 1. doi:10.1007/s41116-017-0011-z.

Richardson, I. G., & Cane, H. V. (2010). Near-Earth Interplanetary Coronal Mass Ejections During Solar Cycle 23 (1996 - 2009): Catalog and Summary of Properties. , *264* (1), 189–237. doi:10.1007/s11207-010-9568-6.

Richardson, I. G., & Cane, H. V. (2012). Near-earth solar wind flows and related geomagnetic activity during more than four solar cycles (1963-2011). *Journal of Space Weather and Space Climate*, *2* , A02. doi:10.1051/swsc/2012003.

Richardson, I. G., Cane, H. V., & Cliver, E. W. (2002). Sources of geomagnetic activity during nearly three solar cycles (1972-2000). *Journal of Geophysical Research (Space Physics)*, *107* (A8), 1187. doi:10.1029/2001JA000504.

Rickett, B. J., & Coles, W. A. (1991). Evolution of the solar wind structure over a solar cycle: Interplanetary scintillation velocity measurement compared with coronal observations. , *96* (A2), 1717–1736. doi:10.1029/90JA01528.

Riley, P., Baker, D., Liu, Y. D., Verronen, P., Singer, H., & Gu¨del, M. (2018). Extreme Space Weather Events: From Cradle to Grave. , *214* (1), 21. doi:10.1007/s11214-017-0456-3.

Riley, P., & Ben-Nun, M. (2021). On the Sources and Sizes of Uncertainty in Predicting the Arrival Time of Interplanetary Coronal Mass Ejec- tions Using Global MHD Models. *Space Weather* , *19* (6), e2021SW002775. URL: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2021SW002775. doi:10.1029/2021SW002775. eprint: https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2021SW002775.

Riley, P., Ben-Nun, M., Linker, J. A., Mikic, Z., Svalgaard, L., Harvey, J., Bertello, L., Hoeksema, T., Liu, Y., & Ulrich, R. (2014). A Multi-Observatory Inter-Comparison of Line-of-Sight Synoptic Solar Magnetograms. , *289* (3), 769–792. doi:10.1007/s11207-013-0353-1. Riley, P., & Crooker, N. U. (2004). Kinematic Treatment of Coronal Mass Ejection Evolution in the Solar Wind. , *600* (2), 1035–1042. doi:10.1086/379974.

Riley, P., Linker, J. A., & Miki´c, Z. (2001). An empirically-driven global MHD model of the solar corona and inner heliosphere. , *106* (A8), 15889–15902. doi:10.1029/2000JA000121.

Riley, P., Lionello, R., Caplan, R. M., Downs, C., Linker, J. A., Badman, S. T., & Stevens, M. L. (2021). Using Parker Solar Probe obser- vations during the first four perihelia to constrain global magnetohydrodynamic models. , *650* , A19. doi:10.1051/0004-6361/202039815. arXiv:2102.05101.

Riley, P., & Luhmann, J. G. (2012). Interplanetary Signatures of Unipolar Streamers and the Origin of the Slow Solar Wind. , *277* (2), 355–373. doi:10.1007/s11207-011-9909-0.

Riley, P., Mays, M. L., Andries, J., Amerstorfer, T., Biesecker, D., Delouille, V., Dumbovi´c, M., Feng, X., Henley, E. M., Linker, J. A., M¨ostl, C., Nun˜ez, M., Pizzo, V. J., Temmer, M., Tobiska, W. K., Verbeke, C., West, M. J., & Zhao, X. (2018). Forecasting the Arrival Time of Coronal Mass Ejections: Analysis of the CCMC CME Scoreboard. *Space Weather* , *16* (9), 1245–1260. URL: http://doi.wiley.com/10.1029/2018SW001962. doi:10.1029/2018SW001962.

Rivera, Y. J., Landi, E., Lepri, S. T., & Gilbert, J. A. (2019). Empirical Modeling of CME Evolution Constrained to ACE/SWICS Charge State Distributions. , *874* (2), 164. doi:10.3847/1538-4357/ab0e11.

Robbrecht, E., Patsourakos, S., & Vourlidas, A. (2009). No Trace Left Behind: STEREO Observation of a Coronal Mass Ejection Without Low Coronal Signatures. , *701* (1), 283–291. doi:10.1088/0004-637X/701/1/283. arXiv:0905.2583.

Rouillard, A. P. (2011). Relating white light and in situ observations of coronal mass ejections: A review. *Journal of Atmospheric and Solar-Terrestrial Physics*, *73* (10), 1201–1213. doi:10.1016/j.jastp.2010.08.015.

Rouillard, A. P., Davies, J. A., Forsyth, R. J., Rees, A., Davis, C. J., Harrison, R. A., Lockwood, M., Bewsher, D., Crothers, S. R., Eyles, C. J., Hapgood, M., & Perry, C. H. (2008). First imaging of corotating interaction regions using the stereo spacecraft. *Geophysical Research Letters*, *35* (10). URL: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2008GL033767. doi:https://doi.org/10. 1029/2008GL033767. arXiv:https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2008GL033767.

Ru enach, A., Lavraud, B., Farrugia, C. J., D´emoulin, P., Dasso, S., Owens, M. J., Sauvaud, J. A., Rouillard, A. P., Lynnyk, A., & Foullon, C. (2015). Statistical study of magnetic cloud erosion by magnetic reconnection. *Journal of Geophysical Research (Space Physics)*, *120* (1), 43–60. doi:10.1002/2014JA020628.

Ru enach, A., Lavraud, B., Owens, M. J., Sauvaud, J. A., Savani, N. P., Rouillard, A. P., D´emoulin, P., Foullon, C., Opitz, A., & Fedorov, A. (2012). Multispacecraft observation of magnetic cloud erosion by magnetic reconnection during propagation. *Journal of Geophysical Research (Space Physics)*, *117* (A9), A09101. doi:10.1029/2012JA017624.

Ru olo, D., Matthaeus, W. H., Chhiber, R., Usmanov, A. V., Yang, Y., Bandyopadhyay, R., Parashar, T. N., Goldstein, M. L., DeForest, C. E., Wan, M., Chasapis, A., Maruca, B. A., Velli, M., & Kasper, J. C. (2020). Shear-driven Transition to Isotropically Turbulent Solar Wind Outside the Alfv´en Critical Zone. , *902* (2), 94. doi:10.3847/1538-4357/abb594. arXiv:2009.06537.

Sachdeva, N., van der Holst, B., Manchester, W. B., T´oth, G., Chen, Y., Lloveras, D. G., V´asquez, A. M., Lamy, P., Wojak, J., Jackson, B. V., Yu, H.-S., & Henney, C. J. (2019). Validation of the Alfv´en Wave Solar Atmosphere Model (AWSoM) with Observations from the Low Corona to 1 au. , *887* (1), 83. doi:10.3847/1538-4357/ab4f5e. arXiv:1910.08110.

Sahade, A., C´ecere, M., & Krause, G. (2020). Influence of Coronal Holes on CME Deflections: Numerical Study. , *896* (1), 53. doi:10.3847/1538-4357/ab8f25. arXiv:2004.10834.

Samara, E., Pinto, R. F., Magdaleni´c, J., Wijsen, N., Jerˇci´c, V., Scolini, C., Jebaraj, I. C., Rodriguez, L., & Poedts, S. (2021). Implementing the MULTI-VP coronal model in EUHFORIA: Test case results and comparisons with the WSA coronal model. , *648* , A35. doi:10.1051/0004-6361/202039325. arXiv:2102.06617.

Sanchez-Diaz, E., Rouillard, A. P., Lavraud, B., Segura, K., Tao, C., Pinto, R., Sheeley, N. R., & Plotnikov, I. (2016). The very slow solar wind: Properties, origin and variability. *Journal of Geophysical Research (Space Physics)*, *121* (4), 2830–2841. doi:10.1002/2016JA022433. Saqri, J., Veronig, A. M., Heinemann, S. G., Hofmeister, S. J., Temmer, M., Dissauer, K., & Su, Y. (2020). Di erential Emission Measure Plasma Diagnostics of a Long-Lived Coronal Hole. , *295* (1), 6. doi:10.1007/s11207-019-1570-z. arXiv:2001.02259.

Sarabhai, V. (1963). Some Consequences of Nonuniformity of Solar Wind Velocity. , *68* (5), 1555–1557. doi:10.1029/JZ068i005p01555.

Schatten, K. H. (1971). Current sheet magnetic model for the solar corona. *Cosmic Electrodynamics*, *2* , 232–245.

Schrijver, C. J., Kauristie, K., Aylward, A. D., Denardini, C. M., Gibson, S. E., Glover, A., Gopalswamy, N., Grande, M., Hapgood, M., Heynderickx, D., Jakowski, N., Kalegaev, V. V., Lapenta, G., Linker, J. A., Liu, S., Mandrini, C. H., Mann, I. R., Nagatsuma, T., Nandy, D., Obara, T., Paul O'Brien, T., Onsager, T., Opgenoorth, H. J., Terkildsen, M., Valladares, C. E., & Vilmer, N. (2015). Understanding space weather to shield society: A global road map for 2015-2025 commissioned by COSPAR and ILWS. *Advances in Space Research* , *55* (12), 2745–2807. doi:10.1016/j.asr.2015.03.023. arXiv:1503.06135.

Schwenn, R. (2006). Space Weather: The Solar Perspective. *Living Reviews in Solar Physics*, *3* (1), 2. doi:10.12942/lrsp-2006-2.

Schwenn, R., Montgomery, M. D., Rosenbauer, H., Miggenrieder, H., Muehlhaeuser, K. H., Bame, S. J., Feldman, W. C., & Hansen, R. T. (1978). Direct observation of the latitudinal extent of a high-speed stream in the solar wind. , *83* (A3), 1011–1017. doi:10.1029/JA083iA03p01011.

Shen, C., Chi, Y., Wang, Y., Xu, M., & Wang, S. (2017). Statistical comparison of the ICME's geoe ectiveness of di erent types and di erent solar phases from 1995 to 2014. *Journal of Geophysical Research (Space Physics)*, *122* (6), 5931–5948. doi:10.1002/2016JA023768.

Shen, C., Wang, Y., Wang, S., Liu, Y., Liu, R., Vourlidas, A., Miao, B., Ye, P., Liu, J., & Zhou, Z. (2012). Super-elastic collision of large-scale magnetized plasmoids in the heliosphere. *Nature Physics*, *8* (12), 923–928. doi:10.1038/nphys2440. arXiv:1412.7375.

Shoda, M., Chandran, B. D. G., & Cranmer, S. R. (2021). Turbulent Generation of Magnetic Switchbacks in the Alfv´enic Solar Wind. , *915* (1), 52. doi:10.3847/1538-4357/abfdbc. arXiv:2101.09529.

Simunac, K. D. C., Kistler, L. M., Galvin, A. B., Popecki, M. A., & Farrugia, C. J. (2009). In situ observations from STEREO/PLASTIC: a test for L5 space weather monitors. *Annales Geophysicae*, *27* (10), 3805–3809. doi:10.5194/angeo-27-3805-2009.

Smith, E. J. (2001). The heliospheric current sheet. , *106* (A8), 15819–15832. doi:10.1029/2000JA000120.

Smith, E. J., & Balogh, A. (1995). Ulysses observations of the radial magnetic field. , *22* (23), 3317–3320. doi:10.1029/95GL02826.

Smith, E. J., & Wolfe, J. H. (1976). Observations of interaction regions and corotating shocks between one and five AU: Pioneers 10 and 11. , *3* (3), 137–140. doi:10.1029/GL003i003p00137.

Snyder, C. W., Neugebauer, M., & Rao, U. R. (1963). The Solar Wind Velocity and Its Correlation with Cosmic-Ray Variations and with Solar and Geomagnetic Activity. , *68* , 6361. doi:10.1029/JZ068i024p06361.

Squire, J., Chandran, B. D. G., & Meyrand, R. (2020). In-situ Switchback Formation in the Expanding Solar Wind. , *891* (1), L2. doi:10.3847/2041-8213/ab74e1. arXiv:2001.08422.

St. Cyr, O. C., Plunkett, S. P., Michels, D. J., Paswaters, S. E., Koomen, M. J., Simnett, G. M., Thompson, B. J., Gurman, J. B., Schwenn, R., Webb, D. F., Hildner, E., & Lamy, P. L. (2000). Properties of coronal mass ejections: SOHO LASCO observations from January 1996 to June 1998. , *105* (A8), 18169–18186. doi:10.1029/1999JA000381.

Stansby, D., Matteini, L., Horbury, T. S., Perrone, D., D'Amicis, R., & Berˇciˇc, L. (2020). The origin of slow Alfv´enic solar wind at solar minimum. , *492* (1), 39–44. doi:10.1093/mnras/stz3422. arXiv:1907.02646.

Temmer, M. (2021). Space weather: the solar perspective. *Living Reviews in Solar Physics*, *18* (1), 4. doi:10.1007/s41116-021-00030-3. arXiv:2104.04261.

Temmer, M., Hinterreiter, J., & Reiss, M. A. (2018). Coronal hole evolution from multi-viewpoint data as input for a STEREO solar wind speed persistence model. *Journal of Space Weather and Space Climate*, *8* , A18. doi:10.1051/swsc/2018007. arXiv:1801.10213.

Temmer, M., Reiss, M. A., Nikolic, L., Hofmeister, S. J., & Veronig, A. M. (2017). Preconditioning of Interplanetary Space Due to Transient CME Disturbances. , *835* (2), 141. doi:10.3847/1538-4357/835/2/141. arXiv:1612.06080.

Temmer, M., Veronig, A. M., Peinhart, V., & Vrˇsnak, B. (2014). Asymmetry in the CME-CME Interaction Process for the Events from 2011 February 14-15. , *785* (2), 85. doi:10.1088/0004-637X/785/2/85. arXiv:1402.6891.

Tenerani, A., & Velli, M. (2018). Nonlinear Firehose Relaxation and Constant-B Field Fluctuations. , *867* (2), L26. doi:10.3847/2041-8213/aaec01. arXiv:1808.04453.

Tenerani, A., Velli, M., Matteini, L., R´eville, V., Shi, C., Bale, S. D., Kasper, J. C., Bonnell, J. W., Case, A. W., de Wit, T. D., Goetz, K., Harvey, P. R., Klein, K. G., Korreck, K., Larson, D., Livi, R., MacDowall, R. J., Malaspina, D. M., Pulupa, M., Stevens, M., & Whittlesey, P. (2020). Magnetic Field Kinks and Folds in the Solar Wind. , *246* (2), 32. doi:10.3847/1538-4365/ab53e1. arXiv:1912.03240.

Thernisien, A., Vourlidas, A., & Howard, R. A. (2009). Forward Modeling of Coronal Mass Ejections Using STEREO/SECCHI Data. , *256* (1-2), 111–130. doi:10.1007/s11207-009-9346-5.

Thernisien, A. F. R., Howard, R. A., & Vourlidas, A. (2006). Modeling of Flux Rope Coronal Mass Ejections. , *652* (1), 763–773. doi:10.1086/508254.

Tokumaru, M., Fujiki, K., Kojima, M., & Iwai, K. (2021). Global Distribution of the Solar Wind Speed Reconstructed from Improved Tomographic Analysis of Interplanetary Scintillation Observations between 1985 and 2019. , *922* (1), 73. doi:10.3847/1538-4357/ac1862. Tu, C.-Y., Zhou, C., Marsch, E., Xia, L.-D., Zhao, L., Wang, J.-X., & Wilhelm, K. (2005). Solar Wind Origin in Coronal Funnels. *Science*, *308* (5721), 519–523. doi:10.1126/science.1109447.

Upendran, V., Cheung, M. C. M., Hanasoge, S., & Krishnamurthi, G. (2020). Solar Wind Prediction Using Deep Learning. *Space Weather* , *18* (9), e02478. doi:10.1029/2020SW002478. arXiv:2006.05825.

Verbeke, C., Mays, M. L., Temmer, M., Bingham, S., Steenburgh, R., Dumbovi´c, M., Nu´n˜ez, M., Jian, L. K., Hess, P., Wiegand, C., Taktakishvili, A., & Andries, J. (2019). Benchmarking CME Arrival Time and Impact: Progress on Metadata, Metrics, and Events. *Space Weather* , *17* (1), 6–26. doi:10.1029/2018SW002046. arXiv:1811.10695.

Verscharen, D., Klein, K. G., & Maruca, B. A. (2019). The multi-scale nature of the solar wind. *Living Reviews in Solar Physics*, *16* (1), 5. doi:10.1007/s41116-019-0021-0. arXiv:1902.03448.

Viall, N. M., & Borovsky, J. E. (2020). Nine Outstanding Questions of Solar Wind Physics. *Journal of Geophysical Research (Space Physics)*, *125* (7), e26005. doi:10.1029/2018JA026005.

Viall, N. M., Kepko, L., & Spence, H. E. (2008). Inherent length-scales of periodic solar wind number density structures. *Journal of Geophysical Research (Space Physics)*, *113* (A7), A07101. doi:10.1029/2007JA012881.

Virtanen, I., & Mursula, K. (2017). Photospheric and coronal magnetic fields in six magnetographs. II. Harmonic scaling of field intensities. , *604* , A7. doi:10.1051/0004-6361/201730863.

von Steiger, R., Schwadron, N. A., Fisk, L. A., Geiss, J., Gloeckler, G., Hefti, S., Wilken, B., Wimmer-Schweingruber, R. F., & Zurbuchen, T. H. (2000). Composition of quasi-stationary solar wind flows from Ulysses/Solar Wind Ion Composition Spectrometer. , *105* (A12), 27217–27238. doi:10.1029/1999JA000358.

Vourlidas, A. (2015). Mission to the Sun-Earth L5 Lagrangian Point: An Optimal Platform for Space Weather Research. *Space Weather* , *13* (4), 197–201. doi:https://doi.org/10.1002/2015SW001173.

Vrˇsnak, B., Temmer, M., & Veronig, A. M. (2007a). Coronal Holes and Solar Wind High-Speed Streams: I. Forecasting the Solar Wind Parameters. , *240* (2), 315–330. doi:10.1007/s11207-007-0285-8.

Vrˇsnak, B., Temmer, M., & Veronig, A. M. (2007b). Coronal Holes and Solar Wind High-Speed Streams: II. Forecasting the Geomagnetic E ects. , *240* (2), 331–346. doi:10.1007/s11207-007-0311-x.

Vr˘snak, B., Temmer, M., Z˘ic, T., Taktakishvili, A., Dumbovi´c, M., M¨ostl, C., Veronig, A. M., Mays, M. L., & Odstr˘cil, D. (2014). Heliospheric Propagation of Coronal Mass Ejections: Comparison of Numerical WSA-ENLIL+Cone Model and Analytical Drag-based Model. , *213* (2), 21. doi:10.1088/0067-0049/213/2/21.

Vr˘snak, B., Z˘ic, T., Falkenberg, T. V., Mo¨stl, C., Vennerstrom, S., & Vrbanec, D. (2010). The role of aerodynamic drag in propagation of interplanetary coronal mass ejections. , *512* , A43. doi:10.1051/0004-6361/200913482.

Wagner, A., Asvestari, E., Temmer, M., Heinemann, S. G., & Pomoell, J. (2021). Validation scheme for solar coronal models – constraints from multi-perspective observations in EUV and white-light. *arXiv e-prints*, (p. arXiv:2110.01893). arXiv:2110.01893.

Waldmeier, M. (1956). M-regions and solar activity. *Vistas in Astronomy* , *2* (1), 808–813. doi:10.1016/0083-6656(56)90004-6.

Wang, C., Rosen, I. G., Tsurutani, B. T., Verkhoglyadova, O. P., Meng, X., & Mannucci, A. J. (2020a). Medium-Range Forecasting of Solar Wind: A Case Study of Building Regression Model With Space Weather Forecast Testbed (SWFT). *Space Weather* , *18* (12), e02433. doi:10.1029/2019SW002433.

Wang, J., Hoeksema, J. T., & Liu, S. (2020b). The Deflection of Coronal Mass Ejections by the Ambient Coronal Magnetic Field Configuration. *Journal of Geophysical Research (Space Physics)*, *125* (8), e27530. doi:10.1029/2019JA027530. arXiv:1909.06410.

Wang, Y., Shen, C., Liu, R., Liu, J., Guo, J., Li, X., Xu, M., Hu, Q., & Zhang, T. (2018). Understanding the Twist Distribution Inside Magnetic Flux Ropes by Anatomizing an Interplanetary Magnetic Cloud. *Journal of Geophysical Research (Space Physics)*, *123* (5), 3238–3261. doi:10.1002/2017JA024971. arXiv:1803.01353.

Wang, Y., Shen, C., Wang, S., & Ye, P. (2004). Deflection of coronal mass ejection in the interplanetary medium. , *222* (2), 329–343. doi:10.1023/B:SOLA.0000043576.21942.aa.

Wang, Y., Shen, C., Wang, S., & Ye, P. (2004). Deflection of coronal mass ejection in the interplanetary medium. *Solar Physics*, *222* (2), 329–343. URL: https://doi.org/10.1023/b:sola.0000043576.21942.aa. doi:10.1023/b:sola.0000043576.21942.aa.

Wang, Y., Wang, B., Shen, C., Shen, F., & Lugaz, N. (2014). Deflected propagation of a coronal mass ejection from the corona to interplanetary space. *Journal of Geophysical Research (Space Physics)*, *119* (7), 5117–5132. doi:10.1002/2013JA019537. arXiv:1406.4684.

Wang, Y., Xue, X., Shen, C., Ye, P., Wang, S., & Zhang, J. (2006). Impact of Major Coronal Mass Ejections on Geospace during 2005 September 7-13. , *646* (1), 625–633. doi:10.1086/504676.

Wang, Y., Zhang, Q., Liu, J., Shen, C., Shen, F., Yang, Z., Zic, T., Vrsnak, B., Webb, D. F., & Liu, R. (2016). On the propagation of a geoe ective coronal mass ejection during 15-17 March 2015. *Journal of Geophysical Research (Space Physics)*, *121* (8), 7423–7434. doi:10.1002/2016JA022924. arXiv:1607.07750.

Wang, Y. M. (2010). On the Relative Constancy of the Solar Wind Mass Flux at 1 AU. , *715* (2), L121–L127. doi:10.1088/2041-8205/715/2/L121.

Wang, Y. M., & Sheeley, J., N. R. (1990). Solar Wind Speed and Coronal Flux-Tube Expansion. , *355* , 726. doi:10.1086/168805.

Webb, D. F., & Howard, T. A. (2012). Coronal Mass Ejections: Observations. *Living Reviews in Solar Physics*, *9* (1), 3. doi:10.12942/ lrsp-2012-3.

Wedemeyer-B¨ohm, S., Lagg, A., & Nordlund, ˚A. (2009). Coupling from the Photosphere to the Chromosphere and the Corona. , *144* (1-4), 317–350. doi:10.1007/s11214-008-9447-8. arXiv:0809.0987.

Wiegelmann, T., Lagg, A., Solanki, S. K., Inhester, B., & Woch, J. (2005). Comparing magnetic field extrapolations with measurements of magnetic loops. , *433* (2), 701–705. doi:10.1051/0004-6361:20042421. arXiv:0801.4519.

Wiengarten, T., Kleimann, J., Fichtner, H., Ku¨hl, P., Kopp, A., Heber, B., & Kissmann, R. (2014). Cosmic Ray Transport in Heliospheric Magnetic Structures. I. Modeling Background Solar Wind Using the CRONOS Magnetohydrodynamic Code. , *788* (1), 80. doi:10.1088/0004-637X/788/1/80. arXiv:1406.0293.

Wijsen, N., Aran, A., Pomoell, J., & Poedts, S. (2019a). Interplanetary spread of solar energetic protons near a high-speed solar wind stream. , *624* , A47. doi:10.1051/0004-6361/201935139. arXiv:1903.09072.

Wijsen, N., Aran, A., Pomoell, J., & Poedts, S. (2019b). Modelling three-dimensional transport of solar energetic protons in a corotating interaction region generated with EUHFORIA. , *622* , A28. doi:10.1051/0004-6361/201833958. arXiv:1901.09596.

Wilcox, J. M. (1968). The Interplanetary Magnetic Field. Solar Origin and Terrestrial E ects. , *8* (2), 258–328. doi:10.1007/BF00227565.

Winslow, R. M., Lugaz, N., Philpott, L. C., Schwadron, N. A., Farrugia, C. J., Anderson, B. J., & Smith, C. W. (2015). Interplanetary coronal mass ejections from MESSENGER orbital observations at Mercury. *Journal of Geophysical Research (Space Physics)*, *120* (8), 6101–6118. doi:10.1002/2015JA021200.

Witasse, O., Sa´nchez-Cano, B., Mays, M. L., Kajdi˘c, P., Opgenoorth, H., Elliott, H. A., Richardson, I. G., Zouganelis, I., Zender, J., Wimmer-Schweingruber, R. F., Turc, L., Taylor, M. G. G. T., Roussos, E., Rouillard, A., Richter, I., Richardson, J. D., Ramstad, R., Provan, G., Posner, A., Plaut, J. J., Odstrcil, D., Nilsson, H., Niemenen, P., Milan, S. E., Mandt, K., Lohf, H., Lester, M., Lebreton, J. P., Kuulkers, E., Krupp, N., Koenders, C., James, M. K., Intzekara, D., Holmstrom, M., Hassler, D. M., Hall, B. E. S., Guo, J., Goldstein, R., Goetz, C., Glassmeier, K. H., G´enot, V., Evans, H., Espley, J., Edberg, N. J. T., Dougherty, M., Cowley, S. W. H., Burch, J., Behar, E., Barabash, S., Andrews, D. J., & Altobelli, N. (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. *Journal of Geophysical Research (Space Physics)*, *122* (8), 7865–7890. doi:10.1002/2017JA023884.

Xiong, M., Zheng, H., & Wang, S. (2009). Magnetohydrodynamic simulation of the interaction between two interplanetary magnetic clouds and its consequent geoe ectiveness: 2. Oblique collision. *Journal of Geophysical Research (Space Physics)*, *114* (A11), A11101. doi:10.1029/2009JA014079. arXiv:0904.0173.

Xu, F., & Borovsky, J. E. (2015). A new four-plasma categorization scheme for the solar wind. *Journal of Geophysical Research (Space Physics)*, *120* (1), 70–100. doi:10.1002/2014JA020412.

Yashiro, S., Gopalswamy, N., Michalek, G., St. Cyr, O. C., Plunkett, S. P., Rich, N. B., & Howard, R. A. (2004). A catalog of white light coronal mass ejections observed by the SOHO spacecraft. *Journal of Geophysical Research (Space Physics)*, *109* (A7), A07105. doi:10.1029/2003JA010282.

Yurchyshyn, V. (2008). Relationship between EIT Posteruption Arcades, Coronal Mass Ejections, the Coronal Neutral Line, and Magnetic Clouds. , *675* (1), L49. doi:10.1086/533413. arXiv:0710.1292.

Zhang, J., Temmer, M., Gopalswamy, N., Malandraki, O., Nitta, N. V., Patsourakos, S., Shen, F., Vr˘snak, B., Wang, Y., Webb, D., Desai, M. I., Dissauer, K., Dresing, N., Dumbovi´c, M., Feng, X., Heinemann, S. G., Laurenza, M., Lugaz, N., & Zhuang, B. (2021). Earth-a ecting solar transients: a review of progresses in solar cycle 24. *Progress in Earth and Planetary Science*, *8* (1), 56. doi:10.1186/s40645-021-00426-7. arXiv:2012.06116.

Zhang, S., Wang, R., & Zhang, X. (2007). Identification of overlapping community structure in complex networks using fuzzy c-means clustering. *Physica A.*, *374* , 483–490.

Zhao, L., Zurbuchen, T. H., & Fisk, L. A. (2009). Global distribution of the solar wind during solar cycle 23: Ace observations. *Geophysical Research Letters*, *36* (14). doi:https://doi.org/10.1029/2009GL039181.

Zhelavskaya, I. S., Vasile, R., Shprits, Y. Y., Stolle, C., & Matzka, J. (2019). Systematic Analysis of Machine Learning and Feature Selection Techniques for Prediction of the Kp Index. *Space Weather* , *17* (10), 1461–1486. doi:10.1029/2019SW002271.

Zhuang, B., Wang, Y., Hu, Y., Shen, C., Liu, R., Gou, T., Zhang, Q., & Li, X. (2019). Numerical Simulations on the Deflection of Coronal Mass Ejections in the Interplanetary Space. , *876* (1), 73. doi:10.3847/1538-4357/ab139e.

Zurbuchen, T. H., & Richardson, I. G. (2006). In-Situ Solar Wind and Magnetic Field Signatures of Interplanetary Coronal Mass Ejections. , *123* (1-3), 31–43. doi:10.1007/s11214-006-9010-4.

Zurbuchen, T. H., Weberg, M., von Steiger, R., Mewaldt, R. A., Lepri, S. T., & Antiochos, S. K. (2016). COMPOSITION OF CORO- NAL MASS EJECTIONS. *The Astrophysical Journal* , *826* (1), 10. URL: https://doi.org/10.3847/0004-637x/826/1/10. doi:10.3847/ 0004-637x/826/1/10.