REFERENCES

Alessandro B., Luciano B., Matteo G., Giuseppe G., Giuseppe R., Angelo D. and Nicola P. (2017), "Conceptual design of the descent subsystem for the safe atmospheric re-entry flight of space rider," *7th European conference for aeronautics and space sciences (EUCASS)*, pp. 017-0624. DOI: 10.13009/EUCASS2017-624.

Anthony Gojanovic (1996), "An introduction to failure mode and effects analysis," A thesis submitted to the University of Colorado at Denver, pp. 11-12.

Apollo-Soyuz–Wikipedia and, http://lsda.jsc.nasa.gov/apollo/astp.stm. (Accessed on 16.04.19).

Ashok R., Pant Rajkumar S. and Sudhakar K. (2010), "Dynamic stability analysis of a tethered aerostat," *J. of aircraft*, vol. 47(5), DOI: 10.2514/1.47010.

Bedford Tim and Cooke Roger (2011), "Book on probabilistic risk analysis: foundations and methods," Cambridge University Press, 7th printing, co-author Bernd Krana, Jan Norstrom and Lonneke Holierhoek, pp. 218-238.

Behr Vance L. and Potvin Jeans (2008), "Parachute definition, nomenclature and types," Parachute systems technology short course, U.S. Army Yuma Proving Ground, Yuma, AZ, pp.11.

Benson Harold E. (1966), "Water impact of Apollo spacecraft," *AIAA Journal of Spacecraft*, 3(8), pp. 1282-1284.

Bledsoe K., Eglert M., Morris A. and Olmstead R. (2009), "Overview of the crew exploration vehicle parachute assembly system (CPAS) generation-I main and cluster development test results", *20th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar,* Seattle, WA, AIAA-2009-4906.

Bloetscher F. (1967), "Aerodynamic deployable decelerator performance-evaluation program, phase II," Goodyear Aerospace Corporation Technical Report, AFFDL TR-67-24.

Bradley Jr. G. H. (1971), "Preliminary development report on the electronic reefing lines-cutter," Sandia Laboratories, Report No. SC-DR-70-865.

Brandon P. Smith, Christopher L. Tanner, Milad Mahzari, Ian G. clark, Robert D. Braun (2010), "A historical review of inflatable aerodynamic decelerator technology development," *IEEE Aerospace Conference,* pp. 1276, version 3, DOI:10.1109/AERO.2010.5447013.

Bricknell M. C. M., Amoroso P. J. and Yore M. M**.** (1999), **"**What is the risk associated with being a qualified military parachutist," 49(3), pp. 139-145.

Buhler W. C. (1961), "Project Mercury, landing parachute development and qualification," Northrop-Radio-plane report No. 2312.

Callwood Khoy Noel (2014), "Preliminary design and evaluation of a tethered balloon system with a constant volume torus envelope for low altitude operations in light winds," Master's thesis, University of Tennessee, http://trace.tennessee.edu/utk_gradthes/2797.

Carlson Carl S. (2012), "Effective FMEAs: achieving safe, reliable, and economical products and processes using Failure Mode and Effects Analysis," John Wiley & Sons, Wiley series in *Quality & Reliability Engineering*.

Carol Evans, Tim Fisher, Ricardo M. and Christine Stewart (2011), "Human rating the Orion parachute system," *21st AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar,* Dublin; Ireland, pp. 6, Table-1 & 2. DOI: 10.2514/6.2011-2502.

Christine E. Stewart (2013), "Spacecraft parachute recovery system testing from a failure rate perspective," *AIAA Aerodynamic Decelerator System Conference*, AIAA-2013-1308, DOI: doi.org/10.2514/6.2013-1308.

Cruz J. R. and Lingard J. S. (2006), "Aerodynamic decelerators for planetary exploration: past, present, and future," AIAA Guidance, Navigation, and Control Conference and Exhibits, AIAA 2006-6792.

Cruz Juan R. (2008), "Flight mechanics-I: trajectory analyses," H.G. Heinrich Parachute System Short Course, *Atmospheric Flight and Entry Systems Branch*, NASA Langley Research Center, Hampton, VA. pp. 2-30.

Dawning J. R., Arenson D. L. and McClow Jr. J. H. (1954), "Recovery system for missile and target aircraft," USAF TR-58-284, Part-I.

Dhillon, B. S. (1999), "Design reliability," Boca Raton: CRC Press.

Donald M., Neal W. T., Matthews and Mark G. Vangel (1991), "Model sensitivity in stress-strength reliability computations," *36th Conference on the Design Experiments in Army Research Development and Testing*, ARD, pp. 3-6.

Eckstrom Preisser, John S. and Clinton V. (1968), “Flight test of a 40-foot nominal diameter disk-gap-band parachute,” NASDA technical reports server (NTRS), Science.gov.in.

Erik Fadlovich (2007), “Performing Failure Mode and Effect Analysis,” [cited 2010: http://www.embeddedtechmag.com/component/content/article/6134].

Ewing E. G., Bixby H. W. and Knacke T. W. (1978), “Recovery system design guide,” Report No. AFFDL-TR-78-151, pp.16-18, 283-286 and 375-378.

Ewing E. G. and Hall J. R. (1971), “Deployable aerodynamic deceleration systems-space vehicle design criteria (structure),” Technical report No. NASA-SP-8066, pp. 63.

Gautam R. K. and Khan Ramjani (2017), “Design considerations of hybrid tether for surveillance aerostat,” *National Conference on Aerial Delivery & Airborne Surveillance System (ADAAS-2017)* held at ADRDE, paper serial No. P-225.

Gillis C. L. (1973), “The Viking decelerator system-an overview;” *4th Aerodynamic Deceleration Systems Conference*, AIAA 73 - 442. DOI.org/10.2514/6.1973-442.

Guglieri Giorgio (2012), “Parachute-Payload System Flight Dynamics and Trajectory Simulation” *Int. J. of Aerospace Engineering*, Article ID 182907, pp. 17 DOI:10.1155/2012/182907.

Guo Zhi Mei1, Miao QiLong, Wang Shu Dong and LI Huang (2011), “Prediction of the trajectory of the manned spacecraft Shenzhou-7 deploying a parachute based on a fine wind field,” Research paper science *China Earth Sciences*, 54(9), 1413–1429. DOI: 10.1007/s11430 - 011- 4234-x.

Gupta Balraj (2010), “Aerial delivery systems and technologies,” *Defence Science. Journal*, 60(2), pp. 124-136. DOI:10.14429/dsj.60.326.

Gupta S. (2007), “Lighter-than-air technology of ADRDE: An overview,” Continuing education program on design and testing of aerostat systems, Aerial Delivery Research and Development Establishment, Agra, India, pp.1–25.

Haugen, F.B. (1991), “Probabilistic approach to design,” John Wiley & Sons, New York.

Heinrich H.G., Riabokin T., Ibrahim S. K., Haak E.L. and Niccum R. J. (1961), “Theoretical parachute investigations,” Progress report No.19, Project No. 6065, Contract No. AF 33(616)-8310, University of Minnesota, pp. 2-11.

Hixenbaugh A. F. (1968), "Fault tree for safety," Seatle Washington, The Boeing Co.

Hunt J.D. (1981), "Structural analysis of aerostat flexible structure by finite element method*," J. Aircraft*, 19(8), 674-678. doi: 10.2514/3.57448.

ISO 31000:2018 (2018), "Risk management guidelines," 2nd ed., section 3.1, 3.2 & 3.4.

Jailer Robert, W., Gerald Freilich and Monroe L. Norden. (1960), "Analysis of heavy-duty parachute reliability," American Power Jet Co. WADD Technical Report 60-200, AD 246490, Contract No. 8151, Task No. 61052USAF, pp. 8-56.

John Vincze (1966), "Gemini spacecraft parachute landing system," Report No. NASA TN D-3496, pp. 6.

John S. Duncan (2015), "Parachute rigger handbook," US department of transportation, FAA-H-8083-17A (change-1), Flight standard service, pp. 3-1 to 3.26.

Johnson D. W. (1989), "Testing of a new recovery system for the F-11 aircraft crew escape system-an-update," AIAA report no. AIAA-89-0891.

Jones Tyrone L. (2011), "Handbook of reliability prediction procedures for mechanical equipment," NSWCCD-11, Maryland 20817-5700.

Kapur, K. C. and Lamberson, L. R. (1977), "Reliability in engineering design," Publisher, John Wiley & Sons, New York.

Kececioglu D. and Cormier D. (1968), "Designing a specified reliability directly into a component," In proceeding of *3rd Aerospace Reliability and Maintenance Conference*.

Kececioglu, D. (1991), "Reliability engineering handbook," vol. 1 & 2, PH, Englewood Cliffs, NJ.

Knacke T.W. (1963), "Performance and design criteria for deployable aerodynamic decelerators," USAF ASD-TR-61-579.

Knacke, T.W. (1963), "Study of pressure packing techniques for parachutes," ASD-TR-61-426.

Knacke T.W. (1968), "The Apollo parachute landing system"; Presented to the *2nd AIAA Aerodynamic Decelerator Systems Conference*, El Centro, CA.

Knacke T. W. (1986), "Technical-historical development of parachutes and their applications since World War I," Technical report No. AIAA-86-2423.

Knacke T. W. (1976), "Reefing of parachutes-drag area ratios versus reefing lines ratios," Report No. ASD-TR-76-2, USAF, Para Publishing, Santa Barbara, California.

Knacke T. W. (1992), "Parachute recovery systems design manual," Para Publishing, Santa Barbara, California, Report No. NWC-TP-6575, AD-A247-666, pp. 5-3, 5-4, 5-21, 5-41, 5-50, 5-54, 5-92.

Kolesar R. and Yechout T. (2013), "Experimental investigation of NASA Orion pilot chute drag characteristics," *22nd AIAA Aerodynamic decelerator systems technology conference*, AIAA paper No. 2013-1355, Daytona Beach, Florida.

Kulkarni Paresh V. and Srivastva R. K. (2013), "Failure mode and effects analysis: process capability enhancement- A case study," *Int. J. of Engineering. Research & Technology*, 2(4), ISSN: 2278-0181.

Kumar A., Sati S.C. and A.K. Ghosh (2016), "Design, testing, and realization of a medium size aerostat envelope", paper published in *Def. Sc. J.* vol. 66(2), pp. 93-99, DOI :10.14429/dsj.66.9291.

Kumar Swadesh, Yadav Anurag, Jain S.M., Ahmed Mahboob, and Singh S.P. (2014), "Performance Investigation of Nylon-Kevlar Ring slot Parachute," *Def. Sc. Journal*, vol. 64(4), pp. 406-410. DOI: 10.14429/dsj.64.4950.

Lambert Casey (2006), "Dynamics and control of a multi-tethered aerostat positioning system", A thesis submitted to McGill University in partial fulfillment of the requirements of the degree of Doctor of Philosophy, pp.21.

Lingard Steve (2008), "Parachutes for space use," *3rd Int.Planetary Probe Workshop*, Vorticity Ltd, US Army, pp. 2-5.

Logsdom M. John and Roger D. L. (2008), "Exploring the unknown; human spaceflight: project Mercury, Gemini, and Apollo," volume II, NASA History Series, NASA-SP-2008-4407, pp.1-48.

Ludtke W. P. (1986), "Notes on a generic parachute opening force analysis," NSWC-TR-86-142, Underwater System Department, Maryland, pp. 2-39.

Lutomski M.G. and Garza J. (2012), "Estimating the reliability of a crewed spacecraft," Proceeding of the *5th IAASS Conference, A Safety Space for Safer World*, Editor, Ouwehand L. Noordwijk, Netherlands, European Space Agency, id 32.

MacDonnell (1965), "NASA project Gemini: familiarization manual," Manned Satellite Spacecraft, SEDR 300, vol.1, pp. 12-7 - 12-19.

Macha J. M. (1993), "A simple approximate model of parachute inflation," *12th RaeS/AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar*, London, United Kingdom, pp. AIAA-93-1206.

Macha J. (2012), "An introduction to testing parachutes in wind tunnels," *11th AIAA Aerodynamic Decelerator Systems Technology Conference*, San Diego, CA (USA), pp. 091-0858. DOI: doi.org/10.2514/6.1991-858.

Mary A. L. and Marvin R. (2014), "Reliability of safety-critical systems: theory and applications," RAMS group, Department of Mechanical and Industrial Engineering, NTNU. (Version 0.1), Chapter 5, pp. 91-164. DOI:10.1002/978-1-118-11272-4.

Maydew R. C. and Johnson D. W. (1972), "Supersonic and transonic deployment of ribbon parachutes at low altitude," *J. Aircraft*, Vol. 9(7).

Maydew R. C. and Peterson, C.W. (1991), "Design and testing of high-performance parachutes," AGARD-AG-319, pp. 12, 219-221.

McVey D. F., Pepper W.B. and Reed, J. F. (2012), "A parametric wind tunnel study of ribbon parachutes," Proceeding of AIAA *5th Aerodynamic Deceleration Systems Conference,* pp. 075-1370-CP. DOI: doi.org/10.2514/6.1975-1370.

Michael J. Kelly. (2010), "CEV parachute assembly system independent, "Report No. NASA/TM-2010-216868/Vol.(I), NESC-RP-08-00487. pp. 57-58.

MIL-STD-1629 A (1980), "Procedures for performing a failure mode effects and criticality analysis," Department of Defence, Report No. AMSC-N 3074, (Project No. RELI-0003), Task 101, 102 & 105, pp. 101-105.

Mittal S., Chaturi Singh and Brajesh Chandra, (2014), "Measurement of aerodynamic forces and moments on 1:24 scaled down model of GNVR aerostat using wind tunnel testing; NWTF," technical report – 265.

Mohaghegh F. and Jahannama M.R. (2007), "Parachute filling time: A criterion to classify parachute types," *19th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar*, Meeting paper, AIAA-2007-2527. DOI:10.2514/6.2007-2527.

Montgomery D. C. and Runger, G. C. (2007), “Applied statics and probability for engineers,” 4th ed., John Wiley & Sons, New York, pp. 262.

Moog R. D., Bendura R. J., Timmons J. D. and Lau R. A. (1973), “Qualification flight test of the Viking deceleration system,” AIAA 73-457.

Morris, A. L. (2011), “Simulating new drop test vehicles and test techniques for the Orion CEV parachute assembly system,” *21st AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar*, pp. 2011-2616.

Nebikar F. R. (1961), “Feasibility study of an inflatable type stabilization and deceleration system for high-altitude and high-speed recovery,” Goodyear Aircraft Corporation, WADD TR-60-182.

Nebikar F. R. (1965), “Aerodynamic deployable decelerator performance-evaluation program,” Goodyear Aerospace Corporation Technical Report, AFFDL TR-65-27.

Norman L.C. (1967), “Gemini land landing system development program, vol. I and II,” NASA report no. NASA-TN-D-3869.

Neustadt M. (1967), “A Parachute Recovery System Dynamics Analysis. *Journal of Spacecraft and Rockets*, vol. 4(3).

Ordnance Equipment Group of Factories (OEFG-2013), “Quality control and quality assurance standard operating procedure,” Report No. 24 2013, Chapter-VII. 2013.

Ostroumov B. and Glazkov Yu. (1999), “Soyuz crew operations manual (SoyCOM) final,” Document No. 0004AE4b (ROP-19), Yu. A. Gagarin Cosmonaut’s Training Center, pp. 187-193.

Peggy M. Wagner (1976), "Experimental measurement of parachute canopy stress during inflation," Technical report No. AFFDL-TR-78-53.

Pepper W. B., Bradley Jr. G. H. and Jacoby W. C. (1973), “Development of an electronic time delay reefing lines-cutter for parachutes,” Sandia Laboratories, SLA-73-0989.

Peterson, C. W. and Jonson, D.W. (2012), “Reductions in parachute drag due to forebody wake effects,” doi.org/10.2514/3.44826.

Philipson, L. L. and Wilde, P. D. (2000), “Sampling of uncertain probabilities at event tree nodes with multiple branches,” *Reliability Engineering and System Safety*, pp.197-203.

Pickard, K., Müller, P. and Bertsche, B. (2005), "Multiple failure mode and effects analysis- An approach to risk assessment of multiple failures with FMEA," *Annual reliability and maintainability symposium*, Alexandria, VA, USA, pp. 457– 462.

Poddar, K. (2011), "Wind tunnel study of conical ribbon, ring slot and circular slotted HSP parachute," NWTF Technical Report - 142, 143 and 144, April 2011.

Ray Eric S. (2017), "Test vehicle forebody wake effects on capsule parachute assembly system (CPAS)," *24thAIAA, Aerodynamic Decelerator Systems Technology Conference*, AIAA Aviation forum, Denver, Colorado, pp. AIAA 2017-3227.

Rives J., Portiggliotti and LeveugleT. (2012), "Atmospheric re-entry demonstrator descent and recovery sub-system qualification test-flight dynamics and trajectory modeling during descent," *14th Aerodynamic Decelerator Systems Technology Conference and Seminar*, pp.75. doi.org/10.2514/6.1997-1441.

Robert Borgovini, Stephen Pemberton and Michael Rossi (1993), "Failure mode effects and criticality analysis," Report No. F30602-91-C-0002, RAC Rome NY, pp. 1-85.

Robert P. Ocampo and Klaus M. (2013), "A review of spacecraft safety: from Vostok to the International Space Station," *Aerospace Engineering Science*, New Space, 1(2), pp. 78-79. Doi:10.1089/space.2013.0015.

Roscoe M. Moore III (1998), "Risk analysis and the regulation of reusable launch vehicles," *J. of Air Law & Commerce,"* 64(12), Issue 1, pp.257-270.

Shafiee M. and Dinmohammadi F. (2014), "An FMEA-based risk assessment approach for wind turbine systems: A comparative study of onshore and offshore," Energies 7, pp. 619–642.

Sharma, N., Sehgal R. and Pant Rajkumar. S. (2014), "Design fabrication and deployment of a tethered aerostat system for aerial surveillance", Proceedings of national level conference on advances in aerial/road vehicle and its application, MIT Manipal, India.

Sidana, M.L, Jain, J.C., Pal A. and Goel A. (2005), "Design, development and validation of a recovery systen for 500 kg re-etry payload," *18th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar*, AIAA-2005-1638.

Stephen A. Whitmore, Brent R. Cobleigh, Steven R. Jacobson, Steven C. Jensen and Elsa J. Hennings (2004), "Development and testing of a drogue parachute system for X-37ALTV/B-52H separation," Report no. NASA/TM-2004-212044, pp. 26.

Stuart Phil C. (2012), "Orion crew forebody pressure recovery fractions," Report No. EG-CAP-12-27, NASA/JSC EG3.

Subramanyam, H.Y., Narendra M.S. and Murthy S.S. (2008), "Stress analysis of 2000 m^3 aerostat for combined loading conditions," NAL, Bangalore, India, Report No. NAL–PD-STTD 0806.

Swadesh K., Mahendra P., Pal S. K. and Singh S.P. (2011), "Preliminary design of recovery parachute system for HSP," Design Document No. ADRDE/PG/RP/HSP/PDR /01, pp. 25-32 (not in public domain).

Taylor A., Machin R., Royall P. and Sinclair R. (2007), "Developing the parachute system for NASA's Orion: An overview at inception," *19th AIAA Aerodynamic Decelerator Systems Technology Conference and Seminar*, Williamsburg, VA, AIAA-2007-2577.

Tomlin D., Faile G., Hayashida K., Frost C., Wagner C. Y., Mitchell M., Vaughn, J. and Galuska M. (1997), "Space tethers: design criteria," NASA TM-108537, Structures and dynamics laboratory, science and engineering directorate. NASA Marshall Space Flight Center, AL 35812, pp. 2.

Vesely, W. E., Goldberg, F. F., Roberts N. H. and Haasl D.F. (1998), "Fault tree handbook," Washington D C, U S Government Printing Office.

Waghmode L.Y. and Patil Rajkumar B. (2013), "An over view of fault tree analysis (FTA) method for reliability analysis," *J. of Eng. Research and Studies,* Research article, vol. 4(1), pp.1-3.

Warren P. S. (1956), "USAF parachute handbook, manual," WADC Technical Report NO. 55-265, Wright Air Development Center, Ohio.

Weerahandi S. and Johnson R. A. (1992), "Testing reliability in a stress-strength model when X and Y are normally distributed," *Technometrics,* vol. 34(1), pp. 64-68.

West Robert B. (1973)., "Apollo experience report–earth landing system," Technical Report No. NASA-TN D-7437, JSC-S-370, Affiliation NASA Lyndon B. Jonson space center, Texas, USAF, pp.1-15.

Wolf D. E. (1974), "A simplified dynamic model of parachute inflation," *J. of Aircraft,* vol.11, pp. 28-33.

Wikipedia.org/wiki/Soyuz_(spacecraft). Accessed on 20.12.20.

www.BRSaerospace.com, “Ballistic recovery systems Inc. Owner’s manual and general installation guide for BRS-6™ emergency parachute recovery systems,” BRS part No. 020002-01, revision A, pp. 39. (Accessed on 23.12.2020)

www.nasa.gov.com, “NASA completes Orien parachute tests for mission with astronauts,” NASA TV. (Accessed on 03.12.2020)

www.russianspaceweb.com, “Soyuz landing-how Soyuz return to earth,” Soyuz mission profile MS-08. (Accessed on 02.12.2020)

www.spaceflight.com, “Shenzhou spacecraft overview,” China National Space Administration. (Accessed on 02.12.2020)

Yahia, Z. M. (2018), “Systems risk analysis using hierarchical modeling,” *J. of Quality Eng. & Prod. Optimization*, 3(1), pp. 27-42.

Appendix 'A'

Table A.1: Comparison between Apollo and Soyuz Deceleration System

Apollo (with payload mass of 5900 kg)	Soyuz (with payload mass of 3000 kg)
System description	**System description**
• Two stage cluster parachute system. • Total number of parachutes was 9. • Initiation altitude was 7.6 km. • Main parachute deployed at 3.07 km. • Redundancy is provided in every stage of deceleration, by adding one extra parachute in drogue and main parachute. • The terminal speed was 8.9 m/s. • No retro rockets were provided (landed on sea surface).	• Two stage single parachute system. • Total number of parachutes was 6. • Initiation altitude was 10 km. • Main parachute deployed at 5km. • Redundancy is provided by keeping a complete backup system of reduced diameter parachutes. • The terminal speed was 8 m/s. • Finally, 2-3 m/s with the retro rockets (landed on ground).
Abort Case (landing on sea)	**Abort Case (landing on land)**
• The same parachute can work in abort situation by overriding the 1st stage deceleration if desired by crew. • Abort altitude was not known. • The size of the main parachute is same both for nominal and abort case (26.27 m). • In the case of abort, the maximum deceleration was the same as that in nominal deployment (8.9 m/s). • No reserve parachute is provided.	• Separate parachute system was provided with smaller diameter parachute followed by retro rocket. • The abort system is designed to deploy at an altitude of 3 to 6 km. • Size of main parachute was 35.7 m in primary system, where 27 m in backup system. • In the case of abort, the maximum deceleration was up to 10 m/s, and final deceleration with retro rocket in worst case scenario is up to 4 to 9 m/s.

Forward heat shield Separation	**Forward heat shield Separation**
• Forward heat shield removal was from the top of the module. • Forward heat shield removal is done by mortar ejected pilot chute.	• Forward heat shield ejection was from the side of the module. • Details on forward heat shield ejection method are not available.
Failure Modes	**Failure Modes**
• Failure detection and backup actuation system is not required due to inbuilt redundancy in the system • Any failure in parachute during re-entry will be taken care of automatically by the respective redundant parachutes. Hence, possibility of losing stability was avoided. • It had single system with single forward heat shield. If the forward heat shield does not open, the deceleration process cannot be initiated.	• Failure detection and parachute activation system was designed for triggering the secondary parachutes. • If the failure in the parachute occurs during re-entry, the module may lose its stability. The abort system was to be deployed at this stage. • Two separate deceleration systems were provided with two separate parachute containers each with separate Forward heat shield.
Parachute Deployment	**Parachute Deployment**
• Parachutes were mortar deployed.	• Deployment mechanism (whether mortar or catapult) is not known.
Reliability	**Reliability**
○ Reliability of the complete system is 0.99994	• Operational reliability is 0.960 in normal mode

LIST OF PUBLICATIONS

A. Paper Published in International Journals

1. Agrawal A. K., Pratap Mahendra, Sati S. C. and Upadhyay R. K. (2020), "Reliability-based optimized design of hybrid tether," *Aircraft Engineering and Aerospace Technology*, vol. 92(8), pp. 1141-1147. doi.org/10.1108/AEAT-01-2020-0007.

2. Pratap Mahendra, Agrawal A. K. and Kumar S. (2019), "Design and selection criteria of main parachute for re-entry space payload," *Defence Science Journal*, vol. *69*(6), 531-537. doi.org/10.14429/dsj.69.12681

3. Pratap Mahendra, Agrawal A. K., Sati S. C. and Kumar V. (2020), "Forebody wake effects on parachute performance for re-entry space application," *Defence Science Journal*, vol. *70*(3), pp. 223-230. doi.org/10.14429/dsj.70.14749

4. Pratap Mahendra, Agrawal A. K., Sati S. C. and Saxena A. K. (2021), "Design improvement of air deployable aerodynamic decelerator for high altitude launch of Sonobuoy based on investigation and experimentation;" *Journal of Aircraft Engineering and Aerospace Technology*, DOI (10.1108/AEAT-01-2021-0020).

5. Pratap Mahendra, Agrawal A. K., Sati S. C. and Saxena A. K. (2021), "A computational and experimental study for reducing forebody wake effect by proper designing of a slit-cut square parachute used for sonobuoy drop," *Defence Science Journal, vol*. 71(5), pp. 594-601. doi: 10.14429/dsj.71.15482**.**

B. Paper Published in National Conferences Proceedings

1. Kaushik A., Pratap Mahendra and Saxena A. K. (2018), "Fault detection study of inflatable structure: An FMEA approach," *11th National Symposium and Exhibition on Aerospace & Defence Related Mechanism (ARMS 2018),* BITS Pilani Campus, Hyderabad, India, pp. 111-117.

2. Verma V. K., Krishna R., Pratap Mahendra and Saxena A. K. (2018), "Experimental investigation of aerodynamic interference of forebody on parachute," *11th National Symposium and Exhibition on Aerospace & Defence Related Mechanism (ARMS 2018),* BITS Pilani Campus, Hyderabad, India, pp. 215-218.

3. Verma V. K., Krishna R., Prasad S. and Pratap Mahendra (2018), "Design and development of advanced parachute for paratrooper," *11th National Symposium and*

Exhibition on Aerospace & Defence Related Mechanism (ARMS 2018), BITS Pilani Campus, Hyderabad, India, pp. 238-240.

4. Pratap Mahendra (2017), "Basic design criteria of supersonic parachute for aerospace application," *National Conference on Arial Delivery & Airborne Surveillance Systems (ADASS -2017)*, ADRDE, Agra.

5. Singh S. K., Kumar S., Pratap Mahendra and Singh S. P. (2017), "Parachute system for 15 kg class Sonobuoy," *National Conference on Arial Delivery & Airborne Surveillance Systems (ADASS-2017)*, ADRDE, Agra.

6. Pratap Mahendra (2016**)**, "Analysis of availability and reliability importance of tethered aerostat," *10th National Symposium and Exhibition on Aerospace & Defence Related Mechanism (ARMS 2016)*, November 18-19, Thiruvanathpuram, India.