Curriculum Vitae

Name: Dr. Krishnan Raghavan, FASc, FNA, FNASc, FIMS

Institution: Former Director, Indian Institute of Tropical Meteorology (IITM)
Dr. Homi Bhabha Road, Pashan, NCL Post
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Education:

B.Sc. - (1985) Bangalore Univ; First Class (Physics, Mathematics and Chemistry)
M.Sc.- (1987) Madras Institute of Technology, Anna Univ; First Class (Applied Mathematics)
Ph.D.- (1994) University of Pune (Dept of Physics; specialization in Atmospheric Science).
Ph.D. research work "Dynamics of large-scale heat induced circulations in the tropical atmosphere" carried out at the Physical Research Laboratory, Ahmedabad, India.

Area of Expertise: Climate Modelling and Analysis

1. Global Climate Change and Variability
2. Climate Dynamics – Global and Regional
3. Dynamics and Variability of the Indian and Asian Monsoon
4. Global and Monsoon Hydrological Cycle

Affiliations in India

- Director, IITM, Pune, India
  - *09 June 2022 – 31 March 2025*
- Director (In Charge), IITM, Pune, India
  - *01 Nov 2021 – 08 Jun 2022*
  - *07 Dec 2015 -02 Mar 2017*
  - *01 Aug 2014 - 03 Mar 2015*
- 2011 – 9 June 2022: Scientist-G and Executive Director, CCCR, IITM, Pune
- 1995 - 2000: Senior Scientist, IITM, Pune, India
  - *1995 – 2000 – Scientist D*
  - *2000 – 2005 – Scientist E (Head, Climate & Global Modelling Division, CGMD, since Oct 2002)*
  - *2005 – 2009 – Scientist-F, Head, CGMD*
  - *Nov 2009 – Dec 2010 – Scientist-F and In-Charge, Centre for Climate Change Research (CCCR)*
- 1992-1995:Senior Scientific Officer, National Centre for Medium Range Weather Forecasting, New Delhi, India
- 1987-1992: Research Fellow, Physical Research Laboratory, Ahmedabad, India

Visiting assignments abroad:

- 1998-2000: Visiting Researcher, Frontier Research System for Global Change, Japan
- 2001 (Feb – July): Visiting Scientist, Scripps Inst. of Oceanography, Univ of California, San Diego, USA
- 2007 (Jul – Aug); Visiting Researcher, Department of Meteorology, University of Reading, UK.
- 2009 (June – Sep): Visiting Scientist, Meteorological Research Institute, Tsukuba, Japan
- 2014 (April – June) : CSIRO Distinguished Visiting Scientist, CMAR, Aspendale, Melbourne, Australia
- 2017 (Sep-Oct): Visiting Scientist, Potsdam Institute for Climate Impact Research, PIK, Germany

List of publications, research guidance, recognition and honour

Publications: Total = 165 scientific articles (141 in peer-reviewed journals & books / book chapters, 24 Research Reports, Newsletters, etc). PhDs Supervised / co-supervised = 26 [21 (awarded) + 1 (submitted) + 4 (ongoing)] & 7 Master (M.Sc/M.Tech) dissertation. Offered training lectures in Geophysical Fluid Dynamics & Atmospheric Sciences. https://scholar.google.co.in/citations?user=XTOAvmoAAAAJ&hl=en
https://www.tropmet.res.in/5-R.%20%20Krishnan-scientist_detail

Awards:

- MoES National Award of Excellence in Atmospheric Science and Technology, Ministry of Earth Sciences, Government of India – July 2021.
- IITM Golden Jubilee Biennial Award – 2014 – Outstanding Research Contributions
- IITM Silver Jubilee Award for best research paper (Five times: 1998, 2005, 2009, 2017, 2018)
- Prof. Anandu Vernekar Award, India Meteorological Society (IMS)
- Frontier Outstanding Research Award, FRSGC, Japan (Twice: 1999 and 2000)
- Ph.D. Fellowship Award, Physical Research Laboratory, Ahmedabad (1987 - 1992)
- Dr. Narasinha Rao Prize for proficiency in Mathematics during M.Sc, Anna University

Honors and Recognition:

- Fellow, Indian National Science Academy, New Delhi, India
- Fellow, Indian Academy of Sciences, Bengaluru, India
- Fellow, Indian Meteorological Society, India
- Member, Joint Scientific Committee (JSC), World Climate Research Programme, W (2019-2024)
- Coordinating Lead Author Sixth Assessment Report (AR6) IPCC WG1, Intergovernmental Panel on Climate Change (IPCC)
- Coordinating Lead Author, Hindu Kush Himalayan Monitoring & Assessment Programme (HIMAP)
- Member, Research Advisory Committee, National Centre for Coastal Research, Chennai, India
- Member, Research Advisory Committee, National Centre for Polar & Ocean Research, Goa, India
- Member, Scientific Advisory Committee, National Atmospheric Research Laboratory, Gadanki, India
- Member, Scientific Advisory Committee (Atmos. Sciences), Aryabhatta Institute of Observational Sciences (ARIES), Nainital, India
- Member, Programme Advisory & Monitoring Committee (PAMC), Atmospheric Science, MoES, India
- MoES Representative: Quad Working Group on Climate Change, MoEF & CC, Govt. of India
- Chairman, Sub-committee on Global Warming and Coastal Impacts. INAE Expert Committee on Technology Preparedness for dealing with National Disruptions
- Member, Sub-committee on Global warming and related impacts on agriculture, health and disease. INAE Expert Committee on Technology Preparedness for dealing with National Disruptions
- Expert Member, Working Group, Climate Research, Mega Science Vision Document, Office of the Principal Scientific Adviser, Govt. of India
- Core Member, Expert Committee on Earth and Atmospheric Sciences, Science and Engineering Research Board (SERB), DST, India
- Member, Project Advisory and Monitoring Committee, National Network Programme on Climate Modelling, National Mission for Strategic Knowledge on Climate Change, DST, India
- Member, Scientific Review and Monitoring Committee, Monsoon Mission, MoES, India
- Member, Board of Studies, University of Pune, Pune
- Member of Faculty and Member Board of Studies, CUSAT (Atmos & Marine Sciences), Kochi
- Member, Monsoon Panel, CLIVAR, WCRP, WMO, Geneva, Switzerland, 2014-2018
- Member CORDEX Science Advisory Team, WCRP, WMO, Geneva, Switzerland, 2012-2014
- Member, Scientific Steering Committee, Monsoon Asia Integrated Regional Study (MAIRS), 2012-15
- Editor: Mausam, Journal of Indian Society of Remote Sensing, Earth System Dynamics (2015-2020)
- Chairman, IMS, Pune Chapter (2009-2011)
- Life Member, Indian Meteorological Society (IMS)
- Life Member, Ocean Society of India (OSI)

List of publications

Journals, Books & Book Chapters

1) **R. Krishnan,** Vishisth Kalik, D.C. Ayantika, Sumit Kumar, R.K. Vellore (2024): Climate Change and Monsoon Rainstorms. *Severe Storms: Anatomy, Early Warning Systems and Aftermath in Changing Climate Scenarios* -Editors: Someshwar Das and Wei-Kuo Tao, Springer, Singapore. https://doi.org/10.1007/978-981-97-7075-5_21

2) Sandeep Narayanasetti, P. Swapna, **R. Krishnan**, M. Mujumdar, S. Samanta, M. Ravichandran (2025): Arctic sea-ice decline causes intense summer monsoon precipitation events over South Asia under greenhouse warming. Environ. Res. Lett. 20, 054073 https://doi.org/10.1088/1748-9326/add0ca

3) Swapna, P., N. Sandeep, K.N. Alsumaina**, R. Krishnan,** A. Ajinkya, S. Marathe, O.P. Sreejith (2025): Contrasting tropical precipitation and ecosystem response to Indian Ocean Dipole in a warming climate. Science of the Total Environment, 971 **https://doi.org/10.1016/j.scitotenv.2025.179081**

4) **R. Krishnan,** Chirag Dhara, Takeshi Horinouchi, C. Kendra Gotangco Gonzales, A. P. Dimri, M. Singh Shrestha, P. Swapna, M. K. Roxy, Seok-Woo Son, D. C. Ayantika, Faye Abigail Cruz, Fangli Qiao (2025): Compound weather and climate extremes in the Asian region: Science-informed recommendations for policy. *Frontiers in Climate*, DOI: 10.3389/fclim.2024.1504475

5) M.J.K. Reji, H. Varikoden, R.K. Vellore, A.G. Turner, T. Gokul, **R. Krishnan** (2025): On the slowdown of southwest monsoon rainfall decline in recent decades over Kerala. Climate Dynamics, 63:229 https://doi.org/10.1007/s00382-025-07698-5

6) Kalik, V., **R. Krishnan,** D.C. Ayantika, P. Swapna, M. Singh, N. Sandeep, R. Vellore, V.B. Rao (2024): Understanding the response of tropical overturning circulations to greenhouse gas and aerosol forcing. Environ. Res.: Climate in press https://doi.org/10.1088/2752-5295/ad6f3

7) Cheung K.K.W., Ozturk U., Malik N., Agarwal A., **Krishnan R.**, Rajagopalan B (2025): A review of synchronization of extreme precipitation events in monsoons from complex network perspective, *Journal of Hydrology* , 651: 132604, DOI:10.1016/j.jhydrol.2024.132604, 1-22

8) Moumita Bhowmik, D.C. Ayantika, Swapna Panickal, Anupam Hazra, **R. Krishnan** (2024): Advancing effective radius parameterizations in climate models: insights from fundamental theoretical studies and CMIP6 model. *Climate Dynamics* 63 (1), DOI: 10.1007/s00382-024-07500-y.

9) Ayantika, D.C., K.M. Sumit, **R. Krishnan**, R. Vellore and P. Guhathakurta (2024): A mechanistic investigation into the unusual intensification of rainfall over Western India during the 2019 summer monsoon. *Atmos. Research*, 299, https://doi.org/10.1016/j.atmosres.2023.107209

10) Priya, P., Mujumdar, M., Sanap, S.D., **Krishnan, R.,** (2024): Response of west pacific subtropical high to northern hemispheric warming: insights from paleo climate models. *Climate Dynamics*, https://doi.org/10.1007/s00382-024-07194-2

11) Stevens, B., Adami, S., Ali, T., Anzt, H., Aslan, Z., Attinger, S., Bäck, J., Baehr, J., Bauer, P., Bernier, N., Bishop, B., Bockelmann, H., Bony, S., Bouchet, V., Brasseur, G., Bresch, D. N., Breyer, S., Brunet, G., Buttigieg, P. L., Cao, J., Castet, C., Cheng, Y., Dey Choudhury, A., Coen,

D., Crewell, S., Dabholkar, A., Dai, Q., Doblas-Reyes, F., Durran, D., El Gaidi, A., Ewen, C., Exarchou, E., Eyring, V., Falkinhoff, F., Farrell, D., Forster, P. M., Frassoni, A., Frauen, C., Fuhrer, O., Gani, S., Gerber, E., Goldfarb, D., Grieger, J., Gruber, N., Hazeleger, W., Herken, R., Hewitt, C., Hoefler, T., Hsu, H.-H., Jacob, D., Jahn, A., Jakob, C., Jung, T., Kadow, C., Kang, I.-S., Kang, S., Kashinath, K., Kleinen-von Königslöw, K., Klocke, D., Kloenne, U., Klöwer, M., Kodama, C., Kollet, S., Kölling, T., Kontkanen, J., Kopp, S., Koran, M., Kulmala, M., Lappalainen, H., Latifi, F., Lawrence, B., Lee, J. Y., Lejeun, Q., Lessig, C., Li, C., Lippert, T., Luterbacher, J., Manninen, P., Marotzke, J., Matsouoka, S., Merchant, C., Messmer, P., Michel, G., Michielsen, K., Miyakawa, T., Müller, J., Munir, R., Narayanasetti, S., Ndiaye, O., Nobre, C., Oberg, A., Oki, R., Özkan-Haller, T., Palmer, T., Posey, S., Prein, A., Primus, O., Pritchard, M., Pullen, J., Putrasahan, D., Quaas, J., **Krishnan Raghavan,** Ramaswamy, V., Rapp, M., Rauser, F., Reichstein, M., Revi, A., Saluja, S., Satoh, M., Schemann, V., Schemm, S., Schnadt Poberaj, C., Schulthess, T., Senior, C., Shukla, J., Singh, M., Slingo, J., Sobel, A., Solman, S., Spitzer, J., Stammer, D., Stier, P., Stocker, T., Strock, S., Su, H., Taalas, P., Taylor, J., Tegtmeier, S., Teutsch, G., Tompkins, A., Ulbrich, U., Vidale, P.-L., Wu, C.-M., Xu, H., Zaki, N., Zanna, L., Zhou, T., and Ziemen, F, (2024): **Earth Virtualization Engines (EVE),** Earth Syst. Sci. Data Discuss. [Accepted], https://doi.org/10.5194/essd-2023-376.

12) Gokul Tamilselvam, Ramesh Vellore, **R. Krishnan**, D.C. Ayantika, K. Reji Maria Joy (2023): Low clouds over the subtropical Indian Ocean and sub-seasonal circulation associations with the Indian summer monsoon. *Climate Dynamics*, https://doi.org/10.1007/s00382-023-07011-2

13) Mangesh M Goswami, Milind Mujumdar, Bhupendra Bahadur Singh, Madhusdan Ingale, Naresh Ganeshi, Manish Ranalkar, Trenton E Franz, Prashant Srivastav, Devi Niyogi, **R. Krishnan** and S.N. Patil (2023): Understanding the soil water dynamics during excess and deficit rainfall conditions over the core monsoon zone of India. *Environ. Res. Lett*. 18, 114011, https://doi.org/10.1088/1748-9326/acffdf

14) Singh, B.B., **Krishnan, R.,** Sabin, T.P. *et al.* (2023): Upper tropospheric moistening during the Asian summer monsoon in a changing climate. *Clim Dyn*., https://doi.org/10.1007/s00382-023-06896-3.

15) Jyoti, J., P. Swapna, **R. Krishnan** (2023): North Indian Ocean sea level rise in the past and future: The role of climate change and variability. Global and Planetary Change, 104205. https://doi.org/10.1016/j.gloplacha.2023.104205**.**

16) Ganeshi, N.G., Mujumdar, M., Takaya, Y., Goswami, M.M., Singh, B.B., **Krishnan, R.,** T. Terao (2023): Soil moisture revamps the temperature extremes in a warming climate over India. Nature npj Clim. Atmos. Science, 6:12; https://doi.org/10.1038/s41612-023-00334-1.

17) Aswin Sagar, **R. Krishnan**, T.P. Sabin (2023): Anthropogenically-forced weakening of the Indian summer monsoon and enhancement of western North Pacific tropical cyclogenesis. *Frontiers in Earth Science.* 11.1149344. DOI: 10.3389/feart.2023.1149344.

18) Ramarao, M.V.S., D.C. Ayantika, **R. Krishnan,** J. Sanjay, T.P. Sabin, M. Mujumdar, K.K. Singh (2023): Signatures of aerosol-induced decline in evapotranspiration over the Indo-Gangetic plain during the recent decades. Mausam, 74 (2).

19) Thara, P., P. Murugavel, Mahen Konwar, Neelam Malap, K. Gayatri, Shivsai Dixit, Soumya Samanta, Subharthi Choudhuri, Sudarsan Bera, Mercy Varghese, J. Rao, J. Sandeep, P.D. Safai, A.K. Sahai, Duncan Axisa, A. Karipot, Darrel Baumgardner, Benjamin Werden, Ed Fortner, Kurt Hibert, Sathy Nair, Shivdas Bankar, Dinesh Gurnule, Kiran Todekar, Jerry Jose, V. Jayachandran, Pawan Soyam, Abhishek Gupta, Harish Choudhary, Aravindhavel, Suresh

Babu Kantipudi, P. Pradeepkumar, **R. Krishnan,** K. Nandakumar, Peter Decarlo, Doug Worsnop, G.S. Bhat, M. Rajeevan and Ravi Nanjundiah (2023) CAIPEEX – Indian cloud seeding scientific experiment. Bull. Amer. Meteorol. Soc., https://doi.org/10.1175/BAMS-D-21-0291.1

20) Roy C., Ravishankara A.R., Newman P.A., David L.M., Fadnavis S., Rathod S.D., Lait L., **Krishnan R.**, Clark H., Sauvage B. (2022): Estimation of Stratospheric Intrusions During Indian Cyclones, *J. Geophys. Res.: (Atmos),* 128: e2022JD037519, February 2023, DOI:10.1029/2022JD037519, 1-21

21) Mudra L., Sabin T.P., **Krishnan, R.**, Pausata F.S. R., Marti O., Braconnot P. (2022): Unravelling the roles of orbital forcing and oceanic conditions on the mid-Holocene boreal summer monsoons, *Clim. Dyn.,* Online, December 2022, DOI:10.1007/s00382-022-06629-y, 1-20

22) Douville H., Allan R.P., Arias P.A., Betts R.A., Caretta M.A., Cherchi A, Mukherji A., **Krishnan R.**, Renwick J. (2022): Water remains a blind spot in climate change policies, *PLOS Water*, 1: e0000058, DOI:10.1371/journal.pwat.0000058, 1-16

23) P. Sreeraj, P. Swapna, **R. Krishnan**, A.G. Nideesh and N. Sandeep (2022): Extreme sea level rise along the Indian Ocean coastline: observations and 21st century projections. *Environ. Res. Lett.*, 17, 114016, **DOI:** 10.1088/1748-9326/ac97f5

24) Reddy, A.P., Gandhi, N., Yadava, M.G., **R. Krishnan** (2022): The Indian monsoon variability during the last two millennia and links to the tropical equatorial Pacific. *Clim. Dyn*., https://doi.org/ 10.1007/ s00382-022-06513-9

25) Gokul,T., R.K.Vellore, D.C.Ayantika, R.Krishnan, D.Hingmire (2022): Sensitivity of PBL parameterizations on the marine layer cloud simulations in the southern Indian Ocean. Meteorol. Atmos. Physics, https://doi.org/10.1007/s00703-022-00889-3

26) P. Swapna, P. Sreeraj, N. Sandeep, J. Jyoti, **R. Krishnan**, A.G. Prajeesh, D.C. Ayantika and Manmeet Singh (2022): Increasing frequency of extremely severe cyclonic storms in the north Indian Ocean by anthropogenic warming and southwest monsoon weakening. *Geophy. Res. Lett.,* 49, e2021GL094650. https://doi.org/10.1029/2021GL094650

27) N. Sandeep, P. Swapna, **R. Krishnan,** R. Farneti, F. Kucharski, A. Modi, A.G. Prajeesh, D.C. Ayantika, Manmeet Singh (2022): On the weakening association between South Asian monsoon and Atlantic multidecadal oscillation. *Clim. Dyn.,* https://doi.org/10.1007/s00382-022-06224-1

28) Chirag Dhara, **R. Krishnan** (2022): Advancing South Asian monsoon climate change projections: Challenges and Opportunities. J. Ind. Geophys. Union, 26 (4), 245-257.

29) A.G. Prajeesh, P. Swapna, **R. Krishnan**, D.C. Ayantika, N. Sandeep, Manmeet Singh, M. Aditi, I. Sandip (2021): The Indian summer monsoon and Indian Ocean dipole connection in the IITM Earth System Model (IITM-ESM). *Clim.Dyn.,* https://doi.org/10.1007/s00382-021-05999-z

30) Dipti Hingmire, R. K. Vellore, **R. Krishnan**, M. Singh, A. Metya, T. Gokul, D.C. Ayantika (2021): Climate change response in wintertime widespread fog conditions over the Indo-Gangetic plains. *Clim. Dyn.,* https://doi.org/10.1007/s00382-021-06030-1

31) Ayantika Dey Choudhury, **R. Krishnan**, M. Singh, P. Swapna, N. Sandeep, A.G.Prajeesh, R.K. Vellore (2021): Understanding the combined effects of global warming and anthropogenic aerosol forcing on the South Asian monsoon. *Clim. Dyn.,* https://doi.org/10.1007/s00382-020-05551-5.

32) Bhupendra Singh Bahadur, **R. Krishnan,** et al., (2021): Linkage of water vapor distribution in the lower stratosphere to organized Asian summer monsoon convection. *Clim. Dyn.,* https://doi.org/10.1007/s00382-021-05772-2

33) M. Mujumdar, M.M. Goswami, R. Morrison, J.G. Evans, N. Ganeshi, S.S. Sabade, **R. Krishnan**, S.N. Patil (2021): A study of field-scale soil moisture variability using the Cosmic-ray Soil Moisture Observing System (COSMOS) at IITM Pune Site. J. Hydrology, 597, 126102, ISSN 0022-1694, https://doi.org/10.1016/j.jhydrol.2021.12610

34) Phanindra P Reddy, Naveen Gandhi and **R. Krishnan** (2021): Review of speleothem records of the late Holocene: Indian summer monsoon variability and interplay between the solar & oceanic forcing. *Quaternary International,* https://doi.org/10.1016/*j.quaint.2021.06.018*

35) Herve Douville, **Krishnan Raghavan**, James Renwick et al., (2021) Water Cycle Changes. Chapter 8, Intergovernmental Panel for Climate Change (IPCC), Working Group 1 (WG1), Sixth Assessment Report (AR6). In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press (In Press).

36) Allan, R.P., P.A. Arias,…G-K. Plattner, **Krishnan Raghavan,** R. Ranasinghe, …K. Zickfeld, **(Drafting Authors)**. IPCC 2021: **Summary for Policymakers.** In: *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press (In Press).

37) Arias, P. A., N. Bellouin, … A. Pirani, **Krishnan Raghavan**, R. Ranasinghe, … K. Zickfeld, 2021, IPCC 2021: **WG1 Technical Summary**. *In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press (In Press).

38) J.M. Slingo, P. Baeur, S. Bony, G. Flato, G. Hegerl, J. Hesselbjerg, J. Hurrel, C. Jakob, V. Kattsov, M. Kimoto, J. Marotzke, **Krishnan Raghavan,** T. Sheperd, G. Stephens, B. Stevens, T. Stocker, R. Sutton, T. Zhou (2021): CLIMATE CHANGE: SCIENCE AND SOLUTIONS – BRIEFING 1 : *Next generation climate models - A step change for net zero and climate adaption*. *The Royal Society,* UK, pp 1-11.

39) **R. Krishnan**, J. Sanjay, C. Gnanaseelan, M. Mujumdar, A. Kulkarni and S. Chakraborty (2020): Assessment of Climate Change over the Indian Region – A Report of the Ministry of Earth Sciences (MoES), Government of India: Eds. Springer.

40) Manmeet Singh, **R. Krishnan**, B. Goswami, A.D. Choudhury, P. Swapna, R. Vellore, A.G. Prajeesh, N. Sandeep, C. Venkataraman, R.V. Donner, N. Marwan, J. Kurths (2020): Fingerprint of volcanic forcing on the ENSO-Indian monsoon coupling. *Science Advances*, **6,** eaba8164.

41) Borgaonkar H.P., Sabin T.P., **Krishnan R.** (2020) Deciphering Climate Variability over Western Himalaya Using Instrumental and Tree-Ring Records. In: Dimri A., Bookhagen B., Stoffel M., Yasunari T. (eds) Himalayan Weather and Climate and their Impact on the Environment. *Springer, Cham*

42) Di Capua, G., Runge, J., Donner, R. V., van den Hurk, B., Turner, A. G., Vellore, R., **Krishnan, R.**, and Coumou, D.: Dominant patterns of interaction between the tropics and mid-latitudes in boreal summer: causal relationships and the role of timescales, *Weather and Climate Dynamics,* 1, 519–539, https://doi.org/10.5194/wcd-1-519-2020, 2020.

43) B Wang, M. Biasutti, M.P. Byrne, C. Castro, C.-P. Chang, A. Kitoh, **R. Krishnan**, et al. (2020): Monsoons Climate Change Assessment. *Bull. Amer. Met. Soc.,* https://doi.org/10.1175/BAMS-D-19-0335.1.

44) N.G. Ganeshi, M. Mujumdar, **R. Krishnan,** M. Goswami (2020): Understanding the linkage between soil moisture variability and temperature extremes over the Indian region. *J. Hydrology,* 589, https://doi.org/10.1016/j.jhydrol.2020.125183.

45) **R. Krishnan**, T.P. Sabin, Aswin Sagar, P. Swapna, Ayantika Dey Choudhury (2020): South Asian Monsoon Climate Change Projections. *CLIVAR Exchanges*, **79**, 50-54, DOI: 10.36071/clivar.79.2020.

46) G. Di Capua, M. Kretschmer, R.V. Donner, B. van den Hurk, R. Vellore, **R. Krishnan**, D. Coumou (2020): Tropical and mid-latitude teleconnections interacting with the Indian summer monsoon rainfall: a theory-guided causal effect network approach. *Earth Syst. Dyn.,* 11, 17–34. https://doi.org/10.5194/esd-11-17-2020

47) Sandeep, N., Swapna, P., **Krishnan, R..** *et al.* South Asian monsoon response to weakening of Atlantic meridional overturning circulation in a warming climate. *Clim Dyn* **54,** 3507–3524 (2020). https://doi.org/10.1007/s00382-020-05180-y

48) Priya, P., **R.Krishnan**, M. Mujumdar (2020): Uncertainties in river discharge simulations of the Upper Indus basin in the Western Himalayas. *J.Earth.Sys.Sci*., **129**, 150, https://doi.org/10.1007/s12040-020-01409-w.

49) **R. Krishnan**, AB. Shreshta and G. Ren (2019): Unravelling climate change in the Hindu Kush Himalaya: Rapid warming in the mountains and increasing extremes. Lead Authors: R. Rajbhandari, S. Saeed, J. Sanjay, MA. Syed, R. Vellore, Y. Xu, Q.-L You, Y. Ren. Contributing Authors: AP. Dimri, A. Lutz, P. Singh, X. Sun, Y. Zhan. *Chapter 3: The Hindu Kush Himalaya Assessment - Mountains, Climate Change, Sustainability and People, pp 57-96,* Eds. P. Wester, A. Mishra, A. Mukherji, A.B. Shrestha, Springer Open.

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