

Dr. Subash Chandra

Head, Electrical and Heliborne Geophysics Group
Chief Scientist, CSIR-National Geophysical Research Institute
Associate Professor, Academy of Scientific & Innovative Research
Uppal Road, Hyderabad-500606, T.S, India
Contact. (off.)+91 40 27012644 , (mob.) 9885640297
Email :schandra75@gmail.com, schandra75@ngri., Website: <https://ngri.res.in>
DOB: 03 December 1975



EDUCATION

Degree	Year	College/University	Subject / Remarks
High School	1990	BDIC Hindi Baghela, Jaunpur	Distinction in English
Intermediate	1992	Mohd Hasan Inter College, Jaunpur	Distinction in Physics
B.Sc (Hons.)	1997	Banaras Hindu University, Varanasi	Honours in Geology
M.Sc.(Tech.)	2000	Banaras Hindu University, Varanasi	Exploration Geophysics
Ph.D	2006	Banaras Hindu University, Varanasi	Geophysics
Post-Doctoral Research	2010-11	Aarhus University, Denmark	Electromagnetic Geophysics

CURRENT RESEARCH

Currently leading the Electrical and Heliborne Geophysics (EHG) group, dealing with hydrogeological advanced studies in India. The major emphasis is on generating improved knowledge of aquifer systems and hydrological fluxes for resource sustainability. Major research areas are:

- Airborne Electromagnetic (AEM) for high-resolution near surface mapping for groundwater, paleo-channel and geotechnical purposes viz., tunnelling, smart city establishment, etc.
- Translating geophysical model into hydrogeological parameters
- Developing hydro-geophysical coupled method for aquifer parameters estimations viz., recharge, hydraulic conductivity.
- Hydro-geophysical solution for managing groundwater in Arsenic contaminated region in Middle Ganga Plains.

EMPLOYMENT

Designation	Duration	Institute
Chief Scientist	2023-onward	CSIR-National Geophysical Research Institute, Hyderabad
Sr. Principal Scientist	2018- 2023	CSIR-National Geophysical Research Institute, Hyderabad
Principal Scientist	2013-2018	CSIR-National Geophysical Research Institute, Hyderabad
Senior Scientist	2009-2013	CSIR-National Geophysical Research Institute, Hyderabad
Scientist	2006-2009	CSIR-National Geophysical Research Institute, Hyderabad
Jr. Scientist	2002-2006	CSIR-National Geophysical Research Institute, Hyderabad

EXPERIENCE

Handling Research Projects

Current responsibility as Project Leader (PL)

- Arid Project** on “High resolution aquifer mapping and management in north-west arid areas of India” (a mega project funded by MoJS, covering 4 Lakhs sq.km area, Phase-I covering 1 Lakh sq.km area is completed)
- KRCL Tunnel Project:** Safe tunnelling for rail line in Western Ghats (Funded by KRCL, Navi Mumbai)
- Namami Gange Paleochannel project:** Paleochannel mapping in Ganga-Yamuna Doab of Kaushambi-Kanpur stretch, UP; Phase-II. (Funded by NMCG)
- RVNL Tunnel Project:** Safe tunnelling for rail line in Himalayan hilly terrains of Dehradun and Himachal Pradesh (Funded by RVNL, New Delhi)

Previous responsibility as PI/Co-PL

- Surat Smart City project:** for water security employing Airborne Geophysics (Funded by SMC, Surat, Gujarat)
- Paleochannel project** in Ganga-Yamuna Doab near Prayagraj, UP. (Funded by CGWN, MoJS)
- AQUIM pilot project:** high-resolution aquifer mapping in major six representative hydrogeological terrain of India.

Indo-French Centre for Groundwater Research (2004-2020)

Besides above, Dr. Chandra had also been contributing as one of the **core member** of IFCGR and carrying out geophysical investigation in long term pilot projects in resolving hydrogeological complexity and establishing international Experimental Hydrological Park.

Supervision on Doctoral Research

Awarded PhDs: 2 Nos.

Pursuing PhDs: 3 nos.

AWARDS & FELLOWSHIP

Memberships in professional Associations

- ✚ Member-Global Subcommittee of SEG NEAR-SURFACE GEOPHYSICS
- ✚ Member of International Association of Hydrogeological Sciences (IAHS), No. 8398
- ✚ Life Member of The Indian Science Congress Association, No. L11732
- ✚ Member of Indian Geophysical Union (IGU)
- ✚ Life Member of Indian Society of Applied Geochemistry (ISAG)

Fellowships

- ✚ **BOYSCAST Post-Doctoral Fellow:** July 2010 to July 2011 at Aarhus University, Denmark, Awarded by DST, India
- ✚ **Indo-French Co-operation:** November -December 2004 at UPMC, France
- ✚ **Project Fellow:** Oct. 2000 - Jan. 2002 at CSIR-NGRI, Hyderabad

Awards/Recognition

- ✚ **NASI-Member -2023:** Selected a member of the National Academy of Science, India “NASI” (Physical-Earth Science)
- ✚ **Dr. Sudarshan Pani – Dr.(Smt.) Rama Dwivedy Medal** Indian Society of Applied Geochemistry (ISAG), Hyderabad recognized and awarded for the best contribution in the field of “Hydrogeology and Environmental Geochemistry” for the last ten years i.e. 2011-2021
- ✚ **National Geosciences Award - 2017:** Ministry of Mines and Geology for significant contribution in the field of Groundwater Exploration including project development, hydrogeological studies and management of groundwater resources through heliborne geophysics.
- ✚ **Associate Fellow-2016:** Telangana Academy of Sciences in sector of Earth and Environmental Science

Significant Contributions

- Played a pioneering role in the advancement of hydrogeological practices in India through theoretical and applied contributions. About a decade ago, introduced the avant-garde technology of dual moment helicopter borne time domain electromagnetic (HTEM) surveys for regional mapping of aquifers in India followed by its extension to paleochannel, smart city, and tunnel related projects. The study has many important results including:
 - Discovery of a mega buried paleoriver in Ganga-Yamuna Doab between (published in Geophysical Research Letter (GRL).
 - Methodology to translated AEM data into water saturated fractured network and groundwater pathways in granite (2019)
- Developed LCR method for natural recharge estimation in granitic hard rock (2011) and followed by its improvement (2020)
- Developed a method to translate geoelectrical parameters in hydraulic conductivity/transmissivity in crystalline hard rock terrain (2008).
- Established that clay acts as a controlling factor containing Arsenic contaminant spread in Ganga plain, a key for effective planning of groundwater management in the affected region (2011).

RESEARCH PUBLICATIONS

SCI Journal:	44
Non-SCI papers/proceeding:	16
Chapters in book	03
Institutional Technical Report:	44
Abstracts in national/international seminars:	86

<http://scholar.google.com/citations?user=3ofsrEAAAAJ>

List of Research Publications

Research papers published in SCI Journals: 44 nos

1. Maurya, V.P., Gupta, S.M., Mishra, A., **Chandra, S.**, Tiwari, V.M., (2024). Three-dimensional electric-field vector resistivity imaging for deep subsurface fractures network in heterogeneous crystalline rocks. *Geophysical Journal International*, 236: 305-321
2. Boisson, A., Villesseche, D., Selles, A., Alazard, M., **Chandra, S.**, Ferrant, S., & Maréchal, J.-C. (2022). Long term monitoring of rainwater harvesting tanks: Is multi-years management possible in crystalline South Indian aquifers? *Hydrological Processes*, 36(12), e14759. <https://doi.org/10.1002/hyp.14759>
3. Sonkamble, S., **Chandra, S.** & Pujari, P.R. (2022). Application of airborne and ground geophysics to unravel the hydrogeological complexity of the Deccan basalts in central India. *Hydrogeol J* 30, 2097–2116 (2022). <https://doi.org/10.1007/s10040-022-02503-7>
4. Nagaiah, E., Sonkamble, S., **Chandra S.**, (2022) Electrical geophysical techniques pin-pointing the bedrock fractures for groundwater exploration in granitic hard rocks of Southern India. *Journal of Applied Geophysics*, 16 March 2022, 104610. <https://doi.org/10.1016/j.jappgeo.2022.104610>
5. Paswan, A.K., Mizan, S. A., **Chandra S.**, Tiwari, V.M., 2022. Hydrogeological simulation for groundwater management strategies in crystalline aquifers, Southern India, *J. Earth System Sciences*, 131 (3), 168. <https://doi.org/10.1007/s12040-022-01914-0>
6. **Chandra S.**, Tiwari V.M., (2022) Rapid 3d Geophysical Imaging of Aquifers in Diverse Hydrogeological Settings. *Water Security*, 15, 100111, <https://doi.org/10.1016/j.wasec.2022.100111>
7. **Chandra, S.**, Tiwari, V. M., Vidyasagar, M., Raju, K. B., Choudhury, J., Lohithkumar, K., et al. (2021). Airborne electromagnetic signatures of an ancient river in the water-stressed Ganga Plain, Prayagraj, India: A potential groundwater Repository. *Geophysical Research Letters*, 48, e2021GL096100. <https://doi.org/10.1029/2021GL096100>
8. Tiwari, V. M., Mondal, N.C., and **Chandra S.**, 2021. A Brief Overview of Groundwater Studies at CSIR-NGRI During Six Decades. *Journal Geological Society of India*, 97: 285-1293
9. Sonkamble S., and **Chandra S.**, 2021. GPR for earth and environmental applications: Case studies from India. *Journal of Applied Geophysics* 193, 104422
10. Maurya, V.P., **Chandra, S.**, Sonkamble, S., Kumar, K.L., Nagaiah, E., Selles A., 2021. Electrically inferred subsurface fractures in the crystalline hard rocks of an Experimental Hydrogeological Park, Southern India. *Geophysics* 86 (5), WB59-WB146, <https://doi.org/10.1190/geo2020-0327.1>
11. **Chandra S.**, Jacobsen B.H., Christensen N.B. Ahmed S. and Verma, S.K., 2020. Multiparametric Coupling and Constrained Interpolation to Improve Natural Recharge Estimation, *J. Earth Syst. Sci.* 129:8, <https://doi.org/10.1007/s12040-019-1253-z>
12. **Chandra S.**, Choudhury J., Maurya P.K., Ahmed S., Auken E., and Verma S.K. 2020. Geological significance of locating paleo-channels with AEM. *Exploration Geophysics*. *Exploration Geophysics*, 51 (1): 74-83 DOI: 10.1080/08123985.2019.1646098
13. **Chandra S.**, Auken E., Maurya P.K., Ahmed S., and Verma S.K, 2019. Large scale mapping of fractures and groundwater pathways in crystalline hardrock by AEM, *Scientific Reports* 9: 398, DOI:10.1038/s41598-018-36153-1
14. Nicolas, M., Bourb, O., Sellesa, A., Dewandelc, B., Bailly-Comtec, V., **Chandra, S.**, Ahmed, S., Maréchal, J.-C., 2019. Managed Aquifer Recharge in fractured crystalline rock aquifers: Impact of horizontal preferential flow on recharge dynamics. *Journal of Hydrology* 573 (2019) 717–732.
15. Chatterjee R., Jain A.K., **Chandra S.**, Tomar V., Parchure P.K., and Ahmed S., 2018. Aquifer Mapping and Management in water stressed Baswa-Bandikui watershed, Dausa district, Rajasthan, India. *Environmental Earth Science* (2018) 77:157

16. Dewandel B., Caballero Y., Perrin J., Boisson A., Dazin F., Ferrant S., **Chandra S.**, & Maréchal J.-C., 2017. A methodology for regionalizing 3-D effective porosity at watershed scale in crystalline aquifers, *Hydrological Processes*, 31: 2277-2295, doi: 10.1002/hyp.11187
17. **Chandra S.**, Ahmed S., Auken E., Pedersen J.B., Singh A., Verma S.K., 2016. 3D aquifer mapping employing airborne geophysics to meet India's water future. *The Leading Edge* 35 (9), 770-774, <http://dx.doi.org/10.1190/tle35090770.1>
18. **Chandra S.**, Nagaiah E., Veerababu N., Mondal N.C., Somvanshi V.K., Ahmed S., 2016. Advanced Geophysical Investigation including Heliborne TEM in High-Resolution Aquifer Mapping with Special Emphasis on Crystalline Hard Rocks. *Special publ. J. Geol. Soc. Of India*, 5: 87-96, DOI: 10.17491/cgsi/2016/95954.
19. Sonkamble, S., **Chandra S.**, Somvanshi V.K., Ahmed S., 2016. Hydro-geophysical techniques for safe exploitation of the fresh groundwater resources in coastal area, *Environmental Earth Sciences*, doi 10.1007/s12665-015-5210-0 75 (4), 75:279
20. Mahajan, A.K., **Chandra S.**, Sarma V.S. and Arora B.R., 2015. Multichannel Analysis of Surface Waves (MASW) and High Resolution Electrical Resistivity Tomography (HERT) in detection of Subsurface Features in NW Himalaya: Case Study. *Current Science*, 108: 2230-2239
21. Boissaisset M., Alazard M., Perrin J., Villaeseche D., Dewandel B., Kloppmann W., **Chandra S.**, Picot-Colbeaux, G., Sarah S., Ahmed S., Marechal J.C., 2014. Comparison of surface and groundwater balance approaches in the evaluation of managed aquifer recharge structures: Case of percolation tank in a crystalline aquifer in India, *Journal of Hydrology*, 519:1620-1633, Doi: <http://dx.doi.org/10.1016/j.jhydrol.2014.09.022>,
22. Rangarajan, R., Muralidharan D., **Chandra S.**, Reddy DV., (2014). Time Lapse Tracer and SP Measurements to Characterize the Hydrodynamics of Fractured Granite Aquifer: A Case Study. *J Geol. Soc. Of India*, 83, 681-687.
23. **Chandra S.**, Boisson A., and Ahmed S. (2014). Quantitative characterization to construct hard rock lithological model using dual resistivity borehole logging. *Arabian Journal of Geosciences*. 10.1007/s12517-014-1448-1, 8(6): 3685–3696.
24. Boisson A., Villesseche D., Baisset M., Perrin J., Viossanges, M., Kloppmann W., **Chandra, S.**, Dewandel B., Picot-Colbeaux G., Rangarajan R., Marechal J. C., Ahmed S., 2014. Questioning the impact and sustainability of percolation tanks as aquifer recharge structures in semi-arid crystalline context. *Environ Earth Sci.*, DOI 10.1007/s12665-014-3229-2, 73 (12), 7711–7721.
25. Sonkamble S., Agre H., Madhumure P., **Chandra S.**, and Ahmed S, 2014. Hydrochemistry deducing basaltic trap thickness for groundwater resource mapping along the Deccan Volcanic Province (DVP) margin in India. *Environmental Earth Sciences*, 71:2319-2332.
26. Sonkamble S., **Chandra S.**, Ahmed, S., Rangarajan. R., (2014). Source speciation resolving hydrochemical complexity of coastal aquifers. *Marine Pollution Bulletin* 78, 118–129
27. Guihéneuf, N., Boisson A., Bour O., Dewandel B., Perrin J., Dausse A., Viossanges M., **Chandra S.**, Ahmed S., Maréchal J.C., (2014). Groundwater flows in weathered crystalline rocks: Impact of piezometric variations and depth-dependent fracture connectivity. *Journal of Hydrology* 511, 320–334
28. Sonkamble S., Agre H., Madhnure P., **Chandra S.**, Ahmed S., (2013). Hydrochemistry deducing basaltic trap thickness for groundwater resource mapping along the Deccan Volcanic Province (DVP) margin in India. *Environmental Earth Sciences*, 71, 2319–2332. DOI 10.1007/s12665-013-2633-3
29. Sonkamble, S., **Chandra, S.**, Nagaiah, E., Dar, F.A., Somvanshi V.K., Ahmed S., (2013) Geophysical signatures resolving hydrogeological complexities over hard rock terrain - a study from Southern India. *Arabian Journal of Geosciences*, 7: 2249–2256, DOI: 10.1007/s12517-013-0931-4
30. **Chandra, S.**, Rao, V.A., Nagaiah, E., Reddy, DV. and Ahmed, S., (2012) Exploring deep potential aquifer in water scarce hard rocks. *J. Earth Syst. Sci.* 121(6):1455–1468.
31. **Chandra, S.**, Atal, S., Ahmeduddin, S., and Ahmed, S., 2012. Societal application of geophysics as an aid to a rescue operation at Jaipur, India. *Journal of Geological Society of India* 79: 155-160
32. Atal, S., Négrel, P., Pauwels, H., **Chandra, S.**, Ahmed, A., (2012). Zonation of Geogenic and Anthropogenic Fluoride Contamination in Granitic Aquifer: A Case Study from Maheshwaram Watershed, Hyderabad. *Journal of Geological Society of India*. pp127-143,

33. Dewandel B., Maréchal JC, Bour O., Ladouche B., Ahmed S., **Chandra S.** and Pauwels H., (2012). Upscaling and regionalizing hydraulic conductivity and effective porosity at watershed scale in deeply weathered crystalline aquifers, *J. of Hydrology*. 416–417: 83–97.
34. Dewandel B., Lachassagne P., Zaidi, FK., **Chandra S.** (2011). A Conceptual hydrodynamic model of a geological discontinuity in hard rock aquifers: example of a quartz reef in granitic terrain in South India. *Journal of Hydrology*, 405: 475-487.
35. **Chandra, S.**, Ahmed, S., Nagaiah, E., Singh S.K., and Chandra, P.C., (2011). Geophysical exploration for lithological control of arsenic contamination in groundwater in Middle Ganga Plains, India. *Physics and Chemistry of Earth*, Elsevier publication, *Physics and Chemistry of the Earth* 36:1353–1362, <http://dx.doi.org/10.1016/j.pce.2011.05.009>.
36. **Chandra S.**, Ahmed S., and Rangarajan R. (2011) Lithologically constrained rainfall (LCR) method to estimate spatio-temporal natural recharge distribution in hard rocks. *Journal of Hydrology* 402: 250–260.
37. **Chandra, S.**, Dewandel, B., Dutta, S., and Ahmed S., (2010). Geophysical model of geological discontinuities in a granitic aquifer: analyzing small scale variability of electrical resistivity for groundwater occurrences, *Journal of Applied Geophysics*, 71: 137–148.
38. Dhakate, R., Singh, V.S., Negi, B.C., **Chandra, S.**, and Rao V.A., (2008). Geomorphological and geophysical approach for locating favourable groundwater zones in granitic terrain, Andhra Pradesh, India. *J. of Environmental Management*, 88 (4), 1373-1383.
39. **Chandra, S.**, Ahmed, S., Ram A., and Dewandel B., (2008), Estimation of Hard Rock Aquifers Hydraulic Conductivity from Geoelectrical Measurements: A theoretical development with field application, *Journal of Hydrology* 35: 218-227.
40. **Chandra, S.**, Atal S., Reddy D. V., Nagabhushnam P., Murthy N.S.K., Subrahmanyam K., Rangarajan R., Ahmed S. and Dimri V. P. (2006) Explication of Water Sprouting Phenomenon Observed in Parts of Andhra Pradesh, *Jr. of Geol. Soc. of India*, 68: 157-159.
41. **Chandra, S.**, Atal S., Murthy N.S.K., Subrahmanyam K., Rangarajan R., Reddy D. V., Nagbhushanam P., Murthy J.V.S., Ahmed S. and Dimri V. P., (2006) Oozing of Water in Parts of Andhra Pradesh, India, *Curr Sci*. 90: 1555-1560.
42. **Chandra, S.**, Rao, VA, Krishnamurthy NS, Dutta S, and Shakeel A. (2006) Integrated Studies for Characterization of Lineaments to Locate Groundwater Potential Zones in Hard Rock Region of Karnataka, India, *Hydrogeol. J*, 14: 767-776.
43. Chand R., **Chandra, S.**, Rao V. A. & Jain S. C., (2004); Estimation of Natural Recharge and its Dependency on Sub-surface Geoelectric Parameters, *Journal of Hydrology* 299: 67–83
44. **Chandra, S.**, Ananda Rao V, and Singh, V. S., (2004): A Combined approach of Schlumberger and axial Pole-dipole Configurations for Groundwater Exploration in Hard Rock Areas. *Cur Sci* vol. 86(10): 1437-1443.

NON-SCI PUBLICATIONS (Papers/ Proceedings): 16

1. Chatterjee, R., Ranjan, B., Chandra, S., Parchure, P.K., Ahmed, S. 2021. Aquifer mapping and management in Desert area – a case study from Jaisalmer district, Rajasthan. *Bhu-Jal News* 29 (1-4):29-42
2. Chatterjee, R., Jain A.K., Chandra, S., Tomar V., Parchure, P.K., Ahmed, S. 2021. Aquifer mapping and Management in Baswa-Bandikui watershed, Dausa district, Rajasthan, India. *Bhu-Jal News* 29 (1-4):83-93
3. Mondal, N.C., Lohithkumar, K., Raju, K.B., Tiwari, P., Saba, N.U., Chandra, S., Ahmed S., 2018. High resolution 2-D aquifer mapping along Tapi River Bed adjoining Surat Smart City using Electrical Resistivity Tomography (ERT) survey, *Jour. of Geophysics*, 39(1): 15-19.
4. **Chandra S.**, Verma S.K., and Ahmed S., 2016. DISCOVERING PALEO-CHANNELS EFFICIENTLY WITH TIME DOMAIN ELECTROMAGNETIC GEOPHYSICS IN RAJASTHAN, *Ground Water Sustainability in Palaeochannels*, 18th March 2016
5. Ahmed S., and **Chandra S.**, 2016. Contribution of advanced geophysical techniques in bhujal Kranti of India with special reference to Hard rock crystalline aquifers” Conference volume on “Ground Water prospective and holistic management in Andhra Pradesh & Telangana States”- JAL KRANI ABHIYAN 2016. March 28th, 2016; Page 13-17.
6. Guihéneuf N., Boisson A., Bour O., Maréchal J-C., Dewandel B., Borgne T. Le., Perrin J., Ahmed S., Viossanges M., Dausse A., **Chandra S.**, and Wajiddudin M. 2013. Detailed hydraulic model of weathered-

fractured hard rock aquifer: implications for groundwater flow at watershed scale. EGU2013EGU General Assembly 2013. Abstracts Vol. 15.

7. **Chandra S.**, and Ahmed S., 2012. HydroGeophysics to determine hydrogeologically constrained solution for arsenic contaminated aquifers in Middle Ganga Plains. Presented at Indo-Australia workshop on Arsenic during 3-4 October 2012 at JNU, New Delhi. Pp. 17-21.
8. **Chandra S.**, Kumar D., Ahmed S., Perrin J., Dewandel B. 2008. Contribution of Geophysical Methods in Exploration and Assessment of Groundwater in Hard Rock Aquifers. The 3rd International Conference on Water Resources and Arid Environments (2008) and the 1st Arab Water Forum, pp: 1-18.
9. **Chandra S.**, Ali S., Ahmed S., Ram A., Rao V.A., Krishnamurthy N.S., (2007) Geophysical characterization to delineate suitable site for rainwater harvesting in hard rock. Published in seminar proceeding IATES, Bhubaneswar on "Harvesting, Power Generation and Industrial Recycling of Water (HPIRW-2007)", pp. 219-226.
10. Rao V.A, and **Chandra S.**, (2005). Delineation of aquifer geometry in Bairasagara watershed, Kolar District, Karnataka. *Journal of Applied Hydrology*, v.xviii, p. 66-73.
11. **Chandra S.**, Dutta S., Rao V. A., and Krishnamurthy N. S. (2005): HERT Imaging, SP and Magnetic Studies for Delineation of Potential Groundwater Zones in Bairasagara Watershed, Karnataka; extended abstract in proceeding of National Seminar at CEG, Osmania University, Hyderabad, pp 2-3.
12. **Chandra S.**, Rao V. Ananda, Chand Ramesh and Singh V. S., (2003): Integrated Studies For Development of Groundwater Resources in an Over-Exploited Area of Bairasagara Watershed, Kolar District, Karnataka, India; proceeding of an International symposium on "Water and Environment-2003" at RRL Bhopal, India, pp. 77-87.
13. Sankaran S., Nagar V., **Chandra S.** and Gopalakrishna N., (2002): Groundwater Exploration in Hard Rock Ares: proceedings of "IGC 2002", pp. 209-216.
14. **Chandra S.**, (2002). Bhoo-Jal Bharan: Ek Vichar. Vasundhara, 8: 30-32.
15. Gururnadha Rao VVS., Sankaran S., Nagar V., **Chandra S.** and Goplakrishnan, N., (2002); Characterization of Municipal solid Waste Landfills; A case Study, proceedings of an International Conference and Exhibition on Asian Water Industry (4th Water Asia 2002), New Delhi,

Books/Chapters: 3

1. Ahmed S., **Chandra S.**, Chandra P.C., Prasad, P.R., 2019. Groundwater Prospecting: Classical; to the advanced Geophysical Investigations. A chapter in book "Water Future of India: Status of Science and technology", edited by Majumdar P.P., Tiwari V.M., Indian National Science Academy IISC, isbn: 978-81939482-0-0
2. Sreedevi PD., Sarah S., Alam F., Ahmed S., **Chandra S.**, and Pavelic P., 2014. Investigating Geophysical and Hydrogeological Variabilities and their Impact on Water Resources in the Context of Meso-watersheds. A chapter in book "Integrated Assessment of Scale Impacts of Watershed Intervention, edited by V R Reddy and Geoffrey J. Syme, Elsevier publication, ISBN: 978-0-12-800067-0
3. Krishnamurthy N.S., **Chandra S.**, and Kumar D., 2007. Characterization of hard rock aquifer. A chapter in book "Groundwater Dynamics in Hard Rock Aquifers" Capital publishing company, ISBN No. 81-85589-25-9, p. 64-86

Keynote address /Training

1. Chandra S., 2021. 3D heliborne geophysical mapping of aquifers in diverse hydrogeological settings of India. One-day training under Skill India training program of CSIR-NGRI with the theme on Groundwater Exploration Techniques during 28 Jan., -10 Feb., 2021.
2. Chandra S., 2019. Heliborne geophysics for aquifer mapping at CGWB Hyderabad
3. Chandra S. 2019. Half day training session on "The role of airborne geophysical surveys in aquifer mapping" to the trainees at GSI Training Institute, Hyderabad on 25/01/2019
4. Chandra S. 2019. Half day training session on "Ground based and Heliborne TEM methods for aquifer mapping in different terrains: Scientific Challenges", Groundwater exploration and Management (GEM), at CSIR-NGRI, 28 Jan., -09 Feb., 2019
5. Chandra S. 2018. "Ground and Airborne TEM methods for aquifer mapping in different terrains" under Training Course: Geophysics for Groundwater Exploration and Management; CSIR-National Geophysical Research Institute, Hyderabad-500007 during September 17-22, 2018

Invited talk/ and Special Invitee for seminar symposium

6. **Chandra S. 2019.** Application of Geophysical Methods in Groundwater Management. Pre-conference invited talk in FIGA under a theme “Synergic Management of Water Resources in Changing Climate”, FIGA, CSIR-NGRI on 11th October 2019.
7. **Chandra S., 2020.** 3D aquifer mapping in hard rock: a case from Tumkur district, Karnataka. In a conference on “Water Resource of peninsular India” at IISc Bangalore, on 12 Feb 2020
8. **Chandra S.,** Maurya P.K., Veerababu N., Pedersen J.B., Ahmed S., Auken E., Vignoli G., Somvanshi V.K., and Verma S.K., 2015. · A big leap forward in groundwater exploration in India: results of heliborne geophysical surveys in hardrock terrain. Presented as Key note paper in First European EM Congress held at Turino, Italy during September 6-9, 2015.
9. **Chandra S.,** 2014. Role of Geospatial Measurements in Sustainable Management of Groundwater Resources. Paper presented at India Geospatial Forum as special Invitee, 5-7 February 2014, HICC, Hyderabad.
10. **Chandra S.,** and Mondal N.C., 2015. Aquifer Mapping in Tumkur and its perspective in Watershed Management. Presented in the foundation day celebration of Geological Society of India on “Integrated and Sustainable Water Management, Bangalore; May 28, 2015