



Scientist - G

Mr. C. P. Kumar

Name: Mr. C. P. Kumar

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Education:

- B.Sc.Engg.(Civil) from Aligarh Muslim University, Aligarh
- M.E.(Hydraulic Engg.) from University of Roorkee (now IIT), Roorkee

Professional Experience:

- Scientist 'B' - 22.11.1985 to 18.08.1991
- Scientist 'C' - 19.08.1991 to 18.08.1997
- Scientist 'E1' - 19.08.1997 to 01.07.2009
- Scientist 'F' - 02.07.2009 to 30.06.2015
- Scientist 'G' - 01.07.2015 to 30.09.2020

Areas of expertise:

- Groundwater Hydrology

Awards:

- The Certificate of Merit for 1996-97 by The Institution of Engineers (India) for technical paper entitled "*Prediction of Evaporation Losses from Shallow Water Table using a Numerical Model*".

Research Interests:

- Assessment of Groundwater Potential
- Sea Water Intrusion in Coastal Aquifers
- Numerical Modelling of Unsaturated Flow, Groundwater Flow and Contaminant Transport
- Management of Aquifer Recharge
- Impact of Climate Change on Groundwater

Recently Published Papers:

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- Kumar, C. P. (2001), "*Simulation of Sea Water Intrusion and Tidal Influence*", ISH Journal of Hydraulic Engineering, Volume 7, No. 1, March 2001, pp. 1-11.
-
- Kumar, C. P., B. K. Purandara and B. Soni (2001), "*Variation of Soil Moisture Characteristics in Malaprabha and Ghataprabha Sub-basins*", Hydrology Journal, Indian Association of Hydrologists. Roorkee, Volume 24, No. 1, March 2001, pp. 27-36.
-
- Kumar, C. P., Digamber Singh and Sanjay Mittal (2001), "*Determination of Saturated Hydraulic Conductivity in Upper Part of Hindon River Catchment*", Hydrology Journal, Indian Association of Hydrologists, Roorkee, Volume 24, No. 2, June 2001, pp. 55-62.
-
- Kumar, C. P., Sanjay Mittal and S. L. Srivastava (2001), "*Soil Moisture Retention Characteristics at RD 838 of I.G.N.P. Stage-II*", Journal of Applied Hydrology, Association of Hydrologists of India, Vol. XIV, No. 2 & 3, April & July, 2001, pp. 17-21.
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- Kumar, C. P., Vijay Kumar and Vivekanand Singh (2001), "*Soil Moisture Characteristics in Upper Part of Hindon River Catchment*", Journal of Applied Hydrology, Association of Hydrologists of India, Vol. XIV, No. 4, October 2001, pp. 1-9.
-
- Kumar, C. P. (2001), "*Common Ground Water Modelling Errors and Remediation*", Journal of Indian Water Resources Society, Volume 21, Number 4, October 2001, pp. 149-156.
-
- Kumar, C. P. and S. M. Seth (2001), "*Derivation of Soil Moisture Retention Characteristics from Saturated Hydraulic Conductivity*", Journal of the Indian Society of Soil Science, Volume 49, Number 4, December 2001, pp. 653-657.
-
- Kumar, C. P. (2002), "*Numerical Simulation Models for Seawater Intrusion*", Journal of Indian Water Resources Society, Volume 22, Number 3, July 2002, pp. 125-130.
-
- Kumar, C. P. and Shilpa S. Ratnoji (2002), "*Modeling of Solute Transport in Agricultural Fields using SWIM*", Hydrology Journal, Indian Association of Hydrologists, Roorkee, Volume 25, No. 2 & 3, September 2002, pp. 21-32.
-
- Kumar, C. P. and P. V. Seethapathi (2002), "*Assessment of Natural Ground Water Recharge in Upper Ganga Canal Command Area*", Journal of Applied Hydrology, Association of Hydrologists of India, Vol. XV, No. 4, October 2002, pp. 13-20.
-
- Kumar, C. P. (2003), "*Conceptualisation in Groundwater Modelling*", Journal of Applied Hydrology, Association of Hydrologists of India, Volume XVI, No. 1, Jan. 2003, pp. 17-28.

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- Kumar, C. P. (2003), "*Estimation of Ground Water Recharge Using Soil Moisture Balance Approach*", Journal of Soil and Water Conservation, Soil Conservation Society of India, Volume 2, No. 1 & 2, June 2003, pp. 53-58.
-
- Kumar, C. P. (2003), "*Pitfalls and Sensitivities in Groundwater Modelling*", Journal of The Institution of Engineers (India), Civil Engineering Division, Volume 84, August 2003, pp. 116-120.
-
- Kumar, C. P. (2003), "*Basic Guidelines for Groundwater Modelling Studies*", ISH Journal of Hydraulic Engineering, Volume 9, No. 2, September 2003, pp. 11-21.
-
- Kumar, C. P. and B. K. Purandara (2003), "*Modelling of Soil Moisture Movement in a Watershed using SWIM*", Journal of The Institution of Engineers (India), Agricultural Engineering Division, Volume 84, December 2003, pp. 47-51.
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- Kumar, C. P. (2004), "*Constraints in the Numerical Modelling of Salt Water Intrusion*", Journal of Soil and Water Conservation, Soil Conservation Society of India, Volume 3, No. 3 & 4, December 2004, pp. 185-195.
-
- Kumar, C. P. (2006), "*Groundwater Flow and Contaminant Transport Models: An Overview*", Journal of Applied Hydrology, Association of Hydrologists of India, Volume XIX, No. 1 & 2, January & April 2006, pp. 94-110.
-
- Kumar, C. P., A. G. Chachadi, B. K. Purandara, Sudhir Kumar and Raju Juyal (2007), "*Modelling of Seawater Intrusion in Coastal Area of North Goa*", Water Digest, Vol. II, Issue 3, September-October 2007, pp. 80-83.
-
- Kumar, C. P. and Sanjay Mittal (2008), "*Soil Moisture Retention Characteristics and Hydraulic Conductivity for Different Areas in India in Selected States*", Journal of Soil and Water Conservation, Soil Conservation Society of India, Volume 7, No. 2, June 2008, pp. 41-45.
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- Kumar, C. P. and Sanjay Mittal (2010), "*Determination of Soil Hydraulic Properties in a Part of Hindon River Catchment using SOILPROP Software*", ISH Journal of Hydraulic Engineering, Volume 16, No. 2, September 2010, pp. 13-27.
-
- Kumar, C. P. and Surjeet Singh (2012), "*Impact of Climate Change on Groundwater Resources – Status of Research Studies*", Proceedings of 3rd International Conference on Climate Change and Sustainable Management of Natural Resources, 5-7 February 2012, Gwalior.
-
- Kumar, C. P. (2012), "*Assessing the Impact of Climate Change on Groundwater Resources*", India Water Week 2012 - Water, Energy and Food Security : Call for Solutions, 10-14 April 2012, New Delhi.
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- Kumar, C. P. (2012), "*Groundwater Modelling Software - Capabilities and Limitations*", IOSR (International Organization of Scientific Research) Journal of Environmental Science, Toxicology and Food Technology (IOSR-JESTFT), ISSN: 2319-2402, Volume 1, Issue 2 (September - October 2012), pp. 46-57.
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- Kumar, C. P. (2012), "*Climate Change and Its Impact on Groundwater Resources*", Research Inveny: International Journal of Engineering and Science, ISSN: 2278-4721, Volume 1, Issue 5 (October 2012), pp. 43-60.
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- Kumar, C. P. (2012), "*Assessment of Groundwater Potential*", The International Journal of Engineering and Science (IJES), ISSN: 2319–1813, Volume 1, Issue 1 (November 2012), pp. 64-79.
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- Kumar, C. P. (2013), "*Water Status and Problems in India*", Journal of Environmental Science, Computer Science and Engineering & Technology (JECET), E-ISSN: 2278-179X, Volume 2, Issue 1 (December 2012 - February 2013), pp. 114-128.
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- Kumar, C. P. (2013), "*Numerical Modelling of Ground Water Flow using MODFLOW*", Indian Journal of Science, ISSN: 2319–7730, E-ISSN: 2319–7749, Volume 2, Number 4, February 2013, pp. 86-92.
-
- Kumar, C. P. (2013), "*Assessment and Strategies for Development Potential of Deeper Confined Aquifers in India*", Asian Academic Research Journal of Multidisciplinary, ISSN: 2319-2801 (Online), Volume 1, Issue 8, April 2013, pp. 247–258.
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- Kumar, C. P. (2013), "*Recent Studies on Impact of Climate Change on Groundwater Resources*", International Journal of Physical and Social Sciences (IJPSS), ISSN: 2249-5894, Volume 3, Issue 11, November 2013, pp. 189-221.
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- Kumar, C. P. (2013), "*Hydrological Studies Using Isotopes*", International Journal of Innovative Research & Development (IJIRD), ISSN: 2278–0211, Volume 2, Issue 13, December 2013, pp. 8-15.
-
- Kumar, C. P. (2014), "*Impact of Climate Change on Agriculture*", International Journal of Engineering Research and Management (IJERM), ISSN: 2349-2058, Volume 1, Issue 4, July 2014, pp. 151-156.
-
- Kumar, C. P. (2015), "*Modelling of Groundwater Flow and Data Requirements*", International Journal of Modern Sciences and Engineering Technology (IJMSET), ISSN: 2349-3755, Volume 2, Issue 2, pp. 18-27.
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- Kumar, C. P. and Surjeet Singh (2015), "*Concepts and Modeling of Groundwater System*", International Journal of Innovative Science, Engineering and Technology (IJSET), ISSN: 2348–7968, Volume 2, Issue 2, February 2015, pp. 262-271.
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- Kumar, C. P. (2015), "*Status and Mitigation of Arsenic Contamination in Groundwater in India*", The International Journal of Earth & Environmental Sciences, Volume 1, Issue 1, pp. 1-10.
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- Kumar, C. P. and Surjeet Singh (2015), "*Climate Change Effects on Groundwater Resources*", Octa Journal of Environmental Research, ISSN: 2321-3655, Volume 3, Issue 4, October-December 2015, pp. 264-271.
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- Kumar, C. P. (2016), "*Contribution of Women in Hydrological Research*", International Journal of Research - Granthaalayah, ISSN: 2350-0530, Volume 4, Issue 1, January 2016, pp. 14-26.

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- Kumar, C. P. (2016), "*Assessing the Impact of Climate Change on Groundwater Resources*", IWRA (India) Journal, Indian Geographical Committee of IWRA, ISSN (Print): 2277-1298, ISSN (Online): 2277-1301, Volume 5, Number 1, January 2016, pp. 3-11.
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- Kumar, C. P. (2016), "*Modelling Flow and Transport in Unsaturated Zone*", Global Journal of Engineering Science and Research Management (GJESRM), ISSN: 2349-4506, Volume 3, Issue 3, March 2016, pp. 48-53.
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- Kumar, C. P. (2016), "*Sea Water Intrusion in Coastal Aquifers*", EPRA International Journal of Research & Development (IJRD), ISSN: 2455-7838, Volume 1, Issue 3, May 2016, pp. 27-31.
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- Kumar, C. P. and Surjeet Singh (2016), "*Climate Change and Groundwater*", Indian Groundwater, Journal of Centre for Ground Water Studies, Kolkata, ISSN: 2347-8063, Volume VII, July 2016, pp. 37-44.
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- Kumar, C. P. (2017), "*Groundwater Studies at National Institute of Hydrology, Roorkee, India*", International Journal of Current Trends in Engineering & Research (IJCTER), e-ISSN: 2455-1392, Volume 3, Issue 1, January 2017, pp. 1-15.
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- Kumar, C. P., B. K. Purandara and A. G. Chachadi (2017), "*Subsurface Water Modelling using SWIM and FEFLOW*", Asia Pacific Journal of Research, ISSN (Print): 2320-5504, ISSN (Online): 2347-4793, Volume I, Issue XLVII, January 2017, pp. 7-19.
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- Kumar, C. P. (2017), "*Hydrological Research at National Institute of Hydrology, India*", World Journal of Research and Review (WJRR), ISSN: 2455-3956, Volume 5, Issue 3, September 2017, pp. 21-27. <https://doi.org/10.31871/WJRR.5.3.3>
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- Kumar, C. P. (2018), "*Water Security – Challenges and Needs*", International Educational Scientific Research Journal (IESRJ), ISSN: 2455-295X, Volume 4, Issue 1, January 2018, pp. 26-29.
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- Kumar, C. P. (2018), "*Water Resources Issues and Management in India*", Journal of Scientific and Engineering Research, ISSN: 2394-2630, Volume 5, Issue 9, pp. 137-147.
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- Kumar, C. P. (2018), "*Modelling Water Flow in Unsaturated Zone*", Review of Research Journal, ISSN: 2249-894X, Volume 8, Issue 2, November 2018, pp. 1-8.
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- Kumar, C. P., Gopal Krishan and S. K. Verma (2019), "*Norms for Groundwater Resource Estimation in India*", International Journal of Engineering Technologies and Management Research (IJETMR), ISSN: 2454-1907, Volume 6, Issue 1, January 2019, pp. 17-31. <http://doi.org/10.5281/zenodo.2551610>
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- Kumar, C. P. (2019), "*An Overview of Commonly Used Groundwater Modelling Software*", International Journal of Advanced Research in Science, Engineering and Technology, ISSN: 2350-0328, Volume 6, Issue 1, January 2019, pp. 7854-7865.
-
- Kumar, C. P. (2019), "*Purpose Driven Studies Under National Hydrology Project, India*", International Journal of Scientific Research in Science, Engineering and Technology (IJSRSET), ISSN (Print): 2395-1990, ISSN (Online): 2394-4099, Volume 6, Issue 5,

September-October 2019, pp. 213-229. <https://doi.org/10.32628/IJSRSET1196522>

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- Kumar, C. P. (2020), "*An Overview of Hydrological Studies by C. P. Kumar*", International Journal of Advanced Engineering Research and Science (IJAERS), ISSN (Print): 2349-6495, ISSN (Online): 2456-1908, Volume 7, Issue 3, March 2020, pp. 322-337. <https://dx.doi.org/10.22161/ijaers.73.48>

Short Term Courses Conducted:

- Training Course on "**Software for Ground Water Data Management**" at NIH, Roorkee during the period 7-18 October, 1996.
- Workshop on "**Modelling of Hydrologic Systems**" at Hard Rock Regional Centre, NIH, Belgaum during the period 4-8 September, 2000.
- Workshop on "**Remote Sensing and GIS Applications in Hydrology**" at Hard Rock Regional Centre, NIH, Belgaum during the period 23-25 September, 2002.
- Training course on "**Sustainable Ground Water Management in Arid and Semi Arid Region**" at NIH, Roorkee during the period 23 April – 4 May, 2007.
- Training Course on "**Coastal Groundwater Modeling & Management**" at WALMI, Anand (Gujarat) during the period 22-26 November, 2010.
- Training Course on "**Hydrological Investigations for Conservation and Management of Lakes**" at NIH, Roorkee during the period 26-28 March 2012.
- Training Course on "**Hydrological Investigation Techniques for Water Resource Development & Management**" at NIH, Roorkee during the period 27-30 August, 2012.
- Training Course on "**Hydrological Investigations for Conservation and Management of Lakes**" at NIH, Roorkee during the period 15-18 January, 2013.
- Training Course on "**Coastal Groundwater Development, Modeling & Management**" at Ahmedabad (Gujarat) during the period 3-7 March, 2014.

Trainings Abroad:

- **Hydrological Computerized Modelling System (SHE)**, Danish Hydraulic Institute, Horsholm, Denmark
- **The Modelling of Salt Water Intrusion**, National Tidal Facility, Adelaide, Australia

Books and Chapters:

- Chapter on "**Ground Water Modelling**" by C. P. Kumar (In. Hydrological Developments in India Since Independence", A Contribution to Hydrological Sciences, National Institute of Hydrology, Roorkee, 1992, pp. 235-261)

- Self instructional Course Material on "[Surface Water and Ground Water Resources](#)" by C. P. Kumar and Rakesh Kumar (School of Engineering & Technology, Indira Gandhi National Open University)
- Book on "[Comprehensive Hydrological Studies of Narmada Basin - Summary of the Studies, Conclusions and Recommendations](#)" by Rakesh Kumar and C. P. Kumar (National Institute of Hydrology, Roorkee, 1999, 133 p.)
- Article on "[Groundwater Balance](#)" (GW-1518) by C. P. Kumar (In. The Encyclopedia of Water, John Wiley & Sons, Inc., New York, 2005, Volume 5, pp. 162–169)
- Chapter on "[Groundwater Flow Models: An Overview](#)" by C. P. Kumar (In. Groundwater Modelling and Management (Eds. N. C. Ghosh & K. D. Sharma), Capital Publishing Company, New Delhi, 2006, pp. 153-178)
- Chapter on "[Management of Groundwater in Salt Water Ingress Coastal Aquifers](#)" by C. P. Kumar (In. Groundwater Modelling and Management (Eds. N. C. Ghosh & K. D. Sharma), Capital Publishing Company, New Delhi, 2006, pp. 540-560)
- eBook on "[Assessment of Groundwater Potential](#)", Scientific Essay by C. P. Kumar, ISBN: 978-3-656-75555-5, GRIN Publishing GmbH, Munich, Germany, 2014, 23 p.
- eBook on "[Groundwater Data Requirement and Analysis](#)", Scientific Essay by C. P. Kumar, ISBN: 978-3-656-75554-8, GRIN Publishing GmbH, Munich, Germany, 2014, 27 p.
- eBook on "[Impact of Climate Change on Groundwater Resources](#)", Academic Paper by C. P. Kumar, ISBN: 978-3-656-75551-7, GRIN Publishing GmbH, Munich, Germany, 2014, 33 p.
- Book on "[Groundwater Assessment and Modelling](#)" (*Paperback and Kindle Editions*) by C. P. Kumar, ISBN: 978-1511520492, CreateSpace Independent Publishing Platform (An Amazon Company), USA, 2015, 332 p.
- Chapter on "[Impact of Climate Change on Groundwater Resources](#)" by C. P. Kumar (In. Handbook of Research on Climate Change Impact on Health and Environmental Sustainability (Editor: Soumyananda Dinda), IGI Global, 2015, pp. 198-223.
- Book on "[Modelling of Sea Water Intrusion using SUTRA](#)" by C. P. Kumar, ISBN: 978-3-659-87389-8, LAMBERT Academic Publishing, Germany, 2017, 56 p.
- Chapter on "[Climate Change and Groundwater](#)" by C. P. Kumar, Anupma Sharma, K. V. Sruthi, B. K. Purandara and Sumant Kumar; In. Climate Change and Its Impacts on Water Resources with Focus on India (Eds. Sharad K. Jain & P. K. Singh), Special Report-1/19, National Institute of Hydrology, Roorkee, India, July 2019, pp. 164-177.

Major Consultancy/Sponsored Projects:

- [Hydrostatic Pressure Imbalance Study for Kayamkulam Gas Power Project, Kerala](#) (sponsored by NTPC Limited, New Delhi)

- **Assessment of Impact of Irrigation Application in a part of IGNP Stage II Command Area underlain by Hydrologic Barrier** (sponsored by Command Area Development, IGNP, Bikaner)
- **Estimation of Irrigation Return Flow in Lokpavani Area in Krishnarajasagar Command** (Hydrology Project)
- **Hydrological and Hydrogeological Investigations to Assess Causes of Seepage from the Reservoir of Jaswant Sagar Dam in Jodhpur** (Water Resources Department, Rajasthan)
- **Coastal Groundwater Dynamics and Management in the Saurashtra Region, Gujarat** (Hydrology Project - II)
- **Integrated Hydrological Investigations of Sukhna Lake, Chandigarh for its Conservation and Management** (Forest Department, Chandigarh)

Memberships in Professional Societies:

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| • The Institution of Engineers (India) | : | F-016636/3 |
| • Indian Association of Hydrologists | : | FM-191 |
| • Indian Water Resources Society | : | F-2001-1106 |
| • Association of Hydrologists of India | : | AHI LM 51 333 |
| • The Indian Society for Hydraulics | : | F-19 |
| • Indian Society of Soil Science | : | LM/K/043 |
| • Indian Association of Soil & Water Conservationists: | : | LM-1177-K |
| • Soil Conservation Society of India | : | LM-2152 |
| • Geological Society of India | : | F-2496 |
| • Indian Society of Applied Geochemists | : | LM-447 |
| • Association of Global Groundwater Scientists | : | LM-AGGS-063 |

M.Tech./M.Sc. Thesis Guidance:

- *Prediction of One Dimensional Solute Movement in Unsaturated Medium* (Mr. Abdhesh Kumar Upadhyay, M.Tech., Applied Geophysics, 1995, University of Roorkee)
- *Simulation of Sea Water Intrusion for Cochin Coast* (Ernakulam District) (Miss Deepanjali D. Bhosale, M.Tech., Environmental Engineering, 1999-2000, K.L.E. Society's College of Engineering and Technology, Belgaum)
- *Utilisation of Saturated-Unsaturated Transport (SUTRA) Model for Goa Coast* (Miss Mayuree N. Natu, M.Tech., Environmental Engineering, 1999-2000, K.L.E. Society's College of Engineering and Technology, Belgaum)
- *Modelling of Soil Moisture Movement and Solute Transport in an Agricultural Field using SWIM* (Miss Shilpa S. Ratnoji, M.Tech., Environmental Engineering, 2000-2001, K.L.E. Society's College of Engineering and Technology, Belgaum)

- *Isotopic Characterization of Groundwater in Lower Part of Sutlej Basin* (Mr. K. Sumanth Dutt, Geological Technology, 2014, Department of Earth Sciences, I.I.T. Roorkee)
- *Soil Moisture Flow Modelling using HYDRUS 1D* (Mr. Vikrant, Karunya University, Coimbatore, 2016)

Internet Hydrology:

Creation and monitoring of the following websites and e-mail discussion groups:

Kumar Links to Hydrology Resources - <http://www.angelfire.com/nh/cpkumar/hydrology.html>

Hydrology Forum – <http://groups.yahoo.com/group/hydforum/>

Hydrological Modelling Discussion Group - <http://in.groups.yahoo.com/group/hydrologymodel/>

Ground Water Modelling Discussion Group - <http://groups.yahoo.com/group/gwmodel/>