

REFERENCES

- Acid Deposition Monitoring Network in East Asia (EANET), 2000. **Technical Documents for Wet Deposition Monitoring in East Asia**, Acid Deposition Monitoring Network in East Asia.
- Adams, M. B., Burger, J. A., Jenkins, A. B. and Zelazny, L., 2000. Impact of harvesting and atmosphere pollution on nutrient depletion of eastern US hardwood forest, *Forest Ecology and Management* **138**, 301-319.
- Adriano, D. C., Johnson, A. H., 1989. **Acidic Precipitation Volume 2 : Biological and Ecological Effects**, Springer-Verlag.
- Ahmed, A.F.M., Singh, P.R. and Elmubarak, A.H., 1990. Chemistry of atmospheric precipitation at the western Arabian Gulf coast, *Atmos. Environ.* **24A**, 2927-2934.
- Akkoyunlu, B.O. and Tayanc, M., 2003. Analyses of wet and bulk deposition in four regions of Istanbul, Turkey. *Atmos. Environ.* **37**, 3571-3579.
- Ayers, G.P. and Yeung, K.K., 1996. Acid deposition in Hong Kong, *Atmos. Environ.* **30**, 1581-1587.
- Ayers, G.P., Fukuzaki, N., Gillett, R.W., Selleck, P.W, Powell, J.C. and Hara, H., 1998. Thymol as a biocide in Japanese rainwater, *J. Atmos. Chem.* **30(2)**, 301-310.
- Bayraktar, H. and Turalioglu, F.S., 2005. Composition of wet and bulk deposition in Erzurum, Turkey. *Chemosphere* **59**, 1537-1546.
- Berner, E.K., and Berner, R.A., 1987. **The global water cycle**. Prentice-Hall, Englewood.

- Bhatti, N., Streets, D. G. and Foell, W. K., 1990. *Second Annual workshop on Acid rain and Emission in Asia*, Regional Energy Resources Information Center (RERIC), AIT, Thailand.
- Bravo, H.A., Saavedra, M.I.R., Sanchez, P.A., Torres, R.J. and Granada, L.M.M., 2000. Chemical composition of precipitation in a Mexican Maya region. *Atmos. Environ.* **34**, 1197-1204.
- Brechtel, H. M., 1989. Monitoring wet deposition in forests. Quantitative and qualitative aspects, *Air Pollut. Report Series* **21**, 39–62.
- Bubenick, D.V., 1984. **Acid Rain Information Book**. Noyes Publications, New Jersey.
- Camuffo, D., Bernardi, A. and Zanetti, M., 1988. Analysis of the real time measurement of the pH of rainfall at Padova, Italy: seasonal variations and meteorological aspects, *Sci. of the Total Environ.* **71**, 187–200.
- CANSAP (Canadian Network for Sampling Precipitation), 1982. CANSAP Data Summary 1981. Atmospheric Environment Service, Environment Canada, Downsview, Ontario.
- Canter, L.W., 1986. **Acid Rain and Dry Deposition**, Lewis Publishers, Inc.
- Castleman Jr., A. W., Davis, R. E., Munkelwitz, H. R., Tang, I. N. and Wood, W. P., 1975. Kinetic of association reaction reactions pertaining to H₂SO₄ aerosol formation. *Int. J. Chem. Kinet. Symp.* **1**, 629-640.
- Chen, L.-Y., Jeng, F.-T., Hsu, Y.-M., Tsai, S.-Y., Peng, U.-R., 2001. Stability of ionic components in precipitation samples – a case study in Taipei. *Water Air Soil Pollut.* **130**, 1607–1612.

- Chirasathaworn, N., 2005. **Monitoring and analysis of acid deposition in Chiang mai province in 2003-2004**. Faculty of Science, Chiang Mai University.
- Colls, J., 2002. **Air pollution**. Spon Press, New York.
- Comrey, A. L., 1973. **A first course in factor analysis**. Academic Press, New York.
- Cooper Jr., H.B.H., Lopez, J.A. and Demo, J.M., 1976. Chemical composition of acid precipitation in central Texas. *Water Air Soil Pollut.* **6**, 351–359.
- Cowling, E. J., 1980. **An historical resume of progress in scientific and public understanding of acid precipitation and its biological consequences**. SNSF Report FR118/80.
- Dammgen, U., Erisman, J.W., Cape J. N., Grunhage., L. and Fowler, D., 2005. Practical considerations for addressing uncertainties in monitoring bulk deposition. *Environ. Pollut.* **134**, 535-548.
- Das, R., Das, S.N. and Misra, V.N., 2005. Chemical composition of rainwater and dustfall at Bhubaneswar in the east coast of India. *Atmos. Environ.* **39**, 5908-5916.
- Dasch, J. M., 1985. The direct measurement of dry deposition to a polyethylene bucket and various surrogate surfaces, *Environ. Sci. and Tech.* **19**, 721–725.
- De Pena, R. G., Walker, K. C., Lebowitz, L. and Micka, J. G., 1985. Wet deposition monitoring: effect of sampling period, *Atmos. Environ.* **19**, 151–156.
- Downing, R., Ramankutty, R. and Shah, J., 1997. **RAINS-ASIA: An Assessment Model for Acid Deposition in Asia**. Washington, DC: The World Bank.
- Draaijers, G. P. J., Erisman, J.W., Spranger, T. and Wyers, G. P., 1996. The application of throughfall measurements for atmospheric deposition monitoring, *Atmos. Environ.* **30**, 3349–3361.

- Draaijers, G.P.J., Bleeker, A., van der Veen, D., Erisman, J.W., Mols, H., Fonteijn, P. and Geusenbroek, M., 2001. **Field inter-comparison of throughfall, stemflow and precipitation measurement performed within the framework of the Pan European Intensive Monitoring Program of EU/ICP Forests.** TNO report R 2001/140., TNO, Apeldoorn.
- Driscoll, C. T., 1984. A procedure for the fractionation of aqueous aluminium in dilute acidic waters. *Int J. Environ. Anal. Chem.* **16**, 267–283.
- EMEP: 1977. **Cooperative Programme for Monitoring and Evaluation of the Long Range Transmission of Air Pollutants in Europe. Manual for sampling and chemical analysis**, EMEP/CHEM 3/77, Norwegian Institute for Air Research Lillestrøm.
- Erisman, J.W., Mols, H., Fonteijn, P., Geusebroek, M., Draaijers, G., Bleeker, A., van der Veen, D., 2003. Field intercomparison of precipitation measurements performed within the framework of the Pan European Intensive Monitoring Program of EU/ICP Forest. *Environ. Pollut.* **125**, 139–155.
- Ferm, M., 1993. Throughfall measurements of nitrogen and sulphur compounds, *Int. J. Anal. Chem.* **50**, 29-43.
- Fjellheim, A. and Raddum, G. G. 1990. Acid precipitation: Biological monitoring of streams and Lakes, *Sci. Tot. Environ.* **96**, 57-66.
- Foell, W. K. and Green, C. W., 1990. **Acid rain in Asia: An Economic, Energy, and Emissions Overview, Proceedings of the Second Workshop on Acid Rain in Asia**, Asian Institute of Technology, Bangkok, Thailand, in press.
- Frank, C. S., Richard, C.C., 1983. **The Practice of Ion Chromatography**, John Wiley & Sons, Inc.

- Galloway, J. N. and Likens, G. E., 1976. Calibration of collection procedures for the determination of precipitation chemistry, *Water, Air, and Soil Pollut.* **6**, 241–258.
- Galloway, J. N. and Likens, G. E., 1978. The collection of precipitation for chemical analysis, *Tellus* **30**, 71–82.
- Gillett, R.W. and Ayers, G.P., 1991. The use of thymol as a biocide in rainwater samples, *Atmos. Environ.* **25A(12)**, 2677-2681.
- Granut, L., Suksomsankh, K., Simachaya, S., Tabucanon, M. and Rodhe, H., 1996. Regional background acidity and chemical composition of precipitation in Thailand, *Atmos. Environ.* **30**, 1589-1596.
- Hadi, D.A. and Cape, J.N., 1995. Preservation of throughfall samples by chloroform and thymol, *Int. J. Environ. Anal. Chem.* **61(2)**, 103-116.
- Haines, T.A., and Beker, J.P., 1986 Evidence of fish population responses to acidification in the eastern United States, *Water, Air, Soil Pollut.* **31**, 605-629
- Harrison, R. M., 1996. **Pollution: Causes, Effects, and Control**, 3rd ed. The Royal Society of chemistry, Cambridge.
- Harter, P. 1986, **Acidic deposition-Materials and Health Effects**, International Energy Agency, London.
- <http://en.wikipedia.org/wiki/Coal>. retrieved on 16/11/06.
- <http://www.ace.mmu.ac.uk/>. retrieved on 14/9/06.
- <http://www.geocities.com/CapeCanaveral/Hall/9111/DOC.HTML>. received on 14/9/06
- <http://www.ns.ac.gc.ca/>. retrieved on 14/9/06.
- Hu, G. P., Balasubramanian, R., Wu, C. D., 2003. Chemical characterization of rainwater at Singapore. *Chemosphere* **51**, 747-755.

- Hu, G.P., Balasubramanian, R. And Wu, C.D., 2003. Chemical characterization of rainwater at Singapore. *Chemosphere* **51**, 747-755.
- James W. S. L., David W. R., David S. L., Bridget A. H., Beth C. and Helena J. K. 1993. Effects on materials and health; abatement strategies and programmes, *Fuel*, 1363-1380.
- John W. W., Donald L. J. and Mu-tian B., 2002. Nuclear Instruments and Methods in Physics Research Section B **3**, 360-363.
- Keene, W. C. and Galloway, J. N., 1984. Organic acidity in precipitation of North America, *Atmos. Environ.* **18**, 2491-2497.
- Kennedy, V.C., Zellweger, G.W. and Avanzino, R.J., 1976. Composition of Selected Rain Samples Collected at Menlo Park, California in 1971 (Open-File Report 76-852). *Geological Survey*, Menlo Park, CA.
- Kenneth, W., Cecil, F. W. and Wayne, T. D., 1998. **Air pollution; its origin and control**, 3rd ed. Addison Wesley Longman, Inc.
- Kessler, C.J., Porter, T.H., Firth, D., Sager, T.W. and Hemphill M.W., 1992. Factor analysis of trends in Texas acidic deposition. *Atmos. Environ.* **26**, 1137-1146.
- Khoder, M. I., 2002. Atmospheric conversion of sulfur dioxide to particulate sulfate and nitrogen dioxide to particulate nitrate and gaseous nitric acid in an urban area. *Chemosphere* **49**, 675-684.
- Kim, S. T., Maeda, Y. and Tsujino, Y., 2004. Assessment of the effect of air pollution on material damages in North east Asia, *Atmos. Environ.* **38** (1), 37-48.
- Kritiporn, P., 1990. **Second Annual workshop on Acid rain and Emission in Asia**, Regional Energy Resources Information Center (RERIC), AIT, Thailand.

- Krupa, S.V., 2002. Sampling and physico-chemical analysis of precipitation: a review. *Environ. Pollut.* **120**, 565–594.
- Krusche, A.V., de Camargo, P.B., Cerri, C.E., Ballester, M.V., Lara, L.B.L.S., Victoria, R.L., Martinelli, L.A., 2003. Acid rain and nitrogen deposition in a sub-tropical watershed (Piracicaba): ecosystem consequences. *Environ. Pollut.* **121**, 389–399.
- Kulshrestha, U.C., Sarkar, A.K., Sirvastava, S.S. and Parashar, D.C., 1996. Investigation into atmospheric deposition through precipitation studies at New Delhi (India). *Atmos. Environ.* **30**, 4149–4154.
- Kurtyka, J.C., 1953. **Precipitation measurements study**. Report of Investigation Number 20, Illinois State Water Survey Division, Urbana, IL.
- Lewis, W. M. Jr. and Grant, M. C., 1978. Sampling and chemical interpretation of precipitation for mass balance studies, *Water Resources Research* **14**, 1098–1104.
- Liechty, H. O. and Mroz, G. D., 1991. Effects of collection interval on quality of throughfall samples in two northern hardwood stands, *J. Environ. Qual.* **20**, 588–590.
- Maeda, Y., Morioka, J., Tsujino, Y., Satoh, Y., Zhang, X., Mizoguchi, T. and Hatakeyama, S., 2001. Material damage caused by acidic air pollution in East Asia, *Water, Air and Soil Pollut.* **130 (1-4)**, 141-150.
- Marendic-Miljkovic, J., Tasic, M., Rajsic, S., Vukmirovic, Z., 2000. Precipitation onset detection with a rain sensor of improved sensitivity. *Atmos. Environ.* **34**, 5175–5181.

- Mason, B. J., 1992. **Acid rain: its causes and its effects on Inland waters**. Clarendon Press. Oxford.
- Mierle, G., Clark, k., and France, R., 1986. The impact of acidification on aquatic biota in North America; A comparison of field and laboratory results, *Water, Air and Soil Pollut.* **31**, 593-604.
- Monn, C. and Schaeppi, G., 1993. Concentration of total suspended particulates, fine particles and their anionic compounds in ambient air and indoor air. *Environ. Technol.* **14**, 869-875.
- Mueller, C.C. and Kidder, E.H., 1972. Rain Gage Catch Variations Due to Air Flow Disturbances around a Standard Rain Gage. *Water Resources Research* **8**, 1077– 1082.
- Mulik, J. D. and Sawick, E., (1978). **Ion Chromatographic Analysis of Environmental Pollutants**, Ann Arbor Science Publishers, Ann Arbor, Michigan.
- National Atmospheric Deposition Program (NADP) 1990. **Quality Assurance Plan: NADP/NTN Deposition Monitoring**. J.H. Gibson, NADP/NTN Coordinator, Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO.
- Okey, C., Akkoyunlu, B.O. and Tayanc, M., 2002. Composition of wet deposition in Kaynarca, Turkey. *Environ. Pollut.* **1**, 18401-18410.
- Peden, M. and Skowron, L., 1978. Ionic stability of precipitation samples, *Atmos. Environ.* **12**, 2343–2349.

- Plaisane, H., Sauvage, S., Coddeville., P and Guillermo., 1998. A comparison of precipitation sensors used on the wet-only collectors. *Environ. Mon. Ass.* **51**, 657-671.
- Possanzini, M., Buttini, P. and Dipalo, V., 1988. Characterization of a rural area in terms of dry and wet deposition. *Sci. Tot. Environ.* **74**, 111-120.
- Ranalli, A.J., Turk, J.T. and Campbell, D.H., 1997. The use of bulk collectors in monitoring wet deposition at high-altitude sites in winter. *Water, Air and Soil Pollut.* **95**, 237-255.
- Richards, L. W., 1983. Comments on the oxidation of NO₂ to nitrate: day and night. *Atmos. Environ.* **17**, 397-402.
- Robertson, J.K., Dolzine, T.W. and Graham, R.C., 1980. **Chemistry of Precipitation from Sequentially Sampled Storms** (Publication #EPA 600/4-80-004). USEPA, Research Triangle Park, NC.
- Rodda, J. C. and Smith, S.W., 1986. The significance of the systematic error in rainfall measurement for assessing wet deposition, *Atmos. Environ.* **20**, 1059-1064.
- Rodhe, H., Cowling, E., Galbally, I. E., Galloway, J. and Herrera, R., 1988. **Acidification in tropical countries**. Wiley, New York.
- Russell, A. G., Cass, G. R. and Seinfeld, J. H., 1986. On some aspects of nighttime atmospheric chemistry. *Environ. Sci. Technol.* **20**, 1167-1172.
- Sanderson, M. G., William J. C., Colin E. J. and Richard G. D., 2006. Present and future acid deposition to ecosystems: The effect of climate change. *Atmos. Environ.* **40**, 1275-1283.

- Saxena, A., Kulshrestha, U.C., Kumar, N., Kumari, K.M. and Srivastava, S.S., 1996. Characterization of precipitation at Agra. *Atmos. Environ.* **30**, 3405-3412.
- Schindler, D. W., Dillon, P.S. and Schreier, H., 2006. A review of anthropogenic sources of nitrogen and their effects on Canadian aquatic ecosystem, *Biogeochemistry* **79**, 25-44.
- Sequeira, R., 1982. Acid Rain: An Assessment Based on Acid-Base Consideration. *J. Air Pollut. Control Assoc.*, **32(3)**, 241-245.
- Sevruk, B., Hamon, W.R., 1984. **International comparison of national precipitation gauges with a reference pit gauge.** WMO Instruments and Observing Methods Rep. No. **17**. *World Meteorological Organization*, Geneva.
- Sevruk, B., Hertig, J. A. and Tettamanti, R., 1994. The effect of orifice rim thickness on the wind speed above precipitation gauges, *Atmos. Environ.* **28**, 1939-1944.
- Singer, A., Shamay, Y. and Fried, M., 1993. Acid rain on Mt. Carmel, Israel. *Atmos. Environ.* **27**, 2287-2293.
- Sisterson, D. L., Wurfel, B. E. and Lesht, B. M., 1985. Chemical differences between event and weekly precipitation samples in Northeastern Illinois, *Atmos. Environ.* **19**, 1453-1469.
- Slanina, J., van Raaphorst, J.G., Zijp, W.L., Vermeulen, A.J., Roet, C.A., 1979. An Evaluation of the Chemical Composition of Precipitation with 21 Identical Collectors on a Limited Area. *Int. J. Environmental Anal. Chem.* **6**, 67-81.
- Small, H. **Ion chromatography**, Plenum Press, New York, London.
- Small, H., Steven, S.T. and Bauman, W.C., 1975. Novel Ion Exchange Chromatographic Method Using Conductometric Detection, *Anal. Chem.* **47**, 1801-1809.

- Spedding, D. J., 1974. **Air pollution**, Clarendon, Oxford.
- Spengler, J. D., Brauer, M. and Koutrakis, P. 1990 Acid air and health, *Environ. Sci. Tech.* **24**, 946-956.
- Staelens, J., De Schrijver, A., Van Avermaet, P., Genouw, G. And Verhhoest, N., 2005. A comparison of bulk and wet-only deposition at two adjacent sites in Melle (Belgium). *Atmos. Environ.* **39**, 7-15.
- Stedman, J. R., Heyes, C. J. and Irwin, J. G., 1990, A comparison of bulk and wet-only precipitation collectors at rural sites in the United Kingdom. *Water, Air, and Soil Pollut.* **52**, 377-395.
- Tanner, P.A., 1999. Analysis of Hong Kong daily bulk and wet deposition data from 1994 to 1995. *Atmos. Environ.* **33**, 1757-1766.
- Taylor, J.K., 1987. **Quality Assurance of Chemical Measurements**, Lewis Publishers, USA.
- The second Interim Scientific Advisory Group Meeting, 2000. **Technical Manual for Wet Deposition Monitoring in East Asia**. Acid Deposition Monitoring Network in East Asia (EANET).
- Thepanondh, S., Ayer, G.P. and Hooper, M.A., 2005. Analysis of Precipitation Chemistry in Northern Thailand. *Clean Air and Environ. Qual.* **39(4)**, 43-47.
- Thimonier, A., 1998. Measurement of atmospheric deposition under forest canopy: Some recommendations for equipment and sampling design. *Environ. Mon. Ass.* **52**, 353-387.
- Ungvari, G.S., Goggins, W., Leung S.K. and Gerevich J., 2007. Schizophrenia with prominent catatonic features ('catatonic schizophrenia'). II. Factor analysis of

- the catatonic syndrome. *Progress in Neuro-Psychophar. & Biol. Psychiatry* **31**, 462-468.
- US. Environmental Protection Agency, 1993. Environmental Criteria and Assessment Office, *Air Qual. Criteria for oxides of Nitrogen 1*, EPA600/8-91/049aF.
- Van der Maas, M. P. and Valent, A., 1989. *In situ* conservation of throughfall samples, *Air Pollut. Report Series* **21**, 137.
- Viggiano, A. A. and Arnold, F., 1983. Stratospheric sulfuric acid vapor: new and updated measurements. *J. Geophys. Res.* **88**, 1457-1462.
- Vong, R.J., 1990. Mid-latitude North Hemisphere background sulfate concentration in rainwater. *Atmos. Environ.* **24A**, 1007-1018.
- Wang, X., Jin, Y. G., Suto, M., Lee, L. C. and O'Neal, H. E., 1988. Rate constant of the gas phase reaction of SO₃ with H₂O. *J. Chem. Phys.* **89**, 4853-4860.
- Weiss J., **Handbook of Ion Chromatography, Third, Completely Revised and Enlarged Edition.** WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim.
- Wheaton, R. M. and Bauman, W. C., 1953. Ion Exclusion, *Industrial and Engineering Chemistry*, 228-233.
- WMO., 1971. WMO Operations Manual – sampling and analysis techniques for chemical constituents in air and precipitation. *WMO 299*. WMO, Geneva.
- Zelikoff, J. T., Frampton, M. W., Cohen, M. D., Morrow, P. E., Sisco, M., Tsai, Y., Utell, M. J. and Schlesinger, R. B., 1997. Effects of inhaled sulfuric acid aerosols on pulmonary immunocompetence: A comparative study in humans and animals, *Inhalation Toxicology* **9 (8)**, 731-752.