## Bibliography

- Ager, T. 2004. An Analysis of Metric Accuracy Definitions and Methods of Computation. Unpublished memo prepared for the National Geospatial-Intelligence Agency. InnoVision. March 2004.
- Aickin, M. 1990. Maximum likelihood estimation of agreement in the constant predictive probability model, and its relation to Cohen's kappa. *Biometrics*. Vol. 46, pp. 293–302.
- American Society of Photogrammtery. 1960. *Manual of Photographic Interpretation*. ASP, Washington, DC.
- Anderson, J. R., E. E. Hardy, J. T. Roach, and R. E. Witner. 1976. A Land Use and Land Cover Classification System for Use with Remote Sensor Data. USGS Professional Paper 964. 28 pp.
- Aronoff, S. 1982. Classification accuracy: A user approach. *Photogrammetric Engineering and Remote Sensing*. Vol. 48, No. 8, pp. 1299–1307.
- Aronoff, S. 1985. The minimum accuracy value as an index of classification accuracy. *Photogrammetric Engineering and Remote Sensing*. Vol. 51, No. 1, pp. 99–111.
- ASPRS. 1989. ASPRS interim accuracy standards for large-scale maps. *Photogrammetric Engineering and Remote Sensing*. Vol. 54, No. 7, pp. 1038–1041.
- ASPRS. (American Society for Photogrammetry and Remote Sensing Specifications and Standards Committee). 1990. ASPRS Accuracy Standards for Large-Scale Maps. *Photogrammetric Engineering and Remote Sensing*. Vol. 56, No. 7, pp. 1068–1070.
- ASPRS. 2004. ASPRS Guidelines, Vertical Accuracy Reporting for Lidar Data. American Society for Photogrammetry and Remote Sensing. May 24, 2004.
- ASPRS and ASCE. 1994. *Glossary of the Mapping Sciences*. ASPRS, Bethesda Maryland and ASCE, New York.
- Biging, G. and R. Congalton. 1989. Advances in forest inventory using advanced digital imagery. Proceedings of Global Natural Resource Monitoring and Assessments: Preparing for the 21st Century. Venice, Italy. September 1989. Vol. 3, pp. 1241–1249.
- Biging, G., R. Congalton, and E. Murphy. 1991. A comparison of photointerpretation and ground measurements of forest structure. Proceedings of the Fifty-Sixth Annual Meeting of the American Society of Photogrammetry and Remote Sensing, Baltimore, MD. Vol. 3, pp. 6–15.
- Bishop, Y., S. Fienberg, and P. Holland. 1975. Discrete Multivariate Analysis: Theory and Practice. MIT Press, Cambridge, MA. 575 pp.
- Bolstad, P. 2005. *GIS Fundamentals*. 2nd edition. Eider Press, White Bear Lake, MN. 543 pp. Brennan, R. and D. Prediger. 1981. Coefficient kappa: Some uses, misuses, and alternatives. *Educational and Psychological Measurement*. Vol. 41, pp. 687–699.
- Brothers, G. L. and E. B. Fish. 1978. Image enhancement for vegetation pattern change analysis. *Photogrammetric Engineering and Remote Sensing*. Vol. 44, No. 5, pp. 607–616.
- Campbell, J. B. 1981. Spatial autocorrelation effects upon the accuracy of supervised classification of land cover. *Photogrammetric Engineering and Remote Sensing*. Vol. 47, No. 3, pp. 355–363.
- Card, D. H. 1982. Using known map categorical marginal frequencies to improve estimates of thematic map accuracy. *Photogrammetric Engineering and Remote Sensing*. Vol. 48, No. 3, pp. 431–439.
- Chrisman, N. 1982. Beyond accuracy assessment: Correction of misclassification. Proceedings of the 5th International Symposium on Computer-assisted Cartography. Crystal City, VA. pp. 123–132.

- Cliff, A. D. and J. K. Ord. 1973. Spatial Autocorrelation. Pion Limited. London, England. 178 pp.
- Cochran, W. G. 1977. Sampling Techniques. John Wiley & Sons, New York. 428 pp.
- Cohen, J. 1960. A coefficient of agreement for nominal scales. Educational and Psychological Measurement. Vol. 20, No. 1, pp. 37–40.
- Cohen, J. 1968. Weighted kappa: Nominal scale agreement with provision for scaled disagreement or partial credit. *Psychological Bulletin*. Vol. 70, No. 4, pp. 213–220.
- Colwell, R. N. 1955. The PI picture in 1955. Photogrammetric Engineering. Vol. 21, No. 5, pp. 720–724.
- Congalton, R. G. 1981. The use of discrete multivariate analysis for the assessment of Landsat classification accuracy. MS Thesis, Virginia Polytechnic Institute and State University, Blacksburg, VA. 111 pp.
- Congalton, R. G. and R. A. Mead. 1983. A quantitative method to test for consistency and correctness in photo-interpretation. *Photogrammetric Engineering and Remote Sensing*. Vol. 49. No. 1, pp. 69–74.
- Congalton, R. G., R. G. Oderwald, and R. A. Mead. 1983. Assessing Landsat classification accuracy using discrete multivariate statistical techniques. *Photogrammetric Engineering and Remote Sensing*. Vol. 49, No. 12, pp. 1671–1678.
- Congalton, R. G. 1984. A comparison of five sampling schemes used in assessing the accuracy of land cover/land use maps derived from remotely sensed data. Ph.D. dissertation. Virginia Polytechnic Institute and State University. Blacksburg, VA. 147 pp.
- Congalton, R. and R. Mead. 1986. A review of three discrete multivariate analysis techniques used in assessing the accuracy of remotely sensed data from error matrices. *IEEE Transactions of Geoscience and Remote Sensing*. Vol. GE-24, No 1, pp. 169–174.
- Congalton, R. G. 1988a. Using spatial autocorrelation analysis to explore errors in maps generated from remotely sensed data. *Photogrammetric Engineering and Remote Sensing*. Vol. 54, No. 5, pp. 587–592.
- Congalton, R. G. 1988b. A comparison of sampling schemes used in generating error matrices for assessing the accuracy of maps generated from remotely sensed data. *Photogrammetric Engineering and Remote Sensing*. Vol. 54, No. 5, pp. 593–600.
- Congalton, R. 1991. A review of assessing the accuracy of classifications of remotely sensed data. *Remote Sensing of Environment.* Vol. 37, pp. 35–46.
- Congalton, R. and G. Biging. 1992. A pilot study evaluating ground reference data collection efforts for use in forest inventory. *Photogrammetric Engineering and Remote Sensing*. Vol. 58, No. 12, pp. 1669–1671.
- Congalton, R. and K. Green. 1993. A practical look at the sources of confusion in error matrix generation. *Photogrammetric Engineering and Remote Sensing*. Vol. 59, No. 5, pp. 641–644.
- Congalton, R. G. and R. D. Macleod. 1994. Change detection accuracy assessment on the NOAA Chesapeake Bay pilot study. Proceedings of the International Symposium of Spatial Accuracy of Natural Resource Data Bases, Williamsburg, VA. pp. 78–87.
- Congalton, R. and M. Brennan. 1998. Change detection accuracy assessment: Pitfalls and considerations. Proceedings of the Sixty Fourth Annual Meeting of the American Society of Photogrammetry and Remote Sensing, Tampa, Florida. pp. 919–932 (CD-ROM).
- Cowardin, L. M., V. Carter, F. Golet, and E. LaRoe. 1979. A Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services. U.S. Fish and Wildlife Service. U.S. Department of Interior, Washington, DC. 103 pp.
- Czaplewski, R. 1992. Misclassification bias in aerial estimates. *Photogrammetric Engineering and Remote Sensing*. Vol. 58, No. 2, pp. 189–192.
- Czaplewski, R. and G. Catts. 1990. Calibrating area estimates for classification error using confusion matrices. Proceedings of the 56th Annual Meeting of the American Society for Photogrammetry and Remote Sensing. Denver, CO. Vol. 4, pp. 431–440.

Bibliography 175

DMA (Defense Mapping Agency). 1991. Error Theory as Applied to Mapping, Charting, and Geodesy. Defense Mapping Agency Technical Report 8400.1. Fairfax, VA. 71 pages plus appendices.

- Eyre, F. H. 1980. Forest Cover Types of the United States and Canada. Society of American Foresters, Washington, DC. 148 pp.
- FEMA (Federal Emergency Management Agency). 2003. Guidelines and Specifications for Flood Hazard Mapping Partners.
- Ferris State University. 2007. http://www.ferris.edu/faculty/burtchr/sure340/notes/History.pdf
- FGDC (Federal Geographic Data Committee). 1998. Subcommittee for Base Cartographic Data. *Geospatial Positioning Accuracy Standards. Part 3: National Standard for Spatial Data Accuracy*. FGDC-STD-007.3-1998: Washington, DC. Federal Geographic Data Committee, 24 pp.
- Fitzpatrick-Lins, K. 1981. Comparison of sampling procedures and data analysis for a land-use and land-cover map. *Photogrammetric Engineering and Remote Sensing*. Vol. 47, No. 3, pp. 343–351.
- Fleiss, J., J. Cohen, and B. Everitt. 1969. Large sample standard errors of kappa and weighted kappa. *Psychological Bulletin*. Vol. 72, No. 5, pp. 323–327.
- Foody, G. 1992. On the compensation for chance agreement in image classification accuracy assessment. *Photogrammetric Engineering and Remote Sensing*. Vol. 58, No. 10, pp. 1459–1460.
- Freese, F. 1960. Testing accuracy. Forest Science. Vol. 6, No. 2, pp. 139-145.
- Ginevan, M. E. 1979. Testing land-use map accuracy: another look. *Photogrammetric Engineering and Remote Sensing*. Vol. 45, No. 10, pp. 1371–1377.
- Gong, P. and J. Chen. 1992. Boundary uncertainties in digitized maps: Some possible determination methods. IN: Proceedings of GIS/LIS '92. Annual Conference and Exposition. San Jose, CA. pp. 274–281.
- Goodman, L. 1965. On simultaneous confidence intervals for multinomial proportions. *Technometrics*. Vol. 7, pp. 247–254.
- Gopal, S. and C. Woodcock. 1994. Theory and methods for accuracy assessment of thematic maps using fuzzy sets. *Photogrammetric Engineering and Remote Sensing*. Vol. 60, No. 2, pp. 181–188.
- Grassia, A. and R. Sundberg. 1982. Statistical precision in the calibration and use of sorting machines and other classifiers. *Technometrics*. Vol. 24, pp. 117–121.
- Green, K. and R. Congalton. 2004. An error matrix approach to fuzzy accuracy assessment: the NIMA Geocover project. A peer-reviewed chapter in Lunetta, R. S. and J. G. Lyon (Eds.), Remote Sensing and GIS Accuracy Assessment. CRC Press, Boca Raton, FL. 304 pp.
- Greenwalt, C. and M. Schultz. 1962 and 1968. *Principles of Error Theory and Cartographic Applications*. United States Air Force. Aeronautical Chart and Information Center. ACIC Technical Report Number 96. St. Louis, Missouri. 60 pages plus appendices. This report is cited in the ASPRS standards as ACIC, 1962.
- Hay, A. M. 1979. Sampling designs to test land-use map accuracy. *Photogrammetric Engineering and Remote Sensing*. Vol. 45, No. 4, pp. 529–533.
- Hay, A. M. 1988. The derivation of global estimates from a confusion matrix. *International Journal of Remote Sensing*. Vol. 9, pp. 1395–1398.
- Hill, T. B. 1993. Taking the "" out of "ground truth": Objective accuracy assessment. In Proceedings of the 12th Pecora Conference. Sioux Falls, SD. pp. 389–396.
- Hopkirk, P. 1992. *The Great Game. The Struggle for Empire in Central Asia.* Kodansha International. 565 pp.
- Hord, R. M. and W. Brooner. 1976. Land-use map accuracy criteria. *Photogrammetric Engineering and Remote Sensing*. Vol. 42, No. 5, pp. 671–677.

- Hudson, W. and C. Ramm. 1987. Correct formulation of the kappa coefficient of agreement. *Photogrammetric Engineering and Remote Sensing*. Vol. 53, No.4, pp. 421–422.
- Katz, A. H. 1952. Photogrammetry needs statistics. *Photogrammetric Engineering and Remote Sensing*. Vol. 18, No. 3, pp. 536–542.
- Landis, J. and G. Koch. 1977. The measurement of observer agreement for categorical data. *Biometrics*. Vol. 33. pp. 159–174.
- Lewis, Meriwether, William Clark, Nicholas Biddle, Paul Allen. 1814 Map of Lewis and Clark's Track across the Western Portion of North America. Bradford and Inskeep, Philadelphia.
- Lopez, A., F. Javier, A. Gordo, and A. David. 2005. Sample Size and Confidence When Applying the NSSDA. XXII International Cartographic Conference (ICC2005). Hosted by The International Cartographic Association. Coruna, Spain. July 11–16, 2005.
- Lowell, K. 1992. On the incorporation of uncertainty into spatial data systems. In Proceedings of GIS/LIS '92. Annual Conference and Exposition. San Jose, CA. pp. 484–493.
- Lunetta, R., R. Congalton, L. Fenstermaker, J. Jensen, K. McGwire, and L. Tinney. 1991. Remote sensing and geographic information system data integration: error sources and research issues. *Photogrammetric Engineering and Remote Sensing*. Vol. 57, No. 6, pp. 677–687.
- Macleod, R. and R. Congalton. 1998. A quantitative comparison of change detection algorithms for monitoring eelgrass from remotely sensed data. *Photogrammetric Engineering* and Remote Sensing. Vol. 64, No. 3, pp. 207–216.
- Malila, W. 1985. Comparison of the information contents of Landsat TM and MSS data. Photogrammetric Engineering and Remote Sensing. Vol. 51, No. 9, pp. 1449–1457.
- Maune, D. Ed. 2007. Digital Elevation Model Technologies and Applications: The DEM Users Manual, 2nd edition. American Society of Photogrammetry and Remote Sensing. Bethesda, MD. 655 pp.
- McGlone, J. C. 2004. Ed. *Manual of Photogrammetry*. American Society for Photogrammetry and Remote Sensing. Bethesda, MD. 1151 pp.
- McGuire, K. 1992. Analyst variability in labeling unsupervised classifications. *Photogrammetric Engineering and Remote Sensing*. Vol. 58, No. 12, pp. 1705–1709.
- Mikhail, E. M. and G. Gracie. 1981. Analysis and Adjustment of Survey Measurements. Van Nostrand Reinhold, 340 pp.
- MPLMIC. 1999. Positional Accuracy Handbook. Using the National Standard for Spatial Data Accuracy to Measure and Report Geographic Data Quality. Minnesota Planning land Management Information Center. St. Paul, Minnesota. 29 pp.
- NDEP. 2004. Guidelines for Digital Elevation Data. Version 1.0. National Digital Elevation Program. May 10, 2004.
- Prisley, S. and J. Smith. 1987. Using classification error matrices to improve the accuracy of weighted land-cover models. *Photogrammetric Engineering and Remote Sensing*. Vol. 53, No. 9, pp. 1259–1263.
- Rhode, W. G. 1978. Digital image analysis techniques for natural resource inventories. National Computer Conference Proceedings. pp. 43–106.
- Rosenfield, G. and K. Fitzpatrick-Lins. 1986. A coefficient of agreement as a measure of thematic classification accuracy. *Photogrammetric Engineering and Remote Sensing*. Vol. 52, No. 2, pp. 223–227.
- Rosenfield, G. H., K. Fitzpatrick-Lins, and H. Ling. 1982. Sampling for thematic map accuracy testing. *Photogrammetric Engineering and Remote Sensing*. Vol. 48, No. 1, pp. 131–137.
- Sammi, J. C. 1950. The application of statistics to photogrammetry. *Photogrammetric Engineering*. Vol. 16, No. 5, pp. 681–685.

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Singh, A. 1986. Change detection in the tropical rain forest environment of Northeastern India using Landsat. In *Remote Sensing and Tropical Land Management*. Edited by Eden, M. J. and Parry, J. T. London: John Wiley & Sons. pp. 237–254.

- Singh, A. 1989. Digital change detection techniques using remotely sensed data. *International Journal of Remote Sensing*, Vol. 10, No 6, pp. 989–1003.
- Spurr, S. 1948. Aerial Photographs in Forestry. Ronald Press, New York. 340 pp.
- Spurr, S. 1960. Photogrammetry and Photo-Interpretation with a Section on Applications to Forestry. Ronald Press, New York. 472 pp.
- Stehman, S. 1992. Comparison of systematic and random sampling for estimating the accuracy of maps generated from remotely sensed data. *Photogrammetric Engineering and Remote Sensing*. Vol. 58, No. 9, pp. 1343–1350.
- Stewart, G. 1960. Ordeal by Hunger. The Classic Story of the Donner Party. Pocket Book edition. 320 pp.
- Story, M. and Congalton, R. 1986. Accuracy assessment: A user's perspective. Photogrammetric Engineering and Remote Sensing. Vol. 52, No. 3, pp. 397–399.
- Tenenbein, A. 1972. A double sampling scheme for estimating from misclassified multinomial data with applications to sampling inspection. *Technometrics*. Vol. 14, pp. 187–202.
- Tortora, R. 1978. A note on sample size estimation for multinomial populations. *The American Statistician*. Vol. 32, No. 3. pp. 100–102.
- U.S. Bureau of the Budget. 1941. 1947 U.S. National Map Accuracy Standards. Washington, DC. van Genderen, J. L. and B. F. Lock. 1977. Testing land use map accuracy. Photogrammetric Engineering and Remote Sensing. Vol. 43, No. 9. pp. 1135–1137.
- van Genderen, J. L., B. F. Lock, and P. A. Vass. 1978. Remote sensing: statistical testing of thematic map accuracy. Proceedings of the Twelfth International Symposium on Remote Sensing of Environment. ERIM. pp. 3–14.
- Woodcock, C. 1996. On roles and goals for map accuracy assessment: A remote sensing perspective. Proc: Second International Symposium on Spatial Accuracy Assessment in Natural Resources and Environmental Sciences, USDA Forest Service Rocky Mountain Forest and Range Experiment Station, Gen. Tech. Rep. RM-GTR-277. Fort Collins, CO. pp. 535–540.
- Woodcock, C. and S. Gopal. 1992. Accuracy assessment of the Stanislaus Forest vegetation map using fuzzy sets. In Remote Sensing and Natural Resource Management. Proceedings of the 4th Forest Service Remote Sensing Conference, Orlando, FL. pp. 378–394.
- Young, H. E. 1955. The need for quantitative evaluation of the photo interpretation system. Photogrammetric Engineering. Vol. 21, No. 5. pp. 712–714.
- Young, H. E. and E. G. Stoeckler. 1956. Quantitative evaluation of photo interpretation mapping. *Photogrammetric Engineering*. Vol. 22, No. 1. pp. 137–143.
- Zadeh, L. A. 1965. Fuzzy sets. Information and Control. Vol. 8, pp. 338–353.
- Zar, J. 1974. Biostatistical Analysis. Prentice-Hall. 620 pp.