

In an event based modelling, identification of the end time of an event is a subjective method. It is recommend to have further investigations on the defining MIT by Unit Hydrograph method to identify end time of an event.

References

- Abbott, J. 1978. *Testing of Several Runoff Models on an Urban Watershed*. U.S. Army Corps of Engineers, Hydrologic Engineering Center Technical Paper No. 59.
- Abellera, L., & Stenstrom, M. (2005). Impervious Surface Detection from Satellite Imagery with Knowledge Based Systems and GIS. *International Conference on Computing in Civil Engineering* (pp. 1-10). Cancun, Mexico: American Society of Civil Engineers.
- Agyei, F., Mahmood, K., & Haque, M. (1981). *Urban Catchment Models "Brief Examination"*. Washington, DC: University of the District of Columbia, Water Resources Research Center.
- Aksoy, H., & Wittenberg, H. (2011). Nonlinear baseflow recession analysis in watersheds with intermittent streamflow. *Hydrological Sciences Journal* , 269-285.
- Aksoy, H., Bayazit, M., & Wittenberg, H. (2001). Probabilistic approach to modelling of recession curves. *Hydrological Sciences Journal* , 226-237.
- Aksoy, H., Kurt, I., & Eris, E. (2009). Filtered smoothed minima baseflow separation method. *Journal of Hydrology* , 94-101.
- Andrieu, H., Dolcine, L., French, M., & Creutin, J. (2000). Implementation considerations of a conceptual precipitation model. *Journal of Geophysical Research* , 2291-2297.
- Arsham, H. (1994, 2 25). *Deterministic Modeling*. Retrieved 12 31, 2014, from Linear Optimization with Applications: <http://home.ubalt.edu/ntsbarsh/opre640a/partviii.htm>
- Bárdossy, A. (2007). Calibration of hydrological model parameters for ungauged catchments. *Hydrology and Earth System Sciences* , 703-710.
- Baharudin, F. B. (2007). *A Study on Rainfall-Runoff Characteristic of Urban Catchment of Sungai Kerayong (Master's Thesis)*. Universiti Sains Malaysia, School of Civil Engineering.

- Ball, J. E. (2001). Parameter Estimation for Urban Stormwater Models. *Urban Drainage Modeling at the World Water and Environmental Resources Congress* (pp. 713-721). Florida: American Society of Civil Engineers.
- Balme, M., Vischel, T., Lebel, T., Peugeot, C., & Galle, S. (2006). Assessing the water balance in the Sahel: Impact of small scale rainfall variability on runoff, Part 1: Rainfall variability analysis. *Journal of Hydrology* , 336-348.
- Berthet, L., Andereassian, V., Perrin, C., & Javelle, P. (2009). How crucial is it to account for the antecedent moisture conditions in flood forecasting? Comparison of event-based and continuous approaches on 178 catchments. *Hydrology and Earth System Sciences* , 819-831.
- Blume, T., Zehe, E., & Bronstert, A. (2007). Rainfall—runoff response, event-based runoff coefficients and hydrograph separation. *coefficients and hydrograph separation* , 52 (5), 843-862.
- Boughton, W. (2007). Effect of data length on rainfall–runoff modelling. *Environmental Modelling & Software* , 406-413.
- Brooks, R., & Corey, A. (1964). *Hydraulic Properties of Porous Media* . Fort Collins, Colorado: Colorado State University.
- Buishand, T. (1982). Some Methods for Testing the Homogeneity of Rainfall Records. *Journal of Hydrology* , 11-27.
- CDM, I. (2001). *Evaluation of Integrated Surface Water and Groundwater Modelling Tools, Internal report Water Resources Research & Development Program*.
- Cervantes, W. M. (2004). *Modelling Water Quantity and Water Quality with the SWMM Continuous Streamflow Model Under Non-Stationary Land-use Condition Using GIS (Master's thesis)*. Faculty of the Graduate School of the University of Maryland.
- Chapman, T. (1999). A comparison of algorithms for stream flow recession and baseflow separation. *Hydrological Processes* , 701-714.
- CHI. (2019,02 07). *OPEN SWMM*. Retrived from info@chiwater.com:
<https://www.openswmm.org/forum/about>
- Chow, V. T. (1959). *Open Channel Hydraulics*. Lewis Publishers.
- Chow, V. T., Maidment, D. R., & Mays, L. W. (2010). *Applied Hydrology*. New Delhi: Tata McGraw-Hill.

- Chukwuocha, C. A., & Joel, I. I. (2014). Delineation and Characterization of Sub-catchments of Owerri, South East Nigeria, Using GIS. *American Journal of Geographic Information System* , 1-9.
- Clapp, R. B., & Hornberger, G. M. (1978). Empirical Equations for Some Soil Hydraulic Properties. *Water Resources Research* , 601-604.
- Clark, R. T. (1973). Mathematical Models in Hydrology. *Irrigation and Drainage*. Rome: Food and Agriculture Organization of the United Nations.
- Daniel, E., Camp, J., LeBoeuf, E., Penrod, J., Dobbins, J., & Abkowitz, M. (2011). Watershed Modeling and its Applications. *The Open Hydrology Journal* , 26-50.
- DAS. (1987). *Technical Notes for the Guidance of the Technical Officers, Department of Agrarian Services*. Colombo 9: Golden Printers.
- DED, M. (2013). Hydrogeomprphological Method of Floodplain Delineation. *Geographia Technica* , 13-22.
- Dharmasena, G. (1986). *Hydrological Annual 1986/87*. Colombo, Sri Lanka: Hydrology Division of the Irrigation Department.
- DHI. (2002). *MOUSE RDII reference manual*. Horsolm, Denmark: DHI Software.
- Dumont, J. (2013, January 1). *An Introduction to the Model Capabilities*. Retrieved February 22, 2013, from Water Balance Model powered by QUALHYMO: <http://waterbalance.ca/water-balance-model/how-to-use-the-model/an-introduction-to-the-model-capabilities/>
- Dunkerley, D. (2008). Identifying individual rain events from pluviograph records: a review with analysis of data from an Australian dry land site. *Hydrological Processes* , 5024-5036.
- Eckhardt, K. (2008). A comparison of baseflow indices, which were calculated with seven different baseflow separation methods. *Journal of Hydrology* , 168-173.
- Efstratiadis, A., Koussis, A. D., Koutsoyiannis, D., & Mamassis, N. (2014). Flood design recipes vs. reality: can predictions for ungauged basins be trusted? *Natural Hazards and Earth System Sciences* , 1417-1428.
- Elliott, A., & Trowsdale, S. (2007). A review of models for low impact urban stormwater drainage. *Environmental Modelling & Software* , 394-405.
- Feng, Q., Wen, X., & Li, J. (2014). Wavelet Analysis-Support Vector Machine Coupled Models for Monthly Rainfall Forecasting in Arid Regions. *Water Resources management* , 1-17.

- Forootan, E., Salajegheh, A., Mahdavi, M., Ahamadi, H., Sharifi, F., & Namdar, M. (2012). Quantification of urbanization impacts on discharge volume using H2U model. *African Journal of Agricultural Research* , 1156-1163.
- Freimund, J. R. (1992). *Potential Error in Hydrologic Field Data Collected From Small Semi-Arid Watersheds*. University of Arizona.
- Furey, P., & Gupta, V. (2001). A Physically based filter for separating baseflow from streamflow time series. *Water Resources Research* , 2709-2722.
- Futter, M., Erlandsson, M., Butterfield, D., Whitehead, P., Oni, S., & Wade, A. (2014). PERSiST: a flexible rainfall-runoff modelling toolkit for use with the INCA family of models. *Hydrology and Earth System Sciences* , 855-873.
- Garcia, M. (2003). *Estimation of Ungauged Rainfall from Measured Streamflow for the Simulation of a Colorado Front Range Flood Event (Master's Thesis)*. Fort Collins: Colorado State University.
- Gayathri, K. D., Ganasri, B., & Dwarakish, G. (2015). A Review on Hydrological Models. *Aaquatic Procedia* , 4, 1001-1007.
- Gerald, C., & Slolomatine, D. (2007). Baseflow separation techniques for modular artificial neural network modelling inflow forecasting. *Hydrological Sciences Journal* , 491-507.
- Ghosh, I. (2010). *Characterizing and Understanding the Effects of Spatial Resolution in Urban Hydrologic Simulations (Doctoral dissertation)*. Boston, Massachusetts: Northeastern University.
- Giang, T. N., & Phuong, T. A. (2010). Calibration and Verification of a hydrological model using event data. *VNU Journal of Science, Earth Sciences* , 64-74.
- Gonzales, A., Nonner, J., Heijkers, J., & Uhlenbrook, S. (2009). Comparison of different baseflow separation methods in a lowland catchment. *Hydrology and Earth System Sciences* , 2055-2068.
- He, Z., Wen, X., Liu, H., & Du, J. (2014). A comparative study of artificial neural network, adaptive neuro fuzzy inference system and support vector machine for forecasting river flow in the semiarid mountain region. *Journal of Hydrology* , 379-386.
- Henrik, M., Wilson, G., & Ammentorp, H. C. (2002). Comparison of Different Automated Strategies for calibration of Rainfall-Runoff Models. *Journal of Hydrology* , 48-59.

- Holko, L., Herrmann, A., Schöniger, M., & Schumann, S. (2000). Groundwater runoff in a small mountainous basin: testing a separation method based on groundwater table and discharge measurements. *Conference on "Monitoring and Modelling Catchment Water Quantity and Quality"* (pp. 27-29). Ghent, Belgium: ERB and UNESCO/IHP (FRIEND).
- Huber, W. C., & Dickinson, R. E. (1992). *Storm water Management Model Version 4: user's Manual*. Athens, Georgia: US EPA.
- Huber, W. C., Cannon, L., & Stouder, M. (2006). *BMP Modelling Concepts and Simulation*. Cincinnati: United States Environmental Protection Agency.
- Huff, D., & Begovich, C. (1976). *An Evaluation of Two Hydrograph Separation Methods of Potential Use in Regional Water Quality Assessment*. Environmental Sciences Division Publication.
- Hunukumbura, P. B. (2007). Development of a Cell-based Model to Derive Direct Runoff Hydrographs for Ungauged Mountainous Basins. *Journal of Mountain Science* , 309-320.
- Jankowfsky, S., Branger, F., Braud, I., & J. Gironas, F. (2013). Comparison of catchment and network delineation approaches in complex suburban environments. Application to the Chaudanne catchment, France. *Hydrological Processes* , 3747-3761.
- Joo, J., Lee, J., Kim, J. H., Jun, H., & Jo, D. (2013). Inter-Event Time Definition Setting Procedure for Urban Drainage Systems. *Water* , 45-58.
- Kohler, M., & Linsley, R. (1951). Predicting the Runoff from Storm Rainfall. *30th Annual Meeting of the American Geophysical Union*, (pp. 1-9). Washington D.C.
- Krause, P., Boyle, D., & Base, F. (2005). Comparison of different efficiency criteria for hydrological model assessment. *Advances in Geosciences* , 89-97.
- Kuta, R., Annable, W., & Tolson, B. (2010). Sensitivity of Field Data Estimates in One-Dimensional Hydraulic Modeling of Channels. *Journal of Hydraulic Engineering* , 379-384.
- Layan, B., Dridri, A., Benaabidate, L., & Zemzami, M. (2013). Determination of Design Floods by Aspects of Peak Flow and Flood Hydrograph in Watershed of Larbaa River, Taza (Morocco). *Journal of Hydrogeology & Hydrologic Engineering* , 2:1.

- Li, S. G., & McLaughlin, D. (1991). A Non stationary spectral method for solving stochastic groundwater problems unconditional analysis. *Water Resources Research* , 1589-1605.
- Linsley, R., Kohler, M., & Paulhus, J. (1975). *Applied Hydrology*. New Delh: Tata McGraw Hill Publishers.
- Liu, L., Liu, Y., Wang, X., Yu, D., Liu, K., Huang, H., et al. (2015). Developing an effective 2-D urban flood inundation model for city emergency management based on cellular automata. *Natural Hazards and Earth System Sciences* , 381-391.
- Lockie, T. (2009). Catchment Modeling using SWMM. *Modeling Stream at the 49th Water New Zealand Annual Conference and Expo*.
- Lyne, V., & Hollick, M. (1979). Stochastic Time-Variable Rainfall-Runoff Modelling. *Hydrology and water resources symposium* (pp. 89-92). Perth: Institution of Engineers Australia.
- Madsen, H., & Jacobsen, T. (2001). Automatic calibration of the MIKE SHE integrated hydrological modelling system. *4th DHI Software Conference, Scanticon Conference Centre* (pp. 1-20). Helsingør, Denmark: DHI Water & Environment.
- Maharajan, R. (2014). Hydrograph recession analysis methods and its comparison using unsaturated moisture movement model. *International Journal of Innovation and Applied Studies* , 132-141.
- Mahe, G. (2009). Surface/groundwater interactions in the Bani and Nakanbe rivers, tributaries of the Niger and Volta basins, West Africa. *Hydrological Sciences Journal* , 704-712.
- McCuen, R. H. (2003). *Modeling Hydraulic Chanage: Statistical Method*. Lewis Publishers.
- McIntyre, N., & Al-Qurashi, A. (2009). Performance of ten rainfall-runoff models applied to an arid catchment in Oman. *Environmental Modelling and Software* , 726-738.
- McIntyre, N., Ballard, C., Bruen, M., Bulygina, N., Butaert, W., Cluckie, I., et al. (2012). Modelling the hydrological impacts of rural land use change: current state of the science and future challenges. *British Hydrological Society Eleventh National Symposium, Hydrology for a Changing World*. Dundee.
- Merz, R., Bloschl, G., & Parajka, J. (2006). Spatio-temporal Variability of Event Runoff Coefficients. *Journal of Hydrology* , 591-604.

- Mitchell, V., Duncan, H., Inman, M., Rahilly, M., Stewart, J., Vieritz, A., et al. (2007). State of the art review of integrated urban water models. *NOVATECH*, (pp. 507-514).
- Munoz-Villers, L., Holwerda, F., Gomez-Cardenas, M., Equihua, M., Asbjornsen, H., Bruijnzeel, L., et al. (2012). Water balances of old-growth and regenerating montane cloud forests in central Veracruz, Mexico. *Journal of Hydrology* , 53-66.
- Norbiato, D., Borga, M., Merz, R., Blöschl, G., & Carton, A. (2009). Controls on event runoff coefficients in the eastern Italian Alps. *Journal of Hydrology* , 312–325.
- Nourani, V., Roughani, A., & Gebremichael, M. (2011). Topmodel capability for rainfall-runoff modelling of the Ammameh watershed at different time scales using different terrain algorithms. *Journal of Urban and Environmental Engineering* , 1-14.
- NRCS. (1986). *Urban Hydrology for Small Watersheds TR-55*. United States Department of Agriculture, Natural Resources Conservation Service.
- Nwakpuda, N. (2017). Comparative Analysis of Methods of Baseflow Separation of Otamiri Catchment. *International journal of scientific & technology research*. 6(7), 314-318.
- Ogunkoya, O., & Jenkins, A. (1993). Analysis of storm hydrograph and flow pathways using a three-component hydrograph separation model. *Journal of Hydrology* , 71-88.
- Palalane, J. (2010). *Comparative analysis of sub-surface drainage solutions in Maxaquene "A" (Master's thesis)*. Sweden: Water and Environmental Engineering, Department of Chemical Engineering, Lund University.
- Pattison, A. (1977). *Australian Rainfall & Runoff - Flood Analysis and Design*. Barton: ACT: Institution of Engineers, Australia.
- Paudel, R., & Jawitz, J. W. (2012). Does increased model complexity improve description of phosphorus dynamics in a large treatment wetland? *Ecological Engineering* , 283-294.
- Perera, K., & Wijesekera, N. (2010). Identification of the Spatial Variability of Runoff Coefficient of Three Wet Zone Watersheds of Sri Lanka for Efficient River Basin Planning. *3rd International Perspective on Current & Future State of Water Resources & The Environment*. Chennai, India: Environmental & Water Resources Institute (EWRI) of American Society of Civil Engineers.

- Pilgrim, D., Chapman, T., & Doran, D. (1988). Problems of rainfall-runoff modelling in arid and semiarid regions. *Hydrological Sciences Journal* , 379-400.
- Ponrajah, A. (1984). *Technical Guidelines for Irrigation Works*. Colombo 2: Irrigation Department.
- Ritzema, H. (1994). *Drainage Principles and Applications, 2nd ED*. Netherlands: ILRI.
- Rodríguez, M. B., Taboada, M. C., & Taboada, M. C. (2012). Rainfall–runoff response and event-based runoff coefficients in a humid area (northwest Spain). *Hydrological Sciences Journal* , 445-459.
- Rossman, L. A. (2009). *Storm Water Management Model User's Manual Version 5.0*. Cincinnati: U.S. Environmental Protection Agency.
- Scharffenberg, W. A., & Fleming, M. J. (2010). *Hydrologic Modelling System HEC-HMS User's Manual*. Davis: U.S.Army Corps of Engineers, Hydrologic Engineering Center.
- Shamsudin, S., Azumi, S., & Aris, A. (2010). Effect of storm separation time on rainfall characteristics - A case study of Johor, Malaysia. *European Journal of Scientific Research* , 162-167.
- Shultz, M. (2007). *Comparison of Distributed versus Lumped Hydrologic Simulation Models using Stationary and Moving Storm Events Applied to Small Synthetic Rectangular Basins and an Actual Watershed Basin*. Arlington: The University of Texas at Arlington.
- Singh, G., & Kumar, E. (2017). Input data scale impacts on modelling output results: A review. *Journal of Spatial Hydrology*, 13(01), 1-10
- SKM. (2009). *Australian Rainfall & Runoff-Revision Projects: Baseflow for Catchment Simulation, Stage 1 Report, Volume 1* .
- Sloto, R., & Crouse, M. (1996). *HYSEP: A Computer program for Streamflow Hydrograph Separation and Analysis*. U. S. Geological Survey Water- Resources Investigation.
- Smith, A. A. (2004). *MIDUSS Version 2 Reference Manual*. Ontario: Alan A Smith Inc.
- Snyder, W., & Curlin, J. (1969). *Walker branch watershed project: Hydrologic analysis and data processing*. Oak Ridge. Tennessee: Oak Ridge National Laboratory .

- Stephenson, D., Kumar, K., Reyes, F., Royer, J., & Chauvin, F. (1998). *Extreme daily rainfall events and their impact on ensemble forecasts of the Indian monsoon*, *Monthly weather Review*. American Meteorological Society.
- Strahler, A. (1964). *Quantitative Geomorphology of Drainage Basins and Channel Networks in Hand Book of Applied Hydrology*. New York: McGraw-Hill.
- Subhashini, W., Hewa, G., & Pezzaniti, D. (2013). Assessing the ability of infiltration-based WSUD systems to manage channel-forming flow regimes in greenfield catchment developments: A catchment scale investigation. *20th International Congress on Modelling and Simulation*, (pp. 1-6). Adelaide, Australia.
- Subramanya, K. (2010). *Engineering Hydrology, 3rd Ed.* New Delhi: Tata McGraw Hill Education Pvt Ltd.
- Szilagy, J., & Parlange, M. (1998). Baseflow separation based on analytical solutions of the Boussinesq equation. *Journal of Hydrology* , 251-260.
- Tallaksen, L. (1995). A review of baseflow recession analysis. *Journal of Hydrology* , 349-370.
- Tayfur, G., & Singh, V. (2006). ANN and fuzzy logic models for simulating event based rainfall-runoff. *Journal of Hydraulic Engineering* , 132 (12), 1321-1330.
- Terink, W., Leijnse, H., Eertwegh, G., & Uijlenhoet, R. (2018). Spatial resolutions in areal rainfall estimation and their impact on hydrological simulations of a lowland catchment. *Journal of Hydrology*, 563, 319-335.
- Terstriep, M. L., & Stall, J. B. (1974). *The Illinois Urban Drainage Area Simulator (ILLUDAS)*. Urbana: Illinois State Water Survey.
- Tetzlaff, D., & Uhlenbrook, S. (2005). Significance of spatial variability in precipitation for process-oriented modelling: results from two nested catchments using radar and ground station data. *Hydrology and Earth System Sciences* , 29-41.
- Tramblay, Y., Bouvier, C., Martin, C., Didon-Lescot, J.-F., Todorovik, D., & Domergue, J.-M. (2010). Assessment of initial soil moisture conditions for event-based rainfall-runoff modelling. *Journal of Hydrology* , 176-187.
- Urban, A. (2013, 8 14). *Urban Area*. Retrieved 3 10, 2014, from Wikipedia, the free encyclopedia: https://en.wikipedia.org/wiki/Urban_area
- Vaze, J., Jordan, P., Beecham, R., Frost, A., & Summerell, G. (2012). *Guidelines for rainfall-runoff modeling: Towards best practice model application*. eWater Cooperative Research Centre 2011.

- Wallner, M., Haberlandt, U., & Dietrich, J. (2012). Evaluation of different calibration strategies for large scale continuous hydrological modelling. *Advances in Geosciences*, 31, 67-74.
- Wan, B. (2001). *Auto-Calibration of SWMM Runoff Using Sensitivity - Based Genetic Algorithms (Master's Thesis)*. Ottawa: University of Guelph.
- Welderufael, W., & Woyessa, Y. (2010). Streamflow analysis and comparison of baseflow separation methods-case study of the Modder river basin in central South Africa. *European Water* , 3-12.
- Wijesekera, N., & Perera, L. (2012). Key Issues of data and data checking for hydrological analysis – Case study of rainfall data in the Attanagalu Oya basin of Sri Lanka. *ENGINEER* , 45 (No 2), 1-12.
- Wijesekera, N., & Rajapakse, R. (2013). Mathematical Modelling of Watershed Wetland Crossings for Flood Mitigation and Groundwater Enhancement –Case of the Attanagalu Oya River Basin. *ENGINEER* , 55-67.
- Wijesekera, N., Malone, D. C., Ranwala, D., & Mendis, B. (1998). Status of Water Data Collection, Processing and Management: Sri Lanka. *Proceedings of the National Water Conference on Status and Future Direction of Water Research in Sri Lanka*, (pp. 165-176).
- Wilson, E. (1983). *Engineering Hydrology, 3rd Ed.* London: Macmillan Education Ltd.
- WMO. (1975). *Intercomparison of Conceptual Models Used in Operational Hydrological Forecasting*. Geneva: World Meteorological Organization.
- WMO. (2010). *Manual on Stream Gauging Volume II – Computation of Discharge*. WMO.
- Wong, T. H., Fletcher, T. D., Duncan, H. P., Coleman, J. R., & Jenkins, G. A. (2002). A Model for Urban Stormwater Improvement Conceptualisation. *Ninth International Conference on Urban Drainage*. Portland. Oregon.
- Yang, H., Jaafar, O., El-Shaffie, A., Sharifah, A., & Sharifah, M. (2011). Impact of land use changes toward baseflow regime in Lui and Langat Dengkil sub-basin. *International journal of the Physical Sciences* , 6 (21), 4960-4976.
- Zhan, C.-s., Song, X.-m., Xia, J., & Tong, C. (2013). An efficient integrated approach for global sensitivity analysis of hydrological model parameters. *Environmental Modelling & Software* , 39-52.

Ziegler, A., Negishi, J., Sidle, R., Noguchi, S., & Nik, A. (2006). Impacts of logging disturbance on hillslope saturated hydraulic conductivity in a tropical forest in Peninsular Malaysia. *CATENA* (67), 89-104.

Zoppou, C. (2001). Review of Urban Stormwater Models. *Environmental Modelling & Software* , 195-231.