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Supplement of

Case-based knowledge formalization and reasoning method for digital terrain analysis – application to extracting drainage networks

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Supplement: **List of cases**

Case name (cell size used originally)	**Source paper**
LittlePiney (90 m)	Botter G. Flow regime shifts in the Little Piney creek (US)[J]. Advances in Water Resources, 2014, 71: 44-54.
PoRiver (90 m)	Lanzoni S, Luchi R, Pittaluga M B. Modeling the morphodynamic equilibrium of an intermediate reach of the Po River (Italy)[J]. Advances in Water Resources, 2015, 81: 95–102.
UpperMcKenzie (10 m)	Di Lazzaro M, Zarlenga A, Volpi E. Hydrological effects of within-catchment heterogeneity of drainage density[J]. Advances in Water Resources, 2015, 76: 157-167.
Babaohe (30 m)	Lei F, Huang C, Shen H, et al. Improving the estimation of hydrological states in the SWAT model via the ensemble Kalman smoother: Synthetic experiments for the Heihe River Basin in northwest China[J]. Advances in Water Resources, 2014, 67: 32-45.
OldMansCreek (30 m)	Ayalew T B, Krajewski W F, Mantilla R, et al. Exploring the effects of hillslope-channel link dynamics and excess rainfall properties on the scaling structure of peak-discharge[J]. Advances in Water Resources, 2014, 64: 9-20.
UpstreamGarza (20 m)	Balistrocchi M, Grossi G, Bacchi B. Deriving a practical analytical-probabilistic method to size flood routing reservoirs[J]. Advances in Water Resources, 2013, 62: 37-46.
Peacheater (50 m)	Kim J, Warnock A, Ivanov V Y, et al. Coupled modeling of hydrologic and hydrodynamic processes including overland and channel flow[J]. Advances in Water Resources, 2012, 37: 104-126.
Cauvery (90 m)	Konar M, Todd M J, Muneepeerakul R, et al. Hydrology as a driver of biodiversity: Controls on carrying capacity, niche formation, and dispersal[J]. Advances in Water Resources, 2013, 51: 317-325.
Krishna (90 m)	
Krishna1 (90 m)	
Godavari (90 m)	
Klodawka (15 m)	Jasiewicz J Ł, Metz M. A new GRASS GIS toolkit for Hortonian

	analysis of drainage networks[J]. Computers & Geosciences, 2011, 37(8): 1162-1173.
Chabagou (50 m)	Li T, Wang G, Chen J. A modified binary tree codification of drainage networks to support complex hydrological models[J]. Computers & Geosciences, 2010, 36(11): 1427-1435.
SaoFrancisco (200 m)	Saraiva A G S, Paz A R. Multi-step change of scale approach for deriving coarse-resolution flow directions[J]. Computers & Geosciences, 2014, 68: 53-63.
TapajosRiver (200 m)	
CooperRiver (30 m)	Castronova A M, Goodall J L. A hierarchical network-based algorithm for multi-scale watershed delineation[J]. Computers & Geosciences, 2014, 72: 156-166.
MiddleColorado (90 m)	Karimipour F, Ghandehari M, Ledoux H. Watershed delineation from the medial axis of river networks[J]. Computers & Geosciences, 2013, 59: 132-147.
FuRiver (10 m)	Xu C, Xu X, Dai F, et al. Comparison of different models for susceptibility mapping of earthquake triggered landslides related with the 2008 Wenchuan earthquake in China[J]. Computers & Geosciences, 2012, 46: 317-329.
JuniataRiver (30 m)	Yu X, Bhatt G, Duffy C, et al. Parameterization for distributed watershed modeling using national data and evolutionary algorithm[J]. Computers & Geosciences, 2013, 58: 80-90.
YoungWomansCreek (30 m)	
YaluTsangpo (85 m)	Wang H, Fu X, Wang G. Multi-tree Coding Method (MCM) for drainage networks supporting high-efficient search[J]. Computers & Geosciences, 2013, 52: 300-306.
KaghanValley (90 m)	Dehvari A, Heck R J. Removing non-ground points from automated photo-based DEM and evaluation of its accuracy with LiDAR DEM[J]. Computers & Geosciences, 2012, 43: 108-117.
CameronHighlands (10 m)	Lim S L, Sagar B S D, Koo V C, et al. Morphological convexity measures for terrestrial basins derived from digital elevation models[J]. Computers & Geosciences, 2011, 37(9): 1285-1294.
W_Kharit (30 m)	Milewski A, Sultan M, Yan E, et al. A remote sensing solution for estimating runoff and recharge in arid environments[J]. Journal of

	Hydrology, 2009, 373(1): 1-14.
ChiJiaWang (40 m) ErhWu (40 m)	Lin W T, Chou W C, Lin C Y, et al. Automated suitable drainage network extraction from digital elevation models in Taiwan's upstream watersheds[J]. Hydrological Processes, 2006, 20(2): 289-306.
Demeni (90 m)	Getirana A C V, Bonnet M P, Rotunno Filho O C, et al. Improving hydrological information acquisition from DEM processing in floodplains[J]. Hydrological Processes, 2009, 23(3): 502-514.
Batchawana (5 m)	Creed I F, Hwang T, Lutz B, et al. Climate warming causes intensification of the hydrological cycle, resulting in changes to the vernal and autumnal windows in a northern temperate forest[J]. Hydrological Processes, 2015, 29: 3519–3534.
Hailogou (90 m)	Xing B, Liu Z, Liu G, et al. Determination of runoff components using path analysis and isotopic measurements in a glacier-covered alpine catchment (upper Hailuogou Valley) in southwest China[J]. Hydrological Processes, 2015, 29, 3065–3073.
Bellebeek (25 m)	Loosvelt L, Pauwels V, Verhoest N E C. On the significance of crop-type information for the simulation of catchment hydrology[J]. Hydrological Processes, 2015, 29(6): 915-926.
WeiRiver (90 m)	Zuo D, Xu Z, Peng D, et al. Simulating spatiotemporal variability of blue and green water resources availability with uncertainty analysis[J]. Hydrological Processes, 2015, 29(8): 1942-1955.
HunzaRiver (90 m)	Biber K, Khan S D, Shah M T. The source and fate of sediment and mercury in Hunza River basin, Northern Areas, Pakistan[J]. Hydrological Processes, 2015, 29(4): 579-587.
Kasilian (50 m)	Saghafian B, Meghdadi A R, Sima S. Application of the WEPP model to determine sources of run-off and sediment in a forested watershed[J]. Hydrological Processes, 2015, 29(4): 481-497.
Lonquen (90 m)	Stewart R D, Abou Najm M R, Rupp D E, et al. Hillslope run-off thresholds with shrink–swell clay soils[J]. Hydrological Processes, 2015, 29(4): 557-571.
MicaCreek1 (30 m) MicaCreek2 (30 m)	Du E, Link T E, Gravelle J A, et al. Validation and sensitivity test of the distributed hydrology soil-vegetation model (DHSVM) in a forested

	mountain watershed[J]. Hydrological Processes, 2014, 28(26): 6196-6210.
NarayaniRiver (30 m)	Neupane R P, Yao J, White J D. Estimating the effects of climate change on the intensification of monsoonal-driven stream discharge in a Himalayan watershed[J]. Hydrological Processes, 2014, 28(26): 6236-6250.
WillowRiver (90 m)	Zhang M, Wei X. Contrasted hydrological responses to forest harvesting in two large neighbouring watersheds in snow hydrology dominant environment: implications for forest management and future forest hydrology studies[J]. Hydrological Processes, 2014, 28(26): 6183-6195.
Bowron (90 m)	
UpperDalya (90 m)	Peleg N, Shamir E, Georgakakos K P, et al. A framework for assessing hydrological regime sensitivity to climate change in a convective rainfall environment: a case study of two medium-sized eastern Mediterranean catchments, Israel[J]. Hydrology and Earth System Sciences, 2015, 19(1): 567-581.
UpperTaninim (90 m)	
SanFrancisco (90 m)	Timbe E, Windhorst D, Crespo P, et al. Understanding uncertainties when inferring mean transit times of water trough tracer-based lumped-parameter models in Andean tropical montane cloud forest catchments[J]. Hydrology and Earth System Sciences, 2014, 18: 1503-1523.
HuaiRiver (90 m)	Chen X, Hao Z, Devineni N, et al. Climate information based streamflow and rainfall forecasts for Huai River basin using hierarchical Bayesian modeling[J]. Hydrology and Earth System Sciences, 2014, 18(4): 1539-1548.
WarregoSC2 (90 m)	Alvarez-Garreton C, Ryu D, Western A W, et al. Improving operational flood ensemble prediction by the assimilation of satellite soil moisture: comparison between lumped and semi-distributed schemes[J]. Hydrology and Earth System Sciences, 2015, 19(4): 1659-1676.
WarregoSC3 (90 m)	
WarregoSC4 (90 m)	
Ishikari (50 m)	Duan W L, He B, Takara K, et al. Modeling suspended sediment sources and transport in the Ishikari River basin, Japan, using SPARROW[J]. Hydrology and Earth System Sciences, 2015, 19(3): 1293-1306.
Limari (90 m)	Scott C A, Vicuña S, Blanco-Gutiérrez I, et al. Irrigation efficiency and water-policy implications for river basin resilience[J]. Hydrology and

	Earth System Sciences, 2014, 18(4): 1339-1348.
Limpopo (90 m)	Trambauer P, Werner M, Winsemius H C, et al. Hydrological drought forecasting and skill assessment for the Limpopo River basin, southern Africa[J]. Hydrology and Earth System Sciences, 2015, 19(4): 1695-1711.
Crocodile (90 m)	Saraiva Okello A M L, Masih I, Uhlenbrook S, et al. Drivers of spatial and temporal variability of streamflow in the Incomati River basin[J]. Hydrology and Earth System Sciences, 2015, 19(2): 657-673.
Komati (90 m)	
Haean (30 m)	Shope C L, Maharjan G R, Tenhunen J, et al. Using the SWAT model to improve process descriptions and define hydrologic partitioning in South Korea[J]. Hydrology and Earth System Sciences, 2014, 18(2): 539-557.
Durance (90 m)	Kuentz A, Mathevet T, Gailhard J, et al. Building long-term and high spatio-temporal resolution precipitation and air temperature reanalyses by mixing local observations and global atmospheric reanalyses: the ANATEM method[J]. Hydrology and Earth System Sciences, 2015, 19: 2717–2736.
Kabul (90 m)	Wi S, Yang Y C E, Steinschneider S, et al. Calibration approaches for distributed hydrologic models in poorly gaged basins: implication for streamflow projections under climate change[J]. Hydrology and Earth System Sciences, 2015, 19(2): 857-876.
Garonne (90 m)	Habets F, Philippe E, Martin E, et al. Small farm dams: impact on river flows and sustainability in a context of climate change[J]. Hydrology and Earth System Sciences, 2014, 18(10): 4207–4222.
Rhone (90 m)	
Ebro (25 m)	Peñas F J, Barquín J, Snelder T H, et al. The influence of methodological procedures on hydrological classification performance[J]. Hydrology and Earth System Sciences, 2014, 18(9): 3393-3409.
Olifants (30 m)	Dabrowski J M. Applying SWAT to predict orthophosphate loads and trophic status in four reservoirs in the upper Olifants catchment, South Africa[J]. Hydrology and Earth System Sciences, 2014, 18: 2629–2643.
WeiRiver (90 m)	Zhan C S, Jiang S S, Sun F B, et al. Quantitative contribution of climate change and human activities to runoff changes in the Wei River basin, China[J]. Hydrology and Earth System Sciences, 2014, 18(8): 3069-3077.

Bellever (90 m)	Liu J, Han D. On selection of the optimal data time interval for real-time hydrological forecasting[J]. Hydrology and Earth System Sciences, 2013, 17(9): 3639-3659.
Brue (90 m)	
Bishop_Hull (90 m)	
Pomahaka (90 m)	McMillan H K, Hreinsson E Ö, Clark M P, et al. Operational hydrological data assimilation with the recursive ensemble Kalman filter[J]. Hydrology and Earth System Sciences, 2013, 17(1): 21-38.
ColoradoR_Cameron (90 m)	Rosenberg E A, Clark E A, Steinemann A C, et al. On the contribution of groundwater storage to interannual streamflow anomalies in the Colorado River basin[J]. Hydrology and Earth System Sciences, 2013, 17(4): 1475-1491.
SanJuanR_Bluff (90 m)	
DoloresR_Cisco (90 m)	
RioSanFrancisco (90 m)	Windhorst D, Waltz T, Timbe E, et al. Impact of elevation and weather patterns on the isotopic composition of precipitation in a tropical montane rainforest[J]. Hydrology and Earth System Sciences, 2013, 17(1): 409-419.
RioSanFrancisco1 (90 m)	
Rhine (90 m)	Vorogushyn S, Merz B. Flood trends along the Rhine: the role of river training[J]. Hydrology and Earth System Sciences, 2013, 17(10): 3871-3884.
Urola (90 m)	Cowpertwait P, Ocio D, Collazos G, et al. Regionalised spatiotemporal rainfall and temperature models for flood studies in the Basque Country, Spain[J]. Hydrology and Earth System Sciences, 2013, 17: 479–494.
KrishnaRiver (10 m)	Surinaidu L, Bacon C G D, Pavelic P. Agricultural groundwater management in the Upper Bhima Basin, India: current status and future scenarios[J]. Hydrology and Earth System Sciences, 2013, 17(2): 507-517.
ClearCreek (90 m)	Zhang H L, Wang Y J, Wang Y Q, et al. The effect of watershed scale on HEC-HMS calibrated parameters: a case study in the Clear Creek watershed in Iowa, US[J]. Hydrology and Earth System Sciences, 2013, 17(7): 2735-2745.
Baba (90 m)	Arias-Hidalgo M, Bhattacharya B, Mynett A E, et al. Experiences in using the TMPA-3B42R satellite data to complement rain gauge
Toachi (90 m)	

SanPabloLaMana (90 m)	measurements in the Ecuadorian coastal foothills[J]. Hydrology and Earth System Sciences, 2013, 17(7): 2905
Monastir (25 m)	Mascaro G, Piras M, Deidda R, et al. Distributed hydrologic modeling of a sparsely monitored basin in Sardinia, Italy, through hydrometeorological downscaling[J]. Hydrology and Earth System Sciences, 2013, 17(10): 4143-4158.
Gard (90 m)	Braud I, Ayral P A, Bouvier C, et al. Multi-scale hydrometeorological observation and modelling for flash-flood understanding[J]. Hydrology and Earth System Sciences, 2014, 18(9): 3733-3761.
Zhanghe (9 m)	Xie X, Meng S, Liang S, et al. Improving streamflow predictions at ungauged locations with real-time updating: application of an EnKF-based state-parameter estimation strategy[J]. Hydrology and Earth System Sciences, 2014, 18(10): 3923
Davidson (25 m)	Yang J, Castelli F, Chen Y. Multiobjective sensitivity analysis and optimization of distributed hydrologic model MOBIDIC[J]. Hydrology and Earth System Sciences, 2014, 18(10): 4101-4112.
Lienz (25 m)	He Z H, Parajka J, Tian F Q, et al. Estimating degree-day factors from MODIS for snowmelt runoff modeling[J]. Hydrology and Earth System Sciences, 2014, 18(12): 4773-4789.
Cheakamus (30 m)	Bourdin D R, Nipen T N, Stull R B. Reliable probabilistic forecasts from an ensemble reservoir inflow forecasting system[J]. Water Resources Research, 2014, 50(4): 3108-3130.
YbbsRiver (10 m)	Ceola S, Bertuzzo E, Singer G, et al. Hydrologic controls on basin-scale distribution of benthic invertebrates[J]. Water Resources Research, 2014, 50(4): 2903-2920.
Susquehanna (90 m)	Giuliani M, Herman J D, Castelletti A, et al. Many-objective reservoir policy identification and refinement to reduce policy inertia and myopia in water management[J]. Water Resources Research, 2014, 50(4): 3355-3377.
NorsmindeFjord (20 m)	He X, Koch J, Sonnenborg T O, et al. Transition probability-based stochastic geological modeling using airborne geophysical data and borehole data[J]. Water Resources Research, 2014, 50(4): 3147-3169.

SouthPark (30 m)	Ball L B, Caine J S, Ge S. Controls on groundwater flow in a semiarid folded and faulted intermountain basin[J]. Water Resources Research, 2014, 50(8): 6788-6809.
KernRiver (90 m)	Girotto M, Cortés G, Margulis S A, et al. Examining spatial and temporal variability in snow water equivalent using a 27 year reanalysis: Kern River watershed, Sierra Nevada[J]. Water Resources Research, 2014, 50(8): 6713-6734
UpperRhone (90 m)	Bordoy R, Burlando P. Stochastic downscaling of climate model precipitation outputs in orographically complex regions: 2. Downscaling methodology[J]. Water Resources Research, 2014, 50(1): 562-579.
Pettit (10 m)	Mallard J, McGlynn B, Covino T. Lateral inflows, stream-groundwater exchange, and network geometry influence stream water composition[J]. Water Resources Research, 2014, 50(6): 4603-4623.
Stanley (10 m)	
Alturas (10 m)	
Burdekin (90 m)	Bainbridge Z T, Lewis S E, Smithers S G, et al. Fine-suspended sediment and water budgets for a large, seasonally dry tropical catchment: Burdekin River catchment, Queensland, Australia[J]. Water Resources Research, 2014, 50(11): 9067-9087.
Blackwater (90 m)	Cooper R J, Krueger T, Hiscock K M, et al. Sensitivity of fluvial sediment source apportionment to mixing model assumptions: A Bayesian model comparison[J]. Water Resources Research, 2014, 50(11): 9031-9047.
OitaRiver (90 m)	Higashino M, Stefan H G. Modeling the effect of rainfall intensity on soil-water nutrient exchange in flooded rice paddies and implications for nitrate fertilizer runoff to the Oita River in Japan[J]. Water Resources Research, 2014, 50(11): 8611-8624.
Zwalm (30 m)	Guingla P, Douglas A, Keyser R, et al. Improving particle filters in rainfall‐runoff models: Application of the resample-move step and the ensemble Gaussian particle filter[J]. Water Resources Research, 2013, 49(7): 4005-4021.
XianNanGou (5 m)	Ichoku C, Karnieli A, Verchovsky I. Application of fractal techniques to the comparative evaluation of two methods of extracting channel networks from digital elevation models[J]. Water Resources Research,

	1996, 32(2): 389-399.
Hodder (200 m)	Bulygina N, Ballard C, McIntyre N, et al. Integrating different types of information into hydrological model parameter estimation: Application to ungauged catchments and land use scenario analysis[J]. Water Resources Research, 2012, 48(6), W06519.
NorthEsk (90 m)	Capell R, Tetzlaff D, Soulsby C. Can time domain and source area tracers reduce uncertainty in rainfall-runoff models in larger heterogeneous catchments?[J]. Water Resources Research, 2012, 48(9), W09544.
SouthForkNew (30 m)	Gu C, Anderson W, Maggi F. Riparian biogeochemical hot moments induced by stream fluctuations[J]. Water Resources Research, 2012, 48(9), W09546.
LiWuRiver (30 m)	Huang Jr C, Yu C K, Lee J Y, et al. Linking typhoon tracks and spatial rainfall patterns for improving flood lead time predictions over a mesoscale mountainous watershed[J]. Water Resources Research, 2012, 48(9), W09540.
AlzetteEttel (30 m)	Krier R, Matgen P, Goergen K, et al. Inferring catchment precipitation by doing hydrology backward: A test in 24 small and mesoscale catchments in Luxembourg[J]. Water Resources Research, 2012, 48(10), W10525.
MessPontpierre (30 m)	
Colpach (30 m)	
RoudbachPlaten (30 m)	
Burdekin (90 m)	Kuhnert P M, Henderson B L, Lewis S E, et al. Quantifying total suspended sediment export from the Burdekin River catchment using the loads regression estimator tool[J]. Water Resources Research, 2012, 48(4), W04533.
Cajon (30 m)	Mendoza P A, McPhee J, Vargas X. Uncertainty in flood forecasting: A distributed modeling approach in a sparse data catchment[J]. Water Resources Research, 2012, 48(9), W09532.
Tenderfoot (100 m)	Payn R A, Gooseff M N, McGlynn B L, et al. Exploring changes in the spatial distribution of stream baseflow generation during a seasonal recession[J]. Water Resources Research, 2012, 48(4), W04519.
Wattenbach (200 m)	Rogger M, Pirkl H, Viglione A, et al. Step changes in the flood

Weerbach (200 m)	frequency curve: Process controls[J]. Water Resources Research, 2012, 48(5), W05544.
UpperRhone (90 m)	Leite Ribeiro M, Blanckaert K, Roy A G, et al. Hydromorphological implications of local tributary widening for river rehabilitation[J]. Water Resources Research, 2012, 48(10), W10528.
WhiteRiver (30 m)	Steinschneider S, Polebitski A, Brown C, et al. Toward a statistical framework to quantify the uncertainties of hydrologic response under climate change[J]. Water Resources Research, 2012, 48(11), W11525.
AmericanRiver (30 m)	Woldemichael A T, Hossain F, Pielke R, et al. Understanding the impact of dam‐triggered land use/land cover change on the modification of extreme precipitation[J]. Water Resources Research, 2012, 48(9), W09547.
MahanadiRiver (90 m)	Kannan S, Ghosh S. A nonparametric kernel regression model for downscaling multisite daily precipitation in the Mahanadi basin[J]. Water Resources Research, 2013, 49(3): 1360-1385.
Nujiang (90 m)	Kibler K M, Tullos D D. Cumulative biophysical impact of small and large hydropower development in Nu River, China[J]. Water Resources Research, 2013, 49(6): 3104-3118.
LuckyHills (30 m)	Sivandran G, Bras R L. Dynamic root distributions in ecohydrological modeling: A case study at Walnut Gulch Experimental Watershed[J]. Water Resources Research, 2013, 49(6): 3292-3305.
Sacramento (30 m)	Ficklin D L, Stewart I T, Maurer E P. Effects of climate change on stream temperature, dissolved oxygen, and sediment concentration in the Sierra Nevada in California[J]. Water Resources Research, 2013, 49(5): 2765-2782.
Feather (30 m)	
ClintonRiver (30 m)	Shen C, Niu J, Phanikumar M S. Evaluating controls on coupled hydrologic and vegetation dynamics in a humid continental climate watershed using a subsurface-land surface processes model[J]. Water Resources Research, 2013, 49(5): 2552-2572.
HJA (30 m)	Garcia E S, Tague C L, Choate J S. Influence of spatial temperature estimation method in ecohydrologic modeling in the Western Oregon Cascades[J]. Water Resources Research, 2013, 49(3): 1611-1624.

<table>
<tr><td>UpperGuadiana (90 m)</td><td>Loon A F, Lanen H A J. Making the distinction between water scarcity and drought using an observation-modeling framework[J]. Water Resources Research, 2013, 49(3): 1483-1502.</td></tr>
<tr><td>HaiRiver (1000 m)</td><td>Jia Y, Ding X, Wang H, et al. Attribution of water resources evolution in the highly water‐stressed Hai River Basin of China[J]. Water Resources Research, 2012, 48(2), W02513.</td></tr>
<tr><td>Cordevole (30 m)</td><td>Rigon E, Comiti F, Lenzi M A. Large wood storage in streams of the Eastern Italian Alps and the relevance of hillslope processes[J]. Water Resources Research, 2012, 48(1), W01518.</td></tr>
<tr><td>SalmonRiver (90 m)</td><td>Yearsley J. A grid-based approach for simulating stream temperature[J]. Water Resources Research, 2012, 48(3), W03506.</td></tr>
<tr><td>CedoCaka (90 m)</td><td rowspan="2">Zhang G, Xie H, Yao T, et al. Snow cover dynamics of four lake basins over Tibetan Plateau using time series MODIS data (2001–2010)[J]. Water Resources Research, 2012, 48(10), W10529.</td></tr>
<tr><td>YamzhogYumCo (90 m)</td></tr>
</table>