NetStream vs NetMap

NetStream

(stand alone Fortran program)

Parameters include:

-drainage area
-elevation
-flow direction
-mean annual precipitation
-mean annual flow
-channel gradient
-channel width
-valley width
-stream order
-lake ID

NetMap

(works within ArcMap 9.3, ArcMap 10.0 [2011])
Includes all NetStream Base Parameters & the following tools and parameters:

***Load watershed tool**
***Define fish bearing network (using gradient & flow thresholds**

*Aquatic Habitat Tools

-Define fish bearing network
-Create habitat indices (habitat intrinsic potential, habitat sensitivity)
-Create core habitat areas
-Calculate habitat connectivity (6/10)
-Calculate habitat diversity
-Predict confluence environment (effects)
-Floodplain mapping
-Channel classification
-Channel disturbance index
-Drainage/confluence density
-Cumulative upstream habitat length & quality
-Landslide-channel interactions

*Watershed Processes - Erosion

-Shallow landslide potential
-Gully erosion potential
-Debris flow potential
-WEPP, surface erosion (hillslope)
-WEPP, surface erosion (roads)
-Sediment delivery models/erosion significance
-Channel sedimentation potential
-Channel sediment supply & routing (create sediment input budget, spatially distributed erosion rates)
-Modify erosion potential and erosion rates by land use (evaluate alternative management scenarios)

*Watershed Processes - Instream Wood

-Wood accumulation types
-Debris flow sources of wood
-Wood input (recruitment) tool, project scale, (modify wood input by land use & other factors [evaluate scenarios])

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see above

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(works with ArcMap 9.3, ArcMap 10.0 [2011])

-wood recruitment (watershed scale)

*Watershed Processes - Hydrology

-Mean annual flow
-Channel width (user defined regression)
-Channel depth (user defined regression)
-Flow velocity
-Shear stress
-Substrate D_{50}
-Q2/Q10/Q25/Q100 (8/2011)

*Watershed Processes - Stream Temperature

-Basin scale thermal loading tool (modify thermal loading by land use [evaluate alternative riparian management scenarios])

*Watershed Processes - Vegetation/Fire

-Forest age
-Fire Risk or hazard
-Burn Severity
(these tools calculate the area-weighted values down to stream segments and then routes information downstream, info used by other tools)

*Roads

-Calculate road density, watershed, subwatershed, channel segment scale
-Classify road segment stability based on the underlying hillslope properties
-Classify road by channel properties, including habitat potential, debris flow potential, etc.
-Predict road drainage diversion potential
-Predict road surface erosion
-Predict roads in floodplains
-Calculate habitat length and quality above road-stream crossings

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Parameters include:

see above

*Hillslope-Channel Routing Tools

-Route any hillslope attribute downstream and area weight
-Route any channel attribute downstream and area weight
-Accumulate any grid value down pixel pathways

*Query Tools

-Search by stream name
-Create longitudinal plots, any stream parameter
-Calculate CDFs of any parameter, subbasin scale
-Segment attribute information tool
-Network query by attributes
-Field link tool (w/GPS)
-Custom selection
-(Re)-define Channel heads
-Basin connections

*Sort & Rank Tool

-Calculates the full distribution of any parameter at the scale of subbasins - allows classification of subbasins by any property of the distribution

*Overlap Tools

-Search for overlaps between hillslope & channel conditions (user sets multiple thresholds)
-Search for overlaps at the subbasin scale, using basin aggregated values
-Classify road segments by channel attributes
-Search/rank road crossings with hillslope properties

*Google Interface Tool

-fly from any NetMap watershed location into Google Earth
-export any NetMap data layer(s) to Google Earth (drapes NetMap output onto Google Earth Images

*Import Tool

(auto import data layers for NetMap analyses (roads, vegetation, subbasin polygons, etc.)
(all tools and parameters are hyperlinked to over 400 pages of technical help/reference material)