# NHDPlus Release Notes for
# Mississippi – Region 10U
# Last Updated 8/2/2010

**Data Release Note – 8/2/2010 – Flowline_Cat_Attr V01_03 Released**
Two changes have been made to the FlowlineAttributesFlow Table: (1) All zero slopes have been changed to a nominal slope of 0.00005; and (2) the corresponding MAVELU and MAVELV estimates have been updated using the Jobson “slope” method for all Flowlines where these slopes have been changes. The result of this change is that the Jobson “noslope” method is never used. The reason for this change is that the NHDPlus Team has determined that the “noslope” method is not appropriate for zero slope applications. The Jobson velocity calculations are described in Appendix A- Step 6 of the NHDPlus User Guide.

**Data Release Note – 10/17/2008 – NHD Component V01_03 Released**
NHDFlowlineVAA.StreamOrde was set to zero to indicate that users are directed to use the new Stream Order/Stream Calculator fields that are available from the Data Extensions tab on the www.horizon-systems.com/NHDPlus web page.

**Release Note 04/28/2008** – The problem with prj.adf parameter Zunits has been corrected in the elev_cm grids.

**Release Note 06/05/2007 – The problem with IncrFlowU in FlowlineattributesFlow Tables has been corrected.**
New data is available in the NHDPlus10UV01_02_Cat_Flowline.zip file.

**Release Note 12/13/2006 – Re-release of Region 10U.**
Region 10U was re-released to correct some minor issues in the NHD component (V01_02) and to implement the NHDPlus versioning scheme in all components. The only data content changes occurred in the NHD component. All other components contain the same data as the original release.

**Release Note 12/13/2006 – Problem with IncrFlowU in FlowlineattributesFlow Tables**
In several of the HydroRegions there are incorrect values for the IncrflowU field. This problem exists when the UROM flow computations attempt to compensate for consumptive use by applying only a proportion of the unit runoff flow on intermittent streams. These incorrect IncrFlowU values can be corrected as follows:

If FCODE <> 46003, then:
In HydroRegion 10, the correct IncrFlowU = IncrFlowU / 0.05
In HydroRegion 11, the correct IncrFlowU = IncrFlowU / 0.75
In HydroRegion 13, the correct IncrFlowU = IncrFlowU / 0.20
In HydroRegion 14, the correct IncrFlowU = IncrFlowU / 0.05
In HydroRegion 15, the correct IncrFlowU = IncrFlowU / 0.05
In HydroRegion 16, the correct IncrFlowU = IncrFlowU / 0.05
In HydroRegion 17, the correct IncrFlowU = IncrFlowU / 0.10

In HydroRegion 18, the correct IncrFlowU = IncrFlowU / 0.10

This problem does not affect other fields in the FlowlineattributesFlow Table.

**Release Note 11/08/2006 – Reaches without Measures – This problem was fixed in the V01_02 release of the NHD Component**
All reaches in Region 10U now have measures.

**Release Note 11/08/2006 – Drainage Area**
At drainage areas greater than 200,000 sq. km., there is a gradual trend in which NHDPlus drainage areas become less than the Gage drainage areas. Below 200,000 sq. km., NHDPlus shows significantly less drainage area than some of the Gages in the Platte River Basin All of these underestimations are most likely due to differences in NHDPlus contributing drainage based on the NHDPlus connectivity versus gage areas reflecting total drainage area. At the most downstream Gage on the Missouri River, the NHDPlus drainage area estimate is approximately 9% less than the Gage value.

**Release Note 11/08/2006 – Flow**
The UROM attempts to compensate for consumptive use by applying only 5% of the HUC-level mean annual runoff on intermittent streams. The NHDPlus UROM mean annual flow estimates tend to be consistently over-estimated along the mainstem of the Missouri River, although at the most downstream Gage the UROM mean annual flow estimate is 7.5% less than the Gage mean annual flow estimate. This change from over-estimating the flow to under-estimating the flow is due to the UROM severely underestimating flow contributions from downstream river basins, especially the Gasconade and Osage Basins. Overall, the UROM and Vogel method do not do a very good job of estimating the mean annual flows based on the complete set of Gages in Region 10. Two major factors are causing these problems. First, both the UROM and the Vogel method base their flow estimates on HCDN Gages, which by definition are Gages where flow is not heavily influenced by man. A large number of the Gages used in this comparison are heavily influenced by reservoirs and surface water withdrawals (Hutson, et. al., 2004). A cross-check of the Vogel results using only the HCDN Gages in Region 10 showed much better results, so the Vogel estimates for areas not heavily influenced by human activities can be considered reliable. The second factor, related to the UROM, is that the Missouri Basin is very large and a single Region-wide flow adjustment factor of 5% for intermittent streams does not seem appropriate. Better results are quite possible by developing different intermittent flow adjustment factors for different parts of Region 10. A cross-check of UROM flow estimates at only HCDN Gages shows much better agreement, especially with an intermittent flow adjustment factor of 75%.

Reference:  Hutson, S.S., Barber, N.L., Kenny, J.K., Linsey, K.S., Lumia, D.S., and Maupin, M.A., 2004, Estimated use of water in the United States in 2000: U.S. Geological Survey Circular 1268, 46 p., accessed July 11, 2006 at http://pubs.usgs.gov/circ/2004/circ1268/

**Release Note 1/25/2006 – Source Elevation Data**
Elevation Data (grid format), for all Hydro Regions except for Hydro Region 5 (the Ohio River Basin), were retrieved, July 2004, from the National Elevation Dataset (NED) maintained by the U.S. Geological Survey.

**Release Note 1/26/2006 – International Catchments**
International catchments for Region 10 were developed using the Atlas of Canada National Frameworks Hydrology, at the 1:1,000,000 scale. These data are available from http://www.geogratis.cgdi.gc.ca. The Drainage Network Skeleton (canadskel_l.shp) was used to create a geometric network and this was traced upstream, selecting the applicable lines. A relationship was established via attribute values to the corresponding catchments, and the catchment areas were merged together to define the drainage areas.

Additionally, the Prairie Farm Rehabilitation Administration (PFRA) Watershed Dataset was used. This dataset was mostly developed at 1:50,000 scale, and is available at http://www.agr.gc.ca/pfra/gis/gwshed_e.htm. This data set was used to define the noncontributing drainage areas, which were subsequently removed from the catchment areas.

**Release Note 1/26/2006 – Watershed Boundary Data (WBD)**
Only certified WBD was included for use as a “wall” drainage enforcement factor in HydroDEM production. These data are tiled by U.S. State, therefore only selected states with full certification were used. The publication date for each state's WBD varies. The following are the states (and WBD publication dates) for those states that were certified at the time of catchment production, that have drainage to the Mississippi River.

Wyoming, 2002

**Release Note 1/26/2006 – Application of sinks within the Mississippi River Basin, for production of flow-direction and flow-accumulation grids**
Nodata “sinks” were applied at the terminus ends of three isolated networks in Hydro-region 10, subbasin 10060007 – Brush Lake closed basin. Montana, North Dakota.

**Release Note 1/26/2006 – Headwater Node Catchment errors**
Headwater node catchment areas were not calculated for some (typically very short) headwater flowlines. This is expected for very short headwater flowlines, however, it was discovered that a small percentage of headwater flowlines (about 0.1 percent) that should have received headwater catchments did not. The problem was corrected and fixed prior to the determination of the production of the headwater-node-areas files, but not before stream slopes and other flow characteristics were determined. In these cases a slope of zero was assigned and the flow characteristics were determined based on regression equations that assumed that the slope of the reach is unknown.