

Input Variables for the WRF-Hydro Modeling System V3.0

Land Surface Model Input Variables

| Variable | Description | Fullvar | Units | Fillvalue |
|----------|-----------------------------------|--|-----------|-----------|
| T2D | Temperature at 2m | float T2D(Time, south_north, west_east) | K | -1.e+36f |
| Q2D | Specific Humidity at 2m | float Q2D(Time, south_north, west_east) | kg kg{-1} | -1.e+36f |
| PSFC | Surface Pressure | float PSFC(Time, south_north, west_east) | Pa | -1.e+36f |
| U2D | Wind speed - u | float U2D(Time, south_north, west_east) | m s{-1} | -1.e+36f |
| V2D | Wind speed - v | float V2D(Time, south_north, west_east) | m s{-1} | -1.e+36f |
| LWDOWN | Downward longwave radiation flux | float LWDOWN(Time, south_north, west_east) | W m{-2} | -1.e+36f |
| SWDOWN | Downward shortwave radiation flux | float SWDOWN(Time, south_north, west_east) | W m{-2} | -1.e+36f |
| RAINRATE | Precipitation rate | float RAINRATE(Time, south_north, west_east) | mm s{-1} | -1.e+36f |

Full Domain High Resolution Input Variables

| File Name | Variable Name | Type | NCDF_Nulls | Masked | Values |
|------------------|---------------|---------|------------|----------|--|
| CHANNELGRID.nc | CHANNELGRID | Int16 | -32768 | by value | -9999=no stream, -1=stream outside of basin, 0=stream inside basin |
| LAKEGRID.nc | LAKEGRID | Int16 | -32768 | no | -9999=no lake, 0=lake? |
| flowdirection.nc | FLOWDIRECTION | Int16 | 0 | no | 1=E, 2=SE, 4=S, 8=SW, 16=W, 32=NW, 64=N, 128=NE |
| frxst_basns.nc | basn_msk | Int16 | -32768 | by value | -9999=outside basin, 1+=basin (matches pourpoint) |
| frxst_pts.nc | frxst_pts | Int16 | -32768 | by value | -9999=no point, 1+=pourpoint |
| gw_basns.nc | basn_msk | Int16 | -32768 | by value | -9999=outside basin, 1+=basin (matches pourpoint) |
| latitude.nc | LATITUDE | Float32 | -3.40E+38 | no | latitude everywhere |
| longitude.nc | LONGITUDE | Float32 | -3.40E+38 | no | longitude everywhere |
| lksatfac.nc | LKSATFAC | Float32 | -3.40E+38 | no | 1 by default |
| ovroughrtfac.nc | OVROUGHRTFAC | Float32 | -3.40E+38 | no | 1 by default |
| retdeprtfac.nc | RETDEPRTFAC | Float32 | -3.40E+38 | no | 1 by default |
| str_order.nc | STREAMORDER | Int16 | -32768 | no | -9999=no stream, 1+=stream order |
| topography.nc | TOPOGRAPHY | Float32 | -3.40E+38 | no | elevation everywhere |
| linkid.nc | LINKID | Int16 | 0 | no | linkid for reach-routing |

WRF Low Resolution Input Variables

| Variable Name | Type | NCDF_Nulls | Values |
|---------------|-------|------------|--|
| CANWAT | float | -1.00E+36 | canopy moisture content |
| DZS | float | -1.00E+36 | Thickness of soil layers |
| HGT | float | n/a | Elevation |
| ISLTYP | int | -9999 | Dominant Soil Type |
| IVGTYP | float | n/a | USGS land use type, 1-27 |
| MAPFAC_MX | float | n/a | Map scale factor on coarse grid, x-direction |
| MAPFAC_MY | float | n/a | Map scale factor on coarse grid, y-direction |
| SEAICE | float | -1.00E+36 | Seaice |
| SHDMAX | float | -1.00E+36 | Maximum areal coverage of annual green veg. |
| SHDMIN | float | -1.00E+36 | Minimum areal coverage of annual green veg. |
| SMOIS | float | -1.00E+36 | Total Soil Moisture Content (vol. fraction) |
| SNOW | float | -1.00E+36 | Liq. Water Equivalent Snow Depth |
| TMN | float | -1.00E+36 | Min Temp |
| TSK | float | -1.00E+36 | Surface Temp |
| TSLB | float | -1.00E+36 | Soil Temp |
| XLAND | int | -9999 | land mask grid, 1=land, 2=water |
| XLAT | float | n/a | Latitude on coarse grid |
| XLONG | float | n/a | Longitude on coarse grid |
| ZS | float | -1.00E+36 | Depths of Center of Soil Layers |