**A Methodology for Linking 2D Overland Flow Models with the Sewer Network Model SWMM 5.1 Based on Dynamic Link Libraries.**

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**Supplementary Material**

int DLLEXPORT Swmm\_Link(double\* NodeID,int\* NodeID\_j, double\* S\_Node\_Crest, double\* S\_Node\_Bottom,double\* TotalDuration2, double\* SWMM\_DT)

//

// Input: NodeID = Node ID to add discharge flow

// NodeID\_j = Node ID j index to add discharge flow

// TotalDuration2 = total SWMM duration

// SWMM\_DT = RouteStep SWMM

// Output: returns error code

// Purpose: identify the j index of each node, total duration and route step.

//

{

int j;

double xid;

for (j = 0; j < Nobjects[NODE]; j++)

{

xid= strtod(Node[j].ID, NULL);

if ((Node[j].type!=1) && xid==\*NodeID)

{

\*NodeID\_j=j;

\*S\_Node\_Crest=(Node[j].invertElev+Node[j].fullDepth)\* UCF(LENGTH);

\*S\_Node\_Bottom=(Node[j].invertElev)\* UCF(LENGTH);

}

}

\*TotalDuration2=TotalDuration/1000.00; //(sec)

\*SWMM\_DT=RouteStep; //(sec)

return ErrorCode;

}

int DLLEXPORT Swmm\_to\_2D( int\* NodeID\_j, double\* S\_Node\_Watlevel)

//

// Input: NodeID\_j = Node ID j index to exchange discharge flow

// S\_Node\_Watlevel = water level elevation

// Output: returns error code

// Purpose: obtain the water level in SWMM Node.

//

{

int j;

double factor;

j=\*NodeID\_j;

\*S\_Node\_Watlevel=(Node[j].invertElev+Node[j].newDepth)\* UCF(LENGTH);

return ErrorCode;

}

int DLLEXPORT 2D\_to\_Swmm(int\* NodeID\_j, double\* Node\_Q)

//

// Input: NodeID = Node ID to exchange discharge flow

// Node\_Q = discharge value to exchange

// Output: returns error code

// Purpose: exchange discharge from 2D to SWMM.

//

{

int j;

double factor;

j=\*NodeID\_j;

Node[j].extInflow->baseline = \*Node\_Q;

return ErrorCode;

}