

# Overview of new features and improvements

SOBEK release 2.12.001

May 20, 2009

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# 1 Windows Server 2008

SOBEK 2.12 supports the Windows Server 2008 operating system. Thus, the hardware platforms supported (32 and 64 bits):

- Windows Server 2008
- Windows Vista Ultimate
- Windows XP and XP Prof.
- Windows 2000



Note that Windows NT 4.0 and Windows 98 are not supported anymore.

# 2 Improved drowned weir flow equations

For a number of structures, the drowned weir flow equations have been improved in the 2.12 release. The improvements were made to avoid numerical instabilities. And in case of the structure parameters  $C_e * C_w \ll 1$  to avoid drowned weir flow being larger than submerged weir flow. As result of these improvements, discharges computed for drowned weir flow conditions by SOBEK 2.12 might differ from the ones computed by SOBEK 2.11.

Date and Time dd-mm-yy hh:mm:ss	Type of weir flow	Discharges in m <sup>3</sup> /s					
		SOBEK v2.11.001	SOBEK v2.12.001	SOBEK v2.11.001	SOBEK v2.12.001	SOBEK v2.11.001	SOBEK v2.12.001
		$C_e = 1.0$ $C_w = 1.0$	$C_e = 1.0$ $C_w = 1.0$	$C_e = 0.9$ $C_w = 0.9$	$C_e = 0.9$ $C_w = 0.9$	$C_e = 1.2$ $C_w = 1.0$	$C_e = 1.2$ $C_w = 1.0$
01-01-1996 03:00:00	Drowned Flow	9.40	9.40	8.54	8.45	10.22	10.33
01-01-1996 06:00:00	Drowned Flow	12.59	12.59	11.57	11.33	13.53	13.65
01-01-1996 09:00:00	Drowned Flow	14.57	14.57	13.55	13.11	15.43	16.02
01-01-1996 12:00:00	Drowned Flow	15.83	15.83	14.93	14.25	16.50	17.41
01-01-1996 15:00:00	Drowned Flow	16.97	16.97	16.52	15.28	17.77	18.67
01-01-1996 18:00:00	Drowned Flow	17.04	17.04	16.77	15.34	18.63	18.74
01-01-1996 21:00:00	Free Flow	17.04	17.04	15.34	15.34	18.75	18.75
02-01-1996 00:00:00	Free Flow	17.04	17.04	15.34	15.34	18.75	18.75
02-01-1996 03:00:00	Free Flow	-17.04	-17.04	-15.34	-15.34	-18.75	-18.75
02-01-1996 06:00:00	Free Flow	-17.04	-17.04	-15.34	-15.34	-18.75	-18.75
02-01-1996 09:00:00	Drowned Flow	-17.04	-17.04	-15.67	-15.34	-18.63	-18.74
02-01-1996 12:00:00	Drowned Flow	-16.97	-16.97	-16.52	-15.28	-17.77	-18.67
02-01-1996 15:00:00	Drowned Flow	-15.83	-15.83	-14.93	-14.25	-16.50	-17.41
02-01-1996 18:00:00	Drowned Flow	-14.57	-14.57	-13.55	-13.11	-15.43	-16.02
02-01-1996 21:00:00	Drowned Flow	-12.59	-12.59	-11.57	-11.33	-13.53	-13.65
03-01-1996 00:00:00	Drowned Flow	-9.40	-9.40	-8.54	-8.45	-10.22	-10.33

Table 1 Steady-state discharges by SOBEK v2.11.001 and SOBEK v2.12.001 for various  $C_e$  and  $C_w$  values.

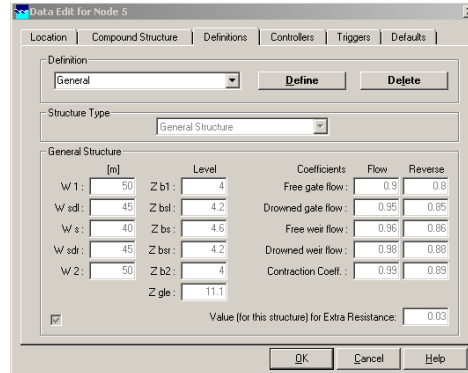
# 3 Wind in the Overland Flow (2D) module correct now

The SOBEK Overland Flow (2D) module of the release 2.11 as well as the previous release 2.10.003 calculated incorrect wind set-up in the 2D domain: the wind effect was overestimated. This has been fixed in the 2.12 release.

## 4 More 1DFLOW structures types available

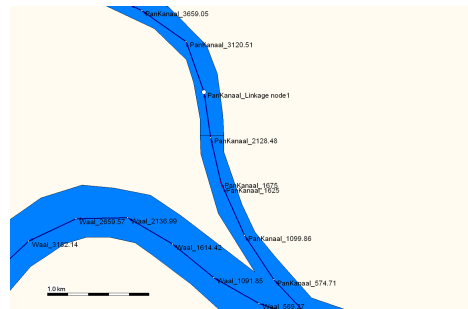
The following 1DFLOW structures (previously only available in SOBEK-RE), including controller and trigger options, are now also available in Rural 2.12:

- Compound Structure
- General Structure
- Database Structure



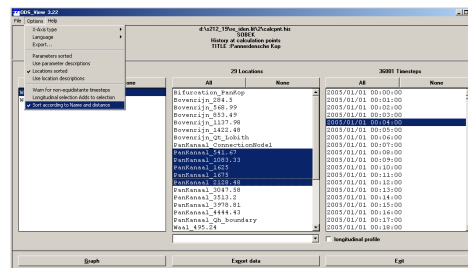
## 5 1DFLOW grid identifiers based on distance on reach

When using the option 'Set Reach properties' with ID settings 'Name and distance' you can generate identifiers of 1DFLOW calculation grids based on the distance on the reach.



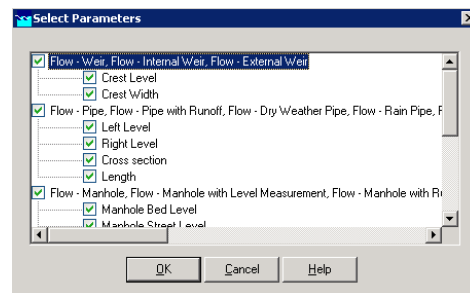
## 6 Sort function in ODSVIEW based on distance on reach

Now you can sort your model data defined in the 3-dimensional HIS matrix according to the distance on the reach.



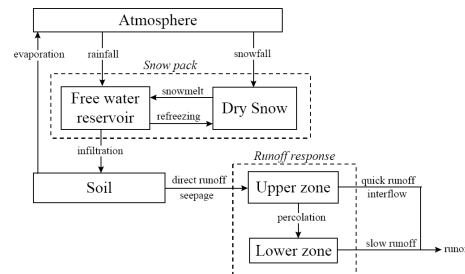
## 7 Export Urban model to AutoCad

Exporting your urban model to AutoCad (\*.DXF) can be easily done: just click 'File' - 'Export' - 'GIS file' - 'Network'.



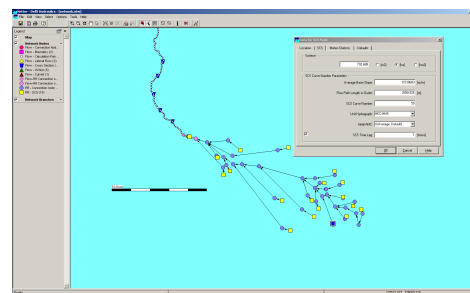
## 8 HBV model concept in SOBEK

For rainfall-runoff modelling, the Hydrologiska Byrns Vattenbalansavdelning (HBV) model of by the Swedish Meteorological and Hydrological Institute (SMHI) is now also available in SOBEK 2.12.



## 9 SCS Curve Number Concept in SOBEK

The SCS Curve Number Concept, a simple, widely used and efficient method for determining the amount of runoff from a rainfall event, is now available in SOBEK too.



## 10 Loads in SIDEVIEW

It is now possible to combine the 1DWAQ results with the 1DFLOW results within SIDEVIEW to analyse loads. Thus, by multiplying discharge and concentrations or discharge and fractions in SIDEVIEW you can view the loads!

