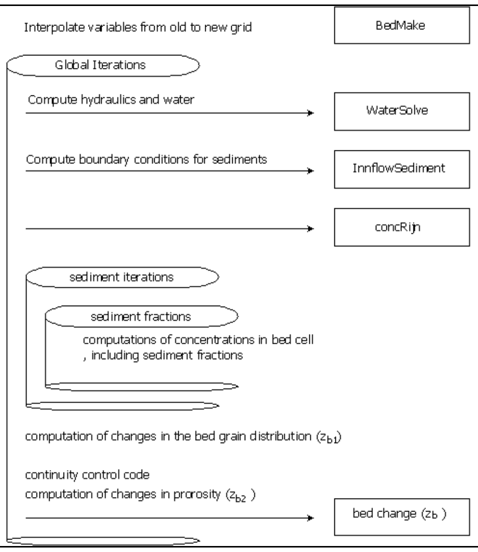
Model: Elbe bei Wittenberg (km 207,6 – 215,8) (Grid Size 3.75m)

Marc Roberts

1. General Information	
Model name	SSIIM
Version	2
Author(s) / First publication	Olsen,N.R.B., “A numerical model for simulation of sediments movements in water intakes”, Dissertation, The Norwegian Institute of Technologie, Trondheim, 1991.
Contact person (name, email)	Prof. Dr.-Ing. Reidar Bøe Olsen, nils.r.olsen@ntnu.no
Institute	NTNU, Department of Hydraulic and Enviromental Engineering
Web site	Institute: http://www.ntnu.edu/ivm SSIIM can be found: http://folk.ntnu.no/nilsol/ssiim/
General modelling objectives	Three-dimensional modelling of hydraulics and sediment transport
Domain of applicability	
KLIWAS contact (authority, name, email)	Federal institute of Hydrology, Marc Roberts (roberts@bafg.de)
Model adaption in KLIWAS	
Model coupling in KLIWAS	
2. Model description	
Model type	physically-based
Temporal discretization	Continuous timestep 60s
Temporal resolution	20d (HW 2006), output timestep for parameters 6h
Spatial discretization	Distributed, cell size 3.75m x 3.75m
Spatial resolution	Whole area ca. 14 km²
Dimension	3D
Short description of model structure detailing main function	Unsteady hydraulic computation with subsequently fractional sediment transport, groynes and foreland included.
Scheme of model structure	

Procedure of model parameter estimation	waterlevel measurement
3. Model inputs / Model outputs	
List and characteristics of input variables	discharge of HW 2006, 1h time step; averaged sediment distribution Elbe km 200-220 with 10 fractions; Sediment supply based on sediment measurements
List and characteristics of output variables	waterlevel, m depth averaged velocities m/s bed shear N/m²; bed movement, m; d 50, m porosity,-
4. Examples of model applications	
Catchments, objectives etc.	Elbe, hydraulic computation and process-based modelling of fractional sediment transport
Results of existing comparisons with other models	
Application in the framework of KLIWAS	Process-based modelling of sediments transport
5. List of 5 selected references	

[1] Nils R. B. Olsen, " A three-dimensional numerical model for simulation of sediment movements in water intakes with multiblock option ", Department of Hydraulic and Environmental Engineering, The Norwegian University of Science and Technology, http://folk.ntnu.no/nilsol/ssiim/ , Trondheim, 2011.

[2] Tim Fischer-Antze, Nils R. B. Olsen, and D. Gutknecht, "Three-dimensional CFD modeling of morphological bed changes in the Danube River" ,Water Resour Res., 44. W09422, (2007), 1-15.

[3] Tim Fischer-Antze, Nils Rüther, Nils R. B. Olsen, and D. Gutknecht, "Three-dimensional (3D) modeling of non-uniform sediment transport in a channel bend with unsteady flow", Journal of Hydraulic Research, 47, Iss. 5, (2010), 670-675