Interreg

EUROPEAN UNION

Danube Transnational Programme

DanubeSediment

River Model Network

Authors: As Work Package Leader for Communication, the Bavarian Environment Agency (LfU) collected this information from all project partners

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1 About the River Model Network

The Danube River and its tributaries have undergone many changes – many due to anthropogenic causes, such as straightening the river for flood protection and improving waterways for navigation and building hydropower plants to generate electricity. To understand how these changes impact the river and to find solutions for improving the water and sediment regime of the river, numerical and physical models of the river are used. In line with the DanubeSediment project objective to strengthen inter-institutional collaboration, the Deliverable 2.2.4 collects such river models, providing a multinational network of manufacturers, owners and operators of river models. The collection includes both numerical and physical models from across the Danube region and provides information for all those who are interested in networking and/or working in the field of river modelling. For more details, interested persons are invited to contact the model owner or operator.

The goal of river models is to simulate flow, sediment and morphodynamic processes mainly to get a better understanding of waterbodies and the influence of human and natural changes. Besides the spatial and temporal upscaling of measurement data, they also provide the opportunity to analyse cause and effect relationships of fluvial processes and to simulate the influence of changing boundary conditions like land use and climate. Further, these models are often used as a planning tool to develop, evaluate and optimize measures. Other reasons and purposes for setting up a river model are, for example:

- simulation of the sediment regime, morphological processes and habitat dynamics of a river as a whole or the simulation of special cases such as confluences or sharp river bends; interaction between hydrodynamics, vegetation and sediment dynamics;
- assess the influence of structures like groynes, guiding walls, weirs, dams, structural measures for stabilizing the river bed or width;
- impact of dredging, dumping or sediment feeding;
- improving water supply, reservoir and power plant operation, habitat quality, fish and sediment continuity;
- development, assessment or optimization of measures for flood protection and retention or ecosystem restoration measures (e.g. removal / reduction of river training, side arm reconnection, …).

Depending on the time-scale, from days to decades, the spatial scale, from point to basin, and on the usage of sediments and other named factors, different modelling approaches and dimensions (1D, 2D or 3D) are used.

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2 Physical Models

Project / Model Name				
VegSed project				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IWHW / BOKU	Austria	2016 - ongoing	2017	
Short description				
Interaction between hydrodynamics, vegetation and sediment transport, analysis is done in a 5 m wide research channel with up to 3 m water depth, up to 10 m³/s discharge. Gravel has not to be scaled down --> 1:1 modelling possible.				
River length covered		**Total area**	**With/out sediment**	
			with sediment	
Owner	**Operator**		**Manufacturer**	
IWHW / BOKU	IWHW / BOKU		IWHW / BOKU	
URL				
https://projekte.ffg.at/projekt/1723570				

Project / Model Name				
SedAlp project				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IWHW / BOKU	Austria	2012 - 2017	2013 - 2014	
Short description				
The objective of this experiment was to find measures to maintain the sediment continuum through a river power plant, in order to ensure a high rate of sediment transport through the weir at low flood discharges (1-year flood). The influences of different structural measures, like the construction of the cross section caused by the weir, the height of the weir sill and the expansion ratio of the river width (in front of the hydropower plant) have been varied and examined regarding to the improvement of sediment transport.				
River length covered		**Total area**	**With/out sediment**	
			with sediment	
Owner	**Operator**		**Manufacturer**	
IWHW / BOKU	IWHW / BOKU		IWHW / BOKU	
URL				
http://www.sedalp.eu/index.shtml				

Project Name: Model Name				
Rauteppich project				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IWHW / BOKU	Austria	2013 - 2015	2014	
Short description				
The “Rauteppich” represents a river engineering structure, made to stabilize the bed in the transition area from narrowed and widened river sections. The “Rauteppich” is expected to ensure sediment continuity as well as the fish migration. In combination with a widened area the “Rauteppich” may lead to better hydraulic conditions upstream and downstream of the widened area, caused by decreased shear stress and increased variations of flow velocity.				
River length covered		**Total area**	**With/out sediment**	
			with and without sediment	
Owner	**Operator**		**Manufacturer**	
IWHW / BOKU	IWHW / BOKU		IWHW / BOKU	
URL				
http://www.baw.at/wasserbau-iwb/projekte-wasserbau/abgeschlossene-projekte-kategorie/modellversuch-rauteppich-iwb.html				

Project Name: Model Name				
Isarschüttkegel				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BAW	Germany	2017 - ongoing	2017 - 2018	2013 - 2014
Short description				
Hybrid modelling (physical and numerical) of the confluence from Isar and Danube. The hybrid approach is used to generate high quality data for calibration/validation of the numerical model (Telemac2D and Sisyphe)				
River length covered		**Total area**	**With/out sediment**	
about 2-3 km			with sediment	
Owner	**Operator**		**Manufacturer**	
BAW	BAW		BAW	
URL				
http://medienarchiv.baw.de/cdm/ref/collection/wsv/id/9330				

Project Name: Model Name				
Intake Structure of Flood Retention Basin Riedensheim				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
TUM / VAO	Germany	2016 - ongoing	2016 - 2017	2007
Short description				
Scale model of the Danube stretch upstream of the retention basin Riedensheim to evaluate the optimal control of the intake structure				
River length covered		**Total area**	**With/out sediment**	
1,25 km		0,75 km²	without sediment	
Owner	**Operator**		**Manufacturer**	
WWA Ingolstadt	TUM / VAO		TUM / VAO	

Project Name: Model Name				
Study on the Retention Potential for the Inn - part 3				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
TUM / VAO	Germany	2016 - ongoing	2017	2005 - 2016
Short description				
Reservoir operation (3d-numerical and physical model)				
River length covered		**Total area**	**With/out sediment**	
210 km		about 100 km²	with sediment	
Owner	**Operator**		**Manufacturer**	
LfU	TUM / VAO		TUM	

Project Name: Model Name				
LIFE - Danube Floodplain Habitats				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
VUVH Bratislava	Slovakia	2016 - ongoing	2016 - 2017	proposed measures
Short description				
Scalemodel for the optimisation of the planned additional supply of the system of the Danube side branches on the Slovak side, by the construction of barrier in the old Danube channel				
River length covered		**Total area**	**With/out sediment**	
Danube river km 1841-1836			without sediment	
Owner	**Operator**		**Manufacturer**	
VUVH Bratislava	VUVH Bratislava		VUVH Bratislava	
URL				
www.vuvh.sk				

3 Numerical Models

Project/Model Name				
Pilotproject Bad Deutsch-Altenburg				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IWHW/BOKU	Austria	2006 - on going	2006 / 2014 / 2017	2006 /14 /17
Short description				
Assessment of abiotic and biotic parameters before, during and after the implementation of several measures (groyne reconstruction, side arm reconnection, granulometric bed improvement and removal bank protection) in the pilot project. Sediment transport modelling (non-uniform) to assess the morphological impact of the measures. rkm 1887.5 - 1884.5				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
3 km	1.85/7.82 km²	with sediment	RSim-3D / iSed	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
41000/65000 2D Polyhedrals, 246000/390000 3D Grid Comp.			2006 / 2014 / 2017	

Project/Model Name				
Pilotproject Witzelsdorf				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IWHW/BOKU	Austria	2011 – 2017	2011	2010 /11 /17
Short description				
Assessment of abiotic and biotic parameters before and after the implementation of groyne reconstructions and removal bank protections. Sediment transport modelling (non-uniform) to assess the morphological impact of the measures. rkm 1894 - 1891				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
3 km	1.35 km²	with sediment	RSim-3D / iSed	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
27000 - 2D Polyhedrals / 162000 3D Grid Components			2010 / 2011 / 2017	

Project/Model Name				
Case Study Winterhafen Linz				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IWHW/BOKU	Austria	2008 - 2009	2008	2008
Short description				
Assessing the impact of dredging and dumping of fine sediments at the River Danube: Case study Winterhafen Linz. rkm 2133 - 2130				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
3 km	1.01 km²	with sediment	RSim-3D / iSed	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
14900 - 2D Polyhedrals / 89400 3D Grid Components			2008	

Project/Model Name				
Strom-Boje Weißenkirchen monitoring and modelling				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IWHW/BOKU	Austria	2014 - 2015	2015	2015
Short description				
The numerical study focused on the effects of axial-flow turbines on the flow field, on sediment transport and consequently on river morphology. On the basis of 3D hydrodynamic-numerical modelling the impacts of the Strom-Boje were predicted and analysed. The objectives of the 3D modelling task were thus given by (i) determination of hydrodynamic variables (i.e. flow velocities, water surface elevation), (ii) determination of possible locations and potential power output of the turbine, and (iii) determination of associated alteration of the hydromorphology				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
1.5 km; rkm 2015.2 - 2013.5	0.58 km²	with sediment	RSim-3D / iSed	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
65000 - 2D Polyhedrals / 520000 3D Grid Components			2013	

Project/Model Name				
100-year flood Donauknie Grein				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IWHW/BOKU	Austria	2004 - 2005	2004 - 2005	2002
Short description				
Numerical investigation of the flow processes encountered in a sharp river bend of the Danube River at the municipality Grein in Austria during a 100-year flood event in August 2002.				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
4 km; rkm 2082 - 2078	1.32 km³	without sediment	RSim-3D	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
5200 - 2D Polyhedrals / 31200 3D Grid Components			1999	

Project/Model Name				
Environmental impact of improvement for navigation conditions on the Danube				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IWHW/BOKU	Austria	2012 - 2015	2012	2012 - 2014
Short description				
Detailed 3D hydrodynamic numerical model calculating both hydrodynamic variables and sediment transport characteristics before during and after the implementation of hyrdaulic structures at the Danube-Bala bifurcation in Romania between Calarasi and Braila, km 375 Si km 175. The aims of the modelling task were: - determination of hydrodynamic variables (i.e., flow velocities in terms of magnitude and direction, water surface elevations, turbulence properties); - determination of sediment transport characteristics (i.e., suspended sediment concentrations, bedload transport rates) and the associated alteration of hydromorphology; - analysis of the impact of the simulated hydraulic parameters relevant for fish migration				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
16 km; rkm 349 - 338 plus side arms	12.8 & 22.2 km²	with sediment	RSim-3D / iSed	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
63000 / 77000 - 2D Polyhedrals & 504000 / 616000 3D Grid Components			2012 / 2014	

Project/Model Name				
Floodflux - RSim2D				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IWHW/BOKU	Austria	2017 - 2020	2017	2010 / 2015
Short description				
Assess Greenhouse gas efflux from temperate floodplain forest, by means of soil C and N dynamics and N2O and CH4 fluxes in the floodplain forests of the Danube National Park, Austria. (i) gather detailed process understanding of N2O and CH4 formation, transport, and consumption in soil and ground water, (ii) study the spatial and temporal dynamics of N2O and CH4 fluxes in the floodplain forest as well as the role of environmental drivers, and (iii) upscale and model N2O and CH4 fluxes at the whole National Park level under current site conditions as well as under different climate and flooding scenarios.				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
23.9 km; rkm 1906.5 - 1882.6	48 km²	without sediment	Rsim-2D	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
425000			2015	

Project/Model Name				
Bavarian Danube - Floodretention basin evaluation				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
TUM	Germany	2009 - 2016	2009 - 2015	2016
Short description				
Assesment of possible retention basins along the bavarian Danube river under the impact of different weir operating regulations, flood scenarios, retention basin combination etc.				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
200 km = 2580 rkm - 2350 rkm		without sediment	Hydro_AS-2D	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
1.2e6 Elements			2010	
URL				
https://www.wb.bgu.tum.de/				

Project/Model Name				
Study on the Retention Potential for the Inn - part 1				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
TUM / VAO	Germany	2016 - ongoing	2016 - 2017	2005 - 2016
Short description				
Effectivity and Priorities of flood polders and retention areas, influence on flood hydrographs and optimization of operation (2d-numerical model)				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
210 km	about 100 km²	Without sediment		
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	

Project/Model Name				
Study on the Retention Potential for the Inn - part 2				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
TUM / VAO	Germany	2016 - ongoing	2016 - 2017	2005 – 2016
Short description				
Sediments in the rivers Inn and Salzach (2d-numerical model)				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
210 km	about 100 km²	With sediment		
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	

Project/Model Name				
Study on the Retention Potential for the Inn - part 3				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
TUM / VAO	Germany	2016 - ongoing	2017	2005 - 2016
Short description				
Reservoir operation (3d-numerical and physical model)				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
210 km	about 100 km²	with sediment		
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	

Project/Model Name				
EU-Study: 1D-hydromorphological Model Bavarian Danube				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BAW	Germany	2010 - 2012	2010	2012
Short description				
Longterm evaluation of river bottom evolution by a numerical hydromorphological model, 2330rkm - 2250rkm				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
70 km		with sediment	HEC-6T	1D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
795 Cross-sections in 100 m distance			1970 - 2005	

Project/Model Name				
EU-Study: 2D-hydromorphological Model Bavarian Danube				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BAW	Germany	2010 - 2012	2010	2012
Short description				
Assessment of dredging and feeding volumes in the Bavarian Danube, 2313.3rkm - 2290.8rkm (OSI) and 2268.6rkm - 2256.6rkm (USI).				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
22.5 km and 12km	23 km²	with sediment	Telemac2D + Sisyphe	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
60.000 nodes (approx 120000 elements)			2000 - 2002	

Project/Model Name				
EU-Study: 3D-hydromorphological Model Bavarian Danube				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BAW	Germany	2010 - 2012	2010	2012
Short description				
Hydrodynamic simulation of fluid movements in the German Danube. Used for the the assessment of the river training. Project area was splitted up in 4 overlapping sections, 2327rkm - 2249.7rkm.				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
77.3 km	55 km²	without sediment	UnTRIM and BSQUAT	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
0.5-1.1 mio nodes (approx. 1-2.2 mio elements) each section (4x)			2005 - 2006	

Project/Model Name				
2D-hydrodynamic model Bavarian Danube				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BAW	Germany	2014 - ongoing	2014	2017
Short description				
Accompanying investigations on the plan approval procedure (Planfeststellungsverfahren, PFV). Hydrodynamic simulation of fluid movements in the German Danube. Used for the the assessment of the river training. Danube 2329.8 rkm - 2249.5 rkm, Isar tributary 9 km.				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
80.3 km and 9 km	55 km²	without sediment	Telemac2D	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
1.3 mio nodes (approx. 2.6 mio elements)			2012 - 2014	

Project/Model Name				
2D-hydromorphological model Bavarian Danube				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BAW	Germany	2015 - ongoing	2015	2017
Short description				
Accompanying investigations on the plan approval procedure. Longterm evaluation of river bottom evolution by a numerical hydromorphological model, 2285.1 - 2271.2 rkm.				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
13.9km and 9 km of Isar tributary	14 km²	with sediment	Telemac2D + Sisyphe	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
340.000 nodes (approx. 680.000 elements)			1995 - 2014	

Project/Model Name				
DuReFlood - Danube River channel between Sap and Szob, morphological model				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
VUVH	Slovakia	2013 - 2015	2014 - 2015	1994, 2001, 2013
Short description				
Assessment of the current state of flood protection; formulation of proposals for effective regulation measures to achieve a flood water level reduction; formulation of proposals for restoration measures to improve the current ecological situation. river km 1810-1706				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
104 km		with sediment	MIKE 11	1D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
			1994, 2001, 2013 pre and post flood	
URL				
http://www.dureflood.eu/eng/project_information.html				

Project/Model Name				
DuReFlood - Danube River channel and floodplains in the area of Medveďov				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
VUVH	Slovakia	2013 - 2015	2014 - 2015	2013
Short description				
Assessment of the current state of flood protection; formulation of proposals for effective regulation measures to achieve a flood water level reduction; formulation of proposals for restoration measures to improve the current ecological situation. river km 1810,800-1796,700				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
14,1 km		without sediment	CCHE-2D	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
345.000 Elements			2013	
URL				
http://www.dureflood.eu/eng/project_information.html				

Project/Model Name				
DuReFlood - Danube River channel and floodplains in the area of Veľký Lél				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
VUVH	Slovakia	2013 - 2015	2014 - 2015	2013
Short description				
Assessment of the current state of flood protection; formulation of proposals for effective regulation measures to achieve a flood water level reduction; formulation of proposals for restoration measures to improve the current ecological situation. river km 1790,900-1775,800				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
15,1 km		without sediment	CCHE-2D	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
300.000 Elements			2013	
URL				
http://www.dureflood.eu/eng/project_information.html				

Project/Model Name				
Danube River channel and Hrusov reservoir in the area of Bratislava				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
VUVH	Slovakia	2012 - ongoing	2015 - 2016	2002, 2015/16
Short description				
Evaluation of the erosion and sedimentation processes of the River Danube at the Slovak-Austrian river stretch, Slovak national river stretch and in the Hrusov reservoir. river km 1879, 800-1851				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
28 km		without sediment	MIKE 11	1D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
			2002, 2014 - 2016	
URL				
www.vuvh.sk				

Project/Model Name				
Mathematical model of the Gabčíkovo system of hydraulic structures				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
VUVH	Slovakia	2015 - ongoing	2016	2016
Short description				
Mathematical model of the Gabčíkovo system of hydraulic structures to facilitate operation under different hydrological and hydraulic conditions and decision support. river km 1879,800-1851				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
28 km		without sediment	HEC-RAS	1D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
			2016	

Project/Model Name				
LIFE - Danube Floodplain Habitats: Danube side branches				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
VUVH	Slovakia	2016 - ongoing	2016 - 2017	2016 - 2017
Short description				
Mathematical model aimed to improve water supply and ecological status of the extensive system of the Danube river side branches at the Slovak side, downstream from Čunovo with numerous regulated and unregulated structures (spillways, broadcrested weirs, culverts)				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
about rkm 1821		without sediment	CCHE-2D	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
0.77e6 Elements			2016	

Project/Model Name				
Danube Flood model: Preparation of floodplain management plans				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BME	Hungary	2013	2013 - 2014	2014
Short description				
Numerical modelling of high flood conveyance capacity to support floodplain management of the Danube River, rkm 1810-1702				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
140 km		without sediment	ADH2D	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
			2014	

Project/Model Name				
Reconsideration of design flood water levels along the Danube				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BME	Hungary	2013	2013	2013
Short description				
Numerical modelling of 100 year flood water levels along the Hungarian section of the Danube River				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
417 km		without sediment	HEC-RAS	1D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
			2013	

Project/Model Name				
SEDDON model: Sediment Research and Management at the Danube River				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BME	Hungary	2013	2014	2014
Short description				
3D numerical modelling of a short, complex section of the Danube (AT-HU CBC Programme)				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
10 km		with sediment	SSIIM3D	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
900000			2014	

Project/Model Name				
Hron confluence model				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BME	Hungary	2012	2013	2013
Short description				
Rehabilitation of Flood Plains along the shared Danube section in order to strengthen flood protection and to increase the ecological values of the river' in the framework of the Hungary-Slovakia Cross-border Co-operation Programme 2007-2013.				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
10 km		with sediment	SSIIM3D	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
850000			2013	

Project/Model Name				
Model of flow and morphodynamics to support river restoration measures				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BME	Hungary	2014	2014	2014
Short description				
Supporting habitat based river training by up-to-date field measurements and computational modeling in River Danube at Sződliget (DANUBEPARKS STEP 2.0 SEE/D/0165/2.3/X)				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
10 km		with sediment	SSIIM3D	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
600000			2013	

Project/Model Name				
Béda navigational bottleneck model to support river regulation planning				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BME	Hungary	2007	2007	2007
Short description				
Hydrodynamic modeling of problematic Danube reaches to support river regulation measures (Interreg III-.A CBC project)				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
6 km		with sediment	SSIIM3D	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
450000			2007	

Project/Model Name				
Dunaföldvár ford model to support river regulation planning				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
BME	Hungary	2007	2007	2007
Short description				
Hydrodynamic modeling of problematic Danube reaches to support river regulation measures (Interreg III-.A CBC project)				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
8 km		with sediment	SSIIM3D	3D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
550000			2007	

Project/Model Name				
Bedload transport model Drava from Melje dam to national border				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
VGB Maribor	Slovenia	2012	2012-2017	2016
Short description				
Lower Slovenian Drava River ecosystem restoration				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
40 km		with sediment	MIKE 21C	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
			2013	
URL				
http://livedrava.ptice.si/home/project/general-2/?lang=en				

Project/Model Name				
Sediment transport model within Interreg Alpine Space HyMoCARES project				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
IzVRS	Slovenia	2017	2017-2019	2018
Short description				
Effect of river hydromorphologic measures on ecosystem services availability. Drava from Melje dam to Ptujsko lake				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
25 km		with sediment	MIKE 21C	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
283500			2012-2013	
URL				
http://www.alpine-space.eu/projects/hymocares/en/home				

Project/Model Name				
Morphology study on Lower Sava River after HPP construction				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
DHD	Slovenia	2009-2010	2010	2010
Short description				
Sediment transport model in NEK and HPP Brežice reservoirs. Morphologic effects of Lower Sava River HPP chain construction				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
8 km		with sediment	CCHE2D	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
			2009	
URL				
http://www.dhd.si/reference.html				

Project/Model Name				
Sediment transport model in HPP Vrhovo reservoir				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
Private	Slovenia	2014-2015	2015	2015
Short description				
Sediment transport effect in the HPP Vrhovo reservoir by amending the HPP operation procedure				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
7 km		with sediment	CCHE2D	2D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
17500			2012	

Project/Model Name				
Danube SRB				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
JCI	Serbia		2010	
Short description				
Analysis of the impact of the hydroelectric power plant Iron Gate 1 in accordance with the established regime of work on the Danube part upstream of the dam. Rkm 1432-943				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
498 km		without sediment	HEC-RAS	1D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
17500			2010, 2014, 2015	

Project/Model Name				
Tisza SRB				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
JCI	Serbia		2014	
Short description				
Analysis of the impact of the hydroelectric power plant Iron Gate 1 according to the established regime of work on the part of the Sava River from the confluence of the Danube to the border with Hungary. Rkm 156-0				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
156 km		without sediment	HEC-RAS	1D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
			2014	

Project/Model Name				
Sava				
Institute	**Country**	**Project duration**	**Construction**	**Modelled state**
JCI	Serbia		2010	
Short description				
Sediment transport effect in the HPP Vrhovo reservoir by amending the HPP operation procedure				
River length covered	**Total area**	**With/out sediment**	**Software**	**Dimension**
105 km		without sediment	HEC-RAS	1D
If 2D/3D: Number of elements			**Time frame of the bathymetric data**	
			2010	

List of Abbreviations

IWHW / BOKU: Institute of Water Management, Hydrology and Hydraulic Engineering / University of Natural Resources and Life Sciences, Vienna, Austria

BAW: Frederal Waterways Engineering and Research Institute, Karlsruhe, Germany

BME: Budapest University of Technology and Economics, Department of Hydraulic and Water Resources Engineering

TUM / VAO: Chair of Hydraulic and Water Resources Engineering, Technical University of Munich

VUVH: Water Research Institute Bratislava

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