

Figure 5.14 Comparison of the patterns of erosion for the short-term and long-term erosion modelling methods

6 Conclusions

6.1 Discussion

The simulations herein have clearly showed that significant erosion will occur in the next 1000 years in the caprock region of both the above-ground and below-ground options. Peak erosion depths without gully development are predicted to be in the range of 7–8 m. Gully development potentially increases the maximum penetration of the caprock layer further. It is predicted that a number of valleys will dissect the central region of the caprock. The exact position of these valleys is subject to some doubt because of the poor definition of an initial drainage structure on the proposed designs. It thus appears difficult to design localised protective measures for these gullies because the position of these potential gullies cannot be predicted *a priori*. Drainage network development is a chaotic process (Willgoose et al 1991c, Ijjasz-Vasquez 1990) but if an initial drainage pattern is imposed some predicability should be imposed on the eroding system.

In addition, it has also been shown that the steep (slope \approx 0.15) batter slopes will suffer severe degradation of the order of 5–7 m. The valleys on the batters do not occur in predictable places but occur along all the batter extremities of the waste rock dump. The erosion problem is thus not localised to one place, where it potentially may be protected, but it occurs across broad areas making it difficult to design reliable protective measures. The fundamental cause of this problem is that there are substantial slope lengths (>200 m) on the caprock that contribute flow to the upper end of the batters. When this flow reaches the batter it cascades over the batter causing severe degradation. One solution, bund walls around the top of the batter, is unlikely to solve this problem. The widespread nature of the erosion on the batters indicates that there appear to be few safe locations where this flow can be diverted to.

The substantial erosion on the batters results in deposition in the surrounding areas. The deepest depths of deposition (about 5 m over 1000 years) appear to very close (within 150–200 m of the batters) to the batters, although it is apparent that some deposition does occur at greater distances. Computational limitations meant that it was necessary to restrict the study area to that immediately surrounding the proposed waste rock dump so that more exact comments of the region of deposition cannot be made at this stage. Moreover, without knowledge of erosion rates on the natural areas surrounding the waste rock dump such a study may be subject to significant error.

Finally, in the absence of random settlements, the rates of erosional loss on the majority of the caprock layer away from the gullies appear to be relatively small (less than 500 mm). In fact, the low erosional loss on the portion of that caprock region contributing to the batters enhances the gully erosion that occurs on the batters. Addition of random settlements with a range of 0–1 m induces erosion and deposition on the caprock of about 1 m depth. There is no apparent systematic pattern to this erosion.

This deep sheet erosion in isolated regions with little erosion in intervening areas suggests a solution strategy for the problem and involves considering the geomorphology of the entire waste rock dump. As previously noted, the major problem with the existing designs is that their slopes decrease as drainage area increases in a different fashion from that observed in natural catchments, which are closer to their equilibrium form. This characteristic of natural catchment arises from the balance of erosion, drainage patterns and elevations that catchments tend towards over geologic timescales (Gilbert 1909, Willgoose et al 1991d, Willgoose 1993). Figure 6.1 is a schematic showing how this natural adjustment process works.

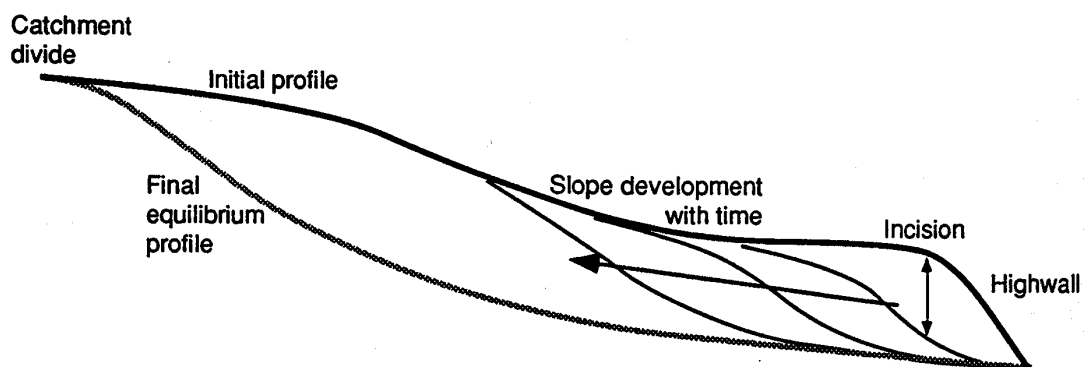


Figure 6.1 Schematic of erosion incision when the initial profile is far from the long-term equilibrium profile

The closer that the starting profile is to the final equilibrium profile the less incision will occur. These equilibrium profiles can be described mathematically by (Willgoose 1993)

$$\frac{A^{\alpha_1} S}{Z - Z_d^{\alpha_2}} = \text{constant}$$

6.1.1

where A is the drainage area, S the slope, Z the elevation and Z_d the datum elevation and the parameters α_1 and α_2 are a function of the runoff and erosion physics. These long-term equilibria results (published by the first author and others) should be examined as a criteria to redesign the slopes and landform of the waste rock dump. Effort should be concentrated on reducing slope lengths and gradients near the base of the dump in the central area. Emphasis should also be placed on imposing a drainage structure that is appropriate to the runoff and erosion from the waste rock dump. The long flat hillslopes that characterise the proposed design bear little resemblance to natural conditions and should be replaced with hills and valleys of the kind observed in natural catchments. This imposed drainage structure could maintain the key internal drainage feature of the existing design and would allow the use of the proposed pits and dams to trap sediment.

Thus, in summary, there are a three problems with the proposals that should be addressed.

The first problem is that the slope gradient does not decrease downslope as it does in natural catchments. This feature means that sediment transport increase much faster downslope than occurs in natural catchments. The long-term effect of this is for gully erosion to develop at the bottom of the slopes as the lower parts of the catchment trend towards the low slope condition in the lower reaches of the catchment which is the long-term equilibria.

The second problem is that the wide flat hillslopes allow gullies to concentrate flow (and thus increase the discharges and erosion) with great ease. By imposing a drainage structure of valleys with interceding hills it becomes very difficult for a gully to capture adjacent areas (first they must erode away the interceding hill). Discharges are then unlikely to change much as erosion proceeds from that designed. A secondary advantage is that if a gully does occur it will be localised and its growth will be controlled. A key feature controlling the rate of growth of gullies is their ability to capture area; reduce this ability and gullies grow less quickly.

The third problem is that the long caprock hillslopes contribute flow to the tops of the batters, inducing deep erosion at the tops of the batters around the emplacement area.

6.2 Recommendations for future work

6.2.1 Increasing the reliability of SIBERIA parameters

- **Checking of data:** Further reliability checks are required on available monitoring data and the data for the simulator trials should be carefully compared with the data from natural storms to solve the apparent conflict in the fitted ϕ value for these two data sources.
- **Sediment yield data from natural rainfall events:** For sediment yield data that have no matching discharges, the discharge data should be reconstructed from the hydrology model and recorded rainfall records. These data could then be used to increase the reliability of the sediment transport model calibrated here.
- **Erosion studies:** Erosion studies should be carried out over slopes intermediate between that of the caprock and the batter to better define and explain the slope dependence of the sediment transport equation.

- **Runoff studies for other conditions 1:** Rainfall simulator or natural runoff data should be collected for abandoned mine workings where spoil heaps are derived from similar schist material as at Ranger. This would allow the estimation of the effect of soil development on runoff and erosion properties.
- **Runoff studies for other conditions 2:** Rainfall simulator or natural runoff data should be collected for the vegetated areas of the spoil heap at RUM. This would allow the estimation of the effect of vegetation development on runoff and erosion properties.
- **Analysis of existing data not considered here:** The data collected during 1991/1992 for the deep ripped sites on the caprock should be analysed and compared with the analysis in this report for unripped sites. This will allow assessment of the short-term effects on infiltration, runoff and erosion.
- **Gully erosion at Tin Camp Creek:** The gully geometry of the gullies proceeding downstream should be correlated with area and slope. This will give reliable indicators of the amount of sediment delivered by these gullies to the catchment during their formation. This can be then be used to predict the depth of gullying likely at RUM, for design of the depth of the upper cap layer.
- **Gully erosion at abandoned mine sites:** The threshold above which gully erosion occurs should be examined and hydrologic studies carried out to consider the hydrologic generality of the threshold behaviour for abandoned mine sites in the region. These studies will increase confidence in the thresholds derived from the natural catchment at Tin Camp Creek. Gully cross-sections should be correlated to area and slope as for Tin Camp Creek.

6.2.2 Further simulations with SIBERIA

- **Long-term equilibria** (beyond 1000 years) of the sites should be examined to provide information on the long-term form of the landscape.
- **SIBERIA and natural landforms:** The efficacy of SIBERIA should be examined for the ability to predict the form of the nearby terrain (eg Tin Camp Creek area) using the hydrology and erosion data collected by *eriss*.
- **Spatial variability of rainfall:** The radar data for rainfall of Krawjewski et al (1991) should be closely examined for its possible effect on the parameters of SIBERIA and predictions herein.
- **Sediment storage in dams:** Detailed data regarding the three dams that the waste rock dump drains into should be used for input to SIBERIA to assess the timescales over which these dams will fill and understand their usefulness for stopping off-site deposition over geomorphologic timescales.

Appendixes

Appendix A Maps of field sites

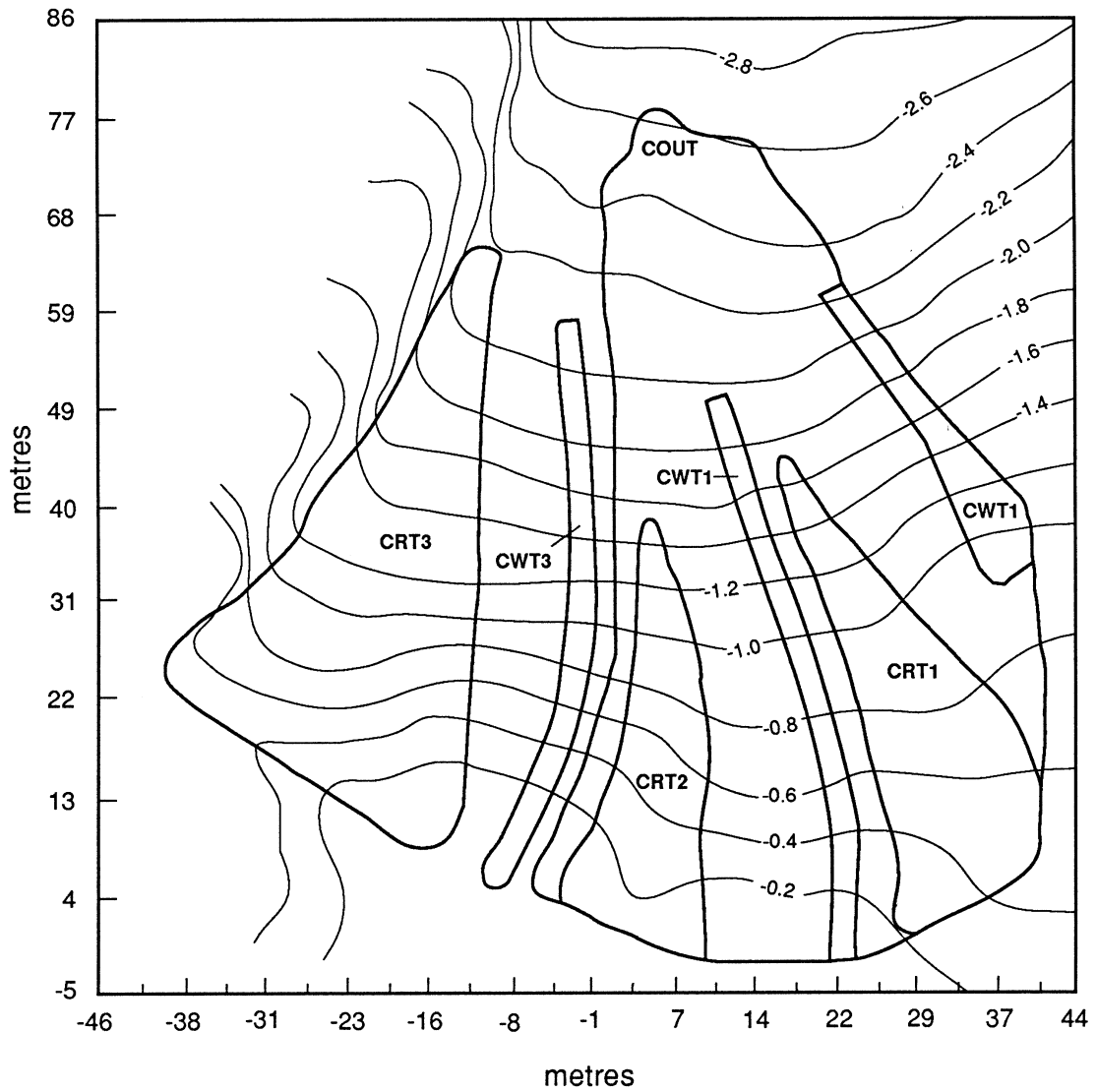


Figure A.1 Caprock monitoring sites and contours

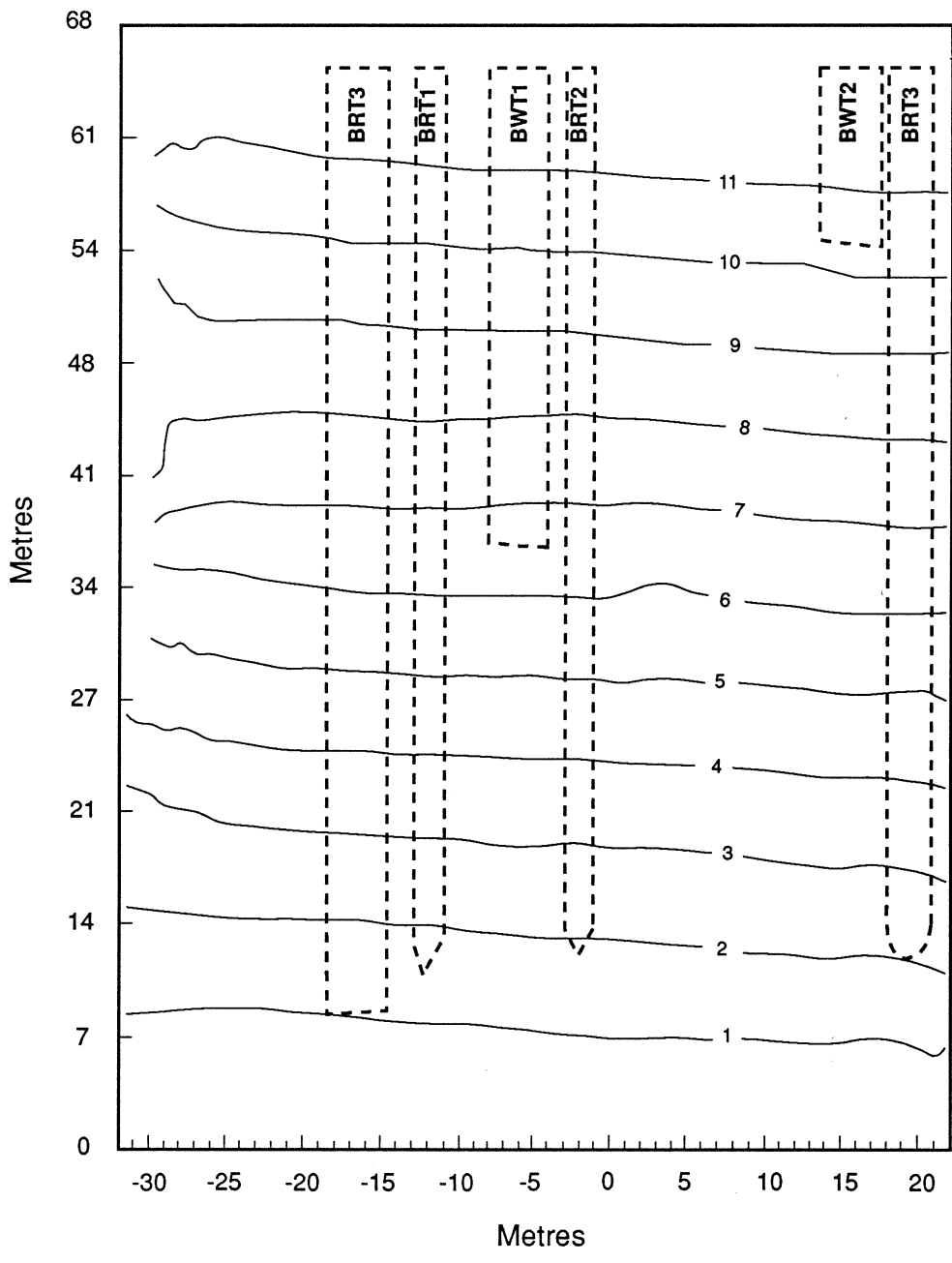


Figure A.2 Batter monitoring sites and contours

Appendix B Runoff data

B.1 Natural rainfall

The following data are pluviograph records for the storms used in the calibration of the hydrology model for the natural rainfall experiments. Times are in the format 24 hour time and date, and rainfall is mm.

Caprock pluviograph

time	rainfall	time	rainfall	time	rainfall
14:50_07/01/1991	0.000	20:40_07/01/1991	0.000	07:45_10/01/1991	0.000
14:51_07/01/1991	0.000	20:41_07/01/1991	0.000	07:46_10/01/1991	0.000
14:52_07/01/1991	0.000	20:42_07/01/1991	0.000	07:47_10/01/1991	0.000
14:53_07/01/1991	2.000	20:43_07/01/1991	0.000	07:48_10/01/1991	0.000
14:54_07/01/1991	3.000	20:44_07/01/1991	0.200	07:49_10/01/1991	0.000
14:55_07/01/1991	6.000	20:45_07/01/1991	0.200	07:50_10/01/1991	0.000
14:56_07/01/1991	7.000	20:46_07/01/1991	0.200	07:51_10/01/1991	0.000
14:57_07/01/1991	2.000	20:47_07/01/1991	0.400	07:52_10/01/1991	0.000
14:58_07/01/1991	1.000	20:48_07/01/1991	0.800	07:53_10/01/1991	0.000
14:59_07/01/1991	1.000	20:49_07/01/1991	1.000	07:54_10/01/1991	0.000
15:00_07/01/1991	0.000	20:50_07/01/1991	1.000	07:55_10/01/1991	0.000
15:01_07/01/1991	1.000	20:51_07/01/1991	0.600	07:56_10/01/1991	0.600
15:02_07/01/1991	0.000	20:52_07/01/1991	0.200	07:57_10/01/1991	1.000
15:03_07/01/1991	0.000	20:53_07/01/1991	0.200	07:58_10/01/1991	0.800
15:04_07/01/1991	0.000	20:54_07/01/1991	0.200	07:59_10/01/1991	0.400
15:05_07/01/1991	0.000	20:55_07/01/1991	0.000	08:00_10/01/1991	0.200
15:06_07/01/1991	0.000	20:56_07/01/1991	0.000	08:01_10/01/1991	0.000
15:07_07/01/1991	0.000	20:57_07/01/1991	0.000	08:02_10/01/1991	0.600
15:08_07/01/1991	0.000	20:58_07/01/1991	0.400	08:03_10/01/1991	0.800
15:09_07/01/1991	0.000	20:59_07/01/1991	0.200	08:04_10/01/1991	1.000
15:10_07/01/1991	0.000	21:00_07/01/1991	0.000	08:05_10/01/1991	1.200
15:11_07/01/1991	0.000	21:01_07/01/1991	0.400	08:06_10/01/1991	0.800
15:12_07/01/1991	0.000	21:02_07/01/1991	0.600	08:07_10/01/1991	0.600
15:13_07/01/1991	0.000	21:03_07/01/1991	0.600	08:08_10/01/1991	1.000
15:14_07/01/1991	0.000	21:04_07/01/1991	0.800	08:09_10/01/1991	0.800
15:15_07/01/1991	0.000	21:05_07/01/1991	0.600	08:10_10/01/1991	0.600
15:16_07/01/1991	0.000	21:06_07/01/1991	0.400	08:11_10/01/1991	0.400
15:17_07/01/1991	0.000	21:07_07/01/1991	0.400	08:12_10/01/1991	0.400
15:18_07/01/1991	0.000	21:08_07/01/1991	0.400	08:13_10/01/1991	0.400
15:19_07/01/1991	0.000	21:09_07/01/1991	0.200	08:14_10/01/1991	0.400
15:20_07/01/1991	0.000	21:10_07/01/1991	0.200	08:15_10/01/1991	0.200
15:21_07/01/1991	0.000	21:11_07/01/1991	0.200	08:16_10/01/1991	0.200
15:22_07/01/1991	0.000	21:12_07/01/1991	0.000	08:17_10/01/1991	0.200
15:23_07/01/1991	0.000	21:13_07/01/1991	0.200	08:18_10/01/1991	0.000

time	rainfall	time	rainfall	time	rainfall
15:24_07/01/1991	0.000	21:14_07/01/1991	0.200	08:19_10/01/1991	0.200
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		21:16_07/01/1991	0.000	08:21_10/01/1991	0.200
		21:17_07/01/1991	0.000	08:22_10/01/1991	0.200
		21:18_07/01/1991	0.200	08:23_10/01/1991	0.200
		21:19_07/01/1991	0.000	08:24_10/01/1991	0.000
		21:20_07/01/1991	0.000	08:25_10/01/1991	0.400
		21:21_07/01/1991	0.000	08:26_10/01/1991	0.400
		21:22_07/01/1991	0.000	08:27_10/01/1991	0.200
		21:23_07/01/1991	0.000	08:28_10/01/1991	0.400
		21:24_07/01/1991	0.000	08:29_10/01/1991	0.200
		21:25_07/01/1991	0.000	08:30_10/01/1991	0.200
		21:26_07/01/1991	0.000	08:31_10/01/1991	0.200
		21:27_07/01/1991	0.000	08:32_10/01/1991	0.000
		21:28_07/01/1991	0.000	08:33_10/01/1991	0.200
		21:29_07/01/1991	0.000	08:34_10/01/1991	0.200
		21:30_07/01/1991	0.000	08:35_10/01/1991	0.000
				08:36_10/01/1991	0.200
				08:37_10/01/1991	0.000
				08:38_10/01/1991	0.000
				08:39_10/01/1991	0.000
				08:40_10/01/1991	0.000
				08:41_10/01/1991	0.200
				08:42_10/01/1991	0.000
				08:43_10/01/1991	0.000
				08:44_10/01/1991	0.000
				08:45_10/01/1991	0.000
				08:46_10/01/1991	0.000
				08:47_10/01/1991	0.000
				08:48_10/01/1991	0.000
				08:49_10/01/1991	0.000
				08:50_10/01/1991	0.000
14:00_10/01/1991	0.000	16:40_21/01/1991	0.000	11:40_06/02/1991	0.000
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14:03_10/01/1991	0.200	16:43_21/01/1991	0.000	11:43_06/02/1991	0.200
14:04_10/01/1991	0.000	16:44_21/01/1991	0.000	11:44_06/02/1991	0.800
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14:06_10/01/1991	0.000	16:46_21/01/1991	0.000	11:46_06/02/1991	1.400
14:07_10/01/1991	0.000	16:47_21/01/1991	0.000	11:47_06/02/1991	1.200

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14:43_10/01/1991	0.600	17:23_21/01/1991	0.200		
14:44_10/01/1991	0.400	17:24_21/01/1991	0.000		
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15:26_10/01/1991	0.200	18:06_21/01/1991	0.000
15:27_10/01/1991	0.200	18:07_21/01/1991	0.000

time	rainfall	time	rainfall
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15:35_10/01/1991	0.000	18:15_21/01/1991	0.000
15:36_10/01/1991	0.000		
15:37_10/01/1991	0.200		
15:38_10/01/1991	0.000		
15:39_10/01/1991	0.000		
15:40_10/01/1991	0.200		
15:41_10/01/1991	0.000		
15:42_10/01/1991	0.000		
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14:41_16/02/1991	0.000		
14:42_16/02/1991	0.200		
14:43_16/02/1991	1.600		
14:44_16/02/1991	1.600		
14:45_16/02/1991	1.600		
14:46_16/02/1991	1.800		
14:47_16/02/1991	1.400		
14:48_16/02/1991	1.000		
14:49_16/02/1991	1.200		
14:50_16/02/1991	1.200		
14:51_16/02/1991	1.200		
14:52_16/02/1991	1.200		
14:53_16/02/1991	1.200		
14:54_16/02/1991	0.800		
14:55_16/02/1991	0.600		
14:56_16/02/1991	0.600		

time	rainfall
14:57_16/02/1991	0.600
14:58_16/02/1991	0.200
14:59_16/02/1991	0.400
15:00_16/02/1991	0.400
15:01_16/02/1991	0.200
15:02_16/02/1991	0.200
15:03_16/02/1991	0.000
15:04_16/02/1991	0.200
15:05_16/02/1991	0.000
15:06_16/02/1991	0.000
15:07_16/02/1991	0.200
15:08_16/02/1991	0.000
15:09_16/02/1991	0.000
15:10_16/02/1991	0.200
15:11_16/02/1991	0.000
15:12_16/02/1991	0.000
15:13_16/02/1991	0.000
15:14_16/02/1991	0.000
15:15_16/02/1991	0.000
15:16_16/02/1991	0.000
15:17_16/02/1991	0.000
15:18_16/02/1991	0.000
15:19_16/02/1991	0.200
15:20_16/02/1991	0.000
15:21_16/02/1991	0.000
15:22_16/02/1991	0.000
15:23_16/02/1991	0.000
15:24_16/02/1991	0.000
15:25_16/02/1991	0.000

Batter pluviograph

time	rainfall	time	rainfall
11:40_06/02/1991	0.000	13:30_22/02/1991	0.000
11:41_06/02/1991	0.000	13:31_22/02/1991	0.000
11:42_06/02/1991	0.000	13:32_22/02/1991	0.000
11:43_06/02/1991	0.200	13:33_22/02/1991	0.000
11:44_06/02/1991	0.400	13:34_22/02/1991	1.400
11:45_06/02/1991	1.600	13:35_22/02/1991	2.000
11:46_06/02/1991	1.200	13:36_22/02/1991	2.200
11:47_06/02/1991	0.800	13:37_22/02/1991	2.400
11:48_06/02/1991	0.800	13:38_22/02/1991	2.200
11:49_06/02/1991	0.800	13:39_22/02/1991	1.200
11:50_06/02/1991	0.000	13:40_22/02/1991	0.000
11:51_06/02/1991	0.000	13:41_22/02/1991	0.000
11:52_06/02/1991	0.000	13:42_22/02/1991	0.000
11:53_06/02/1991	0.000	13:43_22/02/1991	0.000
11:54_06/02/1991	0.000	13:44_22/02/1991	0.000
11:55_06/02/1991	0.000	13:45_22/02/1991	0.000
11:56_06/02/1991	0.000	13:46_22/02/1991	0.000
11:57_06/02/1991	0.200	13:47_22/02/1991	0.000
11:58_06/02/1991	0.000	13:48_22/02/1991	0.000
11:59_06/02/1991	0.000	13:49_22/02/1991	0.000
12:00_06/02/1991	0.000	13:50_22/02/1991	0.000
12:01_06/02/1991	0.000	13:51_22/02/1991	0.000
12:02_06/02/1991	0.000	13:52_22/02/1991	0.000
12:03_06/02/1991	0.000	13:53_22/02/1991	0.000
12:04_06/02/1991	0.000	13:54_22/02/1991	0.000
12:05_06/02/1991	0.000	13:55_22/02/1991	0.000
12:06_06/02/1991	0.000	13:56_22/02/1991	0.000
12:07_06/02/1991	0.000	13:57_22/02/1991	0.000
12:08_06/02/1991	0.000	13:58_22/02/1991	0.000
12:09_06/02/1991	0.000	13:59_22/02/1991	0.000
12:10_06/02/1991	0.000	14:00_22/02/1991	0.000
		14:01_22/02/1991	0.200
		14:02_22/02/1991	0.000
		14:03_22/02/1991	0.000
		14:04_22/02/1991	0.000
		14:05_22/02/1991	0.000
		14:06_22/02/1991	0.200
		14:07_22/02/1991	0.200
		14:08_22/02/1991	0.200

time	rainfall	time	rainfall
		14:09_22/02/1991	0.000
		14:10_22/02/1991	0.000
		14:11_22/02/1991	0.000
		14:12_22/02/1991	0.200
		14:13_22/02/1991	0.000
		14:14_22/02/1991	0.000
		14:15_22/02/1991	0.000

The data below are the measured runoffs for the storms used in the calibration of the hydrology model. Times are in the format 24 hour time and date, and runoff litres/second.

CWT1		CWT1		CWT2	
time	runoff	time	runoff	time	runoff
14:25_10/01/91	0.0000	14:43_16/02/91	0.0000	20:45_07/01/1991	0.000
14:26_10/01/91	0.0907	14:44_16/02/91	0.0025	20:46_07/01/1991	0.000
14:27_10/01/91	0.1643	14:45_16/02/91	0.0102	20:47_07/01/1991	0.000
14:28_10/01/91	0.4740	14:46_16/02/91	0.0178	20:48_07/01/1991	0.000
14:29_10/01/91	1.1145	14:47_16/02/91	0.0254	20:49_07/01/1991	0.004
14:30_10/01/91	1.5001	14:48_16/02/91	0.0806	20:50_07/01/1991	0.136
14:31_10/01/91	1.4792	14:49_16/02/91	0.2604	20:51_07/01/1991	0.597
14:32_10/01/91	1.4862	14:50_16/02/91	0.5208	20:52_07/01/1991	0.610
14:33_10/01/91	1.4184	14:51_16/02/91	0.8362	20:53_07/01/1991	0.525
14:34_10/01/91	1.2397	14:52_16/02/91	1.1248	20:54_07/01/1991	0.410
14:35_10/01/91	0.9634	14:53_16/02/91	1.3419	20:55_07/01/1991	0.295
14:36_10/01/91	0.7687	14:54_16/02/91	1.5538	20:56_07/01/1991	0.210
14:37_10/01/91	0.7565	14:55_16/02/91	1.6263	20:57_07/01/1991	0.126
14:38_10/01/91	0.7525	14:56_16/02/91	1.6388	20:58_07/01/1991	0.091
14:39_10/01/91	0.7152	14:57_16/02/91	1.6015	20:59_07/01/1991	0.072
14:40_10/01/91	1.0053	14:58_16/02/91	1.5400	21:00_07/01/1991	0.081
14:41_10/01/91	1.4629	14:59_16/02/91	1.3471	21:01_07/01/1991	0.078
14:42_10/01/91	1.6801	15:00_16/02/91	1.0688	21:02_07/01/1991	0.092
14:43_10/01/91	1.8360	15:01_16/02/91	0.9281	21:03_07/01/1991	0.124
14:44_10/01/91	1.7770	15:02_16/02/91	0.7650	21:04_07/01/1991	0.238
14:45_10/01/91	1.4935	15:03_16/02/91	0.6016	21:05_07/01/1991	0.418
14:46_10/01/91	1.2131	15:04_16/02/91	0.3978	21:06_07/01/1991	0.528
14:47_10/01/91	1.1122	15:05_16/02/91	0.2686	21:07_07/01/1991	0.510
14:48_10/01/91	0.8143	15:06_16/02/91	0.1931	21:08_07/01/1991	0.492
14:49_10/01/91	0.5728	15:07_16/02/91	0.1558	21:09_07/01/1991	0.473
14:50_10/01/91	0.4965	15:08_16/02/91	0.1296	21:10_07/01/1991	0.451
14:51_10/01/91	0.5113	15:09_16/02/91	0.1034	21:11_07/01/1991	0.314
14:52_10/01/91	0.4761	15:10_16/02/91	0.0772	21:12_07/01/1991	0.211
14:53_10/01/91	0.4559	15:11_16/02/91	0.0572	21:13_07/01/1991	0.160
14:54_10/01/91	0.4701	15:12_16/02/91	0.0496	21:14_07/01/1991	0.120
14:55_10/01/91	0.4692	15:13_16/02/91	0.0420	21:15_07/01/1991	0.091
14:56_10/01/91	0.4453	15:14_16/02/91	0.0345	21:16_07/01/1991	0.079
14:57_10/01/91	0.4214	15:15_16/02/91	0.0269	21:17_07/01/1991	0.066
14:58_10/01/91	0.3976	15:16_16/02/91	0.0193	21:18_07/01/1991	0.054
14:59_10/01/91	0.3737	15:17_16/02/91	0.0117	21:19_07/01/1991	0.042
15:00_10/01/91	0.3498	15:18_16/02/91	0.0064	21:20_07/01/1991	0.030
15:01_10/01/91	0.3259	15:19_16/02/91	0.0057	21:21_07/01/1991	0.017

time	runoff	time	runoff	time	runoff
15:02_10/01/91	0.3021	15:20_16/02/91	0.0051	21:22_07/01/1991	0.006
15:03_10/01/91	0.2782	15:21_16/02/91	0.0044	21:23_07/01/1991	0.005
15:04_10/01/91	0.2543	15:22_16/02/91	0.0037	21:24_07/01/1991	0.004
15:05_10/01/91	0.2305	15:23_16/02/91	0.0031	21:25_07/01/1991	0.004
15:06_10/01/91	0.2066	15:24_16/02/91	0.0024	21:26_07/01/1991	0.003
15:07_10/01/91	0.1827	15:25_16/02/91	0.0018	21:27_07/01/1991	0.003
15:08_10/01/91	0.1886	15:26_16/02/91	0.0011	21:28_07/01/1991	0.002
15:09_10/01/91	0.2309	15:27_16/02/91	0.0004	21:29_07/01/1991	0.002
15:10_10/01/91	0.2489	15:28_16/02/91	0.0000	21:30_07/01/1991	0.001
15:11_10/01/91	0.2449	15:29_16/02/91	0.0000		
15:12_10/01/91	0.2228				
15:13_10/01/91	0.1829				
15:14_10/01/91	0.1430				
15:15_10/01/91	0.1032				
15:16_10/01/91	0.0761				
15:17_10/01/91	0.0684				
15:18_10/01/91	0.0606				
15:19_10/01/91	0.0529				
15:20_10/01/91	0.0451				
15:21_10/01/91	0.0514				
15:22_10/01/91	0.0787				
15:23_10/01/91	0.1061				
15:24_10/01/91	0.1334				
15:25_10/01/91	0.1607				
15:26_10/01/91	0.1881				
15:27_10/01/91	0.2154				
15:28_10/01/91	0.2427				
15:29_10/01/91	0.2469				
15:30_10/01/91	0.2112				
15:31_10/01/91	0.2024				
15:32_10/01/91	0.2248				
15:33_10/01/91	0.2020				
15:34_10/01/91	0.1595				
15:35_10/01/91	0.1197				
15:36_10/01/91	0.0891				
15:37_10/01/91	0.0732				
15:38_10/01/91	0.0680				
15:39_10/01/91	0.0629				
15:40_10/01/91	0.0577				
15:41_10/01/91	0.0525				
15:42_10/01/91	0.0473				

time	runoff
15:43_10/01/91	0.0421
15:44_10/01/91	0.0369
15:45_10/01/91	0.0317
15:46_10/01/91	0.0265
15:47_10/01/91	0.0214
15:48_10/01/91	0.0162
15:49_10/01/91	0.0110
15:50_10/01/91	0.0058
15:51_10/01/91	0.0025
15:52_10/01/91	0.0019
15:53_10/01/91	0.0014
15:54_10/01/91	0.0009
15:55_10/01/91	0.0003
15:56_10/01/91	0.0000
15:57_10/01/91	0.0000

CWT2		CWT2		CWT3	
time	runoff	time	runoff	time	runoff
14:20_10/01/1991	0.000	16:50_21/01/1991	0.000	11:42_06/02/1991	0.000
14:21_10/01/1991	0.000	16:51_21/01/1991	0.000	11:43_06/02/1991	0.000
14:22_10/01/1991	0.000	16:52_21/01/1991	0.000	11:44_06/02/1991	0.000
14:23_10/01/1991	0.000	16:53_21/01/1991	0.000	11:45_06/02/1991	0.001
14:24_10/01/1991	0.000	16:54_21/01/1991	0.000	11:46_06/02/1991	0.080
14:25_10/01/1991	0.000	16:55_21/01/1991	0.000	11:47_06/02/1991	0.202
14:26_10/01/1991	0.000	16:56_21/01/1991	0.000	11:48_06/02/1991	0.293
14:27_10/01/1991	0.000	16:57_21/01/1991	0.000	11:49_06/02/1991	0.350
14:28_10/01/1991	0.142	16:58_21/01/1991	0.261	11:50_06/02/1991	0.345
14:29_10/01/1991	0.397	16:59_21/01/1991	1.159	11:51_06/02/1991	0.313
14:30_10/01/1991	0.628	17:00_21/01/1991	1.924	11:52_06/02/1991	0.282
14:31_10/01/1991	0.707	17:01_21/01/1991	2.230	11:53_06/02/1991	0.250
14:32_10/01/1991	0.735	17:02_21/01/1991	2.290	11:54_06/02/1991	0.218
14:33_10/01/1991	0.706	17:03_21/01/1991	2.334	11:55_06/02/1991	0.187
14:34_10/01/1991	0.632	17:04_21/01/1991	2.335	11:56_06/02/1991	0.155
14:35_10/01/1991	0.510	17:05_21/01/1991	2.126	11:57_06/02/1991	0.123
14:36_10/01/1991	0.428	17:06_21/01/1991	1.782	11:58_06/02/1991	0.102
14:37_10/01/1991	0.411	17:07_21/01/1991	1.905	11:59_06/02/1991	0.085
14:38_10/01/1991	0.391	17:08_21/01/1991	1.775	12:00_06/02/1991	0.069
14:39_10/01/1991	0.386	17:09_21/01/1991	1.555	12:01_06/02/1991	0.052
14:40_10/01/1991	0.528	17:10_21/01/1991	1.349	12:02_06/02/1991	0.036
14:41_10/01/1991	0.761	17:11_21/01/1991	1.279	12:03_06/02/1991	0.027

time	runoff	time	runoff	time	runoff
14:42_10/01/1991	0.936	17:12_21/01/1991	1.141	12:04_06/02/1991	0.022
14:43_10/01/1991	1.020	17:13_21/01/1991	1.015	12:05_06/02/1991	0.017
14:44_10/01/1991	0.946	17:14_21/01/1991	0.792	12:06_06/02/1991	0.012
14:45_10/01/1991	0.760	17:15_21/01/1991	0.666	12:07_06/02/1991	0.007
14:46_10/01/1991	0.661	17:16_21/01/1991	0.762	12:08_06/02/1991	0.002
14:47_10/01/1991	0.601	17:17_21/01/1991	0.743	12:09_06/02/1991	0.000
14:48_10/01/1991	0.428	17:18_21/01/1991	0.742	12:10_06/02/1991	0.000
14:49_10/01/1991	0.315	17:19_21/01/1991	0.591		
14:50_10/01/1991	0.244	17:20_21/01/1991	0.494		
14:51_10/01/1991	0.204	17:21_21/01/1991	0.399		
14:52_10/01/1991	0.189	17:22_21/01/1991	0.304		
14:53_10/01/1991	0.188	17:23_21/01/1991	0.208		
14:54_10/01/1991	0.190	17:24_21/01/1991	0.113		
14:55_10/01/1991	0.182	17:25_21/01/1991	0.079		
14:56_10/01/1991	0.174	17:26_21/01/1991	0.056		
14:57_10/01/1991	0.166	17:27_21/01/1991	0.034		
14:58_10/01/1991	0.159	17:28_21/01/1991	0.033		
14:59_10/01/1991	0.140	17:29_21/01/1991	0.032		
15:00_10/01/1991	0.114	17:30_21/01/1991	0.031		
15:01_10/01/1991	0.101	17:31_21/01/1991	0.029		
15:02_10/01/1991	0.090	17:32_21/01/1991	0.028		
15:03_10/01/1991	0.085	17:33_21/01/1991	0.027		
15:04_10/01/1991	0.081	17:34_21/01/1991	0.026		
15:05_10/01/1991	0.076	17:35_21/01/1991	0.025		
15:06_10/01/1991	0.071				
15:07_10/01/1991	0.067				
15:08_10/01/1991	0.062				
15:09_10/01/1991	0.064				
15:10_10/01/1991	0.072				
15:11_10/01/1991	0.067				
15:12_10/01/1991	0.056				
15:13_10/01/1991	0.048				
15:14_10/01/1991	0.040				
15:15_10/01/1991	0.032				
15:16_10/01/1991	0.024				
15:17_10/01/1991	0.016				
15:18_10/01/1991	0.008				
15:19_10/01/1991	0.006				
15:20_10/01/1991	0.012				
15:21_10/01/1991	0.019				
15:22_10/01/1991	0.025				

time	runoff
15:23_10/01/1991	0.032
15:24_10/01/1991	0.039
15:25_10/01/1991	0.045
15:26_10/01/1991	0.057
15:27_10/01/1991	0.075
15:28_10/01/1991	0.084
15:29_10/01/1991	0.078
15:30_10/01/1991	0.070
15:31_10/01/1991	0.062
15:32_10/01/1991	0.053
15:33_10/01/1991	0.045
15:34_10/01/1991	0.037
15:35_10/01/1991	0.028
15:36_10/01/1991	0.020
15:37_10/01/1991	0.015
15:38_10/01/1991	0.013
15:39_10/01/1991	0.012
15:40_10/01/1991	0.011
15:41_10/01/1991	0.010
15:42_10/01/1991	0.009
15:43_10/01/1991	0.008
15:44_10/01/1991	0.007
15:45_10/01/1991	0.006
15:46_10/01/1991	0.005
15:47_10/01/1991	0.004
15:48_10/01/1991	0.003
15:49_10/01/1991	0.002
15:50_10/01/1991	0.001

CWT3		COUT		COUT	
time	runoff	time	runoff	time	runoff
14:40_16/02/1991	0.000	20:50_07/01/1991	0.207	07:55_10/01/1991	0.000
14:41_16/02/1991	0.000	20:51_07/01/1991	3.262	07:56_10/01/1991	0.000
14:42_16/02/1991	0.000	20:52_07/01/1991	7.569	07:57_10/01/1991	0.000
14:43_16/02/1991	0.000	20:53_07/01/1991	11.859	07:58_10/01/1991	0.013
14:44_16/02/1991	0.000	20:54_07/01/1991	13.740	07:59_10/01/1991	0.944
14:45_16/02/1991	0.000	20:55_07/01/1991	13.740	08:00_10/01/1991	3.516
14:46_16/02/1991	0.021	20:56_07/01/1991	11.859	08:01_10/01/1991	6.513
14:47_16/02/1991	0.134	20:57_07/01/1991	9.499	08:02_10/01/1991	8.317
14:48_16/02/1991	0.300	20:58_07/01/1991	6.856	08:03_10/01/1991	9.908

time	runoff	time	runoff	time	runoff
14:49_16/02/1991	0.351	20:59_07/01/1991	5.214	08:04_10/01/1991	10.117
14:50_16/02/1991	0.342	21:00_07/01/1991	3.780	08:05_10/01/1991	10.540
14:51_16/02/1991	0.311	21:01_07/01/1991	3.780	08:06_10/01/1991	14.227
14:52_16/02/1991	0.307	21:02_07/01/1991	3.015	08:07_10/01/1991	15.234
14:53_16/02/1991	0.345	21:03_07/01/1991	3.516	08:08_10/01/1991	15.234
14:54_16/02/1991	0.325	21:04_07/01/1991	5.214	08:09_10/01/1991	15.234
14:55_16/02/1991	0.306	21:05_07/01/1991	7.208	08:10_10/01/1991	13.739
14:56_16/02/1991	0.287	21:06_07/01/1991	9.499	08:11_10/01/1991	10.117
14:57_16/02/1991	0.265	21:07_07/01/1991	13.256	08:12_10/01/1991	12.782
14:58_16/02/1991	0.238	21:08_07/01/1991	13.740	08:13_10/01/1991	14.727
14:59_16/02/1991	0.211	21:09_07/01/1991	13.740	08:14_10/01/1991	15.234
15:00_16/02/1991	0.184	21:10_07/01/1991	13.740	08:15_10/01/1991	15.234
15:01_16/02/1991	0.157	21:11_07/01/1991	13.256	08:16_10/01/1991	15.234
15:02_16/02/1991	0.131	21:12_07/01/1991	10.970	08:17_10/01/1991	12.316
15:03_16/02/1991	0.109	21:13_07/01/1991	9.096	08:18_10/01/1991	9.498
15:04_16/02/1991	0.097	21:14_07/01/1991	7.938	08:19_10/01/1991	7.569
15:05_16/02/1991	0.085	21:15_07/01/1991	6.856	08:20_10/01/1991	6.513
15:06_16/02/1991	0.074	21:16_07/01/1991	5.214	08:21_10/01/1991	5.527
15:07_16/02/1991	0.062	21:17_07/01/1991	4.329	08:22_10/01/1991	6.175
15:08_16/02/1991	0.050	21:18_07/01/1991	3.015	08:23_10/01/1991	5.214
15:09_16/02/1991	0.041	21:19_07/01/1991	2.325	08:24_10/01/1991	4.615
15:10_16/02/1991	0.035	21:20_07/01/1991	2.219	08:25_10/01/1991	4.051
15:11_16/02/1991	0.030	21:21_07/01/1991	1.809	08:26_10/01/1991	3.516
15:12_16/02/1991	0.024	21:22_07/01/1991	1.433	08:27_10/01/1991	4.329
15:13_16/02/1991	0.019	21:23_07/01/1991	1.173	08:28_10/01/1991	5.214
15:14_16/02/1991	0.013	21:24_07/01/1991	0.944	08:29_10/01/1991	6.175
15:15_16/02/1991	0.009	21:25_07/01/1991	0.744	08:30_10/01/1991	6.855
15:16_16/02/1991	0.009	21:26_07/01/1991	0.426	08:31_10/01/1991	7.569
15:17_16/02/1991	0.008	21:27_07/01/1991	0.305	08:32_10/01/1991	6.855
15:18_16/02/1991	0.007	21:28_07/01/1991	0.207	08:33_10/01/1991	6.855
15:19_16/02/1991	0.007	21:29_07/01/1991	0.207	08:34_10/01/1991	6.855
15:20_16/02/1991	0.006	21:30_07/01/1991	0.131	08:35_10/01/1991	6.175
15:21_16/02/1991	0.005			08:36_10/01/1991	5.214
15:22_16/02/1991	0.005			08:37_10/01/1991	4.329
15:23_16/02/1991	0.004			08:38_10/01/1991	3.516
15:24_16/02/1991	0.003			08:39_10/01/1991	3.015
15:25_16/02/1991	0.003			08:40_10/01/1991	2.325
15:26_16/02/1991	0.002			08:41_10/01/1991	1.809
15:27_16/02/1991	0.001			08:42_10/01/1991	1.614
15:28_16/02/1991	0.000			08:43_10/01/1991	1.433
15:29_16/02/1991	0.000			08:44_10/01/1991	1.173

time	runoff	time	runoff	time	runoff
15:30_16/02/1991	0.000			08:45_10/01/1991	0.744
				08:46_10/01/1991	0.744
				08:47_10/01/1991	0.305
				08:48_10/01/1991	0.207
				08:49_10/01/1991	0.131
				08:50_10/01/1991	0.131
				08:51_10/01/1991	0.075
				08:52_10/01/1991	0.075
				08:53_10/01/1991	0.037
				08:54_10/01/1991	0.013
				08:55_10/01/1991	0.013

CRT1		BRT2		BRT2	
time	runoff	time	runoff	time	runoff
20:40_07/01/1991	0.000	11:40_06/02/1991	0.000	13:30_22/02/1991	0.000
20:41_07/01/1991	0.000	11:41_06/02/1991	0.000	13:31_22/02/1991	0.000
20:42_07/01/1991	0.000	11:42_06/02/1991	0.000	13:32_22/02/1991	0.000
20:43_07/01/1991	0.000	11:43_06/02/1991	0.000	13:33_22/02/1991	0.000
20:44_07/01/1991	0.000	11:44_06/02/1991	0.000	13:34_22/02/1991	0.000
20:45_07/01/1991	0.000	11:45_06/02/1991	0.000	13:35_22/02/1991	0.618
20:46_07/01/1991	0.000	11:46_06/02/1991	0.011	13:36_22/02/1991	3.174
20:47_07/01/1991	0.000	11:47_06/02/1991	0.638	13:37_22/02/1991	4.240
20:48_07/01/1991	0.000	11:48_06/02/1991	1.112	13:38_22/02/1991	4.334
20:49_07/01/1991	0.000	11:49_06/02/1991	1.317	13:39_22/02/1991	4.334
20:50_07/01/1991	0.046	11:50_06/02/1991	1.477	13:40_22/02/1991	4.024
20:51_07/01/1991	1.464	11:51_06/02/1991	1.428	13:41_22/02/1991	3.308
20:52_07/01/1991	3.546	11:52_06/02/1991	1.092	13:42_22/02/1991	2.697
20:53_07/01/1991	3.798	11:53_06/02/1991	0.629	13:43_22/02/1991	2.301
20:54_07/01/1991	3.094	11:54_06/02/1991	0.440	13:44_22/02/1991	1.793
20:55_07/01/1991	2.044	11:55_06/02/1991	0.325	13:45_22/02/1991	1.207
20:56_07/01/1991	1.377	11:56_06/02/1991	0.218	13:46_22/02/1991	0.687
20:57_07/01/1991	0.898	11:57_06/02/1991	0.133	13:47_22/02/1991	0.420
20:58_07/01/1991	0.560	11:58_06/02/1991	0.076	13:48_22/02/1991	0.240
20:59_07/01/1991	0.411	11:59_06/02/1991	0.041	13:49_22/02/1991	0.143
21:00_07/01/1991	0.337	12:00_06/02/1991	0.016	13:50_22/02/1991	0.058
21:01_07/01/1991	0.302	12:01_06/02/1991	0.006	13:51_22/02/1991	0.030
21:02_07/01/1991	0.344	12:02_06/02/1991	0.003	13:52_22/02/1991	0.026
21:03_07/01/1991	0.513	12:03_06/02/1991	0.001	13:53_22/02/1991	0.023
21:04_07/01/1991	0.885	12:04_06/02/1991	0.000	13:54_22/02/1991	0.020
21:05_07/01/1991	1.654	12:05_06/02/1991	0.000	13:55_22/02/1991	0.018

time	runoff	time	runoff	time	runoff
21:06_07/01/1991	2.830	12:06_06/02/1991	0.000	13:56_22/02/1991	0.015
21:07_07/01/1991	3.439	12:07_06/02/1991	0.000	13:57_22/02/1991	0.012
21:08_07/01/1991	3.274	12:08_06/02/1991	0.000	13:58_22/02/1991	0.009
21:09_07/01/1991	2.884	12:09_06/02/1991	0.000	13:59_22/02/1991	0.006
21:10_07/01/1991	2.587	12:10_06/02/1991	0.000	14:00_22/02/1991	0.003
21:11_07/01/1991	2.124	12:11_06/02/1991	0.000	14:01_22/02/1991	0.001
21:12_07/01/1991	1.667	12:12_06/02/1991	0.000	14:02_22/02/1991	0.000
21:13_07/01/1991	1.271	12:13_06/02/1991	0.000	14:03_22/02/1991	0.000
21:14_07/01/1991	0.853	12:14_06/02/1991	0.000	14:04_22/02/1991	0.000
21:15_07/01/1991	0.660	12:15_06/02/1991	0.000	14:05_22/02/1991	0.000
21:16_07/01/1991	0.496				
21:17_07/01/1991	0.334				
21:18_07/01/1991	0.211				
21:19_07/01/1991	0.120				
21:20_07/01/1991	0.092				
21:21_07/01/1991	0.064				
21:22_07/01/1991	0.036				
21:23_07/01/1991	0.009				
21:24_07/01/1991	0.007				
21:25_07/01/1991	0.004				
21:26_07/01/1991	0.002				
21:27_07/01/1991	0.000				
21:28_07/01/1991	0.000				
21:29_07/01/1991	0.000				
21:30_07/01/1991	0.000				

B.2 Simulated rainfall

The data below are the rainfall data for the comparison of the hydrology model with the data from the rainfall simulation experiments (fig 2.16), plot 4 run2 from data set B1RF2QSS. Time is measured in minutes from the start of the rainfall. Rainfall measurements are in cumulative mm from the start of the experiment (the rainfall used in the comparison was the average of the two pluviographs measurements). Runoff measurements are in litres/second.

Time	Pluvio 1	Pluvio 2	Time	q
8:20:30	0	0	8:29:30	0.11500
8:20:40	0.2	0.2	8:30:00	0.49950
8:20:50	0.4	0.2	8:30:30	0.55280
8:21:00	0.6	0.4	8:31:00	0.55280
8:21:10	1	0.6	8:32:00	0.97120
8:21:20	1.2	0.8	8:34:00	0.90670
8:21:30	1.4	1	8:35:00	0.97120
8:21:40	1.8	1.2	8:36:00	0.84210
8:21:50	2.2	1.4	8:38:00	0.84210
8:22:00	2.4	1.6	8:40:00	0.90670
8:22:10	2.8	1.8	8:42:00	0.97120
8:22:20	3.2	2	8:45:00	0.84210
8:22:30	3.4	2.2	8:50:00	0.97120
8:22:40	3.8	2.4	8:55:00	0.90670
8:22:50	4.2	2.6	9:00:00	0.90670
8:23:00	4.4	2.8	9:05:00	0.84210
8:23:10	4.8	3	9:15:00	0.84210
8:23:20	5	3.2	9:20:00	0.72030
8:23:30	5.4	3.6	9:24:30	0.72030
8:23:40	5.8	3.8	9:25:00	
8:23:50	6.2	4	9:25:30	0.49950
8:24:00	6.6	4.2	9:25:30	0.22880
8:24:10	7	4.4	9:26:00	0.11500
8:24:20	7.4	4.8	9:26:30	0.057200
8:24:30	7.6	5	9:27:00	0.057200
8:24:40	8	5.2	9:27:30	0.057200
8:24:50	8.2	5.4	9:28:00	0.057200
8:25:00	8.2	5.4	9:28:30	0.057200
8:25:10	8.6	5.6	9:29:00	0.0000
8:25:20	8.8	5.8		
8:25:30	9	6		
8:25:40	9.4	6.2		
8:25:50	9.8	6.4		
8:26:00	10.2	6.6		
8:26:10	10.4	7		
8:26:20	10.8	7.2		

Time	Pluvio 1	Pluvio 2	Time	q
8:26:30	11	7.4		
8:26:40	11.4	7.6		
8:26:50	11.6	7.8		
8:27:00	12	8		
8:27:10	12.6	8		
8:27:20	12.8	8.2		
8:27:30	13	8.4		
8:27:40	13.4	8.6		
8:27:50	13.4	8.8		
8:28:00	13.6	9		
8:28:10	13.8	9		
8:28:20	14	9.2		
8:28:30	14.2	9.4		
8:28:40	14.2	9.6		
8:28:50	14.6	9.8		
8:29:00	14.8	10		
8:29:10	15	10.2		
8:29:20	15.4	10.4		
8:29:30	15.6	10.6		
8:29:40	15.8	10.8		
8:29:50	16	11		
8:30:00	16.2	11.2		
8:30:10	16.2	11.4		
8:30:20	16.6	11.6		
8:30:30	16.8	12		
8:30:40	17	12.2		
8:30:50	17.2	12.4		
8:31:00	17.4	12.8		
8:31:10	17.6	13		
8:31:20	17.8	13.4		
8:31:30	18	13.6		
8:31:40	18.2	13.8		
8:31:50	18.6	14.2		
8:32:00	18.8	14.4		
8:32:10	19	14.8		
8:32:20	19.2	15		
8:32:30	19.4	15.2		
8:32:40	19.6	15.4		
8:32:50	19.8	15.6		
8:33:00	20	15.8		

Time	Pluvio 1	Pluvio 2	Time	q
8:33:10	20.2	16		
8:33:20	20.4	16		
8:33:30	20.8	16.2		
8:33:40	21	16.4		
8:33:50	21.4	16.6		
8:34:00	21.8	16.8		
8:34:10	22.4	16.8		
8:34:20	22.6	17		
8:34:30	22.8	17.2		
8:34:40	23	17.4		
8:34:50	23.2	17.6		
8:35:00	23.4	17.6		
8:35:10	23.8	17.8		
8:35:20	24.2	18		
8:35:30	24.6	18.2		
8:35:40	25	18.4		
8:35:50	25.2	18.6		
8:36:00	25.6	18.8		
8:36:10	25.8	19.2		
8:36:20	26.2	19.4		
8:36:30	26.6	19.6		
8:36:40	27	19.8		
8:36:50	27.4	20		
8:37:00	27.8	20.2		
8:37:10	28	20.4		
8:37:20	28.4	20.6		
8:37:30	28.8	20.8		
8:37:40	29.2	21.2		
8:37:50	29.4	21.4		
8:38:00	29.8	21.6		
8:38:10	30.2	22		
8:38:20	30.6	22.2		
8:38:30	30.8	22.4		
8:38:40	31.2	22.6		
8:38:50	31.4	22.8		
8:39:00	31.8	23		
8:39:10	32	23.2		
8:39:20	32.2	23.4		
8:39:30	32.4	23.6		
8:39:40	32.6	23.8		

Time	Pluvio 1	Pluvio 2	Time	q
8:39:50	33	23.8		
8:40:00	33.2	24		
8:40:10	33.6	24.2		
8:40:20	33.8	24.4		
8:40:30	34.2	24.6		
8:40:40	34.4	24.8		
8:40:50	34.6	25		
8:41:00	34.8	25.2		
8:41:10	35	25.2		
8:41:20	35.2	25.4		
8:41:30	35.6	25.6		
8:41:40	35.8	25.8		
8:41:50	36	26		
8:42:00	36.2	26		
8:42:10	36.6	26.2		
8:42:20	36.6	26.4		
8:42:30	36.8	26.6		
8:42:40	37	26.6		
8:42:50	37.4	26.8		
8:43:00	37.4	27		
8:43:10	37.8	27.2		
8:43:20	38	27.4		
8:43:30	38.4	27.6		
8:43:40	38.6	27.6		
8:43:50	38.6	27.8		
8:44:00	38.8	28		
8:44:10	39	28.2		
8:44:20	39	28.4		
8:44:30	39.4	28.4		
8:44:40	39.6	28.6		
8:44:50	40	28.8		
8:45:00	40.2	29		
8:45:10	40.4	29.2		
8:45:20	40.6	29.2		
8:45:30	40.6	29.4		
8:45:40	41	29.6		
8:45:50	41.2	29.8		
8:46:00	41.6	30		
8:46:10	41.8	30.2		
8:46:20	42.2	30.2		

Time	Pluvio 1	Pluvio 2	Time	q
8:46:30	42.4	30.4		
8:46:40	42.6	30.6		
8:46:50	42.8	30.8		
8:47:00	43	30.8		
8:47:10	43.4	31.2		
8:47:20	43.6	31.2		
8:47:30	43.8	31.6		
8:47:40	44.2	31.6		
8:47:50	44.4	31.8		
8:48:00	44.8	32		
8:48:10	45	32.2		
8:48:20	45.2	32.4		
8:48:30	45.4	32.4		
8:48:40	45.6	32.6		
8:48:50	45.8	32.8		
8:49:00	46.2	33		
8:49:10	46.4	33.2		
8:49:20	46.6	33.4		
8:49:30	46.8	33.6		
8:49:40	47	33.6		
8:49:50	47.2	33.8		
8:50:00	47.4	34		
8:50:10	47.6	34.4		
8:50:20	47.8	34.8		
8:50:30	48	35		
8:50:40	48.2	35.4		
8:50:50	48.6	35.6		
8:51:00	48.6	35.8		
8:51:10	49	36.2		
8:51:20	49	36.4		
8:51:30	49.2	36.6		
8:51:40	49.4	36.8		
8:51:50	49.6	37.2		
8:52:00	49.8	37.6		
8:52:10	50	37.8		
8:52:20	50.2	38		
8:52:30	50.4	38.2		
8:52:40	50.6	38.4		
8:52:50	50.6	38.6		
8:53:00	50.8	38.8		

Time	Pluvio 1	Pluvio 2	Time	q
8:53:10	51	39		
8:53:20	51.2	39.2		
8:53:30	51.4	39.4		
8:53:40	51.6	39.6		
8:53:50	51.8	39.8		
8:54:00	51.8	39.8		
8:54:10	52.2	40		
8:54:20	52.4	40.2		
8:54:30	52.8	40.4		
8:54:40	53	40.6		
8:54:50	53.4	40.8		
8:55:00	53.8	41		
8:55:10	54.2	41.2		
8:55:20	54.6	41.4		
8:55:30	55	41.6		
8:55:40	55.4	41.6		
8:55:50	55.8	41.8		
8:56:00	56.2	42		
8:56:10	56.6	42		
8:56:20	56.8	42.2		
8:56:30	57.2	42.4		
8:56:40	57.6	42.4		
8:56:50	57.8	42.8		
8:57:00	58.2	43		
8:57:10	58.4	43.2		
8:57:20	58.6	43.2		
8:57:30	59	43.4		
8:57:40	59.2	43.6		
8:57:50	59.4	43.8		
8:58:00	59.6	44		
8:58:10	59.6	44.2		
8:58:20	59.8	44.4		
8:58:30	59.8	44.6		
8:58:40	60	44.8		
8:58:50	60.2	45		
8:59:00	60.2	45.2		
8:59:10	60.4	45.4		
8:59:20	60.6	45.6		
8:59:30	60.8	45.8		
8:59:40	61	46		

Time	Pluvio 1	Pluvio 2	Time	q
8:59:50	61.4	46		
9:00:00	61.6	46.2		
9:00:10	62	46.4		
9:00:20	62.2	46.6		
9:00:30	62.4	46.8		
9:00:40	62.6	47		
9:00:50	62.8	47.2		
9:01:00	63	47.2		
9:01:10	63.4	47.4		
9:01:20	63.6	47.6		
9:01:30	63.8	47.8		
9:01:40	64.2	48		
9:01:50	64.4	48.2		
9:02:00	64.6	48.4		
9:02:10	64.8	48.6		
9:02:20	65.2	48.8		
9:02:30	65.6	48.8		
9:02:40	66	49		
9:02:50	66.2	49.2		
9:03:00	66.6	49.4		
9:03:10	67	49.6		
9:03:20	67.4	50		
9:03:30	67.8	50.2		
9:03:40	68.2	50.4		
9:03:50	68.4	50.6		
9:04:00	68.8	51		
9:04:10	69	51.2		
9:04:20	69.4	51.4		
9:04:30	69.8	51.6		
9:04:40	70.2	51.8		
9:04:50	70.6	52		
9:05:00	71	52.2		
9:05:10	71.4	52.4		
9:05:20	71.6	52.6		
9:05:30	71.8	52.8		
9:05:40	72.2	53		
9:05:50	72.2	53.2		
9:06:00	72.4	53.2		
9:06:10	72.6	53.4		
9:06:20	72.6	53.8		

Time	Pluvio 1	Pluvio 2	Time	q
9:06:30	72.8	54		
9:06:40	73	54		
9:06:50	73.2	54.2		
9:07:00	73.4	54.4		
9:07:10	73.6	54.6		
9:07:20	73.8	54.8		
9:07:30	74.2	55		
9:07:40	74.6	55.2		
9:07:50	75	55.2		
9:08:00	75.4	55.4		
9:08:10	75.8	55.4		
9:08:20	76.2	55.6		
9:08:30	76.6	55.8		
9:08:40	76.8	55.8		
9:08:50	77.2	56		
9:09:00	77.6	56.2		
9:09:10	78	56.4		
9:09:20	78.4	56.6		
9:09:30	78.6	56.8		
9:09:40	79	56.8		
9:09:50	79.4	57		
9:10:00	79.8	57.2		
9:10:10	80.2	57.2		
9:10:20	80.6	57.4		
9:10:30	81	57.6		
9:10:40	81.4	57.6		
9:10:50	81.8	57.6		
9:11:00	82.4	57.8		
9:11:10	82.8	58		
9:11:20	83	58		
9:11:30	83.4	58.2		
9:11:40	83.6	58.4		
9:11:50	84	58.6		
9:12:00	84.2	58.8		
9:12:10	84.4	58.8		
9:12:20	84.8	59		
9:12:30	85	59.2		
9:12:40	85.4	59.2		
9:12:50	85.8	59.4		
9:13:00	86.2	59.4		

Time	Pluvio 1	Pluvio 2	Time	q
9:13:10	86.6	59.6		
9:13:20	86.8	59.6		
9:13:30	87.2	59.8		
9:13:40	87.6	59.8		
9:13:50	88	60		
9:14:00	88.4	60		
9:14:10	88.6	60.2		
9:14:20	89	60.2		
9:14:30	89.4	60.4		
9:14:40	89.8	60.6		
9:14:50	90.2	60.8		
9:15:00	90.6	60.8		
9:15:10	91	61		
9:15:20	91.2	61.2		
9:15:30	91.6	61.4		
9:15:40	92	61.4		
9:15:50	92.2	61.6		
9:16:00	92.6	61.8		
9:16:10	93.2	62		
9:16:20	93.6	62		
9:16:30	94	62.2		
9:16:40	94.4	62.2		
9:16:50	94.6	62.4		
9:17:00	95	62.6		
9:17:10	95	62.6		
9:17:20	95	62.6		
9:17:30	95	62.6		
9:17:40	95	62.6		
9:17:50	95	62.6		
9:18:00	95	62.6		
9:18:10	95	62.8		
9:18:20	95	62.8		

Appendix C Erosion data

C.1 Natural rainfall

All data in the tables below are in units of 24 hour time to a resolution of a minute and date (time), litres/s (discharge, q) and grams/litre (concentration, c).

Batter sites

BRT2			BWT1		
time	q	c	time	q	c
11:52_06/02/1991	1.092	0.21484100	09:52_30/01/1991	0.500	0.25999999
11:54_06/02/1991	0.440	0.21011100	09:54_30/01/1991	0.644	0.36999999
15:00_13/02/1991	1.996	0.31634700	09:56_30/01/1991	0.536	0.09999999
15:02_13/02/1991	1.664	0.39329200	09:58_30/01/1991	0.393	0.04999999
15:03_13/02/1991	1.628	0.25276900	10:00_30/01/1991	0.272	0.10999999
15:04_13/02/1991	1.596	0.30710800	17:04_04/02/1991	0.258	0.10999999
15:05_13/02/1991	1.559	0.28204100	17:06_04/02/1991	0.425	0.21999999
15:06_13/02/1991	1.526	0.26848500	17:08_04/02/1991	0.479	0.10999999
15:07_13/02/1991	1.599	0.30445500	17:10_04/02/1991	0.415	0.06999999
15:08_13/02/1991	1.664	0.28513600	17:12_04/02/1991	0.279	0.06999999
15:09_13/02/1991	1.743	0.30613700	17:14_04/02/1991	0.207	0.10999999
15:10_13/02/1991	1.773	0.22229700	17:16_04/02/1991	0.108	0.14999999
15:12_13/02/1991	1.559	0.27697500	17:18_04/02/1991	0.049	0.05999999
15:14_13/02/1991	1.672	0.32365100	17:20_04/02/1991	0.023	0.02999999
15:16_13/02/1991	1.811	0.26394300	17:22_04/02/1991	0.011	0.05999999
15:18_13/02/1991	1.590	0.31170600	11:48_06/02/1991	0.494	0.35999999
15:20_13/02/1991	1.367	0.22980100	11:50_06/02/1991	0.645	0.70999999
15:22_13/02/1991	0.991	0.13327000	11:52_06/02/1991	0.310	0.32999999
14:50_16/02/1991	1.777	0.22740400	11:54_06/02/1991	0.132	0.20999999
14:51_16/02/1991	1.713	0.48569600			
14:52_16/02/1991	1.640	0.47978000			
14:53_16/02/1991	1.498	0.93804600			
14:54_16/02/1991	1.069	0.45763700			
14:56_16/02/1991	0.583	0.52107700			
14:58_16/02/1991	0.243	0.52351600			
15:00_16/02/1991	0.084	0.43003200			
15:02_16/02/1991	0.048	0.40051400			
15:04_16/02/1991	0.014	0.33303600			
15:06_16/02/1991	0.010	0.44691700			
13:41_22/02/1991	3.308	1.0051030			
13:42_22/02/1991	2.697	0.60572000			
13:43_22/02/1991	2.301	0.44268500			
13:44_22/02/1991	1.793	0.34495600			
13:45_22/02/1991	1.207	0.28009800			

Caprock sites

CWT2			CWT3		
time	q	c	time	q	c
20:53_07/01/1991	0.525	0.45000000	11:49_06/02/1991	0.350	0.35000000
20:54_07/01/1991	0.410	0.40000000	11:51_06/02/1991	0.313	0.26000000
20:55_07/01/1991	0.295	0.29000000	11:53_06/02/1991	0.250	0.20000000
20:56_07/01/1991	0.210	0.42000000	11:55_06/02/1991	0.187	0.45000000
20:57_07/01/1991	0.126	0.55000000	11:57_06/02/1991	0.123	0.18000000
20:58_07/01/1991	0.091	0.47000000	14:51_16/02/1991	0.311	0.29000000
20:59_07/01/1991	0.072	0.42000000	14:53_16/02/1991	0.345	0.18000000
21:00_07/01/1991	0.081	0.45000000	14:55_16/02/1991	0.306	0.14000000
21:01_07/01/1991	0.078	0.45000000	14:57_16/02/1991	0.265	0.23000000
21:02_07/01/1991	0.092	0.33000000	14:59_16/02/1991	0.211	0.18000000
21:03_07/01/1991	0.124	0.52000000	15:01_16/02/1991	0.157	0.23000000
21:04_07/01/1991	0.238	0.34000000	15:03_16/02/1991	0.109	0.09000000
21:05_07/01/1991	0.418	0.42000000			
21:06_07/01/1991	0.528	0.35000000			
21:07_07/01/1991	0.510	0.35000000			
21:08_07/01/1991	0.492	0.36000000			
14:29_10/01/1991	0.397	0.21000000			
14:30_10/01/1991	0.628	0.21000000			
14:31_10/01/1991	0.707	0.26000000			
14:32_10/01/1991	0.735	0.31000000			
14:33_10/01/1991	0.706	0.33000000			
14:34_10/01/1991	0.632	0.37000000			
14:35_10/01/1991	0.510	0.27000000			
14:36_10/01/1991	0.428	0.40000000			
14:37_10/01/1991	0.411	0.22000000			
14:38_10/01/1991	0.391	0.33000000			
14:39_10/01/1991	0.386	0.30000000			
14:40_10/01/1991	0.528	0.41000000			
14:41_10/01/1991	0.761	0.26000000			
14:42_10/01/1991	0.936	0.30000000			
14:43_10/01/1991	1.020	0.44000000			
14:44_10/01/1991	0.946	0.27000000			
14:45_10/01/1991	0.760	0.33000000			
14:46_10/01/1991	0.661	0.20000000			
14:47_10/01/1991	0.601	0.17000000			
14:48_10/01/1991	0.428	0.20000000			
14:49_10/01/1991	0.315	0.12000000			
17:00_21/01/1991	1.924	0.96000000			
17:02_21/01/1991	2.290	0.86000000			

CWT2			CWT3		
time	q	c	time	q	c
17:04_21/01/1991	2.335	0.60000000			
17:06_21/01/1991	1.782	0.50000000			
17:08_21/01/1991	1.775	0.43000000			
17:10_21/01/1991	1.349	0.40000000			
17:12_21/01/1991	1.141	0.34000000			
17:14_21/01/1991	0.792	0.32000000			
17:16_21/01/1991	0.762	0.56000000			
17:18_21/01/1991	0.742	0.39000000			
17:06_04/02/1991	0.522	0.37000000			
17:08_04/02/1991	0.542	0.39000000			
17:10_04/02/1991	0.432	0.31000000			
17:12_04/02/1991	0.330	0.33000000			
17:14_04/02/1991	0.285	0.34000000			
17:16_04/02/1991	0.108	0.28000000			

CRT1			CRT2		
time	q	c	time	q	c
20:51_07/01/1991	1.464	0.79473000	14:28_10/01/1991	0.000	0.07169600
20:52_07/01/1991	3.546	0.68102400	14:29_10/01/1991	0.222	0.15238100
20:53_07/01/1991	3.798	0.66075600	14:30_10/01/1991	0.762	0.15728100
20:54_07/01/1991	3.094	0.41398800	14:31_10/01/1991	1.090	0.15876700
20:55_07/01/1991	2.044	0.33409400	14:32_10/01/1991	1.097	0.12496500
20:56_07/01/1991	1.377	0.49845100	14:33_10/01/1991	1.031	0.16542000
20:57_07/01/1991	0.898	0.32978500	14:34_10/01/1991	0.889	0.15252300
20:58_07/01/1991	0.560	0.52054700	14:35_10/01/1991	0.665	0.09958900
20:59_07/01/1991	0.411	0.49276000	14:36_10/01/1991	0.402	0.09770400
21:00_07/01/1991	0.337	0.44134000	14:37_10/01/1991	0.247	0.09392000
21:01_07/01/1991	0.302	0.25933800	14:38_10/01/1991	0.219	0.07885600
21:02_07/01/1991	0.344	0.44371200	14:39_10/01/1991	0.197	0.06324600
21:03_07/01/1991	0.513	0.27446800	14:40_10/01/1991	0.413	0.07800700
21:04_07/01/1991	0.885	0.29710000	14:41_10/01/1991	0.935	0.09283200
21:05_07/01/1991	1.654	0.28733500	14:42_10/01/1991	1.488	0.17298100
21:06_07/01/1991	2.830	0.39422400	14:43_10/01/1991	1.799	0.20474800
21:07_07/01/1991	3.439	0.42346900	14:44_10/01/1991	1.601	0.13333600
21:08_07/01/1991	3.274	0.35967200	14:45_10/01/1991	1.157	0.12882000
21:09_07/01/1991	2.884	0.25528900	14:46_10/01/1991	0.818	0.12172700
21:10_07/01/1991	2.587	0.38363300	14:47_10/01/1991	0.611	0.11661500
21:11_07/01/1991	2.124	0.28951200	14:48_10/01/1991	0.333	0.10134700

time	q	c	time	q	c
21:12_07/01/1991	1.667	0.22524800	14:49_10/01/1991	0.153	0.12645900
21:13_07/01/1991	1.271	0.42242600	14:50_10/01/1991	0.040	0.09865400
14:30_10/01/1991	0.857	0.16850000	12:04_11/01/1991	1.401	0.28605000
14:31_10/01/1991	1.203	0.13229800	12:06_11/01/1991	1.472	0.46782600
14:32_10/01/1991	1.383	0.17744500	12:07_11/01/1991	1.727	0.26398900
14:33_10/01/1991	1.409	0.11567200	12:08_11/01/1991	2.145	0.27902600
14:34_10/01/1991	1.309	0.05928400	12:09_11/01/1991	2.558	0.24399300
14:35_10/01/1991	1.092	0.13183900	12:10_11/01/1991	2.696	0.40747100
14:36_10/01/1991	0.898	0.05614600	12:27_11/01/1991	7.820	1.7933880
14:37_10/01/1991	0.794	0.10383100	12:32_11/01/1991	6.308	1.7120430
14:39_10/01/1991	0.709	0.24974200			
14:41_10/01/1991	1.077	0.17614400			
14:43_10/01/1991	1.853	0.24668300			
14:45_10/01/1991	1.582	0.18447200			

CRT3			COUT		
time	q	c	time	q	c
20:52_07/01/1991	0.062	0.17045400	20:52_07/01/1991	7.569	0.71877800
20:53_07/01/1991	0.234	0.13516000	20:53_07/01/1991	11.859	0.82385400
20:54_07/01/1991	0.374	0.11517700	20:54_07/01/1991	13.740	0.82337000
20:55_07/01/1991	0.416	0.10505300	20:55_07/01/1991	13.740	0.53798400
20:56_07/01/1991	0.315	0.09925100	20:56_07/01/1991	11.859	0.62038400
20:57_07/01/1991	0.154	0.08699000	20:57_07/01/1991	9.499	0.56104500
20:58_07/01/1991	0.096	0.07591300	20:58_07/01/1991	6.856	0.53534200
20:59_07/01/1991	0.013	0.06974800	20:59_07/01/1991	5.214	0.62442700
21:00_07/01/1991	0.007	0.07167000	21:00_07/01/1991	3.780	0.63653700
21:01_07/01/1991	0.010	0.07053500	21:01_07/01/1991	3.780	0.50348600
21:02_07/01/1991	0.014	0.08993100	21:02_07/01/1991	3.015	0.48536400
21:03_07/01/1991	0.017	0.12837000	21:03_07/01/1991	3.516	0.40200800
21:04_07/01/1991	0.025	0.14296700	21:04_07/01/1991	5.214	0.54777700
21:05_07/01/1991	0.195	0.13833200	21:05_07/01/1991	7.208	0.61003700
21:06_07/01/1991	0.325	0.13925000	21:06_07/01/1991	9.499	0.46305200
21:07_07/01/1991	0.458	0.10556200	21:07_07/01/1991	13.256	0.46248900
21:08_07/01/1991	0.499	0.14522200	21:08_07/01/1991	13.740	0.48320100
21:09_07/01/1991	0.539	0.13055000	21:09_07/01/1991	13.740	0.38976900
21:10_07/01/1991	0.539	0.13171100	21:10_07/01/1991	13.740	0.41254400
21:11_07/01/1991	0.536	0.12790300	21:11_07/01/1991	13.256	0.42201900
21:12_07/01/1991	0.456	0.11641000	21:12_07/01/1991	10.970	0.40847700
			21:14_07/01/1991	7.938	0.35126200
			21:15_07/01/1991	6.856	0.41902400

CRT3			COUT		
time	q	c	time	q	c
			21:16_07/01/1991	5.214	0.43113700
			15:00_08/01/1991	4.913	0.81976900
			15:01_08/01/1991	9.909	0.68467700
			15:02_08/01/1991	13.740	0.63772200
			15:03_08/01/1991	14.228	0.64145900
			15:04_08/01/1991	14.228	0.55482800
			15:05_08/01/1991	12.317	0.47215000
			15:06_08/01/1991	8.318	0.44769200
			15:07_08/01/1991	6.176	0.83739800
			15:08_08/01/1991	4.051	0.47319400
			08:10_10/01/1991	13.739	0.25497900
			08:12_10/01/1991	12.782	0.57277400
			08:14_10/01/1991	15.234	0.17540200
			08:16_10/01/1991	15.234	0.43323500
			08:18_10/01/1991	9.498	1.1408720
			08:20_10/01/1991	6.513	0.38401600
			14:31_10/01/1991	11.410	0.28784300
			14:37_10/01/1991	14.727	0.38872900
			14:39_10/01/1991	10.117	0.37154500
			14:41_10/01/1991	12.782	0.32780200
			12:01_11/01/1991	15.234	0.32108100
			12:02_11/01/1991	15.234	0.21702000
			12:03_11/01/1991	13.255	0.33143600
			12:04_11/01/1991	10.969	0.29784800
			12:05_11/01/1991	9.908	0.29705600
			12:06_11/01/1991	9.498	0.43392400
			12:07_11/01/1991	9.498	0.32619700
			12:08_11/01/1991	10.540	0.33387300
			12:27_11/01/1991	17.355	0.88824700
			12:32_11/01/1991	30.452	0.97785000
			17:37_28/12/1990	2.325	1.3592980
			17:38_28/12/1990	3.780	1.2045150
			17:39_28/12/1990	4.329	1.2912300
			17:40_28/12/1990	4.329	1.1151860
			17:41_28/12/1990	4.051	1.2154910
			17:42_28/12/1990	3.015	1.3565480
			17:43_28/12/1990	2.219	1.2297690
			17:44_28/12/1990	1.614	1.2769350
			17:45_28/12/1990	1.173	1.1490480

CRT3			COUT		
time	q	c	time	q	c
			17:46_28/12/1990	0.744	1.3126110
			17:47_28/12/1990	0.571	1.2212900
			17:48_28/12/1990	0.426	1.5949080
			17:49_28/12/1990	0.305	1.2021710
			17:50_28/12/1990	0.132	1.2104180
			17:51_28/12/1990	0.075	1.1574080
			17:52_28/12/1990	0.037	1.4027180
			18:05_28/12/1990	0.004	1.1369710
			17:06_04/02/1991	13.739	0.22890900
			17:08_04/02/1991	14.727	0.32923000
			17:10_04/02/1991	14.227	0.34632300
			17:12_04/02/1991	9.908	0.34863000
			17:14_04/02/1991	7.208	0.31404800
			17:16_04/02/1991	4.912	0.36601000

C.2 Simulated rainfall

The data below are those for calibration of the sediment transport equation from simulated rainfall equation 3.3.1. Times, t , are in minutes from the start of the experiment, discharge, q , in litres/second, and concentrations, c , in grams/litre.

Batter sites

Plot 4 Run 2			Plot 4 Run 3		
time	q	c	time	q	c
8.29.30	0.115	0.66300000	11.19.30	0.4995	1.6779000
8.30.00	0.4995	0.77410000	11.20.00	0.9712	1.8078000
8.30.30	0.5528	1.1310000	11.20.30	0.8421	2.0133000
8.31.00	0.5528	1.3247000	11.21.00	1.897	2.3204000
8.32.00	0.9712	1.3201000	11.22.00	1.897	2.1612000
8.34.00	0.9067	1.8998000	11.23.00	1.897	1.2210000
8.35.00	0.9712	1.2279000	11.24.00	1.897	1.8315000
8.36.00	0.8421	1.0938000	11.25.00	2.077	1.6952000
8.38.00	0.8421	1.0370000	11.27.00	1.897	1.5653000
8.40.00	0.9067	0.80720000	11.29.00	2.263	1.2864000
8.42.00	0.9712	0.93130000	11.31.00	2.077	1.0251000
8.45.00	0.8421	1.0469000	11.34.00	1.987	1.6714000
8.50.00	0.9712	0.76500000	11.39.00	1.481	0.83240000
8.55.00	0.9067	0.41720000	11.44.00	1.987	1.2600000
9.00.00	0.9067	0.83170000	11.49.00	2.456	2.2437000
9.05.00	0.8421	0.75910000	11.54.00	1.327	2.0437000
9.15.00	0.8421	1.0252000	11.59.00	1.327	0.59260000
9.20.00	0.7203	3.0830000	12.08.40	1.179	1.1522000
9.24.30	0.7203	2.4868000	12.09.10	0.8421	1.0299000
9.25.00		0.97720000	12.09.40	0.6061	0.68950000
9.25.30	0.4995	0.60290000	12.10.10	0.3724	0.84940000
9.25.30	0.2288	0.43540000	12.10.40	0.286	0.58740000
9.26.00	0.115	0.78680000	12.11.10	0.1716	0.51180000
9.26.30	0.0572	0.50470000	12.11.40	0.1144	0.45710000
9.27.00	0.0572	0.42380000	12.12.10	0.0858	0.21110000
9.27.30	0.0572	0.44330000	12.12.40	0.0286	0.55190000
9.28.00	0.0572	0.30500000	12.12.30		0.66322000
9.28.30	0.0572	0.09500000			

Caprock sites

Plot 1 Run 2			Plot 1 Run 3		
time	q	c	time	q	c
6.0	0.53	0.607	3.1		1.124
7.0	0.74	0.630	4.5	1.18	1.112
8.0	0.74	0.515	6.0	1.49	0.628
9.0	0.74	0.568	7.0	1.56	0.612
10.0	0.81	0.550	8.0	1.62	0.756
11.1	0.79	0.479	9.5	1.71	0.446
12.0	0.81	0.339	10.5	1.77	0.423
13.0	0.84	0.358	11.5	1.77	0.374
14.0	0.77	0.299	12.5	1.7	0.391
15.0	0.81	0.283	14.5	1.77	0.368
17.0	0.88	0.356	16.0	1.77	0.469
19.0	0.84	0.282	18.5	1.71	0.299
21.0	0.91	0.288	20.5	1.77	0.264
26.0	0.84	0.134	25.5	1.7	0.231
31.0	0.81	0.134	30.5	1.77	0.165
41.0	0.81	0.180	41.0	1.7	0.156
51.5	0.77	0.146	50.5	1.77	0.117
60.0	0.87	0.164	57.0	1.7	0.081
61.0	0.76	0.158	58.0	1.26	0.185
62.5	0.37	0.031	59.0	0.51	0.155
63.5	0.17	0.052	60.0	0.3	0.104
64.5	0.1	0.114	61.0	0.13	0.090
65.5	0.07	0.059	62.0	0.07	0.076
66.5	0.01	0.021			

Plot 1 Run 4			Plot 2 Run 2		
time	q	c	time	q	c
1.5	1.36	0.645	5.5		1.024
2.5	1.62	0.640	6.5	0.69	0.790
3.5	1.72	0.553	7.5	1.21	0.692
4.5	1.79	0.346	8.5	1.21	0.616
5.5	1.92	0.383	9.5	1.27	0.622
12.0	1.92	0.276	10.5	1.37	0.384
14.0	2.11	0.251	11.5	1.38	0.327
16.0	2.06	0.304	12.5	1.43	0.522
19.0	2.11	0.244	13.5	1.43	0.450
26.0	2.04	0.175	14.5	1.43	0.380
52.5	0.39	0.353	16.5	1.49	0.485

time	q	c	time	q	c
56.5	0.01	0.127	18.5	1.43	0.276
			20.5	1.55	0.680
			25.5	1.43	0.328
			30.5	1.21	0.271
			40.5	1.32	0.258
			51.0	1.27	0.097
			60.5	1.12	0.142
			60.5	1.12	0.183
			63.0	0.43	0.185
			64.0	0.28	0.109
			65.0	0.15	0.120
			66.0	0.11	0.062
			67.5	0.06	0.098

Plot 2 Run 3			Plot 2 Run 4		
time	q	c	time	q	c
2.8		2.263	6.0	2.28	0.469
4.0	1.25	1.345	9.0	2.22	0.430
5.0	1.92	1.144	11.0	2.25	0.418
6.5	2.05	0.992	13.5	2.3	0.379
7.5	2.04	0.651	15.0	2.07	0.368
9.0	2.11	0.844	17.0	2.23	0.464
10.0	2.18	0.793	20.0	2.15	0.429
11.0	2.04	0.724	23.5	2.3	0.450
12.0	2.04	0.639	28.0	2.16	0.210
14.0	2.11	0.475	38.0	2.07	0.208
15.5	2.05	0.616	50.5	1.73	0.351
18.0	2.11	0.493	52.0	0.83	0.442
20.0	2.06	0.066	53.0	0.44	0.405
25.0	2.12	0.343			
30.0	2.11	0.313			
40.5	2.06	0.310			
50.0	2.12	0.256			
57.5	1.77	0.300			
58.5	1.57	0.201			
59.5	0.81	0.117			
60.5	0.46	0.247			
61.5	0.34	0.209			
63.0	0.18	0.182			

The data below are the covered and uncovered sediment transport from the batter plots BIRFIQSS data (table 3.2) for 1 m² for determination of the rainsplash diffusion coefficients used in figure 3.6. Data are in units as above.

Plot 1 Run 1			Plot 1 Run 2			Plot 1 Run 3		
time	q	c	time	q	c	time	q	c
2.5	0.02	1.36	1	0.03	2.30	1	0.04	5.10
3.5	0.04	3.87	2	0.04	4.19	2	0.04	6.76
4.5	0.02	1.78	3	0.04	2.24	3	0.04	2.36
5.5	0.01	0.94	4	0.04	0.97	4	0.04	2.79
6.5	0.04	0.97	5	0.03	0.37	5	0.05	1.92
7.5	0.02	0.78	6	0.02	2.38	6	0.04	4.30
8.5	0.02	0.69	7	0.03	2.16	8	0.04	5.54
9.5	0.02	0.38	8	0.04	2.35	10	0.04	3.86
10.5	0.02	0.99	9	0.04	1.26	12	0.03	3.42
11.5	0.06	0.34	11	0.03	1.68	14	0.08	3.67
12.5	0.04	1.68	13	0.05	3.21	20	0.03	2.63
14.5	0.04	0.85	15	0.04	0.84	25	0.04	3.14
16.5	0.04	1.04	17	0.04	1.48	30	0.08	2.30
18.5	0.05	1.05	19	0.04	0.72	35	0.04	2.21
20	0.03	0.93	20.5	0.04	1.49	40	0.05	1.58
25	0.01	0.68	25.5	0.04	0.87	50	0.07	3.75
30	0.02	0.84	30.5	0.04	1.64	60	0.05	3.14
35	0.03	0.60	40.5	0.02	0.15	60.3	0.02	0.59
40	0.03	0.97				61.3	0.01	2.09
50	0.03	0.57				62.3	0.00	5.32
60	0.02	0.49						
61	0.01	0.85						
62	0.01	0.20						

Plot 1 Run 4			Plot 1 Run 5		
time	q	c	time	q	c
1	0.04	5.10	0.5	0.08	3.11
2	0.04	6.76	1	0.09	2.28
3	0.04	2.36	2	0.09	2.08
4	0.04	2.79	3	0.10	3.27
5	0.05	1.92	4	0.08	2.97
6	0.04	4.30	5	0.07	2.83
8	0.04	5.54	6	0.09	4.19
10	0.04	3.86	7	0.08	2.24
12	0.03	3.42	8	0.07	2.39

time	q	c	time	q	c
14	0.08	3.67	10	0.09	3.52
20	0.03	2.63	12	0.04	0.40
25	0.04	3.14	14	0.04	0.74
30	0.08	2.30	16	0.03	3.79
35	0.04	2.21	18	0.02	0.31
40	0.05	1.58	20	0.05	1.63
50	0.07	3.75	25	0.01	0.00
60	0.05	3.14	30	0.01	0.29
60.3	0.02	0.59	30.5	0.00	0.00
61.3	0.01	2.09	40	0.05	2.52
62.3	0.00	5.32	50	0.02	5.64
			60	0.07	1.61
			60.5	0.02	3.16
			61	0.01	0.00

Plot 2 Run 1			Plot 2 Run 2			Plot 2 Run 3		
time	q	c	time	q	c	time	q	c
7	0.01	3.76	4.5	0.02	0.75	1.5	0.04	0.40
8	0.01	0.25	5.5	0.04	0.42	2.5	0.04	0.24
9	0.01	0.20	6.5	0.03	0.25	3.5	0.04	0.03
10	0.01	0.26	7.5	0.02	0.33	4.5	0.04	0.08
11	0.01	0.35	8.5	0.02	0.25	5.5	0.04	0.22
12	0.01	0.58	9.5	0.02	0.35	6.5	0.04	0.09
15	0.01	0.05	10.5	0.03	0.23	8.5	0.04	0.00
17	0.01	0.12	11.5	0.02	0.29	10.5	0.04	0.31
19	0.01	0.01	12.5	0.04	0.25	12.5	0.05	0.02
20.5	0.01	0.57	14.5	0.03	0.24	14.5	0.05	0.21
25.5	0.02	0.32	16.5	0.03	0.22	20.5	0.06	0.00
30.5	0.02	0.05	18.5	0.05	0.26	25.5	0.05	0.06
35.5	0.02	0.36	25	0.03	0.15	30.5	0.05	0.00
40.5	0.02	0.06	30	0.02	0.09	35.5	0.08	0.00
50.5	0.005	0.34	40	0.01	0.61	40.5	0.06	0.00
62.5	0.003	0.02	43	0.01	0.37	50.5	0.04	0.00
63.5	0.001	0.50	44	0.00	0.10	60.5	0.03	0.00

Plot 2 Run 4			Plot 2 Run 5		
time	q	c	time	q	c
1.5	0.06	0.49	1	0.09	0.41
2.5	0.06	0.15	2	0.15	0.00
3.5	0.07	0.22	3	0.12	0.09
4.5	0.04	0.03	4	0.12	0.12
5.5	0.04	0.00	5	0.15	0.16
6.5	0.07	0.01	6	0.12	0.07
7.5	0.04	0.08	7	0.09	0.07
8.5	0.04	0.21	8	0.11	0.03
10.5	0.04	0.12	9	0.05	0.77
12.5	0.01	0.00	10	0.09	0.22
14.5	0.02	0.00	11	0.11	0.21
16.5	0.03	0.00	12.5	0.12	0.17
18.5	0.01	0.00	14.5	0.16	0.14
20.5	0.01	0.00	16.5	0.16	0.02
25.5	0.003	0.00	20.5	0.09	0.00
30.5	0.002	0.00	25.5	0.05	0.25
30.5	0.12	0.36			
35.5	0.07	0.33			
40.5	0.06	0.29			
50.5	0.04	0.07			
60.25	0.05	0.00			
60.75	0.03	0.11			
61.25	0.01	0.00			