Nat. Hazards Earth Syst. Sci., 12, 393–394, 2012
www.nat-hazards-earth-syst-sci.net/12/393/2012/
doi:10.5194/nhess-12-393-2012

Natural Hazards and Earth System Sciences

Corrigendum to

"Regional-scale analysis of lake outburst hazards in the southwestern Pamir, Tajikistan, based on remote sensing and GIS" published in Nat. Hazards Earth Syst. Sci., 11, 1447–1462, 2011

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The exponent of the equation in line Q9 of Table 6 of the article is incorrect, the correct equation would be:

$Q_p = 46\left(10^{-6}V\right)^{0.66}$.

The correct equation was applied for the model simulations, however, the example given in Table 6 for the Dasht 2002 event was computed with the incorrect equation. The correct value would be $22\,m^3\,s^{-1}$. The corrected version of Table 6 and the corresponding caption are given below. Besides the corrections mentioned above, the validity of each empirical relationship and of the examples chosen is presented more clearly than in the original article.

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Table 6. Empirical equations relating peak discharge Q_p to outburst volume V and lake depth resp. dam height D. ρ_w = density of water (kg m^{-3}), g = gravity (m s^{-2}). The relationships Q1 to Q7 were developed for landslide dams, Q8 is valid for moraine dams and Q9 for the subglacial drainage of ice-dammed lakes. The examples refer to the computed peak discharges of the Dasht event 2002 (lake area: 37 000 m^2) and a hypothetic complete drainage of Rivakkul (1.2 km^2). Values in brackets refer to drainage modes not relevant for the respective lake and are shown for comparison only.

	Equation for Q_p (m^3 s−1)	Reference	Example Q_p Dasht 2002	Example Q_p Rivakkul
Q1	$672\left(10^{-6}V\right)^{0.56}$	Costa (1985)	(354 m^3 s^{-1})	5562 m^3 s^{-1}
Q2	$6.3D^{1.59}$		(194 m^3 s^{-1})	1955 m^3 s^{-1}
Q3	$181\left(10^{-6}V \cdot D\right)^{0.43}$		(280 m^3 s^{-1})	4329 m^3 s^{-1}
Q4	$1.58 \cdot 10^{-2}(\rho_W \cdot g \cdot V \cdot D)^{0.41}$	Costa and Schuster (1988)	(299 m^3 s^{-1})	4072 m^3 s^{-1}
Q5	$1.6V^{0.46}$	Walder and O'Connor (1997)	(544 m^3 s^{-1})	5225 m^3 s^{-1}
Q6	$6.7D^{1.73}$		(278 m^3 s^{-1})	3446 m^3 s^{-1}
Q7	$9.9 \cdot 10^{-1}(V \cdot D)^{0.40}$		(373 m^3 s^{-1})	4766 m^3 s^{-1}
Q8	$2V/t$	Huggel et al. (2002)	(638 m^3 s^{-1})	(87 124 m^3 s^{-1})
Q9	$46\left(10^{-6}V\right)^{0.66}$	Walder and Costa (1996)	22 m^3 s^{-1}	(555 m^3 s^{-1})