

Proceedings of the International Conference

DEBRIS FLOWS: Disasters, Risk, Forecast, Protection

Pyatigorsk, Russia, 22-29 September 2008



Edited by
S.S. Chernomorets

Sevkavgirovodkhoz Institute
Pyatigorsk 2008

МД 551.311.8
Д 26.823

Селевые потоки: катастрофы, риск, прогноз, защита. Материалы Международной конференции, 22-29 сентября 2008 г. – Изд. под редакцией К.К. Черноморца. – Издательство «Кавказпресс», 2008, 396 к.

Debris Flows: Disasters, Risk, Forecast, Protection. Proceedings of the International Conference. Pyatigorsk, Russia, 22-29 September 2008. – Ed. by S.S. Chernomorets. – Pyatigorsk: Sevkavgirovodkhoz Institute, 2008, 396 p.

Редактор: К.К. Черноморец
Edited by S.S. Chernomorets

Английские версии абстрактов: Д. Маттар и О. Тутубалина
English versions of abstracts edited by K. Mattar and O. Tutubalina

Логотип конференции основан на рисунке из книги К.Ф. Флейшмана «Катастрофы селевых потоков» (Москва: Географгиз, 1951, с. 51).

Conference logo is based on a figure from S.M. Fleishman's book on Debris Flows (Moscow: Geografiz, 1951, p. 51).

ISBN 978-5-91266-010-8

© Кавказский институт
© Издательство «Кавказпресс»

© Debris Flow Association
© Sevkavgirovodkhoz Institute



Гидрометеорологические условия периодов массового селеобразования на о. Сахалин

Ю.В. Генсировский, Н.А. Казаков, С.В. Рыбальченко

Дальневосточный геологический институт ДВО РАН, Сахалинский филиал, лаборатория лавинных и селевых процессов, Южно-Сахалинск, Россия

Hydrometeorological conditions of the periods of mass debris-flow occurrence on Sakhalin Island

Y.V. Gensirovskiy, N.A. Kazakov, S.V. Rybalchenko

Far East Geological Institute of Far East Branch of Russian Academy of Sciences, Sakhalin Department, Laboratory of Avalanches & Debris-Flows Processes, Yuzhno-Sakhalinsk, Russia

JZkkfZljbZ_lky ēbygb fZdkbfZevguo agZq_gbc ūZfbo bdbo hkZdh gZ ijhp_kk nhjfbjhZgby ijjbhh fZkhh]h k_e]h]ZahZgby gZhkljh KZoZebg

We examine the influence of the maximum values of liquid precipitation on the process of the formation of periods of mass debris-flows occurrence on Sakhalin Island.

1 Введение

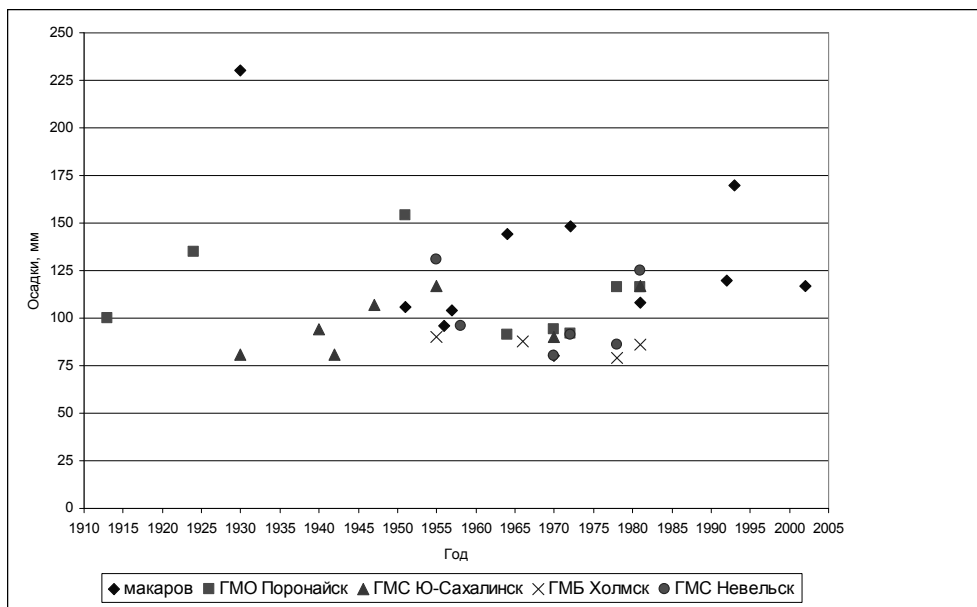
g[etbf nZdlhjh] , hijeyxsbf bglgkbghklv jZablby k_e]uo ijhp_k- kh gbadh]hjv h KZoZebgZyey_lky dhebq_klh b bglgkbghklv hkZdh ūZZx - sbogZljjblh]bb . <hijhkm ēbygby bdbo hkZdh gZnhjfbjhZgb k_e]c]gbadh-]hjv KZoZebgZue ihkys_g jy jZ]hl (imZjbg b] , 1987;]jh , 1989; DZaZdh]b mdhZ, 1988, 1990). HgZdh , fū ijb]bZ_fky a]eyZ , hjZggh] jZ]hlZo (DZ aZdh]b Fbg]bg, 2000; DZaZdh b]gkbhjhkdbc , 2007),]]bjhf]h jheh]bq_kdb nZdlhju k_e]h]ZahZgby jZkkfZljbZlky dZdihqbg_ggu , Z]eZgklmxsmx jhev b]jZxl nZdlhju]heh]bq_kdb

2 Рассмотрение проблемы

fhknjgu hkZdb, ūZZxsb gZljjblh]bb hkljhZ , yeylky jamevlZlhf Zdlbgc pbdehgbq_kdhc yl]evghklb. hhu kmffu hkZdh gbsZo hebg b gZ fhjkdhf ih]jv xguo jZchgZo dhe]exlky ij_eZo 800-1100 ff(]hjZo kj_gb agZq_gbykmff ūZfbo hkZdh aZbkbfhklb hl ūklghc ahgu khklZeyxl 1500-2000 ff b hl]evgu]hu fh]ml ij_uzlv 3000 ff). Wlhohjhrh bgh gZ kjZgb]evghf]jZnbd fgh]he]lg]h ohZ hkZdh, ijb]ggh] gZjbk. 1.

< l]euc ijjbhh ūZZ] 65-80%]hhc ghjfu . Kmffu hkZdh ih Zgguf]bjhf]h]heh]bq_kdbc klZgpbc (FK) ih]gpZevgh k_e]hiZkguc ijjbhh (bxgv- hdly]jv) kj_gf khklZeyxl 300-600 ff, fZdkbfmf hklb]Zy 1100 ff . GZh hlf - lblv ke]mxs , qlh ihZeyxZy qZklvgZ]exZ]evghc k]b]Jhk]bjhf]IZ jZkiheh- g Zhev ih]jbc, eb]h gbsZo j_qguo hebg hkljhZ . < LZ]ebp l ijbh]lky ijhp]lg] khhlghr]gb jZkij_e]gby FK b]bjheh]bq_kdbo ihklh (E) ih ūkh - lZf gZljjblh]bb hkljhZ (gkbhjhkdbc bDZaZdh, 2007).

< mkehbyo dh]Z , ¼ ljjblh]bb aZgy]h]hjZfb, kZ[khexlgufb hlf]ldZfb 350-1600 f. bkihevahZgb lhev]h Zgguo h]hkZdZo, ihemq_gguo gZFK, ijbhh d]g- hm q]m]iZjZf]ljh]bjhf]h]heh]bq_kdbo ye]gbc , Zggu bo gZ]ex]gbc g]fh]ml bkihevahZlvky ey khklZe]gby k_e]h]h ijh]ghaZ.



Jbk2. Kmlhquu fZdkbfmfu hkZdh hl hy ih =FK k_e_hiZkguo jZchgZo aZi_jbh 1913-2003]]

Pbdehg, ijhfbc gZ_[]jblhjb KZoZebgdhch[eZklb 18-19.09.1970 hoZlbe [hevrnx []jblhjbx hkljhZ . Kmlhquu fZdkbfmfu hkZdh khklZbeb []ZchgZo k_e_hjZahZgby : =FK FZdZjh - 80 ff, =FK G_[]evkd - 80 ff, []hjZo x]Z (kg_[]heZbggZy kIZgpby []jZe, Z[k ukhIZ 300 f) aZ 12 qZkh_[]Zeh 121 ff. <uiZ_[]gb_ lZdh]h dhebq_klZ hkZdh_[]jbe_ d fZkhhfm k_e_hjZahZgby []G_[]evkdhf, Ohef-kdhf, FZdZjhkdhf jZchgZo KZoZebgdhc h[eZklb.

Ke_mxsbc jZkklZjZb_[]fuc_ []jbh_[]k_glyjiv-hdlyjiv 1972]hZ, dh]Z ijhoh_[]gb_ jyZ pbdegh_[]jbe_ d uiZ_[]gbx agZqbl_[]evgh]h dhebq_klZ hkZdh, m_[]eZg_[]gbx []jblhjb b_[]aZeh fZkktuc koh_[]k_e_c_[]ur_gZaZgguo jZchgZo. Km lhquu fZdkbfmfu hkZdh khklZbeb : =FK FZdZjh - 148 ff, =FK G_[]evkd - 91 ff, =FK Xgh- KZoZebgd - 68 ff (aZ9 qZkh). < []hjZo x]Z (kg_[]heZbggZy kIZgpby []jZe) aZ 12qZkh_[]Zeh 121 ff.

?s_[] hb_[] ijbh_[] fZkhh]h nhjfbjhZgby k_e_c_ hoZlbfbc [hevrnx qZklv hkljhZ - Z]mk_[] 1978]hZ . Kmlhquu fZdkbfmfu dhe_[]Zebkv_h] 76 ff(]bh]f_[]_[]hjh - eh]bq_kdh_[] [xjh Ohefkd) h 116 ff (]bh]f_[]_[]hjh]bq_kdZy h[k_j]l]h]by]hjh - gZckd), []hjZo hkljhZ bg_[]gkgbhklv hkZdh_[] [ueZ [s_[] ur_[] (kg_[]heZbggZy kIZgpby []jZe) - 40 ff aZ 3 qZkZjZb ij_hoh_[]gbb lZcnmgh_[]«Hbg_[] » b_[]«Nbeebk_[]» 2-7 Z]m-klZ 1981] kmffZ hkZdh_[] gZ_[]FK «Xgh_[] -KZoZebgd (Z[k ukhIZ 22 f) khklZbeZ 220 ff. AZlh_[] [] ijbh_[] []KmkmgZckdhfj_[]_[] ih Zgguf kmffZjguo hkZdhf_[]jh_[] []bg_[]_[]jZe_[] Z[khexlguo hlf_[]lhd h] 400 h 600 f kmffu hkZdh_[] khklZbeb [he_[] 1200 ff.

<h k_o ur_[]_[]j_[]qbk_e_gguo []jbhZo k_e_hjZahZgby, uiZrb_[] hkZdb h[m-keZebZeb Zdlbgh_[] h]ZahZgb_[] k_e_uo ihlhdh_[].

HgZdh g_[]k_[]Z_[] uiZ_[]gb_[] agZqbl_[]evgh]h dhebq_klZ hkZdh_[] ijhb] d fZk- khfm kohm k_e_c_ LZd, []k_glyjiv 1982]hZ, ij_[] ijhoh_[]gbb pbdehgZ kmlhagh_[]dh- ebq_kl] hkZdh_[] ih =FK FZdZjh_[] khklZbeh 124 ff. JZkoh_[] hu ih j_FZdZjh_[] kh- klZbe 850 f³/k Zgguc jZkoh_[] ih kh_c_ [ebqbg_[], yey_[]lky]h]uf aZkv_[] ijbh_[] gZ_[] [ex_[]gbc b mklmiz_[]lhvdh dZlZkljhnbq_kdhfm jZkohm hu 1722 f³/k (Z]mk_[] 1981]hZ). Gh fZkhh]h k_e_nhjfbjhZgby []jchg_[] hlf_[]q_[]gh g_[] [ueh . Wlh h[mkehe_[]gh []f, qlh]h]f jZg_[], ihke_[] ijhoh_[]gby lZcnmgZ«Nbeebk_[]», khf_[]rb_[] k_e_uo ihlh- db iheghklvx hqbk]beb k_e_uo hqZ]b h] ihl_[]gpZevguo k_e_uo fZkhh_[] gZdhie_[]gby. Lh_[]klv hklmklhZeh h]yaZl_[]evgh_[]mkeh] kohZ k_e_c_ []gbadh]h]v_[] h KZoZebgZ - djblbq_kdbc h]f_[]f fZl_[]jZeZ []k_e_uo hqZ]Zo.



Ж[б]к[д] 3. К[е]т[у] ил[д]б[и] г[ы]ы ил[д]с[б]г[а]с[б] и 2,5 ф[т] ([З]к[к] [с]г[а] ж[а] ж[а]Л[д]З). Н[л]л[д] Л[ж]м[р] [] [].

3 Заключение

1. К[м]ф[ф]у к[З]д[д] [] П[г]л[ж]З[е]в[г]уо б[] X[г]уо j[З]ч[г]З[о] К[З]о[З]е[б]г[З] ([] х[е]б[г]З[о] б[] г[З] ф[ж]к[д]б[о] ил[] [] [] []) [] ил[] [] [] [] [] к[е]т[у] ил[д]с[б]г[а]с[б] ил[] [] [] (б[] x[] g[] v[] - h[] d[] l[] y[] j[] v[]) [] к[] j[] [] [] [] f[] k[] h[] k[] l[] Z[] e[] y[] x[] 300-600 ф[т], [] f[] Z[] d[] k[] b[] f[] m[] f[] h[] k[] l[] b[] j[] Z[] y[] 1100 ф[т] [] [] j[] h[] g[] u[] o[] q[] Z[] k[] l[] y[] o[] h[] k[] l[] j[] h[] Z[] a[] Z[] y[] e[] g[] b[] f[] h[] [] [] u[] i[] Z[] k[] l[] v[] ([] a[] Z[] b[] k[] b[] f[] h[] k[] l[] b[] h[] u[] k[] h[] l[] u[] f[] k[] l[] Z[]) [] h[] e[] [] [] 1200 ф[т] h[] k[] Z[] d[] h[] [] .
2. [] [] j[] h[] Z[] o[] h[] k[] l[] j[] h[] Z[] b[] g[] l[] g[] k[] b[] g[] h[] k[] l[] v[] h[] k[] Z[] d[] h[] [] f[] h[] [] [] k[] h[] k[] l[] Z[] e[] y[] l[] v[] [] h[] e[] [] [] 40 ф[т] / q[] l[] j[] b[] i[] j[] h[] o[] h[] [] g[] b[] b[] l[] Z[] c[] n[] m[] g[] h[] j[] Z[] a[] g[] b[] p[] Z[] f[] [] m[] h[] k[] Z[] d[] Z[] f[] b[] , h[] l[] f[] [] q[] Z[] [] f[] u[] f[] b[] a[] Z[] y[] e[] g[] b[] [] [] i[] j[] b[] j[] [] [] [] - g[] h[] c[] , h[] e[] b[] g[] g[] h[] c[] q[] Z[] k[] l[] y[] o[] h[] k[] l[] j[] h[] Z[] b[] h[] k[] Z[] d[] Z[] f[] b[] [] [] j[] h[] Z[] o[] f[] h[] [] [] k[] h[] k[] l[] Z[] e[] y[] l[] v[] 1000 ф[т] a[] Z[] y[] e[] [] [] - g[] b[] [] [] .
3. К[е]т[у] ил[д]с[б]г[а]с[б] Z[] y[] k[] m[] f[] f[] Z[] h[] k[] Z[] d[] h[] [] g[] Z[] h[] k[] l[] j[] h[] [] K[З]о[З]е[б]г[и] j[] [] [] [] [] [] 50 ф[т] i[] j[] b[] b[] g[] - l[] [] g[] k[] b[] g[] h[] k[] l[] b[] h[] k[] Z[] d[] h[] [] 20-50 ф[т] / k[] m[] l[] d[] b[] .
4. [] e[] y[] f[] Z[] k[] k[] h[] h[] j[] h[] k[] e[] t[у] ил[д]с[б]г[а]с[б] j[] h[] Z[] g[] b[] y[] g[] h[] [] o[] h[] b[] f[] h[] g[] Z[] d[] h[] e[] g[] b[] [] [] k[] e[] t[у] ил[д]с[б]г[а]с[б] h[] q[] Z[] j[] Z[] o[] d[] j[] b[] l[] b[] q[] [] k[] d[] h[] j[] h[] h[] [] [] [] f[] Z[] i[] h[] l[] [] g[] p[] b[] Z[] e[] v[] g[] h[] j[] h[] k[] e[] t[у] ил[д]с[б]г[а]с[б] f[] Z[] k[] k[] b[] Z[] i[] l[] e[] s[] b[] g[] h[] c[] 0,5-1,0 ф[т] .

Список литературы

m[] b[] g[] Z[] H. B., [] j[] h[] [] [] N., K[] b[] h[] j[] h[] Z[] L. E. К[е]т[у] ил[д]с[б]г[а]с[б] y[] e[] g[] b[] y[] и K[З]о[З]е[б]г[и] - [] [] k[] l[] g[] b[] d[] F[] h[] k[] d[] h[] k[] d[] h[] j[] h[] m[] g[] l[] Z[] , k[] j[] . 5, [] h[] j[] Z[] n[] b[] y[] , [] 3, 1987, k[] 76-81.

[] g[] k[] b[] h[] j[] h[] k[] d[] b[] c[] X. [] ., D[] Z[] a[] Z[] d[] h[] G. [] . G[] [] h[] m[] q[] [] h[] k[] Z[] d[] h[] [] [] g[] b[] a[] d[] h[] j[] h[] v[] [] h[] K[З]о[З]е[б]г[и] d[] d[] i[] j[] b[] q[] b[] g[] Z[] a[] Z[] g[] b[] y[] j[] Z[] k[] q[] l[] g[] u[] o[] i[] Z[] j[] f[] [] j[] h[] [] k[] h[] j[] m[] [] g[] b[] c[] i[] j[] b[] i[] j[] h[] d[] l[] b[] j[] h[] Z[] g[] b[] b[] b[] k[] l[] j[] h[] b[] l[] [] e[] v[] k[] l[] [] - [] [] h[] - j[] b[] k[] d[] , [] 1, 2007, k[] 58-60.

D[] Z[] a[] Z[] d[] h[] G. [] ., [] g[] k[] b[] h[] j[] h[] k[] d[] b[] c[] X. [] ., D[] Z[] I[] Z[] k[] l[] j[] h[] n[] b[] q[] [] k[] d[] b[] [] k[] e[] t[у] ил[д]с[б]г[а]с[б] [] g[] b[] a[] d[] h[] j[] h[] v[] [] h[] K[З]о[З]е[б]г[и] b[] b[] o[] h[] i[] Z[] k[] g[] h[] k[] l[] v[] e[] y[] f[] Z[] [] b[] k[] l[] j[] h[] Z[] e[] v[] g[] u[] o[] l[] j[] m[] [] h[] i[] j[] h[] h[] h[] [] (g[] Z[] i[] j[] b[] f[] j[] [] « K[З]о[З]е[б]г[и] 2 ») . - I[] j[] h[] [] e[] t[у] ил[д]с[б]г[а]с[б] i[] j[] h[] j[] g[] h[] a[] b[] j[] h[] Z[] g[] b[] y[] q[] [] a[] u[] q[] Z[] c[] g[] u[] o[] k[] b[] l[] m[] Z[] p[] b[] c[] K[] [] h[] j[] g[] b[] d[] f[] Z[] [] j[] b[] Z[] e[] h[] [] VII g[] Z[] m[] q[] g[] h[] i[] j[] Z[] d[] l[] b[] q[] [] k[] d[] h[] c[] d[] h[] g[] n[] [] j[] [] g[] p[] b[] b[] . F[] h[] k[] d[] Z[] : « [] g[] b[] k[] l[] b[] o[] b[] y[] » , 2007, k[] 34-35.

D[] Z[] a[] Z[] d[] h[] G. [] ., [] d[] h[] Z[] A. B. J[] Z[] c[] h[] g[] b[] j[] h[] Z[] g[] b[] [] h[] K[З]о[З]е[б]г[и] h[] k[] l[] i[] [] g[] b[] i[] j[] h[] y[] e[] g[] b[] y[] k[] e[] t[у] ил[д]с[б]г[а]с[б] [] y[] l[] [] e[] v[] - g[] h[] k[] l[] b[] - L[] j[] m[] u[] [] e[] b[] j[] h[] f[] l[] p[] [] g[] l[] j[] Z[] K[З]о[З]е[б]г[и] k[] d[] h[] M[] F[] K[] . J[] [] b[] h[] g[] Z[] e[] v[] g[] u[] b[] k[] k[] e[] h[] Z[] g[] b[] y[] . X[] g[] h[] - K[З]о[З]е[б]г[и] k[] d[] , 1988, k[] 131-137.

D[] Z[] a[] Z[] d[] h[] G. [] ., [] d[] h[] Z[] A. B. M[] k[] e[] h[] b[] y[] n[] h[] j[] b[] j[] h[] Z[] g[] b[] y[] k[] e[] t[у] ил[д]с[б]г[а]с[б] i[] Z[] h[] d[] h[] [] [] f[] Z[] e[] u[] o[] h[] l[] h[] d[] Z[] o[] . - I[] j[] b[] - j[] h[] g[] u[] o[] d[] Z[] I[] Z[] k[] l[] j[] h[] n[] u[] b[] k[] l[] b[] o[] b[] c[] g[] u[] [] [] k[] l[] b[] y[] [] [] [] Z[] e[] v[] g[] h[] k[] l[] q[] g[] h[] f[] j[] [] b[] h[] g[] [] , [] 2, « Z[] b[] h[] k[] l[] h[] d[] : [] [] H[] i[] G[] K[] K[] K[] J[] » 1990, k[] 394-400.

D[] Z[] a[] Z[] d[] h[] G. [] ., F[] b[] g[] [] j[] b[] B. [] K[е]т[у] ил[д]с[б]г[а]с[б] i[] j[] h[] p[] [] k[] k[] u[] g[] Z[] h[] K[З]о[З]е[б]г[и] - i[] j[] b[] d[] e[] Z[] g[] Z[] y[] [] [] h[] w[] d[] h[] e[] h[] j[] b[] y[] , q[] [] a[] - u[] q[] Z[] c[] g[] u[] o[] k[] b[] l[] m[] Z[] p[] b[] b[] a[] f[] e[] v[] g[] u[] c[] d[] Z[] k[] l[] j[] . [] u[] i[] . 4, F[] h[] k[] d[] Z[] : I[] h[] e[] l[] [] d[] k[] , 2000, k[] 35-38.

[] j[] h[] [] [] N. К[е]т[у] ил[д]с[б]г[а]с[б] y[] e[] g[] b[] y[] g[] Z[] [] j[] b[] l[] j[] b[] b[] K[] K[] K[] J[] . F[] h[] k[] d[] Z[] : « B[] G[] B[] L[] B[] » , 1989, 148 k[]