L E G E N D

Eon: PHANEROZOIC

Era: CENOZOIC

Period: QUATERNARY

Epoch (subperiod): HOLOCENE

Horizon: Olevsky

- αQ_IV ol — Alluvial deposits – pebble beds with sand, clay and ice, silty clay with sand, sand and sandy loam mixed with small pebble and gravel (up to 10 m)
- pQ_IV ol — Proluvial deposits – rock debris with inclusions of boulders, gruss and loam, mixed with sand and pebble (up to 10 m); alluvial deposits (a) – pebble beds with sand, clay and ice, silty clay with sand, sand and sandy loam mixed with small pebble and gravel (up to 10 m)
- tQ_IV^2 — Upper Holocene. Man-made formations of dumps, quarries, and reclaimed areas – lumps, rock debris, pebble, boulder-pebble-gravel mixtures (up to 30 m)
- αQ_IV ol — Alluvial deposits – pebble beds with sand, clay and ice, silty clay with sand, sand and sandy loam mixed with small pebble and gritstone (up to 10 m)
- αQ_IV ol^2 — Alluvium of the riverbed and floodplain, sometimes of terraces above flood-plain – gravel-pebble deposits with loamy-sand aggregate, pebble beds with boulders (up to 15 m)
- pQ_IV ol — Proluvial deposits – rock debris with inclusions of boulders, gruss and loam mixed with sand and pebble material (up to 10 m); alluvial deposits – (a) pebble beds with sand, clay and ice, silty clay with sand, sand and sandy loam mixed with small pebble and gravel (up to 10 m)

Horizon: Khetakagchan

- α,pQ_III — Alluvial and proluvial deposits – pebble beds with boulders, gravel and rock debris, inequigranular sand, silt (up to 20 m); glaciofluvial deposits of depressions, terraces and altiplanation terraces (f) – pebble, gravel rock and sand with lenses of loam and peat-silty rocks (up to 15 m)
- α,pQ_III-H — Alluvial and proluvial deposits – pebble beds with rock debris, sand, gruss, gravel, loam (up to 10 m)
- αQ_III — Alluvium of terraces above floodplain of small rivers – pebble beds with boulders, sand, sandy loam, loam (up to 20 m)
- αQ_III ht — Alluvial deposits – pebble beds with boulders, sand often mixed with pebble and gravel, loam, sandy loam (up to 15 m); alluvium of the second terrace rising above the floodplain (a^3) – pebble, sand, silt, sandy loam, loam, plant remains (up to 26 m)
- αQ_III kb — Alluvial deposits – pebble beds with gravel, boulders, sand, sandy loam, loam; silt and clay lenses, (up to 60 m)
- fQ_III g — Glaciofluvial deposits – pebble beds, gravel rock, sand; sandy loam lenses (up to 35 m); glacial deposits (g) – lumpy boulders, pebble beds, sand, loam (up to 100 m)
- αQ_III vč — Alluvial deposits – pebble beds with boulders, gravel, inequigranular sand, silt, sand with gravel, loam, sandy loam, clay (up to 60 m)
- αQ_III g — Alluvial deposits – sand with gravel, pebble, silt (up to 20 m); glacial deposits (g) lumpy cobble stone, pebble beds, sand, loam (up to 100 m); glaciofluvial deposits (f) – pebble beds, gravel rock, sand; sandy loam lenses (up to 35 m); glaciofluvial and glacial deposits (f, g) – pebble beds, cobble roundstone, sand, rock debris, gravel rock, loam, sandy loam, lumpy rock (up to 40 m); lacustrine-glacial deposits (lg) – clay, loam, sand (up to 27 m)

Horizon: Kubalakh

- a^2Q_{II}ht — Alluvium of the second terrace above floodplain – pebble beds, sand, silt, sandy loam, loam, plant remains (up to 26 m); glacial deposits (g) – cobble roundstone, pebble beds, lumpy and sandy-detrital rock blocks, gruss rock, loam (up to 15 m); glaciofluvial deposits (f) – pebble beds, cobble roundstone, rock debris, sand, gravel rock, sandy loam (up to 15 m)
- αQ_II ht — Alluvial deposits – pebble beds with boulders, sand often mixed with pebble and gravel, loam, sandy loam (up to 15 m); alluvium of the second terrace above floodplain (a^3) – pebble beds, sand, silt, sandy loam, loam, plant remains (up to 26 m); glaciofluvial deposits (f) – pebble beds, cobble roundstone, rock debris, sand, gravel rock, sandy loam (up to 15 m)
- αQ_II ht — Alluvial deposits – pebble beds with boulders, sand often mixed with pebble and gravel, loam, sandy loam (up to 15 m); glacial deposits (g) – cobble roundstone, pebble beds, lumpy and sandy-detrital rock blocks, gruss, loam (up to 15 m)
- lαQ_II kb — Lacustrine-alluvial deposits – sand, pebble beds, gravel rock, sandy loam (up to 7 m)
- αQ_II kb — Alluvial deposits – pebble beds with gravel, boulders, sand, sandy loam, loam; silt and clay lenses (up to 60 m); lacustrine-alluvial deposits (la) – sand, pebble beds, gravel rock, sandy loam (up to 7 m)
- αQ_II g+kb — Alluvial deposits – pebble beds, sand, sandy loam, loam, silt, peat (up to 50 m)
- lαQ_II g+kb — Lacustrine-alluvial deposits – sand, sandy loam, loam, to a lesser extent pebble beds and gravel rock (up to 35 m)
- αQ_II g — Alluvial deposits – sand with gravel, pebble, silt (up to 20 m); glacial deposits (g) – block boulders, pebble beds, sand, loam (up to 100 m); glaciofluvial deposits (f) – pebble beds, gravel rock, sand; sandy loam lenses (up to 35 m)
- αQ_II g — Alluvial deposits – sand with gravel, pebble, silt (up to 20 m); glacial deposits (g) lumpy cobble stone, pebble beds, sand, loam (up to 100 m); glaciofluvial deposits (f) – pebble beds, gravel rock, sand; sandy loam lenses (up to 35 m); glaciofluvial and glacial deposits (f, g) – pebble beds, cobble roundstone, sand, rock debris, gravel rock, loam, sandy loam, lumpy rock (up to 40 m); lacustrine-glacial deposits (lg) – clay, loam, sand (up to 27 m)
- αQ_II — Alluvial deposits – pebble beds, sand, loam and clay with pebble and rock debris (up to 10 m)

Horizon: Yuglersky

- gQ_III g — Glacial deposits – lumpy boulder rock, pebble, sand, loam (up to 100 m)

Horizon: Vecheminsky

- gQ_II-III — Glacial boulder – pebble deposits with sand-clay aggregate, with lenses of sand and fossil ice (up to 60 m)
- αQ_II — Alluvial deposits – pebble beds, sand, loam and clay with pebble and rock debris (up to 10 m)

Horizon: Poludensky

- αQ_II pl — Alluvial deposits – pebble beds, sandy loam, sand, loam with rock debris inclusions (up to 80 m)

Horizon: Bilichan

- αQ_E — Alluvial deposits – pebble beds with boulders, rarely igneous rock with gravel-sandy and sandy-clayey aggregate and loam interlayers (5.5 m)

Horizon: Kutuyakh

- VERKHOYANSK-KOLYMA SFcA [4]
- Yana-Kolyma SFcZ [4.1]
- Dzhelkan SR [4.1.1]
- N_1dl — Delyankirsky Fm. – pebble beds, sand, clay, loam, brown coal (30-50 m)

Horizon: Begunovsky

Horizon: Khapchan

Horizon: Silgensky

Horizon: Ildikilyakh

Horizon: Vukvaam

- Nyutsky-Kuidusun gabbro-granodiorite-granite lateral series of plutonic complexes
  - γK_2nk_3 — Third phase. Granite
- βK_2mg — Mygdykit basalt volcanic complex. Subvolcanic formations are basalt. Basalt dykes
- Nyutsky-Kuidusun gabbro-granodiorite-granite lateral series of plutonic complexes
  - γK_2nk_3 / εγK_2nk_3 — Third phase. Granite; moderately alkaline granite, moderately alkaline leucogranite (εlγ)
  - γδK_2nk_2 — Second phase. Granodiorite, granite (γ)
  - δK_2nk_1 — First phase. Diorite, quartz diorite (qδ)
- K_2kg — Kogarsky dacite volcanic complex. Kogarsky Fm. Rhyolite, andesite and their tuff (250 m)
- K_2nt / αK_2nt / λK_2nt — Nitcansky rhyolite volcanic complex. Nitkansky Fm. Ignimbrite and tuff of rhyolite, rarely rhyodacite and dacite (800–900 m). Subvolcanic formations. Rhyolite, rhyodacite (λζ). Rhyolite dykes
- K_2ul / αK_2ul — Ulynsky andesite volcanic complex. Ulynsky Fm. Andesite, andesite basalt andesite, tuff (500 m). Subvolcanic formations. Andesite.
- K_2ds / αK_2ds — Dyustachansky rhyolite-dacite volcanic complex. Dyustachansky Fm. Rhyolite, dacite, rhyodacite, their tuff and ignimbrite, tuffite, tuff siltstone, tuff sandstone, tuff gritstone, tuff conglomerate (900–1400 m). Subvolcanic formations. Dacite, rhyodacite and rhyolite (λζ)
- K_1av / αK_1av — Avlinsky andesite volcanic complex. Avlinsky Fm. Andesite, andesite basalt, andesite tuff (up to 380 m). Subvolcanic formations. Andesite
- νδK_1o_1 — Okhotinsky gabbro-granodiorite-granite plutonic complex. First phase. Gabbrodiorite, gabbro and gabbronorite
- εγK_2nk / εγK_2nk — Yalokokhchansky alkaline-granite plutonic complex. Alkaline leucogranite, granosyenite
- K_2kn / γλK_2kn — Kunansky trachyrolite volcanic complex. Kunansky rock sequence. Trachyrhyolite, rhyolite, their ignimbrite and tuff, trachydacite (up to 600 m). Subvolcanic formations. Trachyrhyolite, trachydacite (τζ).
- Okhotinsky gabbro-granodiorite-granite plutonic complex
  - γK_1o_3 — Third phase. Granite
  - γδK_1o_2 — Second phase. Granodiorite and quartz diorite; quartz monzonite
  - νδK_1o_1 / δK_1o_1 — First phase. Gabbrodiorite, gabbro and gabbronorite; diorite, diorite-porphyrite, quartz diorite (qδ)
- K_1hd / αK_1hd — Kheidzhansky rhyolite-dacite volcanic complex. Kheidzhansky rock sequence. Tuff, ignimbrite, lava dacite, rhyodacite, rhyolite, tuff sandstone, tuff conglomerate, tuffite (over 780 m). Subvolcanic formations. Dacite, rhyolite (λ), rhyodacite (λζ)
- K_1ub / αK_1ub — Ulberikansky andesite volcanic complex. Ulberikansky Fm. Andesite, andesite basalt, dacite andesite, their tuff and lava breccia, tuff conglomerate, tuff sandstone; carbonaceous siltstone and mudstone lenses, dacite tuff (350–800 m). Subvolcanic formations. Andesite
- J_3og — Ogonersky rock sequence. Tuff sandstone, tuff conglomerate, tuff siltstone, sandstone, siltstone, tuffite, acid tuff (230 m)
- νK_2νk — Verkhnyaya Kolyma monzogabbro-trachydolerite-lamprophyric group of complexes of small hypabyssal intrusions. Dykes of gabbro, moderately alkaline gabbro (εν), trachybasalt and trachydolerite (τβ)
- δK_2nr / γK_2nr / εγK_2nr / qξK_2nr / δπK_2nr / γπK_2nr — Neorchansky granitoid group of plutonic complexes. Diorite, quartz diorite (qδ); granite, granodiorite (γδ); moderately alkaline granite, moderately alkaline leucogranite (εlγ); quartz syenite, quartz monzonite (qω). Dykes of diorite porphyrite; porphyry granite
- γδK_2sp — Severopriokhotsky granitoid group of plutonic complexes. Granodiorite, granite (γ)
- K_2ds / αK_2ds / λζK_2ds — Dyustachansky rhyolite-dacite volcanic complex. Dyustachansky Fm. Rhyolite, dacite, rhyodacite, their tuff and ignimbrite, tuffite, tuff siltstone, tuff sandstone, tuff gritstone, tuff conglomerate (900–1400 m). Subvolcanic formations. Dacite, rhyodacite and rhyolite (λζ)
- K_1av / αK_1av — Avlinsky andesite volcanic complex. Avlinsky Fm. Andesite, andesite basalt, andesite tuff (up to 380 m). Subvolcanic formations. Andesite
- K_2hl / αK_2hl / λK_2hl — Kholchansky dacite-rhyolite volcanic complex. Kholchansky Fm. Rhyodacite, rhyolite, their tuff and ignimbrite, tuffite, tuff siltstone, tuff sandstone, tuff gritstone, tuff breccias (300–1500 m). Subvolcanic formations. Dacite, rhyolite (λ). Rhyolite, rhyodacite dykes (λζ)
- K_1nr / αK_1nr — Narauli andesite volcanic complex. Narauli Fm. Andesite, acid tuff interlayers, tuff sandstone (430–450 m). Subvolcanic formations. Andesite
- K_1ar — Armansky Fm. Sandstone, conglomerate, siltstone, mudstone; tuff of mixed composition in the upper part (up to 1500 m)
- K_1nn — Nankalinsky Fm. Andesite, andesite basalt, andesidacite, tuff of andesite, dacite, rhyolite, ignimbrite, rhyolite (up to 1200 m)
- γδK_1m — Magadan granite-granodiorite plutonic complex. Granodiorite, granite (γ)
- γK_1om — Omchansky granite-leucogranite plutonic complex. Granite, leucogranite (lγ)
- K_1br — Barandzhin rock sequence. Conglomerate, sandstone, siltstone, mudstone, coal seams (1000 m)
- J_3–K_1mm — Momoltykichsky Fm. Andesite, basalt, andesite basalt, dacite, their tuff, tuffite, rhyolite tuff, mudstone, coal seams (100–1000 m)
- δJ_3b / γδJ_3b / γπJ_3b — Basuguninsky diorite-granodiorite plutonic complex. Diorite, quartz diorite (qδ); granodiorite, granite-porphyry (γπ), granodiorite-porphyry (γδπ), granites (γ). Dykes of diorite porphyrites; granite-porphyry, granodiorite-porphyry (γδπ)
- νJ_3n / γδπJ_3n — Nera gabbro-diorite-porphyrite-granodiorite-porphyry hypabyssal complex. Dykes of gabbro, dolerite (β), diorite-porphyrite (δπ), quartz diorite-porphyry (qδπ), spessartite (ι); granodiorite-porphyry, granite-porphyry (γπ)
- J_2–3ig — Igandszhinsky Fm. Sandstone, siltstone, sometimes in rhythmic intercalation, coarse-grained tuff of mixed composition, clay shale (700–800 m)
- J_3ms — Mus-Taryn Fm. Siltstone, mudstone, basalt covers (600–700 m)
- J_2tt — Tatyngychansky Fm. Sandstone, siltstone, conglomerate (800–950 m)
- J_1km — Kobyuminsky Fm. Andesite tuff, tuff sandstone, siltstone (450–550 m)
- EνJ_1km — Kobyuminsky trachypicrodolerite-gabbro hypabyssal complex. Dykes and sills of teschenite, dolerite (β)
- J_1vt — Vitachansky Fm. Sandstone, tuff sandstone, siltstone, mudstone, gritstone interlayers (300 m)
- J_1hl — Khayalakhsky Fm. Siltstone, mudstone, basalt (340–500 m)
- βJ_1km — Kobyuminsky trachypicrodolerite-gabbro hypabyssal complex. Dolerite dykes and sills
- J_1an — Antagandzhinsky series. Clay and silty shale, siltstone, tuffaceous shales, tuffaceous sandstone and gritstone, tuffite, conglomerate (700–2450 m)
- T_3gs — Gusinsky Group. Sandstone, siltstone, rarely gritstone, shell deposits (1100–1200 m)
- T_3tj+ts — Integrated Tyi-Yuryakh and Tirekhtyakh-Salinsky Fms. Intercalation of sandstone, siltstone, mudstone; domination of sandstone at the top (2500–3000 m)
- T_2–3hα+hp — Integrated Kharaapinsky and Khapchagaisky Fms. Sandstone, less often mudstone and siltstone, at the top, conglomerate lenses (1100–1500 m)
- T_1ek+kl — Ekchansky and Kenielichinsky Fms. Mudstone, siltstone, sandstone (1100–1300 m)
- T_1ol — Ollandzhinsky rock sequence. Siltstone, mudstone, sandstone interlayers (330–360 m)
- T_3čr — Chernyaysky Fm. Siltstone, mudstone, sandstone; conglomerate lenses (400 m)
- T_3bt — Byitakhsky Fm. Mudstone, siltstone, sandstone; conglomerate lenses (900 m)
- T_3hn — Khninkensky Group. Siltstone, mudstone, shale, sandstone in coarse and fine interlayering (400–1200 m)
- T_3md — Mandychensky Group. Mudstone, clay and sand-clay shale, siltstone, in the upper part, sandstone (500–2500 m)
- T_2–3ko_2 — Kolyma-Okhotsk Group. Upper subgroups. Siltstone and shales, at the top, there are members of silty and fine-grained sandstone, gritstone and conglomerate lenses, olistolite (1500–2900 m)
- T_1ko_1 — Kolyma-Okhotsk Group. Lower subgroups. Clay, silt-clay shale, mudstone, siltstone and clay siltstone, sandstone interlayers; clay, clay-carbonate, phosphate-clay nodules (700–1900 m)
- T_3čl — Chelomdzha Fm. Siltstone, shale, tuff siltstone, tuff sandstone, shelly lenses (600-650 m)
- P_3kl — Kulinsky Fm. Sandstone, calcareous sandstone, siltstone, mudstone, gritstone, conglomerate (500–1000 m)
- P_3nr — Neryuchinsky Fm. Mudstone, siltstone, sandy siltstone, silty and fine-grained sandstone, tuff gritstone (200–800 m)
- P_3at — Atkansky Fm. Diamictites, siltstone, sandstone, tuff, gritstone, conglomerate (350–1100 m)
- P_3ts — Tassky Fm. Siltstone, silty and fine-grained sandstone, tuff siltstone, tuffite (2200–2500 m)
- P_3čm+im — Integrated Chambinskaya and Imtachanskaya Fms. Sandstone, siltstone, interlayers and lenses of gritstone, conglomerate, tuffite, tuff sandstone, tuff siltstone (1000–1800 m)
- P_3ds — Duskanyinsky rock sequence. Sandstone; tuff sandstone, siltstone, gritstone, tuffite interlayers (1400 m)
- P_2–3mn — Menkechensky Fm. Sandstone and siltstone, interlayers and lenses of gritstone, conglomerate, tuff siltstone, tuffite, tuff sandstone (up to 900 m)
- P_1–2nl — Nyulkalinsky Fm. Sandstone, gritstone, conglomerate, siltstone, mudstone, tuffite, carbonaceous mudstone, tuff sandstone, tuff siltstone (500–800 m)
- P_1kh — Kukhtui Fm. Siltstone, tuff siltstone, tuffite, sandstone, carbonaceous mudstone, gritstone interlayers and lenses (up to 690 m)
- P_2ev — Evrichansky Fm. Sandstone, siltstone, mudstone, gritstone interlayers (up to 1200 m)
- P_1nn — Nonkichansky Fm. Sandstone, tuff sandstone, siltstone, tuff siltstone, gritstone lenses (750 m)
- P_2in — Ingychansky Fm. Sandstone, siltstone, interlayers and lenses of conglomerate, siltstone, mudstone, tuff sandstone (1070 m)
- C_3jan — Yangandinsky Fm. Siltstone, mudstone, sandstone, including calcareous, interlayers and lenses of tuff sandstone, tuff siltstone, gritstone, diamictite, clay limestones (770 m)
- RF_1 — Undifferentiated Lower Riphean formations. Metasandstone, biotite and muscovite-biotite gneiss (over 1000 m). Only in sections
- AR_1oh — Okhotsk Group. Gneiss and schist are biotite-amphibole, amphibole-pyroxene; gneisses are amphibole, biotitic, garnet; marble, calciphyre, quartzite, including jaspilite (over 4000 m). Only in sections

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