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Mobile forms of gold and pathfinder elements in soil profile at Novye Pesky gold deposit(Karelia).

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The overburden (thickness from meters up to 100 m) and low gold clarke in supergen zone make difficulties for prospecting for gold deposits at covered areas. That is why most of the exploration companies use pathfinders while prospecting, but they should know about the geochemical characteristics of gold and other elements in surface sediments for success in using this prospecting technique.

The podzolic soil, which cover the Novye Pesky gold deposit was researched. The main mobile forms of Au, As, Cu, Ni, Zn, Se, Ag, Te, Sb, Pb, Mo, Bi in A2, B1 and C soil horizons were determined by methods of sequential extraction and thermodynamic modelling. We have got results, which showed that gold has differences to other elements, and the main mobile forms of that element are water soluble, bound to organic matter and bound to Fe and Mn-(oxy)hydroxides. The main migration forms of gold in water media are AuCl_2^- and Au^+ .

Also it is known, that organic matter have an influence on migration and concentration not only for gold, so we conducted the experiment for determination of gold and other elements complexed with humic and fulvic acids. The results of that experiment showed, Au, Ni, Ag, Zn, Sb complexed preferably with humic acid, Cu, As, Mo - with fulvic acid.

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