

SUPPLEMENT

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Features of Groundwater Formation of the Main Aquifers of St. Petersburg and Suburbs Based on Data of Chemical and Isotope Composition

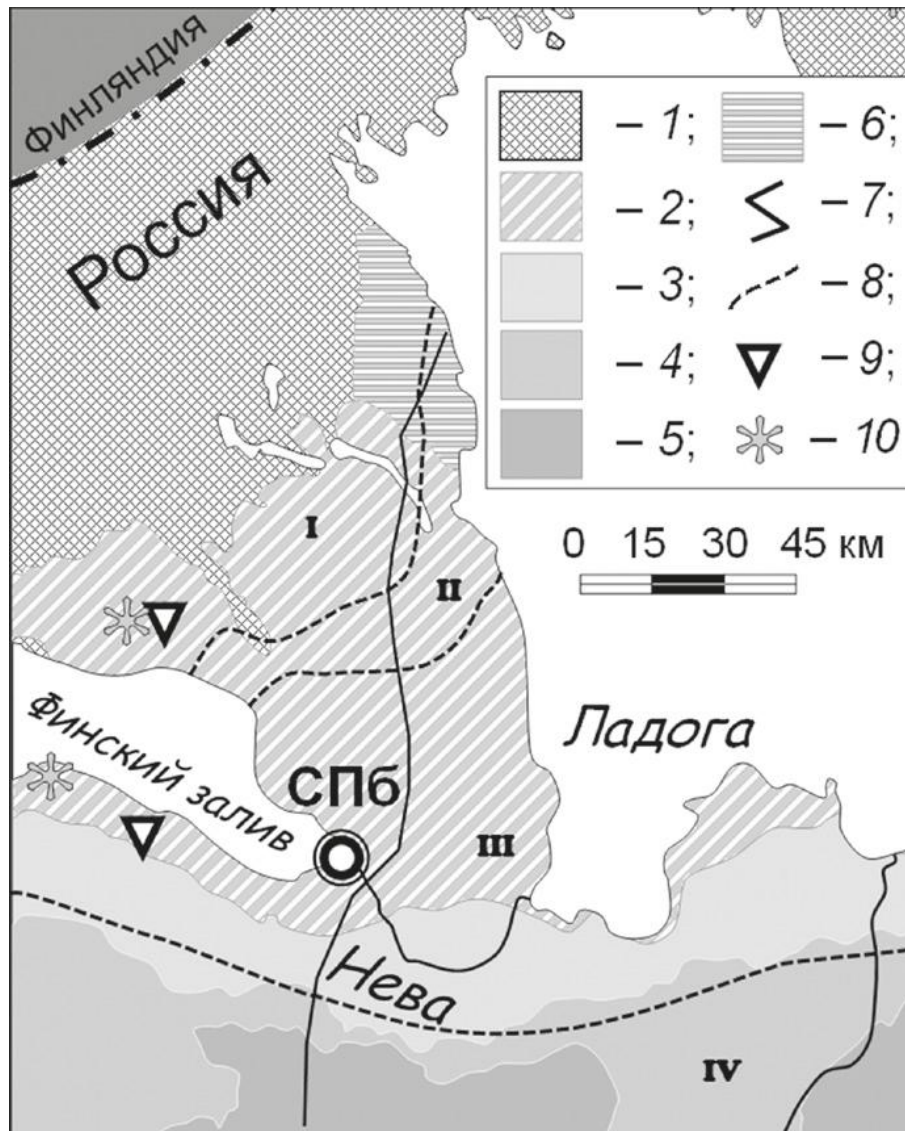


Fig. 1. Geological and hydrogeological scheme of the studied area:

1 – Archean-Proterozoic crystalline rocks; 2 – 5 – Vendian, Cambrian, Ordovician and Devonian rocks, respectively; 6 – Proterozoic rocks of the Ladoga graben; 7 – line of the cross-section; 8 – contours of hydrochemical zones of the Vendian Lower-Kotlin aquifer: I – TDS < 0.25 g/dm³; II – 0,25 – 1 g/dm³; III – 1 – 10 g/dm³; IV – 10 – 35 g/dm³ (Voronov, Vinograd, 2006, with changes); 9 – observation points of precipitation and snow survey.

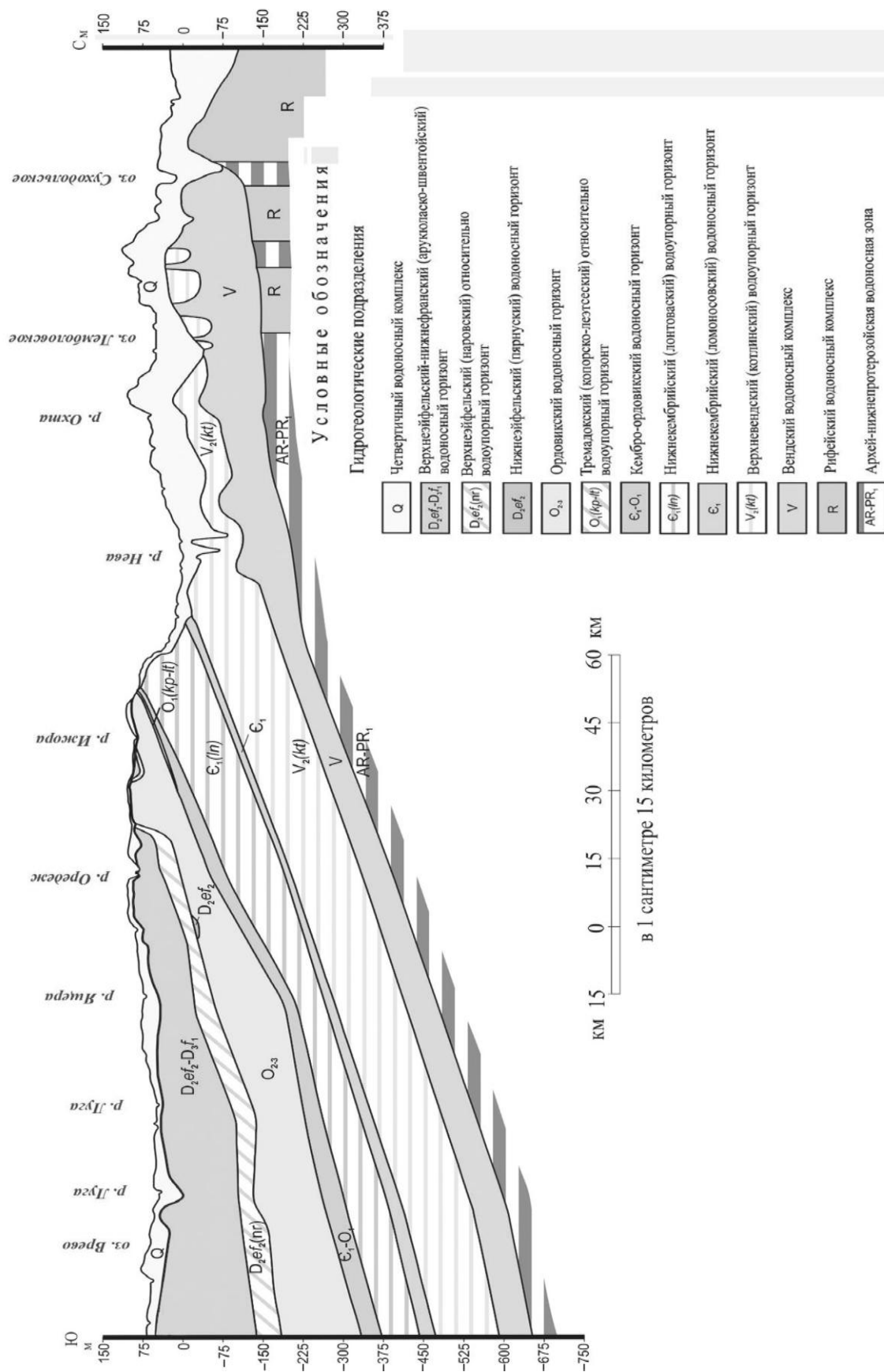


Fig. 2. Hydrogeological section (the line is shown on the Fig. 1).

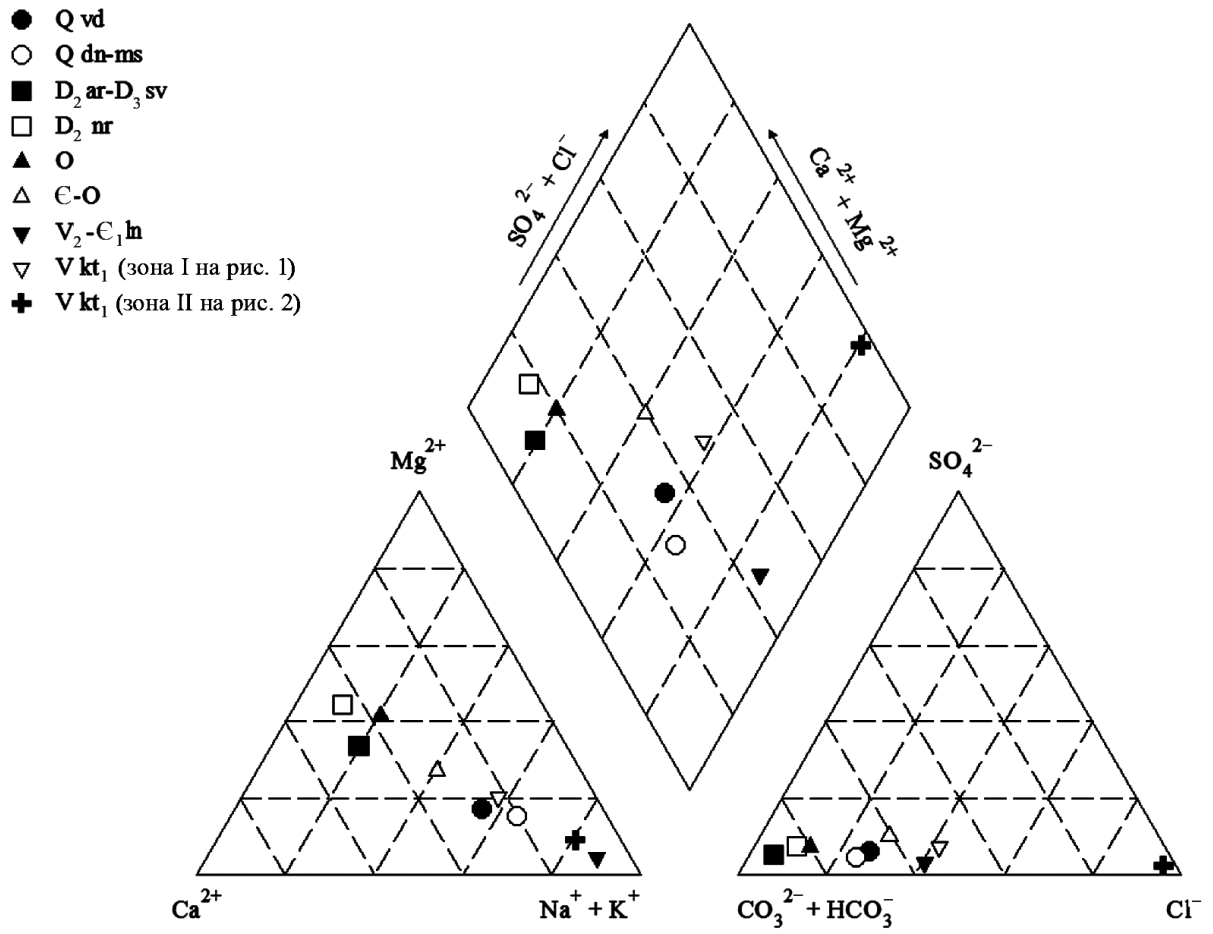


Fig. 3. Piper diagrams of the groundwater chemical composition of the main aquifers.

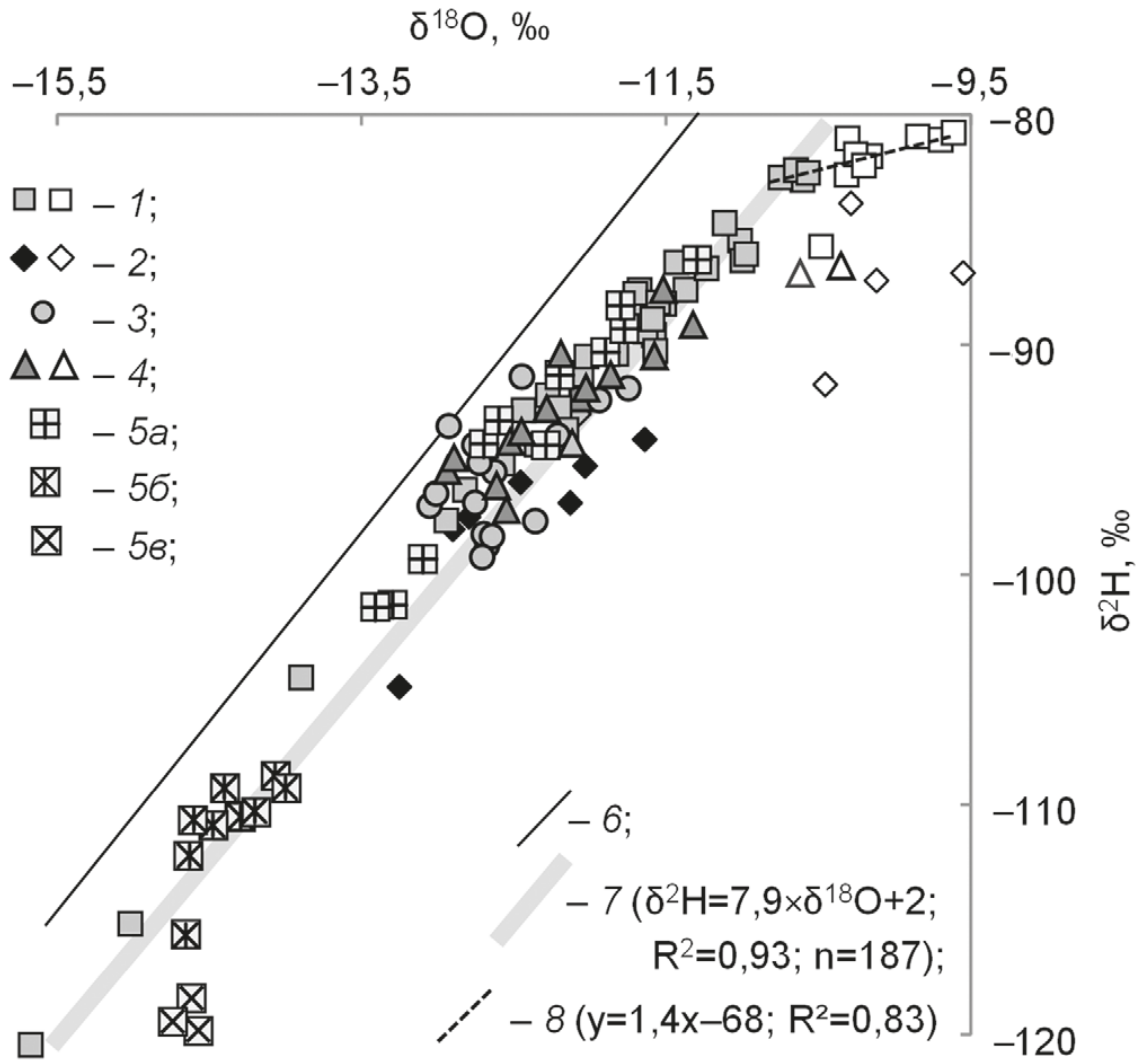


Fig. 4. Isotope composition of the groundwater in St.Petersburg and Leningrad Region.

1 – Quaternary aquifers, including waters with signs of evaporation (unfilled signs); 2 – Devonian aquifers including waters with signs of evaporation (unfilled signs); 3 – Ordovician and Cambrian-Ordovician aquifers; 4 – Lomonosov aquifer, including waters with signs of evaporation (unfilled signs); 5 – Vendian aquifer: 5a – Karelian Isthmus – north, center and northern edge of the Gulf of Finland; 5b – Karelian Isthmus – south and right bank of the Neva river; 5c – left bank of the Neva river; 6 – Global Meteoric Water Line (GMWL); 7 – Local Meteoric Water Line (LMWL, the equation is on the diagram); 7 – evaporation line (the equation is on the diagram).