1.6.2. Paleontology and stratigraphy

Lithostratigraphy of Jurassic, Cretaceous and Paleogene sequences of the eastern Russian plate

Chemostratigraphy of Mesozoic sedimentary sequences of the eastern Russian plate

Event stratigraphy of the Mesozoic of the Ulyanovsk-Saratov Trough

Facies analysis, depositional setting and cyclostratigraphy of Upper Paleozoic (Carboniferous or Permian) sediments of the Southern Urals

Stratigraphy and ichnology of the Terrigenous Devonian of the east of the Volga-Ural region

Upper Paleozoic of the Kuznetsk Basin: Stratigraphy and Geochronology

1.6.4. Mineralogy, crystallography. Geochemistry, geochemical methods of mineral prospecting

Electron-beam method of refining gemstones.

Methods of gemstone diagnostics

Reconstruction of paleotemperatures of mineral formation.

Methods of reconstructing the composition of mineral-forming solutions

Thermobarogeochemistry in the analysis of minerals of hydrothermal genesis

1.6.5. Lithology

Conditions of formation of hydrogenic forms of mineralization in transition facies of Permian sediments

Lithology and conditions of formation of gypsiferous deposits of Upper Permian sediments

Lithological and mineralogical characteristics of the Carboniferous oil-bearing complexes

Lithological and facies characteristics of Carboniferous deposits of the Carboniferous

Methodology of construction of geologic sections based on seismic data

Lithologic basis of geologic models of oil-bearing complexes

Diatom complexes of bottom sediments of lakes in the Middle Volga Region

1.6.6. Hydrogeology

Conditions of groundwater composition formation in terrigenous complexes of Mesozoic sediments of the western part of Tatarstan

Hydrogeological systems of the interfluve of the Volga and Sviyaga Rivers

Modeling of carbon dioxide interaction with groundwater and water-bearing reservoirs in case of its possible burial

Nature and dynamics of changes in time of qualitative indicators of fresh groundwater in the Middle Volga region

Prospects of identification of mineral therapeutic waters of "Volzhanka" type in the Republic of Tatarstan

Nature of elevated boron concentrations in fresh ground waters of the Republic of Tatarstan

1.6.9. Geophysics

Modeling of hydrocarbon deposits on the basis of geological and geophysical data

Search and exploration of hydrocarbon deposits on the basis of complex analysis of geological, geochemical and geophysical data
Prognosis of hydrocarbon deposits based on geomorphological and lineament analysis of digital elevation model.
Monitoring of vapor-gravity drainage processes of bitumen and high-viscosity oil deposits by geophysical methods.
Magneto-mineralogical and paleomagnetic studies of modern lake sediments
Investigation of geomechanical, acoustic and electrical properties of sedimentary rocks
Monitoring of underground gas storages by geophysical methods

1.6.11. Geology, prospecting, exploration and exploitation of oil and gas fields
Study of the influence of Permian natural reservoirs formation conditions on forecasting, prospecting and development of unconventional sources of hydrocarbon raw materials: extra-viscous oil and natural bitumens.
Prospects of shale gas resources development in the central regions of the Ural-Volga region
Prospects for development of shale oil resources in the central regions of the Ural-Volga region
Geological and geophysical model of Permian natural reservoirs.
Ensuring carbon neutrality of the Republic of Tatarstan, including through large-scale implementation of carbon sequestration technologies by ecosystems and using oil and gas production infrastructure.
Determining the potential of various oils, including heavy oil, extra-heavy oil, oil shale (mainly kerogen) for hydrogen production.
Creation of theoretical models of transformation of organic matter of sedimentary basins, formation of mobile HC, their migration and emission into the atmosphere in the geological past.
Creation of a methodology for selection and implementation of the process of reanimation of depleted hydrocarbon fields on the basis of CO2 injection in supercritical states with subsequent formation of PCs

2.8.4. Development and maintenance of oil and gas fields
Justification and creation of complex approach and technology for intensification of terrigenous reservoir oil production on the basis of studying the composition of minerals composing productive sediments.
Modeling of phase behavior of hydrocarbon fluids
Modeling of thermodynamic properties of multicomponent hydrocarbon mixture
Development of complex carbonate reservoirs by injection of slightly mineralized water
Estimation of working conditions for hard-to-recover reserves in carbonate reservoirs
Technology of thermal foam acid stimulation to improve the efficiency of production wells for carbonate reservoirs
Cyclic surfactant injection to enhance oil recovery in low-permeability reservoirs
Evaluation of efficiency of in-situ combustion technology for development of oil shale deposits on the example of domanic deposits

Thermocatalytic technology for development of high-viscosity oil fields of carbonate deposits
Development of water-soluble catalytic composition for development of high-viscosity oil deposits
Development of the technology of treatment of the bottom-hole zone of a well with the use of modern methods of influence on the reservoir.
Development of technology of domestic binary mixtures application as a fuel for bottom-hole zone treatment