

AAPG HEDBERG CONFERENCE
“Near-Surface Hydrocarbon Migration: Mechanisms and Seepage Rates”
SEPTEMBER 16-19, 2001, VANCOUVER, BC, CANADA

Forms, Mechanisms, and Rate of Hydrocarbon Migration in Rapidly Subsiding Basins

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Among the structures of the earth's crust, the rapidly subsiding basins (RSB) occupy a special place. Their peculiar features are as follows: domination of young terrigenous deposits in the section; contrast dynamic regime; high sedimentation rate; high reservoir and pore pressures; disconsolidated zones; and high specific density of hydrocarbons (HC).

Active migration of HC and existence of natural gas and oil seepages are typical RSB and they are fixed:

- In the atmosphere by anomalies of methane at different altitudes and contrast gradients of HC;
- In the surface of the land, traces of migration are fixed by geochemical anomalies of HC and different elements of the soil and plants;
- In the hydrosphere, migration can be studied by constant and dotted measurement;
- In the bottom sediments and in the sedimentary cover, migration of HC is fixed by acoustic anomalies and typical morphologic forms of biota communities.

Assessment of HC migration rate is up to the experiment requirements – from the maximum rate during eruptions of mud volcanoes 10^{-2} m/s to 10^{-10} m/s in microseepage.

The theoretical base for understanding the processes of migration is a provision about phase and mechanical instability in sedimentary series associated with the generation of