Erosion scales of Mesozoic-Cenozoic deposits during the neotectonic stage in the Yenisey-Khatanga regional trough from geochemical data

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Within the north of the West Siberian plate and the Yenisey-Khatanga regional trough, the Mesozoic-Cenozoic structural stage consists of marine, coastal-marine, and lagoonal-continental sediments. Here a series of oil- and gas fields have been discovered.

Tectonic activation which started at end of Palaeogene stage has strongly affected the structure forming in the Yenisey-Khatanga regional trough. In this territory significant total amplitudes of neotectonic uplifts are fixed [1, 2]. Faults are of considerable importance in the tectonic structure of the region.

The estimation of the amplitudes of neotectonic uplifts and the scales of deposit erosion have been carried out on the basis of detailed studies of the degree of organic matter (OM) catagenesis from geochemical data (Rock-Eval pyrolysis, elemental composition of kerogen, vitrinite reflectance). Using the correlation of vitrinite reflectance values and the OM maturation index, Tmax, from pyrolysis data, the detailed estimation of organic matter catagenesis has been carried out for the entire Yenisey-Khatanga regional trough. Based on the plotting results for the wells drilled in the different tectonic zones and the numerous facts, the identical configuration of the line of the increase in the degree of OM catagenesis with increasing depth of the deposits has been established. This suggests a uniform paleogeothermal gradient which existed during the most intense heating of the deposits.

At the same time, OM with the equal degree of catagenesis in the different wells has been marked at different depths. This implies that the intensity of neotectonic uplifts was unequal. During the maximal plunge and heating of Jurassic-Cretaceous deposits in the late Palaeogene-Neogene, the boundaries of the OM catagenesis stages were subhorizontal. Later the differentiated uplift of the area and a strong erosion of deposits of significant thickness in the uplifts have occured.

Based on OM catagenesis data, the scales of sediment erosion in the different tectonic structures due to neotectonic movements have been estimated. In the troughs and depressions, the neotectonic uplifts and erosion were insignificant. In the axial parts of uplifts, the sediment erosion has reached more than 1300 m (Malokhetskiy swell, Rassochinskiy megaswell).

These findings have a direct bearing on prognosis of oil-and-gas content and are important for the basinal modeling of oil-and-gas bearing systems.

[1] Varlamov (1970). [2] Kulakov (1985) 66.

PM transport events and chemical composition changes along vertical profiles in Milan

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A knowledge of the vertical distribution of aerosol properties, like number concentration, size distribution and chemical composition is a key parameter in order to apply inversion algorithms used to retrieve the aerosol characteristics from optical measurements [1].

In this way vertical profiles of particle number concentrations and particle size distributions (14 classes between 0.3 to 20 μm) were monitored at Torre Sarca site (45°31′19″N, 9°12′46″E) in Milan, during 2006 and 2007, using an optical particle counter (OPC GRIMM 1.108 'Dustcheck') and a portable meteorological station deployed on a 4 m tethered balloon [2] thus allowing with a direct evaluation of the Mixing Layer (ML) height [3]. In addition a special sampling campaign was carried out during winter 2007 using a miniaturized cascade impactor (Sioutas SKC, 5 impaction stages: >2.5 μm, 1.0-2.5 μm, 0.5-1.0 μm, 0.25-0.5 μm, <0.25 μm). PM massive samples were collected during the day along vertical profiles: at ground level, into the mixing layer and over it. The ionic inorganic fraction was quantified by ion chromatography (Dionex ICS-90) system.

Transport events were sampled over the mixing layer; chemical composition and size distribution changes across it will be discussed.

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[1] Campanelli *et al*. (2003) *AE* **37**, 4483-4492. [2] Ferrero *et al*. (2007) *FEB* **16** (6). [3] Seibert *et al.* (2000) *AE* **34**, 1001-1027.