

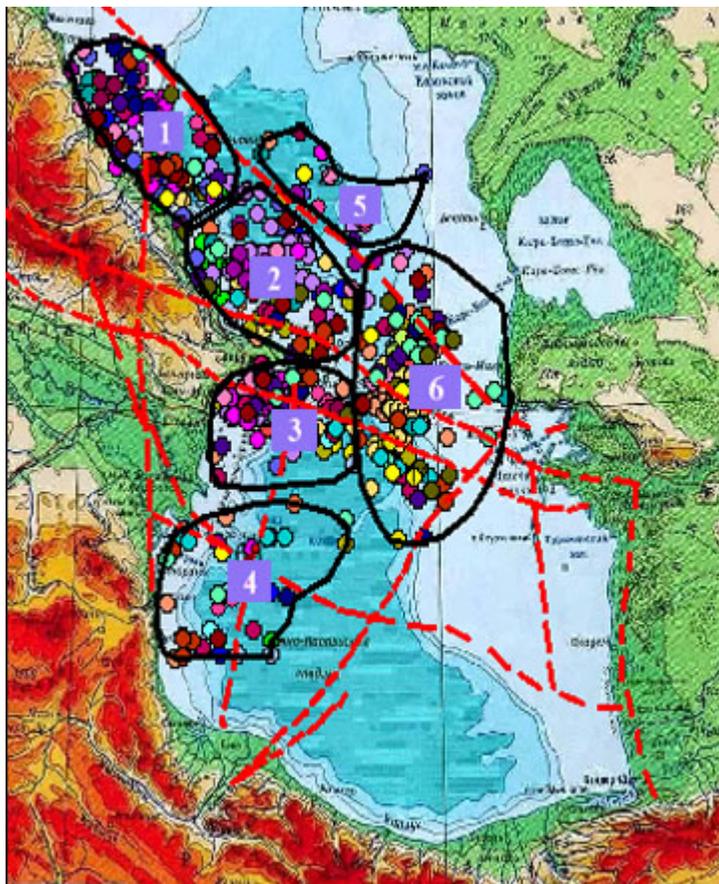


## SCAN RESULTS OF SEISMIC ZONES IN CASPIAN SEA ON THE SEISMICFLUIDOGEODYNAMICAL (SFGD) FIELDS OF AZERBAIJAN

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The present work presents the results of a comprehensive analysis and interpretation of data for 28 years (1986-2013), as on seismicity in the Caspian Sea, and on the year-round seismicfluidogeodynamical (SFGD) monitoring in Azerbaijan. These studies were carried out on the basis of the application of technology for rapid assessment of seismic situation SFGD fields on fluids in the current-time ("**FORECAST on-line EARTHQUAKES ON THE SEISMOGEOCHEMICAL FIELDS**"). It was first developed in the Department of "Geochemistry" RCSS ANAS for 2001-2009 (author of the algorithms and mathematical software - Keramova R.A.). This technology consists of mathematical software for 4 rapid methods that are automated and published. **Scientific novelty of this work is that over a long period (1979-2009) SFGD monitoring in Azerbaijan, have been developed 4 rapid method for the operational definition of "ranges - intervals" 3 main source parameters (implementation time, magnitude, coordinates). The purpose of these studies - the rapid detection of "dangerous" focal zones of earthquakes** in the Caspian Sea in Azerbaijan, as well as - the border regions of neighboring countries (Russia-Dagestan, Georgia, Armenia, Turkey and Iran). However, it should be noted that by using the above techniques, with daily operational processing monitoring data, the following situation occurred repeatedly. In particular, based on the use of rapid method for identification of the location (azimuth and "range-interval" coordinates) earthquake, earthquake precursors for informative SFGD Azerbaijani fields correctly pointed out, in general, a specific seismogenic zone in the region (for instance, the Caspian Sea or mountain areas Azerbaijani part of the Greater Caucasus and Talysh). However, "range-interval" of coordinates is incorrect. **As a result of work, a new direction of research is created - "Scan seismogenic zones on seismicfluidogeodynamical (SFGD) fields"** when the year-round monitoring over an extended period of time. As a result, on the basis of comprehensive analysis of the seismic situation in the Caspian region and year SFGD monitoring of fluids for the period 1986-2013 were first established new laws: 1) earthquake sources in the waters of the Middle and Southern Caspian spatially distributed within six (6) seismogenic zones (fig. 1.) that are potentially dangerous and pose a threat to the population, infrastructure in Baku, coastal and offshore drilling exploration; 2) informative combinations seismicgeochemical (SGC) and seismichydrogeodynamical (SHGD) parameters for specific seismic zone are stable and the individual (fig. 2.); 3) earthquake sources in the waters of the Middle and South Caspian are stable, individual SFGD (SGC and SHGD) "portraits" seismogenic zone in the final stage (1÷16 days) of earthquake preparation (fig. 3.). The results of these studies are of great importance in practice works of seismic prediction in Azerbaijan as significantly increased efficiency, reliability and correctness of the data, reducing the time they are received within 1 day. This trend continues in the RCSS ANAS for other regions of the Republic to the present.

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Conditional symbols for seismogenic zones of the Middle and Southern Caspian Sea:

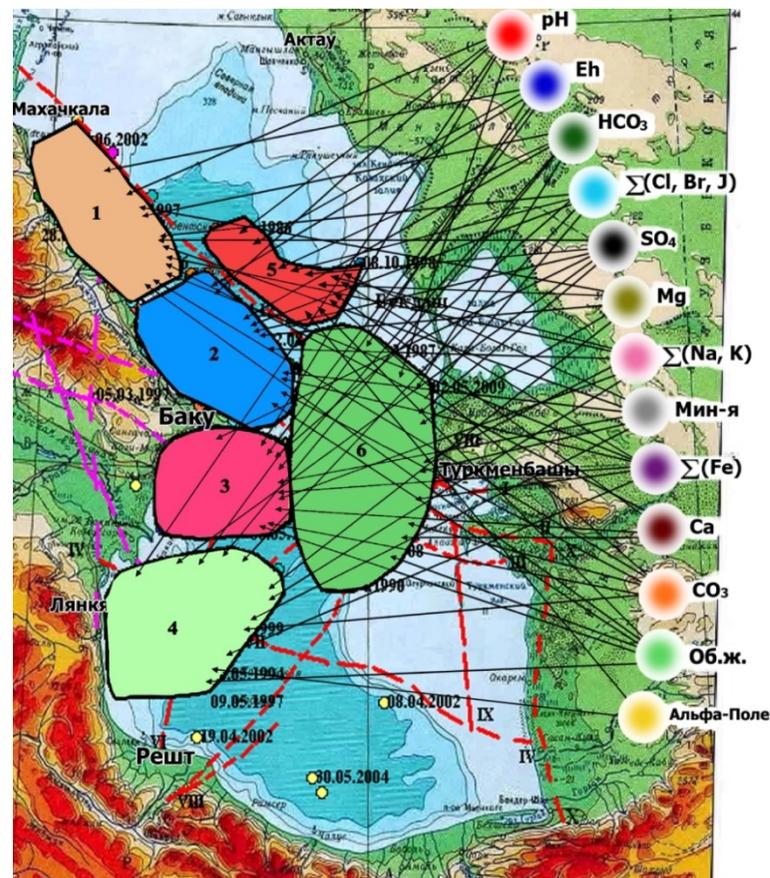
**a) Middle Caspian Sea:**

- 1. Makhachkala-Xachmaz; 2. Shabran-Absheron; 5. Central-Middle Caspian;
- 6. Absheron-Turkmenistan.

**b) Southern Caspian:**

- 3. Absheron-Pirsagat; 4. Neftchala (Azerbaijan)-North-West Iran (Rasht);

Fig. 1. Map of the seismogenic zones of the Caspian Sea, which was first identified by SFGD fields (R.A.Keramova, E.N.Kudryavtseva, 2014).

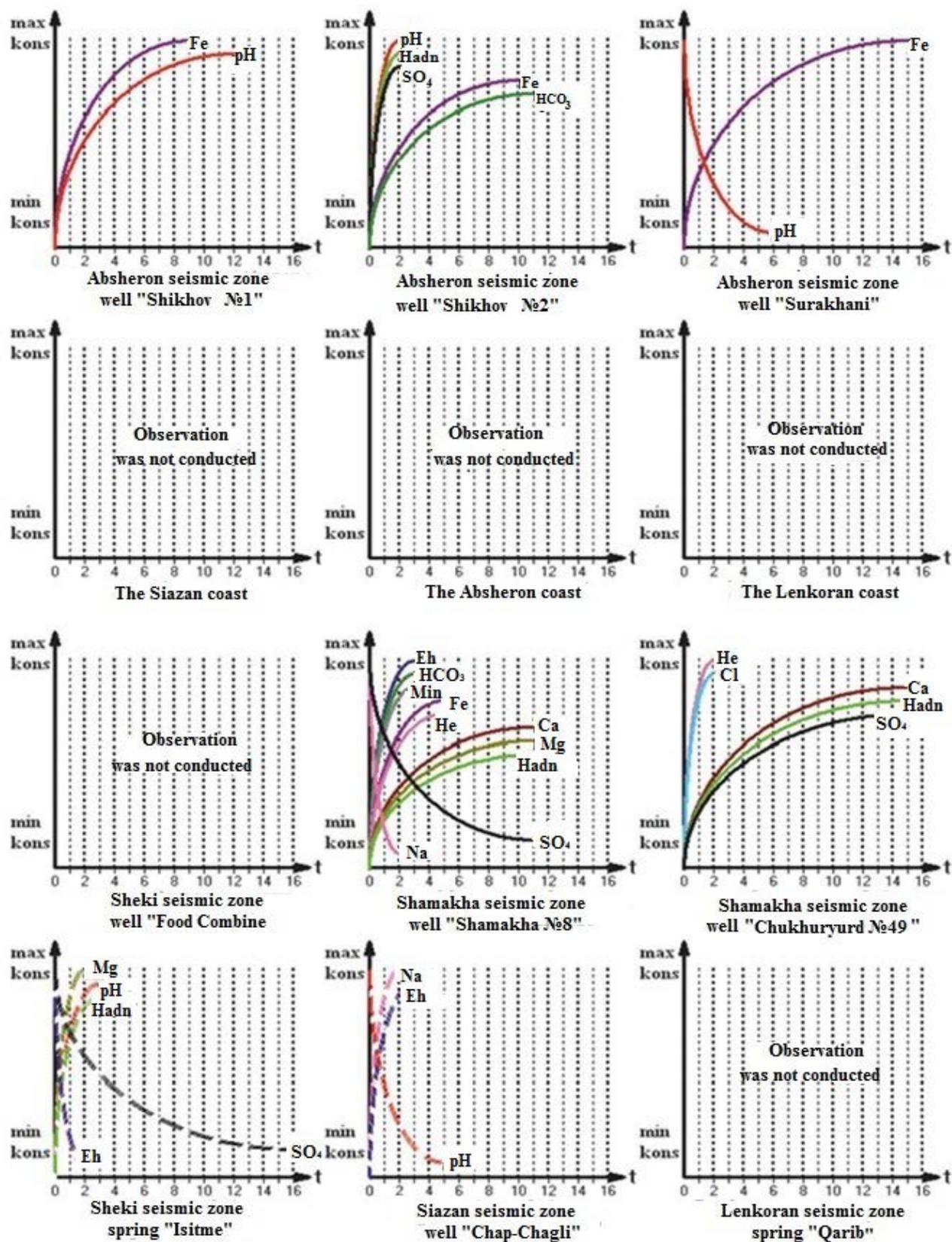


Conditional symbols:

- a) 1÷6 - seismogenic zones of the Middle and Southern Caspian (see fig. 1.)
- б) pH, Eh, CO<sub>3</sub>, HCO<sub>3</sub>, SO<sub>4</sub>, Σ (Cl,Br,I), Total hardness., Ca, Mg, Σ(Na,K), Mineralization, Alpha-field – seismicgeochemical parameters - indicators of seismogenic zones.

Fig 2. Map of the seismogenic zones of the Caspian Sea, which was first identified by SFGD fields and informative seismicgeochemical parameters (R.A.Keramova, E.N.Kudryavtseva, 2014).

**Baku - Southern Caspian sea earthquake  
(Absheron-Pirsagat seismic zone)  
(25.11.00; ml=6.0; Mpv=6.4; h=33 km)**



**Fig. 3. Seismicgeochemical "portrait" of earthquake.**