

Azerbaijan National Committee (ANC) for IUGG

Azerbaijan National Academy of Sciences (ANAS)

**Activity Report of Azerbaijan National Committee (ANC) ANAS for
IUGG in 2015**

President of ANC ANAS,
Vice-president ANAS, academician



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A handwritten signature in blue ink, appearing to be 'G. R. Babayev', is written over a horizontal line.

Babayev G. R.

Baku - 2016

Activity Report of Azerbaijan National Committee (ANC ANAS) for IUGG in 2015

Azerbaijan National Committee at Azerbaijan National Academy of Sciences (ANC ANAS) conducts the representativeness of Azerbaijan in International Union of Geodesy and Geophysics (IUGG) and its six associations: International Association of Geodesy (IAG), International Association of Seismology and Physics of Earth's Interior (IASPEI), International Association of Volcanology and Chemistry of Earth's Interior (IAVCEI), International Association of Geomagnetism and Aeronomy (IAGA), International Association of Hydrological Sciences (IAHS), International Association of Physical Sciences of Ocean (IAPSO). ANC coordinates participation of the respective Institutes of ANAS in the various international projects and programs conducted by the Committees of Union.

In 2015 the main efforts of ANC ANAS, and also the national representatives of Association were directed towards the beginning of the preparation for the participation at the XXVI General Assembly of IUGG which was held during 22nd of June – 2nd of July 2015 in Prague, Czech Republic. During Assembly, there conducted a number of meetings and sessions where main results of the Bureau's activity and Executive Committee of IUGG for the past four years and scientific results were represented. Additionally, elections for the managing positions in the Union's Bureau were held and amendments in the Charter of the Union were executed. On the 29th of June, election for the host-city of the XXVII Jubilee General Assembly of IUGG was performed which will be held in 2019 (100th anniversary of IUGG establishment) in Montreal (Canada). Azerbaijan National Committee of Geodesy and Geophysics led by the President of ANC, vice-president of ANAS, academician Ibrahim Guliyev participated in all sections of IUGG during the Assembly. During the visit Ibrahim Guliyev discussed a number of issues such as development of cooperation with the scientists from Russia, Georgia, India, Turkey, Hungary, Czech, USA and others. At Assembly, Azerbaijani scientists (members of Committee) presented talks entitled "Algorithm assigned for the calculation of the seismic moment tensor of the strong earthquakes in Azerbaijan during 2012-2014" by General Director of Republican Center of Seismic Service (RCSS), correspondent-member of ANAS, national representative of IASPEI, Gurban Yetirmishli, "Energetic resources of some geothermal wells in Azerbaijan", "Distribution models of temperature" by the head of "Geothermics" Department of the Geology and Geophysics Institute of ANAS, doctor of Earth Sciences, professor Abdulvahab Mukhtarov. During Assembly, The President of ANC Ibrahim Guliyev also met with the young scientists of ANAS which studied

in the Universities and Institutes of Europe within the framework of “State Program of Education of Azerbaijani youth in the foreign countries during 2007-2015” ratified by the Order of President of Azerbaijan dated 16th of April, 2007.

Ibrahim Guliyev met with the PhD student of Geography Institute ANAS Elnur Safarov studying at the University of Geophysics and Oceanography (LEGOS) in Toulouse (France) and PhD student of the Institute of Philosophy and Rights ANAS Sevil Aliyeva studying at Swiss University. He was interested to know about how they studied and discussed about exchange of scientific ideas. Besides, during 2015 national representatives of the ANC participated in the works of international conferences, symposiums, and those organizers actively cooperate with IUGG. Those organizers are CTBTO (Comprehensive Nuclear-Test-Ban Treaty Organization), ILP (International Lithospheric Program), IUGS (International Union of Geological Sciences).

Association representatives actively participate in the works of EGU General Assembly which unites specialists in the Earth’s Sciences from all continents aiming to exchange experiences practically in all directions of geological sciences.

During the reported year, General-Secretary of ANC, the head of International Relations Office of ANAS Presidium, PhD in Earth Sciences Gulam Babayev took part in the international conference “Science & Technology – 2015” which was held in Austria in June where he met with the representatives of International Union of Geodesy and Geophysics (IUGG). On the conference and at the section of young scientists and members of worldwide national information centers Gulam Babayev demonstrated his research results entitled “Stress assessment linked with the earthquakes provoking mud volcano eruption on the territory of Shamakhi-Gobustan-Absheron (Azerbaijan)”. There were more than 500 scientists and experts specializing in the fields of seismology, nuclear researches, geodynamics and others. The research results attracted particular interest from Japanese, Swiss, Italian scientists, including members from scientific society “International Lithospheric Program”.

In 2015 there established two unions in the structure of International Association of Academies of Sciences (IAAS). Those unions are International Union on Geodesy and Geophysics (chair: academician-secretary Earth’s Science Division of ANAS, national representative of IAG, academician Fakhraddin Kadirov) and International Union of Geological Hazard Problems (chair: correspondent-member of ANAS, General Director of Republican Center of Seismic Service (RCSS), national representative of IASPEI, Gurban Yetirmishli). The establishment of the Unions in Earth’s Sciences at IAAS served as the reason for the further enlargement of the current cooperation of ANC with the academies and scientific institutions of post-Soviet zone.

In 2015, General-Secretary of ANC, the head of International Relations Office of ANAS Presidium, PhD in Earth Sciences Gulam Babayev was invited by Deutsche GeoForschungsZentrum(GFZ) aiming to represent the talks to the scientists and GFZ's students, and also to the representatives of IUGG entitled "Static and dynamic stress estimation in the mud volcanoes of the Shamakhi-Gobustan-Absheron area and their interrelation with the earthquake occurrence in this region" which was held in September, in Potsdam (Germany). In 2015, the current cooperation with the scientific community of Russia also strengthened. In September-October 2015 President and General-Secretary of ANC conducted a number of meetings with the representatives of Russian Foundation of Fundamental Researches (RFFR). The President of ANC, academician Ibrahim Guliyev discussed the main points of the mutual program with the Institute of Earth's Physics Russian Academy of Sciences (RAN) about the seismic hazard researches of the Caucasus. During the meeting, there were a number of suggestions concerning stages of the fundamental researches in the multi-disciplinary direction related to the study of bituminous sediments. These fundamental researches will have an international meaning.

In 2015 there was VI international conference of young scientists and students "Multidisciplinary approach in solving problems of geology and geophysics" dedicated to the 70th anniversary of ANAS establishment in the framework of the International multidisciplinary Forum "Academic Science Week-2015). ANCANAS actively participated in the organization of poster, plenary and oral presentations. At the conference, there discussed many questions concerning geologic-geophysical observations and results of seismo-geodynamic researches, presented data results of the geoinformatics. Young scientists, specialists in Earth's sciences from world actively participated at the conference.

In 2015 the management of ANC committed to the national representatives to prepare five years' report (2012-2016) about scientific activity of the ANC ANAS. The report prepared will be submitted to the International Union of Geodesy and Geophysics (IUGG).

GEODESY SECTION

In 2015 Geodesy association continued an active cooperation with the Massachusetts Institute of Technology (MIT), Istanbul Technical Institute (ITI) and with the leading Institutions of Italy.

In 2015 by the ANAS Presidium decision numbered №14/17, the fellow of the Department Geodynamics and Seismology of the Geology and Geophysics Institute Bakhriz Ahadov was admitted at postgraduate courses at the Shanghai Astronomical Observatory of the Chinese Academy of Sciences on the three-year

education until 2018. Within that period, the young fellow will conduct researches on the subject “Tectonic kinematics and modeling of Eastern Mediterranean and Caucasus region with the use of space geodesy (InSAR)”. His supervisor in China is the head of “Satellite Navigation and Remote Sensing” Group Shanghai Astronomical Observatory of Chinese Academy of Sciences, vice-president of International Association of Geodesy (IAG), Prof. Dr. Shuanggen Jin.

In 2015, there continued functioning of two international laboratories. The laboratory of Massachusetts Institute of Technology USA and Geology and Geophysics Institute under the name “Modern geodynamics of Earth’s surface and geological hazards” continued researching GPS monitoring on the Azerbaijan polygons within the subject framework “Modern kinematics and dynamics of the eastern part of the Mediterranean and Caucasus”. Based on the subject, researches within “Estimation of the space-time analysis of the earthquakes and seismic hazard” (ESTABL) international laboratory continued in 2015. This laboratory functions within the agreement framework between Institute of Methodologies for Environmental Analysis at National Research Council (CNR) Italy and Geology and Geophysics Institute GGI ANAS Azerbaijan. As researches, there analyzed dynamic properties of the gravitational signal coming from the Sheki station (Azerbaijan) which is located in the zone of active deformation processes of the Earth’s crust for the period of 2011.11.28 08:48 – 2012.05.11 05:11:59. Applying the power spectrum analysis and multifractal detrended fluctuation analysis, it was found out the time domain fluctuation with the periodicity of 38.34 hours which means 1 day 14 hours and 34 minutes.

In 2015 cooperation in the research framework of National Center of Scientific Researches (Centre National de la Recherche Scientifique, CNRS) of France continued. On the basis of confirmed data of geological structure and stratigraphy of Nakhchivan Autonomous Republic and Talysh zone (Azerbaijan), there conducted a tectonic zoning of the mentioned territories, kinematic parameters of the tectonic blocks were calculated and analysis of the correlation of tectonic processes on the Greater Caucasus with the geodynamic conditions. Within the subject framework, monitoring of horizontal movements of GPS measurements was continued.

Members of the Section took an active part in many international scientific events organized in Russia and abroad, and among them there are as follows:

– Sixth International Geosciences Student Conference, 13-16 July, 2015, Prague, Czech Republic, by Charles University in Prague Geophysical Society, Society Exploration Geophysicists (SEG).

– Joint seminar by Ilya State University (Georgia) and Massachusetts Institute of Technology (MIT, USA) at Abastumani Astrophysical Observatory at Georgia, “Modeling of active deformation of Earth’s crust” training courses.

– CTBTO 2015, NDC Waveform Analyst Training Course, 16.02.2015-13.03.2015, Vienna, Austria

Publications, including Russian editions according to the scientific directions of the geodesy section of ANC ANAS:

– Kadirov F.A., Floyd M., Reilinger R., Alizadeh Ak.A., Guliyev I.S., Mammadov S.G., Safarov R.T. Active geodynamics of the Caucasus Region: Implications For Earthquake Hazards in Azerbaijan. Proceedings of Azerbaijan National Academy of Sciences, The Sciences of Earth, №3, 2015. pp. 3-17.

– Akif Alizadeh, Ibrahim Guliyev, Fakhraddin Kadirov, Lev Eppelbaum. Geological-geophysical investigations in Azerbaijan. Springer-Verlag Berlin Heidelberg 2015.939 p.

– Kadirov F.A., Ahadov B.G., Gadirov A.H., Babayev G.R., Mammadov S.G., Safarov R.T. Microtremor Survey and Spectral Analyses of H/V Ratio for Baku City (Azerbaijan). Proceedings of Azerbaijan National Academy of Sciences, The Sciences of Earth, №3, pp. 18-24.

– Luciano Telesca, Michele Lovallo, Samir Mammadov, Fakhraddin Kadirov, Gulam Babayev. Power spectrum analysis and multifractal detrended fluctuation analysis of Earth’s gravity time series. *Physica A: Statistical Mechanics and its Applications*. doi:10.1016/j.physa.2015.02.034. Volume 428, 15 June 2015, pp. 426–434.

– Саламов А.М., Кадыров А.Г., Саламов Ф.А., Пашаев Т.Р. Исследование оползня в Хызынском районе Азербайджана методом вертикального электрического зондирования. Журнал «Инженерные изыскания», г.Москва. № 5-6/2015.с.50-57.

– Полетаева Е.В., Полетаев А.В. Исследование земной коры Южного Каспия по геофизическим данным. Перспективы развития научного знания в XXI веке. Вып. 3: - 2015. сс. 177 – 188, ISBN 978-5-00078-026-8.

– Babayev G., Tibaldi A., Bonali F.L., Kadirov F. T1.5-P24. Evaluation of earthquake-induced strain in promoting mud eruptions: the case of Shamakhi-Gobustan-Absheron area, Azerbaijan. CTBT: Science and Technology conference. Vienna, Austria June 2015. Book of Abstracts, p. 58, 2015. Printed in Austria.

– Kadirov (Gadirov) F., Telesca L., Mammedov S., Babayev G. T1.5-P49. Variations in Gravitational Field, Tidal Force and Earthquakes (Sheki-Greater Caucasus). CTBT: Science and Technology conference. Vienna, Austria June 2015. Book of Abstracts, p. 66, 2015. Printed in Austria.

GEOMAGNETISMANDAERONOMYSECTION

The activity of the geomagnetism and aeronomy section at ANC was performed by the activity of Shamakhi Astrophysical Observatory at ANAS. During the 2015 period, the Observatory dealt with the restructuring, improving the human potential and further developing of applied scientific directions. Association of geomagnetism and aeronomy continued working in the field of physics solar-terrestrial relations aiming to create and develop international network of magnetic observatories, improve the methods and approaches in studying the influence of space weather on the technological and biological systems of Earth.

Due to the changes in the structure of Shamakhi Astrophysical Observatory of ANAS, during the discussion of the current matters ANC suggested considering to make election of the national representative of IAGA in the first half of 2016.

On the 6-8th July of 2015 in Baku there was an international conference at Shamakhi Astrophysical Observatory entitled “Variability of the sun and sun-like stars: from asteroseismology to space weather”, united scientists from the fields of geomagnetism study and aeronomy from Leibniz Institute for Astrophysics Potsdam (AIP), Germany (Prof. Dr. Denker Carsten), Aarhus University, Denmark (Prof. Dr. Christensen-Dalsgaard Joergen), Odessa National Maritime University, Ukraine (Prof. Dr. Andronov Ivan), Space Research and Technology Institute, Bulgarian Academy of Sciences, Bulgaria (Assoc. Prof. Dr. Dimitrova Svetla), NASA Ames Research Center, USA (Dr. Kitiashvili Irina), Sternberg Astronomical Institute, Moscow State University, Russia (Dr. Ledentsov Leonid).

There were oral and poster presentations on the subjects such as solar magnetism, physics of solar-terrestrial relations, influence of space weather on the biological systems of Earth, heliobiological studies, solar systems tendencies, its models and structures and others.

Members of geomagnetism and aeronomy section actively cooperate with the representatives of European Astronomical Society, scientists from Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation named after N. V. Pushkov of the Russian Academy of Sciences.

In 2015 there conducted meetings of the section which the main scientific results are reviewed at.

SECTION OF HYDROLOGICAL SCIENCES

The Association of Hydrological Sciences actively participated in the international projects, forums, conferences linked with trans-border water resources, problems for study of mineral and thermal waters of the Republic, issues interrelated with the climate change influence on the water resources.

In 2015 section fulfilled the project together with Avalon Institute of Applied Sciences, UNESCO - IUGS - IGCP 610 Project, Winnipeg, Canada) based on the subject entitled “From the Caspian to Mediterranean: Environmental Change and Human Response during the Quaternary».

International scientific cooperation in the Section allows to further unite scientific potential and material base of the project participants and will serve as a positive cooperation example and integration on the regional and international level. Within 2015, the cooperation had a positive impact on the improvement of the possibilities for the exchange of scientific results and its application. In the following, cooperation will become an attractive center for international researches and will give the possibility for the exchange of ideas, thoughts and scientific results among group of researchers working within the subjects of IAHS.

SECTION OF PHYSICAL SCIENCES OF OCEAN

In 2015, the main efforts of the Section’s members were directed towards beginning to prepare for 70th anniversary celebration of the Institute of Geography of ANAS which is basic organization conducting researches within IAPSO thematic.

In 2015, members of the Section actively participated in the international conference “The adaption problems of the geo- and natural economy systems to the modern global changes”, dedicated to the 70th anniversary of the establishment of the Institute of Geography ANAS. In line with the scientists from Azerbaijan, there participated scientists from Kazakhstan, Georgia, Russia and other countries at the conference.

In the Institute of Geography ANAS, some information center for the storage and access to the natural resources research results and their ego-geographical properties, climate genesis and its prognosis, geo-system of Caspian, factors provoking the change of the Caspian Sea level and research of its ecological conditions was established.

Some scientific results done by the program IODE (International Oceanographic Data and Information Exchange) International Oceanographic Commission (IOC) UNESCO were stored in the database SeaDataNet.

During 2015 scientists from Section continued their researches into the problems occurred by the aggravation of ecological conditions in the Azerbaijan part of the Caspian Sea (oil deposits of Baku Archipelago and Oil Stones), and also studying the relationship of wave spectrum with the peculiarities (quantitative and measured) of the solar shine on the sea surface. Institute of Geography regularly organizes and conducts scientific meetings dedicated to the studying the hazard problems of hydro meteorological events in the Azerbaijan part of Caspian Sea.

In 2015 Section of physical sciences of ocean constantly carries out its participation in ICOPMAS (International Conference on Coasts, Ports and Marine Structures) concerning the problems of studying variation of the Caspian Sea level linked with the plate tectonics in the region, Caspian geo-system. Besides, members of the Section from the Institute of Geography ANAS continued cooperation with the representatives of LEGOS (Laboratory Studies in Geophysics and Space Oceanography) of France on the subject “Studying the level of Caspian Sea by the satellite altimeter”, of International Academy of Ecology Sciences, Human Security and Nature of UNESCO Committee on bioethics, ethics of scientific knowledge and technologies.

Scientific works of the various organizations of Azerbaijan who are members of the Section actively participated in the following conferences arranged within the framework of IAPSO subjects:

- Seventh international symposium “Steppes of Northern Eurasia” together with the Russian Geographical Society. Biological and soil diversity of the steppes regions, Strategy of the steppes nature using and problems of ecological rehabilitation of the steppes landscapes, 2015, Russia.

- Workshop of the Russian Committee on the UNESCO program “Human and biosphere”. The main directions of the Committee’s activity: participation in the establishing the worldwide network of biosphere reserves and observation of the global changes of the environment, Russia, 2015.

- “31st European PV Solar Energy Conference and Exhibition”, 2015, Hamburg, Germany. Paper entitled “Nanostructured Hybrid of Photovoltaic Solar Cell And Supercapacitor” and was published in the conference proceedings.

- Conference of International Geographical Union together with the Russian Geographical Union, 2015, Moscow, Russia. Presentation entitled “Climate change in Azerbaijan and its influence on the biosphere objects”. At the meeting of International Geographical Union, it was decided by initiative of national representative of the Association, director of the Institute of Geography ANAS, academician Ramiz Mammadov to conduct international conference “Geography of the world energy and sustainable development” in 2017 in Baku.

- International conference “Scientific technical perspectives and innovative cooperation of European Union and Eastern Partnership countries in the field of energetics”, 2015, Minsk, Belorussia.

Publications including international programs and projects, both local and Russian editions:

- Mammadov R.M. Impact of Climate Changes on the Caspian Sea Level // Journal of Resources and Ecology, Vol. 6 No.2 March, 2015.

- Gardashov R.H., Eminov M.Sh. Determination of sunglint location and its characteristics on observation from a METEOSAT 9 satellite, International Journal of Remote Sensing, 36:10, 2584-2598, 2015.doi: 10.1080/01431161.2015.1042119.

- Gardashov R.H., Eminov M.Sh. Modelling of the Solar Energy Falling onto the Panel of Solar Car and Web-Application for Simulating the Car Motion Along the Road. 31st European PV Solar Energy Conference and Exhibition, Hamburg, Germany, 2015.

- Imrani Z.T. Investments into Economic Branches of Azerbaijan Republic and Their Effectiveness/International Journal of Liberal Arts and Social Science Vol. 3 No. 7.United Kingdom, 2015. p. 29-37.

- Imrani Z.T. Study of development of information and communication technology in Azerbaijan with marketing approach/International journal of advanced computer research, Vol. 5. India, 2015, p. 80-93.

- Ализаде Э.К., Тарихазер С.А. «Экогеоморфологическая опасность и риск на Большом Кавказе (в пределах Азербайджана)»//Изд-во «Макс-Пресс», Москва, 208 с.

- Ализаде Э.К., Тарихазер С.А., Гулиева С.Ю., Кучинская И.Я. «Проблема обеспечения ландшафтно-геоморфологической безопасности крупных городов (на примере г. Баку)». Всероссийская конференция «VIII Шукинские чтения» «Геоморфологические ресурсы и геоморфологическая безопасность: от теории к практике». М., 2015, с.261-264.

- Ализаде Э.К., Тарихазер С.А. – Экогеоморфологическая обстановка города Баку//Материалы Международной научно-практической конференции «География и регион». Пермь, 2015.

- Имрани З.Т. Экономико-географическая характеристика инвестиционной политики Азербайджанской Республики/ "Science and world" International scientific journal, №2(18), 2015, Vol. 1., Volgograd, 2015, p. 113-116.

SECTION OF SEISMOLOGY AND PHYSICS OF EARTH INTERIOR

In 2015 a number of discussions of the current issues of the section activity were done distantly with the use of possibilities information communication technology.

There continued cooperation of the Association within the membership framework with the representatives of American Geophysical Union (AGU), Incorporated Research Institutions for Seismology (IRIS), Observatories and Research Facilities for European Seismology (ORFEUS), European Mediterranean Seismological Centre(EMSC), European Seismological Commission (ESC). Scientists from the Republican Center of Seismic Service ANAS which are members of the Section took an active part in the conferences according to the IASPEI subject:

- Tenth International Seismological School "Modern methods of processing and interpretation of seismological data". Geophysical Service of Russian Academy of Sciences, Republican Center of Seismic Service at Azerbaijan National Academy of Sciences (ANAS), Baku, 2015.

- International Training Course at Deutsche GeoForschungsZentrum (GFZ) on seismology, seismic hazard and earthquake engineering, 2015, Potsdam, Germany.

In 2015, scientific and research works at the joint international laboratory “Seismic tomography of Earth’s interior”, which is carried out on the basis of agreement between Republican Center of Seismic Service at ANAS and Department of Geological Sciences of the Missouri University (Columbia, USA) improved. Application of the seismic tomography method at researching the deep structure of the Earth’s interior allows obtaining information about structure and physical peculiarities of crust and mantle.

In 2015 members of the seismology and physics of Earth’s interior represented their results in oral and poster formats at various scientific international events on the subjects of IASPEI in Czech, Germany, Italy, Georgia, Turkey and others. There were more than 14 publications, with 9 out of them were published in peer-reviewed editions. Section’s scientists actively cooperate with the scientists of Geophysical Monitoring Center of Academy of Sciences of Belorussia, Institute of Geophysics of Academy of Sciences of Bulgaria, Geophysical Institute named after M. Nodia of Academy of Sciences of Georgia, Institute of Seismology of Academy of Sciences of Uzbekistan, Institute of Earth’s Physics named after O. Y. Shmitd Russian Academy of Sciences, Scientific Technological University of Missouri USA, Lawrence Livermore National Laboratory of USA, Kandilli Observatory and Earthquake Research Institute (KOERI) of Turkey.

SECTION OF VOLCANOLOGY AND CHEMISTRY OF EARTH INTERIOR

Jointly with the specialists from the Research Center of Marine Environmental Sciences, the University of Bremen Germany known as “MARIUM”, the modern electronic scientific research equipment was installed on the Dashgil mud volcano in Alyat which measures temperature and pore pressure in the Earth’s interior. Together with the scientists from Florence University at National Research Council (CNR) Italy isotopic and geochemistry content of the thermal waters and gases in the region of Azerbaijan was studied. With that aim, on the natural, mineral and thermal water resources, and also on the deposits of the various gases (radon, helium, argon, hydrocarbons and carbon dioxide, there performed geological researches and analytical calculations. It was found out mud volcano gases are rich with the various cyclic compositions (more than 20 ones) (C₂-C₁₀alkane), formed at the high temperatures(120-150°C)and at higher pressure.

With the support of the Science Foundation of State Oil Company of Azerbaijan for the first time, “Atlas of the World Mud Volcano” was published. In the Atlas, mud volcanos of 42 countries were generalized and analyzed which are located on the tectonic belts of Alp-Himalayan Mountains and Pacific Ocean, and

also at the depths of Caspian, Black and Mediterranean Seas. The Atlas contains information about 2500 world mud volcanoes, comprises of 320 pages and 450 illustrations (maps, cross-sections, stratigraphic and tectonic schemes), 340 images (aero-photos) and 136 tables.

There continued researches with the scientists from Institute of Geology Russian Academy of Sciences (doctor of geological and mineralogical sciences, Lavrushin V. Y.) within the framework of science-research work entitled “The modern geodynamics, fluid-regime and oil and gas bearing of Caucasus region”. Within the framework of 2015 research, it was found out that in the mud volcano system there are two types of mud volcano waters of the genetic types: $\text{HCO}_3\text{-Na}$ with mineralization 8-15 g/l и Cl-Na with the mineralization 30-80 g/l.

Soda waters differ from chloride ones by the higher values of $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$, which testifies about more intensive interchange with the accommodating rocks in the litho-genesis process. Besides, temperature values by Na-Li and Mg-Li geothermometers demonstrated that formation of saline content in waters occur in the temperature range $\sim 20 - \sim 140^\circ\text{C}$. Researches for the study of geothermal conditions of mud volcano reservoirs' formation of the Caucasus region continued.

Publications, including Russian editions according to the scientific directions of the Section:

- Guliyev I.S., Huseynov D.A. Relics of Mud Volcanoes in the Sedimentary Cover of the South Caspian Basin. Lithology and Mineral Resources, 2015, Vol. 50, No. 4, pp. 311–321.

- Лаврушин В.Ю., Гулиев И.С., Киквадзе О.Е., Алиев Ад.А. и др. Воды грязевых вулканов Азербайджана: изотопно-геохимические особенности и условия формирования. Литология и полезные ископаемые, 2015, № 1, с.1-27.

- Алиев Ад.А., Гулиев И.С., Рахманов Р.Р. Сравнительный анализ грязевого вулканизма в Черноморском и Каспийском регионах. Геология и полезные ископаемые Мирового океана, 2015, № 2, с.92-105.

- Гусейнов Д.А., Мартынова Г.С., Мамедова С.Г., Мухтарова Х.З. Исследование нефтей грязевых вулканов методом совмещенного термического анализа. Геология, геофизика и разработка нефтяных и газовых месторождений, 2015, № 8, с.33-37.

- Бабаев Ф.Р., Мартынова Г.С., Максакова О.П., Нанаджанова Р.Г. Мониторинг акватории месторождения Нефть Дашлары газохромато-

графическим анализом равновесного пара. Защита окружающей среды в нефтегазовом комплексе, 2015, № 8, с.18-22.

Conclusion

The main results of the scientific and organization activity of ANC ANAS and its sections in 2015:

– the main efforts of ANC ANAS, and also members of the sections were directed for the preparation to participate in XXVI General Assembly of IUGG, events' preparation devoted to the celebration of 70th anniversary of establishment of Azerbaijan National Academy of Sciences (ANAS);

– management and members of sections of ANC ANAS started preparation for the five years national report of the activity ANC ANAS during 2012-2016;

– meetings of the sections of ANC ANAS were conducted.