**TRAINING COURSES**

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 Far Eastern Branch of Russia Academy of Sciences (POI FEB RAS)

| **No.** | **Title** | **Venue** | **Period** | **Training contents** | **Time of implementation** | **Notes** |
| --- | --- | --- | --- | --- | --- | --- |
| 1 | To train and enhance the knowledge of the technical staff to serve the office work, processing, interpretation of geological documents | Russia | 30 days | - To systematize research and investigation methods, direct and indirect signals and gas hydrate existing and accumulating premises in Russia and other countries in the world;- To process and analyze gas geochemistry data to investigate the presence and potential of gas hydrate;- To integrate the data of geology, geochemistry, gas geochemistry, geophysics, geomorphology, sediment, investigation and identification of gas hydrate potential. |  |  |
| 2 | Tectonic context research related to hydrate gas reservoirs (under the work item of training and enhancing the knowledge to serve the intensive research) | Viet Nam | 20 days | - Overview of tectonic characteristics of gas hydrate accumulation areas in the world;- Identification of areas with the tectonic context similar to those of the East Vietnam Sea;- Overview of tectonic factors to control the gas hydrate formation and accumulation area ;- The tectonic premise related to the gas hydrate formation and accumulation." |  | n |
| 3 | Stratigraphy and sedimentary environment related to gas hydrate (under the work item of training and enhancing for the knowledge to serve the intensive research) | Viet Nam | 20 days | - Overview of the stratigraphic and environmental characteristics of the hydrate accumulation areas in the world;- Identification of the areas with stratigraphy and environment similar to those of the East Vietnam Sea;- An overview of stratigraphic and sedimentary factors to control the gas hydrate formation and accumulation;- The stratigraphic premise related to the gas hydrate formation and accumulation." | November, 2018 |  |

**DAILY TRAINING CONTENT**

**Training course: “To train and enhance the knowledge of the technical staff to serve the office work, processing, interpretation of geological documents”**

| **No.** | **Number of training day** | **Date/month/year** | **Daily training content** | **Name of teacher** |
| --- | --- | --- | --- | --- |
| 1 | Day 1 | 03/09/2018 | Introduction to gashydrates. Features of distribution. | Dr.Sci., Prof. Anatoly Obzhirov |
| 2 | Day 2 | 04/09/2018 | Introduction to the resources and clime importance of gashydrates. |
| 3 | Day 3 | 05/09/2018 | Overview of offshore methods to search gashydrates. |
| 4 | Day 4 | 06/09/2018 | Overview of modern exploration of gashydrate deposits. |
| 5 | Day 5 | 07/09/2018 | Introduction to basic standard approaches to estimate resources of solid and oilgas minerals. |
| 6 | Day 6 | 08/09/2018 | Geology of gashydrates. Geodynamics. |
| 7 | Day 7 | 09/09/2018 | Geology of gashydrates. Geological development history. |
| 8 | Day 8 | 10/09/2018 | Geology of gashydrates. Tectonics. |
| 9 | Day 9 | 11/09/2018 | Geology of gashydrates. Stratigraphy. |
| 10 | Day 10 | 12/09/2018 | Geology of gashydrates. Lithology. General features. |
| 11 | Day 11 | 13/09/2018 | Geology of gashydrates. Mineralogy. |
| 12 | Day 12 | 14/09/2018 | Geology of gashydrates. Geochemistry. Part 1. |
| 13 | Day 13 | 15/09/2018 | Geology of gashydrates. Geochemistry. Part 2. |
| 14 | Day 14 | 16/09/2018 | Geology of gashydrates. Gaseochemistry. Part 1. |
| 15 | Day 15 | 17/09/2018 | Geology of gashydrates. Gasgeochemistry. Part 2. |
| 16 | Day 16 | 18/09/2018 | Microbiology. Methane oxidizing and producing. |
| 17 | Day 17 | 19/09/2018 | Paleooceanology. Part 1. |
| 18 | Day 18 | 20/09/2018 | Paleooceanology. Part 2. |
| 19 | Day 19 | 21/09/2018 | Geophysical features of gas hydrates. Overview. |
| 20 | Day 20 | 22/09/2018 | Geophysical features of gas hydrates and gashydrate bearing areas. Basic introduction. |
| 21 | Day 21 | 23/09/2018 | Geophysical features of gas hydrates. Seismic. | Dr.Sci., Prof. Anatoly Obzhirov |
| 22 | Day 22 | 24/09/2018 | Geophysical features of gas hydrates. Heat flow. |
| 23 | Day 23 | 25/09/2018 | Geophysical features of gas hydrates. Gravity. |
| 24 | Day 24 | 26/09/2018 | Geophysical features of gas hydrates. Seismology. |
| 25 | Day 25 | 27/09/2018 | Geophysical features of gas hydrates. Hydroacoustic. |
| 26 | Day 26 | 28/09/2018 | Magmatism and volcanology influence on gashydrate prone sediments. |
| 27 | Day 27 | 29/09/2018 | Typical data processing methods. Geology. |
| 28 | Day 28 | 30/09/2018 | Typical data processing methods. Geophysics. |
| 29 | Day 29 | 01/10/2018 | Introduction to methods integrity. |
| 30 | Day 30 | 02/10/2018 | Data integration and documentation. |

**DAILY TRAINING CONTENT**

**Training course: “To train and enhance the knowledge of the technical staff for the tectonic context research related to hydrate gas reservoirs (under the work item of training and enhancing the knowledge of the technical staff for the knowledge to serve the intensive research)”**

| **No.** | **Number of training day** | **Date/month/year** | **Daily training content** | **Name of teacher** |
| --- | --- | --- | --- | --- |
| 1 | Day 1 | 01/10/2018 | Overview of tectonic concepts in the gashydrate prone marginal seas. Part 1. | Dr.Sci. RenatShakirov |
| 2 | Day 2 | 02/10/2018 | Overview of tectonic concepts in the gashydrate prone marginal seas. Part 2. |
| 3 | Day 3 | 03/10/2018 | Introduction to the importance of geodynamic. |
| 4 | Day 4 | 04/10/2018 | Overview of deep structures influencing gashydrates |
| 5 | Day 5 | 05/10/2018 | Marginal seas of the West of Pacific: origin and tectonic features. Part 1. |
| 6 | Day 6 | 08/10/2018 | Marginal seas of the West of Pacific: origin and tectonic features. Part 2. |
| 7 | Day 7 | 09/10/2018 | Basement structure as a background. Part 1. |
| 8 | Day 8 | 10/10/2018 | Basement structure as a background. Part 2. |
| 9 | Day 9 | 11/10/2018 | Relict tectonics and its importance on gashydrate allocation. |
| 10 | Day 10 | 12/10/2018 | Plate tectonics and its importance on gashydrate allocation. |
| 11 | Day 11 | 13/10/2018 | Neotectonics and modern tectonics: significance in view of gashydrates |
| 12 | Day 12 | 16/10/2018 | Other tectonics patterns and their influence on gashydrates. |
| 13 | Day 13 | 17/10/2018 | Morphotectonics in view of gashydrate potential estimation. Part 1. |
| 14 | Day 14 | 18/10/2018 | Morphotectonics in view of gashydrate potential estimation. Part 2. |
| 15 | Day 15 | 19/10/2018 | Compression vsextension: links to gashydrate formation. | Dr.Sci. RenatShakirov |
| 16 | Day 16 | 22/10/2018 | Type and importance of different faults systems |
| 17 | Day 17 | 23/10/2018 | Type and importance of different fold systems |
| 18 | Day 18 | 24/10/2018 | Seismotectonics and their relation to gashydrates. |
| 19 | Day 19 | 25/10/2018 | Features of East Sea of Vietnam tectonics and neighboring areas |
| 20 | Day 20 | 26/10/2018 | Features of East Sea of Vietnam tectonics and neighboring areas |

**DAILY TRAINING CONTENT**

**Training course: “To train and enhance the knowledge of the technical staff to serve the study of stratigraphy and sedimentary environment related to gas hydrate (under the work item of training and enhancing the knowledge of the technical staff for the knowledge to serve the intensive research)”**

| **No.** | **Number of training day** | **Date/month/year** | **Daily training content** | **Name of teacher** |
| --- | --- | --- | --- | --- |
| 1 | Day 1 | 29/10/2018 | Overview stratigraphy of gashydrate accumulations in the marginal seas. Part 1. | Dr. Sc. Derkachev Alexander |
| 2 | Day 2 | 30/10/2018 | Overview stratigraphy of gashydrate accumulations in the marginal seas. Part 2. |
| 3 | Day 3 | 31/10/2018 | Overview stratigraphy of gashydrate accumulations in the marginal seas. Part 3. |
| 4 | Day 4 | 01/11/2018 | Basic stratigraphy units in the oilgas geology of the marginal seas. |
| 5 | Day 5 | 02/11/2018 | Methods to study stratigraphy of the gashydrate bearing sediment strata. Part 1. |
| 6 | Day 6 | 05/11/2018 | Methods to study stratigraphy of the gashydrate bearing sediment strata. Part 2. |
| 7 | Day 7 | 06/11/2018 | Biostratigraphy of the gashydrate bearing sediments. |
| 8 | Day 8 | 07/11/2018 | Lithostratigraphy of the gashydrate bearing sediments. |
| 9 | Day 9 | 08/11/2018 | Seismostratigraphy of the gashydrate bearing sediments. |
| 10 | Day 10 | 09/11/2018 | Overview of sediment environment in gashydrate aspects. Part 1. |
| 11 | Day 11 | 12/11/2018 | Overview of sediment environment in gashydrate aspects. Part 2. |
| 12 | Day 12 | 13/11/2018 | Basic sediment features in order of importance to gashydrate origin and distribution. |
| 13 | Day 13 | 14/11/2018 | Granulometry importance to gashydrate formation. | Dr.Sci. RenatShakirov |
| 14 | Day 14 | 15/11/2018 | Mineral composition of the gashydrate prone sediment basins. |
| 15 | Day 15 | 16/11/2018 | Lithodynamics and accumulation of gashydrates. |
| 16 | Day 16 | 19/11/2018 | Sediment lithochemistry features in gashydrates bearing areas. |
| 17 | Day 17 | 20/11/2018 | Sediment fluxes and gashydrate formations. |
| 18 | Day 18 | 21/11/2018 | Structure and textures of the gashydrate bearing sediments. |
| 19 | Day 19 | 22/11/2018 | Sea level stand and glacial periods importance of the gashydrate study. |
| 20 | Day 20 | 23/11/2018 | Background of basin analyses in the gashydrate prone sediment basins in the marginal seas of the western Pacific |