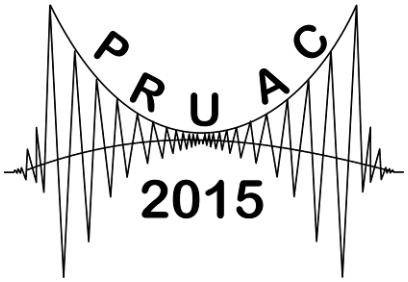

The 5th Pacific Rim Underwater Acoustics Conference

Vladivostok, Russia, 2015

PRUAC 2015
CONFERENCE PROGRAM

23 September 2015 (Wednesday)

08.30 – 10.00: Registration.
10.00 – 10.30: Opening ceremony.

Time	**Session 4. Acoustical Oceanography and Media inhomogeneities** **Chairs: Jeffrey Simmen and Vladimir Bulanov**
10.30 -- 10.50	Yu.N. Morgunov, V.V. Bezotvetnykh, M.S. Lebedev, **Alexander A. Golov**, K.S. Kim (Il'ichev Pacific Oceanological Institute, **Russia)** Real-time remote current velocity and direction estimation by means of hydroacoustic counter-sounding method
10.50 -- 11.10	V.A. Bulanov, **Andrey V. Storozhenko** (Il'ichev Pacific Oceanological Institute, **Russia)** Acoustic assessment of plankton distribution in upper layers of the sea
11.10 -- 11.30	**Alexandra V. Kosheleva**, A.Yu. Lazaryuk, I.O. Yaroshchuk (Il'ichev Pacific Oceanological Institute, **Russia)** Estimation of acoustic and oceanological characteristics of sea water by temperature measurements in the Sea of Japan shelf zone
11.30 -- 11.50	**Andrey A. Lunkov,** A.Yu. Malykhin, A.N. Mihnyuk (Prokhorov General Physics Institute, **Russia**) Effect of internal waves on interference pattern of bottom reverberation

11.50 – 12.10: Coffee break.

Time	**Plenary session A.** **Chair: Ross Chapman**
12.10 -- 12.50	**Jeffrey A. Simmen** (Applied Physics Laboratory, University of Washington, **USA**) Ocean inhomogeneities: a sampling of impacts and future measurements
12.50 -- 13.30	**Kiseon Kim,** Yu. N. Morgunov, JongIn Song, Dongsoo Har (Gwangju Institute of Science and Technology, **Korea**) Issues of coastal acoustic ranging and localization: importance, principles and experimental framework

13.30 – 15.00: Lunch.

Time	**Plenary session B.** **Chair: Jeffrey Simmen**
15.00 -- 15.40	**Stanley E. Dosso,** J. Dettmer, Ch. Holland, J. Quijano (University of Victoria, **Canada**) Probabilistic ocean acoustic inversion
15.40 -- 16.20	**Valeri G. Petnikov**, A.D. Chernousov, V.A. Grigoriev, A.A. Lunkov (A.M. Prokhorov General Physics Institute, **Russia**) Sound propagation in the shelf area with the soft bottom

16.20 – 16.40: Coffee break.

Time	**Session 1. Acoustics for navigation and underwater communication** **Chairs: Yuri Morgunov and Kiseon Kim**
16.40 -- 17.00	**Grigory I. Dolgikh**, V.A. Chupin, V.K. Fishchenko (Il'ichev Pacific Oceanological Institute, **Russia)** Registration and determining the bearing of the sources of low-frequency hydroacoustic oscillations
17.00 -- 17.20	**Tuncay Akal,** O. Duzenli (SUASIS, Underwater Systems, **Turkey**) SUNRISE project: SUASIS underwater system's communication test-bed
17.20 -- 17.40	**Huma Ghafoor**, I.S. Koo (University of Ulsan, **Korea)** Belief propagation-based ad hoc routing in cognitive maritime networks
17.40 -- 18.00	Md Arifur Rahman**, Young-Doo Lee,** Insoo Koo (University of Ulsan, **Korea)** Energy efficient acoustics signal propagation scheme for underwater wireless sensor networks
18.00 -- 18.20	**Roman A. Korotchenko** (Il'ichev Pacific Oceanological Institute, **Russia)** Application of the singular spectrum analysis for detecting the marine mammals signals
18.20 -- 18.40	**Alexander Yu. Rodionov**, L.G. Statsenko, P.P. Unru (Far Eastern Federal University, **Russia)** Orthogonal frequency-pulsed frequency-division multiplexing in underwater communications systems

24 September 2015 (Thursday)

Time	**Session 3A. Acoustic tomography, geoacoustic inversion and ambient noise** **Chairs: Stanley Dosso and Jean-Pierre Hermand**	**Session 8. Other related topics** **Chairs: Fenghua Li and Luybov' Statsenko**
09.00 -- 09.20	A.S. Shurup, **Sergey N. Sergeev**, V.V. Goncharov, A.I. Vedenev, O.A. Godin, N.A. Zabotin, M.G. Brown (Moscow State Univ., **Russia)** Retrieval of deterministic normal modes from cross-correlations of acoustic noise in shallow water	**Zafar Iqbal**, H.N. Lee (Gwangju Inst. of Sci. and Tech., **Korea)** Underwater acoustic channel model and variations due to changes in node and buoy positions
09.20 -- 09.40	**Dmitriy S. Strobykin,** A.V. Burenin**,** E.A. Voitenko**,** M.S. Lebedev (Il'ichev Pacific Oceanologica Inst., **Russia**) Study of possibilities of flow field acoustic monitoring by the reciprocal sounding method in conditions of very shallow water	**Gi Hoon Byun,** J.S. Kim **(**Korea Maritime and Ocean Univ., **Korea**) Improvement of an adaptive time-reversal mirror
09.40 -- 10.00	**S.H. Kim,** B.N. Kim, B.K. Choi, J.W. Kim (Korean Inst. of Ocean Sci. and Tech., **Korea)** Long range acoustic tomography modeling for water temperature estimation in the East Sea	Yu. Agrafonov, M. Agrafonov, I. Petrushin, **Bair B. Damdinov**, Sh. Tsydypov (Buryat State Univ., **Russia)** Radial distribution function for liquid near the solid surface
10.00 -- 10.20	**J.W. Kim,** B.K. Choi, D.W. Lee, M.S. Sim (Korean Inst. of Ocean Sci. and Tech., **Korea)** Acoustic detection method of cylindrical target using broadband sonar signal in water	
10.20 -- 10.40	**D.G. Han,** J.Yu. Na**,** J.W. Choi (Hanyang univ., **Korea)** Temporal and spatial variations of high ambient noise environment in Southern coast of Korea	
10.40 -- 11.00	V.V. Goncharov, A.S. Shurup, A.I. Vedenev, **Sergey N. Sergeev**, O.A. Godin, N.A. Zabotin, M.G. Brown, A.V. Shatravin (Moscow State Univ., **Russia)** Tomographic inversion of measured cross-correlations of ambient noise in shallow water using the ray theory	
11.00 -- 11.20	**Nikolai G. Bibikov,** O.N. Grubnik, S.V. Kosterin (Andreev Acoustical Inst., **Russia)** The statistical characteristics of the distribution of snapping shrimps clicks in the coastal waters of the Pacific shelf of Russia	

11.10 – 11.30: Coffee break.

Time	**Plenary session C.** **Chair: Kiseon Kim**
11.30 -- 12.10	**N. Ross Chapman** (University of Victoria, **Canada**) Experimental benchmarks of geoacoustic inversion methods
12.10 -- 12.50	**Jean-Pierre Hermand** (Université Libre de Bruxelles, **Belgium**) Listening to ships to study sediment
12.50 -- 13.30	**Timothy G. Leighton**, (University of Southampton , **UK**) The acoustic bubble

13.30 – 15.00: Lunch.

Time	**Session 5A. Modeling of the sound propagation** **Chairs: Renhe Zhang and Valeri Petnikov**	**Session 7A. Experimental techniques, array and transducer technologies** **Chairs: T.C. Yang and Luybov' Statsenko**
15.00 -- 15.20	**Mikhail Yu. Trofimov**, S.B. Kozitskiy, A.D. Zakharenko, P.S. Petrov (Il'ichev Pacific Oceanological Inst., **Russia**) Ray mode parabolic equations and examples of its application in shallow water acoustics propagation problems	**Igor V. Medvedev** (Il'ichev Pacific Oceanological Inst., **Russia**) Example for applying the Iridium satellite communications for hydroacoustic monitoring during the seismic survey on the shelf
15.20 -- 15.40	**Gennady V. Alekseev**, T. Kukina (Inst. of Applied Mathematics, **Russia**) Optimal approach in 3D problems of acoustic cloaking using the wave flow method	**Jieun E. Lee**, Y.S. Oh, S.S. Park (Sonar Tech, **Korea**) Hardware platform for multibeam acoustic signal processing and operation management
15.40 -- 16.00	**Igor V. Prokhorov**, A.A. Sushchenko (Inst. of Applied Mathematics, **Russia**) Imaging of sea bed based on signal from side-scan sonar	**Miheung Choe,** H.J. So (KyungWon Industry Co., **Korea**) Broadband high-power underwater sonic source dynamically covering from 2.5 kHz to 40kHz
16.00 -- 16.20	**Oleg E. Gulin**, I.O. Yaroshchuk (Il'ichev Pacific Oceanological Inst., **Russia**) Simulation of low-frequency sound propagation in shallow sea with two-dimensional random inhomogeneities	**Andrey D. Chernousov**, D.V. Goriakin, V.N. Konovalov, V.A. Pirogov (Andreyev Acoustics Institute, **Russia**) Antenna array with extended piezo cable sensors and its measured characteristics
16.20 -- 16.40	**Pavel S. Petrov**, T.N. Petrova (Il'ichev Pacific Oceanological Inst., **Russia**) New adiabatic approximate solutions for two problems of sound propagation in a shallow sea with 3D bottom relief inhomogeneities	**Alexey V. Kiryanov**, B.A. Salnikov, E.N. Salnikova, P.P. Unru (Far Eastern Federal University, **Russia**) Using the mathematical tool of transfer functions to solve the problems of synthesis of

		hydroacoustic antennas for a predetermined directional response

16.40 – 17.00: Coffee break.

Time	**Session 5B. Modeling of the sound propagation** **Chairs: Gennady Alekseev and Mikhail Trofimov**	**Session 7B. Experimental techniques, array and transducer technologies** **Chairs: T.C. Yang and Luybov' Statsenko**
17.00 -- 17.20	A.S. Mikhaylov, **V.S. Mikhaylov** (St. Petersburg Dept. of V.A. Steklov Inst. of Mathematics, **Russia**) On some application of Boundary Control method in Inverse Problems	A.I. Gorelikov, V.I. Korochentsev, **Pavel A. Volkov** (Far Eastern Federal Univ., **Russia**) Low-frequency pneumatic radiator
17.20 -- 17.40	**Denis V. Makarov** (Il'ichev Pacific Oceanological Inst., **Russia**) Ray and wave chaos in ocean acoustics	**Olga S. Gromasheva** (Il'ichev Pacific Oceanological Inst., **Russia**) The development of the information system ACPOSIT-Vector for the planning and analysis of acoustic experiments
17.40 -- 18.00	**German L. Zavorokhin** (St. Petersburg Dept. of V.A. Steklov Inst. of Mathematics, **Russia**) On the space-time ray method for fluid-saturated porous Biot media	**Eugeny M. Titov**, S.A. Shevkun (Far Eastern Federal Univ., **Russia**) Calculation of the acoustic field of a linear antenna array radiating near impedance boundary of two media.
18.00 -- 18.20	**Andrey A. Chusov**, L.G. Statcenko Y.V. Morgorodskaya (Far Eastern Federal Univ., **Russia**) Applying high-performance computing to conduct experiments upon sound propagation	
18.20 -- 18.40	**Konstantin V. Avilov** (Blagonravov Inst. of Machines Sci., **Russia**) Numerical modeling of the sound field in the three-dimensional heterogeneous marine environment on the basis of the additive factorization technique	

19.30: Conference banquet.

25 September 2015 (Friday)

Time	**Session 2A. Acoustics of bubbles and nonlinear hydroacoustics** **Chairs: Timothy Leighton and Igor Esipov**	**Session 6. Shelf acoustics and sound propagation in shallow and deep water** **Chairs: Valeri Petnikov and T.C. Yang**
09.00 -- 09.20	**Valery A. Borissenok** (Sarov Physical Technical Inst., **Russia**) Sonoluminescence: an analysis of experiments and models	**A.V. Shchurov** (Il'ichev Pacific Oceanological Inst., **Russia**) Comparative assessment for the intensities of large-scale and small-scale acoustic eddies
09.20 -- 09.40	**Tatyana V. Gordeychuk,** M.V. Kazachek (Il'ichev Pacific Oceanologica Inst., **Russia**) Peculiarities of alkali-metals emission in optical spectra from ultrasound induced cavitation (sonoluminescense)	Yu.N. Morgunov, V.V. Bezotvetknyh, **Alexander V. Burenin,** E.A. Voitenko (Il'ichev Pacific Oceanological Inst., **Russia**) Experimental researches of propagation features of low frequency complex signals from the coastal zone to the deep sea in conditions of weak negative gradient of the sound speed on the shelf
09.40 -- 10.00	**Boris P. Sharfarets** (Inst. Analytical Instrument Making, **Russia)** On the simplified procedure for the calculation of radiation pressure on the inclusion in a viscous barotropic fluid	**Viktor A. Akulichev**, L.K. Bugaeva, Yu.N. Morgunov, A.A. Solovjev (Il'ichev Pacific Oceanological Inst., **Russia**) Influence of frontal zones on sound propagation at the Northwest Pacific Ocean and Indian Ocean
10.00 -- 10.20	**Alexei V. Bulanov** (Il'ichev Pacific Oceanologica Inst., **Russia**) Acoustic emission and optics of bubbles originated by laser breakdown of salt water	**Alexander N. Rutenko** (Il'ichev Pacific Oceanological Inst., **Russia**) The tasks and possibilities for the numerical simulation of acoustic fields on the shelf, based on the results of field measurements
10.20 -- 10.40	**Yuri A. Polovinka,** A.O. Maksimov (Il'ichev Pacific Oceanologica Inst., **Russia**) The peculiarities of the implementation of time reversal method for gas leakage detection at the shore of Sakhalin	
10.40 -- 11.00	V.A. Akulichev, **Vladimir A. Bulanov** (Il'ichev Pacific Oceanologica Inst., **Russia**) The bubble distribution and acoustic characteristics of subsurface sea layer	
11.00 -- 11.20	**Igor N. Didenkulov**, A.I. Martyanov, N.V. Pronchatov-Rubtsov (Institute of Applied Physics, **Russia)** Interaction of acoustic waves with moving bubbles	

11.20 – 11.40: Coffee break.

Time	**Session 3B. Acoustic tomography, geoacoustic inversion and ambient noise** **Chairs: Stanley Dosso and Jean-Pierre Hermand**
11.40 -- 12.00	**Konstantin V. Dmitriev**, A.A. Dorofeeva, I.A. Pankov, S.N. Sergeev, E.V. Fadeev (Moscow State University, **Russia**) Experimental determination of extremely shallow water waveguide parameters
12.00 -- 12.20	**Mikhail Zykov**, B. Martin, A. MacGillivray (JASCO Applied Sciences, **Canada)** Experiment on transmission loss data inversion to estimate geoacoustic properties of the sea bottom off-shore Atlantic Canada: pre-field design and capability testing
12.20 -- 12.40	**V.A. Gritsenko,** M.Yu. Fershalov (Il'ichev Pacific Oceanological Institute, **Russia)** Software for monitoring the parameters of seismo-acoustic pulses in real time
12.40 -- 13.00	**Sergey Gorovoy,** V. Korenbaum, A. Borodin, A. Tagiltcev, A. Kostiv, A. Shiryaev, I. Pochekutova (Far Eastern Federal University, **Russia**) Detecting respiratory noises of diver equipped with rebreather in water

13.00 – 14.30: Lunch.

Time	**Plenary session D.** **Chair: Kiseon Kim**
14.30 -- 15.10	**Renhe Zhang**, Fenghua Li (Institute of Acoustics, **China**) Progresses on acoustic inversion in the state key laboratory of acoustics of China
15.10 -- 15.50	**Igor Esipov** (Russian state university of oil and gas by I.M. Gubkin, **Russia**) New approach to oceanography research on elongated paths on nonlinear acoustics principals
15.50 -- 16.30	**T.C. Yang** (Zhejiang University, **China**) Data-based source localization for a moving source applied to a vertical, horizontal line array or a single hydrophone

16.30 – 16.50: Coffee break.
16.30 – 18.10: Poster session.
18.10 – 18.30: Closing ceremony.
19.00: Opera spectacle at Primorsky Opera House.

List of the poster presentations

No.	Coauthors (presenter in bold), e-mail	Affiliation, city, country	Title
1.	**B.P. Sharfarets** (sharb@mail.ru)	Institute of Analytical Instrument Making, Saint-Petersburg, **Russia**	Scattering amplitude of the elastic ball in a viscous isotropic fluid
2.	**S.V. Gorovoy**, (gorovoysv@mail.ru) A.V. Kiryanov, E.M. Zheldak	Far Eastern Federal University, Vladivostok, **Russia**	Characteristics of underwater noise near the west roadstead of the port of Vladivostok
3.	**A.V. Burenin,** (shurick_burenin1@mail.ru) M.S. Lebedev, D.S. Strobykin	V.I.Il'ichev Pacific Oceanological Institute Vladivostok, **Russia**	Autocorrelation Technique of the Doppler Shift Estimation
4.	G.I. Dolgikh, A.N. Samchenko, A.A. Pivovarov, **V.A. Chupin**, (chupin@poi.dvo.ru) A.N. Shvyrev, I.O. Yaroshchuk	V.I. Il'ichev Pacific Oceanological Institute, Vladivostok, **Russia**	Peculiarities of transformation of hydroacoustic oscillations at the media interfaces
5.	**M.Yu. Trofimov,** (trofimov@poi.dvo.ru) S.B. Kozitskiy, A.D. Zakharenko	[1]V.I. Il'ichev Pacific Oceanological Institute, Vladivostok, **Russia**	Elastic mode parabolic equations in the case of weak shear modulus
6.	V.A. Bulanov **I.V. Korskov** P.N. Popov A.V. Storozhenko	V.I.Il'ichev Pacific Oceanological Institute Vladivostok, **Russia**	Researches of Sound Scattering in the Sea Using the Inverted Echo Sounder
7.	P.S. Petrov[1,2], **A.S. Monakhova[2]** (monakhova.ase@dvfu.ru)	[1] V.I. Il'ichev Pacific Oceanological Institute, Vladivostok, **Russia** [2]Far Eastern Federal University, Vladivostok, **Russia**	Sound propagation in a waveguide with the junction-type bottom relief inhomogeneity
8.	**O. Larkina** (larkina-olga@rambler.ru) O. Dyakonova	Far Eastern Federal University, Vladivostok, **Russia**	Control material parameters in 2-D material body cloaking by the optimization method
9.	**V. Sosnov** (megachuhancer@gmail.com)	Far Eastern Federal University, Vladivostok, **Russia**	Construction of approximate cloaking shells for 2D model of sound scattering based on control approach
10.	B. Kasatkin[1], N. Zlobina[1],	[1]Institute of Marine Technology	Researches of scalar-vector structure of sound field in shallow water

	S. Kasatkin[1], (bigcezar@mail.ru) G. Kosarev[1], L. Statsenko[2], D. Zlobin[2],	Problems, Vladivostok, **Russia** [2]Far Eastern Federal University, Vladivostok, **Russia**	
11.	B. Kasatkin[1] N. Zlobina[1] S. Kasatkin[1] **L. Statsenko**[2] (lu_sta@mail.ru) D. Zlobin[2]	[1]Institute of Marine Technology Problems, Vladivostok, **Russia** [2]Far Eastern Federal University, Vladivostok, **Russia**	Generalized theory of wave processes in layered media
12.	**N.P. Melnikov** (melnikov50@mail.ru) V.P. Elistratov	Radiophysical Research Institute (NIRFI), Nizhny Novgorod, **Russia** Hydrophysical Institute of Academy of Sciences of Abkhazia, Sukhum, **Abkhazia**	The modeling of variability of the cavitation thresholds of sea water
13.	**P.A. Volkov** **(**volkk100@mail.ru) V.I. Korochentsev S.V. Gorovoy A.A. Volkova	Far Eastern Federal University, Vladivostok, **Russia**	Designing special antenna directivity pattern by means of liquid lens antennas
14.	**A.V. Kiryanov** (kirianov.av@dvfu.ru) B.A. Salnikov E.N. Salnikova N.Yu. Slesarev	Far Eastern Federal University, Vladivostok, **Russia**	Simulation and study of basic laws of formation of sound fields in irregular underwater wave guides
15.	**A. Lobanov**[1,2] (alekslobanov1@mail.ru)	[1]Institute of Applied Mathematics, Vladivostok, **Russia** [2]Far Eastern State Fisheries University, Vladivostok, **Russia**	Numerical analysis of 2D scattering problem for cylindrical invisibility cloaking incorporating PEMC-layer
16.	**J. Spivak** **(**u3l3i3y3a3@mail.ru)	Far Eastern Federal University, Vladivostok, **Russia**	Numerical modeling of 2D approximate cloaking using multi-layered homogeneous materials
17.	**D.S. Manul'chev** (manulchevds@gmail.com)	V.I. Il'ichev Pacific Oceanological Institute, Vladivostok, **Russia**	The features of three-dimensional simulation for nonstationary acoustic signals
18.	**D.G. Kovzel'**	V.I. Il'ichev Pacific	The hydroacoustic measurement and

	(dgk06@mail.ru)	Oceanological Institute, Vladivostok, **Russia**	registration complex with acoustic, radio and satellite telemetry channels
19.	Yu. Titchenko[1], (gt-george@yandex.ru) V. Karaev[1] **E. Meshkov[1]** A. Kirillov[1,2] R. Beliaev[1] A. Shishkov[2]	[1]Institute of Applied Physics of Russian Academy of Sciences, Nizhny Novgorod, **Russia** [2]Scientific and technological company "MEDUSA" LLC	Sea surface parameters retrieval by a doppler underwater acoustic wave gauge in the marine experiment
20.	Yu. Titchenko[1], (gt-george@yandex.ru) V. Karaev[1] **E. Meshkov[1]** A. Kirillov[1,2] R. Beliaev[1] A. Shishkov[2]	[1]Institute of Applied Physics of Russian Academy of Sciences, Nizhny Novgorod, **Russia** [2]Scientific and technological company “MEDUSA” LLC	Study of underwater acoustic altimeter possibilities in the marine experiment
21.	**S.A. Schegoleva** (sveta170@bk.ru) P.L. Titov	Far Eastern Federal University, Vladivostok, **Russia**	Pilot analysis and comparative characteristics of chaotic and noise-like signals
22.	**S. Gorovoy**, (gorovoysv@mail.ru)	Far Eastern Federal University, Vladivostok, **Russia**	Two-dimensional and three-dimensional probability density functions of underwater noise near the port of Vladivostok