The publisher and the editors of its publications assume no responsibility for the statements or opinions expressed in papers or presentations by the contributors to this symposium or proceedings.

CONTENT

SAKHALIN OFFSHORE

Integrated Deep-Ocean Ship-to-Seafloor System: Mining and Drilling
Jin S. Chung ........................................................................................................................................ 1

Comparative Analysis of Full-Scale Observations of Geochemical Composition of Bottom Sediments on Five Squares of the Project "Sakhalin-2"
V.I. Petukhov, I.G. Lisitskaya, A.V. Romanchenko and I.A. Vagenik ................................................ 8

Basic Issues of the Design of Support Elements of Gravity Platforms on Sakhalin Shelf
E.N. Bellendir, V.B. Glagovsky and O.M. Finagenov ...................................................................... 12

Peculiarities of Up-Dating “Orlan” Drilling Rig for “Sakhalin Shelf”
N.A. Taranukha, B.A. Novikov, S.D. Chizhiumov, O.V. Zhurbin and A.D. Burmenskiy ................. 20

Seismic Design of Sakhalin Offshore Platforms
Rama Gunturi, Mike Efthymiou, Cliff Hall and Ton van Beek ........................................................ 27

On Specificity of Soil Cover and Its Remediation at the Sakhalin Project Realization
Nickoly Maximovich Kostenkov and Vladimir Ivanovich Oznobikhin ........................................... 35

On Characteristics of Purification the Oil Polluted Soils under the Sakhalin Project Realization
Grigoriy Petrovich Golodyaev and Vladimir Ivanovich Oznobikhin............................................... 39

ICE ENGINEERING

Uniaxial Compressive Strength of Sea Ice along the Coast of Hokkaido and Sakhalin
Hirofumi Kondo, Natsuhiko Otsuka, Takahiro Takeuchi, Takaharu Masaki,
Shinji Kioka and Hiroshi Saeki ......................................................................................................... 44

Peculiarities of the Structure and Properties of Ice Ridges in the Eastern Barents Sea Based on the 2003 Expedition Data
G.K. Zubakin, Yu.P. Gudoshnikov, A.K. Naumov, I.V. Stepanov and N.V. Kubyshkin ............... 49

Behavior of Ice Floe Run-Up Caused by Tsunami
Natsuhiko Otsuka, Yoshimasa Takahashi, Hirofumi Kondo, Takahiro Takeuchi and Hiroshi Saeki ................................................................................................................................. 55
### Run-Up of Ice Floes on Sloping Beach due to Waves
*Takashi Wakabayashi, Akira Imaizumi, Shinjiro Takahashi, Ryo Ishikai, Takahiro Tkeuchi and Hiroshi Saeki*

---

### Movement of Ice Floes at the Edge of Ice Sheet in Saroma Lagoon
*T. Terashima, T. Kawai, N. Otsuka, T. Takeuchi and H. Saeki*

---

### Study on the Utilization and Reinforcement of Bearing Capacity of Floating Ice
*Natsuhiko Otsuka, Takashi Terashima, Takashi Wakabayashi, Satoshi Okamoto and Hiroshi Saeki*

---

### Meteorological Observation in Fishing Port of Hokkaido During Winter Season and Numerical Calculation Model of Ice Growth and Melting
*Shinji Kioka, Daisuke Honma, Yasuji Yamamoto, Nishida Michihiro and Takashi Terashima*

---

### Ice Concentration of the Far-Eastern Seas of Russia
*Lev P. Yakunin*

---

### Experimental Investigation of Ice Cover Spatial Inhomogeneity
*Alexander T. Bekker, Sergey G. Gomolskiy and Alexander E. Farafonov*

---

### Hydraulic Conductivity of Bottom Ice
*V.V. Zemlyanoy*

---

### Simulation Method of Ice Bottom Topography
*Shinji Kioka, Yasuji Yamamoto, Daisuke Honma, Mitsuhiro Sakikawa and Shigeki Sakai*

---

### About a Possibility for a Probabilistic Interpretation for Forecast Dates when Ice Thickness Growth Up to 20-25 cm
*Victor Dmitriev*

---

### Mathematical Modelling of Shock Loading of a Solid Ice Cover
*Victor M. Kozin and Alexandra V. Pogorelova*

---

### The Simulation Model of Hummocks Impact on the Sea Bottom and Subsea Pipelines
*Alexander T. Bekker, Olga A. Sabodash and Roman V. Vavilin*

---

### Analysis of Types and Design Solutions of Offshore Ice-Resistant Platforms for Seismic Regions of Continental Shelf
*M.V. Makarov and V.V. Kotov*

---

### Numerical Simulation of the Process of Mechanical Interaction between Drifting Ice Fields and Structure Support
*Alexander T. Bekker, Tatyana E. Uvarova and Sergei D. Kim*
Experimental and Theoretical Investigation of Concrete Fracture Strength on the Basis of Energy Criteria

Michael A. Guzev and Natalia V. Makarova ................................................................. 129

Level of Allowable Stresses under Cyclic Variable-Polarity Thermal Fields Impact to Concretes

Vasiliy I. Kolomiets and Alexander T. Bekker .............................................................. 134

A Four-Parameter Multi-Axial Strength Criterion for Lightweight Aggregate (LWA) Concrete

Yupu Song and Licheng Wang ......................................................................................... 141

HYDRODYNAMICS & COASTAL ENGINEERING

Wave Climate Study of the Northeast Taiwan

W.P. Huang, C. S. Kung, J.Z. Yim and C.R. Chou .......................................................... 147

A Study of Possible Effects of Missing Values in a Wave Record

John Z. Yim, Chung-Ren Chou and Wei-Po Huang ......................................................... 152

Nonlinear Properties of Long Edge Waves above a Cylindrical Shelf

V.A. Dubinina, A.A. Kurkin and O.E. Poloukhina ......................................................... 157

Energies of Evanescent Modes for Linear Water Waves over Varying Topography

Changhoon Lee, Yong-Sik Cho and Dae-Hee Cho .......................................................... 163

Mechanism of Porpoising Instabilities for High-Speed Planing Craft

Toru Katayama ................................................................................................................. 171

Submerged Dual Buoy/Porous-Membrane Breakwaters

S.T. Kee, W.S. Park and M.H. Kim .................................................................................. 179

Wave Interaction with an Array of Combined Cylinders with Solid Interior Column and Porous Exterior Column

Yucheng Li, Lu Sun and Bin Teng .................................................................................... 187

Numerical Modeling of Ship Motion in Heavy Sea Conditions

S.D. Chizhiumov ............................................................................................................. 193

ENERGY, ENVIRONMENT AND OFFSHORE SYSTEMS

A Review on the NOx Emission Status and Reduction Technologies of Korean Marine Diesel Engines

K.J Kang, S.H. Kim, M.S. Jang and E.C. Kim ................................................................. 199

Optoelectronic Method of Absolute Inclination Remote Monitoring

Study of Oscillatory Pneumatic Damping in the Air Duct for an OWC Type Wave Energy Device
Hark Sun Choi, Seok Won Hong, Jin-Ha Kim, Sa Young Hong, Do Chun Hong and Jae Moon Lew ................................................................. 209

Calculation of Wind Loading on Large-Scale Floating Wind Turbine
Victor V. Cheboxarov and Valery V. Cheboxarov ......................................................... 216

Definition of Design Storm Profile for the Area of Piltun-Astokhskoye and Lunskoye Deposits
B.V. Belayev and M.E. Mironov ............................................................................. 222

Production Platforms for Russian Offshore
G.V. Zhukov and S.L. Karlinsky ........................................................................... 226

An Expert System at FETSU for Marine Transport Structures
Lev V. Kim ........................................................................................................ 232

UNDERWATER VEHICLES AND CONTROL

The Synthesis of Multi-Dimensional Variable Structure System for Autonomous Underwater Vehicle
A.V. Lebedev and V.F. Filaretov .............................................................................. 236

Power Consumption of Tethered Underwater Vehicle
Irene.G. Mokeeva and Gennadiy A. Mokeev .......................................................... 241

Effective Bow Wing Control for Ship Propulsion
Shigeru Naito and Naoki Okumura ...................................................................... 247

On Diagnosis for Thrusters of Underwater Vehicles
Anton M. Pisarets, Alexander V. Inzartsev and Alexey N. Zhirabok ...................... 255