

Welcome to ISOPE-2004

We greatly appreciate the excellent responses and help we have received from colleagues around the world in the successful organization of the 14th International Offshore and Polar Engineering Conference (ISOPE-2004), Toulon, May 23–28, 2004. The Conference features **91 sessions of refereed papers** and **3 plenary sessions** from more than **46** countries, including the ISOPE Friction Stir Welding (FSW) Symposium.

The purposes of the ISOPE conference are to:

- Promote technological progress and activities, international technological transfer and cooperation, and opportunities for engineers to maintain and improve technical competence; and
- Provide a timely international forum for technical activities, cooperation, opportunity and fellowship among researchers and engineers,

by developing focused session topics with high quality (in both originality and significance) papers accepted through rigorous review, establishing high international standards for publication and worldwide distribution and promoting interdisciplinary interaction between academia and industry.

The International Society of Offshore and Polar Engineers (ISOPE) has already held 25 successful international meetings:

- The 1st (1990) European Offshore Mechanics Symposium (ISOPE EUROMS-90) Trondheim, 1990; EUROMS-99 Moscow.
- The 1st (1990) Pacific/Asia Offshore Mechanics Symposium (ISOPE-PACOMS-90) Seoul; PACOMS-94 Beijing; PACOMS-96 Pusan and PACOMS-2002 Daejeon.
- The Annual ISOPE conferences, starting in Edinburgh, 1991 were held in San Francisco, Singapore, Osaka, The Hague, Los Angeles, Honolulu, Montréal, Brest, Seattle, Stavanger, Kitakyushu and Honolulu. Since 1992, the annual ISOPE Conference has been held with the world's largest technical program of its kind with refereed papers;
- The 1st (1995) ISOPE Ocean Mining Symposium (OMS-95), Tsukuba, 1995, ISOPE OMS-97 Seoul, OMS-99 Goa, OMS-2001 Szczecin and OMS-2003 Tsukuba;
- The 1st (1996) International Deep-Ocean Technology (IDOT-96) Symposium and Workshop, Los Angeles; and IDOT-2001 Stavanger.

On behalf of the Technical Program Committee, it is our pleasure to welcome participants from all over the world to the ISOPE-2004 Conference in Toulon.

Jin S Chung, USA	Guy Herrouin, France
Ronald H Knapp, USA	Wataru Koterayama, Japan
	Ivar Langen, Norway

Co-chairmen of the ISOPE-2004 Conference

SUNDAY MAY 23

09:00 ISOPE Board of Directors Meeting Tesse, 2F

12:00
ISOPE-2004 Executive Committee Meeting Tesse, 2F
EUROMS and PACOMS Executive Committees

15:00-18:00
CONFERENCE REGISTRATION Reception Desk, Lobby

18:00-19:00
CONFERENCE RECEPTION Hotel Mercure

For Tour Information Click on <http://isope2004.tvt.fr>
(See ISOPE bulletin board in Registration Area)

Spouse Program (<http://www.isope.org>) See bulletin board

MONDAY MAY 24

07:30
On-Site Registration starts at 07:30 (Monday only)

07:30 **Author Briefing** Hotel Mercure-Terrace

08:30
Conference Opening Vauban
Conference Opening Addresses
National and Regional Authorities

09:15
1. **OCEAN TECHNOLOGY REVIEW (V. 1)** Vauban

13:20
PLENARY I (Environment, V. 3) Vauban

14:00
2. **OFFSHORE I: Subsea Install. & Operation (V. 1)** Vauban
3. **METOCEAN I: Waves (V. 3)** Colbert
4. **HYDRO Dynamics and Forces I (V. 3)** Bonaparte
5. **GEOTECH I: Centrifuge Medeling ... (V. 2)** Port Cros, H*
6. **DECOMMISSIONING I: (V. 1)** Porquerolles, H*
7. **HYDRATES AND MINING I (V. 1)** Raimu 1
8. **FLOW-INDUCED VIBRATIONS I (V. 3)** Raimu 2
9. **POLAR & ICE I: Polar Research (V. 1)** Dumont
10. **MECHANICS & STRUCTURES I (V. 4)** Puget

17:00
ISOPE Technical Committee Meetings Colbert and Bonaparte
* H = *Hotel Mercure*

07:30 **Author Briefing** Hotel Mercure-Terrace

Sunday - Thursday	
Audio/Visual Practice	Courdouan, 2F
On-site Registration	Reception Desk, Lobby Floor
Conference Headquarters	Tesse
Proceedings Pickup/Sales	Reception Desk

TUESDAY MAY 25

07:30 Author Briefing

Hotel Mercure-Terrace

08:00

11. OFFSHORE II: Nonlinear Wave Loads (V. 1)	Vauban
12. METOCEAN II: Waves & Sea State 1 (V. 3)	Colbert
13. HYDRO Dynamics and Forces II (V. 3)	Bonaparte
14. GEOTECH II: Piles & Caissons (V. 2)	Port cros, H*
15. DECOMMISSIONING II: Panel (V. 1)	Porquerolles, H*
16. HYDRATES AND MINING II (V. 1)	Raimu 1
17. FLOW-INDUCED VIBRATIONS II (V. 3)	Raimu 2
18. POLAR & ICE II: Ice Engineering 1 (V. 1)	Dumont
19. MECHANICS & STRUCTURES II (V. 4)	Puget

10:40

20. OFFSHORE III: FPSO/TLP/VLFS 1 (V. 1)	Vauban
21. METOCEAN III: Waves & Sea State 2 (V. 3)	Colbert
22. HYDRO Dynamics and Forces III (V. 3)	Bonaparte
23. GEOTECH III: Piles & Anchors (V. 2)	Port cros, H*
24. ROV KAIKO ACCIDENT: Review and ... (V. 2)	Porquerolles, H*
25. MATERIALS/WELDING/FATIGUE I (V. 4)	Raimu 1
26. HYDRATES AND MINING III (V. 1)	Raimu 2
27. POLAR & ICE III: Ice Engineering 2 (V. 1)	Dumont
28. RELIABILITY, RISK & SAFETY I (V. 4)	Puget

13:20

PLENARY II (Geotechnical Eng. V. 2)	Port cros, Hotel
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14:00

29. OFFSHORE IV: FPSO/TLP/VLFS 2 (V. 1)	Vauban
30. METOCEAN IV: Sea State & Current (V. 3)	Colbert
31. COASTAL ENG I: Coastal Waves (V. 3)	Bonaparte
32. GEOTECH IV: Soil Dynamics (V. 2)	Port cros, H*
33. ENVIRONMENT & SENSING (V. 1)	Porquerolles, H*
34. MATERIALS/WELDING/FATIGUE II (V. 4)	Raimu 1
35. PIPELINES/RISERS/MOORING I (V. 2)	Raimu 2
36. POLAR & ICE IV: Ice Engineering 3 (V. 1)	Dumont
37. RELIABILITY, RISK & SAFETY II (V. 4)	Puget

16:30 Board of Editors Meeting

Tesse

19:00 ISOPE-2004/ISOPE-2005 Seoul TPC Meeting

See bulletin board

* H = *Hotel Mercure*

Sunday - Thursday	
Audio/Visual Practice	Courdouan, 2F
On-site Registration	Reception Desk, Lobby Floor
Conference Headquarters	Tesse
Proceedings Pickup/Sales	Reception Desk

WEDNESDAY MAY 26

07:30 Author Briefing	Hotel Mercure–Terrace
08:00	
38. OFFSHORE V: FPSO/SPAR/TLP/VLFS 3 (V. 1)	Vauban
39. METOCEAN V: Climatology (V. 3)	Colbert
40. COASTAL ENG II: Breakwaters 1 (V. 3)	Bonaparte
41. GEOTECH V: Soil Properties 1 (V. 2)	Port cros, H*
42. AUV & ROBOTICS I (V. 2)	Porquerolles, H*
43. FSW I: Mechanisms & Modeling (V. 4)	Raimu 1
44. PIPELINES/RISERS/MOORING II (V. 2)	Raimu 2
45. POLAR & ICE V: Ice Environment & Icing (V. 1)	Dumont
46. RELIABILITY, RISK & SAFETY III (V. 4)	Puget
10:40	
47. OFFSHORE VI: FPSO/SPAR/TLP/VLFS 4 (V. 1)	Vauban
48. METOCEAN VI: Hindcast (V. 3)	Colbert
49. COASTAL ENG III: Breakwaters 2 (V. 3)	Bonaparte
50. GEOTECH VI: Soil Properties 2 (V. 2)	Port cros, H*
51. AUV & ROBOTICS II (V. 2)	Porquerolles, H*
52. FSW II: Steels (V. 4)	Raimu 1
53. OCEAN & WIND ENERGY I (V. 1)	Raimu 2
54. POLAR & ICE VI: Icing (V. 1)	Dumont
55. ADVANCED SHIP TECHNOLOGY I (V. 4)	Puget
13:20	
PLENARY III (Canadian Code, V. 1)	Vauban
14:00	
56. OFFSHORE VII: FPSO/SPAR/TLP/VLFS 5 (V. 1)	Vauban
57. HYDRO Dynamics and Forces IV (V. 3)	Colbert
58. COASTAL ENG IV: Erosion & Transport (V. 3)	Bonaparte
59. GEOTECH VII: Foundation (V. 2)	Port cros, H*
60. AQUABIO MECHANICS & ROBOTICS (V. 2)	Porquerolles, H*
61. SW III: Steels and Alloys (V. 4)	Raimu 1
62. PIPELINES/RISERS/MOORING III (V. 2)	Raimu 2
63. OCEAN & WIND ENERGY II (V. 1)	Dumont
64. ADVANCED SHIP TECHNOLOGY II (V. 4)	Puget

* H = *Hotel Mercure*

Find Updates in Program on Website:
<http://www.isopec.org> or <http://isopec2004.tvt.fr>

18:30	Hieres
Annual Conference Banquet Cultural Program and Best Paper and ISOPE Awards <i>Bus departs 18:30 from Neptune Conference Center.</i>	

THURSDAY MAY 27

07:30 Author Briefing

Hotel Mercure-Terrace

08:00

65. OFFSHORE VIII: FPSO/SPAR/TLP/VLFS 6 (V. 1)	Vauban
66. HYDRO Nonlinear Waves I (V. 3)	Colbert
67. COASTAL ENG V: Tsunami & Current (V. 3)	Bonaparte
68. GEOTECH VIII: Soil & Stability 1 (V. 2)	Port cros, H*
69. TOWED CABLES & UNDERWAT ... (V. 2)	Porquerolles, H*
70. MATERIALS/WELDING/FATIGUE III (V. 4)	Raimu 1
71. PIPELINES/RISERS/MOORING IV (V. 2)	Raimu 2
72. OCEAN & WIND ENERGY III (V. 1)	Dumont
73. COLLISION, IMPACT & DAMAGE (V. 4)	Puget

10:40

74. OFFSHORE IX: Offshore Engineering 1 (V. 1)	Vauban
75. HYDRO Nonlinear Waves II (V. 3)	Colbert
76. COASTAL ENG VI: Estuary Process (V. 3)	Bonaparte
77. GEOTECH IX: Soil & Stability 2 (V. 2)	Port cros, H*
78. UNDERWATER OBSERV & INTERV (V. 2)	Porquerolles, H*
79. MATERIALS/WELDING/FATIGUE IV (V. 4)	Raimu 1
80. PIPELINES/RISERS/MOORING V (V. 2)	Raimu 2
81. OCEAN & WIND ENERGY IV (V. 1)	Dumont
82. COMPOSITES & SMART STRUCTURES I (V. 4)	Puget

13:00

OMWG Meeting Tesse

83. OFFSHORE X: Offshore Engineering 2 (V. 1)	Vauban
84. HYDRO Nonlinear Waves III (V. 3)	Colbert
85. COASTAL ENG VII: Ship Operations (V. 3)	Bonaparte
86. GEOTECH X: Soil & Stability 3 (V. 2)	Port cros, H*
87. OPTICAL & ACOUSTIC. MAPPING (V. 2)	Porquerolles, H*
88. MATERIALS/WELDING/FATIGUE V (V. 4)	Raimu 1
89. PIPELINES/RISERS/MOORING VI (V. 2)	Raimu 2
90. OCEAN & WIND ENERGY V (V. 1)	Dumont
91. COMPOSITES & SMART STRUCTURES II (V. 4)	Puget

* H = *Hotel Mercure*

FRIDAY MAY 28

Technical Visit: Click on <http://isope2004.tvt.fr> and see the bulletin board on site.

Other Optional Tours: Click on <http://isope2004.tvt.fr>, visit the conference registration desk, and check the ISOPE bulletin board on May 23, Sunday.

ISOPE-2004 Toulon

The Conference features **91** technical and opening sessions and **3** plenary sessions with top experts from industry, academia and government. About 470 papers after review will be presented and discussed by researchers, engineers and managers from more than 46 countries.

The Conference Proceedings will be available in a set of 4 volumes on CD-ROM (2,800 pp. est.) — paginated within each volume — during the conference and later for worldwide post-conference mail order from ISOPE.

SESSION LIST BY TOPICS

OCEAN TECHNOLOGY REVIEW

1. OCEAN TECHNOLOGY REVIEW (V. 1) Vauban

GAS HYDRATES AND OCEAN MINING

7. HYDRATES AND MINING I (V. 1) Raimu 1
16. HYDRATES AND MINING II (V. 1) Raimu 1
26. HYDRATES AND MINING III (V. 1) Raimu 2

OCEAN & OFFSHORE WIND ENERGY

53. OCEAN & WIND ENERGY I (V. 1) Raimu 2
63. OCEAN & WIND ENERGY II (V. 1) Dumont
72. OCEAN & WIND ENERGY III (V. 1) Dumont
81. OCEAN & WIND ENERGY IV (V. 1) Dumont
90. OCEAN & WIND ENERGY V (V. 1) Dumont

OFFSHORE MECHANICS AND TECHNOLOGY

2. OFFSHORE I: Subsea Installation & Operations (V. 1) Vauban
11. OFFSHORE II: Nonlinear Wave Loads (V. 1) Vauban
20. OFFSHORE III: FPSO/TLP/VLFS 1 (V. 1) Vauban
29. OFFSHORE IV: FPSO/TLP/VLFS 2 (V. 1) Vauban
38. OFFSHORE V: FPSO/SPAR/TLP/VLFS 3 (V. 1) Vauban
47. OFFSHORE VI: FPSO/SPAR/TLP/VLFS 4 (V. 1) Vauban
56. OFFSHORE VII: FPSO/SPAR/TLP/VLFS 5 (V. 1) Vauban
65. OFFSHORE VIII: FPSO/SPAR/TLP/VLFS 6 (V. 1) Vauban
74. OFFSHORE IX: Offshore Engineering 1 (V. 1) Vauban
83. OFFSHORE X: Offshore Engineering 2 (V. 1) Vauban
6. DECOMMISSIONING I: (V. 1) Porquerolles, H*
15. DECOMMISSIONING II: Panel (V. 1) Porquerolles, H*

* H = *Hotel Mercure*

OCEAN AND ENVIRONMENT

33. ENVIRONMENT & SENSING (V. 1) Porquerolles, H*

GEOTECHNICAL AND GEOENVIRONMENTAL ENGINEERING

5. GEOTECH I: Centrifuge Modeling (V. 2) Port cros, Hotel
14. GEOTECH II: Piles & Caissons (V. 2) Port cros, Hotel
23. GEOTECH III: Piles & Anchors (V. 2) Port cros, Hotel
32. GEOTECH IV: Soil Dynamics (V. 2) Port cros, Hotel
41. GEOTECH V: Soil Properties 1 (V. 2) Port cros, Hotel
50. GEOTECH VI: Soil Properties 2 (V. 2) Port cros, Hotel
59. GEOTECH VII: Foundation (V. 2) Port cros, Hotel
68. GEOTECH VIII: Soil & Stability 1 (V. 2) Port cros, Hotel
77. GEOTECH IX: Soil & Stability 2 (V. 2) Port cros, Hotel

86. GEOTECH X: Soil & Stability 3 (V. 2) Port cros, Hotel

OFFSHORE AND ARCTIC PIPELINES, RISERS AND MOORING

35. PIPELINES/RISERS/MOORING I (V. 2) Raimu 2
44. PIPELINES/RISERS/MOORING II (V. 2) Raimu 2
62. PIPELINES/RISERS/MOORING III (V. 2) Raimu 2
71. PIPELINES/RISERS/MOORING IV (V. 2) Raimu 2
80. PIPELINES/RISERS/MOORING V (V. 2) Raimu 2
89. PIPELINES/RISERS/MOORING VI (V. 2) Raimu 2

AUV, DEEP OCEAN FLOOR AND COMMUNICATION

24. ROV KAIKO ACCIDENT: Review and ... (V. 2) Porquerolles, H
42. AUV & ROBOTICS I (V. 2) Porquerolles, H
51. AUV & ROBOTICS II (V. 2) Porquerolles, H
60. AQUABIO MECHANICS & ROBOTICS (V. 2) Porquerolles, H
69. TOWED CABLES & UNDERWATER ... (V. 2) Porquerolles, H
78. UNDERWATER OBSERV. & INTERVEN (V. 2) Porquerolles, H
87. OPTICAL & ACOUSTICAL MAPPING (V. 2) Porquerolles, H

POLAR AND ICE SCIENCE AND ENGINEERING

9. POLAR & ICE I: Polar Research (V. 1) Dumont
18. POLAR & ICE II: Ice Engineering 1 (V. 1) Dumont
27. POLAR & ICE III: Ice Engineering 2 (V. 1) Dumont
36. POLAR & ICE IV: Ice Engineering 3 (V. 1) Dumont
45. POLAR & ICE V: Ice Environment & Icing (V. 1) Dumont
54. POLAR & ICE VI: Icing (V. 1) Dumont

HYDRODYNAMICS

4. HYDRO Dynamics and Forces I (V. 3) Bonaparte
13. HYDRO Dynamics and Forces II (V. 3) Bonaparte
22. HYDRO Dynamics and Forces III (V. 3) Bonaparte
57. HYDRO Dynamics and Forces IV (V. 3) Colbert
66. HYDRO Nonlinear Waves I (V. 3) Colbert
75. HYDRO Nonlinear Waves II (V. 3) Colbert
84. HYDRO Nonlinear Waves III (V. 3) Colbert
8. FLOW-INDUCED VIBRATIONS I (V. 3) Raimu 2
17. FLOW-INDUCED VIBRATIONS II (V. 3) Raimu 2

Coastal Engineering

31. COASTAL ENG I: Coastal Waves (V. 3) Bonaparte
40. COASTAL ENG II: Breakwaters 1 (V. 3) Bonaparte
49. COASTAL ENG III: Breakwaters 2 (V. 3) Bonaparte
58. COASTAL ENG IV: Erosion & Transport (V. 3) Bonaparte
67. COASTAL ENG V: Tsunami & Current (V. 3) Bonaparte
76. COASTAL ENG VI: Estuary Process (V. 3) Bonaparte
85. COASTAL ENG VII: Ship Operations (V. 3) Bonaparte

METOCEAN

3. METOCEAN I: Waves (V. 3) Colbert
12. METOCEAN II: Waves & Sea State 1 (V. 3) Colbert
21. METOCEAN III: Waves & Sea State 2 (V. 3) Colbert
30. METOCEAN IV: Sea State & Current (V. 3) Colbert
39. METOCEAN V: Climatology (V. 3) Colbert
48. METOCEAN VI: Hindcast (V. 3) Colbert

MECHANICS, RELIABILITY, RISK & SAFETY

10. MECHANICS & STRUCTURES I (V. 4) Puget
19. MECHANICS & STRUCTURES II (V. 4) Puget

28. RELIABILITY, RISK & SAFETY I (V. 4)	Puget
37. RELIABILITY, RISK & SAFETY II (V. 4)	Puget
46. RELIABILITY, RISK & SAFETY III (V. 4)	Puget

ADVANCED SHIP TECHNOLOGY

55. ADVANCED SHIP TECHNOLOGY I (V. 4)	Puget
64. ADVANCED SHIP TECHNOLOGY II (V. 4)	Puget

Collision, Impact and Damage

73. COLLISION, IMPACT & DAMAGE (V. 4)	Puget
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**ISOPE Symposium on
FRICTION STIR WELDING (FSW)**

43. FSW I: Mechanisms & Modeling (V. 4)	Raimu 1
52. FSW II: Steels (V. 4)	Raimu 1
61. FSW III: Steels and Alloys (V. 4)	Raimu 1

MATERIALS, WELDING, JOINT AND FATIGUE

25. MATERIALS/WELDING/FATIGUE I (V. 4)	Raimu 1
34. MATERIALS/WELDING/FATIGUE II (V. 4)	Raimu 1
70. MATERIALS/WELDING/FATIGUE III (V. 4)	Raimu 1
79. MATERIALS/WELDING/FATIGUE IV (V. 4)	Raimu 1
88. MATERIALS/WELDING/FATIGUE V (V. 4)	Raimu 1

COMPOSITES AND SMART STRUCTURES

82. COMPOSITES & SMART STRUCTURES I (V. 4)	Puget
91. COMPOSITES & SMART STRUCTURES II (V. 4)	Puget

ISOPE Reception 18:00-19:00 SUNDAY May 23	Mercure Hotel
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Conference Opening Address 08:30 Monday May 24	Vauban
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Annual Conference Banquet 18:30 Wednesday May 26	Hyerès
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Bus departs 18:30 from Neptune Conference Center.

Plenary Presentations

Plenary Presentation I: Monday 13:20 Vauban

Numerical Modeling of Environmental Impact Assessment of Ocean Structures (V. 3) Kyojuka, Y, Kyushu University, Japan

Plenary Presentation II: Tuesday 13:20 Port Cros, Hotel

Centrifuge Modeling in Offshore Engineering (V. 2) Garnier, J, Laboratoire Central des Ponts et Chaussées, France

Plenary Presentation III: Wednesday 13:20 Vauban

Up-dating the Canadian Standards Association Offshore Structures Code (V. 1) Frederking, R, National Research Council; Brown, T, Univ of Calgary; Grant, R, CBCL Limited, Canada

ISOPE-2004 Technical Program Committee (TPC)

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 Dr. T. Komai, AIST, Tsukuba, Japan
 Dr. J. Koo, ExxonMobil Research & Engineering Co., Annandale, NJ, USA
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 Prof. H. Krogstad, NTNU, Trondheim, Norway
 Prof. C. Kuo, University of Strathclyde, Glasgow, UK
 Dr. B. Kvamme, University of Bergen, Bergen, Norway ????
 Prof. Y. Kyozuka, Kyushu Univ., Kasuga, Japan
 Mr. F. Lalli, APAT, Roma, Italy
 Prof. I. Langer (**Co-Chairman**), Stavanger University College, Stavanger, Norway
 P. Lardeau, Ifremer, La Seyne sur Mer, France
 Dr. B.J. Leira, NTNU, Trondheim, Norway
 Prof. Y.-C. Li, Dalian Univ. of Technology, Dalian, China
 Dr. F.K. Lim, 2H Offshore Engineering, Surrey, UK
 Dr. S.S. Lin, US Naval Facilities Engineering Service Center, Port Hueneme, CA, USA
 Dr. L.A. Louca, Imperial College, London, UK
 Dr. K. Ma, HPMG Technologies, Inc, Houston, TX, USA
 Prof. Y. Makino, Kumamoto Univ., Kumamoto, Japan
 Dr. T. Mathai, The Glostten Assoc., Seattle, WA, USA
 Prof. T. Matsui, Osaka Univ., Osaka, Japan
 Dr. H. Matsumiya, AIST, Tsukuba, Japan
 Dr. J.-L. Michel, Ifremer, La Seyne sur Mer, France
 Prof. R.W. Miksad, Univ. of Virginia, Charlottesville, VA, USA
 Prof. N. Mizutani, Nagoya Univ., Nagoya, Japan
 Dr. H. Momma, JAMSTEC, Yokosuka, Japan
 Dr. H. Moshagen, Statoil, Trondheim., Norway
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