Global Overview of
Manned Submersible Activity in
2012 /2013

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Chair, Manned Underwater Vehicles Committee
MARINE TECHNOLOGY SOCIETY
WELCOME to UI 2013

MARINE TECHNOLOGY SOCIETY MUVC

10th Anniversary

Manned Submersible Program
SCHEDULE of PROGRAM

TOTAL of 25 Presentations

- 20 Technical Presentations
- 3 Regulatory Discussion (ABS, GL, US Navy)
- 1 Technical Panel – Safety across Certification Agencies
- ABS INDUSTRY Meeting Thursday @ 8:30AM
- MTS MUV Annual Committee Meeting TH @ 1:30PM
MTS MUV Program

PROCEEDINGS DVD

2006
2007
2008
2009
2010
2011

Pre Order – 2012 / 2013
Our Thoughts of Respect and Recognition

In Memoriam
Henri Germain Delauze (1929-2012)
The cover picture is the COMEX Remora 2000 in memory of Mr. Henri Delauze who left the world in our hands in 2012. He was a pioneer of the underwater world and demonstrated this passion in his unstoppable energy of innovation.

Mike deGruy, 1951 - 2012
Pilot and Underwater Cinematographer

Andrew Wight: 1959 – 2012
Underwater Explorer and Filmmaker

Both men were passionate underwater cinematographers who spent three decades making documentary films about the ocean. They were killed in a helicopter crash in eastern Australia.
ACTIVE Submersibles
MTS MUV Dbase

- 107 - Active
- 64 - Inactive
- Overhaul

Distribution in World

<table>
<thead>
<tr>
<th>Region</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>40</td>
</tr>
<tr>
<td>Europe</td>
<td>27</td>
</tr>
<tr>
<td>Canada</td>
<td>15</td>
</tr>
<tr>
<td>Caribbean</td>
<td>9</td>
</tr>
<tr>
<td>Asia</td>
<td>7</td>
</tr>
<tr>
<td>Pacific</td>
<td>7</td>
</tr>
<tr>
<td>Africa</td>
<td>2</td>
</tr>
</tbody>
</table>
DEEP RESEARCH SUBMERSIBLES
### ALVIN

- **DEPTH Rating:** 4500 m
- **No. Dives:** 4400+
- **No. Occupants:** 3
- **CLASS:** US Navy

### ALVIN Stage 1

- **DEPTH Rating:** 4500 m
- **No. Occupants:** 3
- **CLASS:** NAVSEA
- **Status:** Sea Trials 2013
NAUTILE

DEPTH Rating: 6000 m
Dives to > 5000m: 120
Average Dive Depth: 3500 m
No. Occupants: 3
Year of Construction: 1985

Class: Bureau Veritas
No. Dives: 1800
Status: Actively Diving
SHINKAI 6500

DEPTH Rating: 6500 m
No. Dives: 1163
No. Occupants: 3
CLASS: NK
Built in: 1989

STATUS:
- New HD Camera SYS
- New Thrusters Installed
SHINKAI 6500
MIR 1 and MIR 2

DEPTH Rating: 6000 m
No. Dives: 
No. Occupants: 3
CLASS: GL
Built in: 1989

STATUS
Last Major Overhaul (GL) 2004
Completed 3 yr Lake Baikal Exp.
2011 Lake Geneva Expedition
2012 Titanic Expedition (Deferred)
<table>
<thead>
<tr>
<th>JIAOLONG</th>
<th>STATUS</th>
<th>2011, July</th>
<th>- 5188 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPTH Rating: 7000 m</td>
<td>2012, June 15-24</td>
<td></td>
<td>- 6,671 m</td>
</tr>
<tr>
<td>No. Dives: 20+</td>
<td></td>
<td></td>
<td>- 6,965 m</td>
</tr>
<tr>
<td>No. Occupants: 3</td>
<td></td>
<td></td>
<td>- 6,963 m</td>
</tr>
<tr>
<td>Weight: 22 T</td>
<td></td>
<td></td>
<td>- 7,020 m</td>
</tr>
<tr>
<td>Start Date: 2002</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Next Step

- Plan Development of 4500m version
Next Step

- Build New 4000T Mothership to replace 30 year old Xiangyanghong 09
Next Step

The construction of deep-sea base

• state-level oceanic technical support center
• Construction begin in early 2013
• Projected cost $77.8 million
• 26 hectares of land and 62.7 hectares of sea
• Coastal city of Qingdao

Working on:

• simulation system of high-pressure oceanic environment
• application tools of the manned submersible.
NIOT 6000 m – DEEP OCEAN Submersible

RFP in 2012
- Finalists: DCSN France & JW Fisher UK

Working on:

• Deep-sea Technologies and Ocean Mining Group of NIOT
• Polymetallic nodules Mining
• India has a status of Pioneer Investor and has been allotted a site in the Central Indian Ocean Basin (CIOB)
• by the International Sea Bed Authority (ISA) for exploration and technology development for polymetallic nodule mining.
DEEPSEA CHALLENGER - USA

NAUTILE

DEPTH Rating: 11,000 m
No Dives: 1
No. Occupants: 1
Year of Construction: 2012

STATUS
2012, March 26
- 11,000 m
General Overview
by
Submersible
OCEANGATE - ANTIPODES

DEPTH Rating: 300 m
No. Occupants: 5
CLASS: ABS

Photo By: Sunrise Productions
Mike@MSpear.com
AQUARIUS - CANADA

DEPTH Rating: 300 m
No. Occupants: 3
CLASS: LR
C-QUESTOR - UBOAT WORX, Netherlands

DEPTH Rating: 180 / 100 m
No. Occupants: 2 / 3
CLASS: GL
C-EXPLORER - UBOAT WORX

DEPTH Rating: 180 m
No. Occupants: 2
CLASS: GL

MTS - Manned Underwater Vehicles Committee

DEPTH Rating: 300 m
No. Occupants: 5
CLASS: GL
CURASUB - SEA AQUARIUM, Curacao

DEPTH Rating: 300 m
No. Occupants: 5
CLASS: GL
DEEP SEE - Undersea Hunter, Costa Rica

DEPTH Rating: 450 m
No. Occupants: 3
CLASS: ABS
**DEEP ROVER – DR01 & DR02**

DEPTH Rating: 1000 m  
No. Occupants: 2  
CLASS: ABS

**DUAL DEEPWORKER - DDW 02**

DEPTH Rating: 610 m  
No. Occupants: 2  
CLASS: Lloyds Registry
DEPTH Rating: 350 m
No. Occupants: 2
CLASS: ABS
DEEP FLIGHT Super Falcon, USA

DEPTH Rating: 300 m
No. Occupants: 2
CLASS: N/C
DEEP FLIGHT Challenger, VIRGIN OCEANIC

DEPTH Rating: 10,000 m
No. Occupants: 1
CLASS: N/C
PRMS Submarine Rescue

DEPTH Rating: 610 m
No. Occupants: 18
CLASS: Navsea P9290
Built in: 2007

DSRV 1 MYSTIC

Commissioned 7 AUG 1971
Decommissioned in 2008
Operated by US Navy Deep Submergence Unit, San Diego CA
Decommissioning Ceremony March 6, 2009 at DSU San Diego
DEPTH Rating: 610 m
No. Occupants: 18
CLASS: US NAVY
DEPTH Rating: 610 m
No. Occupants: 1
CLASS: LR
ICTINEU 3 – Ictineu Submarins SA, Spain

DEPTH Rating: 1,200 m
No. Occupants: 3
CLASS: GL
JAGO – GEOMAR Kiel, Germany

DEPTH Rating: 400 m
No. Occupants: 2
CLASS: GL
IDABEL – Stanley Submarines, Honduras

DEPTH Rating: 600 m
No. Occupants: 3
CLASS: N/C
DEPTH Rating: 500 m
No. Occupants: 3
CLASS: ABS
LULA 1000 - FRN Azores PORTUGAL

DEPTH Rating: 1,000 m
No. Occupants: 3
CLASS: GL

LULA 1000

LULA 500
NUYTCO Research Ltd - CANADA

DEPTH Rating: 610 m
No. Occupants: 1 & 2
CLASS: LR

Exosuit

DeepWorker 2000

Dual DeepWorker

Underwater Intervention 2013– MTS Manned Submersibles Overview
PACIFIC Subsea, SIRENA, SAIPAN

**DS48 – SM100/50**

DEPTH Rating: 75 m
No. Occupants: 48
CLASS: ABS
PAGOO, MY OCTOPUS, USA

DEPTH Rating: 360 m
No. Occupants: 8 Pax + 2 Crew
CLASS: ABS
PC 8B - BULGARIA

DEPTH Rating: 250 m
No. Occupants: 3
CLASS: N/C
OCEAN PEARL 1250ft     SEAmagine No. 8

DEPTH Rating: 380 m
No. Occupants: 2
CLASS: ABS
OCEAN PEARL 1100ft SEAmagine No. 9

DEPTH Rating: 330 m
No. Occupants: 2
CLASS: ABS
OCEAN PEARL 380m
SINDBAD No.1 & No. 2 Submarines - Egypt

DEPTH Rating: 75 m
No. Occupants: 48
CLASS: DNV
Touristen bei Bootsunfall im Roten Meer ertrunken

09. Februar 2012 20:59

Deutsche Familie unter den Opfern - Boot mit Glasboden war gegen ein Korallenriff gestoßen


Wie Sicherheitsverantwortliche mitteilten, wurden mehrere Touristen verschiedener Nationalitäten gerettet. Die meisten an Bord seien Deutsche oder
S301 Submergence Group - USA

DEPTH Rating: 60 m
No. Occupants: 8
CLASS: GL
DEPTH Rating: 150 m
No. Occupants: 1
CLASS: N/C
DEPTH Rating: 610 m
No. Occupants: 2
CLASS: BV
TRITON 1000/2
DEPTH Rating: 300 m
No. Occupants: 2
CLASS: ABS
TRITON Submarines - USA

TRITON 3000/3

DEPTH Rating: 1,000 m

No. Occupants: 3

CLASS: ABS
VAS 525 Diver Lockout Submersible

DEPTH Rating: 160m
No. Occupants: 3 +2 divers
CLASS: RINA
THANK YOU!

www.mtstmuv.org