The Technical Sessions: an exceptional concentration of knowledge and experience

WODCON XX is showcasing about 95 technical presentations by experts from all over the world. The Technical Sessions run from Tuesday 4 June to Thursday 6 June in two or three parallel tracks.

The Technical Papers Committee has selected the best papers which cover the design and execution of dredging projects and tools from mathematical models to machines – a combination of knowledge and understanding, skill, peer reviewed and published in the congress proceedings.

The published timetable will be strictly adhered to in order to enable delegates to move between sessions.

Tuesday 4 June 2013

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<th>Time</th>
<th>Opening Ceremony – Plenary in Copper Hall</th>
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<td>09:00-10:55</td>
<td>Coffee – exhibition area – sponsored by Brusselle Enterprises</td>
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<tr>
<td>11:00-11:30</td>
<td>Venue: Copper Hall</td>
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<tr>
<td>11:30</td>
<td>SESSION 1 – Developments in dredging equipment / I</td>
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<tr>
<td>11:50</td>
<td>A study on the standard operation of the cutter suction dredger in a dredging project</td>
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<td></td>
<td>Gao W, Li DY and Liu H – CCCC Tianjin Dredging, Peoples Republic of China; Tian J – China Communication Institute Co Ltd, Peoples Republic of China; Li X – Tianjin Normal University, Peoples Republic of China</td>
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<tr>
<td>12:10</td>
<td>Developments in mining equipment and pumps for subsea and inland submerged deposits</td>
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<td>Kapusniak S – Soil Machine Dynamics Ltd., United Kingdom; Tenwolde D and Winkelman MO – Damen Dredging Equipment, the Netherlands</td>
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<td>12:30</td>
<td>The use of engineered sediments for the construction of a compartment dyke in the Controlled Flooding Area Vlassenbroek</td>
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<td>Vlassenbroek</td>
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<tr>
<td>15:00</td>
<td>A head loss model for slurry transport based on energy considerations</td>
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<td>Miedema SA – Delft University of Technology, the Netherlands; Ransdell RC – Great Lakes Dredge &amp; Dock Company, United States of America</td>
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<tr>
<td>15:20</td>
<td>Numerical simulation of hydrodynamical behaviour of sand water mixtures</td>
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### WEDNESDAY 5 June 2013

#### 08:00-09:00
- **Venue: Copper Hall**
- **Venue: Silver Hall**
- **Venue: The Arc**

**09:00**
- **SESSION 7 – Modeling of dredge pumps**
  - Chair: Verkaik KJ – IHC Merwede, the Netherlands

**09:00**
- **SESSION 8 – Dredging for navigation**
  - Chair: Belan Y-P – Cetmef, France

**09:20**
- **Restratification in hydraulic transport: is it a bend effect?**
  - Brouwers RJP, van Fulpen ML and Talmon AM – Delft University of Technology, the Netherlands

**09:40**
- **Latest developments in dredge pump technology**
  - Bugdayci HH – IHC Parts & Services, the Netherlands; Grinwis H and Munts E – MTI Holland, the Netherlands

#### 16:00-18:00
- **Coffee – exhibition area – sponsored by Brusselle Enterprises**

**16:30**
- **SESSION 5 – Monitoring the dredging process**
  - Chair: Ni F – Hehai University, Peoples Republic of China

**16:30**
- **Construction of a perimeter bund using the PM-CLAY method**
  - SaiToh T – Tosa Corporation, Japan

**16:50**
- **Innovative free fall sediment profiler for preparing and evaluating dredging works and determining the nautical depth**
  - Geirnaert K, Staelens P and Deprez S – dotOcean, Belgium; Noordijk A and Van Hasselt A – Port of Rotterdam, the Netherlands

**17:00**
- **Monitoring the consolidation process of mud from different European ports in a full scale test facility**
  - Staelens P, Geirnaert K, and Deprez S – dotOcean, Belgium; Noordijk A and Van Hasselt A – Port of Rotterdam, the Netherlands

**17:10**
- **Monitoring the consolidation process of mud from different European ports in a full scale test facility**
  - Staelens P, Geirnaert K, and Deprez S – dotOcean, Belgium; Noordijk A and Van Hasselt A – Port of Rotterdam, the Netherlands

**17:30**
- **Pinpoint underwater grab bucket navigation system (PUGNAVI) applied to restoration work of great east Japan earthquake**
  - Fujiyama E – Shinko Construction, east Japan

### Experimental Results
- Cntral E, Nitschke E, Große AK and Saathoff F – Universität Rostock, Germany; Henneberg M – Steinbeis Transferzentrum Angewandte Landschaftsplanung, Germany

### Using waste products as building material for landfill closure and construction of a sediment treatment plant
- Van Zele S, Nachtergaele K and Pallemans I – Envisan, Belgium

### Latest developments in dredge pump technology
- Recent developments in sediment management in the Port of Hamburg
  - Röper H and Netzband A – Hamburg, Germany

### Chair:
- Goeree JC - Delft University of Technology, the Netherlands; van Rhee C – Delft University of Technology, the Netherlands

### Experimental study on applying hydrocyclone for improving the loading efficiency of TSHD
- Zhao YB – CCC Key Laboratory of Dredging, Shanghai, Peoples Republic of China; Lin F – CCC Shanghai Dredging, Peoples Republic of China; Jiang JA – Shanghai Waterway Engineering, Dredging & Consulting, Peoples Republic of China

### Monitoring the consolidation process of mud from different European ports in a full scale test facility
- Staelens P, Geirnaert K, and Deprez S – dotOcean, Belgium; Noordijk A and Van Hasselt A – Port of Rotterdam, the Netherlands

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### Innovative free fall sediment profiler for preparing and evaluating dredging works and determining the nautical depth
- Geirnaert K, Staelens P and Deprez S – dotOcean, Belgium; Noordijk A and Van Hasselt A – Port of Rotterdam, the Netherlands

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<tr>
<td>10:00</td>
<td>Estimating production and booster pump location for long-distance pumping</td>
<td>Randall R and Yeh P – Texas A&amp;M University, United States of America</td>
<td>Port of Lisbon - maintenance dredging in a sensitive environmental system. Sá Pereira MT and Silvera Ramos R – Port of Lisbon Authority, Portugal</td>
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<tr>
<td>10:20</td>
<td><strong>Coffee – exhibition area</strong></td>
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<tr>
<td>10:50</td>
<td><strong>SESSION 10 – Methods &amp; equipment: case studies</strong></td>
<td><strong>Chair:</strong> Vidal R – Dravosa, Spain</td>
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<tr>
<td>10:50</td>
<td>Installing blocks of fish reefs in the deep sea</td>
<td><strong>Chair:</strong> Pennekamp J – De laeres, the Netherlands</td>
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<tr>
<td>11:00</td>
<td>The use of encapsulated sand elements for beach protection</td>
<td><strong>Chair:</strong> Blom E – IHC Dredgers, the Netherlands</td>
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<td>11:10</td>
<td>Building with Nature works!</td>
<td><strong>Chair:</strong> van Raalte O – Royal Boskalis</td>
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<tr>
<td>11:50</td>
<td>Improving the capacity of Altamira Port (Mexico) by dredging</td>
<td><strong>Chair:</strong> Malherbe B and Fordeyn J – Jan De Nul</td>
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<tr>
<td>12:30</td>
<td><strong>Lunch – exhibition area</strong></td>
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<tr>
<td>14:00</td>
<td><strong>SESSION 13 – Modeling optimisation of equipment</strong></td>
<td><strong>Chair:</strong> Medema SA – Delft University of Technology, the Netherlands</td>
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<tr>
<td>14:00</td>
<td>Half a century of changing the design of a dredger: market pull or technology push?</td>
<td>de Bruijn A, de Graaff PC, Verkaik CJ and de Groot JW – IHC Beaver Dredgers, the Netherlands</td>
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<tr>
<td>14:20</td>
<td>Study and application for high-precision on elevation by a grab dredger</td>
<td><strong>Chair:</strong> Netzband A – Hamburg Port Authority, Germany</td>
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<td>14:40</td>
<td>Optimising drive train design for TSHDs using dynamic simulation models</td>
<td><strong>Chair:</strong> Leviacher D – Caen University, France; Liang Y- Université du Québec en Abitibi-Témiscamingue, Caen University, Canada and France</td>
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<tr>
<td>15:00</td>
<td>Provision for geologic investigation in capital waterway dredging engineering in China and its peculiarities</td>
<td><strong>Chair:</strong> Doody J P and Mohan R – Anchor QEA, United States of America</td>
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<td>15:20</td>
<td>Coffee – exhibition area</td>
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</table>
| 15:50 | **SESSION 16 – Methods, equipment and techniques: Dealing with silt**  
Chair: Nakazawa N – The Japan Workvessel Association, Japan  
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**SESSION 17 – Assessment and monitoring / 1**  
Chair: Doorn Groen S C – DHI Water & Environment (S), Singapore |
| 15:50 | Turbidity caused by spillage from a dredging / mining transverse axis cutter  
Sarkar M and Bose N – Australian Maritime College, University of Tasmania, Australia; Chai S – School of Health Sciences, University of Ballarat, Australia; Dowling K – SAIPEM, United Kingdom  
The UK marine aggregate regional environmental assessment: an effective model for regionalised dredging areas worldwide?  
Lloyd Jones D and Reach I – MarineSpace, United Kingdom; Powell M – South Coast GIS, United Kingdom  
Dredging works in the Western Scheldt to deepen the navigation channel and to create ecologically valuable areas: status after three years of monitoring  
Depreiter D and Sas M – International Marine & Dredging Consultants, Belgium; Beirinck K, Flemish Government, Belgium; Liek GJ – Ministry of Infrastructure and the Environment, the Netherlands |
| 15:50 | The art of screening: effectiveness of silt screens  
Radermacher M – Delft University of Technology, the Netherlands; van der Goot F and Rijks D – Boskalis, the Netherlands; de Wit L – Svasek Hydraulics, the Netherlands  
A method for identifying a new offshore dredging disposal site based on environmental sensitivity  
Harris K and Eccles D – HR Wallingford, United Kingdom  
Long-term modeling of the impact of dredging strategies on morpho- and hydro-dynamic developments in the Western Scheldt  
Dam G, Poortman SE and Bliek AJ – Svalék Hydraulics, the Netherlands; Plancke Y – Flanders Hydraulics, Belgium |
| 16:10 | Towards a comprehensive design for silt screens in open configuration from the hydraulics perspective  
Vu TT – Nanyang Technological University, Singapore; Tan SK – Nanyang Environment & Water Reasearch Institute and Marine Research Center, Singapore  
Design and implementation of marine monitoring studies with reference to dredging projects: essentials  
Lee M, Pendle M, Taylor J and Dearnaley M – HR Wallingford, United Kingdom  
Tidal evolution in the Scheldt estuary and its interaction with dredging works  
Taal M, Wang ZB and Kuiper K – Deltares, the Netherlands; Cleveringa J – Arcadis, the Netherlands; Van Holland G – International Marine & Dredging Consultants, Belgium |
| 16:10 | Study on Dredging at head area and utilization of sediment resources in three gorges reservoir  
Hu XH, Deng YT, Xiao H, Zhou B – Hubai Changjiang Dredging Engineering, Peoples Republic of China  
Monitoring system of the environmental quality of the sediments derived from dredging activity  
Maraes e Sousa MES and Faihho GO – GARTA / COPPE / UFRJ, Brazil  
Impact of human interventions on estuarine dynamics – towards a regime shift in the Scheldt?  
Winterwerp JC – Delft University of Technology, the Netherlands; Wang ZB – Deltares and Delft University of Technology, the Netherlands |

### THURSDAY 6 June 2013

| 08:00-09:00 | Coffee – exhibition area |
| 09:00 | **SESSION 19 – Optimising the dredging processes**  
Chair: Randall B – Texas AM University, United States of America  
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**SESSION 20 – Assessment and monitoring / 2: Plumes**  
Chair: Routkema D – Blue Pelican, the Netherlands |
| 09:00 | Decision support system for dredging and reclamation environmental monitoring and management plans (EMMPS)  
Hoa KH – DHI Water & Environment, Australia; Doorn-Groen SM, Forster TM and Truong TT – DHI Water & Environment (S), Singapore  
Detailed full scale simulations of near field overflow plume mixing  
de Wit L and van Rhee C – TU Delft, the Netherlands |
| 09:20 | Towards a faster and cleaner fairway maintenance of Dutch rivers  
Talmon A – Deltares and Delft University of Technology, The Netherlands; Sieben J – Rijkswaterstaat, the Netherlands; van der Legt T – Delft University of Technology, The Netherlands  
Physical modelling based assessment of some influence factors on overflow plume behaviour  
Decrop B and Sas M – International Marine & Dredging Consultants, Belgium; De Mulder T – Hydraulics Laboratory, Ghent University, Belgium; Toorman E – Hydraulics Laboratory, KULeuven, Belgium |
| 09:40 | Optimising manpower and reducing fuel consumption while increasing dredging production  
Onabrugge J and Van den Bergh PM – IHC Systems, the Netherlands  
Trial monitoring of dredger plumes using a multibeam echosounder  
Brett C, Lee M, Taylor J and Dearnaley M – HR Wallingford, United Kingdom; Bellamy A; Tarmac Marine Dredging Ltd, United Kingdom |
| 10:00 | A Validated tool for evaluating the design and predicting the workability of dredgers  
Hamot SDA and Los LG – MTI Holland, the Netherlands; van Spaendonk BAW – IHC Dredgers, the Netherlands; Kruijswijk AB – IHC Beaver Dredgers, the Netherlands  
Far-field and long-term dispersion of released dredged material  
von Kessel T and van Maren DS – Deltares, the Netherlands |
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<tr>
<td>10:20</td>
<td>SESSION 21 – Numerical simulation of dredging processes</td>
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<td>Chair: Malherbe B – Jan De Nul, Belgium</td>
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<td>10:50</td>
<td>Study on fine silt loading characters of TSHD based on computerised fluid dynamics (CFD)</td>
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<td>Yang ZJ and Qin L – CCCC Tianjin Dredging, Peoples Republic of China; Li ZC and Gao W – CCCC Tianjin Port and Waterway Research Institute, Peoples Republic of China</td>
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<td>11:10</td>
<td>Numerical simulation of the current drag force on the hull of a cutter suction dredger</td>
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<td>Xu LQ – Engineering Research Centre, Dredging Technology, Hebei University, Peoples Republic of China; Ni Y and Ni FS – Hohai University, Peoples Republic of China</td>
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<tr>
<td>11:30</td>
<td>Constructing the shields curve. Part C: cohesion by silt.</td>
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<td>Miedema SA – Delft University of Technology, the Netherlands</td>
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<td>11:50</td>
<td>On self-emptying at high discharge mixture densities</td>
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<td>de Nuij M – Van Oord, the Netherlands</td>
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<tr>
<td>13:40</td>
<td>SESSION 23 – Alluvial and deep sea mining</td>
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<td>Chair: G. van Raalte – Royal Boskalis Westminster, the Netherlands</td>
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<tr>
<td>13:40</td>
<td>Porosity calculation in discrete element modeling of sand cutting process</td>
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<td>Chen X and Miedema SA – Offshore and Dredging Engineering, Delft University of Technology, the Netherlands</td>
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<tr>
<td>14:00</td>
<td>Advances in the modeling of vertical hydraulic transport by a continuum description</td>
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<td>van Wijk J – MTI Holland, Belgium; van Rhee C – Delft University of Technology, Belgium; Talmon AM – Deltares, the Netherlands</td>
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<td>14:20</td>
<td>Cutting through hard rock-like materials – a review of the process</td>
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<td>Helmons RLJ and Miedema SA – Delft University of Technology, the Netherlands</td>
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<td>14:40</td>
<td>System design for sustainable phosphate mining operations at the Chatham Rise</td>
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<td>Steenbrink AC, van Doorn T, Jansen J and van Raalte GH – Royal Boskalis Westminster, the Netherlands; van Hoeven BC – Boskalis Dolman, the Netherlands; Falconer RKH - Chatham Rock Phosphate, New Zealand</td>
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