1. What is Inland ECDIS?
2. Legal status
3. IHO and compatibility
4. Implementation
5. RIS
6. Water level and velocity information
What is Inland ECDIS?

- **Electronic Chart Display and Information System (ECDIS)** for Inland Waterways
- Inland ECDIS is a system for the display of electronic inland navigation charts (Inland ENCs) and additional information
- Its purpose is to contribute to safety and efficiency of inland navigation and thus also to protection of the environment
- Simultaneously Inland ECDIS is to reduce the workload when navigating the ship as compared to traditional navigation and information methods
- Inland ECDIS provides also the basis for other River Information Services (RIS), e.g. NtS and Inland-AIS
ECDIS of IHO and IMO

Additional objects for Inland Navigation

Inland ECDIS
The European Inland ECDIS standard has been developed in several Transport Research Projects of the EU.

It has been adopted by:

- the Central Commission for Navigation on the Rhine (CCNR)
- the Economic Commission for Europe of the United Nations (UNECE)
- the Danube Commission

It has also been adopted as a technical specification under the RIS directive of the EU; publication pending.
International harmonization

- Since 2001 cooperation with North America to ensure more influence of inland navigation within IHO
- The Russian Federation and Brazil have joined the Inland ENC Harmonization Group (IEHG) in the meantime
- International harmonization is only dealing with charts (inland ENCs), not with applications
- The harmonized latest edition of the Inland ENC standard is used in Europe, Russia, North- and South America. Egypt, China and Vietnam are already interested to use it, too
Inland ENCs will be formally recognized as “special profile” in the next edition of the maritime standards.

IHO has made a clear statement, that the compatibility of maritime applications with Inland ENCs is possible and does not endanger the certification of maritime applications.

The next edition of the standards for Electronic Chart Systems (ECS) will also take into account Inland ENCs.

The Harmonization Group will apply to become an accredited Non-Governmental Organisation at IHO to ensure future compatibility of maritime and inland waterway standards.
3 Inland ECDIS applications certified for navigation mode (with radar overlay)

Several other applications for information mode

3500 vessels in Europe equipped with Inland ECDIS

Member states of the EU have to produce Inland ENC’s in accordance with the technical specification of the EU for all waterways of class Va and higher within 30 months after the publication of the specification (Va: suited for vessels and convoys with a length of 85 m)
## Implementation of Inland ENCs

<table>
<thead>
<tr>
<th>Country</th>
<th>class</th>
<th>coverage</th>
<th>published</th>
<th>available for free</th>
<th>used version of standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>Va +</td>
<td>full</td>
<td>yes</td>
<td><a href="http://www.doris.bmvit.gv.at">www.doris.bmvit.gv.at</a></td>
<td>1.02, 2.0 in 2008</td>
</tr>
<tr>
<td>BE (FL)</td>
<td>Va +</td>
<td>1/2009</td>
<td>no</td>
<td><a href="http://www.vlaamsewaterwegen.be">www.vlaamsewaterwegen.be</a></td>
<td>2.0</td>
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<tr>
<td>BG</td>
<td>Va +</td>
<td>full</td>
<td>no</td>
<td>yes</td>
<td>1.02</td>
</tr>
<tr>
<td>CH</td>
<td>Va +</td>
<td>full</td>
<td>yes</td>
<td><a href="http://www.portofbasel.ch">www.portofbasel.ch</a></td>
<td>1.02</td>
</tr>
<tr>
<td>CZ</td>
<td>IV</td>
<td>full</td>
<td>yes</td>
<td><a href="http://www.lavdis.cz">www.lavdis.cz</a></td>
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<tr>
<td>DE</td>
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<td>2300/4000 rkm</td>
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<td><a href="http://www.elweis.de">www.elweis.de</a></td>
<td>1.02, 2.0 in 2008, depth info. free</td>
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<tr>
<td>FR</td>
<td>Va +</td>
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<td><a href="http://www.vnf.fr">www.vnf.fr</a></td>
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<tr>
<td>HR</td>
<td>IV +</td>
<td>full</td>
<td>yes</td>
<td><a href="http://www.crup.hr">www.crup.hr</a></td>
<td>1.02, 2.0 in 2008</td>
</tr>
<tr>
<td>HU</td>
<td>Va +</td>
<td>full</td>
<td>planned 08</td>
<td>planned (free for skippers only)</td>
<td>1.02, 2.0 in 2009</td>
</tr>
<tr>
<td>LU</td>
<td>Va +</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NL</td>
<td>IV +</td>
<td>full</td>
<td>yes</td>
<td><a href="http://www.risserv.eur.nl">www.risserv.eur.nl</a></td>
<td>1.02, 2.0 in 2008</td>
</tr>
<tr>
<td>PL</td>
<td>Va +</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RO</td>
<td>Va +</td>
<td>full</td>
<td>yes/no (Black Sea Canal)</td>
<td><a href="http://www.afdj.ro/not">www.afdj.ro/not</a> free for Black Sea Canal</td>
<td>1.01</td>
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<tr>
<td>RS</td>
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<td><a href="http://www.plovput.co.yu">www.plovput.co.yu</a></td>
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<tr>
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</tr>
<tr>
<td>UA</td>
<td>Va +</td>
<td>full</td>
<td>yes</td>
<td>yes ?</td>
<td>1.02</td>
</tr>
</tbody>
</table>
The Inland ENCs, that are currently available, are based on older versions of the Inland ECDIS standard.

They do not provide full support of RIS.

The next edition of the Inland ENCs should be optimized for RIS:
Facility Information

Schleuse Brunsbüttel

Meta Information

- Facility Identification Number: 123
- Version: 2
- Last changes: 2004-01-01 10:20
- Type of Facility: Lock
- Short Description: Schleuse zum Nord-Ostsee-Kanal und zum Brunsbüttel-Binnenhafen
- Operator: VKZ-Verkehrszentrale Brunsbüttel
- Owner: N/V

Time Schedule

Type of Schedule (e.g. Times of Operation, Times of no Operation)

<table>
<thead>
<tr>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Validity of Time Schedule

From 2004-01-01 To 2004-01-01

Exceptions from Regular Time Schedule

2004-01-01

| Times | 00:00 - 00:00 |

Regular Time Schedule

From 2004-01-01 To 2004-01-01

Days with common schedule:

| Times | 00:00 - 00:00 |
**Fairway**

*Sender of the message*: BMVIT  
*Country where message is valid*: AT  
*District/region within country*:  
*Target group code*:  
*Subject*: Partial obstruction  
*Period of validity*: 12-06-2006  
*Name of Geo object*: Donau  
*Kind of limitation*: Blockage  
*Kind of limitation period*: 12-06-2006 - 07:00  
14-06-2006 - 17:00  
*Communication channel info section*:  
*Contents*:  
*Notice source (authority)*: Schlussmaßnahmen Abwinden
Depth information is referred to a reference water level.
Depth information in Inland ENCs is referred to a reference water level, which is sloped and non-linear.

If the water level at the gauge is 1 m above the reference level, the skipper adds 1 m to all the depth values.

We need a water level model, because water levels are not parallel.
Water level models are also needed for free flowing sections due to different cross sections.
Water level and velocity information

- The information derived from water level models can only be used for a specific section of the river Rhine at the moment.
- A proposal for a standardized format for detailed water level information has been developed.
- The proposed format can also be used to provide velocity information, that is important for voyage planning applications and optimisation of the fuel consumption.
More information on Inland ECDIS

- Visit ienc.openecdis.org
- Latest edition of the standard
- Digital parts of the standard for application providers
- Information on the expert groups
- Links to other websites with information on Inland ENCs (e.g. international organizations, national authorities, …)
- Discussion forum on Inland ENCs
Thank you for your attention!