



Ice Charts for ECDIS

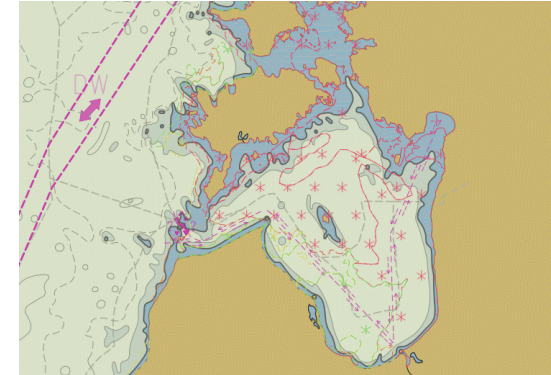
Integration of Ice Data into ECDIS
or
similar Systems

German Ice Service
Dr. Jürgen Holfort
Alexander Benke

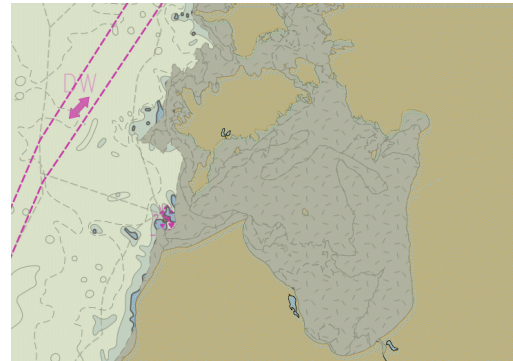
Ice Data Producing

Operational Data Producing in Winter 2012/2013:

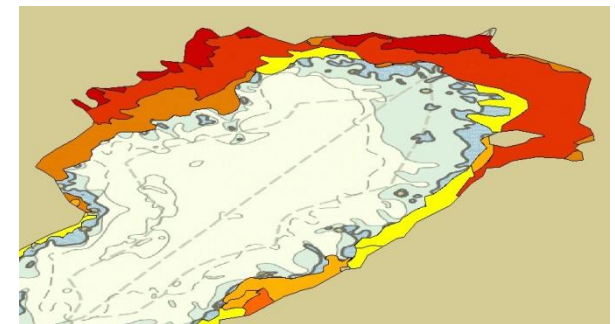
S-57 Marine Information Overlay



S-57 AML



S-10X According to Draft Sea Ice Product Specification (testdata) in XML and ??? formats



- **Every Day - new Chart**
- **Data transmission in northern or southern polar regions is more difficult than in other areas of the earth**
- **Simplified Geometries for reducing of data volume**
 - **Data are also placed over the land area**
 - **Need to put the data under land area layer or cut the data to match coastline directly in ECDIS on board**

S-10X Ice Data



- Ice Features are already in IHO Registry (from Ice Objects Catalogue Version 5.0)

Supplementary Index	Type Here	Filter	Type Here	Type Here	Filter
Domain	BRGARE	Areaberg	Iceberg Area		0000-00-00
	BRGLNE	LimitIceberg	Iceberg Limit		0000-00-00
	FLOBRG	BergIce	Eisberg		0000-00-00
	L_CRAC	LineIceCrack	Line of Ice Crack		0000-00-00
	L_FLOE	FloesSeparation	Separate float floe		0000-00-00
Item Type	L_FRAL	LineIceFracture	Line of Ice Fracture		0000-00-00
Feature Type	L_GSMW	GroundIceHummock	Grounded hummock		0000-00-00
Status	L_LEAD	LineIceLead	Line of Ice Lead		0000-00-00
Valid	L_RIDG	LineIceRidge	Line of Ice Ridge		0000-00-00
(Go to Index)	ICEBGC	BergIce	Iceberg		0000-00-00
	ICECOM	IceCompacting	Ice Compacting		0000-00-00
	ICECFT	IceCrift	Ice Drift		0000-00-00
	ICECVI	IceConvergence	Ice Convergence		0000-00-00
	ICEFRA	IceFracture	Ice Fracture		0000-00-00
	ICEEEL	IceEel	Ice Eel		0000-00-00
	ICEEEL	IceEel	Ice Eel		0000-00-00
	ICEELN	IceEdge	Ice Edge		0000-00-00
	ICEERD	IceRidge	Ice Ridge		0000-00-00
	ICEEFT	IceRafting	Ice Rafting		0000-00-00
	ICESHR	IceShear	Ice Shear		0000-00-00
	ICEIHK	IceThickness	Ice Thickness		0000-00-00
	IKMBSH	IceMush	Ice Mush		0000-00-00
	LACICE	LakeIce	Lake Ice		0000-00-00
	LKLINE	LimitIce	Limit of All Known Ice		0000-00-00
	OPENW	LimitWater	Limit of Open Water		0000-00-00
	SEAIICE	SeaIce	Sea Ice		0000-00-00
	SNWCVR	snowCover	Snow Cover		0000-00-00
	STGALT	Stage of float	Stage of float		0000-00-00
	STRPTC	IceStrips	Strips and Patches		0000-00-00

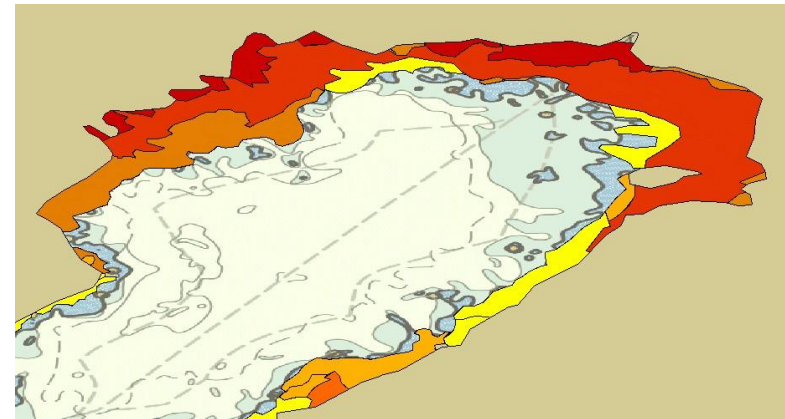
- Ice Objects Catalogue Version 5.1 is available
- Common Ice Features:
 - Sea Ice (Ice Concentration + Stage of Development)
 - Ice Ridge
 - Ice Rafting

S-10X Ice Data



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- **First Draft of S-10X Sea Ice Product Specification**
- **Portrayal (WMO Colors) in Symbology Encoding XML**
 - **WMO Colors are not really optimal for using as overlay in nautical charts**
 - **More portrayals planned using patterns of symbols, SVG symbols and transparency**



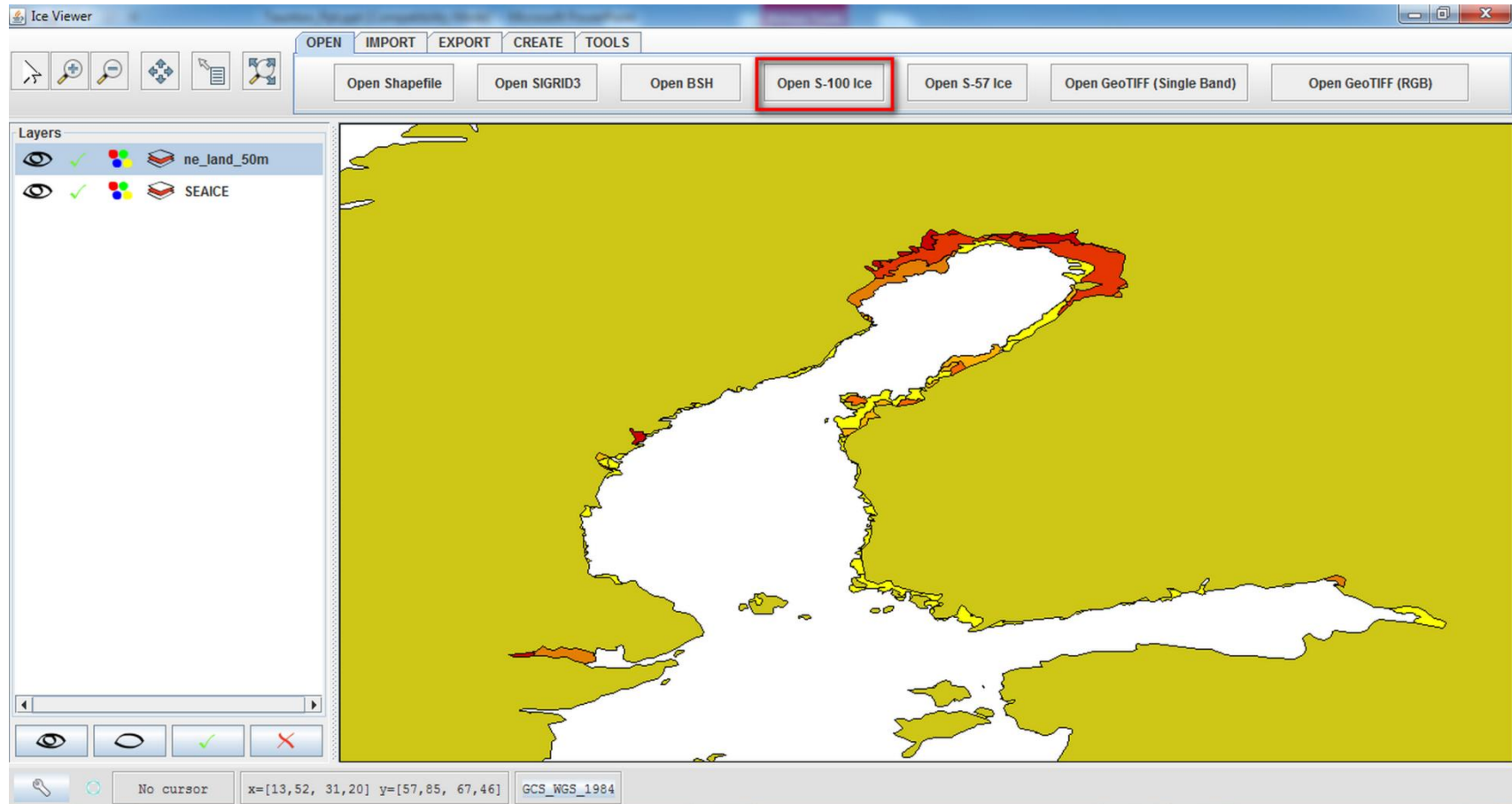
Ice Portrayal (WMO Colors)

- **Metadata ISO 19115 XML**
- **Development of Ice Viewer**

Ice Viewer



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More Info



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- <https://sites.google.com/sites/iceecdis>
- <ftp://ftp.bsh.de/outgoing/m12/ECDIS/>

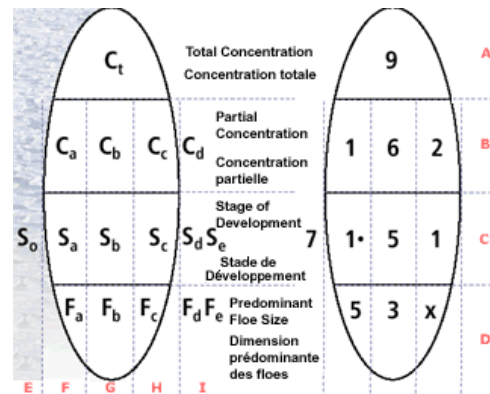
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Conclusions

- Using of transparency, patterns and SVG for displaying
- Pick report including Ice Egg



- Preferred data formats (xml, ESRI Shapefiles, etc.)