



Royal Netherlands Navy
Hydrographic Service

NLHO S-1XX Stacked data trial production

NSHC TWG26



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Timeline

- First operational version of S-101 will be ready at the end of 2024
- 1/1/2026 New ECDIS systems may be S-100 compatible
- 1/1/2029 New ECDIS systemen must be S-100 compatible
- Unknown: how long can we use S-57 in the existing ECDIS systems?
- Hydrographic Offices must deliver S57 and S-101 (dual fuel)



2023 Trial Production

- Focus on try an error

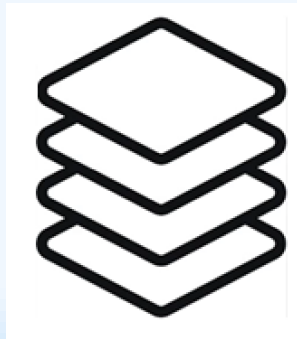




Objective and scope of the Trial

Produce a stacked dataset consisting of:

- S-101
- S-102
- S-104
- S-111



within a gridded scheme.

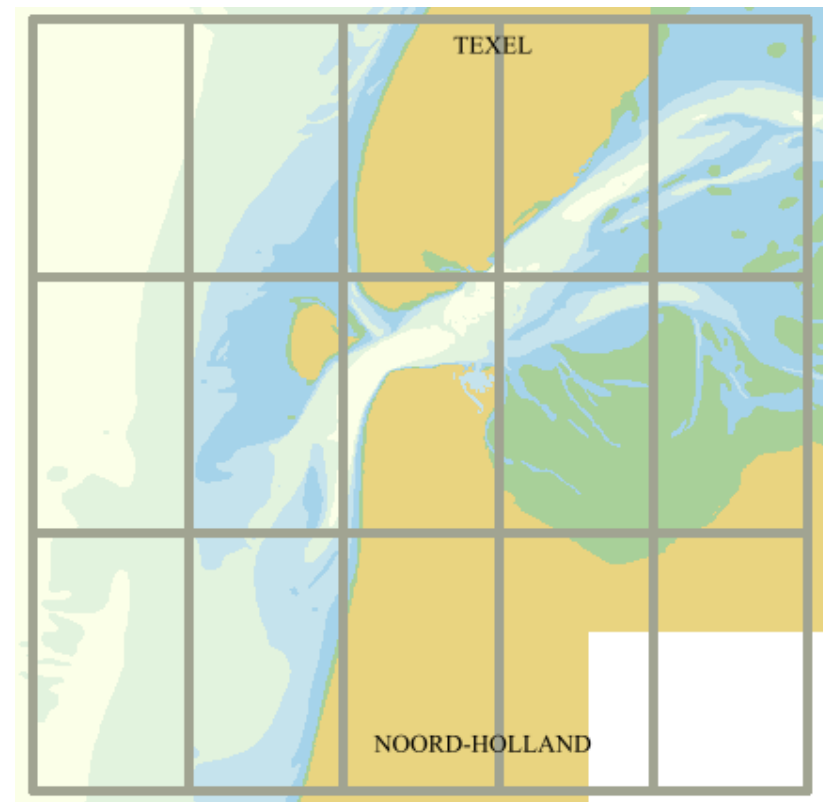


Approach to the port of Den Helder
selected as trial area




Chosen Grid and Scale Band

- UKHO – shared Gridding plans (IC-ENC TC 23/1 Antwerp)
- On request UKHO provided the NL grid scheme (.HOB and .SHP files)
- For the trial area, we've opted for Scale Band 5.



Scale band 5 Grid $0.1^{\circ} \times 0.1^{\circ}$

	Scale Band 1	Scale Band 2	Scale Band 3	Scale Band 4	Scale Band 5	Scale Band 6
 Grid	20	4	0.8	0.2	0.1	0.05

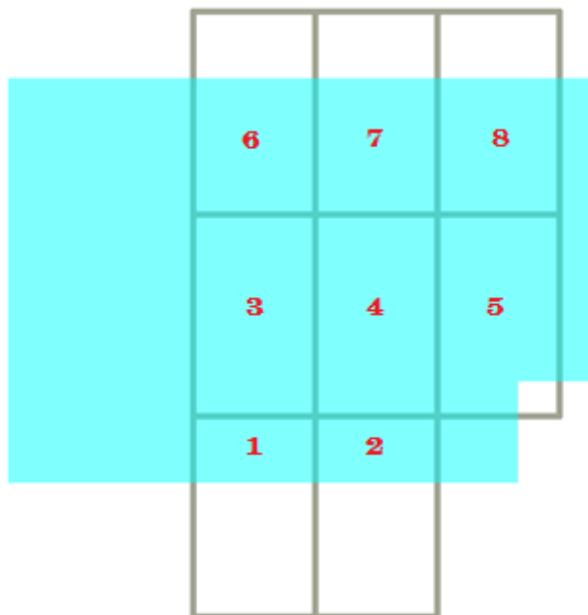


S-101

- Caris 4.1 Composer
- Source data: S-57 Harbour ENC
- Caris DCEG 1.0.0

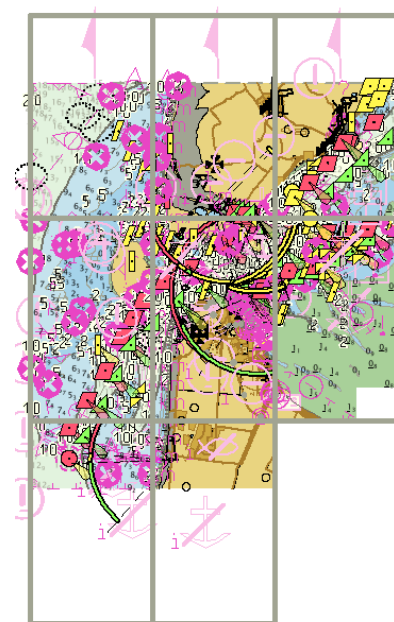


Current S-57 Harbour ENC,
compilation scale 22.000,
NL5WZ230



8 S-101 products
created based on
selected Grid

Attributes - DataCoverage	
Maximum Display Scale	12000
Minimum display scale	45000



Populated S-101
products by converting
(mapping) S-57 to S-101



Allocation of tasks across departments

S-101 => ENC Dept.

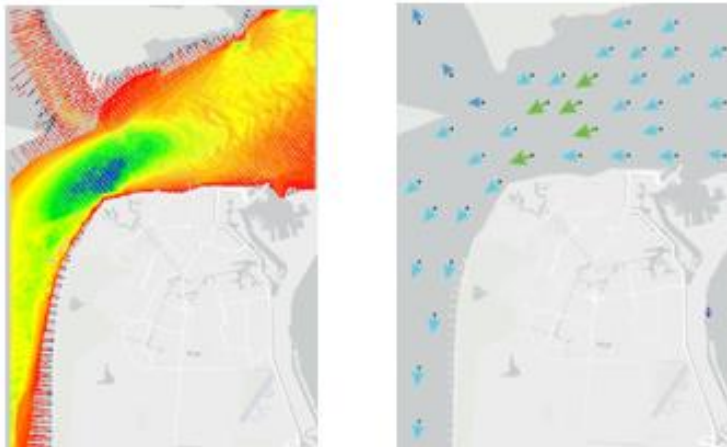
S-102 => Bathymetry Dept. + Functional data manager

S-104 => Geodesy & Tides Dept. + Developer/analyst

S-111 => Geodesy & Tides Dept. + Developer/analyst

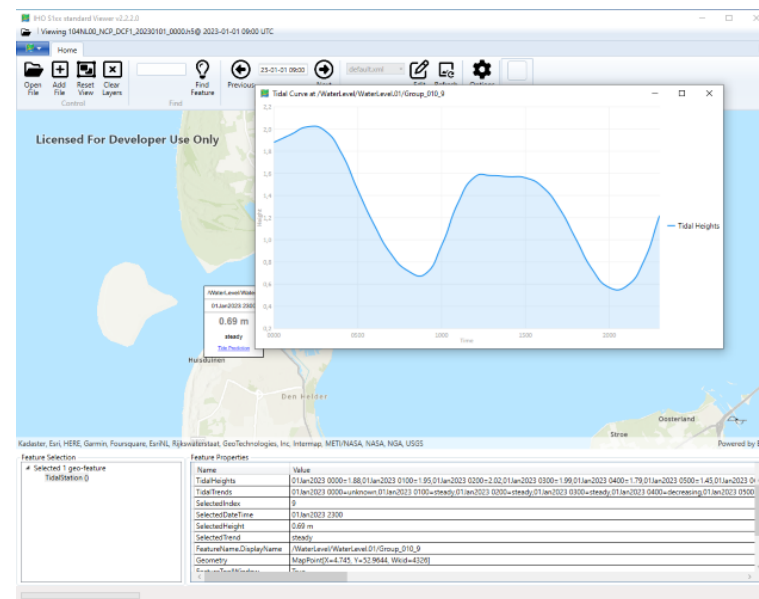
NLHO S-1XX viewer developed

To make all layers visible



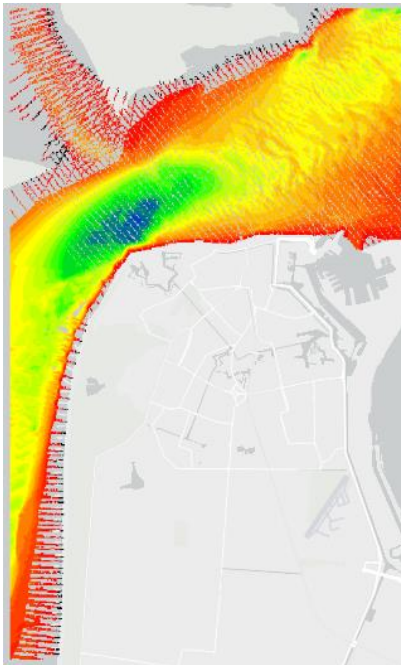
[GitHub Link](https://github.com/flappah/S1XViewer)

<https://github.com/flappah/S1XViewer>





S-102 Teledyne Caris





In Caris BASE Editor,
created a raster file (.csar) per grid cel from
the Bathy Database & exported to S-102



S-104

- SB 1 selected for S-104
- Data coding format 8 selected.
- 12 S-104 files created for 2023 (1 per month)
- XML database used for current NLTides application converted with XML-tool to a value per hour per station in HDF5 format.

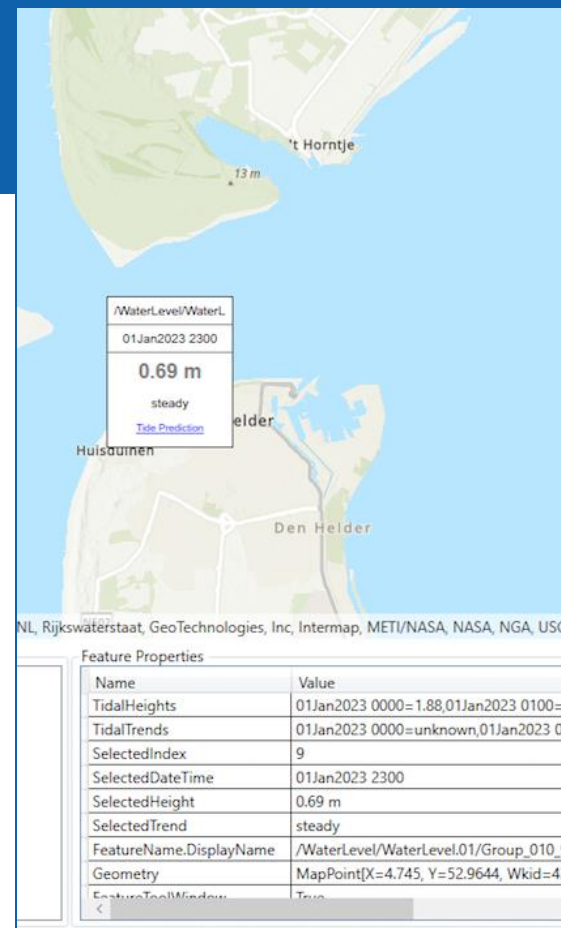
 Den Helder_2023_0_INT.xml
1 MB

 104NL00_NCP_20230101_0000.H5



	Scale Band 1
Chosen Grid	20

dataCodingFormat	Type of Data
1	Time series data at one or more fixed stations (organised by time) - type (a)
2	Regularly-gridded data at one or more times - type (b)
3	Ungeorectified gridded data or point set data at one or more times - type (c)
7	TIN data - type (d)
8	Stationwise time series at one or more fixed stations (organised by station) - type (a)

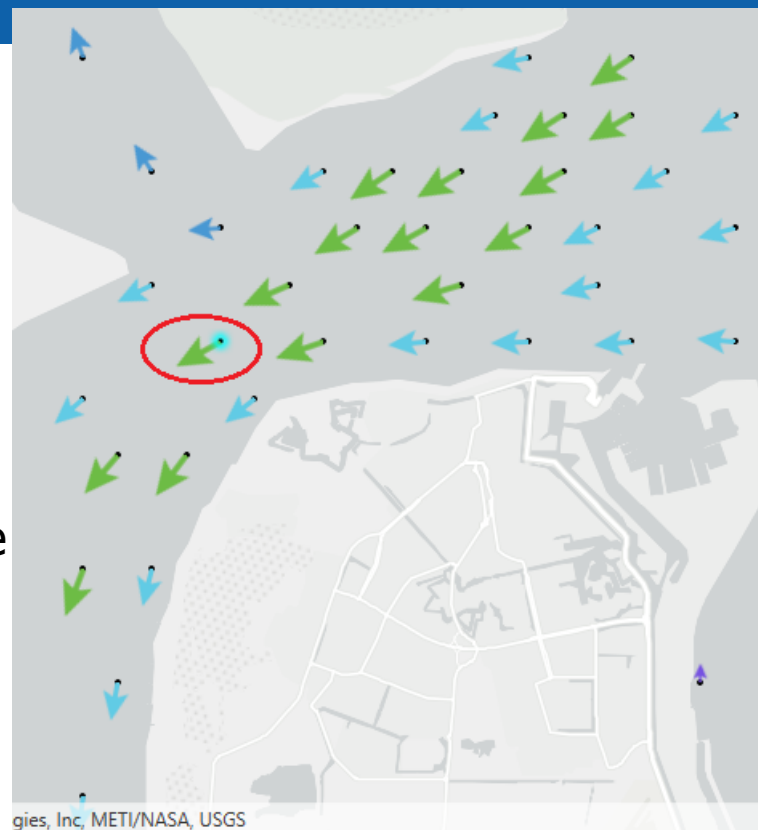




S-111

- 8 cells created tessellating with S-101 and S-102 files. (Caris Product Editor)
- Data coding format 8
- Per Grid cell 12 S-111 files created for 2023 (1 per month)
- S-57 features TS_FEB from current database converted with API to a value per hour per station.

dataCodingFormat	Type of Data
1	Time series data at one or more fixed stations (organised by time) - type (a)
2	Regularly-gridded data at one or more times - type (b)
3	Ungeorectified gridded data or point set data at one or more times - type (c)
7	TIN data - type (d)
8	Stationwise time series at one or more fixed stations (organised by station) - type (a)



Feature Properties

Name	Value
Orientation.OrientationUncertainty	0
Orientation.OrientationValue	241
Speed.SpeedMaximum	2,130000114440918
Speed.SpeedMinimum	0
FeatureName.DisplayName	Den Helder



S-104 en S-111

API SATIS ready for production(DCF1 & DCF8)

Satis v1.0.1.0
S104 and S111 converter for HPD products

Home

Open File Open HPD Start Edit Metadata Options

Select HPD-GPE Product Select HPD-GPE Product

S104/S111 product generation:

Product Type: S111
Data Coding Format: DCF1

Select either a file or an HPD Product from the list

File name: Select File

Hpd Product name: 975 S-111 Surface Currents - WZ23001 Save File

Supply user defined metadata

Name for output product:

Overview of meta data elements: Define meta data

Start S100 exchangeset generation

Select exchangeset folder: Exchangeset folder Start



Create / Edit Meta Data

MetadataElements

- MD_Metadata
 - ExchangeCatalogue
 - Identifier
 - Contact
 - ProductSpecification
 - DefaultLocale
 - OtherLocale
 - ExchangeCatalogueDescription
 - ExchangeCatalogueComment
 - CertificateContainer
 - DatasetDiscoveryMetadata
 - CatalogueDiscoveryMetadata
 - SupportFileDiscoveryMetadata
- Hdf5Attributes
 - issueTime
 - issueDate
 - horizontalCRS
 - geographicIdentifier
 - datasetDeliveryInterval
 - verticalCS
 - verticalDatumReference
 - verticalDatum

Edit Values of 'MetadataStorageItem'

☐ Is Repeated
☐ Is Mandatory

Values

Choose Value:

Select a date:

Select time:

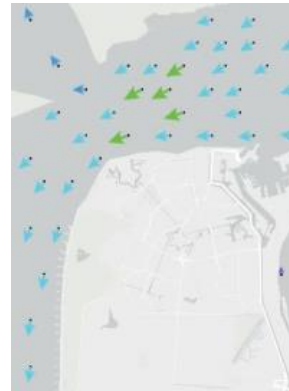
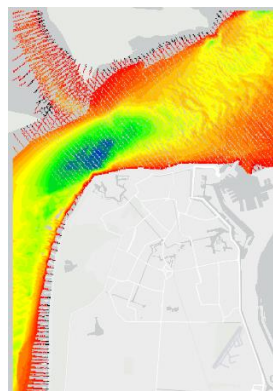
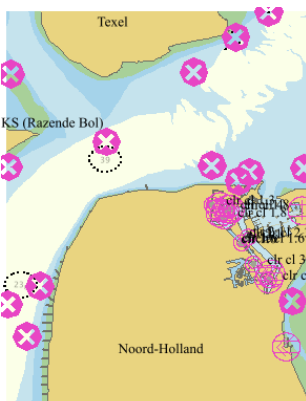
Enter value:

Clear Save Cancel



Results

- 8 S-101 ENC's covering the approach to Den Helder
- 8 tessellating S-102 products (.H5 files)
- 1 S-104 product (x12) of Netherlands Covering 2023
- 8 tessellating S-111 products (x12) Covering 2023
- Satis API developed for production S-104 and S-111
- NLHO S-1XX viewer developed
- Trial data provided to IC-ENC





2024: 2^e Trial – Production Approach Westerschelde

- 2^e Trial already started
- Production stacked data set
- Keep the dataset up-to-date
- Implementatie File Naming Convention
- In cooperation with IC-ENC (Validation)

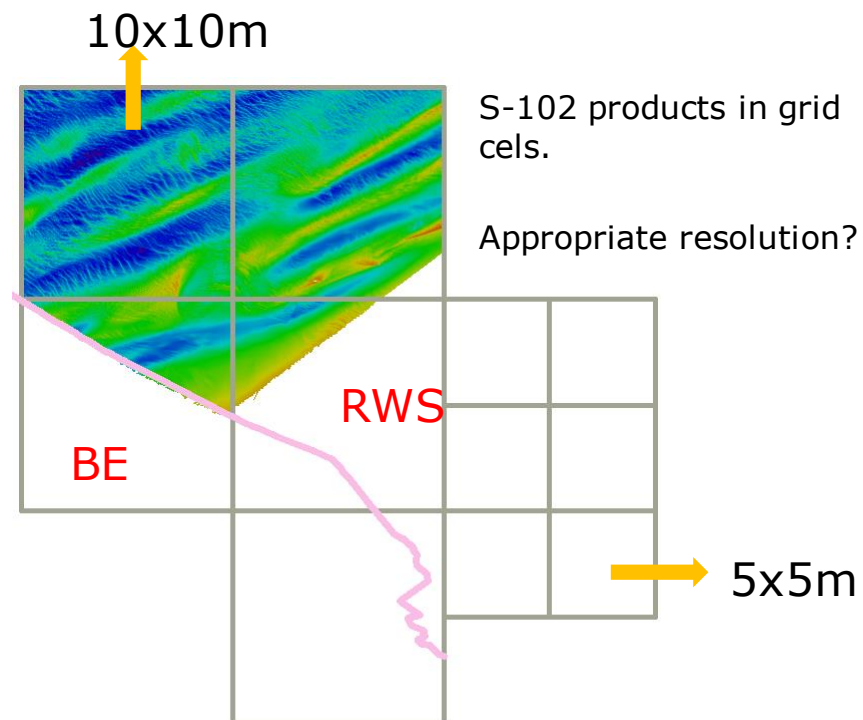
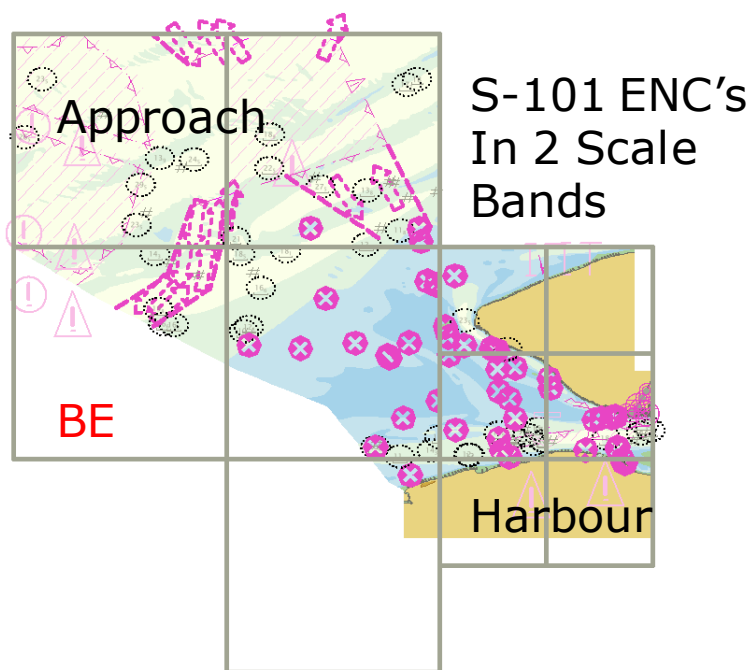


- S-101
- S-102
- S-104
- S-111





S-101 en S-102





Questions?

Ideas

Comments

Remarks