

Coast Survey Development Laboratory

Office of Coast Survey

National Ocean Service

National Oceanic and Atmospheric Administration

Update on the S-111 Product Specification

Greg Seroka,
on behalf of TWCWG



Progress in S-111: Overview

1. Distribution of Edition 1.0.0 by IHO in December 2018

Made minor edits to Ed. 1.0.0 ([Ed. 1.0.1 current](#))

2. Production at HOs

3. Feedback from OEM, S-100 testbed implementation

[Dusk/night colours too bright \(Korea @TWCWG4\)](#)

No dusk/night yet in Korea's S-100 viewer; other options to test?

4. Works in Progress

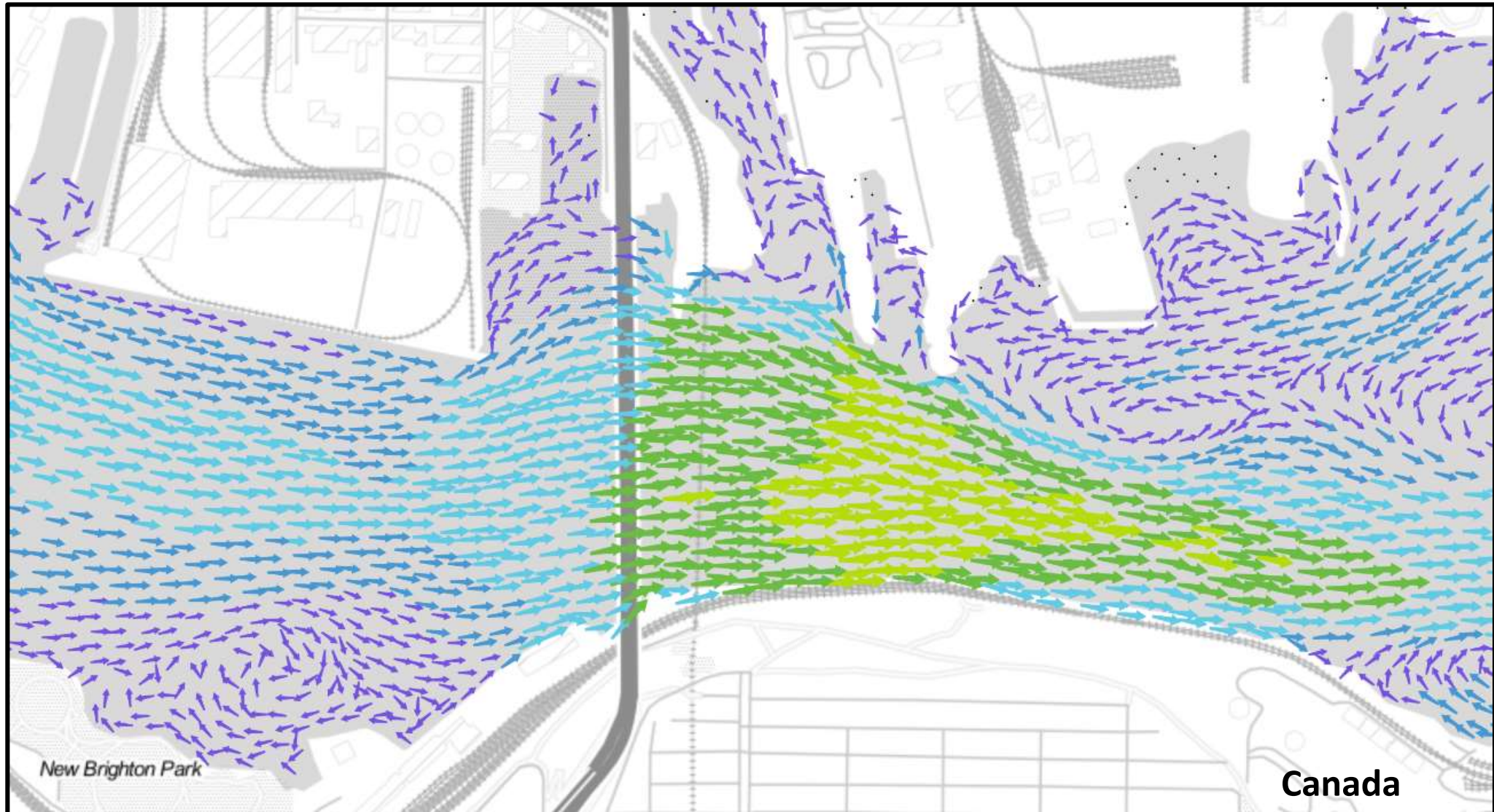
[Uncertainty and Data Quality](#)

[Exchange Datasets](#)

[Streamlines](#)

S-111 Production at HOs

Several TWCWG Member States have created (at least) test files



Uncertainty Estimates

Uncertainty Parameters in S-111:

GENERAL: S-100

(Feature Metadata)

- *horizontalPositionUncertainty*
- *verticalUncertainty*
- *timeUncertainty*

SURFACE CURRENTS: S-111

(Feature Instance dataset)

- *surfaceCurrentSpeedUncertainty*
- *surfaceCurrentDirectionUncertainty*

- DQWG possibly to review S-111 PS in the coming year (?)
Is there a formal review process?

Portrayal: Exploring Streamlines



Next steps for S-111

1. Respond to requests arising from implementation by test bed creators and OEMs
2. Continue maintaining HDF5 formats (including potential changes from S-104 revision)
3. Develop XML Exchange Datasets and DQ software

Supplementary Slides

Present status of the S-111 Product Specification

Greg Seroka and Kurt Hess, NOAA, USA

COMPONENTS OF THE S-111 PRODUCT SPECIFICATION

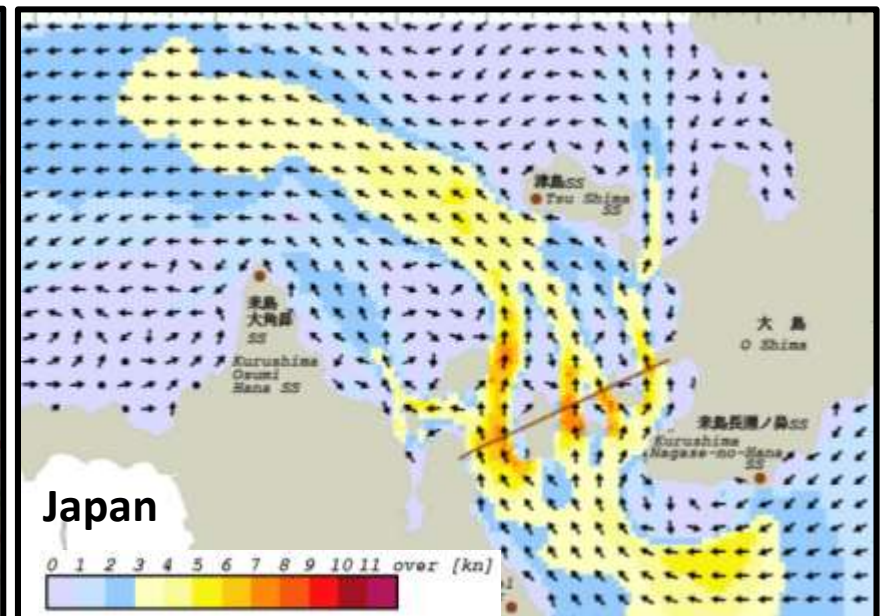
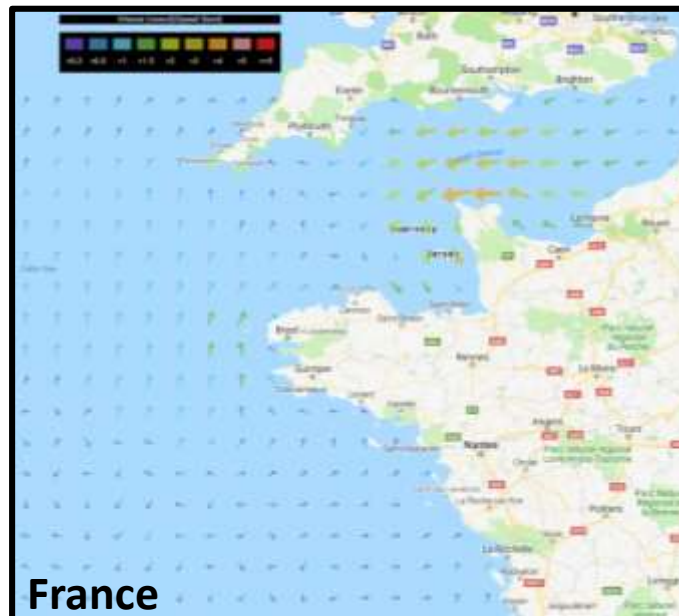
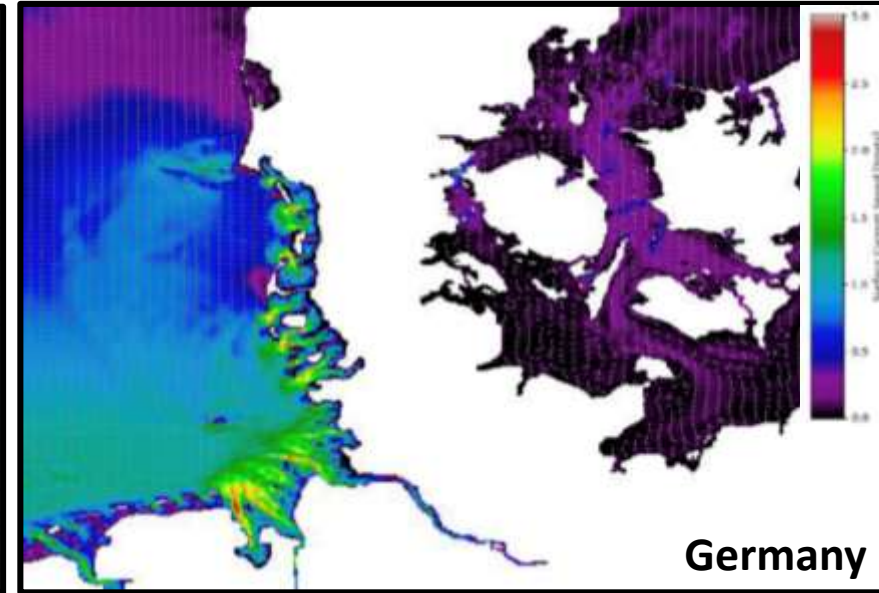
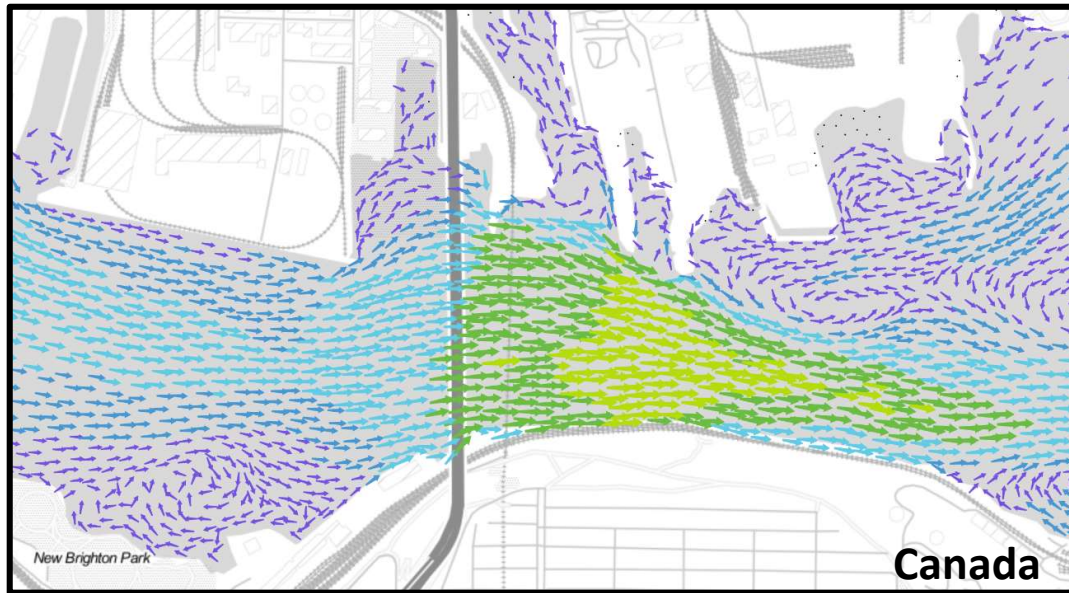
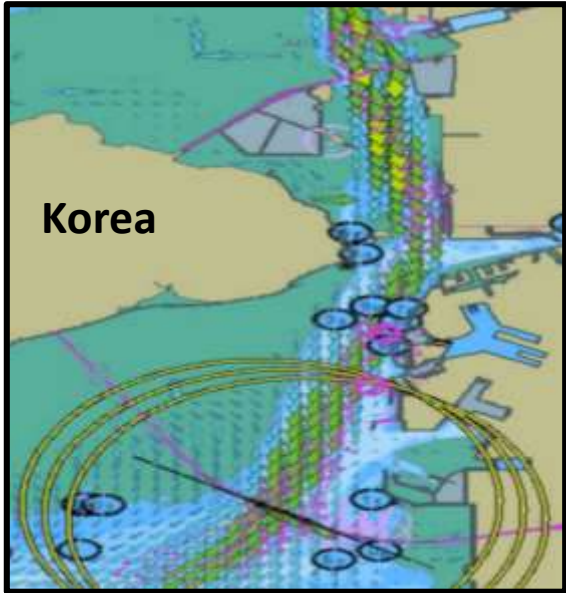
- | | |
|---|-------------|
| 1. Main Document | (Ed. 1.0.1) |
| 2. Data Classification and Encoding Guide | (Done) |
| 3. Feature Catalogue | (Done) |
| 4. Portrayal Catalogue | (Done) |
| 5. Exchange Format | (Done) |

S-111 EXCHANGE FILE CREATION

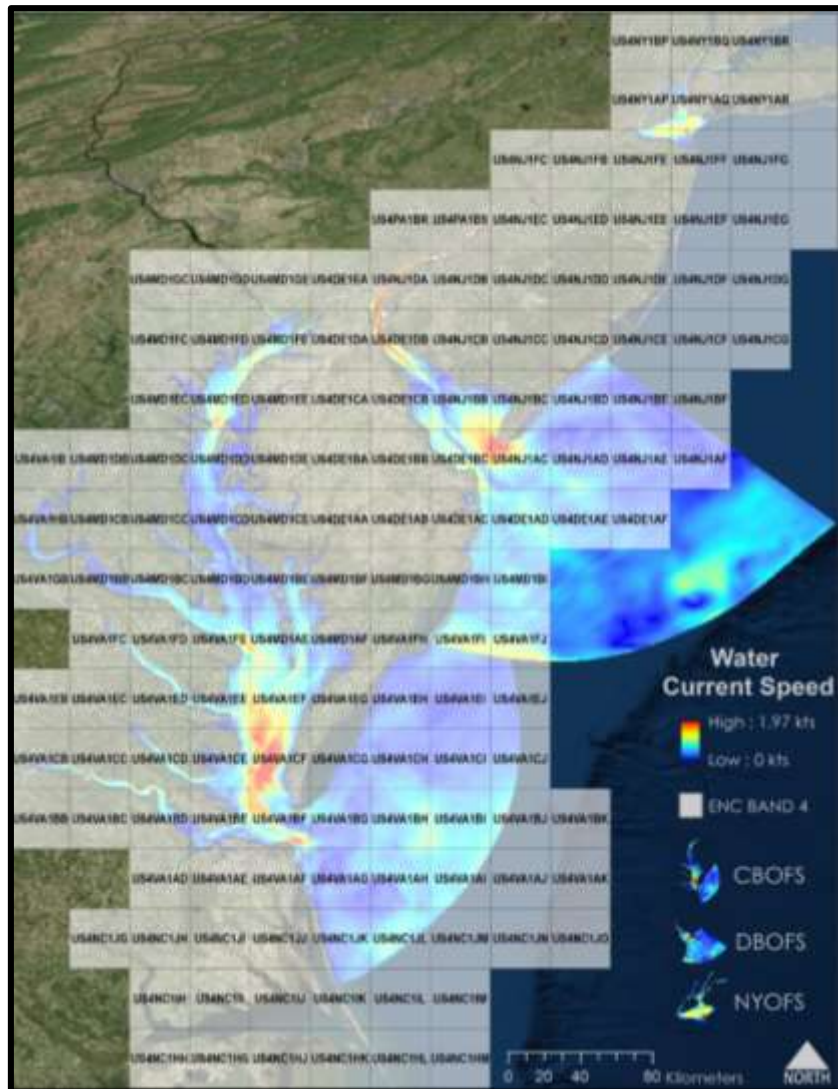
- | | |
|-------------------------|-------------------|
| 1. S-100 Dataset (HDF5) | (Samples created) |
| 2. Catalogue File (XML) | (In progress) |

S-111 Production at HOs

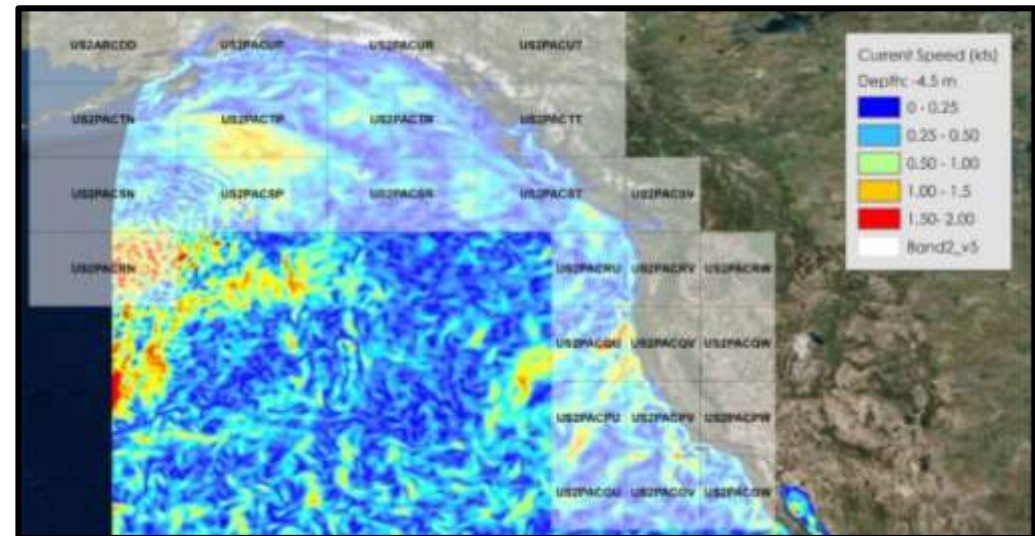
Several TWCWG Member States have created (at least) test files



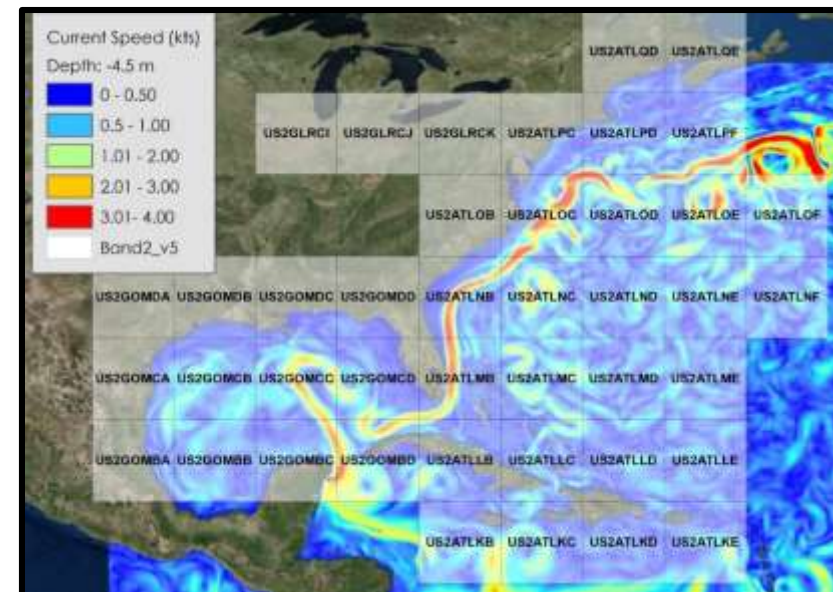
S-111 Production at HOs



U.S. Mid-Atlantic, with ENC Reschemed Grids



U.S. West Coast, with ENC Reschemed Grids



U.S. East Coast, with ENC Reschemed Grids

establishing testing standards

what determines
a change in portrayal
should be accepted?

1. Expert Opinion
2. User Surveys
3. Psycophysical Testing
4. Perceptual Models
5. Based on published studies
6. A combination of methods

Portrayal an Iterative Process



Updates to the S-111 Product Specification: Draft S-111 Ed 1.0.1

- Dataset 'SurfaceCurrent' in Group_F:

Data in columns 'upper'
and 'closure' now reversed

	code	name	uom.name	fillValue	dataType	lower	upper	closure
0	surfaceCurrentSpeed	Surface current speed	knots	-9999.0	H5T_FLOAT	0.0		geSemiInterval
1	surfaceCurrentDirection	Surface current direction	arc-degrees	-9999.0	H5T_FLOAT	0.0	360	geLInterval

Revised values

- Annex F, Sec. F.2: Added text to clarify variable order and name

For this coding format, the speed and direction are stored in the one-dimensional compound array 'values'. In each element of the array, the first variable is 'surfaceCurrentSpeed' and the second is 'surfaceCurrentDirection'. The spelling and order of variable names is important.

- Other minor spelling and spacing changes. These constitute 'clarifications'

NOAA's semi-operational production of S-111 HDF5 files

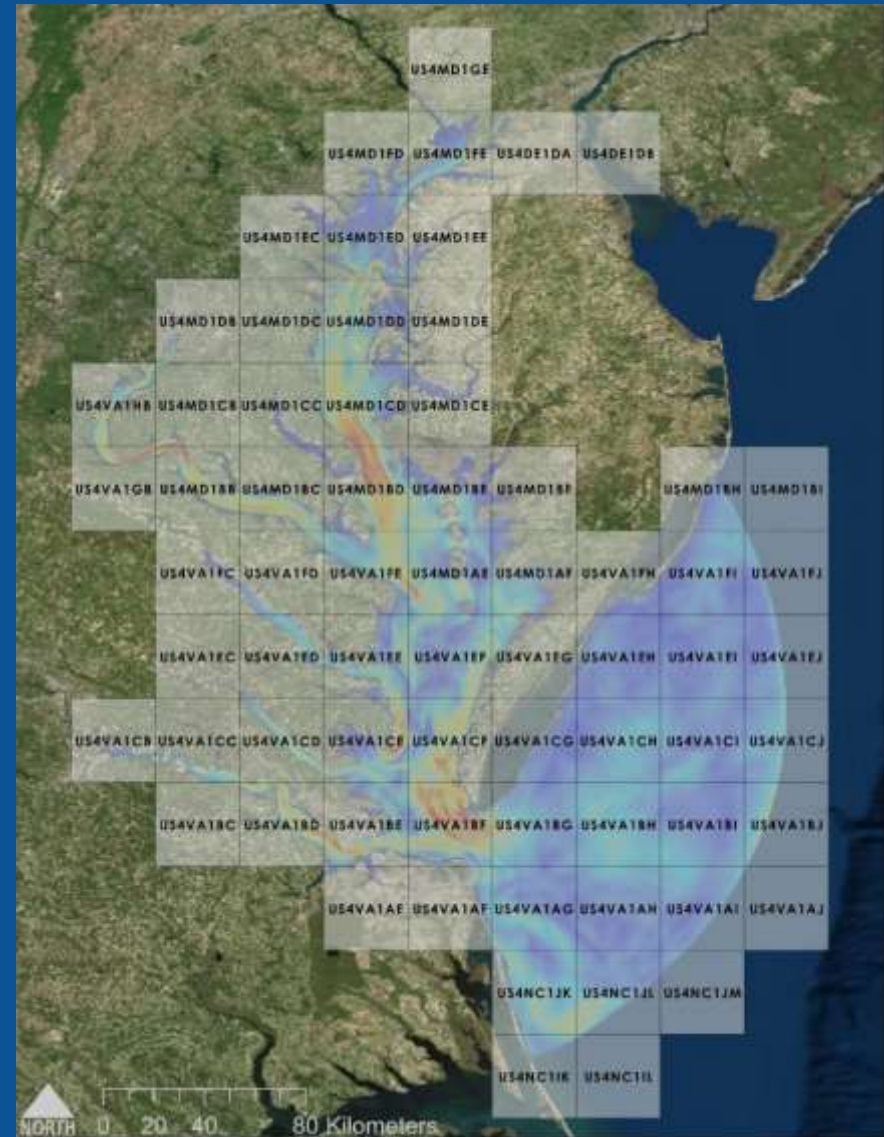
Predicted currents from the Chesapeake Bay Operational Forecast System

Interpolated to a regular grid (500 by 500 m), at 4.5m depth below surface

Supply currents in separate files, at high-resolution (band 4: 1 to 40k/80k) digital chart scale

69 Datasets, overall grid file size of ~12 MB

4 times daily cycle (0, 6, 12, 18 UTC), forecasts are hourly out to 48 hours (f00-f48)



Chesapeake Bay, with charts

