



Pêches et Océans
Canada

Fisheries and Oceans
Canada

Canada National presentation



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IHO Tides Water Levels Currents Working Group Vice-Chair

TWCWG 2, Victoria, BC, Canada

May 2017



Plan

- Achievements in last year
- Tools available (license free)
 - CARIS encoder
 - SLGO Validator
- Ocean Protection Plan
 - Continuous Vertical Datum
 - Rust-out
 - Dynamic Products
- Next steps



S-111 Surface currents specification status

- 36 metadata entries
- Supports point, point set, trajectory, grids, unstructured grids
- Supports predictions, forecasts, observations
- S-111 to be submitted to IHO members states in 2017

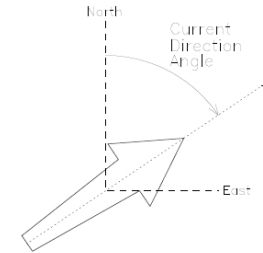
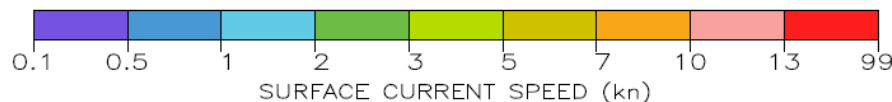


Table 9.1 – Speed ranges (knots) and RGB colour values for the 9-step display.

Step	Minimum Speed (kn)	Maximum Speed (kn)	Appx. Interval (kn)	Colour Scale Intensity			Displayed Colour
				Red	Green	Blue	
1	0.10	0.49	0.4	118	82	226	
2	0.50	0.99	0.5	72	152	211	
3	1.00	1.99	1	97	203	229	
4	2.00	2.99	1	109	188	69	
5	3.00	4.99	2	180	220	0	
6	5.00	6.99	2	205	193	0	
7	7.00	9.99	3	248	167	24	
8	10.00	12.99	3	247	162	157	
9	13.00	99.99	87	255	30	30	





S-111 Tests Datasets on IHO website now

US

Time series at a few fixed locations

Fictive Data

4 stations

6 minutes interval

Regularly gridded data

Lake Ontario

25 x 61 grid

6 hours of data

Irregularly gridded data

Chesapeake Bay

1560 data points

6 hours of data

Argo surface drifter data

Pacific

384 data points

Canada

Hindcast of West Coast

72963 data points

24 hours of data

30 Mo

Hincast of East Coast

27016 data points

24 hours of data

10 Mo

2017 Currents predictions of all stations in Canada

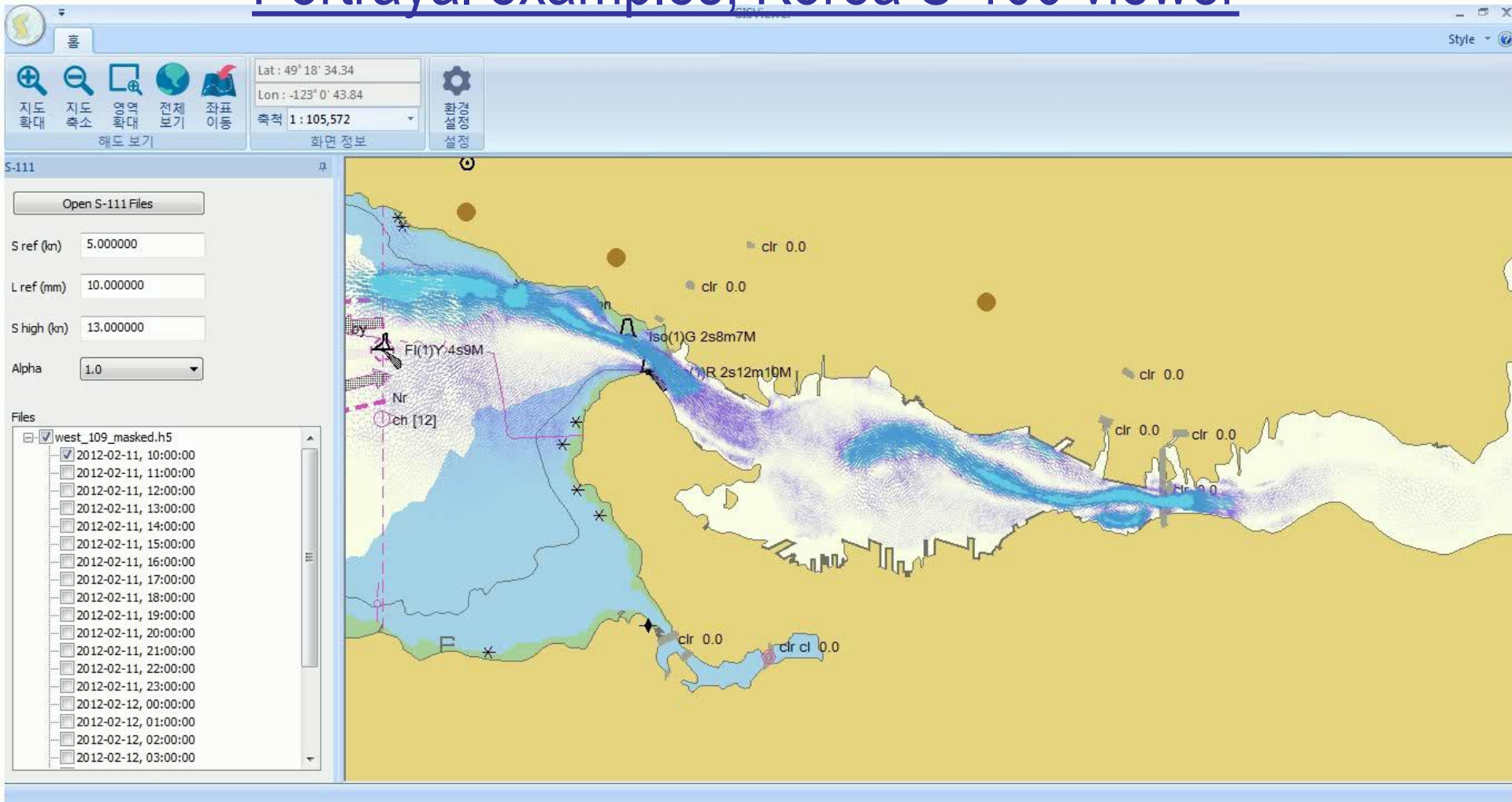
23 stations

15 minutes interval

12 Mo, comp. 1.5 Mo



Portrayal examples, Korea S-100 viewer



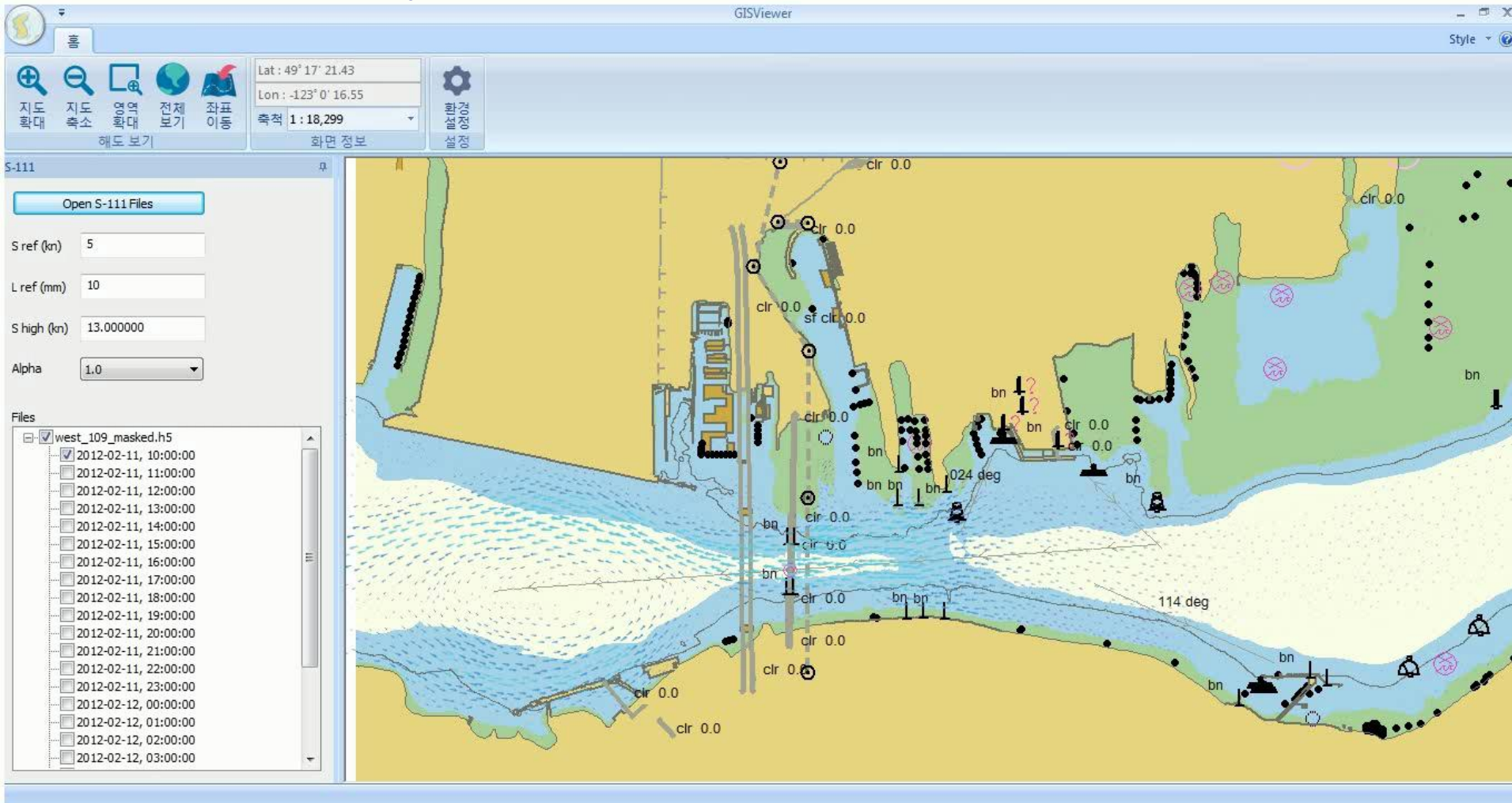


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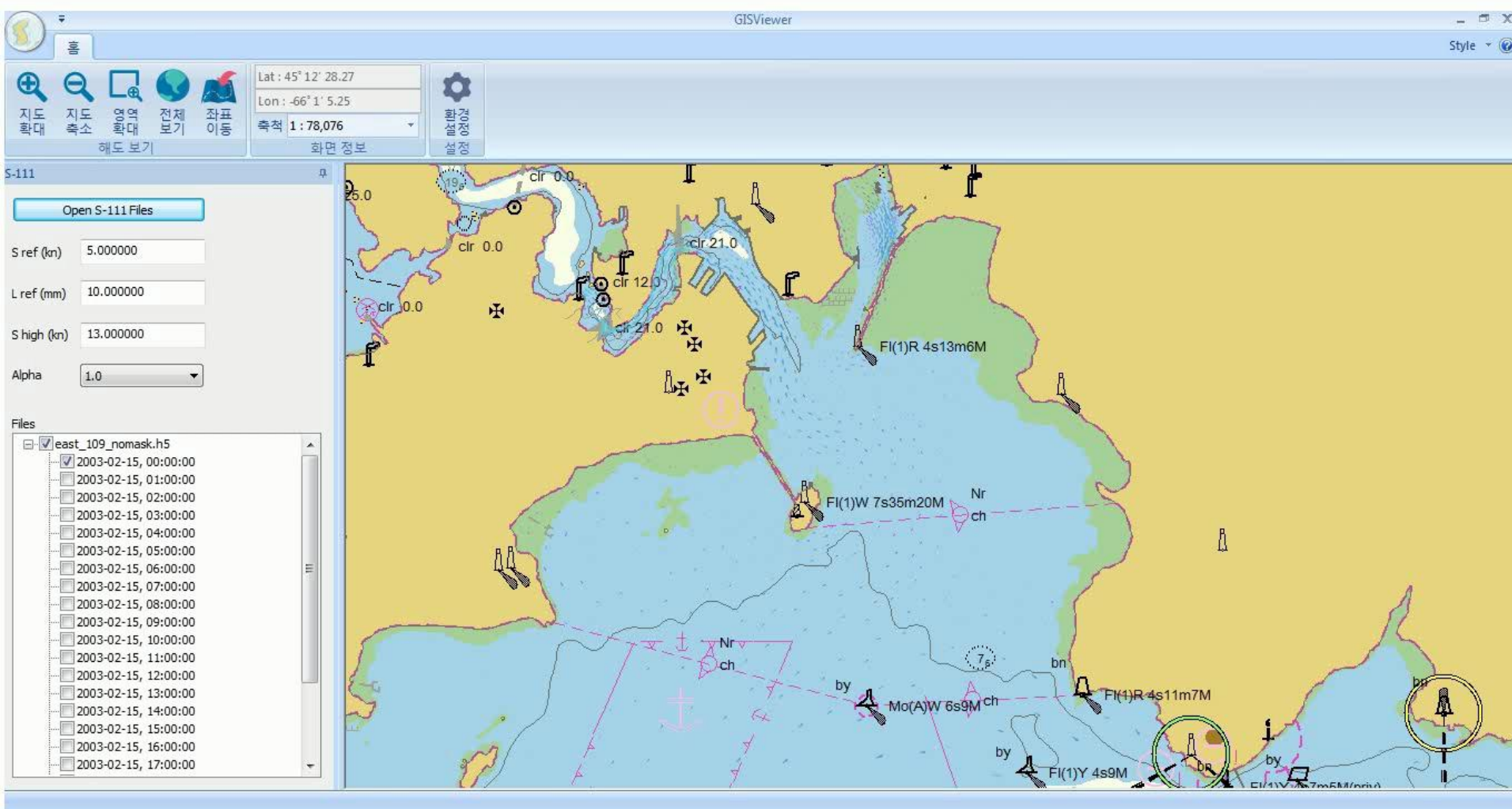


Portrayal examples, Korea S-100 viewer





Portrayal examples, Korea S-100 viewer





Use of Korea S-100 viewer and SLGO validator

- ☒ S-111 US Type 1
- ☒ S-111 US Type 2
- ☒ S-111 US Type 3
- ☐ S-111 US Type 4
- ☐ West
- ☐ Est Canada (En développement)
- ☒ HFR (En développement)



Latest data by station | 2017-01-20 09:26 to 2017-01-20 15:26 | westCurrent | bingmapAerial



Period



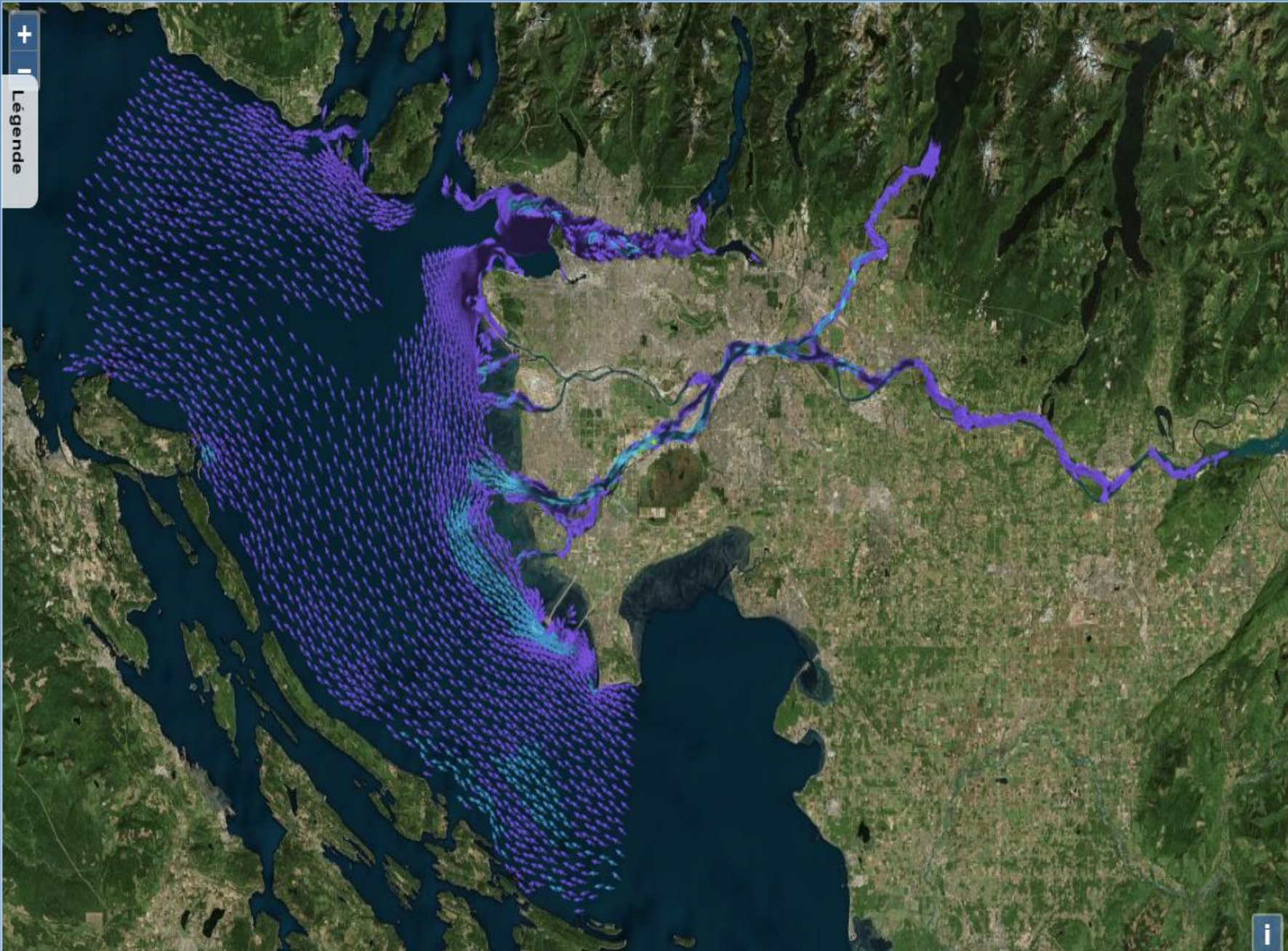
Station Type



Station Type

+

Légende



Latest data by station | 2017-01-20 09:50 to 2017-01-20 15:50 | westCurrent, bathymetry, stations | bingmapRoad

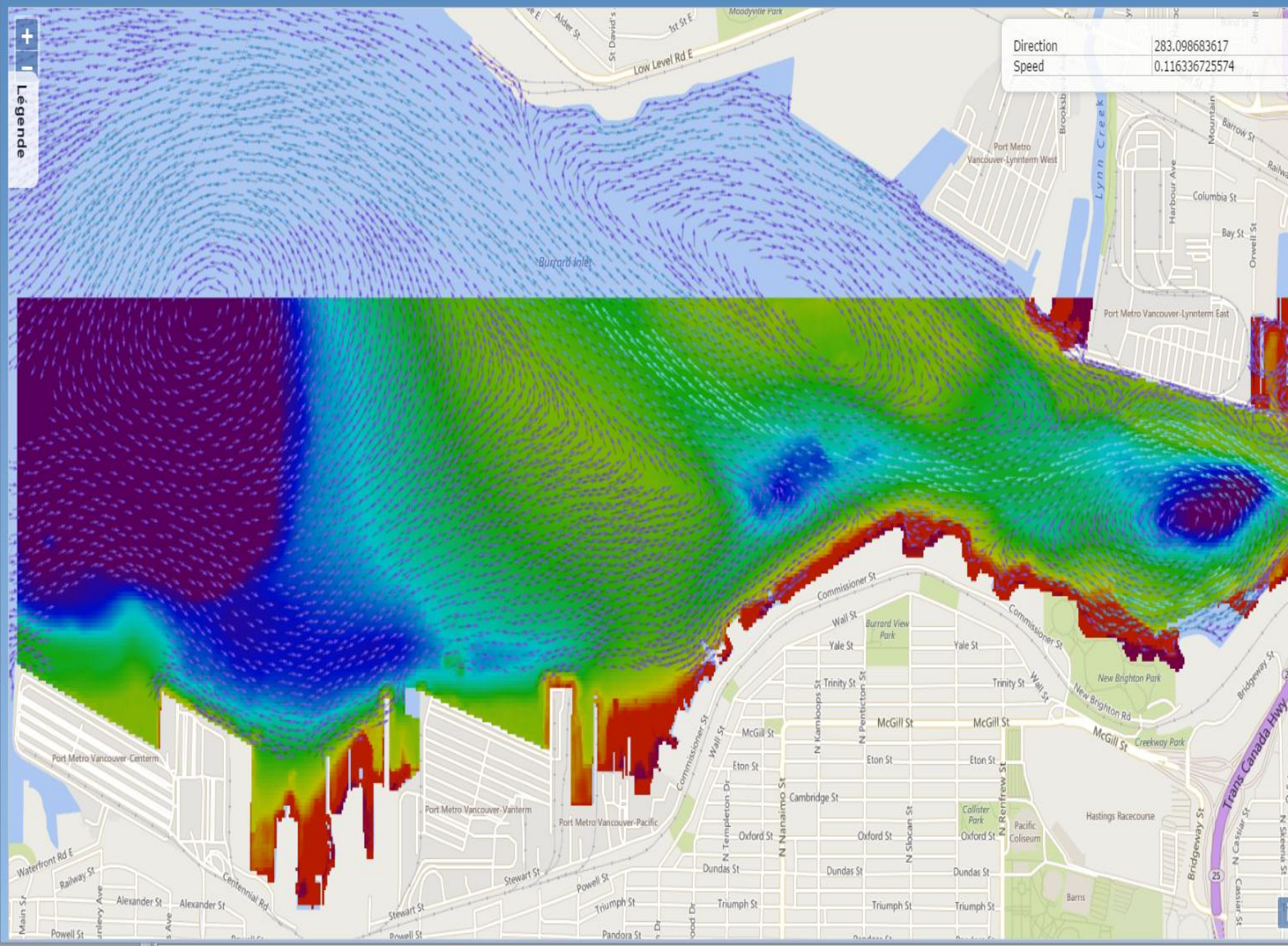
Period

Layers

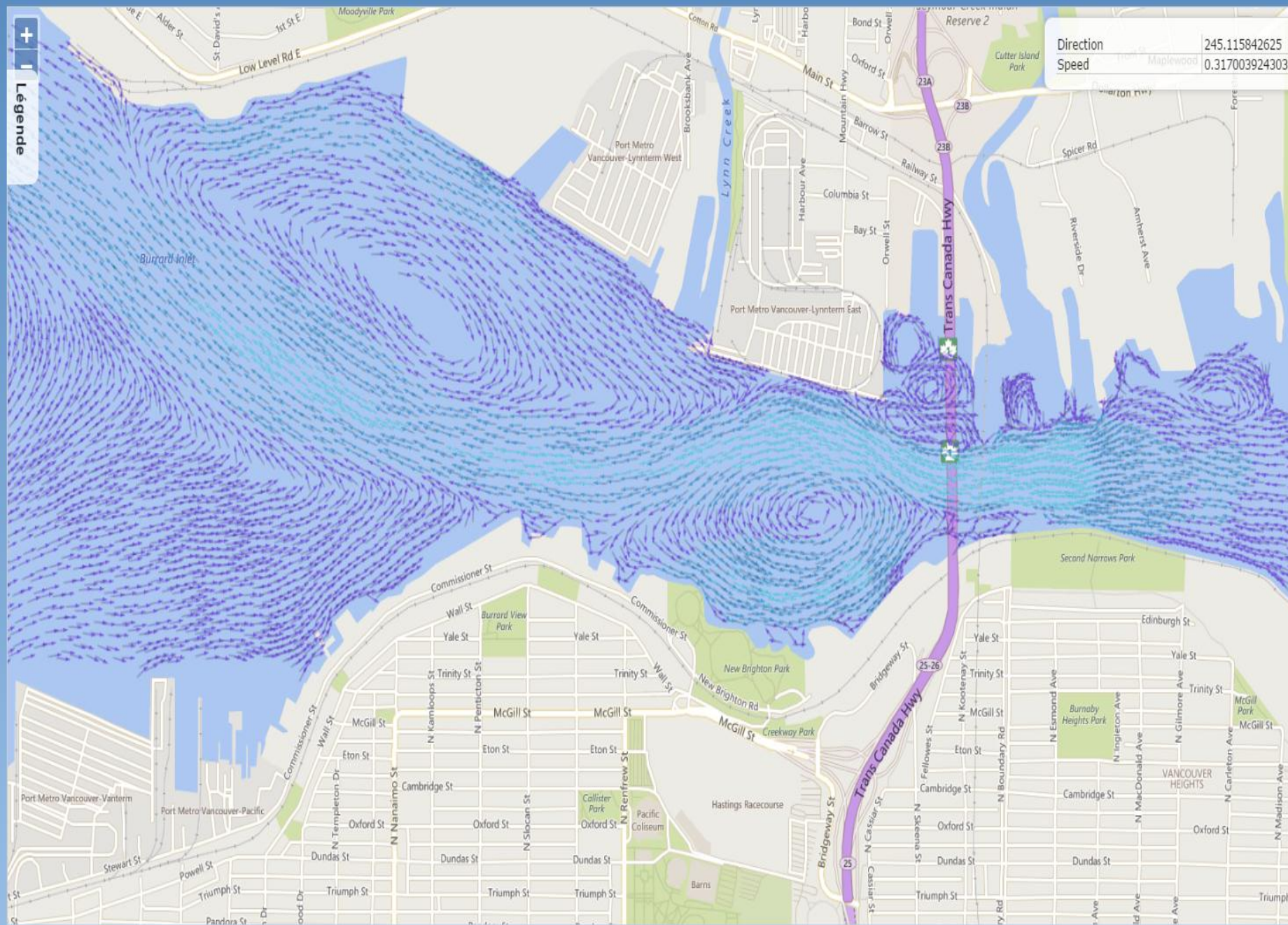
 1
background

Légende

Direction	283.098683617
Speed	0.116336725574



Latest data by station | 2017-01-20 09:50 to 2017-01-20 15:50 | westCurrent, stations | bingmapRoad





Tools available

- CARIS encoder

The screenshot shows a web browser displaying the GitHub repository page for `caris/chs-s111`. The page is titled "Instructions" and is part of the repository's Wiki. The repository is private and has 6 watches, 0 stars, and 0 forks. The "Wiki" tab is selected, showing the "Instructions" page. The page content states: "General In the /Scripts/ folder of your Python installation directory you will find the following S-111 scripts:" followed by a list of four Python scripts: `S111_create_file.py`, `S111_add_timeseries.py`, `S111_add_irregulargrid.py`, and `s111_print_file.py`. On the right side of the page, there is a "Pages" sidebar with links to "Home", "Installation", and "Instructions".

Instructions · caris/chs-s111

GitHub, Inc. [US] | <https://github.com/caris/chs-s111/wiki/Instructions>

This repository Search Pull requests Issues Gist

caris / chs-s111 Private

Unwatch 6 Star 0 Fork 0

Code Issues 0 Pull requests 1 Projects 0 Wiki Pulse Graphs

Instructions

Mike Van Duzee edited this page on 28 Mar 2016 · 15 revisions

General In the /Scripts/ folder of your Python installation directory you will find the following S-111 scripts:

- S111_create_file.py
- S111_add_timeseries.py
- S111_add_irregulargrid.py
- s111_print_file.py

Pages 3

- Home
- Installation
- Instructions



Tools available

Create File This script will generate the HDF5 S-111 file. Only the metadata provided from the input metadata file in the correct format will be encoded.

usage: s111_create_file.py [-h] -m METADATA_FILE outputFile

METADATA_FILE: File in a specified csv format. See sample data. outputFile: file path and name, for example SingleStationExample.h5

example: C:\Program Files\Python35>python.exe .\Scripts\s111_create_file.py -m
"D:\Sample_Data\single station example\050000000p20131229a.csv"
"D:\Sample_Data\Created_Test\singlestation.h5"

Add Time Series This script will add data to an existing HDF5 S-111 file. Only data provided from an input data file in the correct format will be encoded.

usage: s111_add_timeseries.py [-h] -t TIME_SERIES_FILE inOutFile

TIME_SERIES_FILE: ASCII file in a specified format. See sample data. inOutFile: file path and name of the existing HDF5 S-111 file created with s111_create_file.py script, for example SingleStationExample.h5.

example: C:\Program Files\Python35>python.exe .\Scripts\s111_add_timeseries.py -t
"D:\Sample_Data\single station example\050000000p20131229a.cu05"
"D:\Sample_Data\Created_Test\singlestation.h5"



Tools available

Add Irregular Grid This script will add data to an existing HDF5 S-111 file. Only data provided from an input data file in the correct format will be encoded.

usage: s111_add_irregular_grid.py [-h] -t IRREGULAR_GRID_FILE inOutFile

IRREGULAR_GRID_FILE: NetCDF (which flavour exactly?). See sample data. inOutFile: file path and name of the existing HDF5 S-111 file created with s111_create_file.py script, for example IrregularGridExample.h5

example: C:\Program Files\Python35>python.exe .\Scripts\s111_add_irregular_grid.py -t
"D:\Sample_Data\irregular grid example\vh_high_fvcom_da.nc"
"D:\Sample_Data\Created_Test\irregulargrid.h5"

Print File Contents This script will print the HDF5 header.

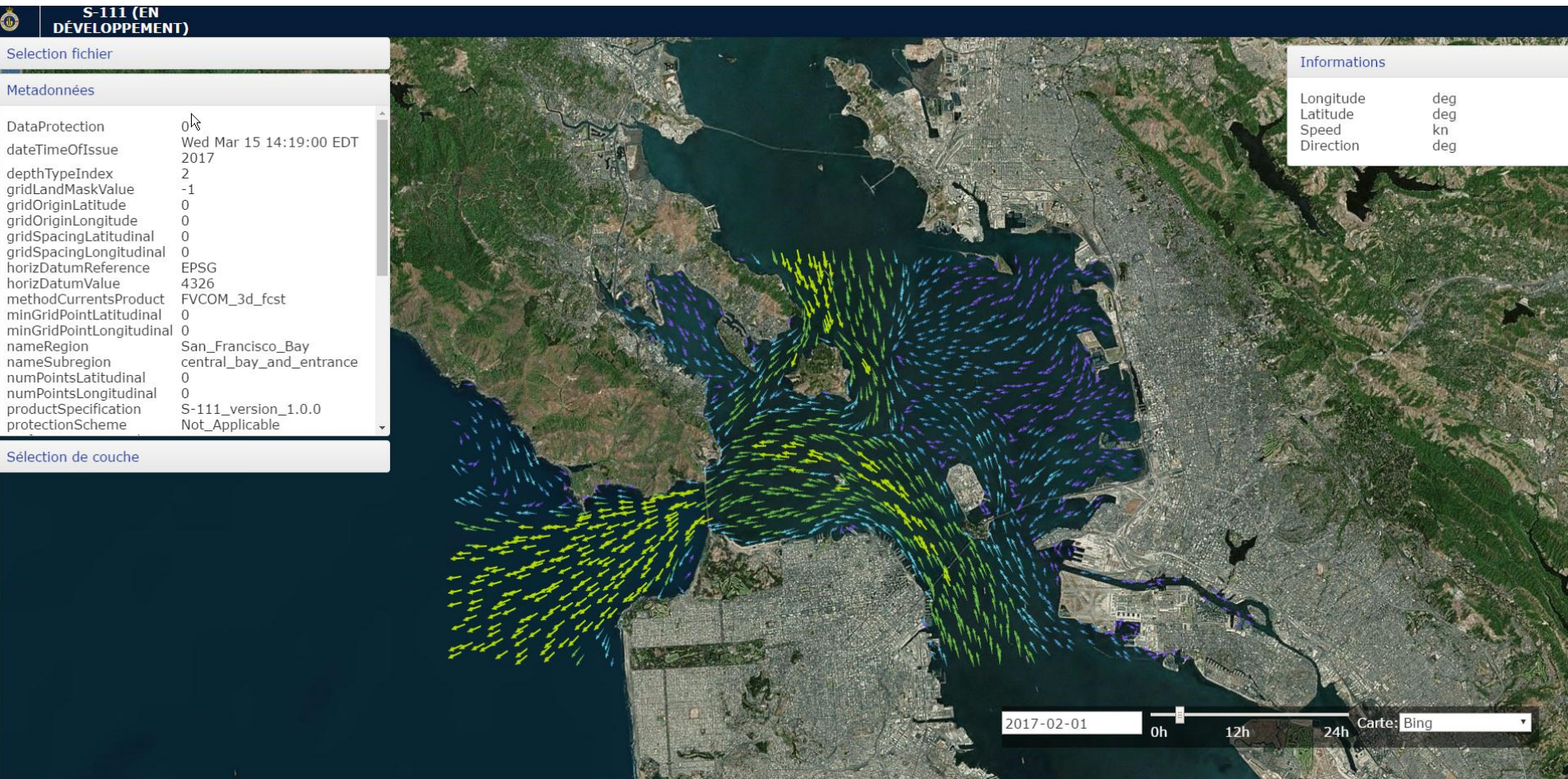
usage: s111_print_file.py [-h] inputFile

inputFile: file path and name of HDF5 S-111 file.

example: C:\Program Files\Python35>python.exe .\Scripts\s111_print_file.py
"D:\Sample_Data\Created_Test\singlestation.h5"



SLGO Validator





Government
of Canada

Gouvernement
du Canada

\$1.5 Billion **National Oceans Protection Plan**

1

Supports safe and
clean marine shipping

2

Builds partnerships
with Indigenous and
coastal communities

3

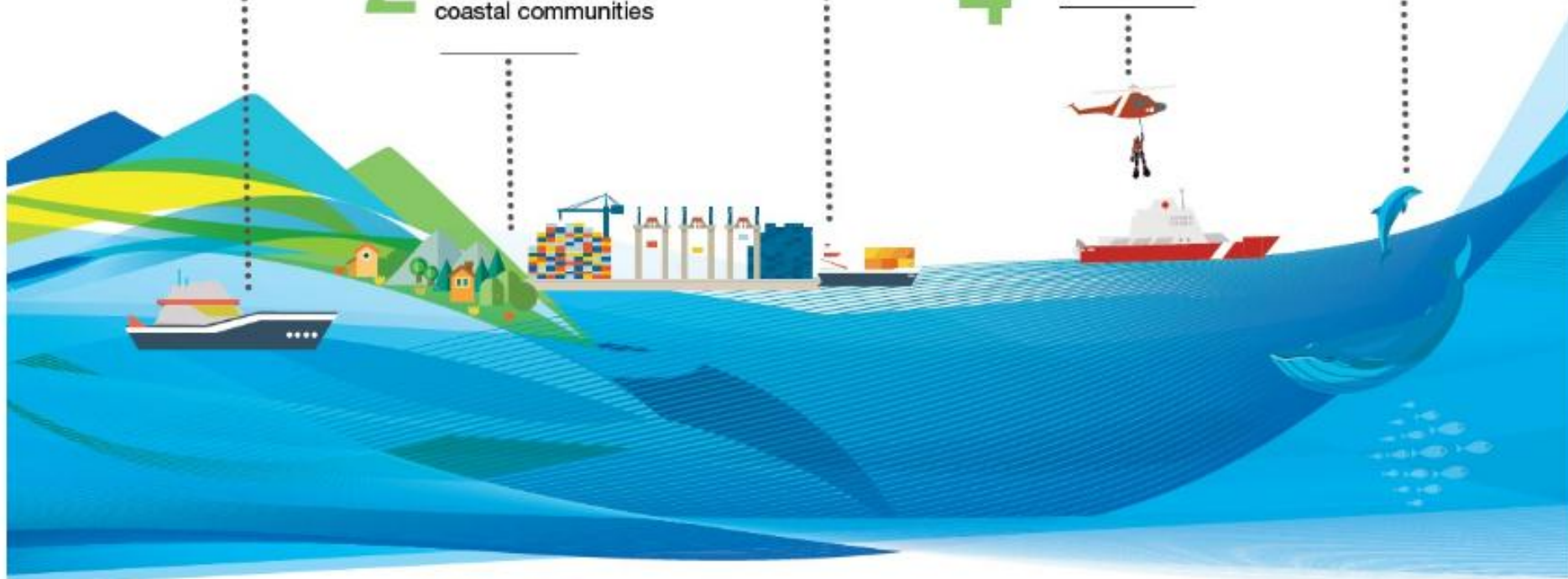
Increases economic
opportunities for Canadians

4

Improves marine safety

5

Protects the
marine environment



canada.ca/oceans-protection-plan

Canada 



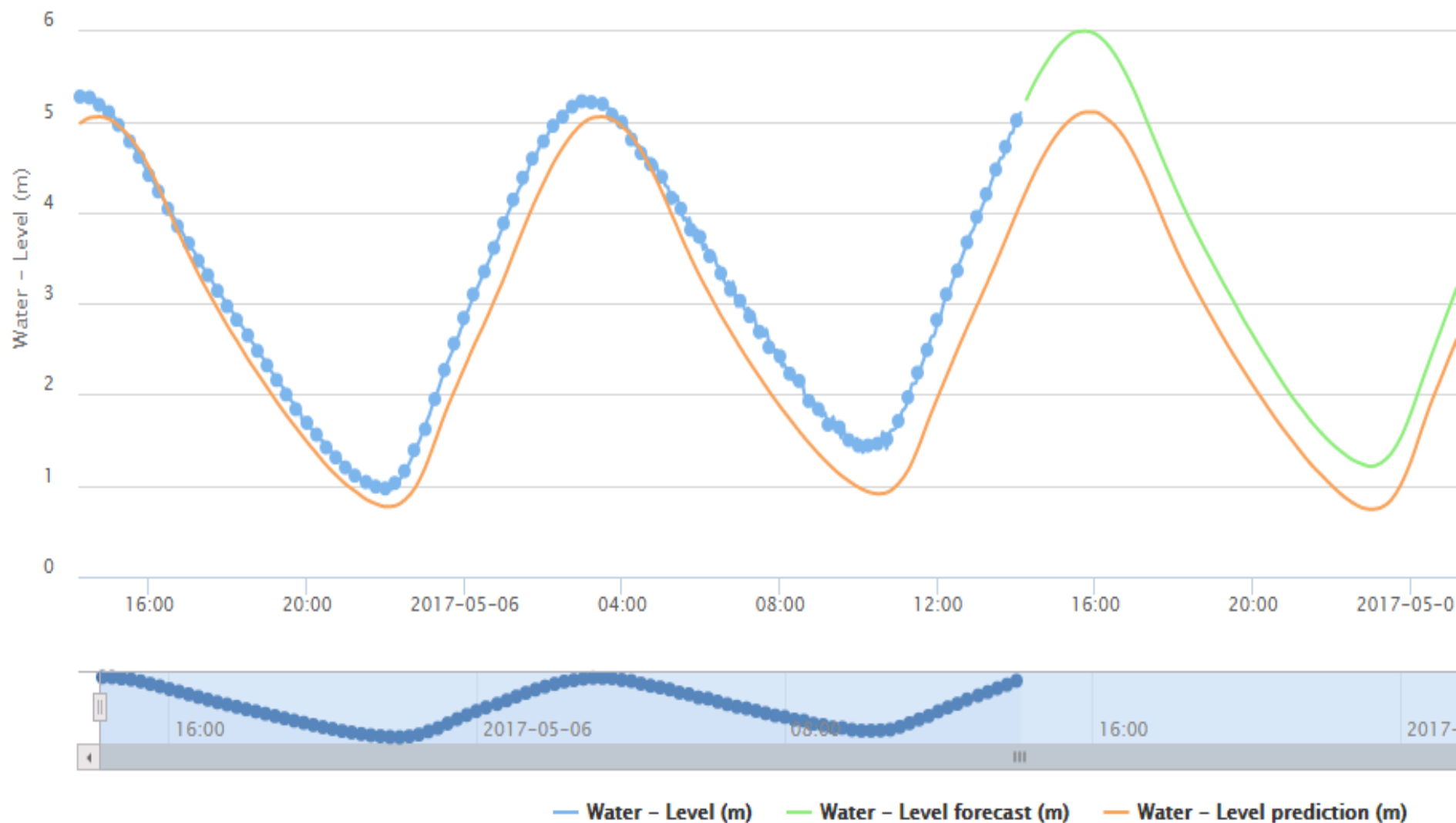
Continuous Vertical Datum / Rust out

- IGLD update
- Canada CVD
- Modernise tidal primary stations
 - Infrastructure
 - Instrumentation
 - Communication equipment

Goal : 24/7 , observations/ predictions/ forecasts at all primary stations

Air - Pressure (kPa)
 Water - Level (m)
 More ▾

Zoom
 Day
 Week
 Mth
 Year
 All





Dynamic Products

- Water levels S-104
- Surface currents S-111
- Bathymetry S-102
- Operationnal modelling + data assimilation
- 24/7 accessibility
- West Coast / East Coast / St-Lawrence River.



Next steps

- Propose S-111 version 1.0 to members states
- Re-use same file structure for Water Levels S-104
- CHS to support manufacturer work on S-111/S-102/S-104 via simulation center (pilotage training facility)
- Webinar in May to launch manufacturer development on S-102/S-111/S-104 (US-Canada hydrographic commission)

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