

STATUS OF S-111: SURFACE CURRENT PRODUCT SPECIFICATION

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1. S-111, version 1.8
2. Data product architecture
3. Questions for S-100WG
4. Next steps

1. The S-111 Product Spec

The review cycle: Issue, Review, Comment, Revise

At SCWG 3 (May 13-15, 2015, in Tokyo), discussed Ver. 1.5.

Ver. 1.6 issued Sep. 5, 2015. Comments were due mid-October.
Settled on the vector scale.

Ver. 1.7 issued Dec. 21, 2015. No comments required.
Revised the data product format.

Ver. 1.8 issued Mar. 28, 2016 (on TWCWG webpage).
To be discussed at TWCWG 1.
Examples of HDF5 formatted data, thinning algorithm.

Vector Scale

Details

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		

Scale Bar



2. Data Product Architecture

Schematic
of the data
product

Data Product
Product Metadata
Group XY (conditional)
X values array ($m=1, numPOS$)
Y values array ($m=1, numPOS$)
Group 1
Title ₁
Date-Time ₁
Surface current speed array ($i=1, numCOL, j=1, numROW$)
Surface current direction array ($i=1, numCOL, j=1, numROW$)
Group 2
Title ₂
Date-Time ₂
Surface current speed array ($i=1, numCOL, j=1, numROW$)
Surface current direction array ($i=1, numCOL, j=1, numROW$)
Group $numGRP$
Title _{$numGRP$}
Date-Time _{$numGRP$}
Surface current speed array ($i=1, numCOL, j=1, numROW$)
Surface current direction array ($i=1, numCOL, j=1, numROW$)

Data Product Architecture (Continued)

Coding Format

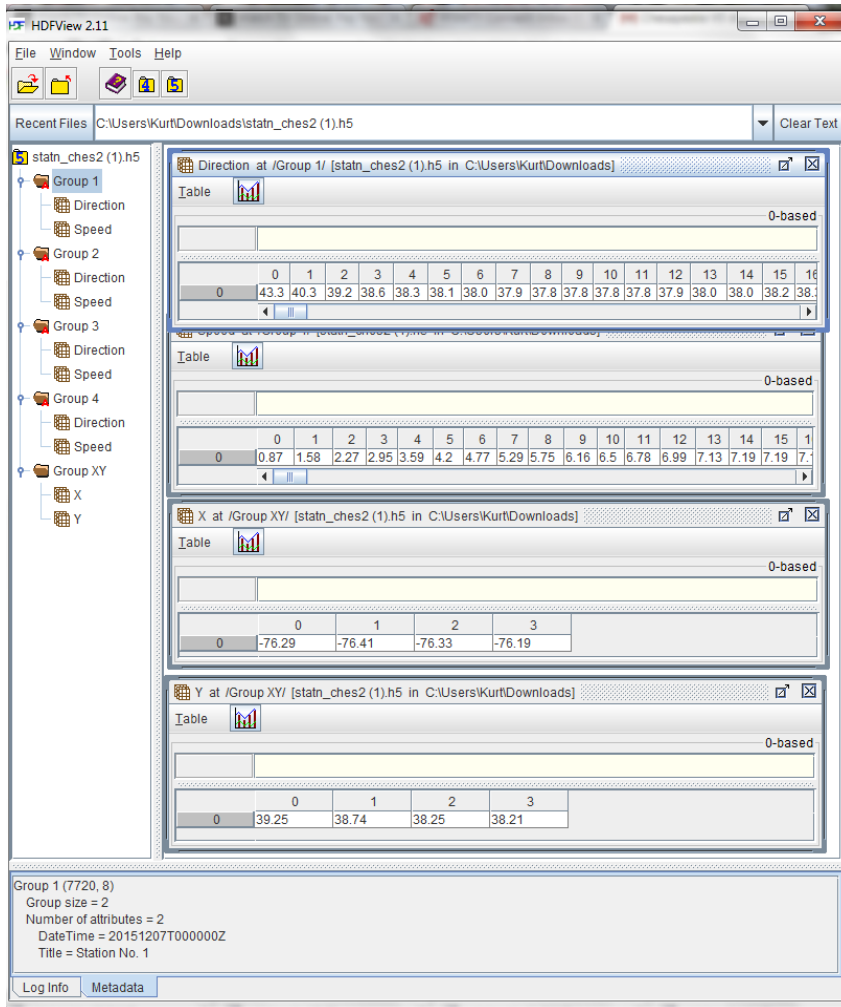
Data Type	Coding Format	numPOS	numCOL	numROW	numGRP
Fixed Platforms, Time Series	1	numberOfStations	numberOfTimes	1	numberOfStations
Regular Grid	2	(not used)	numberOfPointsLong	numberOfPointsLat	numberOfTimes
Irregular Grid	3	numberOfNodes	numberOfNodes	1	numberOfTimes
Moving Platform, Time Series	4	numberOfTimes	numberOfTimes	1	1

HDF5 Schematic of a Data Product

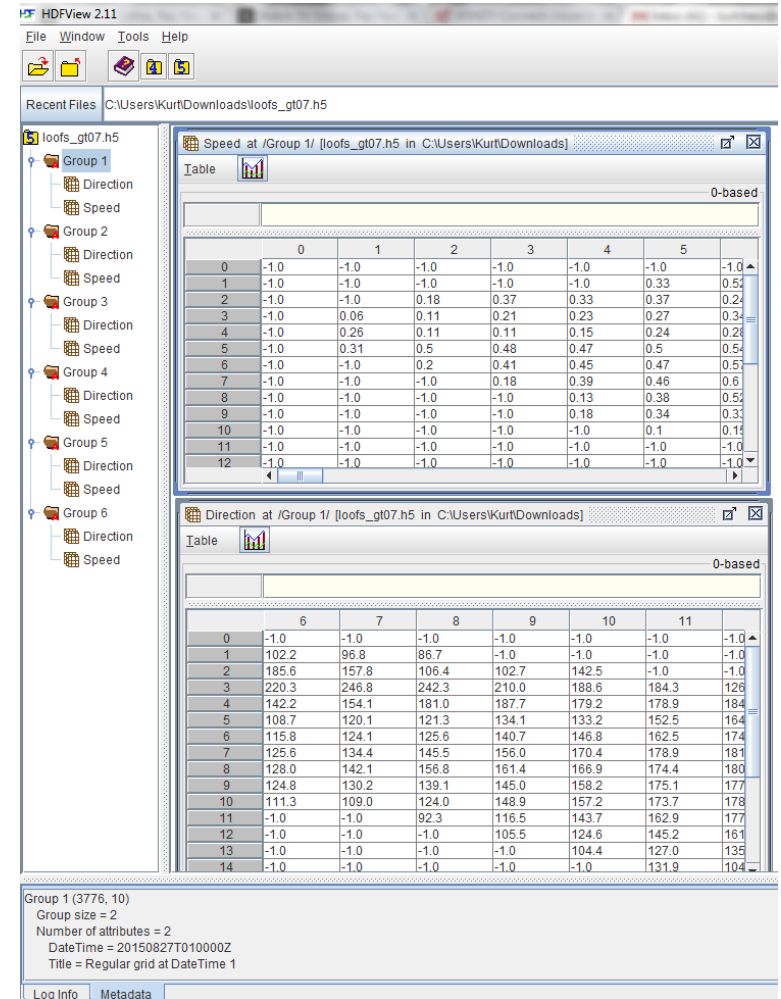
Group	HDF5 Category	Data Type	Data Space
'/' (root)	Attributes (43): Metadata See Table 10.3	Integer, Float, Enumeration, or Character	-
'/Group XY'	Dataset: X (Longitude)	Float	Vector (1-d): $n=1, numPOS$
	Dataset: Y (Latitude)	Float	Vector (1-d): $n=1, numPOS$
'/Group 1'	Attribute: Title	Character	
	Attribute: Date-Time	Character	
	Dataset: Speed	Float	Vector (2-d): $i=1, numCOL, j=1, numROW$
	Dataset: Direction	Float	Vector (2-d): $i=1, numCOL, j=1, numROW$
'/Group 2'	Attribute: Title	Character	
	Attribute: Date-Time	Character	
	Dataset: Speed	Float	Vector (2-d): $i=1, numCOL, j=1, numROW$
	Dataset: Direction	Float	Vector (2-d): $i=1, numCOL, j=1, numROW$
'/Group numGRP'	Attribute: Title	Character	
	Attribute: Date-Time	Character	
	Dataset: Speed	Float	Vector (2-d): $i=1, numCOL, j=1, numROW$
	Dataset: Direction	Float	Vector (2-d): $i=1, numCOL, j=1, numROW$

Sample HDF5 Files

Time series at 4 fixed stations.



Regularly-gridded data at 6 times.



3. Questions for S-100WG

Paper presented to S-100WG 1 Meeting

- Provide a review of the present S-111 v 1.8 document
- Insure harmonization of variable names
- Provide revised UML diagrams for Product and Exchange Set
- Provide guidance for defining spatial quality for point sets
- Provide naming standard for exchange datasets
- Assure that S-111 symbols are compatible with other S-100 prod.
- Determine whether there will be user-selectable input

4. Next Steps

- Continued Revision of the PS
 - Issue, Review, Comment, Revise (All, PT)
 - Incorporate comments from S-100WG
 - Include a portrayal catalogue (XML)
- Testing the Portrayal of Vectors
 - SPAWAR, ROK
- Finalizing the HDF5 Format, Attributes, etc.
 - SPAWAR, USA, CAN, Caris
- Interaction with Manufacturers
 - CAN, Caris
- Transition/customization of HO Products to S-111
 - USA, CAN