

Water Quality - ADCP



Objectives of this session



Collecting ADCP Data

- Displaying the profile information
- Viewing individual Ensembles



Processing ADCP Data

- Displaying the profile information
- Viewing individual Ensembles



Processing ADCP Insitu Data

• Displaying the profile information







ADCP Data Collection

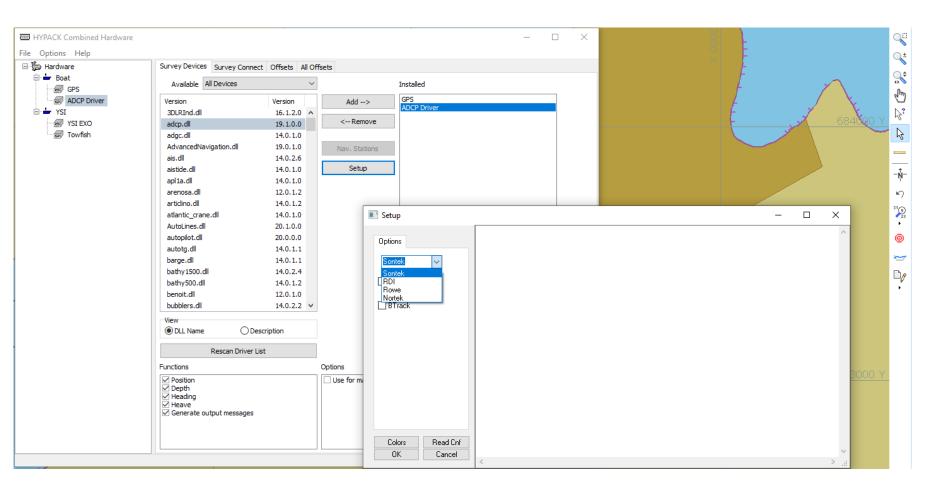


ADCP Hardware

A common ADCP driver is used to read multiple manufacturers hardware to ensure a standard display is used

Supports

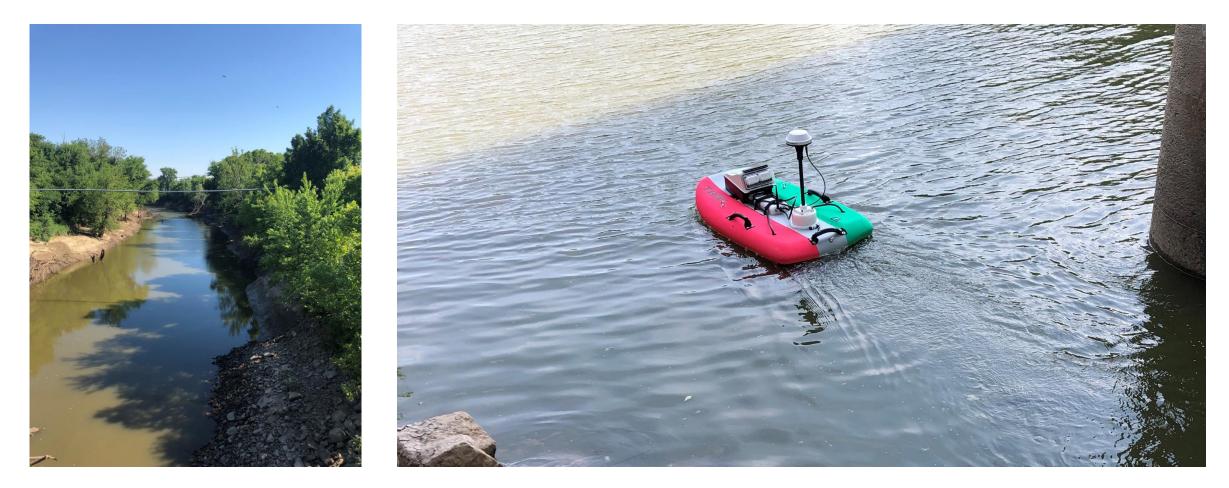
- Sontek
- RDI
- Rowe Instruments
- Nortek







Shallow Water - ADCP



Many projects involve remote data collection in challenging environments

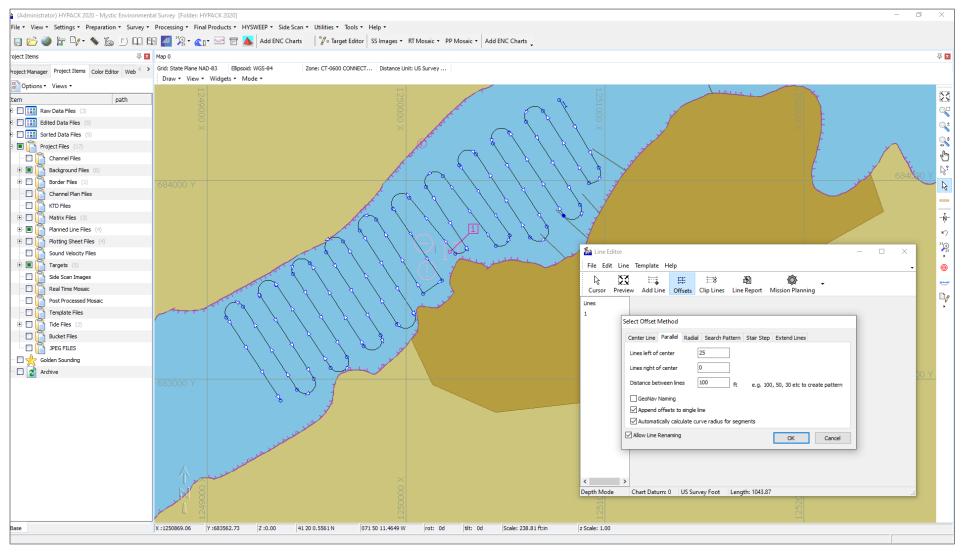




ADCP Planned Lines

Planned Lines can be created and exported to a MAVLINK file for autonomous survey

ADCP lines must be collected from bank to bank









ADCP Processing

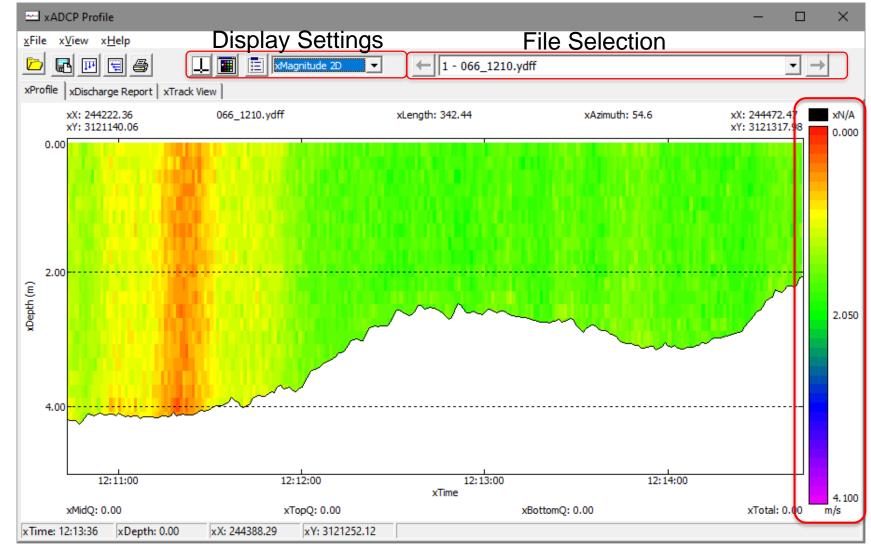




ADCP Profile

ADCP profile has been designed to show each profile cross section

The colors can be adjusted using the Color Dialog in Display Settings





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ADCP PROFILE Settings

Options		_		×	Options	_		×	Options	- 🗆 X
Profile View	Frack View Velocity	/ Labels Averaging	1		Profile View Track View Velocity L	abels Averaging			Profile View Track View Velocity	Labels Averaging
Auto Scale	: Depth	Use Time as X			Draw Track Lines				Units Meters/Sec	Shore Pings (1-120): 1
Min Depth	0	Min DBL	0		Arrow Length 15				_	_
Max Depth	10	Max DBL	320		Interval 10				Triangle (0.31) Rectangle (0.91)	 Triangle (0.31) Rectangle (0.91)
Bottom Trac	k	Print Options		_	2D DXF Output				Coefficient	() Coefficient
O Depth 1 (Hi Freq)		Rows	2		● Closest-Point ○ Average					
O Depth 2 (Low Freq)		Columns	1		Vector Type				Start Width 0	End Width 0
ADCP Bo	ttom Track				Flood Stream				Reference	D. Hum Tan I
V lice Veritin	ne (Reload Maybe N	ecessary)			◯ Ebb Stream				O None ADCP	Bottom Track
Use venu		ecessal yj			O Restricted Current				Bottom Track Offset Velocity 0.0 m/s	Heading 0
Show Col		Apply	Cle	ose	✓ Show Color Bar ☐ Auto Scale Colors	Apply	Clo	ise	Show Color Bar	Apply Close

Profile View Tab: Controls: Scaling of Chart Bottom Track Print Layout Track view Tab: Controls: Arrow Length Spacing Vector Type Velocity Tab: Controls: Units Visible Pings Flow Options





ADCP PROFILE Settings

⊡ Options – □ ×										
Profile View	Track View	Velocity	Labels	Averaging						
Auto Label										
Depth Lab	els	DBL Labels								
🗹 Depth	Labels	✓ DBL Labels								
✓ Depth	Lines	1	✓ Label Toe and Center							
Label Incre	ement 2		Labe	el Increment	100					
Tic Increm	ent 1		Tic I	ncrement	50					
Show Color Bar Apply Close						lose				

☑ Options – □ ×										
Profile View	Track View	Averaging								
Averaging										
○ None		○ Vertica	l	Horiz	ontal					
Averaging Method										
Average All										
	O By Distance									
	4									
	O By Samp	les								
4										
Show Co	Apply		Close							

Labels Tab: Controls: Labeling for Chart and for DXF Output.

Averaging Tab: Apply averaging by: Vertical or Horizontal Number of bins or Distance





ADCP Profile

xADCP Profile \times xFile xView xHelp 🔔 🧱 📄 🔝 xMagnitude 2D D 🔁 🖭 🗟 🎒 -← 1 - 066_1210.ydff . xProfile xDischarge Report XTrack View 066_1210.ydff xLength: 342.44 xAzimuth: 54.6 xX: 244222.36 xX: 244472.47 xN/A xY: 3121140.06 xY: 3121317.98 0.000 0.00 Information xEnsemble / Bin 1162 Ens. Depth 3.48 m 5 12:12:03 Bin Size 0.20 m 2.00 xTime KDepth (m) Max Bins/Ens. 35 244249.73 хΧ 2.050 Dist to First Bin 0.05 m xY 3121186.01 Bin Depth 1.08 m **xDBL** 80.43 6.88 m Final Bin Depth 24.50 xHeading xEast -1.360 m/s 2.26 -0.20 xPitch / Roll xNorth 4.00 -1.031 m/s xMagnitude 1.710 m/s xVertical -0.106 m/s xDirection 233° xError -0.061 12:13:00 12:11:00 12:12:00 12:14:00 xTime 4.100 xMidQ: 0.00 xTopQ: 0.00 xBottomQ: 0.00 xTotal: 0.00 m/s xDepth: 1.16 xX: 244249.73 xTime: 12:12:02 xY: 3121186.01 Magnitude 2D: 1.706

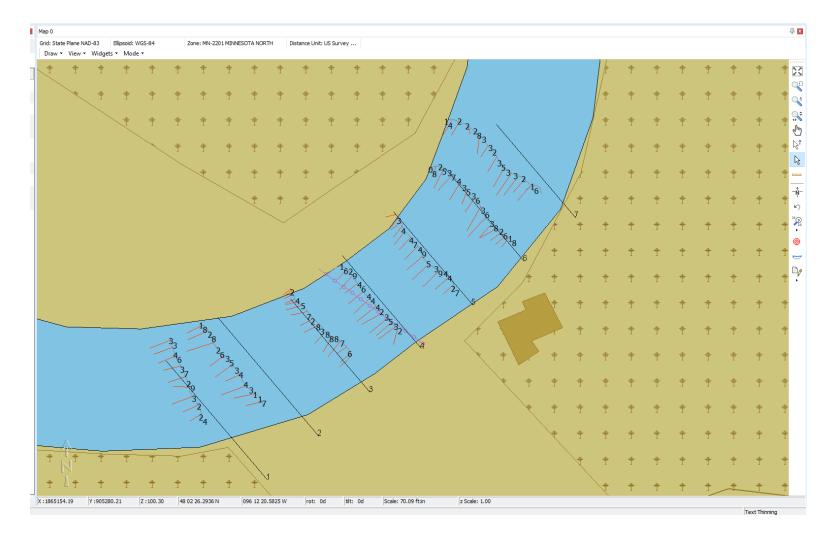
Ensemble Information can be displayed at the cursor location



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ADCP Profile – DXF output

ADCP Profile has the ability to output DXF Vectors









ADCP – Insitu



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ADCP IN SITU Features

ADCP IN SITU is used to process data produced by profiling current meters:

Instantaneous pressure measurements (on certain instruments);

Instantaneous temperature measurements;

Heading, roll and pitch measurements;

Current measurements integrated over a period (integration period);

Measurement of the back-scattered echo or of the amplitude of the received signal according to the instrument in question.



ADCP = Acoustic Doppler Current Profiler.





Input Data

Reads the raw data coming from Sontek, Nortek and RDI equipment.

- Sontek
 - *.adp format
- Nortek NDP
 - •*.adp format
- Nortek Aquapro
 - •*.prf format
- Nortek Aquadopp (single point current meter)
 - •*.aqd format
- Nortek Awac
 - •*.wpr format
- Nortek continental
 - •*.cpr format
- Teledyne-RDI
 - •*.000 format

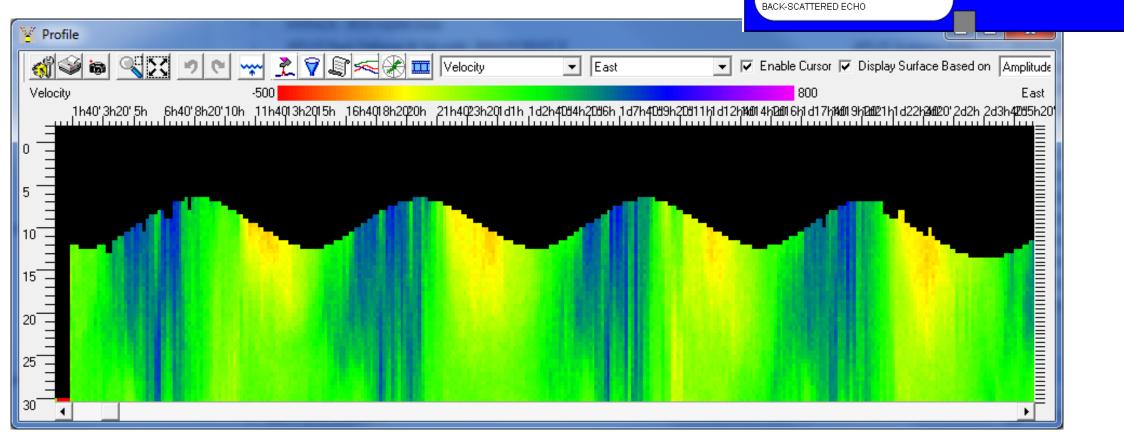






Profile Display

Operating data is displayed by clicking on the Profile icon.







Processing and Display of Current data

Graphic

Filter

Manual

Current

MODULE

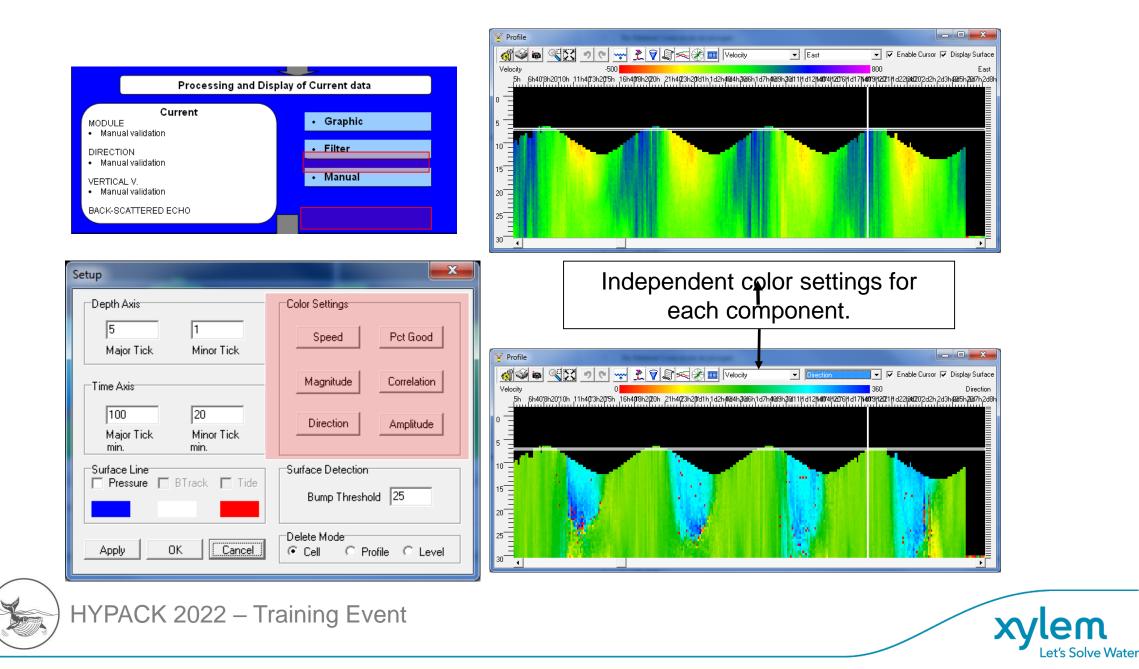
Manual validation

DIRECTION
 Manual validation

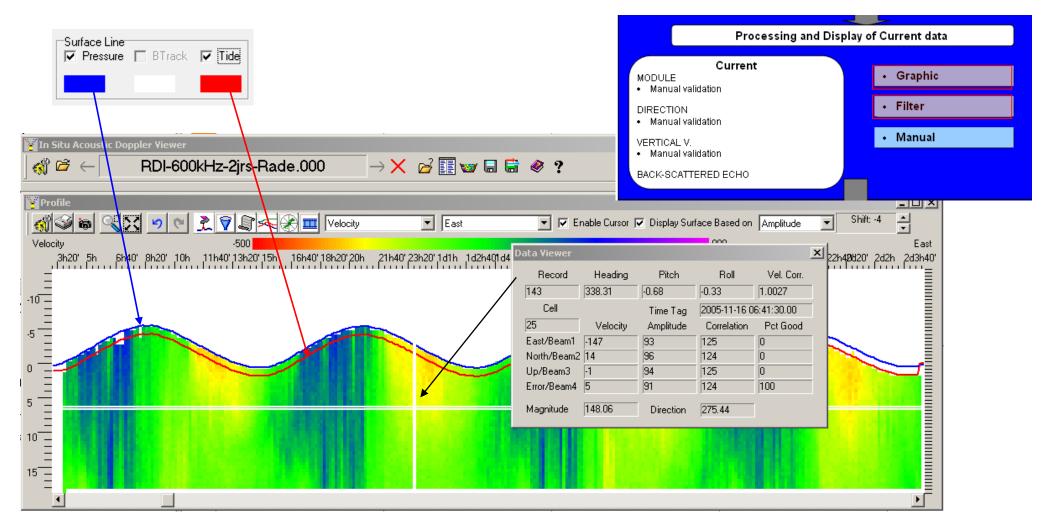
VERTICAL V.

Manual validation

Profile Color Settings



Data Viewer

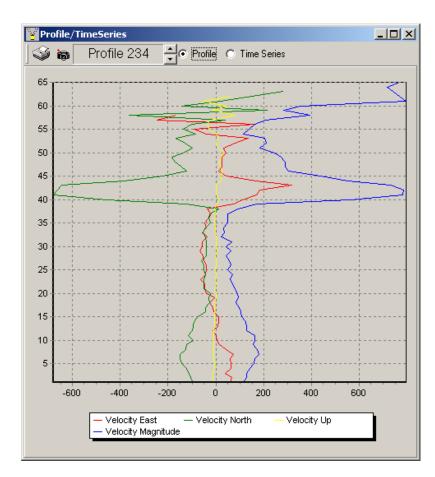


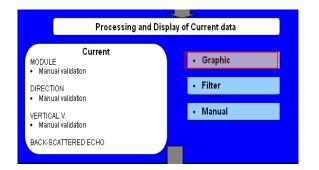
Data Viewer displays the data indicated by the cursor.

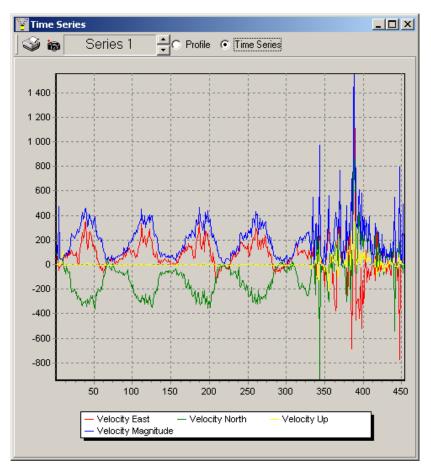




Profile and Time Series View





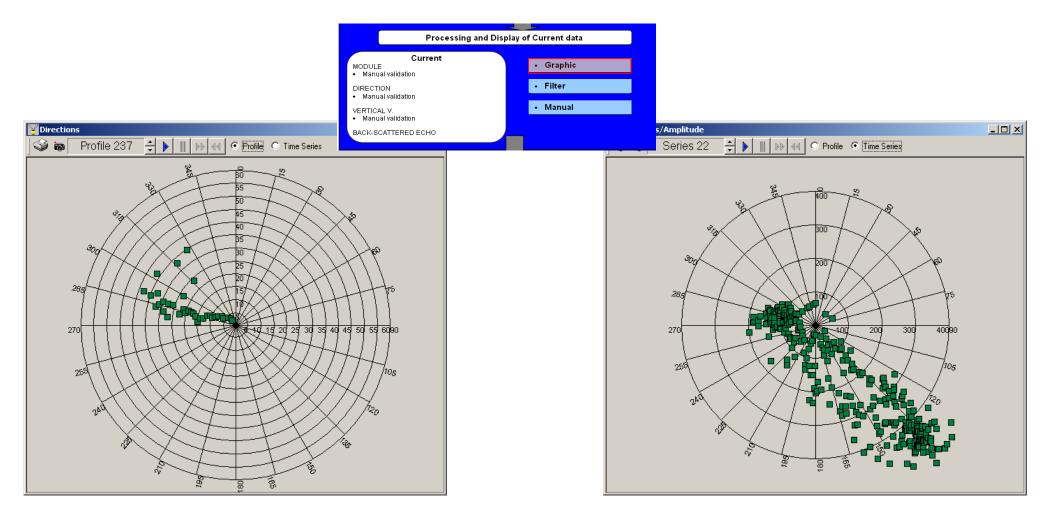


Display of graphic data by profile or time series





Profile and Time Series View



Display of data by direction. By profile or time series.





ODV Export

Saving in Hypack format ODV, Study

Vel Magnitude [cm/s] -10 Depth [m] 20-319.5 320 320.5 321 321.5 .Day Nbr Vel Direction [deg] -10 Depth [m] 250 200 150 20 319.5 320 320.5 321 321.5 .Day Nbr Correlation Avg [count] -10 Depth [m] 20

319.5

320

320.5

.Day Nbr

321

Export in ODV format from the ASCII export by loading the previously created configuration file **odv.ini**, available in Hypack 20XX/ADCP.

The ODV software configuration file for importing the HYPACK export is also available in HYPACK 20XX/ADCP. It is the **Config_type_odv.cfg** file.





321.5