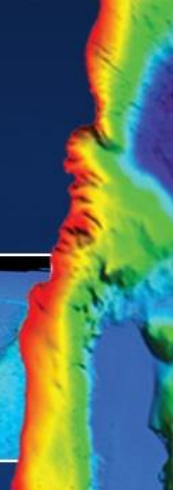
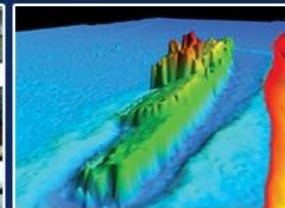




# CIDCO

Centre interdisciplinaire de développement  
en cartographie des océans

Interdisciplinary Centre for the Development  
of Ocean mapping



# Development and Test of a Towed Hydrographic Survey Platform for Compact MBES Deployment

## UTS San Diego 2015

Mathieu Rondeau (CIDCO)



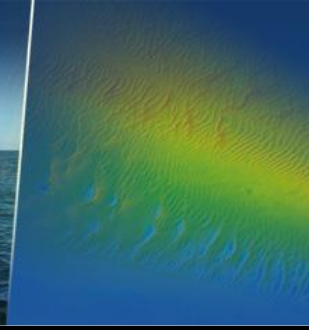
**TELEDYNE RESON**  
Everywhere you look™



Chaire CRSNG-UQAR  
en génie de la conception

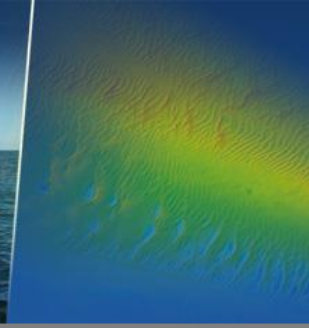


# THIS is a Towed Hydrographic Survey Platform





# The challenge



MBES / SBES  
IMU & GPS  
SV probe

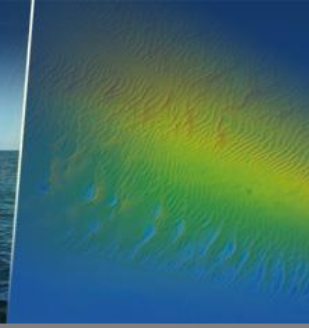


Boat





# What people do



MBES / SBES  
IMU & GPS  
SV probe



Imagination  
Pipes / flanges  
Straps  
Tools  
...

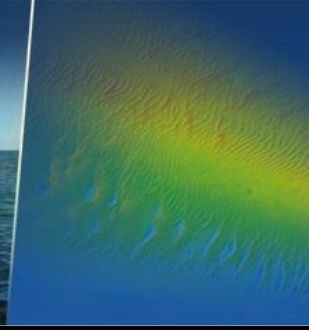


Boat



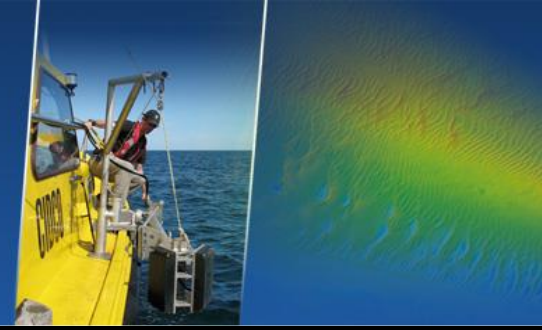


We did it several times





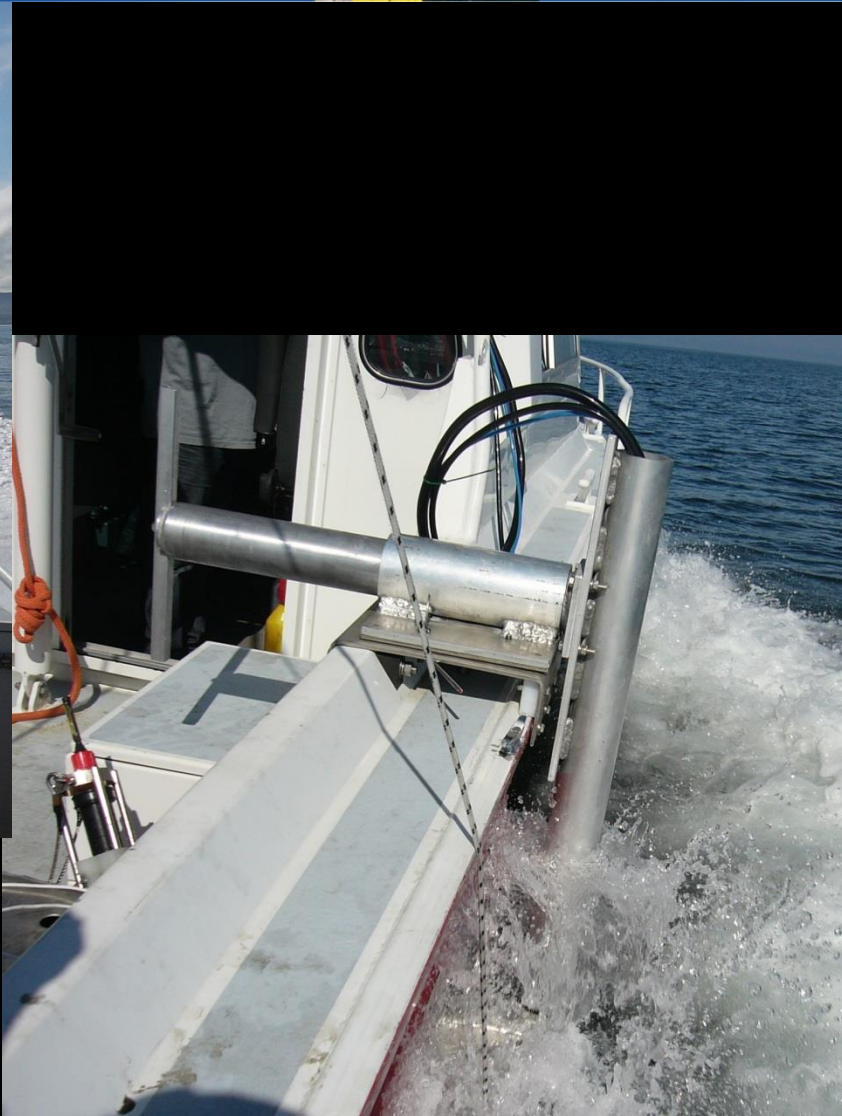
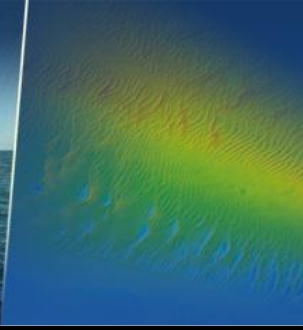
We did it several times



*Teledyne Reson - HydroBat Composite*



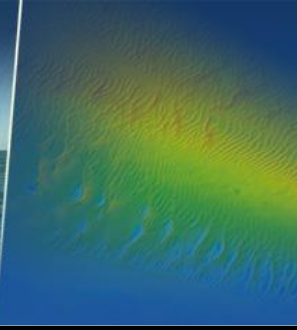
We did it several times



*Teledyne Reson – SeaBat 7125*



We did it several times

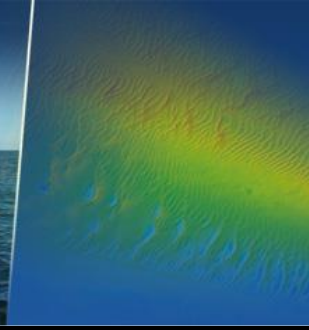


*Teledyne Reson – SeaBat 7125 SV2*





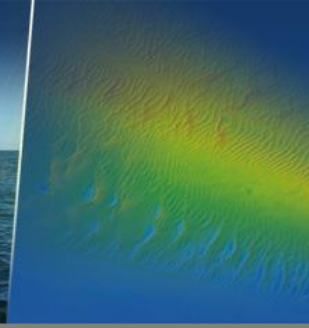
We did it several times



*Teledyne Reson – SeaBat T20-P*



# Paradigm shift



MBES / SBES  
IMU & GPS  
SV probe



Towed  
Hydrographic  
Survey Platform

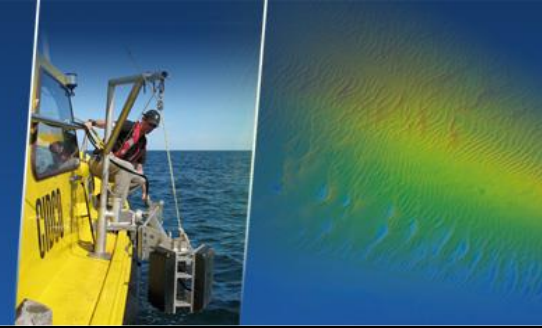


Boat





# HydroBall™



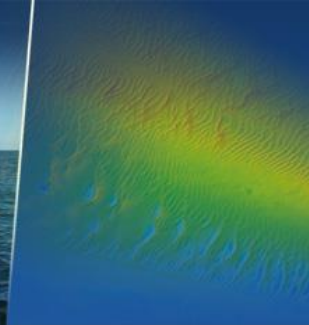
A robust spherical shell casing (7kg – 40cm diam) encloses:

- A single beam echosounder
- A L1/L2 GPS receiver
- A digital compass (heading, pitch, roll)

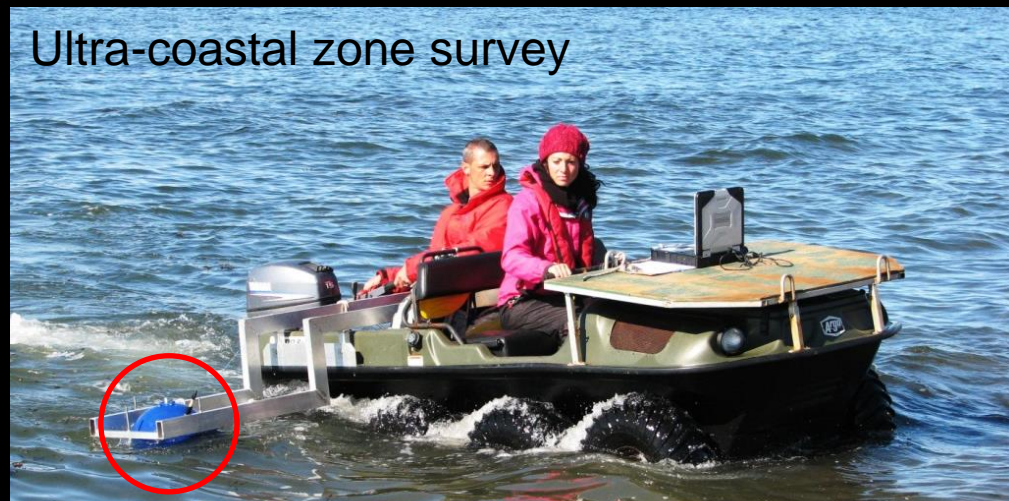




# HydroBall™



Difficult to access  
zone survey



Ultra-coastal zone survey



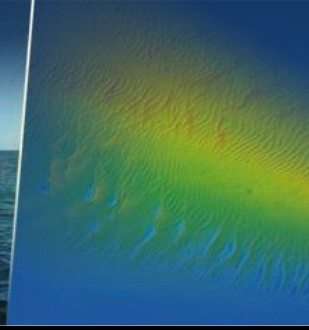
Riverbed survey



Traditional hydrographic survey



# Towed Hydrographic Survey Platform



Waterproof caisson

Sonar & IMU  
mounting plate

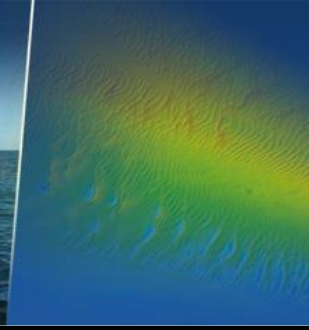
GNSS antennas'  
masts

Floats

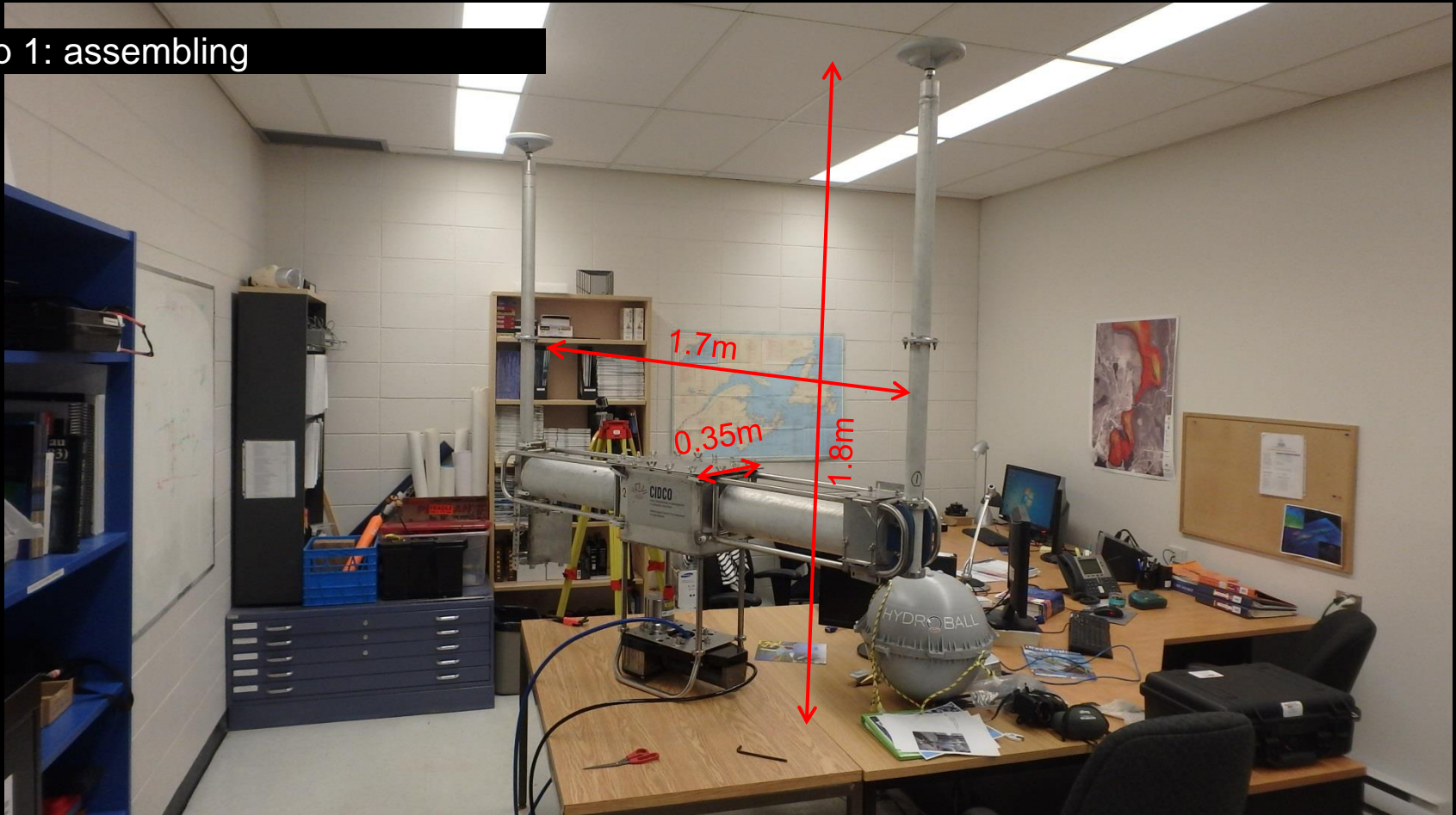
All can be carried  
into 2 cases



# Towed Hydrographic Survey Platform

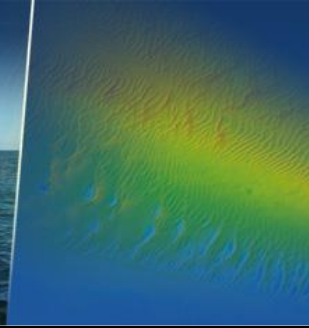


Step 1: assembling





# Towed Hydrographic Survey Platform

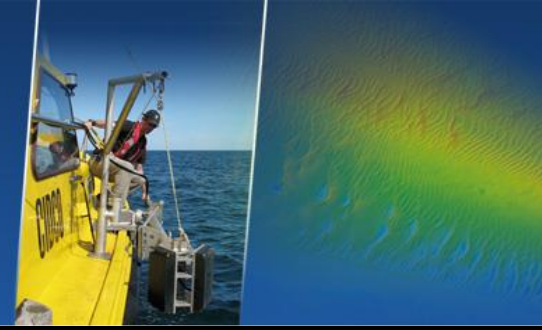


Step 2: static calibration





# Towed Hydrographic Survey Platform



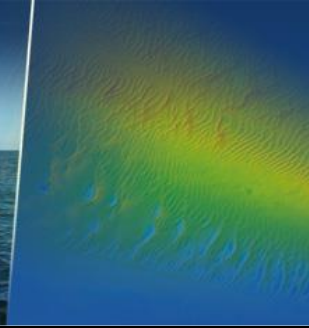
Step 3: transport on site







# Towed Hydrographic Survey Platform

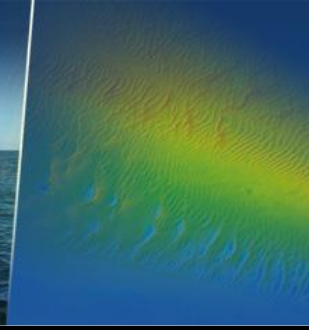


Step 4: balancing





# Towed Hydrographic Survey Platform

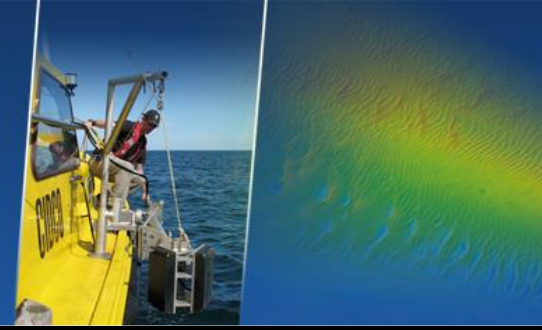


Step 5: surveying

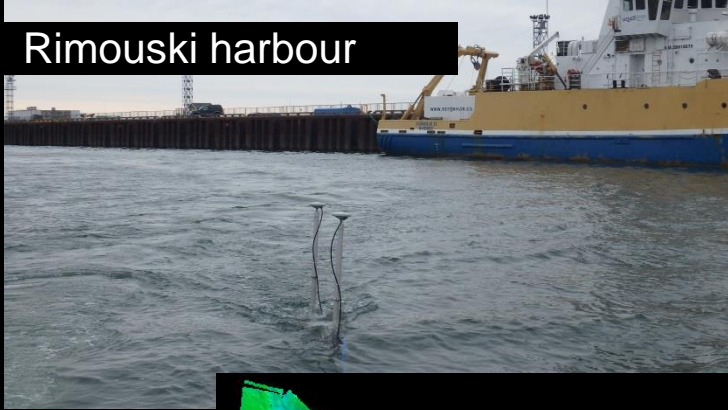




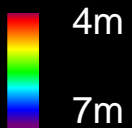
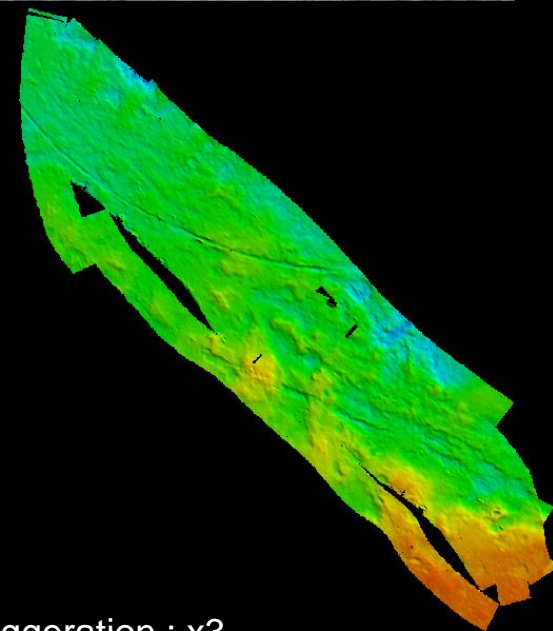
# 3 short surveys



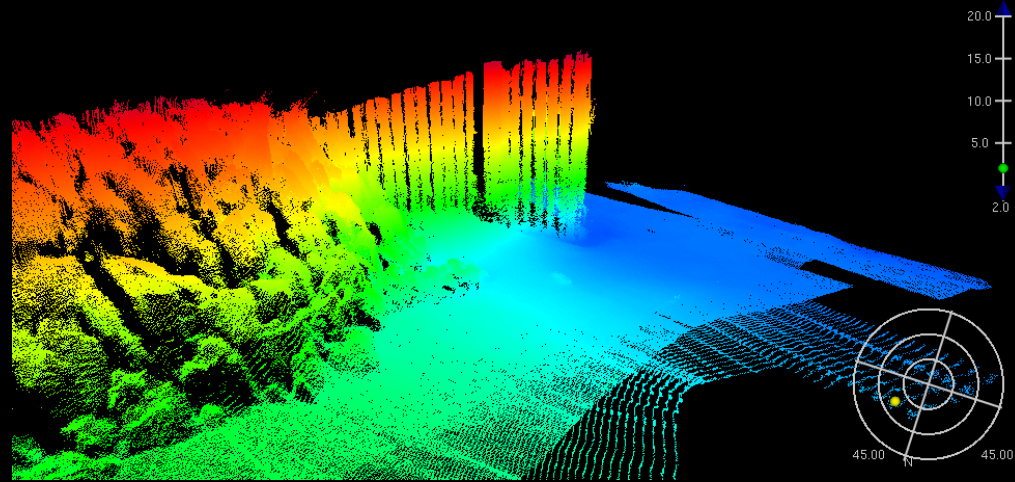
Rimouski harbour



CIDCO's Infrastructure Test Bench

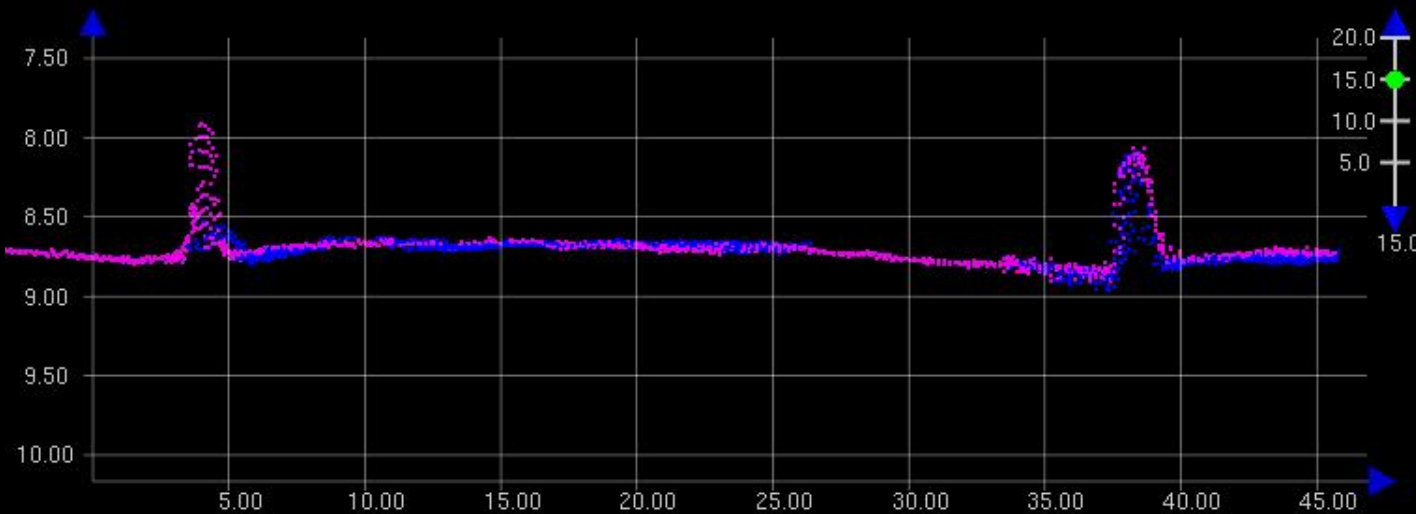
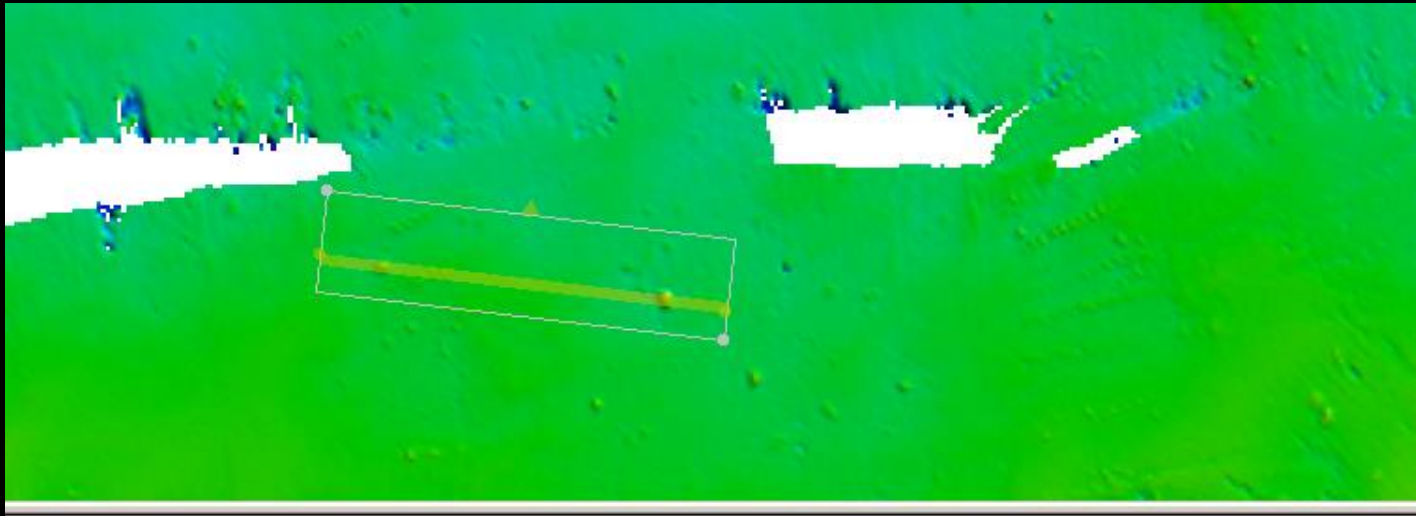
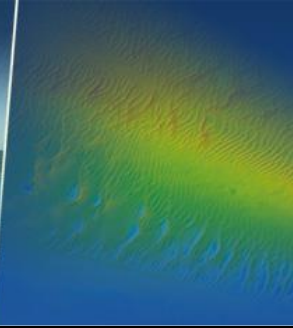


Vertical exaggaration : x3



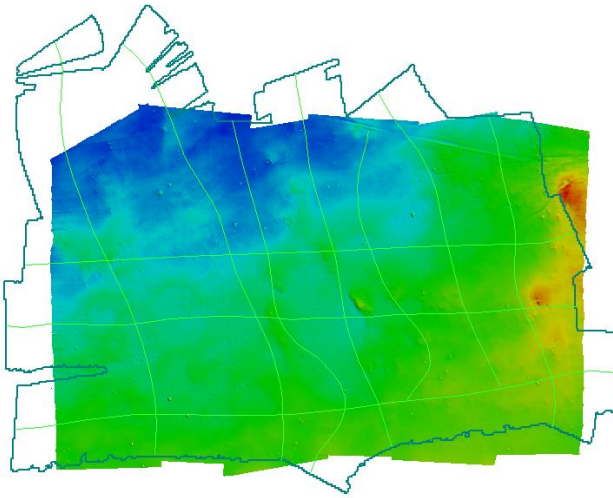
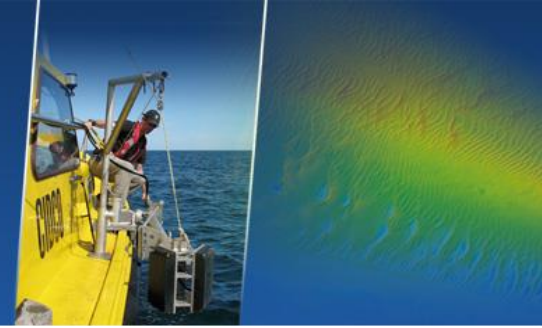


# QC / horizontal precision

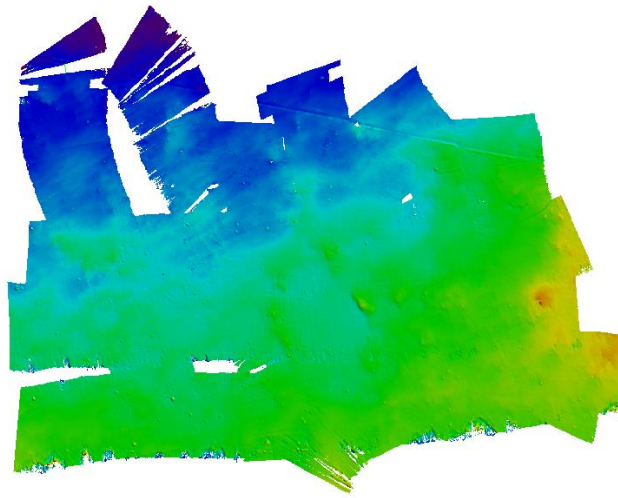




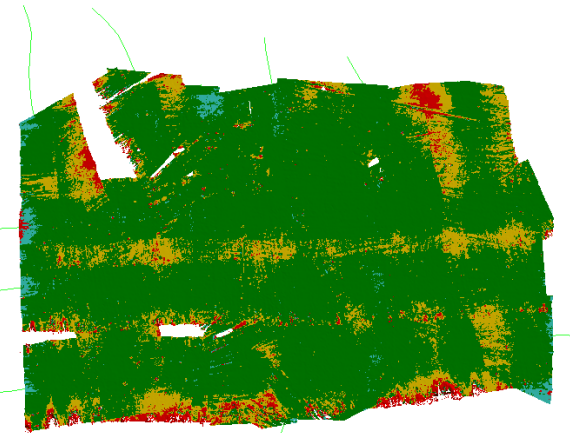
# QC / survey accuracy



Ref surface: 7125SV2 boat mounted



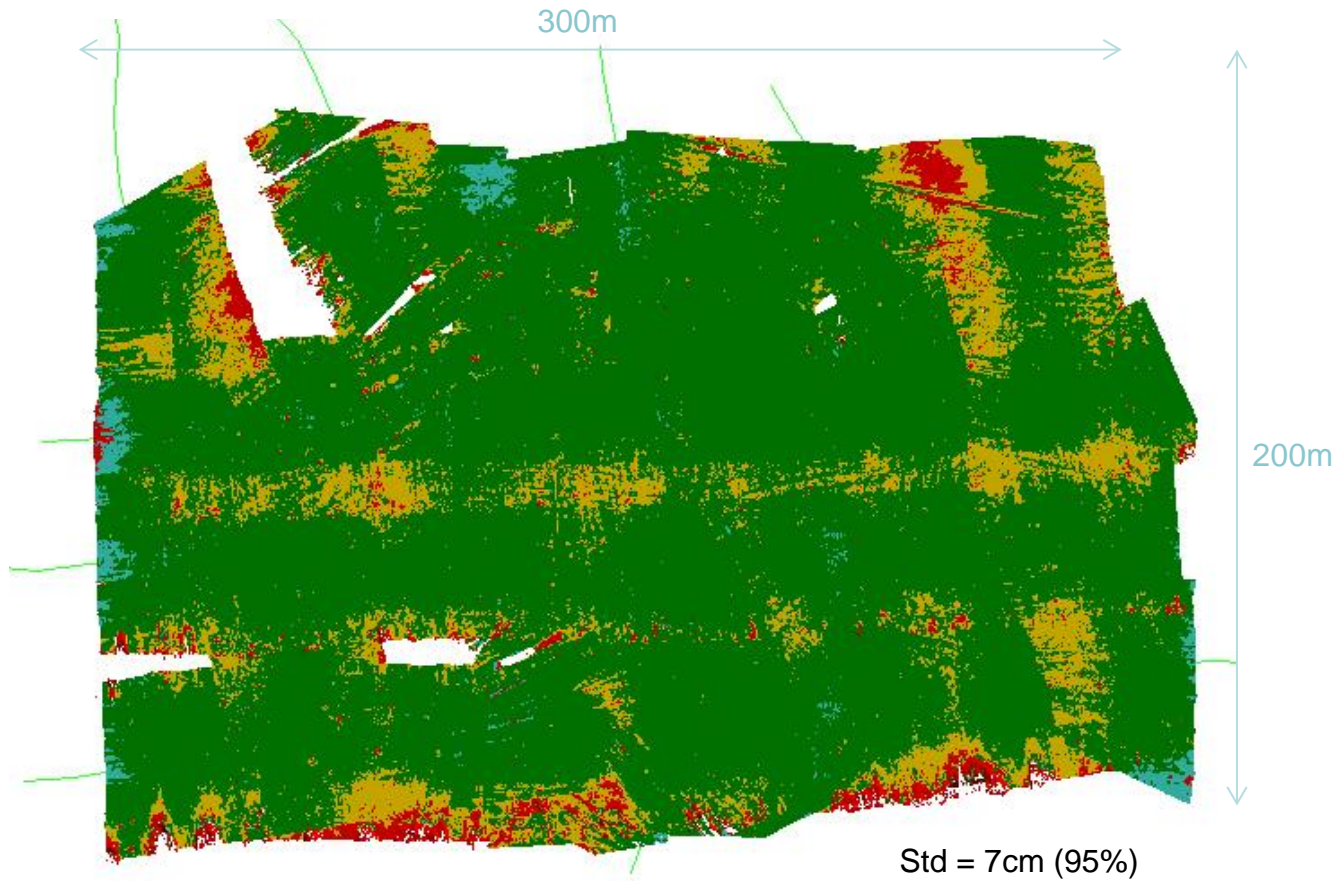
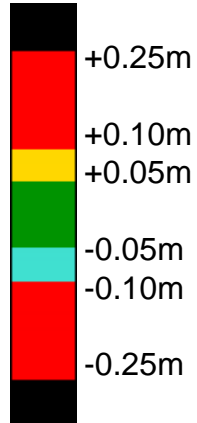
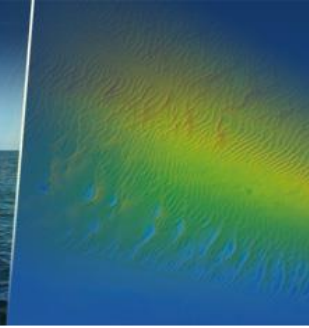
Eval surface: T20-P towed



Diff surface

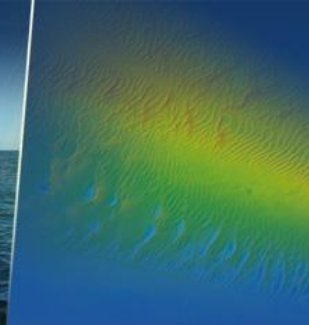


# QC / survey accuracy





# Conclusion



Teledyne Reson – SeaBat T20-P



ENL – WASSP WMB-3250

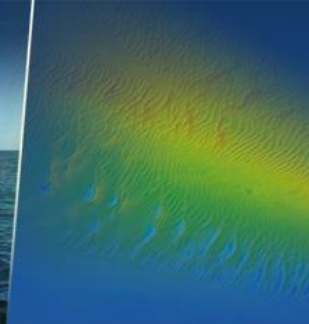


Sonartronic – Norbit WBMS





# Conclusion

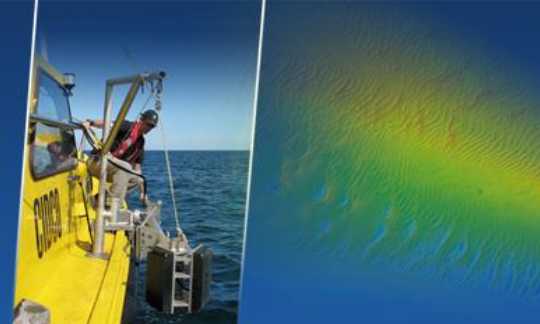


**EXPEDITION  
READY**





## Contact



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CANADA

Telephone: 418 725-1732

[www.cidco.ca](http://www.cidco.ca)