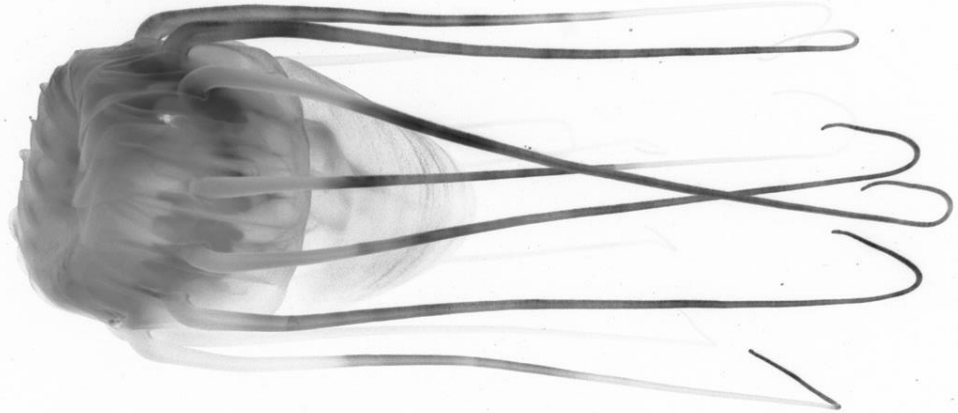
BIOGLIDER

BioGlider: EK80



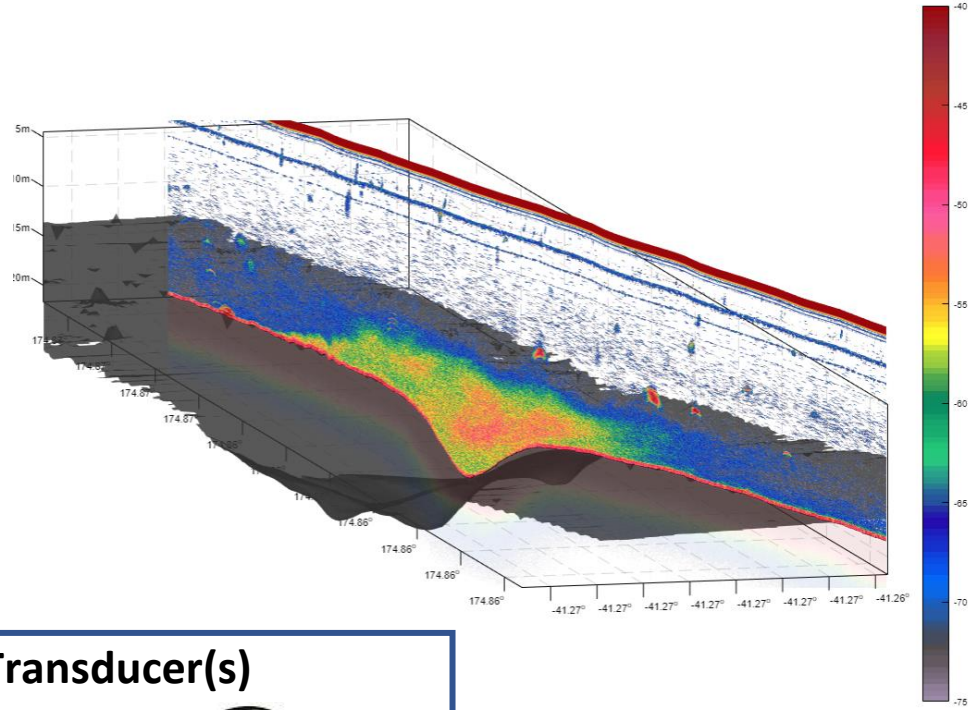
Yoann Ladroit, Ocean Data Rambler & NIWA
yoann.ladroit@oceandatarambler.com

SIMRAD EK80

Transceiver		Depth rating	# of Channels(*)	Frequency range(**)	Multiplexing	Autonomous mode (internal storage)/glider use	Restrictions
WBT		No	4	10-500 kHz	No	No/No	--
WBT Mini		IP65	4	30-500 kHz	Yes	Yes/Yes	Lower power/ping rate
WBT Tube		4000m	8	30-500 kHz	Yes	No/Yes	Lower power/ping rate
WBAT		4000m	8	30-500 kHz	Yes	Yes/No	Lower power/ping rate/internal battery powered (not rechargeable)

*Split-beam requires 4 channels, single-beam requires 2 channels
**Depending on transducer used

Acquisition chain



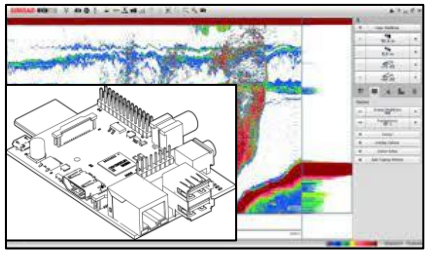
External sensors
- **GPS**
- **IMU**
- **Temperature**
- **Salinity**
- **others**

WBT Mini

WBT Tube

Transducer(s)

SBC/Storage



Data format from EK80

- Raw data format: *.raw files
  - Binary data format
  - **Raw acoustic data** for all channels (either power/angles or complex samples)
  - All metadata (Transceiver serial number, transducer serial number, pulse length,nominal frequency etc…)
  - External sensors data
    - GPS (if available)
    - IMU
    - …
  - Can include any external NMEA sentences send by other instruments via serial or UDP
- Other available data format available: *.nc
  - Netcdf format following The SONAR-netCDF4 convention for sonar data
  - Recent implementation, needs testing.
- Volume produced:
  - WBT Mini on Saildrone deployment
  - ES38-18/200 transducer (1 single-beam, 1 split-beam)
  - 45 days
  - recording range to 1000m
  - 0.5 Hz ping rate
  - 1ms CW pulse
  - RT trasmission of subsampled dataset after some RT processing on board
  - https://www.saildrone.com/technology/mission-portal

2 terabytes of *.raw files

Data example: Deep Towed body

Post-processing:

- Volumic-backscattering computed using
  - Environmental parameters (temp./sal.profiles)
  - Instrument calibration values
  - Other corrections (noise removal, motion correction…)
- Geo-referencing of all data
  - corrected from depth of Towed Body
  - offset position from vessel
- Echo-integration at appropriate scale for further analysis/modeling etc…