Simplifying the hydrographic production line
A proof of concept

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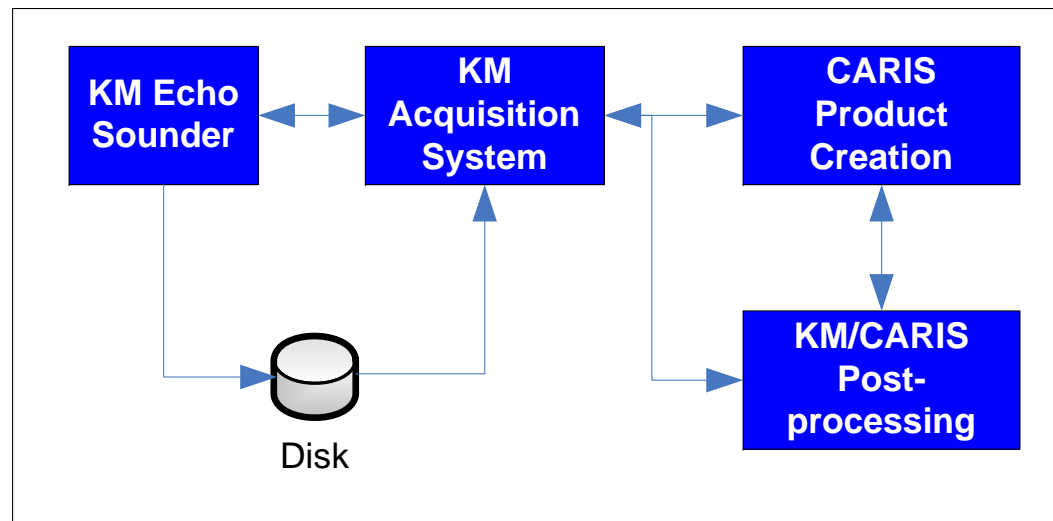
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CARIS

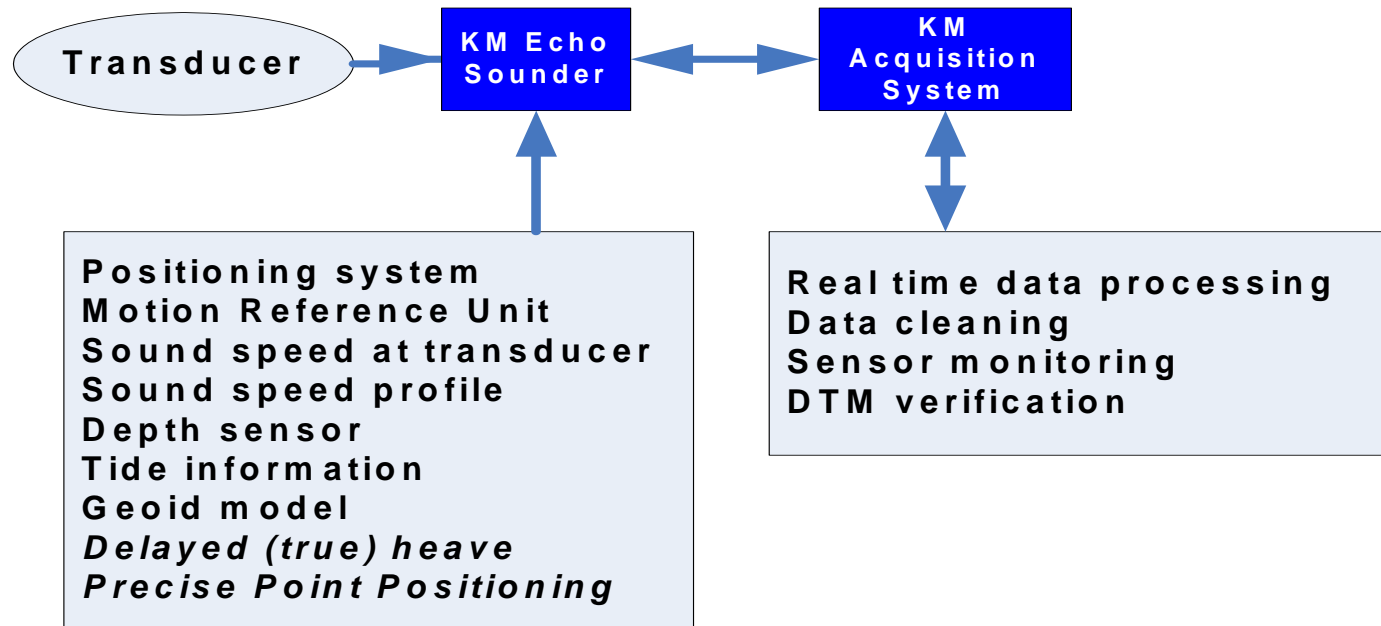KONGSBERG

caris

SIMPLIFYING THE HYDROGRAPHIC PRODUCTION LINE A PROOF OF CONCEPT

Shortest possible way from Acquisition to Product

KM Echo Sounder → KM Acquisition System → CARIS Product Creation

Disk

KM/CARIS Post-processing

- Quality Assurance can be put into the Acquisitioning system

- Any Post Processing must be as automatic as possible

- Define the Post Processing to be done when the survey starts

- If any artifacts are found in the data during Production, it must be easy to bring the data into Post Processing again.

SIMPLIFYING THE HYDROGRAPHIC PRODUCTION LINE A PROOF OF CONCEPT

Transducer → KM Echo Sounder ↔ KM Acquisition System

Positioning system
Motion Reference Unit
Sound speed at transducer
Sound speed profile
Depth sensor
Tide information
Geoid model
Delayed (true) heave
Precise Point Positioning

Real time data processing
Data cleaning
**Sensor monitoring**
DTM verification

- Most sensors are available in real time, including sound speed profiles

- Some survey operations use sensors that need post processing, i.e. delayed heave and PPP

- Real time data processing, including data cleaning, can be done because a DTM is constructed on the fly

# SIMPLIFYING THE HYDROGRAPHIC PRODUCTION LINE A PROOF OF CONCEPT
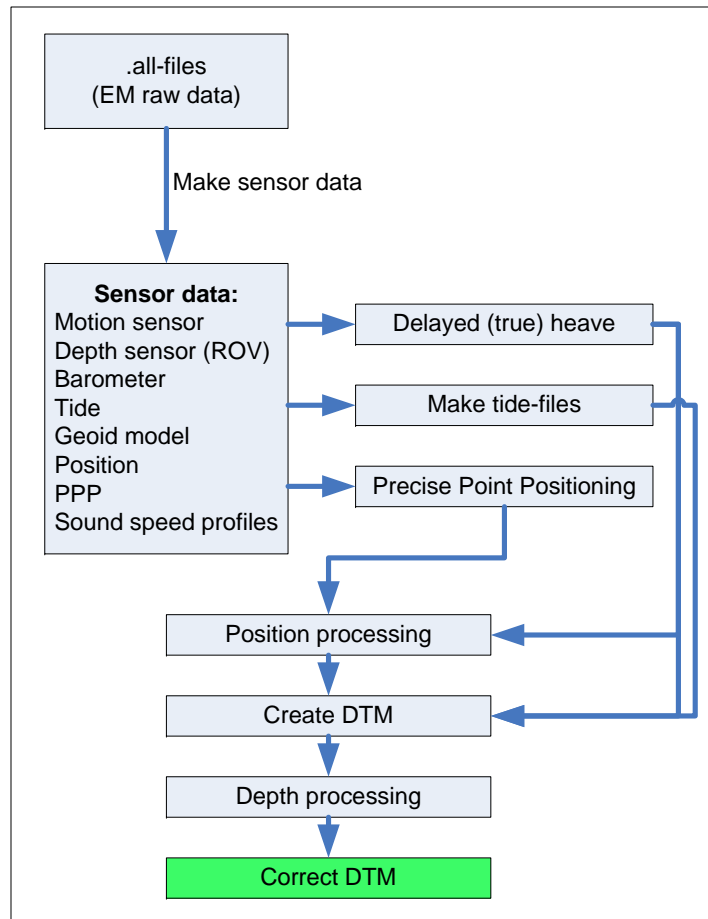
- The Post Processing needed can be defined and run automatically

- Different processing rules must be defined depening on which sensors are used

- The output from the post processing will be log files that the QA system can inspect automatically

- The output will include sufficient meta-data to find the original raw data from the DTM if needed

- Formats must be open, well defined and available to all vendors

- With access to a DTM and the original data, tools for automatic analysis of the data can be made

- Manual editing can be done as a task in the Production stage: define shoals, wrecks, etc.

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EM710_45deg_two_by_two_deg_DUAL_SWATH
Z (m) = -79.6
Zg (m) = 0.0
Zr (m) = 0.0
Zt (m) = -79.6
Zv (m) = 0.0
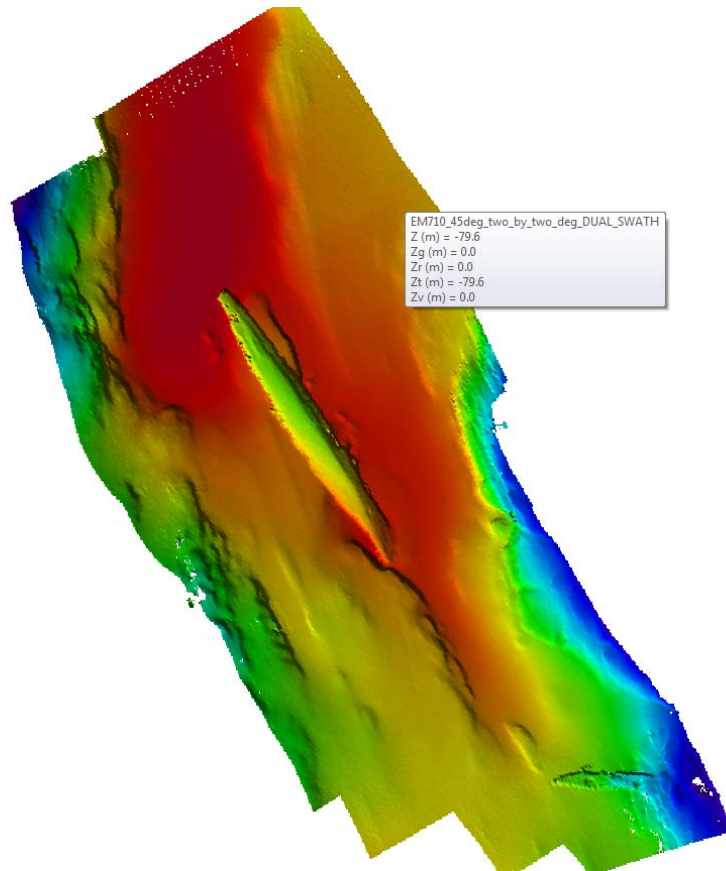
• CARIS Production tools: robust and comprehensive set of chart production tools.

• DTM creation allows inspection to be done at the Product level

• Sensor-to-product time is greatly reduced

• In order to work correctly the acquisition system must produce high quality data

• This requires robust, noise-free sensor data and robust post-processing tools

• Gridding occurs in real-time in acquisition system

• Connection from DTM/acquisition system to production tools

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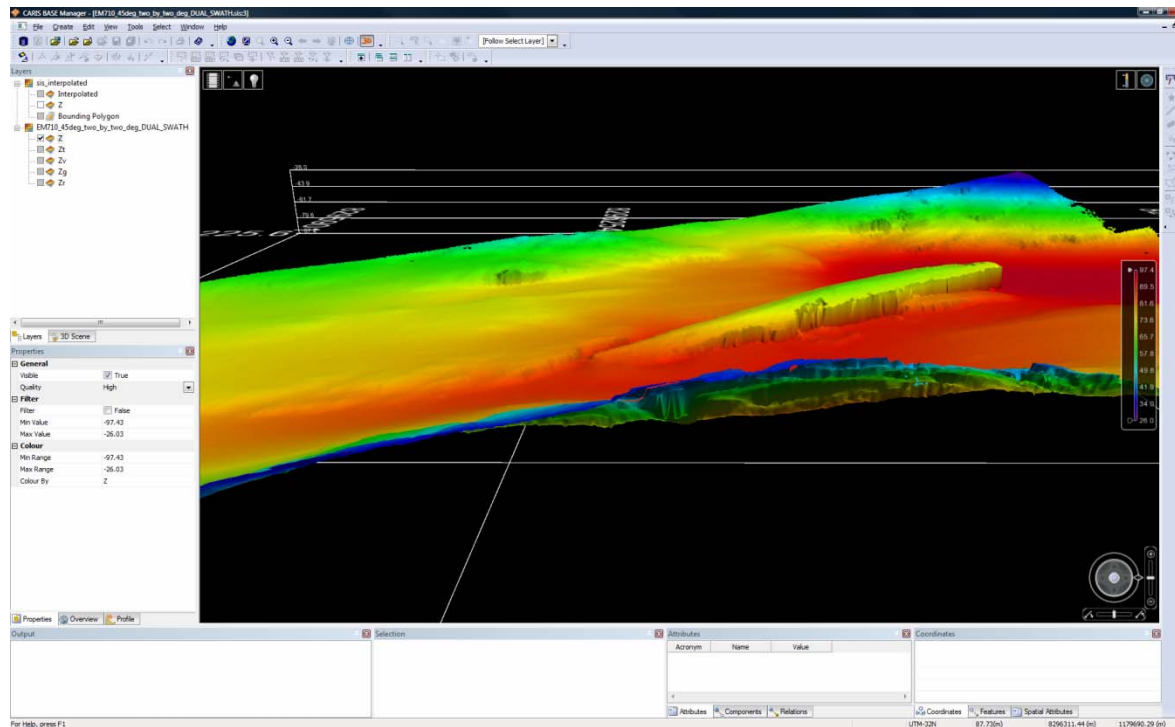
- CARIS BDB:
  - Can treat SIS DTM like any other DTM

- Data can be viewed directly into the application as if it were native

- Connection loads DTM blocks on demand
  - No wait time for initial load, no imports

- Visualization in 2D and 3D

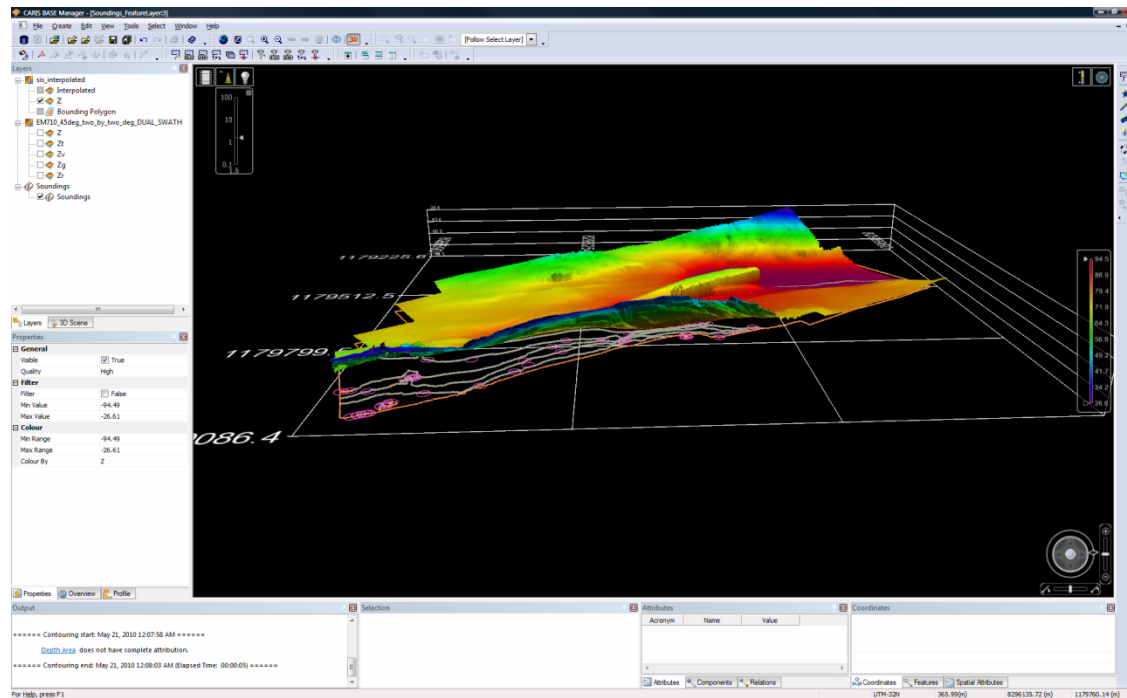- Coordinate transforms can be applied dynamically
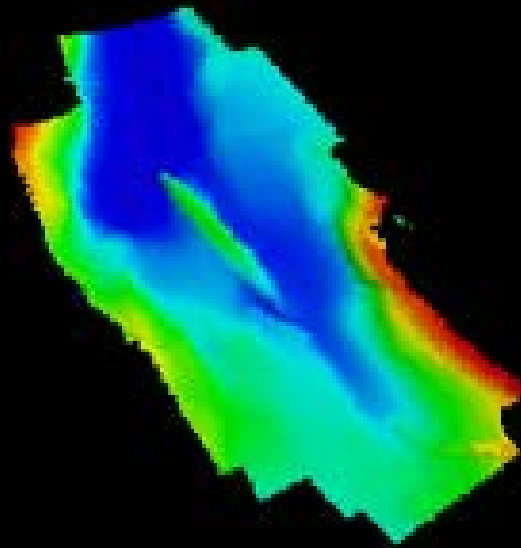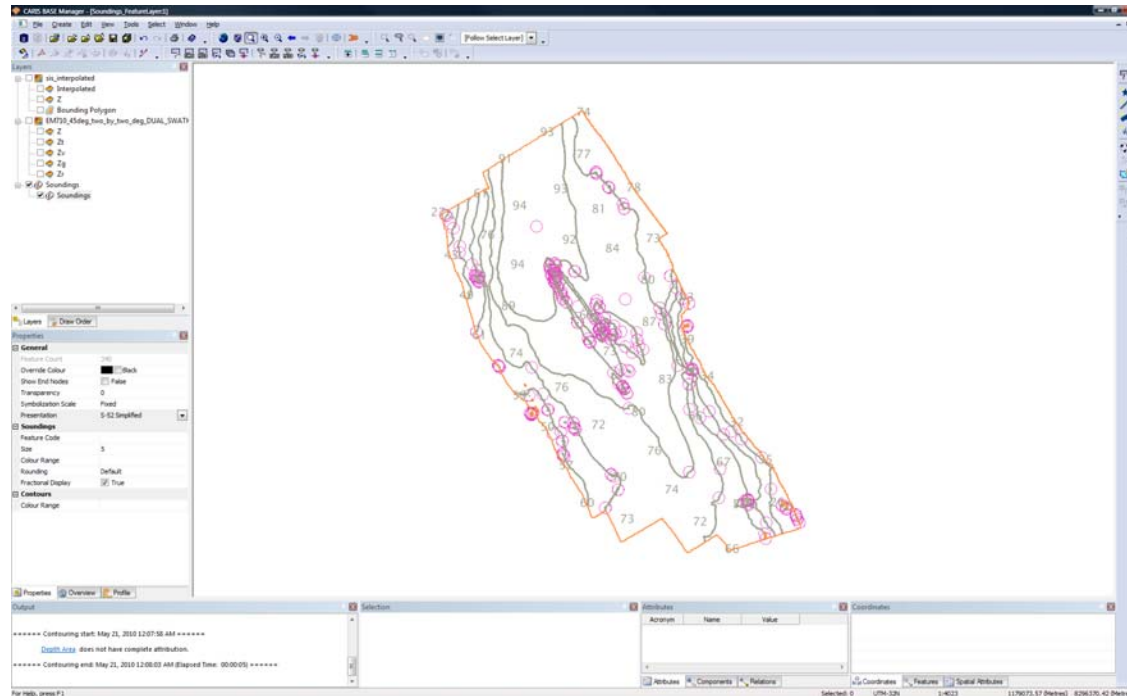
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SIMPLIFYING THE HYDROGRAPHIC PRODUCTION LINE
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- All gridding operations can be used directly
  - Contouring/Depth Area creation
  - Sounding selection
  - DTM combine
  - DTM generalize

- Plotting can take place using the DTM as a backdrop

- Can Import directly into a CARIS Bathy database

- In some cases, production can now begin aboard ship

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