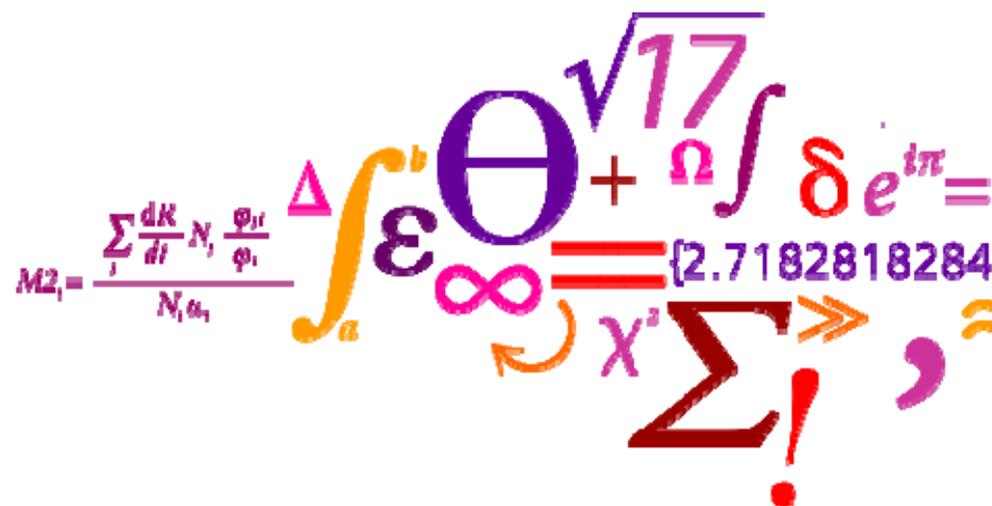


Danish National Update for ERVO 2009

Latest news on Danish research vessels and equipment



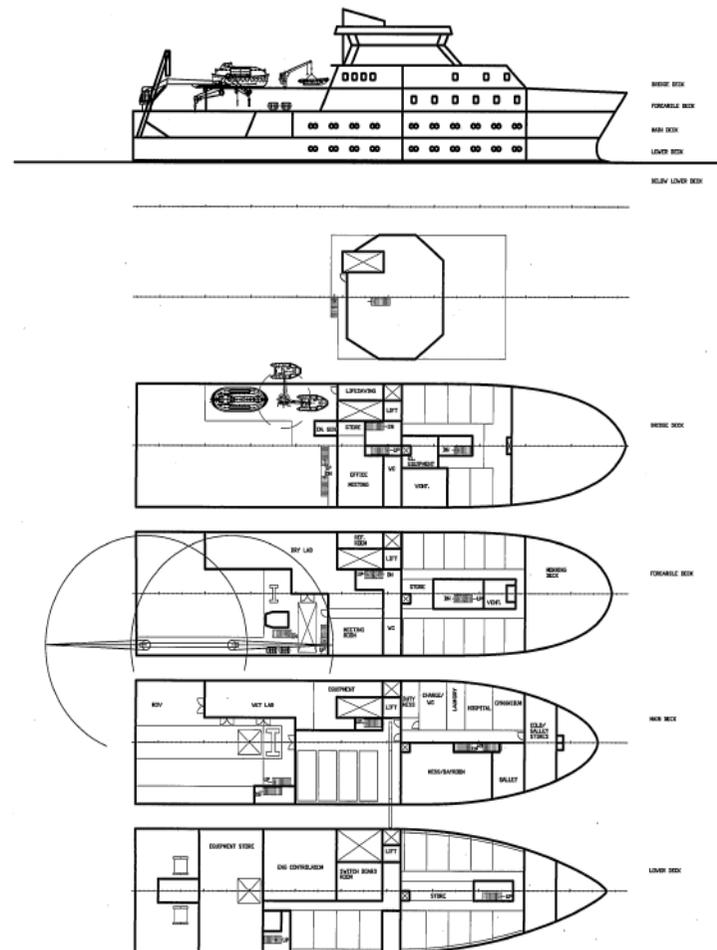
The present research fleet

| | Owner | Type | Home Harbor | Year | BRT | Remarks |
|----------------|---------------------------------|----------|-------------|------|------|--------------------|
| Dana | Technical University of Denmark | Global | Hirtshals | 81 | 2545 | Multi disciplinary |
| Gunnar Thorson | The Royal Danish Navy | Local | Korsør | 81 | 1211 | Oil spill |
| Pamiut | Greenland Institute of Nature | Regional | Hirtshals | 71 | 721 | Deep sea fishing |
| Alfred Jensen | Greenland Institute of Nature | Local | Nuuk | 67 | 167 | |
| Havfisken | Technical University of Denmark | Local | Hirtshals | 63 | 20 | |
| Ophelia | Copenhagen University | Local | Helsingør | 59 | 28 | Education |
| Genetica II | Aarhus University | Local | Aarhus | 61 | 20 | Education |
| Havkatten | Technical University of Denmark | Local | Copenhagen | 70 | 6 | |



Vessel strategy

- New 65m global multipurpose research vessel design for North Atlantic research including Greenland to replace Dana
- Some Navy vessel will be able to support minor hydrographical tasks
- Two new 25m regional multipurpose research vessels to replace all smaller vessels in the North Sea, internal Danish waters and the Baltic Sea.
- New 35m vessel to handle fish stock monitoring and education of fishermen



Design of a new Danish Research Vessel

- Modern state of art research Vessel design to carry out:
 - Research within
 - Fisheries
 - Marine Biological
 - Metrological
 - Geological
 - Hydrographic
 - Arctic
 - Climate
 - Environmental
 - Monitoring within
 - Fisheries
 - Environment
- Replace R/V Dana from 1981 with an expected life of 30 years
- World wide operation
- Expected price 45mill euro



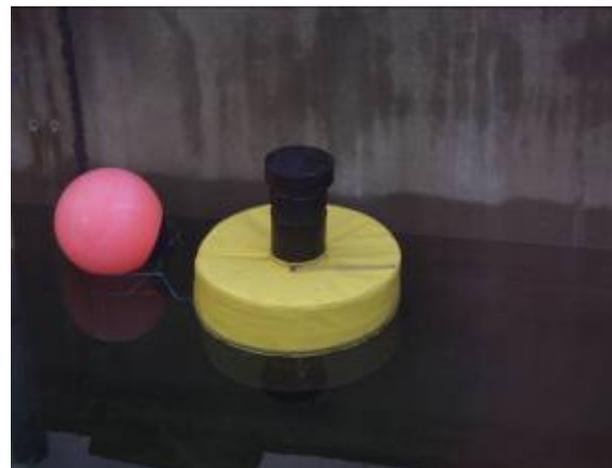
Requirements

- Ship
 - 65 m
 - 15 knots at sea state 5
 - ICE class 1A or similar
 - POS CLE 1 or similar
 - Endurance 40 days or longer
 - Redundant propulsion
 - Cruise speed up to sea st. 7
 - Research capability up to sea st. 5
 - AC for 35 degrees temperatures
- Research
 - Research keel for acoustic equipment
 - Observation deck on top of bridge
 - Moon pool with crane
 - Mid ship hangar with crane
 - A-frames at transom and starboard
 - 5 std ISO 20" containers
 - Labs
 - 90m² dry lab
 - 60m² wet lab
 - Mobile winches
 - Net drums
 - Trawl winches
 - Hydrographical winches
 - Gilson winches
 - Constant tension winches
 - Core handling winches
 - Umbilical winches



Equipment News

- New lines of very low cost equipment:
 - Underwater Video equipment
 - Buoys with various sensor configuration, data logger and mobile telephone communication
 - Towed acoustic equipment
- Upgrade of systems:
 - Bottom video sledge
 - Vessel information systems
 - Fish registration systems
 - ROV with new top side
 - Container laboratories
- New container area
 - Designed for at least 25 20" containers
 - Lab containers supplied with sea water, cold and hot water, electricity, network, etc.
 - Area fully lighted



DATA SAMPLING AT SEA



SBE911 Vertical profiler



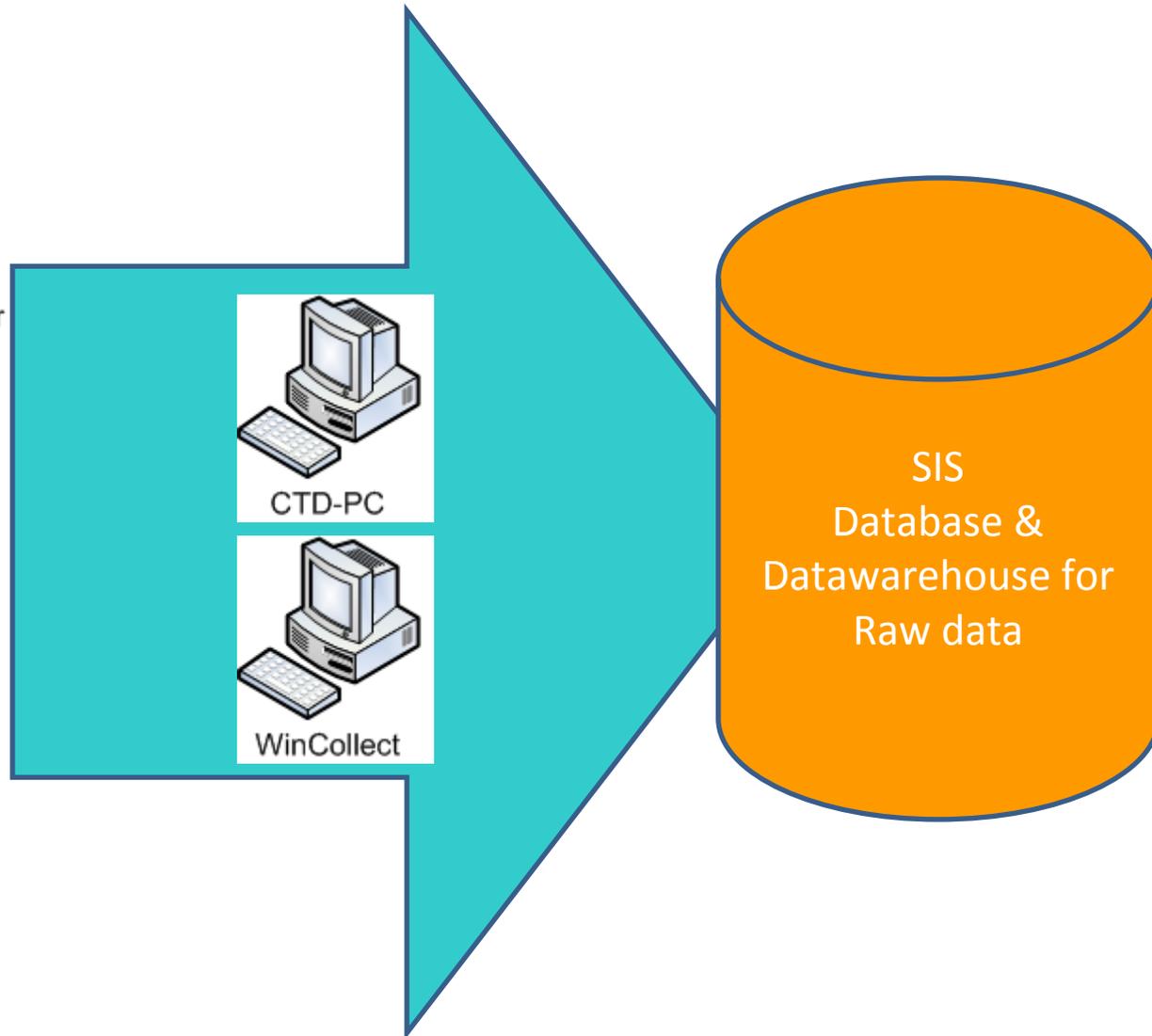
SBE911 Triaxus profiler



SBE21 Water intake

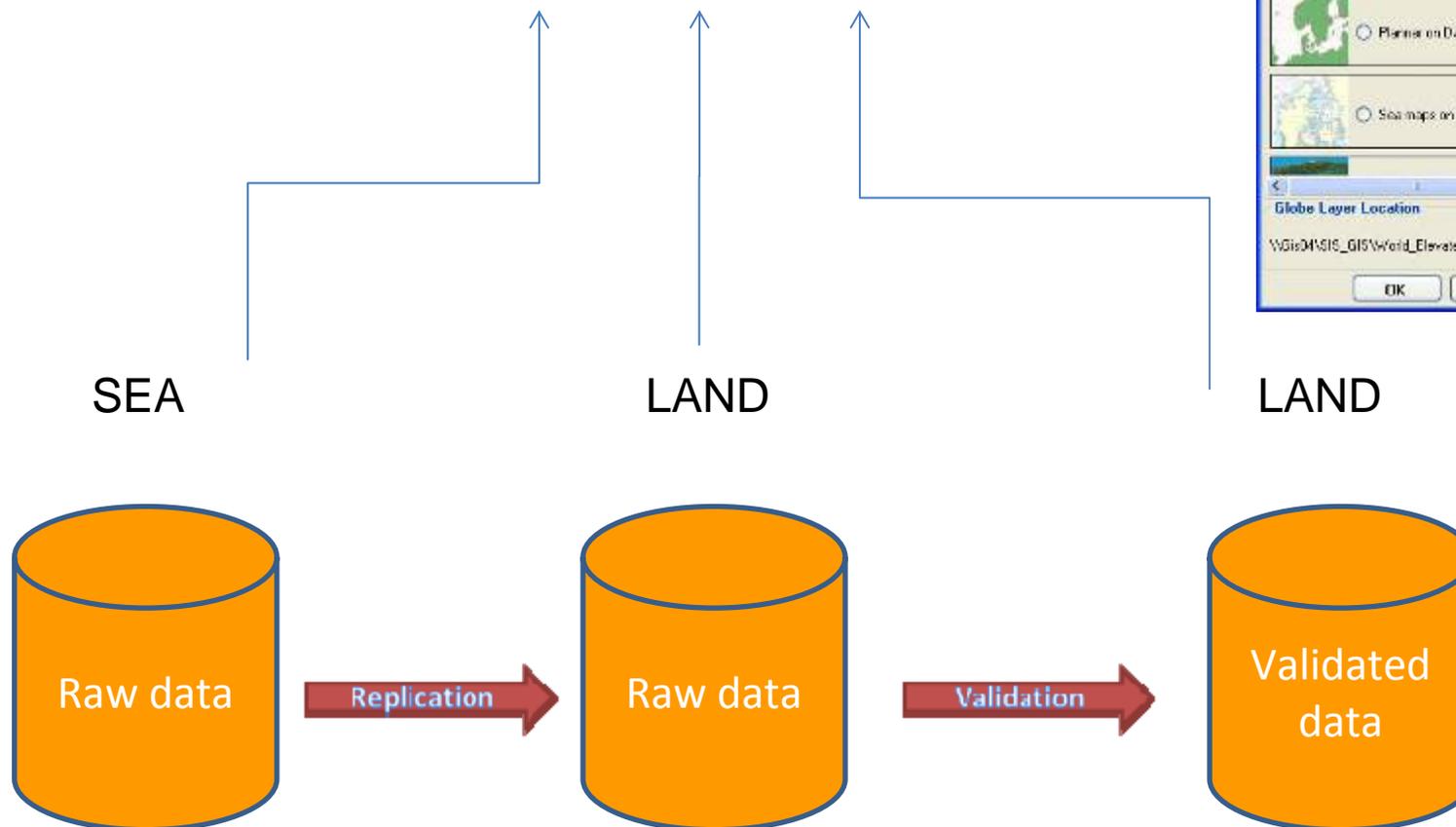


Meteorology
Navigation
Irradiance
Scanmar (trawl)
.....

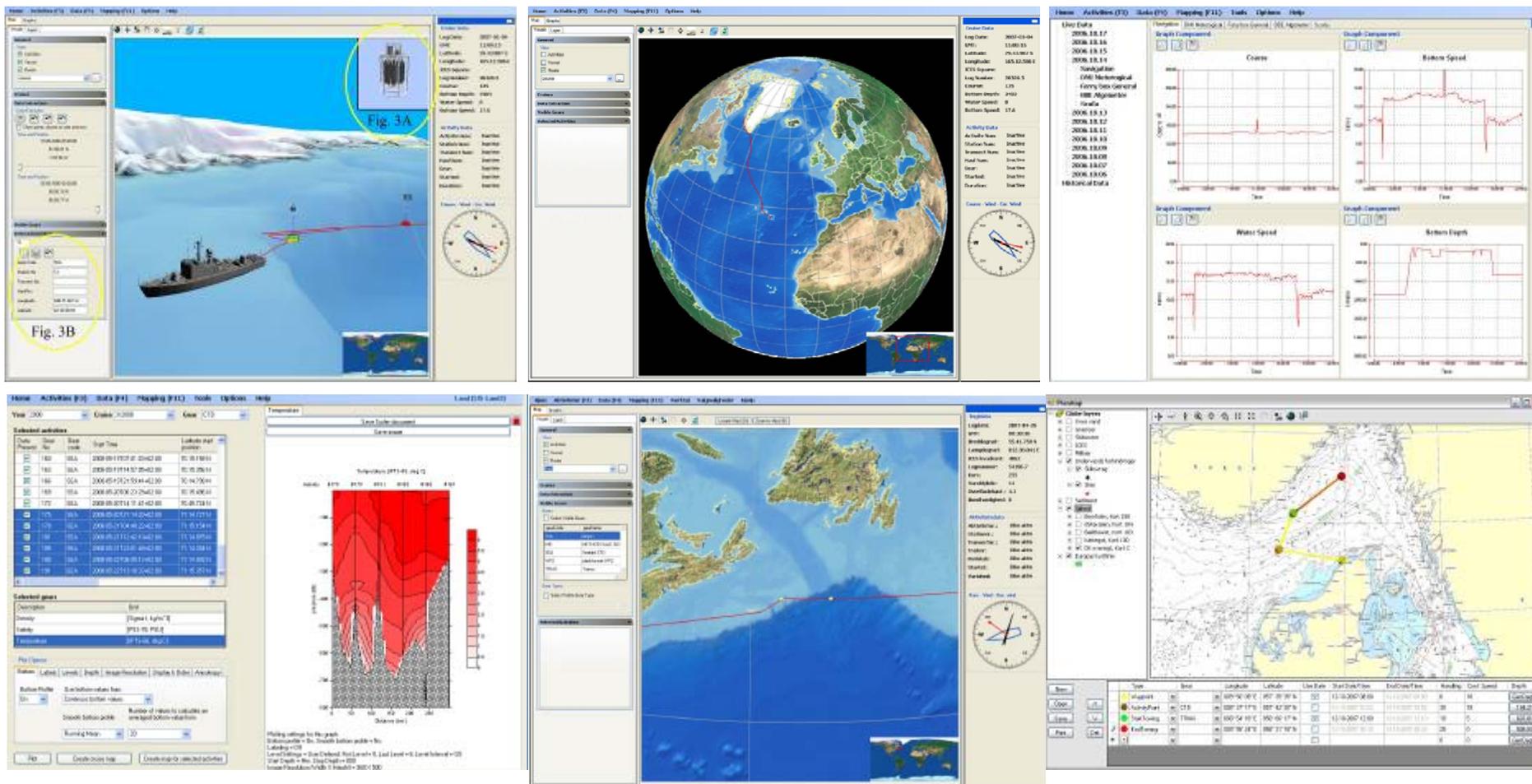


Post Cruise validation of data

SIS application



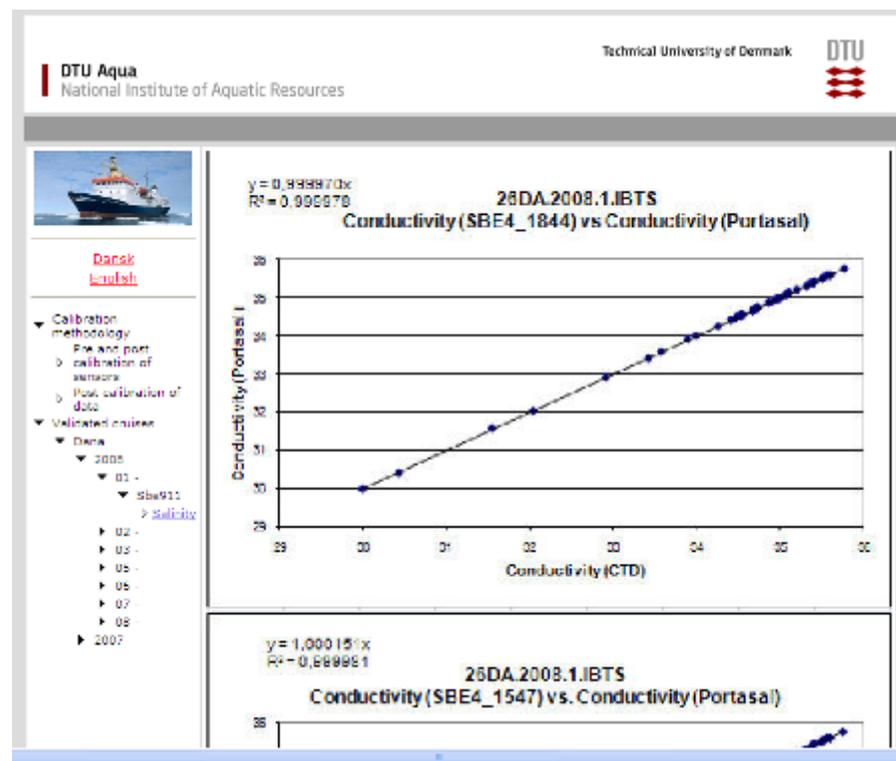
The Presentation Layer



DTU Aqua is a fully integrated data management system for data collection, storage, processing, visualization and reporting. The system is designed to handle large amounts of data and to provide a user-friendly interface for data management. The system is designed to handle large amounts of data and to provide a user-friendly interface for data management. The system is designed to handle large amounts of data and to provide a user-friendly interface for data management.

SIS Validated ensures the data quality

- Get the cruise data validated in a standardized way
 - Using well documented algorithms known to everybody
 - using the same algorithms for calculation of derived parameters from sensor data
 - Validated data are provided to the users faster then ever
- Support multiple instrumentations
 - Comparing dual sensor configurations
 - Comparing sensor data with data from water samples and other sensors
- Biological evaluation of data
 - Annotation of data available to the users



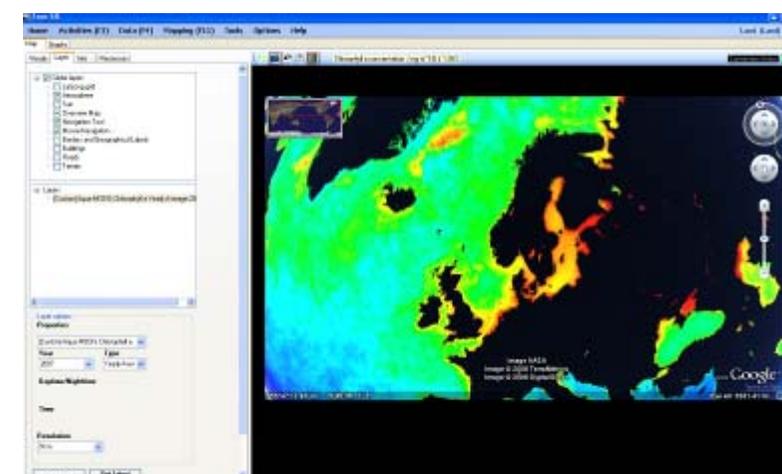
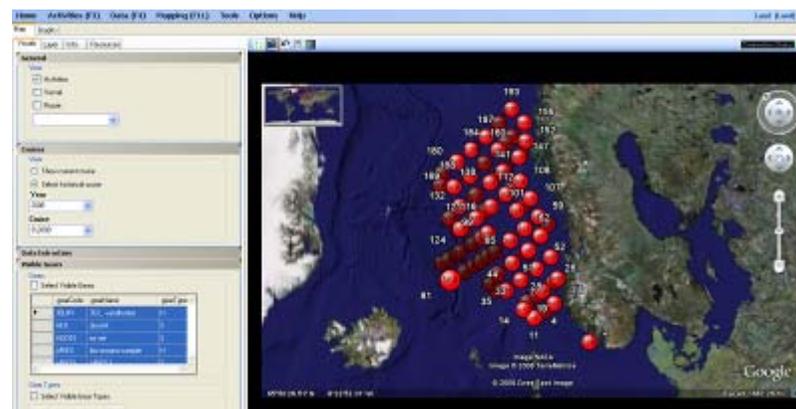
FreeSIS (Free Ship Information System)

- FreeSIS is a **freely available application** that allows **for the visualization and analysis of data being collected during research cruises** made by the research vessel Dana.
- While out on a cruise Dana is continuously collecting various kinds of data i.e. water temperature, salinity, oxygen and algae, which is collected within a database onboard.
- FreeSIS (Free Ship Information System) is an extension of the SIS DP (Ship Information System Data Presentation) application that is used internally at DTU Aqua. FreeSIS is a freely available application that allows for the visualization and analysis of data being collected **during a research cruise or historical data from previous cruises** made by the research vessel Dana.
- FreeSIS allows for the visualization and analysis of this data in a near real-time manner. This is achieved as the onboard database is **synchronized, via satellite, with a land based instance of the database located within DTU Aqua once an hour**. The FreeSIS application uses a secure web-service in order to review the required data.
- It is possible to extract the raw data collected during a specific research cruise through FreeSIS. This however requires **access rights to this data to be granted by the cruise leader of the specific cruise** in question. It is then possible to log on to the data extraction module within FreeSIS and retrieve the desired data.



New features in FreeSIS

- Area based searching via the Google Earth Plug in
- Select type of gear and area and get all historical data
- Add your own mapping data (KML-files)
 - KML data provider which connects to the FreeSIS server so you can select KML layers we provide from there
 - Import of local KML data, which can be saved to automatically reload then next time the mapping section of FreeSIS is opened
- Import of more historical data into the Land database, including CTD data
- The cruise line is now plotted in full resolution
- In order to run the FreeSIS application you need the following software:
 - Windows 2000/XP/Vista
 - Active Internet Connection
 - Google Earth Plug-in (Google Ocean)
 - .Net Framework 2.0



Thank you

Free SIS is available to download at

[http://www.aqua.dtu.dk/English/About/Research_vessel/
Ship_Information_System/FreeSIS_download.aspx](http://www.aqua.dtu.dk/English/About/Research_vessel/Ship_Information_System/FreeSIS_download.aspx)