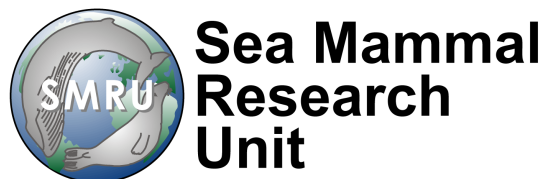


# MamVisAD:



# 3D, interactive visualization of marine mammal movements in time and space on a desktop computer.

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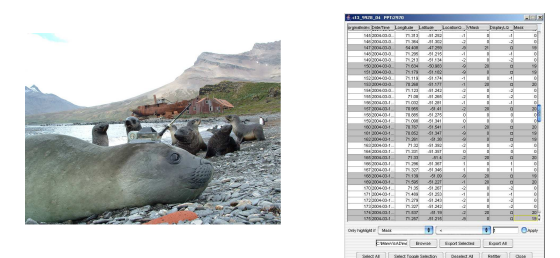
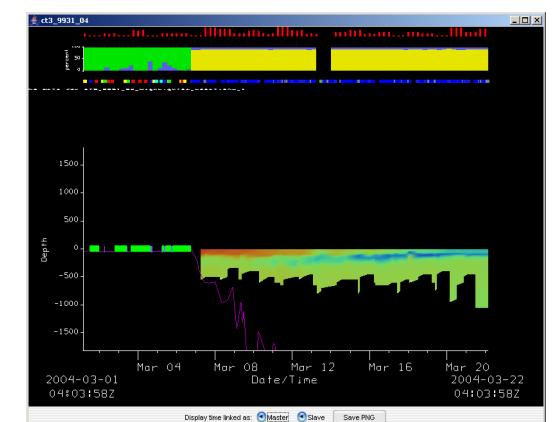
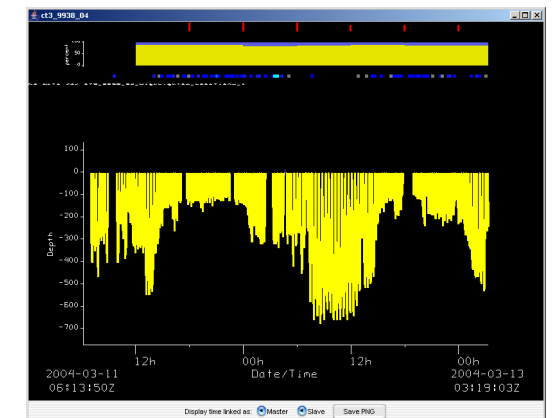
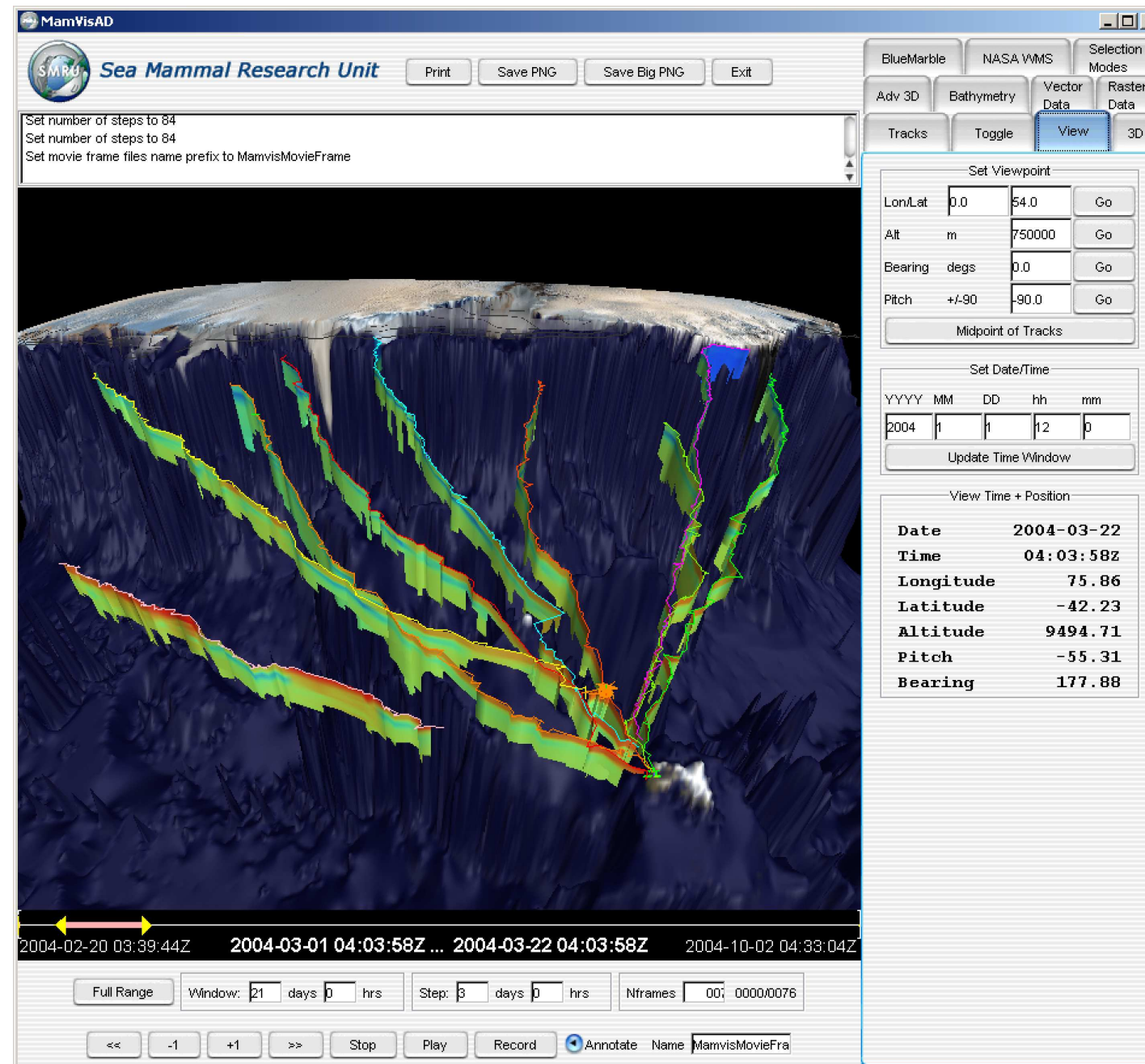
MamVisAD is a software package primarily designed to facilitate the interactive visualization of data collected about the movements of larger marine animals via attached telemetry tags that record location and diving behaviour, such as the satellite relayed data loggers (SRDL's) developed by the Sea Mammal Research Unit (SMRU). This data contains locations, from the ARGOS network and/or the new FASTLOC GPS, but may also include other information such as dive profiles, swim speeds and temperature and salinity profiles of the water column visited by the animals.

SMRU's previous visualization system, MAMVIS (Fedak et al. 1996), demonstrated how visualizing such data in conjunction with environmental information could provide new insights into animal behaviour.

MamVisAD builds on that approach, offering a more powerful investigative visualization tool. Developed using Java, Jython, and VisAD it supplies a cross platform solution, capable of leveraging modern PC hardware, which is not dependent on any commercial visualization package.

Several different ways to explore the data are provided including an interactive 3D "ocean", a flexible time series view (zoomable/scrollable strip charts), and spreadsheets to show the actual values. All of these are linked. This allows data to be zoomed, filtered or selected on the basis of time, location or value using whichever "view" is most appropriate. The results of any such operation are then propagated to all the other "views".

The display of other information about the dynamic oceanic environment is also supported (e.g. bathymetry, satellite imagery, sea ice extents, SST's, SSH's, and outputs of oceanographic models.). MamVisAD provides researchers with a desktop tool that can help identify interesting events in an animal's life, even along tracks that last for years and cross ocean basins, and then zoom in to study them and the local environment in which they took place in more detail.

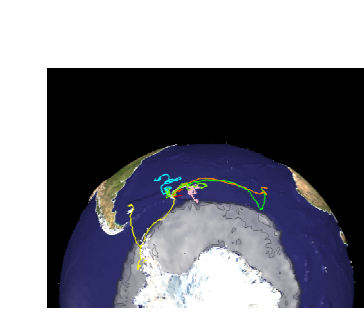
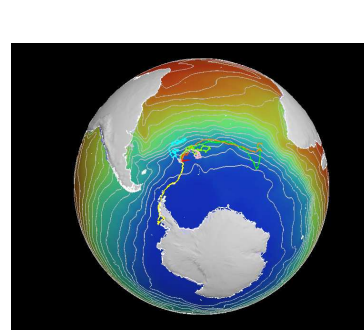
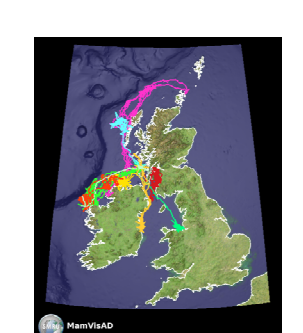
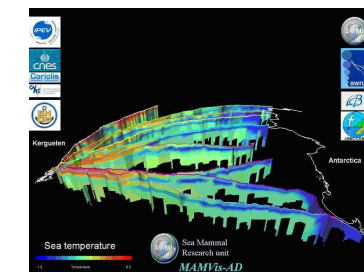
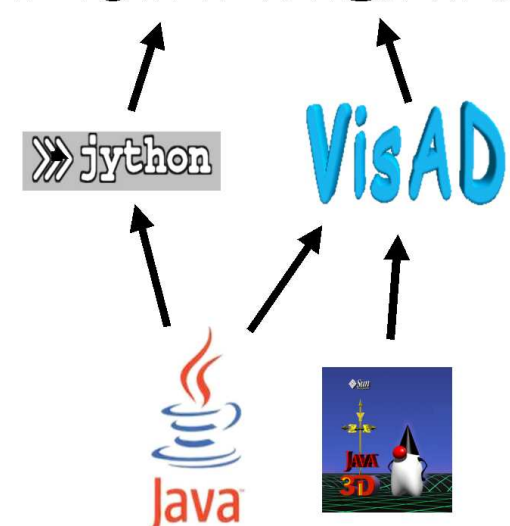


## Interactive mode:

MamVisAD being used to interactively explore CTD and dive profile data obtained from SMRU SRDL's deployed by the Southern Elephant Seals as Oceanographic Samplers (SEaOS) project.

## Examples of visualizations produced using MamVisAD:

# MamVisAD



MamVisAD can also produce images and movies suitable for use in presentations and on the WWW.

The data shown includes:

- Fastloc GPS locations for 3 seals tagged near St Andrews.
- Scottish grey seals tagged by SMRU.
- SEaOS elephant seals.

This illustrates the wide range of both spatial and temporal scales over which MamVisAD can operate.

