RAFOS Float Processing at the Woods Hole Oceanographic Institution
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ARTOA 3 April 2005 Addendum

Although we have made structural changes to ARTOA that have changed the ITM file structure, we have worked to ensure that ITM files made under previous versions of the software will import and be functional under ARTOA3.
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TEMPERATURE/PRESSURE EDITING WINDOWS

Shift/Reset
Buttons are used to modify or reset temperature or pressure if records are affected by hardware limitations. E.g., on DLD2 floats, hardware limits T and P to be modulo 4.096°C and 409.6 dBars; if temperature or pressure varies outside that window, then rollover will occur.
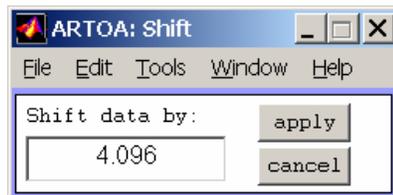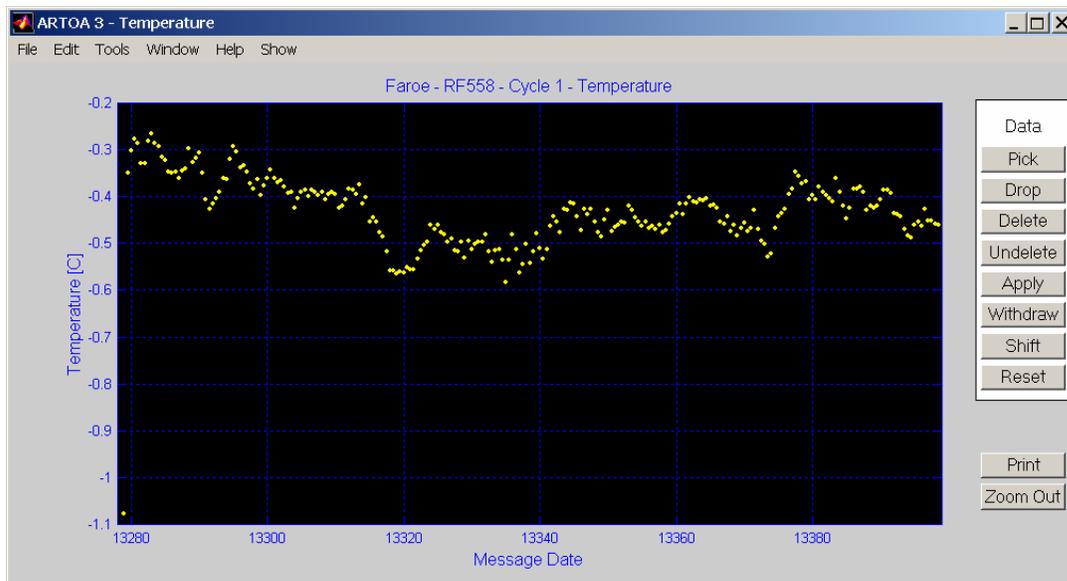
The SHIFT button on the main menu of the temperature or pressure editing window will call up a small GUI window that allows you to enter a shift number (default is 4.096°C and 409.6dBars) and options 'apply' or 'cancel'. The RESET button on the main menu of the temperature or pressure editing window will bring the entire temperature or

pressure record back to original values. 'Apply' and 'delete' editing will be maintained if RESET chosen. SHIFT works similarly to other buttons in that you need to pick data to be shifted using the PICK button before choosing SHIFT. RESET is applied automatically to the entire temperature or pressure record.

TRACKING WINDOW

Tracking window now has space for five sources (and sound velocities) per tracking combination. This means that five TOA records will be used as input for the least squares/exclusive LS. ITM files created in ARTOA2 (where there were only three sources were possible) will import into the new software.

Plot Residuals
Plots difference between least squares fit and positions estimated from individual sound source TOA records – this allows the user to see how well a source estimate compares to the least squares position from all chosen sources. Sound sources with drifts or offsets, and suspect sound velocity values are revealed using this diagnostic.

Exclusive Least Squares
Simply limits position computation to those points that have all sources specified in a combination. If one (or more) TOA record is missing a position within a combination, then position not calculated. By tracking using this method first, the user can be confident that subsequent interpolated TOA records or least squares tracking runs are indeed correlated to the calculated positions that have all TOAs possible.

ARTOA 3 September 2005 Addendum

May-August 2005 Changes
1. ARTOA3 now runs under Matlab 7.*.

2. TOAs applied to a particular source are now color coded by source, which makes it easier for the user: when TOA records cross, the user can distinguish between sources in the editing window. This feature also slows down processing. If it is not necessary for your project, and you wish this feature to be removed, do the following: You will find the files 'uitoa_nocolor.m' and 'uitoa_color.m' in the 'artoa_3' directory. *Carefully* replace 'uitoa.m' with file 'uitoa_nocolor.m', by copying and renaming 'uitoa_nocolor.m' to 'uitoa.m'.
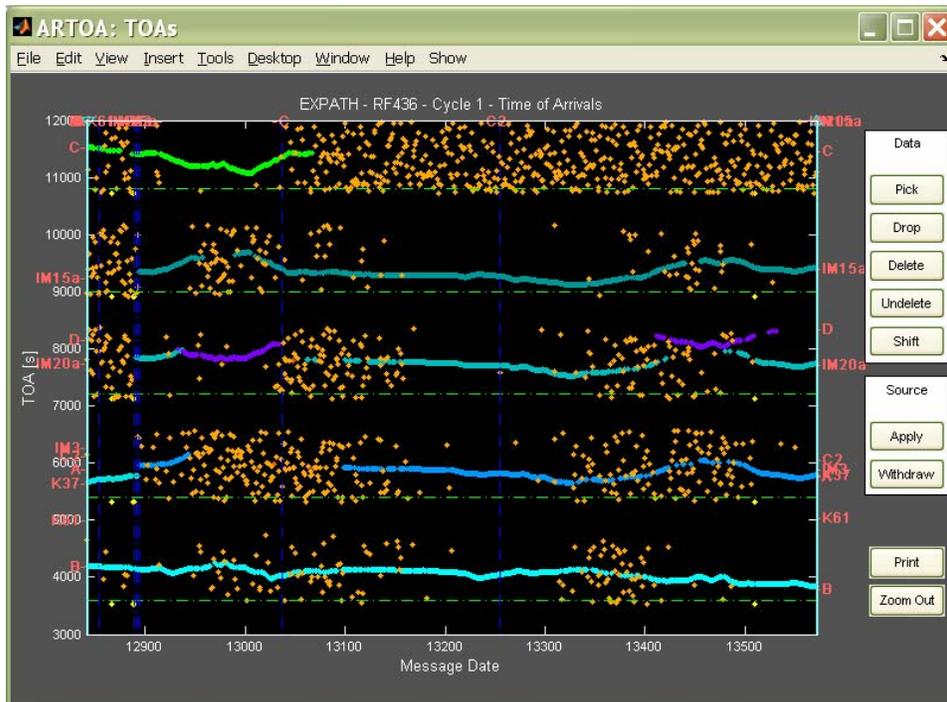

3. Overload RFB data now works for data and header. If you have 75% full data file extracted as an interim file, you may overload the additional data (25%) by using the overload RFB data option, and your editing work will be retained.

4. Initial (hexadecimal -> decimal) processing for both RAFOS (DLD2) and MARVOR floats has been added.

5. Button added on trajectory output window that allows user to access tracking parameters for every track. Highlight track desired, then click on 'Track Info'. A scroll box will come up that is relevant to that track.

6. Added bathymetry to trajectory plot – Smith & Sandwell ETOPO2 2' resolution. Access to the data requires that the NetCDF toolbox be installed (and added to the MATLAB path). Available as freeware from: http://mexcdf.sourceforge.net/ or http://woodshole.er.usgs.gov/staffpages/cdenham/public_html/MexCDF/nc4ml5.html. New directory to ARTOA3 structure added '/bathy'. This directory needs to be installed adjacent to the others, and added to the Matlab path. Removing the plotbathy option can be achieved by commenting out the two (2) calls to 'show_bathy.m' in the program

'uitraj.m'. Modification of bathymetry contour levels can be made by modifying the program /bathy/show_bathy.m.
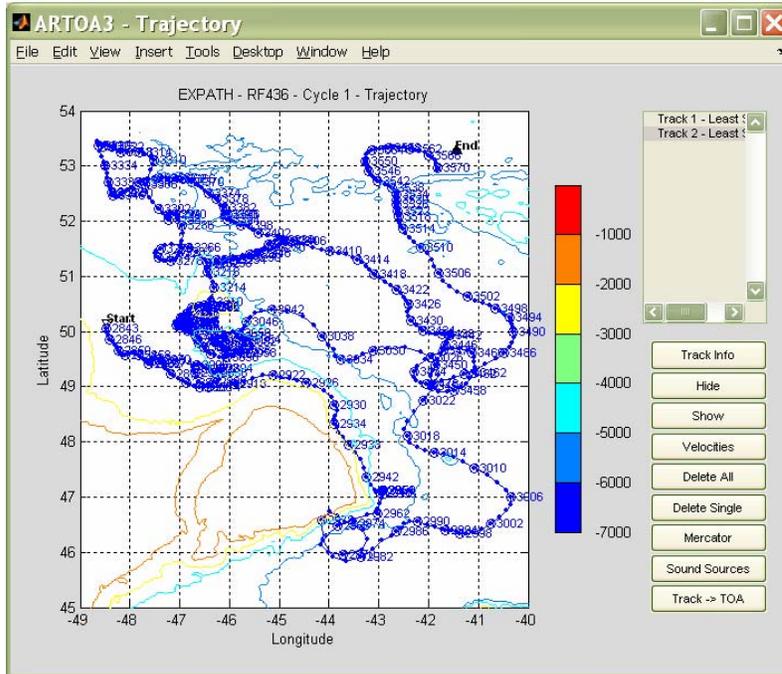
7. ARGOS data processing for both MARVOR and DLD2 floats is functional. Two options exist in the 'File->Load->DLD ARGOS' or 'MARVOR ARGOS'.
Documentation for 'MARVOR ARGOS' can be obtained from Thierry Reynaud, Ifremer Brest, treynaud@ifremer.fr.

8. 'Statistics-> MARVOR technical data' and 'Statistics-> ARGOS statistics' options on the ARTOA 3 header bar works for MARVOR ARGOS data. The first describes the status message data for the MARVOR floats; the second option gives statistics for number of messages, etc. for MARVOR ARGOS data.

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