Celestial Tools Revision History (publicly distributed versions only)

What's new in Celestial Tools V5.8.0 (compared to V5.7.1)
Bug fixes:
1) In Sight Reduction and Yellow Pages (I&C), corrected the year that four of the corrections were changed.
2) In Sight Reduction, corrected a bug that improved the positional accuracy of the planets, especially Venus.
Additions and changes:
1) In Wind & Current, added the ability to calculate the course and speed required to achieve a specific track and speed when influenced by current (a common predicted log contest problem) and other minor changes.
2) In Sight Reduction, when in the "NA vals. of v/d, GHA/Dec" mode, the GHA and Dec of Venus now include a phase correction to better match the values in the Nautical Almanac (for the years where phase was included in the hourly values).
3) In Help, SR Methods & Fix, made changes regarding how Asm LHA and Asm Lo are calculated.

What's new in Celestial Tools V5.7.1 (compared to V5.7.0)
Bug fixes:
1) In Sight Planner, corrected a problem where the displayed times of moonrise and moonset would be incorrect if the phenomenon occurred on the following day.

What's new in Celestial Tools V5.7.0 (compared to V5.6.10)
Bug fixes:
1) In MoBoard, corrected several cosmetic formatting issues,.
Additions and changes:
1) In MoBoard, added the Interception Course tool.
2) In MoBoard, increased all ranges from 99.99 to 200.00 nm.

What's new in Celestial Tools V5.6.11 (compared to V5.6.10)
Bug fixes:
1) In Sight Reduction, corrected a problem where displayed declination would not update from previous value when using Latitude by Altitude of Polaris.

What's new in Celestial Tools V5.6.10 (compared to V5.6.9)
Bug fixes:
1) In SR Methods, corrected problems with H.O. 249 and H.O. 229 not corrected in V5.6.9.

What's new in Celestial Tools V5.6.9 (compared to V5.6.8)
Bug fixes:
1) In SR Methods, corrected problems with H.O. 249 and H.O. 229.
Additions and changes:
1) In Favorite Places, added the option to include a zone description.

What's new in Celestial Tools V5.6.8 (compared to V5.6.7)
Bug fixes:
1) In Sight Reduction & Fix and SR Methods & Fix, corrected a problem with the reversal of T and A on the Fix window (created in V5.6.5). (This is strictly a display problem, and does not affect the fix calculation.)
Additions and changes:
1) In Sight Reduction & Fix and Noon Sight, dip values over 59.9' (as might occur for dip short sights) are now displayed as degrees and minutes (previously just minutes).
2) In Sight Planner, Sun-Moon Fix availability, the feature added in V5.6.4 showing the times when the Sun or Moon is less than 10 degrees from the observer's meridian during the time range of availability has been removed, as that N sight folder requirement has been removed.
3) Changes to the Help.

What's new in Celestial Tools V5.6.7 (compared to V5.6.6)
Bug fixes:
1) In Sight Reduction & Fix, corrected a problem with Fix (created in V5.6.1).

What's new in Celestial Tools V5.6.6 (compared to V5.6.5)
Bug fixes:
1) In 2/3 Bearings, corrected a problem with Fix from Cross Bearings.

What's new in Celestial Tools V5.6.5 (compared to V5.6.4)
Additions and changes:
1) In SR Methods, NASR, changed to more closely match the USPS procedure for negative altitudes.
2) In Sight Planner, set a maximum latitude of 89º for times of solar and lunar phenomena, due to accuracy degradation at high latitudes.
3) In The Sailings, Great Circle, Destination L and Lo, True Course (Initial) is forced to 180º when L1 is 90ºN and 0º when L1 is 90ºS.
4) In Help, The Sailings, additional information about Points on Great Circle Route.
5) In Sight Reduction and SR Methods, changed the way EP and AP/EP are calculated for more accurate results at high latitudes.
Bug fixes:
1) In SR Methods, corrected a problem with the fix calculation.
2) In SR Methods, Law of Cosines, fixed a formatting problem when Hc was negative.
3) In The Sailings, other minor corrections for high latitudes.
4) In The Sailings, corrected a problem with Clear But Use L2, Lo2 For New L1, Lo1.
5) In The Sailings, corrected a problem the range of L1 and L2 shown in the tool tip text for Accurate Rhumb Line.
6) In The Sailings, Great Circle, Points on Great Circle Route, prevented unnecessary first line if Lo2 was evenly divisible by 5º.
7) In Navig. Math, corrected a minor cosmetic problem.

What's new in Celestial Tools V5.6.4 (compared to V5.6.3)
Additions and changes:
1) In Sight Planner, Sun-Moon Fix availability, the times when the Sun or Moon is less than 10 degrees from the observer's meridian during the time range of availability are shown.
2) In Sight Reduction and Noon Sight, Show Ho corrections as SR Form, the Main Altitude correction for the Sun will agree with the table on page A2 of the Nautical Almanac (apparent altitudes greater than about 10º).
Bug fixes:
1) In Sight Planner, View Visible Bodies, Horizon view, the bodies have been color coded (an oversight in V5.6.1).
2) In Noon Sight, rearranged form to make room for irradiation altitude correction for upper limb sights from 1954 to 1969.
3) In SR Methods, NASR, corrected an error in the calculation of corr2 for negative altitudes.

What's new in Celestial Tools V5.6.3 (compared to V5.6.2)
Additions and changes:
1) In The Sailings, some minor cosmetic and internal changes.
Bug fixes:
1) In Noon Sight, minor cosmetic change in the Latitude Computation box when Old form was selected.
2) In The Sailings, corrected several formatting problems when Mercator was selected.
3) In The Sailings, Great Circle, corrected a problem with Points on Great Circle Route if Destination L and Lo was selected.
4) In The Sailings, corrected some minor display issues.

What's new in Celestial Tools V5.6.2 (compared to V5.6.1)
Additions and changes:
1) In Sight Planner, View Visible Bodies, Best Bodies Aid, the sets of red lines can now be rotated at the original speed or at about twice the original speed.
2) In SR Methods, small cosmetic changes.
3) In SR Methods Help, added additional information about H.O. 208.
Bug fixes:
1) In SR Methods, Weems LPB, corrected a problem where the program would crash if latitude and declination had the same name and declination was greater than latitude.
2) In SR Methods, H.O. 208, corrected a problem with DR-LOP Distance and EP L/Lo.
3) In The Sailings, Points on Rhumb Line, corrected when the warning message appeared.
4) In Sight Reduction, corrected the way irradiation was included in Sun upper limb sights from 1954 through1969.
5) In Noon Sight, corrected a problem that occurred when the index error setting was "off the arc (rdg.)" and IE degrees was zero.
6) In Sight Reduction & Fix, corrected a problem (created in V5.6.1) with the fix if a body was a planet.
7) In Sight Planner, corrected a problem where the tenths of a degree part of the azimuth of sunrise and sunset would always be zero when Upper Limb was selected.

What's new in Celestial Tools V5.6.1 (compared to V5.6.0)
Additions and changes:
1) In Sight Planner, View Visible Bodies, the bodies have been color coded.
2) In The Sailings, added the capability to calculate individual latitudes and longitudes on a rhumb line.
3) In SR Methods, Law of Cosines, added the option to use the decimal values of LHA, latitude, declination, and calculated Hc either with the full precision of the computer or rounded to five decimal places, in subsequent calculations.
4) In Help>General>"Almanac" Accuracy, added a paragraph about Delta T.
5) Other minor cosmetic changes.
Bug fixes:
1) In The Sailings, Great Circle, Points on Great Circle Route, removed extraneous line that was present if starting longitude was 0º; and other minor cosmetic changes.
2) In TVMDC, Use Small Deviation Table, corrected the operation when magnetic was west of 0º compass, and other minor cosmetic changes.
3) In SR Methods & Fix, corrected a problem in the fix routine that would calculate an incorrect fix if certain inputs were entered incorrectly.
4) In SR Methods, Weems LPB, corrected a problem where the program would crash if the latitude was zero.
5) In Sight Reduction & Fix and SR Methods & Fix, made corrections to improve the accuracy of the fix calculations..
6) Added information to Navig. Math, Interpolation Help.

What's new in Celestial Tools V5.6.0 (compared to V5.5.0)
Additions and changes:
1) In Sight Averaging, put back the sight analysis method that was used prior to V5.1.1, in addition to the method used since V5.1.1.
2) In Sight Averaging, analysis can now be done after sights have been eliminated. (Previous versions could only analyze the complete entered set of sights.)
3) In Navig. Math, Sexagesimal-to-Decimal Converter is now called Sexagesimal-Decimal Converter, and can convert any of three angle formats and any of three time formats to the other two formats. (Previous versions could only convert one angle format and one time format.)
4) In Noon Sight, the latitude calculation can now be done using the new form (JN99 or later) in addition to the old form.
5) In Sight Reduction and Noon Sight, improved the accuracy of the dip correction for higher heights of eye.
6) Various cosmetic changes throughout the program.
Bug fixes:
1) Added scroll bar to Yellow Pages Help.

What's new in Celestial Tools V5.5.0 (compared to V5.4.1)
Additions and changes:
1) In Sight Reduction, changed the Body list order, putting solar system bodies first, followed by an alphabetical list of the 57 navigational stars plus Polaris.

2) In the Sight Reduction Body list, L.L. and U.L. are no longer appended to the Sun and Moon. Instead, a choice of limbs, with Lower, Upper, and Center, has been added. Center allows the program to be used with a bubble sextant (not permitted for use in fulfilling sight folder requirements), and is used when superimposing direct and reflected images in an artificial horizon (a change in method from previous versions).

3) In the Noon Sight Sun Limb selection, an option of Center has been added. Center allows the program to be used with a bubble sextant (not permitted for use in fulfilling sight folder requirements), and is used when superimposing direct and reflected images in an artificial horizon. Center was previously only available when Artificial Horizon was selected.

4) In Sight Reduction and Noon Sight, formatting improvements.

5) In TVMDC, added the ability to work with a "small" deviation table. (This does nothing that could not be done with the Navig. Math Interpolation tool, but is added as a convenience.)

6) In TVMDC, minor formatting changes.

7) Minor additions to the Help.

8) In Navig. Math, internal changes to the Interpolation tool.

Bug fixes:

1) In Sight Reduction and Noon Sight, corrected a rounding problem with dip for low heights of eye.

What's new in Celestial Tools V5.4.1 (compared to V5.4.0)

Additions and changes:

1) In Sight Planner, Sight Reduction, and Noon Sight, changed the range of manual zone descriptions.

2) In SR Methods, Weems LPB, made changes to what information is displayed.

3) Minor changes to the Help.

Bug fixes:

1) In Sight Planner, corrected a problem (created in V5.1.3) with Moon rise, set, and phase with certain inputs.

2) In Sight Reduction, corrected a problem (created in V5.4.0) with the GHA of the Sun when in the "NA val. of hourly GHA/d" mode.

3) In Sight Reduction, corrected a formatting problem.

4) In SR Methods, Weems LPB, corrected the calculation of Zn (and added to the Help) and made other corrections.

5) In SR Methods, made corrections to H.O. 211.

6) In Sight Reduction, corrected a typo that could cause a problem with Saturn sights.

7) In Sight Reduction and Sight Planner, made a correction to the position of Peacock.

8) In Sight Reduction, corrected a problem with altitude correction when using artificial horizon with superimposed images and Moon UL.

9) In Sight Reduction, SIGHT DATA output box, corrected the limb to Center when the Sun or Moon is selected with superimposed artificial horizon images.

What's new in Celestial Tools V5.4.0 (compared to V5.3.1)

Additions and changes:

1) In Sight Reduction, Latitude by altitude of Polaris, improved accuracy.

2) In Sight Reduction, Latitude by altitude of Polaris, the DR latitude is now used for the approximate latitude unless it is left blank, in which case Ho is used. (In previous versions, Ho was used.)

3) In Sight Reduction, the d value for Sun sights now has "Accurate" and "Nautical Almanac" modes.

4) In Noon Sight, the d value is based on an average of the three days shown on a Nautical Almanac page, rather than the date and time of the sight.

5) In The Sailings, Set and Drift, any rhumb line method, if prior fix is entered, distance between fixes, course made good (CMG), and speed made good (SMG) are calculated (for convenience, rather than requiring an extra operation) in addition to the drift angle, which is now shown with direction.

6) In Sight Reduction, if Show Ho corrections as Parameters and a planet are selected, the semi-diameter of the planet, which was previously shown as zero, is now shown for information, but is not used in the calculation of Ho.

7) In Sight Reduction, with Sun selected, and Noon Sight, if Show Ho corrections as Parameters is selected, parallax is now a function of the date and time. (Previous version used the average parallax for the year.)

8) In Sight Reduction, with Sun selected, and Noon Sight, if Show Ho corrections as Parameters is selected, made a slight improvement in the Main altitude correction.

9) Additions and changes to the Help.

10) Cosmetic changes to The Sailings and SR Methods, H.O. 229.

Bug fixes:

1) In Sight Reduction, corrected a problem (created in V4.9.0) with UT (GMT) and Greenwich day when switching from "Full reduction of Polaris sight" or any other star in "NA vals. of SHA/Dec" mode to "Latitude by altitude of Polaris".

2) In 60D=ST, corrected a problem where the d box (days) would not clear on command.

3) In SR Methods, Weems LPB, corrected a problem where the program would crash if certain bad input data was entered.

4) In Sight Reduction, corrected a problem with the second altitude correction (the second Corr) value when Show Ho corrections as Parameters and a planet were selected.

5) In Sight Planner, made changes to prevent program from crashing under certain circumstances if 90°N or 90°S latitude were entered.

6) In SR Methods, NASR, fixed a problem with corr 2.

What's new in Celestial Tools V5.3.1 (compared to V5.3.0)

Bug fixes:

1) In SR Methods, all methods using an assumed position, corrected the display of Asm Lo. (Calculated Asm LHA was correct.)

2) In Noon Sight, corrected problems with the allowed range of Observed ZT of LAN when ZD UT (GMT) was selected.

What's new in Celestial Tools V5.3.0 (compared to V5.2.0)

Additions and changes:

1) In Sight Planner, added the option of calculating Moon rise and set data using the approximate method currently taught in N.

2) In MoBoard, added a tool to calculate apparent wind from true wind.

3) Minor additions to the Help.

What's new in Celestial Tools V5.2.0 (compared to V5.1.6)

Additions and changes:

1) In Sight Planner, Sight Reduction, and Noon Sight, added the convenience option of using Universal Time directly.

2) Minor changes to the Help.

Bug fixes:
1) In SR Methods, Pub. 249, corrected a problem where Zn would be incorrect if Pub. 249 was the first method selected.
2) In SR Methods, corrected a problem with the allowed ranges of Ho.
3) In Sight Reduction, corrected a formatting problem and other issues when using an artificial horizon with the Sun or Moon superimposed on itself.

What's new in Celestial Tools V5.1.6 (compared to V5.1.5)
Bug fixes:
1) In Sight Planner, corrected a bug (created in V5.1.5) in body azimuths.
2) In 60D=ST, corrected a problem when calculating speed.

What's new in Celestial Tools V5.1.5 (compared to V5.1.4)
Additions and changes:
1) Added more information about dip short to the Help.
2) In Sight Planner, added the option to show the azimuths of the Sun and Moon at rise and set, when the upper limb is on the visible horizon (as in previous versions) or shortly after rise and shortly before set, when the center is on the visible horizon (used with compass calibration).
3) In Sight Planner, the azimuths of Sun and Moon rise and set, when the upper limbs are on the visible horizon, are now shown to the nearest tenth of a degree instead of the nearest degree.
4) In SR Methods, Law of Cosines, changed from the unrounded values to the rounded (to five decimal places) value of the calculated Hc for subsequent calculations.
Bug fixes:
1) In Sight Reduction, Latitude by altitude of Polaris, switched from unrounded to rounded value of Ho in latitude calculation to fix occasional incorrect addition.
2) In SR Methods, NASR, corrected a rounding problem.
3) In Navig. Math, Time Addition/Subtraction/Conversion, removed the extra minus sign when the result was negative.

What's new in Celestial Tools V5.1.4 (compared to V5.1.3)
Additions and changes:
1) In Sight Reduction and Noon Sight, made a slight improvement in the additional refraction correction for non-standard temperature and pressure.
Bug fixes:
1) In SR Methods, Pub. 249, corrected problems (created in V5.1.0).
2) In SR Methods, all methods using an assumed position, corrected the display of Asm Lo when DR longitude was east. (Calculated Asm LHA was correct.)

What's new in Celestial Tools V5.1.3 (compared to V5.1.2)
Additions and changes:
1) Minor changes in the Help.
2) In Sight Planner, changed the time of the Moon phase calculation from ZT 0000 to ZT 1200, as on USNO web site.
Bug fixes:
1) In SR Methods, H.O. 211, prevented program from crashing if a latitude of 0º was used with the Sadler technique.
2) In Sight Planner, corrected an error in the calculation of the times of moonrise and moonset and of the Moon phase in east longitudes. (Was not properly corrected in V3.1.1.)

What's new in Celestial Tools V5.1.2 (compared to V5.1.1)
Additions and changes:
1) In all tools with latitude inputs, minutes of latitude, if present, are removed when degrees of latitude of 90, if allowed, are entered.
2) In all tools with longitude inputs, minutes of longitude, if present, are removed when degrees of longitude of 180 are entered.
3) In the Sailings, changed the tool tip text for latitudes to show only what is appropriate for the particular function being used.
Bug fixes:
1) In Noon Sight, corrected a problem (created in V4.9.0) where the declination would be incorrect if the observed ZT of LAN was not the calculated ZT of LAN.
2) In Noon Sight, corrected a problem (created in V5.1.1) where the Main altitude correction would be displayed incorrectly but the proper value would be used to calculate the final correction.
3) In The Sailings, Great Circle, corrected a problem related to latitudes of 90º and a cosmetic problem related to travel along a meridian.

What's new in Celestial Tools V5.1.1 (compared to V5.1.0)
Additions and changes:
1) In Sight Averaging, improvements to the Analyze function.
2) In Sight Reduction and Noon Sight, improved the accuracy of the altitude correction for non-standard temperature and pressure.
3) In SR Methods, improved accuracy of Weems Line of Position Book method.
4) In SR Methods, various changes to Weems Line of Position Book method resulting from differences between the editions of the book.
5) Minor additions to the Help.
Bug fixes:
1) In The Sailings, corrected problems with Simplified Traverse Table.
2) In Sight Reduction, corrected a problem where the hourly value of declination would be incorrect for a planet reduction if following a star reduction and "NA vals. of v/d" was selected.
3) In Sight Reduction, corrected some problems with altitude correction when Show Ho corrections as Parameters was selected.
4) In SR Methods, corrected a problem with Weems Line of Position Book method for meridian angles greater than 90º.
5) In Noon Sight, corrected a formatting problem in the ALMANAC – Dec box when the declination was close to zero.
6) Minor corrections in the Help.

What's new in Celestial Tools V5.1.0 (compared to V5.0.4)
Additions and changes:

1) In Sight Reduction, options to calculate the v and d values of the planets based on UT 12h of the middle day of the daily page of the Nautical Almanac (the default, as is presented in the Nautical Almanac) or based on the actual date and time of the sight (as in previous versions).
2) Added Weems Line of Position Book to SR Methods.
3) In The Sailings, calculations are now done automatically when the type of sailing is changed.
4) In The Sailings, options to calculate Mercator Sailing using the constants of the World Geodetic Survey (WGS) 1972 ellipsoid or the Clarke 1866 spheroid.
5) Minor changes to the Help.
6) Minor cosmetic changes.

What's new in Celestial Tools V5.0.4 (compared to V5.0.3)
Bug fixes:
7) In Tides, corrected a problem with rounding.
8) In Currents, corrected a formatting problem.
9) In Sight Reduction, corrected a problem (created in V5.0.1) with east longitudes and south latitudes.
10) In The Sailings, Accurate Rhumb Line, corrected a problem (created in V5.0.0) where the calculated course would sometimes be incorrect.

What's new in Celestial Tools V5.0.3 (limited beta release) (compared to V5.0.2)
Additions and changes:
1) In Currents, improved the output for the 50-90 Rule.

What's new in Celestial Tools V5.0.2 (compared to V5.0.1)
Bug fixes:
1) In The Sailings, Mid-Latitude, corrected a problem (created in V5.0.1) with Simplified Traverse Table where an incorrect destination could be indicated.
2) In The Sailings, Mercator, corrected a problem (created in V5.0.0) where an erroneous error message would be generated.
3) In Sight Reduction, corrected a problem with tabbing.

What's new in Celestial Tools V5.0.1 (compared to V5.0.0)
Additions and changes:
1) In Sight Reduction and Noon Sight, when changing units of non-standard temperature or pressure, the standard value for the new unit appears in the data entry box, rather than the current unit which might cause an "out of range" message.
Bug fixes:
1) In Favorite Places, corrected a run-time error.
2) In various drop-down lists, corrected a problem where some single-character items (e.g. N or S for latitude) would appear as a small box.
3) In SR Methods, H.O. 211, Sadler Technique, put limitations on the value of DR latitude to prevent divide-by-zero errors.
4) In SR Methods, NASR, increased the size of the AsmL Asm LHA box to accommodate three-digit Asm LHAs.

What's new in Celestial Tools V5.0.0 (compared to V4.9.2)
Additions and changes:
1) When entering any data entry box containing previous data, the previous data is fully highlighted, for ease in editing.
2) In the Sailings, Mid-Latitude, added the option to calculate arrival (destination) position using the "Simplified Traverse Table" method.
3) In Sight Reduction, artificial horizon sights using the Sun or Moon superimposed on itself are now allowed.
4) In Noon Sight, artificial horizon sights using the Sun superimposed on itself are now allowed.
5) In Sight Reduction, Noon Sight, and Sight Averaging, changed the maximum sextant altitude degrees from 140 to 145.
6) In Sight Reduction & Fix and SR Methods & Fix, the number of sights that are retained for a fix has increased from 10 to 12.
7) In Help>General, added some information about rounding.
8) In Favorite Places, changed the default dip short distance unit from feet to yards.
9) In The Sailings, Mid-Latitude, a message will appear if any part of the course exceeds 84º59.9' latitude.
10) In The Sailings, minor changes in the way certain courses are handled.
Bug fixes:
1) In Noon Sight, corrected an error in the calculation of the main correction for Apr.-Sept.
2) In The Sailings, Accurate Rhumb Line, corrected a problem when course was exactly 0º.
3) In The Sailings, corrected a problem where a north course would appear as 360º instead of 0º under certain circumstances.
4) In Wind & Current, corrected a problem where some of the labels of the first column would be incorrect when first opened.
5) In Sight Reduction, fixed a problem (which existed since V4.9.0) where in the HE units list, m would appear as a box.
6) In SR Methods, all methods that use an assumed longitude, corrected a problem (created in V4.9.2) where the assumed longitude might be incorrect even if the assumed LHA is correct.

What's new in Celestial Tools V4.9.2 (compared to V4.9.1)
Bug fixes:
1) In SR Methods, all methods that use an assumed longitude, corrected a problem where the assumed longitude might be incorrect if the DR longitude was near 0º or 180º.

What's new in Celestial Tools V4.9.1 (compared to V4.9.0)
Bug fixes:
1) In The Sailings, Great Circle, Composite, corrected a problem where the program would sometimes reject cases where the destination latitude was the same as the latitude limit.
2) In The Sailings, Great Circle, Composite, corrected a problem where the program would do a calculation even after the message that the destination could not be reached without exceeding the latitude limit.
3) In Navig. Math, Time Addition/Subtraction/Conversion, corrected a problem where the day boxes did not clear when the Clear button was activated.

What's new in Celestial Tools V4.9.0 (compared to V4.8.0)
Additions and changes:
1) In Sight Reduction, Show Ho corrections as SR Form, the Moon altitude corrections agree with the Nautical Almanac table more often.

2) In Sight Reduction, options to calculate the SHA and Dec of the stars based on UT 12h of the middle day of the daily page of the Nautical Almanac (the default, as is presented in the Nautical Almanac) or based on the actual date and time of the sight (as in previous versions).
3) In Navig. Math, Angle Addition and Subtraction now accepts three angles.
4) Added Time Addition and Subtraction to Navigation Math.
5) Added Time of Day Calculator to Navigation Math.
6) Added Time Zone Calculator to Navigation Math.
7) In 60D=ST, added days as an input and output for time.
8) In Sight Reduction and Yellow Pages (I&C), for the four corrections that changed in the Nautical Almanac in 2001, both the 2001 and later and the pre-2001 values are used/displayed. (Previous versions only used/displayed the 2001 and later Almanac values.)
9) In Sight Reduction, Latitude by altitude of Polaris, improved the accuracy of the corrections.
10) In Sight Reduction, Latitude by altitude of Polaris, approximate latitude is taken from the calculated Ho only. (In previous versions, the DR latitude overrode Ho.)
11) Other minor cosmetic changes.

Bug fixes:
1) In SR Methods, S-Table, Farley, fixed an incorrect label.
2) In Navigation Math, Angle Addition and Subtraction, corrected a problem where the result would not update when the operation was changed.
3) In Noon Sight, corrected a problem (created in V4.3.0) where Dec would be incorrect. This problem was not fully corrected in V4.6.1.

What's new in Celestial Tools V4.8.0 (compared to V4.7.4)
Additions and changes:
1) Added Composite Sailing (two methods) to The Sailings, Great Circle.
2) In The Sailings, Great Circle, Points on Great Circle/Composite Route, interchanged the latitude and longitude columns.
3) In The Sailings, when Clear But Use L2, Lo2 For New L1, Lo1 is activated, the hemispheres remain at their current values, not changing back to N and W.
4) Enhancements to Help.

Bug fixes:
1) In Sight Reduction, corrected a problem with very low altitude and negative altitude sights.
2) In The Sailings, Great Circle, corrected problems with maximum latitude and final course when southern latitudes were involved.
3) In SR Methods, corrected formatting problems related to very low altitude and negative altitude sights in certain methods.
4) In SR Methods, NASR, corrected a problem with the rounding of the minutes of Ho.
5) In The Sailings, Great Circle, Points on Great Circle Route, corrected a problem where the destination would not be included if its longitude were evenly divisible by five degrees.
6) In The Sailings, corrected a problem where the "Prior fix available for drift angle calculation" check box, if visible, would remain visible when the sailing was changed to Great Circle.

What's new in Celestial Tools V4.7.4 (compared to V4.7.3)
Bug fixes:
1) In SR Methods, corrected several problems related to very low altitude and negative altitude sights.

What's new in Celestial Tools V4.7.3 (compared to V4.7.2)
Additions and changes:
1) In Sight Reduction and Noon Sight, improved accuracy of refraction correction.
2) In Sight Reduction, the HP of the Moon is now based on the whole UT hour closest to the time of observation.
3) In Sight Reduction, increments, v and d values, and v and d corrections are no longer included for sights taken on the hour (no minutes or seconds).
4) Changed the name of the CTS/TR/SOA tool to Winds & Currents. Changed the names of some parameters to those more commonly used. Expanded the Help.
5) Some minor changes to the Help, including the accuracy specification for the GHA of Aries.

Bug fixes:
1) In Sight Reduction, & Fix, corrected a problem where the program would crash if the number of saved reductions exceeded 19.
2) In SR Methods & Fix, corrected a problem where the program would crash if the number of saved reductions exceeded 10.
3) In Noon Sight, corrected a problem with refraction when Show Ho corrections as Parameters was selected.
4) In Sight Reduction, improved the accuracy of the HP of the Moon.
5) In Sight Reduction, improved the correlation between Show Ho corrections as SR Form and Show Ho corrections as Parameters.
6) In Sight Reduction, corrected a problem where the d value of the Moon would be incorrect if the Moon crossed the celestial equator around the time of the sight.

What's new in Celestial Tools V4.7.2 (compared to V4.7.1)
Bug fixes:
1) In Sight Reduction, corrected a problem, created in V4.7.0, where v values and v corrections were not be visible but were included in the calculation of GHA.

What's new in Celestial Tools V4.7.1 (compared to V4.7.0)
Bug fixes:
1) In Sight Reduction, corrected a formatting problem when non-standard temperature and pressure was used but additional refraction was zero.
2) In Sight Reduction, corrected a situation where in a Sun reduction where the LHA value used in the Law of Cosines was from "NA val. of hourly GHA" even if "Accurate val. of hourly GHA" was selected.
3) Corrected a problem where the hourly GHA of the Sun in Noon Sight did not match that of Sight Reduction when set for Nautical Almanac values.
4) In SR Methods, fixed a rounding problem in NASR.
5) In The Sailings, Points on Great Circle Route, corrected a problem where the latitude names (N,S) would be incorrect if L1 or L2 was south.
6) Minor corrections and additions in the Help.

What's new in Celestial Tools V4.7.0 (compared to V4.6.2)
Additions and changes:

1) In Sight Reduction, added options to calculate the hourly GHA of the Sun as presented on the daily pages of the Nautical Almanac (deliberately adjusted by up to 0.15' to reduce the error due to ignoring the v-correction) or more accurately, including v-values and v-corrections that would be used if the Nautical Almanac included v-values for the Sun.
2) In Noon Sight, the hourly GHA of the Sun is now calculated as presented on the daily pages of the Nautical Almanac.

Bug fixes:
1) Corrected a problem where, when switching from Sight Reduction to certain other tools and back again, the font size would be incorrect on the next operation.
2) In Sight Reduction, Latitude by altitude of Polaris, corrected a problem with the rounding of Zn.
3) Corrected some typos in the Help.

What's new in Celestial Tools V4.6.2 (compared to V4.6.1)
Bug fixes:
1) Corrected and updated printing of Help.
2) In Sight Planner, View Visible Bodies, Best Bodies Aid, changed Three-body fix (beach), which was incorrect, and change Help accordingly. (This was corrected in V4.5.0, but inadvertently removed from the program and Help in V4.6.0 and V4.6.1.)
3) In SR Methods & Fix, corrected a problem where east assumed longitudes were shown as west (but the calculation was done correctly).

What's new in Celestial Tools V4.6.1 (compared to V4.6.0)
Bug fixes:
1) In Noon Sight, corrected a problem (created in V4.3.0) where Dec would be incorrect. (This would only occur the first time the Noon Sight button was clicked.)
2) In Sight Reduction, if the Meridian Diagram is set to use ellipses, the hour circle would be incorrect. This problem has existed since V4.4.0. It did not occur when the Meridian Diagram is set to use circles, and did not occur for the equivalent Meridian Diagram in SR Methods for either setting.
3) Removed a redundant sentence from the Help.
4) In SR Methods, H.O. 211, made a change to prevent the program from crashing with certain input values.

What's new in Celestial Tools V4.6.0 (compared to V4.5.0)
Additions and changes:
1) In 2/3 Bearings, added fix from cross bearings function.

What's new in Celestial Tools V4.5.0 (compared to V4.4.1)
Additions and changes:
1) Added Tides tool.
2) Added Currents tool.
3) Added S-Tables to SR Methods & Fix.
4) In SR Methods & Fix, changed the way H.O. 211 is done when K is near 90º.
5) Changed the name of the Distance by 2 Bearings tool to 2/3 Bearings, and added course made good by three bearings function.
6) On Menu and Help, corrected and changed keyboard shortcuts.
7) On Help, rearranged buttons.

Bug fixes:
1) In SR Methods & Fix, NASR and H.O. 208, corrected calculations when object is below horizon, and other cosmetic changes.
2) In SR Methods & Fix, corrected some situations where options would not remain in the state on which they were left when switching from one sight reduction method to another, etc.
3) For Meridian Diagrams, altitude is now based on Hc rather than Ho.
4) In Sight Planner, View Visible Bodies, Best Bodies Aid, changed Three-body fix (beach), which was incorrect, and change Help accordingly.
5) Other minor bug fixes, including a correction in The Sailings Help.

What's new in Celestial Tools V4.4.1 (compared to V4.4.0)
Additions and changes:
1) In Navig. Math, Interpolation, added the ability to use negative K values, primarily for interpolating deviation tables

Bug fixes:
1) In Help, Navig. Math, added the missing scroll bar, so all the text could be read.
2) Other minor cosmetic fixes.

What's new in Celestial Tools V4.4.0 (compared to V4.3.1)
Additions and changes:
1) Changed "Interpolation" to "Navig. Math", with the addition of an angle addition/subtraction function.
2) Changed "LoC/NASR and Fix" to "SR Methods & Fix" and added several tabular and inspection sight reduction methods.
3) Added information to Help.
4) Minor cosmetic changes.
5) In Sight Reduction and Noon Sight, changed the maximum sextant altitude degrees from 150 back to 140.
6) In "SR Methods & Fix", the NASR Auxiliary Table option now only appears if NASR is selected.

Bug fixes:
1) In Help, added missing information about Sexagesimal-to-Decimal converter.
2) In "SR Methods & Fix", corrected several problems with low and negative values of Ho.
3) In "SR Methods & Fix", NASR, corrected a problem with DR-LOP Distance and EP L, Lo when longitude was east.
4) In "SR Methods & Fix", NASR, corrected a problem when A was 0º and F was 90º.
5) In "SR Methods & Fix", the NASR Auxiliary Table option now only appears if NASR is selected.
6) In SR Methods & Fix, NASR, corrected a problem when longitude was 0º or 180º.
7) In SR Methods & Fix, NASR, corrected a problem when A' was zero.
8) In Sight Reduction, made corrections for negative Hc.
9) Corrected a problem when a Favorite place was imported to Sight Planner, Sight Reduction & Fix, or Noon Sight, on a computer set for a location that uses a symbol other than a period as a decimal separator.
10) In Help, SR Methods & Fix, corrected the instructions on how to include a noon sight as part of the list of sights saved for a fix.

What's new in Celestial Tools V4.3.1 (compared to V4.3.0)
Additions and changes:
1) In Help, General, MoBoard, and The Sailings, added additional information.
2) In LoC/NASR, added a Clear button that leaves the DR L and DR Lo as they were.
3) In Sight Reduction, minor cosmetic changes.
Bug fixes:
1) In Help, corrected some typographical and formatting errors.
2) In the Sailings, corrected some formatting errors and made cosmetic corrections.
3) In LoC/NASR, corrected a rounding problem in LoC.
4) In MoBoard, increased the size of some data entry boxes so complete values always show, and some other cosmetic changes.
5) In LoC/NASR, corrected a problem with LoC Fix if certain sights were selected.
6) In Sight Reduction, Latitude by Altitude of Polaris, corrected a rounding problem.

What's new in Celestial Tools V4.3.0 (compared to V4.2.0)
Additions and changes:
1) In Sight Planner View Visible Bodies, whenever the pointer is on a body the name of the body will appear by the Azimuth and Altitude boxes, regardless of whether or not "Show Names" is checked.
2) In LoC/NASR and Help, added explanation of how to use LHA instead of GHA.
3) In LoC/NASR, changed the Law of Cosines calculation to more closely conform to the method of JN07 and JN12.
4) In Sight Planner, removed the upper limit of 15º from the minimum altitude for Sun-Moon fix.
5) Minor changes in Help, including a change in the specified accuracy of Latitude by Altitude of Polaris.
Bug fixes:
1) In The Sailings, corrected a problem in Mercator Sailing, Destination L and Lo, if the course were 90º or 270º.
2) In the Sailings, increased the size of the True Course box, which was too small for allowable entries.
3) In CTS/TR/SOA, corrected a minor formatting problem.
4) In Noon Sight, corrected a problem where Dec would be incorrect if the time of LAN was not determined before the Noon Sight calculation was done. (This would only occur the first time the Noon Sight button was clicked.) (See V4.6.1 bug fixes.)
5) In Noon Sight, corrected a problem where illegitimate values were allowed in Observed ZT of LAN.
6) In Sight Reduction, corrected rounding problem when calculating Tot GHA for star sights.
7) In Sight Reduction and Noon Sight, corrected a problem where limits on pressure were not enforced.
8) In Sight Planner View Visible Bodies, corrected a problem where the crosshairs pointer would disappear.
9) Corrected a typo and other minor problems in the Help.

What's new in Celestial Tools V4.2.0 (compared to V4.1.1)
Additions and changes:
1) Changed the name of the CTS/SOA tool to CTS/TR/SOA due to the addition of a feature to calculate the intended track given the vessel's heading and speed, the set and drift of the current, and leeway.
2) In Help, added information about how to use The Sailings to determine position from bearing and range to known object, and other minor changes.
3) In Sight Reduction and Noon Sight, changed the maximum sextant altitude degrees from 140 to 150.
4) In Sight Reduction, Show Ho corrections as Parameters, added augmentation (of semi-diameter) to parameters listed for the Moon.
5) In Sight Reduction, corrected a problem with the parallax of the Moon, which would occur if Show Ho corrections as Parameters were done before Show Ho Corrections as SR Form.
6) Other minor cosmetic changes.
Bug fixes:
1) In The Sailings, corrected a problem (created in V3.5.0) where "Clear But Use L2, Lo2 For New L1, Lo1" would cause program to crash.
2) In CTS/TR/SOA, corrected a problem where an incorrect CTS would be calculated when Wind from Starboard was used.
3) In CTS/TR/SOA, corrected a problem where the program would crash if 'Wind from' were left blank with a non-zero Drift Angle.
4) In Sight Reduction, corrected some formatting problems (created in V4.0.0) which occurred when certain options were selected.
5) In Sight Reduction Fix and LoC/NASR Fix, corrected a problem where the bearing and distance from the DR to the fix might be off a bit.
6) In Sight Reduction, corrected a problem where Ho would be incorrect under certain circumstances.

What's new in Celestial Tools V4.1.1 (compared to V4.1.0)
Bug fixes:
1) In Sight Reduction, corrected a problem (created in V4.0.0) where the Equation of Time would be incorrect if activated after a reduction for a planet.

What's new in Celestial Tools V4.1.0 (compared to V4.0.2)
Additions and changes:
1) Noon Sight can now calculate latitude and longitude without pre-calculating Time of LAN.
2) In Help, added information about changes to Nautical Almanac Increments and Corrections tables in 2002.
Bug fixes:
1) In Noon Sight, corrected a problem when the declination of the Sun was southerly (created in V4.0.0).
2) In Noon Sight, corrected a problem where the automatically generated Observed ZT of LAN would be incorrectly indicated as out of range if Manual ZD were selected.
3) In Noon Sight, corrected a problem in the Time of LAN calculation where the time would be correct but the calculation would be presented incorrectly under certain circumstances.
4) In Noon Sight, corrected a rounding problem with the d correction.
5) In Noon Sight, other minor cosmetic adjustments.
6) In Sight Planner, corrected a problem (created in V4.0.0) where the tool would not work properly with certain input combinations.
7) In Sight Reduction, corrected a problem (created in V4.0.0) where intercept would be incorrect if Ho was negative.

What's new in Celestial Tools V4.0.2 (compared to V4.0.1)
Bug fixes:
1) In Sight Averaging, fixed a problem (created in V3.4.0) where check boxes could not be unchecked.

2) In Sight Averaging, if a checked sight is completely deleted, the check box will now disappear when the Analyze button is pressed.
3) In Sight Averaging, corrected a formatting problem.
4) In Help, corrected formatting problems.

What's new in Celestial Tools V4.0.1 (compared to V4.0.0)
Additions and changes:
1) In Sight Reduction and Noon Sight, if IE off the arc (rdg.) is selected, an error message occurs if the degree value is zero. (Goes with the change in the way an index error off the arc reading is done starting with V4.0.0.)

What's new in Celestial Tools V4.0.0 (compared to V3.5.0)
Additions and changes:
1) In Sight Reduction, Noon Sight, and Sight Planner, improved the positional accuracy of all bodies. (This will be most noticeable in Sight Reduction.) Because of this, rounded rather than unrounded are summed to get a final answer, in order to avoid some "data display anomalies" of previous versions. (1.06 + 1.06 is now shown as 1.1 +1.1 = 2.2 rather than 1.1 + 1.1 = 2.1.)
2) In Noon Sight and Sight Reduction for a Sun sight, if "Show Ho as SR Form" is selected, the program will calculate the main altitude correction using the mean semi-diameter for the six months of the Nautical Almanac Altitude Correction Table for the Sun, to more closely match that table. If "Show Ho as Parameters" is selected, the program will calculate the main altitude correction for the date and time of the sight, as was done in previous versions.
3) In Noon Sight and Sight Reduction for a Sun sight, if the Greenwich year is from 1954 through 1969, a 1.2' irradiation correction will be added to the main altitude correction for an upper limb sight, to more closely match the Nautical Almanac Altitude Correction Table for the Sun for those years.
4) In Sight Reduction and Noon Sight, the way an index error off the arc reading should be entered has been changed to more closely match the way it is taught.
5) In Sight Planner, an improvement in the accuracy of the magnitudes of the planets.
6) In Sight Reduction, there is now a default body of Sun L.L.
7) In About, removed System Info, as it did not always work with Windows 7 and 8, and was not a requirement of the program.
8) Changed one of the required fonts, as it was no longer supplied starting with Windows 7.
9) Other minor changes.
Bug fixes:
1) In Noon Sight, corrected a problem in calculating time of LAN where the hour of the GHA of the Sun would be one hour too early when the longitude was near a time zone transition (but the time of LAN would still be correct because of the corresponding increase in the GHA difference). This problem was created in V3.4.1.
2) In Sight Reduction, corrected an error in Latitude by Altitude of Polaris in the calculation of the value of a1.
3) In Noon Sight, corrected the accepted range of Observed ZT of LAN when DST was being used.
4) In Noon Sight, added more error messages when incorrect Observed ZT of LAN values were entered.
5) In Sight Planner, corrected a rounding error that could have caused the phase of the Moon to be low by 1%.
6) In Sight Planner, corrected a problem in View Visible Bodies where the formatting would be incorrect when changing any of the check boxes the first time after activating a Best Bodies Aid.
7) In CTS/SOA, corrected a problem where an error would be generated when the Clear button was pushed.
8) In Sight Planner, corrected a problem where, under certain circumstances, a solar phenomenon would be incorrectly shown as not occurring. (This problem was not completely solved in V3.4.1.) When this occurred, the Day/Twilight/Night caption would also be incorrect.
9) In Sight Reduction and LoC/NASR, corrected a problem where fixes would be incorrect if more than ten sights were saved.

What's new in Celestial Tools V3.5.0 (compared to V3.4.2)
Additions and changes:
1) In CTS/SOA, leeway is now included as part of the calculation.
2) In CTS/SOA, added a Clear button.
3) In The Sailings, drift angle can now be calculated in one step using the set and drift tool.
4) In The Sailings, Set and Drift, if elapsed time is not entered set is still calculated, but drift is not.
5) In Sight Reduction and Noon Sight, changed the default dip short distance unit from feet to yards.
6) In The Sailings, Mid-Latitude, minutes of "Use this mid-latitude for CLS SAPS plot" changed to drop-down list.
7) Made slight improvement in the positional accuracy of the stars.
8) Other minor cosmetic changes.
Bug fixes:
1) In Interpolation, Sexagesimal-to-Decimal Converter, fixed a problem where, if the Angle format was set to DMS, nothing could be entered in the minutes box.

What's new in Celestial Tools V3.4.2 (compared to V3.4.1)
Bug fixes:
1) In Noon Sight, corrected a problem in the "more efficient" ZT of LAN calculation of V3.4.1, which would fail if the Equation of Time was positive.

What's new in Celestial Tools V3.4.1 (compared to V3.4.0)
Additions and changes:
1) In Sight Planner Help, added a comment about an occasional one-minute discrepancy when switching from Auto ZD to Manual ZD.
2) In Noon Sight, improved the efficiency of the ZT of LAN calculation (transparent to user).
Bug fixes:
1) In Sight Planner, corrected a problem where the Daylight, Twilight, or Night message might be incorrect if Manual ZD is used.
2) In Sight Planner, corrected a problem where, under certain circumstances, a solar phenomenon would be incorrectly shown as not occurring.
3) In Sight Planner, Sight Reduction, and Noon Sight, corrected several problems which occurred when Manual ZD was used.

What's new in Celestial Tools V3.4.0 (compared to V3.3.0)
Additions and changes:
1) In Sight Reduction and LoC/NASR, added Meridian Diagram tool.
2) In The Sailings, Great Circle, Points on Great Circle now also calculates rhumb line course and distance from point to point and total rhumb line distance.

3) Minor cosmetic changes.
Bug fixes:
1) In Sight Planner, the Daylight, Twilight, or Night message, if present, now disappears when the "Get Twilight Times…" button is pressed.
2) Printing now works on Windows Vista, Windows 7, and Windows 8, without any work-around.
3) In Help, changed Arc⇔Time to Arcs and Times.

What's new in Celestial Tools V3.3.0 (compared to V3.2.1)
Additions and changes:
1) CTS/SOA now also calculates the speed through water required to achieve the planned cruising speed (over ground).
2) In CTS/SOA, eliminated the message if desired course could not be achieved. (SOA is shown as negative.)
3) Arc<=>Time is now called Arcs and Times and now also does LMT-ZT conversions.
4) LoC/NASR now also does negative altitude sights.
5) Slight change to the calculation of refraction.
6) In Sight Planner, improved the accuracy of the body positions in View Visible Bodies.
7) In Sight Planner, the desired ZT for body visibility now has to be entered. The warning when the desired ZT is left blank has been replaced by a box telling whether the entered time was during daylight, during twilight, or at night. (Intended to help catch input errors.)
8) Some cosmetic changes.
9) Slightly decreased the size of the executable.
Bug fixes:
1) In Sight Planner View Visible Bodies, corrected a problem where checking or unchecking Show Names immediately after setting Three-body fix (beach) would misalign the displayed data. (Existed since V3.1.0.)
2) In CTS/SOA, removed the T (true) from Desired Course and Set, so they are consistent with the description in the Help.
3) Corrected errors in Distance by Two Bearings.
4) In Favorite Places, dip short distance is no longer editable.
5) In 60D=ST, corrected a tool tip text.
6) In Sight Reduction and Noon Sight, corrected a problem where "Dip short distance exceeded distance to natural horizon…" appeared at incorrect times.
7) Added missing scroll bar to MoBoard Help.
8) In The Sailings, Mid-latitude, corrected a problem where the "Unacceptable mid-latitude…" message could appear twice.

What's new in Celestial Tools V3.2.1 (compared to V3.1.1)
Additions and changes:
1) In Sight Reduction and Fix Help, added descriptions of how to include a Noon Sight in the list of sight saved for a fix, in order to establish a running fix.
Bug fixes:
1) In LoC/NASR and Fix, corrected a problem for NASR where incorrect values of DR-LOP distance and EP were calculated for DR south of the AP and Zn north.
2) In LoC/NASR, corrected a problem where too many digits were allowed in Ho degrees.

What's new in Celestial Tools V3.2.0 (compared to V3.1.1)
Additions and changes:
1) In LoC/NASR and Fix, DR-LOP distance and EP are now calculated for NASR.
2) Some cosmetic changes in Help and other places.
Bug fixes:
1) In LoC/NASR and Fix, corrected a problem with the value of P in NASR.
2) In LoC/NASR and Fix, sights with and without times can no longer mixed when doing a LoC fix.

What's new in Celestial Tools V3.1.1 (compared to V3.1.0)
Bug fixes:
1) In Sight Averaging, corrected a problem where program crashed when entering a decimal point.
2) In Sight Planner, corrected a problem where moonrise and moonset times were wrong for east longitudes.

What's new in Celestial Tools V3.1.0 (compared to V3.0.0)
Additions and changes:
1) In Sight Planner View Overhead and View "Star Finder", added Best Bodies Aid, a graphical aid for determining the bodies with the best cuts for two-body and three-body fixes.
2) In The Sailings, Great Circle, added Points on Great Circle Route tool.
3) In The Sailings, Great Circle, added ability to find destination latitude and longitude from departure latitude and longitude, initial course, and distance.
4) In The Sailings, Great Circle, added calculation of final course.
5) Reconfigured the Distances tool and added three distance by vertical angle calculators.
6) In Distances, Height of Object can no longer be entered in inches or centimeters.
7) In Length of Degree, changed output values from two to three decimal places for nautical miles and statute miles and from two to zero decimal places for feet and meters, to match Bowditch 2002 Table 7.
8) In Distances, improved the statute mile output of Distance of the Horizon and Geographical Range of Visibility.
9) In The Sailings, Mercator, meridional parts are now expected to match Bowditch 2002 Table 6.
10) In The Sailings, the maximum latitude input for Great Circle has been changed from 89º59.9' to 90º.
11) In The Sailings, default for rhumb line sailings changed from Destination L and Lo to Course and Distance.
12) In The Sailings, maximum distance has been changed from 9999.9 nm to 10800 nm.
13) Various additions and changes in the Help.
14) Other minor cosmetic changes.
Bug fixes:
1) In The Sailings, when switching from Great Circle to any of the other sailings, the function no longer remains on Course and Distance, but switches back to the function for which it was previously set.

2) In the Sailings, corrected other problems when switching sailings and functions.
3) In Sight Planner, cursor no longer remains as plus sign when changing from View Visible Bodies to other functions.
4) In The Sailings and Distance by Two Bearings, Run Time 0h00m is no longer displayed if times are not entered.
5) Corrected a problem where the individual Helps for TVMDC and Yellow Pages would not print.
6) Corrected a condition where certain forms that were moved would snap back to center screen when reactivated.

What's new in Celestial Tools V3.0.0 (compared to V2.8.1)
Additions and changes:
1) In Sight Reduction and Noon Sight, v and d values and corrections are now shown.
2) In Yellow Pages, added tool tip text to v or d input box.
3) Reconfigured Sight Reduction tool in order to maintain 600 pixel height (to accommodate smaller netbooks).
4) Noon Sight now shows steps in determining zone time of LAN by GHA method.
5) Reconfigured Noon Sight tool to be similar to reconfigured Sight Reduction tool.
6) In MoBoard, added the capability of calculating true wind from apparent wind.
7) Added Distance by Two Bearings tool.
8) In Sight Reduction, made a slight improvement in accuracy for the Moon main altitude correction for high latitudes and altitudes greater than 60º.
9) Reconfigured Help>General>Accuracy so that data associated with a specific tool is under the Help for that tool.
10) In all Help topics, moved the accuracy information from Operation to a new Accuracy/Resolution paragraph under each topic (where applicable).
11) In the Help, changed the GHA accuracy specification for the Sun, Moon, and stars from 0.3' to 0.4'.
12) Added a Clear button to the LoC/NASR tool.
13) Other minor and cosmetic changes and minor changes to the Help.
Bug fixes:
1) In Sight Reduction, corrected a problem where EP Lo was cut off when doing Latitude by Altitude of Polaris.
2) In Sight Reduction and LoC/NASR, corrected some problems when DR latitude was 0º.
3) In Sight Reduction and Noon Sight, corrected a problem with the altitude calculation if a dip short distance that exceeded the distance to the natural horizon were used. (Problem existed since V1.9.0.)
4) In Sight Reduction and Sight Planner, corrected an error in the calculation of the position of Saturn, resulting in a slight accuracy improvement..
5) In MoBoard, corrected a potential data entry error and added other error traps.
6) Fixed a few typos and errors in the Help.

What's new in Celestial Tools V2.8.1 (compared to V2.80)
Bug fixes:
1) In The Sailings, Mid-Latitude Sailing, Calculate Destination L and Lo, corrected a condition where an "Unacceptable mid-latitude" error would be generated with an acceptable mid-latitude selected.

What's new in Celestial Tools V2.8.0 (compared to V2.7.2)
Additions and changes:
1) Added a "Yellow Pages" (Increments and Corrections) tool, which can be entered "forwards" or "backwards".
2) Added "Accurate Rhumb Line" sailing to The Sailings (method used in Visual Passage Planner 2).
3) Added Maneuvering Board tool.
4) Minor additions and changes to the Help.
5) Made a slight theoretical improvement to the accuracy of refraction in Sight Reduction and Noon Sight.
6) In The Sailings, Mid-Latitude, changed and added error messages.
7) In The Sailings, Mid-Latitude, added "SAPS" after "CLS" in "Use this mid-latitude for CLS plot", only allowed it to be used for a 1ºx1º CLS SAPS, and put an upper limit of 55º on it (maximum for CLS SAPS).
8) In The Sailings, L1, L2, and Fix L are limited to 89º59.9' for Mercator and Great Circle (and "Accurate Rhumb Line"), 84º59.9' for Mid-Latitude.
9) In 60D=ST, increased the distance limit from 999.0 nm to 9999.9 nm, time limit from 9 hours 59 minutes (599 minutes) to 999 hours 59 minutes (59999 minutes).
10) In Length of Degree, eliminated Calculate button. Outputs are updated as inputs are changed.
11) In Sight Reduction and Noon Sight, if "Show Ho corrections as Parameters" is selected, refraction, parallax, and semi-diameter are shown to three decimal places instead of just one.
12) In Sight Planner, changed appearance of "Blank ZT defaults to 0000…" message.
13) In The Sailings, when switching from one sailing to another, all inputs are retained for ease in making comparisons. When switching from one function to another, all inputs are cleared. (This also corrected a bug.)
14) In CTS/SOA, eliminated choice of True/Magnetic/Compass, and added explanation to Help.
15) In The Sailings, Mid-Latitude, eliminated red background for unacceptable (not out of range) selected mid-latitude.
16) On the Menu, changed the keyboard shortcut for About.
Bug fixes:
1) Corrected a condition in Sight Planner where moonrise, moonset, and moon phase data would vanish when using "View Visible Bodies" and the "View" or "View toward" values are changed.
2) Corrected a problem in TVMDC where a runtime error would be generated under certain conditions.
3) In Sight Reduction and Noon Sight, corrected the year of the Nautical Almanac refraction table change from 2005 to 2004.
4) Corrected a condition where, if the Sight Reduction window were moved, it would go back to center screen when a calculation was done.
5) In Sight Planner, the message "Blank ZT defaults to 0000…" no longer appears if 0000 is intentionally entered for ZT.
6) In The Sailings, corrected a condition where Log1 and Log2 would not be cleared when "Clear But Use…" button was pressed.
7) In The Sailings, corrected a condition where some improper values could be entered.
8) In The Sailings, Mid-Latitude, corrected the way that an acceptable selected mid-latitude is determined.

What's new in Celestial Tools V2.7.2 (compared to V2.7.1)
Additions and changes:
1) Added the option to print individual Help topics in addition to the entire Help.
2) Changed the information about moving vessels in the Noon Sight Help.
Bug fixes:

1) Corrected a condition in Sight Reduction and Noon Sight where artificial horizon sights were limited to an apparent altitude (before division by two) of 89º59.9'
2) In Sight Planner, corrected the moon rise/set/phase data.

What's new in Celestial Tools V2.7.1 (compared to V2.7.0)
Bug fixes:
1) Corrected a condition where, if a Favorite Place were selected, Celestial Tools would still be running in the background, using memory, even after all of its windows were closed. (A similar problem was corrected in V2.0.0, but was unintentionally "uncorrected" in V2.4.0.)

What's new in Celestial Tools V2.7.0 (compared to V2.6.0)
Additions and changes:
1) Added a moonrise, moonset, Moon phase tool to Sight Planner.
2) In Sight Planner/Sun-Moon Fix, changed from average phase to "from…to" range.
3) Added azimuths of sunrise and sunset to Sight Planner.
4) Made startup position of the Menu the center of the screen instead of upper left corner.
Bug fixes:
1) Corrected a typo in Help.
2) Added "minimum altitude" to Sun-Moon Fix Help.
3) Eliminated some extraneous text from the upper left corner of the Sight Planner form.
4) In LoC/NASR, improved alignment of a (intercept) display in LoC.
5) Made a theoretical improvement in the accuracy of Sight Planner.
6) In Sight Reduction, moved Establish Fix button (and Save for Fix button) so it didn't obscure data in Latitude by Altitude of Polaris.
7) Fixed errors, typos, and inconsistencies in Help.

What's new in Celestial Tools V2.6.0 (compared to V2.5.2)
Additions and changes:
1) Added a length of a degree of longitude and latitude calculator.
Bug fixes:
1) Corrected a problem where some Helps could be edited.
2) Corrected a problem where, in several areas, under certain circumstances a decimal point could not be entered where required

What's new in Celestial Tools V2.5.2 (compared to V2.5.1)
Bug fixes:
1) The problem corrected in V2.5.1 was not corrected for all cases but is now.

What's new in Celestial Tools V2.5.1 (compared to V2.5.0)
Bug fixes:
1) Corrected a problem in CTS/SOA where warning message would appear under Calculate button.

What's new in Celestial Tools V2.5.0 (compared to V2.4.0)
Additions and changes:
1) Printed outputs are now centered on the page, instead of in the upper left corner, primarily for hole punching purposes.
2) In Noon Sight module, added ability to use actual time of LAN sight for latitude calculation.
3) Added Longitude from observed ZT of LAN to Noon Sight module.
4) Added information about getting longitude from time of meridian transit to Help.
5) Changed keyboard shortcut of Get ZT of LAN in Noon Sight module.
Bug fixes:
1) Corrected a problem where certain modules would return to center-screen after being moved.
2) Made a slight improvement in the accuracy of the Noon Sight module.

What's new in Celestial Tools V2.4.0 (compared to V2.3.0)
Additions and changes:
1) Added 60D=ST module.
2) Added TVMDC module
3) In Help, added explanation of why Celestial Tools does not agree with the sun altitude correction in the Nautical Almanac.
4) In Distances, output is now expressed in statute miles in addition to nautical miles.
5) CTS/SOA can now be done in true, magnetic, or compass.
6) Startup positions for all modules are now in the center of the screen except the Menu, which is still in the upper left corner.
7) In Help, added a note about a minor flaw in some arc-minute data input boxes.
8) Made a slight improvement in the accuracy of the built-in almanac.
Bug fixes:
1) In Interpolation, cursor now starts in an input box instead of an output box.
2) Corrected a problem with V2.3.0 where, on computers running Windows 98 or Windows 95, closing any open Celestial Tools windows would generate an "out of memory" error, causing the entire program to close.
3) In Sight Reduction, corrected a problem where Height of Eye would appear in output for an Artificial Horizon sight.
4) Changed keyboard shortcuts in Menu and Help screens to eliminate redundancy and for consistency.

What's new in Celestial Tools V2.3.0 (compared to V2.2.0)
Additions and changes:
1) Added Distances module (distance to natural horizon and geographical range of visibility). Removed distance to natural horizon from Favorite Places + and named it Favorite Places again.
2) Added tool tip text to Height of Eye and Height of Object in Sight Reduction, Noon Sight, and Distances.
3) In Sight Reduction and Fix and LoC/NASR and Fix, added distance and bearing from DR to fix in fix routines.
4) In LoC/NASR and Fix, added the capability to do a fix from a moving vessel.

     5)   Added Interpolation (single and double) module, including a sexagesimal-to-decimal converter.

Bug fixes:
1)   Corrected a problem where if the computer being used was set for a language other than English, it was possible to get an "invalid date" message for valid dates. (This problem has existed since V1.9.3, when the invalid date feature was added.)
2)   Corrected formatting of Favorite Places Help.
3)   Corrected a problem in Fix routines where sometimes a fix could not be established even with valid sights.
4)   Corrected a problem in CTS/SOA where program would crash if Cruising Speed was zero.
5)   In LoC/NASR, corrected a problem in NASR where south declinations could be rounded incorrectly.

What's new in Celestial Tools V2.2.0 (compared to V2.1.1)
Additions and changes:
1)   Rhumb Line Tools has been changed to The Sailings, with the addition of Mercator Sailing and Great Circle Sailing.
2)   The 600 nm limit on mid-latitude sailing (the method used in Rhumb Line Tools) has been removed, so the results can be compared with those of Mercator sailing and Great Circle sailing. (Maximum is now 9999.9 nm.)
3)   The Help has been changed to explain the sailings.
4)   In Mid-Latitude Sailing, the value of minutes for "Use this mid-latitude for CLS plot" has been limited to 0, 10, 20, 30, 40, or 50.
5)   Relocated startup positions of windows.
6)   In The Sailings, course is now shown to two decimal places, instead of one, before rounding to whole degrees.
7)   Changed the name of the program on the Menu to reflect that the Canadian Power & Sail Squadrons is now using the USPS JN and N courses.
8)   Added a Course to Steer/Speed of Advance module.

Bug fixes:
1)   Added missing icon to Arc-Time Conversion.
2)   In The Sailings, corrected tool tip text for Log1 and Log2.
3)   Made Arc-Time Conversion and The Sailings so their window sizes could not be changed.
4)   In Sight Reduction, put EP L and EP Lo on same line and moved Save for Fix and Establish Fix buttons so entire window visible on 800x600 screen.
5)   Added minimize buttons to Arc-Time Conversion, The Sailings, Select Printer, About, and Credits.
6)   Added access keys to the command buttons in The Sailings and Credits.
7)   In LoC/NASR, corrected a situation in NASR where B, H, and Hc could have had minutes values of 60.
8)   In Sight Reduction and LoC/NASR (LoC function), if displayed value of intercept is 0.0, then Toward or Away is no longer displayed.
9)   In LoC/NASR (NASR function), corrected occasional error in displayed value of P.
10)   In LoC/NASR (NASR function), corrected calculation for DR Ls less than 0º29'.
11)   Corrected other error in Mid-Latitude Sailing.

What's new in Celestial Tools V2.1.1 (compared to V2.1.0)
Bug fixes:
1)   Corrected a problem where some displayed data would be erased if any window passed over it.
2)   Corrected typos and inconsistencies in Help.
3)   In Help, expanded the section on the known printer problem with Windows Vista and Windows 7.

What's new in Celestial Tools V2.1.0 (compared to V2.0.1)
Additions and changes:
1)   In Sight Planner, added ability to select minimum body altitude for Sun-Moon Fix.
2)   In Sight Planner, made some cosmetic changes.
3)   Added distance to natural horizon feature to Favorite Places.
4)   In Sight Planner Star Finder Data, added leading zeros to values less than one.

Bug fixes:
1)   Corrected typos and minor errors in Help.
2)   In Sight Planner, fixed a problem where if any of the initial input data is changed and List Visible Bodies/Sun-Moon Fix, View Visible Bodies, or Star Finder Data is pressed, the times of the Sun Rising and Setting Phenomena did not change.
3)   In Sight Planner, fixed a "subscript out of range" problem with Star Finder Data that could occur for particular combinations of date, time, and location. This problem existed since V1.9.4.

What's new in Celestial Tools V2.0.1 (compared to V2.0.0)
Bug fixes:
1)   In Rhumb Line Tools, "Clear But…" did not clear Time1 and Time2.
2)   Some of Rhumb Line Tools Help was not visible.
3)   Corrected typo in Rhumb Line Tools Help.

What's new in Celestial Tools V2.0.0 (compared to V1.9.4)
Additions and changes:
1)   Added Rhumb Line Tools (mid-latitude sailing) module

Bug fixes:
2)   Corrected problem where Arc-Time Help could be edited.
3)   Corrected a condition where Celestial Tools would still be running in the background, using memory, even after all of its windows were closed
4)   In Help, some buttons did not have shortcut keys.

What's new in Celestial Tools V1.9.4 (compared to V1.9.3)
Bug fixes:
1)   In Sight Planner, corrected time entry problem created in V1.9.3.

What's new in Celestial Tools V1.9.3 (compared to V1.9.2)
Additions and changes:
1)   In Sight Planner, added a warning if the ZT box is left blank (defaults to 0000).

Bug fixes:

1) In Sight Planner, Sight Reduction, and Noon Sight, corrected checking for invalid dates. Changed Help accordingly.
2) In LoC/NASR, corrected erroneous display of Dec hemisphere under certain conditions (calculation was correct).

What's new in Celestial Tools V1.9.2 (compared to V1.9.1)
Additions and changes:
1) In Arc-Time Conversion, changed the time output format from 12-34-56 to 12h34m56s.
Bug fixes:
1) In Arc-Time Conversion, corrected a situation where a converted time could be displayed improperly (e.g. 359º59.9' would be displayed as 23-59-60).

What's new in Celestial Tools V1.9.1 (compared to V1.9.0)
Bug fixes:
1) In LoC/NASR, corrected an error in the calculation of Corr2 in the NASR method.
2) In LoC/NASR, corrected an error where the degree sign fell out of the box for a three-digit value of F in the NASR method.

What's new in Celestial Tools V1.9.0 (compared to V1.8.3)
Additions and changes:
1) Added Sight Averaging module.
2) Added Arc-Time Conversion module.
3) In Sight Planner, added Sun-Moon fix availability calculation.
4) In Sight Reduction and Noon Sight, the number of characters that can be entered into the dip short distance box has been increased from four to five.
5) In Sight Reduction and Noon Sight, if the distance to the dip short horizon exceeds the distance to the natural horizon for the entered height of eye, the type of horizon automatically changes from dip short to natural.
6) In LoC/NASR, added "Estimated Position" (AP/EP – see Help) to NASR.
7) In LoC/NASR, added Fix to LoC; changed name to LoC/NASR and Fix.
8) Added Credits to About.
9) In Sight Reduction, added Estimated Position to Latitude by Altitude of Polaris.
10) Updated Help.
Bug fixes:
1) In Sight Reduction and Noon Sight, corrected some problems when switching hs/IE format.
2) In Sight Reduction, corrected problem where if you entered watch time box you could not leave it until a valid value was entered, even if nothing was entered.
3) Corrected some fifth decimal place rounding issues.
4) In LoC/NASR, corrected problem with Ho range limits not working properly.
5) In Noon Sight, corrected a formatting problem if dip exceeded 9.9'.
6) Made changes to help prevent entry of erroneous values.
7) In Sight Reduction and Sight Planner, corrected a problem where a negative manual ZD was treated as positive. (This problem existed in V1.7.0 through V1.8.3.)
8) In Favorite Places, corrected a problem where a Favorite Place with a dip short horizon caused an error.

What's new in Celestial Tools V1.8.3 (compared to V1.8.2)
Bug fixes:
1) In Loc/NASR, in the NASR method, the value of the minutes of Dec was displayed incorrectly for certain entered values of minutes of Dec.

What's new in Celestial Tools V1.8.2 (compared to V1.8.0)
Additions and changes:
1) Changed General Help to address the existence of Windows 7.
2) In General Help, simplified the description of and added more information about the known printer issue and its fix.
3) Other minor additions to General Help.
4) In LoC/NASR, added the choice of using the pre-1999/post-2004 or the 1999-2004 Nautical Almanac Auxiliary Table to determine corr1 and corr2 in the NASR method.
Bug fixes:
1) In LoC/NASR, corrected two erroneous NASR calculations, which occurred only for specific combinations of values.
2) In LoC/NASR, fixed erroneous display of minutes of Ho in LoC (calculation of a was correct).
3) In LoC/NASR and Sight Reduction, corrected a couple of other problems that would generally only occur with artificial sets of data that forced certain conditions.
4) In LoC/NASR, corrected an erroneous value of AsmLo in NASR when the DR Lo was east and DR Lo and GHA both had zero minutes.

What's new in Celestial Tools V1.8.0 (compared to V1.7.0)
Additions and changes:
1) Added a module to allow data extracted from the Nautical Almanac to be entered into Law of Cosines and Nautical Almanac Sight Reduction forms directly, giving the same results as a manual reduction.
2) Changed Help to reflect this addition.
Bug fixes:
1) In Sight Reduction and Fix, corrected some text alignment problems.

What's new in Celestial Tools V1.7.0 (compared to V1.6.0)
Additions and changes:
1) In Sight Reduction, added a button in the Time Diagram to show the mean sun for sun sights and the apparent sun for all other sights, and the Equation of Time.
2) Changed Help to reflect this addition.
Bug fixes:
1) In Sight Reduction, fixed incorrect EP L for southern latitudes and incorrect EP Lo for eastern longitudes.
2) In Sight Planner, fixed incorrect twilight times for eastern longitudes. (This was incorrect only in V1.6.0.)

What's new in Celestial Tools V1.6.0 (compared to V1.5.2)
Additions and changes:
1) Daylight Savings Time can now be included with a check box rather than as part of a manual zone description.
2) Printing can be done to any available printer, not just to the Windows default printer.
3) Changed Help to reflect changes.
Bug fixes:
1) Corrected problems with negative zone descriptions and zone descriptions with minutes.

Known issue: This and previous versions did not print properly under Windows Vista if the Windows Vista theme with the Aero color scheme was being used. See the Help for a solution.

What's new in Celestial Tools V1.5.2 (limited public distribution) (compared to V1.5.1)
Additions and changes:
1) Off the arc index error can be entered either as read from the sextant or as the calculated value.
2) Tool tip text for hs/IE format corrected to show both sextant altitude and index error.
3) In Noon Sight latitude computation, the value of Z was changed from 90°00.0' to 89°60.0'.
4) Changed Help to reflect changes and made some clarifications.
Bug Fixes:
1) Corrected a problem where index errors off the arc in whole degrees (zero minutes) gave an incorrect index correction.

What's new in Celestial Tools V1.5.1 (compared to V1.5.0)
Additions and changes:
1) Index error is now always entered as read from the sextant, so if it is off the arc the user does not have to subtract – the program performs the necessary calculations.
2) Changed Help to reflect bug fixes and changes.
Bug Fixes:
1) In Sight Reduction and Noon Sight, if hs format DMS is selected, that format is made available to index error in addition to sextant altitude.

What's new in Celestial Tools V1.5.0 (compared to V1.4.1(a))
Additions and changes:
1) In Sight Planner, added option to view "helper" stars.
2) In Sight Planner, changed horizon view from 360 degrees to 180 degrees azimuth and scaled altitude and azimuth equally, to reduce distortion.
3) Changed Help to reflect these changes.
4) Added additional details to Help.
5) Changed format of Help – now five separate files.
Bug Fixes:
1) In Sight Planner Star Finder Data, corrected a situation where in certain angles 60 minutes would not become zero and increase degrees by one.

What's new in Celestial Tools V1.4.1(a) (compared to V1.4.0)
Additions and changes:
1) Changed Help to reflect printing bug fix.
Bug Fixes:
1) Printing now works with "trouble" devices, e.g. HP All-In-Ones.
2) In Sight Planner, "Star Finder" view was incorrect when viewing toward east or west.

What's new in Celestial Tools V1.4.0 (compared to V1.3.0)
Additions and changes:
1) In Sight Planner, option of a "horizon view" of the visible bodies.
2) In Sight Planner, the ability to rotate the Overhead and "Star Finder" views.
3) Changed Help to reflect these changes.

What's new in Celestial Tools V1.3.0 (compared to V1.2.0)
Additions and changes:
1) In Sight Planner, options to view the visible bodies as they appear from inside or outside the celestial sphere.
2) In Sight Planner, the option to limit the azimuth range of the visible body display.
3) Changed Help to reflect additions, changes, and bug fixes.
Bug Fixes:
1) In Noon Sight, fixed the DR latitude data entry (cosmetic only, bug created in V1.2.0).

What's new in Celestial Tools V1.2.0 (compared to V1.1.1)
Additions and changes:
1) In Sight Planner, an option to view the visible bodies as they appear in the sky, not just as a list.
2) In Sight Planner, if latitude, longitude, or time zone is changed, activating List Visible Bodies, View Visible Bodies, or Star Finder Data automatically updates twilight times, visible bodies list, visible bodies view, and star finder data. It is no longer necessary to activate Get Twilight Times first.
3) Additional error checking for latitude and longitude inputs.
4) In Sight Planner, "Pertinent Data" was changed to "Star Finder Data".
5) Changed Help to reflect additions, changes, and bug fixes.
Bug Fixes:
1) In Sight Planner, a latitude of 90º caused the program to crash.

What's new in Celestial Tools V1.1.1 (compared to V1.0.6)
Additions and changes:

1) An option to display the corrections going from ha to Ho as either the actual parameters (refraction, parallax, semi-diameter - the way it was in previous versions) or as a Sight Reduction form (Main, Add'l, etc.), with the latter being the default.
2) In Sight Planner, the values used for the magnitudes of the stars is a function of the Greenwich year of the sight. (The Nautical Almanac changed the star magnitude values in 2006.)
3) In Sight Reduction and Noon Sight, the formula used to calculate refraction is a function of the Greenwich year of the sight. (The Nautical Almanac changed refraction values in 2004.) This also affected the Moon tables.
4) Improved positional accuracy of the bodies, particularly the Moon.
5) Latitude by Altitude of Polaris is now done using the full method of the Nautical Almanac, showing approximate (within 0.2') values of all three corrections, in addition to the direct (accurate) method of previous versions. If Polaris is selected, Latitude by Altitude of Polaris replaced Full Reduction as the default method.
6) Eliminated EP L and EP Lo from Latitude by Altitude of Polaris.
7) An expanded Favorite Places. In addition to latitude, longitude, and azimuth range, the type of horizon (natural, artificial, or dip short), and dip short distance (if dip short horizon) can also be saved. Unfortunately, lists of Favorite Places made using previous versions of Celestial Tools (including betas dated before 9/30/2006) will not work properly and will have to be re-entered (see Help).
8) In Noon Sight, eliminated N or S from l diff.
9) Changed Help to reflect additions and bug fixes.

Bug Fixes:
1) In Noon Sight, if "sun was to north" or "sun was to south" was selected for "At LAN (select one)", an S or an N would appear after the refraction value. (This was purely cosmetic and did not affect the calculations.)
2) Under certain conditions, Celestial Tools would still be running in the background, using memory, even after all of its windows were closed. Specifically, if a favorite place was selected in Favorite Places, but any of Sight Planner, Sight Reduction and Fix, or Noon Sight modules were not used, the unused module(s) would still be running invisibly after all visible windows had been closed.
3) In Sight Planner/Pertinent Data (Star Finder Data in V1.2.0) data display section, there was no space between the month and the year in the date.
4) In Sight Reduction, if no latitude was entered (which is accepted as zero degrees) and a manual zone description was entered, UT would be calculated incorrectly. (ZD was displayed properly in the data display part of the form, but was treated as zero.)
5) The background of the Sight Planner, Sight Reduction and Fix, and Noon Sight modules was changed from gray to white to conserve printer ink or toner. The method used to change the background to white only during printing in previous versions could not be made to work for all printers.
6) In Sight Reduction and Noon Sight, the incorrect calculations for altitudes near zero has been fixed.
7) In the LHA box of Sight Reduction, "W" or "E" did not appear after Lo value.
8) Corrected several problems with dip short calculation.
9) Various data entry cleanup items.

Celestial Tools V1.0.6 was the first publicly distributed version.
Note: The size of the executable file has increased from 668K (v1.0.6) to 3376K, but the zipped file is only 720K.