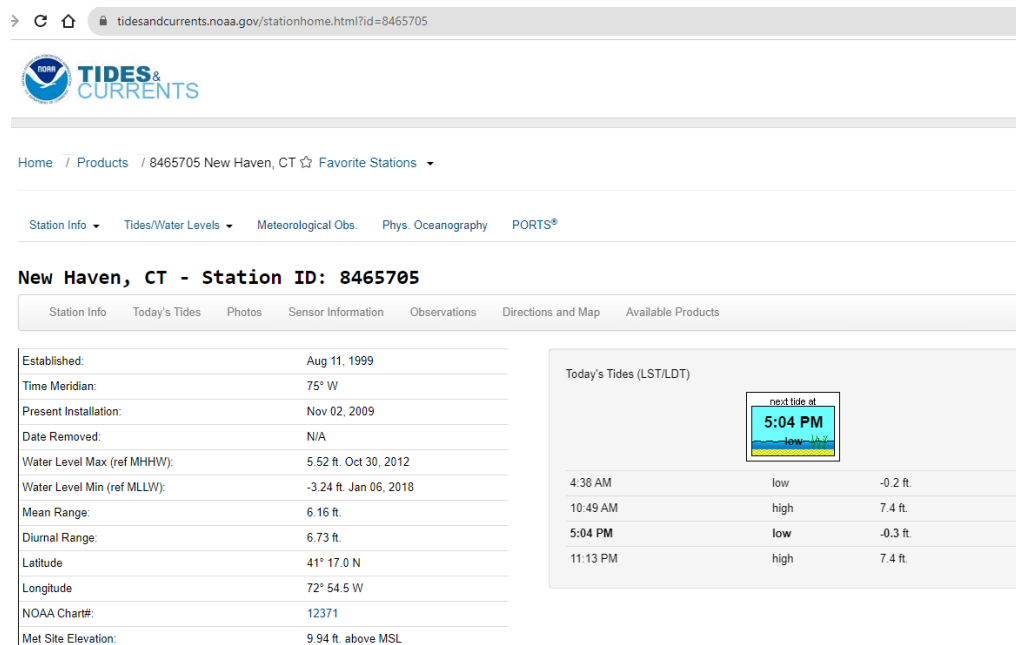




Manual Tides

By Ken Aiken

In HYPACK we have a few ways of handling tides including RTK, manual entry in survey, tide drivers, and tidal zoning. But one of the simplest and easy to use options is the Manual Tides program. This allows you to create either a single or multi-day tide file for use with HYPACK® SURVEY, or for bringing into SBMAX or MBMAX for editing.



The first step is to get your tide data. This is as simple as searching for the tides of the town you are working in to obtain the high and low tide values for that day. That is the minimum amount of information you will need, and this information allows you to use the Min/Max interpolation. Note that the tides from Manual Tides will only be valid between those times, so you may need tide values from the previous or next day as well. Otherwise, you can enter in several tides from a tide chart and use Linear or Spline Interpolation depending on how frequent your values are. HYPACK(R) uses the interpolation you choose to create minute by minute tides, so it is important to make sure the graph represents the tides well.

ENTERING TIDES INTO MANUAL TIDES

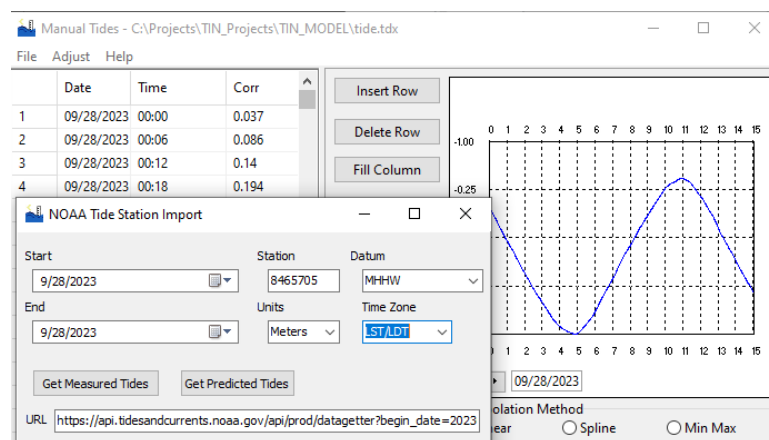
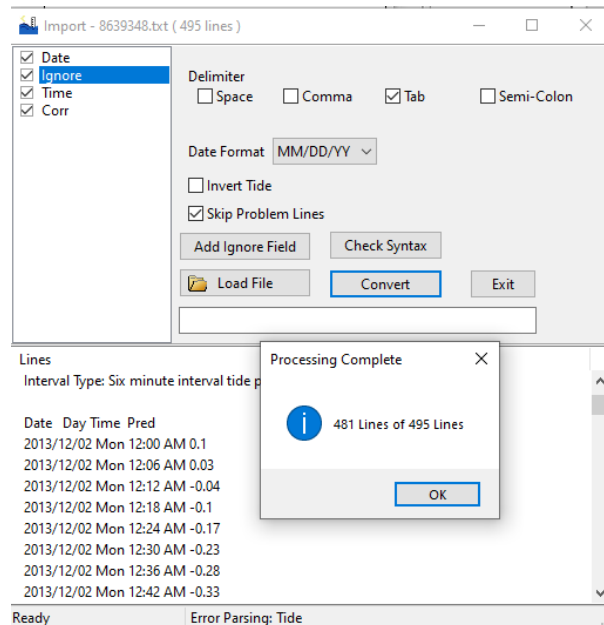
Entering tide data is easy in Manual Tides. First open the Manual Tides program from the HYPACK Shell by clicking Processing -> Tides -> Manual Tides. When typing in the date, the Manual Tides table will auto fill the current year. Time is entered in a 24-hour format, and the

table will automatically add the colon (:) for you. Tides are inverted in HYPACK, so make sure you enter the correct values. You can enter dates in either DD/MM or MM/DD format, and make this selection by clicking File -> Date Format. Selecting a different date format will automatically change the format of the existing dates.

There are a few additional functions that make entering and editing tides in the table easier. Click [Insert Row] and [Delete Row] to add or remove missing tides. [Fill Column] fills all corrections (Corr) below the currently selected correction with the same value for each row that has a time value. [Auto Time] quickly fills in a series of dates and times at a set time increment.

IMPORTING TIDES

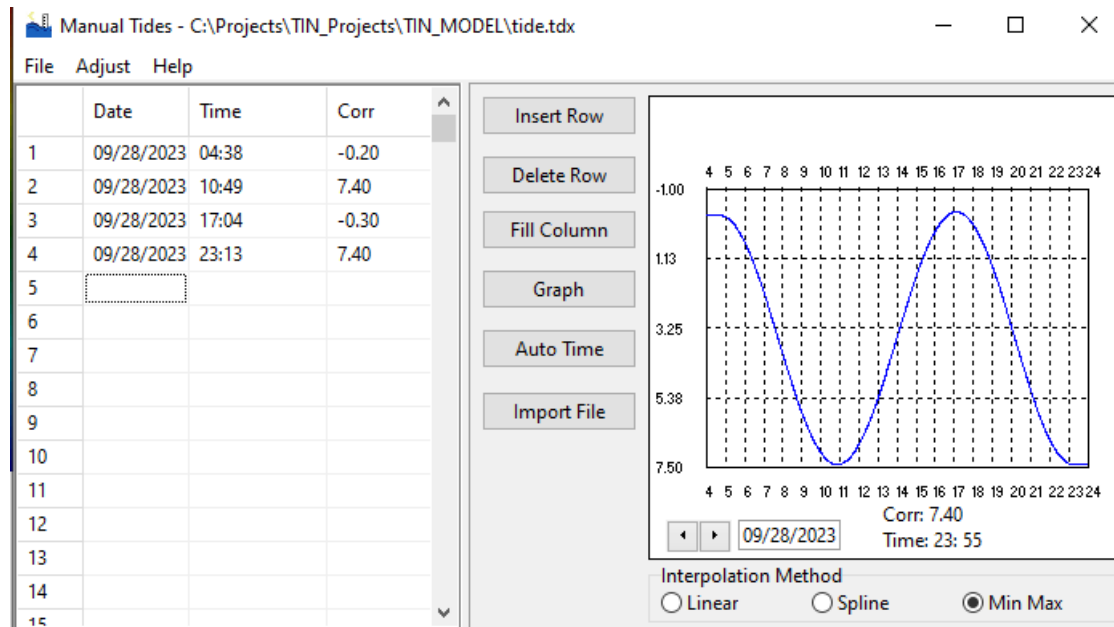
If you have a text file either from your tide service or from copying and pasting from a web page, you can easily import this file instead of manually typing in the values. Click [Import File] to open the Import dialog, which looks very similar to the Import dialog for the Border and Line Editors. The first step is to click [Load File]. This will populate the bottom area with lines from the text file. If the file has a header area, check "Skip Problem Lines" to skip them since Manual Times will be unable to parse the header. If any lines are accidentally parsed, you can use [Delete Row] to remove them. It is hard to see delimiters like tabs in the file display, but clicking on the lines will populate the edit field below [Load File] and make it easier to see them. Drag the Date, Time, and Corr items on the left side to match the data order in the file, making sure to check the items. You can add more Ignore items to the list if required by clicking [Add Ignore Field]. Make sure to also check which delimiter the file is using. In this example file, each line contains data for date, day of the week (Ignore), time (it can handle AM/PM), predicted tide (Corr), all separated by tabs as the delimiter.



Alternatively, if you are in the US and connected to the internet, you can use the station ID to import tides directly from NOAA's Tides & Currents from within Manual Tides. Click File -> NOAA Tide Station Import to launch a dialog allowing you to fetch either measured or predicted tides from the Tides and Currents API. These values will overwrite the current values

already in Manual Tides, allowing you to first fetch Predicted Tide and then Measured Tides if getting tides for both the future and past. You can get up to 31 days of tides at once as limited by their API. You can look up the station ID on NOAA's Tide and Currents site at <https://tidesandcurrents.noaa.gov/>, however be sure the station has tides. They allow for a wide range of datums to use. For time zones, they support Greenwich Mean Time (GMT), Local Standard (LST), as well as Local Standard/Daylight Time (LST/LDT).

INVERTING TIDES



Here you can see I've entered the tides from the previous image into Manual Tides and made the most common mistake of forgetting to invert the tide values. HYPACK uses inverted tides so everything can just be added together. This is easily fixed by going to the menu and clicking Adjust -> Invert Tides.

OTHER ADJUSTMENTS

In addition to Invert Tides under the Adjust menu, there are a few other options. Adjust Time allows you to adjust the time by entering a time offset in minutes. Adjust Magnitude allows you to apply a multiplier to your correction values, which is useful for converting between units. Magnitude Offset allows you to adjust the tide's magnitude (correction value) by fixed offsets, which is useful if working east or west far from the tide station, or when working with known offsets.

