

Survey distance calculation (T10)

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The [Survey Distance Calculator](#) calculates the total distance travelled in one or more surveys, based on the flight data recorded. You can use the results for accounting purposes.

You can choose which parts of the surveys to include in the calculation according to survey, flight and traverse line numbers. INTREPID will graphically display flight paths of the selected data if required.

You can choose whether to calculate the distance accurately from point to point or assume that each traverse line is approximately straight and use the end points of the traverse lines.

If you are processing unprojected data (data with geographical coordinates— latitude and longitude), you can specify the average height of the survey above the datum for the purposes of the calculation.

Projections and measurement units

If the data is projected, INTREPID assumes that it has already been transformed into a suitable coordinate system with distances in metres. It therefore does not transform the input data and calculates distances by simply integrating along each individual traverse line. The resultant distances will naturally depend on the projection used.

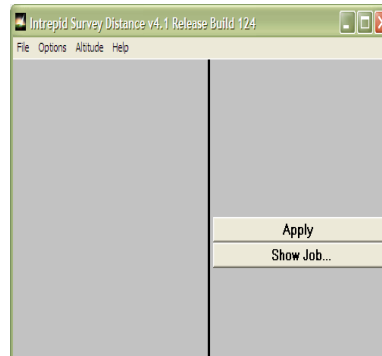
If the data is unprojected, INTREPID assumes that its location data has geographic coordinates (latitude and longitude) relative to the AGD84 datum. INTREPID calculates all distances along the surface of the AGD84 ellipsoid using Robbin's formula. INTREPID allows for a nominal height of the survey area above the datum.¹

1. The current version of INTREPID can only calculate survey distance for unprojected data in geographic coordinates relative to the AGD84 datum. If your unprojected data has a different datum, you must transform it to AGD84 before using this tool. INTREPID cannot calculate survey distance for unprojected data in metres (i.e., data with projection **RAW**). If you regularly process unprojected data which is 'raw' or has a different datum, we can customise the tool for you. Please contact our technical support service for further information.

Using the Survey Distance Calculator tool

>> *To use the Survey Distance Calculator with the INTREPID graphic user interface*

- 1 From the **Utility** menu in the **Project Manager**, choose **Survey Distance Calculator**, or use the command **sdist.exe**. INTREPID displays the Survey Distance Calculator tool.



- 2 If you have previously prepared file specifications and parameter settings for **Survey Distance Calculator**, load the corresponding task specification file using **Load Options** from the **File** menu. (See [Specifying input and output files](#) for information about specifying files). If all of the specifications are correct in this file, go to step 9. If you wish to modify any settings, carry out the following steps as required.
- 3 Specify the dataset to be processed. Use **Open Input Dataset** from the **File** menu. (See [Specifying input and output files](#) for information about specifying files).
- 4 Specify the report output file if required. Use **Specify Output Report** from the **File** menu. (See [Specifying input and output files](#) for information about specifying files).
- 5 Specify the traverse lines you wish to include in the calculation. Choose **Select Lines** from the **Options** menu and complete the **Traverse Line Ranges** dialog box. (See [Selecting the traverse lines to include in the calculation](#) for details).
- 6 Select whether to perform the calculation in Accurate mode (point to point measurements) or Standard mode (whole line measurements). Use **Accurate** from the **Options** menu (See [Specifying the precision of the distance calculations](#) for details).
- 7 Select whether to display the flight paths of the traverse lines as they are processed. Use **Plot Flight Path** from the **Options** menu. (See [Graphic display of the flight paths calculated](#) for details).
- 8 If you are processing unprojected data, specify the average height of the survey above the datum. Use **Altitude** from the **Altitude** menu. (See [Specifying the average survey height](#) for details).
- 9 When you have made specifications according to your requirements, choose **Apply**. INTREPID will perform the calculation.
- 10 If you wish to record the specifications for this process in a task specification (**.job**) file in order to repeat a similar task later or for some other reason, use **Save Options** from the **File** menu. (See [Displaying options and using task specification files](#) for detailed instructions.)

11 If you wish to repeat the process, repeat steps 2–10, varying the specifications as required.

12 To exit from **Survey Distance Calculator**, choose **Quit** from the **File** menu.

To view the current set of specifications choose **Show** from the **Survey Distance Calculator** window. INTREPID displays them in a separate window. See [Displaying options and using task specification files](#) for details and an example of a set of specifications.

You can view Help information by choosing options from the **Help** menu (See [Help](#)).

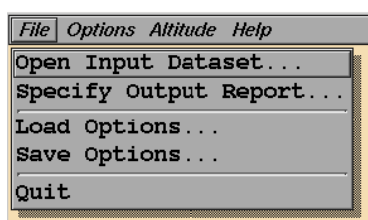
You can execute **Survey Distance Calculator** as a batch task using a task specification (**.job**) file that you have previously prepared. See [Displaying options and using task specification files](#) for details.

Specifying input and output files

To use **Survey Distance Calculator**, you will need to specify:

- The line dataset whose distance is to be calculated,
- The file name for the report if you wish to save it.

Choose the options as required from the **File** menu.



In each case INTREPID displays an **Open dialog** box. Use the directory and file selector to locate the file you require. (See ["Specifying input and output files" in Introduction to INTREPID \(R02\)](#) for information about specifying files).

Vector dataset notes: INTREPID will identify fields for the process from the dataset aliases. The dataset must have the following aliases identifying appropriate fields.

Alias	Field
X	X coordinate (location)
Y	Y coordinate (location)
LineNumber	Line number field
FlightNumber	Flight number field

See ["Vector dataset field aliases" in INTREPID database, file and data structures \(R05\)](#) for more information about aliases.

Open Input Dataset Use this to specify the line dataset for the data you wish to process. INTREPID uses the dataset aliases to determine the field names for the X,Y (location) data (See ["Vector dataset field aliases" in INTREPID database, file and data structures \(R05\)](#) for details).

Specify Output Report INTREPID creates a report of the calculation. You can instruct INTREPID to save the report by specifying a file name for the report. (See [Survey Distance Calculator reports](#) for more information about the report).

Load Options If you wish to use an existing task specification file to specify the survey distance calculation, use this menu option to specify the task specification file required. INTREPID will load the file and use its contents to set all of the parameters for the survey distance calculation. (See [Displaying options and using task specification files](#) for more information).

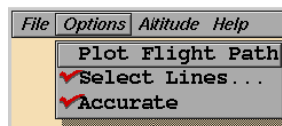
Save Options If you wish to save the current Survey Distance Calculator file specifications and parameter settings as a task specification file, use this menu option to specify the filename and save the file. (See [Displaying options and using task specification files](#) for more information).

Selecting the traverse lines to include in the calculation

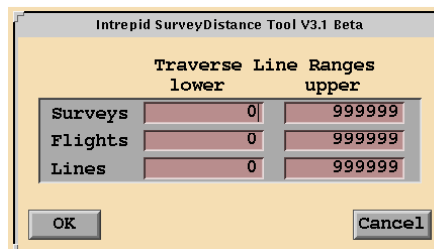
You can select traverse lines to be included in the calculation by specifying ranges of survey and/or flight and/or traverse line numbers. You can only specify one range at each level.

>> To select traverse lines for inclusion in the calculation,

- 1 Choose **Select lines** from the **Options** menu.



INTREPID displays the **Traverse Line Ranges** dialog box.



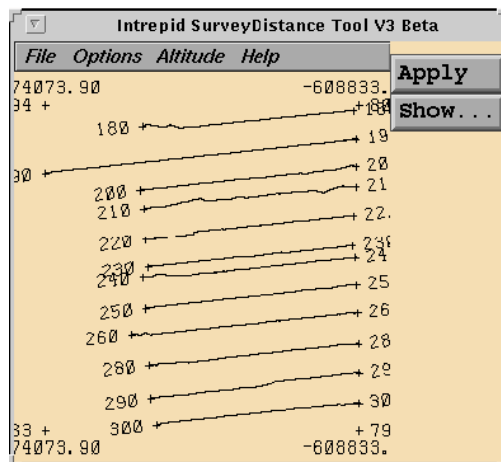
- 2 Complete the dialog box with the lower and upper survey/flight/traverse line number limits, then choose **OK**. The default values are 0 and 999999 at all levels. INTREPID will restrict the calculation to the traverse lines whose identifications fall within the ranges you specified. It displays a tick against **Select Lines** in the **Options** menu.

>> To disable Select Lines and include the whole dataset in the calculation

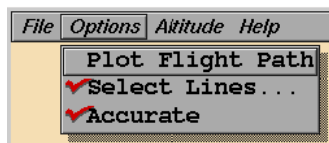
Choose **Select Lines** from the **Options** menu again when it has a tick against it. INTREPID will turn off the **Select Lines** option and remove the tick.

Graphic display of the flight paths calculated

INTREPID can display graphically the flight paths of the traverse lines included in the calculation. The display appears in the [Survey Distance Calculator](#) window.



The **Plot Flight Path** option in the **Options** menu indicates whether INTREPID displays the flight paths. You can turn it on and off by choosing it. If it is turned on (showing a tick), INTREPID displays the flight paths. If it is turned off (not showing a tick), INTREPID will not display the flight paths.



Survey Distance Calculator reports

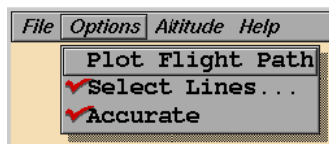
The [Survey Distance Calculator](#) displays a report of its results in a scrollable report window. You can dismiss the report window by choosing **Done** in the report window. The window will reappear if another message is sent to it. You can save the report as an ASCII file if required. (See [Specifying input and output files](#) for instructions).

Specifying the precision of the distance calculations

You can choose whether to

- Calculate the distance accurately from point to point along the traverse lines (i.e., calculate distances between each successive pair of X, Y coordinates and sum these distances),
- Assume that each traverse line is approximately straight and use the end points of the traverse line. (If data gaps exist in the traverse line, INTREPID approximates each continuously defined section by a straight line. In other words, INTREPID ignores data gaps.)

The **Accurate** option in the **Options** menu indicates which method INTREPID will use. You can turn it on and off by choosing it. If it is turned on (showing a tick), INTREPID will use the point to point measurement method. If it is turned off (not showing a tick), INTREPID will use the whole traverse line measurement method.



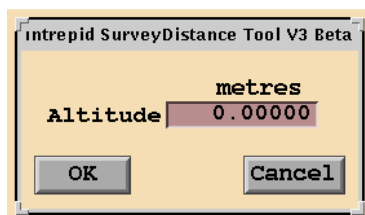
Specifying the average survey height

If you are processing unprojected data, distances will differ slightly at different heights. You can specify the average height of the survey above the datum.

>> To specify the average survey height

Choose **Altitude** from the **Altitude** menu.

INTREPID displays the Average Survey Height dialog box.



Specify the average survey height above the datum (above sea-level) and choose **OK**. INTREPID will use this parameter in the calculation.

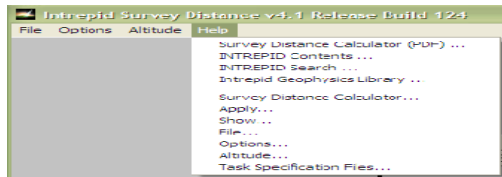
Note: Even though the menu and dialog box refer to Altitude, INTREPID requires and uses the average survey height above the datum. Future versions of INTREPID will correct this discrepancy.

Apply

When you choose **Apply**, INTREPID performs the survey distance calculation, displaying the flight paths and/or saving the report file if required.

Help

You can use the help menu to display help text on the topics shown in the menu illustration below.



Exit

To exit from Survey Distance Calculator choose **Quit** from the **File** menu.

Displaying options and using task specification files

Displaying options

>> *To display the current task specifications*

Choose **Show** from the **Survey Distance Calculator** window. INTREPID displays the current file specifications and parameter settings in a report window.

Using task specification files

You can store sets of specifications for Survey Distance Calculator in task specification (**.job**) files.

>> *To create a task specification file with the Survey Distance Calculator tool*

- 1 Specify all files and parameters.
- 2 If possible, execute the task (choose **Apply**) to ensure that it will work.
- 3 Choose **Save Options** from the **File** menu. Specify a task specification file (INTREPID will add the extension **.job**) INTREPID will create the file with the current parameters.

For full instructions on creating and editing task specification files see [INTREPID task specification \(.job\) files \(R06\)](#) files.

>> *To use a task specification file in an interactive Survey Distance Calculator session*

Load the task specification (**.job**) file (**File** menu, **Load Options**), modify any settings as required, then choose **Apply**.

>> *To use a task specification file for a batch mode Survey Distance Calculator task*

- 1 Type the command **sdist.exe** with the switch **-batch** followed by the name (and path if necessary) of the task specification file.

For example, if you had a task specification file called **surv_cal.job** in the current directory you would use the command

```
sdist.exe -batch surv_cal.job
```

Task specification file example

Here is an example of an [Survey Distance Calculator](#) task specification file.

Process Begin

Name = surveyDistance

DataBase = /disk1/surveys/p538/SEC/

Parameters Begin

ReportFile = ""

SelectLines = No

PlotFlightPath = No

Accurate = Yes

Altitude = 0.00

MinSurveyNumber = 0

MaxSurveyNumber = 999999

MinFlightNumber = 0

MaxFlightNumber = 999999

MinLineNumber = 0

MaxLineNumber = 999999

Parameters End

Process End