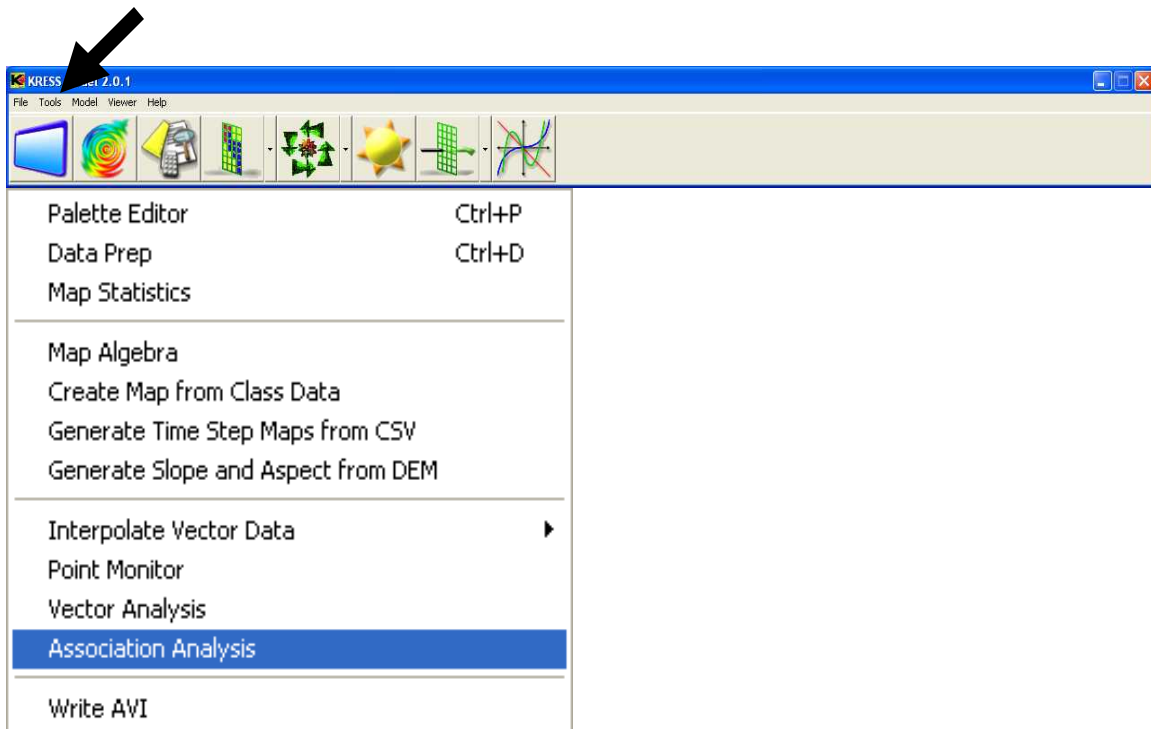


Association Analysis

The Association Analysis will find groups of individuals which are inputted as comma separated value files. This module is based upon the association algorithms outlined in *A Method for Assessing Independence of Animal Locations with Association Matrices* by Weber et al. (1998).



The input data must be in chronological order or the program will not accept it! After specifying the column headers for x, y, date, and time, the user must specify the date interval over which to run the analysis as well as the interval for analysis. The program will then interpolate the given data over the specified interval to give precise synchronization between all the data. The spatial threshold and temporal threshold are defined as the measure of association. For example, if you would consider animals to be associated when they spend 60% of the time within 25 meters of one another then the **Spatial Threshold** would be set at 25 and the **Temporal Threshold** would be set at >60.

The program will first generate a percent association matrix which is what percent of the time each pair of animals spends within the spatial threshold of one another. Next, it generates a Boolean **Association Matrix** which give a 0 or 1 for each pair of animals depending on whether they are determined to be associated by the threshold specified by the user. Finally, the program searches for the template individuals (those with most associations) to group the animals.

Each of these results can be exported by clicking the relevant check box under **Output Options**.

The screenshot shows the 'Association Analysis' software window. It features several sections for user input and configuration:

- Location Files:** A list box for file names, with 'Add' and 'Remove Selected' buttons below it.
- Date Interval Specification:** Fields for Start and End dates, each broken down into Year, Month, Day, Hour, Minute, and Second. An Interval field is set to 1 Day.
- Input Specifications:** Four dropdown menus for X Field, Y Field, Date, and Time.
- Analysis:** A Spatial Threshold field set to 0, and a Temporal Threshold field with radio buttons for '<' and '>' and a percentage input field set to 0.
- Output Options:** Three checkboxes: 'Export Groups' (checked), 'Export Percent Association Matrix', and 'Export Boolean Association Matrix'.
- Buttons:** 'Press Go to Begin Analysis' (disabled), 'Go', and 'Exit'.

At the bottom of the window, a text box reads: "This program is based on Keith Weber's Association Analysis. Information can be found at Idaho State University's GIS Training and Research Center web-site as well as the white-paper, A Method of Assessing Independence of Animal Locations with Association Matrices".