SeaSonde10
Combine Grid File Formats
Jan 2, 2004

File Descriptions for

CombineSite.opt	Site Grid Selector
Combine_XXXX.grd	The Grid points and Site Info.
Combine_XXXX.opt	Combining Options

CombineSite.opt

Text Based. Lines must end with linefeed character (ASCII 10)

This file selects which grid files to use in Combine Processing.

Currently CombineSite.opt has only one line which is the four character site name to use in creating Total Vector Files and should be the same four character name as the SeaDisplay Site Map file. Later there will be an advance method to allow selecting multiple grid formations for more complex Radial Site locations with processing support on a single Combine Site computer.

Note: An '**!**' exclamation mark in a text line signifies a comment to the end of line.
Note: The line must end in a linefeed (ASCII 10) or it will not be read correctly by the Combining software.

Line 1: Parameter 1: Combine four character Site name
Example:

```
IZU7                                    ! 1 Combining Grid Files to Use
```

Combine_XXXX.grd

Text Based. **XXXX** is the four character Total vector site name which should match a created SeaDisplay Site map.

This file specifies the total vector grid points used to match radials into a current map by Combine Processing. It must also contain accurate information about the Radial Sites locations.
Note that Lines 5 to 9 specify how the lat, lon are translated in x,y distances using Christopher Lambert Conic mapping. When Combine Processing runs the tool CheckCombineGrid it will check the Site distances against the location of radials being used and autocorrect if necessary the grid file to match.

Note: An '**!**' exclamation mark in a text line signifies a comment to the end of line.

Line 1: Parameter 1: Four character Site Name (Same as XXXX in filename)
Line 2: Grid Latitude, Longitude origin. Format is '00°00.000N,000°00.000E'
Line 3: Parameter 1: Version of Grid creator application. Example '3.0.0'
Line 3: Parameter 2: Name of Grid creator application. Example 'SeaDisplay'
Line 4: Grid Creation Date YYYY/MM/DD HH:MM:SS
Line 5: Parameter 1: Western most translated longitude in fractional degrees

Line 5: Parameter 2: Eastern most translated longitude in fractional degrees
Line 6: Parameter 1: Southern most translated longitude in fractional degrees
Line 6: Parameter 2: Northern most translated longitude in fractional degrees
Line 7: Parameter 1: Western most distance in kilometers from origin.
Line 7: Parameter 2: Eastern most distance in kilometers from origin.
Line 8: Parameter 1: Southern most distance in kilometers from origin.
Line 8: Parameter 2: Northern most distance in kilometers from origin.
Line 9: Parameter 1: Pixel width of transform Map
Line 9: Parameter 2: Pixel height of transform Map
Line 10: Parameter 1: Grid orientation (x direction) in degrees clockwise from true north.
Line 11: Parameter 1: Grid point spacing in kilometers.
Line 12: Parameter 1: Number of Radial Sites used. (Maximum Six).
Line 13: Parameters in order of X distance in kilometers from grid origin for each Radial Site.
Line 14: Parameters in order of Y distance in kilometers from grid origin for each Radial Site.
Line 15: Parameter 1: Minimum index of grid X axis. (each index is one grid point spacing)
Line 15: Parameter 2: Maximum index of grid X axis. (each index is one grid point spacing)
Line 16: Parameter 1: Minimum index of grid Y axis. (each index is one grid point spacing)
Line 16: Parameter 2: Maximum index of grid Y axis. (each index is one grid point spacing)
Line 17: Parameters in order of four character site name for each Radial Site.
Line 18: Latitude,Longitude location of Site1. Format is '00°00.000N,000°00.000E'
Line 19: Latitude,Longitude location of Site2. Format is '00°00.000N,000°00.000E'
Line 20: Latitude,Longitude location of Site3. Format is '00°00.000N,000°00.000E'
Line 21: Latitude,Longitude location of Site4. Format is '00°00.000N,000°00.000E'
Line 22: Latitude,Longitude location of Site5. Format is '00°00.000N,000°00.000E'
Line 23: Latitude,Longitude location of Site6. Format is '00°00.000N,000°00.000E'
Line 24: Reserved for future use.
Line 25: Reserved for future use.
Line 26: Format version number of the grid data. A value of 2 specifies that the grid points are columns of (E distance,N distance, point flag, latitude, longitude)
Line 27: Number of expected grid points to follow this line.
Repeat for Number of Grid Points

Line28+: each line is a grid point in which to look for radials for combining into a single total vector.

Line28+: Parameter 1: Grid point Eastern distance in kilometers from grid origin.

Line28+: Parameter 2: Grid point Northern distance in kilometer from grid origin.

Line28+: Parameter 3: Grid point flag value. Indicates whether the grid point is in use, near coastline, or is special like ADCP. *See the Vector Indicator Flag document for the complete information on use of this flag.*

Line28+: Parameter 4: Grid point Latitude in fractional degrees.

Line28+: Parameter 5: Grid point Longitude in fractional degrees.

End Repeat
End Of File

Combine_XXXX.opt

Text Based. **XXXX** is the four character Total vector site name which should match a created SeaDisplay Site map.

This file specifies combining options used to for Combine Processing. It must match the information common to the Combine_XXXX.grd file

Note: An '**!**' exclamation mark in a text line signifies a comment to the end of line.

Line 1: Parameter 1: Four character Site Name (Same as XXXX in filename)
Line 2: Grid Latitude, Longitude origin. Format is '00°00.000N,000°00.000E'
Line 3: Reserved for future use.
Line 4: Minimum Angular Site Resolution. For each combined grid point, when the angular distance between contributing site is less than this value then the resulting total current vector will be rejected. This means that grid points that are distant enough be closer to parallel instead of the optimal right-angle to the sites involved will not calculate highly unstable total vectors.
Line 5: Parameters in order of enabled radial sites. Zero is disabled while One is enabled.
Line 6: Averaging radius around each grid point in order to find radials to process into a total vector.
Line 7: Maximum current velocity allowed in centimeters per second. Total vectors above this value will be filtered out of the final Total Vector file.
Line 8: Number of baselines to remove or interpolate across.
Repeat for Number of baselines.

- **Line 9+: Parameter 1:** First Radial Site Number (1 to 6) containing baseline.
- **Line 9+: Parameter 2:** Second Radial Site Number (1 to 6) containing baseline.
- **Line 9+: Parameter 3:** Stability angle in degrees. This specifies the minimum angle between the two radial sites at each grid point at which the total vectors are considered unstable because they are too close to the baseline and should be interpolated.
- **Line 9+: Parameter 4:** Remove Baseline Points, if this value is one or 999.

End Repeat
End Of File

Example Combine_IZU7.grd File:

```
Izu7                            !  1 Network/installation name (4 chars)
34°26.500'N, 140°12.500'E       !  2 Grid origin (lat, lon)
3.0.0  SeaDisplay               !  3 Creator app (major, minor version and name)
2002/05/23  16:16:12            !  4 Creation date
  138.666667    141.750000      !  5 West, East geographical boundaries (degrees)
   32.916667     35.966667      !  6 South, North geographical boundaries (deg)
 -143.8360    144.7250          !  7 Min, Max Km in x-direction
 -169.4579    170.5134          !  8 Min, Max Km in y-direction
  567    668                    !  9 Pixel width, height of the map window
  90.0                          ! 10 Grid orientation, +x-direction (degCW North)
  10.0000                       ! 11 Grid spacing (km)
  2                             ! 12 Number of radial sites (maximum 6)
 -37.134  -29.150               ! 13 Sites x-distance from origin (km)
-145.736   51.088               ! 14 Sites y-distance from origin (km)
  -11    14                     ! 15 Grid min, max x index
  -14     5                     ! 16 Grid min, max y index
Hach  Noji                      ! 17 Site names in order (4 chars each)
33°07.767'N, 139°48.560'E       ! 18 Location of site 1 (lat, lon)
34°54.063'N, 139°53.307'E       ! 19 Location of site 2 (lat, lon)
 0 0                            ! 20 Location of site 3 (lat, lon)
 0 0                            ! 21 Location of site 4 (lat, lon)
 0 0                            ! 22 Location of site 5 (lat, lon)
 0 0                            ! 23 Location of site 6 (lat, lon)
                                ! 24 Reserved
                                ! 25 Reserved
 2                              ! 26 Format version of the grid
   13                           ! 27 Number of grid points, n
  -110.000    -140.000    1,     139.025741     33.175942
  -110.000    -130.000    1,     139.024484     33.265919
  -110.000    -120.000    1,     139.023225     33.355898
  -110.000    -110.000    1,     139.021964     33.445881
  -110.000    -100.000    1,     139.020699     33.535866
  -110.000     -90.000    1,     139.019432     33.625853
  -110.000     -80.000    1,     139.018162     33.715842
  -110.000     -70.000    0,     139.016890     33.805833
  -110.000     -60.000    0,     139.015615     33.895825
  -110.000     -50.000    0,     139.014337     33.985819
  -110.000     -40.000    0,     139.013056     34.075814
  -110.000     -30.000    0,     139.011773     34.165809
  -110.000     -20.000    0,     139.010486     34.255806
```

Example Combine_IZU7.opt File:

```
Izu7                            !  1 Network/installation name (4 chars)
34°26.500'N, 140°12.500'E       !  2 Grid origin (lat, lon)
                                !  3 Reserved
 20                             !  4 Minimum Angular Site Resolution
 1 1 0 0 0 0                    !  5 Sites in use (0=don't use, 1=use)
   12.000                       !  6 Averaging radius (km)
 250.000                        !  7 Maximum current allowed (cm/s)
   1                            !  8 Number of baselines to interpolate, n
 1  2    25.0   0               !  9 Baseline end points and stability angle(deg)
```