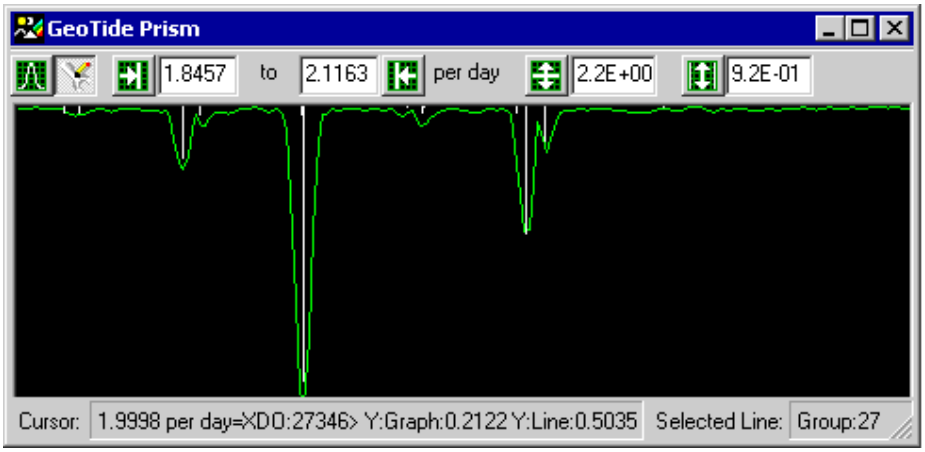
GeoTide Prism



GeoTide Prism enables you to directly view the tidal constituents present within your tidal data. Its unique display simultaneously shows both the tidal spectrum of the input data and the astronomical constituents from tidal theory, each superimposed in exact registration.

Using Fourier analysis to sweep the selected frequency band, GeoTide Prism searches for any tidal component which may be present. Acting like a radio-scanner or spectrometer, the display enables you to identify the presence or absence of any harmonic signal within the source data. Once you have identified an unknown tidal constituent, you can take steps to incorporate it in your tidal analysis, improving the accuracy of tidal predictions.

Spectral Display

Clicking just a single button on GeoTide Prism converts your input data into a tidal spectrum. In this spectrum, the horizontal frequency axis ranges from a lower frequency on the left, to an upper frequency on the right - with the peaks showing the presence of each tidal constituent. The lower and upper frequencies are user definable, enabling an operator to zoom-in on a part of the tidal frequency spectrum of interest. Frequencies as low as one cycle per 18 years, or as high as 16 cycles per day may be displayed. The vertical scale can be varied to facilitate examination of the spectrum in more detail. Additionally the window is fully sizeable, with its contents expanding to fill the window size available.

Constituent Lines

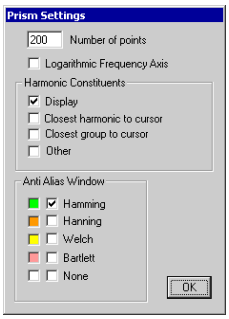
As well as displaying the tidal spectrum from your tidal data, GeoTide Prism also shows the frequencies of the constituents in the tidal scheme which is currently selected for analysis. These constituents, derived from astronomical theory, appear as vertical lines, each drawn at the appropriate frequency for that constituent. Whenever there is a component (peak) shown on the graph which does not correspond to a constituent line, it may be that this component is missing from your tidal analysis scheme. Conversely, if there is no component peak on the graph where

a constituent line is present, it is a sign that the scheme includes a tidal component which may be un-necessary. In common with tidal theory, constituent lines can be grouped in GeoTide into lumped components such as S2, or M2. Movement of the graphics cursor highlights tidal groups as well as individual lines, rapidly enhancing the identification process.

Cursor Readout

The cursor readout provides a continuous display of the frequency and amplitude corresponding to its screen position, this is also converted to its equivalent Doodson notation - e.g. 255555, and is continuously displayed. Additionally, the cursor highlights the closest tidal group and the closest tidal line within that group to its position, providing a readout of the appropriate tidal XDO parameters.

Logarithmic Display



The frequency scale can be altered from linear to logarithmic. A logarithmic frequency axis can sometimes be preferable, because of the very large frequency range involved in tidal analysis.

Anti-Alias Window

Applying an anti-alias window (weighting function) prior to spectral analysis can improve the resolution, making the spectral lines appear sharper and by removing background noise, especially at the lower frequency edge of the scan. The GeoTide-Prism has a choice of anti-alias windows which can be selected using the settings window.

Specification

Scale

Horizontal: Frequency range user definable by text & cursor tool

Vertical: User definable with text & cursor tool

Display

Number of Points: User definable

Resolution: 2 * PI / (Input record duration)

Input

Number of Points: Unlimited - Subject to memory and processor

Interval: Regular or irregular

Analysis

Swept Complex Digital Fourier Transform

Anti-Alias

Windows: Hamming, Hanning, Welch, Bartlett, None

Documentation

User Manual

Interactive Help File

System Requirement

Windows 98SE, ME, NT4SP4+, 2000, XP, VISTA ,

2.66 Ghz 256MB RAM

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