stereo - impact

education and public outreach

STEREO Sonification Project

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Aims of the Project -

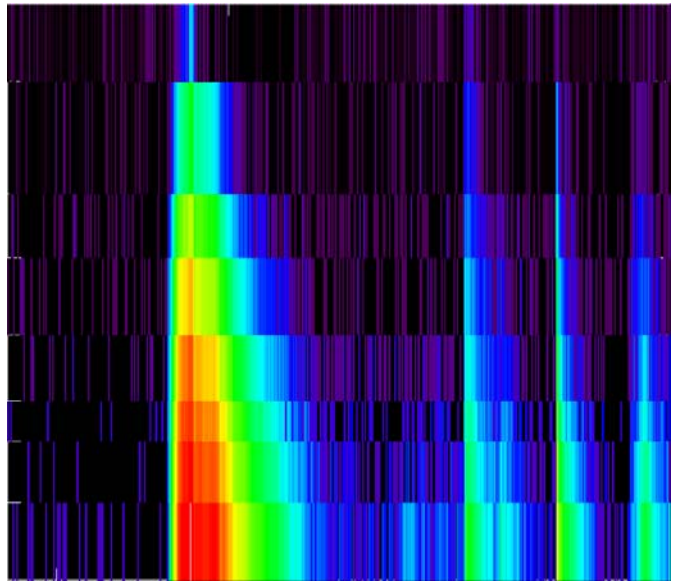
Science: create sonic representations of data and find new approaches to displaying multi-channel, multi-source data (like STEREO)

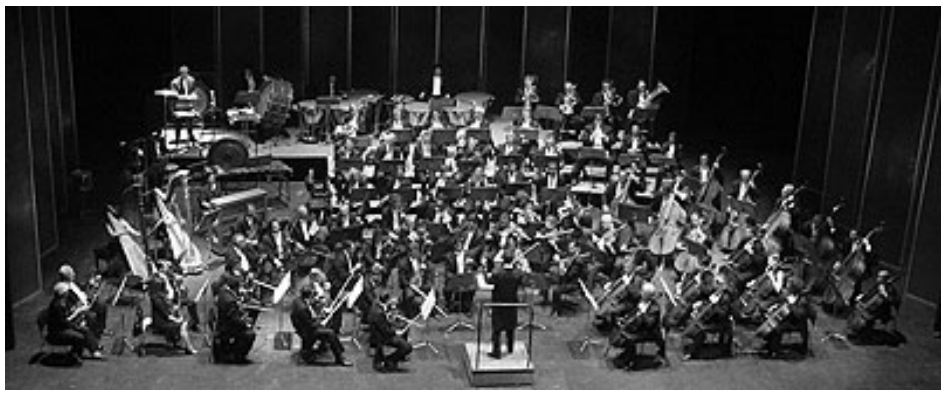
Education: create new methods of introducing and interacting with key concepts in science and music

Music: create tools for creative exploration of sound using solar data as a rich generative material

Examples

Science: A computer realization of carbon flux





Music: An excerpt from Roberto Morales' orchestral composition "Turning Point" incorporating scaled Helios data

- **Sonification** - mapping data into sound

How closely does the sonification represent the physical reality of the data?

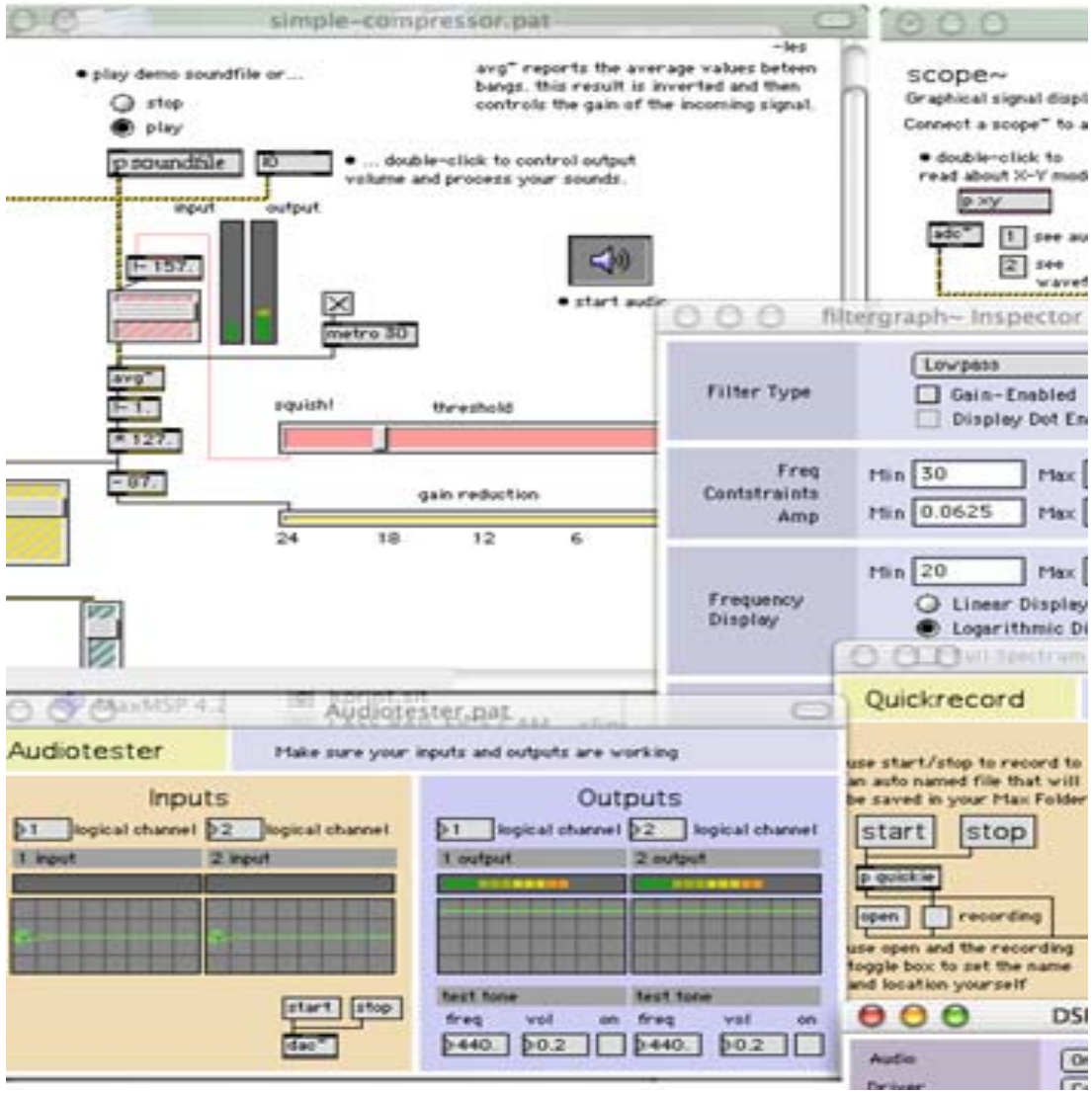
-There is always a degrees of **abstraction** and **arbitrariness** in the mapping

-Issues of **musical perception** and cognition

-The "**Art of Mapping**"

Max/MSP Programming Environment

Graphical object oriented programming language designed for real-time processing and coordination of musical and multimedia events.



Description of the Data Structure
(Spectrogram Color Analysis)

Using image file types (.jpeg, .gif, etc.):

-RGB and HSL color values are used to scale parameters of sonic processing

-Easy to manage data in multiple formats

-Able to automatically reconfigure processing based on the number of bins (y-axis) and length of the data (x-axis)

Types of Processing:

"Physical Modeling”

- Frequency Scaling of Sine Waves
- Amplitude Scaling of a Harmonic Spectrum

"Arbitrary Modeling”

- Granular Synthesis
- Frequency Modulation synthesis

Further Information

Sounds of Space:
http://cse.ssl.berkeley.edu/impact/vos/welcome.html

Center for New Music and Audio Technologies:
http://cnmat.berkeley.edu/