ACOUSTIC WAVE SPECTRUM

Frequency in Cycles

	Air and Other Gas	Liquids and Fluids	Solids	Organic Substances	Plasmas	Interplanetary Space	Stars	Interstellar Space	Galaxies	Intergalactic Space
Years 1 - millions	**Global Waves** circulation patterns in a planetary atmosphere **Global Cycles** the 'southern oscillation' in the Earth's atmosphere	**Oceanic Cycles** the rise and fall of sea level in the hydrosphere of the Earth or other planets; the 'el niño' current	**Geological Cycles** glacial and interglacial periods, periods of volcanic and seismic activity, polar reversals, continental growth and decay, etc.	**Biospheric Cycles** biological, ecological, social, economic, and cultural cycles which occur within the planetary biosphere		**Interplanetary Cycles** the orbits of planets, satellites, asteroids, meteorites, comets about the sun or other stars **Interplanetary Conjunctions** planetary and satellite conjunctions; solar and lunar eclipse cycles	**Stellar Cycles** sunspots, solar flares, and faculae caused by stellar magnetic forces on the Sun or other hot stars; stellar rotation **Stellar Tides**	**Interstellar Cycles** the oscillating paths, orbits, and lifecycles of gas and dust clouds, galactic nebulae, within the Milky Way or other galaxies **Interstellar Conjunctions**	**Galactic Cycles** the rotation of the Milky Way Galaxy or other galaxies; the oscillating paths, orbits, and lifecycles of stars, star clusters **Spiral Density Waves** caused by instabilities in the gravitational field of spiral galaxies	**Intergalactic Cycles** the spins, orbits, beats, and lifecycles of gas clouds, galaxies, galactic groups, clusters, super-clusters **Intergalactic Conjunctions** **Macroacoustic Waves** in large gas clouds caused by the galactic wind, stellar explosions
Months 1 - 12	**Global Waves** circulation patterns in a planetary atmosphere **Seasonal Cycles** exchange of warm/cool air, precipitation including monsoons	**Seasonal Cycles** exchange of warm/cool water, Indian Ocean currents **Cirannual Cycles** of upwelling and downwelling	**Seasonal and Lunar Cycles** solstices/equinoxes; expansion and contraction of the Earth or other terrestrial bodies due to solar heating **Planetary Cycles** planetary or satellite rotation	**Seasonal Cycles** gestation periods of large mammals **Cirannual Cycles** of flora and fauna, mating, migration, etc.		**Shock Waves** caused by solar flares on the Sun or other hot stars	**Photospheric Waves** circulation patterns in the Sun or other hot stars **Stellar Rotation** **Variable Star Cycles (Mira)**	**Macroacoustic Waves** in gas and dust clouds caused by turbulence due to various instabilities within a galaxy		
Days 1 - 30	**Global Waves** circulation patterns in the Earth's atmosphere including prevailing westerlies, polar easterlies, trade winds, Rossby waves (jet stream)	**Global Waves** circulation patterns in the Earth's oceans including the gulf stream, equatorial currents and counter-current, local currents driven by global circulation patterns in the atmosphere	**Planetary Cycles** the rotation of the Earth and Moon or other planets or satellites; light-dark periods **Planetary Tides**	**Gestation and Menstrual Cycles** of various species		**Stellar Cycles** outflow cycles of the solar wind caused by the rotation of the Sun or other hot stars	**Variable Star Cycles** **Stellar Cycles** the rotation of the Sun or other small stars			
Hours 1 - 24	**Cyclones and Anticyclones** high and low pressure systems; tropical cyclones including hurricanes, typhoons; circulation patterns caused by vertical effects **Global Cycles** atmospheric tides, cloud cycles, sea/land breezes, hill/valley flows	**Ocean Tides**	**Planetary Tides** tidal motions of the Earth's lithosphere or other planets due to gravitational forces **Thermal Cycles** expansion and contraction of solids due to fluctuations in temperature	**Circadian Rhythms** of plants and animals **Diurnal Rhythms** of plants and animals			**Trapped Waves** within the interior of the Sun or other hot stars	**Shock Waves** caused by a stellar explosion within the Milky Way or other galaxies		**Shock Waves** caused by a giant stellar explosion, or by a series of explosions in the galactic core
Minutes 1 - 60	**Trapped Waves** between layers of the Earth's atmosphere or other planets **Mountain Waves** **Island Waves**	**Trapped Waves** within the Earth's liquid core **Tsunamis** (tidal waves) caused by seismic activity beneath the ocean floor	**Thermal Cycles** expansion and contraction of solids due to fluctuations in temperature	**Circadian Rhythms** of plants and animals		**Electroacoustic Waves** caused by local turbulence within the solar wind	**Helioseismic Waves** at the surface and within the interior of the Sun or other hot stars	**Electroacoustic Waves** caused by local turbulence within the stellar wind of hot stars		**Electroacoustic Waves** caused by local turbulence within the galactic wind
Seconds 1 - 60	**Cyclonic Storm Cycles** tornadoes, waterspouts **Cyclonic Minicycles** caused by vertical effects, wind, and turbulence **Caustics** caused by boundary interactions	**Surface Waves** 'ring' waves, 'breaking' waves, storm waves, 'rollers', seichs **Tsunamis** (tidal waves) **Tidal Bores** **Internal Waves** **Trapped Waves**	**Surface Waves** snow, sand, and dust waves **Seismic Waves** generated on the surface crust of the Earth or other terrestrial bodies **Seismic Waves** generated within the interior of the Earth or other terrestrial bodies	**Surface Waves** waves of grain and grass, etc. **Biomechanical Cycles** heartbeat, respiration, metabolic and other biomechanical rhythms internal to humans and other species		**Electroacoustic Waves** caused by local turbulence within the solar wind	**Pulsars** the rotation of high velocity neutron stars (pulsars, x-ray stars)	**Electroacoustic Waves** caused by local turbulence within the stellar wind of hot stars		**Electroacoustic Waves** caused by local turbulence within the galactic wind
Normal Sound Range *(including the Range of Human Hearing)* 1 - 100,000 cps	**Internal Waves** caused by turbulence **Radial Waves** **Shock Waves** **Wind and Whistle Tones** **Internal Waves** caused by spontaneous boundary interactions **Acoustic Whistlers** **Cylindrical and Conical Waves** **Normal Sound Waves** in air and other gas	**Caustics** caused by complex boundary interactions **Deep Channel Waves** **Internal Waves** caused by acoustic cavitation **Internal Waves** caused by spontaneous boundary interactions **Normal Sound Waves** in water and other liquids	**Surface Waves** circular waves, eliptical waves, cymatic patterns generated on the surface of a solid body **Mechanical Oscillations** generated on or within a solid body **Normal Sound Waves** which are transmitted through a solid	**Biochemical Oscillations** spontaneously generated within humans and other living systems **Traveling Waves** spontaneously generated within living systems **Internal Waves** caused by acoustic cavitation **Normal Sound Waves** which are transmitted through organic substances	**Ion Waves**	**Electroacoustic Waves** caused by local turbulence within the solar wind	**Pulsars** the rotation of high velocity neutron stars (pulsars, x-ray stars)	**Intracloud Waves** in gas and dust clouds caused by instabilities in the Milky Way or other galaxies **Intracloud Waves** in dense molecular clouds caused by instabilities in the Milky Way or other galaxies **Electroacoustic Waves** caused by local turbulence within the stellar wind of hot stars		**Intracloud Waves** in large gas clouds caused by fluctuations of temperature and density within a cloud **Intracloud Waves** in large gas clouds caused by interaction with the galactic wind or with intergalactic or intercluster gas from a stellar explosion **Electroacoustic Waves** caused by local turbulence within the galactic wind
Microacoustic 100,000 - millions cps	**Microthermal Waves** trapped within normal sound waves **Opticoacoustic Waves** **Microcycles** the oscillation of particles and subparticles	**Microthermal Waves** trapped within normal sound waves in liquids and fluids **Microcycles** the oscillation of particles and subparticles	**Stress Waves** in crystalline structures **Microcycles** the oscillation of particles and subparticles	**Microthermal Waves** trapped within normal sound waves in organic substances **Ultrasound Waves** **Microcycles** the oscillation of particles and subparticles	**Microacoustic Waves** in a superconductor **Magnetoacoustic Waves** **Ion Waves** **Electroacoustic Waves** in a semiconductor **Electron Waves** **Drift Waves**	**Electroacoustic Waves** caused by local turbulence within the solar wind **Magnetoacoustic Waves** caused by the interaction of the solar wind with the magnetic fields of various planets and satellites **Microcycles** the oscillation of particles and subparticles	**Microcycles** the oscillation of particles and subparticles	**Electroacoustic Waves** caused by local turbulence within the stellar wind of hot stars **Microcycles** the oscillation of particles and subparticles	**Microcycles** the oscillation of particles and subparticles	**Microcycles** the oscillation of particles and subparticles

Traveling Wave · Standing Wave · Internal Wave · Surface Wave · Trapped Wave · Thermal Wave · Shock Wave · Plasma Wave