# CalMagNet - An array of search coil magnetometers monitoring ultra low frequency activity in California

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Abstract: The California Magnetometer Network (CalMagNet) consists of sixty-eight triaxial search-coil magnetometer systems measuring Ultra Low Frequency (ULF), 0.001–16 Hz, magnetic field fluctuations in California. CalMagNet provides data for comprehensive multi-point measurements of specific events in the Pc 1–Pc 5 range at mid-latitudes as well as a systematic, long-term study of ULF signals in active fault regions in California. Typical events include geomagnetic micropulsations and spectral resonant structures associated with the ionospheric Alfvén resonator. This paper provides a technical overview of the CalMagNet sensors and data processing systems. The network is composed of ten reference stations and fifty-eight local monitoring stations. The primary instruments at each site are three orthogonal induction coil magnetometers. A geophone monitors local site vibration. The systems are designed for future sensor expansion and include resources for monitoring four additional channels. Data is currently sampled at 32 samples per second with a 24-bit converter and time tagged with a GPS-based timing system. Several examples of representative magnetic fluctuations and signals as measured by the array are given.

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